RENWICK ESTATES SUBDIVISION

FUNCTIONAL SERVICING REPORT

Prepared For

BRANTAM DEVELOPMENTS INC.

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PLAN • SURVEY • ENGINEER

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1.0 INTRODUCTION

This report was prepared in support of the proposed draft plan of subdivision application for the property owned by Brantam Developments Inc. The property is located west of Komoka Road and north of Oxbow Drive in the village of Komoka.

A topographic survey has defined the location of existing streets, watermains and storm sewers that service the surrounding area of the proposed subdivision. Using this information, the internal servicing requirement in reference to storm and sanitary sewers, watermain looping, stormwater management and roads have been established.

The purpose of this report is to present the proposed servicing strategies in support of the proposed Renwick Estates Subdivision. Consideration is also given to the possible development of the lands to the west.

All design will be in accordance with the Municipality of Middlesex Centre design standards.

2.0 LOCATION AND DESCRIPTION

The 20.78 hectare parcel of land proposed for residential development is situated at the northwest corner of Komoka Road and Oxbow Drive. The subject property abuts existing residential lots fronting Komoka Road, the Canadian Pacific Railway at the north limit of the property and agricultural lands to the west. (Figure 1)

The development will consist of 17.35ha of developable area for single family and medium/high density residential land use. The remaining lands will be utilized for an open space block designated for a stormwater management facility and additional open space blocks for a bypass conveyance system for external stormwater flows.

3.0 SUBDIVISION ACCESS

The subdivision will be accessible at two locations. The first will be off of Komoka Road in alignment with Union Avenue (Street ‘A’). At this intersection, existing paved asphalt shoulders will be utilized to provide a left turn access into the new subdivision and the existing Komoka Station Subdivision (see Figure 2). Existing pavement markings will be obliterated and replaced where required to add the left turn lanes. The second access will be off Oxbow Drive (Street ‘C’).

A transportation impact study was prepared by Paradigm Transportation Solutions Limited and is available for review under separate cover. Middlesex Centre has requested that Oxbow Drive be upgraded to an urban cross section from Komoka Road to the subdivision entrance.

4.0 SANITARY SERVICING

There are existing sanitary sewers fronting the subdivision along Komoka Road and Oxbow Drive. The existing sanitary collection system takes flows south along Komoka Road to a pumping station located just north of Railway Avenue.

The proposed outlet for the subdivision will be to the existing 250mm diameter sewer on Oxbow Drive. The subdivision population is 1378 when the calculation is based on Density (units/ha). The population decreases to 833 people when the calculation is based on the expected number of medium density units. The two population calculations are outlined below.

Table 1 – Population Calculation – Based on Density

Land Use	Requirement	Lots/Area	Population
Single Family Lots	3 people/lot	166 Lots	498
Block 170-174	75 units/ha × 2.4 people/unit	4.89 Hectares	880.2
			1378.2

Table 2 – Population Calculation – Based on Expected Unit Count

Land Use	Requirement	Lots/Area	Population
Single Family Lots	3 people/lot	166 Lots	498
Block 170-173	2.4 people/unit	113 Units	271
Block 174	1.6 people/unit	40 Units	64
			833

With an estimated population of 1378 people and per capita daily flow of 350 L/day, the peak flow from the development is estimated to be 24.50 L/s (see Appendix A, Section 1). The existing 250mm diameter outlet on Oxbow Drive and downstream sewers to the pumping station do **not** have sufficient capacity to convey the additional flows from the proposed subdivision.

With a population of 833 people and per capita flow of 350 L/day, the peak flow from the development is estimated to be 16.03 L/s (see Appendix A, Section 2). The existing 250mm diameter outlet on Oxbow Drive and **downstream sewers** to the pumping station have sufficient capacity to convey the additional flows from the proposed subdivision**.**

The maximum allowable population for the subdivision, before triggering the need for downstream improvements, is **943** people. This results in a peak flow of 17.77 L/s. Restrictions to the unit count for the medium density blocks will be established during detailed design for the final sanitary design sheet.

The following table shows a comparison of capacity to theoretical flows (from the maximum allowable population) for the sewers on Oxbow Drive.

Table 3 – Oxbow Drive Sanitary Sewer

Upstream MH	Downstream MH	Size (mm)	Slope (%)	Capacity (L/s)	Sewage Flow (L/s)	% of Capacity
SA28	SA29	250	0.31	33.11	18.49	56
SA29	SA30	250	0.30	32.57	18.49	57

See Appendix A, Section 3 – Renwick Estates Subdivision Downstream Sewer Capacity Analysis for the evaluation of the proposed 833 person population, as well as the maximum 943 person population, on the existing sanitary sewer network.

Proposed sanitary sewers within the subdivision have also been sized to accommodate the possible future development of the 48.3ha of land to the west. See Sanitary Drainage Plan and Design Sheet in Appendix A, Section 4. The net developable area used for the site is 30.3ha (excluding berms, stormwater management blocks and bush area). Based on the Renwick Estates land use density of 48 people/ha (833 people / 17.35ha ≈ 48 people/ha), the population for the future development has been estimated to be 1455 people (48 people/ha × 30.3ha = 1455 people). Should the development of these lands proceed, it is expected that sewer upgrades will be required to downstream sewers along Komoka Road and Oxbow Drive to provide additional capacity. Appendix A, Section 4 shows the runs that are expected to require upgrades in red.

5.0 STORMWATER DRAINAGE

This section will detail the stormwater management strategy for the proposed development and the conveyance of external stormwater runoff through the site.

Hydrologic Modeling

Stormwater drainage and peak flow rates were determined by hydrologic modeling using SWMHYMO 99 (Stormwater Management Hydrologic Model). This program allows the user to test the impact on new and existing systems, utilizing accepted rainfall data to represent design storms of various durations and aid in the design of SWM facilities.

The Middlesex Centre Chicago Distribution Storm Parameters were used for the rainfall data. The 3 hour, Chicago Storm Distribution model, with a time to peak ratio of 0.38, was used for determining peak flow rates and storage requirements for meeting the stormwater management targets. Additionally, the 100 year and 250 year 24 hour SCS Type II storm events were analyzed.

Table 4 – Middlesex Centre Chicago Distribution Storm Parameters

Storm Event	A	B	C
2 Year	724.69	5.500	0.800
5 Year	1330.31	7.938	0.855
10 Year	1497.19	7.188	0.850
25 Year	1455.00	5.000	0.820
50 Year	1499.06	4.188	0.809
100 Year	1499.53	3.297	0.794
250 Year**	3048.22	10.030	0.888

**City of London 250 Year Storm Event

The modeling parameters and SWMHYMO output can be seen in the Appendices.

5.1. Existing Drainage

The subject property is utilized for agricultural purposes. *The Preliminary Geotechnical Investigation* completed by EXP Services Inc. includes test pit logs that illustrate that the subsurface soils are predominantly 'sand' in the south half of the site, with 'clayey silt' material on the north half of the site. The Ontario Geologic Survey information was also used to establish subsurface information for external areas. External areas are expected to have predominantly silt and silty till subsurface soils. Parameters for pre development analyses were assigned accordingly.

Pre development runoff for the subject lands, including external lands to the north and northeast, is directed westerly through the agricultural lands to a 750mm culvert. The culvert conveys drainage past the CN Railway located southwest of the site (Figure 3).

The external tributary area includes a 25.58ha area from the north. Runoff is conveyed to the site by an open bottom concrete culvert under the CP Railway at the north limit of the proposed development. The external flows entering the site at the north boundary are shown in Table 5.

Table 5 – External Flows Entering Site from the North

Storm Event	Flow (m^3/s)
2 Year	0.467
5 Year	0.933
10 Year	1.234
25 Year	1.559
50 Year	1.815
100 Year	2.065
100 Year-24hr	2.531
250 Year	2.897
250 Year-24hr	2.934

Runoff from 104.80ha of land from northeast of the site is conveyed along the perimeter of Komoka Station Subdivision via a flat bottom ditch, supplementary ditch inlet catchbasins and storm sewers, to the east ditch on Komoka Road. Flows that exceed the capacity of the storm sewer and ditch on Komoka Road spillover into an existing 900mm x 1400mm elliptical culvert which outlets to the proposed development.

Komoka Station Subdivision was designed by others. Design materials indicate that the subdivision will contain runoff on site up to the 100 year storm event. Further investigations by the Municipality's Drainage Consultant indicate that the rear yards for the north most lots on Union Avenue have controls for the 10 year storm event, while the remainder of these lots and a portion of the Delaware Street and Union Avenue right-of-way travel uncontrolled to the east ditch on Komoka Road. These areas are included in the pre development model analysis with consideration for the on site storage provided.

External drainage also includes the east side of Komoka Road (1.42ha), from the CP Railway easement to the high point in the road. All runoff entering the east ditch on Komoka Road was assumed to enter the site through the existing 900mm x 1400mm elliptical culvert.

Table 6 – External Flows Entering Site from Komoka Road

Storm Event	Flow (m^3/s)
2 Year	1.442
5 Year	2.670
10 Year	3.653
25 Year	4.608
50 Year	5.346
100 Year	6.075
100 Year-24hr	7.519
250 Year	8.473
250 Year-24hr	8.715

The pre development drainage area under consideration for the subject site is 21.16 ha, and includes the west side of Komoka Road. As mentioned, runoff is directed southwest through the agricultural lands to a 750mm culvert. The culvert conveys drainage past the CN Railway located southwest of the site, ultimately to the open ditch on Oxbow Drive. The combined pre development runoff from the subject property is given in the Table 7.

Table 7 – Pre Development Flows

Storm Event	Total Flow (m^3/s)
2 Year	1.924
5 Year	3.641
10 Year	4.915
25 Year	6.298
50 Year	7.394
100 Year	8.322
100 Year-24hr	10.376
250 Year	11.658
250 Year-24hr	12.027

See Appendix B for pre development modelling results.

5.2. Stormwater Management Plan

The design of the proposed stormwater management measures follows criteria presented in The Ministry of the Environment's *Stormwater Management Practices Planning and Design Manual* (2003), the Reference Manual for the Use of Precipitation Design Events in The Upper Thames River Watershed (December 2004), as well the *Stormwater Management Policy Manual* of Middlesex Centre. (June 2011).

Post development runoff for the majority of the development will be directed to a stormwater management facility (wet pond) to be located near the southwest corner of the development (Figure 4). The facility will provide quality and quantity control including peak flow control for all required storm events.

Runoff from external areas to the north (25.58ha), northeast (104.80ha) and east will not enter the stormwater management pond. These flows will be conveyed through the site via a flat bottom diversion channel prior to exiting the site through a flow spreader and traveling overland toward the existing 750mm diameter culvert.

5.3. Stormwater Management Pond

A **17.87ha** area will be tributary to the proposed SWM Pond under post development conditions. As described below, quality controls for 17.33ha will be provided by the facility, with the 0.54ha medium/high density block to the south of the pond having separate/private quality controls.

The pond will outlet to an infiltration gallery and to the flow spreader.

5.3.1. Water Quality and Erosion Control

As outlined in the Ministry of the Environment's *Storm Water Management Practices Planning and Design Manual*, a Wet Pond receiving drainage from an area that is conservatively 60% impervious with enhanced protection requires the storage of 202 m^3/hectare for water quality enhancement.

The required storage volume is comprised of 162 m^3/ha in the permanent pool (Dead Storage) and 40 m^3/ha for extended detention (Active Storage for erosion control). The storage requirement for extended detention is alternatively the runoff for a 2 year rainfall event if the volume exceeds the 40 m^3/ha criteria (per Policy Manual). The water stored in the extended detention zone is released over a 24 to 48 hour period.

5.3.2. Quantity Control

The stormwater management pond is to include additional storage to attenuate peak flow rates to predevelopment levels for the proposed development. The design storm events evaluated are the 25mm, 2, 5, 10, 25, 50, 100 and 250 year as well as the 100 and 250 year 24 hour SCS Type II storm events.

5.3.3. SWM Pond Configuration and Operation

The proposed SWM Block will accommodate a SWM Facility with a total storage volume of approximately 14,137m^3 (2,822m^3 of dead storage, 11,315m^3 of live storage) with a total depth of 3.30m, 1.3m deep for the permanent pool, and 2.0m deep for extended detention and flood control. The pond will include a 2.0m wide aquatic safety bench (10:1 slope) above the permanent pool, along with an overflow weir at the 3.30m level (Figure 5).

The permanent pool will provide a total of 2,822m^3 (162.8 m^3/ha) of storage, including 806 m^3 within the forebay. This meets the 162 m^3/ha storage requirement.

The permanent pool depth of 1.30m is intended to ensure that the bottom of the facility is above the existing water table. The bottom of the facility will be at an elevation of 238.70 while the water table is approximately 237.50. A clay 'cap' is to be installed at the bottom of the pond to ensure that the pond will have no adverse impact on groundwater. Conversely, the groundwater will not affect the operation of the pond.

The storage in the pond is 3,986m^3 (230.0m^3/ha) for extended detention. This far exceeds the 40m^3/ha criteria. During the 2 year storm event the peak storage volume is 3,330m^3 with a peak discharge of 0.034m^3/s which means that sufficient extended detention will be provided to attenuate at least the 2 year storm event as stipulated by the Middlesex Centre *Stormwater Management Policy Manual.* Approximately 94% of the 2 year runoff will drain within 48 hours.

Additional storage is provided to attenuate post-development peak flow rates for the 5, 10, 25, 50, 100 and 250 year as well as the 100 and 250 year 24 hour SCS Type II storm events.

Discharge from the pond will be through a 150 mm diameter quality control pipe to an infiltration gallery; and twin 450mm diameter pipes at elevation 241.00m, outleting to the west (Figure 5). In addition, an overflow weir will be set at elevation 242.00m, providing 0.42m of freeboard above the 100 year water level.

Sufficient storage has been provided to convey all storm events evaluated with the proposed quantity control devices and a total active storage volume of 11,315m^3 available within the pond.

Table 8 - SWM Pond Performance

STORM EVENT	STORAGE (m^3)	WATER ELEVATION (m)	WATER LEVEL (m)	150 DIA. OUTLET TO INFILT. (m^3/s)	2-450 DIA. OUTLET (m^3/s)	COMBINED DISCHARGE (m^3/s)
25mm STORM	2,234	240.60	0.60	0.028	0.000	0.028
2 YEAR	3,344	240.86	0.86	0.034	0.000	0.034
5 YEAR	4,791	241.16	1.16	0.040	0.067	0.107
10 YEAR	5,401	241.29	1.29	0.042	0.173	0.215
25 YEAR	6,005	241.41	1.41	0.044	0.297	0.341
50 YEAR	6,476	241.49	1.49	0.045	0.389	0.434
100 YEAR	6,946	241.58	1.58	0.047	0.480	0.527
100 YEAR-24Hr	8,198	241.80	1.80	0.050	0.646	0.696
250 YEAR	8,608	241.87	1.87	0.051	0.689	0.740
250 YEAR-24Hr	9,207	241.97	1.97	0.053	0.751	0.803

* Storage volumes for peak flow control do not include dead storage in the permanent pool. The elevation of the pond at the top of the permanent pool is 240.00m.

See Appendix C for pre development modelling results.

Discharge through the twin 450mm diameter culverts will enter the diversion channel at the flow spreader to evenly disperse flows to the neighbouring property. In addition to the twin pipes, the pond will have a connection to the Oxbow Drive storm sewer. A 200mm diameter storm pipe will serve as a maintenance drawdown outlet. This outlet will be equipped with a valve, to be left in the closed position and operated by Municipal staff only.

INFILTRATION GALLERY CONSIDERATIONS

The proposed infiltration gallery will make use of the native sand at the south portion of the property. Sand is known to have high infiltration potential. In the absence of in-situ infiltration testing, typical values for hydraulic conductivity (k) were used when determining infiltration rates from the gallery. The theoretical hydraulic conductivity used is 200mm/hr (0.0056cm/s). With a conservative factor of safety of 4.0, a design hydraulic conductivity of 50mm/hr (0.0014cm/s) was used for preliminary sizing calculations.

With the above hydraulic parameters, the proposed infiltration gallery will provide approximately 400m^3 of subsurface storage in order to attenuate the extended detention inflow and allow for 100% infiltration through the native sand to the groundwater table. A footprint of 73.5m x 12m will fit horizontally and vertically to the south of the pond (Figure 5 and 6). This approach will mitigate water balance deficits that could otherwise result from development and assist with attenuating peak flows leaving the development to the west.

Promoting infiltration for frequent storm events will mitigate temperature effects of discharging to the downstream sensitive water course at an increased temperature.

It is understood that during detailed design, field testing should be conducted to confirm the hydraulic properties of the native sand in order to confirm the sizing requirements of the infiltration gallery.

5.3.4. Conveyance to Stormwater Management Pond

The storm sewer network will convey minor system (2 year storm) flows to the forebay of the pond for the majority of the development. The storm sewer for the medium/high density block located directly south of the facility will require a private quality control unit at the pond inlet as it does not enter the forebay (Figure 5).

For storm events exceeding the 2 year storm event, an overland flow will direct flows to the pond at two locations, as shown on Figure 5.

5.4. Diversion Channel

A diversion channel is proposed to convey drainage from the combined 139.28 ha of upstream external lands that are tributary to the proposed development. As per Section *5.1 Existing Drainage* above, external flows from the north cross the CP Railway through an open bottom culvert and enter the site along the north boundary and west of existing residential lots. The remaining external flows enter the site through the elliptical culvert that crosses Komoka Road south of the Union Avenue intersection. These entry points were critical for determining a suitable diversion channel alignment.

5.4.1. Determining the Diversion Channel Alignment

Three diversion channel alignment options were considered when establishing the Draft Plan. Figure 7 illustrates the options.

Option 1 – Route flows from the Komoka Road culvert north toward the railway culvert picking up both external flow entry points and continue along the east boundary to the discharge point.

Option 2 – Route flows from the railway culvert south toward the Komoka Road culvert and continue south and west along the subdivision limit to the discharge point.

Option 3 – Route flows from the railway culvert south toward the Komoka Road culvert and carry flows directly west and south internally to the discharge point.

Evaluating Alignment Options

Alignment **Option 1** is the longest channel spanning approximately 1136m and having an average slope of 0.13%. The channel travels in the opposite direction of existing drainage patterns, resulting in the deepest cross-section and flow depth of the three options.

Alignment **Option 2** is approximately 1100m in length with an average slope of 0.42% upstream of the Komoka Road culvert crossing and an average slope of 0.18% downstream of the culvert crossing. The channel generally follows the existing flow path, with a deviation to the south property limit. Since it generally follows the existing flow path, the channel depth is significantly less than with Option 1, allowing for a larger bottom width with less side slope length.

Alignment **Option 3** is the shortest channel spanning approximately 992m and having an average slope of 0.21% downstream of the Komoka Road culvert crossing. This channel alignment generally follows the existing flow path, resulting in similar channel shapes to Option 2.

The following table details additional considerations for each option.

Table 9 – Evaluation of Diversion Channel Alignments

	Alignment Option 1	Alignment Option 2	Alignment Option 3
Possible Conflicts With Internal Subdivision Features	• Taking flows against the natural flow path results in significant cuts to the north portion of the property, which is also where a noise berm will be required, taking up significant portions of land • The 26 lots on the west boundary would back on to the channel	• Negligible impacts to the internal features by following the natural flow path and traveling along the subdivision limit • The 4 lots on the south side of Street 'D' would back on to the channel	• Storm sewers servicing the subdivision are not likely to be able to cross an internal culvert • Numerous lots would back onto the channel
Culvert Crossings	• 2 proposed, 1 future	• 2 proposed	• 3 proposed, possibly extra depending on road pattern changes
Impact to Existing Lands	• Provide drainage to upstream lands • Flows would travel closer to the existing Komoka Road properties (north) than they do under pre development	• Provide drainage to upstream lands • Flows would travel closer to the existing Komoka Road properties (north and south) than they do under pre development	• Provide drainage to upstream lands • Flows would travel closer to the existing Komoka Road properties (north) than they do under pre development
Maintenance	Negligible differences by option. Access will be provided to allow for activities like grass cutting.		
Regulatory Impacts	• All lots on the west property limit could be impacted by regulatory limits • All medium density blocks on the north side of the subdivision could be impacted by regulatory limits	• The 5 lots on the south side of Street 'D' could be impacted by regulatory limits • All medium density blocks could be impacted by regulatory limits	• All lots and medium density blocks neighbouring the channel could be impacted by regulatory limits

Alignment Selection

Alignment **Option 2**, routing flows from the railway culvert south toward the Komoka Road culvert and continuing south to the subdivision limit and then west to the discharge point is the most feasible option. As previously mentioned, this will generally follow the existing flow path and provide the simplest extension should the property to the west be developed in the future, as it avoids additional culverts for channel crossings.

5.4.2. Diversion Channel

Based on the proposed alignment, approximately 2.03ha of the development lands will be used for the channel to convey the runoff from external lands around the perimeter of the site.

The diversion channel will convey flows from the 139.28ha of external lands to the east and north, as well as a 5.96ha area of the development consisting of the backyards for the southerly most lots along Street 'D', as well as major system flows from approximately 0.16ha of Street 'A' (Figure 8). For analysis purposes, the channel will consist of two reaches; Reach 1 is downstream of the Komoka Road culvert crossing traveling south along the Komoka Road subdivision boundary and west along the Oxbow Drive boundary. Reach 2 starts at the north boundary where the CP railway culvert flows enter the subdivision and travels south along the subdivision boundary up to the same culvert crossing (Figure 9). The channel will be predominantly grass lined (n=0.03) with a varying flat bottom width and 3:1 maximum side slope up to a height governed by tie in elevations. Where significant changes in direction occur in the alignment, erosion protection will be required. A manning's coefficient of 0.04 was used for these locations. Figure 10 illustrates that the channel dimensions will vary throughout the development and are summarized in the Table below.

Table 10 – Channel Dimensions

	Reach 1	Reach 2
Max. Bottom Width (m)	8.30	4.00
Min. Bottom Width (m)	5.70	0.90
Max. Height (m)	2.11	2.46
Min. Height (m)	1.23	0.98
Max. Slope (%)	0.50	0.60
Min. Slope (%)	0.15	0.20

A steady-state HEC-RAS (Hydrologic Engineering Centre River Analysis System) model was developed to confirm channel sizing requirements. External flow contributions modeled using SWMHYMO were added to the HEC-RAS model at junctions that represent the entry points. Peak flows from the 100 and 250 year 3 hour Chicago storms were assessed as well as peak flows from the 100 and 250 year 24 hour SCS Type II storm events. The critical sections yielding the least amount of freeboard have been identified in Table 11 and illustrated in Figure 11.

See Appendix D for the complete HEC-RAS results package, including performance tables, sections, and channel profile.

Table 11 – Channel Performance Critical Sections-

Reach 1 – Critical Section 9					
Storm Event	Channel Height (m)	Depth of Flow (m)	Freeboard (m)	Velocity (m/s)	Flow (m^3/s)
100 Year	1.23	0.86	0.37	0.87	8.04
100 Year-24 Hr.		0.97	0.26	0.92	9.92
250 Year		1.04	0.19	0.95	11.18
250 Year-24 Hr.		1.06	0.17	0.96	11.51
Reach 2 – Critical Section 24					
Storm Event	Channel Height (m)	Depth of Flow (m)	Freeboard (m)	Velocity (m/s)	Flow (m3/s)
100 Year	1.00	0.68	0.32	0.54	2.26
100 Year-24 Hr.		0.74	0.26	0.58	2.78
250 Year		0.79	0.21	0.61	3.18
250 Year-24 Hr.		0.80	0.20	0.61	3.22

See Figure 11 for HEC-RAS section locations.

The target for freeboard is 0.30m, which was achieved for the 100 year 3 hour Chicago storm event at the critical sections. For all other sections the 0.30m freeboard was achieved for all storm events. The critical sections have their challenges because they are upstream of significant direction changes at neighbouring lot corners. The elevation of existing properties drop significantly at the lot corners. As a result, slightly less freeboard was achieved for the 24 hour storm events. However, it should be noted that since this is a steady-state analysis, there are assumptions that add conservation to the model. For example, inputting a constant peak flow does not account for the minor decreases that occur as the flows travel through the channel.

The proposed channel will cross the right-of-way for both subdivision entrances. Culverts were added to the HEC-RAS model to represent a crossing at both the east (Street A) and south (Street D) entrances to the subdivision. The east entrance will utilize twin 900x1800 box culverts (or one custom 900x3600 box), while the south entrance will utilize a custom 1100x7300 box culvert to convey flows (See Appendix D for culvert performance). As flows reach the downstream end of the channel, they will be dispersed by a flow spreader prior to exiting the site.

The proposed peak uncontrolled discharge leaving the site through the flow spreader is shown in the table below. This is representative of the SWMHYMO model which takes into consideration differing hydrograph peaks and the impacts of hydrograph routing.

Table 12 – Diversion Channel Flows

Storm Event	Outlet Flow (m^3/s)
2 Year	1.698
5 Year	3.224
10 Year	4.347
25 Year	5.598
50 Year	6.563
100 Year	7.514
100 Year-24Hr.	9.404
250 Year	10.592
250 Year-24Hr.	10.943

See Appendix C for post development modelling results.

5.5. Summary

The proposed development will provide external flow conveyance through a diversion channel. The on-site Stormwater Management Pond will provide sufficient storage to limit discharge such that the total peak flow exiting the site to the west is below the pre development levels. Table 13 shows the reduction in peak flow from the site. The permanent pool and extended detention zone within the pond will provide the 'Enhanced' level of water quality treatment required.

Table 13 – Peak Flow from Site to the West

Storm Event	Pond Discharge to Channel (m^3/s)	Channel Flow (m^3/s)	Post Development Peak Flow to Culvert (m^3/s)	Pre Development Peak Flow (m^3/s)
2 Year	0.000	1.698	1.698	1.924
5 Year	0.067	3.224	3.275	3.641
10 Year	0.173	4.347	4.503	4.915
25 Year	0.297	5.598	5.890	6.298
50 Year	0.389	6.563	6.950	7.394
100 Year	0.480	7.514	7.994	8.322
100 Year-24Hr.	0.646	9.404	10.049	10.376
250 Year	0.689	10.592	11.280	11.658
250 Year-24Hr.	0.751	10.943	11.693	12.027

5.5.1. Limitations of Stormwater Modeling

There are certain limitations to hydrologic modeling procedures specifically for the complexity of projects like this. Best efforts were made to ensure a conservative flow assessment. In reality, Komoka Road is serviced by a storm sewer that should convey some portion of the stormwater flows entering the east side ditch. This was omitted for modeling purposes and assumed to travel into the property. Additionally, the existing culvert performances were assessed with roadway overflows. Certain large storm events show extrapolation, again, the model assumes this water will be conveyed to the subject lands even though it is possible that there would be significant ponding (storage) upstream.

5.6. Development of Property to the West

Should the 48.3ha property to the west be developed, modifications to the stormwater management facility will be required. The diversion channel outlet will be relocated to follow the Canadian National Railway easement down to the existing culvert. Relocating the channel will allow the pond to expand west. The footprint increase will depend on factors regarding these lands such as imperviousness and soil types.

6.0 Water Distribution

This section of the report summarizes the sizing and layout of the proposed watermain for the proposed development. As mentioned, the subdivision will include 166 single family lots located along internal streets, approximately 113 medium density condominium units and 40 high density apartment type units. The watermain will be sized to include a future population of 1455 people for the property to the west.

Existing watermain elevations were established from as constructed watermain information as well as existing topographic information. The preliminary proposed watermain elevations were assigned based on having 1.7m of cover below preliminary road profiles. The node locations were determined at intersections, multi-family block locations, and all key points (high point, low point and dead ends).

Design water demands were calculated for the subdivision and are provided in Appendix E.

6.1. Computer Model

Bentley's WaterCAD V8i water distribution modeling program was used to determine the required sizes of the watermain for the subdivision. The results of the computer model are provided in the Appendices.

A Hydraulic Grade Line of 285.0m was established based on the existing populations and static pressure information provided for the existing hydrant located at the north limit of the Komoka

Road watermain (KO-2) and the first hydrant along Oxbow Drive, east of Komoka Road (KO-73). The fire hydrant flow tests were modeled and found to have a 10% maximum deviation from field results.

Table 14 – Model Calibration

Location of Hydrant Flow Test	Static Pressure (kPa)		Residual Pressure (kPa)		Description
	Actual	Modeled	Actual	Modeled	
Hyd KO-2	404.0	402.8	271.7	265.4	1178 USGPM @ KO-1
Hyd KO-73	408.2	409.0	301.3	271.0	1178 USGPM @ KO-72

The calibrated Hydraulic Grade Line was added to the model as the boundary condition for water supply from the existing system. The pipes for the subdivision were added to the model using the proposed draft plan as a base. Junction elevations and water demands were added along with initial pipe sizes and corresponding Hazen-Williams 'C' values.

The model was run several times and watermain sizes chosen to ensure that Pressure and Flow Requirements complied with the *Infrastructure Design Standards for Water Distribution System Design*. Design scenarios modeled included Average Day Demand (77 IGPD), Maximum Hour, and Maximum Day Demand plus Fire flow. Water quality was also analyzed during average day demand for the subdivision, to ensure a turnover of less than 72 hours.

6.1.1. Proposed Watermain Sizes

There are existing watermains fronting the proposed subdivision in two locations, a 200mm diameter watermain on Komoka Road and a 150mm diameter watermain along Oxbow Drive. Both watermains will be used to feed the proposed development in order to create a looped system. The Oxbow Drive watermain will require upsizing to a 200mm diameter size. All pipe sizes are summarized in the table below.

Table 15 – Water Distribution Pipe Sizing

Street	Size	From	To
Oxbow Drive	200mm	Komoka Road	Street 'C'
Street 'A'	200mm	Komoka Road	Subdivision Limit
Street 'B'	200mm	Street 'D'	Street 'E'
Street 'C'	200mm	Street 'B'	Oxbow Drive
Street 'D'	200mm	Street 'B'	Street 'C'
Street 'E'	200mm	Street 'C'	Subdivision Limit
Komoka Road	250mm	Existing Tee at Union Ave to the Komoka Station Subdivision	Proposed Tee at Union Ave

6.2. External Lands

As previously mentioned, the model used for this report was processed with external demands. Existing properties fronting Oxbow Drive and Komoka Road were considered as well as one scenario with future development to the west of the Renwick Estates Subdivision and one scenario without. Demands from these lands are reflected at Junctions J-1, J-8, J-52, J-53, J-54, J-55, J-56, J-60, J-64, J-65 and J-72.

6.3. Renwick Estates Subdivision *(with future consideration)*

The water distribution system was modeled for complete build out. All existing and future external demands were included as outlined in Section 6.2. The layout plan of the computer model showing pipe and junction information can be seen in Figure 12. All of the results from the computer model are provided in Appendix F.

6.3.1. Average Day Demand

The first scenario computed for the water distribution model utilized the average day demands for the entire subdivision. All of the resulting pressures calculated were above the minimum and below the maximum requirements.

The lowest pressure calculated for the subdivision and external areas was 384.0 kPa (55.7 psi) and occurred at Junction 52 (J-52). The velocities calculated in the watermain within the subdivision range from 0.001 m/s to 0.159 m/s.

6.3.2. Maximum Hourly Demand

The second scenario computed for the water distribution model utilized a maximum hour peaking factor of 4.13 times the average day demand of 350 L/day (77 IGPD). All of the resulting pressures calculated were above the minimum and below the maximum requirements.

The lowest pressure calculated for the subdivision and external areas was 374.2 kPa (54.3 psi) and occurred at Junction 52 (J-52). The velocities calculated in the watermain within the subdivision range from 0.001 m/s to 0.658 m/s.

6.3.3. Maximum Day Demand plus Fire Flow

The water distribution model was then computed using a maximum day peaking factor of 2.75 times the average day demand of 350 L/day (77 IGPD). The model tested each junction to ensure that the maximum day demand plus fire flow of 75.77 L/s (1000 IGPD) could be sustained with a minimum pressure of 140 kPa (20 psi) at each junction.

The lowest pressure calculated during fire flow modeling in the subdivision is 249.3 kPa (36.2 psi) and occurred at Junction 52 (J-52). This occurs when a fire flow is applied to the hydrant located at Junction 52 (J-52). The maximum velocity computed in the model is 2.42 m/s and occurs in the 200mm watermain Pipe 87 (P-87) and Pipe 86 (P-86).

6.3.4. Water Quality Analysis

The water quality analysis was modeled assuming all lots in the proposed Renwick Estates Subdivision have been built out. Input demands include future development to the west.

When all lots have been built out within the subdivision, the water ages are all less than 72 hours. The maximum water age will be 24.80 hours at Junction 52 (J-52), the results are provided in Appendix G. Section 6.4 will detail analysis of the subdivision without consideration for the future development

6.4. Renwick Estates Subdivision (no future consideration)

The water distribution system was modeled for the proposed draft plan build out. All existing demands were included as outlined in Section 6.2 and the future development was left out of this analysis. The layout plan of the computer model showing pipe and junction information can be seen in Figure 12. All of the results from the computer model are provided in Appendix H.

6.4.1. Average Day Demand

The first scenario computed for the water distribution model utilized the average day demands for the entire subdivision. All of the resulting pressures calculated were above the minimum and below the maximum requirements.

The lowest pressure calculated for the subdivision and external areas was 384.6 kPa (55.7 psi) and occurred at Junction 52 (J-52). The velocities calculated in the watermain within the subdivision range from 0.001 m/s to 0.059 m/s.

6.4.2. Maximum Hourly Demand

The second scenario computed for the water distribution model utilized a maximum hour peaking factor of 4.13 times the average day demand of 350 L/day (77 IGPD). All of the resulting pressures calculated were above the minimum and below the maximum requirements.

The lowest pressure calculated for the subdivision and external areas was 382.7 kPa (55.5 psi) and occurred at Junction 52 (J-52). The velocities calculated in the watermain within the subdivision range from 0.002 m/s to 0.246 m/s.

6.4.3. Maximum Day Demand plus Fire Flow

The water distribution model was then computed using a maximum day peaking factor of 2.75 times the average day demand of 350 L/day (77 IGPD). The model tested each junction to ensure that the maximum day demand plus fire flow of 75.77 L/s (1000 IGPD) could be sustained with a minimum pressure of 140 kPa (20 psi) at each junction.

The lowest pressure calculated during fire flow modeling in the subdivision is 266.1 kPa (38.6 psi) and occurred at Junction 52 (J-52). This occurs when a fire flow is applied to the hydrant located at Junction 52 (J-52). The maximum velocity computed in the model is 2.42 m/s and occurs in the 200mm watermain Pipe 87 (P-87) and Pipe 86 (P-86).

6.4.4. Water Quality Analysis

The water quality analysis was modeled assuming all lots in the proposed Renwick Estates Subdivision have been built out. Input demands do not include any future development to the west.

When all lots have been built out within the subdivision, the water ages are all less than 72 hours. The maximum water age will be 32.04 hours at Junction 8 (J-8), the results are provided in Appendix I. Section 6.5 will detail analysis involving the phasing of the subdivision.

6.5. Renwick Estates Subdivision – Phase 1

The water distribution system was also modeled with phase 1 only of Renwick Estates subdivision (Figure 13). All of the results from the computer model are provided in Appendix J.

6.5.1. Average Day Demand

The first scenario computed for the water distribution model utilized the average day demands for phase 1. All of the resulting pressures calculated were above the minimum and below the maximum requirements.

The lowest pressure calculated for the subdivision and external areas was 384.7 kPa (55.8 psi) and occurred at Junction 52 (J-52). The velocities calculated in the watermain range from 0.001 m/s to 0.051 m/s.

6.5.2. Maximum Hourly Demand

The second scenario computed for the water distribution model utilized a maximum hour peaking factor of 4.13 times the average day demand of 350 L/day (77 IGPD). All of the resulting pressures calculated were above the minimum and below the maximum requirements.

The lowest pressure calculated for the subdivision and external areas was 383.9 kPa (55.7 psi) and occurred at Junction 52 (J-52). The velocities calculated in the watermain range from 0.001 m/s to 0.209 m/s.

6.5.3. Maximum Day Demand plus Fire Flow

The water distribution model was then computed using a maximum day peaking factor of 2.75 times the average day demand of 350 L/day (77 IGPD). The model tested each junction to ensure that the maximum day demand plus fire flow of 75.77 L/s (1000 IGPD) could be sustained with a minimum pressure of 140 kPa (20 psi) at each junction.

The lowest pressure calculated during fire flow modeling in the subdivision is 264.9 kPa (38.4 psi) and occurred at Junction 52 (J-52). This occurs when a fire flow is applied to the hydrant located at Junction 52 (J-52). The maximum velocity computed in the subdivision is 2.42 m/s and occurs in the 200mm watermain Pipe 87 (P-87) and Pipe 86 (P-86).

6.5.4. Water Quality Analysis

The water quality analysis was modeled for Phase 1 considering a 0%, 25%, 50%, 75% and 100% phasing build out.

When Phase 1 is constructed there will be 1 watermain dead end located at the west limit of Street E (connection for property to the west, J-8).

Based on analysis, there will need to be an automatic flushing device installed at the Street E dead end. The 50mm automatic blow-off will remain in place until all water ages are less than 72 hours in the system. Once this occurs, the unit will be removed and replaced with a standard 50mm blow-off. Watermain tees installed at the intersections of Street A and B as well as Street C and D should have caps installed in the direction of dead ends as close as possible to the tee in order to eliminate the need for additional automatic flushing devices.

The automatic flushing device can be removed when phase 1 is approximately 75% built out, including the west most lot on Street E.

In order to maintain water ages less than 72 hours, the automatic flushing device should be programmed to run as follows:

- Run for 50 minutes every 24 hours from commissioning to the point of 25% build out
- Run for 30 minutes every 24 hours from 25% build out to 50% build out
- Run for 15 minutes every 24 hours from 50% build out to 75% build out

With a water discharge rate of 10.64 liters/second (taken from Municipal Figure 5.14) and the settings discussed above, the maximum water ages at each stage of construction are as follows:

Table 16 – Water Age Analysis (Phase 1)

Build Out	Max. Age In System	Location of Maximum Age	Automatic Flusher Run Time (per 24 hrs.)
0%	62.98 h	J-29	50 min
25%	61.27 h	J-29	30 min
50%	59.24 h	J-29	15 min
75%	58.20 h	J-29	0 min
100%	46.45 h	J-8	0 min

When all lots have been built out in Phase 1 of the subdivision, the maximum water age in the system will be 46.45 hours, at Junction 8 (J-8). Results can be found in Appendix K.

6.6. Water Distribution Summary

The proposed watermain for both phases of the Renwick Estates subdivision has been sized to ensure that Pressure and Flow requirements comply with *Infrastructure Design Standards for Water Distribution System Design.* The modeling has demonstrated how the proposed watermain will have a three day turnover.

There will be upgrades required along Oxbow Drive from Komoka Road to Street ‘C’ and at the Komoka Road and Union Avenue/Street ‘A’ intersection.

7.0 Conclusion

The proposed Renwick Estates Plan of Subdivision can be serviced by the existing sanitary sewers fronting the property at Oxbow Drive and Komoka Road along with available storm outlets. The exiting watermains fronting the property will require upgrades and provide for a looped connection to the development. All detailed engineering design will be completed in accordance with Middlesex Centre Infrastructure Design Standards.

We trust that this satisfies your requirements for Draft Condition approval. If you have any questions or require additional information please contact our office.

Prepared By:

Archibald Gray & McKay Engineering Ltd.



Lukas Grabowski, EIT

Steve Brown, P.Eng.
Engineering Design Manager

FIGURES

KOMOKA STATION SUBDIVISION

UNION AVE

KOMOKA ROAD

OXBOW DRIVE

CANADIAN PACIFIC RAILWAY

CANADIAN NATIONAL RAILWAY

BLOCK 177 OPEN SPACE (0.415 ha)

BLOCK 178 OPEN SPACE (1.138 ha)

BLOCK 171 CONDO MEDIUM DENSITY (0.615 ha)

BLOCK 169 CONDO MEDIUM DENSITY (0.414 ha)

BLOCK 170 CONDO MEDIUM DENSITY (1.451 ha)

BLOCK 172 CONDO MEDIUM DENSITY (1.195 ha)

BLOCK 173 MEDIUM DENSITY (1.090 ha)

BLOCK 167 PARK BLOCK (0.201 ha)

BLOCK 176 WALKWAY (0.014 ha)

BLOCK 175 STORMWATER MANAGEMENT (0.888 ha)

BLOCK 174 MEDIUM DENSITY (0.541 ha)

BLOCK 179 OPEN SPACE (0.497 ha)

RESERVE BLOCK 168

0.3m RESERVE BLOCK 180 (0.001 Ha)

STREET 'A'

STREET 'B'

STREET 'C'

STREET 'D'

STREET 'E'

FIGURE 1
PROPOSED SUBDIVISION

LAND USE SCHEDULE

SINGLE FAMILY RESIDENTIAL

MEDIUM DENSITY RESIDENTIAL

OPEN SPACE

SCALE 1:2000
DATE: AUGUST 2020

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KOMOKA ROAD

65.00m TAPER
45.00m PARALLEL AND STORAGE
45.00m PARALLEL AND STORAGE
65.00m TAPER
CONC BLOCK WALL
RIP RAP
TOP OF SLOPE
(C&G)
ASPHALT
(C&G)
BOARD FENCE
GRAVEL D/W
CONC D/W
GRAVEL D/W
REDUCED ASPH. SHOULDER
PROPOSED ASPH.
TO SUIT RADIUS
EDGE OF ASPHALT
EDGE OF ASPHALT
EDGE OF ASPHALT
EDGE OF ASPHALT
EDGE OF ASPHALT
3.60
3.00
3.60
R15.0
R15.0
TOE OF SLOPE
REDUCED ASPH. SHOULDER
TOE OF SLOPE
TOE OF
TOE OF SLOPE
WOOD WALL
TOE OF SLOPE
33.00
13.90
13.90
13.90
33.00
13.90
13.90
15.50
33.00
56.68
85.00
21.50
13.30
13.30
13.30
13.30
13.30
13.30
13.30
15.50
32.25
32.25
32.25
32.25
12.20
12.00
12.00
32.00
32.00
20.00
12.20
12.00
12.00
35.46
65.27
17.68
39.93
25.83
15.00
15.00
15.00
15.00
15.00
15.00
15.00
15.00
33.00
33.16
20.00
24.77
STREET 'A'
STREET 'B'

SCALE 1:750
DATE: AUGUST 2020

FIGURE 2
PROPOSED ENTRANCE

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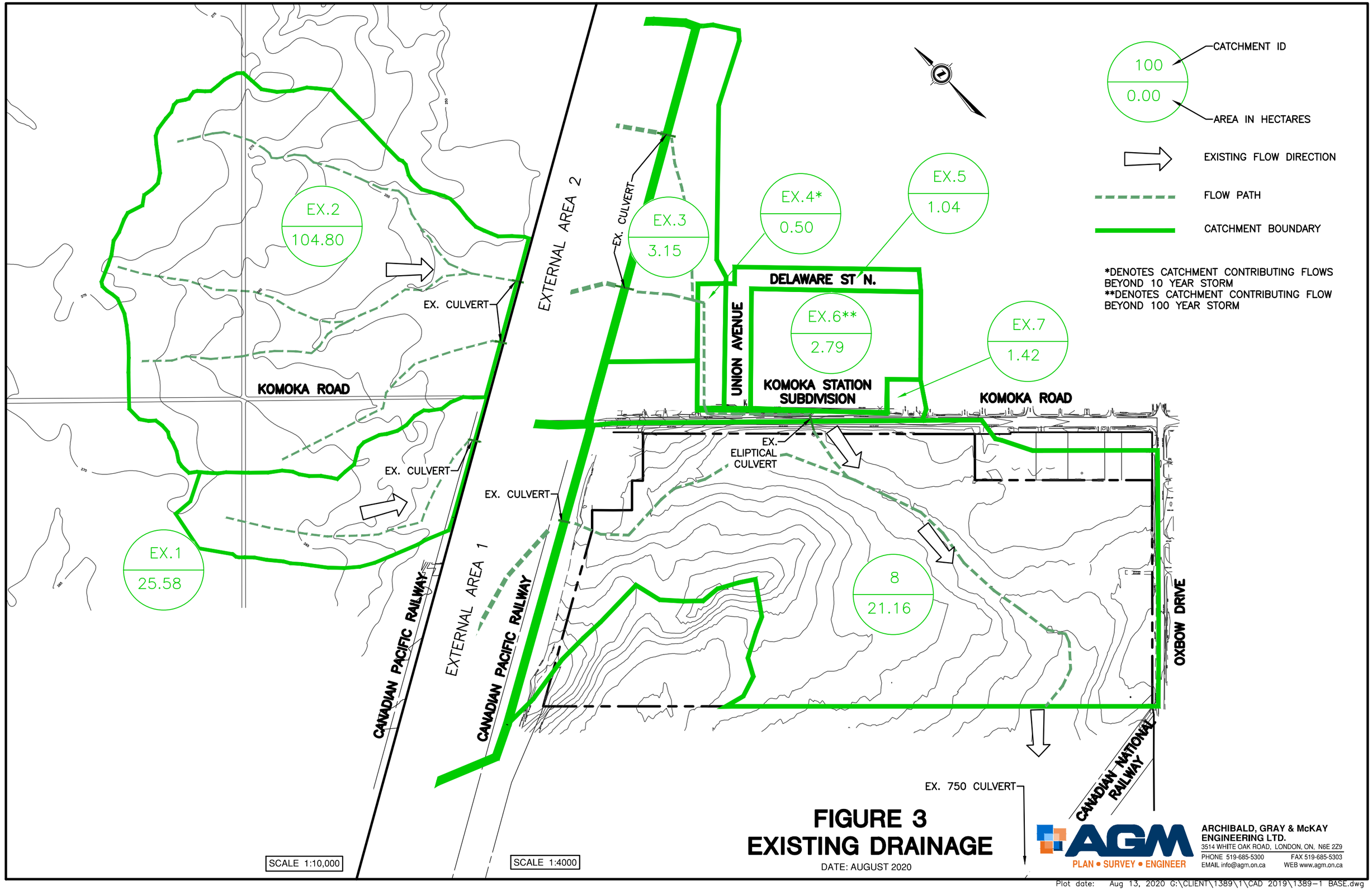


FIGURE 3
EXISTING DRAINAGE

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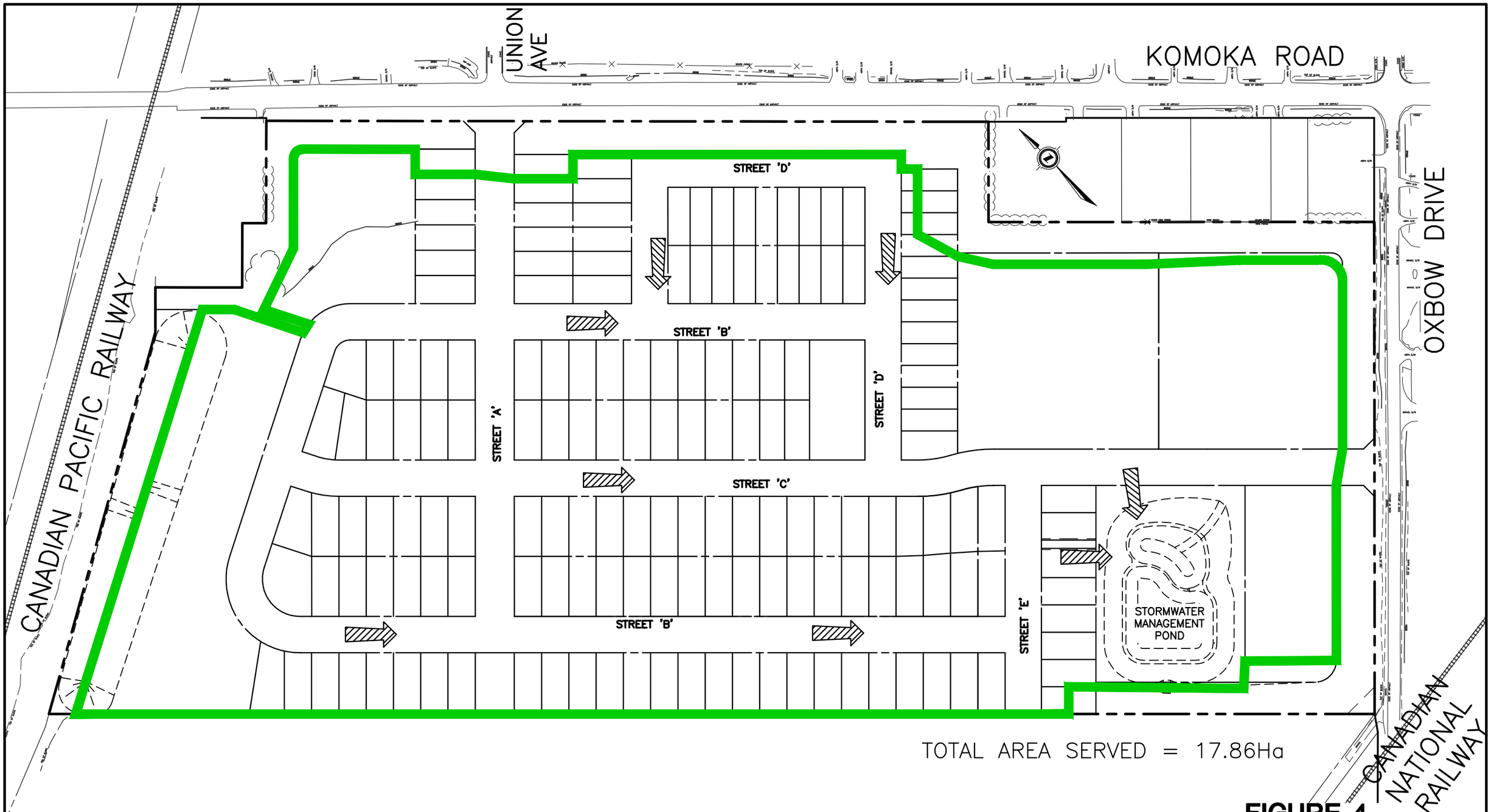


FIGURE 4
PROPOSED DRAINAGE TO SWM POND

PROPOSED OVERLAND FLOW ROUTE

SCALE 1:2000
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STREET 'C'

STREET 'E'

BOX CULVERT

TOP OF SLOPE

GRAVEL

EDGE OF ASPHALT

EDGE OF ASPHALT

DITCH

900 ST

DRIVE

TOP OF SLOPE

DITCH

10.00

21.00

5.0

3.0

5 STOREY APARTMENT BUILDING 40 UNITS

DIVERSION CHANNEL

42.50 42.44 42.30 42.50 42.40 42.65 42.40 42.30

TURF STONE ACCESS

42.56 42.50 40.20 40.00 42.55

INLETS

38.70

40.20

40.00

42.35 42.41

3m ASPHALT PATHWAY

42.30

5:1 SLOPE

2m SAFETY BENCH (10:1 SLOPE)

40.20 40.00 5:1 SLOPE

38.70

5:1 SLOPE 40.00 40.20 42.30

QUALITY CONTROL UNIT

OUTLET INV.=240.00

MAINTENANCE VALVE

B

A

150 ST

OUTLET INV.=241.00

200 MAINTENANCE ST

STMH

200 PERFORATED ST

300 PERFORATED ST

200 PERFORATED ST

375 ST

42.30 42.40 42.00 42.40

42.65

42.50

41.80

4m WIDE OVERFLOW WEIR

TWIN 450 ST

INSTALL CLAY COLLAR WHERE INFILTRATION GALLERY CROSSES DIVERSION CHANNEL

LOCATION OF FLOW SPREADER

A

B

INFILTRATION GALLERY APPROXIMATE SIZING
73.5m X 12.0m X 1.5m
STORAGE VOLUME ≈ 400m³
BOTTOM ELEV. = 238.50m
TOP ELEV. = 240.00m

TOE OF SLOPE

GRAVEL

PROPOSED OVERLAND FLOW ROUTE

42.50 PROPOSED ELEVATION

PROPOSED STORM SEWER ALIGNMENT

PERMANENT POOL	
BOTTOM	= 238.70m
TOP	= 240.00m
TOTAL STORAGE	= 2,822m³

EXTENDED DETENTION ZONE	
BOTTOM	= 240.00m
TOP	= 241.00m
TOTAL STORAGE	= 3,986m³

EXTENDED DETENTION & FLOOD CONTROL	
BOTTOM	= 240.00m
TOP	= 242.30m
TOTAL STORAGE	= 11,315m³

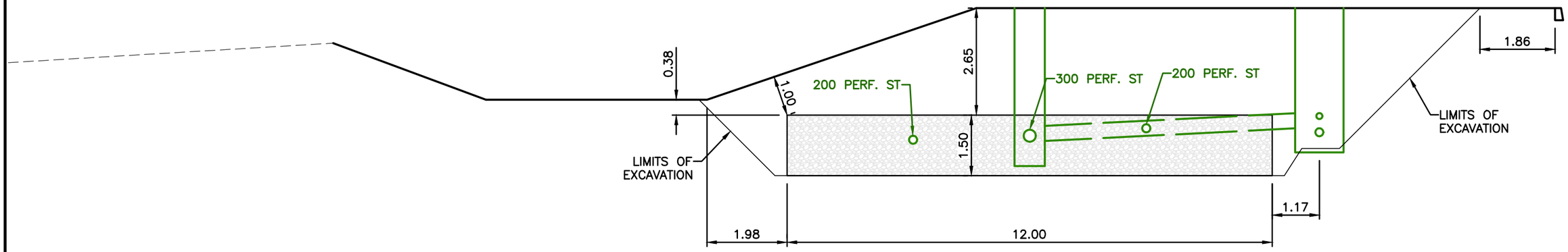
FIGURE 5

STORMWATER MANAGEMENT POND

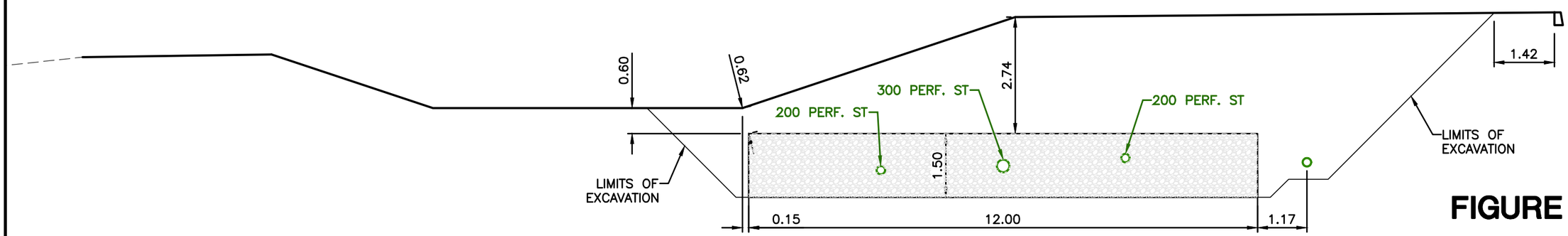
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SECTION A–A



SECTION B–B

FIGURE 6

INFILTRATION GALLERY SECTIONS

SCALE 1:100
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CHANNEL ELEV ≈ 241.53
ORIGINAL GROUND = 243.00
CHANNEL DEPTH ≈ 1.47m

1 CULVERT CROSSING

UNION AVE

KOMOKA ROAD

POSSIBLE SPILLOVER ELEV=241.95

CHANNEL ELEV ≈ 241.27
ORIGINAL GROUND = 243.81
CHANNEL DEPTH ≈ 2.5m

OPTION 2
ENTRY POINT
ELEVATION =243.00

APPROX. CHANNEL LENGTH
UPSTREAM OF KOMOKA
ROAD CULVERT = 329m
AVERAGE SLOPE = 0.42%

1 CULVERT CROSSING

CHANNEL ELEV=241.63

STREET 'D'

APPROX. CHANNEL LENGTH
DOWNSTREAM OF KOMOKA
ROAD CULVERT = 771m
AVERAGE SLOPE = 0.18%

OXBOW DRIVE

OPTIONAL CULVERT CROSSING

STREET 'B'

STREET 'A'

STREET 'D'

2 CULVERT CROSSING

1 CULVERT CROSSING

STREET 'C'

3 CULVERT CROSSINGS

2 CULVERT CROSSINGS

APPROX. CHANNEL LENGTH = 992m
AVERAGE SLOPE DOWNSTREAM OF KOMOKA ROAD CULVERT = 0.21%

CANADIAN PACIFIC RAILWAY

STREET 'B'

STREET 'E'

CHANNEL BOTTOM ELEV. 240.20

2 CULVERT CROSSINGS

FLOW SPREADER TO 750 CULVERT

CANADIAN NATIONAL RAILWAY

APPROX. CHANNEL LENGHT = 1136m
AVERAGE SLOPE = 0.13%

1 FUTURE CULVERT CROSSING

CHANNEL ELEV ≈ 240.89
ORIGINAL GROUND = 243.50
CHANNEL DEPTH ≈ 2.6m

DIVERSION CHANNEL ALIGNMENT OPTION 1

DIVERSION CHANNEL ALIGNMENT OPTION 2

DIVERSION CHANNEL ALIGNMENT OPTION 3

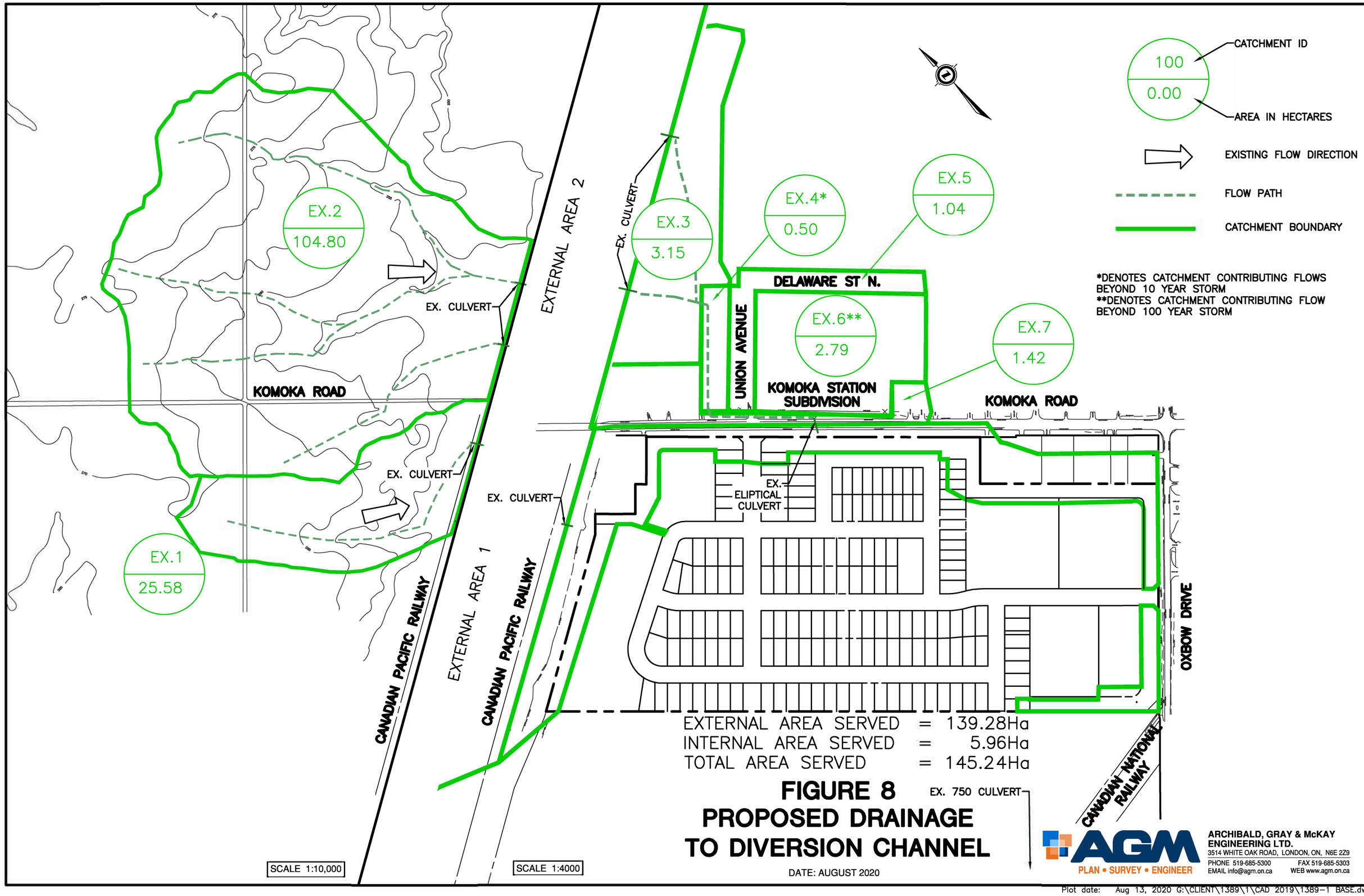
FIGURE 7

DIVERSION CHANNEL ALIGNMENT OPTIONS

SCALE 1:2000
DATE: AUGUST 2020

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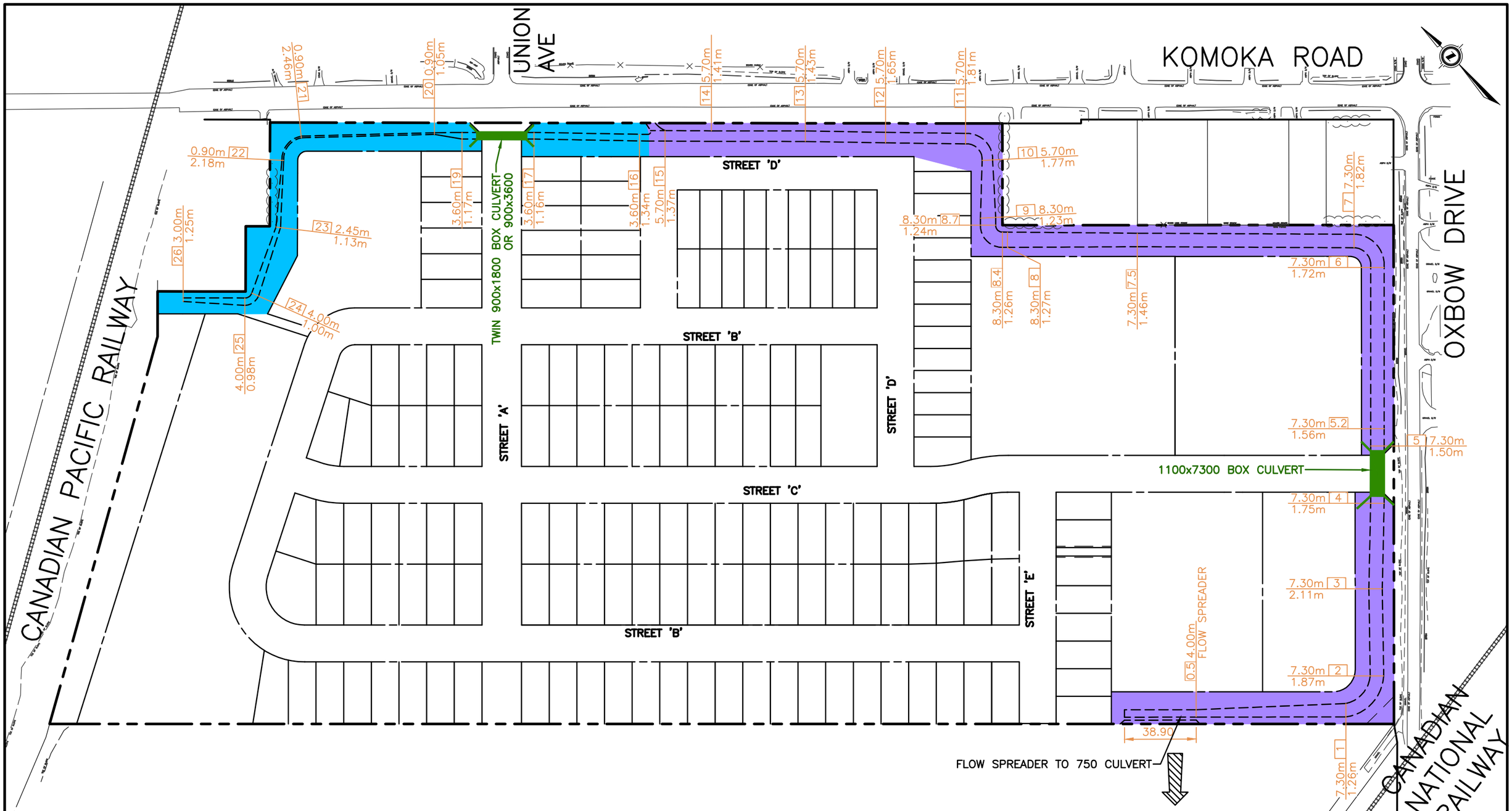
EXTERNAL AREA SERVED = 139.28Ha
INTERNAL AREA SERVED = 5.96Ha
TOTAL AREA SERVED = 145.24Ha

FIGURE 8
PROPOSED DRAINAGE TO DIVERSION CHANNEL

DATE: AUGUST 2020

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BOTTOM WIDTH
1 2.00m 1.26m
HECRAS STATION ID
MIN. HEIGHT

DIVERSION CHANNEL REACH 1

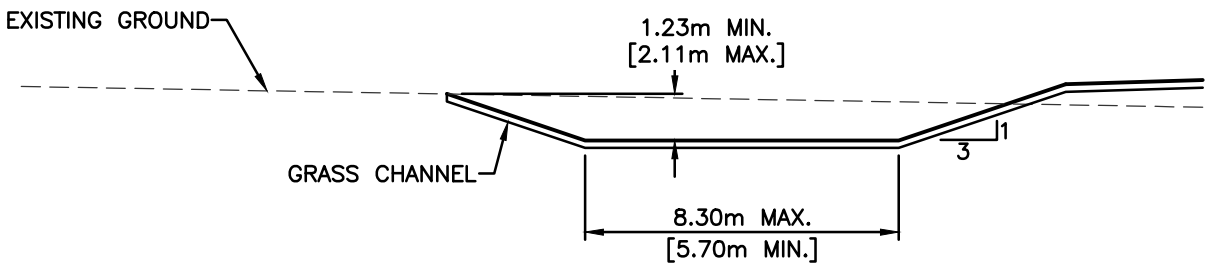
DIVERSION CHANNEL REACH 2

SCALE 1:2000
DATE: AUGUST 2020

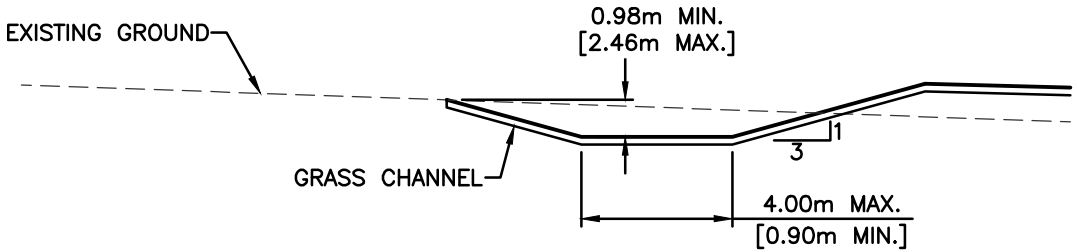
FIGURE 9
PROPOSED DIVERSION CHANNEL

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REACH 1 – TYPICAL SECTION



REACH 2 – TYPICAL SECTION

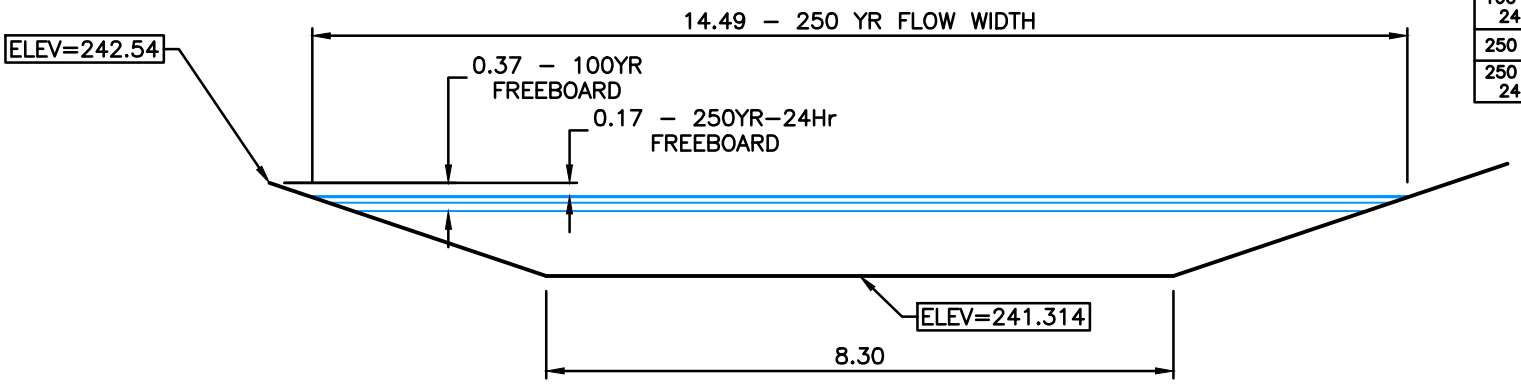
FIGURE 10
DIVERSION CHANNEL CROSS SECTIONS

SCALE: 1:200
DATE: AUGUST 2020

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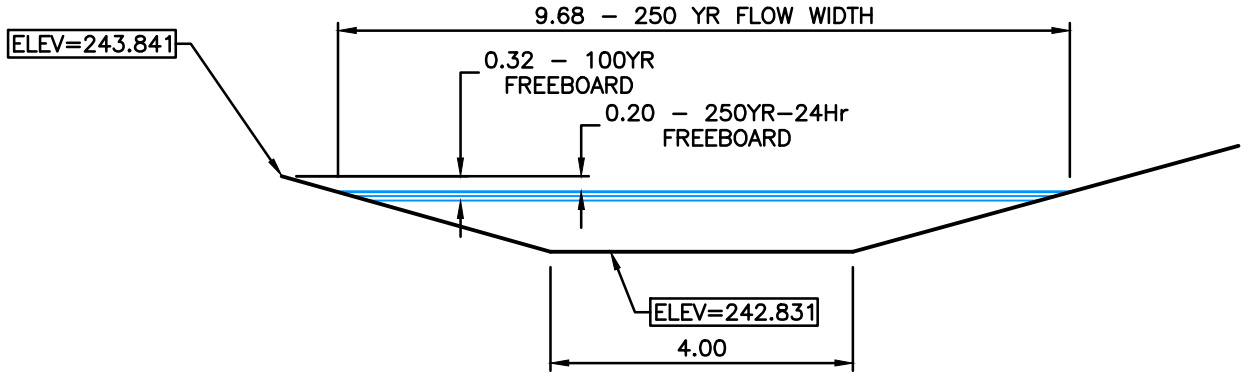
Plot date: Aug 13, 2020 G:\CLIENT\1389\1\CAD 2019\1389-1 BASE.dwg

SECTION 9 PERFORMANCE				
	FLOW DEPTH (m)	WATER ELEV (m)	FREE BOARD (m)	FLOW WIDTH (m)
100 YEAR	0.86	242.17	0.37	13.42
100 YEAR 24 HR	0.97	242.28	0.26	14.07
250 YEAR	1.04	242.35	0.19	14.49
250 YEAR 24 HR	1.06	242.37	0.17	14.61



REACH 1 – SECTION 9

SECTION 24 PERFORMANCE				
	FLOW DEPTH (m)	WATER ELEV (m)	FREE BOARD (m)	FLOW WIDTH (m)
100 YEAR	0.68	243.51	0.32	8.89
100 YEAR 24 HR	0.74	243.57	0.26	9.32
250 YEAR	0.79	243.62	0.21	9.68
250 YEAR 24 HR	0.80	243.63	0.20	9.75



REACH 2 – SECTION 24

FIGURE 11
CRITICAL SECTION PERFORMANCE

SCALE: 1:100
DATE: AUGUST 2020

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Plot date: Aug 13, 2020 G:\CLIENT\1389\1\CAD 2019\1389-1 BASE.dwg

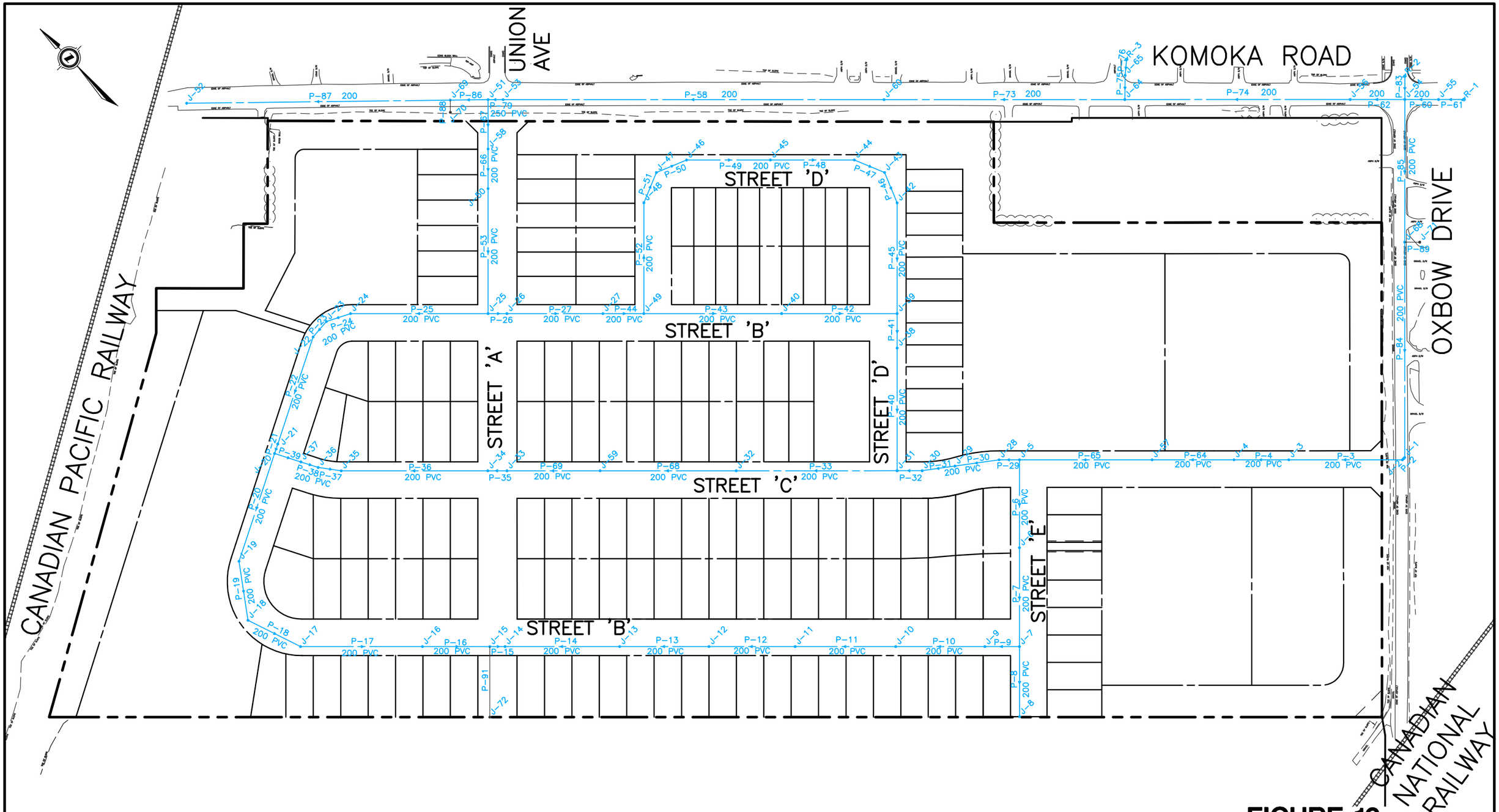


FIGURE 12
WATERCAD MODEL
FULL SUBDIVISION

SCALE 1:2000
DATE: AUGUST 2020

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Plot date: Aug 13, 2020 G:\CLIENT\1389\1\CAD 2019\WM model\1389-1 Water Model.dwg

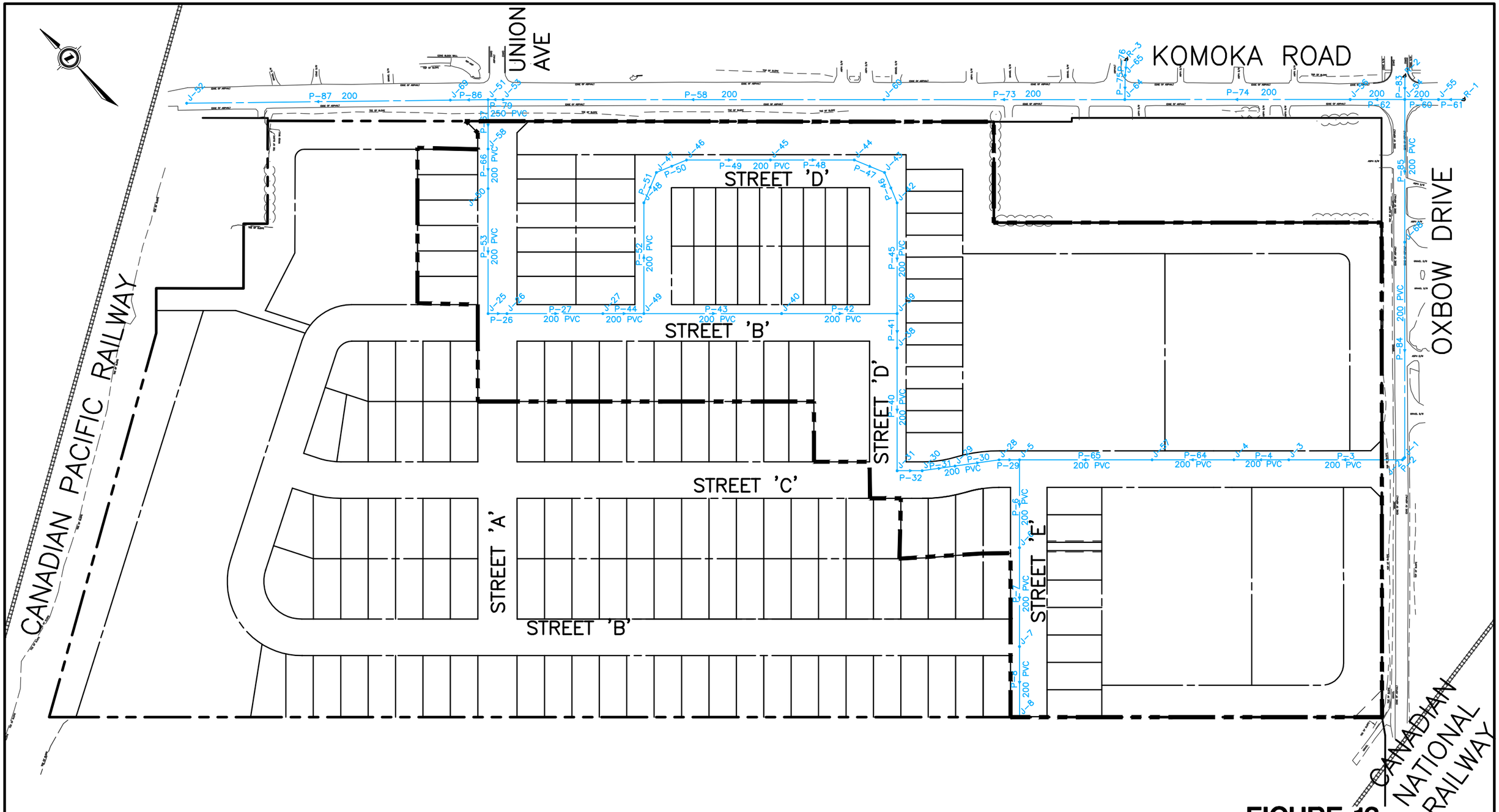


FIGURE 13
WATERCAD MODEL
PHASE 1

SCALE 1:2000
DATE: AUGUST 2020

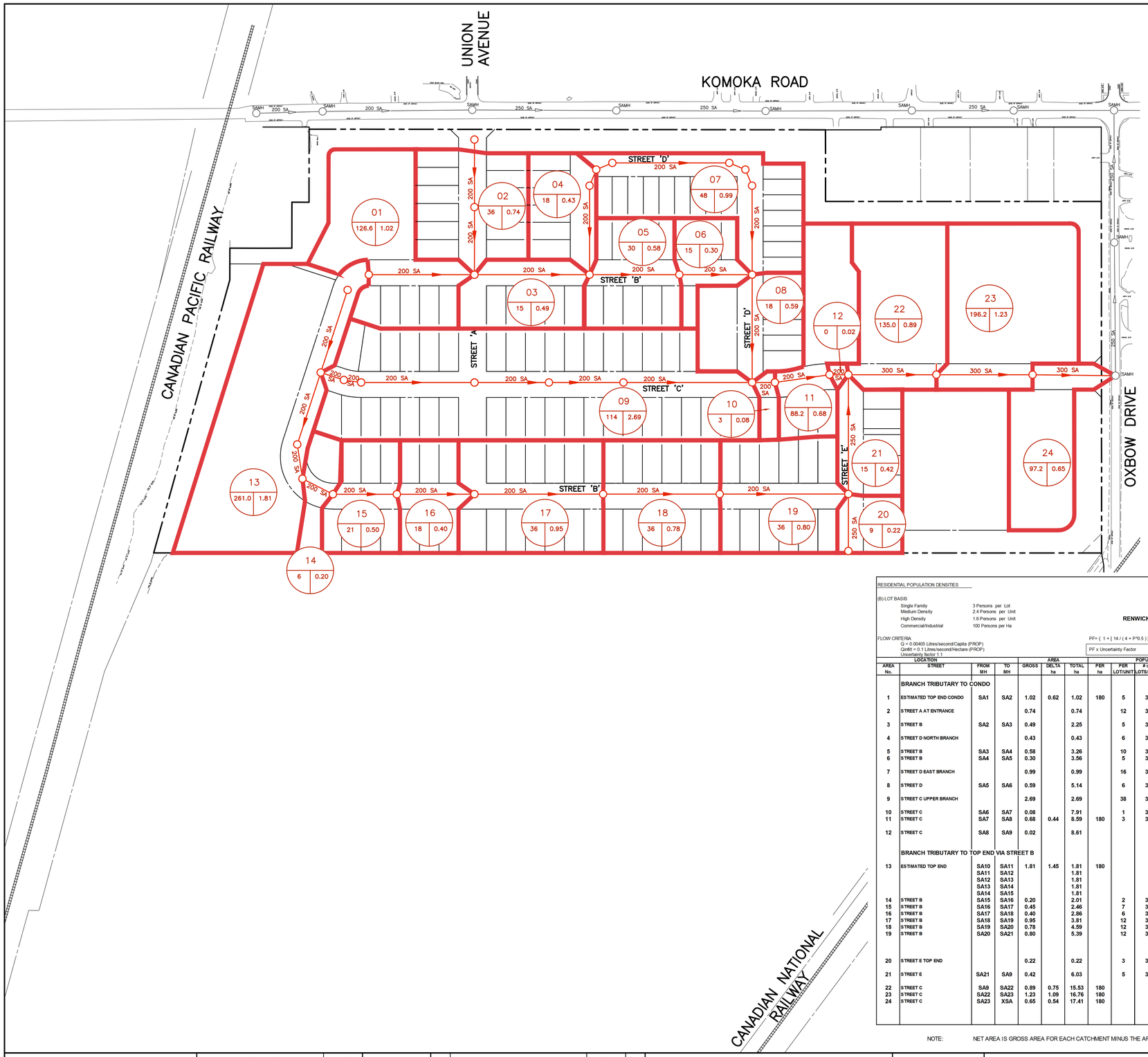
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Plot date: Aug 13, 2020 G:\CLIENT\1389\1\CAD 2019\WM model\1389-1 Water Model-phase 1.dwg

APPENDIX A

Sanitary Analysis

Section 1 – Subdivision Sanitary Drainage Area Plan Considering Population based on Density



LEGEND

- EXISTING SANITARY SEWER AND MANHOLE (SAMH — 200 SA)
- PROPOSED SANITARY SEWER AND MANHOLE (SA.1 — 200 SA)
- DRAINAGE AREA BOUNDARY
- AREA NUMBER (8)
- SIZE OF AREA IN HECTARES (45 — 0.94)
- POPULATION

RESIDENTIAL POPULATION DENSITIES

(B) LOT BASIS

Single Family	3 Persons per Lot
Medium Density	2.4 Persons per Unit
High Density	1.6 Persons per Unit
Commercial/Industrial	100 Persons per Ha

FLOW CRITERIA

Q = 0.00405 Litres/second/Capita (PROP)
Qinfilt = 0.1 Litres/second/Hectare (PROP)
Uncertainty factor 1.1

PF= (1 + [14 / (4 + P^0.5)]) x 1.1

PF x Uncertainty Factor

FILE No. 1389\1\Excel\Sanitary & Storm Design\1389-1 Sanitary Design Sheet-INTERNAL.xls

SANITARY SEWER DESIGN SHEET
MIDDLESEX CENTRE
Medium Density Blocks Calculated by Zoning

RENWICK ESTATES SUBDIVISION - PROPOSED DEVELOPMENT ONLY
BRANTAM DEVELOPMENTS

PROJECT No.: 1389-1
DESIGNED BY: LRG
DATE: FEBRUARY 2019
CHECKED: DTW
APPROVED: SPB

LOCATION				AREA			POPULATION					SEWAGE FLOW						SEWER DESIGN						PROFILE					
AREA No.	STREET	FROM MH	TO MH	GROSS ha	DELTA ha	TOTAL ha	PER ha	PER LOT/UNIT	# of LOTS/UNIT	SUM POP	TOTAL POP	PEAKING FACTOR	INFILT L/s	Q PER CAPITA	AREA x SEWAGE	TOTAL NO PEAK	SEWAGE L/s	TOTAL L/s	SIZE mm	SLOPE %	CAP L/s	n	VEL m/s	LENGTH m	FALL IN SEWER	HEADLOSS	DROP IN MH	UPPER INVERT	LOWER INVERT
	BRANCH TRIBUTARY TO CONDO																												
1	ESTIMATED TOP END CONDO	SA1	SA2	1.02	0.62	1.02	180	5	3	126.6	127	4.64	0.10	350	0.51	0.51	2.38	2.48	200	0.33%	18.84	0.013	0.60	81.26					
2	STREET A AT ENTRANCE			0.74		0.74		12	3	36	36	4.78	0.07	350	0.15	0.15	0.70	0.77											
3	STREET B	SA2	SA3	0.49		2.25		5	3	15	178	4.58	0.23	350	0.06	0.72	3.30	3.52	200	0.33%	18.84	0.013	0.60	88.64					
4	STREET D NORTH BRANCH			0.43		0.43		6	3	18	18	4.83	0.04	350	0.07	0.07	0.35	0.39											
5	STREET B	SA3	SA4	0.58		3.26		10	3	30	226	4.54	0.33	350	0.12	0.91	4.15	4.48	200	0.33%	18.84	0.013	0.60	69.05					
6	STREET B	SA4	SA5	0.30		3.56		5	3	15	241	4.53	0.36	350	0.06	0.97	4.41	4.77	200	0.33%	18.84	0.013	0.60	56.00					
7	STREET D EAST BRANCH			0.99		0.99		16	3	48	48	4.75	0.10	350	0.19	0.19	0.92	1.02											
8	STREET D	SA5	SA6	0.59		5.14		6	3	18	307	4.48	0.51	350	0.07	1.24	5.57	6.08	200	0.33%	18.84	0.013	0.60	83.00					
9	STREET C UPPER BRANCH			2.69		2.69		38	3	114	114	4.65	0.27	350	0.46	0.46	2.15	2.42											
10	STREET C	SA6	SA7	0.08		7.91		1	3	3	424	4.41	0.79	350	0.01	1.72	7.57	8.36	200	0.33%	18.84	0.013	0.60	17.51					
11	STREET C	SA7	SA8	0.68	0.44	8.59	180	3	3	88.2																			
											512	4.37	0.86	350	0.36	2.07	9.05	9.91	200	0.33%	18.84	0.013	0.60	42.50					
12	STREET C	SA8	SA9	0.02		8.61					512	4.37	0.86	350	0.00	2.07	9.05	9.91	200	0.33%	18.84	0.013	0.60	14.50					
	BRANCH TRIBUTARY TO TOP END VIA STREET B																												
13	ESTIMATED TOP END	SA10	SA11	1.81	1.45	1.81	180			261.0	261	4.51	0.18	350	1.06	1.06	4.77	4.95	200	1.00%	32.80	0.013	1.04	10.52					
		SA11	SA12			1.81					261	4.51	0.18	350	0.00	1.06	4.77	4.95	200	0.33%	18.84	0.013	0.60	10.52					
		SA12	SA13			1.81					261	4.51	0.18	350	0.00	1.06	4.77	4.95	200	0.33%	18.84	0.013	0.60	66.86					
		SA13	SA14			1.81					261	4.51	0.18	350	0.00	1.06	4.77	4.95	200	0.33%	18.84	0.013	0.60	58.25					
		SA14	SA15			1.81					261	4.51	0.18	350	0.00	1.06	4.77	4.95	200	0.33%	18.84	0.013	0.60	26.70					
14	STREET B	SA15	SA16	0.20		2.01		2	3	6	267	4.51	0.20	350	0.02	1.08	4.88	5.08	200	0.33%	18.84	0.013	0.60	26.30					
15	STREET B	SA16	SA17	0.45		2.46		7	3	21	288	4.49	0.25	350	0.09	1.17	5.24	5.49	200	0.33%	18.84	0.013	0.60	49.19					
16	STREET B	SA17	SA18	0.40		2.86		6	3	18	306	4.48	0.29	350	0.07	1.24	5.56	5.84	200	0.33%	18.84	0.013	0.60	59.65					
17	STREET B	SA18	SA19	0.95		3.81		12	3	36	342	4.46	0.38	350	0.15	1.39	6.18	6.56	200	0.33%	18.84	0.013	0.60	99.00					
18	STREET B	SA19	SA20	0.78		4.59		12	3	36	378	4.44	0.46	350	0.15	1.53	6.79	7.25	200	0.33%	18.84	0.013	0.60	89.74					
19	STREET B	SA20	SA21	0.80		5.39		12	3	36	414	4.42	0.54	350	0.15	1.68	7.41	7.95	200	0.33%	18.84	0.013	0.60	99.00					
20	STREET E TOP END			0.22		0.22		3	3	9	9	4.86	0.02	350	0.04	0.04	0.18	0.20	250	0.27%	30.90	0.013	0.63	43.90					
21	STREET E	SA21	SA9	0.42		6.03		5	3	15	438	4.40	0.60	350	0.06	1.77	7.81	8.42	250	0.30%	32.57	0.013	0.66	91.85					
22	STREET C	SA9	SA22	0.89	0.75	15.53	180			135.0	1085	4.15	1.55	350	0.55	4.39	18.26	19.81	300	0.25%	48.35	0.013	0.68	67.70					
23	STREET C	SA22	SA23	1.23	1.09	16.76	180			196.2	1281	4.10	1.68	350	0.79	5.19	21.28	22.96	300	0.25%	48.35	0.013	0.68	74.00					
24	STREET C	SA23	XSA	0.65	0.54	17.41	180			97.2	1378	4.08	1.74	350	0.39	5.58	22.76	24.50	300	0.25%	48.35	0.013	0.68	63.80					

NOTE: NET AREA IS GROSS AREA FOR EACH CATCHMENT MINUS THE AREA OF THE ROAD ALLOWANCE

AS CONSTRUCTED SERVICES	COMPLETION

DESIGN	LRG
DRAWN	LRG
CHECKED	DTW
APPROVED	SPB
DATE	FEBRUARY 2019

No.	REVISIONS	DATE	BY

CONSULTANT OR DIVISION

AGM PLAN • SURVEY • ENGINEER
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PHONE 519-685-5300 FAX 519-685-5303
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ENGINEER'S STAMP

BRANTAM DEVELOPMENTS INC.

SCALE: 1:1500

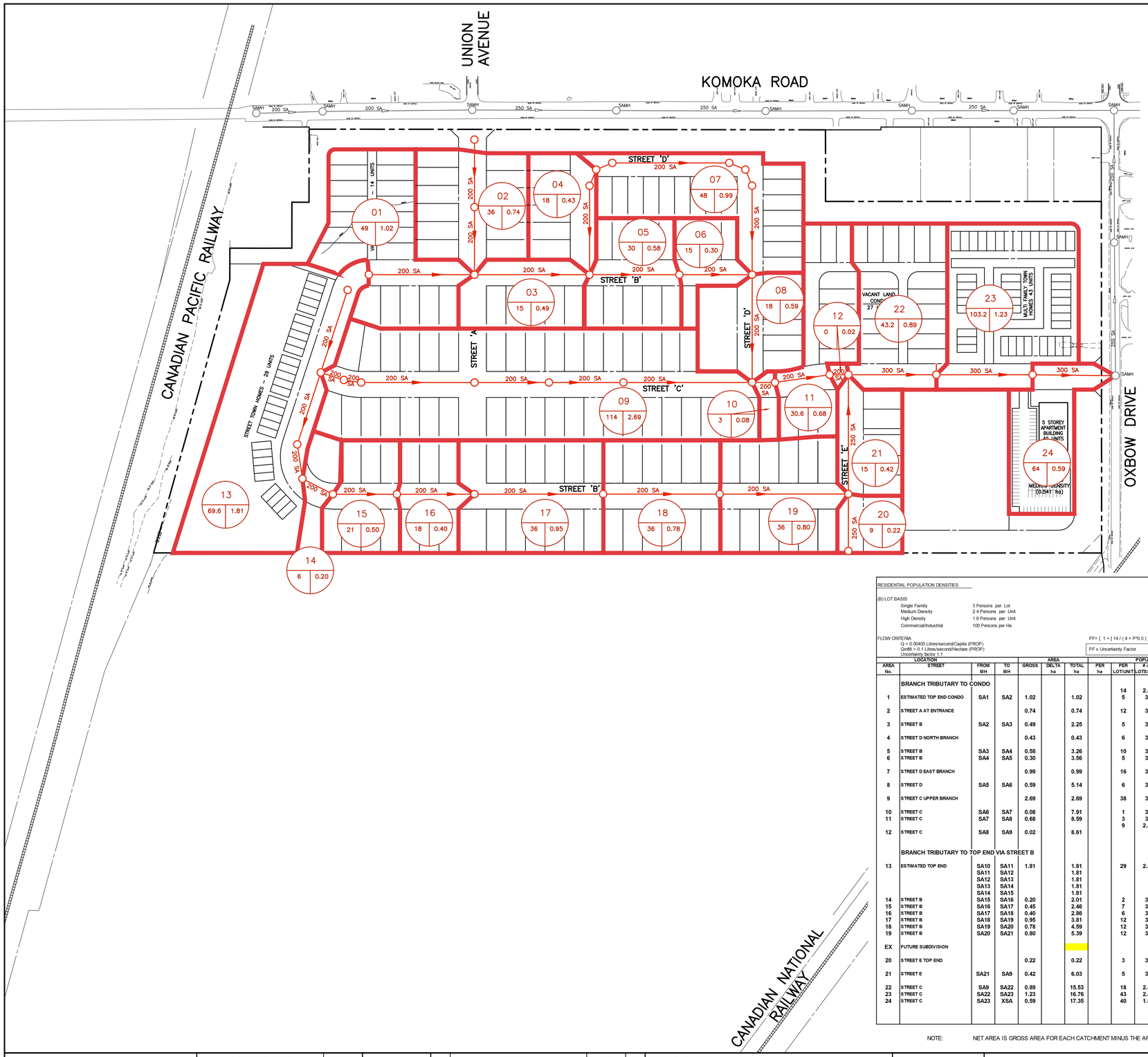
TITLE: KOMOKA SUBDIVISION
BRANTAM DEVELOPMENTS
SANITARY DRAINAGE PLAN
PROPOSED DEVELOPMENT

PROJECT No. 1389-1
SHEET No. DA.1
PLAN FILE No.

Plotted by Lukas Grabowski 2020-08-14 15:14

Plot date: Aug 14, 2020 G:\CLIENT\1389\1\CAD 2019\1389-1 BASE.dwg

Section 2 – Subdivision Sanitary Drainage Area Plan Considering Population by Unit Count



LEGEND

- SAMH 200 SA — EXISTING SANITARY SEWER AND MANHOLE
- SA.1 200 SA — PROPOSED SANITARY SEWER AND MANHOLE
- DRAINAGE AREA BOUNDARY
- 8 / 45 / 0.94 — AREA NUMBER; SIZE OF AREA IN HECTARES; POPULATION

RESIDENTIAL POPULATION DENSITIES

(B) LOT BASIS

Single Family	3 Persons per Lot
Medium Density	2.4 Persons per Unit
High Density	1.6 Persons per Unit
Commercial/Industrial	100 Persons per Ha

FLOW CRITERIA

Q = 0.00405 Litres/second/Capita (PROP)
Qinfilt = 0.1 Litres/second/Hectare (PROP)
Uncertainty factor 1.1

PF= (1 + [14 / (4 + P^0.5)]) x 1.1

PF x Uncertainty Factor

SANITARY SEWER DESIGN SHEET
MIDDLESEX CENTRE
Medium Density Blocks Calculated per Unit

KOMOKA SUBDIVISION
BRANTAM DEVELOPMENTS

FILE No. 1389\1\Excel\Sanitary & Storm Design\1389-1 Sanitary Design Sheet-INTERNAL.xls

PROJECT No.: 1389-1
DESIGNED BY: LRG
DATE: FEBRUARY 2019
CHECKED: DTW
APPROVED: SPB

LOCATION				AREA			POPULATION					SEWAGE FLOW						SEWER DESIGN						PROFILE					
AREA No.	STREET	FROM MH	TO MH	GROSS	DELTA ha	TOTAL ha	PER ha	PER LOT/UNIT	# of LOTS/UNIT	SUM POP	TOTAL POP	PEAKING FACTOR	INFILT L/s	Q PER CAPITA	DATA C/I NO PEAK	TOTAA NO PEAK	SEWAGE L/s	TOTAL L/s	SIZE mm	SLOPE %	CAP L/s	n	VEL m/s	LENGTH m	FALL IN SEWER	HEADLOSS	DROP IN MH	UPPER INVERT	LOWER INVERT
	BRANCH TRIBUTARY TO CONDO							14	2.4																				
1	ESTIMATED TOP END CONDO	SA1	SA2	1.02		1.02		5	3	49	49	4.75	0.10	350	0.20	0.20	0.93	1.04	200	0.33%	18.84	0.013	0.60	81.26					
2	STREET A AT ENTRANCE			0.74		0.74		12	3	36	36	4.78	0.07	350	0.15	0.15	0.70	0.77											
3	STREET B	SA2	SA3	0.49		2.25		5	3	15	100	4.67	0.23	350	0.06	0.40	1.88	2.11	200	0.33%	18.84	0.013	0.60	88.64					
4	STREET D NORTH BRANCH			0.43		0.43		6	3	18	18	4.83	0.04	350	0.07	0.07	0.35	0.39											
5	STREET B	SA3	SA4	0.58		3.26		10	3	30	148	4.61	0.33	350	0.12	0.60	2.76	3.08	200	0.33%	18.84	0.013	0.60	69.05					
6	STREET B	SA4	SA5	0.30		3.56		5	3	15	163	4.60	0.36	350	0.06	0.66	3.03	3.38	200	0.33%	18.84	0.013	0.60	56.00					
7	STREET D EAST BRANCH			0.99		0.99		16	3	48	48	4.75	0.10	350	0.19	0.19	0.92	1.02											
8	STREET D	SA5	SA6	0.59		5.14		6	3	18	229	4.54	0.51	350	0.07	0.93	4.20	4.72	200	0.33%	18.84	0.013	0.60	83.00					
9	STREET C UPPER BRANCH			2.69		2.69		38	3	114	114	4.65	0.27	350	0.46	0.46	2.15	2.42											
10	STREET C	SA6	SA7	0.08		7.91		1	3	3	346	4.46	0.79	350	0.01	1.40	6.24	7.03	200	0.33%	18.84	0.013	0.60	17.51					
11	STREET C	SA7	SA8	0.68		8.59		3	3	9																			
								9	2.4	22	376	4.44	0.86	350	0.12	1.52	6.76	7.62	200	0.33%	18.84	0.013	0.60	42.50					
12	STREET C	SA8	SA9	0.02		8.61				0	376	4.44	0.86	350	0.00	1.52	6.76	7.62	200	0.33%	18.84	0.013	0.60	14.50					
	BRANCH TRIBUTARY TO TOP END VIA STREET B																												
13	ESTIMATED TOP END	SA10	SA11	1.81		1.81		29	2.4	69.6	70	4.71	0.18	350	0.28	0.28	1.33	1.51	200	1.00%	32.80	0.013	1.04	10.52					
		SA11	SA12			1.81					70	4.71	0.18	350	0.00	0.28	1.33	1.51	200	0.33%	18.84	0.013	0.60	10.52					
		SA12	SA13			1.81					70	4.71	0.18	350	0.00	0.28	1.33	1.51	200	0.33%	18.84	0.013	0.60	66.86					
		SA13	SA14			1.81					70	4.71	0.18	350	0.00	0.28	1.33	1.51	200	0.33%	18.84	0.013	0.60	58.25					
		SA14	SA15			1.81					70	4.71	0.18	350	0.00	0.28	1.33	1.51	200	0.33%	18.84	0.013	0.60	26.70					
14	STREET B	SA15	SA16	0.20		2.01		2	3	6	76	4.70	0.20	350	0.02	0.31	1.44	1.64	200	0.33%	18.84	0.013	0.60	26.30					
15	STREET B	SA16	SA17	0.45		2.46		7	3	21	97	4.67	0.25	350	0.09	0.39	1.83	2.07	200	0.33%	18.84	0.013	0.60	49.19					
16	STREET B	SA17	SA18	0.40		2.86		6	3	18	115	4.65	0.29	350	0.07	0.46	2.16	2.44	200	0.33%	18.84	0.013	0.60	59.65					
17	STREET B	SA18	SA19	0.95		3.81		12	3	36	151	4.61	0.38	350	0.15	0.61	2.81	3.19	200	0.33%	18.84	0.013	0.60	99.00					
18	STREET B	SA19	SA20	0.78		4.59		12	3	36	187	4.57	0.46	350	0.15	0.76	3.46	3.92	200	0.33%	18.84	0.013	0.60	89.74					
19	STREET B	SA20	SA21	0.80		5.39		12	3	36	223	4.54	0.54	350	0.15	0.90	4.10	4.64	200	0.33%	18.84	0.013	0.60	99.00					
EX	FUTURE SUBDIVISION											4.95	0.00	350	0.00	0.00	0.00	0.00											
20	STREET E TOP END			0.22		0.22		3	3	9	9	4.86	0.02	350	0.04	0.04	0.18	0.20	250	0.27%	30.90	0.013	0.63	43.90					
21	STREET E	SA21	SA9	0.42		6.03		5	3	15	247	4.52	0.60	350	0.06	1.00	4.52	5.12	250	0.30%	32.57	0.013	0.66	91.85					
22	STREET C	SA9	SA22	0.89		15.53		18	2.4	43.2	666	4.30	1.55	350	0.18	2.70	11.59	13.15	300	0.25%	48.35	0.013	0.68	67.70					
23	STREET C	SA22	SA23	1.23		16.76		43	2.4	103.2	769	4.26	1.68	350	0.42	3.12	13.27	14.94	300	0.25%	48.35	0.013	0.68	74.00					
24	STREET C	SA23	XSA	0.59		17.35		40	1.6	64	833	4.23	1.74	350	0.26	3.38	14.29	16.03	300	0.25%	48.35	0.013	0.68	63.80					

NOTE: NET AREA IS GROSS AREA FOR EACH CATCHMENT MINUS THE AREA OF THE ROAD ALLOWANCE

AS CONSTRUCTED SERVICES	COMPLETION

DESIGN	LRG
DRAWN	LRG
CHECKED	DTW
APPROVED	SPB
DATE	JULY 2020

No.	REVISIONS	DATE	BY

CONSULTANT OR DIVISION

AGM PLAN • SURVEY • ENGINEER
ARCHIBALD, GRAY & McKAY ENGINEERING LTD.
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ENGINEER'S STAMP

BRANTAM DEVELOPMENTS INC.

SCALE 1:1500

TITLE
KOMOKA SUBDIVISION
BRANTAM DEVELOPMENTS
SANITARY DRAINAGE PLAN
PROPOSED DEVELOPMENT

PROJECT No. 1389-1
SHEET No. DA.1
PLAN FILE No.

Plotted by Lukas Grabowski 2020-08-14 15:23

Plot date: Aug 14, 2020 G:\CLIENT\1389\1\CAD 2019\1389-1 BASE.dwg

Section 3 – Proposed Subdivision Sanitary Downstream Capacity Analysis (with unit count population + Max population)

SANITARY SEWER DESIGN SHEET
MIDDLESEX CENTRE

RENWICK ESTATES SUBDIVISION
DOWNSTREAM CAPACITY ANALYSIS
FLOW CRITERIA COMPARISON

PROPOSED PARAMETERS

CURRENT MIDDLESEX CENTRE STANDARD

PER CAPITA FLOW	350 L/cap/day
INFILTRATED FLOW	0.1 L/ha/s
HARMON	1+14/(4+P^0.5)
PEAKING FACTOR	HARMON
UNCERTAINTY FACTOR	1.1

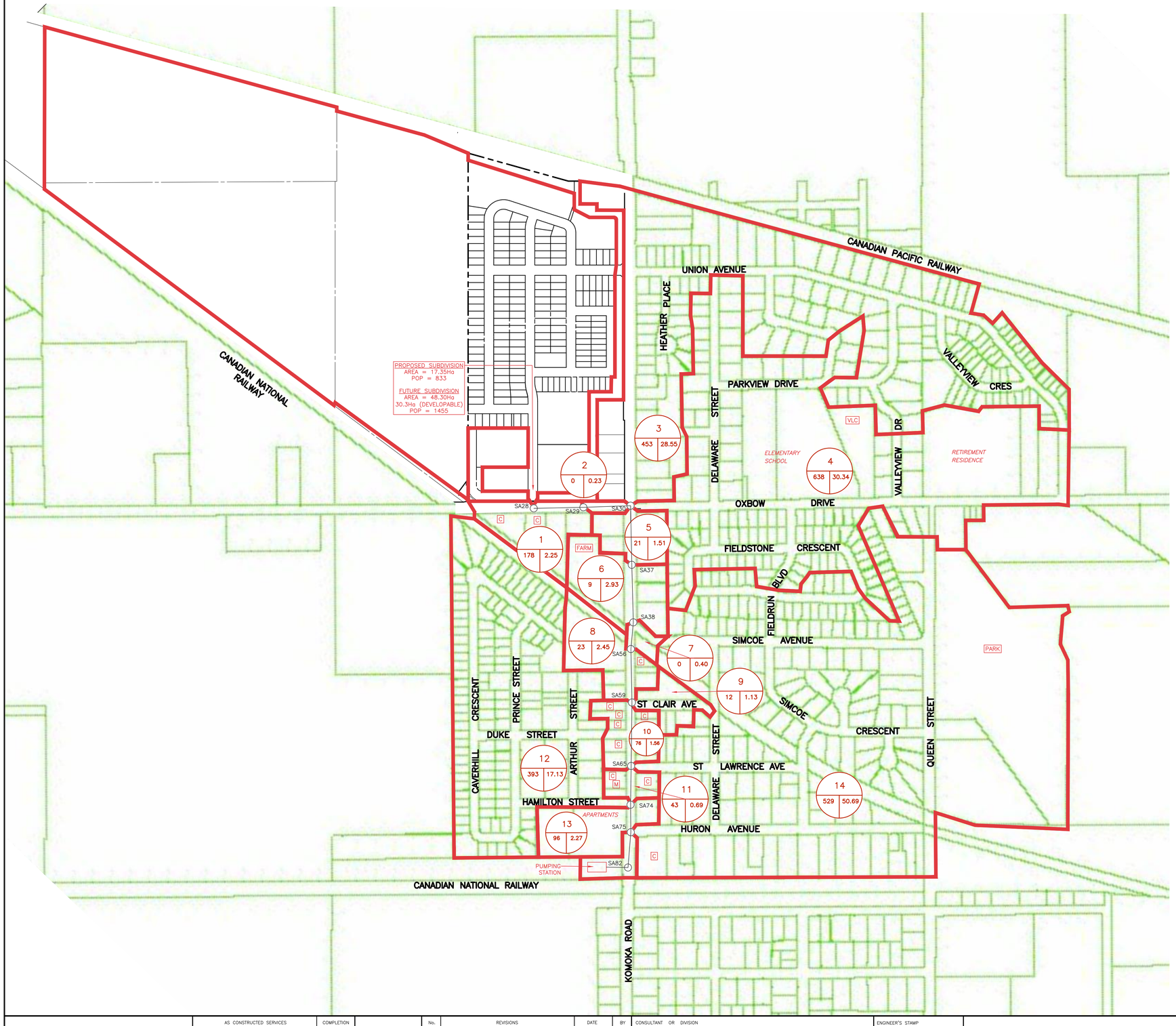
POPULATIONS ASSIGNED PER LOT FOR LOW DENSITY AND PER UNIT FOR MEDIUM/HIGH DENSITY BLOCKS

EXISTING PARAMETERS

PARAMETERS USED FOR SANITARY SEWER DESIGN BY TOTTENHAM SIMS HUBICKI ASSOCIATES INFORMATION PROVIDED BY THE MUNICIPALITY

PER CAPITA FLOW	300 L/cap/day
INFILTRATED FLOW	0.013 L/ha/s
HARMON	1+14/(4+P^0.5)
PEAKING FACTOR	HARMON
UNCERTAINTY FACTOR	1

POPULATIONS ASSIGNED BASED ON ACTUAL LOTS BUILT AS OPPOSED TO DENSITY USED



LEGEND

- EXISTING SANITARY SEWER AND MANHOLE — SAMH — 200 SA
- PROPOSED SANITARY SEWER AND MANHOLE — SA.1 — 200 SA
- DRAINAGE AREA BOUNDARY
- AREA NUMBER (8)
- SIZE OF AREA IN HECTARES (0.94)
- POPULATION (45)

AS CONSTRUCTED SERVICES	COMPLETION

DESIGN	LRG
DRAWN	LRG
CHECKED	DTW
APPROVED	SPB
DATE	JULY 2020

No.	REVISIONS	DATE	BY

CONSULTANT OR DIVISION

AGM PLAN • SURVEY • ENGINEER

ARCHIBALD, GRAY & McKAY ENGINEERING LTD.
3514 WHITE OAK ROAD, LONDON, ON. N6E 2Z9
PHONE 519-685-5300 FAX 519-685-5303
EMAIL info@agm.on.ca WEB www.agm.on.ca

ENGINEER'S STAMP

BRANTAM DEVELOPMENTS INC.

SCALE: N.T.S.

TITLE: KOMOKA SUBDIVISION
BRANTAM DEVELOPMENTS
EXTERNAL SANITARY DRAINAGE PLAN

PROJECT No. 1389-1

SHEET No. DA.2

PLAN FILE No.

Plotted by Lukas Grabowski 2020-07-20 14:28

Plot date: Jul 20, 2020 G:\CLIENT\1389\11\CAD 2019\1389-1 BASE.dwg

RESIDENTIAL POPULATION DENSITIES

(B) LOT BASIS

Single Family	3 Persons per Lot
Medium Density	2.4 Persons per Unit
High Density	1.6 Persons per Unit
Commercial/Industrial	100 Persons per Ha

FLOW CRITERIA
Q = 0.00405 Litres/second/Capita (PROP)
Qinfilt = 0.1 Litres/second/Hectare (PROP) Qinfilt = 0.013 Litres/second/Hectare (EXIST.)
Uncertainty factor 1.1 (PROP) AND 1.0 (EXIST.)

SANITARY SEWER DESIGN SHEET
MIDDLESEX CENTRE

RENWICK ESTATES SUBDIVISION
BRANTAM DEVELOPMENTS
DOWNSTREAM CAPACITY ANALYSIS
CONSIDERING PROPOSED POPULATION (with unit counts) FROM SUBDIVISION

PF= { 1 + [14 / (4 + P^0.5)] } x 1.1 (PROPOSED) PF= { 1 + [14 / (4 + P^0.5)] } (EXISTING)

PF x Uncertainty Factor

FILE No. 1389/1/Excel/Sanitary & Storm Design/1389-1 Sanitary Design Sheet.xls

AGM PLAN • SURVEY • ENGINEER

PROJECT No.: 1389-1
DESIGNED BY: LRG CHECKED: DTW
DATE: JULY 2020 APPROVED: SPB

LOCATION				AREA			POPULATION					SEWAGE FLOW									SEWER DESIGN					PROFILE					
AREA No.	STREET	FROM MH	TO MH	GROSS	DELTA ha	TOTAL ha	PER ha	PER LOT/UNIT	# of LOTS/UNIT	SUM POP	TOTAL POP	PEAKING FACTOR	INFILT FACTOR	DELTA INF. FLOW	INFILT L/s	Q PER CAPITA	DELTA S SEWAGE	TOTAL NO PEAK	SEWAGE L/s	TOTAL L/s	SIZE mm	SLOPE %	CAP L/s	n	VEL m/s	LENGTH m	FALL IN SEWER	HEADLOSS	DROP IN MH	UPPER INVERT	LOWER INVERT
	PROPOSED SUBDIVISION					**17.35**					**833**	**4.23**	**0.100**	**1.74**	**1.74**	**350**	**0.26**	**3.38**	**14.29**	**16.03**	**300**	**0.25**	**48.35**	**0.013**	**0.68**	**63.80**					
1	OXBOW DRIVE	XSA28	XSA29	2.25	1.78	19.60	100			178	1011	3.80	0.013	0.03	1.76	300	0.62	3.99	15.16	16.93	250	0.31%	33.11	0.013	0.67	103.00					
2	OXBOW DRIVE	XSA29	XSA30	0.23		19.83				0	1011	3.80	0.013	0.00	1.77	300	0.00	3.99	15.16	16.93	250	0.30%	32.57	0.013	0.66	102.00					
3	KOMOKA RD TRIB AREA		XSA30	28.55		28.55		151	3	453	453	4.00	0.013	0.37	0.37	300	1.57	1.57	6.29	6.66	250	0.70%	49.75	0.013	1.01	99.00					
4	OXBOW DR. E. TRIB AREA		XSA30	30.34		30.34		131	3	393																				
										180	EQUIVALENT RETIREMENT RESIDENCE POPULATION PER OBC VOLUME REQUIREMENTS																			
						EQUIVALENT INSTITUTIONAL POPULATION				65	638	3.92	0.013	0.39	0.39	300	2.22	2.22	8.68	9.07	250	0.30%	32.57	0.013	0.66	99.00					
5	KOMOKA RD	XSA30	XSA37	1.51		80.23		7	3	21	2123	3.57	0.013	0.02	2.55	300	0.07	7.85	28.00	30.56	250	0.30%	32.57	0.013	0.66	102.00					
6	KOMOKA RD	XSA37	XSA38	2.93		83.16		3	3	9	2132	3.56	0.013	0.04	2.59	300	0.03	7.89	28.10	30.70	250	0.30%	32.57	0.013	0.66	102.00					
7	KOMOKA RD	XSA38	XSA56	0.40		83.56		0	3	0	2132	3.56	0.013	0.01	2.60	300	0.00	7.89	28.10	30.70	250	0.30%	32.57	0.013	0.66	102.00					
8	KOMOKA RD	XSA56	XSA59	2.45	0.08	86.01	100	5	3	23	2155	3.56	0.013	0.03	2.63	300	0.08	7.97	28.36	30.99	250	0.30%	32.57	0.013	0.66	102.00					
9	ST. CLAIR TRIB AREA		XSA59	1.13		1.13		4	3	12	12	4.41	0.013	0.01	0.01	300	0.04	0.04	0.18	0.20	200	0.42%	21.26	0.013	0.68	99.00					
10	KOMOKA RD	XSA59	XSA65	1.56	0.61	88.70	100	5	3	76	2243	3.55	0.013	0.02	2.66	300	0.26	8.27	29.33	31.99	250	0.35%	35.18	0.013	0.72	102.00					
11	KOMOKA RD	XSA65	XSA74	0.69	0.18	89.39	100	2	3	24																				
								8	2.4	19	2286	3.54	0.013	0.01	2.67	300	0.15	8.42	29.80	32.48	250	0.36%	35.68	0.013	0.73	102.00					
12	HAMILTON ST. TRIB AREA		XSA74	17.13		17.13		131	3	393	393	4.03	0.013	0.22	0.22	300	1.36	1.36	5.49	5.72	200	0.42%	21.26	0.013	0.68	99.00					
13	KOMOKA RD	XSA74	XSA75	0.41		106.93		40	2.4	96	2775	3.47	0.013	0.01	2.90	300	0.33	10.12	35.12	38.02	300	0.20%	43.25	0.013	0.61	102.00					
14	HURON AVE. TRIB AREA		XSA75	50.69	0.61	50.69	100	156	3	529	529	3.96	0.013	0.66	0.66	300	1.84	1.84	7.28	7.94	250	0.30%	32.57	0.013	0.66	99.00					
15	KOMOKA ROAD	XSA75	XSA82	0.68		158.30				0	3304	3.41	0.013	0.01	3.57	300	0.00	11.95	40.72	44.29	300	0.35%	57.21	0.013	0.81	102.00					

NOTE: NET AREA IS GROSS AREA FOR EACH CATCHMENT MINUS THE AREA OF THE ROAD ALLOWANCE

RESIDENTIAL POPULATION DENSITIES

(B) LOT BASIS

Single Family	3 Persons per Lot
Medium Density	2.4 Persons per Unit
High Density	1.6 Persons per Unit
Commercial/Industrial	100 Persons per Ha

SANITARY SEWER DESIGN SHEET
MIDDLESEX CENTRE

RENWICK ESTATES SUBDIVISION
BRANTAM DEVELOPMENTS
DOWNSTREAM CAPACITY ANALYSIS
CONSIDERING MAX POPULATION FROM SUBDIVISION

FILE No. 1389/1/Excel/Sanitary & Storm Design/1389-1 Sanitary Design Sheet.xls

FLOW CRITERIA

Q = 0.00405 Litres/second/Capita (PROP)
Qinfilt = 0.1 Litres/second/Hectare (PROP) Qinfilt = 0.013 Litres/second/Hectare (EXIST.)
Uncertainty factor 1.1 (PROP) AND 1.0 (EXIST.)

PF= { 1 + [14 / (4 + P^0.5)] } x 1.1 (PROPOSED) PF= { 1 + [14 / (4 + P^0.5)] } (EXISTING)

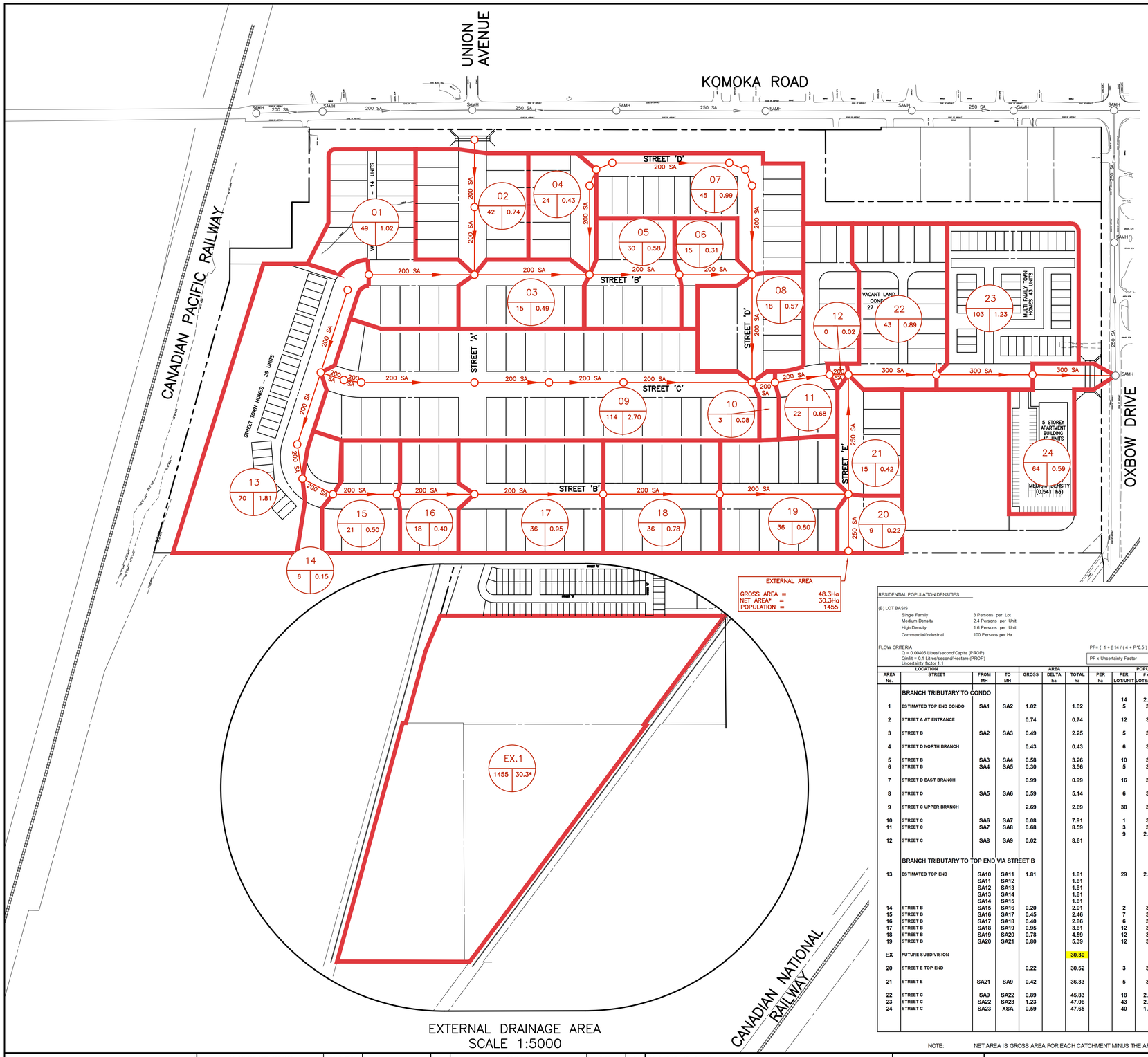
PF x Uncertainty Factor

PROJECT No.: 1389-1
DESIGNED BY: LRG CHECKED: DTW
DATE: JULY 2020 APPROVED: SPB

LOCATION				AREA			POPULATION					SEWAGE FLOW									SEWER DESIGN					PROFILE					
AREA No.	STREET	FROM MH	TO MH	GROSS	DELTA ha	TOTAL ha	PER ha	PER LOT/UNIT	# of LOTS/UNIT	SUM POP	TOTAL POP	PEAKING FACTOR	INFILT FACTOR	DELTA INF. FLOW	INFILT L/s	Q PER CAPITA	DELTA S SEWAGE	TOTAL NO PEAK	SEWAGE L/s	TOTAL L/s	SIZE mm	SLOPE %	CAP L/s	n	VEL m/s	LENGTH m	FALL IN SEWER	HEADLOSS	DROP IN MH	UPPER INVERT	LOWER INVERT
	PROPOSED SUBDIVISION					**17.35**					**943**	**4.20**	**0.100**	**1.74**	**1.74**	**350**		**3.82**	**16.04**	**17.77**	**300**	**0.00**	**48.35**	**0.013**	**0.68**	**63.80**					
1	OXBOW DRIVE	XSA28	XSA29	2.25	1.78	19.60	100			178	1121	3.77	0.013	0.03	1.76	300	0.62	4.44	16.72	18.49	250	0.31%	33.11	0.013	0.67	103.00					
2	OXBOW DRIVE	XSA29	XSA30	0.23		19.83				0	1121	3.77	0.013	0.00	1.77	300	0.00	4.44	16.72	18.49	250	0.30%	32.57	0.013	0.66	102.00					
3	KOMOKA RD TRIB AREA		XSA30	28.55		28.55		151	3	453	453	4.00	0.013	0.37	0.37	300	1.57	1.57	6.29	6.66	250	0.70%	49.75	0.013	1.01	99.00					
4	OXBOW DR. E. TRIB AREA		XSA30	30.34		30.34		131	3	393																				
										180	EQUIVALENT RETIREMENT RESIDENCE POPULATION PER OBC VOLUME REQUIREMENTS																			
						EQUIVALENT INSTITUTIONAL POPULATION				65	638	3.92	0.013	0.39	0.39	300	2.22	2.22	8.68	9.07	250	0.30%	32.57	0.013	0.66	99.00					
5	KOMOKA RD	XSA30	XSA37	1.51		80.23		7	3	21	2233	3.55	0.013	0.02	2.55	300	0.07	8.30	29.45	32.00	250	0.30%	32.57	0.013	0.66	102.00					
6	KOMOKA RD	XSA37	XSA38	2.93		83.16		3	3	9	2242	3.55	0.013	0.04	2.59	300	0.03	8.33	29.55	32.14	250	0.30%	32.57	0.013	0.66	102.00					
7	KOMOKA RD	XSA38	XSA56	0.40		83.56		0	3	0	2242	3.55	0.013	0.01	2.60	300	0.00	8.33	29.55	32.14	250	0.30%	32.57	0.013	0.66	102.00					
8	KOMOKA RD	XSA56	XSA59	2.45	0.08	86.01	100	5	3	23	2265	3.54	0.013	0.03	2.63	300	0.08	8.41	29.80	32.43	250	0.30%	32.57	0.013	0.66	102.00	***CRITICAL SEWER RUN LIMITING CAPACITY***				
9	ST. CLAIR TRIB AREA		XSA59	1.13		1.13		4	3	12	12	4.41	0.013	0.01	0.01	300	0.04	0.04	0.18	0.20	200	0.42%	21.26	0.013	0.68	99.00					
10	KOMOKA RD	XSA59	XSA65	1.56	0.61	88.70	100	5	3	76	2353	3.53	0.013	0.02	2.66	300	0.26	8.71	30.76	33.43	250	0.35%	35.18	0.013	0.72	102.00					
11	KOMOKA RD	XSA65	XSA74	0.69	0.18	89.39	100	2	3	24																				
								8	2.4	19	2396	3.52	0.013	0.01	2.67	300	0.15	8.86	31.24	33.91	250	0.36%	35.68	0.013	0.73	102.00					
12	HAMILTON ST. TRIB AREA		XSA74	17.13		17.13		131	3	393	393	4.03	0.013	0.22	0.22	300	1.36	1.36	5.49	5.72	200	0.42%	21.26	0.013	0.68	99.00					
13	KOMOKA RD	XSA74	XSA75	0.41		106.93		40	2.4	96	2885	3.46	0.013	0.01	2.90	300	0.33	10.56	36.51	39.41	300	0.20%	43.25	0.013	0.61	102.00					
14	HURON AVE. TRIB AREA		XSA75	50.69	0.61	50.69	100	156	3	529	529	3.96	0.013	0.66	0.66	300	1.84	1.84	7.28	7.94	250	0.30%	32.57	0.013	0.66	99.00					
15	KOMOKA ROAD	XSA75	XSA82	0.68		158.30				0	3414	3.39	0.013	0.01	3.57	300	0.00	12.40	42.09	45.65	300	0.35%	57.21	0.013	0.81	102.00					

NOTE: NET AREA IS GROSS AREA FOR EACH CATCHMENT MINUS THE AREA OF THE ROAD ALLOWANCE

Section 4 – Proposed+Future Subdivision Sanitary Drainage Area Plan



EXTERNAL DRAINAGE AREA
SCALE 1:5000

RESIDENTIAL POPULATION DENSITIES

(B) LOT BASIS

Single Family	3 Persons per Lot
Medium Density	2.4 Persons per Unit
High Density	1.6 Persons per Unit
Commercial/Industrial	100 Persons per Ha

FLOW CRITERIA
Q = 0.00405 Litres/second/Capita (PROP)
Qinfil = 0.1 Litres/second/Hectare (PROP)
Uncertainty factor 1.1

PF= (1 + [14 / (4 + P^0.5)]) x 1.1
PF x Uncertainty Factor

SANITARY SEWER DESIGN SHEET
MIDDLESEX CENTRE
Medium Density Blocks Calculated per Unit
KOMOKA SUBDIVISION
BRANTAM DEVELOPMENTS

FILE No. 1389\1\Excel\Sanitary & Storm Design\1389-1 Sanitary Design Sheet-INTERNAL.xls

PROJECT No.: 1389-1
DESIGNED BY: LRG
DATE: FEBRUARY 2019
CHECKED: DTW
APPROVED: SPB

LOCATION				AREA			POPULATION					V	SEWAGE FLOW					SEWER DESIGN							PROFILE				
AREA No.	STREET	FROM MH	TO MH	GROSS ha	DELTA ha	TOTAL ha	PER ha	PER LOT/UNIT	# of LOTS/UNIT	SUM POP	TOTAL POP	PEAKING FACTOR	INFILT L/s	Q PER CAPITA	AVERAGE SEWAGE	PEAK SEWAGE NO PEAK	SEWAGE L/s	TOTAL L/s	SIZE mm	SLOPE %	CAP L/s	n	VEL m/s	LENGTH m	FALL IN SEWER	HEADLOSS	DROP IN MH	UPPER INVERT	LOWER INVERT
	BRANCH TRIBUTARY TO CONDO							14	2.4																			
1	ESTIMATED TOP END CONDO	SA1	SA2	1.02		1.02		5	3	49	49	4.75	0.10	350	0.20	0.20	0.93	1.04	200	0.33%	18.84	0.013	0.60	81.26					
2	STREET A AT ENTRANCE			0.74		0.74		12	3	36	36	4.78	0.07	350	0.15	0.15	0.70	0.77											
3	STREET B	SA2	SA3	0.49		2.25		5	3	15	100	4.67	0.23	350	0.06	0.40	1.88	2.11	200	0.33%	18.84	0.013	0.60	88.64					
4	STREET D NORTH BRANCH			0.43		0.43		6	3	18	18	4.83	0.04	350	0.07	0.07	0.35	0.39											
5	STREET B	SA3	SA4	0.58		3.26		10	3	30	148	4.61	0.33	350	0.12	0.60	2.76	3.08	200	0.33%	18.84	0.013	0.60	69.05					
6	STREET B	SA4	SA5	0.30		3.56		5	3	15	163	4.60	0.36	350	0.06	0.66	3.03	3.38	200	0.33%	18.84	0.013	0.60	56.00					
7	STREET D EAST BRANCH			0.99		0.99		16	3	48	48	4.75	0.10	350	0.19	0.19	0.92	1.02											
8	STREET D	SA5	SA6	0.59		5.14		6	3	18	229	4.54	0.51	350	0.07	0.93	4.20	4.72	200	0.33%	18.84	0.013	0.60	83.00					
9	STREET C UPPER BRANCH			2.69		2.69		38	3	114	114	4.65	0.27	350	0.46	0.46	2.15	2.42											
10	STREET C	SA6	SA7	0.08		7.91		1	3	3	346	4.46	0.79	350	0.01	1.40	6.24	7.03	200	0.33%	18.84	0.013	0.60	17.51					
11	STREET C	SA7	SA8	0.68		8.59		3	3	9																			
12	STREET C	SA8	SA9	0.02		8.61		9	2.4	22	376	4.44	0.86	350	0.12	1.52	6.76	7.62	200	0.33%	18.84	0.013	0.60	42.50					
										0	376	4.44	0.86	350	0.00	1.52	6.76	7.62	200	0.33%	18.84	0.013	0.60	14.50					
	BRANCH TRIBUTARY TO TOP END VIA STREET B																												
13	ESTIMATED TOP END	SA10	SA11	1.81		1.81		29	2.4	69.6	70	4.71	0.18	350	0.28	0.28	1.33	1.51	200	0.33%	18.84	0.013	0.60	10.52					
		SA11	SA12			1.81					70	4.71	0.18	350	0.00	0.28	1.33	1.51	200	0.33%	18.84	0.013	0.60	10.52					
		SA12	SA13			1.81					70	4.71	0.18	350	0.00	0.28	1.33	1.51	200	0.33%	18.84	0.013	0.60	66.86					
		SA13	SA14			1.81					70	4.71	0.18	350	0.00	0.28	1.33	1.51	200	0.33%	18.84	0.013	0.60	58.25					
		SA14	SA15			1.81					70	4.71	0.18	350	0.00	0.28	1.33	1.51	200	0.33%	18.84	0.013	0.60	26.70					
14	STREET B	SA15	SA16	0.20		2.01		2	3	6	76	4.70	0.20	350	0.02	0.31	1.44	1.64	200	0.33%	18.84	0.013	0.60	26.30					
15	STREET B	SA16	SA17	0.45		2.46		7	3	21	97	4.67	0.25	350	0.09	0.39	1.83	2.07	200	0.33%	18.84	0.013	0.60	49.19					
16	STREET B	SA17	SA18	0.40		2.86		6	3	18	115	4.65	0.29	350	0.07	0.46	2.16	2.44	200	0.33%	18.84	0.013	0.60	59.65					
17	STREET B	SA18	SA19	0.95		3.81		12	3	36	151	4.61	0.38	350	0.15	0.61	2.81	3.19	200	0.33%	18.84	0.013	0.60	99.00					
18	STREET B	SA19	SA20	0.78		4.59		12	3	36	187	4.57	0.46	350	0.15	0.76	3.46	3.92	200	0.33%	18.84	0.013	0.60	89.74					
19	STREET B	SA20	SA21	0.80		5.39		12	3	36	223	4.54	0.54	350	0.15	0.90	4.10	4.64	200	0.33%	18.84	0.013	0.60	99.00					
EX	FUTURE SUBDIVISION					30.30					1455	4.06	3.03	350	5.89	5.89	23.92	26.95											
20	STREET E TOP END			0.22		30.52		3	3	9	1464	4.06	3.05	350	0.04	5.93	24.05	27.11	250	0.27%	30.90	0.013	0.63	43.90					
21	STREET E	SA21	SA9	0.42		36.33		5	3	15	1702	4.00	3.63	350	0.06	6.89	27.59	31.23	250	0.30%	32.57	0.013	0.66	91.85					
22	STREET C	SA9	SA22	0.89		45.83		18	2.4	43.2	2121	3.92	4.58	350	0.19	8.59	33.70	38.28	300	0.25%	48.35	0.013	0.68	67.70					
23	STREET C	SA22	SA23	1.23		47.06		43	2.4	103.2	2224	3.90	4.71	350	0.42	9.01	35.18	39.88	300	0.25%	48.35	0.013	0.68	74.00					
24	STREET C	SA23	XSA	0.59		47.65		40	1.6	64	2288	3.89	4.77	350	0.26	9.27	36.09	40.86	300	0.25%	48.35	0.013	0.68	63.80					

NOTE: NET AREA IS GROSS AREA FOR EACH CATCHMENT MINUS THE AREA OF THE ROAD ALLOWANCE

AS CONSTRUCTED SERVICES	COMPLETION

DESIGN	LRG
DRAWN	LRG
CHECKED	DTW
APPROVED	SPB
DATE	JULY 2020

No.	REVISIONS	DATE	BY

CONSULTANT OR DIVISION

AGM PLAN • SURVEY • ENGINEER
ARCHIBALD, GRAY & McKAY ENGINEERING LTD.
3514 WHITE OAK ROAD, LONDON, ON. N6E 2Z9
PHONE 519-685-5300 FAX 519-685-5303
EMAIL info@agm.on.ca WEB www.agm.on.ca

ENGINEER'S STAMP

BRANTAM DEVELOPMENTS INC.

SCALE
SCALE - 1 : 1500
15 0 30m

TITLE
KOMOKA SUBDIVISION
BRANTAM DEVELOPMENTS
SANITARY DRAINAGE PLAN

PROJECT No. 1389-1
SHEET No. DA.1
PLAN FILE No.

Plotted by Lukas Grabowski 2020-07-20 14:54
Plot date: Jul 20, 2020 G:\CLIENT\1389\1\CAD 2019\1389-1 BASE.dwg

RESIDENTIAL POPULATION DENSITIES

(B) LOT BASIS

Single Family	3 Persons per Lot
Medium Density	2.4 Persons per Unit
High Density	1.6 Persons per Unit
Commercial/Industrial	100 Persons per Ha

SANITARY SEWER DESIGN SHEET
MIDDLESEX CENTRE

RENWICK ESTATES SUBDIVISION
BRANTAM DEVELOPMENTS
DOWNSTREAM CAPACITY ANALYSIS
CONSIDERING FUTURE POPULATION FROM SUBDIVISION

FILE No. 1389/1/Excel/Sanitary & Storm Design/1389-1 Sanitary Design Sheet.xls

FLOW CRITERIA

Q = 0.00405 Litres/second/Capita (PROP)

Qinfilt = 0.1 Litres/second/Hectare (PROP) Qinfilt = 0.013 Litres/second/Hectare (EXIST.)

Uncertainty factor 1.1 (PROP) AND 1.0 (EXIST.)

PF= { 1 + [14 / (4 + P^0.5)] } x 1.1 (PROPOSED) PF= { 1 + [14 / (4 + P^0.5)] } (EXISTING)

PF x Uncertainty Factor

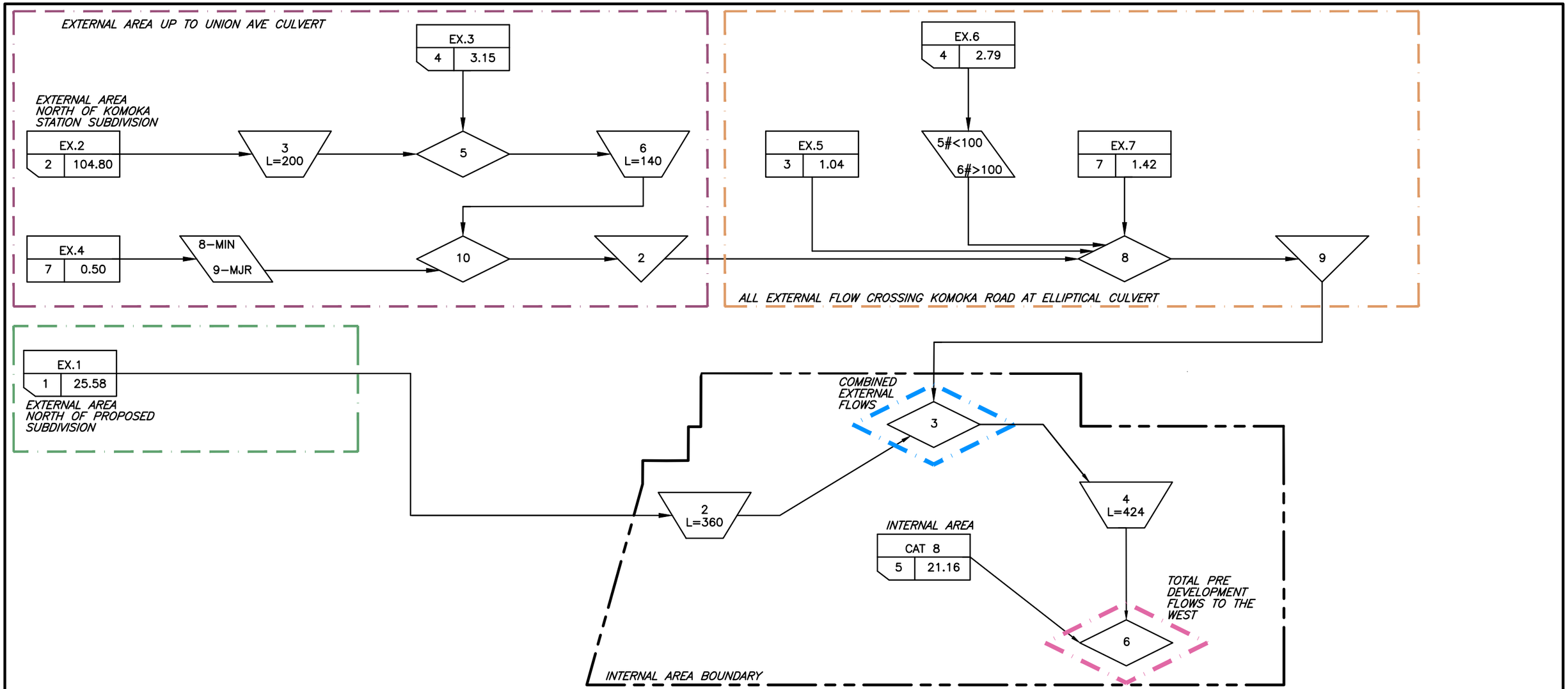
PROJECT No.: 1389-1
DESIGNED BY: LRG CHECKED: DTW
DATE: JULY 2020 APPROVED: SPB

LOCATION				AREA			POPULATION					SEWAGE FLOW									SEWER DESIGN					PROFILE					
AREA No.	STREET	FROM MH	TO MH	GROSS	DELTA ha	TOTAL ha	PER ha	PER LOT/UNIT	# of LOTS/UNIT	SUM POP	TOTAL POP	PEAKING FACTOR	INFILT FACTOR	DELTA INF. FLOW	INFILT L/s	Q PER CAPITA	DELTA S SEWAGE	TOTAL NO PEAK	SEWAGE L/s	TOTAL L/s	SIZE mm	SLOPE %	CAP L/s	n	VEL m/s	LENGTH m	FALL IN SEWER	HEADLOSS	DROP IN MH	UPPER INVERT	LOWER INVERT
	PROPOSED SUBDIVISION					**47.65**					**2288**	**3.11**	**0.100**	**4.77**	**4.77**	**350**	**0.26**	**9.27**	**30.09**	**40.86**	**300**	**0.25%**	**48.35**	**0.013**	**0.68**	**63.80**					
1	OXBOW DRIVE	XSA28	XSA29	2.25	1.78	49.90	100			178	2466	3.09	0.100	0.23	4.99	300	0.62	9.89	30.57	35.56	250	0.31%	33.11	0.013	0.67	103.00					
2	OXBOW DRIVE	XSA29	XSA30	0.23		50.13				0	2466	3.09	0.100	0.02	5.01	300	0.00	9.89	30.57	35.58	250	0.30%	32.57	0.013	0.66	102.00					
3	KOMOKA RD TRIB AREA		XSA30	28.55		28.55		151	3	453	453	3.52	0.100	2.86	2.86	300	1.57	1.57	5.53	8.39	250	0.70%	49.75	0.013	1.01	99.00					
4	OXBOW DR. E. TRIB AREA		XSA30	30.34		30.34		131	3	393																					
										180	EQUIVALENT RETIREMENT RESIDENCE POPULATION PER OBC VOLUME REQUIREMENTS																				
						EQUIVALENT INSTITUTIONAL POPULATION				65	638	3.45	0.100	3.03	3.03	300	2.22	2.22	7.64	10.67	250	0.30%	32.57	0.013	0.66	99.00					
5	KOMOKA RD	XSA30	XSA37	1.51		110.53		7	3	21	3578	2.97	0.013	0.02	10.92	300	0.07	13.75	40.85	51.77	250	0.30%	32.57	0.013	0.66	102.00					
6	KOMOKA RD	XSA37	XSA38	2.93		113.46		3	3	9	3587	2.97	0.013	0.04	10.96	300	0.03	13.78	40.93	51.89	250	0.30%	32.57	0.013	0.66	102.00					
7	KOMOKA RD	XSA38	XSA56	0.40		113.86		0	3	0	3587	2.97	0.013	0.01	10.96	300	0.00	13.78	40.93	51.89	250	0.30%	32.57	0.013	0.66	102.00					
8	KOMOKA RD	XSA56	XSA59	2.45	0.08	116.31	100	5	3	23	3610	2.97	0.013	0.03	11.00	300	0.08	13.86	41.14	52.13	250	0.30%	32.57	0.013	0.66	102.00					
9	ST. CLAIR TRIB AREA		XSA59	1.13		1.13		4	3	12	12	3.88	0.013	0.01	0.01	300	0.04	0.04	0.16	0.18	200	0.42%	21.26	0.013	0.68	99.00					
10	KOMOKA RD	XSA59	XSA65	1.56	0.61	119.00	100	5	3	76	3698	2.96	0.013	0.02	11.03	300	0.26	14.16	41.92	52.96	250	0.35%	35.18	0.013	0.72	102.00					
11	KOMOKA RD	XSA65	XSA74	0.69	0.18	119.69	100	2	3	24																					
								8	2.4	19	3741	2.96	0.013	0.01	11.04	300	0.15	14.31	42.31	53.35	250	0.36%	35.68	0.013	0.73	102.00					
12	HAMILTON ST. TRIB AREA		XSA74	17.13		17.13		131	3	393	393	3.54	0.100	1.71	1.71	300	1.36	1.36	4.83	6.55	200	0.42%	21.26	0.013	0.68	99.00					
13	KOMOKA RD	XSA74	XSA75	0.41		137.23		40	2.4	96	4230	2.91	0.013	0.01	12.76	300	0.33	16.01	46.66	59.42	300	0.20%	43.25	0.013	0.61	102.00					
14	HURON AVE. TRIB AREA		XSA75	50.69	0.61	50.69	100	156	3	529	529	3.49	0.100	5.07	5.07	300	1.84	1.84	6.40	11.47	250	0.30%	32.57	0.013	0.66	99.00					
15	KOMOKA ROAD	XSA75	XSA82	0.68		188.60				0	4759	2.87	0.013	0.01	17.84	300	0.00	17.85	51.28	69.12	300	0.35%	57.21	0.013	0.81	102.00					

NOTE: NET AREA IS GROSS AREA FOR EACH CATCHMENT MINUS THE AREA OF THE ROAD ALLOWANCE

APPENDIX B

Stormwater Management
Pre Development Model



CALIB STANDHYD
DESCRIPTION
ID | AREA

ADD HYD
ID

CHANNEL
ID
L=

CALIB NASHHYD
DESCRIPTION
ID | AREA

RESERVOIR
ID

COMPUTE DUALHYD
ID

PRE DEVELOPMENT MODEL SCHEMATIC

DATE: AUGUST 2020

ARCHIBALD, GRAY & McKAY ENGINEERING LTD.
3514 WHITE OAK ROAD, LONDON, ON, N6E 2Z9
PHONE 519-685-5300 FAX 519-685-5303
EMAIL info@agm.on.ca WEB www.agm.on.ca
PLAN • SURVEY • ENGINEER

Plot date: Jul 30, 2020 G:\CLIENT\1389\1\CAD 2019\1389-1 BASE.dwg

PRE DEVELOPMENT MODELING DATA

CALIB NASH HYDROGRAPH (RURAL PERVIOUS AREAS)

CATCHMENT NO.	AREA (ha)	SCS CURVE #	BASE FLOW (cms)	Initial Abstraction (mm)	Time to Peak (hrs)	Time of concentration (hrs)	Time of concentration (hrs)	Time of concentration (hrs)	Runoff Coef., C	Watershed Length, L (m)	Watershed Slope, (%)	Velocity From Uplands Method Figure (m/s)
EX.1	25.58	84	0.000	7	0.468	1.071	0.686	0.584	0.20	882.5	2.5	0.42
EX.2	104.8	84	0.000	7	0.754	1.520	1.182	1.065	0.20	1265.7	1.5	0.33
EX.3	3.15	86	0.000	5	0.225	0.692	0.309	0.123	0.20	*200.0*	*1*	0.45
8	21.16	78	0.000	7	0.872	1.687	1.632	1.042	0.20	750.0	0.5	0.20
					0.6 x Tc(avg)	Airport Method	SCS Method	Uplands Method	Tc=(Length/Velocity)			

CALIB STANDARD HYDROGRAPH (URBAN AREAS)

CATCHMENT NO.	AREA (ha)	XIMP (%)	TIMP (%)	BASE FLOW (cms)	PERVIOUS LENGTH (m)	IMP. LENGTH (m)	Perv. Initial Abstraction (mm)	Imp. Initial Abstraction (mm)	PERVIOUS MANNINGS (n)	Pervious Slope (%)	Impervious Slope (%)	SCS CURVE #
EX.4	0.50	1.00	30.00	0	27	97	5	2	0.25	2	0.35	86
EX.5	1.04	48.00	60.00	0	15	185	5	2	0.25	2	0.5	86
EX.6	2.79	45.00	55.00	0	25	100	5	2	0.25	2	0.5	86
EX.7	1.42	20.00	40.00	0	40	250	5	2	0.25	2	0.5	86

Airport Method

$$T_C = \frac{3.26(1.1 - C)L^{0.5}}{S^{0.33}}$$

Tc in minutes

SCS Method

$$T_C = \frac{2.58L^{0.8}[(1000/CN) - 9]^{0.7}}{1900S^{0.5}} \times 100$$

Tc in minutes

Pre Development

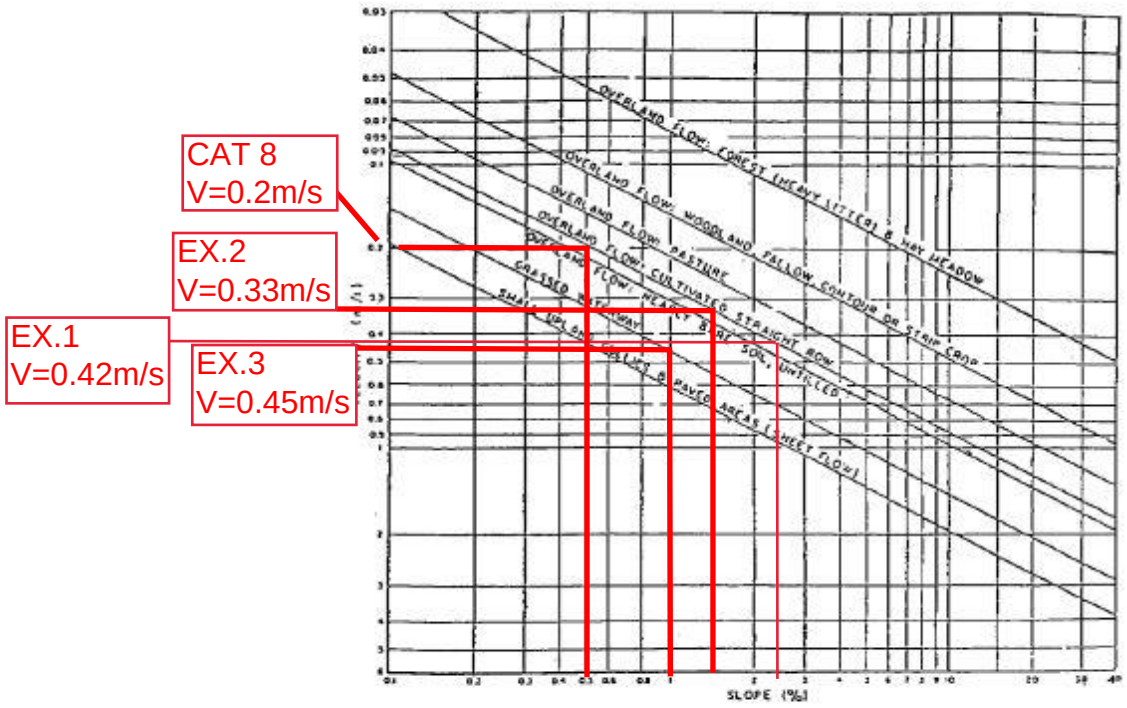


FIGURE 1 UPLANDS METHOD OF ESTIMATING TIME OF CONCENTRATION (SCS NATIONAL ENGINEERING HANDBOOK, 1971)

UNION AVENUE CULVERT PERFORMANCE

Elevation (m)	Storage		Discharge			Description
	Incremental Storage (m^3)	Upstream Storage (m^3)	Union Ave 1200 Culv	Roadway Conveyance Weir	Combined Discharge	
242.014	0.0	0.00				
242.200	0.1	0.1	0.050	0.000	0.050	
242.400	4.1	4.2	0.210	0.000	0.210	
242.600	10.0	14.2	0.460	0.000	0.460	
242.800	20.9	35.1	0.780	0.000	0.780	
243.000	31.9	*67.0*	1.170	0.000	1.170	
243.200	43.0	*110.0*	1.610	0.000	1.610	
243.400	60.0	*170.0*	2.060	0.000	2.060	
243.600	83.0	*253.0*	2.520	0.000	2.520	
243.690	45.0	*298.0*	2.710	0.000	2.710	
243.700	5.0	*303.0*	2.730	0.001	2.731	
243.800	56.0	*359.0*	2.914	0.568	3.482	
243.900	61.0	*420.0*	3.038	2.814	5.852	
243.920	13.0	433.0	3.064	3.580	6.644	
243.940	20.0	453.0	3.087	4.368	7.455	

Italics denote approximate upstream storage based on limited topo information

KOMOKA ROAD CULVERT BACK UP PERFORMANCE

Elevation (m)	Storage		Discharge			Description
	Incremental Storage (m^3)	Ditch Storage (m^3)	Discharge Culv	Roadway Conveyance Weir	Combined Discharge	
241.77	0.0	0.0	0.000	0.000	0.000	
241.80	3.7	3.7	0.000	0.000	0.000	
242.00	10.0	13.7	0.140	0.000	0.140	
242.20	25.7	39.4	0.240	0.000	0.240	
242.40	46.8	86.2	0.600	0.000	0.600	
242.60	68.8	155.0	1.060	0.000	1.060	
242.80	91.4	246.3	1.500	0.000	1.500	
243.00	173.5	419.8	1.920	0.000	1.920	
243.20	105.8	525.6	2.280	0.000	2.280	
243.40	211.4	*737.0*	2.570	0.000	2.570	
243.60	291.0	*1028.0*	2.820	0.000	2.820	
243.63	55.0	*1083.0*	2.860	0.000	2.860	
243.70	144.0	*1227.0*	2.940	0.760	3.700	
243.76	101.0	*1328.0*	3.013	3.075	6.088	
243.80	158.0	*1486.0*	2.960	5.050	8.010	

Modeling

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                          9   9  9   9   # 2957874
        StormWater Management HYdrologic Model            999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                        +++++++++
 +++++++++                London               SERIAL#:2957874       +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *********
 *********           Maximum value for ID numbers  :     10           *********
 *********           Max. number of rainfall points: 105408           *********
 *********           Max. number of flow points    : 105408           *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 09:23:51     RUN COUNTER: 000817         *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre2.dat                   *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre2.out                   *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre2.sum                   *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 724.690
| Ptotal= 33.31 mm |                          B=   5.500
--------------------                          C=    .800
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  3.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =   .38

            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
             .08   2.621 |    .83   8.023 |   1.58   9.859 |   2.33   3.744
             .17   2.815 |    .92  10.810 |   1.67   8.265 |   2.42   3.518
             .25   3.045 |   1.00  16.773 |   1.75   7.130 |   2.50   3.320
             .33   3.321 |   1.08  37.614 |   1.83   6.281 |   2.58   3.145
             .42   3.659 |   1.17 110.459 |   1.92   5.622 |   2.67   2.989
             .50   4.082 |   1.25  44.943 |   2.00   5.096 |   2.75   2.849
             .58   4.630 |   1.33  24.030 |   2.08   4.666 |   2.83   2.723
             .67   5.367 |   1.42  16.238 |   2.17   4.307 |   2.92   2.609
             .75   6.414 |   1.50  12.255 |   2.25   4.004 |   3.00   2.504

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=     .467 (i)
     TIME TO PEAK    (hrs)=    1.817
     RUNOFF VOLUME    (mm)=    9.268
     TOTAL RAINFALL   (mm)=   33.311
     RUNOFF COEFFICIENT   =     .278

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    1.388 (i)
     TIME TO PEAK    (hrs)=    2.217
     RUNOFF VOLUME    (mm)=    9.268
     TOTAL RAINFALL   (mm)=   33.311
     RUNOFF COEFFICIENT   =     .278

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
```

```
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                  LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                  .00         100.00          .0300
                 3.00          99.00     .0300 / .0300  Main Channel
                 5.00          99.00     .0300 / .0300  Main Channel
                 8.00         100.00          .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2:EX.2       104.80    1.388    2.22  9.268      .332     1.386
   OUTFLOW: ID= 3:CHAN       104.80    1.386    2.25  9.268      .331     1.384


-------------------------------------------------------------------------------
001:0006---------------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .120 (i)
     TIME TO PEAK    (hrs)=    1.450
     RUNOFF VOLUME    (mm)=   11.506
     TOTAL RAINFALL   (mm)=   33.311
     RUNOFF COEFFICIENT   =     .345

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
```

```
001:0007---------------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 03:CHAN         104.80    1.386    2.25   9.27    .000
                     +ID2 04:EX.3           3.15     .120    1.45  11.51    .000
                      ============================================================
                      SUM 05:EX2+3        107.95    1.418    2.22   9.33    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
001:0008---------------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                  LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                  .00         100.00          .0250
                1.35          99.55     .0250 / .0250  Main Channel
                9.35          99.55     .0250 / .0250  Main Channel
               10.70         100.00          .0250

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 5:EX2+3      107.95    1.418    2.22  9.334      .185      .893
   OUTFLOW: ID= 6:LOT.CH     107.95    1.416    2.25  9.334      .184      .891
```

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--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .15          .35
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .35         2.00
     Length            (m)=     97.00        27.00
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    110.46        50.45
               over (min)       4.00        11.00
     Storage Coeff.  (min)=      3.60 (ii)   10.93 (ii)
     Unit Hyd. Tpeak (min)=      4.00        11.00
     Unit Hyd. peak  (cms)=       .30          .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .00          .03          .030 (iii)
     TIME TO PEAK    (hrs)=      1.20         1.33         1.333
     RUNOFF VOLUME    (mm)=     31.31        15.02        15.187
     TOTAL RAINFALL   (mm)=     33.31        33.31        33.311
     RUNOFF COEFFICIENT   =       .94          .45          .456

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =      1
---------------------   Total minor system capacity          =    .080  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .030     1.333   15.187     .000
     ======================================================================
     MAJOR SYST   09:EX4>10        .00      .000      .000     .000     .000
     MINOR SYST   08:EX4<10        .50      .030     1.333   15.187     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)  (hrs)   (mm)   (cms)
                      ID1 06:LOT.CH       107.95    1.416   2.25   9.33    .000
                     +ID2 09:EX4>10          .00     .000    .00    .00    .000  **DRY**
                     ==========================================================
                     SUM 10:E2+3+4       107.95    1.416   2.25   9.33    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
---------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)    |
| OUT<02:(UNION )    |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.520  .2530E-01
                            .050  .1000E-03   |    2.710  .2980E-01
                            .210  .4200E-03   |    2.731  .3030E-01
                            .460  .1420E-02   |    3.482  .3590E-01
                            .780  .3510E-02   |    5.852  .4200E-01
                           1.170  .6700E-02   |    6.644  .4330E-01
                           1.610  .1100E-01   |    7.455  .4530E-01
                           2.060  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------            (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     107.95     1.416     2.250      9.334
     OUTFLOW<02: (UNION )     107.95     1.416     2.283      9.334

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.943
                  TIME SHIFT OF PEAK FLOW         (min)=     2.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.9100E-02

--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .62          .42
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    185.00        15.00
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    110.46        45.87
               over (min)       5.00        10.00
     Storage Coeff.  (min)=      4.76 (ii)   10.12 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=       .23          .11
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .10          .03          .121 (iii)
     TIME TO PEAK    (hrs)=      1.22         1.32         1.217
     RUNOFF VOLUME    (mm)=     31.31        14.17        22.397
     TOTAL RAINFALL   (mm)=     33.31        33.31        33.311
     RUNOFF COEFFICIENT   =       .94          .43          .672

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------------------------------------------------------------------
001:0014--------------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     110.46        38.75
               over (min)        3.00        11.00
     Storage Coeff.  (min)=       3.29 (ii)   11.07 (ii)
     Unit Hyd. Tpeak (min)=       3.00        11.00
     Unit Hyd. peak  (cms)=        .35          .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .31          .08          .333 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.35         1.183
     RUNOFF VOLUME    (mm)=      31.31        13.54        21.538
     TOTAL RAINFALL   (mm)=      33.31        33.31        33.311
     RUNOFF COEFFICIENT   =        .94          .41          .647

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6   |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity          =   1.142  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79      .333     1.183   21.538     .000
     ==========================================================================
     MAJOR SYST   06:>100YR        .00      .000      .000     .000     .000
     MINOR SYST   05:<100YR       2.79      .333     1.183   21.538     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016--------------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=      99.54        35.72
               over (min)        6.00        17.00
     Storage Coeff.  (min)=       5.95 (ii)   16.60 (ii)
     Unit Hyd. Tpeak (min)=       6.00        17.00
     Unit Hyd. peak  (cms)=        .19          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .05          .05          .075 (iii)
     TIME TO PEAK    (hrs)=       1.23         1.47         1.383
     RUNOFF VOLUME    (mm)=      31.31        14.43        17.803
     TOTAL RAINFALL   (mm)=      33.31        33.31        33.311
     RUNOFF COEFFICIENT   =        .94          .43          .534

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:UNION        107.95    1.416    2.28   9.33    .000
                       +ID2 03:EX.5           1.04     .121    1.22  22.40    .000
                       +ID3 06:>100YR          .00     .000     .00    .00    .000  **DRY**
                       +ID4 07:EX.7           1.42     .075    1.38  17.80    .000
                        ============================================================
                        SUM 08:EX.2-7       110.41    1.446    2.27   9.57    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018--------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
---------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)    |
| OUT<09:(KOMOKA)    |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.280  .5256E-01
                            .000  .3700E-03   |    2.570  .7370E-01
                            .140  .1370E-02   |    2.820  .1028E+00
                            .240  .3940E-02   |    2.860  .1083E+00
                            .600  .8620E-02   |    3.700  .1227E+00
                           1.060  .1550E-01   |    6.088  .1328E+00
                           1.500  .2463E-01   |    8.010  .1486E+00
                           1.920  .4198E-01   |     .000  .0000E+00

     ROUTING RESULTS           AREA     QPEAK     TPEAK       R.V.
     -------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.41     1.446     2.267      9.565
     OUTFLOW<09: (KOMOKA)     110.41     1.442     2.333      9.562
```

```
                PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.712
                TIME SHIFT OF PEAK FLOW         (min)=    4.00
                MAXIMUM  STORAGE   USED       (ha.m.)=.2342E-01

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------
*
*#ROUTE EXTERNAL FLOWS FROM CATCHMENT AREA EX.1 TO LOCATION WHERE
*#EXTERNAL FLOWS MERGE
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 01:EX.1     |     Number of SEGMENTS =  3
| OUT< 02:CHANIN   |     Slopes (%), CHANNEL= .62   FLOODPLAIN= .62
--------------------                  LENGTH =  360.00    (m)

             <------ DATA FOR SECTION (   2.0) ------>
             Distance       Elevation       Manning
                 .00          243.50         .0350
               25.00          243.00     .0350 / .0350  Main Channel
               25.01          243.00     .0350 / .0350  Main Channel
               37.50          243.50         .0350

   <--------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .026  243.026  .945E+01  .557E-01       .003      .126     47.57     .003
     .053  243.053  .376E+02  .443E+00       .021      .200     30.06     .011
     .079  243.079  .845E+02  .149E+01       .061      .261     22.96     .021
     .105  243.105  .150E+03  .354E+01       .132      .316     18.96     .033
     .132  243.132  .234E+03  .691E+01       .239      .367     16.35     .048
     .158  243.158  .337E+03  .119E+02       .388      .414     14.48     .065
     .184  243.184  .459E+03  .189E+02       .585      .459     13.07     .085
     .211  243.211  .599E+03  .283E+02       .836      .502     11.95     .106
     .237  243.237  .758E+03  .403E+02      1.144      .543     11.05     .129
     .263  243.263  .936E+03  .552E+02      1.514      .582     10.30     .153
     .290  243.290  .113E+04  .735E+02      1.952      .621      9.67     .180
     .316  243.316  .135E+04  .954E+02      2.462      .658      9.12     .208
     .342  243.342  .158E+04  .121E+03      3.047      .694      8.65     .237
     .369  243.369  .183E+04  .151E+03      3.713      .729      8.23     .269
     .395  243.395  .211E+04  .186E+03      4.463      .763      7.86     .301
     .421  243.421  .240E+04  .226E+03      5.300      .796      7.53     .335
     .448  243.448  .270E+04  .271E+03      6.230      .829      7.24     .371
     .474  243.474  .303E+04  .322E+03      7.256      .861      6.96     .408
     .500  243.500  .338E+04  .378E+03      8.382      .893      6.72     .447

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 1:EX.1     25.58     .467    1.82  9.268      .168      .431
   OUTFLOW: ID= 2:CHANIN   25.58     .421    2.05  9.268      .162      .421


--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS WITHIN THE SUBJECT PROPERTY
*
*
-----------------------
| ADD HYD (ALL.EX    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:CHANINT     25.58     .421    2.05   9.27    .000
                       +ID2 09:KOMOKA     110.41    1.442    2.33   9.56    .000
                        ============================================================
                SUM 03:ALL.EX       135.99    1.829    2.23   9.51    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------
*
*#ROUTE ALL EXTERNAL FLOWS TO PROPERTY LIMIT
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 03:ALL.EX   |     Number of SEGMENTS =  3
| OUT< 04:CHANIN   |     Slopes (%), CHANNEL= .33   FLOODPLAIN= .33
--------------------                  LENGTH =  424.00    (m)

             <------ DATA FOR SECTION (   2.0) ------>
             Distance       Elevation       Manning
                 .00          241.25         .0350
               25.00          240.75     .0350 / .0350  Main Channel
               25.01          240.75     .0350 / .0350  Main Channel
               37.50          241.25         .0350

   <--------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .026  240.776  .111E+02  .105E+00       .002      .092     76.80     .002
     .053  240.803  .443E+02  .833E+00       .015      .146     48.52     .008
     .079  240.829  .995E+02  .281E+01       .045      .191     37.06     .015
     .105  240.855  .177E+03  .665E+01       .096      .231     30.61     .024
     .132  240.882  .276E+03  .130E+02       .174      .268     26.39     .035
     .158  240.908  .397E+03  .224E+02       .283      .302     23.37     .048
     .184  240.934  .541E+03  .356E+02       .427      .335     21.09     .062
     .211  240.961  .706E+03  .531E+02       .610      .366     19.30     .077
     .237  240.987  .893E+03  .756E+02       .834      .396     17.84     .094
     .263  241.013  .110E+04  .104E+03      1.105      .425     16.63     .112
     .290  241.040  .133E+04  .138E+03      1.424      .453     15.61     .131
     .316  241.066  .159E+04  .179E+03      1.796      .480     14.73     .152
     .342  241.092  .186E+04  .228E+03      2.223      .506     13.97     .173
     .369  241.119  .216E+04  .285E+03      2.709      .532     13.29     .196
     .395  241.145  .248E+04  .350E+03      3.256      .557     12.70     .220
     .421  241.171  .282E+04  .425E+03      3.867      .581     12.16     .245
     .448  241.198  .319E+04  .509E+03      4.545      .605     11.68     .271
     .474  241.224  .357E+04  .605E+03      5.293      .629     11.24     .298
     .500  241.250  .398E+04  .711E+03      6.115      .652     10.84     .326

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 3:ALL.EX   135.99    1.829    2.23  9.507      .318      .482
   OUTFLOW: ID= 4:CHANIN   135.99    1.733    2.47  9.507      .311      .475


--------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------
*
*#INTERNAL CATCHMENT "CATCHMENT 8" MOSTLY FARMLAND
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   21.16   Curve Number   (CN)=78.00
| 05:CAT 8  DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .872

     Unit Hyd Qpeak  (cms)=     .927
```

```
     PEAK FLOW       (cms)=     .192 (i)
     TIME TO PEAK    (hrs)=    2.400
     RUNOFF VOLUME    (mm)=    7.067
     TOTAL RAINFALL   (mm)=   33.311
     RUNOFF COEFFICIENT   =     .212

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------------
001:0023----------------------------------------------------------------------------
*
*#TOTAL PRE DEVELOPMENT FLOWS
*
*
------------------------
| ADD HYD (PRE       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 05:CAT 8         21.16     .192    2.40   7.07    .000
                    +ID2 04:CHANINT      135.99    1.733    2.47   9.51    .000
                     ==========================================================
                     SUM 06:PRE           157.15    1.924    2.47   9.18    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------------
001:0024----------------------------------------------------------------------------
       FINISH
------------------------------------------------------------------------------------
************************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 09:23:52
====================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                          9   9  9   9   # 2957874
        StormWater Management HYdrologic Model            999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *********
 *********           Maximum value for ID numbers  :     10           *********
 *********           Max. number of rainfall points: 105408           *********
 *********           Max. number of flow points    : 105408           *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 09:24:20     RUN COUNTER: 000820          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre5.dat                   *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre5.out                   *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre5.sum                   *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1330.310
| Ptotal= 45.37 mm |                          B=   7.938
--------------------                          C=    .855
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  3.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =   .38

              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .08   2.913 |    .83  10.664 |   1.58  13.500 |   2.33   4.400
               .17   3.164 |    .92  14.992 |   1.67  11.032 |   2.42   4.094
               .25   3.464 |   1.00  24.437 |   1.75   9.304 |   2.50   3.828
               .33   3.830 |   1.08  56.256 |   1.83   8.033 |   2.58   3.595
               .42   4.285 |   1.17 149.041 |   1.92   7.063 |   2.67   3.390
               .50   4.867 |   1.25  67.155 |   2.00   6.300 |   2.75   3.207
               .58   5.635 |   1.33  35.894 |   2.08   5.685 |   2.83   3.044
               .67   6.692 |   1.42  23.589 |   2.17   5.180 |   2.92   2.897
               .75   8.233 |   1.50  17.267 |   2.25   4.758 |   3.00   2.765

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=     .933 (i)
     TIME TO PEAK    (hrs)=    1.783
     RUNOFF VOLUME    (mm)=   16.972
     TOTAL RAINFALL   (mm)=   45.371
     RUNOFF COEFFICIENT   =     .374

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    2.702 (i)
     TIME TO PEAK    (hrs)=    2.150
     RUNOFF VOLUME    (mm)=   16.972
     TOTAL RAINFALL   (mm)=   45.371
     RUNOFF COEFFICIENT   =     .374

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
```

```
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                  LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0300
                 3.00          99.00     .0300 / .0300  Main Channel
                 5.00          99.00     .0300 / .0300  Main Channel
                 8.00         100.00         .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                    <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2:EX.2      104.80    2.702    2.15 16.972      .469     1.687
   OUTFLOW: ID= 3:CHAN      104.80    2.700    2.17 16.972      .468     1.683


--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
---------------------
| CALIB NASHYD      |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .226 (i)
     TIME TO PEAK    (hrs)=    1.450
     RUNOFF VOLUME    (mm)=   19.944
     TOTAL RAINFALL   (mm)=   45.371
     RUNOFF COEFFICIENT   =     .440

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
```

```
001:0007----------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 03:CHAN         104.80    2.700    2.17  16.97    .000
                     +ID2 04:EX.3           3.15     .226    1.45  19.94    .000
                      ============================================================
                      SUM 05:EX2+3        107.95    2.755    2.15  17.06    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                  LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0250
                 1.35          99.55     .0250 / .0250  Main Channel
                 9.35          99.55     .0250 / .0250  Main Channel
                10.70         100.00         .0250

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                    <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 5:EX2+3     107.95    2.755    2.15 17.059      .272     1.144
   OUTFLOW: ID= 6:LOT.CH    107.95    2.752    2.17 17.059      .271     1.142
```

```
--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .15          .35
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .35         2.00
     Length            (m)=     97.00        27.00
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    149.04        94.48
               over (min)       3.00         9.00
     Storage Coeff.  (min)=      3.19 (ii)    8.90 (ii)
     Unit Hyd. Tpeak (min)=      3.00         9.00
     Unit Hyd. peak  (cms)=       .36          .13
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .00          .06          .059 (iii)
     TIME TO PEAK    (hrs)=      1.18         1.30         1.300
     RUNOFF VOLUME    (mm)=     43.37        24.63        24.814
     TOTAL RAINFALL   (mm)=     45.37        45.37        45.371
     RUNOFF COEFFICIENT   =       .96          .54          .547

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =      1
---------------------   Total minor system capacity          =    .080  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .059     1.300   24.814     .000
     ======================================================================
     MAJOR SYST   09:EX4>10        .00      .000      .000     .000     .000
     MINOR SYST   08:EX4<10        .50      .059     1.300   24.814     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 06:LOT.CH       107.95    2.752    2.17  17.06    .000
                     +ID2 09:EX4>10          .00     .000     .00    .00    .000  **DRY**
                     ==========================================================
                     SUM 10:E2+3+4       107.95    2.752    2.17  17.06    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
---------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)    |
| OUT<02:(UNION )    |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |    2.520  .2530E-01
                           .050  .1000E-03   |    2.710  .2980E-01
                           .210  .4200E-03   |    2.731  .3030E-01
                           .460  .1420E-02   |    3.482  .3590E-01
                           .780  .3510E-02   |    5.852  .4200E-01
                          1.170  .6700E-02   |    6.644  .4330E-01
                          1.610  .1100E-01   |    7.455  .4530E-01
                          2.060  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     107.95     2.752     2.167     17.059
     OUTFLOW<02: (UNION )     107.95     2.746     2.217     17.059

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.779
                  TIME SHIFT OF PEAK FLOW         (min)=     3.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.3042E-01

--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .62          .42
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    185.00        15.00
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    149.04        85.30
               over (min)       4.00         8.00
     Storage Coeff.  (min)=      4.23 (ii)    8.40 (ii)
     Unit Hyd. Tpeak (min)=      4.00         8.00
     Unit Hyd. peak  (cms)=       .27          .14
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .15          .06          .193 (iii)
     TIME TO PEAK    (hrs)=      1.20         1.28         1.217
     RUNOFF VOLUME    (mm)=     43.37        23.51        33.045
     TOTAL RAINFALL   (mm)=     45.37        45.37        45.371
     RUNOFF COEFFICIENT   =       .96          .52          .728

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
--------------------------------------------------------------------------------
001:0014----------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     149.04        74.48
               over (min)        3.00         9.00
     Storage Coeff.  (min)=       2.92 (ii)    8.91 (ii)
     Unit Hyd. Tpeak (min)=       3.00         9.00
     Unit Hyd. peak  (cms)=        .38          .13
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .43          .16          .507 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.30         1.183
     RUNOFF VOLUME    (mm)=      43.37        22.69        31.995
     TOTAL RAINFALL   (mm)=      45.37        45.37        45.371
     RUNOFF COEFFICIENT   =        .96          .50          .705

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015----------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6   |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity          =   1.142  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79      .507     1.183   31.995     .000
     ==========================================================================
     MAJOR SYST   06:>100YR        .00      .000      .000     .000     .000
     MINOR SYST   05:<100YR       2.79      .507     1.183   31.995     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016----------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------
```

```
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     149.04        72.32
               over (min)        5.00        13.00
     Storage Coeff.  (min)=       5.06 (ii)   13.10 (ii)
     Unit Hyd. Tpeak (min)=       5.00        13.00
     Unit Hyd. peak  (cms)=        .22          .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .08          .10          .148 (iii)
     TIME TO PEAK    (hrs)=       1.22         1.38         1.333
     RUNOFF VOLUME    (mm)=      43.37        23.85        27.755
     TOTAL RAINFALL   (mm)=      45.37        45.37        45.371
     RUNOFF COEFFICIENT   =        .96          .53          .612

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:UNION        107.95    2.746    2.22  17.06    .000
                       +ID2 03:EX.5           1.04     .193    1.22  33.05    .000
                       +ID3 06:>100YR          .00     .000     .00    .00    .000  **DRY**
                       +ID4 07:EX.7           1.42     .148    1.33  27.75    .000
                        ============================================================
                        SUM 08:EX.2-7       110.41    2.786    2.22  17.35    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018----------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.280  .5256E-01
                            .000  .3700E-03   |    2.570  .7370E-01
                            .140  .1370E-02   |    2.820  .1028E+00
                            .240  .3940E-02   |    2.860  .1083E+00
                            .600  .8620E-02   |    3.700  .1227E+00
                           1.060  .1550E-01   |    6.088  .1328E+00
                           1.500  .2463E-01   |    8.010  .1486E+00
                           1.920  .4198E-01   |     .000  .0000E+00

     ROUTING RESULTS           AREA     QPEAK     TPEAK       R.V.
     -------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.41     2.786     2.217     17.347
     OUTFLOW<09: (KOMOKA)     110.41     2.670     2.450     17.343
```

```
                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   95.839
                  TIME SHIFT OF PEAK FLOW         (min)=    14.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.8538E-01

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------
*
*#ROUTE EXTERNAL FLOWS FROM CATCHMENT AREA EX.1 TO LOCATION WHERE
*#EXTERNAL FLOWS MERGE
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 01:EX.1     |     Number of SEGMENTS =  3
| OUT< 02:CHANIN   |     Slopes (%), CHANNEL= .62   FLOODPLAIN= .62
--------------------                  LENGTH =  360.00    (m)

             <------ DATA FOR SECTION (   2.0) ------>
             Distance      Elevation       Manning
                 .00        243.50         .0350
               25.00        243.00     .0350 / .0350  Main Channel
               25.01        243.00     .0350 / .0350  Main Channel
               37.50        243.50         .0350

   <--------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .026  243.026  .945E+01  .557E-01       .003      .126     47.57     .003
     .053  243.053  .376E+02  .443E+00       .021      .200     30.06     .011
     .079  243.079  .845E+02  .149E+01       .061      .261     22.96     .021
     .105  243.105  .150E+03  .354E+01       .132      .316     18.96     .033
     .132  243.132  .234E+03  .691E+01       .239      .367     16.35     .048
     .158  243.158  .337E+03  .119E+02       .388      .414     14.48     .065
     .184  243.184  .459E+03  .189E+02       .585      .459     13.07     .085
     .211  243.211  .599E+03  .283E+02       .836      .502     11.95     .106
     .237  243.237  .758E+03  .403E+02      1.144      .543     11.05     .129
     .263  243.263  .936E+03  .552E+02      1.514      .582     10.30     .153
     .290  243.290  .113E+04  .735E+02      1.952      .621      9.67     .180
     .316  243.316  .135E+04  .954E+02      2.462      .658      9.12     .208
     .342  243.342  .158E+04  .121E+03      3.047      .694      8.65     .237
     .369  243.369  .183E+04  .151E+03      3.713      .729      8.23     .269
     .395  243.395  .211E+04  .186E+03      4.463      .763      7.86     .301
     .421  243.421  .240E+04  .226E+03      5.300      .796      7.53     .335
     .448  243.448  .270E+04  .271E+03      6.230      .829      7.24     .371
     .474  243.474  .303E+04  .322E+03      7.256      .861      6.96     .408
     .500  243.500  .338E+04  .378E+03      8.382      .893      6.72     .447

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 1:EX.1     25.58     .933    1.78 16.972      .219      .514
   OUTFLOW: ID= 2:CHANIN   25.58     .856    1.97 16.972      .212      .504


--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS WITHIN THE SUBJECT PROPERTY
*
*
-----------------------
| ADD HYD (ALL.EX    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:CHANINT     25.58     .856    1.97  16.97    .000
                       +ID2 09:KOMOKA     110.41    2.670    2.45  17.34    .000
                        ============================================================
                        SUM 03:ALL.EX      135.99    3.366    2.22  17.27    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------
*
*#ROUTE ALL EXTERNAL FLOWS TO PROPERTY LIMIT
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 03:ALL.EX   |     Number of SEGMENTS =  3
| OUT< 04:CHANIN   |     Slopes (%), CHANNEL= .33   FLOODPLAIN= .33
--------------------                  LENGTH =  424.00    (m)

             <------ DATA FOR SECTION (   2.0) ------>
             Distance      Elevation       Manning
                 .00        241.25         .0350
               25.00        240.75     .0350 / .0350  Main Channel
               25.01        240.75     .0350 / .0350  Main Channel
               37.50        241.25         .0350

   <--------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .026  240.776  .111E+02  .105E+00       .002      .092     76.80     .002
     .053  240.803  .443E+02  .833E+00       .015      .146     48.52     .008
     .079  240.829  .995E+02  .281E+01       .045      .191     37.06     .015
     .105  240.855  .177E+03  .665E+01       .096      .231     30.61     .024
     .132  240.882  .276E+03  .130E+02       .174      .268     26.39     .035
     .158  240.908  .397E+03  .224E+02       .283      .302     23.37     .048
     .184  240.934  .541E+03  .356E+02       .427      .335     21.09     .062
     .211  240.961  .706E+03  .531E+02       .610      .366     19.30     .077
     .237  240.987  .893E+03  .756E+02       .834      .396     17.84     .094
     .263  241.013  .110E+04  .104E+03      1.105      .425     16.63     .112
     .290  241.040  .133E+04  .138E+03      1.424      .453     15.61     .131
     .316  241.066  .159E+04  .179E+03      1.796      .480     14.73     .152
     .342  241.092  .186E+04  .228E+03      2.223      .506     13.97     .173
     .369  241.119  .216E+04  .285E+03      2.709      .532     13.29     .196
     .395  241.145  .248E+04  .350E+03      3.256      .557     12.70     .220
     .421  241.171  .282E+04  .425E+03      3.867      .581     12.16     .245
     .448  241.198  .319E+04  .509E+03      4.545      .605     11.68     .271
     .474  241.224  .357E+04  .605E+03      5.293      .629     11.24     .298
     .500  241.250  .398E+04  .711E+03      6.115      .652     10.84     .326

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 3:ALL.EX   135.99    3.366    2.22 17.273      .400      .561
   OUTFLOW: ID= 4:CHANIN   135.99    3.263    2.45 17.273      .395      .557


--------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------
*
*#INTERNAL CATCHMENT "CATCHMENT 8" MOSTLY FARMLAND
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   21.16   Curve Number   (CN)=78.00
| 05:CAT 8  DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .872

     Unit Hyd Qpeak  (cms)=     .927
```

```
     PEAK FLOW       (cms)=     .382 (i)
     TIME TO PEAK    (hrs)=    2.317
     RUNOFF VOLUME    (mm)=   13.383
     TOTAL RAINFALL   (mm)=   45.371
     RUNOFF COEFFICIENT   =     .295

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------------
001:0023----------------------------------------------------------------------------
*
*#TOTAL PRE DEVELOPMENT FLOWS
*
*
------------------------
| ADD HYD (PRE       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 05:CAT 8         21.16     .382    2.32  13.38    .000
                    +ID2 04:CHANINT      135.99    3.263    2.45  17.27    .000
                     ==========================================================
                     SUM 06:PRE           157.15    3.641    2.43  16.75    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------------
001:0024----------------------------------------------------------------------------
       FINISH
------------------------------------------------------------------------------------
************************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 09:24:21
====================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                          9   9  9   9   # 2957874
        StormWater Management HYdrologic Model            999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
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 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                        +++++++++
 +++++++++                London               SERIAL#:2957874       +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *********
 *********           Maximum value for ID numbers  :     10           *********
 *********           Max. number of rainfall points: 105408           *********
 *********           Max. number of flow points    : 105408           *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 09:23:31     RUN COUNTER: 000815          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre10.dat                  *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre10.out                  *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre10.sum                  *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1497.190
| Ptotal= 52.60 mm |                          B=   7.188
--------------------                          C=    .850
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  3.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =   .38

            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
             .08   3.401 |    .83  12.137 |   1.58  15.317 |   2.33   5.093
             .17   3.688 |    .92  16.990 |   1.67  12.549 |   2.42   4.745
             .25   4.030 |   1.00  27.637 |   1.75  10.612 |   2.50   4.443
             .33   4.446 |   1.08  64.461 |   1.83   9.186 |   2.58   4.179
             .42   4.963 |   1.17 178.745 |   1.92   8.096 |   2.67   3.945
             .50   5.621 |   1.25  77.233 |   2.00   7.237 |   2.75   3.737
             .58   6.488 |   1.33  40.683 |   2.08   6.545 |   2.83   3.551
             .67   7.679 |   1.42  26.672 |   2.17   5.975 |   2.92   3.383
             .75   9.410 |   1.50  19.545 |   2.25   5.498 |   3.00   3.231

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=    1.234 (i)
     TIME TO PEAK    (hrs)=    1.767
     RUNOFF VOLUME    (mm)=   22.122
     TOTAL RAINFALL   (mm)=   52.596
     RUNOFF COEFFICIENT   =     .421

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    3.553 (i)
     TIME TO PEAK    (hrs)=    2.117
     RUNOFF VOLUME    (mm)=   22.122
     TOTAL RAINFALL   (mm)=   52.596
     RUNOFF COEFFICIENT   =     .421

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
```

```
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                  LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                  .00         100.00          .0300
                 3.00          99.00     .0300 / .0300  Main Channel
                 5.00          99.00     .0300 / .0300  Main Channel
                 8.00         100.00          .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2:EX.2      104.80    3.553    2.12 22.122      .539     1.819
   OUTFLOW: ID= 3:CHAN      104.80    3.550    2.15 22.122      .537     1.817


-------------------------------------------------------------------------------
001:0006---------------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
---------------------
| CALIB NASHYD      |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .295 (i)
     TIME TO PEAK    (hrs)=    1.433
     RUNOFF VOLUME    (mm)=   25.469
     TOTAL RAINFALL   (mm)=   52.596
     RUNOFF COEFFICIENT   =     .484

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
```

```
001:0007---------------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 03:CHAN         104.80    3.550    2.15  22.12    .000
                     +ID2 04:EX.3           3.15     .295    1.43  25.47    .000
                      ============================================================
                      SUM 05:EX2+3        107.95    3.620    2.13  22.22    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
001:0008---------------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                  LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                  .00         100.00          .0250
                1.35          99.55     .0250 / .0250  Main Channel
                9.35          99.55     .0250 / .0250  Main Channel
               10.70         100.00          .0250

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 5:EX2+3     107.95    3.620    2.13 22.220      .319     1.265
   OUTFLOW: ID= 6:LOT.CH    107.95    3.617    2.15 22.220      .318     1.261
```

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--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .15          .35
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .35         2.00
     Length            (m)=     97.00        27.00
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    178.75       126.44
               over (min)       3.00         8.00
     Storage Coeff.  (min)=      2.97 (ii)    8.04 (ii)
     Unit Hyd. Tpeak (min)=      3.00         8.00
     Unit Hyd. peak  (cms)=       .38          .14
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .00          .08          .080 (iii)
     TIME TO PEAK    (hrs)=      1.18         1.28         1.283
     RUNOFF VOLUME    (mm)=     50.60        30.74        30.939
     TOTAL RAINFALL   (mm)=     52.60        52.60        52.596
     RUNOFF COEFFICIENT   =       .96          .58          .588

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =      1
---------------------   Total minor system capacity          =    .080  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .080     1.283   30.939     .000
     ================================================================
     MAJOR SYST   09:EX4>10        .00      .000     1.283   30.939     .000
     MINOR SYST   08:EX4<10        .50      .080     1.283   30.939     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 06:LOT.CH       107.95    3.617    2.15  22.22    .000
                     +ID2 09:EX4>10          .00     .000    1.28  30.94    .000
                     ================================================================
                     SUM 10:E2+3+4       107.95    3.617    2.15  22.22    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
---------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)    |
| OUT<02:(UNION )    |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |    2.520  .2530E-01
                           .050  .1000E-03   |    2.710  .2980E-01
                           .210  .4200E-03   |    2.731  .3030E-01
                           .460  .1420E-02   |    3.482  .3590E-01
                           .780  .3510E-02   |    5.852  .4200E-01
                          1.170  .6700E-02   |    6.644  .4330E-01
                          1.610  .1100E-01   |    7.455  .4530E-01
                          2.060  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------            (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     107.95     3.617     2.150     22.220
     OUTFLOW<02: (UNION )     107.95     3.617     2.150     22.220

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.993
                  TIME SHIFT OF PEAK FLOW         (min)=      .00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.3625E-01

--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .62          .42
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    185.00        15.00
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    178.75       110.98
               over (min)       4.00         8.00
     Storage Coeff.  (min)=      3.93 (ii)    7.69 (ii)
     Unit Hyd. Tpeak (min)=      4.00         8.00
     Unit Hyd. peak  (cms)=       .29          .15
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .18          .08          .241 (iii)
     TIME TO PEAK    (hrs)=      1.20         1.28         1.217
     RUNOFF VOLUME    (mm)=     50.60        29.50        39.627
     TOTAL RAINFALL   (mm)=     52.60        52.60        52.596
     RUNOFF COEFFICIENT   =       .96          .56          .753

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

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--------------------------------------------------------------------------------
001:0014--------------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     178.75       100.63
               over (min)        3.00         8.00
     Storage Coeff.  (min)=       2.72 (ii)    8.03 (ii)
     Unit Hyd. Tpeak (min)=       3.00         8.00
     Unit Hyd. peak  (cms)=        .40          .14
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .52          .23          .646 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.28         1.183
     RUNOFF VOLUME    (mm)=      50.60        28.57        38.484
     TOTAL RAINFALL   (mm)=      52.60        52.60        52.596
     RUNOFF COEFFICIENT   =        .96          .54          .732

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6   |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity          =   1.142  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79      .646     1.183   38.484     .000
     ================================================================
     MAJOR SYST   06:>100YR        .00      .000      .000     .000     .000
     MINOR SYST   05:<100YR       2.79      .646     1.183   38.484     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016--------------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------
```

```
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     178.75        96.66
               over (min)        5.00        12.00
     Storage Coeff.  (min)=       4.71 (ii)   11.86 (ii)
     Unit Hyd. Tpeak (min)=       5.00        12.00
     Unit Hyd. peak  (cms)=        .24          .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .10          .14          .198 (iii)
     TIME TO PEAK    (hrs)=       1.22         1.35         1.317
     RUNOFF VOLUME    (mm)=      50.60        29.88        34.021
     TOTAL RAINFALL   (mm)=      52.60        52.60        52.596
     RUNOFF COEFFICIENT   =        .96          .57          .647

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                         ID1 02:UNION      107.95    3.617    2.15  22.22    .000
                        +ID2 03:EX.5         1.04     .241    1.22  39.63    .000
                        +ID3 06:>100YR        .00     .000     .00    .00    .000  **DRY**
                        +ID4 07:EX.7         1.42     .198    1.32  34.02    .000
                         ============================================================
                         SUM 08:EX.2-7     110.41    3.667    2.15  22.54    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018--------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.280  .5256E-01
                            .000  .3700E-03   |    2.570  .7370E-01
                            .140  .1370E-02   |    2.820  .1028E+00
                            .240  .3940E-02   |    2.860  .1083E+00
                            .600  .8620E-02   |    3.700  .1227E+00
                           1.060  .1550E-01   |    6.088  .1328E+00
                           1.500  .2463E-01   |    8.010  .1486E+00
                           1.920  .4198E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.41     3.667     2.150     22.536
     OUTFLOW<09: (KOMOKA)     110.41     3.653     2.217     22.532
```

```
                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.609
                  TIME SHIFT OF PEAK FLOW         (min)=    4.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.1219E+00

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------
*
*#ROUTE EXTERNAL FLOWS FROM CATCHMENT AREA EX.1 TO LOCATION WHERE
*#EXTERNAL FLOWS MERGE
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 01:EX.1     |     Number of SEGMENTS =  3
| OUT< 02:CHANIN   |     Slopes (%), CHANNEL= .62   FLOODPLAIN= .62
--------------------                    LENGTH =  360.00    (m)

             <------ DATA FOR SECTION (   2.0) ------>
             Distance       Elevation       Manning
                 .00         243.50         .0350
               25.00         243.00     .0350 / .0350  Main Channel
               25.01         243.00     .0350 / .0350  Main Channel
               37.50         243.50         .0350

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .026  243.026  .945E+01  .557E-01       .003      .126     47.57     .003
     .053  243.053  .376E+02  .443E+00       .021      .200     30.06     .011
     .079  243.079  .845E+02  .149E+01       .061      .261     22.96     .021
     .105  243.105  .150E+03  .354E+01       .132      .316     18.96     .033
     .132  243.132  .234E+03  .691E+01       .239      .367     16.35     .048
     .158  243.158  .337E+03  .119E+02       .388      .414     14.48     .065
     .184  243.184  .459E+03  .189E+02       .585      .459     13.07     .085
     .211  243.211  .599E+03  .283E+02       .836      .502     11.95     .106
     .237  243.237  .758E+03  .403E+02      1.144      .543     11.05     .129
     .263  243.263  .936E+03  .552E+02      1.514      .582     10.30     .153
     .290  243.290  .113E+04  .735E+02      1.952      .621      9.67     .180
     .316  243.316  .135E+04  .954E+02      2.462      .658      9.12     .208
     .342  243.342  .158E+04  .121E+03      3.047      .694      8.65     .237
     .369  243.369  .183E+04  .151E+03      3.713      .729      8.23     .269
     .395  243.395  .211E+04  .186E+03      4.463      .763      7.86     .301
     .421  243.421  .240E+04  .226E+03      5.300      .796      7.53     .335
     .448  243.448  .270E+04  .271E+03      6.230      .829      7.24     .371
     .474  243.474  .303E+04  .322E+03      7.256      .861      6.96     .408
     .500  243.500  .338E+04  .378E+03      8.382      .893      6.72     .447

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 1:EX.1     25.58    1.234    1.77 22.122      .243      .552
   OUTFLOW: ID= 2:CHANIN   25.58    1.142    1.93 22.122      .237      .542


--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS WITHIN THE SUBJECT PROPERTY
*
*
-----------------------
| ADD HYD (ALL.EX    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:CHANINT     25.58    1.142    1.93  22.12    .000
                       +ID2 09:KOMOKA     110.41    3.653    2.22  22.53    .000
                        ==========================================================
```

```
                       SUM 03:ALL.EX       135.99    4.677    2.15  22.46    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------
*
*#ROUTE ALL EXTERNAL FLOWS TO PROPERTY LIMIT
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 03:ALL.EX   |     Number of SEGMENTS =  3
| OUT< 04:CHANIN   |     Slopes (%), CHANNEL= .33   FLOODPLAIN= .33
--------------------                    LENGTH =  424.00    (m)

             <------ DATA FOR SECTION (   2.0) ------>
             Distance       Elevation       Manning
                 .00         241.25         .0350
               25.00         240.75     .0350 / .0350  Main Channel
               25.01         240.75     .0350 / .0350  Main Channel
               37.50         241.25         .0350

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .026  240.776  .111E+02  .105E+00       .002      .092     76.80     .002
     .053  240.803  .443E+02  .833E+00       .015      .146     48.52     .008
     .079  240.829  .995E+02  .281E+01       .045      .191     37.06     .015
     .105  240.855  .177E+03  .665E+01       .096      .231     30.61     .024
     .132  240.882  .276E+03  .130E+02       .174      .268     26.39     .035
     .158  240.908  .397E+03  .224E+02       .283      .302     23.37     .048
     .184  240.934  .541E+03  .356E+02       .427      .335     21.09     .062
     .211  240.961  .706E+03  .531E+02       .610      .366     19.30     .077
     .237  240.987  .893E+03  .756E+02       .834      .396     17.84     .094
     .263  241.013  .110E+04  .104E+03      1.105      .425     16.63     .112
     .290  241.040  .133E+04  .138E+03      1.424      .453     15.61     .131
     .316  241.066  .159E+04  .179E+03      1.796      .480     14.73     .152
     .342  241.092  .186E+04  .228E+03      2.223      .506     13.97     .173
     .369  241.119  .216E+04  .285E+03      2.709      .532     13.29     .196
     .395  241.145  .248E+04  .350E+03      3.256      .557     12.70     .220
     .421  241.171  .282E+04  .425E+03      3.867      .581     12.16     .245
     .448  241.198  .319E+04  .509E+03      4.545      .605     11.68     .271
     .474  241.224  .357E+04  .605E+03      5.293      .629     11.24     .298
     .500  241.250  .398E+04  .711E+03      6.115      .652     10.84     .326

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 3:ALL.EX   135.99    4.677    2.15 22.455      .452      .609
   OUTFLOW: ID= 4:CHANIN   135.99    4.406    2.33 22.455      .441      .599


--------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------
*
*#INTERNAL CATCHMENT "CATCHMENT 8" MOSTLY FARMLAND
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   21.16   Curve Number   (CN)=78.00
| 05:CAT 8  DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .872

     Unit Hyd Qpeak  (cms)=     .927
```

```
     PEAK FLOW       (cms)=     .510 (i)
     TIME TO PEAK    (hrs)=    2.283
     RUNOFF VOLUME    (mm)=   17.733
     TOTAL RAINFALL   (mm)=   52.596
     RUNOFF COEFFICIENT   =     .337

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0023----------------------------------------------------------------------
*
*#TOTAL PRE DEVELOPMENT FLOWS
*
*
------------------------
| ADD HYD (PRE       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 05:CAT 8         21.16     .510    2.28  17.73    .000
                    +ID2 04:CHANINT      135.99    4.406    2.33  22.46    .000
                     ==========================================================
                     SUM 06:PRE           157.15    4.915    2.33  21.82    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0024----------------------------------------------------------------------
      FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 09:23:32
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                          9   9  9   9   # 2957874
        StormWater Management HYdrologic Model            999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *********
 *********           Maximum value for ID numbers  :     10           *********
 *********           Max. number of rainfall points: 105408           *********
 *********           Max. number of flow points    : 105408           *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 09:24:01     RUN COUNTER: 000818         *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre25.dat                 *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre25.out                 *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre25.sum                 *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1455.000
| Ptotal= 60.38 mm |                          B=   5.000
--------------------                          C=    .820
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  3.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =   .38

            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
             .08   4.299 |    .83  13.644 |   1.58  16.893 |   2.33   6.207
             .17   4.628 |    .92  18.591 |   1.67  14.069 |   2.42   5.821
             .25   5.018 |   1.00  29.391 |   1.75  12.073 |   2.50   5.484
             .33   5.487 |   1.08  68.962 |   1.83  10.590 |   2.58   5.187
             .42   6.062 |   1.17 220.223 |   1.92   9.444 |   2.67   4.922
             .50   6.787 |   1.25  83.137 |   2.00   8.532 |   2.75   4.685
             .58   7.728 |   1.33  42.821 |   2.08   7.790 |   2.83   4.472
             .67   9.001 |   1.42  28.399 |   2.17   7.173 |   2.92   4.279
             .75  10.823 |   1.50  21.179 |   2.25   6.652 |   3.00   4.103

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=    1.559 (i)
     TIME TO PEAK    (hrs)=    1.750
     RUNOFF VOLUME    (mm)=   28.001
     TOTAL RAINFALL   (mm)=   60.380
     RUNOFF COEFFICIENT   =     .464

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    4.469 (i)
     TIME TO PEAK    (hrs)=    2.100
     RUNOFF VOLUME    (mm)=   28.001
     TOTAL RAINFALL   (mm)=   60.380
     RUNOFF COEFFICIENT   =     .464

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
```

```
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                  LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0300
                 3.00          99.00     .0300 / .0300  Main Channel
                 5.00          99.00     .0300 / .0300  Main Channel
                 8.00         100.00         .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                    <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2:EX.2       104.80    4.469    2.10 28.001      .604     1.936
   OUTFLOW: ID= 3:CHAN       104.80    4.466    2.13 28.001      .602     1.934


-------------------------------------------------------------------------------
001:0006---------------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .372 (i)
     TIME TO PEAK    (hrs)=    1.417
     RUNOFF VOLUME    (mm)=   31.706
     TOTAL RAINFALL   (mm)=   60.380
     RUNOFF COEFFICIENT   =     .525

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
```

```
001:0007---------------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 03:CHAN         104.80    4.466    2.13  28.00    .000
                     +ID2 04:EX.3           3.15     .372    1.42  31.71    .000
                      ============================================================
                      SUM 05:EX2+3        107.95    4.552    2.12  28.11    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
001:0008---------------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                  LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0250
                 1.35          99.55     .0250 / .0250  Main Channel
                 9.35          99.55     .0250 / .0250  Main Channel
                10.70         100.00         .0250

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                    <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 5:EX2+3      107.95    4.552    2.12 28.109      .364     1.374
   OUTFLOW: ID= 6:LOT.CH     107.95    4.550    2.13 28.109      .363     1.370
```

```
--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
---------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .15          .35
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .35         2.00
     Length            (m)=      97.00        27.00
     Mannings n             =      .015         .250

     Max.eff.Inten.(mm/hr)=     220.22       172.08
               over (min)        3.00         7.00
     Storage Coeff.  (min)=       2.73 (ii)    7.22 (ii)
     Unit Hyd. Tpeak (min)=       3.00         7.00
     Unit Hyd. peak  (cms)=        .40          .16
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .00          .11          .108 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.27         1.267
     RUNOFF VOLUME    (mm)=      58.38        37.54        37.746
     TOTAL RAINFALL   (mm)=      60.38        60.38        60.380
     RUNOFF COEFFICIENT   =        .97          .62          .625

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =      1
---------------------   Total minor system capacity          =    .080  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .108     1.267   37.746     .000
     ================================================================
     MAJOR SYST   09:EX4>10        .03      .028     1.267   37.746     .000
     MINOR SYST   08:EX4<10        .47      .080     1.200   37.746     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 06:LOT.CH       107.95    4.550    2.13  28.11    .000
                     +ID2 09:EX4>10          .03     .028    1.27  37.75    .000
                     ================================================================
                     SUM 10:E2+3+4        107.98    4.550    2.13  28.11    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
---------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)    |
| OUT<02:(UNION )    |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |    2.520  .2530E-01
                           .050  .1000E-03   |    2.710  .2980E-01
                           .210  .4200E-03   |    2.731  .3030E-01
                           .460  .1420E-02   |    3.482  .3590E-01
                           .780  .3510E-02   |    5.852  .4200E-01
                          1.170  .6700E-02   |    6.644  .4330E-01
                          1.610  .1100E-01   |    7.455  .4530E-01
                          2.060  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     107.98     4.550     2.133     28.112
     OUTFLOW<02: (UNION )     107.98     4.550     2.133     28.112

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.997
                  TIME SHIFT OF PEAK FLOW         (min)=      .00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.3865E-01

--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .62          .42
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     185.00        15.00
     Mannings n             =      .015         .250

     Max.eff.Inten.(mm/hr)=     220.22       151.73
               over (min)        4.00         7.00
     Storage Coeff.  (min)=       3.61 (ii)    6.93 (ii)
     Unit Hyd. Tpeak (min)=       4.00         7.00
     Unit Hyd. peak  (cms)=        .30          .16
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .23          .11          .314 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.27         1.200
     RUNOFF VOLUME    (mm)=      58.38        36.18        46.835
     TOTAL RAINFALL   (mm)=      60.38        60.38        60.380
     RUNOFF COEFFICIENT   =        .97          .60          .776

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
--------------------------------------------------------------------------------
001:0014--------------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     220.22       138.07
               over (min)        2.00         7.00
     Storage Coeff.  (min)=       2.50 (ii)    7.18 (ii)
     Unit Hyd. Tpeak (min)=       2.00         7.00
     Unit Hyd. peak  (cms)=        .48          .16
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .67          .31          .833 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.27         1.183
     RUNOFF VOLUME    (mm)=      58.38        35.16        45.608
     TOTAL RAINFALL   (mm)=      60.38        60.38        60.380
     RUNOFF COEFFICIENT   =        .97          .58          .755

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6   |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity          =   1.142  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79      .833     1.183   45.608     .000
     ================================================================
     MAJOR SYST   06:>100YR        .00      .000      .000     .000     .000
     MINOR SYST   05:<100YR       2.79      .833     1.183   45.608     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016--------------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------
```

```
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     220.22       128.06
               over (min)        4.00        11.00
     Storage Coeff.  (min)=       4.33 (ii)   10.72 (ii)
     Unit Hyd. Tpeak (min)=       4.00        11.00
     Unit Hyd. peak  (cms)=        .27          .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .12          .19          .255 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.33         1.300
     RUNOFF VOLUME    (mm)=      58.38        36.59        40.949
     TOTAL RAINFALL   (mm)=      60.38        60.38        60.380
     RUNOFF COEFFICIENT   =        .97          .61          .678

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:UNION        107.98    4.550    2.13  28.11    .000
                       +ID2 03:EX.5           1.04     .314    1.20  46.84    .000
                       +ID3 06:>100YR          .00     .000     .00    .00    .000  **DRY**
                       +ID4 07:EX.7           1.42     .255    1.30  40.95    .000
                        ============================================================
                        SUM 08:EX.2-7       110.44    4.608    2.13  28.45    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018--------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.280  .5256E-01
                            .000  .3700E-03   |    2.570  .7370E-01
                            .140  .1370E-02   |    2.820  .1028E+00
                            .240  .3940E-02   |    2.860  .1083E+00
                            .600  .8620E-02   |    3.700  .1227E+00
                           1.060  .1550E-01   |    6.088  .1328E+00
                           1.500  .2463E-01   |    8.010  .1486E+00
                           1.920  .4198E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------         (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.44     4.608     2.133     28.453
     OUTFLOW<09: (KOMOKA)     110.44     4.608     2.133     28.450
```

```
                PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.989
                TIME SHIFT OF PEAK FLOW         (min)=     .00
                MAXIMUM  STORAGE   USED       (ha.m.)=.1265E+00

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------
*
*#ROUTE EXTERNAL FLOWS FROM CATCHMENT AREA EX.1 TO LOCATION WHERE
*#EXTERNAL FLOWS MERGE
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 01:EX.1     |     Number of SEGMENTS =  3
| OUT< 02:CHANIN   |     Slopes (%), CHANNEL= .62   FLOODPLAIN= .62
--------------------                  LENGTH =  360.00    (m)

             <------ DATA FOR SECTION (   2.0) ------>
             Distance      Elevation       Manning
                 .00        243.50         .0350
               25.00        243.00     .0350 / .0350  Main Channel
               25.01        243.00     .0350 / .0350  Main Channel
               37.50        243.50         .0350

   <--------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .026  243.026  .945E+01  .557E-01       .003      .126     47.57     .003
     .053  243.053  .376E+02  .443E+00       .021      .200     30.06     .011
     .079  243.079  .845E+02  .149E+01       .061      .261     22.96     .021
     .105  243.105  .150E+03  .354E+01       .132      .316     18.96     .033
     .132  243.132  .234E+03  .691E+01       .239      .367     16.35     .048
     .158  243.158  .337E+03  .119E+02       .388      .414     14.48     .065
     .184  243.184  .459E+03  .189E+02       .585      .459     13.07     .085
     .211  243.211  .599E+03  .283E+02       .836      .502     11.95     .106
     .237  243.237  .758E+03  .403E+02      1.144      .543     11.05     .129
     .263  243.263  .936E+03  .552E+02      1.514      .582     10.30     .153
     .290  243.290  .113E+04  .735E+02      1.952      .621      9.67     .180
     .316  243.316  .135E+04  .954E+02      2.462      .658      9.12     .208
     .342  243.342  .158E+04  .121E+03      3.047      .694      8.65     .237
     .369  243.369  .183E+04  .151E+03      3.713      .729      8.23     .269
     .395  243.395  .211E+04  .186E+03      4.463      .763      7.86     .301
     .421  243.421  .240E+04  .226E+03      5.300      .796      7.53     .335
     .448  243.448  .270E+04  .271E+03      6.230      .829      7.24     .371
     .474  243.474  .303E+04  .322E+03      7.256      .861      6.96     .408
     .500  243.500  .338E+04  .378E+03      8.382      .893      6.72     .447

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 1:EX.1     25.58    1.559    1.75 28.001      .266      .586
   OUTFLOW: ID= 2:CHANIN   25.58    1.449    1.90 28.001      .258      .574


--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS WITHIN THE SUBJECT PROPERTY
*
*
-----------------------
| ADD HYD (ALL.EX    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:CHANINT     25.58    1.449    1.90  28.00    .000
                       +ID2 09:KOMOKA     110.44    4.608    2.13  28.45    .000
                        ============================================================
                      SUM 03:ALL.EX       136.02    5.957    2.07  28.37    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------
*
*#ROUTE ALL EXTERNAL FLOWS TO PROPERTY LIMIT
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 03:ALL.EX   |     Number of SEGMENTS =  3
| OUT< 04:CHANIN   |     Slopes (%), CHANNEL= .33   FLOODPLAIN= .33
--------------------                  LENGTH =  424.00    (m)

             <------ DATA FOR SECTION (   2.0) ------>
             Distance      Elevation       Manning
                 .00        241.25         .0350
               25.00        240.75     .0350 / .0350  Main Channel
               25.01        240.75     .0350 / .0350  Main Channel
               37.50        241.25         .0350

   <--------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .026  240.776  .111E+02  .105E+00       .002      .092     76.80     .002
     .053  240.803  .443E+02  .833E+00       .015      .146     48.52     .008
     .079  240.829  .995E+02  .281E+01       .045      .191     37.06     .015
     .105  240.855  .177E+03  .665E+01       .096      .231     30.61     .024
     .132  240.882  .276E+03  .130E+02       .174      .268     26.39     .035
     .158  240.908  .397E+03  .224E+02       .283      .302     23.37     .048
     .184  240.934  .541E+03  .356E+02       .427      .335     21.09     .062
     .211  240.961  .706E+03  .531E+02       .610      .366     19.30     .077
     .237  240.987  .893E+03  .756E+02       .834      .396     17.84     .094
     .263  241.013  .110E+04  .104E+03      1.105      .425     16.63     .112
     .290  241.040  .133E+04  .138E+03      1.424      .453     15.61     .131
     .316  241.066  .159E+04  .179E+03      1.796      .480     14.73     .152
     .342  241.092  .186E+04  .228E+03      2.223      .506     13.97     .173
     .369  241.119  .216E+04  .285E+03      2.709      .532     13.29     .196
     .395  241.145  .248E+04  .350E+03      3.256      .557     12.70     .220
     .421  241.171  .282E+04  .425E+03      3.867      .581     12.16     .245
     .448  241.198  .319E+04  .509E+03      4.545      .605     11.68     .271
     .474  241.224  .357E+04  .605E+03      5.293      .629     11.24     .298
     .500  241.250  .398E+04  .711E+03      6.115      .652     10.84     .326

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 3:ALL.EX   136.02    5.957    2.07 28.365      .495      .647
   OUTFLOW: ID= 4:CHANIN   136.02    5.648    2.27 28.365      .484      .637


--------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------
*
*#INTERNAL CATCHMENT "CATCHMENT 8" MOSTLY FARMLAND
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   21.16   Curve Number   (CN)=78.00
| 05:CAT 8  DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .872

     Unit Hyd Qpeak  (cms)=     .927
```

```
     PEAK FLOW       (cms)=     .651 (i)
     TIME TO PEAK    (hrs)=    2.267
     RUNOFF VOLUME    (mm)=   22.791
     TOTAL RAINFALL   (mm)=   60.380
     RUNOFF COEFFICIENT   =     .377

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------------
001:0023----------------------------------------------------------------------------
*
*#TOTAL PRE DEVELOPMENT FLOWS
*
*
------------------------
| ADD HYD (PRE       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 05:CAT 8         21.16     .651    2.27  22.79    .000
                     +ID2 04:CHANINT      136.02    5.648    2.27  28.37    .000
                      ============================================================
                      SUM 06:PRE          157.18    6.298    2.27  27.61    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------------
001:0024----------------------------------------------------------------------------
       FINISH
------------------------------------------------------------------------------------
************************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 09:24:02
====================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                          9   9  9   9   # 2957874
        StormWater Management HYdrologic Model            999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
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 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *********
 *********           Maximum value for ID numbers  :     10           *********
 *********           Max. number of rainfall points: 105408           *********
 *********           Max. number of flow points    : 105408           *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 09:24:29     RUN COUNTER: 000821         *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre50.dat                 *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre50.out                 *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre50.sum                 *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1499.060
| Ptotal= 66.12 mm |                          B=   4.188
--------------------                          C=    .809
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  3.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =   .38

            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
             .08   4.868 |    .83  14.816 |   1.58  18.203 |   2.33   6.942
             .17   5.228 |    .92  19.964 |   1.67  15.261 |   2.42   6.525
             .25   5.653 |   1.00  31.141 |   1.75  13.172 |   2.50   6.160
             .33   6.163 |   1.08  72.869 |   1.83  11.611 |   2.58   5.837
             .42   6.786 |   1.17 249.214 |   1.92  10.400 |   2.67   5.549
             .50   7.566 |   1.25  87.992 |   2.00   9.432 |   2.75   5.290
             .58   8.574 |   1.33  45.076 |   2.08   8.641 |   2.83   5.057
             .67   9.930 |   1.42  30.115 |   2.17   7.981 |   2.92   4.845
             .75  11.856 |   1.50  22.648 |   2.25   7.422 |   3.00   4.652

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=    1.815 (i)
     TIME TO PEAK    (hrs)=    1.733
     RUNOFF VOLUME    (mm)=   32.513
     TOTAL RAINFALL   (mm)=   66.120
     RUNOFF COEFFICIENT   =     .492

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    5.189 (i)
     TIME TO PEAK    (hrs)=    2.100
     RUNOFF VOLUME    (mm)=   32.513
     TOTAL RAINFALL   (mm)=   66.120
     RUNOFF COEFFICIENT   =     .492

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
```

```
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                  LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0300
                 3.00          99.00     .0300 / .0300  Main Channel
                 5.00          99.00     .0300 / .0300  Main Channel
                 8.00         100.00         .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                    <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2:EX.2      104.80    5.189    2.10 32.513      .650     2.016
   OUTFLOW: ID= 3:CHAN      104.80    5.186    2.12 32.513      .648     2.013


-------------------------------------------------------------------------------
001:0006---------------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .431 (i)
     TIME TO PEAK    (hrs)=    1.417
     RUNOFF VOLUME    (mm)=   36.456
     TOTAL RAINFALL   (mm)=   66.120
     RUNOFF COEFFICIENT   =     .551

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
001:0007---------------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 03:CHAN         104.80    5.186    2.12  32.51    .000
                      +ID2 04:EX.3           3.15     .431    1.42  36.46    .000
                       ============================================================
                       SUM 05:EX2+3        107.95    5.285    2.10  32.63    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
001:0008---------------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                  LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0250
                 1.35          99.55     .0250 / .0250  Main Channel
                 9.35          99.55     .0250 / .0250  Main Channel
                10.70         100.00         .0250

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                    <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 5:EX2+3     107.95    5.285    2.10 32.628      .397     1.449
   OUTFLOW: ID= 6:LOT.CH    107.95    5.283    2.12 32.628      .395     1.446
```

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--------------------------------------------------------------------------------
001:0009--------------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .15          .35
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .35         2.00
     Length            (m)=     97.00        27.00
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    249.21       201.09
               over (min)       3.00         7.00
     Storage Coeff.  (min)=      2.60 (ii)    6.82 (ii)
     Unit Hyd. Tpeak (min)=      3.00         7.00
     Unit Hyd. peak  (cms)=       .41          .16
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .00          .13          .128 (iii)
     TIME TO PEAK    (hrs)=      1.18         1.25         1.250
     RUNOFF VOLUME    (mm)=     64.12        42.66        42.872
     TOTAL RAINFALL   (mm)=     66.12        66.12        66.120
     RUNOFF COEFFICIENT   =       .97          .65          .648

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =      1
---------------------   Total minor system capacity          =    .080  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .128     1.250   42.872     .000
     ==========================================================================
     MAJOR SYST   09:EX4>10        .05      .048     1.250   42.872     .000
     MINOR SYST   08:EX4<10        .45      .080     1.183   42.872     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 06:LOT.CH       107.95    5.283    2.12  32.63    .000
                     +ID2 09:EX4>10          .05     .048    1.25  42.87    .000
                     ==========================================================
                     SUM 10:E2+3+4        108.00    5.283    2.12  32.63    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012--------------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
---------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)    |
| OUT<02:(UNION )    |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.520  .2530E-01
                            .050  .1000E-03   |    2.710  .2980E-01
                            .210  .4200E-03   |    2.731  .3030E-01
                            .460  .1420E-02   |    3.482  .3590E-01
                            .780  .3510E-02   |    5.852  .4200E-01
                           1.170  .6700E-02   |    6.644  .4330E-01
                           1.610  .1100E-01   |    7.455  .4530E-01
                           2.060  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------            (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     108.00     5.283     2.117     32.633
     OUTFLOW<02: (UNION )     108.00     5.282     2.117     32.633

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.990
                  TIME SHIFT OF PEAK FLOW         (min)=      .00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.4053E-01

--------------------------------------------------------------------------------
001:0013--------------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .62          .42
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    185.00        15.00
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    249.21       177.92
               over (min)       3.00         7.00
     Storage Coeff.  (min)=      3.44 (ii)    6.55 (ii)
     Unit Hyd. Tpeak (min)=      3.00         7.00
     Unit Hyd. peak  (cms)=       .34          .17
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .27          .14          .359 (iii)
     TIME TO PEAK    (hrs)=      1.18         1.25         1.200
     RUNOFF VOLUME    (mm)=     64.12        41.22        52.212
     TOTAL RAINFALL   (mm)=     66.12        66.12        66.120
     RUNOFF COEFFICIENT   =       .97          .62          .790

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------------------------------------------------------------------
001:0014--------------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     249.21       162.34
               over (min)        2.00         7.00
     Storage Coeff.  (min)=       2.38 (ii)    6.76 (ii)
     Unit Hyd. Tpeak (min)=       2.00         7.00
     Unit Hyd. peak  (cms)=        .50          .17
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .77          .37          .962 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.27         1.167
     RUNOFF VOLUME    (mm)=      64.12        40.14        50.930
     TOTAL RAINFALL   (mm)=      66.12        66.12        66.120
     RUNOFF COEFFICIENT   =        .97          .61          .770

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6   |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity          =   1.142  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79      .962     1.167   50.930     .000
     ================================================================
     MAJOR SYST   06:>100YR        .00      .000      .000     .000     .000
     MINOR SYST   05:<100YR       2.79      .962     1.167   50.930     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016--------------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------
```

```
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     249.21       157.59
               over (min)        4.00        10.00
     Storage Coeff.  (min)=       4.12 (ii)   10.01 (ii)
     Unit Hyd. Tpeak (min)=       4.00        10.00
     Unit Hyd. peak  (cms)=        .28          .11
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .14          .23          .308 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.32         1.283
     RUNOFF VOLUME    (mm)=      64.12        41.66        46.150
     TOTAL RAINFALL   (mm)=      66.12        66.12        66.120
     RUNOFF COEFFICIENT   =        .97          .63          .698

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:UNION        108.00    5.282    2.12  32.63    .000
                       +ID2 03:EX.5           1.04     .359    1.20  52.21    .000
                       +ID3 06:>100YR          .00     .000     .00    .00    .000  **DRY**
                       +ID4 07:EX.7           1.42     .308    1.28  46.15    .000
                        ============================================================
                        SUM 08:EX.2-7       110.46    5.346    2.12  32.99    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018--------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.280  .5256E-01
                            .000  .3700E-03   |    2.570  .7370E-01
                            .140  .1370E-02   |    2.820  .1028E+00
                            .240  .3940E-02   |    2.860  .1083E+00
                            .600  .8620E-02   |    3.700  .1227E+00
                           1.060  .1550E-01   |    6.088  .1328E+00
                           1.500  .2463E-01   |    8.010  .1486E+00
                           1.920  .4198E-01   |     .000  .0000E+00

     ROUTING RESULTS           AREA     QPEAK     TPEAK       R.V.
     -------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.46     5.346     2.117     32.991
     OUTFLOW<09: (KOMOKA)     110.46     5.346     2.133     32.988
```

```
                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.983
                  TIME SHIFT OF PEAK FLOW         (min)=     1.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.1297E+00

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------
*
*#ROUTE EXTERNAL FLOWS FROM CATCHMENT AREA EX.1 TO LOCATION WHERE
*#EXTERNAL FLOWS MERGE
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 01:EX.1     |     Number of SEGMENTS =  3
| OUT< 02:CHANIN   |     Slopes (%), CHANNEL= .62   FLOODPLAIN= .62
--------------------                  LENGTH =  360.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance       Elevation       Manning
                  .00         243.50         .0350
                25.00         243.00     .0350 / .0350  Main Channel
                25.01         243.00     .0350 / .0350  Main Channel
                37.50         243.50         .0350

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .026  243.026  .945E+01  .557E-01       .003      .126     47.57     .003
     .053  243.053  .376E+02  .443E+00       .021      .200     30.06     .011
     .079  243.079  .845E+02  .149E+01       .061      .261     22.96     .021
     .105  243.105  .150E+03  .354E+01       .132      .316     18.96     .033
     .132  243.132  .234E+03  .691E+01       .239      .367     16.35     .048
     .158  243.158  .337E+03  .119E+02       .388      .414     14.48     .065
     .184  243.184  .459E+03  .189E+02       .585      .459     13.07     .085
     .211  243.211  .599E+03  .283E+02       .836      .502     11.95     .106
     .237  243.237  .758E+03  .403E+02      1.144      .543     11.05     .129
     .263  243.263  .936E+03  .552E+02      1.514      .582     10.30     .153
     .290  243.290  .113E+04  .735E+02      1.952      .621      9.67     .180
     .316  243.316  .135E+04  .954E+02      2.462      .658      9.12     .208
     .342  243.342  .158E+04  .121E+03      3.047      .694      8.65     .237
     .369  243.369  .183E+04  .151E+03      3.713      .729      8.23     .269
     .395  243.395  .211E+04  .186E+03      4.463      .763      7.86     .301
     .421  243.421  .240E+04  .226E+03      5.300      .796      7.53     .335
     .448  243.448  .270E+04  .271E+03      6.230      .829      7.24     .371
     .474  243.474  .303E+04  .322E+03      7.256      .861      6.96     .408
     .500  243.500  .338E+04  .378E+03      8.382      .893      6.72     .447

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 1:EX.1     25.58    1.815    1.73 32.513      .281      .608
   OUTFLOW: ID= 2:CHANIN   25.58    1.693    1.88 32.513      .274      .597


--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS WITHIN THE SUBJECT PROPERTY
*
*
-----------------------
| ADD HYD (ALL.EX    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                         ID1 02:CHANINT    25.58    1.693    1.88  32.51    .000
                        +ID2 09:KOMOKA    110.46    5.346    2.13  32.99    .000
                         ==========================================================
```

```
                        SUM 03:ALL.EX      136.04    6.921    2.05  32.90    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------
*
*#ROUTE ALL EXTERNAL FLOWS TO PROPERTY LIMIT
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 03:ALL.EX   |     Number of SEGMENTS =  3
| OUT< 04:CHANIN   |     Slopes (%), CHANNEL= .33   FLOODPLAIN= .33
--------------------                  LENGTH =  424.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance       Elevation       Manning
                  .00         241.25         .0350
                25.00         240.75     .0350 / .0350  Main Channel
                25.01         240.75     .0350 / .0350  Main Channel
                37.50         241.25         .0350

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .026  240.776  .111E+02  .105E+00       .002      .092     76.80     .002
     .053  240.803  .443E+02  .833E+00       .015      .146     48.52     .008
     .079  240.829  .995E+02  .281E+01       .045      .191     37.06     .015
     .105  240.855  .177E+03  .665E+01       .096      .231     30.61     .024
     .132  240.882  .276E+03  .130E+02       .174      .268     26.39     .035
     .158  240.908  .397E+03  .224E+02       .283      .302     23.37     .048
     .184  240.934  .541E+03  .356E+02       .427      .335     21.09     .062
     .211  240.961  .706E+03  .531E+02       .610      .366     19.30     .077
     .237  240.987  .893E+03  .756E+02       .834      .396     17.84     .094
     .263  241.013  .110E+04  .104E+03      1.105      .425     16.63     .112
     .290  241.040  .133E+04  .138E+03      1.424      .453     15.61     .131
     .316  241.066  .159E+04  .179E+03      1.796      .480     14.73     .152
     .342  241.092  .186E+04  .228E+03      2.223      .506     13.97     .173
     .369  241.119  .216E+04  .285E+03      2.709      .532     13.29     .196
     .395  241.145  .248E+04  .350E+03      3.256      .557     12.70     .220
     .421  241.171  .282E+04  .425E+03      3.867      .581     12.16     .245
     .448  241.198  .319E+04  .509E+03      4.545      .605     11.68     .271
     .474  241.224  .357E+04  .605E+03      5.293      .629     11.24     .298
     .500  241.250  .398E+04  .711E+03      6.115      .652     10.84     .326

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

      *** WARNING: TRAVEL TIME TABLE was exceeded
                                  <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 3:ALL.EX   136.04    6.921    2.05 32.898      .499      .650
   OUTFLOW: ID= 4:CHANIN   136.04    6.650    2.45 32.898      .500      .652


--------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------
*
*#INTERNAL CATCHMENT "CATCHMENT 8" MOSTLY FARMLAND
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   21.16   Curve Number   (CN)=78.00
| 05:CAT 8  DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .872

     Unit Hyd Qpeak  (cms)=     .927
```

```
     PEAK FLOW       (cms)=     .762 (i)
     TIME TO PEAK    (hrs)=    2.267
     RUNOFF VOLUME    (mm)=   26.729
     TOTAL RAINFALL   (mm)=   66.120
     RUNOFF COEFFICIENT   =     .404

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0023----------------------------------------------------------------------------
*
*#TOTAL PRE DEVELOPMENT FLOWS
*
*
------------------------
| ADD HYD (PRE       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 05:CAT 8         21.16     .762    2.27  26.73    .000
                    +ID2 04:CHANINT      136.04    6.650    2.45  32.90    .000
                     ==========================================================
                     SUM 06:PRE          157.20    7.394    2.45  32.07    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0024----------------------------------------------------------------------------
      FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 001:0021 ROUTE CHANNEL   ->
      *** WARNING: TRAVEL TIME TABLE was exceeded
   Simulation ended on 2020-07-30     at 09:24:30
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
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 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                        +++++++++
 +++++++++                London               SERIAL#:2957874       +++++++++
 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *********
 *********           Maximum value for ID numbers  :     10           *********
 *********           Max. number of rainfall points: 105408           *********
 *********           Max. number of flow points    : 105408           *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 09:23:41     RUN COUNTER: 000816         *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre100.dat                *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre100.out                *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre100.sum                *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1499.530
| Ptotal= 71.80 mm |                          B=   3.297
--------------------                          C=    .794
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  3.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =   .38

            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
             .08   5.550 |    .83  16.054 |   1.58  19.524 |   2.33   7.799
             .17   5.944 |    .92  21.315 |   1.67  16.513 |   2.42   7.351
             .25   6.407 |   1.00  32.597 |   1.75  14.357 |   2.50   6.956
             .33   6.959 |   1.08  75.188 |   1.83  12.735 |   2.58   6.606
             .42   7.631 |   1.17 279.468 |   1.92  11.468 |   2.67   6.293
             .50   8.468 |   1.25  90.785 |   2.00  10.450 |   2.75   6.011
             .58   9.542 |   1.33  46.616 |   2.08   9.612 |   2.83   5.757
             .67  10.974 |   1.42  31.567 |   2.17   8.911 |   2.92   5.525
             .75  12.990 |   1.50  24.038 |   2.25   8.314 |   3.00   5.313

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=    2.065 (i)
     TIME TO PEAK    (hrs)=    1.733
     RUNOFF VOLUME    (mm)=   37.100
     TOTAL RAINFALL   (mm)=   71.799
     RUNOFF COEFFICIENT   =     .517

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    5.898 (i)
     TIME TO PEAK    (hrs)=    2.083
     RUNOFF VOLUME    (mm)=   37.099
     TOTAL RAINFALL   (mm)=   71.799
     RUNOFF COEFFICIENT   =     .517

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
```

*

ROUTE CHANNEL	IN> 02:EX.2	OUT< 03:CHAN	Routing time step (min) = 1.00	Number of SEGMENTS = 3	Slopes (%), CHANNEL=1.00 FLOODPLAIN=1.00	LENGTH = 200.00 (m)

<------ DATA FOR SECTION (1.0) ------>

Distance	Elevation	Manning	
.00	100.00	.0300	
3.00	99.00	.0300 / .0300	Main Channel
5.00	99.00	.0300 / .0300	Main Channel
8.00	100.00	.0300	

<---------- TRAVEL TIME TABLE ---------->

DEPTH (m)	ELEV (m)	X-VOLUME (cu.m.)	S-VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)	D x V (m2/s)
.053	99.053	.227E+02	.299E+00	.052	.455	7.33	.024
.105	99.105	.488E+02	.128E+01	.171	.703	4.74	.074
.158	99.158	.781E+02	.308E+01	.352	.901	3.70	.142
.211	99.211	.111E+03	.583E+01	.592	1.069	3.12	.225
.263	99.263	.147E+03	.966E+01	.893	1.217	2.74	.320
.316	99.316	.186E+03	.147E+02	1.258	1.351	2.47	.427
.368	99.368	.229E+03	.211E+02	1.687	1.474	2.26	.543
.421	99.421	.275E+03	.289E+02	2.183	1.589	2.10	.669
.474	99.474	.324E+03	.384E+02	2.748	1.696	1.97	.803
.526	99.526	.377E+03	.496E+02	3.386	1.797	1.85	.946
.579	99.579	.433E+03	.626E+02	4.097	1.894	1.76	1.096
.632	99.632	.492E+03	.777E+02	4.885	1.986	1.68	1.254
.684	99.684	.555E+03	.949E+02	5.753	2.075	1.61	1.420
.737	99.737	.620E+03	.114E+03	6.701	2.160	1.54	1.592
.789	99.789	.690E+03	.136E+03	7.734	2.243	1.49	1.770
.842	99.842	.762E+03	.160E+03	8.853	2.323	1.44	1.956
.895	99.895	.838E+03	.187E+03	10.060	2.400	1.39	2.148
.947	99.947	.917E+03	.217E+03	11.358	2.476	1.35	2.346
1.000	100.000	.100E+04	.250E+03	12.749	2.550	1.31	2.550

X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

	<---- hydrograph ----> AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	<-pipe / channel-> MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2:EX.2	104.80	5.898	2.08	37.099	.692	2.087
OUTFLOW: ID= 3:CHAN	104.80	5.895	2.10	37.099	.691	2.086

001:0006----------

*

*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS

*

*

CALIB NASHYD	04:EX.3 DT= 1.00	Area (ha)= 3.15	Curve Number (CN)=86.00	Ia (mm)= 5.000	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= .225

Unit Hyd Qpeak (cms)= .535

PEAK FLOW (cms)= .488 (i)
TIME TO PEAK (hrs)= 1.417
RUNOFF VOLUME (mm)= 41.259
TOTAL RAINFALL (mm)= 71.799
RUNOFF COEFFICIENT = .575

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

001:0007----------

*

*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL

*

*

ADD HYD (EX2+3)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
	ID1 03:CHAN	104.80	5.895	2.10	37.10	.000
	+ID2 04:EX.3	3.15	.488	1.42	41.26	.000
	SUM 05:EX2+3	107.95	6.008	2.08	37.22	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0008----------

*

*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.

*

*

ROUTE CHANNEL	IN> 05:EX2+3	OUT< 06:LOT.CH	Routing time step (min) = 1.00	Number of SEGMENTS = 3	Slopes (%), CHANNEL= .50 FLOODPLAIN= .50	LENGTH = 140.00 (m)

<------ DATA FOR SECTION (2.0) ------>

Distance	Elevation	Manning	
.00	100.00	.0250	
1.35	99.55	.0250 / .0250	Main Channel
9.35	99.55	.0250 / .0250	Main Channel
10.70	100.00	.0250	

<---------- TRAVEL TIME TABLE ---------->

DEPTH (m)	ELEV (m)	X-VOLUME (cu.m.)	S-VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)	D x V (m2/s)
.024	99.574	.268E+02	.453E+00	.044	.232	10.04	.006
.047	99.597	.540E+02	.183E+01	.142	.368	6.34	.017
.071	99.621	.817E+02	.415E+01	.280	.480	4.86	.034
.095	99.645	.110E+03	.743E+01	.455	.580	4.02	.055
.118	99.668	.139E+03	.117E+02	.664	.671	3.48	.079
.142	99.692	.168E+03	.170E+02	.904	.755	3.09	.107
.166	99.716	.197E+03	.234E+02	1.175	.834	2.80	.138
.189	99.739	.227E+03	.308E+02	1.475	.909	2.57	.172
.213	99.763	.258E+03	.392E+02	1.805	.980	2.38	.209
.237	99.787	.289E+03	.489E+02	2.162	1.048	2.23	.248
.261	99.811	.320E+03	.596E+02	2.547	1.114	2.10	.290
.284	99.834	.352E+03	.715E+02	2.960	1.177	1.98	.334
.308	99.858	.385E+03	.846E+02	3.400	1.237	1.89	.381
.332	99.882	.418E+03	.989E+02	3.866	1.296	1.80	.430
.355	99.905	.451E+03	.114E+03	4.359	1.353	1.72	.481
.379	99.929	.485E+03	.131E+03	4.878	1.409	1.66	.534
.403	99.953	.519E+03	.149E+03	5.423	1.463	1.59	.589
.426	99.976	.554E+03	.169E+03	5.995	1.516	1.54	.646
.450	100.000	.589E+03	.189E+03	6.593	1.567	1.49	.705

X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

	<---- hydrograph ----> AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	<-pipe / channel-> MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 5:EX2+3	107.95	6.008	2.08	37.221	.427	1.517
OUTFLOW: ID= 6:LOT.CH	107.95	6.005	2.10	37.221	.425	1.513

```
--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
---------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .15          .35
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .35         2.00
     Length            (m)=      97.00        27.00
     Mannings n             =     .015         .250

     Max.eff.Inten.(mm/hr)=     279.47       251.74
               over (min)        2.00         6.00
     Storage Coeff.  (min)=       2.48 (ii)    6.34 (ii)
     Unit Hyd. Tpeak (min)=       2.00         6.00
     Unit Hyd. peak  (cms)=        .48          .18
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .00          .15          .153 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.23         1.233
     RUNOFF VOLUME    (mm)=      69.80        47.79        48.014
     TOTAL RAINFALL   (mm)=      71.80        71.80        71.799
     RUNOFF COEFFICIENT   =        .97          .67          .669

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =      1
---------------------   Total minor system capacity          =    .080  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .153     1.233   48.014     .000
     ================================================================
     MAJOR SYST   09:EX4>10        .08      .073     1.233   48.014     .000
     MINOR SYST   08:EX4<10        .42      .080     1.167   48.014     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 06:LOT.CH      107.95    6.005    2.10  37.22    .000
                      +ID2 09:EX4>10         .08     .073    1.23  48.01    .000
                      ================================================================
                      SUM 10:E2+3+4       108.03    6.005    2.10  37.23    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
---------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)    |
| OUT<02:(UNION )    |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.520  .2530E-01
                            .050  .1000E-03   |    2.710  .2980E-01
                            .210  .4200E-03   |    2.731  .3030E-01
                            .460  .1420E-02   |    3.482  .3590E-01
                            .780  .3510E-02   |    5.852  .4200E-01
                           1.170  .6700E-02   |    6.644  .4330E-01
                           1.610  .1100E-01   |    7.455  .4530E-01
                           2.060  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------            (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     108.03     6.005     2.100     37.229
     OUTFLOW<02: (UNION )     108.03     6.005     2.117     37.229

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  100.002
                  TIME SHIFT OF PEAK FLOW         (min)=     1.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.4225E-01

      *** WARNING: Inflow peak was not reduced!
                   Check OUTFLOW/STORAGE table or reduce DT.
--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .62          .42
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     185.00        15.00
     Mannings n             =     .015         .250

     Max.eff.Inten.(mm/hr)=     279.47       223.21
               over (min)        3.00         6.00
     Storage Coeff.  (min)=       3.29 (ii)    6.13 (ii)
     Unit Hyd. Tpeak (min)=       3.00         6.00
     Unit Hyd. peak  (cms)=        .35          .19
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .30          .16          .425 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.23         1.200
     RUNOFF VOLUME    (mm)=      69.80        46.29        57.573
     TOTAL RAINFALL   (mm)=      71.80        71.80        71.799
     RUNOFF COEFFICIENT   =        .97          .64          .802

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

```
          THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0014--------------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     279.47       203.99
               over (min)        2.00         6.00
     Storage Coeff.  (min)=       2.27 (ii)    6.27 (ii)
     Unit Hyd. Tpeak (min)=       2.00         6.00
     Unit Hyd. peak  (cms)=        .51          .18
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .87          .44         1.142 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.23         1.183
     RUNOFF VOLUME    (mm)=      69.80        45.15        56.242
     TOTAL RAINFALL   (mm)=      71.80        71.80        71.799
     RUNOFF COEFFICIENT   =        .97          .63          .783

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6   |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity         =   1.142  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79     1.142     1.183   56.242     .000
     ==========================================================================
     MAJOR SYST   06:>100YR        .00      .000     1.183   56.242     .000
     MINOR SYST   05:<100YR       2.79     1.142     1.183   56.242     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016--------------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     279.47       187.32
               over (min)        4.00         9.00
     Storage Coeff.  (min)=       3.94 (ii)    9.43 (ii)
     Unit Hyd. Tpeak (min)=       4.00         9.00
     Unit Hyd. peak  (cms)=        .29          .12
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .16          .27          .365 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.30         1.267
     RUNOFF VOLUME    (mm)=      69.80        46.74        51.357
     TOTAL RAINFALL   (mm)=      71.80        71.80        71.799
     RUNOFF COEFFICIENT   =        .97          .65          .715

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 02:UNION        108.03    6.005    2.12  37.23    .000
                      +ID2 03:EX.5           1.04     .425    1.20  57.57    .000
                      +ID3 06:>100YR          .00     .000    1.18  56.24    .000
                      +ID4 07:EX.7           1.42     .365    1.27  51.36    .000
                       ============================================================
                       SUM 08:EX.2-7       110.49    6.076    2.10  37.60    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018--------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.280  .5256E-01
                            .000  .3700E-03   |    2.570  .7370E-01
                            .140  .1370E-02   |    2.820  .1028E+00
                            .240  .3940E-02   |    2.860  .1083E+00
                            .600  .8620E-02   |    3.700  .1227E+00
                           1.060  .1550E-01   |    6.088  .1328E+00
                           1.500  .2463E-01   |    8.010  .1486E+00
                           1.920  .4198E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.49     6.076     2.100     37.602
```

```
     OUTFLOW<09: (KOMOKA)     110.49     6.075     2.117     37.598

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.988
                   TIME SHIFT OF PEAK FLOW         (min)=     1.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=.1327E+00

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------
*
*#ROUTE EXTERNAL FLOWS FROM CATCHMENT AREA EX.1 TO LOCATION WHERE
*#EXTERNAL FLOWS MERGE
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 01:EX.1     |     Number of SEGMENTS =  3
| OUT< 02:CHANIN   |     Slopes (%), CHANNEL= .62   FLOODPLAIN= .62
--------------------                 LENGTH =  360.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        243.50         .0350
                 25.00        243.00     .0350 / .0350  Main Channel
                 25.01        243.00     .0350 / .0350  Main Channel
                 37.50        243.50         .0350

   <--------------------------- TRAVEL TIME TABLE --------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)     (cms)     (m/s)     (min)   (m2/s)
     .026  243.026  .945E+01  .557E-01       .003      .126     47.57     .003
     .053  243.053  .376E+02  .443E+00       .021      .200     30.06     .011
     .079  243.079  .845E+02  .149E+01       .061      .261     22.96     .021
     .105  243.105  .150E+03  .354E+01       .132      .316     18.96     .033
     .132  243.132  .234E+03  .691E+01       .239      .367     16.35     .048
     .158  243.158  .337E+03  .119E+02       .388      .414     14.48     .065
     .184  243.184  .459E+03  .189E+02       .585      .459     13.07     .085
     .211  243.211  .599E+03  .283E+02       .836      .502     11.95     .106
     .237  243.237  .758E+03  .403E+02      1.144      .543     11.05     .129
     .263  243.263  .936E+03  .552E+02      1.514      .582     10.30     .153
     .290  243.290  .113E+04  .735E+02      1.952      .621      9.67     .180
     .316  243.316  .135E+04  .954E+02      2.462      .658      9.12     .208
     .342  243.342  .158E+04  .121E+03      3.047      .694      8.65     .237
     .369  243.369  .183E+04  .151E+03      3.713      .729      8.23     .269
     .395  243.395  .211E+04  .186E+03      4.463      .763      7.86     .301
     .421  243.421  .240E+04  .226E+03      5.300      .796      7.53     .335
     .448  243.448  .270E+04  .271E+03      6.230      .829      7.24     .371
     .474  243.474  .303E+04  .322E+03      7.256      .861      6.96     .408
     .500  243.500  .338E+04  .378E+03      8.382      .893      6.72     .447

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                 <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 1:EX.1     25.58    2.065    1.73 37.100      .295      .628
   OUTFLOW: ID= 2:CHANIN   25.58    1.937    1.88 37.099      .288      .619


--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS WITHIN THE SUBJECT PROPERTY
*
*
-----------------------
| ADD HYD (ALL.EX    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)    (cms)
                     ID1 02:CHANINT       25.58    1.937    1.88  37.10    .000
                    +ID2 09:KOMOKA        110.49    6.075    2.12  37.60    .000
                     ==========================================================
                     SUM 03:ALL.EX        136.07    7.867    2.03  37.50    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------
*
*#ROUTE ALL EXTERNAL FLOWS TO PROPERTY LIMIT
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 03:ALL.EX   |     Number of SEGMENTS =  3
| OUT< 04:CHANIN   |     Slopes (%), CHANNEL= .33   FLOODPLAIN= .33
--------------------                 LENGTH =  424.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        241.25         .0350
                 25.00        240.75     .0350 / .0350  Main Channel
                 25.01        240.75     .0350 / .0350  Main Channel
                 37.50        241.25         .0350

   <--------------------------- TRAVEL TIME TABLE --------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)     (cms)     (m/s)     (min)   (m2/s)
     .026  240.776  .111E+02  .105E+00       .002      .092     76.80     .002
     .053  240.803  .443E+02  .833E+00       .015      .146     48.52     .008
     .079  240.829  .995E+02  .281E+01       .045      .191     37.06     .015
     .105  240.855  .177E+03  .665E+01       .096      .231     30.61     .024
     .132  240.882  .276E+03  .130E+02       .174      .268     26.39     .035
     .158  240.908  .397E+03  .224E+02       .283      .302     23.37     .048
     .184  240.934  .541E+03  .356E+02       .427      .335     21.09     .062
     .211  240.961  .706E+03  .531E+02       .610      .366     19.30     .077
     .237  240.987  .893E+03  .756E+02       .834      .396     17.84     .094
     .263  241.013  .110E+04  .104E+03      1.105      .425     16.63     .112
     .290  241.040  .133E+04  .138E+03      1.424      .453     15.61     .131
     .316  241.066  .159E+04  .179E+03      1.796      .480     14.73     .152
     .342  241.092  .186E+04  .228E+03      2.223      .506     13.97     .173
     .369  241.119  .216E+04  .285E+03      2.709      .532     13.29     .196
     .395  241.145  .248E+04  .350E+03      3.256      .557     12.70     .220
     .421  241.171  .282E+04  .425E+03      3.867      .581     12.16     .245
     .448  241.198  .319E+04  .509E+03      4.545      .605     11.68     .271
     .474  241.224  .357E+04  .605E+03      5.293      .629     11.24     .298
     .500  241.250  .398E+04  .711E+03      6.115      .652     10.84     .326

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

      *** WARNING: TRAVEL TIME TABLE was exceeded
                                 <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 3:ALL.EX   136.07    7.867    2.03 37.505      .499      .651
   OUTFLOW: ID= 4:CHANIN   136.07    7.448    2.27 37.504      .500      .652


--------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------
*
*#INTERNAL CATCHMENT "CATCHMENT 8" MOSTLY FARMLAND
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   21.16   Curve Number   (CN)=78.00
| 05:CAT 8  DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .872
```

```
     Unit Hyd Qpeak  (cms)=     .927

     PEAK FLOW       (cms)=     .874 (i)
     TIME TO PEAK    (hrs)=    2.250
     RUNOFF VOLUME    (mm)=   30.775
     TOTAL RAINFALL   (mm)=   71.799
     RUNOFF COEFFICIENT   =     .429

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------------
001:0023--------------------------------------------------------------------------
*
*#TOTAL PRE DEVELOPMENT FLOWS
*
*
------------------------
| ADD HYD (PRE       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                  (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 05:CAT 8        21.16     .874    2.25  30.77    .000
                      +ID2 04:CHANINT     136.07    7.448    2.27  37.50    .000
                       ==========================================================
                       SUM 06:PRE          157.23    8.322    2.27  36.60    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------------
001:0024--------------------------------------------------------------------------
      FINISH
------------------------------------------------------------------------------------
************************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 001:0012 ROUTE RESERVOIR
      *** WARNING: Inflow peak was not reduced!
                   Check OUTFLOW/STORAGE table or reduce DT.
 001:0021 ROUTE CHANNEL   ->
      *** WARNING: TRAVEL TIME TABLE was exceeded
   Simulation ended on 2020-07-30     at 09:23:43
************************************************************************************
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9    =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
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 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *********
 *********           Maximum value for ID numbers  :     10           *********
 *********           Max. number of rainfall points: 105408           *********
 *********           Max. number of flow points    : 105408           *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 09:23:13     RUN COUNTER: 000813          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pr100scs.dat               *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pr100scs.out               *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pr100scs.sum               *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| MASS STORM       |    Filename: c:\Storms\SCS24H.mst
```

```
| Ptotal=107.10 mm |    Comments: SCS Type II 24 HR MASS CURVE
--------------------

                       Duration of storm        =   24.00 hrs
                       Mass curve time step     =   15.00 min
                       Selected storm time step =    5.00 min
                       Volume of derived storm  =  107.10 mm

      TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
       hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
       .08   1.285 |   6.08   1.714 |  12.08  15.422 |  18.08   2.142
       .17   1.285 |   6.17   1.714 |  12.17  15.422 |  18.17   2.142
       .25   1.285 |   6.25   1.714 |  12.25  15.422 |  18.25   2.142
       .33   1.285 |   6.33   2.142 |  12.33  15.422 |  18.33   1.714
       .42   1.285 |   6.42   2.142 |  12.42  15.422 |  18.42   1.714
       .50   1.285 |   6.50   2.142 |  12.50  15.422 |  18.50   1.714
       .58    .857 |   6.58   1.714 |  12.58   8.140 |  18.58   2.142
       .67    .857 |   6.67   1.714 |  12.67   8.140 |  18.67   2.142
       .75    .857 |   6.75   1.714 |  12.75   8.140 |  18.75   2.142
       .83   1.285 |   6.83   2.142 |  12.83   7.711 |  18.83   1.714
       .92   1.285 |   6.92   2.142 |  12.92   7.711 |  18.92   1.714
      1.00   1.285 |   7.00   2.142 |  13.00   7.711 |  19.00   1.714
      1.08   1.285 |   7.08   2.142 |  13.08   5.998 |  19.08   2.142
      1.17   1.285 |   7.17   2.142 |  13.17   5.998 |  19.17   2.142
      1.25   1.285 |   7.25   2.142 |  13.25   5.998 |  19.25   2.142
      1.33   1.285 |   7.33   2.570 |  13.33   5.569 |  19.33   1.714
      1.42   1.285 |   7.42   2.570 |  13.42   5.569 |  19.42   1.714
      1.50   1.285 |   7.50   2.570 |  13.50   5.569 |  19.50   1.714
      1.58    .857 |   7.58   2.142 |  13.58   4.712 |  19.58   2.142
      1.67    .857 |   7.67   2.142 |  13.67   4.712 |  19.67   2.142
      1.75    .857 |   7.75   2.142 |  13.75   4.712 |  19.75   2.142
      1.83   1.285 |   7.83   2.570 |  13.83   4.284 |  19.83   1.714
      1.92   1.285 |   7.92   2.570 |  13.92   4.284 |  19.92   1.714
      2.00   1.285 |   8.00   2.570 |  14.00   4.284 |  20.00   1.714
      2.08   1.285 |   8.08   2.570 |  14.08   3.427 |  20.08   1.285
      2.17   1.285 |   8.17   2.570 |  14.17   3.427 |  20.17   1.285
      2.25   1.285 |   8.25   2.570 |  14.25   3.427 |  20.25   1.285
      2.33   1.714 |   8.33   2.999 |  14.33   2.999 |  20.33   1.285
      2.42   1.714 |   8.42   2.999 |  14.42   2.999 |  20.42   1.285
      2.50   1.714 |   8.50   2.999 |  14.50   2.999 |  20.50   1.285
      2.58   1.285 |   8.58   2.999 |  14.58   3.427 |  20.58   1.285
      2.67   1.285 |   8.67   2.999 |  14.67   3.427 |  20.67   1.285
      2.75   1.285 |   8.75   2.999 |  14.75   3.427 |  20.75   1.285
      2.83   1.285 |   8.83   2.999 |  14.83   2.999 |  20.83   1.285
      2.92   1.285 |   8.92   2.999 |  14.92   2.999 |  20.92   1.285
      3.00   1.285 |   9.00   2.999 |  15.00   2.999 |  21.00   1.285
      3.08   1.285 |   9.08   3.427 |  15.08   3.427 |  21.08   1.285
      3.17   1.285 |   9.17   3.427 |  15.17   3.427 |  21.17   1.285
      3.25   1.285 |   9.25   3.427 |  15.25   3.427 |  21.25   1.285
      3.33   1.714 |   9.33   3.427 |  15.33   2.999 |  21.33   1.285
      3.42   1.714 |   9.42   3.427 |  15.42   2.999 |  21.42   1.285
      3.50   1.714 |   9.50   3.427 |  15.50   2.999 |  21.50   1.285
      3.58   1.285 |   9.58   3.856 |  15.58   3.427 |  21.58   1.285
      3.67   1.285 |   9.67   3.856 |  15.67   3.427 |  21.67   1.285
      3.75   1.285 |   9.75   3.856 |  15.75   3.427 |  21.75   1.285
      3.83   1.285 |   9.83   3.856 |  15.83   2.999 |  21.83   1.285
      3.92   1.285 |   9.92   3.856 |  15.92   2.999 |  21.92   1.285
      4.00   1.285 |  10.00   3.856 |  16.00   2.999 |  22.00   1.285
      4.08   1.714 |  10.08   4.712 |  16.08   2.142 |  22.08   1.285
      4.17   1.714 |  10.17   4.712 |  16.17   2.142 |  22.17   1.285
      4.25   1.714 |  10.25   4.712 |  16.25   2.142 |  22.25   1.285
      4.33   1.714 |  10.33   5.141 |  16.33   1.714 |  22.33   1.285
      4.42   1.714 |  10.42   5.141 |  16.42   1.714 |  22.42   1.285
      4.50   1.714 |  10.50   5.141 |  16.50   1.714 |  22.50   1.285
      4.58   1.714 |  10.58   6.426 |  16.58   2.142 |  22.58   1.285
      4.67   1.714 |  10.67   6.426 |  16.67   2.142 |  22.67   1.285
      4.75   1.714 |  10.75   6.426 |  16.75   2.142 |  22.75   1.285
      4.83   1.714 |  10.83   6.854 |  16.83   1.714 |  22.83   1.285
      4.92   1.714 |  10.92   6.854 |  16.92   1.714 |  22.92   1.285
      5.00   1.714 |  11.00   6.854 |  17.00   1.714 |  23.00   1.285
```

```
              5.08   1.714 |  11.08  10.282 |  17.08   2.142 |  23.08   1.285
              5.17   1.714 |  11.17  10.282 |  17.17   2.142 |  23.17   1.285
              5.25   1.714 |  11.25  10.282 |  17.25   2.142 |  23.25   1.285
              5.33   1.714 |  11.33  10.282 |  17.33   1.714 |  23.33   1.285
              5.42   1.714 |  11.42  10.282 |  17.42   1.714 |  23.42   1.285
              5.50   1.714 |  11.50  10.282 |  17.50   1.714 |  23.50   1.285
              5.58   1.714 |  11.58  31.702 |  17.58   2.142 |  23.58   1.285
              5.67   1.714 |  11.67  31.702 |  17.67   2.142 |  23.67   1.285
              5.75   1.714 |  11.75  31.702 |  17.75   2.142 |  23.75   1.285
              5.83   1.714 |  11.83 131.090 |  17.83   1.714 |  23.83   1.285
              5.92   1.714 |  11.92 131.090 |  17.92   1.714 |  23.92   1.285
              6.00   1.714 |  12.00 131.090 |  18.00   1.714 |  24.00   1.285

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
---------------------
| CALIB NASHYD      |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=    2.531 (i)
     TIME TO PEAK    (hrs)=   12.367
     RUNOFF VOLUME    (mm)=   67.483
     TOTAL RAINFALL   (mm)=  107.101
     RUNOFF COEFFICIENT   =     .630

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
---------------------
| CALIB NASHYD      |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    7.323 (i)
     TIME TO PEAK    (hrs)=   12.700
     RUNOFF VOLUME    (mm)=   67.483
     TOTAL RAINFALL   (mm)=  107.101
     RUNOFF COEFFICIENT   =     .630

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                 LENGTH =  200.00    (m)
```

```
              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                   .00        100.00         .0300
                 3.00         99.00     .0300 / .0300  Main Channel
                 5.00         99.00     .0300 / .0300  Main Channel
                 8.00        100.00         .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053  99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105  99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158  99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211  99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263  99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316  99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368  99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421  99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474  99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526  99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579  99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632  99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684  99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737  99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789  99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842  99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895  99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947  99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000 100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 2:EX.2       104.80    7.323   12.70 67.483      .768     2.209
   OUTFLOW: ID= 3:CHAN       104.80    7.319   12.72 67.483      .768     2.208
```

```
--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
---------------------
| CALIB NASHYD      |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .559 (i)
     TIME TO PEAK    (hrs)=   12.117
     RUNOFF VOLUME    (mm)=   72.669
     TOTAL RAINFALL   (mm)=  107.101
     RUNOFF COEFFICIENT   =     .679

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
```

```
------------------------                  (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 03:CHAN         104.80    7.319   12.72  67.48    .000
                    +ID2 04:EX.3           3.15     .559   12.12  72.67    .000
                     ============================================================
                     SUM 05:EX2+3        107.95    7.453   12.70  67.63    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
001:0008---------------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                 LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                  .00         100.00         .0250
                1.35           99.55     .0250 / .0250  Main Channel
                9.35           99.55     .0250 / .0250  Main Channel
               10.70         100.00         .0250

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

      *** WARNING: TRAVEL TIME TABLE was exceeded
                                  <---- hydrograph ---->   <-pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 5:EX2+3     107.95   7.453   12.70 67.634      .447     1.561
   OUTFLOW: ID= 6:LOT.CH    107.95   7.447   12.72 67.634      .450     1.567


-------------------------------------------------------------------------------
001:0009---------------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
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```
*
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .15           .35
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=        .35          2.00
     Length            (m)=      97.00         27.00
     Mannings n           =       .015          .250

     Max.eff.Inten.(mm/hr)=     131.09        164.72
               over (min)        3.00          8.00
     Storage Coeff.  (min)=       3.36 (ii)     7.93 (ii)
     Unit Hyd. Tpeak (min)=       3.00          8.00
     Unit Hyd. peak  (cms)=        .35           .14
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .00           .13          .128 (iii)
     TIME TO PEAK    (hrs)=      12.00         12.03        12.033
     RUNOFF VOLUME    (mm)=     105.10         80.75         81.008
     TOTAL RAINFALL   (mm)=     107.10        107.10        107.101
     RUNOFF COEFFICIENT   =        .98           .75           .756

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
001:0010---------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
----------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =       1
----------------------   Total minor system capacity         =    .080  (cms)
                         Total major system storage [TMJSTO] =       0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .128    12.033   81.008     .000
     ================================================================================
     MAJOR SYST   09:EX4>10        .04      .048    12.033   81.008     .000
     MINOR SYST   08:EX4<10        .46      .080    11.900   81.008     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
001:0011---------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 06:LOT.CH       107.95    7.447   12.72  67.63    .000
                     +ID2 09:EX4>10         .04     .048   12.03  81.01    .000
                      ============================================================
                      SUM 10:E2+3+4       107.99    7.447   12.72  67.64    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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001:0012-------------------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)   |
| OUT<02:(UNION )   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.520  .2530E-01
                            .050  .1000E-03   |    2.710  .2980E-01
                            .210  .4200E-03   |    2.731  .3030E-01
                            .460  .1420E-02   |    3.482  .3590E-01
                            .780  .3510E-02   |    5.852  .4200E-01
                           1.170  .6700E-02   |    6.644  .4330E-01
                           1.610  .1100E-01   |    7.455  .4530E-01
                           2.060  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     107.99     7.447    12.717     67.639
     OUTFLOW<02: (UNION )     107.99     7.446    12.733     67.639

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.992
                   TIME SHIFT OF PEAK FLOW          (min)=     1.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=.4528E-01

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001:0013-------------------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .62          .42
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    185.00        15.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    131.09       149.04
                 over (min)       4.00         8.00
     Storage Coeff.  (min)=      4.45 (ii)    7.79 (ii)
     Unit Hyd. Tpeak (min)=      4.00         8.00
     Unit Hyd. peak  (cms)=       .26          .14
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .17          .14          .307 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.03        12.000
     RUNOFF VOLUME    (mm)=    105.09        78.93        91.496
     TOTAL RAINFALL   (mm)=    107.10       107.10       107.101
     RUNOFF COEFFICIENT   =       .98          .74          .854

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
001:0014-------------------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.53         1.26
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    100.00        25.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    131.09       138.36
                 over (min)       3.00         8.00
     Storage Coeff.  (min)=      3.08 (ii)    7.75 (ii)
     Unit Hyd. Tpeak (min)=      3.00         8.00
     Unit Hyd. peak  (cms)=       .37          .14
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .45          .38          .823 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.03        12.000
     RUNOFF VOLUME    (mm)=    105.09        77.53        89.944
     TOTAL RAINFALL   (mm)=    107.10       107.10       107.101
     RUNOFF COEFFICIENT   =       .98          .72          .840

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
001:0015-------------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD   |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6  |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity         =   1.142  (cms)
                        Total major system storage [TMJSTO] =       0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79      .823    12.000   89.944     .000
     ==========================================================================
     MAJOR SYST   06:>100YR        .00      .000      .000     .000     .000
     MINOR SYST   05:<100YR       2.79      .823    12.000   89.944     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
001:0016-------------------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .57          .85
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    250.00        40.00
     Mannings n           =      .015         .250
```

```
     Max.eff.Inten.(mm/hr)=     131.09       151.74
               over (min)         5.00        11.00
     Storage Coeff.  (min)=       5.33 (ii)   11.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        11.00
     Unit Hyd. peak  (cms)=        .22          .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .10          .24          .327 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08        12.033
     RUNOFF VOLUME    (mm)=     105.09        79.48         84.616
     TOTAL RAINFALL   (mm)=     107.10       107.10        107.101
     RUNOFF COEFFICIENT   =        .98          .74           .790

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
-----------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 02:UNION        107.99    7.446   12.73  67.64    .000
                      +ID2 03:EX.5           1.04     .307   12.00  91.50    .000
                      +ID3 06:>100YR          .00     .000     .00    .00    .000  **DRY**
                      +ID4 07:EX.7           1.42     .327   12.03  84.62    .000
                       ============================================================
                       SUM 08:EX.2-7       110.45    7.524   12.72  68.08    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018----------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
--------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTFLOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.280  .5256E-01
                            .000  .3700E-03   |    2.570  .7370E-01
                            .140  .1370E-02   |    2.820  .1028E+00
                            .240  .3940E-02   |    2.860  .1083E+00
                            .600  .8620E-02   |    3.700  .1227E+00
                           1.060  .1550E-01   |    6.088  .1328E+00
                           1.500  .2463E-01   |    8.010  .1486E+00
                           1.920  .4198E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.45     7.524    12.717     68.082
     OUTFLOW<09: (KOMOKA)     110.45     7.519    12.750     68.078

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.934
                    TIME SHIFT OF PEAK FLOW         (min)=    2.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.1446E+00

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------
```

```
*
*#ROUTE EXTERNAL FLOWS FROM CATCHMENT AREA EX.1 TO LOCATION WHERE
*#EXTERNAL FLOWS MERGE
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 01:EX.1     |     Number of SEGMENTS =  3
| OUT< 02:CHANIN   |     Slopes (%), CHANNEL= .62   FLOODPLAIN= .62
--------------------                   LENGTH =  360.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00         243.50          .0350
                 25.00         243.00     .0350 / .0350  Main Channel
                 25.01         243.00     .0350 / .0350  Main Channel
                 37.50         243.50          .0350

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .026  243.026  .945E+01  .557E-01       .003      .126     47.57     .003
     .053  243.053  .376E+02  .443E+00       .021      .200     30.06     .011
     .079  243.079  .845E+02  .149E+01       .061      .261     22.96     .021
     .105  243.105  .150E+03  .354E+01       .132      .316     18.96     .033
     .132  243.132  .234E+03  .691E+01       .239      .367     16.35     .048
     .158  243.158  .337E+03  .119E+02       .388      .414     14.48     .065
     .184  243.184  .459E+03  .189E+02       .585      .459     13.07     .085
     .211  243.211  .599E+03  .283E+02       .836      .502     11.95     .106
     .237  243.237  .758E+03  .403E+02      1.144      .543     11.05     .129
     .263  243.263  .936E+03  .552E+02      1.514      .582     10.30     .153
     .290  243.290  .113E+04  .735E+02      1.952      .621      9.67     .180
     .316  243.316  .135E+04  .954E+02      2.462      .658      9.12     .208
     .342  243.342  .158E+04  .121E+03      3.047      .694      8.65     .237
     .369  243.369  .183E+04  .151E+03      3.713      .729      8.23     .269
     .395  243.395  .211E+04  .186E+03      4.463      .763      7.86     .301
     .421  243.421  .240E+04  .226E+03      5.300      .796      7.53     .335
     .448  243.448  .270E+04  .271E+03      6.230      .829      7.24     .371
     .474  243.474  .303E+04  .322E+03      7.256      .861      6.96     .408
     .500  243.500  .338E+04  .378E+03      8.382      .893      6.72     .447

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 1:EX.1         25.58    2.531   12.37 67.483      .319      .662
   OUTFLOW: ID= 2:CHANIN       25.58    2.382   12.50 67.483      .311      .650


--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS WITHIN THE SUBJECT PROPERTY
*
*
-----------------------
| ADD HYD (ALL.EX    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 02:CHANINT       25.58    2.382   12.50  67.48    .000
                      +ID2 09:KOMOKA       110.45    7.519   12.75  68.08    .000
                       ============================================================
                       SUM 03:ALL.EX        136.03    9.727   12.67  67.97    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------
```

```
*
*#ROUTE ALL EXTERNAL FLOWS TO PROPERTY LIMIT
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 03:ALL.EX   |     Number of SEGMENTS =  3
| OUT< 04:CHANIN   |     Slopes (%), CHANNEL= .33   FLOODPLAIN= .33
--------------------                 LENGTH =  424.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        241.25         .0350
                 25.00        240.75     .0350 / .0350  Main Channel
                 25.01        240.75     .0350 / .0350  Main Channel
                 37.50        241.25         .0350

   <--------------------------- TRAVEL TIME TABLE --------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)     (cms)     (m/s)     (min)   (m2/s)
     .026  240.776  .111E+02  .105E+00       .002      .092     76.80     .002
     .053  240.803  .443E+02  .833E+00       .015      .146     48.52     .008
     .079  240.829  .995E+02  .281E+01       .045      .191     37.06     .015
     .105  240.855  .177E+03  .665E+01       .096      .231     30.61     .024
     .132  240.882  .276E+03  .130E+02       .174      .268     26.39     .035
     .158  240.908  .397E+03  .224E+02       .283      .302     23.37     .048
     .184  240.934  .541E+03  .356E+02       .427      .335     21.09     .062
     .211  240.961  .706E+03  .531E+02       .610      .366     19.30     .077
     .237  240.987  .893E+03  .756E+02       .834      .396     17.84     .094
     .263  241.013  .110E+04  .104E+03      1.105      .425     16.63     .112
     .290  241.040  .133E+04  .138E+03      1.424      .453     15.61     .131
     .316  241.066  .159E+04  .179E+03      1.796      .480     14.73     .152
     .342  241.092  .186E+04  .228E+03      2.223      .506     13.97     .173
     .369  241.119  .216E+04  .285E+03      2.709      .532     13.29     .196
     .395  241.145  .248E+04  .350E+03      3.256      .557     12.70     .220
     .421  241.171  .282E+04  .425E+03      3.867      .581     12.16     .245
     .448  241.198  .319E+04  .509E+03      4.545      .605     11.68     .271
     .474  241.224  .357E+04  .605E+03      5.293      .629     11.24     .298
     .500  241.250  .398E+04  .711E+03      6.115      .652     10.84     .326

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

      *** WARNING: TRAVEL TIME TABLE was exceeded
                               <---- hydrograph ---->   <-pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 3:ALL.EX    136.03    9.727   12.67 67.966      .498      .650
   OUTFLOW: ID= 4:CHANIN    136.03    9.249   12.88 67.966      .500      .652


-------------------------------------------------------------------------------
001:0022---------------------------------------------------------------------
*
*#INTERNAL CATCHMENT "CATCHMENT 8" MOSTLY FARMLAND
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   21.16   Curve Number   (CN)=78.00
| 05:CAT 8  DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .872

     Unit Hyd Qpeak  (cms)=     .927

     PEAK FLOW       (cms)=    1.128 (i)
     TIME TO PEAK    (hrs)=   12.833
     RUNOFF VOLUME    (mm)=   58.343
     TOTAL RAINFALL   (mm)=  107.101
     RUNOFF COEFFICIENT   =     .545
```

```
     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
001:0023---------------------------------------------------------------------
*
*#TOTAL PRE DEVELOPMENT FLOWS
*
*
-----------------------
| ADD HYD (PRE       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 05:CAT 8       21.16    1.128   12.83  58.34    .000
                       +ID2 04:CHANINT     136.03    9.249   12.88  67.97    .000
                        ===========================================================
                        SUM 06:PRE         157.19   10.376   12.87  66.67    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
001:0024---------------------------------------------------------------------
      FINISH
-------------------------------------------------------------------------------
*******************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 001:0008 ROUTE CHANNEL   ->
      *** WARNING: TRAVEL TIME TABLE was exceeded
 001:0021 ROUTE CHANNEL   ->
      *** WARNING: TRAVEL TIME TABLE was exceeded
   Simulation ended on 2020-07-30     at 09:23:15
===============================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
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 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                        +++++++++
 +++++++++                London               SERIAL#:2957874       +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *********
 *********           Maximum value for ID numbers  :     10           *********
 *********           Max. number of rainfall points: 105408           *********
 *********           Max. number of flow points    : 105408           *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 09:24:11     RUN COUNTER: 000819         *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre250.dat                *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre250.out                *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pre250.sum                *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=3048.220
| Ptotal= 86.61 mm |                          B=  10.030
--------------------                          C=    .888
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  3.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =   .38

            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
             .08   4.911 |    .83  20.544 |   1.58  26.471 |   2.33   7.766
             .17   5.383 |    .92  29.598 |   1.67  21.310 |   2.42   7.167
             .25   5.954 |   1.00  49.310 |   1.75  17.716 |   2.50   6.652
             .33   6.656 |   1.08 112.508 |   1.83  15.092 |   2.58   6.204
             .42   7.541 |   1.17 274.730 |   1.92  13.104 |   2.67   5.811
             .50   8.685 |   1.25 133.591 |   2.00  11.554 |   2.75   5.465
             .58  10.215 |   1.33  72.819 |   2.08  10.315 |   2.83   5.157
             .67  12.349 |   1.42  47.569 |   2.17   9.306 |   2.92   4.882
             .75  15.503 |   1.50  34.367 |   2.25   8.469 |   3.00   4.634

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=    2.897 (i)
     TIME TO PEAK    (hrs)=    1.733
     RUNOFF VOLUME    (mm)=   49.516
     TOTAL RAINFALL   (mm)=   86.609
     RUNOFF COEFFICIENT   =     .572

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    8.257 (i)
     TIME TO PEAK    (hrs)=    2.083
     RUNOFF VOLUME    (mm)=   49.516
     TOTAL RAINFALL   (mm)=   86.609
     RUNOFF COEFFICIENT   =     .572

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
```

```
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                   LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0300
                 3.00          99.00     .0300 / .0300  Main Channel
                 5.00          99.00     .0300 / .0300  Main Channel
                 8.00         100.00         .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                    <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2:EX.2      104.80    8.257    2.08 49.516      .814     2.279
   OUTFLOW: ID= 3:CHAN      104.80    8.253    2.10 49.516      .813     2.278


--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .651 (i)
     TIME TO PEAK    (hrs)=    1.433
     RUNOFF VOLUME    (mm)=   54.165
     TOTAL RAINFALL   (mm)=   86.609
     RUNOFF COEFFICIENT   =     .625

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
```

```
001:0007----------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 03:CHAN         104.80    8.253    2.10  49.52    .000
                     +ID2 04:EX.3           3.15     .651    1.43  54.16    .000
                      ========================================================
                      SUM 05:EX2+3        107.95    8.404    2.08  49.65    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                   LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0250
                 1.35          99.55     .0250 / .0250  Main Channel
                 9.35          99.55     .0250 / .0250  Main Channel
                10.70         100.00         .0250

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

      *** WARNING: TRAVEL TIME TABLE was exceeded
                                    <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 5:EX2+3     107.95    8.404    2.08 49.652      .449     1.566
   OUTFLOW: ID= 6:LOT.CH    107.95    8.397    2.10 49.652      .450     1.567
```

```
--------------------------------------------------------------------------------
001:0009--------------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .15          .35
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .35         2.00
     Length            (m)=      97.00        27.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     274.73       273.88
               over (min)        2.00         6.00
     Storage Coeff.  (min)=       2.50 (ii)    6.23 (ii)
     Unit Hyd. Tpeak (min)=       2.00         6.00
     Unit Hyd. peak  (cms)=        .48          .18
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .00          .18          .182 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.25         1.250
     RUNOFF VOLUME    (mm)=      84.61        61.45        61.680
     TOTAL RAINFALL   (mm)=      86.61        86.61        86.609
     RUNOFF COEFFICIENT   =        .98          .71          .712

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =      1
---------------------   Total minor system capacity         =    .080  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .182     1.250   61.680     .000
     ======================================================================
     MAJOR SYST   09:EX4>10        .12      .102     1.250   61.680     .000
     MINOR SYST   08:EX4<10        .38      .080     1.133   61.679     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
-----------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 06:LOT.CH       107.95    8.397    2.10  49.65    .000
                    +ID2 09:EX4>10          .12     .102    1.25  61.68    .000
                     ==========================================================
                     SUM 10:E2+3+4       108.07    8.397    2.10  49.66    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012--------------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)   |
| OUT<02:(UNION )   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.520  .2530E-01
                            .050  .1000E-03   |    2.710  .2980E-01
                            .210  .4200E-03   |    2.731  .3030E-01
                            .460  .1420E-02   |    3.482  .3590E-01
                            .780  .3510E-02   |    5.852  .4200E-01
                           1.170  .6700E-02   |    6.644  .4330E-01
                           1.610  .1100E-01   |    7.455  .4530E-01
                           2.060  .1700E-01   |     .000  .0000E+00
      *** WARNING: STORAGE-Q values were extrapolated.
                   Increase curve or use overflow option.

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     108.07     8.397     2.100     49.665
     OUTFLOW<02: (UNION )     108.07     8.397     2.117     49.665

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  100.000
                   TIME SHIFT OF PEAK FLOW         (min)=     1.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=.4762E-01

      *** WARNING: Inflow peak was not reduced!
                   Check OUTFLOW/STORAGE table or reduce DT.
--------------------------------------------------------------------------------
001:0013--------------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .62          .42
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     185.00        15.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     274.73       244.34
               over (min)        3.00         6.00
     Storage Coeff.  (min)=       3.31 (ii)    6.05 (ii)
     Unit Hyd. Tpeak (min)=       3.00         6.00
     Unit Hyd. peak  (cms)=        .35          .19
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .31          .19          .467 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.25         1.200
     RUNOFF VOLUME    (mm)=      84.61        59.79        71.701
     TOTAL RAINFALL   (mm)=      86.61        86.61        86.609
     RUNOFF COEFFICIENT   =        .98          .69          .828
```

```
      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  86.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0014--------------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     274.73       224.36
               over (min)        2.00         6.00
     Storage Coeff.  (min)=       2.29 (ii)    6.14 (ii)
     Unit Hyd. Tpeak (min)=       2.00         6.00
     Unit Hyd. peak  (cms)=        .51          .19
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .87          .53         1.239 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.25          1.183
     RUNOFF VOLUME    (mm)=      84.61        58.52         70.262
     TOTAL RAINFALL   (mm)=      86.61        86.61         86.609
     RUNOFF COEFFICIENT   =        .98          .68           .811

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  86.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD   |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6  |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity         =   1.142  (cms)
                        Total major system storage [TMJSTO] =       0.(cu.m.)

                 ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                 (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6        2.79     1.239     1.183   70.262     .000
     ======================================================================
     MAJOR SYST   06:>100YR        .02      .097     1.183   70.262     .000
     MINOR SYST   05:<100YR       2.77     1.142     1.167   70.262     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016--------------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
```

```
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     274.73       219.02
               over (min)        4.00         9.00
     Storage Coeff.  (min)=       3.96 (ii)    9.12 (ii)
     Unit Hyd. Tpeak (min)=       4.00         9.00
     Unit Hyd. peak  (cms)=        .28          .12
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .16          .34          .450 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.30         1.283
     RUNOFF VOLUME    (mm)=      84.61        60.29        65.156
     TOTAL RAINFALL   (mm)=      86.61        86.61        86.609
     RUNOFF COEFFICIENT   =        .98          .70          .752

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  86.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:UNION       108.07    8.397    2.12  49.66    .000
                       +ID2 03:EX.5          1.04     .467    1.20  71.70    .000
                       +ID3 06:>100YR         .02     .097    1.18  70.26    .000
                       +ID4 07:EX.7          1.42     .450    1.28  65.16    .000
                        ============================================================
                        SUM 08:EX.2-7      110.54    8.478    2.10  50.07    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018--------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTFLOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |    2.280  .5256E-01
                           .000  .3700E-03   |    2.570  .7370E-01
                           .140  .1370E-02   |    2.820  .1028E+00
                           .240  .3940E-02   |    2.860  .1083E+00
                           .600  .8620E-02   |    3.700  .1227E+00
                          1.060  .1550E-01   |    6.088  .1328E+00
                          1.500  .2463E-01   |    8.010  .1486E+00
                          1.920  .4198E-01   |     .000  .0000E+00
     *** WARNING: STORAGE-Q values were extrapolated.
```

```
                Increase curve or use overflow option.

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.54     8.478     2.100     50.074
     OUTFLOW<09: (KOMOKA)     110.54     8.473     2.133     50.071

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.945
                  TIME SHIFT OF PEAK FLOW         (min)=     2.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.1524E+00

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------------
*
*#ROUTE EXTERNAL FLOWS FROM CATCHMENT AREA EX.1 TO LOCATION WHERE
*#EXTERNAL FLOWS MERGE
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 01:EX.1     |     Number of SEGMENTS =  3
| OUT< 02:CHANIN   |     Slopes (%), CHANNEL= .62   FLOODPLAIN= .62
--------------------                 LENGTH =  360.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                  .00        243.50         .0350
                25.00        243.00     .0350 / .0350  Main Channel
                25.01        243.00     .0350 / .0350  Main Channel
                37.50        243.50         .0350

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .026  243.026  .945E+01  .557E-01       .003      .126     47.57     .003
     .053  243.053  .376E+02  .443E+00       .021      .200     30.06     .011
     .079  243.079  .845E+02  .149E+01       .061      .261     22.96     .021
     .105  243.105  .150E+03  .354E+01       .132      .316     18.96     .033
     .132  243.132  .234E+03  .691E+01       .239      .367     16.35     .048
     .158  243.158  .337E+03  .119E+02       .388      .414     14.48     .065
     .184  243.184  .459E+03  .189E+02       .585      .459     13.07     .085
     .211  243.211  .599E+03  .283E+02       .836      .502     11.95     .106
     .237  243.237  .758E+03  .403E+02      1.144      .543     11.05     .129
     .263  243.263  .936E+03  .552E+02      1.514      .582     10.30     .153
     .290  243.290  .113E+04  .735E+02      1.952      .621      9.67     .180
     .316  243.316  .135E+04  .954E+02      2.462      .658      9.12     .208
     .342  243.342  .158E+04  .121E+03      3.047      .694      8.65     .237
     .369  243.369  .183E+04  .151E+03      3.713      .729      8.23     .269
     .395  243.395  .211E+04  .186E+03      4.463      .763      7.86     .301
     .421  243.421  .240E+04  .226E+03      5.300      .796      7.53     .335
     .448  243.448  .270E+04  .271E+03      6.230      .829      7.24     .371
     .474  243.474  .303E+04  .322E+03      7.256      .861      6.96     .408
     .500  243.500  .338E+04  .378E+03      8.382      .893      6.72     .447

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 1:EX.1      25.58    2.897    1.73 49.516      .335      .684
   OUTFLOW: ID= 2:CHANIN    25.58    2.738    1.87 49.516      .327      .673


--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS WITHIN THE SUBJECT PROPERTY
*
```

```
*
------------------------
| ADD HYD (ALL.EX    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 02:CHANINT       25.58    2.738    1.87  49.52    .000
                      +ID2 09:KOMOKA       110.54    8.473    2.13  50.07    .000
                       ========================================================
                       SUM 03:ALL.EX       136.12   10.972    2.03  49.97    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------------
*
*#ROUTE ALL EXTERNAL FLOWS TO PROPERTY LIMIT
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 03:ALL.EX   |     Number of SEGMENTS =  3
| OUT< 04:CHANIN   |     Slopes (%), CHANNEL= .33   FLOODPLAIN= .33
--------------------                 LENGTH =  424.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                  .00        241.25         .0350
                25.00        240.75     .0350 / .0350  Main Channel
                25.01        240.75     .0350 / .0350  Main Channel
                37.50        241.25         .0350

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .026  240.776  .111E+02  .105E+00       .002      .092     76.80     .002
     .053  240.803  .443E+02  .833E+00       .015      .146     48.52     .008
     .079  240.829  .995E+02  .281E+01       .045      .191     37.06     .015
     .105  240.855  .177E+03  .665E+01       .096      .231     30.61     .024
     .132  240.882  .276E+03  .130E+02       .174      .268     26.39     .035
     .158  240.908  .397E+03  .224E+02       .283      .302     23.37     .048
     .184  240.934  .541E+03  .356E+02       .427      .335     21.09     .062
     .211  240.961  .706E+03  .531E+02       .610      .366     19.30     .077
     .237  240.987  .893E+03  .756E+02       .834      .396     17.84     .094
     .263  241.013  .110E+04  .104E+03      1.105      .425     16.63     .112
     .290  241.040  .133E+04  .138E+03      1.424      .453     15.61     .131
     .316  241.066  .159E+04  .179E+03      1.796      .480     14.73     .152
     .342  241.092  .186E+04  .228E+03      2.223      .506     13.97     .173
     .369  241.119  .216E+04  .285E+03      2.709      .532     13.29     .196
     .395  241.145  .248E+04  .350E+03      3.256      .557     12.70     .220
     .421  241.171  .282E+04  .425E+03      3.867      .581     12.16     .245
     .448  241.198  .319E+04  .509E+03      4.545      .605     11.68     .271
     .474  241.224  .357E+04  .605E+03      5.293      .629     11.24     .298
     .500  241.250  .398E+04  .711E+03      6.115      .652     10.84     .326

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

      *** WARNING: TRAVEL TIME TABLE was exceeded
                                  <---- hydrograph ---->   <-pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 3:ALL.EX    136.12   10.972    2.03 49.966      .500      .651
   OUTFLOW: ID= 4:CHANIN    136.12   10.412    2.27 49.966      .500      .652


--------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------------
*
*#INTERNAL CATCHMENT "CATCHMENT 8" MOSTLY FARMLAND
*
```

```
*
---------------------
| CALIB NASHYD       |   Area    (ha)=   21.16   Curve Number   (CN)=78.00
| 05:CAT 8  DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .872

     Unit Hyd Qpeak  (cms)=     .927

     PEAK FLOW       (cms)=    1.247 (i)
     TIME TO PEAK    (hrs)=    2.233
     RUNOFF VOLUME    (mm)=   41.901
     TOTAL RAINFALL   (mm)=   86.609
     RUNOFF COEFFICIENT   =     .484

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0023----------------------------------------------------------------------
*
*#TOTAL PRE DEVELOPMENT FLOWS
*
*
------------------------
| ADD HYD (PRE       ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 05:CAT 8         21.16    1.247    2.23  41.90    .000
                     +ID2 04:CHANINT      136.12   10.412    2.27  49.97    .000
                      ============================================================
                      SUM 06:PRE          157.28   11.658    2.27  48.88    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0024----------------------------------------------------------------------
     FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 001:0008 ROUTE CHANNEL   ->
      *** WARNING: TRAVEL TIME TABLE was exceeded
 001:0012 ROUTE RESERVOIR
      *** WARNING: STORAGE-Q values were extrapolated.
                   Increase curve or use overflow option.
      *** WARNING: Inflow peak was not reduced!
                   Check OUTFLOW/STORAGE table or reduce DT.
 001:0018 ROUTE RESERVOIR
      *** WARNING: STORAGE-Q values were extrapolated.
                   Increase curve or use overflow option.
 001:0021 ROUTE CHANNEL   ->
      *** WARNING: TRAVEL TIME TABLE was exceeded
   Simulation ended on 2020-07-30     at 09:24:12
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9    =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 09:23:22     RUN COUNTER: 000814          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pr250scs.dat               *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pr250scs.out               *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\pr250scs.sum               *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001--------------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Pre\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002--------------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| MASS STORM       |    Filename: c:\Storms\SCS24H.mst
```

```
| Ptotal=119.00 mm |    Comments: SCS Type II 24 HR MASS CURVE
--------------------

                       Duration of storm        =   24.00 hrs
                       Mass curve time step     =   15.00 min
                       Selected storm time step =    5.00 min
                       Volume of derived storm  =  119.00 mm

          TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
           hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
           .08   1.428 |   6.08   1.904 |  12.08  17.136 |  18.08   2.380
           .17   1.428 |   6.17   1.904 |  12.17  17.136 |  18.17   2.380
           .25   1.428 |   6.25   1.904 |  12.25  17.136 |  18.25   2.380
           .33   1.428 |   6.33   2.380 |  12.33  17.136 |  18.33   1.904
           .42   1.428 |   6.42   2.380 |  12.42  17.136 |  18.42   1.904
           .50   1.428 |   6.50   2.380 |  12.50  17.136 |  18.50   1.904
           .58    .952 |   6.58   1.904 |  12.58   9.044 |  18.58   2.380
           .67    .952 |   6.67   1.904 |  12.67   9.044 |  18.67   2.380
           .75    .952 |   6.75   1.904 |  12.75   9.044 |  18.75   2.380
           .83   1.428 |   6.83   2.380 |  12.83   8.568 |  18.83   1.904
           .92   1.428 |   6.92   2.380 |  12.92   8.568 |  18.92   1.904
          1.00   1.428 |   7.00   2.380 |  13.00   8.568 |  19.00   1.904
          1.08   1.428 |   7.08   2.380 |  13.08   6.664 |  19.08   2.380
          1.17   1.428 |   7.17   2.380 |  13.17   6.664 |  19.17   2.380
          1.25   1.428 |   7.25   2.380 |  13.25   6.664 |  19.25   2.380
          1.33   1.428 |   7.33   2.856 |  13.33   6.188 |  19.33   1.904
          1.42   1.428 |   7.42   2.856 |  13.42   6.188 |  19.42   1.904
          1.50   1.428 |   7.50   2.856 |  13.50   6.188 |  19.50   1.904
          1.58    .952 |   7.58   2.380 |  13.58   5.236 |  19.58   2.380
          1.67    .952 |   7.67   2.380 |  13.67   5.236 |  19.67   2.380
          1.75    .952 |   7.75   2.380 |  13.75   5.236 |  19.75   2.380
          1.83   1.428 |   7.83   2.856 |  13.83   4.760 |  19.83   1.904
          1.92   1.428 |   7.92   2.856 |  13.92   4.760 |  19.92   1.904
          2.00   1.428 |   8.00   2.856 |  14.00   4.760 |  20.00   1.904
          2.08   1.428 |   8.08   2.856 |  14.08   3.808 |  20.08   1.428
          2.17   1.428 |   8.17   2.856 |  14.17   3.808 |  20.17   1.428
          2.25   1.428 |   8.25   2.856 |  14.25   3.808 |  20.25   1.428
          2.33   1.904 |   8.33   3.332 |  14.33   3.332 |  20.33   1.428
          2.42   1.904 |   8.42   3.332 |  14.42   3.332 |  20.42   1.428
          2.50   1.904 |   8.50   3.332 |  14.50   3.332 |  20.50   1.428
          2.58   1.428 |   8.58   3.332 |  14.58   3.808 |  20.58   1.428
          2.67   1.428 |   8.67   3.332 |  14.67   3.808 |  20.67   1.428
          2.75   1.428 |   8.75   3.332 |  14.75   3.808 |  20.75   1.428
          2.83   1.428 |   8.83   3.332 |  14.83   3.332 |  20.83   1.428
          2.92   1.428 |   8.92   3.332 |  14.92   3.332 |  20.92   1.428
          3.00   1.428 |   9.00   3.332 |  15.00   3.332 |  21.00   1.428
          3.08   1.428 |   9.08   3.808 |  15.08   3.808 |  21.08   1.428
          3.17   1.428 |   9.17   3.808 |  15.17   3.808 |  21.17   1.428
          3.25   1.428 |   9.25   3.808 |  15.25   3.808 |  21.25   1.428
          3.33   1.904 |   9.33   3.808 |  15.33   3.332 |  21.33   1.428
          3.42   1.904 |   9.42   3.808 |  15.42   3.332 |  21.42   1.428
          3.50   1.904 |   9.50   3.808 |  15.50   3.332 |  21.50   1.428
          3.58   1.428 |   9.58   4.284 |  15.58   3.808 |  21.58   1.428
          3.67   1.428 |   9.67   4.284 |  15.67   3.808 |  21.67   1.428
          3.75   1.428 |   9.75   4.284 |  15.75   3.808 |  21.75   1.428
          3.83   1.428 |   9.83   4.284 |  15.83   3.332 |  21.83   1.428
          3.92   1.428 |   9.92   4.284 |  15.92   3.332 |  21.92   1.428
          4.00   1.428 |  10.00   4.284 |  16.00   3.332 |  22.00   1.428
          4.08   1.904 |  10.08   5.236 |  16.08   2.380 |  22.08   1.428
          4.17   1.904 |  10.17   5.236 |  16.17   2.380 |  22.17   1.428
          4.25   1.904 |  10.25   5.236 |  16.25   2.380 |  22.25   1.428
          4.33   1.904 |  10.33   5.712 |  16.33   1.904 |  22.33   1.428
          4.42   1.904 |  10.42   5.712 |  16.42   1.904 |  22.42   1.428
          4.50   1.904 |  10.50   5.712 |  16.50   1.904 |  22.50   1.428
          4.58   1.904 |  10.58   7.140 |  16.58   2.380 |  22.58   1.428
          4.67   1.904 |  10.67   7.140 |  16.67   2.380 |  22.67   1.428
          4.75   1.904 |  10.75   7.140 |  16.75   2.380 |  22.75   1.428
          4.83   1.904 |  10.83   7.616 |  16.83   1.904 |  22.83   1.428
          4.92   1.904 |  10.92   7.616 |  16.92   1.904 |  22.92   1.428
          5.00   1.904 |  11.00   7.616 |  17.00   1.904 |  23.00   1.428
```

```
              5.08   1.904 |  11.08  11.424 |  17.08   2.380 |  23.08   1.428
              5.17   1.904 |  11.17  11.424 |  17.17   2.380 |  23.17   1.428
              5.25   1.904 |  11.25  11.424 |  17.25   2.380 |  23.25   1.428
              5.33   1.904 |  11.33  11.424 |  17.33   1.904 |  23.33   1.428
              5.42   1.904 |  11.42  11.424 |  17.42   1.904 |  23.42   1.428
              5.50   1.904 |  11.50  11.424 |  17.50   1.904 |  23.50   1.428
              5.58   1.904 |  11.58  35.224 |  17.58   2.380 |  23.58   1.428
              5.67   1.904 |  11.67  35.224 |  17.67   2.380 |  23.67   1.428
              5.75   1.904 |  11.75  35.224 |  17.75   2.380 |  23.75   1.428
              5.83   1.904 |  11.83 145.656 |  17.83   1.904 |  23.83   1.428
              5.92   1.904 |  11.92 145.656 |  17.92   1.904 |  23.92   1.428
              6.00   1.904 |  12.00 145.656 |  18.00   1.904 |  24.00   1.428

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=    2.934 (i)
     TIME TO PEAK    (hrs)=   12.367
     RUNOFF VOLUME    (mm)=   78.213
     TOTAL RAINFALL   (mm)=  118.999
     RUNOFF COEFFICIENT   =     .657

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    8.492 (i)
     TIME TO PEAK    (hrs)=   12.683
     RUNOFF VOLUME    (mm)=   78.213
     TOTAL RAINFALL   (mm)=  118.999
     RUNOFF COEFFICIENT   =     .657

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                 LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                   .00        100.00         .0300
                 3.00         99.00     .0300 / .0300  Main Channel
                 5.00         99.00     .0300 / .0300  Main Channel
                 8.00        100.00         .0300

  <---------------------------- TRAVEL TIME TABLE ---------------------------->
   DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
     (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
    .053  99.053  .227E+02  .299E+00       .052      .455      7.33     .024
    .105  99.105  .488E+02  .128E+01       .171      .703      4.74     .074
    .158  99.158  .781E+02  .308E+01       .352      .901      3.70     .142
    .211  99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
    .263  99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
    .316  99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
    .368  99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
    .421  99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
    .474  99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
    .526  99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
    .579  99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
    .632  99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
    .684  99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
    .737  99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
    .789  99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
    .842  99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
    .895  99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
    .947  99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
   1.000 100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                 <---- hydrograph ---->   <-pipe / channel->
                                 AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                                 (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 2:EX.2       104.80    8.492   12.68 78.213      .825     2.296
   OUTFLOW: ID= 3:CHAN       104.80    8.488   12.70 78.213      .825     2.295


--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .642 (i)
     TIME TO PEAK    (hrs)=   12.117
     RUNOFF VOLUME    (mm)=   83.656
     TOTAL RAINFALL   (mm)=  118.999
     RUNOFF COEFFICIENT   =     .703

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
```

```
------------------------                  (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 03:CHAN         104.80    8.488   12.70  78.21    .000
                    +ID2 04:EX.3           3.15     .642   12.12  83.66    .000
                     ============================================================
                     SUM 05:EX2+3        107.95    8.641   12.70  78.37    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
001:0008---------------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                 LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                  .00         100.00         .0250
                1.35           99.55     .0250 / .0250  Main Channel
                9.35           99.55     .0250 / .0250  Main Channel
               10.70         100.00         .0250

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

      *** WARNING: TRAVEL TIME TABLE was exceeded
                                  <---- hydrograph ---->   <-pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 5:EX2+3     107.95    8.641   12.70 78.372      .449     1.565
   OUTFLOW: ID= 6:LOT.CH    107.95    8.635   12.72 78.372      .450     1.567


-------------------------------------------------------------------------------
001:0009---------------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
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```
*
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .15           .35
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=        .35          2.00
     Length            (m)=      97.00         27.00
     Mannings n             =      .015          .250

     Max.eff.Inten.(mm/hr)=     145.66        186.24
               over (min)        3.00          8.00
     Storage Coeff.  (min)=       3.22 (ii)     7.57 (ii)
     Unit Hyd. Tpeak (min)=       3.00          8.00
     Unit Hyd. peak  (cms)=        .36           .15
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .00           .15          .147 (iii)
     TIME TO PEAK    (hrs)=      12.00         12.03        12.033
     RUNOFF VOLUME    (mm)=     117.00         92.12         92.384
     TOTAL RAINFALL   (mm)=     119.00        119.00        118.999
     RUNOFF COEFFICIENT   =        .98           .77           .776

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
001:0010---------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
----------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =       1
----------------------   Total minor system capacity         =    .080  (cms)
                         Total major system storage [TMJSTO] =       0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .147    12.033   92.384     .000
     ================================================================================
     MAJOR SYST   09:EX4>10        .05      .067    12.033   92.384     .000
     MINOR SYST   08:EX4<10        .45      .080    11.883   92.384     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
001:0011---------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 06:LOT.CH       107.95    8.635   12.72  78.37    .000
                     +ID2 09:EX4>10         .05     .067   12.03  92.38    .000
                      ============================================================
                      SUM 10:E2+3+4       108.00    8.635   12.72  78.38    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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001:0012-------------------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)   |
| OUT<02:(UNION )   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.520  .2530E-01
                            .050  .1000E-03   |    2.710  .2980E-01
                            .210  .4200E-03   |    2.731  .3030E-01
                            .460  .1420E-02   |    3.482  .3590E-01
                            .780  .3510E-02   |    5.852  .4200E-01
                           1.170  .6700E-02   |    6.644  .4330E-01
                           1.610  .1100E-01   |    7.455  .4530E-01
                           2.060  .1700E-01   |     .000  .0000E+00
      *** WARNING: STORAGE-Q values were extrapolated.
                   Increase curve or use overflow option.

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     108.00     8.635    12.717     78.378
     OUTFLOW<02: (UNION )     108.00     8.634    12.717     78.379

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.990
                    TIME SHIFT OF PEAK FLOW         (min)=      .00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.4821E-01

-------------------------------------------------------------------------------
001:0013-------------------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .62          .42
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     185.00        15.00
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=     145.66       169.40
               over (min)        4.00         7.00
     Storage Coeff.  (min)=       4.26 (ii)    7.44 (ii)
     Unit Hyd. Tpeak (min)=       4.00         7.00
     Unit Hyd. peak  (cms)=        .27          .16
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .19          .16          .352 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.02        12.000
     RUNOFF VOLUME    (mm)=     116.99        90.22       103.081
     TOTAL RAINFALL   (mm)=     119.00       119.00       118.999
     RUNOFF COEFFICIENT   =        .98          .76          .866

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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001:0014-------------------------------------------------------------------------------
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*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=     145.66       157.56
               over (min)        3.00         7.00
     Storage Coeff.  (min)=       2.95 (ii)    7.39 (ii)
     Unit Hyd. Tpeak (min)=       3.00         7.00
     Unit Hyd. peak  (cms)=        .38          .16
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .50          .45          .944 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.02        12.000
     RUNOFF VOLUME    (mm)=     117.00        88.77       101.475
     TOTAL RAINFALL   (mm)=     119.00       119.00       118.999
     RUNOFF COEFFICIENT   =        .98          .75          .853

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
001:0015-------------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD   |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6  |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity         =   1.142  (cms)
                        Total major system storage [TMJSTO] =       0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79      .944    12.000  101.475     .000
     ======================================================================
     MAJOR SYST   06:>100YR        .00      .000      .000     .000     .000
     MINOR SYST   05:<100YR       2.79      .944    12.000  101.475     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
001:0016-------------------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
```

```
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     145.66       172.06
               over (min)        5.00        11.00
     Storage Coeff.  (min)=       5.11 (ii)   10.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00        11.00
     Unit Hyd. peak  (cms)=        .22          .10
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .11          .28          .376 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.07        12.033
     RUNOFF VOLUME    (mm)=     116.99        90.80        96.051
     TOTAL RAINFALL   (mm)=     119.00       119.00       118.999
     RUNOFF COEFFICIENT   =        .98          .76          .807

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017---------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
-----------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 02:UNION        108.00    8.634   12.72  78.38    .000
                      +ID2 03:EX.5           1.04     .352   12.00 103.08    .000
                      +ID3 06:>100YR          .00     .000     .00    .00    .000  **DRY**
                      +ID4 07:EX.7           1.42     .376   12.03  96.05    .000
                       ============================================================
                       SUM 08:EX.2-7       110.46    8.720   12.72  78.84    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018---------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
--------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTFLOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |    2.280  .5256E-01
                           .000  .3700E-03   |    2.570  .7370E-01
                           .140  .1370E-02   |    2.820  .1028E+00
                           .240  .3940E-02   |    2.860  .1083E+00
                           .600  .8620E-02   |    3.700  .1227E+00
                          1.060  .1550E-01   |    6.088  .1328E+00
                          1.500  .2463E-01   |    8.010  .1486E+00
                          1.920  .4198E-01   |    .000   .0000E+00
     *** WARNING: STORAGE-Q values were extrapolated.
                  Increase curve or use overflow option.

     ROUTING RESULTS           AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.46     8.720    12.717     78.838
     OUTFLOW<09: (KOMOKA)     110.46     8.715    12.733     78.835

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.940
                   TIME SHIFT OF PEAK FLOW         (min)=     1.00
```

```
                    MAXIMUM  STORAGE   USED       (ha.m.)=.1544E+00

--------------------------------------------------------------------------------
001:0019---------------------------------------------------------------------------
*
*#ROUTE EXTERNAL FLOWS FROM CATCHMENT AREA EX.1 TO LOCATION WHERE
*#EXTERNAL FLOWS MERGE
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 01:EX.1     |     Number of SEGMENTS =  3
| OUT< 02:CHANIN   |     Slopes (%), CHANNEL= .62   FLOODPLAIN= .62
--------------------                   LENGTH =  360.00    (m)

                <------ DATA FOR SECTION (   2.0) ------>
                Distance      Elevation       Manning
                    .00         243.50          .0350
                  25.00         243.00     .0350 / .0350  Main Channel
                  25.01         243.00     .0350 / .0350  Main Channel
                  37.50         243.50          .0350

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .026  243.026  .945E+01  .557E-01       .003      .126     47.57     .003
     .053  243.053  .376E+02  .443E+00       .021      .200     30.06     .011
     .079  243.079  .845E+02  .149E+01       .061      .261     22.96     .021
     .105  243.105  .150E+03  .354E+01       .132      .316     18.96     .033
     .132  243.132  .234E+03  .691E+01       .239      .367     16.35     .048
     .158  243.158  .337E+03  .119E+02       .388      .414     14.48     .065
     .184  243.184  .459E+03  .189E+02       .585      .459     13.07     .085
     .211  243.211  .599E+03  .283E+02       .836      .502     11.95     .106
     .237  243.237  .758E+03  .403E+02      1.144      .543     11.05     .129
     .263  243.263  .936E+03  .552E+02      1.514      .582     10.30     .153
     .290  243.290  .113E+04  .735E+02      1.952      .621      9.67     .180
     .316  243.316  .135E+04  .954E+02      2.462      .658      9.12     .208
     .342  243.342  .158E+04  .121E+03      3.047      .694      8.65     .237
     .369  243.369  .183E+04  .151E+03      3.713      .729      8.23     .269
     .395  243.395  .211E+04  .186E+03      4.463      .763      7.86     .301
     .421  243.421  .240E+04  .226E+03      5.300      .796      7.53     .335
     .448  243.448  .270E+04  .271E+03      6.230      .829      7.24     .371
     .474  243.474  .303E+04  .322E+03      7.256      .861      6.96     .408
     .500  243.500  .338E+04  .378E+03      8.382      .893      6.72     .447

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 1:EX.1       25.58    2.934   12.37 78.213      .337      .686
   OUTFLOW: ID= 2:CHANIN     25.58    2.772   12.50 78.213      .329      .676


--------------------------------------------------------------------------------
001:0020---------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS WITHIN THE SUBJECT PROPERTY
*
*
-----------------------
| ADD HYD (ALL.EX    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 02:CHANINT      25.58    2.772   12.50  78.21    .000
                      +ID2 09:KOMOKA      110.46    8.715   12.73  78.84    .000
                       ============================================================
                       SUM 03:ALL.EX       136.04   11.280   12.65  78.72    .000
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0021---
*
*#ROUTE ALL EXTERNAL FLOWS TO PROPERTY LIMIT
*
*

ROUTE CHANNEL	IN> 03:ALL.EX	OUT< 04:CHANIN

Routing time step (min) = 1.00
Number of SEGMENTS = 3
Slopes (%), CHANNEL= .33   FLOODPLAIN= .33
LENGTH = 424.00   (m)

<------ DATA FOR SECTION (2.0) ------>

Distance	Elevation	Manning	
.00	241.25	.0350	
25.00	240.75	.0350 / .0350	Main Channel
25.01	240.75	.0350 / .0350	Main Channel
37.50	241.25	.0350	

<---------- TRAVEL TIME TABLE ---------->

DEPTH (m)	ELEV (m)	X-VOLUME (cu.m.)	S-VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)	D x V (m2/s)
.026	240.776	.111E+02	.105E+00	.002	.092	76.80	.002
.053	240.803	.443E+02	.833E+00	.015	.146	48.52	.008
.079	240.829	.995E+02	.281E+01	.045	.191	37.06	.015
.105	240.855	.177E+03	.665E+01	.096	.231	30.61	.024
.132	240.882	.276E+03	.130E+02	.174	.268	26.39	.035
.158	240.908	.397E+03	.224E+02	.283	.302	23.37	.048
.184	240.934	.541E+03	.356E+02	.427	.335	21.09	.062
.211	240.961	.706E+03	.531E+02	.610	.366	19.30	.077
.237	240.987	.893E+03	.756E+02	.834	.396	17.84	.094
.263	241.013	.110E+04	.104E+03	1.105	.425	16.63	.112
.290	241.040	.133E+04	.138E+03	1.424	.453	15.61	.131
.316	241.066	.159E+04	.179E+03	1.796	.480	14.73	.152
.342	241.092	.186E+04	.228E+03	2.223	.506	13.97	.173
.369	241.119	.216E+04	.285E+03	2.709	.532	13.29	.196
.395	241.145	.248E+04	.350E+03	3.256	.557	12.70	.220
.421	241.171	.282E+04	.425E+03	3.867	.581	12.16	.245
.448	241.198	.319E+04	.509E+03	4.545	.605	11.68	.271
.474	241.224	.357E+04	.605E+03	5.293	.629	11.24	.298
.500	241.250	.398E+04	.711E+03	6.115	.652	10.84	.326

X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

*** WARNING: TRAVEL TIME TABLE was exceeded

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
	<---- hydrograph ---->				<-pipe / channel->	
INFLOW : ID= 3:ALL.EX	136.04	11.280	12.65	78.718	.499	.650
OUTFLOW: ID= 4:CHANIN	136.04	10.703	12.87	78.718	.500	.652

001:0022---
*
*#INTERNAL CATCHMENT "CATCHMENT 8" MOSTLY FARMLAND
*
*

CALIB NASHYD	05:CAT 8 DT= 1.00

Area   (ha)=   21.16   Curve Number   (CN)=78.00
Ia   (mm)=   7.000   # of Linear Res.(N)= 3.00
U.H. Tp(hrs)=   .872

Unit Hyd Qpeak (cms)=   .927

PEAK FLOW   (cms)=   1.325 (i)

TIME TO PEAK   (hrs)=   12.833
RUNOFF VOLUME   (mm)=   68.307
TOTAL RAINFALL   (mm)= 118.999
RUNOFF COEFFICIENT   =   .574

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

001:0023---
*
*#TOTAL PRE DEVELOPMENT FLOWS
*
*

ADD HYD (PRE)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
	ID1 05:CAT 8	21.16	1.325	12.83	68.31	.000
	+ID2 04:CHANINT	136.04	10.703	12.87	78.72	.000
	SUM 06:PRE	157.20	12.027	12.87	77.32	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0024---
FINISH

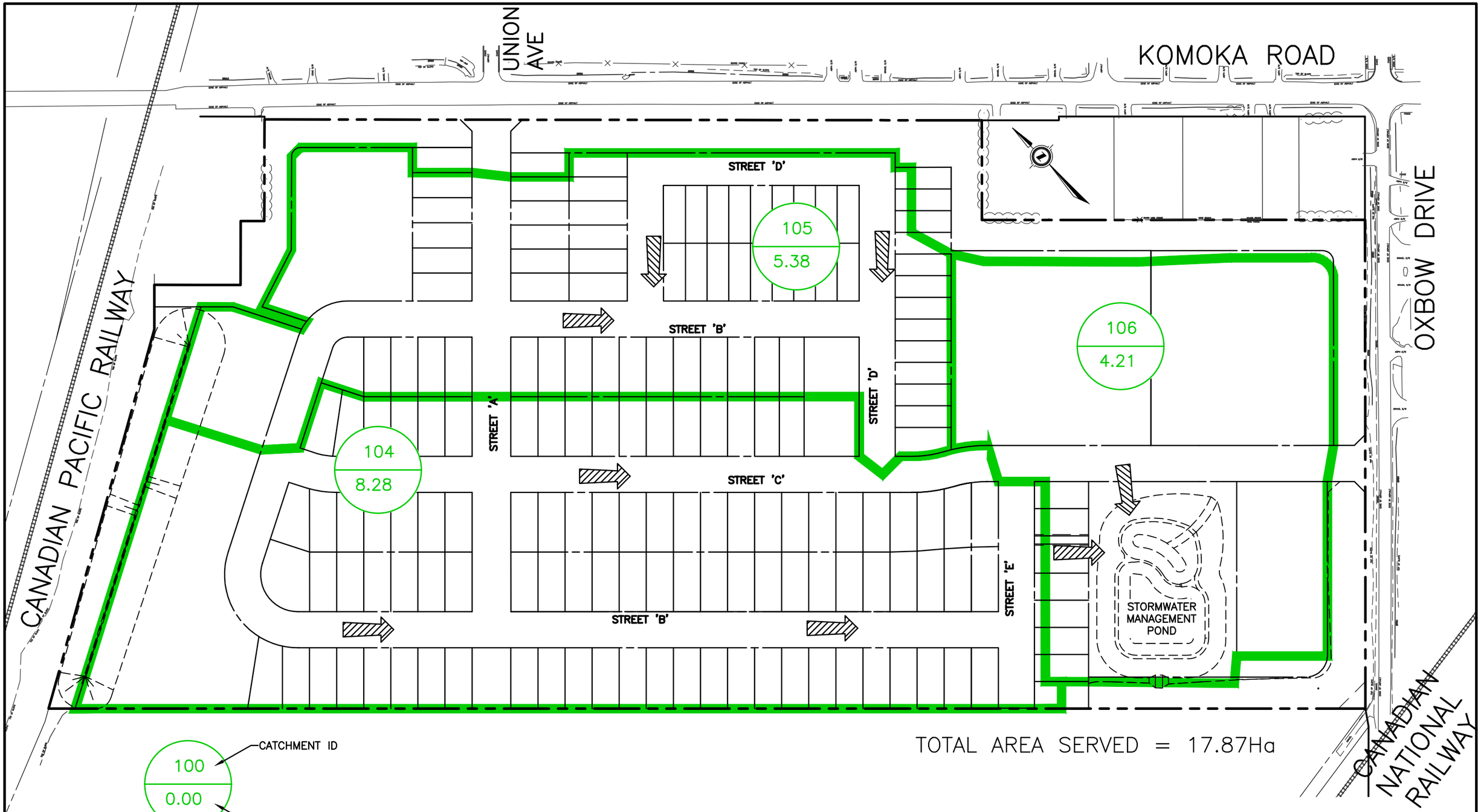
****
WARNINGS / ERRORS / NOTES

001:0008 ROUTE CHANNEL   ->
*** WARNING: TRAVEL TIME TABLE was exceeded
001:0012 ROUTE RESERVOIR
*** WARNING: STORAGE-Q values were extrapolated.
Increase curve or use overflow option.
001:0018 ROUTE RESERVOIR
*** WARNING: STORAGE-Q values were extrapolated.
Increase curve or use overflow option.
001:0021 ROUTE CHANNEL   ->
*** WARNING: TRAVEL TIME TABLE was exceeded
Simulation ended on 2020-07-30   at 09:23:23
==========

APPENDIX C

Stormwater Management
Post Development Model

Internal to Pond



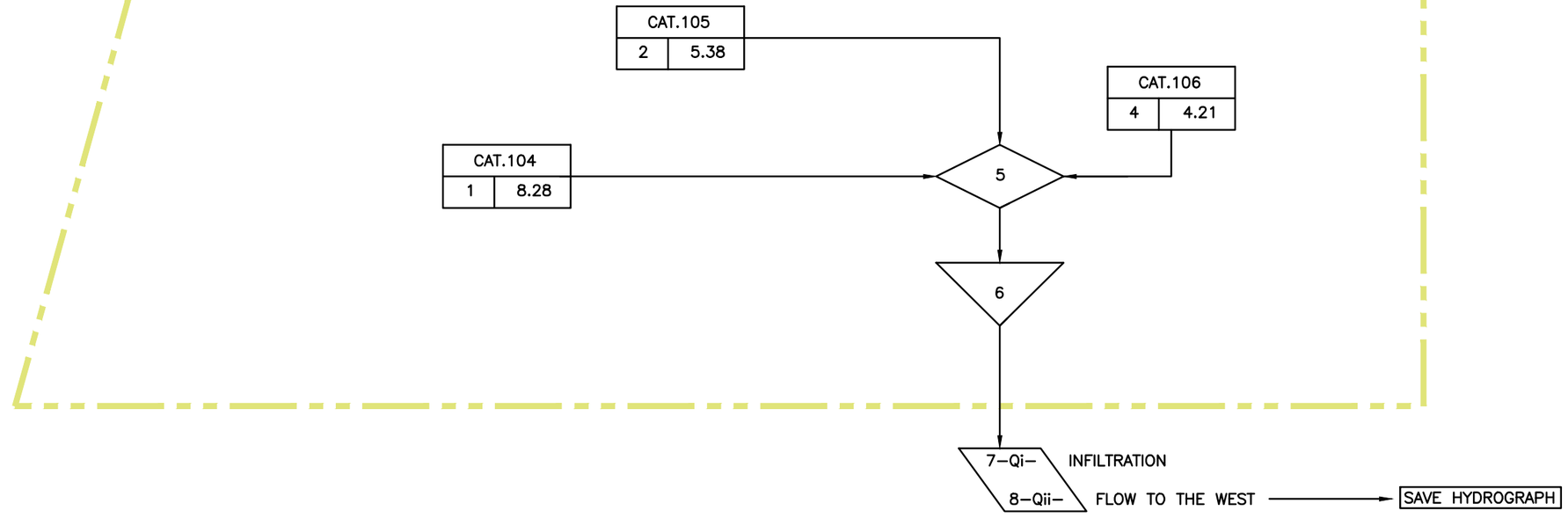
TOTAL AREA SERVED = 17.87Ha

POST DEVELOPMENT MODEL TO SWM POND

SCALE 1:2000
DATE: AUGUST 2020

AGM PLAN • SURVEY • ENGINEER
ARCHIBALD, GRAY & McKAY ENGINEERING LTD.
3514 WHITE OAK ROAD, LONDON, ON, N6E 2Z9
PHONE 519-685-5300 FAX 519-685-5303
EMAIL info@agm.on.ca WEB www.agm.on.ca

Plot date: Aug 13, 2020 G:\CLIENT\1389\1\CAD 2019\1389-1 BASE.dwg



CALIB STANDHYD

DESCRIPTION

ID | AREA

ADD HYD

ID

CHANNEL

ID

L=

CALIB NASHHYD

DESCRIPTION

ID | AREA

RESERVOIR

ID

DIVERT HYD

ID

POST DEVELOPMENT TO SWM POND MODEL SCHEMATIC

DATE: AUGUST 2020

ARCHIBALD, GRAY & McKAY ENGINEERING LTD.
3514 WHITE OAK ROAD, LONDON, ON, N6E 2Z9
PHONE 519-685-5300 FAX 519-685-5303
EMAIL info@agm.on.ca WEB www.agm.on.ca
PLAN • SURVEY • ENGINEER

Plot date: Jul 30, 2020 G:\CLIENT\1389\1\CAD 2019\1389-1 BASE.dwg

POST DEVELOPMENT - SWM POND MODELING DATA

CALIB STANDARD HYDROGRAPH (URBAN AREAS)

CATCHMENT NO.	AREA (ha)	XIMP (%)	TIMP (%)	BASE FLOW (cms)	PERVIOUS LENGTH (m)	IMP. LENGTH (m)	Perv. Initial Abstraction (mm)	Imp. Initial Abstraction (mm)	PERVIOUS MANNINGS (n)	Pervious Slope (%)	Impervious Slope (%)	SCS CURVE #
104	8.28	47.00	57.00	0	38.5	635	5	2	0.25	2	0.25	80
105	5.38	47.00	57.00	0	38.5	450	5	2	0.25	2	0.25	80
106	4.21	55.00	70.00	0	30	110	5	2	0.25	2	0.5	66

SWM POND STORAGE DATA

Elevation (m)	Area (m^2)	Storage		Pipe Outlet Discharge			Description
		Storage Increment (m^3)	Total Storage (m^3)	150mm ø (m^3/s)	2-450mm ø (m^3/s)	Combined (m^3/s)	
Forebay (Dead Storage)							
238.70	231	0	0				
240.00	1010	806	806				
Permanent Pool (Dead Storage)							
238.70	1047	0	0				
240.00	2054	2016	2016				
240.00	-	-	**2822**				Top of Permanent Pool
Extended Detention and Attenuation (Active Storage)							
240.00	3152	0	0	0.000	0.000	0.000	Bottom of Extended Detention
240.20	3608	675.5	675.5	0.015	0.000	0.015	
240.40	3874	749.7	1425.3	0.022	0.000	0.022	
240.60	4132	800.5	2225.8	0.028	0.000	0.028	
240.80	4399	853.0	3078.8	0.033	0.000	0.033	2 Year Storm Elev. = 240.86
241.00	4673	907.1	3985.9	0.037	0.000	0.037	5 Year Storm Elev. = 241.16
241.20	4956	962.8	4948.7	0.041	0.080	0.121	10 Year Storm Elev. = 241.29
241.40	5247	1020.2	5969.0	0.044	0.290	0.334	25 / 50 Year Storm Elev. = 241.41 / 241.49
241.60	5547	1079.3	7048.2	0.047	0.500	0.547	100 Year Storm Elev. = 241.58
241.80	5854	1140.0	8188.2	0.050	0.645	0.695	100 Year-24hr. Storm Elev. = 241.80
242.00	6170	1202.3	9390.6	0.053	0.770	0.823	250 Year Storm Elev. = 241.87
242.20	6494	1266.3	10656.9	0.055	0.885	0.940	250 Year-24hr. Storm Elev. = 241.97
242.30	6675	657.7	11314.6	0.057	0.940	0.997	Overflow Elevation = 242.00
							Top of Pond = 242.30

SWM POND FOREBAY REQUIREMENTS

1) Settling Length: Length required to settle 150um size particles

Distance = $\sqrt{\frac{rQ_p}{Vs}}$ where

r=	4.9	:1	Length to width ratio of forebay
Q_p=	0.034		Peak outflow from extended detention zone
V_s=	0.0003	m/s	Settling velocity

Distance = 23.6 m

2) Dispersion Length: Length required for dispersion of incoming fluid jet

Distance = $\frac{8Q}{dV_f}$ where

Q=	1.64	m^3/s	for 2 year storm event
d=	1.30	m	Depth of permanent pool in forebay
V_f=	0.5	m/s	Desired velocity in forebay

Distance = 20.18 m

FOREBAY LENGTH PROVIDED = 34 m at bottom elevation from inlet to forebay b

3) Bottom Width: Minimum forebay bottom width

Width = $\frac{\text{Dist.}}{8}$

Width = $\frac{34}{8}$

Width = 4.25 m

AVERAGE FOREBAY WIDTH PROVIDED = 7 m at bottom elevation

4) Maximum Area: Surface area of the forebay should not exceed 1/3 of the total permanent poo

$A_{forebay}$ = 1010 m^2 at top elevation

$A_{perm.pool}$ = 3063 m^2 at top elevation

$A_{forebay}$ < 1/3 $A_{perm.pool}$

Modeling

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:48:53     RUN COUNTER: 000831          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps25mm.dat           *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps25mm.out           *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps25mm.sum           *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-16-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 538.850
| Ptotal= 25.05 mm |                          B=   6.331
--------------------                          C=    .809
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =   .38

            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
             .08   1.421 |   1.08   4.556 |   2.08   5.080 |   3.08   1.974
             .17   1.500 |   1.17   5.737 |   2.17   4.458 |   3.17   1.884
             .25   1.590 |   1.25   7.791 |   2.25   3.977 |   3.25   1.803
             .33   1.693 |   1.33  12.188 |   2.33   3.594 |   3.33   1.729
             .42   1.812 |   1.42  27.203 |   2.42   3.282 |   3.42   1.662
             .50   1.950 |   1.50  75.607 |   2.50   3.022 |   3.50   1.599
             .58   2.114 |   1.58  32.416 |   2.58   2.803 |   3.58   1.542
             .67   2.312 |   1.67  17.504 |   2.67   2.615 |   3.67   1.489
             .75   2.554 |   1.75  11.796 |   2.75   2.453 |   3.75   1.440
             .83   2.859 |   1.83   8.858 |   2.83   2.311 |   3.83   1.395
             .92   3.255 |   1.92   7.089 |   2.92   2.185 |   3.92   1.352
            1.00   3.791 |   2.00   5.914 |   3.00   2.074 |   4.00   1.312

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
********************************************************************************
*                                                                              *
*      POST DEVELOPMENT INTERNAL FLOW TO PROPOSED SWM FACILITY                 *
*                                                                              *
********************************************************************************
*
* CATCHMENT 104 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET A,B,C,E
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    8.28
| 01:CAT104 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
---------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.72         3.56
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     480.00        38.50
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=      45.08         8.03
               over (min)        15.00        34.00
     Storage Coeff.  (min)=      14.87 (ii)   33.79 (ii)
     Unit Hyd. Tpeak (min)=      15.00        34.00
     Unit Hyd. peak  (cms)=        .08          .03
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .31          .04          .329 (iii)
     TIME TO PEAK    (hrs)=       1.72         2.15         1.733
     RUNOFF VOLUME    (mm)=      23.04         6.08        14.052
     TOTAL RAINFALL   (mm)=      25.05        25.05        25.046
     RUNOFF COEFFICIENT   =        .92          .24          .561

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
* CATCHMENT 105 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET B AND D
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
```

```
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    5.38
| 02:CAT105 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.07         2.31
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     635.00        38.50
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=      40.48         7.49
               over (min)       18.00        38.00
     Storage Coeff.  (min)=      18.37 (ii)   37.82 (ii)
     Unit Hyd. Tpeak (min)=      18.00        38.00
     Unit Hyd. peak  (cms)=        .06          .03
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .18          .03          .190 (iii)
     TIME TO PEAK    (hrs)=       1.77         2.22         1.783
     RUNOFF VOLUME    (mm)=      23.04         6.08        14.052
     TOTAL RAINFALL   (mm)=      25.05        25.05        25.046
     RUNOFF COEFFICIENT   =        .92          .24          .561

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
* CATCHMENT 106 INCLUDING MEDIUM DENSITY BLOCKS, POND BLOCKS AND REAR YARDS
* PERCENT IMPERVIOUS CONSERVATIVEL ASSIGNED TO MED DENSITY VALUES
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    4.21
| 04:CAT106 DT= 1.00 |   Total Imp(%)=   70.00   Dir. Conn.(%)=   55.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.95         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     110.00        30.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=      75.61         9.64
               over (min)        4.00        19.00
     Storage Coeff.  (min)=       4.06 (ii)   19.20 (ii)
     Unit Hyd. Tpeak (min)=       4.00        19.00
     Unit Hyd. peak  (cms)=        .28          .06
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .36          .02          .359 (iii)
     TIME TO PEAK    (hrs)=       1.53         1.87         1.533
     RUNOFF VOLUME    (mm)=      23.05         4.33        14.622
     TOTAL RAINFALL   (mm)=      25.05        25.05        25.046
     RUNOFF COEFFICIENT   =        .92          .17          .584

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
* COMBINED INLET FLOWS TO POND
*
---------------------
| ADD HYD (INLET     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
---------------------                     (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 01:CAT104        8.28     .329    1.73  14.05    .000
                       +ID2 02:CAT105        5.38     .190    1.78  14.05    .000
                       +ID3 04:CAT106        4.21     .359    1.53  14.62    .000
                        ============================================================
                        SUM 05:INLET        17.87     .659    1.70  14.19    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
* PROPOSED WET POND SWM FACILITY WITH COMBINED DISCHARGE
* (TO EXFILTATION TRENCH + RELIEF PIPE)
*
*
---------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>05:(INLET )    |
| OUT<06:(POND  )    |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .334  .5969E+00
                            .015  .6755E-01   |     .547  .7048E+00
                            .022  .1425E+00   |     .695  .8188E+00
                            .028  .2226E+00   |     .823  .9391E+00
                            .033  .3079E+00   |     .940  .1066E+01
                            .037  .3986E+00   |     .997  .1131E+01
                            .121  .4949E+00   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >05: (INLET )      17.87      .659     1.700     14.186
     OUTFLOW<06: (POND  )      17.87      .028     4.383     14.186

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=    4.254
                   TIME SHIFT OF PEAK FLOW         (min)=   161.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=.2234E+00

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
* SPLITTING OUTFLOW FROM POND TO ILLUSTRATE STORM FLOWS TURNING TO GROUNDWATER
* AND FLOWS TO THE WEST.
*
--------------------
| DIVERT HYD       |
| INID=06  (POND  )|
--------------------
      Outflow / Inflow  Relationships
      Flow 07 +  Flow 08 =  Total
       (cms)      (cms)      (cms)
         .000       .000       .000
         .015       .000       .015
         .022       .000       .022
         .028       .000       .028
         .033       .000       .033
         .037       .000       .037
         .041       .080       .121
         .044       .290       .334
         .047       .500       .547
         .050       .645       .695
         .053       .770       .823
         .052       .885       .940
         .057       .940       .997
```

```
             NHYD       AREA    QPEAK  TpeakDate_hh:mm       R.V.  NFE WetHrs
                         (ha)    (cms)                       (mm)       (hrs)
   IDin = 06:POND       17.87     .028  No_date    4:23     14.186    1   174.
   ==========================================================================
   IDout= 07:INFILT     17.87     .028  No_date    4:23     14.186    1   174.
   IDout= 08:PIPE         .00     .000  No_date    0:00       .000    0     0.
-------------------------------------------------------------------------------
001:0009---------------------------------------------------------------------------
      FINISH
-------------------------------------------------------------------------------
*******************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 10:48:53
===============================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:30:16     RUN COUNTER: 000822          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps002y.dat           *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps002y.out           *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps002y.sum           *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-16-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 724.690
| Ptotal= 33.31 mm |                          B=   5.500
--------------------                          C=    .800
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  3.00 hrs
                        Storm time step    =  5.00 min
                        Time to peak ratio =   .38

              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .08   2.621 |    .83   8.023 |   1.58   9.859 |   2.33   3.744
               .17   2.815 |    .92  10.810 |   1.67   8.265 |   2.42   3.518
               .25   3.045 |   1.00  16.773 |   1.75   7.130 |   2.50   3.320
               .33   3.321 |   1.08  37.614 |   1.83   6.281 |   2.58   3.145
               .42   3.659 |   1.17 110.459 |   1.92   5.622 |   2.67   2.989
               .50   4.082 |   1.25  44.943 |   2.00   5.096 |   2.75   2.849
               .58   4.630 |   1.33  24.030 |   2.08   4.666 |   2.83   2.723
               .67   5.367 |   1.42  16.238 |   2.17   4.307 |   2.92   2.609
               .75   6.414 |   1.50  12.255 |   2.25   4.004 |   3.00   2.504

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*****************************************************************************
*                                                                           *
*      POST DEVELOPMENT INTERNAL FLOW TO PROPOSED SWM FACILITY              *
*                                                                           *
*****************************************************************************
*
* CATCHMENT 104 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET A,B,C,E
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    8.28
| 01:CAT104 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.72         3.56
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     480.00        38.50
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=      71.02        18.27
               over (min)        12.00        26.00
     Storage Coeff.  (min)=      12.40 (ii)   26.02 (ii)
     Unit Hyd. Tpeak (min)=      12.00        26.00
     Unit Hyd. peak  (cms)=        .09          .04

                                                    *TOTALS*
     PEAK FLOW       (cms)=        .50          .10          .544 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.65         1.350
     RUNOFF VOLUME    (mm)=      31.31        10.59        20.332
     TOTAL RAINFALL   (mm)=      33.31        33.31        33.311
     RUNOFF COEFFICIENT   =        .94          .32          .610

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
* CATCHMENT 105 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET B AND D
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    5.38
```

```
| 02:CAT105 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
----------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.07         2.31
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     635.00        38.50
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=      64.34        17.04
               over (min)        15.00        29.00
     Storage Coeff.  (min)=      15.26 (ii)   29.26 (ii)
     Unit Hyd. Tpeak (min)=      15.00        29.00
     Unit Hyd. peak  (cms)=        .07          .04
                                                     *TOTALS*
     PEAK FLOW       (cms)=        .29          .06          .316 (iii)
     TIME TO PEAK    (hrs)=       1.38         1.70         1.400
     RUNOFF VOLUME    (mm)=      31.31        10.59        20.332
     TOTAL RAINFALL   (mm)=      33.31        33.31        33.311
     RUNOFF COEFFICIENT   =        .94          .32          .610

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------------
*
* CATCHMENT 106 INCLUDING MEDIUM DENSITY BLOCKS, POND BLOCKS AND REAR YARDS
* PERCENT IMPERVIOUS CONSERVATIVEL ASSIGNED TO MED DENSITY VALUES
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    4.21
| 04:CAT106 DT= 1.00 |   Total Imp(%)=   70.00   Dir. Conn.(%)=   55.00
----------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.95         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     110.00        30.00
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=     110.46        22.38
               over (min)        3.00        14.00
     Storage Coeff.  (min)=       3.49 (ii)   14.30 (ii)
     Unit Hyd. Tpeak (min)=       3.00        14.00
     Unit Hyd. peak  (cms)=        .34          .08
                                                     *TOTALS*
     PEAK FLOW       (cms)=        .55          .05          .566 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.43         1.183
     RUNOFF VOLUME    (mm)=      31.31         7.67        20.671
     TOTAL RAINFALL   (mm)=      33.31        33.31        33.311
     RUNOFF COEFFICIENT   =        .94          .23          .621

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------------
*
* COMBINED INLET FLOWS TO POND
*
------------------------
| ADD HYD (INLET     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:CAT104         8.28     .544    1.35  20.33    .000
                     +ID2 02:CAT105         5.38     .316    1.40  20.33    .000
                     +ID3 04:CAT106         4.21     .566    1.18  20.67    .000
                      ============================================================
                      SUM 05:INLET         17.87    1.098    1.33  20.41    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------------
*
* PROPOSED WET POND SWM FACILITY WITH COMBINED DISCHARGE
* (TO EXFILTATION TRENCH + RELIEF PIPE)
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>05:(INLET )   |
| OUT<06:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .334  .5969E+00
                            .015  .6755E-01   |     .547  .7048E+00
                            .022  .1425E+00   |     .695  .8188E+00
                            .028  .2226E+00   |     .823  .9391E+00
                            .033  .3079E+00   |     .940  .1066E+01
                            .037  .3986E+00   |     .997  .1131E+01
                            .121  .4949E+00   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >05: (INLET )      17.87     1.098     1.333     20.412
     OUTFLOW<06: (POND  )      17.87      .034     3.517     20.411

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=    3.112
                  TIME SHIFT OF PEAK FLOW         (min)=   131.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.3344E+00

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------------
*
* SPLITTING OUTFLOW FROM POND TO ILLUSTRATE STORM FLOWS TURNING TO GROUNDWATER
* AND FLOWS TO THE WEST.
*
--------------------
| DIVERT HYD       |
| INID=06  (POND  )|
--------------------
      Outflow / Inflow  Relationships
      Flow 07 +  Flow 08 =  Total
       (cms)      (cms)      (cms)
         .000       .000       .000
         .015       .000       .015
         .022       .000       .022
         .028       .000       .028
         .033       .000       .033
         .037       .000       .037
         .041       .080       .121
         .044       .290       .334
         .047       .500       .547
         .050       .645       .695
         .053       .770       .823
         .052       .885       .940
         .057       .940       .997

             NHYD       AREA    QPEAK  TpeakDate_hh:mm       R.V.  NFE WetHrs
                        (ha)    (cms)                        (mm)       (hrs)
   IDin = 06:POND      17.87     .034  No_date    3:31     20.411    1   183.
```

```
   ======================================================================
   IDout= 07:INFILT    17.87     .034  No_date    3:31     20.411    1   183.
   IDout= 08:PIPE        .00     .000  No_date    0:00       .000    0     0.
--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
--------------------
| SAVE HYD          |   AREA       (ha)=     .000
| ID=08 (PIPE  )    |   QPEAK     (cms)=     .000 (i)
| DT= 1.00 PCYC=-1  |   TPEAK     (hrs)=     .000
--------------------   VOLUME      (mm)=     .000
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\002YR-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

    (i)  PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
     *** WARNING: This hydrograph is dry.
--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
      FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 001:0009 SAVE HYD
     *** WARNING: This hydrograph is dry.
   Simulation ended on 2020-07-30     at 10:30:17
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9    =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:34:00     RUN COUNTER: 000823          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps005y.dat           *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps005y.out           *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps005y.sum           *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-16-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1330.310
| Ptotal= 45.37 mm |                          B=   7.938
--------------------                          C=    .855
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  3.00 hrs
                        Storm time step    =  5.00 min
                        Time to peak ratio =   .38

              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .08   2.913 |    .83  10.664 |   1.58  13.500 |   2.33   4.400
               .17   3.164 |    .92  14.992 |   1.67  11.032 |   2.42   4.094
               .25   3.464 |   1.00  24.437 |   1.75   9.304 |   2.50   3.828
               .33   3.830 |   1.08  56.256 |   1.83   8.033 |   2.58   3.595
               .42   4.285 |   1.17 149.041 |   1.92   7.063 |   2.67   3.390
               .50   4.867 |   1.25  67.155 |   2.00   6.300 |   2.75   3.207
               .58   5.635 |   1.33  35.894 |   2.08   5.685 |   2.83   3.044
               .67   6.692 |   1.42  23.589 |   2.17   5.180 |   2.92   2.897
               .75   8.233 |   1.50  17.267 |   2.25   4.758 |   3.00   2.765

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
********************************************************************************
*                                                                              *
*      POST DEVELOPMENT INTERNAL FLOW TO PROPOSED SWM FACILITY                 *
*                                                                              *
********************************************************************************
*
* CATCHMENT 104 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET A,B,C,E
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    8.28
| 01:CAT104 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.72         3.56
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     480.00        38.50
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     103.39        38.49
           over (min)           11.00        21.00
     Storage Coeff.  (min)=      10.67 (ii)   20.78 (ii)
     Unit Hyd. Tpeak (min)=      11.00        21.00
     Unit Hyd. peak  (cms)=        .11          .05
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .76          .22          .880 (iii)
     TIME TO PEAK    (hrs)=       1.32         1.55         1.333
     RUNOFF VOLUME    (mm)=      43.37        18.39        30.129
     TOTAL RAINFALL   (mm)=      45.37        45.37        45.371
     RUNOFF COEFFICIENT   =        .96          .41          .664

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
* CATCHMENT 105 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET B AND D
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    5.38
```

```
| 02:CAT105 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
----------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.07         2.31
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     635.00        38.50
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=      96.13        36.42
               over (min)        13.00        23.00
     Storage Coeff.  (min)=     12.99 (ii)   23.33 (ii)
     Unit Hyd. Tpeak (min)=      13.00        23.00
     Unit Hyd. peak  (cms)=        .09          .05
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .44          .14          .522 (iii)
     TIME TO PEAK    (hrs)=       1.35         1.58         1.367
     RUNOFF VOLUME    (mm)=      43.37        18.39        30.129
     TOTAL RAINFALL   (mm)=      45.37        45.37        45.371
     RUNOFF COEFFICIENT   =        .96          .41          .664

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------------
*
* CATCHMENT 106 INCLUDING MEDIUM DENSITY BLOCKS, POND BLOCKS AND REAR YARDS
* PERCENT IMPERVIOUS CONSERVATIVEL ASSIGNED TO MED DENSITY VALUES
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    4.21
| 04:CAT106 DT= 1.00 |   Total Imp(%)=   70.00   Dir. Conn.(%)=   55.00
----------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.95         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     110.00        30.00
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=     149.04        47.68
               over (min)         3.00        11.00
     Storage Coeff.  (min)=      3.09 (ii)   11.08 (ii)
     Unit Hyd. Tpeak (min)=      3.00        11.00
     Unit Hyd. peak  (cms)=        .37          .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .78          .10          .818 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.37         1.183
     RUNOFF VOLUME    (mm)=      43.37        13.67        30.006
     TOTAL RAINFALL   (mm)=      45.37        45.37        45.371
     RUNOFF COEFFICIENT   =        .96          .30          .661

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------------
*
* COMBINED INLET FLOWS TO POND
*
-----------------------
| ADD HYD (INLET     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:CAT104         8.28     .880    1.33  30.13    .000
                     +ID2 02:CAT105         5.38     .522    1.37  30.13    .000
                     +ID3 04:CAT106         4.21     .818    1.18  30.01    .000
                      ============================================================
                      SUM 05:INLET         17.87    1.807    1.32  30.10    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------------
*
* PROPOSED WET POND SWM FACILITY WITH COMBINED DISCHARGE
* (TO EXFILTATION TRENCH + RELIEF PIPE)
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>05:(INLET )   |
| OUT<06:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .334  .5969E+00
                            .015  .6755E-01   |     .547  .7048E+00
                            .022  .1425E+00   |     .695  .8188E+00
                            .028  .2226E+00   |     .823  .9391E+00
                            .033  .3079E+00   |     .940  .1066E+01
                            .037  .3986E+00   |     .997  .1131E+01
                            .121  .4949E+00   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >05: (INLET )      17.87     1.807     1.317     30.100
     OUTFLOW<06: (POND  )      17.87      .107     3.133     30.100

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=    5.938
                  TIME SHIFT OF PEAK FLOW         (min)=   109.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.4791E+00

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------------
*
* SPLITTING OUTFLOW FROM POND TO ILLUSTRATE STORM FLOWS TURNING TO GROUNDWATER
* AND FLOWS TO THE WEST.
*
--------------------
| DIVERT HYD       |
| INID=06  (POND  )|
--------------------
      Outflow / Inflow  Relationships
      Flow 07 +  Flow 08 =  Total
       (cms)      (cms)      (cms)
         .000       .000       .000
         .015       .000       .015
         .022       .000       .022
         .028       .000       .028
         .033       .000       .033
         .037       .000       .037
         .041       .080       .121
         .044       .290       .334
         .047       .500       .547
         .050       .645       .695
         .053       .770       .823
         .052       .885       .940
         .057       .940       .997

             NHYD       AREA    QPEAK  TpeakDate_hh:mm       R.V.  NFE WetHrs
                        (ha)    (cms)                        (mm)       (hrs)
   IDin = 06:POND      17.87     .107  No_date    3:08     30.100    1   191.
```

```
   ======================================================================
   IDout= 07:INFILT    15.82     .040  No_date    3:08     30.100    1   191.
   IDout= 08:PIPE       2.05     .067  No_date    3:08     30.100    1     5.
--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
--------------------
| SAVE HYD          |   AREA       (ha)=    2.053
| ID=08 (PIPE  )    |   QPEAK     (cms)=     .067 (i)
| DT= 1.00 PCYC=-1  |   TPEAK     (hrs)=    3.133
--------------------   VOLUME     (mm)=   30.100
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\005YR-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

    (i)  PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
     FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 10:34:01
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:35:52     RUN COUNTER: 000824          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps010y.dat           *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps010y.out           *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps010y.sum           *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-16-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1497.190
| Ptotal= 52.60 mm |                          B=   7.188
--------------------                          C=    .850
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  3.00 hrs
                        Storm time step    =  5.00 min
                        Time to peak ratio =   .38

              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .08   3.401 |    .83  12.137 |   1.58  15.317 |   2.33   5.093
               .17   3.688 |    .92  16.990 |   1.67  12.549 |   2.42   4.745
               .25   4.030 |   1.00  27.637 |   1.75  10.612 |   2.50   4.443
               .33   4.446 |   1.08  64.461 |   1.83   9.186 |   2.58   4.179
               .42   4.963 |   1.17 178.745 |   1.92   8.096 |   2.67   3.945
               .50   5.621 |   1.25  77.233 |   2.00   7.237 |   2.75   3.737
               .58   6.488 |   1.33  40.683 |   2.08   6.545 |   2.83   3.551
               .67   7.679 |   1.42  26.672 |   2.17   5.975 |   2.92   3.383
               .75   9.410 |   1.50  19.545 |   2.25   5.498 |   3.00   3.231

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
********************************************************************************
*                                                                              *
*      POST DEVELOPMENT INTERNAL FLOW TO PROPOSED SWM FACILITY                 *
*                                                                              *
********************************************************************************
*
* CATCHMENT 104 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET A,B,C,E
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    8.28
| 01:CAT104 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.72         3.56
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     480.00        38.50
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     127.99        52.93
               over (min)        10.00        19.00
     Storage Coeff.  (min)=       9.80 (ii)   18.69 (ii)
     Unit Hyd. Tpeak (min)=      10.00        19.00
     Unit Hyd. peak  (cms)=        .11          .06

                                                      *TOTALS*
     PEAK FLOW       (cms)=        .94          .31         1.115 (iii)
     TIME TO PEAK    (hrs)=       1.30         1.50         1.317
     RUNOFF VOLUME    (mm)=      50.59        23.55        36.260
     TOTAL RAINFALL   (mm)=      52.60        52.60        52.596
     RUNOFF COEFFICIENT   =        .96          .45          .689

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
* CATCHMENT 105 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET B AND D
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    5.38
```

```
| 02:CAT105 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.07         2.31
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     635.00        38.50
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=     117.40        49.95
               over (min)       12.00        21.00
     Storage Coeff.  (min)=     12.00 (ii)   21.10 (ii)
     Unit Hyd. Tpeak (min)=     12.00        21.00
     Unit Hyd. peak  (cms)=       .09          .05
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .55          .19          .661 (iii)
     TIME TO PEAK    (hrs)=      1.33         1.53         1.350
     RUNOFF VOLUME    (mm)=     50.59        23.55        36.260
     TOTAL RAINFALL   (mm)=     52.60        52.60        52.596
     RUNOFF COEFFICIENT   =       .96          .45          .689

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
* CATCHMENT 106 INCLUDING MEDIUM DENSITY BLOCKS, POND BLOCKS AND REAR YARDS
* PERCENT IMPERVIOUS CONSERVATIVEL ASSIGNED TO MED DENSITY VALUES
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    4.21
| 04:CAT106 DT= 1.00 |   Total Imp(%)=   70.00   Dir. Conn.(%)=   55.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.95         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     110.00        30.00
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=     178.75        67.40
               over (min)        3.00        10.00
     Storage Coeff.  (min)=       2.88 (ii)    9.83 (ii)
     Unit Hyd. Tpeak (min)=       3.00        10.00
     Unit Hyd. peak  (cms)=        .39          .11
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .95          .14         1.009 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.33         1.183
     RUNOFF VOLUME    (mm)=      50.60        17.78        35.828
     TOTAL RAINFALL   (mm)=      52.60        52.60        52.596
     RUNOFF COEFFICIENT   =        .96          .34          .681

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
* COMBINED INLET FLOWS TO POND
*
-----------------------
| ADD HYD (INLET     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:CAT104         8.28    1.115    1.32  36.26    .000
                     +ID2 02:CAT105         5.38     .661    1.35  36.26    .000
                     +ID3 04:CAT106         4.21    1.009    1.18  35.83    .000
                      ============================================================
                      SUM 05:INLET         17.87    2.311    1.28  36.16    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
* PROPOSED WET POND SWM FACILITY WITH COMBINED DISCHARGE
* (TO EXFILTATION TRENCH + RELIEF PIPE)
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>05:(INLET )   |
| OUT<06:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .334  .5969E+00
                            .015  .6755E-01   |     .547  .7048E+00
                            .022  .1425E+00   |     .695  .8188E+00
                            .028  .2226E+00   |     .823  .9391E+00
                            .033  .3079E+00   |     .940  .1066E+01
                            .037  .3986E+00   |     .997  .1131E+01
                            .121  .4949E+00   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >05: (INLET )      17.87     2.311     1.283     36.158
     OUTFLOW<06: (POND  )      17.87      .215     2.733     36.158

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=    9.325
                  TIME SHIFT OF PEAK FLOW         (min)=    87.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.5401E+00

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
* SPLITTING OUTFLOW FROM POND TO ILLUSTRATE STORM FLOWS TURNING TO GROUNDWATER
* AND FLOWS TO THE WEST.
*
--------------------
| DIVERT HYD       |
| INID=06  (POND  )|
--------------------
      Outflow / Inflow  Relationships
      Flow 07 +  Flow 08 =  Total
       (cms)      (cms)      (cms)
         .000       .000       .000
         .015       .000       .015
         .022       .000       .022
         .028       .000       .028
         .033       .000       .033
         .037       .000       .037
         .041       .080       .121
         .044       .290       .334
         .047       .500       .547
         .050       .645       .695
         .053       .770       .823
         .052       .885       .940
         .057       .940       .997

             NHYD       AREA    QPEAK  TpeakDate_hh:mm       R.V.  NFE WetHrs
                         (ha)    (cms)                       (mm)       (hrs)
   IDin = 06:POND      17.87     .215  No_date    2:44     36.158    1   192.
```

```
   ======================================================================
   IDout= 07:INFILT    13.63     .042  No_date    2:44     36.158    1   192.
   IDout= 08:PIPE       4.24     .173  No_date    2:44     36.158    1     6.
--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
--------------------
| SAVE HYD          |   AREA       (ha)=    4.244
| ID=08 (PIPE  )    |   QPEAK     (cms)=     .173 (i)
| DT= 1.00 PCYC=-1  |   TPEAK     (hrs)=    2.733
--------------------   VOLUME     (mm)=   36.158
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\010YR-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

    (i)  PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
     FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 10:35:53
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                          9   9  9   9   # 2957874
        StormWater Management HYdrologic Model            999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ********* Distributed by:  J.F. Sabourin and Associates Inc.          *********
 *********                   Ottawa,  Ontario: (613) 836-3884          *********
 *********                   Gatineau, Quebec: (819) 243-6858          *********
 *********                   E-Mail: swmhymo@jfsa.Com                  *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                          +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:37:36     RUN COUNTER: 000825          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps025y.dat           *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps025y.out           *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps025y.sum           *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-16-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1455.000
| Ptotal= 60.38 mm |                          B=   5.000
--------------------                          C=    .820
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  3.00 hrs
                        Storm time step    =  5.00 min
                        Time to peak ratio =   .38

              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .08   4.299 |    .83  13.644 |   1.58  16.893 |   2.33   6.207
               .17   4.628 |    .92  18.591 |   1.67  14.069 |   2.42   5.821
               .25   5.018 |   1.00  29.391 |   1.75  12.073 |   2.50   5.484
               .33   5.487 |   1.08  68.962 |   1.83  10.590 |   2.58   5.187
               .42   6.062 |   1.17 220.223 |   1.92   9.444 |   2.67   4.922
               .50   6.787 |   1.25  83.137 |   2.00   8.532 |   2.75   4.685
               .58   7.728 |   1.33  42.821 |   2.08   7.790 |   2.83   4.472
               .67   9.001 |   1.42  28.399 |   2.17   7.173 |   2.92   4.279
               .75  10.823 |   1.50  21.179 |   2.25   6.652 |   3.00   4.103

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------------
*
********************************************************************************
*                                                                              *
*      POST DEVELOPMENT INTERNAL FLOW TO PROPOSED SWM FACILITY                 *
*                                                                              *
********************************************************************************
*
* CATCHMENT 104 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET A,B,C,E
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    8.28
| 01:CAT104 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.72         3.56
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     480.00        38.50
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     159.30        71.57
               over (min)          9.00        17.00
     Storage Coeff.  (min)=       8.98 (ii)   16.86 (ii)
     Unit Hyd. Tpeak (min)=       9.00        17.00
     Unit Hyd. peak  (cms)=        .13          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.16          .42         1.407 (iii)
     TIME TO PEAK    (hrs)=       1.28         1.43         1.300
     RUNOFF VOLUME    (mm)=      58.38        29.41        43.029
     TOTAL RAINFALL   (mm)=      60.38        60.38        60.380
     RUNOFF COEFFICIENT   =        .97          .49          .713

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------------
*
* CATCHMENT 105 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET B AND D
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    5.38
```

```
| 02:CAT105 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
----------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.07         2.31
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     635.00        38.50
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=     144.16        66.58
               over (min)       11.00        19.00
     Storage Coeff.  (min)=     11.05 (ii)   19.17 (ii)
     Unit Hyd. Tpeak (min)=     11.00        19.00
     Unit Hyd. peak  (cms)=       .10          .06
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .67          .25          .830 (iii)
     TIME TO PEAK    (hrs)=      1.32         1.48         1.333
     RUNOFF VOLUME    (mm)=     58.38        29.42        43.029
     TOTAL RAINFALL   (mm)=     60.38        60.38        60.380
     RUNOFF COEFFICIENT   =       .97          .49          .713

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
* CATCHMENT 106 INCLUDING MEDIUM DENSITY BLOCKS, POND BLOCKS AND REAR YARDS
* PERCENT IMPERVIOUS CONSERVATIVEL ASSIGNED TO MED DENSITY VALUES
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    4.21
| 04:CAT106 DT= 1.00 |   Total Imp(%)=   70.00   Dir. Conn.(%)=   55.00
----------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.95         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     110.00        30.00
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=     220.22        91.57
               over (min)        3.00         9.00
     Storage Coeff.  (min)=       2.65 (ii)    8.80 (ii)
     Unit Hyd. Tpeak (min)=       3.00         9.00
     Unit Hyd. peak  (cms)=        .41          .13
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.18          .20         1.270 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.30         1.183
     RUNOFF VOLUME    (mm)=     58.38        22.56        42.259
     TOTAL RAINFALL   (mm)=     60.38        60.38        60.380
     RUNOFF COEFFICIENT   =       .97          .37          .700

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
* COMBINED INLET FLOWS TO POND
*
------------------------
| ADD HYD (INLET     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:CAT104         8.28    1.407    1.30  43.03    .000
                     +ID2 02:CAT105         5.38     .830    1.33  43.03    .000
                     +ID3 04:CAT106         4.21    1.270    1.18  42.26    .000
                      ============================================================
                      SUM 05:INLET         17.87    2.922    1.28  42.85    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
* PROPOSED WET POND SWM FACILITY WITH COMBINED DISCHARGE
* (TO EXFILTATION TRENCH + RELIEF PIPE)
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>05:(INLET )   |
| OUT<06:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .334  .5969E+00
                            .015  .6755E-01   |     .547  .7048E+00
                            .022  .1425E+00   |     .695  .8188E+00
                            .028  .2226E+00   |     .823  .9391E+00
                            .033  .3079E+00   |     .940  .1066E+01
                            .037  .3986E+00   |     .997  .1131E+01
                            .121  .4949E+00   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >05: (INLET )      17.87     2.922     1.283     42.848
     OUTFLOW<06: (POND  )      17.87      .341     2.433     42.846

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   11.676
                  TIME SHIFT OF PEAK FLOW         (min)=    69.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.6005E+00

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
* SPLITTING OUTFLOW FROM POND TO ILLUSTRATE STORM FLOWS TURNING TO GROUNDWATER
* AND FLOWS TO THE WEST.
*
--------------------
| DIVERT HYD       |
| INID=06  (POND  )|
--------------------
      Outflow / Inflow  Relationships
      Flow 07 +  Flow 08 =  Total
       (cms)      (cms)      (cms)
         .000       .000       .000
         .015       .000       .015
         .022       .000       .022
         .028       .000       .028
         .033       .000       .033
         .037       .000       .037
         .041       .080       .121
         .044       .290       .334
         .047       .500       .547
         .050       .645       .695
         .053       .770       .823
         .052       .885       .940
         .057       .940       .997

             NHYD       AREA    QPEAK  TpeakDate_hh:mm       R.V.  NFE WetHrs
                         (ha)    (cms)                        (mm)       (hrs)
   IDin = 06:POND      17.87     .341  No_date    2:26     42.846    1   193.
```

```
   ======================================================================
   IDout= 07:INFILT    11.71     .044  No_date    2:26     42.846    1   193.
   IDout= 08:PIPE       6.16     .297  No_date    2:26     42.846    1     7.
--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
--------------------
| SAVE HYD          |   AREA       (ha)=    6.157
| ID=08 (PIPE  )    |   QPEAK     (cms)=     .297 (i)
| DT= 1.00 PCYC=-1  |   TPEAK     (hrs)=    2.433
--------------------   VOLUME     (mm)=   42.846
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\025YR-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

    (i)  PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
     FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 10:37:37
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:39:25     RUN COUNTER: 000826          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps050y.dat           *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps050y.out           *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps050y.sum           *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-16-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1499.060
| Ptotal= 66.12 mm |                          B=   4.188
--------------------                          C=    .809
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  3.00 hrs
                        Storm time step    =  5.00 min
                        Time to peak ratio =   .38

              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .08   4.868 |    .83  14.816 |   1.58  18.203 |   2.33   6.942
               .17   5.228 |    .92  19.964 |   1.67  15.261 |   2.42   6.525
               .25   5.653 |   1.00  31.141 |   1.75  13.172 |   2.50   6.160
               .33   6.163 |   1.08  72.869 |   1.83  11.611 |   2.58   5.837
               .42   6.786 |   1.17 249.214 |   1.92  10.400 |   2.67   5.549
               .50   7.566 |   1.25  87.992 |   2.00   9.432 |   2.75   5.290
               .58   8.574 |   1.33  45.076 |   2.08   8.641 |   2.83   5.057
               .67   9.930 |   1.42  30.115 |   2.17   7.981 |   2.92   4.845
               .75  11.856 |   1.50  22.648 |   2.25   7.422 |   3.00   4.652

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
********************************************************************************
*                                                                              *
*      POST DEVELOPMENT INTERNAL FLOW TO PROPOSED SWM FACILITY                 *
*                                                                              *
********************************************************************************
*
* CATCHMENT 104 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET A,B,C,E
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    8.28
| 01:CAT104 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
----------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.72         3.56
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     480.00        38.50
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     188.76        86.47
               over (min)          8.00        16.00
     Storage Coeff.  (min)=       8.39 (ii)   15.70 (ii)
     Unit Hyd. Tpeak (min)=       8.00        16.00
     Unit Hyd. peak  (cms)=        .14          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.34          .52          1.636 (iii)
     TIME TO PEAK    (hrs)=       1.27         1.42          1.283
     RUNOFF VOLUME    (mm)=      64.12        33.91         48.110
     TOTAL RAINFALL   (mm)=      66.12        66.12         66.120
     RUNOFF COEFFICIENT   =        .97          .51           .728

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
* CATCHMENT 105 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET B AND D
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    5.38
```

```
| 02:CAT105 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
----------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.07         2.31
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     635.00        38.50
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=     168.60        79.98
               over (min)       10.00        18.00
     Storage Coeff.  (min)=     10.38 (ii)   17.92 (ii)
     Unit Hyd. Tpeak (min)=     10.00        18.00
     Unit Hyd. peak  (cms)=       .11          .06
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .77          .31          .962 (iii)
     TIME TO PEAK    (hrs)=      1.30         1.45         1.317
     RUNOFF VOLUME    (mm)=     64.12        33.91        48.110
     TOTAL RAINFALL   (mm)=     66.12        66.12        66.120
     RUNOFF COEFFICIENT   =       .97          .51          .728

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
* CATCHMENT 106 INCLUDING MEDIUM DENSITY BLOCKS, POND BLOCKS AND REAR YARDS
* PERCENT IMPERVIOUS CONSERVATIVEL ASSIGNED TO MED DENSITY VALUES
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    4.21
| 04:CAT106 DT= 1.00 |   Total Imp(%)=   70.00   Dir. Conn.(%)=   55.00
----------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.95         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     110.00        30.00
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=     249.21       114.11
               over (min)        3.00         8.00
     Storage Coeff.  (min)=       2.52 (ii)    8.15 (ii)
     Unit Hyd. Tpeak (min)=       3.00         8.00
     Unit Hyd. peak  (cms)=        .42          .14
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.34          .25         1.470 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.28         1.183
     RUNOFF VOLUME    (mm)=      64.12        26.28        47.091
     TOTAL RAINFALL   (mm)=      66.12        66.12        66.120
     RUNOFF COEFFICIENT   =        .97          .40          .712

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
* COMBINED INLET FLOWS TO POND
*
------------------------
| ADD HYD (INLET     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:CAT104         8.28    1.636    1.28  48.11    .000
                     +ID2 02:CAT105         5.38     .962    1.32  48.11    .000
                     +ID3 04:CAT106         4.21    1.470    1.18  47.09    .000
                      ==========================================================
                      SUM 05:INLET         17.87    3.438    1.27  47.87    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
* PROPOSED WET POND SWM FACILITY WITH COMBINED DISCHARGE
* (TO EXFILTATION TRENCH + RELIEF PIPE)
*
*
--------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>05:(INLET )   |
| OUT<06:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .334  .5969E+00
                            .015  .6755E-01   |     .547  .7048E+00
                            .022  .1425E+00   |     .695  .8188E+00
                            .028  .2226E+00   |     .823  .9391E+00
                            .033  .3079E+00   |     .940  .1066E+01
                            .037  .3986E+00   |     .997  .1131E+01
                            .121  .4949E+00   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >05: (INLET )      17.87     3.438     1.267     47.870
     OUTFLOW<06: (POND  )      17.87      .434     2.300     47.869

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   12.628
                  TIME SHIFT OF PEAK FLOW         (min)=    62.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.6476E+00

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
* SPLITTING OUTFLOW FROM POND TO ILLUSTRATE STORM FLOWS TURNING TO GROUNDWATER
* AND FLOWS TO THE WEST.
*
--------------------
| DIVERT HYD       |
| INID=06  (POND  )|
--------------------
      Outflow / Inflow  Relationships
      Flow 07 +  Flow 08 =  Total
       (cms)      (cms)      (cms)
         .000       .000       .000
         .015       .000       .015
         .022       .000       .022
         .028       .000       .028
         .033       .000       .033
         .037       .000       .037
         .041       .080       .121
         .044       .290       .334
         .047       .500       .547
         .050       .645       .695
         .053       .770       .823
         .052       .885       .940
         .057       .940       .997

             NHYD       AREA    QPEAK  TpeakDate_hh:mm       R.V.  NFE WetHrs
                        (ha)    (cms)                        (mm)       (hrs)
   IDin = 06:POND      17.87     .434  No_date    2:18     47.869    1   193.
```

```
   ======================================================================
   IDout= 07:INFILT    10.60     .045  No_date    2:18     47.869    1   193.
   IDout= 08:PIPE       7.27     .389  No_date    2:18     47.869    1     7.
--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
--------------------
| SAVE HYD          |   AREA       (ha)=    7.274
| ID=08 (PIPE  )    |   QPEAK     (cms)=     .389 (i)
| DT= 1.00 PCYC=-1  |   TPEAK     (hrs)=    2.300
--------------------   VOLUME     (mm)=   47.869
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\050YR-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

    (i)  PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
     FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 10:39:26
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:43:57     RUN COUNTER: 000828          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps100y.dat           *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps100y.out           *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps100y.sum           *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-15-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1499.530
| Ptotal= 71.80 mm |                          B=   3.297
--------------------                          C=    .794
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  3.00 hrs
                        Storm time step    =  5.00 min
                        Time to peak ratio =   .38

              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .08   5.550 |    .83  16.054 |   1.58  19.524 |   2.33   7.799
               .17   5.944 |    .92  21.315 |   1.67  16.513 |   2.42   7.351
               .25   6.407 |   1.00  32.597 |   1.75  14.357 |   2.50   6.956
               .33   6.959 |   1.08  75.188 |   1.83  12.735 |   2.58   6.606
               .42   7.631 |   1.17 279.468 |   1.92  11.468 |   2.67   6.293
               .50   8.468 |   1.25  90.785 |   2.00  10.450 |   2.75   6.011
               .58   9.542 |   1.33  46.616 |   2.08   9.612 |   2.83   5.757
               .67  10.974 |   1.42  31.567 |   2.17   8.911 |   2.92   5.525
               .75  12.990 |   1.50  24.038 |   2.25   8.314 |   3.00   5.313

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
********************************************************************************
*                                                                              *
*      POST DEVELOPMENT INTERNAL FLOW TO PROPOSED SWM FACILITY                 *
*                                                                              *
********************************************************************************
*
* CATCHMENT 104 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET A,B,C,E
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    8.28
| 01:CAT104 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
----------------------              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.72         3.56
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     480.00        38.50
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     208.71       102.49
               over (min)         8.00        15.00
     Storage Coeff.  (min)=       8.06 (ii)   14.89 (ii)
     Unit Hyd. Tpeak (min)=       8.00        15.00
     Unit Hyd. peak  (cms)=        .14          .08
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.49          .61         1.872 (iii)
     TIME TO PEAK    (hrs)=       1.27         1.40         1.283
     RUNOFF VOLUME    (mm)=      69.80        38.48        53.199
     TOTAL RAINFALL   (mm)=      71.80        71.80        71.799
     RUNOFF COEFFICIENT   =        .97          .54          .741

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
* CATCHMENT 105 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET B AND D
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    5.38
```

```
| 02:CAT105 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
----------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.07         2.31
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     635.00        38.50
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     185.13        94.38
               over (min)       10.00        17.00
     Storage Coeff.  (min)=     10.00 (ii)   17.06 (ii)
     Unit Hyd. Tpeak (min)=     10.00        17.00
     Unit Hyd. peak  (cms)=       .11          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .85          .36         1.098 (iii)
     TIME TO PEAK    (hrs)=      1.30         1.43         1.317
     RUNOFF VOLUME    (mm)=     69.80        38.48        53.199
     TOTAL RAINFALL   (mm)=     71.80        71.80        71.799
     RUNOFF COEFFICIENT   =       .97          .54          .741

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
* CATCHMENT 106 INCLUDING MEDIUM DENSITY BLOCKS, POND BLOCKS AND REAR YARDS
* PERCENT IMPERVIOUS CONSERVATIVEL ASSIGNED TO MED DENSITY VALUES
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    4.21
| 04:CAT106 DT= 1.00 |   Total Imp(%)=   70.00   Dir. Conn.(%)=   55.00
----------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.95         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     110.00        30.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     279.47       133.80
               over (min)        2.00         8.00
     Storage Coeff.  (min)=       2.41 (ii)    7.69 (ii)
     Unit Hyd. Tpeak (min)=       2.00         8.00
     Unit Hyd. peak  (cms)=        .49          .15
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.58          .30         1.707 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.28         1.167
     RUNOFF VOLUME    (mm)=     69.80        30.11        51.938
     TOTAL RAINFALL   (mm)=     71.80        71.80        71.799
     RUNOFF COEFFICIENT   =       .97          .42          .723

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
* COMBINED INLET FLOWS TO POND
*
------------------------
| ADD HYD (INLET     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:CAT104         8.28    1.872    1.28  53.20    .000
                     +ID2 02:CAT105         5.38    1.098    1.32  53.20    .000
                     +ID3 04:CAT106         4.21    1.707    1.17  51.94    .000
                      ============================================================
                      SUM 05:INLET         17.87    3.829    1.27  52.90    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
* PROPOSED WET POND SWM FACILITY WITH COMBINED DISCHARGE
* (TO EXFILTATION TRENCH + RELIEF PIPE)
*
*
--------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>05:(INLET )   |
| OUT<06:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .334  .5969E+00
                            .015  .6755E-01   |     .547  .7048E+00
                            .022  .1425E+00   |     .695  .8188E+00
                            .028  .2226E+00   |     .823  .9391E+00
                            .033  .3079E+00   |     .940  .1066E+01
                            .037  .3986E+00   |     .997  .1131E+01
                            .121  .4949E+00   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >05: (INLET )      17.87     3.829     1.267     52.902
     OUTFLOW<06: (POND  )      17.87      .527     2.217     52.901

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   13.759
                  TIME SHIFT OF PEAK FLOW         (min)=    57.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.6946E+00

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
* SPLITTING OUTFLOW FROM POND TO ILLUSTRATE STORM FLOWS TURNING TO GROUNDWATER
* AND FLOWS TO THE WEST.
*
--------------------
| DIVERT HYD       |
| INID=06  (POND  )|
--------------------
      Outflow / Inflow  Relationships
      Flow 07 +  Flow 08 =  Total
       (cms)      (cms)      (cms)
         .000       .000       .000
         .015       .000       .015
         .022       .000       .022
         .028       .000       .028
         .033       .000       .033
         .037       .000       .037
         .041       .080       .121
         .044       .290       .334
         .047       .500       .547
         .050       .645       .695
         .053       .770       .823
         .052       .885       .940
         .057       .940       .997

             NHYD       AREA    QPEAK  TpeakDate_hh:mm       R.V.  NFE WetHrs
                        (ha)    (cms)                        (mm)       (hrs)
   IDin = 06:POND      17.87     .527  No_date    2:13     52.901    1   193.
```

```
   ======================================================================
   IDout= 07:INFILT     9.68     .047  No_date    2:13     52.901    1   193.
   IDout= 08:PIPE       8.19     .480  No_date    2:13     52.901    1     7.
--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
--------------------
| SAVE HYD          |   AREA       (ha)=    8.190
| ID=08 (PIPE  )    |   QPEAK     (cms)=     .480 (i)
| DT= 1.00 PCYC=-1  |   TPEAK     (hrs)=    2.217
--------------------   VOLUME     (mm)=   52.901
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\100YR-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

     (i)  PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
      FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 10:43:57
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9    =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *********
 *********           Maximum value for ID numbers  :     10           *********
 *********           Max. number of rainfall points: 105408           *********
 *********           Max. number of flow points    : 105408           *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:42:11     RUN COUNTER: 000827         *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps100scs.dat        *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps100scs.out        *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps100scs.sum        *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-16-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| MASS STORM       |    Filename: c:\Storms\SCS24H.mst
--------------------
| Ptotal=107.10 mm |    Comments: SCS Type II 24 HR MASS CURVE
--------------------

                        Duration of storm        =   24.00 hrs
                        Mass curve time step     =   15.00 min
                        Selected storm time step =    5.00 min
                        Volume of derived storm  =  107.10 mm

      TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
       hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
       .08   1.285 |   6.08   1.714 |  12.08  15.422 |  18.08   2.142
       .17   1.285 |   6.17   1.714 |  12.17  15.422 |  18.17   2.142
       .25   1.285 |   6.25   1.714 |  12.25  15.422 |  18.25   2.142
       .33   1.285 |   6.33   2.142 |  12.33  15.422 |  18.33   1.714
       .42   1.285 |   6.42   2.142 |  12.42  15.422 |  18.42   1.714
       .50   1.285 |   6.50   2.142 |  12.50  15.422 |  18.50   1.714
       .58    .857 |   6.58   1.714 |  12.58   8.140 |  18.58   2.142
       .67    .857 |   6.67   1.714 |  12.67   8.140 |  18.67   2.142
       .75    .857 |   6.75   1.714 |  12.75   8.140 |  18.75   2.142
       .83   1.285 |   6.83   2.142 |  12.83   7.711 |  18.83   1.714
       .92   1.285 |   6.92   2.142 |  12.92   7.711 |  18.92   1.714
      1.00   1.285 |   7.00   2.142 |  13.00   7.711 |  19.00   1.714
      1.08   1.285 |   7.08   2.142 |  13.08   5.998 |  19.08   2.142
      1.17   1.285 |   7.17   2.142 |  13.17   5.998 |  19.17   2.142
      1.25   1.285 |   7.25   2.142 |  13.25   5.998 |  19.25   2.142
      1.33   1.285 |   7.33   2.570 |  13.33   5.569 |  19.33   1.714
      1.42   1.285 |   7.42   2.570 |  13.42   5.569 |  19.42   1.714
      1.50   1.285 |   7.50   2.570 |  13.50   5.569 |  19.50   1.714
      1.58    .857 |   7.58   2.142 |  13.58   4.712 |  19.58   2.142
      1.67    .857 |   7.67   2.142 |  13.67   4.712 |  19.67   2.142
      1.75    .857 |   7.75   2.142 |  13.75   4.712 |  19.75   2.142
      1.83   1.285 |   7.83   2.570 |  13.83   4.284 |  19.83   1.714
      1.92   1.285 |   7.92   2.570 |  13.92   4.284 |  19.92   1.714
      2.00   1.285 |   8.00   2.570 |  14.00   4.284 |  20.00   1.714
      2.08   1.285 |   8.08   2.570 |  14.08   3.427 |  20.08   1.285
      2.17   1.285 |   8.17   2.570 |  14.17   3.427 |  20.17   1.285
      2.25   1.285 |   8.25   2.570 |  14.25   3.427 |  20.25   1.285
      2.33   1.714 |   8.33   2.999 |  14.33   2.999 |  20.33   1.285
      2.42   1.714 |   8.42   2.999 |  14.42   2.999 |  20.42   1.285
      2.50   1.714 |   8.50   2.999 |  14.50   2.999 |  20.50   1.285
      2.58   1.285 |   8.58   2.999 |  14.58   3.427 |  20.58   1.285
      2.67   1.285 |   8.67   2.999 |  14.67   3.427 |  20.67   1.285
      2.75   1.285 |   8.75   2.999 |  14.75   3.427 |  20.75   1.285
      2.83   1.285 |   8.83   2.999 |  14.83   2.999 |  20.83   1.285
      2.92   1.285 |   8.92   2.999 |  14.92   2.999 |  20.92   1.285
      3.00   1.285 |   9.00   2.999 |  15.00   2.999 |  21.00   1.285
      3.08   1.285 |   9.08   3.427 |  15.08   3.427 |  21.08   1.285
      3.17   1.285 |   9.17   3.427 |  15.17   3.427 |  21.17   1.285
      3.25   1.285 |   9.25   3.427 |  15.25   3.427 |  21.25   1.285
      3.33   1.714 |   9.33   3.427 |  15.33   2.999 |  21.33   1.285
      3.42   1.714 |   9.42   3.427 |  15.42   2.999 |  21.42   1.285
      3.50   1.714 |   9.50   3.427 |  15.50   2.999 |  21.50   1.285
      3.58   1.285 |   9.58   3.856 |  15.58   3.427 |  21.58   1.285
      3.67   1.285 |   9.67   3.856 |  15.67   3.427 |  21.67   1.285
      3.75   1.285 |   9.75   3.856 |  15.75   3.427 |  21.75   1.285
      3.83   1.285 |   9.83   3.856 |  15.83   2.999 |  21.83   1.285
      3.92   1.285 |   9.92   3.856 |  15.92   2.999 |  21.92   1.285
      4.00   1.285 |  10.00   3.856 |  16.00   2.999 |  22.00   1.285
      4.08   1.714 |  10.08   4.712 |  16.08   2.142 |  22.08   1.285
      4.17   1.714 |  10.17   4.712 |  16.17   2.142 |  22.17   1.285
      4.25   1.714 |  10.25   4.712 |  16.25   2.142 |  22.25   1.285
      4.33   1.714 |  10.33   5.141 |  16.33   1.714 |  22.33   1.285
      4.42   1.714 |  10.42   5.141 |  16.42   1.714 |  22.42   1.285
      4.50   1.714 |  10.50   5.141 |  16.50   1.714 |  22.50   1.285
      4.58   1.714 |  10.58   6.426 |  16.58   2.142 |  22.58   1.285
      4.67   1.714 |  10.67   6.426 |  16.67   2.142 |  22.67   1.285
      4.75   1.714 |  10.75   6.426 |  16.75   2.142 |  22.75   1.285
      4.83   1.714 |  10.83   6.854 |  16.83   1.714 |  22.83   1.285
      4.92   1.714 |  10.92   6.854 |  16.92   1.714 |  22.92   1.285
      5.00   1.714 |  11.00   6.854 |  17.00   1.714 |  23.00   1.285
```

```
              5.08   1.714 |  11.08  10.282 |  17.08   2.142 |  23.08   1.285
              5.17   1.714 |  11.17  10.282 |  17.17   2.142 |  23.17   1.285
              5.25   1.714 |  11.25  10.282 |  17.25   2.142 |  23.25   1.285
              5.33   1.714 |  11.33  10.282 |  17.33   1.714 |  23.33   1.285
              5.42   1.714 |  11.42  10.282 |  17.42   1.714 |  23.42   1.285
              5.50   1.714 |  11.50  10.282 |  17.50   1.714 |  23.50   1.285
              5.58   1.714 |  11.58  31.702 |  17.58   2.142 |  23.58   1.285
              5.67   1.714 |  11.67  31.702 |  17.67   2.142 |  23.67   1.285
              5.75   1.714 |  11.75  31.702 |  17.75   2.142 |  23.75   1.285
              5.83   1.714 |  11.83 131.090 |  17.83   1.714 |  23.83   1.285
              5.92   1.714 |  11.92 131.090 |  17.92   1.714 |  23.92   1.285
              6.00   1.714 |  12.00 131.090 |  18.00   1.714 |  24.00   1.285

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*************************************************************************
*                                                                       *
*      POST DEVELOPMENT INTERNAL FLOW TO PROPOSED SWM FACILITY          *
*                                                                       *
*************************************************************************
*
* CATCHMENT 104 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET A,B,C,E
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    8.28
| 01:CAT104 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      4.72         3.56
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .25         2.00
     Length            (m)=    480.00        38.50
     Mannings n          =      .015         .250

     Max.eff.Inten.(mm/hr)=    131.09       113.43
               over (min)       10.00        16.00
     Storage Coeff.  (min)=     9.70 (ii)   16.26 (ii)
     Unit Hyd. Tpeak (min)=     10.00        16.00
     Unit Hyd. peak  (cms)=       .12          .07
                                                    *TOTALS*
     PEAK FLOW       (cms)=      1.06          .66         1.657 (iii)
     TIME TO PEAK    (hrs)=     12.05        12.15        12.083
     RUNOFF VOLUME    (mm)=    105.07        68.68        85.806
     TOTAL RAINFALL   (mm)=    107.10       107.10       107.101
     RUNOFF COEFFICIENT   =       .98          .64          .801

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
* CATCHMENT 105 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET B AND D
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    5.38
| 02:CAT105 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      3.07         2.31
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .25         2.00
     Length            (m)=    635.00        38.50
     Mannings n          =      .015         .250

     Max.eff.Inten.(mm/hr)=    131.09       103.56
               over (min)       11.00        18.00
     Storage Coeff.  (min)=    11.48 (ii)   18.28 (ii)
     Unit Hyd. Tpeak (min)=     11.00        18.00
     Unit Hyd. peak  (cms)=       .10          .06
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .64          .40          .996 (iii)
     TIME TO PEAK    (hrs)=     12.07        12.18        12.100
     RUNOFF VOLUME    (mm)=    105.08        68.68        85.806
     TOTAL RAINFALL   (mm)=    107.10       107.10       107.101
     RUNOFF COEFFICIENT   =       .98          .64          .801

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
* CATCHMENT 106 INCLUDING MEDIUM DENSITY BLOCKS, POND BLOCKS AND REAR YARDS
* PERCENT IMPERVIOUS CONSERVATIVEL ASSIGNED TO MED DENSITY VALUES
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    4.21
| 04:CAT106 DT= 1.00 |   Total Imp(%)=   70.00   Dir. Conn.(%)=   55.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      2.95         1.26
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    110.00        30.00
     Mannings n          =      .015         .250

     Max.eff.Inten.(mm/hr)=    131.09       125.21
               over (min)       3.00         9.00
     Storage Coeff.  (min)=     3.26 (ii)    8.68 (ii)
     Unit Hyd. Tpeak (min)=     3.00         9.00
     Unit Hyd. peak  (cms)=       .36          .13
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .83          .32         1.134 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.05        12.000
     RUNOFF VOLUME    (mm)=    105.09        56.36        83.174
     TOTAL RAINFALL   (mm)=    107.10       107.10       107.101
     RUNOFF COEFFICIENT   =       .98          .53          .777

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
* COMBINED INLET FLOWS TO POND
*
-----------------------
| ADD HYD (INLET     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 01:CAT104       8.28    1.657   12.08  85.81    .000
                       +ID2 02:CAT105       5.38     .996   12.10  85.81    .000
                       +ID3 04:CAT106       4.21    1.134   12.00  83.17    .000
                        ============================================================
                        SUM 05:INLET       17.87    3.517   12.02  85.19    .000
```

```
   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------------
*
* PROPOSED WET POND SWM FACILITY WITH COMBINED DISCHARGE
* (TO EXFILTATION TRENCH + RELIEF PIPE)
*
*
--------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>05:(INLET )   |
| OUT<06:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .334  .5969E+00
                            .015  .6755E-01   |     .547  .7048E+00
                            .022  .1425E+00   |     .695  .8188E+00
                            .028  .2226E+00   |     .823  .9391E+00
                            .033  .3079E+00   |     .940  .1066E+01
                            .037  .3986E+00   |     .997  .1131E+01
                            .121  .4949E+00   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------         (ha)     (cms)     (hrs)       (mm)
     INFLOW >05: (INLET )      17.87     3.517    12.017     85.186
     OUTFLOW<06: (POND  )      17.87      .696    12.733     85.184

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   19.787
                  TIME SHIFT OF PEAK FLOW         (min)=    43.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.8198E+00

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------------
*
* SPLITTING OUTFLOW FROM POND TO ILLUSTRATE STORM FLOWS TURNING TO GROUNDWATER
* AND FLOWS TO THE WEST.
*
--------------------
| DIVERT HYD       |
| INID=06  (POND  )|
--------------------
      Outflow / Inflow  Relationships
      Flow 07 +  Flow 08 =  Total
       (cms)      (cms)      (cms)
         .000      .000      .000
         .015      .000      .015
         .022      .000      .022
         .028      .000      .028
         .033      .000      .033
         .037      .000      .037
         .041      .080      .121
         .044      .290      .334
         .047      .500      .547
         .050      .645      .695
         .053      .770      .823
         .052      .885      .940
         .057      .940      .997

             NHYD       AREA    QPEAK  TpeakDate_hh:mm       R.V.  NFE WetHrs
                         (ha)    (cms)                       (mm)       (hrs)
   IDin = 06:POND      17.87     .696  No_date   12:44     85.184    1   211.
   ==========================================================================
   IDout= 07:INFILT     7.81     .050  No_date   12:44     85.184    1   211.
   IDout= 08:PIPE      10.06     .646  No_date   12:44     85.184    1    15.
--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------------
--------------------
| SAVE HYD         |   AREA       (ha)=   10.063
| ID=08 (PIPE  )   |   QPEAK     (cms)=     .646 (i)
| DT= 1.00 PCYC=-1 |   TPEAK     (hrs)=   12.733
-------------------   VOLUME      (mm)=   85.184
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\100SCS-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

     (i)  PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------------
      FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 10:42:12
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:46:59     RUN COUNTER: 000830          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps250y.dat           *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps250y.out           *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps250y.sum           *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-16-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=3048.220
| Ptotal= 86.61 mm |                          B=  10.030
--------------------                          C=    .888
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  3.00 hrs
                        Storm time step    =  5.00 min
                        Time to peak ratio =   .38

              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .08   4.911 |    .83  20.544 |   1.58  26.471 |   2.33   7.766
               .17   5.383 |    .92  29.598 |   1.67  21.310 |   2.42   7.167
               .25   5.954 |   1.00  49.310 |   1.75  17.716 |   2.50   6.652
               .33   6.656 |   1.08 112.508 |   1.83  15.092 |   2.58   6.204
               .42   7.541 |   1.17 274.730 |   1.92  13.104 |   2.67   5.811
               .50   8.685 |   1.25 133.591 |   2.00  11.554 |   2.75   5.465
               .58  10.215 |   1.33  72.819 |   2.08  10.315 |   2.83   5.157
               .67  12.349 |   1.42  47.569 |   2.17   9.306 |   2.92   4.882
               .75  15.503 |   1.50  34.367 |   2.25   8.469 |   3.00   4.634

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
********************************************************************************
*                                                                              *
*      POST DEVELOPMENT INTERNAL FLOW TO PROPOSED SWM FACILITY                 *
*                                                                              *
********************************************************************************
*
* CATCHMENT 104 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET A,B,C,E
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    8.28
| 01:CAT104 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
----------------------              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.72         3.56
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     480.00        38.50
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     221.80       136.41
               over (min)          8.00        14.00
     Storage Coeff.  (min)=       7.86 (ii)   13.96 (ii)
     Unit Hyd. Tpeak (min)=       8.00        14.00
     Unit Hyd. peak  (cms)=        .14          .08

                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.69          .84          2.289 (iii)
     TIME TO PEAK    (hrs)=       1.27         1.40          1.300
     RUNOFF VOLUME    (mm)=      84.61        50.83         66.706
     TOTAL RAINFALL   (mm)=      86.61        86.61         86.609
     RUNOFF COEFFICIENT   =        .98          .59           .770

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
* CATCHMENT 105 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET B AND D
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    5.38
```

```
| 02:CAT105 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
----------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.07         2.31
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .25         2.00
     Length            (m)=     635.00        38.50
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     204.16       127.81
               over (min)       10.00        16.00
     Storage Coeff.  (min)=       9.61 (ii)   15.87 (ii)
     Unit Hyd. Tpeak (min)=      10.00        16.00
     Unit Hyd. peak  (cms)=        .12          .07
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.00          .50         1.378 (iii)
     TIME TO PEAK    (hrs)=       1.30         1.43         1.350
     RUNOFF VOLUME    (mm)=      84.61        50.83        66.706
     TOTAL RAINFALL   (mm)=      86.61        86.61        86.609
     RUNOFF COEFFICIENT   =        .98          .59          .770

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
* CATCHMENT 106 INCLUDING MEDIUM DENSITY BLOCKS, POND BLOCKS AND REAR YARDS
* PERCENT IMPERVIOUS CONSERVATIVEL ASSIGNED TO MED DENSITY VALUES
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    4.21
| 04:CAT106 DT= 1.00 |   Total Imp(%)=   70.00   Dir. Conn.(%)=   55.00
----------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.95         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     110.00        30.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     274.73       168.56
               over (min)        2.00         7.00
     Storage Coeff.  (min)=       2.42 (ii)    7.24 (ii)
     Unit Hyd. Tpeak (min)=       2.00         7.00
     Unit Hyd. peak  (cms)=        .49          .16
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.59          .39         1.791 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.27         1.167
     RUNOFF VOLUME    (mm)=      84.61        40.67        64.837
     TOTAL RAINFALL   (mm)=      86.61        86.61        86.609
     RUNOFF COEFFICIENT   =        .98          .47          .749

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
* COMBINED INLET FLOWS TO POND
*
------------------------
| ADD HYD (INLET     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 01:CAT104         8.28    2.289    1.30  66.71    .000
                      +ID2 02:CAT105         5.38    1.378    1.35  66.71    .000
                      +ID3 04:CAT106         4.21    1.791    1.17  64.84    .000
                       ============================================================
                       SUM 05:INLET         17.87    4.766    1.27  66.27    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
* PROPOSED WET POND SWM FACILITY WITH COMBINED DISCHARGE
* (TO EXFILTATION TRENCH + RELIEF PIPE)
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>05:(INLET )   |
| OUT<06:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .334  .5969E+00
                            .015  .6755E-01   |     .547  .7048E+00
                            .022  .1425E+00   |     .695  .8188E+00
                            .028  .2226E+00   |     .823  .9391E+00
                            .033  .3079E+00   |     .940  .1066E+01
                            .037  .3986E+00   |     .997  .1131E+01
                            .121  .4949E+00   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >05: (INLET )      17.87     4.766     1.267     66.266
     OUTFLOW<06: (POND  )      17.87      .740     2.100     66.265

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   15.519
                  TIME SHIFT OF PEAK FLOW         (min)=    50.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.8608E+00

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
* SPLITTING OUTFLOW FROM POND TO ILLUSTRATE STORM FLOWS TURNING TO GROUNDWATER
* AND FLOWS TO THE WEST.
*
--------------------
| DIVERT HYD       |
| INID=06  (POND  )|
--------------------
      Outflow / Inflow  Relationships
      Flow 07 +  Flow 08 =  Total
       (cms)      (cms)      (cms)
         .000       .000       .000
         .015       .000       .015
         .022       .000       .022
         .028       .000       .028
         .033       .000       .033
         .037       .000       .037
         .041       .080       .121
         .044       .290       .334
         .047       .500       .547
         .050       .645       .695
         .053       .770       .823
         .052       .885       .940
         .057       .940       .997

             NHYD       AREA    QPEAK  TpeakDate_hh:mm       R.V.  NFE WetHrs
                        (ha)    (cms)                        (mm)       (hrs)
   IDin = 06:POND      17.87     .740  No_date    2:06     66.265    1   194.
```

```
   ======================================================================
   IDout= 07:INFILT     7.90     .051  No_date    2:06     66.265    1   194.
   IDout= 08:PIPE       9.97     .689  No_date    2:06     66.265    1     8.
--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------
--------------------
| SAVE HYD          |   AREA       (ha)=    9.968
| ID=08 (PIPE  )    |   QPEAK     (cms)=     .689 (i)
| DT= 1.00 PCYC=-1  |   TPEAK     (hrs)=    2.100
--------------------   VOLUME     (mm)=   66.265
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\250YR-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

     (i)  PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------
      FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 10:47:00
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:45:29     RUN COUNTER: 000829          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps250scs.dat         *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps250scs.out         *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\ps250scs.sum         *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001--------------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-16-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002--------------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| MASS STORM       |    Filename: c:\Storms\SCS24H.mst
--------------------
| Ptotal=119.00 mm |    Comments: SCS Type II 24 HR MASS CURVE
--------------------

                      Duration of storm        =   24.00 hrs
                      Mass curve time step     =   15.00 min
                      Selected storm time step =    5.00 min
                      Volume of derived storm  =  119.00 mm
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.08	1.428	6.08	1.904	12.08	17.136	18.08	2.380
.17	1.428	6.17	1.904	12.17	17.136	18.17	2.380
.25	1.428	6.25	1.904	12.25	17.136	18.25	2.380
.33	1.428	6.33	2.380	12.33	17.136	18.33	1.904
.42	1.428	6.42	2.380	12.42	17.136	18.42	1.904
.50	1.428	6.50	2.380	12.50	17.136	18.50	1.904
.58	.952	6.58	1.904	12.58	9.044	18.58	2.380
.67	.952	6.67	1.904	12.67	9.044	18.67	2.380
.75	.952	6.75	1.904	12.75	9.044	18.75	2.380
.83	1.428	6.83	2.380	12.83	8.568	18.83	1.904
.92	1.428	6.92	2.380	12.92	8.568	18.92	1.904
1.00	1.428	7.00	2.380	13.00	8.568	19.00	1.904
1.08	1.428	7.08	2.380	13.08	6.664	19.08	2.380
1.17	1.428	7.17	2.380	13.17	6.664	19.17	2.380
1.25	1.428	7.25	2.380	13.25	6.664	19.25	2.380
1.33	1.428	7.33	2.856	13.33	6.188	19.33	1.904
1.42	1.428	7.42	2.856	13.42	6.188	19.42	1.904
1.50	1.428	7.50	2.856	13.50	6.188	19.50	1.904
1.58	.952	7.58	2.380	13.58	5.236	19.58	2.380
1.67	.952	7.67	2.380	13.67	5.236	19.67	2.380
1.75	.952	7.75	2.380	13.75	5.236	19.75	2.380
1.83	1.428	7.83	2.856	13.83	4.760	19.83	1.904
1.92	1.428	7.92	2.856	13.92	4.760	19.92	1.904
2.00	1.428	8.00	2.856	14.00	4.760	20.00	1.904
2.08	1.428	8.08	2.856	14.08	3.808	20.08	1.428
2.17	1.428	8.17	2.856	14.17	3.808	20.17	1.428
2.25	1.428	8.25	2.856	14.25	3.808	20.25	1.428
2.33	1.904	8.33	3.332	14.33	3.332	20.33	1.428
2.42	1.904	8.42	3.332	14.42	3.332	20.42	1.428
2.50	1.904	8.50	3.332	14.50	3.332	20.50	1.428
2.58	1.428	8.58	3.332	14.58	3.808	20.58	1.428
2.67	1.428	8.67	3.332	14.67	3.808	20.67	1.428
2.75	1.428	8.75	3.332	14.75	3.808	20.75	1.428
2.83	1.428	8.83	3.332	14.83	3.332	20.83	1.428
2.92	1.428	8.92	3.332	14.92	3.332	20.92	1.428
3.00	1.428	9.00	3.332	15.00	3.332	21.00	1.428
3.08	1.428	9.08	3.808	15.08	3.808	21.08	1.428
3.17	1.428	9.17	3.808	15.17	3.808	21.17	1.428
3.25	1.428	9.25	3.808	15.25	3.808	21.25	1.428
3.33	1.904	9.33	3.808	15.33	3.332	21.33	1.428
3.42	1.904	9.42	3.808	15.42	3.332	21.42	1.428
3.50	1.904	9.50	3.808	15.50	3.332	21.50	1.428
3.58	1.428	9.58	4.284	15.58	3.808	21.58	1.428
3.67	1.428	9.67	4.284	15.67	3.808	21.67	1.428
3.75	1.428	9.75	4.284	15.75	3.808	21.75	1.428
3.83	1.428	9.83	4.284	15.83	3.332	21.83	1.428
3.92	1.428	9.92	4.284	15.92	3.332	21.92	1.428
4.00	1.428	10.00	4.284	16.00	3.332	22.00	1.428
4.08	1.904	10.08	5.236	16.08	2.380	22.08	1.428
4.17	1.904	10.17	5.236	16.17	2.380	22.17	1.428
4.25	1.904	10.25	5.236	16.25	2.380	22.25	1.428
4.33	1.904	10.33	5.712	16.33	1.904	22.33	1.428
4.42	1.904	10.42	5.712	16.42	1.904	22.42	1.428
4.50	1.904	10.50	5.712	16.50	1.904	22.50	1.428
4.58	1.904	10.58	7.140	16.58	2.380	22.58	1.428
4.67	1.904	10.67	7.140	16.67	2.380	22.67	1.428
4.75	1.904	10.75	7.140	16.75	2.380	22.75	1.428
4.83	1.904	10.83	7.616	16.83	1.904	22.83	1.428
4.92	1.904	10.92	7.616	16.92	1.904	22.92	1.428
5.00	1.904	11.00	7.616	17.00	1.904	23.00	1.428

```
              5.08   1.904 |  11.08  11.424 |  17.08   2.380 |  23.08   1.428
              5.17   1.904 |  11.17  11.424 |  17.17   2.380 |  23.17   1.428
              5.25   1.904 |  11.25  11.424 |  17.25   2.380 |  23.25   1.428
              5.33   1.904 |  11.33  11.424 |  17.33   1.904 |  23.33   1.428
              5.42   1.904 |  11.42  11.424 |  17.42   1.904 |  23.42   1.428
              5.50   1.904 |  11.50  11.424 |  17.50   1.904 |  23.50   1.428
              5.58   1.904 |  11.58  35.224 |  17.58   2.380 |  23.58   1.428
              5.67   1.904 |  11.67  35.224 |  17.67   2.380 |  23.67   1.428
              5.75   1.904 |  11.75  35.224 |  17.75   2.380 |  23.75   1.428
              5.83   1.904 |  11.83 145.656 |  17.83   1.904 |  23.83   1.428
              5.92   1.904 |  11.92 145.656 |  17.92   1.904 |  23.92   1.428
              6.00   1.904 |  12.00 145.656 |  18.00   1.904 |  24.00   1.428

--------------------------------------------------------------------------------
001:0003--------------------------------------------------------------------------
*
*************************************************************************
*                                                                       *
*      POST DEVELOPMENT INTERNAL FLOW TO PROPOSED SWM FACILITY          *
*                                                                       *
*************************************************************************
*
* CATCHMENT 104 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET A,B,C,E
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    8.28
| 01:CAT104 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      4.72         3.56
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .25         2.00
     Length            (m)=    480.00        38.50
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    145.66       137.60
               over (min)        9.00        15.00
     Storage Coeff.  (min)=      9.30 (ii)   15.37 (ii)
     Unit Hyd. Tpeak (min)=      9.00        15.00
     Unit Hyd. peak  (cms)=       .12          .07
                                                    *TOTALS*
     PEAK FLOW       (cms)=      1.21          .79         1.927 (iii)
     TIME TO PEAK    (hrs)=     12.05        12.13        12.067
     RUNOFF VOLUME    (mm)=    116.98        79.35        97.055
     TOTAL RAINFALL   (mm)=    119.00       119.00       118.999
     RUNOFF COEFFICIENT   =       .98          .67          .816

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004--------------------------------------------------------------------------
*
* CATCHMENT 105 DRAINING SOUTHERLY CONSISTING OF PARTS OF STREET B AND D
* PERCENT IMPERVIOUS ADJUSTED TO SUIT LOW DENSITY AND MED DENSITY
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    5.38
| 02:CAT105 DT= 1.00 |   Total Imp(%)=   57.00   Dir. Conn.(%)=   47.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      3.07         2.31
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .25         2.00
     Length            (m)=    635.00        38.50
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    145.66       124.82
               over (min)       11.00        17.00
     Storage Coeff.  (min)=     11.00 (ii)   17.32 (ii)
     Unit Hyd. Tpeak (min)=     11.00        17.00
     Unit Hyd. peak  (cms)=       .10          .07
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .72          .48         1.159 (iii)
     TIME TO PEAK    (hrs)=     12.07        12.17        12.100
     RUNOFF VOLUME    (mm)=    116.98        79.34        97.055
     TOTAL RAINFALL   (mm)=    119.00       119.00       118.999
     RUNOFF COEFFICIENT   =       .98          .67          .816

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005--------------------------------------------------------------------------
*
* CATCHMENT 106 INCLUDING MEDIUM DENSITY BLOCKS, POND BLOCKS AND REAR YARDS
* PERCENT IMPERVIOUS CONSERVATIVEL ASSIGNED TO MED DENSITY VALUES
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    4.21
| 04:CAT106 DT= 1.00 |   Total Imp(%)=   70.00   Dir. Conn.(%)=   55.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      2.95         1.26
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    110.00        30.00
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    145.66       147.25
               over (min)        3.00         8.00
     Storage Coeff.  (min)=      3.12 (ii)    8.21 (ii)
     Unit Hyd. Tpeak (min)=      3.00         8.00
     Unit Hyd. peak  (cms)=       .37          .14
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .93          .39         1.300 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.03        12.000
     RUNOFF VOLUME    (mm)=    117.00        65.93        94.022
     TOTAL RAINFALL   (mm)=    119.00       119.00       118.999
     RUNOFF COEFFICIENT   =       .98          .55          .790

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0006--------------------------------------------------------------------------
*
* COMBINED INLET FLOWS TO POND
*
-----------------------
| ADD HYD (INLET     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 01:CAT104       8.28    1.927   12.07  97.06    .000
                       +ID2 02:CAT105       5.38    1.159   12.10  97.06    .000
                       +ID3 04:CAT106       4.21    1.300   12.00  94.02    .000
                        ============================================================
                        SUM 05:INLET       17.87    4.117   12.02  96.34    .000
```

```
   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0007--------------------------------------------------------------------------
*
* PROPOSED WET POND SWM FACILITY WITH COMBINED DISCHARGE
* (TO EXFILTATION TRENCH + RELIEF PIPE)
*
*
--------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>05:(INLET )   |
| OUT<06:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |     .334  .5969E+00
                            .015  .6755E-01   |     .547  .7048E+00
                            .022  .1425E+00   |     .695  .8188E+00
                            .028  .2226E+00   |     .823  .9391E+00
                            .033  .3079E+00   |     .940  .1066E+01
                            .037  .3986E+00   |     .997  .1131E+01
                            .121  .4949E+00   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------         (ha)     (cms)     (hrs)       (mm)
     INFLOW >05: (INLET )      17.87     4.117    12.017     96.341
     OUTFLOW<06: (POND  )      17.87      .803    12.700     96.338

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   19.515
                  TIME SHIFT OF PEAK FLOW         (min)=    41.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.9207E+00

--------------------------------------------------------------------------------
001:0008--------------------------------------------------------------------------
*
* SPLITTING OUTFLOW FROM POND TO ILLUSTRATE STORM FLOWS TURNING TO GROUNDWATER
* AND FLOWS TO THE WEST.
*
--------------------
| DIVERT HYD       |
| INID=06  (POND  )|
--------------------
      Outflow / Inflow  Relationships
      Flow 07 +  Flow 08 =  Total
       (cms)      (cms)      (cms)
         .000      .000      .000
         .015      .000      .015
         .022      .000      .022
         .028      .000      .028
         .033      .000      .033
         .037      .000      .037
         .041      .080      .121
         .044      .290      .334
         .047      .500      .547
         .050      .645      .695
         .053      .770      .823
         .052      .885      .940
         .057      .940      .997

             NHYD       AREA    QPEAK  TpeakDate_hh:mm       R.V.  NFE WetHrs
                         (ha)    (cms)                       (mm)       (hrs)
   IDin = 06:POND      17.87     .803  No_date   12:42     96.338    1   211.
   ==========================================================================
   IDout= 07:INFILT     7.04     .053  No_date   12:42     96.338    1   211.
   IDout= 08:PIPE      10.83     .751  No_date   12:42     96.338    1    15.
--------------------------------------------------------------------------------
001:0009--------------------------------------------------------------------------
--------------------
| SAVE HYD         |   AREA       (ha)=   10.830
```

```
| ID=08 (PIPE  )   |   QPEAK     (cms)=     .751 (i)
| DT= 1.00 PCYC=-1 |   TPEAK     (hrs)=   12.700
-------------------   VOLUME      (mm)=   96.338
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Pond\250SCS-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

    (i)  PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
--------------------------------------------------------------------------------
001:0010--------------------------------------------------------------------------
      FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 10:45:30
================================================================================
```

Diversion Channel
External Discharging
to the west

EX.2
104.80

EX.1
25.58

EX. CULVERT

EX. CULVERT

EX. CULVERT

EX. 750 CULVERT

EXTERNAL AREA 2

EXTERNAL AREA 1

CANADIAN PACIFIC RAILWAY

CANADIAN PACIFIC RAILWAY

CANADIAN NATIONAL RAILWAY

KOMOKA ROAD

KOMOKA ROAD

DELAWARE ST N.

UNION AVENUE

OXBOW DRIVE

EX.3
3.15

EX.4*
0.50

EX.5
1.04

EX.6**
2.79

KOMOKA STATION SUBDIVISION

EX.7
1.42

EX.8
0.77

101
2.31

102
0.16

103
2.72

100
0.00

CATCHMENT ID

AREA IN HECTARES

EXISTING FLOW DIRECTION

FLOW PATH

CATCHMENT BOUNDARY

*DENOTES CATCHMENT CONTRIBUTING FLOWS BEYOND 10 YEAR STORM
**DENOTES CATCHMENT CONTRIBUTING FLOW BEYOND 100 YEAR STORM

SCALE 1:10,000

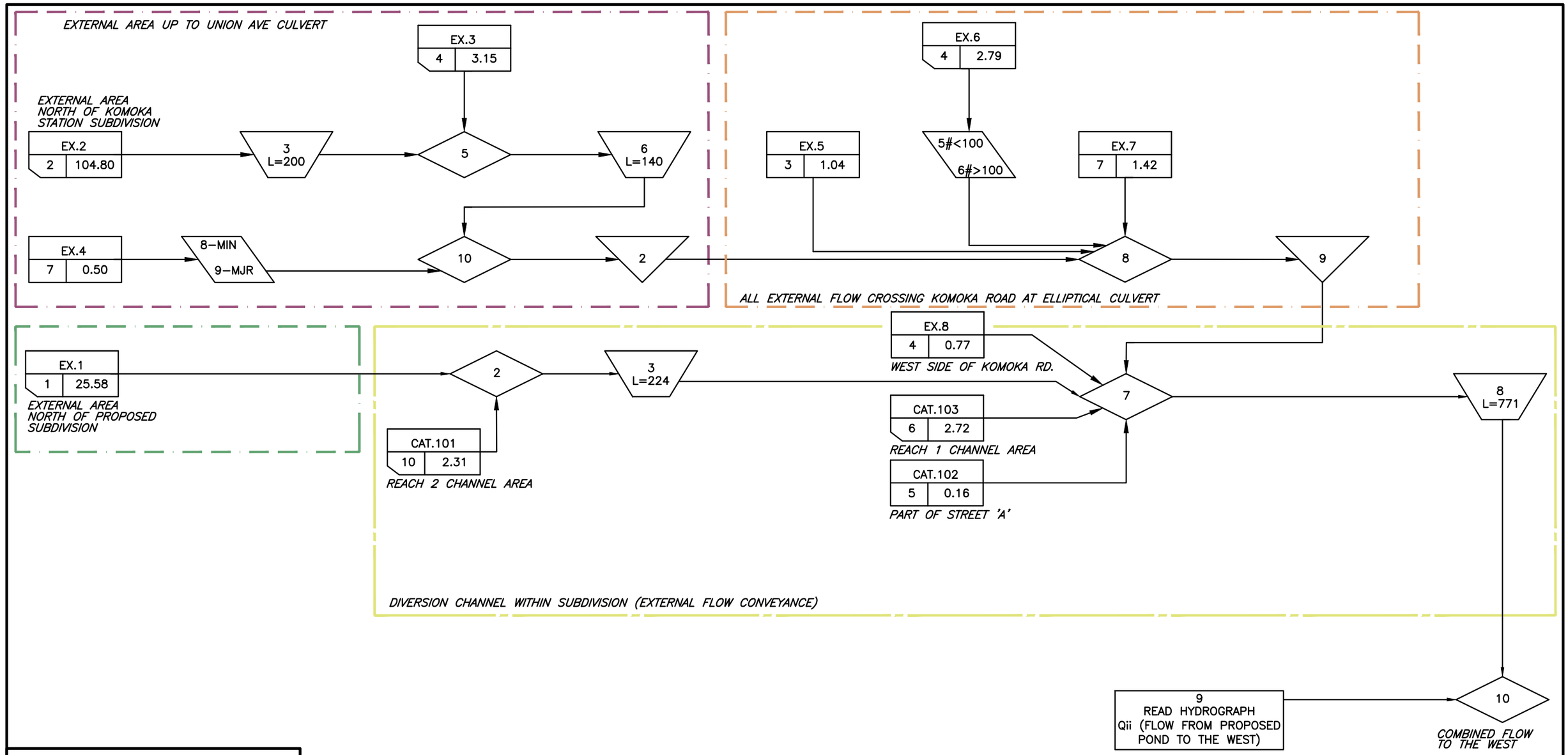
SCALE 1:4000

POST DEVELOPMENT MODEL TO DIVERSION CHANNEL

DATE: AUGUST 2020

ARCHIBALD, GRAY & McKAY ENGINEERING LTD.
3514 WHITE OAK ROAD, LONDON, ON, N6E 2Z9
PHONE 519-685-5300 FAX 519-685-5303
EMAIL info@agm.on.ca WEB www.agm.on.ca
PLAN • SURVEY • ENGINEER

Plot date: Aug. 16, 2020 G:\CLIENT\1389\1\CAD 2019\1389-1 BASE.dwg



POST DEVELOPMENT TO DIVERSION CHANNEL MODEL SCHEMATIC

DATE: AUGUST 2020

ARCHIBALD, GRAY & McKAY ENGINEERING LTD.
3514 WHITE OAK ROAD, LONDON, ON, N6E 2Z9
PHONE 519-685-5300 FAX 519-685-5303
EMAIL info@agm.on.ca WEB www.agm.on.ca
PLAN • SURVEY • ENGINEER

Plot date: Jul 30, 2020 G:\CLIENT\1389\1\CAD 2019\1389-1 BASE.dwg

POST DEVELOPMENT - DIVERSION CHANNEL MODELING DATA

CALIB NASH HYDROGRAPH (RURAL PERVIOUS AREAS)

CATCHMENT NO.	AREA (ha)	SCS CURVE #	BASE FLOW (cms)	Initial Abstraction (mm)	Time to Peak (hrs)	Time of concentration (hrs)	Time of concentration (hrs)	Time of concentration (hrs)	Runoff Coef., C	Watershed Length, L (m)	Watershed Slope, (%)	Velocity From Uplands Method Figure (m/s)
EX.1	25.58	84	0.000	7	0.468	1.071	0.686	0.584	0.20	882.5	2.5	0.42
EX.2	104.8	84	0.000	7	0.754	1.520	1.182	1.065	0.20	1265.7	1.5	0.33
EX.3	3.15	86	0.000	5	0.225	0.692	0.309	0.123	0.20	*200.0*	*1*	0.45
101	2.31	80	0.000	5	0.297	0.838	0.501	0.147	0.20	185.0	0.5	0.35
103	2.72	78	0.000	5	0.082	0.213	0.062		0.20	30.0	2	N/A
					0.6 x Tc(avg)	Airport Method	SCS Method	Uplands Method	Tc=(Length/Velocity)			

represents rear yards draining to channel

CALIB STANDARD HYDROGRAPH (URBAN AREAS)

CATCHMENT NO.	AREA (ha)	XIMP (%)	TIMP (%)	BASE FLOW (cms)	PERVIOUS LENGTH (m)	IMP. LENGTH (m)	Perv. Initial Abstraction (mm)	Imp. Initial Abstraction (mm)	PERVIOUS MANNINGS (n)	Pervious Slope (%)	Impervious Slope (%)	SCS CURVE #
EX.4	0.50	1.00	30.00	0	27	97	5	2	0.25	2	0.35	86
EX.5	1.04	48.00	60.00	0	15	185	5	2	0.25	2	0.5	86
EX.6	2.79	45.00	55.00	0	25	100	5	2	0.25	2	0.5	86
EX.7	1.42	20.00	40.00	0	40	250	5	2	0.25	2	0.5	86
EX.8	0.77	31.00	36.00	0	15	250	5	2	0.25	2	0.5	80
102	0.16	48.00	60.00	0	34	22	5	2	0.25	2	0.5	80

Airport Method

$$T_C = \frac{3.26(1.1 - C)L^{0.5}}{S^{0.33}}$$

Tc in minutes

SCS Method

$$T_C = \frac{2.58L^{0.8}[(1000/CN) - 9]^{0.7}}{1900S^{0.5}} \times 100$$

Tc in minutes

Post Development

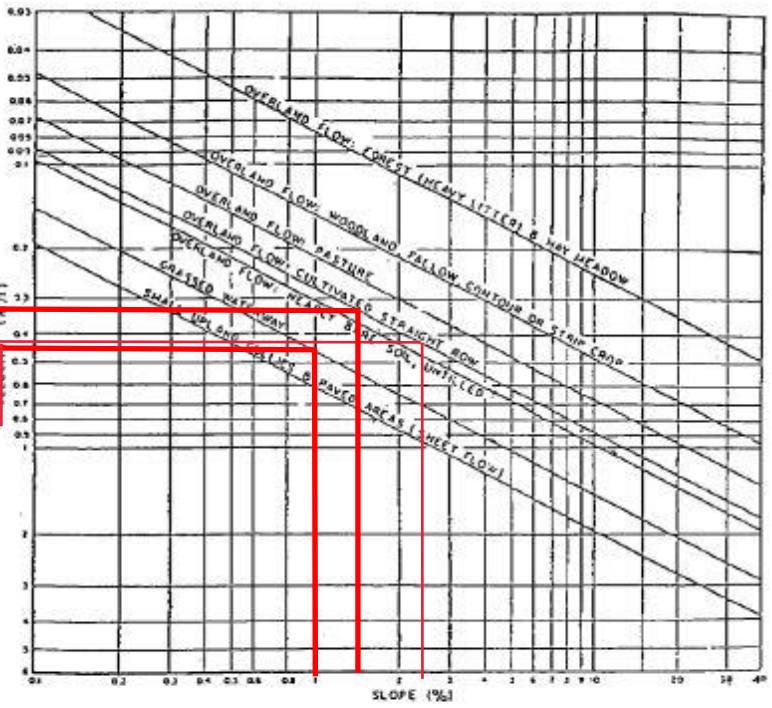


FIGURE 1 UPLANDS METHOD OF ESTIMATING TIME OF CONCENTRATION (SCS NATIONAL ENGINEERING HANDBOOK, 1971)

UNION AVENUE CULVERT PERFORMANCE

Elevation (m)	Storage		Discharge			Description
	Incremental Storage (m^3)	Upstream Storage (m^3)	Union Ave 1200 Culv	Roadway Conveyance Weir	Combined Discharge	
242.014	0.0	0.00				
242.200	0.1	0.1	0.050	0.000	0.050	
242.400	4.1	4.2	0.210	0.000	0.210	
242.600	10.0	14.2	0.460	0.000	0.460	
242.800	20.9	35.1	0.780	0.000	0.780	
243.000	31.9	*67.0*	1.170	0.000	1.170	
243.200	43.0	*110.0*	1.610	0.000	1.610	
243.400	60.0	*170.0*	2.060	0.000	2.060	
243.600	83.0	*253.0*	2.520	0.000	2.520	
243.690	45.0	*298.0*	2.710	0.000	2.710	
243.700	5.0	*303.0*	2.730	0.001	2.731	
243.800	56.0	*359.0*	2.914	0.568	3.482	
243.900	61.0	*420.0*	3.038	2.814	5.852	
243.920	13.0	433.0	3.064	3.580	6.644	
243.940	20.0	453.0	3.087	4.368	7.455	

Italics denote approximate upstream storage based on limited topo information

KOMOKA ROAD CULVERT BACK UP PERFORMANCE

Elevation (m)	Storage		Discharge			Description
	Incremental Storage (m^3)	Ditch Storage (m^3)	Discharge Culv	Roadway Conveyance Weir	Combined Discharge	
241.77	0.0	0.0	0.000	0.000	0.000	
241.80	3.7	3.7	0.000	0.000	0.000	
242.00	10.0	13.7	0.140	0.000	0.140	
242.20	25.7	39.4	0.240	0.000	0.240	
242.40	46.8	86.2	0.600	0.000	0.600	
242.60	68.8	155.0	1.060	0.000	1.060	
242.80	91.4	246.3	1.500	0.000	1.500	
243.00	173.5	419.8	1.920	0.000	1.920	
243.20	105.8	525.6	2.280	0.000	2.280	
243.40	211.4	*737.0*	2.570	0.000	2.570	
243.60	291.0	*1028.0*	2.820	0.000	2.820	
243.63	55.0	*1083.0*	2.860	0.000	2.860	
243.70	144.0	*1227.0*	2.940	0.760	3.700	
243.76	101.0	*1328.0*	3.013	3.075	6.088	
243.80	158.0	*1486.0*	2.960	5.050	8.010	

Modeling

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:51:44     RUN COUNTER: 000832          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps002y.dat       *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps002y.out       *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps002y.sum       *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-15-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 724.690
| Ptotal= 33.31 mm |                          B=   5.500
--------------------                          C=    .800
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  3.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =   .38

            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
             .08   2.621 |    .83   8.023 |   1.58   9.859 |   2.33   3.744
             .17   2.815 |    .92  10.810 |   1.67   8.265 |   2.42   3.518
             .25   3.045 |   1.00  16.773 |   1.75   7.130 |   2.50   3.320
             .33   3.321 |   1.08  37.614 |   1.83   6.281 |   2.58   3.145
             .42   3.659 |   1.17 110.459 |   1.92   5.622 |   2.67   2.989
             .50   4.082 |   1.25  44.943 |   2.00   5.096 |   2.75   2.849
             .58   4.630 |   1.33  24.030 |   2.08   4.666 |   2.83   2.723
             .67   5.367 |   1.42  16.238 |   2.17   4.307 |   2.92   2.609
             .75   6.414 |   1.50  12.255 |   2.25   4.004 |   3.00   2.504

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
********************************************************************************
*                                                                              *
*      POST DEVELOPMENT EXTERNAL FLOW ANALYSIS AND DIVERSION CHANNEL           *
*                                                                              *
********************************************************************************
*
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=     .467 (i)
     TIME TO PEAK    (hrs)=    1.817
     RUNOFF VOLUME    (mm)=    9.268
     TOTAL RAINFALL   (mm)=   33.311
     RUNOFF COEFFICIENT   =     .278

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    1.388 (i)
     TIME TO PEAK    (hrs)=    2.217
     RUNOFF VOLUME    (mm)=    9.268
     TOTAL RAINFALL   (mm)=   33.311
     RUNOFF COEFFICIENT   =     .278

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
--------------------------------------------------------------------------------
001:0005--------------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                 LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0300
                 3.00          99.00     .0300 / .0300  Main Channel
                 5.00          99.00     .0300 / .0300  Main Channel
                 8.00         100.00         .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2:EX.2      104.80    1.388    2.22  9.268      .332     1.386
   OUTFLOW: ID= 3:CHAN      104.80    1.386    2.25  9.268      .331     1.384


--------------------------------------------------------------------------------
001:0006--------------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .120 (i)
     TIME TO PEAK    (hrs)=    1.450
     RUNOFF VOLUME    (mm)=   11.506
     TOTAL RAINFALL   (mm)=   33.311
     RUNOFF COEFFICIENT   =     .345

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0007--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 03:CHAN         104.80    1.386    2.25   9.27    .000
                      +ID2 04:EX.3           3.15     .120    1.45  11.51    .000
                       ============================================================
                       SUM 05:EX2+3        107.95    1.418    2.22   9.33    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0008--------------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                 LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0250
                 1.35          99.55     .0250 / .0250  Main Channel
                 9.35          99.55     .0250 / .0250  Main Channel
                10.70         100.00         .0250

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
```

```
                                <---- hydrograph ---->   <-pipe / channel->
                           AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                           (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 5:EX2+3    107.95   1.418    2.22  9.334      .185      .893
   OUTFLOW: ID= 6:LOT.CH   107.95   1.416    2.25  9.334      .184      .891


--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .15          .35
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .35         2.00
     Length            (m)=     97.00        27.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    110.46        50.45
               over (min)       4.00        11.00
     Storage Coeff.  (min)=      3.60 (ii)   10.93 (ii)
     Unit Hyd. Tpeak (min)=      4.00        11.00
     Unit Hyd. peak  (cms)=       .30          .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .00          .03          .030 (iii)
     TIME TO PEAK    (hrs)=      1.20         1.33         1.333
     RUNOFF VOLUME    (mm)=     31.31        15.02        15.187
     TOTAL RAINFALL   (mm)=     33.31        33.31        33.311
     RUNOFF COEFFICIENT   =       .94          .45          .456

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =      1
---------------------   Total minor system capacity          =    .080  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                   ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                   (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .030     1.333   15.187     .000
     ======================================================================
     MAJOR SYST   09:EX4>10        .00      .000      .000     .000     .000
     MINOR SYST   08:EX4<10        .50      .030     1.333   15.187     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011----------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 06:LOT.CH      107.95    1.416    2.25   9.33    .000
                       +ID2 09:EX4>10          .00     .000     .00    .00    .000  **DRY**
                        ============================================================
                        SUM 10:E2+3+4      107.95    1.416    2.25   9.33    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
--------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)   |
| OUT<02:(UNION )   |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |    2.520  .2530E-01
                           .050  .1000E-03   |    2.710  .2980E-01
                           .210  .4200E-03   |    2.731  .3030E-01
                           .460  .1420E-02   |    3.482  .3590E-01
                           .780  .3510E-02   |    5.852  .4200E-01
                          1.170  .6700E-02   |    6.644  .4330E-01
                          1.610  .1100E-01   |    7.455  .4530E-01
                          2.060  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     107.95     1.416     2.250      9.334
     OUTFLOW<02: (UNION )     107.95     1.416     2.283      9.334

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.943
                   TIME SHIFT OF PEAK FLOW         (min)=     2.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=.9100E-02

--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .62          .42
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    185.00        15.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    110.46        45.87
               over (min)       5.00        10.00
     Storage Coeff.  (min)=      4.76 (ii)   10.12 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=       .23          .11
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .10          .03          .121 (iii)
     TIME TO PEAK    (hrs)=      1.22         1.32         1.217
     RUNOFF VOLUME    (mm)=     31.31        14.17        22.397
     TOTAL RAINFALL   (mm)=     33.31        33.31        33.311
```

```
     RUNOFF COEFFICIENT   =        .94          .43           .672

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0014--------------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     110.46        38.75
               over (min)        3.00        11.00
     Storage Coeff.  (min)=       3.29 (ii)   11.07 (ii)
     Unit Hyd. Tpeak (min)=       3.00        11.00
     Unit Hyd. peak  (cms)=        .35          .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .31          .08          .333 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.35         1.183
     RUNOFF VOLUME    (mm)=      31.31        13.54        21.538
     TOTAL RAINFALL   (mm)=      33.31        33.31        33.311
     RUNOFF COEFFICIENT   =        .94          .41          .647

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6   |   Number of inlets in system [NINLET] =       1
---------------------    Total minor system capacity         =   1.142  (cms)
                         Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79      .333     1.183   21.538     .000
     ======================================================================
     MAJOR SYST   06:>100YR        .00      .000      .000     .000     .000
     MINOR SYST   05:<100YR       2.79      .333     1.183   21.538     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016--------------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=      99.54        35.72
               over (min)        6.00        17.00
     Storage Coeff.  (min)=       5.95 (ii)   16.60 (ii)
     Unit Hyd. Tpeak (min)=       6.00        17.00
     Unit Hyd. peak  (cms)=        .19          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .05          .05          .075 (iii)
     TIME TO PEAK    (hrs)=       1.23         1.47         1.383
     RUNOFF VOLUME    (mm)=      31.31        14.43        17.803
     TOTAL RAINFALL   (mm)=      33.31        33.31        33.311
     RUNOFF COEFFICIENT   =        .94          .43          .534

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:UNION        107.95    1.416    2.28   9.33    .000
                       +ID2 03:EX.5           1.04     .121    1.22  22.40    .000
                       +ID3 06:>100YR          .00     .000     .00    .00    .000  **DRY**
                       +ID4 07:EX.7           1.42     .075    1.38  17.80    .000
                        ============================================================
                        SUM 08:EX.2-7       110.41    1.446    2.27   9.57    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018--------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)     (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00    |    2.280  .5256E-01
                            .000  .3700E-03    |    2.570  .7370E-01
                            .140  .1370E-02    |    2.820  .1028E+00
                            .240  .3940E-02    |    2.860  .1083E+00
                            .600  .8620E-02    |    3.700  .1227E+00
                           1.060  .1550E-01    |    6.088  .1328E+00
                           1.500  .2463E-01    |    8.010  .1486E+00
```

```
                          1.920  .4198E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.41     1.446     2.267      9.565
     OUTFLOW<09: (KOMOKA)     110.41     1.442     2.333      9.562

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.712
                    TIME SHIFT OF PEAK FLOW         (min)=     4.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.2342E-01

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*             BEGIN DIVERSION CHANNEL PORTION OF THE MODEL                     *
*                                                                              *
********************************************************************************
*
*CATCHMENT 101 REPRESENTING AREA OF CHANNEL UPSTREAM OF KOMOKA CULVERT CROSSING
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    2.31   Curve Number   (CN)=80.00
| 10:CAT101 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .297

     Unit Hyd Qpeak  (cms)=     .297

     PEAK FLOW       (cms)=     .054 (i)
     TIME TO PEAK    (hrs)=    1.567
     RUNOFF VOLUME    (mm)=    8.730
     TOTAL RAINFALL   (mm)=   33.311
     RUNOFF COEFFICIENT   =     .262

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 2, THE NORTH ENTRY POINT OF
*EXTERNAL FLOWS.
*
------------------------
| ADD HYD (ENTRY1    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:EX.1          25.58     .467    1.82   9.27    .000
                     +ID2 10:CAT101         2.31     .054    1.57   8.73    .000
                      ==========================================================
                      SUM 02:ENTRY1        27.89     .511    1.78   9.22    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------------
*
*ROUTING REACH 2 OF THE DIVERSION CHANNEL WITH AN AVERAGE SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------                                                    
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:ENTRY1   |     Number of SEGMENTS =  3
| OUT< 03:REACH2   |     Slopes (%), CHANNEL= .42   FLOODPLAIN= .42
--------------------                 LENGTH =  224.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        243.44         .0300
                  5.21        242.20     .0300 / .0300  Main Channel
                  8.81        242.20     .0300 / .0300  Main Channel
                 12.56        243.44         .0300

   <---------------------------- TRAVEL TIME TABLE --------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .065  242.268  .559E+02  .194E+01       .085      .341     10.94     .022
     .130  242.333  .119E+03  .822E+01       .281      .530      7.04     .069
     .195  242.398  .188E+03  .196E+02       .573      .681      5.48     .133
     .260  242.463  .265E+03  .367E+02       .959      .811      4.61     .211
     .326  242.529  .349E+03  .603E+02      1.439      .925      4.04     .301
     .391  242.594  .439E+03  .911E+02      2.016     1.029      3.63     .402
     .456  242.659  .536E+03  .130E+03      2.691     1.124      3.32     .512
     .521  242.724  .640E+03  .177E+03      3.467     1.213      3.08     .632
     .586  242.789  .751E+03  .234E+03      4.348     1.297      2.88     .760
     .651  242.854  .869E+03  .301E+03      5.335     1.375      2.71     .895
     .716  242.919  .994E+03  .378E+03      6.433     1.450      2.57    1.039
     .781  242.984  .113E+04  .467E+03      7.645     1.522      2.45    1.189
     .846  243.049  .126E+04  .569E+03      8.973     1.590      2.35    1.346
     .912  243.115  .141E+04  .683E+03     10.421     1.656      2.25    1.510
     .977  243.180  .156E+04  .811E+03*    11.992     1.720      2.17    1.680
    1.042  243.245  .172E+04  .953E+03*    13.689     1.782      2.09    1.857
    1.107  243.310  .189E+04  .111E+04*    15.515     1.842      2.03    2.039
    1.172  243.375  .206E+04  .128E+04*    17.474     1.900      1.96    2.227
    1.237  243.440  .224E+04  .147E+04*    19.568     1.957      1.91    2.422

  X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
  S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
  (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
    INFLOW : ID= 2:ENTRY1     27.89     .511    1.78  9.224      .182      .643
    OUTFLOW: ID= 3:REACH2     27.89     .502    1.87  9.224      .178      .634

--------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------------
*
*#KOMOKA ROAD WEST SIDE OF CENTERLINE DRAINING TO CHANNEL, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .77
| 04:EX.8   DT= 1.00 |   Total Imp(%)=   36.00   Dir. Conn.(%)=   31.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .28          .49
     Dep. Storage     (mm)=       5.00         2.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        15.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=      99.54        24.42
               over (min)        6.00        13.00
     Storage Coeff.  (min)=       5.95 (ii)   12.84 (ii)
     Unit Hyd. Tpeak (min)=       6.00        13.00
     Unit Hyd. peak  (cms)=        .19          .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .04          .02          .056 (iii)
     TIME TO PEAK    (hrs)=       1.23         1.38         1.250
     RUNOFF VOLUME    (mm)=      28.31        10.95        16.333
     TOTAL RAINFALL   (mm)=      33.31        33.31        33.311
     RUNOFF COEFFICIENT   =        .85          .33          .490

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

```
          THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0023--------------------------------------------------------------------------
*
*#PORTION OF STREET 'A' DRAINING TO DIVERSION CHANNEL
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .16
| 05:CAT102 DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .10          .06
     Dep. Storage     (mm)=      5.00         2.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=     22.00        34.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    110.46        37.26
               over (min)        1.00        11.00
     Storage Coeff.  (min)=      1.33 (ii)   10.83 (ii)
     Unit Hyd. Tpeak (min)=      1.00        11.00
     Unit Hyd. peak  (cms)=       .90          .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .02          .00          .024 (iii)
     TIME TO PEAK    (hrs)=      1.17         1.33         1.167
     RUNOFF VOLUME    (mm)=     28.31        12.52        20.100
     TOTAL RAINFALL   (mm)=     33.31        33.31        33.311
     RUNOFF COEFFICIENT   =       .85          .38          .603

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0024--------------------------------------------------------------------------
*
*CATCHMENT 103 REPRESENTING AREA OF CHANNEL DOWNSTREAM OF KOMOKA CULVERT CROSSIN
*
---------------------
| CALIB NASHYD       |   Area    (ha)=    2.72   Curve Number   (CN)=78.00
| 06:CAT103 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
---------------------  U.H. Tp(hrs)=    .082

     Unit Hyd Qpeak  (cms)=    1.267

     PEAK FLOW       (cms)=     .118 (i)
     TIME TO PEAK    (hrs)=    1.267
     RUNOFF VOLUME    (mm)=    8.019
     TOTAL RAINFALL   (mm)=   33.311
     RUNOFF COEFFICIENT   =     .241

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0025--------------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 1 ALSO THE KOMOKA CULVERT
*ENTRY POINT
*
------------------------
| ADD HYD (ENTRY2    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 09:KOMOKA       110.41    1.442    2.33   9.56    .000
                     +ID2 03:REACH2        27.89     .502    1.87   9.22    .000
                     +ID3 04:EX.8            .77     .056    1.25  16.33    .000
                     +ID4 05:CAT102          .16     .024    1.17  20.10    .000
                     +ID5 06:CAT103         2.72     .118    1.27   8.02    .000
                      ==========================================================
                      SUM 07:ENTRY2       141.95    1.870    2.18   9.51    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0026--------------------------------------------------------------------------
*
*ROUTING REACH 1 OF THE DIVERSION CHANNEL WITH A  0.15% SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 07:ENTRY2   |     Number of SEGMENTS =  3
| OUT< 08:REACH1   |     Slopes (%), CHANNEL= .15   FLOODPLAIN= .15
--------------------                   LENGTH =  771.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        242.64         .0300
                  4.40        241.18     .0300 / .0300  Main Channel
                 11.70        241.18     .0300 / .0300  Main Channel
                 16.10        242.64         .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .077  241.259  .446E+03  .148E+02       .133      .230     55.79     .018
     .153  241.335  .919E+03  .610E+02       .431      .361     35.55     .055
     .230  241.412  .142E+04  .141E+03       .862      .468     27.43     .108
     .307  241.489  .195E+04  .258E+03      1.418      .562     22.88     .172
     .384  241.566  .250E+04  .415E+03      2.094      .645     19.92     .248
     .460  241.642  .308E+04  .614E+03      2.887      .722     17.81     .332
     .537  241.719  .369E+04  .858E+03      3.798      .792     16.22     .426
     .614  241.796  .433E+04  .115E+04      4.825      .859     14.96     .527
     .691  241.873  .500E+04  .149E+04      5.970      .921     13.95     .636
     .767  241.949  .569E+04  .189E+04      7.233      .980     13.11     .752
     .844  242.026  .641E+04  .234E+04      8.615     1.036     12.40     .875
     .921  242.103  .716E+04  .285E+04     10.118     1.090     11.79    1.004
     .998  242.180  .793E+04  .342E+04     11.743     1.142     11.26    1.139
    1.074  242.256  .873E+04  .406E+04     13.492     1.191     10.79    1.280
    1.151  242.333  .956E+04  .476E+04     15.366     1.239     10.37    1.426
    1.228  242.410  .104E+05  .553E+04*    17.368     1.285     10.00    1.578
    1.305  242.487  .113E+05  .637E+04*    19.497     1.330      9.66    1.735
    1.381  242.563  .122E+05  .729E+04*    21.758     1.373      9.36    1.897
    1.458  242.640  .132E+05  .829E+04*    24.151     1.416      9.08    2.064

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
 (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                <---- hydrograph ---->   <-pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 7:ENTRY2    141.95    1.870    2.18  9.515      .358      .615
   OUTFLOW: ID= 8:REACH1    141.95    1.698    2.48  9.515      .337      .592


--------------------------------------------------------------------------------
001:0027--------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*  DISCHARGE TO THE WEST FROM THE SWM FACILITY COMBINED WITH EXTERNAL FLOWS    *
*       TO SHOW THE COMBINED POST DEVELOPMENT DISCHARGE TO THE WEST            *
*                                                                              *
********************************************************************************
```

```
      *** NOTE: The hydrograph which was read is dry.
--------------------
| READ HYD          |   AREA       (ha)=     .000
| ID=09 (PIPE  )    |   QPEAK     (cms)=     .000
| DT= 1.00 PCYC= 1 |   TPEAK     (hrs)=     .000
--------------------   VOLUME      (mm)=     .000
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\002YR-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

--------------------------------------------------------------------------------
001:0028----------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*              TOTAL POST DEVELOPMENT DISCHARGE TO THE WEST                    *
*                                                                              *
********************************************************************************
------------------------
| ADD HYD (POST      ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 08:REACH1       141.95    1.698    2.48   9.51    .000
                      +ID2 09:PIPE            .00     .000     .00    .00    .000  **DRY**
                       ============================================================
                       SUM 10:POST         141.95    1.698    2.48   9.51    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0029----------------------------------------------------------------------------
      FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 001:0027 READ HYD
      *** NOTE: The hydrograph which was read is dry.
   Simulation ended on 2020-07-30     at 10:51:46
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ********* Distributed by:  J.F. Sabourin and Associates Inc.          *********
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 *********                   E-Mail: swmhymo@jfsa.Com                  *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                          +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:51:55     RUN COUNTER: 000833          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps005y.dat       *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps005y.out       *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps005y.sum       *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*################################################################################
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*################################################################################
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1330.310
| Ptotal= 45.37 mm |                          B=   7.938
--------------------                          C=    .855
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  3.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =   .38

              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .08   2.913 |    .83  10.664 |   1.58  13.500 |   2.33   4.400
               .17   3.164 |    .92  14.992 |   1.67  11.032 |   2.42   4.094
               .25   3.464 |   1.00  24.437 |   1.75   9.304 |   2.50   3.828
               .33   3.830 |   1.08  56.256 |   1.83   8.033 |   2.58   3.595
               .42   4.285 |   1.17 149.041 |   1.92   7.063 |   2.67   3.390
               .50   4.867 |   1.25  67.155 |   2.00   6.300 |   2.75   3.207
               .58   5.635 |   1.33  35.894 |   2.08   5.685 |   2.83   3.044
               .67   6.692 |   1.42  23.589 |   2.17   5.180 |   2.92   2.897
               .75   8.233 |   1.50  17.267 |   2.25   4.758 |   3.00   2.765

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
********************************************************************************
*                                                                              *
*      POST DEVELOPMENT EXTERNAL FLOW ANALYSIS AND DIVERSION CHANNEL           *
*                                                                              *
********************************************************************************
*
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=     .933 (i)
     TIME TO PEAK    (hrs)=    1.783
     RUNOFF VOLUME    (mm)=   16.972
     TOTAL RAINFALL   (mm)=   45.371
     RUNOFF COEFFICIENT   =     .374

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    2.702 (i)
     TIME TO PEAK    (hrs)=    2.150
     RUNOFF VOLUME    (mm)=   16.972
     TOTAL RAINFALL   (mm)=   45.371
     RUNOFF COEFFICIENT   =     .374

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
--------------------------------------------------------------------------------
001:0005--------------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                 LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0300
                 3.00          99.00     .0300 / .0300  Main Channel
                 5.00          99.00     .0300 / .0300  Main Channel
                 8.00         100.00         .0300

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2:EX.2      104.80    2.702    2.15 16.972      .469     1.687
   OUTFLOW: ID= 3:CHAN      104.80    2.700    2.17 16.972      .468     1.683


--------------------------------------------------------------------------------
001:0006--------------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .226 (i)
     TIME TO PEAK    (hrs)=    1.450
     RUNOFF VOLUME    (mm)=   19.944
     TOTAL RAINFALL   (mm)=   45.371
     RUNOFF COEFFICIENT   =     .440

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0007--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 03:CHAN         104.80    2.700    2.17  16.97    .000
                      +ID2 04:EX.3           3.15     .226    1.45  19.94    .000
                       ============================================================
                       SUM 05:EX2+3        107.95    2.755    2.15  17.06    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0008--------------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                 LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0250
                 1.35          99.55     .0250 / .0250  Main Channel
                 9.35          99.55     .0250 / .0250  Main Channel
                10.70         100.00         .0250

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
```

```
                                <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 5:EX2+3     107.95    2.755    2.15 17.059      .272     1.144
   OUTFLOW: ID= 6:LOT.CH    107.95    2.752    2.17 17.059      .271     1.142


--------------------------------------------------------------------------------
001:0009--------------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .15          .35
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .35         2.00
     Length            (m)=     97.00        27.00
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    149.04        94.48
               over (min)        3.00         9.00
     Storage Coeff.  (min)=      3.19 (ii)    8.90 (ii)
     Unit Hyd. Tpeak (min)=      3.00         9.00
     Unit Hyd. peak  (cms)=       .36          .13
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .00          .06          .059 (iii)
     TIME TO PEAK    (hrs)=      1.18         1.30         1.300
     RUNOFF VOLUME    (mm)=     43.37        24.63        24.814
     TOTAL RAINFALL   (mm)=     45.37        45.37        45.371
     RUNOFF COEFFICIENT   =       .96          .54          .547

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
----------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =      1
----------------------   Total minor system capacity          =    .080  (cms)
                         Total major system storage [TMJSTO] =      0.(cu.m.)

                   ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                   (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .059     1.300   24.814     .000
     ======================================================================
     MAJOR SYST   09:EX4>10        .00      .000      .000     .000     .000
     MINOR SYST   08:EX4<10        .50      .059     1.300   24.814     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 06:LOT.CH      107.95    2.752    2.17  17.06    .000
                       +ID2 09:EX4>10          .00     .000     .00    .00    .000  **DRY**
                        ============================================================
                        SUM 10:E2+3+4      107.95    2.752    2.17  17.06    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012--------------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)   |
| OUT<02:(UNION )   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.520  .2530E-01
                            .050  .1000E-03   |    2.710  .2980E-01
                            .210  .4200E-03   |    2.731  .3030E-01
                            .460  .1420E-02   |    3.482  .3590E-01
                            .780  .3510E-02   |    5.852  .4200E-01
                           1.170  .6700E-02   |    6.644  .4330E-01
                           1.610  .1100E-01   |    7.455  .4530E-01
                           2.060  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     107.95     2.752     2.167     17.059
     OUTFLOW<02: (UNION )     107.95     2.746     2.217     17.059

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.779
                   TIME SHIFT OF PEAK FLOW         (min)=     3.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=.3042E-01

--------------------------------------------------------------------------------
001:0013--------------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .62          .42
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    185.00        15.00
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    149.04        85.30
               over (min)        4.00         8.00
     Storage Coeff.  (min)=      4.23 (ii)    8.40 (ii)
     Unit Hyd. Tpeak (min)=      4.00         8.00
     Unit Hyd. peak  (cms)=       .27          .14
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .15          .06          .193 (iii)
     TIME TO PEAK    (hrs)=      1.20         1.28         1.217
     RUNOFF VOLUME    (mm)=     43.37        23.51        33.045
     TOTAL RAINFALL   (mm)=     45.37        45.37        45.371
```

```
     RUNOFF COEFFICIENT   =        .96          .52           .728

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0014--------------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------                    IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     149.04        74.48
               over (min)        3.00         9.00
     Storage Coeff.  (min)=       2.92 (ii)    8.91 (ii)
     Unit Hyd. Tpeak (min)=       3.00         9.00
     Unit Hyd. peak  (cms)=        .38          .13
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .43          .16          .507 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.30         1.183
     RUNOFF VOLUME    (mm)=      43.37        22.69        31.995
     TOTAL RAINFALL   (mm)=      45.37        45.37        45.371
     RUNOFF COEFFICIENT   =        .96          .50          .705

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6   |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity          =   1.142  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79      .507     1.183   31.995     .000
     ======================================================================
     MAJOR SYST   06:>100YR        .00      .000      .000     .000     .000
     MINOR SYST   05:<100YR       2.79      .507     1.183   31.995     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016--------------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------                    IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     149.04        72.32
               over (min)        5.00        13.00
     Storage Coeff.  (min)=       5.06 (ii)   13.10 (ii)
     Unit Hyd. Tpeak (min)=       5.00        13.00
     Unit Hyd. peak  (cms)=        .22          .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .08          .10          .148 (iii)
     TIME TO PEAK    (hrs)=       1.22         1.38         1.333
     RUNOFF VOLUME    (mm)=      43.37        23.85        27.755
     TOTAL RAINFALL   (mm)=      45.37        45.37        45.371
     RUNOFF COEFFICIENT   =        .96          .53          .612

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:UNION        107.95    2.746    2.22  17.06    .000
                       +ID2 03:EX.5           1.04     .193    1.22  33.05    .000
                       +ID3 06:>100YR          .00     .000     .00    .00    .000  **DRY**
                       +ID4 07:EX.7           1.42     .148    1.33  27.75    .000
                        ============================================================
                        SUM 08:EX.2-7       110.41    2.786    2.22  17.35    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018--------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.280  .5256E-01
                            .000  .3700E-03   |    2.570  .7370E-01
                            .140  .1370E-02   |    2.820  .1028E+00
                            .240  .3940E-02   |    2.860  .1083E+00
                            .600  .8620E-02   |    3.700  .1227E+00
                           1.060  .1550E-01   |    6.088  .1328E+00
                           1.500  .2463E-01   |    8.010  .1486E+00
```

```
                          1.920  .4198E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.41     2.786     2.217     17.347
     OUTFLOW<09: (KOMOKA)     110.41     2.670     2.450     17.343

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   95.839
                    TIME SHIFT OF PEAK FLOW         (min)=    14.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.8538E-01

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*             BEGIN DIVERSION CHANNEL PORTION OF THE MODEL                     *
*                                                                              *
********************************************************************************
*
*CATCHMENT 101 REPRESENTING AREA OF CHANNEL UPSTREAM OF KOMOKA CULVERT CROSSING
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    2.31   Curve Number   (CN)=80.00
| 10:CAT101 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .297

     Unit Hyd Qpeak  (cms)=     .297

     PEAK FLOW       (cms)=     .106 (i)
     TIME TO PEAK    (hrs)=    1.550
     RUNOFF VOLUME    (mm)=   15.691
     TOTAL RAINFALL   (mm)=   45.371
     RUNOFF COEFFICIENT   =     .346

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 2, THE NORTH ENTRY POINT OF
*EXTERNAL FLOWS.
*
------------------------
| ADD HYD (ENTRY1    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:EX.1          25.58     .933    1.78  16.97    .000
                     +ID2 10:CAT101         2.31     .106    1.55  15.69    .000
                      ==========================================================
                      SUM 02:ENTRY1        27.89    1.021    1.75  16.87    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------------
*
*ROUTING REACH 2 OF THE DIVERSION CHANNEL WITH AN AVERAGE SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------                                                    
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:ENTRY1   |     Number of SEGMENTS =  3
| OUT< 03:REACH2   |     Slopes (%), CHANNEL= .42   FLOODPLAIN= .42
--------------------                 LENGTH =  224.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        243.44         .0300
                  5.21        242.20     .0300 / .0300  Main Channel
                  8.81        242.20     .0300 / .0300  Main Channel
                 12.56        243.44         .0300

   <----------------------------- TRAVEL TIME TABLE ------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .065  242.268  .559E+02  .194E+01       .085      .341     10.94     .022
     .130  242.333  .119E+03  .822E+01       .281      .530      7.04     .069
     .195  242.398  .188E+03  .196E+02       .573      .681      5.48     .133
     .260  242.463  .265E+03  .367E+02       .959      .811      4.61     .211
     .326  242.529  .349E+03  .603E+02      1.439      .925      4.04     .301
     .391  242.594  .439E+03  .911E+02      2.016     1.029      3.63     .402
     .456  242.659  .536E+03  .130E+03      2.691     1.124      3.32     .512
     .521  242.724  .640E+03  .177E+03      3.467     1.213      3.08     .632
     .586  242.789  .751E+03  .234E+03      4.348     1.297      2.88     .760
     .651  242.854  .869E+03  .301E+03      5.335     1.375      2.71     .895
     .716  242.919  .994E+03  .378E+03      6.433     1.450      2.57    1.039
     .781  242.984  .113E+04  .467E+03      7.645     1.522      2.45    1.189
     .846  243.049  .126E+04  .569E+03      8.973     1.590      2.35    1.346
     .912  243.115  .141E+04  .683E+03     10.421     1.656      2.25    1.510
     .977  243.180  .156E+04  .811E+03*    11.992     1.720      2.17    1.680
    1.042  243.245  .172E+04  .953E+03*    13.689     1.782      2.09    1.857
    1.107  243.310  .189E+04  .111E+04*    15.515     1.842      2.03    2.039
    1.172  243.375  .206E+04  .128E+04*    17.474     1.900      1.96    2.227
    1.237  243.440  .224E+04  .147E+04*    19.568     1.957      1.91    2.422

  X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
  S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
  (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                  <---- hydrograph ---->   <-pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
    INFLOW : ID= 2:ENTRY1     27.89    1.021    1.75 16.866      .269      .824
    OUTFLOW: ID= 3:REACH2     27.89    1.008    1.82 16.866      .267      .821

--------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------------
*
*#KOMOKA ROAD WEST SIDE OF CENTERLINE DRAINING TO CHANNEL, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .77
| 04:EX.8   DT= 1.00 |   Total Imp(%)=   36.00   Dir. Conn.(%)=   31.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .28          .49
     Dep. Storage     (mm)=       5.00         2.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        15.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     149.04        50.07
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       5.06 (ii)   10.23 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .22          .11
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .07          .04          .094 (iii)
     TIME TO PEAK    (hrs)=       1.22         1.33         1.250
     RUNOFF VOLUME    (mm)=      40.37        18.49        25.273
     TOTAL RAINFALL   (mm)=      45.37        45.37        45.371
     RUNOFF COEFFICIENT   =        .89          .41          .557

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

```
          THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0023----------------------------------------------------------------------
*
*#PORTION OF STREET 'A' DRAINING TO DIVERSION CHANNEL
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .16
| 05:CAT102 DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .10          .06
     Dep. Storage     (mm)=      5.00         2.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=     22.00        34.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    149.04        70.17
               over (min)       1.00         9.00
     Storage Coeff.  (min)=      1.18 (ii)    8.55 (ii)
     Unit Hyd. Tpeak (min)=      1.00         9.00
     Unit Hyd. peak  (cms)=       .97          .13
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .03          .01          .035 (iii)
     TIME TO PEAK    (hrs)=      1.17         1.30         1.167
     RUNOFF VOLUME    (mm)=     40.37        20.73        30.158
     TOTAL RAINFALL   (mm)=     45.37        45.37        45.371
     RUNOFF COEFFICIENT   =       .89          .46          .665

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0024----------------------------------------------------------------------
*
*CATCHMENT 103 REPRESENTING AREA OF CHANNEL DOWNSTREAM OF KOMOKA CULVERT CROSSIN
*
---------------------
| CALIB NASHYD       |   Area    (ha)=    2.72   Curve Number   (CN)=78.00
| 06:CAT103 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
---------------------  U.H. Tp(hrs)=    .082

     Unit Hyd Qpeak  (cms)=    1.267

     PEAK FLOW       (cms)=     .232 (i)
     TIME TO PEAK    (hrs)=    1.267
     RUNOFF VOLUME    (mm)=   14.550
     TOTAL RAINFALL   (mm)=   45.371
     RUNOFF COEFFICIENT   =     .321

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0025----------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 1 ALSO THE KOMOKA CULVERT
*ENTRY POINT
*
------------------------
| ADD HYD (ENTRY2    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 09:KOMOKA       110.41    2.670    2.45  17.34    .000
                     +ID2 03:REACH2        27.89    1.008    1.82  16.87    .000
                     +ID3 04:EX.8            .77     .094    1.25  25.27    .000
                     +ID4 05:CAT102          .16     .035    1.17  30.16    .000
                     +ID5 06:CAT103         2.72     .232    1.27  14.55    .000
                      ============================================================
                      SUM 07:ENTRY2       141.95    3.415    2.17  17.25    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0026----------------------------------------------------------------------
*
*ROUTING REACH 1 OF THE DIVERSION CHANNEL WITH A  0.15% SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 07:ENTRY2   |     Number of SEGMENTS =  3
| OUT< 08:REACH1   |     Slopes (%), CHANNEL= .15   FLOODPLAIN= .15
--------------------                   LENGTH =  771.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        242.64         .0300
                  4.40        241.18     .0300 / .0300  Main Channel
                 11.70        241.18     .0300 / .0300  Main Channel
                 16.10        242.64         .0300

   <---------------------------- TRAVEL TIME TABLE --------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .077  241.259  .446E+03  .148E+02       .133      .230     55.79     .018
     .153  241.335  .919E+03  .610E+02       .431      .361     35.55     .055
     .230  241.412  .142E+04  .141E+03       .862      .468     27.43     .108
     .307  241.489  .195E+04  .258E+03      1.418      .562     22.88     .172
     .384  241.566  .250E+04  .415E+03      2.094      .645     19.92     .248
     .460  241.642  .308E+04  .614E+03      2.887      .722     17.81     .332
     .537  241.719  .369E+04  .858E+03      3.798      .792     16.22     .426
     .614  241.796  .433E+04  .115E+04      4.825      .859     14.96     .527
     .691  241.873  .500E+04  .149E+04      5.970      .921     13.95     .636
     .767  241.949  .569E+04  .189E+04      7.233      .980     13.11     .752
     .844  242.026  .641E+04  .234E+04      8.615     1.036     12.40     .875
     .921  242.103  .716E+04  .285E+04     10.118     1.090     11.79    1.004
     .998  242.180  .793E+04  .342E+04     11.743     1.142     11.26    1.139
    1.074  242.256  .873E+04  .406E+04     13.492     1.191     10.79    1.280
    1.151  242.333  .956E+04  .476E+04     15.366     1.239     10.37    1.426
    1.228  242.410  .104E+05  .553E+04*    17.368     1.285     10.00    1.578
    1.305  242.487  .113E+05  .637E+04*    19.497     1.330      9.66    1.735
    1.381  242.563  .122E+05  .729E+04*    21.758     1.373      9.36    1.897
    1.458  242.640  .132E+05  .829E+04*    24.151     1.416      9.08    2.064

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
 (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                <---- hydrograph ---->   <-pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 7:ENTRY2    141.95    3.415    2.17 17.253      .505      .761
   OUTFLOW: ID= 8:REACH1    141.95    3.224    2.45 17.253      .487      .745


--------------------------------------------------------------------------------
001:0027----------------------------------------------------------------------
********************************************************************************
*                                                                              *
*  DISCHARGE TO THE WEST FROM THE SWM FACILITY COMBINED WITH EXTERNAL FLOWS    *
*       TO SHOW THE COMBINED POST DEVELOPMENT DISCHARGE TO THE WEST            *
*                                                                              *
********************************************************************************
```

```
--------------------
| READ HYD          |   AREA       (ha)=    2.053
| ID=09 (PIPE  )    |   QPEAK     (cms)=     .067
| DT= 1.00 PCYC= 1  |   TPEAK     (hrs)=    3.133
--------------------   VOLUME     (mm)=   30.099
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\005YR-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST
```

TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms
.00	.000	1.38	.000	2.77	.062	4.15	.047	5.53	.018
.02	.000	1.40	.000	2.78	.062	4.17	.046	5.55	.018
.03	.000	1.42	.000	2.80	.062	4.18	.046	5.57	.018
.05	.000	1.43	.000	2.82	.063	4.20	.045	5.58	.017
.07	.000	1.45	.000	2.83	.063	4.22	.045	5.60	.017
.08	.000	1.47	.000	2.85	.064	4.23	.045	5.62	.017
.10	.000	1.48	.000	2.87	.064	4.25	.044	5.63	.016
.12	.000	1.50	.000	2.88	.064	4.27	.044	5.65	.016
.13	.000	1.52	.000	2.90	.064	4.28	.043	5.67	.016
.15	.000	1.53	.000	2.92	.065	4.30	.043	5.68	.016
.17	.000	1.55	.000	2.93	.065	4.32	.043	5.70	.015
.18	.000	1.57	.000	2.95	.065	4.33	.042	5.72	.015
.20	.000	1.58	.000	2.97	.066	4.35	.042	5.73	.015
.22	.000	1.60	.000	2.98	.066	4.37	.041	5.75	.015
.23	.000	1.62	.000	3.00	.066	4.38	.041	5.77	.014
.25	.000	1.63	.000	3.02	.066	4.40	.041	5.78	.014
.27	.000	1.65	.000	3.03	.066	4.42	.040	5.80	.014
.28	.000	1.67	.000	3.05	.067	4.43	.040	5.82	.014
.30	.000	1.68	.000	3.07	.067	4.45	.040	5.83	.013
.32	.000	1.70	.000	3.08	.067	4.47	.039	5.85	.013
.33	.000	1.72	.000	3.10	.067	4.48	.039	5.87	.013
.35	.000	1.73	.000	3.12	.067	4.50	.038	5.88	.013
.37	.000	1.75	.000	3.13	.067	4.52	.038	5.90	.012
.38	.000	1.77	.000	3.15	.067	4.53	.038	5.92	.012
.40	.000	1.78	.000	3.17	.067	4.55	.037	5.93	.012
.42	.000	1.80	.000	3.18	.067	4.57	.037	5.95	.012
.43	.000	1.82	.000	3.20	.067	4.58	.037	5.97	.011
.45	.000	1.83	.000	3.22	.067	4.60	.036	5.98	.011
.47	.000	1.85	.000	3.23	.067	4.62	.036	6.00	.011
.48	.000	1.87	.000	3.25	.066	4.63	.035	6.02	.011
.50	.000	1.88	.000	3.27	.066	4.65	.035	6.03	.010
.52	.000	1.90	.000	3.28	.066	4.67	.035	6.05	.010
.53	.000	1.92	.000	3.30	.066	4.68	.034	6.07	.010
.55	.000	1.93	.001	3.32	.066	4.70	.034	6.08	.010
.57	.000	1.95	.004	3.33	.065	4.72	.034	6.10	.009
.58	.000	1.97	.006	3.35	.065	4.73	.033	6.12	.009
.60	.000	1.98	.009	3.37	.065	4.75	.033	6.13	.009
.62	.000	2.00	.011	3.38	.065	4.77	.033	6.15	.009
.63	.000	2.02	.013	3.40	.064	4.78	.032	6.17	.009
.65	.000	2.03	.016	3.42	.064	4.80	.032	6.18	.008
.67	.000	2.05	.018	3.43	.064	4.82	.032	6.20	.008
.68	.000	2.07	.020	3.45	.063	4.83	.031	6.22	.008
.70	.000	2.08	.022	3.47	.063	4.85	.031	6.23	.008
.72	.000	2.10	.024	3.48	.063	4.87	.030	6.25	.007
.73	.000	2.12	.025	3.50	.062	4.88	.030	6.27	.007
.75	.000	2.13	.027	3.52	.062	4.90	.030	6.28	.007
.77	.000	2.15	.029	3.53	.062	4.92	.029	6.30	.007
.78	.000	2.17	.030	3.55	.061	4.93	.029	6.32	.006
.80	.000	2.18	.032	3.57	.061	4.95	.029	6.33	.006
.82	.000	2.20	.033	3.58	.061	4.97	.028	6.35	.006
.83	.000	2.22	.035	3.60	.060	4.98	.028	6.37	.006
.85	.000	2.23	.036	3.62	.060	5.00	.028	6.38	.006
.87	.000	2.25	.038	3.63	.059	5.02	.027	6.40	.005
.88	.000	2.27	.039	3.65	.059	5.03	.027	6.42	.005
.90	.000	2.28	.040	3.67	.059	5.05	.027	6.43	.005
.92	.000	2.30	.041	3.68	.058	5.07	.027	6.45	.005
.93	.000	2.32	.042	3.70	.058	5.08	.026	6.47	.005
.95	.000	2.33	.044	3.72	.057	5.10	.026	6.48	.004
.97	.000	2.35	.045	3.73	.057	5.12	.026	6.50	.004
.98	.000	2.37	.046	3.75	.057	5.13	.025	6.52	.004
1.00	.000	2.38	.047	3.77	.056	5.15	.025	6.53	.004
1.02	.000	2.40	.048	3.78	.056	5.17	.025	6.55	.004
1.03	.000	2.42	.049	3.80	.055	5.18	.024	6.57	.003
1.05	.000	2.43	.049	3.82	.055	5.20	.024	6.58	.003
1.07	.000	2.45	.050	3.83	.055	5.22	.024	6.60	.003
1.08	.000	2.47	.051	3.85	.054	5.23	.023	6.62	.003
1.10	.000	2.48	.052	3.87	.054	5.25	.023	6.63	.003
1.12	.000	2.50	.053	3.88	.053	5.27	.023	6.65	.002
1.13	.000	2.52	.053	3.90	.053	5.28	.022	6.67	.002
1.15	.000	2.53	.054	3.92	.052	5.30	.022	6.68	.002
1.17	.000	2.55	.055	3.93	.052	5.32	.022	6.70	.002
1.18	.000	2.57	.055	3.95	.052	5.33	.022	6.72	.002
1.20	.000	2.58	.056	3.97	.051	5.35	.021	6.73	.001
1.22	.000	2.60	.057	3.98	.051	5.37	.021	6.75	.001
1.23	.000	2.62	.057	4.00	.050	5.38	.021	6.77	.001
1.25	.000	2.63	.058	4.02	.050	5.40	.020	6.78	.001
1.27	.000	2.65	.058	4.03	.050	5.42	.020	6.80	.001
1.28	.000	2.67	.059	4.05	.049	5.43	.020	6.82	.000
1.30	.000	2.68	.059	4.07	.049	5.45	.020	6.83	.000
1.32	.000	2.70	.060	4.08	.048	5.47	.019	6.85	.000
1.33	.000	2.72	.060	4.10	.048	5.48	.019		
1.35	.000	2.73	.061	4.12	.047	5.50	.019		
1.37	.000	2.75	.061	4.13	.047	5.52	.018		

```
--------------------------------------------------------------------------------
001:0028----------------------------------------------------------------------
********************************************************************************
*                                                                              *
*             TOTAL POST DEVELOPMENT DISCHARGE TO THE WEST                     *
*                                                                              *
********************************************************************************
```

ADD HYD (POST)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1	08:REACH1	141.95	3.224	2.45	17.25	.000
+ID2	09:PIPE	2.05	.067	3.13	30.10	.000
	SUM 10:POST	144.00	3.275	2.47	17.44	.000

```
   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0029----------------------------------------------------------------------
     FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 10:51:57
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:52:04     RUN COUNTER: 000834          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps010y.dat       *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps010y.out       *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps010y.sum       *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*################################################################################
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*################################################################################
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1497.190
| Ptotal= 52.60 mm |                          B=   7.188
--------------------                          C=    .850
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  3.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =   .38

            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
             .08   3.401 |    .83  12.137 |   1.58  15.317 |   2.33   5.093
             .17   3.688 |    .92  16.990 |   1.67  12.549 |   2.42   4.745
             .25   4.030 |   1.00  27.637 |   1.75  10.612 |   2.50   4.443
             .33   4.446 |   1.08  64.461 |   1.83   9.186 |   2.58   4.179
             .42   4.963 |   1.17 178.745 |   1.92   8.096 |   2.67   3.945
             .50   5.621 |   1.25  77.233 |   2.00   7.237 |   2.75   3.737
             .58   6.488 |   1.33  40.683 |   2.08   6.545 |   2.83   3.551
             .67   7.679 |   1.42  26.672 |   2.17   5.975 |   2.92   3.383
             .75   9.410 |   1.50  19.545 |   2.25   5.498 |   3.00   3.231

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
********************************************************************************
*                                                                              *
*      POST DEVELOPMENT EXTERNAL FLOW ANALYSIS AND DIVERSION CHANNEL           *
*                                                                              *
********************************************************************************
*
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=    1.234 (i)
     TIME TO PEAK    (hrs)=    1.767
     RUNOFF VOLUME    (mm)=   22.122
     TOTAL RAINFALL   (mm)=   52.596
     RUNOFF COEFFICIENT   =     .421

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    3.553 (i)
     TIME TO PEAK    (hrs)=    2.117
     RUNOFF VOLUME    (mm)=   22.122
     TOTAL RAINFALL   (mm)=   52.596
     RUNOFF COEFFICIENT   =     .421

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
--------------------------------------------------------------------------------
001:0005--------------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                 LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0300
                 3.00          99.00     .0300 / .0300  Main Channel
                 5.00          99.00     .0300 / .0300  Main Channel
                 8.00         100.00         .0300

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2:EX.2      104.80    3.553    2.12 22.122      .539     1.819
   OUTFLOW: ID= 3:CHAN      104.80    3.550    2.15 22.122      .537     1.817


--------------------------------------------------------------------------------
001:0006--------------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .295 (i)
     TIME TO PEAK    (hrs)=    1.433

     RUNOFF VOLUME    (mm)=   25.469
     TOTAL RAINFALL   (mm)=   52.596
     RUNOFF COEFFICIENT   =     .484

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0007--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 03:CHAN         104.80    3.550    2.15  22.12    .000
                      +ID2 04:EX.3           3.15     .295    1.43  25.47    .000
                       ============================================================
                       SUM 05:EX2+3        107.95    3.620    2.13  22.22    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0008--------------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                 LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0250
                 1.35          99.55     .0250 / .0250  Main Channel
                 9.35          99.55     .0250 / .0250  Main Channel
                10.70         100.00         .0250

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
```

```
                                <---- hydrograph ---->   <-pipe / channel->
                           AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                           (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 5:EX2+3    107.95   3.620    2.13 22.220      .319     1.265
   OUTFLOW: ID= 6:LOT.CH   107.95   3.617    2.15 22.220      .318     1.261


--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .15          .35
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .35         2.00
     Length            (m)=     97.00        27.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    178.75       126.44
               over (min)       3.00         8.00
     Storage Coeff.  (min)=      2.97 (ii)    8.04 (ii)
     Unit Hyd. Tpeak (min)=      3.00         8.00
     Unit Hyd. peak  (cms)=       .38          .14
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .00          .08          .080 (iii)
     TIME TO PEAK    (hrs)=      1.18         1.28         1.283
     RUNOFF VOLUME    (mm)=     50.60        30.74        30.939
     TOTAL RAINFALL   (mm)=     52.60        52.60        52.596
     RUNOFF COEFFICIENT   =       .96          .58          .588

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
----------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =      1
----------------------   Total minor system capacity         =    .080  (cms)
                         Total major system storage [TMJSTO] =      0.(cu.m.)

                   ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                   (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .080     1.283   30.939     .000
     ======================================================================
     MAJOR SYST   09:EX4>10        .00      .000     1.283   30.939     .000
     MINOR SYST   08:EX4<10        .50      .080     1.283   30.939     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011----------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 06:LOT.CH       107.95   3.617    2.15  22.22    .000
                      +ID2 09:EX4>10         .00     .000    1.28  30.94    .000
                       ============================================================
                       SUM 10:E2+3+4       107.95   3.617    2.15  22.22    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
--------------------
| ROUTE RESERVOIR  |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)  |
| OUT<02:(UNION )  |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |    2.520  .2530E-01
                           .050  .1000E-03   |    2.710  .2980E-01
                           .210  .4200E-03   |    2.731  .3030E-01
                           .460  .1420E-02   |    3.482  .3590E-01
                           .780  .3510E-02   |    5.852  .4200E-01
                          1.170  .6700E-02   |    6.644  .4330E-01
                          1.610  .1100E-01   |    7.455  .4530E-01
                          2.060  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     107.95     3.617     2.150     22.220
     OUTFLOW<02: (UNION )     107.95     3.617     2.150     22.220

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.993
                   TIME SHIFT OF PEAK FLOW         (min)=      .00
                   MAXIMUM  STORAGE   USED       (ha.m.)=.3625E-01

--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .62          .42
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    185.00        15.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    178.75       110.98
               over (min)       4.00         8.00
     Storage Coeff.  (min)=      3.93 (ii)    7.69 (ii)
     Unit Hyd. Tpeak (min)=      4.00         8.00
     Unit Hyd. peak  (cms)=       .29          .15
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .18          .08          .241 (iii)
     TIME TO PEAK    (hrs)=      1.20         1.28         1.217
     RUNOFF VOLUME    (mm)=     50.60        29.50        39.627
     TOTAL RAINFALL   (mm)=     52.60        52.60        52.596
```

```
     RUNOFF COEFFICIENT   =        .96          .56           .753

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0014--------------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------                    IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     178.75       100.63
               over (min)         3.00         8.00
     Storage Coeff.  (min)=       2.72 (ii)    8.03 (ii)
     Unit Hyd. Tpeak (min)=       3.00         8.00
     Unit Hyd. peak  (cms)=        .40          .14
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .52          .23          .646 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.28         1.183
     RUNOFF VOLUME    (mm)=      50.60        28.57        38.484
     TOTAL RAINFALL   (mm)=      52.60        52.60        52.596
     RUNOFF COEFFICIENT   =        .96          .54          .732

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6   |   Number of inlets in system [NINLET] =      1
---------------------    Total minor system capacity         =   1.142  (cms)
                         Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79      .646     1.183   38.484     .000
     ======================================================================
     MAJOR SYST   06:>100YR        .00      .000      .000     .000     .000
     MINOR SYST   05:<100YR       2.79      .646     1.183   38.484     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016--------------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
```

```
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------                    IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     178.75        96.66
               over (min)         5.00        12.00
     Storage Coeff.  (min)=       4.71 (ii)   11.86 (ii)
     Unit Hyd. Tpeak (min)=       5.00        12.00
     Unit Hyd. peak  (cms)=        .24          .10
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .10          .14          .198 (iii)
     TIME TO PEAK    (hrs)=       1.22         1.35         1.317
     RUNOFF VOLUME    (mm)=      50.60        29.88        34.021
     TOTAL RAINFALL   (mm)=      52.60        52.60        52.596
     RUNOFF COEFFICIENT   =        .96          .57          .647

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:UNION        107.95    3.617    2.15  22.22    .000
                       +ID2 03:EX.5           1.04     .241    1.22  39.63    .000
                       +ID3 06:>100YR          .00     .000     .00    .00    .000  **DRY**
                       +ID4 07:EX.7           1.42     .198    1.32  34.02    .000
                        ============================================================
                        SUM 08:EX.2-7       110.41    3.667    2.15  22.54    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018--------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.280  .5256E-01
                            .000  .3700E-03   |    2.570  .7370E-01
                            .140  .1370E-02   |    2.820  .1028E+00
                            .240  .3940E-02   |    2.860  .1083E+00
                            .600  .8620E-02   |    3.700  .1227E+00
                           1.060  .1550E-01   |    6.088  .1328E+00
                           1.500  .2463E-01   |    8.010  .1486E+00
```

```
                          1.920  .4198E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.41    3.667     2.150     22.536
     OUTFLOW<09: (KOMOKA)     110.41    3.653     2.217     22.532

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.609
                    TIME SHIFT OF PEAK FLOW         (min)=     4.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.1219E+00

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*             BEGIN DIVERSION CHANNEL PORTION OF THE MODEL                     *
*                                                                              *
********************************************************************************
*
*CATCHMENT 101 REPRESENTING AREA OF CHANNEL UPSTREAM OF KOMOKA CULVERT CROSSING
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    2.31   Curve Number   (CN)=80.00
| 10:CAT101 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .297

     Unit Hyd Qpeak  (cms)=     .297

     PEAK FLOW       (cms)=     .141 (i)
     TIME TO PEAK    (hrs)=    1.533
     RUNOFF VOLUME    (mm)=   20.391
     TOTAL RAINFALL   (mm)=   52.596
     RUNOFF COEFFICIENT   =     .388

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 2, THE NORTH ENTRY POINT OF
*EXTERNAL FLOWS.
*
------------------------
| ADD HYD (ENTRY1    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:EX.1          25.58    1.234    1.77  22.12    .000
                     +ID2 10:CAT101         2.31     .141    1.53  20.39    .000
                      ==========================================================
                      SUM 02:ENTRY1        27.89    1.351    1.73  21.98    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------------
*
*ROUTING REACH 2 OF THE DIVERSION CHANNEL WITH AN AVERAGE SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------                                                    
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:ENTRY1   |     Number of SEGMENTS =  3
| OUT< 03:REACH2   |     Slopes (%), CHANNEL= .42   FLOODPLAIN= .42
--------------------                 LENGTH =  224.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        243.44         .0300
                  5.21        242.20     .0300 / .0300  Main Channel
                  8.81        242.20     .0300 / .0300  Main Channel
                 12.56        243.44         .0300

   <----------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .065  242.268  .559E+02  .194E+01       .085      .341     10.94     .022
     .130  242.333  .119E+03  .822E+01       .281      .530      7.04     .069
     .195  242.398  .188E+03  .196E+02       .573      .681      5.48     .133
     .260  242.463  .265E+03  .367E+02       .959      .811      4.61     .211
     .326  242.529  .349E+03  .603E+02      1.439      .925      4.04     .301
     .391  242.594  .439E+03  .911E+02      2.016     1.029      3.63     .402
     .456  242.659  .536E+03  .130E+03      2.691     1.124      3.32     .512
     .521  242.724  .640E+03  .177E+03      3.467     1.213      3.08     .632
     .586  242.789  .751E+03  .234E+03      4.348     1.297      2.88     .760
     .651  242.854  .869E+03  .301E+03      5.335     1.375      2.71     .895
     .716  242.919  .994E+03  .378E+03      6.433     1.450      2.57    1.039
     .781  242.984  .113E+04  .467E+03      7.645     1.522      2.45    1.189
     .846  243.049  .126E+04  .569E+03      8.973     1.590      2.35    1.346
     .912  243.115  .141E+04  .683E+03     10.421     1.656      2.25    1.510
     .977  243.180  .156E+04  .811E+03*    11.992     1.720      2.17    1.680
    1.042  243.245  .172E+04  .953E+03*    13.689     1.782      2.09    1.857
    1.107  243.310  .189E+04  .111E+04*    15.515     1.842      2.03    2.039
    1.172  243.375  .206E+04  .128E+04*    17.474     1.900      1.96    2.227
    1.237  243.440  .224E+04  .147E+04*    19.568     1.957      1.91    2.422

  X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
  S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
  (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
    INFLOW : ID= 2:ENTRY1     27.89    1.351    1.73 21.979      .314      .902
    OUTFLOW: ID= 3:REACH2     27.89    1.336    1.78 21.979      .310      .895

--------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------------
*
*#KOMOKA ROAD WEST SIDE OF CENTERLINE DRAINING TO CHANNEL, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .77
| 04:EX.8   DT= 1.00 |   Total Imp(%)=   36.00   Dir. Conn.(%)=   31.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .28          .49
     Dep. Storage     (mm)=       5.00         2.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        15.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     178.75        67.31
               over (min)        5.00         9.00
     Storage Coeff.  (min)=       4.71 (ii)    9.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00         9.00
     Unit Hyd. peak  (cms)=        .24          .12
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .08          .06          .123 (iii)
     TIME TO PEAK    (hrs)=       1.22         1.30         1.233
     RUNOFF VOLUME    (mm)=      47.60        23.48        30.958
     TOTAL RAINFALL   (mm)=      52.60        52.60        52.596
     RUNOFF COEFFICIENT   =        .90          .45          .589

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

```
          THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0023--------------------------------------------------------------------------
*
*#PORTION OF STREET 'A' DRAINING TO DIVERSION CHANNEL
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .16
| 05:CAT102 DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .10          .06
     Dep. Storage     (mm)=      5.00         2.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=     22.00        34.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    178.75        94.61
               over (min)       1.00         8.00
     Storage Coeff.  (min)=      1.10 (ii)    7.64 (ii)
     Unit Hyd. Tpeak (min)=      1.00         8.00
     Unit Hyd. peak  (cms)=      1.02          .15
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .04          .01          .043 (iii)
     TIME TO PEAK    (hrs)=      1.17         1.28         1.167
     RUNOFF VOLUME    (mm)=     47.60        26.09        36.414
     TOTAL RAINFALL   (mm)=     52.60        52.60        52.596
     RUNOFF COEFFICIENT   =       .90          .50          .692

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0024--------------------------------------------------------------------------
*
*CATCHMENT 103 REPRESENTING AREA OF CHANNEL DOWNSTREAM OF KOMOKA CULVERT CROSSIN
*
---------------------
| CALIB NASHYD       |   Area    (ha)=    2.72   Curve Number   (CN)=78.00
| 06:CAT103 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
---------------------  U.H. Tp(hrs)=    .082

     Unit Hyd Qpeak  (cms)=    1.267

     PEAK FLOW       (cms)=     .314 (i)
     TIME TO PEAK    (hrs)=    1.250
     RUNOFF VOLUME    (mm)=   18.999
     TOTAL RAINFALL   (mm)=   52.596
     RUNOFF COEFFICIENT   =     .361

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0025--------------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 1 ALSO THE KOMOKA CULVERT
*ENTRY POINT
*
------------------------
| ADD HYD (ENTRY2    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 09:KOMOKA       110.41    3.653    2.22  22.53    .000
                     +ID2 03:REACH2        27.89    1.336    1.78  21.98    .000
                     +ID3 04:EX.8            .77     .123    1.23  30.96    .000
                     +ID4 05:CAT102          .16     .043    1.17  36.41    .000
                     +ID5 06:CAT103         2.72     .314    1.25  19.00    .000
                      ==========================================================
                      SUM 07:ENTRY2       141.95    4.747    2.13  22.42    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0026--------------------------------------------------------------------------
*
*ROUTING REACH 1 OF THE DIVERSION CHANNEL WITH A  0.15% SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 07:ENTRY2   |     Number of SEGMENTS =  3
| OUT< 08:REACH1   |     Slopes (%), CHANNEL= .15   FLOODPLAIN= .15
--------------------                   LENGTH =  771.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        242.64         .0300
                  4.40        241.18     .0300 / .0300  Main Channel
                 11.70        241.18     .0300 / .0300  Main Channel
                 16.10        242.64         .0300

   <---------------------------- TRAVEL TIME TABLE --------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .077  241.259  .446E+03  .148E+02       .133      .230     55.79     .018
     .153  241.335  .919E+03  .610E+02       .431      .361     35.55     .055
     .230  241.412  .142E+04  .141E+03       .862      .468     27.43     .108
     .307  241.489  .195E+04  .258E+03      1.418      .562     22.88     .172
     .384  241.566  .250E+04  .415E+03      2.094      .645     19.92     .248
     .460  241.642  .308E+04  .614E+03      2.887      .722     17.81     .332
     .537  241.719  .369E+04  .858E+03      3.798      .792     16.22     .426
     .614  241.796  .433E+04  .115E+04      4.825      .859     14.96     .527
     .691  241.873  .500E+04  .149E+04      5.970      .921     13.95     .636
     .767  241.949  .569E+04  .189E+04      7.233      .980     13.11     .752
     .844  242.026  .641E+04  .234E+04      8.615     1.036     12.40     .875
     .921  242.103  .716E+04  .285E+04     10.118     1.090     11.79    1.004
     .998  242.180  .793E+04  .342E+04     11.743     1.142     11.26    1.139
    1.074  242.256  .873E+04  .406E+04     13.492     1.191     10.79    1.280
    1.151  242.333  .956E+04  .476E+04     15.366     1.239     10.37    1.426
    1.228  242.410  .104E+05  .553E+04*    17.368     1.285     10.00    1.578
    1.305  242.487  .113E+05  .637E+04*    19.497     1.330      9.66    1.735
    1.381  242.563  .122E+05  .729E+04*    21.758     1.373      9.36    1.897
    1.458  242.640  .132E+05  .829E+04*    24.151     1.416      9.08    2.064

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
 (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                <---- hydrograph ---->   <-pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 7:ENTRY2    141.95    4.747    2.13 22.417      .608      .853
   OUTFLOW: ID= 8:REACH1    141.95    4.347    2.33 22.417      .576      .825


--------------------------------------------------------------------------------
001:0027--------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*  DISCHARGE TO THE WEST FROM THE SWM FACILITY COMBINED WITH EXTERNAL FLOWS    *
*       TO SHOW THE COMBINED POST DEVELOPMENT DISCHARGE TO THE WEST            *
*                                                                              *
********************************************************************************
```

```
--------------------
| READ HYD          |   AREA       (ha)=    4.244
| ID=09 (PIPE  )    |   QPEAK     (cms)=     .173
| DT= 1.00 PCYC= 1  |   TPEAK     (hrs)=    2.733
--------------------   VOLUME     (mm)=   36.158
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\010YR-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |  TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |   hrs     cms |   hrs     cms
    .00    .000|  1.57    .000|  3.13    .163|  4.70    .058|  6.27    .022
    .02    .000|  1.58    .000|  3.15    .162|  4.72    .058|  6.28    .022
    .03    .000|  1.60    .000|  3.17    .161|  4.73    .057|  6.30    .021
    .05    .000|  1.62    .000|  3.18    .160|  4.75    .057|  6.32    .021
    .07    .000|  1.63    .000|  3.20    .158|  4.77    .056|  6.33    .021
    .08    .000|  1.65    .005|  3.22    .157|  4.78    .056|  6.35    .020
    .10    .000|  1.67    .010|  3.23    .156|  4.80    .055|  6.37    .020
    .12    .000|  1.68    .016|  3.25    .154|  4.82    .055|  6.38    .020
    .13    .000|  1.70    .021|  3.27    .153|  4.83    .054|  6.40    .020
    .15    .000|  1.72    .026|  3.28    .151|  4.85    .054|  6.42    .019
    .17    .000|  1.73    .031|  3.30    .150|  4.87    .053|  6.43    .019
    .18    .000|  1.75    .035|  3.32    .148|  4.88    .053|  6.45    .019
    .20    .000|  1.77    .040|  3.33    .147|  4.90    .052|  6.47    .018
    .22    .000|  1.78    .044|  3.35    .145|  4.92    .052|  6.48    .018
    .23    .000|  1.80    .048|  3.37    .144|  4.93    .052|  6.50    .018
    .25    .000|  1.82    .051|  3.38    .142|  4.95    .051|  6.52    .018
    .27    .000|  1.83    .055|  3.40    .140|  4.97    .051|  6.53    .017
    .28    .000|  1.85    .058|  3.42    .139|  4.98    .050|  6.55    .017
    .30    .000|  1.87    .062|  3.43    .137|  5.00    .050|  6.57    .017
    .32    .000|  1.88    .065|  3.45    .135|  5.02    .049|  6.58    .016
    .33    .000|  1.90    .068|  3.47    .133|  5.03    .049|  6.60    .016
    .35    .000|  1.92    .071|  3.48    .132|  5.05    .048|  6.62    .016
    .37    .000|  1.93    .074|  3.50    .130|  5.07    .048|  6.63    .016
    .38    .000|  1.95    .076|  3.52    .128|  5.08    .048|  6.65    .015
    .40    .000|  1.97    .079|  3.53    .127|  5.10    .047|  6.67    .015
    .42    .000|  1.98    .083|  3.55    .125|  5.12    .047|  6.68    .015
    .43    .000|  2.00    .089|  3.57    .123|  5.13    .046|  6.70    .015
    .45    .000|  2.02    .094|  3.58    .121|  5.15    .046|  6.72    .014
    .47    .000|  2.03    .099|  3.60    .120|  5.17    .045|  6.73    .014
    .48    .000|  2.05    .104|  3.62    .118|  5.18    .045|  6.75    .014
    .50    .000|  2.07    .108|  3.63    .116|  5.20    .045|  6.77    .014
    .52    .000|  2.08    .113|  3.65    .114|  5.22    .044|  6.78    .013
    .53    .000|  2.10    .117|  3.67    .113|  5.23    .044|  6.80    .013
    .55    .000|  2.12    .121|  3.68    .111|  5.25    .043|  6.82    .013
    .57    .000|  2.13    .125|  3.70    .109|  5.27    .043|  6.83    .013
    .58    .000|  2.15    .128|  3.72    .108|  5.28    .043|  6.85    .012
    .60    .000|  2.17    .131|  3.73    .106|  5.30    .042|  6.87    .012
    .62    .000|  2.18    .134|  3.75    .104|  5.32    .042|  6.88    .012
    .63    .000|  2.20    .137|  3.77    .103|  5.33    .041|  6.90    .012
    .65    .000|  2.22    .140|  3.78    .101|  5.35    .041|  6.92    .011
    .67    .000|  2.23    .143|  3.80    .100|  5.37    .041|  6.93    .011
    .68    .000|  2.25    .145|  3.82    .098|  5.38    .040|  6.95    .011
    .70    .000|  2.27    .148|  3.83    .096|  5.40    .040|  6.97    .011
    .72    .000|  2.28    .150|  3.85    .095|  5.42    .039|  6.98    .010
    .73    .000|  2.30    .152|  3.87    .093|  5.43    .039|  7.00    .010
    .75    .000|  2.32    .154|  3.88    .092|  5.45    .039|  7.02    .010
    .77    .000|  2.33    .156|  3.90    .090|  5.47    .038|  7.03    .010
    .78    .000|  2.35    .157|  3.92    .089|  5.48    .038|  7.05    .009
    .80    .000|  2.37    .159|  3.93    .087|  5.50    .037|  7.07    .009
    .82    .000|  2.38    .160|  3.95    .086|  5.52    .037|  7.08    .009
    .83    .000|  2.40    .162|  3.97    .084|  5.53    .037|  7.10    .009
    .85    .000|  2.42    .163|  3.98    .083|  5.55    .036|  7.12    .008
    .87    .000|  2.43    .164|  4.00    .081|  5.57    .036|  7.13    .008
    .88    .000|  2.45    .165|  4.02    .080|  5.58    .036|  7.15    .008
    .90    .000|  2.47    .166|  4.03    .079|  5.60    .035|  7.17    .008
    .92    .000|  2.48    .167|  4.05    .079|  5.62    .035|  7.18    .008
    .93    .000|  2.50    .168|  4.07    .078|  5.63    .034|  7.20    .007
    .95    .000|  2.52    .169|  4.08    .078|  5.65    .034|  7.22    .007
    .97    .000|  2.53    .170|  4.10    .077|  5.67    .034|  7.23    .007
    .98    .000|  2.55    .170|  4.12    .077|  5.68    .033|  7.25    .007
   1.00    .000|  2.57    .171|  4.13    .076|  5.70    .033|  7.27    .006
   1.02    .000|  2.58    .171|  4.15    .075|  5.72    .033|  7.28    .006
   1.03    .000|  2.60    .172|  4.17    .075|  5.73    .032|  7.30    .006
   1.05    .000|  2.62    .172|  4.18    .074|  5.75    .032|  7.32    .006
   1.07    .000|  2.63    .172|  4.20    .074|  5.77    .032|  7.33    .006
   1.08    .000|  2.65    .173|  4.22    .073|  5.78    .031|  7.35    .005
   1.10    .000|  2.67    .173|  4.23    .073|  5.80    .031|  7.37    .005
   1.12    .000|  2.68    .173|  4.25    .072|  5.82    .031|  7.38    .005
   1.13    .000|  2.70    .173|  4.27    .072|  5.83    .030|  7.40    .005
   1.15    .000|  2.72    .173|  4.28    .071|  5.85    .030|  7.42    .005
   1.17    .000|  2.73    .173|  4.30    .070|  5.87    .030|  7.43    .004
   1.18    .000|  2.75    .173|  4.32    .070|  5.88    .029|  7.45    .004
   1.20    .000|  2.77    .173|  4.33    .069|  5.90    .029|  7.47    .004
   1.22    .000|  2.78    .173|  4.35    .069|  5.92    .029|  7.48    .004
   1.23    .000|  2.80    .173|  4.37    .068|  5.93    .028|  7.50    .004
   1.25    .000|  2.82    .173|  4.38    .068|  5.95    .028|  7.52    .003
   1.27    .000|  2.83    .172|  4.40    .067|  5.97    .028|  7.53    .003
   1.28    .000|  2.85    .172|  4.42    .067|  5.98    .027|  7.55    .003
   1.30    .000|  2.87    .172|  4.43    .066|  6.00    .027|  7.57    .003
   1.32    .000|  2.88    .172|  4.45    .066|  6.02    .027|  7.58    .003
   1.33    .000|  2.90    .171|  4.47    .065|  6.03    .026|  7.60    .002
   1.35    .000|  2.92    .171|  4.48    .065|  6.05    .026|  7.62    .002
   1.37    .000|  2.93    .171|  4.50    .064|  6.07    .026|  7.63    .002
   1.38    .000|  2.95    .170|  4.52    .064|  6.08    .025|  7.65    .002
   1.40    .000|  2.97    .170|  4.53    .063|  6.10    .025|  7.67    .002
   1.42    .000|  2.98    .169|  4.55    .063|  6.12    .025|  7.68    .001
   1.43    .000|  3.00    .169|  4.57    .062|  6.13    .024|  7.70    .001
   1.45    .000|  3.02    .168|  4.58    .062|  6.15    .024|  7.72    .001
   1.47    .000|  3.03    .168|  4.60    .061|  6.17    .024|  7.73    .001
   1.48    .000|  3.05    .167|  4.62    .061|  6.18    .023|  7.75    .001
   1.50    .000|  3.07    .167|  4.63    .060|  6.20    .023|  7.77    .000
   1.52    .000|  3.08    .166|  4.65    .060|  6.22    .023|  7.78    .000
   1.53    .000|  3.10    .165|  4.67    .059|  6.23    .022|  7.80    .000
   1.55    .000|  3.12    .164|  4.68    .059|  6.25    .022|
--------------------------------------------------------------------------------
001:0028----------------------------------------------------------------------
********************************************************************************
*                                                                              *
*             TOTAL POST DEVELOPMENT DISCHARGE TO THE WEST                     *
*                                                                              *
********************************************************************************
------------------------
| ADD HYD (POST      ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                  (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 08:REACH1     141.95    4.347    2.33  22.42    .000
                       +ID2 09:PIPE         4.24     .173    2.73  36.16    .000
                        ==========================================================
                        SUM 10:POST       146.19    4.503    2.33  22.82    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0029----------------------------------------------------------------------
      FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 10:52:05
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:52:11     RUN COUNTER: 000835          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps025y.dat       *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps025y.out       *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps025y.sum       *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1455.000
| Ptotal= 60.38 mm |                          B=   5.000
--------------------                          C=    .820
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  3.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =   .38

            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
             .08   4.299 |    .83  13.644 |   1.58  16.893 |   2.33   6.207
             .17   4.628 |    .92  18.591 |   1.67  14.069 |   2.42   5.821
             .25   5.018 |   1.00  29.391 |   1.75  12.073 |   2.50   5.484
             .33   5.487 |   1.08  68.962 |   1.83  10.590 |   2.58   5.187
             .42   6.062 |   1.17 220.223 |   1.92   9.444 |   2.67   4.922
             .50   6.787 |   1.25  83.137 |   2.00   8.532 |   2.75   4.685
             .58   7.728 |   1.33  42.821 |   2.08   7.790 |   2.83   4.472
             .67   9.001 |   1.42  28.399 |   2.17   7.173 |   2.92   4.279
             .75  10.823 |   1.50  21.179 |   2.25   6.652 |   3.00   4.103

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
********************************************************************************
*                                                                              *
*      POST DEVELOPMENT EXTERNAL FLOW ANALYSIS AND DIVERSION CHANNEL           *
*                                                                              *
********************************************************************************
*
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=    1.559 (i)
     TIME TO PEAK    (hrs)=    1.750
     RUNOFF VOLUME    (mm)=   28.001
     TOTAL RAINFALL   (mm)=   60.380
     RUNOFF COEFFICIENT   =     .464

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    4.469 (i)
     TIME TO PEAK    (hrs)=    2.100
     RUNOFF VOLUME    (mm)=   28.001
     TOTAL RAINFALL   (mm)=   60.380
     RUNOFF COEFFICIENT   =     .464

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
--------------------------------------------------------------------------------
001:0005--------------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                 LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0300
                 3.00          99.00     .0300 / .0300  Main Channel
                 5.00          99.00     .0300 / .0300  Main Channel
                 8.00         100.00         .0300

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2:EX.2      104.80    4.469    2.10 28.001      .604     1.936
   OUTFLOW: ID= 3:CHAN      104.80    4.466    2.13 28.001      .602     1.934


--------------------------------------------------------------------------------
001:0006--------------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .372 (i)
     TIME TO PEAK    (hrs)=    1.417

     RUNOFF VOLUME    (mm)=   31.706
     TOTAL RAINFALL   (mm)=   60.380
     RUNOFF COEFFICIENT   =     .525

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0007--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 03:CHAN         104.80    4.466    2.13  28.00    .000
                      +ID2 04:EX.3           3.15     .372    1.42  31.71    .000
                       ============================================================
                       SUM 05:EX2+3        107.95    4.552    2.12  28.11    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0008--------------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                 LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0250
                 1.35          99.55     .0250 / .0250  Main Channel
                 9.35          99.55     .0250 / .0250  Main Channel
                10.70         100.00         .0250

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
```

```
                                <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 5:EX2+3     107.95    4.552    2.12 28.109      .364     1.374
   OUTFLOW: ID= 6:LOT.CH    107.95    4.550    2.13 28.109      .363     1.370


--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .15          .35
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .35         2.00
     Length            (m)=     97.00        27.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    220.22       172.08
               over (min)       3.00         7.00
     Storage Coeff.  (min)=    2.73 (ii)    7.22 (ii)
     Unit Hyd. Tpeak (min)=       3.00         7.00
     Unit Hyd. peak  (cms)=        .40          .16
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .00          .11          .108 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.27         1.267
     RUNOFF VOLUME    (mm)=      58.38        37.54        37.746
     TOTAL RAINFALL   (mm)=      60.38        60.38        60.380
     RUNOFF COEFFICIENT   =        .97          .62          .625

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
----------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =      1
----------------------   Total minor system capacity          =    .080  (cms)
                         Total major system storage [TMJSTO] =      0.(cu.m.)

                   ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                   (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .108     1.267   37.746     .000
     ======================================================================
     MAJOR SYST   09:EX4>10        .03      .028     1.267   37.746     .000
     MINOR SYST   08:EX4<10        .47      .080     1.200   37.746     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011----------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 06:LOT.CH       107.95    4.550    2.13  28.11    .000
                      +ID2 09:EX4>10          .03     .028    1.27  37.75    .000
                       ============================================================
                       SUM 10:E2+3+4       107.98    4.550    2.13  28.11    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
--------------------
| ROUTE RESERVOIR  |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)  |
| OUT<02:(UNION )  |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |    2.520  .2530E-01
                           .050  .1000E-03   |    2.710  .2980E-01
                           .210  .4200E-03   |    2.731  .3030E-01
                           .460  .1420E-02   |    3.482  .3590E-01
                           .780  .3510E-02   |    5.852  .4200E-01
                          1.170  .6700E-02   |    6.644  .4330E-01
                          1.610  .1100E-01   |    7.455  .4530E-01
                          2.060  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     107.98     4.550     2.133     28.112
     OUTFLOW<02: (UNION )     107.98     4.550     2.133     28.112

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.997
                   TIME SHIFT OF PEAK FLOW         (min)=      .00
                   MAXIMUM  STORAGE   USED       (ha.m.)=.3865E-01

--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .62          .42
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    185.00        15.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    220.22       151.73
               over (min)       4.00         7.00
     Storage Coeff.  (min)=    3.61 (ii)    6.93 (ii)
     Unit Hyd. Tpeak (min)=       4.00         7.00
     Unit Hyd. peak  (cms)=        .30          .16
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .23          .11          .314 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.27         1.200
     RUNOFF VOLUME    (mm)=      58.38        36.18        46.835
     TOTAL RAINFALL   (mm)=      60.38        60.38        60.380
```

```
     RUNOFF COEFFICIENT   =        .97          .60           .776

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0014--------------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------                    IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     220.22       138.07
               over (min)        2.00         7.00
     Storage Coeff.  (min)=       2.50 (ii)    7.18 (ii)
     Unit Hyd. Tpeak (min)=       2.00         7.00
     Unit Hyd. peak  (cms)=        .48          .16
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .67          .31          .833 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.27         1.183
     RUNOFF VOLUME    (mm)=      58.38        35.16        45.608
     TOTAL RAINFALL   (mm)=      60.38        60.38        60.380
     RUNOFF COEFFICIENT   =        .97          .58          .755

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6   |   Number of inlets in system [NINLET] =       1
---------------------    Total minor system capacity         =   1.142  (cms)
                         Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79      .833     1.183   45.608     .000
     ======================================================================
     MAJOR SYST   06:>100YR        .00      .000      .000     .000     .000
     MINOR SYST   05:<100YR       2.79      .833     1.183   45.608     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016--------------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
```

```
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------                    IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     220.22       128.06
               over (min)        4.00        11.00
     Storage Coeff.  (min)=       4.33 (ii)   10.72 (ii)
     Unit Hyd. Tpeak (min)=       4.00        11.00
     Unit Hyd. peak  (cms)=        .27          .10
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .12          .19          .255 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.33         1.300
     RUNOFF VOLUME    (mm)=      58.38        36.59        40.949
     TOTAL RAINFALL   (mm)=      60.38        60.38        60.380
     RUNOFF COEFFICIENT   =        .97          .61          .678

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:UNION        107.98    4.550    2.13  28.11    .000
                       +ID2 03:EX.5           1.04     .314    1.20  46.84    .000
                       +ID3 06:>100YR          .00     .000     .00    .00    .000  **DRY**
                       +ID4 07:EX.7           1.42     .255    1.30  40.95    .000
                        ============================================================
                        SUM 08:EX.2-7       110.44    4.608    2.13  28.45    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018--------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.280  .5256E-01
                            .000  .3700E-03   |    2.570  .7370E-01
                            .140  .1370E-02   |    2.820  .1028E+00
                            .240  .3940E-02   |    2.860  .1083E+00
                            .600  .8620E-02   |    3.700  .1227E+00
                           1.060  .1550E-01   |    6.088  .1328E+00
                           1.500  .2463E-01   |    8.010  .1486E+00
```

```
                        1.920  .4198E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.44     4.608     2.133     28.453
     OUTFLOW<09: (KOMOKA)     110.44     4.608     2.133     28.450

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.989
                   TIME SHIFT OF PEAK FLOW         (min)=      .00
                   MAXIMUM  STORAGE   USED       (ha.m.)=.1265E+00

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*             BEGIN DIVERSION CHANNEL PORTION OF THE MODEL                     *
*                                                                              *
********************************************************************************
*
*CATCHMENT 101 REPRESENTING AREA OF CHANNEL UPSTREAM OF KOMOKA CULVERT CROSSING
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    2.31   Curve Number   (CN)=80.00
| 10:CAT101 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .297

     Unit Hyd Qpeak  (cms)=     .297

     PEAK FLOW       (cms)=     .179 (i)
     TIME TO PEAK    (hrs)=    1.517
     RUNOFF VOLUME    (mm)=   25.798
     TOTAL RAINFALL   (mm)=   60.380
     RUNOFF COEFFICIENT   =     .427

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 2, THE NORTH ENTRY POINT OF
*EXTERNAL FLOWS.
*
------------------------
| ADD HYD (ENTRY1    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:EX.1          25.58    1.559    1.75  28.00    .000
                     +ID2 10:CAT101         2.31     .179    1.52  25.80    .000
                      ==========================================================
                      SUM 02:ENTRY1        27.89    1.707    1.72  27.82    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------------
*
*ROUTING REACH 2 OF THE DIVERSION CHANNEL WITH AN AVERAGE SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------                                                    
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:ENTRY1   |     Number of SEGMENTS =  3
| OUT< 03:REACH2   |     Slopes (%), CHANNEL= .42   FLOODPLAIN= .42
--------------------                 LENGTH =  224.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        243.44         .0300
                  5.21        242.20     .0300 / .0300  Main Channel
                  8.81        242.20     .0300 / .0300  Main Channel
                 12.56        243.44         .0300

   <---------------------------- TRAVEL TIME TABLE --------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .065  242.268  .559E+02  .194E+01       .085      .341     10.94     .022
     .130  242.333  .119E+03  .822E+01       .281      .530      7.04     .069
     .195  242.398  .188E+03  .196E+02       .573      .681      5.48     .133
     .260  242.463  .265E+03  .367E+02       .959      .811      4.61     .211
     .326  242.529  .349E+03  .603E+02      1.439      .925      4.04     .301
     .391  242.594  .439E+03  .911E+02      2.016     1.029      3.63     .402
     .456  242.659  .536E+03  .130E+03      2.691     1.124      3.32     .512
     .521  242.724  .640E+03  .177E+03      3.467     1.213      3.08     .632
     .586  242.789  .751E+03  .234E+03      4.348     1.297      2.88     .760
     .651  242.854  .869E+03  .301E+03      5.335     1.375      2.71     .895
     .716  242.919  .994E+03  .378E+03      6.433     1.450      2.57    1.039
     .781  242.984  .113E+04  .467E+03      7.645     1.522      2.45    1.189
     .846  243.049  .126E+04  .569E+03      8.973     1.590      2.35    1.346
     .912  243.115  .141E+04  .683E+03     10.421     1.656      2.25    1.510
     .977  243.180  .156E+04  .811E+03*    11.992     1.720      2.17    1.680
    1.042  243.245  .172E+04  .953E+03*    13.689     1.782      2.09    1.857
    1.107  243.310  .189E+04  .111E+04*    15.515     1.842      2.03    2.039
    1.172  243.375  .206E+04  .128E+04*    17.474     1.900      1.96    2.227
    1.237  243.440  .224E+04  .147E+04*    19.568     1.957      1.91    2.422

  X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
  S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
  (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                  <---- hydrograph ---->   <-pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
    INFLOW : ID= 2:ENTRY1     27.89    1.707    1.72 27.819      .356      .971
    OUTFLOW: ID= 3:REACH2     27.89    1.689    1.77 27.819      .352      .965


--------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------------
*
*#KOMOKA ROAD WEST SIDE OF CENTERLINE DRAINING TO CHANNEL, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .77
| 04:EX.8   DT= 1.00 |   Total Imp(%)=   36.00   Dir. Conn.(%)=   31.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .28          .49
     Dep. Storage     (mm)=       5.00         2.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        15.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     220.22        91.25
               over (min)        4.00         8.00
     Storage Coeff.  (min)=       4.33 (ii)    8.39 (ii)
     Unit Hyd. Tpeak (min)=       4.00         8.00
     Unit Hyd. peak  (cms)=        .27          .14
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .10          .08          .159 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.28         1.217
     RUNOFF VOLUME    (mm)=      55.38        29.17        37.294
     TOTAL RAINFALL   (mm)=      60.38        60.38        60.380
     RUNOFF COEFFICIENT   =        .92          .48          .618

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

```
          THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0023--------------------------------------------------------------------------
*
*#PORTION OF STREET 'A' DRAINING TO DIVERSION CHANNEL
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .16
| 05:CAT102 DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .10          .06
     Dep. Storage     (mm)=      5.00         2.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=     22.00        34.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    220.22       129.92
               over (min)       1.00         7.00
     Storage Coeff.  (min)=      1.01 (ii)    6.77 (ii)
     Unit Hyd. Tpeak (min)=      1.00         7.00
     Unit Hyd. peak  (cms)=      1.07          .17
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .05          .02          .055 (iii)
     TIME TO PEAK    (hrs)=      1.17         1.27         1.167
     RUNOFF VOLUME    (mm)=     55.38        32.15        43.301
     TOTAL RAINFALL   (mm)=     60.38        60.38        60.380
     RUNOFF COEFFICIENT   =       .92          .53          .717

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0024--------------------------------------------------------------------------
*
*CATCHMENT 103 REPRESENTING AREA OF CHANNEL DOWNSTREAM OF KOMOKA CULVERT CROSSIN
*
---------------------
| CALIB NASHYD       |   Area    (ha)=    2.72   Curve Number   (CN)=78.00
| 06:CAT103 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .082

     Unit Hyd Qpeak  (cms)=    1.267

     PEAK FLOW       (cms)=     .417 (i)
     TIME TO PEAK    (hrs)=    1.250
     RUNOFF VOLUME    (mm)=   24.145
     TOTAL RAINFALL   (mm)=   60.380
     RUNOFF COEFFICIENT   =     .400

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0025--------------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 1 ALSO THE KOMOKA CULVERT
*ENTRY POINT
*
------------------------
| ADD HYD (ENTRY2    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 09:KOMOKA       110.44    4.608    2.13  28.45    .000
                     +ID2 03:REACH2        27.89    1.689    1.77  27.82    .000
                     +ID3 04:EX.8            .77     .159    1.22  37.29    .000
                     +ID4 05:CAT102          .16     .055    1.17  43.30    .000
                     +ID5 06:CAT103         2.72     .417    1.25  24.15    .000
                      ==========================================================
                      SUM 07:ENTRY2       141.98    6.092    2.02  28.31    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0026--------------------------------------------------------------------------
*
*ROUTING REACH 1 OF THE DIVERSION CHANNEL WITH A  0.15% SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 07:ENTRY2   |     Number of SEGMENTS =  3
| OUT< 08:REACH1   |     Slopes (%), CHANNEL= .15   FLOODPLAIN= .15
--------------------                   LENGTH =  771.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        242.64         .0300
                  4.40        241.18     .0300 / .0300  Main Channel
                 11.70        241.18     .0300 / .0300  Main Channel
                 16.10        242.64         .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .077  241.259  .446E+03  .148E+02       .133      .230     55.79     .018
     .153  241.335  .919E+03  .610E+02       .431      .361     35.55     .055
     .230  241.412  .142E+04  .141E+03       .862      .468     27.43     .108
     .307  241.489  .195E+04  .258E+03      1.418      .562     22.88     .172
     .384  241.566  .250E+04  .415E+03      2.094      .645     19.92     .248
     .460  241.642  .308E+04  .614E+03      2.887      .722     17.81     .332
     .537  241.719  .369E+04  .858E+03      3.798      .792     16.22     .426
     .614  241.796  .433E+04  .115E+04      4.825      .859     14.96     .527
     .691  241.873  .500E+04  .149E+04      5.970      .921     13.95     .636
     .767  241.949  .569E+04  .189E+04      7.233      .980     13.11     .752
     .844  242.026  .641E+04  .234E+04      8.615     1.036     12.40     .875
     .921  242.103  .716E+04  .285E+04     10.118     1.090     11.79    1.004
     .998  242.180  .793E+04  .342E+04     11.743     1.142     11.26    1.139
    1.074  242.256  .873E+04  .406E+04     13.492     1.191     10.79    1.280
    1.151  242.333  .956E+04  .476E+04     15.366     1.239     10.37    1.426
    1.228  242.410  .104E+05  .553E+04*    17.368     1.285     10.00    1.578
    1.305  242.487  .113E+05  .637E+04*    19.497     1.330      9.66    1.735
    1.381  242.563  .122E+05  .729E+04*    21.758     1.373      9.36    1.897
    1.458  242.640  .132E+05  .829E+04*    24.151     1.416      9.08    2.064

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
 (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                <---- hydrograph ---->   <-pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 7:ENTRY2    141.98    6.092    2.02 28.308      .698      .926
   OUTFLOW: ID= 8:REACH1    141.98    5.598    2.25 28.308      .665      .899


--------------------------------------------------------------------------------
001:0027--------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*  DISCHARGE TO THE WEST FROM THE SWM FACILITY COMBINED WITH EXTERNAL FLOWS    *
*       TO SHOW THE COMBINED POST DEVELOPMENT DISCHARGE TO THE WEST            *
*                                                                              *
********************************************************************************
```

```
--------------------
| READ HYD          |   AREA       (ha)=    6.157
| ID=09 (PIPE  )    |   QPEAK     (cms)=     .297
| DT= 1.00 PCYC= 1  |   TPEAK     (hrs)=    2.433
--------------------   VOLUME     (mm)=   42.847
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\025YR-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST
```

TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms
.00	.000	1.67	.086	3.33	.230	5.00	.063	6.67	.023
.02	.000	1.68	.100	3.35	.227	5.02	.062	6.68	.023
.03	.000	1.70	.113	3.37	.225	5.03	.062	6.70	.022
.05	.000	1.72	.126	3.38	.222	5.05	.061	6.72	.022
.07	.000	1.73	.138	3.40	.220	5.07	.061	6.73	.022
.08	.000	1.75	.149	3.42	.217	5.08	.060	6.75	.021
.10	.000	1.77	.159	3.43	.214	5.10	.060	6.77	.021
.12	.000	1.78	.169	3.45	.212	5.12	.059	6.78	.021
.13	.000	1.80	.178	3.47	.209	5.13	.059	6.80	.021
.15	.000	1.82	.187	3.48	.206	5.15	.058	6.82	.020
.17	.000	1.83	.195	3.50	.204	5.17	.058	6.83	.020
.18	.000	1.85	.203	3.52	.201	5.18	.057	6.85	.020
.20	.000	1.87	.210	3.53	.198	5.20	.057	6.87	.019
.22	.000	1.88	.217	3.55	.196	5.22	.056	6.88	.019
.23	.000	1.90	.223	3.57	.193	5.23	.056	6.90	.019
.25	.000	1.92	.229	3.58	.191	5.25	.056	6.92	.019
.27	.000	1.93	.235	3.60	.188	5.27	.055	6.93	.018
.28	.000	1.95	.240	3.62	.185	5.28	.055	6.95	.018
.30	.000	1.97	.245	3.63	.183	5.30	.054	6.97	.018
.32	.000	1.98	.250	3.65	.180	5.32	.054	6.98	.017
.33	.000	2.00	.254	3.67	.178	5.33	.053	7.00	.017
.35	.000	2.02	.258	3.68	.175	5.35	.053	7.02	.017
.37	.000	2.03	.262	3.70	.173	5.37	.052	7.03	.017
.38	.000	2.05	.265	3.72	.170	5.38	.052	7.05	.016
.40	.000	2.07	.269	3.73	.168	5.40	.051	7.07	.016
.42	.000	2.08	.272	3.75	.166	5.42	.051	7.08	.016
.43	.000	2.10	.275	3.77	.163	5.43	.050	7.10	.016
.45	.000	2.12	.277	3.78	.161	5.45	.050	7.12	.015
.47	.000	2.13	.280	3.80	.158	5.47	.050	7.13	.015
.48	.000	2.15	.282	3.82	.156	5.48	.049	7.15	.015
.50	.000	2.17	.284	3.83	.154	5.50	.049	7.17	.014
.52	.000	2.18	.286	3.85	.151	5.52	.048	7.18	.014
.53	.000	2.20	.287	3.87	.149	5.53	.048	7.20	.014
.55	.000	2.22	.289	3.88	.147	5.55	.047	7.22	.014
.57	.000	2.23	.290	3.90	.145	5.57	.047	7.23	.013
.58	.000	2.25	.291	3.92	.143	5.58	.047	7.25	.013
.60	.000	2.27	.292	3.93	.140	5.60	.046	7.27	.013
.62	.000	2.28	.293	3.95	.138	5.62	.046	7.28	.013
.63	.000	2.30	.294	3.97	.136	5.63	.045	7.30	.012
.65	.000	2.32	.295	3.98	.134	5.65	.045	7.32	.012
.67	.000	2.33	.295	4.00	.132	5.67	.044	7.33	.012
.68	.000	2.35	.296	4.02	.130	5.68	.044	7.35	.012
.70	.000	2.37	.296	4.03	.128	5.70	.044	7.37	.011
.72	.000	2.38	.297	4.05	.126	5.72	.043	7.38	.011
.73	.000	2.40	.297	4.07	.124	5.73	.043	7.40	.011
.75	.000	2.42	.297	4.08	.122	5.75	.042	7.42	.011
.77	.000	2.43	.297	4.10	.120	5.77	.042	7.43	.010
.78	.000	2.45	.297	4.12	.118	5.78	.042	7.45	.010
.80	.000	2.47	.297	4.13	.116	5.80	.041	7.47	.010
.82	.000	2.48	.297	4.15	.114	5.82	.041	7.48	.010
.83	.000	2.50	.297	4.17	.112	5.83	.040	7.50	.010
.85	.000	2.52	.296	4.18	.110	5.85	.040	7.52	.009
.87	.000	2.53	.296	4.20	.108	5.87	.040	7.53	.009
.88	.000	2.55	.296	4.22	.107	5.88	.039	7.55	.009
.90	.000	2.57	.295	4.23	.105	5.90	.039	7.57	.009
.92	.000	2.58	.295	4.25	.103	5.92	.038	7.58	.008
.93	.000	2.60	.294	4.27	.101	5.93	.038	7.60	.008
.95	.000	2.62	.294	4.28	.100	5.95	.038	7.62	.008
.97	.000	2.63	.293	4.30	.098	5.97	.037	7.63	.008
.98	.000	2.65	.292	4.32	.096	5.98	.037	7.65	.007
1.00	.000	2.67	.292	4.33	.095	6.00	.036	7.67	.007
1.02	.000	2.68	.291	4.35	.093	6.02	.036	7.68	.007
1.03	.000	2.70	.290	4.37	.091	6.03	.036	7.70	.007
1.05	.000	2.72	.289	4.38	.090	6.05	.035	7.72	.007
1.07	.000	2.73	.288	4.40	.088	6.07	.035	7.73	.006
1.08	.000	2.75	.287	4.42	.087	6.08	.035	7.75	.006
1.10	.000	2.77	.286	4.43	.085	6.10	.034	7.77	.006
1.12	.000	2.78	.285	4.45	.083	6.12	.034	7.78	.006
1.13	.000	2.80	.284	4.47	.082	6.13	.034	7.80	.006
1.15	.000	2.82	.283	4.48	.080	6.15	.033	7.82	.005
1.17	.000	2.83	.282	4.50	.080	6.17	.033	7.83	.005
1.18	.000	2.85	.281	4.52	.079	6.18	.032	7.85	.005
1.20	.000	2.87	.280	4.53	.078	6.20	.032	7.87	.005
1.22	.000	2.88	.279	4.55	.078	6.22	.032	7.88	.004
1.23	.000	2.90	.278	4.57	.077	6.23	.031	7.90	.004
1.25	.000	2.92	.276	4.58	.077	6.25	.031	7.92	.004
1.27	.000	2.93	.275	4.60	.076	6.27	.031	7.93	.004
1.28	.000	2.95	.274	4.62	.075	6.28	.030	7.95	.004
1.30	.000	2.97	.273	4.63	.075	6.30	.030	7.97	.003
1.32	.000	2.98	.272	4.65	.074	6.32	.030	7.98	.003
1.33	.000	3.00	.270	4.67	.074	6.33	.029	8.00	.003
1.35	.000	3.02	.269	4.68	.073	6.35	.029	8.02	.003
1.37	.000	3.03	.268	4.70	.073	6.37	.029	8.03	.003
1.38	.000	3.05	.266	4.72	.072	6.38	.028	8.05	.002
1.40	.000	3.07	.265	4.73	.072	6.40	.028	8.07	.002
1.42	.000	3.08	.263	4.75	.071	6.42	.028	8.08	.002
1.43	.000	3.10	.261	4.77	.070	6.43	.027	8.10	.002
1.45	.000	3.12	.260	4.78	.070	6.45	.027	8.12	.002
1.47	.000	3.13	.258	4.80	.069	6.47	.027	8.13	.001
1.48	.000	3.15	.256	4.82	.069	6.48	.026	8.15	.001
1.50	.007	3.17	.254	4.83	.068	6.50	.026	8.17	.001
1.52	.016	3.18	.252	4.85	.068	6.52	.026	8.18	.001
1.53	.025	3.20	.249	4.87	.067	6.53	.025	8.20	.001
1.55	.034	3.22	.247	4.88	.067	6.55	.025	8.22	.001
1.57	.042	3.23	.245	4.90	.066	6.57	.025	8.23	.000
1.58	.049	3.25	.242	4.92	.066	6.58	.024	8.25	.000
1.60	.057	3.27	.240	4.93	.065	6.60	.024		
1.62	.064	3.28	.238	4.95	.065	6.62	.024		
1.63	.070	3.30	.235	4.97	.064	6.63	.024		
1.65	.077	3.32	.233	4.98	.063	6.65	.023		

```
--------------------------------------------------------------------------------
001:0028--------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*            TOTAL POST DEVELOPMENT DISCHARGE TO THE WEST                      *
*                                                                              *
********************************************************************************
------------------------
| ADD HYD (POST      ) | ID: NHYD          AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 08:REACH1       141.98    5.598    2.25  28.31    .000
                     +ID2 09:PIPE           6.16     .297    2.43  42.85    .000
                      ==========================================================
                      SUM 10:POST         148.14    5.890    2.25  28.91    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0029--------------------------------------------------------------------------
      FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 10:52:13
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:52:20     RUN COUNTER: 000836          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps050y.dat       *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps050y.out       *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps050y.sum       *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*################################################################################
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*################################################################################
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1499.060
| Ptotal= 66.12 mm |                          B=   4.188
--------------------                          C=    .809
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  3.00 hrs
                        Storm time step    =  5.00 min
                        Time to peak ratio =   .38

              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .08   4.868 |    .83  14.816 |   1.58  18.203 |   2.33   6.942
               .17   5.228 |    .92  19.964 |   1.67  15.261 |   2.42   6.525
               .25   5.653 |   1.00  31.141 |   1.75  13.172 |   2.50   6.160
               .33   6.163 |   1.08  72.869 |   1.83  11.611 |   2.58   5.837
               .42   6.786 |   1.17 249.214 |   1.92  10.400 |   2.67   5.549
               .50   7.566 |   1.25  87.992 |   2.00   9.432 |   2.75   5.290
               .58   8.574 |   1.33  45.076 |   2.08   8.641 |   2.83   5.057
               .67   9.930 |   1.42  30.115 |   2.17   7.981 |   2.92   4.845
               .75  11.856 |   1.50  22.648 |   2.25   7.422 |   3.00   4.652

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
********************************************************************************
*                                                                              *
*      POST DEVELOPMENT EXTERNAL FLOW ANALYSIS AND DIVERSION CHANNEL           *
*                                                                              *
********************************************************************************
*
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=    1.815 (i)
     TIME TO PEAK    (hrs)=    1.733
     RUNOFF VOLUME    (mm)=   32.513
     TOTAL RAINFALL   (mm)=   66.120
     RUNOFF COEFFICIENT   =     .492

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    5.189 (i)
     TIME TO PEAK    (hrs)=    2.100
     RUNOFF VOLUME    (mm)=   32.513
     TOTAL RAINFALL   (mm)=   66.120
     RUNOFF COEFFICIENT   =     .492

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                 LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0300
                 3.00          99.00     .0300 / .0300  Main Channel
                 5.00          99.00     .0300 / .0300  Main Channel
                 8.00         100.00         .0300

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2:EX.2      104.80    5.189    2.10 32.513      .650     2.016
   OUTFLOW: ID= 3:CHAN      104.80    5.186    2.12 32.513      .648     2.013


--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .431 (i)
     TIME TO PEAK    (hrs)=    1.417

     RUNOFF VOLUME    (mm)=   36.456
     TOTAL RAINFALL   (mm)=   66.120
     RUNOFF COEFFICIENT   =     .551

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 03:CHAN         104.80    5.186    2.12  32.51    .000
                      +ID2 04:EX.3           3.15     .431    1.42  36.46    .000
                       ========================================================
                       SUM 05:EX2+3        107.95    5.285    2.10  32.63    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                 LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0250
                 1.35          99.55     .0250 / .0250  Main Channel
                 9.35          99.55     .0250 / .0250  Main Channel
                10.70         100.00         .0250

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
```

```
                                <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 5:EX2+3     107.95    5.285    2.10 32.628      .397     1.449
   OUTFLOW: ID= 6:LOT.CH    107.95    5.283    2.12 32.628      .395     1.446


--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .15          .35
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .35         2.00
     Length            (m)=     97.00        27.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    249.21       201.09
               over (min)       3.00         7.00
     Storage Coeff.  (min)=      2.60 (ii)    6.82 (ii)
     Unit Hyd. Tpeak (min)=      3.00         7.00
     Unit Hyd. peak  (cms)=       .41          .16
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .00          .13          .128 (iii)
     TIME TO PEAK    (hrs)=      1.18         1.25         1.250
     RUNOFF VOLUME    (mm)=     64.12        42.66        42.872
     TOTAL RAINFALL   (mm)=     66.12        66.12        66.120
     RUNOFF COEFFICIENT   =       .97          .65          .648

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
----------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =      1
----------------------   Total minor system capacity         =    .080  (cms)
                         Total major system storage [TMJSTO] =      0.(cu.m.)

                   ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                   (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .128     1.250   42.872     .000
     ======================================================================
     MAJOR SYST   09:EX4>10        .05      .048     1.250   42.872     .000
     MINOR SYST   08:EX4<10        .45      .080     1.183   42.872     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011----------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 06:LOT.CH       107.95    5.283    2.12  32.63    .000
                      +ID2 09:EX4>10         .05     .048    1.25  42.87    .000
                       ============================================================
                       SUM 10:E2+3+4       108.00    5.283    2.12  32.63    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
--------------------
| ROUTE RESERVOIR  |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)  |
| OUT<02:(UNION )  |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |    2.520  .2530E-01
                           .050  .1000E-03   |    2.710  .2980E-01
                           .210  .4200E-03   |    2.731  .3030E-01
                           .460  .1420E-02   |    3.482  .3590E-01
                           .780  .3510E-02   |    5.852  .4200E-01
                          1.170  .6700E-02   |    6.644  .4330E-01
                          1.610  .1100E-01   |    7.455  .4530E-01
                          2.060  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     108.00     5.283     2.117     32.633
     OUTFLOW<02: (UNION )     108.00     5.282     2.117     32.633

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.990
                   TIME SHIFT OF PEAK FLOW         (min)=      .00
                   MAXIMUM  STORAGE   USED       (ha.m.)=.4053E-01

--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .62          .42
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    185.00        15.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    249.21       177.92
               over (min)       3.00         7.00
     Storage Coeff.  (min)=      3.44 (ii)    6.55 (ii)
     Unit Hyd. Tpeak (min)=      3.00         7.00
     Unit Hyd. peak  (cms)=       .34          .17
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .27          .14          .359 (iii)
     TIME TO PEAK    (hrs)=      1.18         1.25         1.200
     RUNOFF VOLUME    (mm)=     64.12        41.22        52.212
     TOTAL RAINFALL   (mm)=     66.12        66.12        66.120
```

```
     RUNOFF COEFFICIENT   =        .97          .62           .790

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0014--------------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     249.21       162.34
               over (min)        2.00         7.00
     Storage Coeff.  (min)=       2.38 (ii)    6.76 (ii)
     Unit Hyd. Tpeak (min)=       2.00         7.00
     Unit Hyd. peak  (cms)=        .50          .17
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .77          .37          .962 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.27         1.167
     RUNOFF VOLUME    (mm)=      64.12        40.14        50.930
     TOTAL RAINFALL   (mm)=      66.12        66.12        66.120
     RUNOFF COEFFICIENT   =        .97          .61          .770

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
----------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6   |   Number of inlets in system [NINLET] =       1
----------------------   Total minor system capacity        =   1.142  (cms)
                         Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79      .962     1.167   50.930     .000
     ======================================================================
     MAJOR SYST   06:>100YR        .00      .000      .000     .000     .000
     MINOR SYST   05:<100YR       2.79      .962     1.167   50.930     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016--------------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
```

```
*#EXISTING LOTS
*
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     249.21       157.59
               over (min)        4.00        10.00
     Storage Coeff.  (min)=       4.12 (ii)   10.01 (ii)
     Unit Hyd. Tpeak (min)=       4.00        10.00
     Unit Hyd. peak  (cms)=        .28          .11
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .14          .23          .308 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.32         1.283
     RUNOFF VOLUME    (mm)=      64.12        41.66        46.150
     TOTAL RAINFALL   (mm)=      66.12        66.12        66.120
     RUNOFF COEFFICIENT   =        .97          .63          .698

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:UNION        108.00    5.282    2.12  32.63    .000
                       +ID2 03:EX.5           1.04     .359    1.20  52.21    .000
                       +ID3 06:>100YR          .00     .000     .00    .00    .000  **DRY**
                       +ID4 07:EX.7           1.42     .308    1.28  46.15    .000
                        ============================================================
                        SUM 08:EX.2-7       110.46    5.346    2.12  32.99    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018--------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.280  .5256E-01
                            .000  .3700E-03   |    2.570  .7370E-01
                            .140  .1370E-02   |    2.820  .1028E+00
                            .240  .3940E-02   |    2.860  .1083E+00
                            .600  .8620E-02   |    3.700  .1227E+00
                           1.060  .1550E-01   |    6.088  .1328E+00
                           1.500  .2463E-01   |    8.010  .1486E+00
```

```
                          1.920  .4198E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.46     5.346     2.117     32.991
     OUTFLOW<09: (KOMOKA)     110.46     5.346     2.133     32.988

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.983
                    TIME SHIFT OF PEAK FLOW         (min)=     1.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.1297E+00

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*             BEGIN DIVERSION CHANNEL PORTION OF THE MODEL                     *
*                                                                              *
********************************************************************************
*
*CATCHMENT 101 REPRESENTING AREA OF CHANNEL UPSTREAM OF KOMOKA CULVERT CROSSING
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    2.31   Curve Number   (CN)=80.00
| 10:CAT101 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .297

     Unit Hyd Qpeak  (cms)=     .297

     PEAK FLOW       (cms)=     .209 (i)
     TIME TO PEAK    (hrs)=    1.517
     RUNOFF VOLUME    (mm)=   29.976
     TOTAL RAINFALL   (mm)=   66.120
     RUNOFF COEFFICIENT   =     .453

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 2, THE NORTH ENTRY POINT OF
*EXTERNAL FLOWS.
*
------------------------
| ADD HYD (ENTRY1    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 01:EX.1          25.58    1.815    1.73  32.51    .000
                     +ID2 10:CAT101         2.31     .209    1.52  29.98    .000
                      ==========================================================
                      SUM 02:ENTRY1        27.89    1.987    1.70  32.30    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------------
*
*ROUTING REACH 2 OF THE DIVERSION CHANNEL WITH AN AVERAGE SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------                                                          
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:ENTRY1   |     Number of SEGMENTS =  3
| OUT< 03:REACH2   |     Slopes (%), CHANNEL= .42   FLOODPLAIN= .42
--------------------                 LENGTH =  224.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        243.44         .0300
                  5.21        242.20     .0300 / .0300  Main Channel
                  8.81        242.20     .0300 / .0300  Main Channel
                 12.56        243.44         .0300

   <----------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .065  242.268  .559E+02  .194E+01       .085      .341     10.94     .022
     .130  242.333  .119E+03  .822E+01       .281      .530      7.04     .069
     .195  242.398  .188E+03  .196E+02       .573      .681      5.48     .133
     .260  242.463  .265E+03  .367E+02       .959      .811      4.61     .211
     .326  242.529  .349E+03  .603E+02      1.439      .925      4.04     .301
     .391  242.594  .439E+03  .911E+02      2.016     1.029      3.63     .402
     .456  242.659  .536E+03  .130E+03      2.691     1.124      3.32     .512
     .521  242.724  .640E+03  .177E+03      3.467     1.213      3.08     .632
     .586  242.789  .751E+03  .234E+03      4.348     1.297      2.88     .760
     .651  242.854  .869E+03  .301E+03      5.335     1.375      2.71     .895
     .716  242.919  .994E+03  .378E+03      6.433     1.450      2.57    1.039
     .781  242.984  .113E+04  .467E+03      7.645     1.522      2.45    1.189
     .846  243.049  .126E+04  .569E+03      8.973     1.590      2.35    1.346
     .912  243.115  .141E+04  .683E+03     10.421     1.656      2.25    1.510
     .977  243.180  .156E+04  .811E+03*    11.992     1.720      2.17    1.680
    1.042  243.245  .172E+04  .953E+03*    13.689     1.782      2.09    1.857
    1.107  243.310  .189E+04  .111E+04*    15.515     1.842      2.03    2.039
    1.172  243.375  .206E+04  .128E+04*    17.474     1.900      1.96    2.227
    1.237  243.440  .224E+04  .147E+04*    19.568     1.957      1.91    2.422

  X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
  S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
  (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                  <---- hydrograph ---->   <-pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
    INFLOW : ID= 2:ENTRY1     27.89    1.987    1.70 32.303      .387     1.023
    OUTFLOW: ID= 3:REACH2     27.89    1.970    1.75 32.303      .383     1.016

--------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------------
*
*#KOMOKA ROAD WEST SIDE OF CENTERLINE DRAINING TO CHANNEL, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .77
| 04:EX.8   DT= 1.00 |   Total Imp(%)=   36.00   Dir. Conn.(%)=   31.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .28           .49
     Dep. Storage     (mm)=       5.00          2.00
     Average Slope     (%)=        .50          2.00
     Length            (m)=     250.00         15.00
     Mannings n            =       .015          .250

     Max.eff.Inten.(mm/hr)=     249.21        107.67
               over (min)        4.00          8.00
     Storage Coeff.  (min)=       4.12 (ii)     7.93 (ii)
     Unit Hyd. Tpeak (min)=       4.00          8.00
     Unit Hyd. peak  (cms)=        .28           .14
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .12           .09          .185 (iii)
     TIME TO PEAK    (hrs)=       1.20          1.28         1.217
     RUNOFF VOLUME    (mm)=      61.12         33.53        42.085
     TOTAL RAINFALL   (mm)=      66.12         66.12        66.120
     RUNOFF COEFFICIENT   =        .92           .51          .636

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

```
          THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0023--------------------------------------------------------------------------
*
*#PORTION OF STREET 'A' DRAINING TO DIVERSION CHANNEL
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .16
| 05:CAT102 DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .10          .06
     Dep. Storage     (mm)=       5.00         2.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=      22.00        34.00
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=     249.21       165.52
               over (min)        1.00         6.00
     Storage Coeff.  (min)=        .96 (ii)    6.19 (ii)
     Unit Hyd. Tpeak (min)=       1.00         6.00
     Unit Hyd. peak  (cms)=       1.10          .18
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .05          .02          .064 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.25         1.167
     RUNOFF VOLUME    (mm)=      61.12        36.77        48.458
     TOTAL RAINFALL   (mm)=      66.12        66.12        66.120
     RUNOFF COEFFICIENT   =        .92          .56          .733

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0024--------------------------------------------------------------------------
*
*CATCHMENT 103 REPRESENTING AREA OF CHANNEL DOWNSTREAM OF KOMOKA CULVERT CROSSIN
*
---------------------
| CALIB NASHYD       |   Area    (ha)=    2.72   Curve Number   (CN)=78.00
| 06:CAT103 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
---------------------  U.H. Tp(hrs)=    .082

     Unit Hyd Qpeak  (cms)=    1.267

     PEAK FLOW       (cms)=     .499 (i)
     TIME TO PEAK    (hrs)=    1.233
     RUNOFF VOLUME    (mm)=   28.138
     TOTAL RAINFALL   (mm)=   66.120
     RUNOFF COEFFICIENT   =     .426

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0025--------------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 1 ALSO THE KOMOKA CULVERT
*ENTRY POINT
*
------------------------
| ADD HYD (ENTRY2    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 09:KOMOKA       110.46    5.346    2.13  32.99    .000
                     +ID2 03:REACH2        27.89    1.970    1.75  32.30    .000
                     +ID3 04:EX.8            .77     .185    1.22  42.08    .000
                     +ID4 05:CAT102          .16     .064    1.17  48.46    .000
                     +ID5 06:CAT103         2.72     .499    1.23  28.14    .000
                      ==========================================================
                      SUM 07:ENTRY2       142.00    7.066    2.00  32.83    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0026--------------------------------------------------------------------------
*
*ROUTING REACH 1 OF THE DIVERSION CHANNEL WITH A  0.15% SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 07:ENTRY2   |     Number of SEGMENTS =  3
| OUT< 08:REACH1   |     Slopes (%), CHANNEL= .15   FLOODPLAIN= .15
--------------------                   LENGTH =  771.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        242.64         .0300
                  4.40        241.18     .0300 / .0300  Main Channel
                 11.70        241.18     .0300 / .0300  Main Channel
                 16.10        242.64         .0300

   <---------------------------- TRAVEL TIME TABLE --------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .077  241.259  .446E+03  .148E+02       .133      .230     55.79     .018
     .153  241.335  .919E+03  .610E+02       .431      .361     35.55     .055
     .230  241.412  .142E+04  .141E+03       .862      .468     27.43     .108
     .307  241.489  .195E+04  .258E+03      1.418      .562     22.88     .172
     .384  241.566  .250E+04  .415E+03      2.094      .645     19.92     .248
     .460  241.642  .308E+04  .614E+03      2.887      .722     17.81     .332
     .537  241.719  .369E+04  .858E+03      3.798      .792     16.22     .426
     .614  241.796  .433E+04  .115E+04      4.825      .859     14.96     .527
     .691  241.873  .500E+04  .149E+04      5.970      .921     13.95     .636
     .767  241.949  .569E+04  .189E+04      7.233      .980     13.11     .752
     .844  242.026  .641E+04  .234E+04      8.615     1.036     12.40     .875
     .921  242.103  .716E+04  .285E+04     10.118     1.090     11.79    1.004
     .998  242.180  .793E+04  .342E+04     11.743     1.142     11.26    1.139
    1.074  242.256  .873E+04  .406E+04     13.492     1.191     10.79    1.280
    1.151  242.333  .956E+04  .476E+04     15.366     1.239     10.37    1.426
    1.228  242.410  .104E+05  .553E+04*    17.368     1.285     10.00    1.578
    1.305  242.487  .113E+05  .637E+04*    19.497     1.330      9.66    1.735
    1.381  242.563  .122E+05  .729E+04*    21.758     1.373      9.36    1.897
    1.458  242.640  .132E+05  .829E+04*    24.151     1.416      9.08    2.064

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
 (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                <---- hydrograph ---->   <-pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 7:ENTRY2    142.00    7.066    2.00 32.827      .757      .972
   OUTFLOW: ID= 8:REACH1    142.00    6.563    2.22 32.827      .726      .948


--------------------------------------------------------------------------------
001:0027--------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*  DISCHARGE TO THE WEST FROM THE SWM FACILITY COMBINED WITH EXTERNAL FLOWS    *
*       TO SHOW THE COMBINED POST DEVELOPMENT DISCHARGE TO THE WEST            *
*                                                                              *
********************************************************************************
```

```
--------------------
| READ HYD          |   AREA       (ha)=    7.274
| ID=09 (PIPE  )    |   QPEAK     (cms)=     .389
| DT= 1.00 PCYC= 1  |   TPEAK     (hrs)=    2.300
--------------------   VOLUME     (mm)=   47.869
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\050YR-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |  TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |   hrs     cms |   hrs     cms
    .00    .000|  1.72    .256|  3.43    .269|  5.15    .066|  6.87    .024
    .02    .000|  1.73    .267|  3.45    .265|  5.17    .065|  6.88    .023
    .03    .000|  1.75    .277|  3.47    .262|  5.18    .065|  6.90    .023
    .05    .000|  1.77    .287|  3.48    .259|  5.20    .064|  6.92    .023
    .07    .000|  1.78    .295|  3.50    .256|  5.22    .064|  6.93    .023
    .08    .000|  1.80    .303|  3.52    .252|  5.23    .063|  6.95    .022
    .10    .000|  1.82    .311|  3.53    .249|  5.25    .063|  6.97    .022
    .12    .000|  1.83    .318|  3.55    .246|  5.27    .062|  6.98    .022
    .13    .000|  1.85    .324|  3.57    .242|  5.28    .062|  7.00    .021
    .15    .000|  1.87    .330|  3.58    .239|  5.30    .061|  7.02    .021
    .17    .000|  1.88    .336|  3.60    .236|  5.32    .061|  7.03    .021
    .18    .000|  1.90    .341|  3.62    .233|  5.33    .060|  7.05    .021
    .20    .000|  1.92    .346|  3.63    .230|  5.35    .060|  7.07    .020
    .22    .000|  1.93    .350|  3.65    .227|  5.37    .059|  7.08    .020
    .23    .000|  1.95    .354|  3.67    .224|  5.38    .059|  7.10    .020
    .25    .000|  1.97    .358|  3.68    .220|  5.40    .058|  7.12    .019
    .27    .000|  1.98    .362|  3.70    .217|  5.42    .058|  7.13    .019
    .28    .000|  2.00    .365|  3.72    .214|  5.43    .057|  7.15    .019
    .30    .000|  2.02    .368|  3.73    .211|  5.45    .057|  7.17    .018
    .32    .000|  2.03    .371|  3.75    .208|  5.47    .056|  7.18    .018
    .33    .000|  2.05    .373|  3.77    .205|  5.48    .056|  7.20    .018
    .35    .000|  2.07    .375|  3.78    .203|  5.50    .055|  7.22    .018
    .37    .000|  2.08    .377|  3.80    .200|  5.52    .055|  7.23    .017
    .38    .000|  2.10    .379|  3.82    .197|  5.53    .055|  7.25    .017
    .40    .000|  2.12    .381|  3.83    .194|  5.55    .054|  7.27    .017
    .42    .000|  2.13    .382|  3.85    .191|  5.57    .054|  7.28    .017
    .43    .000|  2.15    .384|  3.87    .188|  5.58    .053|  7.30    .016
    .45    .000|  2.17    .385|  3.88    .186|  5.60    .053|  7.32    .016
    .47    .000|  2.18    .386|  3.90    .183|  5.62    .052|  7.33    .016
    .48    .000|  2.20    .387|  3.92    .180|  5.63    .052|  7.35    .015
    .50    .000|  2.22    .387|  3.93    .178|  5.65    .051|  7.37    .015
    .52    .000|  2.23    .388|  3.95    .175|  5.67    .051|  7.38    .015
    .53    .000|  2.25    .388|  3.97    .172|  5.68    .050|  7.40    .015
    .55    .000|  2.27    .388|  3.98    .170|  5.70    .050|  7.42    .014
    .57    .000|  2.28    .389|  4.00    .167|  5.72    .049|  7.43    .014
    .58    .000|  2.30    .389|  4.02    .165|  5.73    .049|  7.45    .014
    .60    .000|  2.32    .389|  4.03    .162|  5.75    .049|  7.47    .014
    .62    .000|  2.33    .389|  4.05    .160|  5.77    .048|  7.48    .013
    .63    .000|  2.35    .388|  4.07    .157|  5.78    .048|  7.50    .013
    .65    .000|  2.37    .388|  4.08    .155|  5.80    .047|  7.52    .013
    .67    .000|  2.38    .388|  4.10    .153|  5.82    .047|  7.53    .013
    .68    .000|  2.40    .387|  4.12    .150|  5.83    .046|  7.55    .012
    .70    .000|  2.42    .387|  4.13    .148|  5.85    .046|  7.57    .012
    .72    .000|  2.43    .386|  4.15    .146|  5.87    .046|  7.58    .012
    .73    .000|  2.45    .385|  4.17    .143|  5.88    .045|  7.60    .012
    .75    .000|  2.47    .384|  4.18    .141|  5.90    .045|  7.62    .011
    .77    .000|  2.48    .384|  4.20    .139|  5.92    .044|  7.63    .011
    .78    .000|  2.50    .383|  4.22    .137|  5.93    .044|  7.65    .011
    .80    .000|  2.52    .382|  4.23    .134|  5.95    .044|  7.67    .011
    .82    .000|  2.53    .381|  4.25    .132|  5.97    .043|  7.68    .010
    .83    .000|  2.55    .380|  4.27    .130|  5.98    .043|  7.70    .010
    .85    .000|  2.57    .379|  4.28    .128|  6.00    .042|  7.72    .010
    .87    .000|  2.58    .377|  4.30    .126|  6.02    .042|  7.73    .010
    .88    .000|  2.60    .376|  4.32    .124|  6.03    .041|  7.75    .009
    .90    .000|  2.62    .375|  4.33    .122|  6.05    .041|  7.77    .009
    .92    .000|  2.63    .374|  4.35    .120|  6.07    .041|  7.78    .009
    .93    .000|  2.65    .372|  4.37    .118|  6.08    .040|  7.80    .009
    .95    .000|  2.67    .371|  4.38    .116|  6.10    .040|  7.82    .009
    .97    .000|  2.68    .370|  4.40    .114|  6.12    .039|  7.83    .008
    .98    .000|  2.70    .368|  4.42    .112|  6.13    .039|  7.85    .008
   1.00    .000|  2.72    .367|  4.43    .110|  6.15    .039|  7.87    .008
   1.02    .000|  2.73    .365|  4.45    .109|  6.17    .038|  7.88    .008
   1.03    .000|  2.75    .364|  4.47    .107|  6.18    .038|  7.90    .007
   1.05    .000|  2.77    .363|  4.48    .105|  6.20    .038|  7.92    .007
   1.07    .000|  2.78    .361|  4.50    .103|  6.22    .037|  7.93    .007
   1.08    .000|  2.80    .359|  4.52    .101|  6.23    .037|  7.95    .007
   1.10    .000|  2.82    .358|  4.53    .100|  6.25    .036|  7.97    .007
   1.12    .000|  2.83    .356|  4.55    .098|  6.27    .036|  7.98    .006
   1.13    .000|  2.85    .355|  4.57    .096|  6.28    .036|  8.00    .006
   1.15    .000|  2.87    .353|  4.58    .095|  6.30    .035|  8.02    .006
   1.17    .000|  2.88    .351|  4.60    .093|  6.32    .035|  8.03    .006
   1.18    .000|  2.90    .350|  4.62    .091|  6.33    .035|  8.05    .005
   1.20    .000|  2.92    .348|  4.63    .090|  6.35    .034|  8.07    .005
   1.22    .000|  2.93    .346|  4.65    .088|  6.37    .034|  8.08    .005
   1.23    .000|  2.95    .345|  4.67    .086|  6.38    .033|  8.10    .005
   1.25    .000|  2.97    .343|  4.68    .085|  6.40    .033|  8.12    .005
   1.27    .000|  2.98    .341|  4.70    .083|  6.42    .033|  8.13    .004
   1.28    .000|  3.00    .340|  4.72    .082|  6.43    .032|  8.15    .004
   1.30    .000|  3.02    .338|  4.73    .080|  6.45    .032|  8.17    .004
   1.32    .000|  3.03    .336|  4.75    .080|  6.47    .032|  8.18    .004
   1.33    .000|  3.05    .334|  4.77    .079|  6.48    .031|  8.20    .004
   1.35    .000|  3.07    .332|  4.78    .078|  6.50    .031|  8.22    .003
   1.37    .000|  3.08    .330|  4.80    .078|  6.52    .031|  8.23    .003
   1.38    .000|  3.10    .328|  4.82    .077|  6.53    .030|  8.25    .003
   1.40    .000|  3.12    .326|  4.83    .077|  6.55    .030|  8.27    .003
   1.42    .001|  3.13    .323|  4.85    .076|  6.57    .030|  8.28    .003
   1.43    .013|  3.15    .321|  4.87    .075|  6.58    .029|  8.30    .002
   1.45    .026|  3.17    .318|  4.88    .075|  6.60    .029|  8.32    .002
   1.47    .037|  3.18    .315|  4.90    .074|  6.62    .029|  8.33    .002
   1.48    .048|  3.20    .313|  4.92    .074|  6.63    .028|  8.35    .002
   1.50    .059|  3.22    .310|  4.93    .073|  6.65    .028|  8.37    .002
   1.52    .069|  3.23    .307|  4.95    .073|  6.67    .028|  8.38    .001
   1.53    .078|  3.25    .304|  4.97    .072|  6.68    .027|  8.40    .001
   1.55    .097|  3.27    .301|  4.98    .071|  6.70    .027|  8.42    .001
   1.57    .118|  3.28    .298|  5.00    .071|  6.72    .027|  8.43    .001
   1.58    .137|  3.30    .295|  5.02    .070|  6.73    .026|  8.45    .001
   1.60    .155|  3.32    .292|  5.03    .070|  6.75    .026|  8.47    .000
   1.62    .173|  3.33    .289|  5.05    .069|  6.77    .026|  8.48    .000
   1.63    .189|  3.35    .285|  5.07    .069|  6.78    .025|  8.50    .000
   1.65    .204|  3.37    .282|  5.08    .068|  6.80    .025|
   1.67    .218|  3.38    .279|  5.10    .068|  6.82    .025|
   1.68    .232|  3.40    .275|  5.12    .067|  6.83    .024|
   1.70    .244|  3.42    .272|  5.13    .067|  6.85    .024|
--------------------------------------------------------------------------------
001:0028----------------------------------------------------------------------
********************************************************************************
*                                                                              *
*              TOTAL POST DEVELOPMENT DISCHARGE TO THE WEST                    *
*                                                                              *
********************************************************************************
------------------------
| ADD HYD (POST      ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                  (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 08:REACH1     142.00    6.563    2.22  32.83    .000
                       +ID2 09:PIPE         7.27     .389    2.30  47.87    .000
                        ==========================================================
                        SUM 10:POST       149.28    6.950    2.22  33.56    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0029----------------------------------------------------------------------
      FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2020-07-30     at 10:52:21
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:52:40     RUN COUNTER: 000838          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps100y.dat       *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps100y.out       *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps100y.sum       *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*################################################################################
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*################################################################################
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1499.530
| Ptotal= 71.80 mm |                          B=   3.297
--------------------                          C=    .794
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  3.00 hrs
                        Storm time step    =  5.00 min
                        Time to peak ratio =   .38

              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .08   5.550 |    .83  16.054 |   1.58  19.524 |   2.33   7.799
               .17   5.944 |    .92  21.315 |   1.67  16.513 |   2.42   7.351
               .25   6.407 |   1.00  32.597 |   1.75  14.357 |   2.50   6.956
               .33   6.959 |   1.08  75.188 |   1.83  12.735 |   2.58   6.606
               .42   7.631 |   1.17 279.468 |   1.92  11.468 |   2.67   6.293
               .50   8.468 |   1.25  90.785 |   2.00  10.450 |   2.75   6.011
               .58   9.542 |   1.33  46.616 |   2.08   9.612 |   2.83   5.757
               .67  10.974 |   1.42  31.567 |   2.17   8.911 |   2.92   5.525
               .75  12.990 |   1.50  24.038 |   2.25   8.314 |   3.00   5.313

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
********************************************************************************
*                                                                              *
*      POST DEVELOPMENT EXTERNAL FLOW ANALYSIS AND DIVERSION CHANNEL           *
*                                                                              *
********************************************************************************
*
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=    2.065 (i)
     TIME TO PEAK    (hrs)=    1.733
     RUNOFF VOLUME    (mm)=   37.100
     TOTAL RAINFALL   (mm)=   71.799
     RUNOFF COEFFICIENT   =     .517

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    5.898 (i)
     TIME TO PEAK    (hrs)=    2.083
     RUNOFF VOLUME    (mm)=   37.099
     TOTAL RAINFALL   (mm)=   71.799
     RUNOFF COEFFICIENT   =     .517

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
--------------------------------------------------------------------------------
001:0005--------------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                 LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0300
                 3.00          99.00     .0300 / .0300  Main Channel
                 5.00          99.00     .0300 / .0300  Main Channel
                 8.00         100.00         .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2:EX.2      104.80    5.898    2.08 37.099      .692     2.087
   OUTFLOW: ID= 3:CHAN      104.80    5.895    2.10 37.099      .691     2.086


--------------------------------------------------------------------------------
001:0006--------------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .488 (i)
     TIME TO PEAK    (hrs)=    1.417

     RUNOFF VOLUME    (mm)=   41.259
     TOTAL RAINFALL   (mm)=   71.799
     RUNOFF COEFFICIENT   =     .575

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0007--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 03:CHAN         104.80    5.895    2.10  37.10    .000
                     +ID2 04:EX.3           3.15     .488    1.42  41.26    .000
                      ============================================================
                      SUM 05:EX2+3        107.95    6.008    2.08  37.22    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0008--------------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                 LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0250
                 1.35          99.55     .0250 / .0250  Main Channel
                 9.35          99.55     .0250 / .0250  Main Channel
                10.70         100.00         .0250

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
```

```
                                <---- hydrograph ---->   <-pipe / channel->
                           AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                           (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 5:EX2+3    107.95   6.008    2.08 37.221      .427     1.517
   OUTFLOW: ID= 6:LOT.CH   107.95   6.005    2.10 37.221      .425     1.513


--------------------------------------------------------------------------------
001:0009----------------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .15          .35
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .35         2.00
     Length            (m)=     97.00        27.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    279.47       251.74
               over (min)        2.00         6.00
     Storage Coeff.  (min)=      2.48 (ii)    6.34 (ii)
     Unit Hyd. Tpeak (min)=      2.00         6.00
     Unit Hyd. peak  (cms)=       .48          .18
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .00          .15          .153 (iii)
     TIME TO PEAK    (hrs)=      1.17         1.23         1.233
     RUNOFF VOLUME    (mm)=     69.80        47.79        48.014
     TOTAL RAINFALL   (mm)=     71.80        71.80        71.799
     RUNOFF COEFFICIENT   =       .97          .67          .669

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010----------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
----------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =      1
----------------------   Total minor system capacity          =    .080  (cms)
                         Total major system storage [TMJSTO] =      0.(cu.m.)

                   ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                   (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4          .50      .153     1.233   48.014     .000
     ======================================================================
     MAJOR SYST   09:EX4>10        .08      .073     1.233   48.014     .000
     MINOR SYST   08:EX4<10        .42      .080     1.167   48.014     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011----------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 06:LOT.CH      107.95    6.005    2.10  37.22    .000
                       +ID2 09:EX4>10        .08     .073    1.23  48.01    .000
                        ============================================================
                        SUM 10:E2+3+4      108.03    6.005    2.10  37.23    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
--------------------
| ROUTE RESERVOIR  |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)  |
| OUT<02:(UNION )  |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |    2.520  .2530E-01
                           .050  .1000E-03   |    2.710  .2980E-01
                           .210  .4200E-03   |    2.731  .3030E-01
                           .460  .1420E-02   |    3.482  .3590E-01
                           .780  .3510E-02   |    5.852  .4200E-01
                          1.170  .6700E-02   |    6.644  .4330E-01
                          1.610  .1100E-01   |    7.455  .4530E-01
                          2.060  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     108.03     6.005     2.100     37.229
     OUTFLOW<02: (UNION )     108.03     6.005     2.117     37.229

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  100.002
                   TIME SHIFT OF PEAK FLOW         (min)=     1.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=.4225E-01

      *** WARNING: Inflow peak was not reduced!
                   Check OUTFLOW/STORAGE table or reduce DT.
--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .62          .42
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    185.00        15.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    279.47       223.21
               over (min)        3.00         6.00
     Storage Coeff.  (min)=      3.29 (ii)    6.13 (ii)
     Unit Hyd. Tpeak (min)=      3.00         6.00
     Unit Hyd. peak  (cms)=       .35          .19
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .30          .16          .425 (iii)
     TIME TO PEAK    (hrs)=      1.18         1.23         1.200
```

```
     RUNOFF VOLUME    (mm)=      69.80        46.29         57.573
     TOTAL RAINFALL   (mm)=      71.80        71.80         71.799
     RUNOFF COEFFICIENT   =        .97          .64           .802

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0014--------------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     279.47       203.99
               over (min)        2.00         6.00
     Storage Coeff.  (min)=       2.27 (ii)    6.27 (ii)
     Unit Hyd. Tpeak (min)=       2.00         6.00
     Unit Hyd. peak  (cms)=        .51          .18
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .87          .44         1.142 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.23         1.183
     RUNOFF VOLUME    (mm)=      69.80        45.15        56.242
     TOTAL RAINFALL   (mm)=      71.80        71.80        71.799
     RUNOFF COEFFICIENT   =        .97          .63           .783

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6   |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity         =   1.142  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79     1.142     1.183   56.242     .000
     ================================================================
     MAJOR SYST   06:>100YR        .00      .000     1.183   56.242     .000
     MINOR SYST   05:<100YR       2.79     1.142     1.183   56.242     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016--------------------------------------------------------------------------
```

```
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     279.47       187.32
               over (min)        4.00         9.00
     Storage Coeff.  (min)=       3.94 (ii)    9.43 (ii)
     Unit Hyd. Tpeak (min)=       4.00         9.00
     Unit Hyd. peak  (cms)=        .29          .12
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .16          .27          .365 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.30         1.267
     RUNOFF VOLUME    (mm)=      69.80        46.74        51.357
     TOTAL RAINFALL   (mm)=      71.80        71.80        71.799
     RUNOFF COEFFICIENT   =        .97          .65           .715

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 02:UNION        108.03    6.005    2.12  37.23    .000
                    +ID2 03:EX.5           1.04     .425    1.20  57.57    .000
                    +ID3 06:>100YR          .00     .000    1.18  56.24    .000
                    +ID4 07:EX.7           1.42     .365    1.27  51.36    .000
                     ============================================================
                     SUM 08:EX.2-7       110.49    6.076    2.10  37.60    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018--------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00    |    2.280  .5256E-01
                           .000  .3700E-03    |    2.570  .7370E-01
                           .140  .1370E-02    |    2.820  .1028E+00
                           .240  .3940E-02    |    2.860  .1083E+00
                           .600  .8620E-02    |    3.700  .1227E+00
```

```
                        1.060  .1550E-01   |    6.088  .1328E+00
                        1.500  .2463E-01   |    8.010  .1486E+00
                        1.920  .4198E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.49     6.076     2.100     37.602
     OUTFLOW<09: (KOMOKA)     110.49     6.075     2.117     37.598

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.988
                  TIME SHIFT OF PEAK FLOW         (min)=    1.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.1327E+00

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------
********************************************************************************
*                                                                              *
*            BEGIN DIVERSION CHANNEL PORTION OF THE MODEL                      *
*                                                                              *
********************************************************************************
*
*CATCHMENT 101 REPRESENTING AREA OF CHANNEL UPSTREAM OF KOMOKA CULVERT CROSSING
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    2.31   Curve Number   (CN)=80.00
| 10:CAT101 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .297

     Unit Hyd Qpeak  (cms)=     .297

     PEAK FLOW       (cms)=     .238 (i)
     TIME TO PEAK    (hrs)=    1.500
     RUNOFF VOLUME    (mm)=   34.245
     TOTAL RAINFALL   (mm)=   71.799
     RUNOFF COEFFICIENT   =     .477

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 2, THE NORTH ENTRY POINT OF
*EXTERNAL FLOWS.
*
------------------------
| ADD HYD (ENTRY1    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 01:EX.1          25.58    2.065    1.73  37.10    .000
                      +ID2 10:CAT101         2.31     .238    1.50  34.25    .000
                       ==========================================================
                       SUM 02:ENTRY1        27.89    2.263    1.70  36.86    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------
*
*ROUTING REACH 2 OF THE DIVERSION CHANNEL WITH AN AVERAGE SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:ENTRY1   |     Number of SEGMENTS =  3
| OUT< 03:REACH2   |     Slopes (%), CHANNEL= .42   FLOODPLAIN= .42
--------------------                  LENGTH =  224.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning

                    .00        243.44         .0300
                   5.21        242.20     .0300 / .0300  Main Channel
                   8.81        242.20     .0300 / .0300  Main Channel
                  12.56        243.44         .0300

  <----------------------------- TRAVEL TIME TABLE ---------------------------->
   DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
     (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
    .065  242.268  .559E+02  .194E+01       .085      .341     10.94     .022
    .130  242.333  .119E+03  .822E+01       .281      .530      7.04     .069
    .195  242.398  .188E+03  .196E+02       .573      .681      5.48     .133
    .260  242.463  .265E+03  .367E+02       .959      .811      4.61     .211
    .326  242.529  .349E+03  .603E+02      1.439      .925      4.04     .301
    .391  242.594  .439E+03  .911E+02      2.016     1.029      3.63     .402
    .456  242.659  .536E+03  .130E+03      2.691     1.124      3.32     .512
    .521  242.724  .640E+03  .177E+03      3.467     1.213      3.08     .632
    .586  242.789  .751E+03  .234E+03      4.348     1.297      2.88     .760
    .651  242.854  .869E+03  .301E+03      5.335     1.375      2.71     .895
    .716  242.919  .994E+03  .378E+03      6.433     1.450      2.57    1.039
    .781  242.984  .113E+04  .467E+03      7.645     1.522      2.45    1.189
    .846  243.049  .126E+04  .569E+03      8.973     1.590      2.35    1.346
    .912  243.115  .141E+04  .683E+03     10.421     1.656      2.25    1.510
    .977  243.180  .156E+04  .811E+03*    11.992     1.720      2.17    1.680
   1.042  243.245  .172E+04  .953E+03*    13.689     1.782      2.09    1.857
   1.107  243.310  .189E+04  .111E+04*    15.515     1.842      2.03    2.039
   1.172  243.375  .206E+04  .128E+04*    17.474     1.900      1.96    2.227
   1.237  243.440  .224E+04  .147E+04*    19.568     1.957      1.91    2.422

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
 (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                 <---- hydrograph ---->   <-pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 2:ENTRY1     27.89    2.263    1.70 36.863      .414     1.062
   OUTFLOW: ID= 3:REACH2     27.89    2.242    1.75 36.863      .411     1.057

--------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------
*
*#KOMOKA ROAD WEST SIDE OF CENTERLINE DRAINING TO CHANNEL, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .77
| 04:EX.8   DT= 1.00 |   Total Imp(%)=   36.00   Dir. Conn.(%)=   31.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .28          .49
     Dep. Storage     (mm)=       5.00         2.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        15.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     279.47       133.04
               over (min)        4.00         7.00
     Storage Coeff.  (min)=       3.94 (ii)    7.43 (ii)
     Unit Hyd. Tpeak (min)=       4.00         7.00
     Unit Hyd. peak  (cms)=        .29          .16
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .13          .11          .222 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.27         1.217
     RUNOFF VOLUME    (mm)=      66.80        37.97        46.907
     TOTAL RAINFALL   (mm)=      71.80        71.80        71.799
     RUNOFF COEFFICIENT   =        .93          .53          .653

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
```

```
          CN* =  80.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0023----------------------------------------------------------------------
*
*#PORTION OF STREET 'A' DRAINING TO DIVERSION CHANNEL
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .16
| 05:CAT102 DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .10          .06
     Dep. Storage     (mm)=       5.00         2.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=      22.00        34.00
     Mannings n            =       .015         .250

     Max.eff.Inten.(mm/hr)=     279.47       192.74
               over (min)        1.00         6.00
     Storage Coeff.  (min)=        .92 (ii)    5.84 (ii)
     Unit Hyd. Tpeak (min)=       1.00         6.00
     Unit Hyd. peak  (cms)=       1.13          .19
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .06          .02          .073 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.23         1.167
     RUNOFF VOLUME    (mm)=      66.80        41.45        53.616
     TOTAL RAINFALL   (mm)=      71.80        71.80        71.799
     RUNOFF COEFFICIENT   =        .93          .58          .747

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0024----------------------------------------------------------------------
*
*CATCHMENT 103 REPRESENTING AREA OF CHANNEL DOWNSTREAM OF KOMOKA CULVERT CROSSIN
*
---------------------
| CALIB NASHYD       |   Area    (ha)=    2.72   Curve Number   (CN)=78.00
| 06:CAT103 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
---------------------  U.H. Tp(hrs)=    .082

     Unit Hyd Qpeak  (cms)=    1.267

     PEAK FLOW       (cms)=     .584 (i)
     TIME TO PEAK    (hrs)=    1.233
     RUNOFF VOLUME    (mm)=   32.231
     TOTAL RAINFALL   (mm)=   71.799
     RUNOFF COEFFICIENT   =     .449

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0025----------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 1 ALSO THE KOMOKA CULVERT
*ENTRY POINT
*
-----------------------
| ADD HYD (ENTRY2    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 09:KOMOKA       110.49    6.075    2.12  37.60    .000
                     +ID2 03:REACH2       27.89    2.242    1.75  36.86    .000
                     +ID3 04:EX.8           .77     .222    1.22  46.91    .000
                     +ID4 05:CAT102         .16     .073    1.17  53.62    .000
                     +ID5 06:CAT103        2.72     .584    1.23  32.23    .000
                      ============================================================
                      SUM 07:ENTRY2      142.03    8.035    1.98  37.42    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0026----------------------------------------------------------------------
*
*ROUTING REACH 1 OF THE DIVERSION CHANNEL WITH A  0.15% SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 07:ENTRY2   |     Number of SEGMENTS =  3
| OUT< 08:REACH1   |     Slopes (%), CHANNEL= .15   FLOODPLAIN= .15
--------------------                  LENGTH =  771.00    (m)

             <------ DATA FOR SECTION (   2.0) ------>
             Distance      Elevation       Manning
                  .00        242.64         .0300
                 4.40        241.18     .0300 / .0300  Main Channel
                11.70        241.18     .0300 / .0300  Main Channel
                16.10        242.64         .0300

   <---------------------------- TRAVEL TIME TABLE --------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .077  241.259  .446E+03  .148E+02       .133      .230     55.79     .018
     .153  241.335  .919E+03  .610E+02       .431      .361     35.55     .055
     .230  241.412  .142E+04  .141E+03       .862      .468     27.43     .108
     .307  241.489  .195E+04  .258E+03      1.418      .562     22.88     .172
     .384  241.566  .250E+04  .415E+03      2.094      .645     19.92     .248
     .460  241.642  .308E+04  .614E+03      2.887      .722     17.81     .332
     .537  241.719  .369E+04  .858E+03      3.798      .792     16.22     .426
     .614  241.796  .433E+04  .115E+04      4.825      .859     14.96     .527
     .691  241.873  .500E+04  .149E+04      5.970      .921     13.95     .636
     .767  241.949  .569E+04  .189E+04      7.233      .980     13.11     .752
     .844  242.026  .641E+04  .234E+04      8.615     1.036     12.40     .875
     .921  242.103  .716E+04  .285E+04     10.118     1.090     11.79    1.004
     .998  242.180  .793E+04  .342E+04     11.743     1.142     11.26    1.139
    1.074  242.256  .873E+04  .406E+04     13.492     1.191     10.79    1.280
    1.151  242.333  .956E+04  .476E+04     15.366     1.239     10.37    1.426
    1.228  242.410  .104E+05  .553E+04*    17.368     1.285     10.00    1.578
    1.305  242.487  .113E+05  .637E+04*    19.497     1.330      9.66    1.735
    1.381  242.563  .122E+05  .729E+04*    21.758     1.373      9.36    1.897
    1.458  242.640  .132E+05  .829E+04*    24.151     1.416      9.08    2.064

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
 (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                <---- hydrograph ---->   <-pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 7:ENTRY2    142.03    8.035    1.98 37.420      .812     1.012
   OUTFLOW: ID= 8:REACH1    142.03    7.514    2.20 37.420      .780      .989


--------------------------------------------------------------------------------
001:0027----------------------------------------------------------------------
********************************************************************************
*                                                                              *
*  DISCHARGE TO THE WEST FROM THE SWM FACILITY COMBINED WITH EXTERNAL FLOWS    *
*       TO SHOW THE COMBINED POST DEVELOPMENT DISCHARGE TO THE WEST            *
```

```
*                                                                              *
********************************************************************************
--------------------
| READ HYD         |   AREA       (ha)=    8.190
| ID=09 (PIPE  )   |   QPEAK     (cms)=     .480
| DT= 1.00 PCYC= 1 |   TPEAK     (hrs)=    2.217
--------------------   VOLUME     (mm)=   52.901
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\100YR-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |  TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |   hrs     cms |   hrs     cms
    .00    .000|  1.75    .387|  3.50    .308|  5.25    .070|  7.00    .025
    .02    .000|  1.77    .395|  3.52    .304|  5.27    .069|  7.02    .025
    .03    .000|  1.78    .403|  3.53    .301|  5.28    .069|  7.03    .025
    .05    .000|  1.80    .411|  3.55    .297|  5.30    .068|  7.05    .024
    .07    .000|  1.82    .418|  3.57    .293|  5.32    .068|  7.07    .024
    .08    .000|  1.83    .424|  3.58    .290|  5.33    .067|  7.08    .024
    .10    .000|  1.85    .430|  3.60    .286|  5.35    .067|  7.10    .023
    .12    .000|  1.87    .436|  3.62    .282|  5.37    .066|  7.12    .023
    .13    .000|  1.88    .441|  3.63    .278|  5.38    .065|  7.13    .023
    .15    .000|  1.90    .445|  3.65    .275|  5.40    .065|  7.15    .023
    .17    .000|  1.92    .450|  3.67    .271|  5.42    .064|  7.17    .022
    .18    .000|  1.93    .453|  3.68    .267|  5.43    .064|  7.18    .022
    .20    .000|  1.95    .457|  3.70    .264|  5.45    .063|  7.20    .022
    .22    .000|  1.97    .460|  3.72    .260|  5.47    .063|  7.22    .021
    .23    .000|  1.98    .463|  3.73    .256|  5.48    .062|  7.23    .021
    .25    .000|  2.00    .466|  3.75    .253|  5.50    .062|  7.25    .021
    .27    .000|  2.02    .468|  3.77    .249|  5.52    .061|  7.27    .021
    .28    .000|  2.03    .470|  3.78    .246|  5.53    .061|  7.28    .020
    .30    .000|  2.05    .472|  3.80    .243|  5.55    .060|  7.30    .020
    .32    .000|  2.07    .474|  3.82    .239|  5.57    .060|  7.32    .020
    .33    .000|  2.08    .475|  3.83    .236|  5.58    .059|  7.33    .019
    .35    .000|  2.10    .476|  3.85    .232|  5.60    .059|  7.35    .019
    .37    .000|  2.12    .477|  3.87    .229|  5.62    .058|  7.37    .019
    .38    .000|  2.13    .478|  3.88    .226|  5.63    .058|  7.38    .018
    .40    .000|  2.15    .479|  3.90    .223|  5.65    .057|  7.40    .018
    .42    .000|  2.17    .479|  3.92    .219|  5.67    .057|  7.42    .018
    .43    .000|  2.18    .480|  3.93    .216|  5.68    .056|  7.43    .018
    .45    .000|  2.20    .480|  3.95    .213|  5.70    .056|  7.45    .017
    .47    .000|  2.22    .480|  3.97    .210|  5.72    .055|  7.47    .017
    .48    .000|  2.23    .480|  3.98    .207|  5.73    .055|  7.48    .017
    .50    .000|  2.25    .480|  4.00    .204|  5.75    .055|  7.50    .017
    .52    .000|  2.27    .480|  4.02    .201|  5.77    .054|  7.52    .016
    .53    .000|  2.28    .479|  4.03    .198|  5.78    .054|  7.53    .016
    .55    .000|  2.30    .479|  4.05    .195|  5.80    .053|  7.55    .016
    .57    .000|  2.32    .478|  4.07    .192|  5.82    .053|  7.57    .015
    .58    .000|  2.33    .477|  4.08    .190|  5.83    .052|  7.58    .015
    .60    .000|  2.35    .476|  4.10    .187|  5.85    .052|  7.60    .015
    .62    .000|  2.37    .475|  4.12    .184|  5.87    .051|  7.62    .015
    .63    .000|  2.38    .474|  4.13    .181|  5.88    .051|  7.63    .014
    .65    .000|  2.40    .473|  4.15    .178|  5.90    .050|  7.65    .014
    .67    .000|  2.42    .472|  4.17    .176|  5.92    .050|  7.67    .014
    .68    .000|  2.43    .471|  4.18    .173|  5.93    .049|  7.68    .014
    .70    .000|  2.45    .470|  4.20    .170|  5.95    .049|  7.70    .013
    .72    .000|  2.47    .468|  4.22    .168|  5.97    .049|  7.72    .013
    .73    .000|  2.48    .467|  4.23    .165|  5.98    .048|  7.73    .013
    .75    .000|  2.50    .466|  4.25    .163|  6.00    .048|  7.75    .013
    .77    .000|  2.52    .464|  4.27    .160|  6.02    .047|  7.77    .012
    .78    .000|  2.53    .463|  4.28    .158|  6.03    .047|  7.78    .012
    .80    .000|  2.55    .461|  4.30    .155|  6.05    .046|  7.80    .012
    .82    .000|  2.57    .459|  4.32    .153|  6.07    .046|  7.82    .012
    .83    .000|  2.58    .458|  4.33    .151|  6.08    .046|  7.83    .011
    .85    .000|  2.60    .456|  4.35    .148|  6.10    .045|  7.85    .011
    .87    .000|  2.62    .454|  4.37    .146|  6.12    .045|  7.87    .011
    .88    .000|  2.63    .452|  4.38    .144|  6.13    .044|  7.88    .011
    .90    .000|  2.65    .451|  4.40    .141|  6.15    .044|  7.90    .010
    .92    .000|  2.67    .449|  4.42    .139|  6.17    .044|  7.92    .010
    .93    .000|  2.68    .447|  4.43    .137|  6.18    .043|  7.93    .010
    .95    .000|  2.70    .445|  4.45    .135|  6.20    .043|  7.95    .010
    .97    .000|  2.72    .443|  4.47    .133|  6.22    .042|  7.97    .009
    .98    .000|  2.73    .441|  4.48    .130|  6.23    .042|  7.98    .009
   1.00    .000|  2.75    .439|  4.50    .128|  6.25    .041|  8.00    .009
   1.02    .000|  2.77    .437|  4.52    .126|  6.27    .041|  8.02    .009
   1.03    .000|  2.78    .435|  4.53    .124|  6.28    .041|  8.03    .009
   1.05    .000|  2.80    .433|  4.55    .122|  6.30    .040|  8.05    .008
   1.07    .000|  2.82    .431|  4.57    .120|  6.32    .040|  8.07    .008
   1.08    .000|  2.83    .429|  4.58    .118|  6.33    .039|  8.08    .008
   1.10    .000|  2.85    .427|  4.60    .116|  6.35    .039|  8.10    .008
   1.12    .000|  2.87    .425|  4.62    .114|  6.37    .039|  8.12    .007
   1.13    .000|  2.88    .423|  4.63    .112|  6.38    .038|  8.13    .007
   1.15    .000|  2.90    .421|  4.65    .111|  6.40    .038|  8.15    .007
   1.17    .000|  2.92    .419|  4.67    .109|  6.42    .038|  8.17    .007
   1.18    .000|  2.93    .416|  4.68    .107|  6.43    .037|  8.18    .007
   1.20    .000|  2.95    .414|  4.70    .105|  6.45    .037|  8.20    .006
   1.22    .000|  2.97    .412|  4.72    .103|  6.47    .036|  8.22    .006
   1.23    .000|  2.98    .410|  4.73    .101|  6.48    .036|  8.23    .006
   1.25    .000|  3.00    .408|  4.75    .100|  6.50    .036|  8.25    .006
   1.27    .000|  3.02    .406|  4.77    .098|  6.52    .035|  8.27    .005
   1.28    .000|  3.03    .403|  4.78    .096|  6.53    .035|  8.28    .005
   1.30    .000|  3.05    .401|  4.80    .095|  6.55    .035|  8.30    .005
   1.32    .000|  3.07    .398|  4.82    .093|  6.57    .034|  8.32    .005
   1.33    .000|  3.08    .396|  4.83    .091|  6.58    .034|  8.33    .005
   1.35    .000|  3.10    .393|  4.85    .090|  6.60    .033|  8.35    .004
   1.37    .000|  3.12    .390|  4.87    .088|  6.62    .033|  8.37    .004
   1.38    .013|  3.13    .387|  4.88    .086|  6.63    .033|  8.38    .004
   1.40    .028|  3.15    .384|  4.90    .085|  6.65    .032|  8.40    .004
   1.42    .043|  3.17    .381|  4.92    .083|  6.67    .032|  8.42    .004
   1.43    .057|  3.18    .378|  4.93    .082|  6.68    .032|  8.43    .003
   1.45    .070|  3.20    .375|  4.95    .080|  6.70    .031|  8.45    .003
   1.47    .086|  3.22    .371|  4.97    .080|  6.72    .031|  8.47    .003
   1.48    .115|  3.23    .368|  4.98    .079|  6.73    .031|  8.48    .003
   1.50    .142|  3.25    .364|  5.00    .078|  6.75    .030|  8.50    .003
   1.52    .168|  3.27    .361|  5.02    .078|  6.77    .030|  8.52    .002
   1.53    .192|  3.28    .357|  5.03    .077|  6.78    .030|  8.53    .002
   1.55    .214|  3.30    .353|  5.05    .077|  6.80    .029|  8.55    .002
   1.57    .235|  3.32    .350|  5.07    .076|  6.82    .029|  8.57    .002
   1.58    .255|  3.33    .346|  5.08    .075|  6.83    .029|  8.58    .002
   1.60    .273|  3.35    .342|  5.10    .075|  6.85    .028|  8.60    .001
   1.62    .290|  3.37    .338|  5.12    .074|  6.87    .028|  8.62    .001
   1.63    .306|  3.38    .335|  5.13    .074|  6.88    .028|  8.63    .001
   1.65    .320|  3.40    .331|  5.15    .073|  6.90    .027|  8.65    .001
   1.67    .333|  3.42    .327|  5.17    .073|  6.92    .027|  8.67    .001
   1.68    .345|  3.43    .323|  5.18    .072|  6.93    .027|  8.68    .000
   1.70    .357|  3.45    .319|  5.20    .071|  6.95    .026|  8.70    .000
   1.72    .368|  3.47    .316|  5.22    .071|  6.97    .026|  8.72    .000
   1.73    .377|  3.48    .312|  5.23    .070|  6.98    .026|

--------------------------------------------------------------------------------
001:0028--------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*             TOTAL POST DEVELOPMENT DISCHARGE TO THE WEST                     *
*                                                                              *
********************************************************************************
------------------------
| ADD HYD (POST      ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                      ID1 08:REACH1       142.03    7.514    2.20  37.42    .000
                     +ID2 09:PIPE           8.19     .480    2.22  52.90    .000
                      ==========================================================
                      SUM 10:POST         150.22    7.994    2.20  38.26    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0029--------------------------------------------------------------------------
      FINISH
--------------------------------------------------------------------------------
```

```
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 001:0012 ROUTE RESERVOIR
      *** WARNING: Inflow peak was not reduced!
                   Check OUTFLOW/STORAGE table or reduce DT.
   Simulation ended on 2020-07-30     at 10:52:41
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                          9   9  9   9   # 2957874
        StormWater Management HYdrologic Model            999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ********* Distributed by:  J.F. Sabourin and Associates Inc.          *********
 *********                   Ottawa,  Ontario: (613) 836-3884          *********
 *********                   Gatineau, Quebec: (819) 243-6858          *********
 *********                   E-Mail: swmhymo@jfsa.Com                  *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                          +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *********
 *********           Maximum value for ID numbers  :     10           *********
 *********           Max. number of rainfall points: 105408           *********
 *********           Max. number of flow points    : 105408           *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:52:29     RUN COUNTER: 000837         *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps100scs.dat     *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps100scs.out     *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps100scs.sum     *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| MASS STORM       |    Filename: c:\Storms\SCS24H.mst
```

```
| Ptotal=107.10 mm |    Comments: SCS Type II 24 HR MASS CURVE
--------------------

                       Duration of storm        =   24.00 hrs
                       Mass curve time step     =   15.00 min
                       Selected storm time step =    5.00 min
                       Volume of derived storm  =  107.10 mm

          TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
           hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
           .08   1.285 |   6.08   1.714 |  12.08  15.422 |  18.08   2.142
           .17   1.285 |   6.17   1.714 |  12.17  15.422 |  18.17   2.142
           .25   1.285 |   6.25   1.714 |  12.25  15.422 |  18.25   2.142
           .33   1.285 |   6.33   2.142 |  12.33  15.422 |  18.33   1.714
           .42   1.285 |   6.42   2.142 |  12.42  15.422 |  18.42   1.714
           .50   1.285 |   6.50   2.142 |  12.50  15.422 |  18.50   1.714
           .58    .857 |   6.58   1.714 |  12.58   8.140 |  18.58   2.142
           .67    .857 |   6.67   1.714 |  12.67   8.140 |  18.67   2.142
           .75    .857 |   6.75   1.714 |  12.75   8.140 |  18.75   2.142
           .83   1.285 |   6.83   2.142 |  12.83   7.711 |  18.83   1.714
           .92   1.285 |   6.92   2.142 |  12.92   7.711 |  18.92   1.714
          1.00   1.285 |   7.00   2.142 |  13.00   7.711 |  19.00   1.714
          1.08   1.285 |   7.08   2.142 |  13.08   5.998 |  19.08   2.142
          1.17   1.285 |   7.17   2.142 |  13.17   5.998 |  19.17   2.142
          1.25   1.285 |   7.25   2.142 |  13.25   5.998 |  19.25   2.142
          1.33   1.285 |   7.33   2.570 |  13.33   5.569 |  19.33   1.714
          1.42   1.285 |   7.42   2.570 |  13.42   5.569 |  19.42   1.714
          1.50   1.285 |   7.50   2.570 |  13.50   5.569 |  19.50   1.714
          1.58    .857 |   7.58   2.142 |  13.58   4.712 |  19.58   2.142
          1.67    .857 |   7.67   2.142 |  13.67   4.712 |  19.67   2.142
          1.75    .857 |   7.75   2.142 |  13.75   4.712 |  19.75   2.142
          1.83   1.285 |   7.83   2.570 |  13.83   4.284 |  19.83   1.714
          1.92   1.285 |   7.92   2.570 |  13.92   4.284 |  19.92   1.714
          2.00   1.285 |   8.00   2.570 |  14.00   4.284 |  20.00   1.714
          2.08   1.285 |   8.08   2.570 |  14.08   3.427 |  20.08   1.285
          2.17   1.285 |   8.17   2.570 |  14.17   3.427 |  20.17   1.285
          2.25   1.285 |   8.25   2.570 |  14.25   3.427 |  20.25   1.285
          2.33   1.714 |   8.33   2.999 |  14.33   2.999 |  20.33   1.285
          2.42   1.714 |   8.42   2.999 |  14.42   2.999 |  20.42   1.285
          2.50   1.714 |   8.50   2.999 |  14.50   2.999 |  20.50   1.285
          2.58   1.285 |   8.58   2.999 |  14.58   3.427 |  20.58   1.285
          2.67   1.285 |   8.67   2.999 |  14.67   3.427 |  20.67   1.285
          2.75   1.285 |   8.75   2.999 |  14.75   3.427 |  20.75   1.285
          2.83   1.285 |   8.83   2.999 |  14.83   2.999 |  20.83   1.285
          2.92   1.285 |   8.92   2.999 |  14.92   2.999 |  20.92   1.285
          3.00   1.285 |   9.00   2.999 |  15.00   2.999 |  21.00   1.285
          3.08   1.285 |   9.08   3.427 |  15.08   3.427 |  21.08   1.285
          3.17   1.285 |   9.17   3.427 |  15.17   3.427 |  21.17   1.285
          3.25   1.285 |   9.25   3.427 |  15.25   3.427 |  21.25   1.285
          3.33   1.714 |   9.33   3.427 |  15.33   2.999 |  21.33   1.285
          3.42   1.714 |   9.42   3.427 |  15.42   2.999 |  21.42   1.285
          3.50   1.714 |   9.50   3.427 |  15.50   2.999 |  21.50   1.285
          3.58   1.285 |   9.58   3.856 |  15.58   3.427 |  21.58   1.285
          3.67   1.285 |   9.67   3.856 |  15.67   3.427 |  21.67   1.285
          3.75   1.285 |   9.75   3.856 |  15.75   3.427 |  21.75   1.285
          3.83   1.285 |   9.83   3.856 |  15.83   2.999 |  21.83   1.285
          3.92   1.285 |   9.92   3.856 |  15.92   2.999 |  21.92   1.285
          4.00   1.285 |  10.00   3.856 |  16.00   2.999 |  22.00   1.285
          4.08   1.714 |  10.08   4.712 |  16.08   2.142 |  22.08   1.285
          4.17   1.714 |  10.17   4.712 |  16.17   2.142 |  22.17   1.285
          4.25   1.714 |  10.25   4.712 |  16.25   2.142 |  22.25   1.285
          4.33   1.714 |  10.33   5.141 |  16.33   1.714 |  22.33   1.285
          4.42   1.714 |  10.42   5.141 |  16.42   1.714 |  22.42   1.285
          4.50   1.714 |  10.50   5.141 |  16.50   1.714 |  22.50   1.285
          4.58   1.714 |  10.58   6.426 |  16.58   2.142 |  22.58   1.285
          4.67   1.714 |  10.67   6.426 |  16.67   2.142 |  22.67   1.285
          4.75   1.714 |  10.75   6.426 |  16.75   2.142 |  22.75   1.285
          4.83   1.714 |  10.83   6.854 |  16.83   1.714 |  22.83   1.285
          4.92   1.714 |  10.92   6.854 |  16.92   1.714 |  22.92   1.285
          5.00   1.714 |  11.00   6.854 |  17.00   1.714 |  23.00   1.285
```

```
              5.08   1.714 |  11.08  10.282 |  17.08   2.142 |  23.08   1.285
              5.17   1.714 |  11.17  10.282 |  17.17   2.142 |  23.17   1.285
              5.25   1.714 |  11.25  10.282 |  17.25   2.142 |  23.25   1.285
              5.33   1.714 |  11.33  10.282 |  17.33   1.714 |  23.33   1.285
              5.42   1.714 |  11.42  10.282 |  17.42   1.714 |  23.42   1.285
              5.50   1.714 |  11.50  10.282 |  17.50   1.714 |  23.50   1.285
              5.58   1.714 |  11.58  31.702 |  17.58   2.142 |  23.58   1.285
              5.67   1.714 |  11.67  31.702 |  17.67   2.142 |  23.67   1.285
              5.75   1.714 |  11.75  31.702 |  17.75   2.142 |  23.75   1.285
              5.83   1.714 |  11.83 131.090 |  17.83   1.714 |  23.83   1.285
              5.92   1.714 |  11.92 131.090 |  17.92   1.714 |  23.92   1.285
              6.00   1.714 |  12.00 131.090 |  18.00   1.714 |  24.00   1.285

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*****************************************************************************
*                                                                           *
*      POST DEVELOPMENT EXTERNAL FLOW ANALYSIS AND DIVERSION CHANNEL        *
*                                                                           *
*****************************************************************************
*
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
---------------------
| CALIB NASHYD      |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=    2.531 (i)
     TIME TO PEAK    (hrs)=   12.367
     RUNOFF VOLUME    (mm)=   67.483
     TOTAL RAINFALL   (mm)=  107.101
     RUNOFF COEFFICIENT   =     .630

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
---------------------
| CALIB NASHYD      |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    7.323 (i)
     TIME TO PEAK    (hrs)=   12.700
     RUNOFF VOLUME    (mm)=   67.483
     TOTAL RAINFALL   (mm)=  107.101
     RUNOFF COEFFICIENT   =     .630

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
```

```
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                 LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                  .00         100.00          .0300
                3.00          99.00     .0300 / .0300  Main Channel
                5.00          99.00     .0300 / .0300  Main Channel
                8.00         100.00          .0300

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                 <---- hydrograph ---->   <-pipe / channel->
                                  AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                                  (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2:EX.2      104.80    7.323   12.70 67.483      .768     2.209
   OUTFLOW: ID= 3:CHAN      104.80    7.319   12.72 67.483      .768     2.208


--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
---------------------
| CALIB NASHYD      |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .559 (i)
     TIME TO PEAK    (hrs)=   12.117
     RUNOFF VOLUME    (mm)=   72.669
     TOTAL RAINFALL   (mm)=  107.101
     RUNOFF COEFFICIENT   =     .679

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
```

```
001:0007-------------------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 03:CHAN         104.80    7.319   12.72  67.48    .000
                    +ID2 04:EX.3           3.15     .559   12.12  72.67    .000
                     ============================================================
                     SUM 05:EX2+3        107.95    7.453   12.70  67.63    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
001:0008-------------------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                 LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0250
                 1.35           99.55     .0250 / .0250  Main Channel
                 9.35           99.55     .0250 / .0250  Main Channel
                10.70         100.00         .0250

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

      *** WARNING: TRAVEL TIME TABLE was exceeded
                                 <---- hydrograph ---->   <-pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 5:EX2+3     107.95    7.453   12.70 67.634      .447     1.561
   OUTFLOW: ID= 6:LOT.CH    107.95    7.447   12.72 67.634      .450     1.567
```

```
-------------------------------------------------------------------------------
001:0009-------------------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
---------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .15          .35
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .35         2.00
     Length            (m)=      97.00        27.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     131.09       164.72
               over (min)        3.00         8.00
     Storage Coeff.  (min)=       3.36 (ii)    7.93 (ii)
     Unit Hyd. Tpeak (min)=       3.00         8.00
     Unit Hyd. peak  (cms)=        .35          .14
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .00          .13          .128 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.03        12.033
     RUNOFF VOLUME    (mm)=     105.10        80.75        81.008
     TOTAL RAINFALL   (mm)=     107.10       107.10       107.101
     RUNOFF COEFFICIENT   =        .98          .75          .756

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
001:0010-------------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity          =    .080  (cms)
                        Total major system storage [TMJSTO] =       0.(cu.m.)

                   ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                   (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4           .50      .128    12.033   81.008     .000
     ==========================================================================
     MAJOR SYST   09:EX4>10         .04      .048    12.033   81.008     .000
     MINOR SYST   08:EX4<10         .46      .080    11.900   81.008     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
001:0011-------------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 06:LOT.CH       107.95    7.447   12.72  67.63    .000
```

```
                  +ID2 09:EX4>10          .04     .048   12.03  81.01    .000
                   ============================================================
                   SUM 10:E2+3+4       107.99    7.447   12.72  67.64    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)   |
| OUT<02:(UNION )   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.520  .2530E-01
                            .050  .1000E-03   |    2.710  .2980E-01
                            .210  .4200E-03   |    2.731  .3030E-01
                            .460  .1420E-02   |    3.482  .3590E-01
                            .780  .3510E-02   |    5.852  .4200E-01
                           1.170  .6700E-02   |    6.644  .4330E-01
                           1.610  .1100E-01   |    7.455  .4530E-01
                           2.060  .1700E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     107.99    7.447    12.717     67.639
     OUTFLOW<02: (UNION )     107.99    7.446    12.733     67.639

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.992
                    TIME SHIFT OF PEAK FLOW         (min)=     1.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.4528E-01

--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .62          .42
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     185.00        15.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     131.09       149.04
                over (min)        4.00         8.00
     Storage Coeff.  (min)=       4.45 (ii)    7.79 (ii)
     Unit Hyd. Tpeak (min)=       4.00         8.00
     Unit Hyd. peak  (cms)=        .26          .14
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .17          .14          .307 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.03        12.000
     RUNOFF VOLUME    (mm)=     105.09        78.93        91.496
     TOTAL RAINFALL   (mm)=     107.10       107.10       107.101
     RUNOFF COEFFICIENT   =        .98          .74          .854

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0014----------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     131.09       138.36
                over (min)        3.00         8.00
     Storage Coeff.  (min)=       3.08 (ii)    7.75 (ii)
     Unit Hyd. Tpeak (min)=       3.00         8.00
     Unit Hyd. peak  (cms)=        .37          .14
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .45          .38          .823 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.03        12.000
     RUNOFF VOLUME    (mm)=     105.09        77.53        89.944
     TOTAL RAINFALL   (mm)=     107.10       107.10       107.101
     RUNOFF COEFFICIENT   =        .98          .72          .840

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015----------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD   |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6  |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity         =   1.142  (cms)
                        Total major system storage [TMJSTO] =       0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79      .823    12.000   89.944     .000
     ================================================================
     MAJOR SYST   06:>100YR        .00      .000      .000     .000     .000
     MINOR SYST   05:<100YR       2.79      .823    12.000   89.944     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016----------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
```

```
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57           .85
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=        .50          2.00
     Length            (m)=     250.00         40.00
     Mannings n           =       .015          .250

     Max.eff.Inten.(mm/hr)=     131.09        151.74
               over (min)         5.00         11.00
     Storage Coeff.  (min)=      5.33 (ii)    11.30 (ii)
     Unit Hyd. Tpeak (min)=      5.00         11.00
     Unit Hyd. peak  (cms)=       .22           .10
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .10           .24          .327 (iii)
     TIME TO PEAK    (hrs)=     12.00         12.08        12.033
     RUNOFF VOLUME    (mm)=    105.09         79.48         84.616
     TOTAL RAINFALL   (mm)=    107.10        107.10        107.101
     RUNOFF COEFFICIENT   =       .98           .74           .790

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017----------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 02:UNION        107.99    7.446   12.73  67.64    .000
                    +ID2 03:EX.5           1.04     .307   12.00  91.50    .000
                    +ID3 06:>100YR          .00     .000     .00    .00    .000  **DRY**
                    +ID4 07:EX.7           1.42     .327   12.03  84.62    .000
                     ============================================================
                     SUM 08:EX.2-7       110.45    7.524   12.72  68.08    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018----------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
--------------------
| ROUTE RESERVOIR  |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)  |
| OUT<09:(KOMOKA)  |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.280  .5256E-01
                            .000  .3700E-03   |    2.570  .7370E-01
                            .140  .1370E-02   |    2.820  .1028E+00
                            .240  .3940E-02   |    2.860  .1083E+00
                            .600  .8620E-02   |    3.700  .1227E+00
                           1.060  .1550E-01   |    6.088  .1328E+00
                           1.500  .2463E-01   |    8.010  .1486E+00
                           1.920  .4198E-01   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.45     7.524    12.717     68.082
     OUTFLOW<09: (KOMOKA)     110.45     7.519    12.750     68.078
```

```
                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.934
                  TIME SHIFT OF PEAK FLOW         (min)=     2.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.1446E+00

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*            BEGIN DIVERSION CHANNEL PORTION OF THE MODEL                      *
*                                                                              *
********************************************************************************
*
*CATCHMENT 101 REPRESENTING AREA OF CHANNEL UPSTREAM OF KOMOKA CULVERT CROSSING
*
---------------------
| CALIB NASHYD      |   Area    (ha)=    2.31   Curve Number   (CN)=80.00
| 10:CAT101 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .297

     Unit Hyd Qpeak  (cms)=     .297

     PEAK FLOW       (cms)=     .291 (i)
     TIME TO PEAK    (hrs)=   12.183
     RUNOFF VOLUME    (mm)=   62.949
     TOTAL RAINFALL   (mm)=  107.101
     RUNOFF COEFFICIENT   =     .588

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 2, THE NORTH ENTRY POINT OF
*EXTERNAL FLOWS.
*
------------------------
| ADD HYD (ENTRY1    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:EX.1         25.58    2.531   12.37  67.48    .000
                    +ID2 10:CAT101        2.31     .291   12.18  62.95    .000
                     ============================================================
                     SUM 02:ENTRY1       27.89    2.777   12.35  67.11    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------------
*
*ROUTING REACH 2 OF THE DIVERSION CHANNEL WITH AN AVERAGE SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:ENTRY1   |     Number of SEGMENTS =  3
| OUT< 03:REACH2   |     Slopes (%), CHANNEL= .42   FLOODPLAIN= .42
--------------------                 LENGTH =  224.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                  .00         243.44          .0300
                 5.21         242.20     .0300 / .0300  Main Channel
                 8.81         242.20     .0300 / .0300  Main Channel
                12.56         243.44          .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
```

```
    .065  242.268  .559E+02  .194E+01       .085      .341     10.94     .022
    .130  242.333  .119E+03  .822E+01       .281      .530      7.04     .069
    .195  242.398  .188E+03  .196E+02       .573      .681      5.48     .133
    .260  242.463  .265E+03  .367E+02       .959      .811      4.61     .211
    .326  242.529  .349E+03  .603E+02      1.439      .925      4.04     .301
    .391  242.594  .439E+03  .911E+02      2.016     1.029      3.63     .402
    .456  242.659  .536E+03  .130E+03      2.691     1.124      3.32     .512
    .521  242.724  .640E+03  .177E+03      3.467     1.213      3.08     .632
    .586  242.789  .751E+03  .234E+03      4.348     1.297      2.88     .760
    .651  242.854  .869E+03  .301E+03      5.335     1.375      2.71     .895
    .716  242.919  .994E+03  .378E+03      6.433     1.450      2.57    1.039
    .781  242.984  .113E+04  .467E+03      7.645     1.522      2.45    1.189
    .846  243.049  .126E+04  .569E+03      8.973     1.590      2.35    1.346
    .912  243.115  .141E+04  .683E+03     10.421     1.656      2.25    1.510
    .977  243.180  .156E+04  .811E+03*    11.992     1.720      2.17    1.680
   1.042  243.245  .172E+04  .953E+03*    13.689     1.782      2.09    1.857
   1.107  243.310  .189E+04  .111E+04*    15.515     1.842      2.03    2.039
   1.172  243.375  .206E+04  .128E+04*    17.474     1.900      1.96    2.227
   1.237  243.440  .224E+04  .147E+04*    19.568     1.957      1.91    2.422

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
 (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 2:ENTRY1     27.89    2.777   12.35 67.108      .463     1.134
   OUTFLOW: ID= 3:REACH2     27.89    2.753   12.38 67.107      .460     1.130


--------------------------------------------------------------------------------
001:0022--------------------------------------------------------------------------
*
*#KOMOKA ROAD WEST SIDE OF CENTERLINE DRAINING TO CHANNEL, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .77
| 04:EX.8   DT= 1.00 |   Total Imp(%)=   36.00   Dir. Conn.(%)=   31.00
----------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .28          .49
     Dep. Storage     (mm)=       5.00         2.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        15.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     131.09       106.01
               over (min)        5.00         9.00
     Storage Coeff.  (min)=       5.33 (ii)    9.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00         9.00
     Unit Hyd. peak  (cms)=        .22          .12
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .08          .11          .183 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.05        12.017
     RUNOFF VOLUME    (mm)=     102.08        67.47        78.213
     TOTAL RAINFALL   (mm)=     107.10       107.10       107.101
     RUNOFF COEFFICIENT   =        .95          .63          .730

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0023--------------------------------------------------------------------------
*
```

```
*#PORTION OF STREET 'A' DRAINING TO DIVERSION CHANNEL
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .16
| 05:CAT102 DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
----------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .10          .06
     Dep. Storage     (mm)=       5.00         2.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=      22.00        34.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     131.09       137.06
               over (min)        1.00         7.00
     Storage Coeff.  (min)=       1.24 (ii)    6.88 (ii)
     Unit Hyd. Tpeak (min)=       1.00         7.00
     Unit Hyd. peak  (cms)=        .94          .16
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .03          .02          .048 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.02        12.000
     RUNOFF VOLUME    (mm)=     102.10        72.16        86.535
     TOTAL RAINFALL   (mm)=     107.10       107.10       107.101
     RUNOFF COEFFICIENT   =        .95          .67          .808

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0024--------------------------------------------------------------------------
*
*CATCHMENT 103 REPRESENTING AREA OF CHANNEL DOWNSTREAM OF KOMOKA CULVERT CROSSIN
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    2.72   Curve Number   (CN)=78.00
| 06:CAT103 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .082

     Unit Hyd Qpeak  (cms)=    1.267

     PEAK FLOW       (cms)=     .632 (i)
     TIME TO PEAK    (hrs)=   12.017
     RUNOFF VOLUME    (mm)=   59.999
     TOTAL RAINFALL   (mm)=  107.101
     RUNOFF COEFFICIENT   =     .560

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0025--------------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 1 ALSO THE KOMOKA CULVERT
*ENTRY POINT
*
------------------------
| ADD HYD (ENTRY2    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 09:KOMOKA       110.45    7.519   12.75  68.08    .000
                    +ID2 03:REACH2        27.89    2.753   12.38  67.11    .000
                    +ID3 04:EX.8            .77     .183   12.02  78.21    .000
                    +ID4 05:CAT102          .16     .048   12.00  86.53    .000
                    +ID5 06:CAT103         2.72     .632   12.02  60.00    .000
                     ==============================================================
                     SUM 07:ENTRY2       141.99    9.921   12.62  67.81    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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001:0026--------------------------------------------------------------------------
*
*ROUTING REACH 1 OF THE DIVERSION CHANNEL WITH A  0.15% SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
-------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 07:ENTRY2   |     Number of SEGMENTS =  3
| OUT< 08:REACH1   |     Slopes (%), CHANNEL= .15   FLOODPLAIN= .15
-------------------                 LENGTH =  771.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        242.64         .0300
                  4.40        241.18     .0300 / .0300  Main Channel
                 11.70        241.18     .0300 / .0300  Main Channel
                 16.10        242.64         .0300

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .077  241.259  .446E+03  .148E+02       .133      .230     55.79     .018
     .153  241.335  .919E+03  .610E+02       .431      .361     35.55     .055
     .230  241.412  .142E+04  .141E+03       .862      .468     27.43     .108
     .307  241.489  .195E+04  .258E+03      1.418      .562     22.88     .172
     .384  241.566  .250E+04  .415E+03      2.094      .645     19.92     .248
     .460  241.642  .308E+04  .614E+03      2.887      .722     17.81     .332
     .537  241.719  .369E+04  .858E+03      3.798      .792     16.22     .426
     .614  241.796  .433E+04  .115E+04      4.825      .859     14.96     .527
     .691  241.873  .500E+04  .149E+04      5.970      .921     13.95     .636
     .767  241.949  .569E+04  .189E+04      7.233      .980     13.11     .752
     .844  242.026  .641E+04  .234E+04      8.615     1.036     12.40     .875
     .921  242.103  .716E+04  .285E+04     10.118     1.090     11.79    1.004
     .998  242.180  .793E+04  .342E+04     11.743     1.142     11.26    1.139
    1.074  242.256  .873E+04  .406E+04     13.492     1.191     10.79    1.280
    1.151  242.333  .956E+04  .476E+04     15.366     1.239     10.37    1.426
    1.228  242.410  .104E+05  .553E+04*    17.368     1.285     10.00    1.578
    1.305  242.487  .113E+05  .637E+04*    19.497     1.330      9.66    1.735
    1.381  242.563  .122E+05  .729E+04*    21.758     1.373      9.36    1.897
    1.458  242.640  .132E+05  .829E+04*    24.151     1.416      9.08    2.064

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
 (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                               <---- hydrograph ---->   <-pipe / channel->
                          AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                          (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 7:ENTRY2    141.99    9.921   12.62 67.809      .911     1.083
   OUTFLOW: ID= 8:REACH1    141.99    9.404   12.78 67.809      .882     1.062


--------------------------------------------------------------------------------
001:0027--------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*  DISCHARGE TO THE WEST FROM THE SWM FACILITY COMBINED WITH EXTERNAL FLOWS    *
*       TO SHOW THE COMBINED POST DEVELOPMENT DISCHARGE TO THE WEST            *
*                                                                              *
********************************************************************************
-------------------
| READ HYD         |   AREA       (ha)=   10.063
| ID=09 (PIPE  )   |   QPEAK     (cms)=     .646
| DT= 1.00 PCYC= 1 |   TPEAK     (hrs)=   12.733
-------------------   VOLUME     (mm)=   85.184
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\100SCS-W.HYD
```

Comments: POST DEVELOPMENT FROM POND TO THE WEST

TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms
.00	.000	5.30	.000	10.60	.000	15.90	.205	21.20	.054
.02	.000	5.32	.000	10.62	.000	15.92	.203	21.22	.054
.03	.000	5.33	.000	10.63	.000	15.93	.202	21.23	.054
.05	.000	5.35	.000	10.65	.000	15.95	.201	21.25	.053
.07	.000	5.37	.000	10.67	.000	15.97	.200	21.27	.053
.08	.000	5.38	.000	10.68	.000	15.98	.198	21.28	.053
.10	.000	5.40	.000	10.70	.000	16.00	.197	21.30	.053
.12	.000	5.42	.000	10.72	.000	16.02	.196	21.32	.053
.13	.000	5.43	.000	10.73	.000	16.03	.195	21.33	.053
.15	.000	5.45	.000	10.75	.000	16.05	.194	21.35	.052
.17	.000	5.47	.000	10.77	.000	16.07	.192	21.37	.052
.18	.000	5.48	.000	10.78	.000	16.08	.191	21.38	.052
.20	.000	5.50	.000	10.80	.000	16.10	.190	21.40	.052
.22	.000	5.52	.000	10.82	.000	16.12	.189	21.42	.052
.23	.000	5.53	.000	10.83	.000	16.13	.188	21.43	.052
.25	.000	5.55	.000	10.85	.000	16.15	.186	21.45	.052
.27	.000	5.57	.000	10.87	.000	16.17	.185	21.47	.051
.28	.000	5.58	.000	10.88	.000	16.18	.184	21.48	.051
.30	.000	5.60	.000	10.90	.000	16.20	.183	21.50	.051
.32	.000	5.62	.000	10.92	.000	16.22	.181	21.52	.051
.33	.000	5.63	.000	10.93	.000	16.23	.180	21.53	.051
.35	.000	5.65	.000	10.95	.000	16.25	.179	21.55	.051
.37	.000	5.67	.000	10.97	.000	16.27	.178	21.57	.050
.38	.000	5.68	.000	10.98	.000	16.28	.176	21.58	.050
.40	.000	5.70	.000	11.00	.000	16.30	.175	21.60	.050
.42	.000	5.72	.000	11.02	.000	16.32	.174	21.62	.050
.43	.000	5.73	.000	11.03	.000	16.33	.172	21.63	.050
.45	.000	5.75	.000	11.05	.000	16.35	.171	21.65	.050
.47	.000	5.77	.000	11.07	.000	16.37	.170	21.67	.050
.48	.000	5.78	.000	11.08	.000	16.38	.168	21.68	.049
.50	.000	5.80	.000	11.10	.000	16.40	.167	21.70	.049
.52	.000	5.82	.000	11.12	.000	16.42	.166	21.72	.049
.53	.000	5.83	.000	11.13	.000	16.43	.164	21.73	.049
.55	.000	5.85	.000	11.15	.000	16.45	.163	21.75	.049
.57	.000	5.87	.000	11.17	.000	16.47	.162	21.77	.049
.58	.000	5.88	.000	11.18	.000	16.48	.160	21.78	.049
.60	.000	5.90	.000	11.20	.000	16.50	.159	21.80	.048
.62	.000	5.92	.000	11.22	.000	16.52	.158	21.82	.048
.63	.000	5.93	.000	11.23	.000	16.53	.157	21.83	.048
.65	.000	5.95	.000	11.25	.000	16.55	.155	21.85	.048
.67	.000	5.97	.000	11.27	.000	16.57	.154	21.87	.048
.68	.000	5.98	.000	11.28	.000	16.58	.153	21.88	.048
.70	.000	6.00	.000	11.30	.000	16.60	.151	21.90	.048
.72	.000	6.02	.000	11.32	.000	16.62	.150	21.92	.047
.73	.000	6.03	.000	11.33	.000	16.63	.149	21.93	.047
.75	.000	6.05	.000	11.35	.000	16.65	.148	21.95	.047
.77	.000	6.07	.000	11.37	.000	16.67	.147	21.97	.047
.78	.000	6.08	.000	11.38	.000	16.68	.145	21.98	.047
.80	.000	6.10	.000	11.40	.000	16.70	.144	22.00	.047
.82	.000	6.12	.000	11.42	.000	16.72	.143	22.02	.047
.83	.000	6.13	.000	11.43	.000	16.73	.142	22.03	.046
.85	.000	6.15	.000	11.45	.000	16.75	.141	22.05	.046
.87	.000	6.17	.000	11.47	.000	16.77	.140	22.07	.046
.88	.000	6.18	.000	11.48	.000	16.78	.139	22.08	.046
.90	.000	6.20	.000	11.50	.000	16.80	.138	22.10	.046
.92	.000	6.22	.000	11.52	.000	16.82	.137	22.12	.046
.93	.000	6.23	.000	11.53	.000	16.83	.136	22.13	.046
.95	.000	6.25	.000	11.55	.000	16.85	.135	22.15	.046
.97	.000	6.27	.000	11.57	.000	16.87	.134	22.17	.045
.98	.000	6.28	.000	11.58	.000	16.88	.132	22.18	.045
1.00	.000	6.30	.000	11.60	.000	16.90	.131	22.20	.045
1.02	.000	6.32	.000	11.62	.000	16.92	.130	22.22	.045
1.03	.000	6.33	.000	11.63	.000	16.93	.129	22.23	.045
1.05	.000	6.35	.000	11.65	.000	16.95	.128	22.25	.045
1.07	.000	6.37	.000	11.67	.000	16.97	.127	22.27	.045

1.08	.000	6.38	.000	11.68	.000	16.98	.126	22.28	.045
1.10	.000	6.40	.000	11.70	.000	17.00	.125	22.30	.044
1.12	.000	6.42	.000	11.72	.000	17.02	.124	22.32	.044
1.13	.000	6.43	.000	11.73	.000	17.03	.123	22.33	.044
1.15	.000	6.45	.000	11.75	.000	17.05	.122	22.35	.044
1.17	.000	6.47	.000	11.77	.000	17.07	.122	22.37	.044
1.18	.000	6.48	.000	11.78	.000	17.08	.121	22.38	.044
1.20	.000	6.50	.000	11.80	.000	17.10	.120	22.40	.044
1.22	.000	6.52	.000	11.82	.000	17.12	.119	22.42	.044
1.23	.000	6.53	.000	11.83	.000	17.13	.118	22.43	.043
1.25	.000	6.55	.000	11.85	.000	17.15	.117	22.45	.043
1.27	.000	6.57	.000	11.87	.000	17.17	.116	22.47	.043
1.28	.000	6.58	.000	11.88	.000	17.18	.115	22.48	.043
1.30	.000	6.60	.000	11.90	.000	17.20	.115	22.50	.043
1.32	.000	6.62	.000	11.92	.000	17.22	.114	22.52	.043
1.33	.000	6.63	.000	11.93	.007	17.23	.113	22.53	.043
1.35	.000	6.65	.000	11.95	.021	17.25	.112	22.55	.043
1.37	.000	6.67	.000	11.97	.036	17.27	.111	22.57	.043
1.38	.000	6.68	.000	11.98	.052	17.28	.111	22.58	.042
1.40	.000	6.70	.000	12.00	.068	17.30	.110	22.60	.042
1.42	.000	6.72	.000	12.02	.091	17.32	.109	22.62	.042
1.43	.000	6.73	.000	12.03	.133	17.33	.108	22.63	.042
1.45	.000	6.75	.000	12.05	.173	17.35	.108	22.65	.042
1.47	.000	6.77	.000	12.07	.212	17.37	.107	22.67	.042
1.48	.000	6.78	.000	12.08	.250	17.38	.106	22.68	.042
1.50	.000	6.80	.000	12.10	.286	17.40	.106	22.70	.042
1.52	.000	6.82	.000	12.12	.320	17.42	.105	22.72	.042
1.53	.000	6.83	.000	12.13	.351	17.43	.104	22.73	.041
1.55	.000	6.85	.000	12.15	.381	17.45	.103	22.75	.041
1.57	.000	6.87	.000	12.17	.409	17.47	.103	22.77	.041
1.58	.000	6.88	.000	12.18	.435	17.48	.102	22.78	.041
1.60	.000	6.90	.000	12.20	.459	17.50	.101	22.80	.041
1.62	.000	6.92	.000	12.22	.482	17.52	.101	22.82	.041
1.63	.000	6.93	.000	12.23	.502	17.53	.100	22.83	.041
1.65	.000	6.95	.000	12.25	.515	17.55	.099	22.85	.041
1.67	.000	6.97	.000	12.27	.527	17.57	.099	22.87	.041
1.68	.000	6.98	.000	12.28	.538	17.58	.098	22.88	.041
1.70	.000	7.00	.000	12.30	.548	17.60	.097	22.90	.040
1.72	.000	7.02	.000	12.32	.557	17.62	.097	22.92	.040
1.73	.000	7.03	.000	12.33	.565	17.63	.096	22.93	.040
1.75	.000	7.05	.000	12.35	.573	17.65	.095	22.95	.040
1.77	.000	7.07	.000	12.37	.581	17.67	.095	22.97	.040
1.78	.000	7.08	.000	12.38	.587	17.68	.094	22.98	.040
1.80	.000	7.10	.000	12.40	.594	17.70	.094	23.00	.040
1.82	.000	7.12	.000	12.42	.599	17.72	.093	23.02	.040
1.83	.000	7.13	.000	12.43	.605	17.73	.093	23.03	.040
1.85	.000	7.15	.000	12.45	.610	17.75	.092	23.05	.040
1.87	.000	7.17	.000	12.47	.614	17.77	.092	23.07	.039
1.88	.000	7.18	.000	12.48	.619	17.78	.091	23.08	.039
1.90	.000	7.20	.000	12.50	.622	17.80	.091	23.10	.039
1.92	.000	7.22	.000	12.52	.626	17.82	.090	23.12	.039
1.93	.000	7.23	.000	12.53	.629	17.83	.090	23.13	.039
1.95	.000	7.25	.000	12.55	.632	17.85	.089	23.15	.039
1.97	.000	7.27	.000	12.57	.635	17.87	.089	23.17	.039
1.98	.000	7.28	.000	12.58	.637	17.88	.088	23.18	.039
2.00	.000	7.30	.000	12.60	.639	17.90	.088	23.20	.039
2.02	.000	7.32	.000	12.62	.641	17.92	.087	23.22	.039
2.03	.000	7.33	.000	12.63	.642	17.93	.087	23.23	.039
2.05	.000	7.35	.000	12.65	.643	17.95	.086	23.25	.038
2.07	.000	7.37	.000	12.67	.644	17.97	.086	23.27	.038
2.08	.000	7.38	.000	12.68	.645	17.98	.085	23.28	.038
2.10	.000	7.40	.000	12.70	.646	18.00	.085	23.30	.038
2.12	.000	7.42	.000	12.72	.646	18.02	.084	23.32	.038
2.13	.000	7.43	.000	12.73	.646	18.03	.084	23.33	.038
2.15	.000	7.45	.000	12.75	.646	18.05	.083	23.35	.038
2.17	.000	7.47	.000	12.77	.646	18.07	.083	23.37	.038
2.18	.000	7.48	.000	12.78	.645	18.08	.082	23.38	.038
2.20	.000	7.50	.000	12.80	.645	18.10	.082	23.40	.038
2.22	.000	7.52	.000	12.82	.644	18.12	.081	23.42	.038
2.23	.000	7.53	.000	12.83	.644	18.13	.081	23.43	.038
2.25	.000	7.55	.000	12.85	.643	18.15	.080	23.45	.037
2.27	.000	7.57	.000	12.87	.642	18.17	.080	23.47	.037
2.28	.000	7.58	.000	12.88	.641	18.18	.080	23.48	.037
2.30	.000	7.60	.000	12.90	.639	18.20	.080	23.50	.037
2.32	.000	7.62	.000	12.92	.638	18.22	.080	23.52	.037
2.33	.000	7.63	.000	12.93	.637	18.23	.079	23.53	.037
2.35	.000	7.65	.000	12.95	.635	18.25	.079	23.55	.037
2.37	.000	7.67	.000	12.97	.634	18.27	.079	23.57	.037
2.38	.000	7.68	.000	12.98	.632	18.28	.079	23.58	.037
2.40	.000	7.70	.000	13.00	.631	18.30	.079	23.60	.037
2.42	.000	7.72	.000	13.02	.629	18.32	.079	23.62	.037
2.43	.000	7.73	.000	13.03	.627	18.33	.079	23.63	.037
2.45	.000	7.75	.000	13.05	.626	18.35	.078	23.65	.036
2.47	.000	7.77	.000	13.07	.624	18.37	.078	23.67	.036
2.48	.000	7.78	.000	13.08	.622	18.38	.078	23.68	.036
2.50	.000	7.80	.000	13.10	.620	18.40	.078	23.70	.036
2.52	.000	7.82	.000	13.12	.618	18.42	.078	23.72	.036
2.53	.000	7.83	.000	13.13	.616	18.43	.078	23.73	.036
2.55	.000	7.85	.000	13.15	.614	18.45	.078	23.75	.036
2.57	.000	7.87	.000	13.17	.612	18.47	.077	23.77	.036
2.58	.000	7.88	.000	13.18	.610	18.48	.077	23.78	.036
2.60	.000	7.90	.000	13.20	.607	18.50	.077	23.80	.036
2.62	.000	7.92	.000	13.22	.605	18.52	.077	23.82	.036
2.63	.000	7.93	.000	13.23	.603	18.53	.077	23.83	.036
2.65	.000	7.95	.000	13.25	.601	18.55	.077	23.85	.036
2.67	.000	7.97	.000	13.27	.598	18.57	.076	23.87	.035
2.68	.000	7.98	.000	13.28	.596	18.58	.076	23.88	.035
2.70	.000	8.00	.000	13.30	.594	18.60	.076	23.90	.035
2.72	.000	8.02	.000	13.32	.591	18.62	.076	23.92	.035
2.73	.000	8.03	.000	13.33	.589	18.63	.076	23.93	.035
2.75	.000	8.05	.000	13.35	.587	18.65	.076	23.95	.035
2.77	.000	8.07	.000	13.37	.584	18.67	.076	23.97	.035
2.78	.000	8.08	.000	13.38	.582	18.68	.075	23.98	.035
2.80	.000	8.10	.000	13.40	.579	18.70	.075	24.00	.035
2.82	.000	8.12	.000	13.42	.577	18.72	.075	24.02	.035
2.83	.000	8.13	.000	13.43	.574	18.73	.075	24.03	.035
2.85	.000	8.15	.000	13.45	.572	18.75	.075	24.05	.035
2.87	.000	8.17	.000	13.47	.569	18.77	.075	24.07	.035
2.88	.000	8.18	.000	13.48	.567	18.78	.075	24.08	.034
2.90	.000	8.20	.000	13.50	.565	18.80	.075	24.10	.034
2.92	.000	8.22	.000	13.52	.562	18.82	.074	24.12	.034
2.93	.000	8.23	.000	13.53	.560	18.83	.074	24.13	.034
2.95	.000	8.25	.000	13.55	.557	18.85	.074	24.15	.034
2.97	.000	8.27	.000	13.57	.555	18.87	.074	24.17	.034
2.98	.000	8.28	.000	13.58	.552	18.88	.074	24.18	.034
3.00	.000	8.30	.000	13.60	.550	18.90	.074	24.20	.033
3.02	.000	8.32	.000	13.62	.547	18.92	.074	24.22	.033
3.03	.000	8.33	.000	13.63	.545	18.93	.074	24.23	.033
3.05	.000	8.35	.000	13.65	.542	18.95	.073	24.25	.033
3.07	.000	8.37	.000	13.67	.540	18.97	.073	24.27	.033
3.08	.000	8.38	.000	13.68	.537	18.98	.073	24.28	.032
3.10	.000	8.40	.000	13.70	.535	19.00	.073	24.30	.032
3.12	.000	8.42	.000	13.72	.532	19.02	.073	24.32	.032
3.13	.000	8.43	.000	13.73	.530	19.03	.073	24.33	.032
3.15	.000	8.45	.000	13.75	.527	19.05	.073	24.35	.031
3.17	.000	8.47	.000	13.77	.524	19.07	.072	24.37	.031
3.18	.000	8.48	.000	13.78	.522	19.08	.072	24.38	.031
3.20	.000	8.50	.000	13.80	.519	19.10	.072	24.40	.031
3.22	.000	8.52	.000	13.82	.517	19.12	.072	24.42	.030
3.23	.000	8.53	.000	13.83	.514	19.13	.072	24.43	.030
3.25	.000	8.55	.000	13.85	.512	19.15	.072	24.45	.030
3.27	.000	8.57	.000	13.87	.509	19.17	.072	24.47	.029
3.28	.000	8.58	.000	13.88	.507	19.18	.072	24.48	.029
3.30	.000	8.60	.000	13.90	.504	19.20	.071	24.50	.029
3.32	.000	8.62	.000	13.92	.502	19.22	.071	24.52	.029
3.33	.000	8.63	.000	13.93	.499	19.23	.071	24.53	.028
3.35	.000	8.65	.000	13.95	.495	19.25	.071	24.55	.028
3.37	.000	8.67	.000	13.97	.492	19.27	.071	24.57	.028

3.38	.000	8.68	.000	13.98	.488	19.28	.071	24.58	.027
3.40	.000	8.70	.000	14.00	.484	19.30	.071	24.60	.027
3.42	.000	8.72	.000	14.02	.480	19.32	.071	24.62	.027
3.43	.000	8.73	.000	14.03	.477	19.33	.071	24.63	.026
3.45	.000	8.75	.000	14.05	.473	19.35	.071	24.65	.026
3.47	.000	8.77	.000	14.07	.470	19.37	.070	24.67	.026
3.48	.000	8.78	.000	14.08	.466	19.38	.070	24.68	.026
3.50	.000	8.80	.000	14.10	.462	19.40	.070	24.70	.025
3.52	.000	8.82	.000	14.12	.459	19.42	.070	24.72	.025
3.53	.000	8.83	.000	14.13	.455	19.43	.070	24.73	.025
3.55	.000	8.85	.000	14.15	.452	19.45	.070	24.75	.024
3.57	.000	8.87	.000	14.17	.448	19.47	.070	24.77	.024
3.58	.000	8.88	.000	14.18	.444	19.48	.070	24.78	.024
3.60	.000	8.90	.000	14.20	.441	19.50	.070	24.80	.024
3.62	.000	8.92	.000	14.22	.437	19.52	.069	24.82	.023
3.63	.000	8.93	.000	14.23	.434	19.53	.069	24.83	.023
3.65	.000	8.95	.000	14.25	.431	19.55	.069	24.85	.023
3.67	.000	8.97	.000	14.27	.427	19.57	.069	24.87	.022
3.68	.000	8.98	.000	14.28	.424	19.58	.069	24.88	.022
3.70	.000	9.00	.000	14.30	.420	19.60	.069	24.90	.022
3.72	.000	9.02	.000	14.32	.417	19.62	.069	24.92	.022
3.73	.000	9.03	.000	14.33	.413	19.63	.069	24.93	.021
3.75	.000	9.05	.000	14.35	.410	19.65	.069	24.95	.021
3.77	.000	9.07	.000	14.37	.407	19.67	.068	24.97	.021
3.78	.000	9.08	.000	14.38	.403	19.68	.068	24.98	.020
3.80	.000	9.10	.000	14.40	.400	19.70	.068	25.00	.020
3.82	.000	9.12	.000	14.42	.397	19.72	.068	25.02	.020
3.83	.000	9.13	.000	14.43	.394	19.73	.068	25.03	.020
3.85	.000	9.15	.000	14.45	.390	19.75	.068	25.05	.019
3.87	.000	9.17	.000	14.47	.387	19.77	.068	25.07	.019
3.88	.000	9.18	.000	14.48	.384	19.78	.068	25.08	.019
3.90	.000	9.20	.000	14.50	.381	19.80	.068	25.10	.018
3.92	.000	9.22	.000	14.52	.377	19.82	.068	25.12	.018
3.93	.000	9.23	.000	14.53	.374	19.83	.068	25.13	.018
3.95	.000	9.25	.000	14.55	.371	19.85	.067	25.15	.018
3.97	.000	9.27	.000	14.57	.368	19.87	.067	25.17	.017
3.98	.000	9.28	.000	14.58	.365	19.88	.067	25.18	.017
4.00	.000	9.30	.000	14.60	.362	19.90	.067	25.20	.017
4.02	.000	9.32	.000	14.62	.359	19.92	.067	25.22	.016
4.03	.000	9.33	.000	14.63	.356	19.93	.067	25.23	.016
4.05	.000	9.35	.000	14.65	.353	19.95	.067	25.25	.016
4.07	.000	9.37	.000	14.67	.351	19.97	.067	25.27	.016
4.08	.000	9.38	.000	14.68	.348	19.98	.067	25.28	.015
4.10	.000	9.40	.000	14.70	.345	20.00	.067	25.30	.015
4.12	.000	9.42	.000	14.72	.342	20.02	.066	25.32	.015
4.13	.000	9.43	.000	14.73	.339	20.03	.066	25.33	.015
4.15	.000	9.45	.000	14.75	.337	20.05	.066	25.35	.014
4.17	.000	9.47	.000	14.77	.334	20.07	.066	25.37	.014
4.18	.000	9.48	.000	14.78	.331	20.08	.066	25.38	.014
4.20	.000	9.50	.000	14.80	.329	20.10	.066	25.40	.014
4.22	.000	9.52	.000	14.82	.326	20.12	.066	25.42	.013
4.23	.000	9.53	.000	14.83	.324	20.13	.066	25.43	.013
4.25	.000	9.55	.000	14.85	.321	20.15	.065	25.45	.013
4.27	.000	9.57	.000	14.87	.319	20.17	.065	25.47	.013
4.28	.000	9.58	.000	14.88	.316	20.18	.065	25.48	.012
4.30	.000	9.60	.000	14.90	.314	20.20	.065	25.50	.012
4.32	.000	9.62	.000	14.92	.311	20.22	.065	25.52	.012
4.33	.000	9.63	.000	14.93	.309	20.23	.065	25.53	.012
4.35	.000	9.65	.000	14.95	.307	20.25	.065	25.55	.011
4.37	.000	9.67	.000	14.97	.304	20.27	.064	25.57	.011
4.38	.000	9.68	.000	14.98	.302	20.28	.064	25.58	.011
4.40	.000	9.70	.000	15.00	.300	20.30	.064	25.60	.011
4.42	.000	9.72	.000	15.02	.297	20.32	.064	25.62	.010
4.43	.000	9.73	.000	15.03	.295	20.33	.064	25.63	.010
4.45	.000	9.75	.000	15.05	.293	20.35	.063	25.65	.010
4.47	.000	9.77	.000	15.07	.290	20.37	.063	25.67	.010
4.48	.000	9.78	.000	15.08	.288	20.38	.063	25.68	.009
4.50	.000	9.80	.000	15.10	.286	20.40	.063	25.70	.009
4.52	.000	9.82	.000	15.12	.284	20.42	.063	25.72	.009
4.53	.000	9.83	.000	15.13	.281	20.43	.062	25.73	.009
4.55	.000	9.85	.000	15.15	.279	20.45	.062	25.75	.009
4.57	.000	9.87	.000	15.17	.277	20.47	.062	25.77	.008
4.58	.000	9.88	.000	15.18	.275	20.48	.062	25.78	.008
4.60	.000	9.90	.000	15.20	.273	20.50	.062	25.80	.008
4.62	.000	9.92	.000	15.22	.271	20.52	.062	25.82	.008
4.63	.000	9.93	.000	15.23	.269	20.53	.061	25.83	.007
4.65	.000	9.95	.000	15.25	.267	20.55	.061	25.85	.007
4.67	.000	9.97	.000	15.27	.265	20.57	.061	25.87	.007
4.68	.000	9.98	.000	15.28	.263	20.58	.061	25.88	.007
4.70	.000	10.00	.000	15.30	.261	20.60	.061	25.90	.007
4.72	.000	10.02	.000	15.32	.259	20.62	.060	25.92	.006
4.73	.000	10.03	.000	15.33	.257	20.63	.060	25.93	.006
4.75	.000	10.05	.000	15.35	.255	20.65	.060	25.95	.006
4.77	.000	10.07	.000	15.37	.253	20.67	.060	25.97	.006
4.78	.000	10.08	.000	15.38	.252	20.68	.060	25.98	.005
4.80	.000	10.10	.000	15.40	.250	20.70	.059	26.00	.005
4.82	.000	10.12	.000	15.42	.248	20.72	.059	26.02	.005
4.83	.000	10.13	.000	15.43	.246	20.73	.059	26.03	.005
4.85	.000	10.15	.000	15.45	.244	20.75	.059	26.05	.005
4.87	.000	10.17	.000	15.47	.243	20.77	.059	26.07	.004
4.88	.000	10.18	.000	15.48	.241	20.78	.058	26.08	.004
4.90	.000	10.20	.000	15.50	.239	20.80	.058	26.10	.004
4.92	.000	10.22	.000	15.52	.237	20.82	.058	26.12	.004
4.93	.000	10.23	.000	15.53	.236	20.83	.058	26.13	.004
4.95	.000	10.25	.000	15.55	.234	20.85	.058	26.15	.003
4.97	.000	10.27	.000	15.57	.232	20.87	.058	26.17	.003
4.98	.000	10.28	.000	15.58	.231	20.88	.057	26.18	.003
5.00	.000	10.30	.000	15.60	.229	20.90	.057	26.20	.003
5.02	.000	10.32	.000	15.62	.228	20.92	.057	26.22	.003
5.03	.000	10.33	.000	15.63	.226	20.93	.057	26.23	.002
5.05	.000	10.35	.000	15.65	.225	20.95	.057	26.25	.002
5.07	.000	10.37	.000	15.67	.223	20.97	.056	26.27	.002
5.08	.000	10.38	.000	15.68	.222	20.98	.056	26.28	.002
5.10	.000	10.40	.000	15.70	.220	21.00	.056	26.30	.002
5.12	.000	10.42	.000	15.72	.219	21.02	.056	26.32	.001
5.13	.000	10.43	.000	15.73	.218	21.03	.056	26.33	.001
5.15	.000	10.45	.000	15.75	.216	21.05	.056	26.35	.001
5.17	.000	10.47	.000	15.77	.215	21.07	.055	26.37	.001
5.18	.000	10.48	.000	15.78	.213	21.08	.055	26.38	.001
5.20	.000	10.50	.000	15.80	.212	21.10	.055	26.40	.000
5.22	.000	10.52	.000	15.82	.211	21.12	.055	26.42	.000
5.23	.000	10.53	.000	15.83	.210	21.13	.055	26.43	.000
5.25	.000	10.55	.000	15.85	.208	21.15	.054		
5.27	.000	10.57	.000	15.87	.207	21.17	.054		
5.28	.000	10.58	.000	15.88	.206	21.18	.054		

001:0028----------

****

*

* TOTAL POST DEVELOPMENT DISCHARGE TO THE WEST *

*

****

ADD HYD (POST)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
	ID1 08:REACH1	141.99	9.404	12.78	67.81	.000
	+ID2 09:PIPE	10.06	.646	12.73	85.18	.000
	SUM 10:POST	152.05	10.049	12.78	68.96	.000

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

001:0029----------

FINISH

****

WARNINGS / ERRORS / NOTES

```
    -------------------------
 001:0008 ROUTE CHANNEL   ->
      *** WARNING: TRAVEL TIME TABLE was exceeded
   Simulation ended on 2020-07-30     at 10:52:30
================================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9    =========
                                                         9   9  9   9   # 2957874
        StormWater Management HYdrologic Model           999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ******** Distributed by:  J.F. Sabourin and Associates Inc.           *********
 *********                  Ottawa,  Ontario: (613) 836-3884           *********
 *********                  Gatineau, Quebec: (819) 243-6858           *********
 *********                  E-Mail: swmhymo@jfsa.Com                   *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                         +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *********
 *********           Maximum value for ID numbers  :     10            *********
 *********           Max. number of rainfall points: 105408            *********
 *********           Max. number of flow points    : 105408            *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:52:57     RUN COUNTER: 000840         *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps250y.dat       *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps250y.out       *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps250y.sum       *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001----------------------------------------------------------------------
*################################################################################
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*################################################################################
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002----------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=3048.220
| Ptotal= 86.61 mm |                          B=  10.030
--------------------                          C=    .888
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  3.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =   .38

            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
             .08   4.911 |    .83  20.544 |   1.58  26.471 |   2.33   7.766
             .17   5.383 |    .92  29.598 |   1.67  21.310 |   2.42   7.167
             .25   5.954 |   1.00  49.310 |   1.75  17.716 |   2.50   6.652
             .33   6.656 |   1.08 112.508 |   1.83  15.092 |   2.58   6.204
             .42   7.541 |   1.17 274.730 |   1.92  13.104 |   2.67   5.811
             .50   8.685 |   1.25 133.591 |   2.00  11.554 |   2.75   5.465
             .58  10.215 |   1.33  72.819 |   2.08  10.315 |   2.83   5.157
             .67  12.349 |   1.42  47.569 |   2.17   9.306 |   2.92   4.882
             .75  15.503 |   1.50  34.367 |   2.25   8.469 |   3.00   4.634

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
********************************************************************************
*                                                                              *
*      POST DEVELOPMENT EXTERNAL FLOW ANALYSIS AND DIVERSION CHANNEL           *
*                                                                              *
********************************************************************************
*
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=    2.897 (i)
     TIME TO PEAK    (hrs)=    1.733
     RUNOFF VOLUME    (mm)=   49.516
     TOTAL RAINFALL   (mm)=   86.609
     RUNOFF COEFFICIENT   =     .572

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    8.257 (i)
     TIME TO PEAK    (hrs)=    2.083
     RUNOFF VOLUME    (mm)=   49.516
     TOTAL RAINFALL   (mm)=   86.609
     RUNOFF COEFFICIENT   =     .572

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

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--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                 LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0300
                 3.00          99.00     .0300 / .0300  Main Channel
                 5.00          99.00     .0300 / .0300  Main Channel
                 8.00         100.00         .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2:EX.2      104.80    8.257    2.08 49.516      .814     2.279
   OUTFLOW: ID= 3:CHAN      104.80    8.253    2.10 49.516      .813     2.278


--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .651 (i)
     TIME TO PEAK    (hrs)=    1.433

     RUNOFF VOLUME    (mm)=   54.165
     TOTAL RAINFALL   (mm)=   86.609
     RUNOFF COEFFICIENT   =     .625

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0007----------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 03:CHAN         104.80    8.253    2.10  49.52    .000
                      +ID2 04:EX.3           3.15     .651    1.43  54.16    .000
                       ============================================================
                       SUM 05:EX2+3        107.95    8.404    2.08  49.65    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0008----------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                 LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0250
                 1.35          99.55     .0250 / .0250  Main Channel
                 9.35          99.55     .0250 / .0250  Main Channel
                10.70         100.00         .0250

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
```

```
     *** WARNING: TRAVEL TIME TABLE was exceeded
                                <---- hydrograph ---->   <-pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 5:EX2+3     107.95    8.404    2.08 49.652      .449     1.566
   OUTFLOW: ID= 6:LOT.CH    107.95    8.397    2.10 49.652      .450     1.567


--------------------------------------------------------------------------------
001:0009--------------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .15          .35
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .35         2.00
     Length            (m)=     97.00        27.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    274.73       273.88
               over (min)       2.00         6.00
     Storage Coeff.  (min)=      2.50 (ii)    6.23 (ii)
     Unit Hyd. Tpeak (min)=      2.00         6.00
     Unit Hyd. peak  (cms)=       .48          .18
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .00          .18          .182 (iii)
     TIME TO PEAK    (hrs)=      1.17         1.25         1.250
     RUNOFF VOLUME    (mm)=     84.61        61.45        61.680
     TOTAL RAINFALL   (mm)=     86.61        86.61        86.609
     RUNOFF COEFFICIENT   =       .98          .71          .712

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0010--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =      1
---------------------   Total minor system capacity          =    .080  (cms)
                        Total major system storage [TMJSTO] =      0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.       DWF
                                  (ha)     (cms)     (hrs)     (mm)     (cms)
     TOTAL HYD.   07:EX.4          .50      .182     1.250   61.680     .000
     ================================================================================
     MAJOR SYST   09:EX4>10        .12      .102     1.250   61.680     .000
     MINOR SYST   08:EX4<10        .38      .080     1.133   61.679     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0011--------------------------------------------------------------------------
*
```

```
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                   (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 06:LOT.CH      107.95    8.397    2.10  49.65    .000
                       +ID2 09:EX4>10         .12     .102    1.25  61.68    .000
                        ================================================================
                        SUM 10:E2+3+4      108.07    8.397    2.10  49.66    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012--------------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)   |
| OUT<02:(UNION )   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.520  .2530E-01
                            .050  .1000E-03   |    2.710  .2980E-01
                            .210  .4200E-03   |    2.731  .3030E-01
                            .460  .1420E-02   |    3.482  .3590E-01
                            .780  .3510E-02   |    5.852  .4200E-01
                           1.170  .6700E-02   |    6.644  .4330E-01
                           1.610  .1100E-01   |    7.455  .4530E-01
                           2.060  .1700E-01   |     .000  .0000E+00
      *** WARNING: STORAGE-Q values were extrapolated.
                   Increase curve or use overflow option.

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     108.07     8.397     2.100     49.665
     OUTFLOW<02: (UNION )     108.07     8.397     2.117     49.665

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  100.000
                   TIME SHIFT OF PEAK FLOW         (min)=     1.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=.4762E-01

      *** WARNING: Inflow peak was not reduced!
                   Check OUTFLOW/STORAGE table or reduce DT.
--------------------------------------------------------------------------------
001:0013--------------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .62          .42
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    185.00        15.00
     Mannings n           =      .015         .250

     Max.eff.Inten.(mm/hr)=    274.73       244.34
               over (min)       3.00         6.00
     Storage Coeff.  (min)=      3.31 (ii)    6.05 (ii)
     Unit Hyd. Tpeak (min)=      3.00         6.00
     Unit Hyd. peak  (cms)=       .35          .19
```

```
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .31          .19          .467 (iii)
     TIME TO PEAK    (hrs)=       1.18         1.25         1.200
     RUNOFF VOLUME    (mm)=      84.61        59.79        71.701
     TOTAL RAINFALL   (mm)=      86.61        86.61        86.609
     RUNOFF COEFFICIENT   =        .98          .69          .828

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0014--------------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     100.00        25.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     274.73       224.36
               over (min)        2.00         6.00
     Storage Coeff.  (min)=       2.29 (ii)    6.14 (ii)
     Unit Hyd. Tpeak (min)=       2.00         6.00
     Unit Hyd. peak  (cms)=        .51          .19
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .87          .53         1.239 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.25         1.183
     RUNOFF VOLUME    (mm)=      84.61        58.52        70.262
     TOTAL RAINFALL   (mm)=      86.61        86.61        86.609
     RUNOFF COEFFICIENT   =        .98          .68          .811

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015--------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6   |   Number of inlets in system [NINLET] =       1
---------------------    Total minor system capacity         =   1.142  (cms)
                         Total major system storage [TMJSTO] =       0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79     1.239     1.183   70.262     .000
     ======================================================================
     MAJOR SYST   06:>100YR        .02      .097     1.183   70.262     .000
     MINOR SYST   05:<100YR       2.77     1.142     1.167   70.262     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
--------------------------------------------------------------------------------
001:0016--------------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     274.73       219.02
               over (min)        4.00         9.00
     Storage Coeff.  (min)=       3.96 (ii)    9.12 (ii)
     Unit Hyd. Tpeak (min)=       4.00         9.00
     Unit Hyd. peak  (cms)=        .28          .12
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .16          .34          .450 (iii)
     TIME TO PEAK    (hrs)=       1.20         1.30         1.283
     RUNOFF VOLUME    (mm)=      84.61        60.29        65.156
     TOTAL RAINFALL   (mm)=      86.61        86.61        86.609
     RUNOFF COEFFICIENT   =        .98          .70          .752

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017--------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
------------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:UNION        108.07    8.397    2.12  49.66    .000
                       +ID2 03:EX.5           1.04     .467    1.20  71.70    .000
                       +ID3 06:>100YR          .02     .097    1.18  70.26    .000
                       +ID4 07:EX.7           1.42     .450    1.28  65.16    .000
                        ============================================================
                        SUM 08:EX.2-7       110.54    8.478    2.10  50.07    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018--------------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.280  .5256E-01
                            .000  .3700E-03   |    2.570  .7370E-01
```

```
                          .140  .1370E-02   |    2.820  .1028E+00
                          .240  .3940E-02   |    2.860  .1083E+00
                          .600  .8620E-02   |    3.700  .1227E+00
                         1.060  .1550E-01   |    6.088  .1328E+00
                         1.500  .2463E-01   |    8.010  .1486E+00
                         1.920  .4198E-01   |    .000   .0000E+00
      *** WARNING: STORAGE-Q values were extrapolated.
                   Increase curve or use overflow option.

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------         (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.54     8.478     2.100     50.074
     OUTFLOW<09: (KOMOKA)     110.54     8.473     2.133     50.071

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.945
                   TIME SHIFT OF PEAK FLOW         (min)=     2.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=.1524E+00

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------------
********************************************************************************
*                                                                              *
*             BEGIN DIVERSION CHANNEL PORTION OF THE MODEL                     *
*                                                                              *
********************************************************************************
*
*CATCHMENT 101 REPRESENTING AREA OF CHANNEL UPSTREAM OF KOMOKA CULVERT CROSSING
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    2.31   Curve Number   (CN)=80.00
| 10:CAT101 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .297

     Unit Hyd Qpeak  (cms)=     .297

     PEAK FLOW       (cms)=     .331 (i)
     TIME TO PEAK    (hrs)=    1.533
     RUNOFF VOLUME    (mm)=   45.897
     TOTAL RAINFALL   (mm)=   86.609
     RUNOFF COEFFICIENT   =     .530

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 2, THE NORTH ENTRY POINT OF
*EXTERNAL FLOWS.
*
------------------------
| ADD HYD (ENTRY1    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 01:EX.1          25.58    2.897    1.73  49.52    .000
                    +ID2 10:CAT101         2.31     .331    1.53  45.90    .000
                     ==========================================================
                     SUM 02:ENTRY1        27.89    3.175    1.72  49.22    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------------
*
*ROUTING REACH 2 OF THE DIVERSION CHANNEL WITH AN AVERAGE SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:ENTRY1   |     Number of SEGMENTS =  3
```

```
| OUT< 03:REACH2   |     Slopes (%), CHANNEL= .42   FLOODPLAIN= .42
--------------------                  LENGTH =  224.00    (m)

               <------ DATA FOR SECTION (   2.0) ------>
               Distance      Elevation       Manning
                    .00        243.44         .0300
                   5.21        242.20     .0300 / .0300  Main Channel
                   8.81        242.20     .0300 / .0300  Main Channel
                  12.56        243.44         .0300

   <--------------------------- TRAVEL TIME TABLE --------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .065  242.268  .559E+02  .194E+01       .085      .341     10.94     .022
     .130  242.333  .119E+03  .822E+01       .281      .530      7.04     .069
     .195  242.398  .188E+03  .196E+02       .573      .681      5.48     .133
     .260  242.463  .265E+03  .367E+02       .959      .811      4.61     .211
     .326  242.529  .349E+03  .603E+02      1.439      .925      4.04     .301
     .391  242.594  .439E+03  .911E+02      2.016     1.029      3.63     .402
     .456  242.659  .536E+03  .130E+03      2.691     1.124      3.32     .512
     .521  242.724  .640E+03  .177E+03      3.467     1.213      3.08     .632
     .586  242.789  .751E+03  .234E+03      4.348     1.297      2.88     .760
     .651  242.854  .869E+03  .301E+03      5.335     1.375      2.71     .895
     .716  242.919  .994E+03  .378E+03      6.433     1.450      2.57    1.039
     .781  242.984  .113E+04  .467E+03      7.645     1.522      2.45    1.189
     .846  243.049  .126E+04  .569E+03      8.973     1.590      2.35    1.346
     .912  243.115  .141E+04  .683E+03     10.421     1.656      2.25    1.510
     .977  243.180  .156E+04  .811E+03*    11.992     1.720      2.17    1.680
    1.042  243.245  .172E+04  .953E+03*    13.689     1.782      2.09    1.857
    1.107  243.310  .189E+04  .111E+04*    15.515     1.842      2.03    2.039
    1.172  243.375  .206E+04  .128E+04*    17.474     1.900      1.96    2.227
    1.237  243.440  .224E+04  .147E+04*    19.568     1.957      1.91    2.422

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
 (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                  <---- hydrograph ---->   <-pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 2:ENTRY1      27.89    3.175    1.72 49.216      .496     1.178
   OUTFLOW: ID= 3:REACH2      27.89    3.152    1.75 49.216      .492     1.172


--------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------------
*
*#KOMOKA ROAD WEST SIDE OF CENTERLINE DRAINING TO CHANNEL, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .77
| 04:EX.8   DT= 1.00 |   Total Imp(%)=   36.00   Dir. Conn.(%)=   31.00
----------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .28          .49
     Dep. Storage     (mm)=      5.00         2.00
     Average Slope     (%)=       .50         2.00
     Length            (m)=    250.00        15.00
     Mannings n            =      .015         .250

     Max.eff.Inten.(mm/hr)=    274.73       153.12
               over (min)       4.00         7.00
     Storage Coeff.  (min)=      3.96 (ii)    7.27 (ii)
     Unit Hyd. Tpeak (min)=      4.00         7.00
     Unit Hyd. peak  (cms)=       .28          .16
                                                        *TOTALS*
     PEAK FLOW       (cms)=       .14          .14          .254 (iii)
     TIME TO PEAK    (hrs)=      1.20         1.27         1.217
```

```
     RUNOFF VOLUME    (mm)=      81.61        50.00         59.801
     TOTAL RAINFALL   (mm)=      86.61        86.61         86.609
     RUNOFF COEFFICIENT   =        .94          .58           .690

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0023----------------------------------------------------------------------
*
*#PORTION OF STREET 'A' DRAINING TO DIVERSION CHANNEL
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .16
| 05:CAT102 DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .10          .06
     Dep. Storage     (mm)=       5.00         2.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=      22.00        34.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     274.73       213.52
           over (min)          1.00         6.00
     Storage Coeff.  (min)=        .92 (ii)    5.65 (ii)
     Unit Hyd. Tpeak (min)=       1.00         6.00
     Unit Hyd. peak  (cms)=       1.12          .20
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .06          .03          .076 (iii)
     TIME TO PEAK    (hrs)=       1.17         1.25         1.167
     RUNOFF VOLUME    (mm)=      81.61        54.04        67.273
     TOTAL RAINFALL   (mm)=      86.61        86.61        86.609
     RUNOFF COEFFICIENT   =        .94          .62          .777

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0024----------------------------------------------------------------------
*
*CATCHMENT 103 REPRESENTING AREA OF CHANNEL DOWNSTREAM OF KOMOKA CULVERT CROSSIN
*
---------------------
| CALIB NASHYD       |   Area    (ha)=    2.72   Curve Number   (CN)=78.00
| 06:CAT103 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .082

     Unit Hyd Qpeak  (cms)=    1.267

     PEAK FLOW       (cms)=     .732 (i)
     TIME TO PEAK    (hrs)=    1.250
     RUNOFF VOLUME    (mm)=   43.458
     TOTAL RAINFALL   (mm)=   86.609
     RUNOFF COEFFICIENT   =     .502

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0025----------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 1 ALSO THE KOMOKA CULVERT
*ENTRY POINT
*
-----------------------
| ADD HYD (ENTRY2    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                       ID1 09:KOMOKA       110.54   8.473    2.13  50.07    .000
                      +ID2 03:REACH2        27.89   3.152    1.75  49.22    .000
                      +ID3 04:EX.8            .77    .254    1.22  59.80    .000
                      +ID4 05:CAT102          .16    .076    1.17  67.27    .000
                      +ID5 06:CAT103         2.72    .732    1.25  43.46    .000
                       ============================================================
                       SUM 07:ENTRY2       142.08  11.175    2.00  49.85    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0026----------------------------------------------------------------------
*
*ROUTING REACH 1 OF THE DIVERSION CHANNEL WITH A  0.15% SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 07:ENTRY2   |     Number of SEGMENTS =  3
| OUT< 08:REACH1   |     Slopes (%), CHANNEL= .15   FLOODPLAIN= .15
--------------------                LENGTH =  771.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        242.64         .0300
                  4.40        241.18     .0300 / .0300  Main Channel
                 11.70        241.18     .0300 / .0300  Main Channel
                 16.10        242.64         .0300

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .077  241.259  .446E+03  .148E+02       .133      .230     55.79     .018
     .153  241.335  .919E+03  .610E+02       .431      .361     35.55     .055
     .230  241.412  .142E+04  .141E+03       .862      .468     27.43     .108
     .307  241.489  .195E+04  .258E+03      1.418      .562     22.88     .172
     .384  241.566  .250E+04  .415E+03      2.094      .645     19.92     .248
     .460  241.642  .308E+04  .614E+03      2.887      .722     17.81     .332
     .537  241.719  .369E+04  .858E+03      3.798      .792     16.22     .426
     .614  241.796  .433E+04  .115E+04      4.825      .859     14.96     .527
     .691  241.873  .500E+04  .149E+04      5.970      .921     13.95     .636
     .767  241.949  .569E+04  .189E+04      7.233      .980     13.11     .752
     .844  242.026  .641E+04  .234E+04      8.615     1.036     12.40     .875
     .921  242.103  .716E+04  .285E+04     10.118     1.090     11.79    1.004
     .998  242.180  .793E+04  .342E+04     11.743     1.142     11.26    1.139
    1.074  242.256  .873E+04  .406E+04     13.492     1.191     10.79    1.280
    1.151  242.333  .956E+04  .476E+04     15.366     1.239     10.37    1.426
    1.228  242.410  .104E+05  .553E+04*    17.368     1.285     10.00    1.578
    1.305  242.487  .113E+05  .637E+04*    19.497     1.330      9.66    1.735
    1.381  242.563  .122E+05  .729E+04*    21.758     1.373      9.36    1.897
    1.458  242.640  .132E+05  .829E+04*    24.151     1.416      9.08    2.064

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
 (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                  <---- hydrograph ---->   <-pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 7:ENTRY2    142.08   11.175    2.00 49.848      .971     1.123
   OUTFLOW: ID= 8:REACH1    142.08   10.592    2.17 49.848      .943     1.104


--------------------------------------------------------------------------------
```

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001:0027-------------------------------------------------------------------------------
*******************************************************************************
*                                                                             *
*  DISCHARGE TO THE WEST FROM THE SWM FACILITY COMBINED WITH EXTERNAL FLOWS    *
*       TO SHOW THE COMBINED POST DEVELOPMENT DISCHARGE TO THE WEST           *
*                                                                             *
*******************************************************************************
--------------------
| READ HYD          |   AREA       (ha)=    9.968
| ID=09 (PIPE  )    |   QPEAK     (cms)=     .689
| DT= 1.00 PCYC= 1  |   TPEAK     (hrs)=    2.100
--------------------   VOLUME     (mm)=   66.265
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\250YR-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |  TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |   hrs     cms |   hrs     cms
    .00    .000|   1.85    .666|   3.70    .399|   5.55    .077|   7.40    .027
    .02    .000|   1.87    .670|   3.72    .394|   5.57    .076|   7.42    .027
    .03    .000|   1.88    .673|   3.73    .389|   5.58    .076|   7.43    .027
    .05    .000|   1.90    .675|   3.75    .384|   5.60    .075|   7.45    .026
    .07    .000|   1.92    .678|   3.77    .379|   5.62    .074|   7.47    .026
    .08    .000|   1.93    .680|   3.78    .374|   5.63    .074|   7.48    .026
    .10    .000|   1.95    .681|   3.80    .369|   5.65    .073|   7.50    .025
    .12    .000|   1.97    .683|   3.82    .365|   5.67    .073|   7.52    .025
    .13    .000|   1.98    .684|   3.83    .360|   5.68    .072|   7.53    .025
    .15    .000|   2.00    .686|   3.85    .355|   5.70    .072|   7.55    .025
    .17    .000|   2.02    .686|   3.87    .351|   5.72    .071|   7.57    .024
    .18    .000|   2.03    .687|   3.88    .346|   5.73    .071|   7.58    .024
    .20    .000|   2.05    .688|   3.90    .342|   5.75    .070|   7.60    .024
    .22    .000|   2.07    .688|   3.92    .337|   5.77    .069|   7.62    .023
    .23    .000|   2.08    .688|   3.93    .333|   5.78    .069|   7.63    .023
    .25    .000|   2.10    .689|   3.95    .329|   5.80    .068|   7.65    .023
    .27    .000|   2.12    .689|   3.97    .324|   5.82    .068|   7.67    .022
    .28    .000|   2.13    .688|   3.98    .320|   5.83    .067|   7.68    .022
    .30    .000|   2.15    .688|   4.00    .316|   5.85    .067|   7.70    .022
    .32    .000|   2.17    .688|   4.02    .312|   5.87    .066|   7.72    .021
    .33    .000|   2.18    .687|   4.03    .308|   5.88    .066|   7.73    .021
    .35    .000|   2.20    .686|   4.05    .304|   5.90    .065|   7.75    .021
    .37    .000|   2.22    .686|   4.07    .300|   5.92    .065|   7.77    .021
    .38    .000|   2.23    .685|   4.08    .296|   5.93    .064|   7.78    .020
    .40    .000|   2.25    .684|   4.10    .292|   5.95    .064|   7.80    .020
    .42    .000|   2.27    .683|   4.12    .288|   5.97    .063|   7.82    .020
    .43    .000|   2.28    .682|   4.13    .284|   5.98    .063|   7.83    .019
    .45    .000|   2.30    .681|   4.15    .280|   6.00    .062|   7.85    .019
    .47    .000|   2.32    .679|   4.17    .276|   6.02    .062|   7.87    .019
    .48    .000|   2.33    .678|   4.18    .272|   6.03    .061|   7.88    .019
    .50    .000|   2.35    .676|   4.20    .268|   6.05    .061|   7.90    .018
    .52    .000|   2.37    .675|   4.22    .264|   6.07    .060|   7.92    .018
    .53    .000|   2.38    .673|   4.23    .260|   6.08    .060|   7.93    .018
    .55    .000|   2.40    .672|   4.25    .257|   6.10    .059|   7.95    .017
    .57    .000|   2.42    .670|   4.27    .253|   6.12    .059|   7.97    .017
    .58    .000|   2.43    .668|   4.28    .249|   6.13    .058|   7.98    .017
    .60    .000|   2.45    .667|   4.30    .246|   6.15    .058|   8.00    .017
    .62    .000|   2.47    .665|   4.32    .242|   6.17    .057|   8.02    .016
    .63    .000|   2.48    .663|   4.33    .239|   6.18    .057|   8.03    .016
    .65    .000|   2.50    .661|   4.35    .235|   6.20    .056|   8.05    .016
    .67    .000|   2.52    .659|   4.37    .232|   6.22    .056|   8.07    .016
    .68    .000|   2.53    .657|   4.38    .228|   6.23    .055|   8.08    .015
    .70    .000|   2.55    .655|   4.40    .225|   6.25    .055|   8.10    .015
    .72    .000|   2.57    .653|   4.42    .222|   6.27    .054|   8.12    .015
    .73    .000|   2.58    .651|   4.43    .219|   6.28    .054|   8.13    .015
    .75    .000|   2.60    .649|   4.45    .215|   6.30    .053|   8.15    .014
    .77    .000|   2.62    .647|   4.47    .212|   6.32    .053|   8.17    .014
    .78    .000|   2.63    .645|   4.48    .209|   6.33    .052|   8.18    .014
    .80    .000|   2.65    .642|   4.50    .206|   6.35    .052|   8.20    .013
    .82    .000|   2.67    .640|   4.52    .203|   6.37    .051|   8.22    .013
    .83    .000|   2.68    .637|   4.53    .200|   6.38    .051|   8.23    .013
    .85    .000|   2.70    .634|   4.55    .197|   6.40    .051|   8.25    .013
    .87    .000|   2.72    .631|   4.57    .194|   6.42    .050|   8.27    .012
    .88    .000|   2.73    .629|   4.58    .191|   6.43    .050|   8.28    .012
    .90    .000|   2.75    .626|   4.60    .188|   6.45    .049|   8.30    .012
    .92    .000|   2.77    .623|   4.62    .185|   6.47    .049|   8.32    .012
    .93    .000|   2.78    .620|   4.63    .183|   6.48    .048|   8.33    .011
    .95    .000|   2.80    .617|   4.65    .180|   6.50    .048|   8.35    .011
    .97    .000|   2.82    .615|   4.67    .177|   6.52    .047|   8.37    .011
    .98    .000|   2.83    .612|   4.68    .175|   6.53    .047|   8.38    .011
   1.00    .000|   2.85    .609|   4.70    .172|   6.55    .047|   8.40    .011
   1.02    .000|   2.87    .606|   4.72    .169|   6.57    .046|   8.42    .010
   1.03    .000|   2.88    .603|   4.73    .167|   6.58    .046|   8.43    .010
   1.05    .000|   2.90    .600|   4.75    .164|   6.60    .045|   8.45    .010
   1.07    .000|   2.92    .597|   4.77    .162|   6.62    .045|   8.47    .010
   1.08    .000|   2.93    .594|   4.78    .159|   6.63    .044|   8.48    .009
   1.10    .000|   2.95    .592|   4.80    .157|   6.65    .044|   8.50    .009
   1.12    .000|   2.97    .589|   4.82    .154|   6.67    .044|   8.52    .009
   1.13    .000|   2.98    .586|   4.83    .152|   6.68    .043|   8.53    .009
   1.15    .000|   3.00    .583|   4.85    .149|   6.70    .043|   8.55    .008
   1.17    .000|   3.02    .580|   4.87    .147|   6.72    .042|   8.57    .008
   1.18    .000|   3.03    .577|   4.88    .145|   6.73    .042|   8.58    .008
   1.20    .000|   3.05    .574|   4.90    .142|   6.75    .042|   8.60    .008
   1.22    .000|   3.07    .571|   4.92    .140|   6.77    .041|   8.62    .008
   1.23    .000|   3.08    .568|   4.93    .138|   6.78    .041|   8.63    .007
   1.25    .000|   3.10    .564|   4.95    .136|   6.80    .040|   8.65    .007
   1.27    .000|   3.12    .561|   4.97    .134|   6.82    .040|   8.67    .007
   1.28    .000|   3.13    .558|   4.98    .131|   6.83    .040|   8.68    .007
   1.30    .000|   3.15    .554|   5.00    .129|   6.85    .039|   8.70    .006
   1.32    .014|   3.17    .551|   5.02    .127|   6.87    .039|   8.72    .006
   1.33    .037|   3.18    .547|   5.03    .125|   6.88    .038|   8.73    .006
   1.35    .059|   3.20    .544|   5.05    .123|   6.90    .038|   8.75    .006
   1.37    .081|   3.22    .540|   5.07    .121|   6.92    .038|   8.77    .006
   1.38    .132|   3.23    .536|   5.08    .119|   6.93    .037|   8.78    .005
   1.40    .181|   3.25    .533|   5.10    .117|   6.95    .037|   8.80    .005
   1.42    .227|   3.27    .529|   5.12    .115|   6.97    .037|   8.82    .005
   1.43    .271|   3.28    .525|   5.13    .113|   6.98    .036|   8.83    .005
   1.45    .311|   3.30    .521|   5.15    .111|   7.00    .036|   8.85    .004
   1.47    .348|   3.32    .517|   5.17    .109|   7.02    .035|   8.87    .004
   1.48    .383|   3.33    .514|   5.18    .108|   7.03    .035|   8.88    .004
   1.50    .415|   3.35    .510|   5.20    .106|   7.05    .035|   8.90    .004
   1.52    .446|   3.37    .506|   5.22    .104|   7.07    .034|   8.92    .004
   1.53    .475|   3.38    .502|   5.23    .102|   7.08    .034|   8.93    .003
   1.55    .501|   3.40    .497|   5.25    .100|   7.10    .034|   8.95    .003
   1.57    .517|   3.42    .492|   5.27    .099|   7.12    .033|   8.97    .003
   1.58    .533|   3.43    .486|   5.28    .097|   7.13    .033|   8.98    .003
   1.60    .547|   3.45    .480|   5.30    .095|   7.15    .033|   9.00    .003
   1.62    .560|   3.47    .474|   5.32    .094|   7.17    .032|   9.02    .002
   1.63    .573|   3.48    .469|   5.33    .092|   7.18    .032|   9.03    .002
   1.65    .584|   3.50    .463|   5.35    .090|   7.20    .031|   9.05    .002
   1.67    .595|   3.52    .457|   5.37    .089|   7.22    .031|   9.07    .002
   1.68    .605|   3.53    .452|   5.38    .087|   7.23    .031|   9.08    .002
   1.70    .614|   3.55    .446|   5.40    .085|   7.25    .030|   9.10    .001
   1.72    .623|   3.57    .441|   5.42    .084|   7.27    .030|   9.12    .001
   1.73    .631|   3.58    .435|   5.43    .082|   7.28    .030|   9.13    .001
   1.75    .638|   3.60    .430|   5.45    .081|   7.30    .029|   9.15    .001
   1.77    .645|   3.62    .425|   5.47    .080|   7.32    .029|   9.17    .001
   1.78    .650|   3.63    .419|   5.48    .079|   7.33    .029|   9.18    .001
   1.80    .655|   3.65    .414|   5.50    .079|   7.35    .028|   9.20    .000
   1.82    .659|   3.67    .409|   5.52    .078|   7.37    .028|   9.22    .000
   1.83    .663|   3.68    .404|   5.53    .077|   7.38    .028|
-------------------------------------------------------------------------------
001:0028-------------------------------------------------------------------------
*******************************************************************************
*                                                                             *
*              TOTAL POST DEVELOPMENT DISCHARGE TO THE WEST                   *
*                                                                             *
*******************************************************************************
------------------------
| ADD HYD (POST      ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                  (ha)     (cms)   (hrs)   (mm)   (cms)
```

```
                     ID1 08:REACH1       142.08   10.592    2.17  49.85    .000
                    +ID2 09:PIPE           9.97     .689    2.10  66.27    .000
                     ============================================================
                     SUM 10:POST         152.05   11.280    2.17  50.92    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
001:0029---------------------------------------------------------------------------
      FINISH
-------------------------------------------------------------------------------
*******************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 001:0008 ROUTE CHANNEL   ->
      *** WARNING: TRAVEL TIME TABLE was exceeded
 001:0012 ROUTE RESERVOIR
      *** WARNING: STORAGE-Q values were extrapolated.
                   Increase curve or use overflow option.
      *** WARNING: Inflow peak was not reduced!
                   Check OUTFLOW/STORAGE table or reduce DT.
 001:0018 ROUTE RESERVOIR
      *** WARNING: STORAGE-Q values were extrapolated.
                   Increase curve or use overflow option.
   Simulation ended on 2020-07-30     at 10:52:59
===============================================================================
```

```
================================================================================

   SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO        999    999    =========
   S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  9   9
   SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9   Ver  4.05
       S   W W   M   M  H   H    Y    M   M  O   O       9999   9999   Sept 2011
   SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9   =========
                                                          9   9  9   9   # 2957874
        StormWater Management HYdrologic Model            999    999    =========

 ********************************************************************************
 ***************************** SWMHYMO Ver/4.05  ********************************
 *********  A single event and continuous hydrologic simulation model  *********
 *********     based on the principles of HYMO and its successors      *********
 *********                  OTTHYMO-83 and OTTHYMO-89.                  *********
 ********************************************************************************
 ********* Distributed by:  J.F. Sabourin and Associates Inc.          *********
 *********                   Ottawa,  Ontario: (613) 836-3884          *********
 *********                   Gatineau, Quebec: (819) 243-6858          *********
 *********                   E-Mail: swmhymo@jfsa.Com                  *********
 ********************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 +++++++++ Licensed user: AGM Engineering Ltd.                          +++++++++
 +++++++++                London               SERIAL#:2957874        +++++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 ********************************************************************************
 *********           ++++++ PROGRAM ARRAY DIMENSIONS ++++++            *********
 *********           Maximum value for ID numbers  :     10           *********
 *********           Max. number of rainfall points: 105408           *********
 *********           Max. number of flow points    : 105408           *********
 ********************************************************************************


 **********************   D E T A I L E D   O U T P U T   **********************
 ********************************************************************************
 *         DATE: 2020-07-30     TIME: 10:52:48     RUN COUNTER: 000839          *
 ********************************************************************************
 * Input   filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps250scs.dat     *
 * Output  filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps250scs.out     *
 * Summary filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\ps250scs.sum     *
 * User comments:                                                               *
 * 1:_____________________________________________________________________________*
 * 2:_____________________________________________________________________________*
 * 3:_____________________________________________________________________________*
 ********************************************************************************

--------------------------------------------------------------------------------
001:0001--------------------------------------------------------------------------
*#*****************************************************************************
*#  Project Name: [Renwick Estates]    Project Number: [1389-1]
*#  Date        : 07-07-2020
*#  Modeller    : [LRG]
*#  Company     : AGM Engineering Ltd.
*#  License #   :  2957874
*#*****************************************************************************
--------------------
| START            |  Project  dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
--------------------  Rainfall dir.: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
--------------------------------------------------------------------------------
001:0002--------------------------------------------------------------------------
*                   ["  "] <--storm filename, one per line for NSTORM time
--------------------
| MASS STORM       |    Filename: c:\Storms\SCS24H.mst
--------------------
| Ptotal=119.00 mm |    Comments: SCS Type II 24 HR MASS CURVE
--------------------

                      Duration of storm        =   24.00 hrs
                      Mass curve time step     =   15.00 min
                      Selected storm time step =    5.00 min
                      Volume of derived storm  =  119.00 mm

          TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
           hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
           .08   1.428 |   6.08   1.904 |  12.08  17.136 |  18.08   2.380
           .17   1.428 |   6.17   1.904 |  12.17  17.136 |  18.17   2.380
           .25   1.428 |   6.25   1.904 |  12.25  17.136 |  18.25   2.380
           .33   1.428 |   6.33   2.380 |  12.33  17.136 |  18.33   1.904
           .42   1.428 |   6.42   2.380 |  12.42  17.136 |  18.42   1.904
           .50   1.428 |   6.50   2.380 |  12.50  17.136 |  18.50   1.904
           .58    .952 |   6.58   1.904 |  12.58   9.044 |  18.58   2.380
           .67    .952 |   6.67   1.904 |  12.67   9.044 |  18.67   2.380
           .75    .952 |   6.75   1.904 |  12.75   9.044 |  18.75   2.380
           .83   1.428 |   6.83   2.380 |  12.83   8.568 |  18.83   1.904
           .92   1.428 |   6.92   2.380 |  12.92   8.568 |  18.92   1.904
          1.00   1.428 |   7.00   2.380 |  13.00   8.568 |  19.00   1.904
          1.08   1.428 |   7.08   2.380 |  13.08   6.664 |  19.08   2.380
          1.17   1.428 |   7.17   2.380 |  13.17   6.664 |  19.17   2.380
          1.25   1.428 |   7.25   2.380 |  13.25   6.664 |  19.25   2.380
          1.33   1.428 |   7.33   2.856 |  13.33   6.188 |  19.33   1.904
          1.42   1.428 |   7.42   2.856 |  13.42   6.188 |  19.42   1.904
          1.50   1.428 |   7.50   2.856 |  13.50   6.188 |  19.50   1.904
          1.58    .952 |   7.58   2.380 |  13.58   5.236 |  19.58   2.380
          1.67    .952 |   7.67   2.380 |  13.67   5.236 |  19.67   2.380
          1.75    .952 |   7.75   2.380 |  13.75   5.236 |  19.75   2.380
          1.83   1.428 |   7.83   2.856 |  13.83   4.760 |  19.83   1.904
          1.92   1.428 |   7.92   2.856 |  13.92   4.760 |  19.92   1.904
          2.00   1.428 |   8.00   2.856 |  14.00   4.760 |  20.00   1.904
          2.08   1.428 |   8.08   2.856 |  14.08   3.808 |  20.08   1.428
          2.17   1.428 |   8.17   2.856 |  14.17   3.808 |  20.17   1.428
          2.25   1.428 |   8.25   2.856 |  14.25   3.808 |  20.25   1.428
          2.33   1.904 |   8.33   3.332 |  14.33   3.332 |  20.33   1.428
          2.42   1.904 |   8.42   3.332 |  14.42   3.332 |  20.42   1.428
          2.50   1.904 |   8.50   3.332 |  14.50   3.332 |  20.50   1.428
          2.58   1.428 |   8.58   3.332 |  14.58   3.808 |  20.58   1.428
          2.67   1.428 |   8.67   3.332 |  14.67   3.808 |  20.67   1.428
          2.75   1.428 |   8.75   3.332 |  14.75   3.808 |  20.75   1.428
          2.83   1.428 |   8.83   3.332 |  14.83   3.332 |  20.83   1.428
          2.92   1.428 |   8.92   3.332 |  14.92   3.332 |  20.92   1.428
          3.00   1.428 |   9.00   3.332 |  15.00   3.332 |  21.00   1.428
          3.08   1.428 |   9.08   3.808 |  15.08   3.808 |  21.08   1.428
          3.17   1.428 |   9.17   3.808 |  15.17   3.808 |  21.17   1.428
          3.25   1.428 |   9.25   3.808 |  15.25   3.808 |  21.25   1.428
          3.33   1.904 |   9.33   3.808 |  15.33   3.332 |  21.33   1.428
          3.42   1.904 |   9.42   3.808 |  15.42   3.332 |  21.42   1.428
          3.50   1.904 |   9.50   3.808 |  15.50   3.332 |  21.50   1.428
          3.58   1.428 |   9.58   4.284 |  15.58   3.808 |  21.58   1.428
          3.67   1.428 |   9.67   4.284 |  15.67   3.808 |  21.67   1.428
          3.75   1.428 |   9.75   4.284 |  15.75   3.808 |  21.75   1.428
          3.83   1.428 |   9.83   4.284 |  15.83   3.332 |  21.83   1.428
          3.92   1.428 |   9.92   4.284 |  15.92   3.332 |  21.92   1.428
          4.00   1.428 |  10.00   4.284 |  16.00   3.332 |  22.00   1.428
          4.08   1.904 |  10.08   5.236 |  16.08   2.380 |  22.08   1.428
          4.17   1.904 |  10.17   5.236 |  16.17   2.380 |  22.17   1.428
          4.25   1.904 |  10.25   5.236 |  16.25   2.380 |  22.25   1.428
          4.33   1.904 |  10.33   5.712 |  16.33   1.904 |  22.33   1.428
          4.42   1.904 |  10.42   5.712 |  16.42   1.904 |  22.42   1.428
          4.50   1.904 |  10.50   5.712 |  16.50   1.904 |  22.50   1.428
          4.58   1.904 |  10.58   7.140 |  16.58   2.380 |  22.58   1.428
          4.67   1.904 |  10.67   7.140 |  16.67   2.380 |  22.67   1.428
          4.75   1.904 |  10.75   7.140 |  16.75   2.380 |  22.75   1.428
          4.83   1.904 |  10.83   7.616 |  16.83   1.904 |  22.83   1.428
          4.92   1.904 |  10.92   7.616 |  16.92   1.904 |  22.92   1.428
          5.00   1.904 |  11.00   7.616 |  17.00   1.904 |  23.00   1.428
```

```
              5.08   1.904 |  11.08  11.424 |  17.08   2.380 |  23.08   1.428
              5.17   1.904 |  11.17  11.424 |  17.17   2.380 |  23.17   1.428
              5.25   1.904 |  11.25  11.424 |  17.25   2.380 |  23.25   1.428
              5.33   1.904 |  11.33  11.424 |  17.33   1.904 |  23.33   1.428
              5.42   1.904 |  11.42  11.424 |  17.42   1.904 |  23.42   1.428
              5.50   1.904 |  11.50  11.424 |  17.50   1.904 |  23.50   1.428
              5.58   1.904 |  11.58  35.224 |  17.58   2.380 |  23.58   1.428
              5.67   1.904 |  11.67  35.224 |  17.67   2.380 |  23.67   1.428
              5.75   1.904 |  11.75  35.224 |  17.75   2.380 |  23.75   1.428
              5.83   1.904 |  11.83 145.656 |  17.83   1.904 |  23.83   1.428
              5.92   1.904 |  11.92 145.656 |  17.92   1.904 |  23.92   1.428
              6.00   1.904 |  12.00 145.656 |  18.00   1.904 |  24.00   1.428

--------------------------------------------------------------------------------
001:0003----------------------------------------------------------------------
*
*************************************************************************
*                                                                       *
*      POST DEVELOPMENT EXTERNAL FLOW ANALYSIS AND DIVERSION CHANNEL    *
*                                                                       *
*************************************************************************
*
*
*#NORTH EXTERNAL AREA CROSSING CP RAIL THROUGH CULVERT ENTERING SITE DIRECTLY
*
*
---------------------
| CALIB NASHYD      |   Area    (ha)=   25.58   Curve Number   (CN)=84.00
| 01:EX.1   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .468

     Unit Hyd Qpeak  (cms)=    2.088

     PEAK FLOW       (cms)=    2.934 (i)
     TIME TO PEAK    (hrs)=   12.367
     RUNOFF VOLUME    (mm)=   78.213
     TOTAL RAINFALL   (mm)=  118.999
     RUNOFF COEFFICIENT   =     .657

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0004----------------------------------------------------------------------
*
*#EXTERNAL AREA CROSSING CP RAIL AND ENTERING KOMOKA STATION SUBDIVISION
*#TRAVELING THROUGH THE CHANNEL AT THE REAR OF LOTS 1 TO 7
*
*
---------------------
| CALIB NASHYD      |   Area    (ha)=  104.80   Curve Number   (CN)=84.00
| 02:EX.2   DT= 1.00 |   Ia      (mm)=   7.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .754

     Unit Hyd Qpeak  (cms)=    5.309

     PEAK FLOW       (cms)=    8.492 (i)
     TIME TO PEAK    (hrs)=   12.683
     RUNOFF VOLUME    (mm)=   78.213
     TOTAL RAINFALL   (mm)=  118.999
     RUNOFF COEFFICIENT   =     .657

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0005----------------------------------------------------------------------
*
*#ESTIMATED SIZE OF CHANNEL FROM CP RAIL TO REAR LOTS BASED ON PLAN VIEW ESTIMAT
*#FROM THE SUBDIVISION GRADING PLAN
*
```

```
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:EX.2     |     Number of SEGMENTS =  3
| OUT< 03:CHAN     |     Slopes (%), CHANNEL=1.00   FLOODPLAIN=1.00
--------------------                 LENGTH =  200.00    (m)

              <------ DATA FOR SECTION (   1.0) ------>
              Distance      Elevation       Manning
                  .00         100.00          .0300
                3.00          99.00     .0300 / .0300  Main Channel
                5.00          99.00     .0300 / .0300  Main Channel
                8.00         100.00          .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH    ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)     (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .053   99.053  .227E+02  .299E+00       .052      .455      7.33     .024
     .105   99.105  .488E+02  .128E+01       .171      .703      4.74     .074
     .158   99.158  .781E+02  .308E+01       .352      .901      3.70     .142
     .211   99.211  .111E+03  .583E+01       .592     1.069      3.12     .225
     .263   99.263  .147E+03  .966E+01       .893     1.217      2.74     .320
     .316   99.316  .186E+03  .147E+02      1.258     1.351      2.47     .427
     .368   99.368  .229E+03  .211E+02      1.687     1.474      2.26     .543
     .421   99.421  .275E+03  .289E+02      2.183     1.589      2.10     .669
     .474   99.474  .324E+03  .384E+02      2.748     1.696      1.97     .803
     .526   99.526  .377E+03  .496E+02      3.386     1.797      1.85     .946
     .579   99.579  .433E+03  .626E+02      4.097     1.894      1.76    1.096
     .632   99.632  .492E+03  .777E+02      4.885     1.986      1.68    1.254
     .684   99.684  .555E+03  .949E+02      5.753     2.075      1.61    1.420
     .737   99.737  .620E+03  .114E+03      6.701     2.160      1.54    1.592
     .789   99.789  .690E+03  .136E+03      7.734     2.243      1.49    1.770
     .842   99.842  .762E+03  .160E+03      8.853     2.323      1.44    1.956
     .895   99.895  .838E+03  .187E+03     10.060     2.400      1.39    2.148
     .947   99.947  .917E+03  .217E+03     11.358     2.476      1.35    2.346
    1.000  100.000  .100E+04  .250E+03     12.749     2.550      1.31    2.550

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

                                 <---- hydrograph ---->   <-pipe / channel->
                                  AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                                  (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 2:EX.2      104.80    8.492   12.68 78.213      .825     2.296
   OUTFLOW: ID= 3:CHAN      104.80    8.488   12.70 78.213      .825     2.295


--------------------------------------------------------------------------------
001:0006----------------------------------------------------------------------
*
*#EXTERNAL AREA SOUTH OF CP RAIL CONSISTING OF BACKYARDS AND RAILWAY LANDS
*
*
---------------------
| CALIB NASHYD      |   Area    (ha)=    3.15   Curve Number   (CN)=86.00
| 04:EX.3   DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .225

     Unit Hyd Qpeak  (cms)=     .535

     PEAK FLOW       (cms)=     .642 (i)
     TIME TO PEAK    (hrs)=   12.117
     RUNOFF VOLUME    (mm)=   83.656
     TOTAL RAINFALL   (mm)=  118.999
     RUNOFF COEFFICIENT   =     .703

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
```

```
001:0007--------------------------------------------------------------------------------
*
*#COMBINED EXTERNAL AREAS DRAINING TO THE REAR LOT CHANNEL
*
*
------------------------
| ADD HYD (EX2+3     ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 03:CHAN         104.80    8.488   12.70  78.21    .000
                    +ID2 04:EX.3           3.15     .642   12.12  83.66    .000
                     ============================================================
                     SUM 05:EX2+3        107.95    8.641   12.70  78.37    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------------------
001:0008--------------------------------------------------------------------------------
*
*#CHANNEL AT THE REAR OF LOTS 1 TO 7, THE CHANNEL WAS WIDENED FROM THE 4.6m
*#BOTTOM TO ACCOUNT FOR CAPACITY THROUGH SUBSURFACE PIPES. ASSUMPTION THAT ALL
*#FUTURE FLOWS WILL TRAVEL THROUGH BACKYARDS AFTER DRAINAGE ACT WORK
*#IS COMPLETED BY OTHERS.
*
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 05:EX2+3    |     Number of SEGMENTS =  3
| OUT< 06:LOT.CH   |     Slopes (%), CHANNEL= .50   FLOODPLAIN= .50
--------------------                 LENGTH =  140.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00         100.00         .0250
                 1.35          99.55     .0250 / .0250  Main Channel
                 9.35          99.55     .0250 / .0250  Main Channel
                10.70         100.00         .0250

   <----------------------------- TRAVEL TIME TABLE ----------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .024   99.574  .268E+02  .453E+00       .044      .232     10.04     .006
     .047   99.597  .540E+02  .183E+01       .142      .368      6.34     .017
     .071   99.621  .817E+02  .415E+01       .280      .480      4.86     .034
     .095   99.645  .110E+03  .743E+01       .455      .580      4.02     .055
     .118   99.668  .139E+03  .117E+02       .664      .671      3.48     .079
     .142   99.692  .168E+03  .170E+02       .904      .755      3.09     .107
     .166   99.716  .197E+03  .234E+02      1.175      .834      2.80     .138
     .189   99.739  .227E+03  .308E+02      1.475      .909      2.57     .172
     .213   99.763  .258E+03  .392E+02      1.805      .980      2.38     .209
     .237   99.787  .289E+03  .489E+02      2.162     1.048      2.23     .248
     .261   99.811  .320E+03  .596E+02      2.547     1.114      2.10     .290
     .284   99.834  .352E+03  .715E+02      2.960     1.177      1.98     .334
     .308   99.858  .385E+03  .846E+02      3.400     1.237      1.89     .381
     .332   99.882  .418E+03  .989E+02      3.866     1.296      1.80     .430
     .355   99.905  .451E+03  .114E+03      4.359     1.353      1.72     .481
     .379   99.929  .485E+03  .131E+03      4.878     1.409      1.66     .534
     .403   99.953  .519E+03  .149E+03      5.423     1.463      1.59     .589
     .426   99.976  .554E+03  .169E+03      5.995     1.516      1.54     .646
     .450  100.000  .589E+03  .189E+03      6.593     1.567      1.49     .705

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.

      *** WARNING: TRAVEL TIME TABLE was exceeded
                                 <---- hydrograph ---->   <-pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 5:EX2+3     107.95    8.641   12.70 78.372      .449     1.565
   OUTFLOW: ID= 6:LOT.CH    107.95    8.635   12.72 78.372      .450     1.567
```

```
--------------------------------------------------------------------------------------------
001:0009--------------------------------------------------------------------------------
*
*#REAR LOT CATCHMENT - FLOWS UP TO THE 10 YEAR DESIGN STORM ARE CONTROLLED ON SI
*#AS DETERMINED BY THE ACTING DRAINAGE ENGINEER.
*
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .50
| 07:EX.4   DT= 1.00 |   Total Imp(%)=   30.00   Dir. Conn.(%)=    1.00
---------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .15          .35
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .35         2.00
     Length            (m)=      97.00        27.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     145.66       186.24
               over (min)        3.00         8.00
     Storage Coeff.  (min)=       3.22 (ii)    7.57 (ii)
     Unit Hyd. Tpeak (min)=       3.00         8.00
     Unit Hyd. peak  (cms)=        .36          .15
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .00          .15          .147 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.03        12.033
     RUNOFF VOLUME    (mm)=     117.00        92.12        92.384
     TOTAL RAINFALL   (mm)=     119.00       119.00       118.999
     RUNOFF COEFFICIENT   =        .98          .77          .776

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------------------
001:0010--------------------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 10 YEAR PEAK FLOW FOR EXTERNAL AREA 4
*
*
---------------------
| COMPUTE DUALHYD    |   Average inlet capacities   [CINLET] =    .080  (cms)
| TotalHyd 07:EX.4   |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity          =    .080  (cms)
                        Total major system storage [TMJSTO] =       0.(cu.m.)

                   ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                   (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   07:EX.4           .50      .147    12.033   92.384     .000
     ============================================================================
     MAJOR SYST   09:EX4>10         .05      .067    12.033   92.384     .000
     MINOR SYST   08:EX4<10         .45      .080    11.883   92.384     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------------------
001:0011--------------------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO UNION AVENUE CULVERT
*
*
------------------------
| ADD HYD (E2+3+4    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
------------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                     ID1 06:LOT.CH       107.95    8.635   12.72  78.37    .000
```

```
                  +ID2 09:EX4>10          .05     .067   12.03  92.38    .000
                   ============================================================
                   SUM 10:E2+3+4       108.00    8.635   12.72  78.38    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0012----------------------------------------------------------------------
*
*#UNION AVENUE CULVERT WITH ROADWAY OVERFLOW WEIR TO THE SOUTH
*
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>10:(E2+3+4)   |
| OUT<02:(UNION )   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)    (ha.m.)   |    (cms)    (ha.m.)
                            .000  .0000E+00   |    2.520  .2530E-01
                            .050  .1000E-03   |    2.710  .2980E-01
                            .210  .4200E-03   |    2.731  .3030E-01
                            .460  .1420E-02   |    3.482  .3590E-01
                            .780  .3510E-02   |    5.852  .4200E-01
                           1.170  .6700E-02   |    6.644  .4330E-01
                           1.610  .1100E-01   |    7.455  .4530E-01
                           2.060  .1700E-01   |     .000  .0000E+00
     *** WARNING: STORAGE-Q values were extrapolated.
                  Increase curve or use overflow option.

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >10: (E2+3+4)     108.00     8.635    12.717     78.378
     OUTFLOW<02: (UNION )     108.00     8.634    12.717     78.379

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.990
                  TIME SHIFT OF PEAK FLOW         (min)=     .00
                  MAXIMUM  STORAGE   USED      (ha.m.)=.4821E-01

--------------------------------------------------------------------------------
001:0013----------------------------------------------------------------------
*
*#UNION AVENUE RIGHT OF WAY DRAINING TO KOMOKA ROAD
*
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    1.04
| 03:EX.5   DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   48.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .62         .42
     Dep. Storage     (mm)=      2.00        5.00
     Average Slope     (%)=       .50        2.00
     Length            (m)=    185.00       15.00
     Mannings n           =      .015        .250

     Max.eff.Inten.(mm/hr)=    145.66      169.40
               over (min)       4.00        7.00
     Storage Coeff.  (min)=      4.26 (ii)   7.44 (ii)
     Unit Hyd. Tpeak (min)=      4.00        7.00
     Unit Hyd. peak  (cms)=       .27         .16
                                                *TOTALS*
     PEAK FLOW       (cms)=       .19         .16         .352 (iii)
     TIME TO PEAK    (hrs)=     12.00       12.02       12.000
     RUNOFF VOLUME    (mm)=    116.99       90.22      103.081
     TOTAL RAINFALL   (mm)=    119.00      119.00      118.999
     RUNOFF COEFFICIENT   =       .98         .76         .866

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
        (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
       (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0014----------------------------------------------------------------------
*
*#KOMOKA STATION SUBDIVISION - HEATHER PLACE LOTS CONTROLLED ON SITE TO THE
*#100 YEAR DESIGN STORM PEAK FLOWS
*
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    2.79
| 04:EX.6   DT= 1.00 |   Total Imp(%)=   55.00   Dir. Conn.(%)=   45.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.53        1.26
     Dep. Storage     (mm)=      2.00        5.00
     Average Slope     (%)=       .50        2.00
     Length            (m)=    100.00       25.00
     Mannings n           =      .015        .250

     Max.eff.Inten.(mm/hr)=    145.66      157.56
               over (min)       3.00        7.00
     Storage Coeff.  (min)=      2.95 (ii)   7.39 (ii)
     Unit Hyd. Tpeak (min)=      3.00        7.00
     Unit Hyd. peak  (cms)=       .38         .16
                                                *TOTALS*
     PEAK FLOW       (cms)=       .50         .45         .944 (iii)
     TIME TO PEAK    (hrs)=     12.00       12.02       12.000
     RUNOFF VOLUME    (mm)=    117.00       88.77      101.475
     TOTAL RAINFALL   (mm)=    119.00      119.00      118.999
     RUNOFF COEFFICIENT   =       .98         .75         .853

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
        (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
       (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0015----------------------------------------------------------------------
*
*#DIVERSION OF FLOWS EXCEEDING THE 100 YEAR PEAK FLOW FOR EXTERNAL AREA 6
*
*
---------------------
| COMPUTE DUALHYD   |   Average inlet capacities   [CINLET] =   1.142  (cms)
| TotalHyd 04:EX.6  |   Number of inlets in system [NINLET] =       1
---------------------   Total minor system capacity         =   1.142  (cms)
                        Total major system storage [TMJSTO] =       0.(cu.m.)

                  ID: NHYD        AREA     QPEAK     TPEAK     R.V.      DWF
                                  (ha)     (cms)     (hrs)     (mm)    (cms)
     TOTAL HYD.   04:EX.6         2.79      .944    12.000  101.475     .000
     ==========================================================================
     MAJOR SYST   06:>100YR        .00      .000      .000     .000     .000
     MINOR SYST   05:<100YR       2.79      .944    12.000  101.475     .000

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0016----------------------------------------------------------------------
*
*#KOMOKA ROAD EAST SIDE OF CENTERLINE DRAINING TO DITCH, INCLUDES PORTIONS OF
*#EXISTING LOTS
*
*
---------------------
```

```
| CALIB STANDHYD     |   Area    (ha)=    1.42
| 07:EX.7   DT= 1.00 |   Total Imp(%)=   40.00   Dir. Conn.(%)=   20.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .57          .85
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=        .50         2.00
     Length            (m)=     250.00        40.00
     Mannings n           =       .015         .250

     Max.eff.Inten.(mm/hr)=     145.66       172.06
               over (min)        5.00        11.00
     Storage Coeff.  (min)=       5.11 (ii)   10.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00        11.00
     Unit Hyd. peak  (cms)=        .22          .10
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .11          .28          .376 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.07        12.033
     RUNOFF VOLUME    (mm)=     116.99        90.80        90.051
     TOTAL RAINFALL   (mm)=     119.00       119.00       118.999
     RUNOFF COEFFICIENT   =        .98          .76          .807

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  86.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0017----------------------------------------------------------------------
*
*#COMBINED EXTERNAL FLOWS TO KOMOKA ROAD CULVERT
*
*
-----------------------
| ADD HYD (EX.2-7    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 02:UNION        108.00    8.634   12.72  78.38    .000
                       +ID2 03:EX.5           1.04     .352   12.00 103.08    .000
                       +ID3 06:>100YR          .00     .000     .00    .00    .000  **DRY**
                       +ID4 07:EX.7           1.42     .376   12.03  96.05    .000
                        ============================================================
                        SUM 08:EX.2-7       110.46    8.720   12.72  78.84    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0018----------------------------------------------------------------------
*
*#KOMOKA ROAD CULVERT WITH ROADWAY OVERFLOW WEIR TO THE WEST
*
*
--------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>08:(EX.2-7)   |
| OUT<09:(KOMOKA)   |    =========  OUTFLOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |    2.280  .5256E-01
                           .000  .3700E-03   |    2.570  .7370E-01
                           .140  .1370E-02   |    2.820  .1028E+00
                           .240  .3940E-02   |    2.860  .1083E+00
                           .600  .8620E-02   |    3.700  .1227E+00
                          1.060  .1550E-01   |    6.088  .1328E+00
                          1.500  .2463E-01   |    8.010  .1486E+00
                          1.920  .4198E-01   |    .000  .0000E+00
     *** WARNING: STORAGE-Q values were extrapolated.
                  Increase curve or use overflow option.
```

```
     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >08: (EX.2-7)     110.46     8.720    12.717     78.838
     OUTFLOW<09: (KOMOKA)     110.46     8.715    12.733     78.835

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   99.940
                  TIME SHIFT OF PEAK FLOW         (min)=     1.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.1544E+00

--------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------
********************************************************************************
*                                                                              *
*            BEGIN DIVERSION CHANNEL PORTION OF THE MODEL                      *
*                                                                              *
********************************************************************************
*
*CATCHMENT 101 REPRESENTING AREA OF CHANNEL UPSTREAM OF KOMOKA CULVERT CROSSING
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    2.31   Curve Number   (CN)=80.00
| 10:CAT101 DT= 1.00 |   Ia      (mm)=   5.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .297

     Unit Hyd Qpeak  (cms)=     .297

     PEAK FLOW       (cms)=     .339 (i)
     TIME TO PEAK    (hrs)=   12.183
     RUNOFF VOLUME    (mm)=   73.216
     TOTAL RAINFALL   (mm)=  118.999
     RUNOFF COEFFICIENT   =     .615

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 2, THE NORTH ENTRY POINT OF
*EXTERNAL FLOWS.
*
-----------------------
| ADD HYD (ENTRY1    ) | ID: NHYD         AREA     QPEAK   TPEAK   R.V.    DWF
-----------------------                    (ha)     (cms)   (hrs)   (mm)   (cms)
                        ID1 01:EX.1         25.58    2.934   12.37  78.21    .000
                       +ID2 10:CAT101        2.31     .339   12.18  73.22    .000
                        ============================================================
                        SUM 02:ENTRY1       27.89    3.221   12.33  77.80    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------
*
*ROUTING REACH 2 OF THE DIVERSION CHANNEL WITH AN AVERAGE SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 02:ENTRY1   |     Number of SEGMENTS =  3
| OUT< 03:REACH2   |     Slopes (%), CHANNEL= .42   FLOODPLAIN= .42
--------------------                  LENGTH =  224.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        243.44         .0300
                 5.21         242.20     .0300 / .0300  Main Channel
                 8.81         242.20     .0300 / .0300  Main Channel
                12.56         243.44         .0300
```

<-------------------------- TRAVEL TIME TABLE --------------------------->

DEPTH (m)	ELEV (m)	X-VOLUME (cu.m.)	S-VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)	D x V (m2/s)
.065	242.268	.559E+02	.194E+01	.085	.341	10.94	.022
.130	242.333	.119E+03	.822E+01	.281	.530	7.04	.069
.195	242.398	.188E+03	.196E+02	.573	.681	5.48	.133
.260	242.463	.265E+03	.367E+02	.959	.811	4.61	.211
.326	242.529	.349E+03	.603E+02	1.439	.925	4.04	.301
.391	242.594	.439E+03	.911E+02	2.016	1.029	3.63	.402
.456	242.659	.536E+03	.130E+03	2.691	1.124	3.32	.512
.521	242.724	.640E+03	.177E+03	3.467	1.213	3.08	.632
.586	242.789	.751E+03	.234E+03	4.348	1.297	2.88	.760
.651	242.854	.869E+03	.301E+03	5.335	1.375	2.71	.895
.716	242.919	.994E+03	.378E+03	6.433	1.450	2.57	1.039
.781	242.984	.113E+04	.467E+03	7.645	1.522	2.45	1.189
.846	243.049	.126E+04	.569E+03	8.973	1.590	2.35	1.346
.912	243.115	.141E+04	.683E+03	10.421	1.656	2.25	1.510
.977	243.180	.156E+04	.811E+03*	11.992	1.720	2.17	1.680
1.042	243.245	.172E+04	.953E+03*	13.689	1.782	2.09	1.857
1.107	243.310	.189E+04	.111E+04*	15.515	1.842	2.03	2.039
1.172	243.375	.206E+04	.128E+04*	17.474	1.900	1.96	2.227
1.237	243.440	.224E+04	.147E+04*	19.568	1.957	1.91	2.422

X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
(*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

	<---- hydrograph ---->				<-pipe / channel->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2:ENTRY1	27.89	3.221	12.33	77.799	.500	1.184
OUTFLOW: ID= 3:REACH2	27.89	3.195	12.38	77.799	.496	1.177

001:0022---
*
*#KOMOKA ROAD WEST SIDE OF CENTERLINE DRAINING TO CHANNEL, INCLUDES PORTIONS OF
*#EXISTING LOTS
*

CALIB STANDHYD 04:EX.8 DT= 1.00	Area (ha)= .77	Total Imp(%)= 36.00	Dir. Conn.(%)= 31.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.28	.49	
Dep. Storage	(mm)=	5.00	2.00	
Average Slope	(%)=	.50	2.00	
Length	(m)=	250.00	15.00	
Mannings n	=	.015	.250	
Max.eff.Inten.(mm/hr)=		145.66	121.91	
over (min)		5.00	9.00	
Storage Coeff. (min)=		5.11 (ii)	8.73 (ii)	
Unit Hyd. Tpeak (min)=		5.00	9.00	
Unit Hyd. peak (cms)=		.22	.13	
				TOTALS
PEAK FLOW	(cms)=	.09	.12	.211 (iii)
TIME TO PEAK	(hrs)=	12.00	12.05	12.017
RUNOFF VOLUME	(mm)=	113.98	77.94	89.128
TOTAL RAINFALL	(mm)=	119.00	119.00	118.999
RUNOFF COEFFICIENT	=	.96	.65	.749

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 80.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

001:0023---
*
*#PORTION OF STREET 'A' DRAINING TO DIVERSION CHANNEL
*

CALIB STANDHYD 05:CAT102 DT= 1.00	Area (ha)= .16	Total Imp(%)= 60.00	Dir. Conn.(%)= 48.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.10	.06	
Dep. Storage	(mm)=	5.00	2.00	
Average Slope	(%)=	.50	2.00	
Length	(m)=	22.00	34.00	
Mannings n	=	.015	.250	
Max.eff.Inten.(mm/hr)=		145.66	156.57	
over (min)		1.00	7.00	
Storage Coeff. (min)=		1.19 (ii)	6.54 (ii)	
Unit Hyd. Tpeak (min)=		1.00	7.00	
Unit Hyd. peak (cms)=		.97	.17	
				TOTALS
PEAK FLOW	(cms)=	.03	.02	.054 (iii)
TIME TO PEAK	(hrs)=	12.00	12.02	12.000
RUNOFF VOLUME	(mm)=	113.99	82.96	97.860
TOTAL RAINFALL	(mm)=	119.00	119.00	118.999
RUNOFF COEFFICIENT	=	.96	.70	.822

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 80.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

001:0024---
*
*CATCHMENT 103 REPRESENTING AREA OF CHANNEL DOWNSTREAM OF KOMOKA CULVERT CROSSIN
*

CALIB NASHYD 06:CAT103 DT= 1.00	Area (ha)= 2.72	Ia (mm)= 5.000	U.H. Tp(hrs)= .082	Curve Number (CN)=78.00	# of Linear Res.(N)= 3.00

Unit Hyd Qpeak	(cms)=	1.267
PEAK FLOW	(cms)=	.735 (i)
TIME TO PEAK	(hrs)=	12.017
RUNOFF VOLUME	(mm)=	70.006
TOTAL RAINFALL	(mm)=	118.999
RUNOFF COEFFICIENT	=	.588

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

001:0025---
*
*COMBINED FLOWS AT THE TOP END OF CHANNEL REACH 1 ALSO THE KOMOKA CULVERT
*ENTRY POINT
*

ADD HYD (ENTRY2)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
ID1	09:KOMOKA	110.46	8.715	12.73	78.84	.000
+ID2	03:REACH2	27.89	3.195	12.38	77.80	.000
+ID3	04:EX.8	.77	.211	12.02	89.13	.000
+ID4	05:CAT102	.16	.054	12.00	97.86	.000
+ID5	06:CAT103	2.72	.735	12.02	70.01	.000

```
                    ============================================================
                    SUM 07:ENTRY2       142.00   11.507   12.60  78.54    .000

   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------------------
001:0026----------------------------------------------------------------------------------
*
*ROUTING REACH 1 OF THE DIVERSION CHANNEL WITH A  0.15% SLOPE AND ROUGHLY
*AVERAGE WIDTH. PROPOSED CULVERTS DISCLUDED SINCE THEY WILL BE SIZED THROUGH
*HEC-RAS AND ARE TO BE FREE FLOWING.
*
--------------------
| ROUTE CHANNEL    |     Routing time step (min) =  1.00
|  IN> 07:ENTRY2   |     Number of SEGMENTS =  3
| OUT< 08:REACH1   |     Slopes (%), CHANNEL= .15   FLOODPLAIN= .15
--------------------                LENGTH =  771.00    (m)

              <------ DATA FOR SECTION (   2.0) ------>
              Distance      Elevation       Manning
                   .00        242.64         .0300
                  4.40        241.18     .0300 / .0300  Main Channel
                 11.70        241.18     .0300 / .0300  Main Channel
                 16.10        242.64         .0300

   <---------------------------- TRAVEL TIME TABLE ---------------------------->
    DEPTH     ELEV   X-VOLUME  S-VOLUME  FLOW RATE  VELOCITY  TRAV.TIME   D x V
      (m)      (m)   (cu.m.)   (cu.m.)      (cms)     (m/s)     (min)   (m2/s)
     .077  241.259  .446E+03  .148E+02       .133      .230     55.79     .018
     .153  241.335  .919E+03  .610E+02       .431      .361     35.55     .055
     .230  241.412  .142E+04  .141E+03       .862      .468     27.43     .108
     .307  241.489  .195E+04  .258E+03      1.418      .562     22.88     .172
     .384  241.566  .250E+04  .415E+03      2.094      .645     19.92     .248
     .460  241.642  .308E+04  .614E+03      2.887      .722     17.81     .332
     .537  241.719  .369E+04  .858E+03      3.798      .792     16.22     .426
     .614  241.796  .433E+04  .115E+04      4.825      .859     14.96     .527
     .691  241.873  .500E+04  .149E+04      5.970      .921     13.95     .636
     .767  241.949  .569E+04  .189E+04      7.233      .980     13.11     .752
     .844  242.026  .641E+04  .234E+04      8.615     1.036     12.40     .875
     .921  242.103  .716E+04  .285E+04     10.118     1.090     11.79    1.004
     .998  242.180  .793E+04  .342E+04     11.743     1.142     11.26    1.139
    1.074  242.256  .873E+04  .406E+04     13.492     1.191     10.79    1.280
    1.151  242.333  .956E+04  .476E+04     15.366     1.239     10.37    1.426
    1.228  242.410  .104E+05  .553E+04*    17.368     1.285     10.00    1.578
    1.305  242.487  .113E+05  .637E+04*    19.497     1.330      9.66    1.735
    1.381  242.563  .122E+05  .729E+04*    21.758     1.373      9.36    1.897
    1.458  242.640  .132E+05  .829E+04*    24.151     1.416      9.08    2.064

 X-VOLUME= Total X-Section volume over given CHANNEL LENGTH at specified DEPTH.
 S-VOLUME= Volume that can be stored in channel at specified ELEVATION.
 (*) Actual value may be less due to limited CHANNEL LENGTH for given SLOPE.

                                 <---- hydrograph ---->   <-pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 7:ENTRY2    142.00   11.507   12.60 78.540      .986     1.134
   OUTFLOW: ID= 8:REACH1    142.00   10.943   12.77 78.539      .956     1.113


------------------------------------------------------------------------------------------
001:0027----------------------------------------------------------------------------------
**************************************************************************
*                                                                        *
*  DISCHARGE TO THE WEST FROM THE SWM FACILITY COMBINED WITH EXTERNAL FLOWS    *
*       TO SHOW THE COMBINED POST DEVELOPMENT DISCHARGE TO THE WEST       *
*                                                                        *
**************************************************************************
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| READ HYD         |   AREA       (ha)=   10.830
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| ID=09 (PIPE  )   |   QPEAK     (cms)=     .751
| DT= 1.00 PCYC= 1 |   TPEAK     (hrs)=   12.700
--------------------   VOLUME     (mm)=   96.338
  Filename: G:\CLIENT\1389\1\SWM\SWMHYMO\Post\Channel\250SCS-W.HYD
  Comments: POST DEVELOPMENT FROM POND TO THE WEST

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |  TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |   hrs     cms |   hrs     cms
    .00    .000|   5.37    .000|  10.73    .000|  16.10    .237|  21.47    .059
    .02    .000|   5.38    .000|  10.75    .000|  16.12    .236|  21.48    .059
    .03    .000|   5.40    .000|  10.77    .000|  16.13    .234|  21.50    .059
    .05    .000|   5.42    .000|  10.78    .000|  16.15    .232|  21.52    .059
    .07    .000|   5.43    .000|  10.80    .000|  16.17    .231|  21.53    .058
    .08    .000|   5.45    .000|  10.82    .000|  16.18    .229|  21.55    .058
    .10    .000|   5.47    .000|  10.83    .000|  16.20    .228|  21.57    .058
    .12    .000|   5.48    .000|  10.85    .000|  16.22    .226|  21.58    .058
    .13    .000|   5.50    .000|  10.87    .000|  16.23    .224|  21.60    .058
    .15    .000|   5.52    .000|  10.88    .000|  16.25    .223|  21.62    .058
    .17    .000|   5.53    .000|  10.90    .000|  16.27    .221|  21.63    .057
    .18    .000|   5.55    .000|  10.92    .000|  16.28    .219|  21.65    .057
    .20    .000|   5.57    .000|  10.93    .000|  16.30    .218|  21.67    .057
    .22    .000|   5.58    .000|  10.95    .000|  16.32    .216|  21.68    .057
    .23    .000|   5.60    .000|  10.97    .000|  16.33    .214|  21.70    .057
    .25    .000|   5.62    .000|  10.98    .000|  16.35    .213|  21.72    .057
    .27    .000|   5.63    .000|  11.00    .000|  16.37    .211|  21.73    .057
    .28    .000|   5.65    .000|  11.02    .000|  16.38    .209|  21.75    .056
    .30    .000|   5.67    .000|  11.03    .000|  16.40    .207|  21.77    .056
    .32    .000|   5.68    .000|  11.05    .000|  16.42    .206|  21.78    .056
    .33    .000|   5.70    .000|  11.07    .000|  16.43    .204|  21.80    .056
    .35    .000|   5.72    .000|  11.08    .000|  16.45    .202|  21.82    .056
    .37    .000|   5.73    .000|  11.10    .000|  16.47    .201|  21.83    .056
    .38    .000|   5.75    .000|  11.12    .000|  16.48    .199|  21.85    .056
    .40    .000|   5.77    .000|  11.13    .000|  16.50    .197|  21.87    .055
    .42    .000|   5.78    .000|  11.15    .000|  16.52    .196|  21.88    .055
    .43    .000|   5.80    .000|  11.17    .000|  16.53    .194|  21.90    .055
    .45    .000|   5.82    .000|  11.18    .000|  16.55    .192|  21.92    .055
    .47    .000|   5.83    .000|  11.20    .000|  16.57    .191|  21.93    .055
    .48    .000|   5.85    .000|  11.22    .000|  16.58    .189|  21.95    .055
    .50    .000|   5.87    .000|  11.23    .000|  16.60    .188|  21.97    .055
    .52    .000|   5.88    .000|  11.25    .000|  16.62    .186|  21.98    .054
    .53    .000|   5.90    .000|  11.27    .000|  16.63    .184|  22.00    .054
    .55    .000|   5.92    .000|  11.28    .000|  16.65    .183|  22.02    .054
    .57    .000|   5.93    .000|  11.30    .000|  16.67    .181|  22.03    .054
    .58    .000|   5.95    .000|  11.32    .000|  16.68    .180|  22.05    .054
    .60    .000|   5.97    .000|  11.33    .000|  16.70    .179|  22.07    .054
    .62    .000|   5.98    .000|  11.35    .000|  16.72    .177|  22.08    .054
    .63    .000|   6.00    .000|  11.37    .000|  16.73    .176|  22.10    .053
    .65    .000|   6.02    .000|  11.38    .000|  16.75    .174|  22.12    .053
    .67    .000|   6.03    .000|  11.40    .000|  16.77    .173|  22.13    .053
    .68    .000|   6.05    .000|  11.42    .000|  16.78    .172|  22.15    .053
    .70    .000|   6.07    .000|  11.43    .000|  16.80    .170|  22.17    .053
    .72    .000|   6.08    .000|  11.45    .000|  16.82    .169|  22.18    .053
    .73    .000|   6.10    .000|  11.47    .000|  16.83    .168|  22.20    .053
    .75    .000|   6.12    .000|  11.48    .000|  16.85    .166|  22.22    .053
    .77    .000|   6.13    .000|  11.50    .000|  16.87    .165|  22.23    .052
    .78    .000|   6.15    .000|  11.52    .000|  16.88    .164|  22.25    .052
    .80    .000|   6.17    .000|  11.53    .000|  16.90    .163|  22.27    .052
    .82    .000|   6.18    .000|  11.55    .000|  16.92    .161|  22.28    .052
    .83    .000|   6.20    .000|  11.57    .000|  16.93    .160|  22.30    .052
    .85    .000|   6.22    .000|  11.58    .000|  16.95    .159|  22.32    .052
    .87    .000|   6.23    .000|  11.60    .000|  16.97    .157|  22.33    .052
    .88    .000|   6.25    .000|  11.62    .000|  16.98    .156|  22.35    .052
    .90    .000|   6.27    .000|  11.63    .000|  17.00    .155|  22.37    .051
    .92    .000|   6.28    .000|  11.65    .000|  17.02    .154|  22.38    .051
    .93    .000|   6.30    .000|  11.67    .000|  17.03    .152|  22.40    .051
    .95    .000|   6.32    .000|  11.68    .000|  17.05    .151|  22.42    .051
    .97    .000|   6.33    .000|  11.70    .000|  17.07    .150|  22.43    .051
    .98    .000|   6.35    .000|  11.72    .000|  17.08    .149|  22.45    .051
   1.00    .000|   6.37    .000|  11.73    .000|  17.10    .148|  22.47    .051
```

1.02	.000	6.38	.000	11.75	.000	17.12	.147	22.48	.051
1.03	.000	6.40	.000	11.77	.000	17.13	.146	22.50	.050
1.05	.000	6.42	.000	11.78	.000	17.15	.144	22.52	.050
1.07	.000	6.43	.000	11.80	.000	17.17	.143	22.53	.050
1.08	.000	6.45	.000	11.82	.000	17.18	.142	22.55	.050
1.10	.000	6.47	.000	11.83	.000	17.20	.141	22.57	.050
1.12	.000	6.48	.000	11.85	.000	17.22	.140	22.58	.050
1.13	.000	6.50	.000	11.87	.007	17.23	.139	22.60	.050
1.15	.000	6.52	.000	11.88	.020	17.25	.138	22.62	.050
1.17	.000	6.53	.000	11.90	.033	17.27	.138	22.63	.050
1.18	.000	6.55	.000	11.92	.047	17.28	.137	22.65	.049
1.20	.000	6.57	.000	11.93	.062	17.30	.136	22.67	.049
1.22	.000	6.58	.000	11.95	.079	17.32	.135	22.68	.049
1.23	.000	6.60	.000	11.97	.119	17.33	.134	22.70	.049
1.25	.000	6.62	.000	11.98	.163	17.35	.133	22.72	.049
1.27	.000	6.63	.000	12.00	.209	17.37	.132	22.73	.049
1.28	.000	6.65	.000	12.02	.256	17.38	.131	22.75	.049
1.30	.000	6.67	.000	12.03	.302	17.40	.130	22.77	.049
1.32	.000	6.68	.000	12.05	.345	17.42	.129	22.78	.049
1.33	.000	6.70	.000	12.07	.386	17.43	.128	22.80	.048
1.35	.000	6.72	.000	12.08	.426	17.45	.128	22.82	.048
1.37	.000	6.73	.000	12.10	.464	17.47	.127	22.83	.048
1.38	.000	6.75	.000	12.12	.500	17.48	.126	22.85	.048
1.40	.000	6.77	.000	12.13	.523	17.50	.125	22.87	.048
1.42	.000	6.78	.000	12.15	.544	17.52	.124	22.88	.048
1.43	.000	6.80	.000	12.17	.563	17.53	.123	22.90	.048
1.45	.000	6.82	.000	12.18	.582	17.55	.122	22.92	.048
1.47	.000	6.83	.000	12.20	.599	17.57	.121	22.93	.048
1.48	.000	6.85	.000	12.22	.615	17.58	.121	22.95	.048
1.50	.000	6.87	.000	12.23	.629	17.60	.120	22.97	.047
1.52	.000	6.88	.000	12.25	.643	17.62	.119	22.98	.047
1.53	.000	6.90	.000	12.27	.654	17.63	.118	23.00	.047
1.55	.000	6.92	.000	12.28	.663	17.65	.118	23.02	.047
1.57	.000	6.93	.000	12.30	.672	17.67	.117	23.03	.047
1.58	.000	6.95	.000	12.32	.679	17.68	.116	23.05	.047
1.60	.000	6.97	.000	12.33	.687	17.70	.115	23.07	.047
1.62	.000	6.98	.000	12.35	.693	17.72	.115	23.08	.047
1.63	.000	7.00	.000	12.37	.700	17.73	.114	23.10	.047
1.65	.000	7.02	.000	12.38	.705	17.75	.113	23.12	.047
1.67	.000	7.03	.000	12.40	.710	17.77	.113	23.13	.046
1.68	.000	7.05	.000	12.42	.715	17.78	.112	23.15	.046
1.70	.000	7.07	.000	12.43	.720	17.80	.112	23.17	.046
1.72	.000	7.08	.000	12.45	.724	17.82	.111	23.18	.046
1.73	.000	7.10	.000	12.47	.727	17.83	.110	23.20	.046
1.75	.000	7.12	.000	12.48	.731	17.85	.110	23.22	.046
1.77	.000	7.13	.000	12.50	.734	17.87	.109	23.23	.046
1.78	.000	7.15	.000	12.52	.737	17.88	.108	23.25	.046
1.80	.000	7.17	.000	12.53	.739	17.90	.108	23.27	.046
1.82	.000	7.18	.000	12.55	.742	17.92	.107	23.28	.046
1.83	.000	7.20	.000	12.57	.744	17.93	.107	23.30	.046
1.85	.000	7.22	.000	12.58	.745	17.95	.106	23.32	.045
1.87	.000	7.23	.000	12.60	.747	17.97	.105	23.33	.045
1.88	.000	7.25	.000	12.62	.748	17.98	.105	23.35	.045
1.90	.000	7.27	.000	12.63	.749	18.00	.104	23.37	.045
1.92	.000	7.28	.000	12.65	.750	18.02	.104	23.38	.045
1.93	.000	7.30	.000	12.67	.750	18.03	.103	23.40	.045
1.95	.000	7.32	.000	12.68	.751	18.05	.102	23.42	.045
1.97	.000	7.33	.000	12.70	.751	18.07	.102	23.43	.045
1.98	.000	7.35	.000	12.72	.751	18.08	.101	23.45	.045
2.00	.000	7.37	.000	12.73	.751	18.10	.101	23.47	.045
2.02	.000	7.38	.000	12.75	.750	18.12	.100	23.48	.045
2.03	.000	7.40	.000	12.77	.750	18.13	.100	23.50	.044
2.05	.000	7.42	.000	12.78	.749	18.15	.099	23.52	.044
2.07	.000	7.43	.000	12.80	.748	18.17	.099	23.53	.044
2.08	.000	7.45	.000	12.82	.748	18.18	.098	23.55	.044
2.10	.000	7.47	.000	12.83	.747	18.20	.098	23.57	.044
2.12	.000	7.48	.000	12.85	.745	18.22	.097	23.58	.044
2.13	.000	7.50	.000	12.87	.744	18.23	.097	23.60	.044
2.15	.000	7.52	.000	12.88	.743	18.25	.096	23.62	.044
2.17	.000	7.53	.000	12.90	.742	18.27	.096	23.63	.044
2.18	.000	7.55	.000	12.92	.740	18.28	.095	23.65	.044
2.20	.000	7.57	.000	12.93	.739	18.30	.095	23.67	.044
2.22	.000	7.58	.000	12.95	.737	18.32	.095	23.68	.044
2.23	.000	7.60	.000	12.97	.736	18.33	.094	23.70	.043
2.25	.000	7.62	.000	12.98	.734	18.35	.094	23.72	.043
2.27	.000	7.63	.000	13.00	.732	18.37	.093	23.73	.043
2.28	.000	7.65	.000	13.02	.730	18.38	.093	23.75	.043
2.30	.000	7.67	.000	13.03	.729	18.40	.093	23.77	.043
2.32	.000	7.68	.000	13.05	.727	18.42	.092	23.78	.043
2.33	.000	7.70	.000	13.07	.725	18.43	.092	23.80	.043
2.35	.000	7.72	.000	13.08	.723	18.45	.091	23.82	.043
2.37	.000	7.73	.000	13.10	.721	18.47	.091	23.83	.043
2.38	.000	7.75	.000	13.12	.719	18.48	.090	23.85	.043
2.40	.000	7.77	.000	13.13	.717	18.50	.090	23.87	.043
2.42	.000	7.78	.000	13.15	.715	18.52	.089	23.88	.043
2.43	.000	7.80	.000	13.17	.713	18.53	.089	23.90	.043
2.45	.000	7.82	.000	13.18	.710	18.55	.089	23.92	.042
2.47	.000	7.83	.000	13.20	.708	18.57	.088	23.93	.042
2.48	.000	7.85	.000	13.22	.706	18.58	.088	23.95	.042
2.50	.000	7.87	.000	13.23	.704	18.60	.087	23.97	.042
2.52	.000	7.88	.000	13.25	.701	18.62	.087	23.98	.042
2.53	.000	7.90	.000	13.27	.699	18.63	.087	24.00	.042
2.55	.000	7.92	.000	13.28	.697	18.65	.086	24.02	.042
2.57	.000	7.93	.000	13.30	.694	18.67	.086	24.03	.042
2.58	.000	7.95	.000	13.32	.692	18.68	.086	24.05	.042
2.60	.000	7.97	.000	13.33	.690	18.70	.085	24.07	.042
2.62	.000	7.98	.000	13.35	.687	18.72	.085	24.08	.042
2.63	.000	8.00	.000	13.37	.685	18.73	.085	24.10	.042
2.65	.000	8.02	.000	13.38	.682	18.75	.084	24.12	.041
2.67	.000	8.03	.000	13.40	.680	18.77	.084	24.13	.041
2.68	.000	8.05	.000	13.42	.678	18.78	.084	24.15	.041
2.70	.000	8.07	.000	13.43	.675	18.80	.084	24.17	.041
2.72	.000	8.08	.000	13.45	.673	18.82	.083	24.18	.041
2.73	.000	8.10	.000	13.47	.670	18.83	.083	24.20	.040
2.75	.000	8.12	.000	13.48	.668	18.85	.083	24.22	.040
2.77	.000	8.13	.000	13.50	.665	18.87	.083	24.23	.040
2.78	.000	8.15	.000	13.52	.663	18.88	.082	24.25	.040
2.80	.000	8.17	.000	13.53	.660	18.90	.082	24.27	.040
2.82	.000	8.18	.000	13.55	.658	18.92	.082	24.28	.039
2.83	.000	8.20	.000	13.57	.655	18.93	.081	24.30	.039
2.85	.000	8.22	.000	13.58	.653	18.95	.081	24.32	.039
2.87	.000	8.23	.000	13.60	.650	18.97	.081	24.33	.038
2.88	.000	8.25	.000	13.62	.648	18.98	.080	24.35	.038
2.90	.000	8.27	.000	13.63	.645	19.00	.080	24.37	.038
2.92	.000	8.28	.000	13.65	.642	19.02	.080	24.38	.038
2.93	.000	8.30	.000	13.67	.639	19.03	.080	24.40	.037
2.95	.000	8.32	.000	13.68	.636	19.05	.080	24.42	.037
2.97	.000	8.33	.000	13.70	.633	19.07	.080	24.43	.037
2.98	.000	8.35	.000	13.72	.630	19.08	.079	24.45	.036
3.00	.000	8.37	.000	13.73	.627	19.10	.079	24.47	.036
3.02	.000	8.38	.000	13.75	.624	19.12	.079	24.48	.036
3.03	.000	8.40	.000	13.77	.621	19.13	.079	24.50	.035
3.05	.000	8.42	.000	13.78	.618	19.15	.079	24.52	.035
3.07	.000	8.43	.000	13.80	.615	19.17	.079	24.53	.035
3.08	.000	8.45	.000	13.82	.612	19.18	.079	24.55	.034
3.10	.000	8.47	.000	13.83	.609	19.20	.079	24.57	.034
3.12	.000	8.48	.000	13.85	.606	19.22	.079	24.58	.034
3.13	.000	8.50	.000	13.87	.602	19.23	.079	24.60	.033
3.15	.000	8.52	.000	13.88	.599	19.25	.078	24.62	.033
3.17	.000	8.53	.000	13.90	.596	19.27	.078	24.63	.033
3.18	.000	8.55	.000	13.92	.593	19.28	.078	24.65	.032
3.20	.000	8.57	.000	13.93	.590	19.30	.078	24.67	.032
3.22	.000	8.58	.000	13.95	.587	19.32	.078	24.68	.032
3.23	.000	8.60	.000	13.97	.584	19.33	.078	24.70	.031
3.25	.000	8.62	.000	13.98	.581	19.35	.078	24.72	.031
3.27	.000	8.63	.000	14.00	.578	19.37	.078	24.73	.031
3.28	.000	8.65	.000	14.02	.575	19.38	.078	24.75	.030
3.30	.000	8.67	.000	14.03	.573	19.40	.078	24.77	.030

3.32	.000	8.68	.000	14.05	.570	19.42	.078	24.78	.030
3.33	.000	8.70	.000	14.07	.567	19.43	.078	24.80	.029
3.35	.000	8.72	.000	14.08	.564	19.45	.077	24.82	.029
3.37	.000	8.73	.000	14.10	.561	19.47	.077	24.83	.029
3.38	.000	8.75	.000	14.12	.558	19.48	.077	24.85	.028
3.40	.000	8.77	.000	14.13	.555	19.50	.077	24.87	.028
3.42	.000	8.78	.000	14.15	.552	19.52	.077	24.88	.028
3.43	.000	8.80	.000	14.17	.549	19.53	.077	24.90	.028
3.45	.000	8.82	.000	14.18	.546	19.55	.077	24.92	.027
3.47	.000	8.83	.000	14.20	.543	19.57	.077	24.93	.027
3.48	.000	8.85	.000	14.22	.540	19.58	.077	24.95	.027
3.50	.000	8.87	.000	14.23	.537	19.60	.076	24.97	.026
3.52	.000	8.88	.000	14.25	.534	19.62	.076	24.98	.026
3.53	.000	8.90	.000	14.27	.531	19.63	.076	25.00	.026
3.55	.000	8.92	.000	14.28	.528	19.65	.076	25.02	.025
3.57	.000	8.93	.000	14.30	.526	19.67	.076	25.03	.025
3.58	.000	8.95	.000	14.32	.523	19.68	.076	25.05	.025
3.60	.000	8.97	.000	14.33	.520	19.70	.076	25.07	.024
3.62	.000	8.98	.000	14.35	.517	19.72	.076	25.08	.024
3.63	.000	9.00	.000	14.37	.514	19.73	.076	25.10	.024
3.65	.000	9.02	.000	14.38	.511	19.75	.076	25.12	.023
3.67	.000	9.03	.000	14.40	.508	19.77	.076	25.13	.023
3.68	.000	9.05	.000	14.42	.505	19.78	.076	25.15	.023
3.70	.000	9.07	.000	14.43	.503	19.80	.076	25.17	.023
3.72	.000	9.08	.000	14.45	.500	19.82	.075	25.18	.022
3.73	.000	9.10	.000	14.47	.495	19.83	.075	25.20	.022
3.75	.000	9.12	.000	14.48	.491	19.85	.075	25.22	.022
3.77	.000	9.13	.000	14.50	.487	19.87	.075	25.23	.021
3.78	.000	9.15	.000	14.52	.483	19.88	.075	25.25	.021
3.80	.000	9.17	.000	14.53	.478	19.90	.075	25.27	.021
3.82	.000	9.18	.000	14.55	.474	19.92	.075	25.28	.020
3.83	.000	9.20	.000	14.57	.470	19.93	.075	25.30	.020
3.85	.000	9.22	.000	14.58	.466	19.95	.075	25.32	.020
3.87	.000	9.23	.000	14.60	.462	19.97	.075	25.33	.020
3.88	.000	9.25	.000	14.62	.458	19.98	.075	25.35	.019
3.90	.000	9.27	.000	14.63	.454	20.00	.075	25.37	.019
3.92	.000	9.28	.000	14.65	.451	20.02	.074	25.38	.019
3.93	.000	9.30	.000	14.67	.447	20.03	.074	25.40	.018
3.95	.000	9.32	.000	14.68	.443	20.05	.074	25.42	.018
3.97	.000	9.33	.000	14.70	.439	20.07	.074	25.43	.018
3.98	.000	9.35	.000	14.72	.436	20.08	.074	25.45	.018
4.00	.000	9.37	.000	14.73	.432	20.10	.074	25.47	.017
4.02	.000	9.38	.000	14.75	.428	20.12	.074	25.48	.017
4.03	.000	9.40	.000	14.77	.425	20.13	.074	25.50	.017
4.05	.000	9.42	.000	14.78	.421	20.15	.073	25.52	.017
4.07	.000	9.43	.000	14.80	.418	20.17	.073	25.53	.016
4.08	.000	9.45	.000	14.82	.415	20.18	.073	25.55	.016
4.10	.000	9.47	.000	14.83	.411	20.20	.073	25.57	.016
4.12	.000	9.48	.000	14.85	.408	20.22	.073	25.58	.015
4.13	.000	9.50	.000	14.87	.405	20.23	.073	25.60	.015
4.15	.000	9.52	.000	14.88	.401	20.25	.073	25.62	.015
4.17	.000	9.53	.000	14.90	.398	20.27	.072	25.63	.015
4.18	.000	9.55	.000	14.92	.395	20.28	.072	25.65	.014
4.20	.000	9.57	.000	14.93	.392	20.30	.072	25.67	.014
4.22	.000	9.58	.000	14.95	.388	20.32	.072	25.68	.014
4.23	.000	9.60	.000	14.97	.385	20.33	.072	25.70	.014
4.25	.000	9.62	.000	14.98	.382	20.35	.071	25.72	.013
4.27	.000	9.63	.000	15.00	.379	20.37	.071	25.73	.013
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4.30	.000	9.67	.000	15.03	.373	20.40	.071	25.77	.013
4.32	.000	9.68	.000	15.05	.370	20.42	.071	25.78	.012
4.33	.000	9.70	.000	15.07	.367	20.43	.070	25.80	.012
4.35	.000	9.72	.000	15.08	.364	20.45	.070	25.82	.012
4.37	.000	9.73	.000	15.10	.361	20.47	.070	25.83	.012
4.38	.000	9.75	.000	15.12	.359	20.48	.070	25.85	.011
4.40	.000	9.77	.000	15.13	.356	20.50	.070	25.87	.011
4.42	.000	9.78	.000	15.15	.353	20.52	.069	25.88	.011
4.43	.000	9.80	.000	15.17	.350	20.53	.069	25.90	.011
4.45	.000	9.82	.000	15.18	.348	20.55	.069	25.92	.010
4.47	.000	9.83	.000	15.20	.345	20.57	.069	25.93	.010
4.48	.000	9.85	.000	15.22	.343	20.58	.069	25.95	.010
4.50	.000	9.87	.000	15.23	.340	20.60	.068	25.97	.010
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4.67	.000	10.03	.000	15.40	.316	20.77	.066	26.13	.007
4.68	.000	10.05	.000	15.42	.314	20.78	.066	26.15	.007
4.70	.000	10.07	.000	15.43	.312	20.80	.066	26.17	.007
4.72	.000	10.08	.000	15.45	.309	20.82	.066	26.18	.007
4.73	.000	10.10	.000	15.47	.307	20.83	.066	26.20	.007
4.75	.000	10.12	.000	15.48	.305	20.85	.066	26.22	.006
4.77	.000	10.13	.000	15.50	.303	20.87	.065	26.23	.006
4.78	.000	10.15	.000	15.52	.301	20.88	.065	26.25	.006
4.80	.000	10.17	.000	15.53	.298	20.90	.065	26.27	.006
4.82	.000	10.18	.000	15.55	.296	20.92	.065	26.28	.005
4.83	.000	10.20	.000	15.57	.294	20.93	.065	26.30	.005
4.85	.000	10.22	.000	15.58	.292	20.95	.064	26.32	.005
4.87	.000	10.23	.000	15.60	.290	20.97	.064	26.33	.005
4.88	.000	10.25	.000	15.62	.288	20.98	.064	26.35	.005
4.90	.000	10.27	.000	15.63	.286	21.00	.064	26.37	.004
4.92	.000	10.28	.000	15.65	.284	21.02	.064	26.38	.004
4.93	.000	10.30	.000	15.67	.282	21.03	.063	26.40	.004
4.95	.000	10.32	.000	15.68	.280	21.05	.063	26.42	.004
4.97	.000	10.33	.000	15.70	.278	21.07	.063	26.43	.004
4.98	.000	10.35	.000	15.72	.276	21.08	.063	26.45	.003
5.00	.000	10.37	.000	15.73	.274	21.10	.063	26.47	.003
5.02	.000	10.38	.000	15.75	.272	21.12	.063	26.48	.003
5.03	.000	10.40	.000	15.77	.271	21.13	.062	26.50	.003
5.05	.000	10.42	.000	15.78	.269	21.15	.062	26.52	.003
5.07	.000	10.43	.000	15.80	.267	21.17	.062	26.53	.002
5.08	.000	10.45	.000	15.82	.265	21.18	.062	26.55	.002
5.10	.000	10.47	.000	15.83	.264	21.20	.062	26.57	.002
5.12	.000	10.48	.000	15.85	.262	21.22	.062	26.58	.002
5.13	.000	10.50	.000	15.87	.260	21.23	.061	26.60	.002
5.15	.000	10.52	.000	15.88	.258	21.25	.061	26.62	.001
5.17	.000	10.53	.000	15.90	.257	21.27	.061	26.63	.001
5.18	.000	10.55	.000	15.92	.255	21.28	.061	26.65	.001
5.20	.000	10.57	.000	15.93	.253	21.30	.061	26.67	.001
5.22	.000	10.58	.000	15.95	.252	21.32	.060	26.68	.001
5.23	.000	10.60	.000	15.97	.250	21.33	.060	26.70	.000
5.25	.000	10.62	.000	15.98	.249	21.35	.060	26.72	.000
5.27	.000	10.63	.000	16.00	.247	21.37	.060	26.73	.000
5.28	.000	10.65	.000	16.02	.245	21.38	.060		
5.30	.000	10.67	.000	16.03	.244	21.40	.060		
5.32	.000	10.68	.000	16.05	.242	21.42	.059		
5.33	.000	10.70	.000	16.07	.241	21.43	.059		
5.35	.000	10.72	.000	16.08	.239	21.45	.059		

001:0028

```
**********************************************************************************
*                                                                                *
*             TOTAL POST DEVELOPMENT DISCHARGE TO THE WEST                       *
*                                                                                *
**********************************************************************************
```

ADD HYD (POST)	ID: NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)
	ID1 08:REACH1	142.00	10.943	12.77	78.54	.000
	+ID2 09:PIPE	10.83	.751	12.70	96.34	.000
	SUM 10:POST	152.83	11.693	12.77	79.80	.000

```
   NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
001:0029--------------------------------------------------------------------------
      FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 001:0008 ROUTE CHANNEL   ->
      *** WARNING: TRAVEL TIME TABLE was exceeded
 001:0012 ROUTE RESERVOIR
      *** WARNING: STORAGE-Q values were extrapolated.
                   Increase curve or use overflow option.
 001:0018 ROUTE RESERVOIR
      *** WARNING: STORAGE-Q values were extrapolated.
                   Increase curve or use overflow option.
   Simulation ended on 2020-07-30     at 10:52:49
================================================================================
```

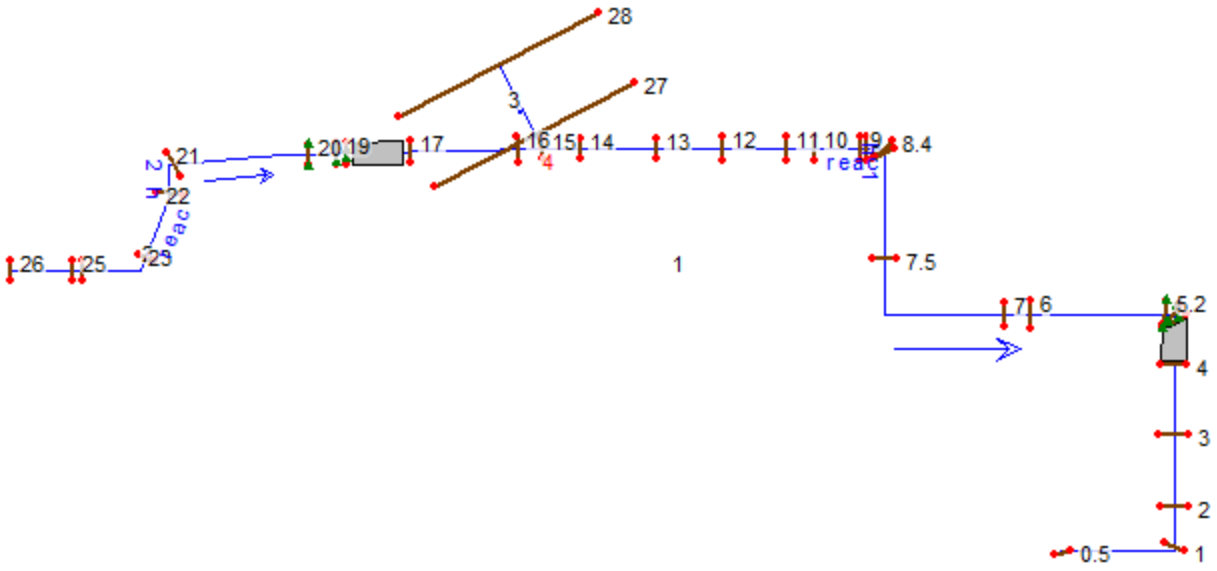
APPENDIX D

HEC-RAS Model

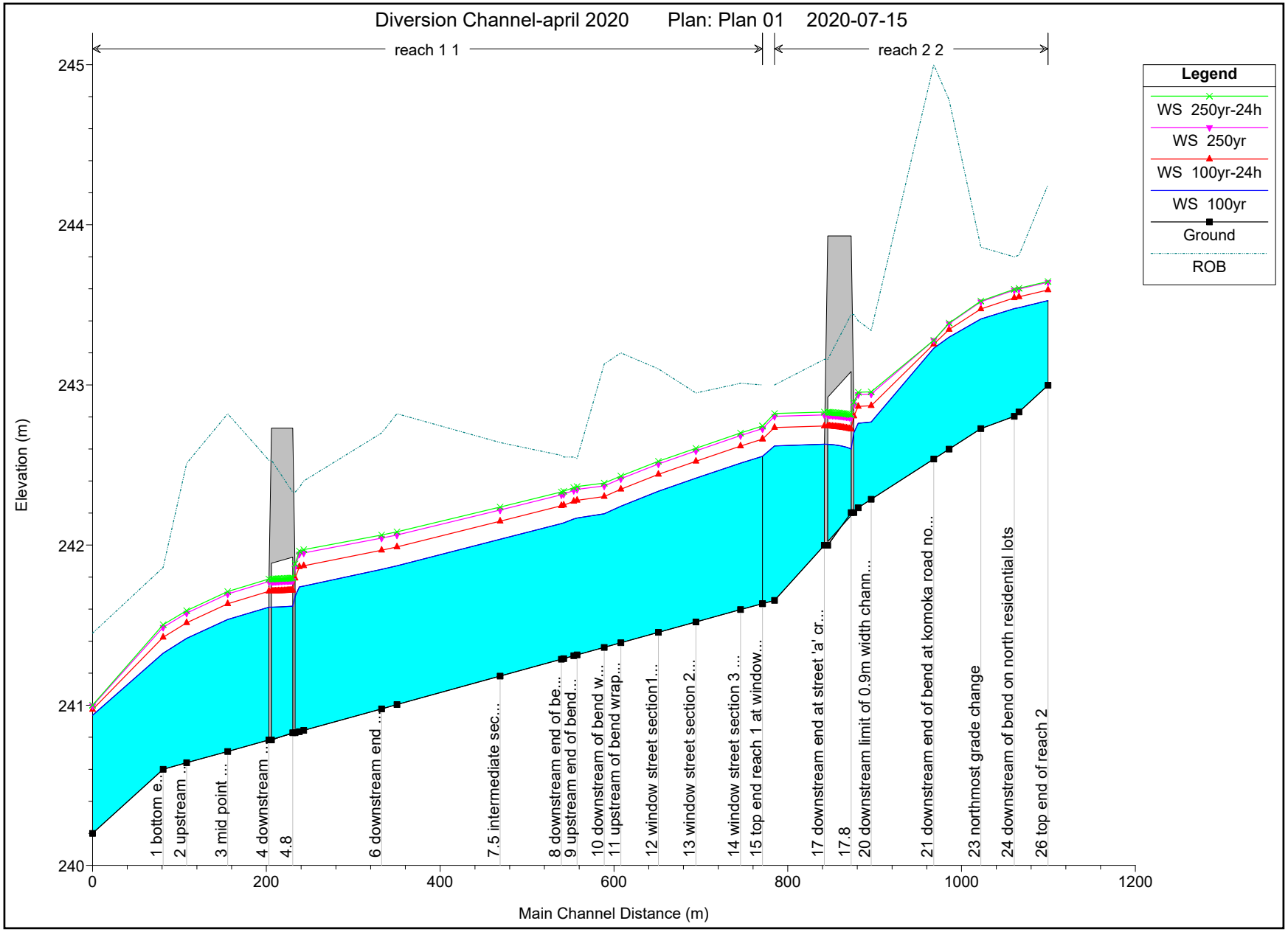
Input Data

HEC-RAS MODELING DATA

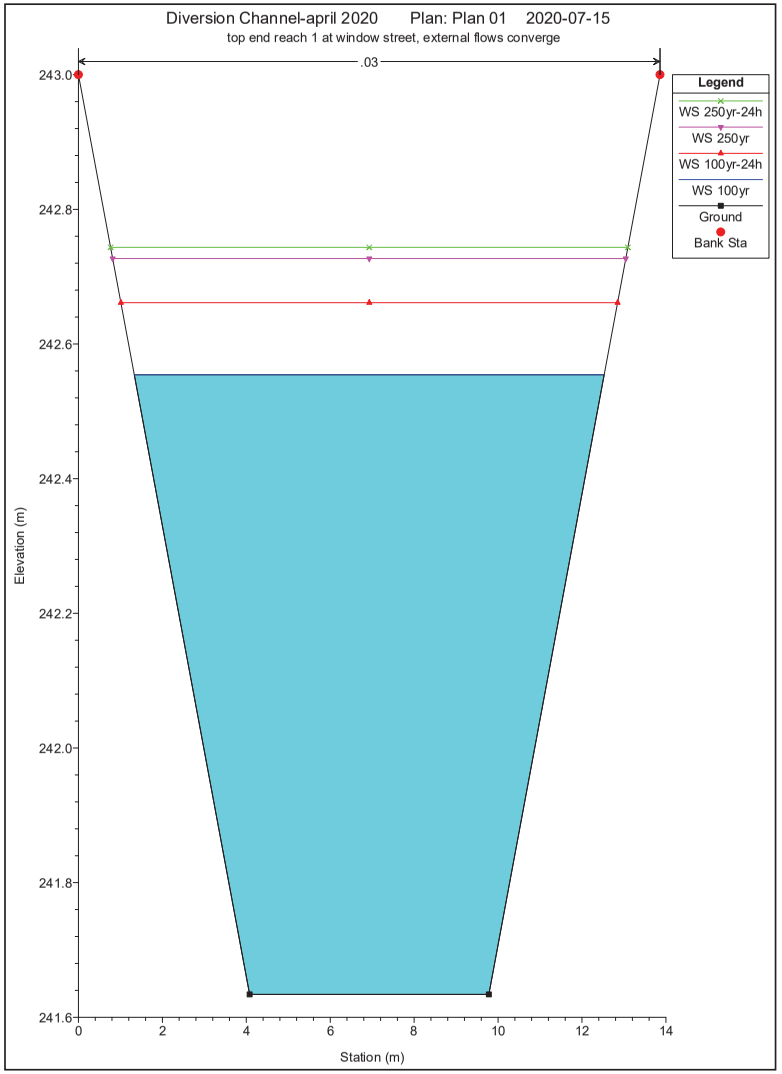
STATION ID	Left Bank		Bottom of Channel			Right Bank (min.)		Left Bank Downstream Length	Bottom of Channel Downstream Length	Right Bank Downstream Length	Mannings Coef.	Channel characteristics @ section			Description
	elevation	offset	elevation	left offset	right offset	elevation	offset					Min. Depth of Channel	Bottom Width	Downstream Slope (%)	
0.5	241.45	0	240.2	3.76	7.76	241.45	11.52					1.25	4.00		flow spreader
1	241.86	0.00	240.60	3.80	11.10	241.86	14.90	81.23	81.23	81.23	0.03	1.26	7.30	0.5	Begin Transfer to Flow Spreader
2	242.51	0.00	240.641	5.58	12.88	242.51	18.46	39.4	27.04	15.3	0.03	1.87	7.30	0.15	
3	242.82	0.00	240.711	6.30	13.60	242.82	19.90	47.32	47.24	47.55	0.03	2.11	7.30	0.15	
4	242.53	0.00	240.783	5.23	12.53	242.53	17.76	47.3	47.46	47.35	0.03	1.75	7.30	0.15	Culvert Outlet
5	242.33	0.00	240.828	5.22	12.52	242.33	17.74	30.06	30.06	30.06	0.03	1.50	7.30	0.15	Culvert Inlet
5.1	242.36	0.00	240.835	5.22	12.52	242.36	17.74	5	5	5	0.03	1.52	7.30	0.15	
5.2	242.40	1.00	240.843	5.22	12.52	242.40	17.74	5	5	5	0.03	1.56	7.30	0.15	
6	242.70	0.00	240.977	5.16	12.46	242.70	17.62	90	89.59	89.13	0.03	1.72	7.30	0.15	
7	242.82	0.00	241.004	5.00	12.30	242.82	17.30	30.47	17.65	4.93	0.03	1.82	7.30	0.15	
7.5	242.64	0.00	241.182	4.40	11.70	242.64	16.10	118.68	118.68	118.68	0.03	1.46	7.30	0.15	
8	242.56	0.00	241.287	3.78	12.08	242.56	15.86	70.5	70.5	70.5	0.03	1.27	8.30	0.15	
8.4	242.55	0.00	241.291	3.76	12.06	242.55	15.82	2.73	2.73	2.73	0.04	1.26	8.30	0.15	
8.7	242.55	0.00	241.309	3.66	11.96	242.55	15.62	0.1	11.6	23.2	0.04	1.24	8.30	0.15	
9	242.54	0.00	241.314	3.66	11.96	242.54	15.62	3.78	3.78	3.78	0.03	1.23	8.30	0.15	Begin 7.3m width
10	243.13	0.00	241.361	5.29	10.99	243.13	16.28	31.43	31.18	30.79	0.03	1.77	5.70	0.15	Begin Transition from 5.7m
11	243.20	0.00	241.390	5.40	11.10	243.20	16.50	32.04	19.22	6.57	0.03	1.81	5.70	0.15	
12	243.10	0.00	241.455	4.89	10.59	243.10	15.48	43.13	43.24	43.33	0.03	1.65	5.70	0.15	
13	242.95	0.00	241.520	4.20	9.90	242.95	14.10	43.31	43.17	43.11	0.03	1.43	5.70	0.15	
14	243.01	0.00	241.597	4.20	9.90	243.01	14.10	51.29	51.29	51.29	0.03	1.41	5.70	0.15	
15	243.00	0.00	241.634	4.08	9.78	243.00	13.86	25.23	25.23	25.23	0.03	1.37	5.70	0.15	Limit of Reach 1 - Combined Branc
16	243.00	0.00	241.655	6.10	9.70	243.00	13.74	13.86	13.86	13.86	0.03	1.34	3.60	0.15	Reach 2 - north through subdivisic
17	243.16	0.00	241.999	5.17	8.77	243.16	12.25	57.32	57.32	57.38	0.03	1.16	3.60	0.60	Culvert Outlet
18	243.44	0.00	242.203	5.21	8.81	243.44	12.56	34.00	34.00	34.00	0.03	1.24	3.60	0.60	
19	243.40	0.00	242.233	5.21	8.81	243.40	12.32	5.00	5.00	5.05	0.03	1.17	3.60	0.60	
20	243.34	0.00	242.286	5.41	6.31	243.34	11.72	15.00	15.01	14.65	0.03	1.05	0.90	0.35	
21	245.00	0.00	242.537	7.32	8.22	245.00	15.54	72.29	71.89	71.51	0.03	2.46	0.90	0.35	
22	244.78	0.00	242.599	6.50	7.40	244.78	13.90	29.30	17.69	7.35	0.03	2.18	0.90	0.35	
23	243.86	0.00	242.727	3.36	5.81	243.86	9.17	36.04	36.61	36.73	0.03	1.13	2.45	0.35	
24	243.80	0.00	242.804	3.56	7.56	243.81	10.58	37.49	38.44	39.42	0.04	1.00	4.00	0.20	
25	243.81	0.00	242.831	3.56	7.56	243.81	10.58	0.05	5.32	10.36	0.04	0.98	4.00	0.50	
26	244.25	0.00	242.998	3.76	6.76	244.25	10.52	33.52	33.52	33.46	0.03	1.25	3.00	0.5	Limit of Reach 2
27	243.00	0.00	241.65	4.33	9.50	243.00	13.83	0.1	0.1	0.1	0.03	1.35	5.17	0.15	Reach 3 bottom end
28	243.00	0.00	241.95	4.33	9.50	243.00	13.83	4.8	4.8	4.8	0.03	1.05	5.17	5	Reach 3 top end

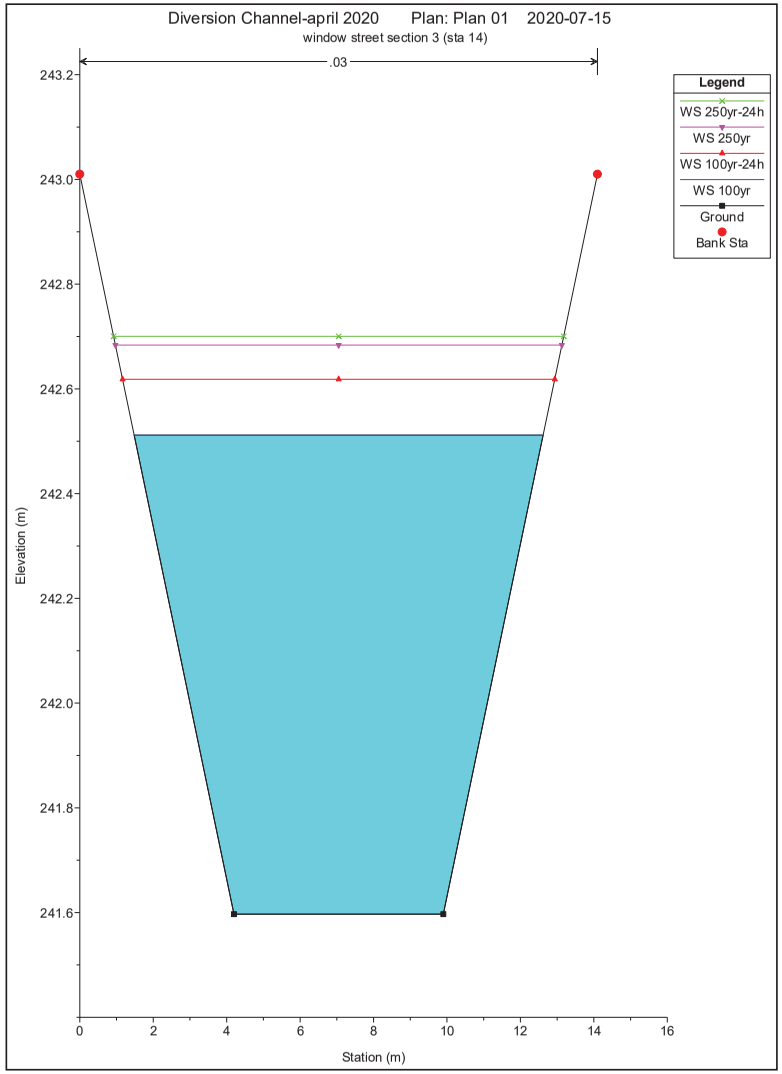

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0.5
1

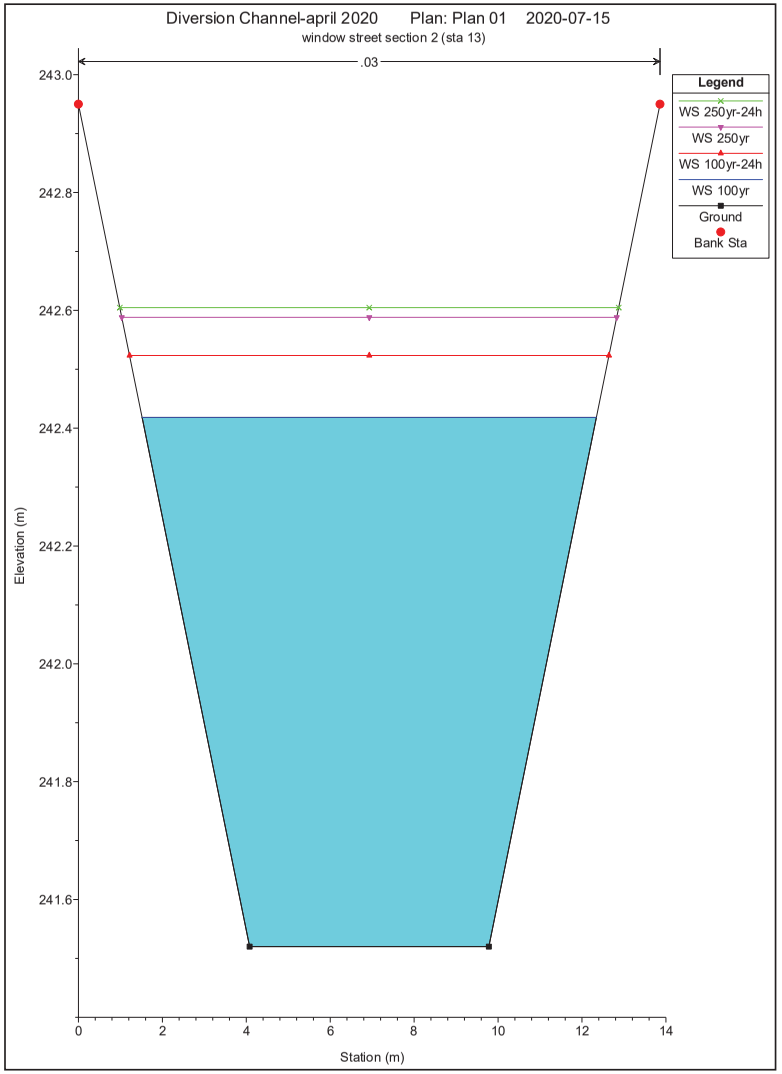
Channel Profile Performance

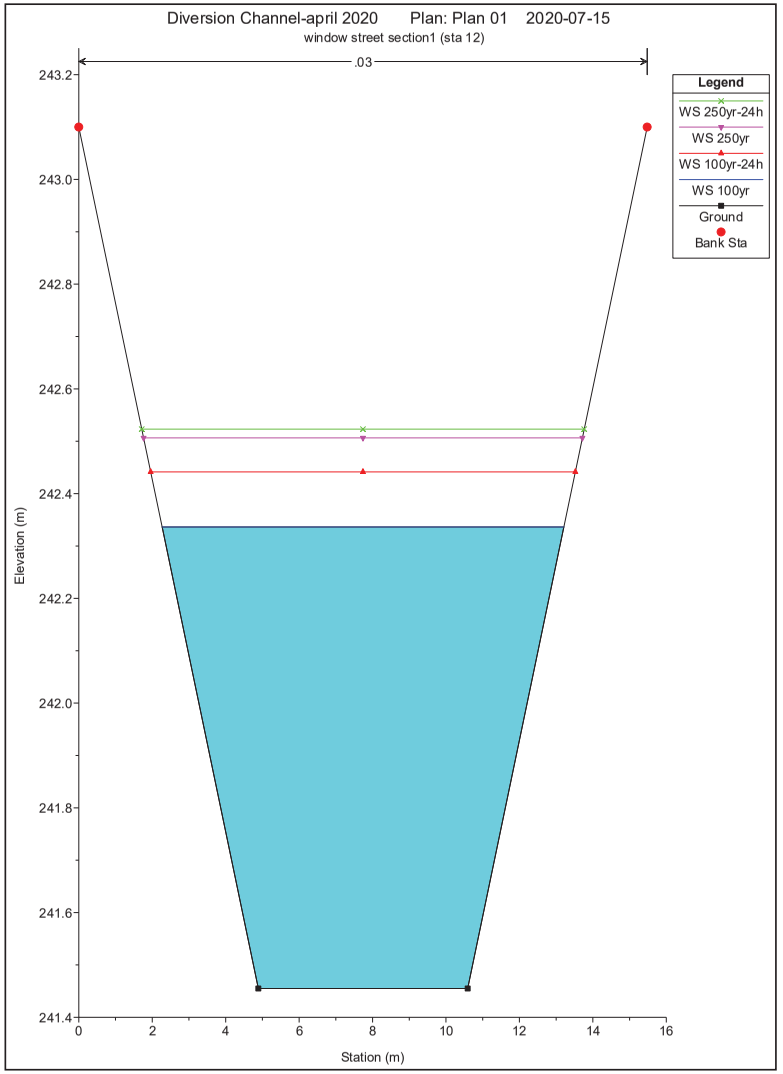

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
reach 1 1
reach 2 2
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
ROB
Elevation (m)
245
244
243
242
241
240
0
200
400
600
800
1000
1200
Main Channel Distance (m)
1 bottom e...
2 upstream ...
3 mid point ...
4 downstream ...
4.8
6 downstream end ...
7.5 intermediate sec...
8 downstream end of be...
9 upstream end of bend...
10 downstream of bend w...
11 upstream of bend wrap...
12 window street section1...
13 window street section 2...
14 window street section 3 ...
15 top end reach 1 at window...
17 downstream end at street 'a' cr...
17.8
20 downstream limit of 0.9m width chann...
21 downstream end of bend at komoka road no...
23 northmost grade change
24 downstream of bend on north residential lots
26 top end of reach 2

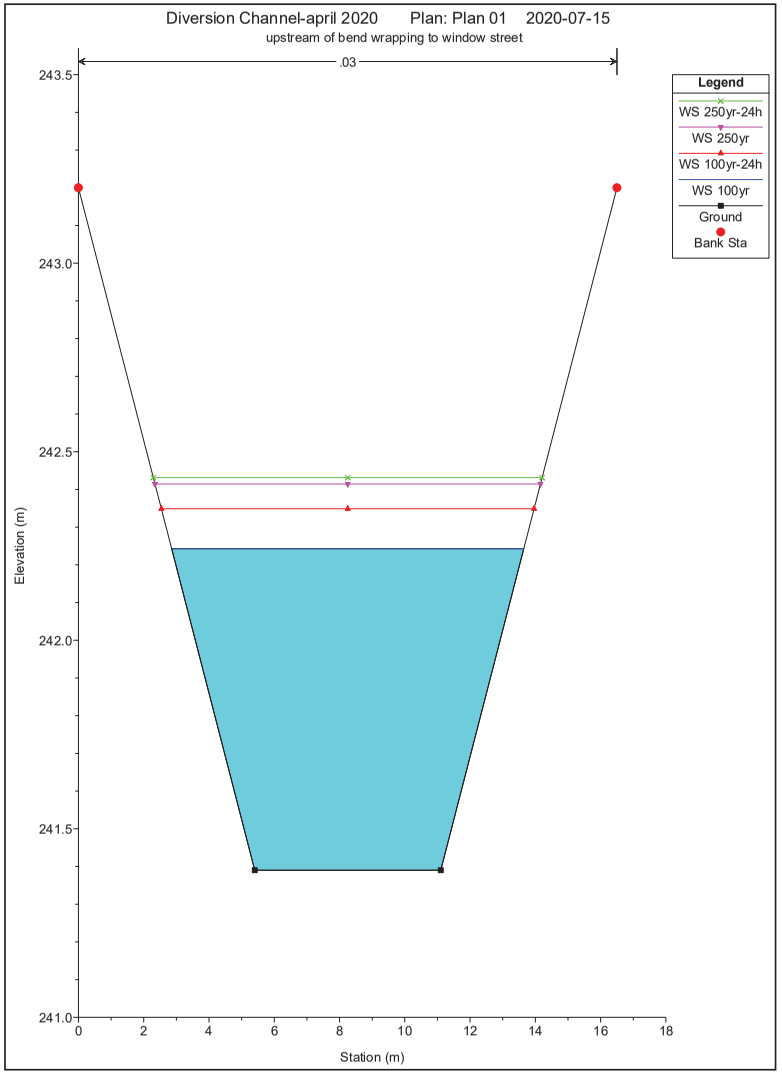
Channel Section Performance

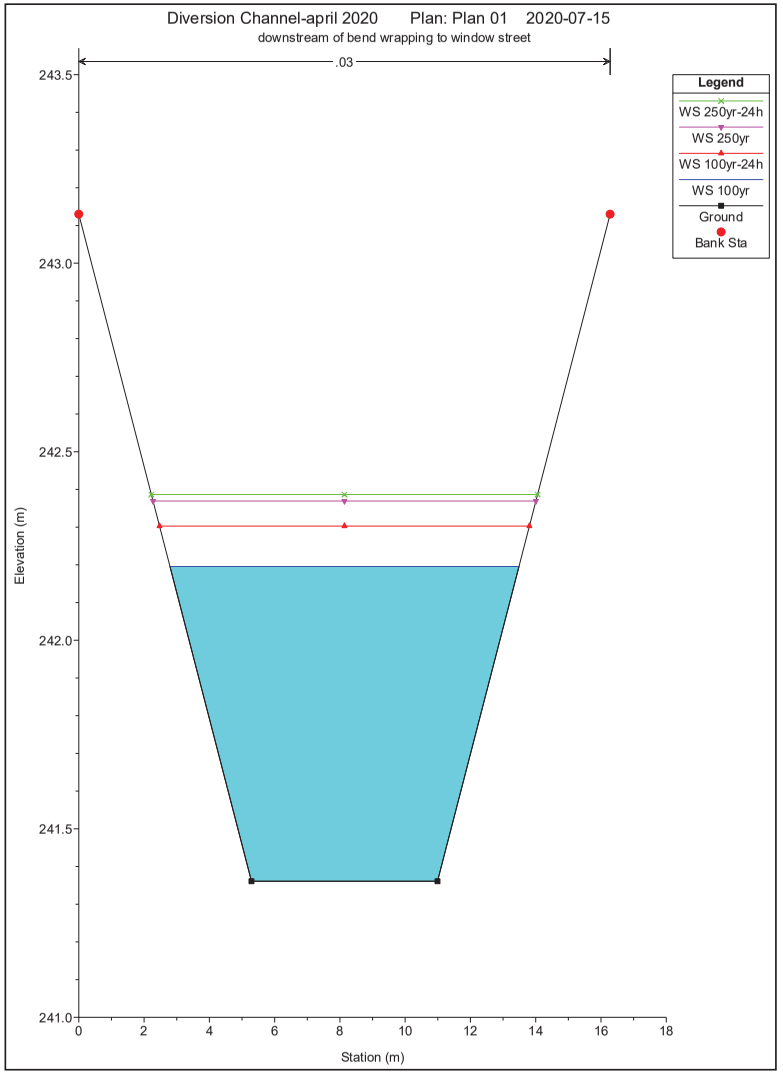

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
top end reach 1 at window street, external flows converge
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
243.0
242.8
242.6
242.4
242.2
242.0
241.8
241.6
0
2
4
6
8
10
12
14

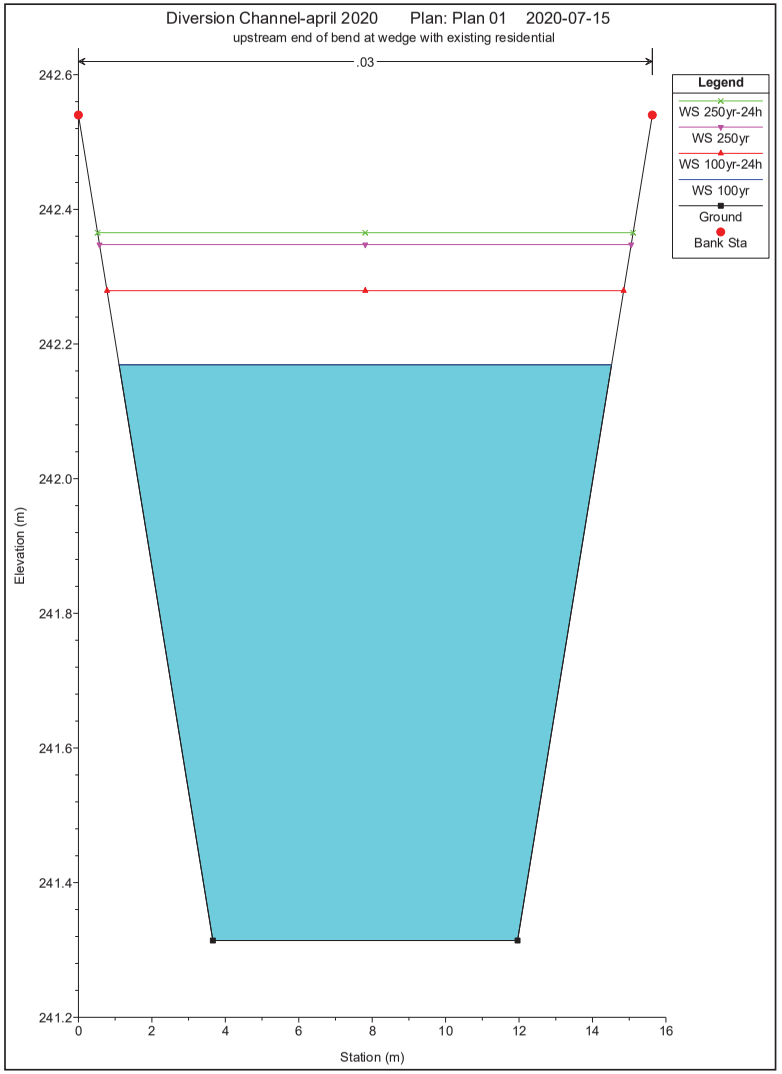

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
window street section 3 (sta 14)
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
243.2
243.0
242.8
242.6
242.4
242.2
242.0
241.8
241.6
0
2
4
6
8
10
12
14
16

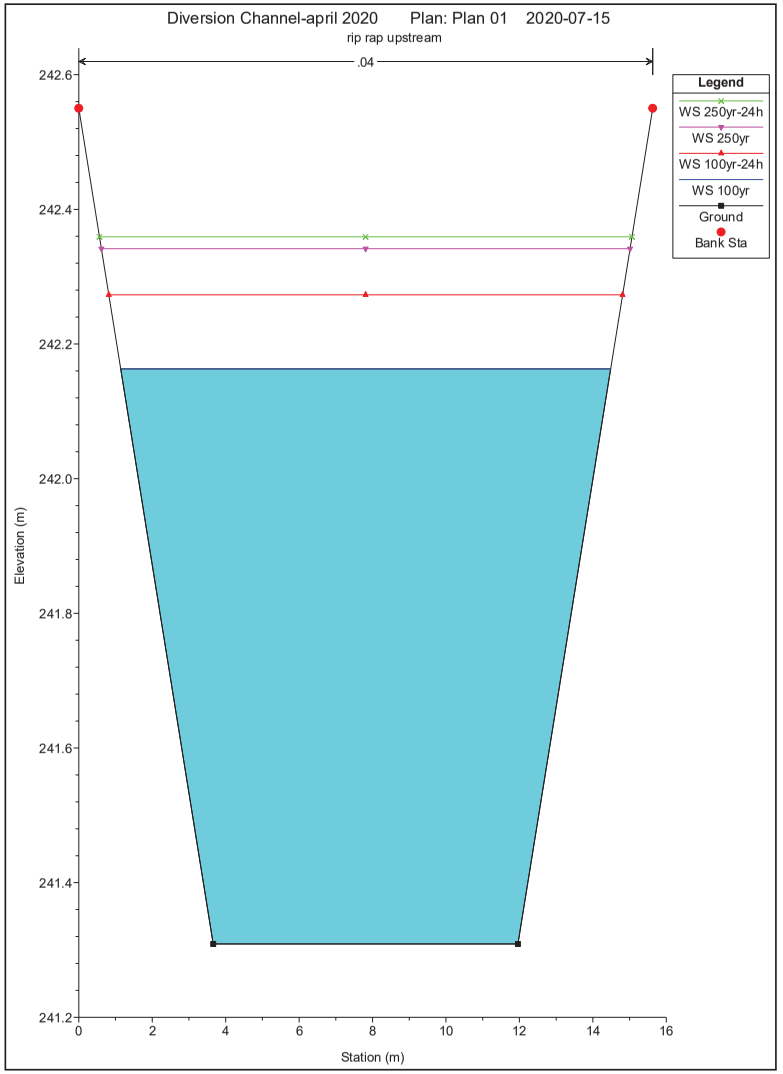

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
window street section 2 (sta 13)
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
243.0
242.8
242.6
242.4
242.2
242.0
241.8
241.6
0
2
4
6
8
10
12
14

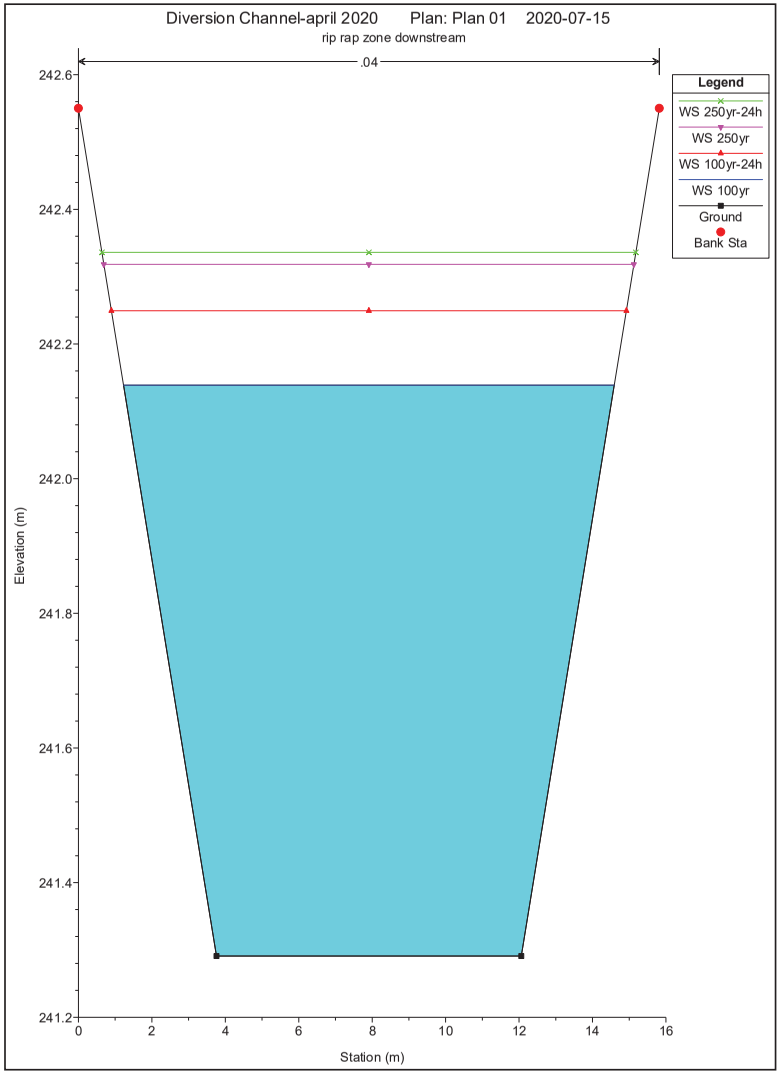

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
window street section1 (sta 12)
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
243.2
243.0
242.8
242.6
242.4
242.2
242.0
241.8
241.6
241.4
0
2
4
6
8
10
12
14
16

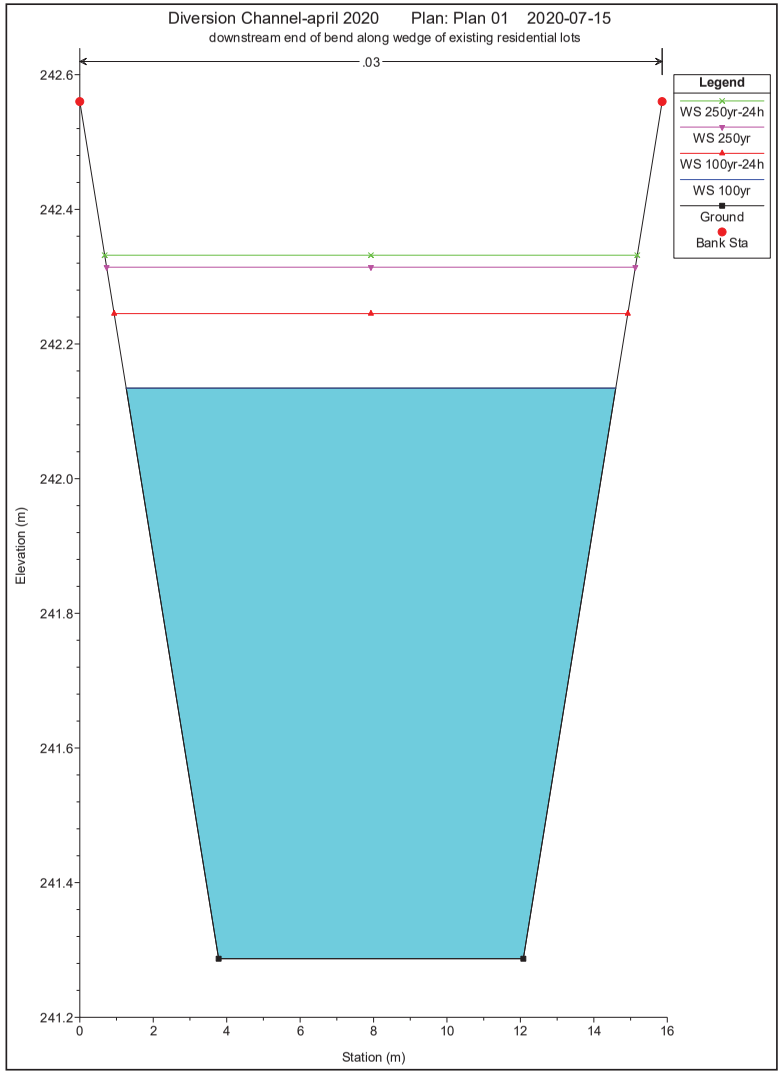

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
upstream of bend wrapping to window street
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
243.5
243.0
242.5
242.0
241.5
241.0
0
2
4
6
8
10
12
14
16
18

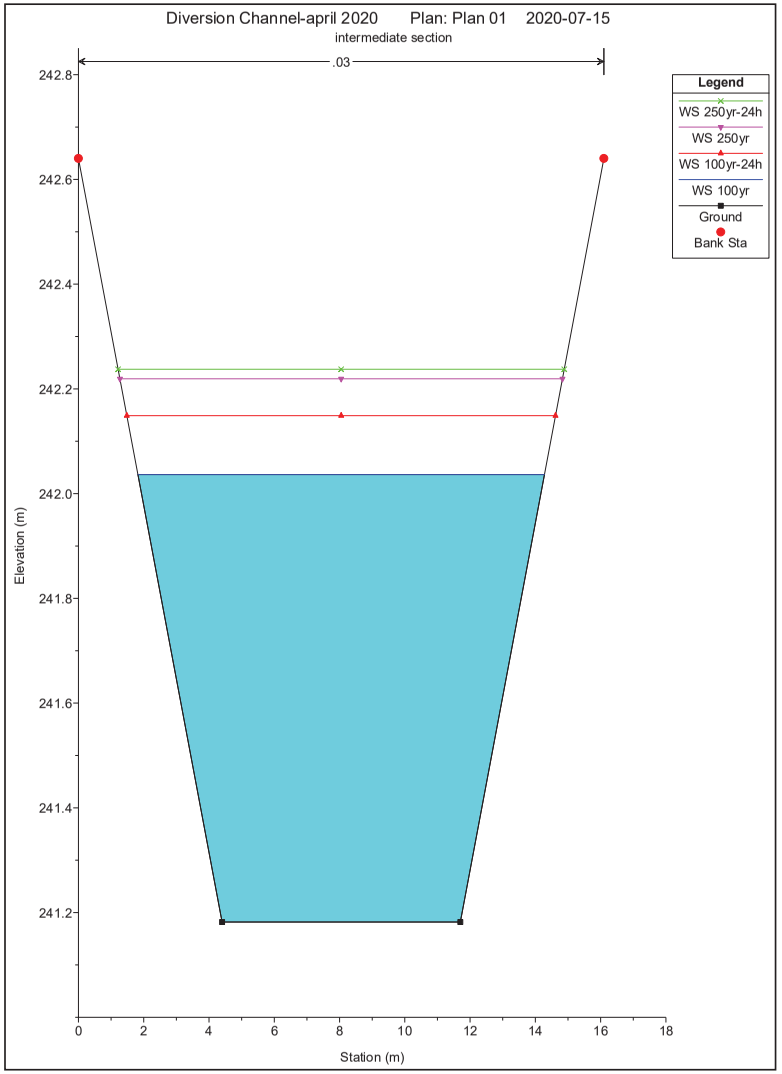

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
downstream of bend wrapping to window street
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
243.5
243.0
242.5
242.0
241.5
241.0
0
2
4
6
8
10
12
14
16
18

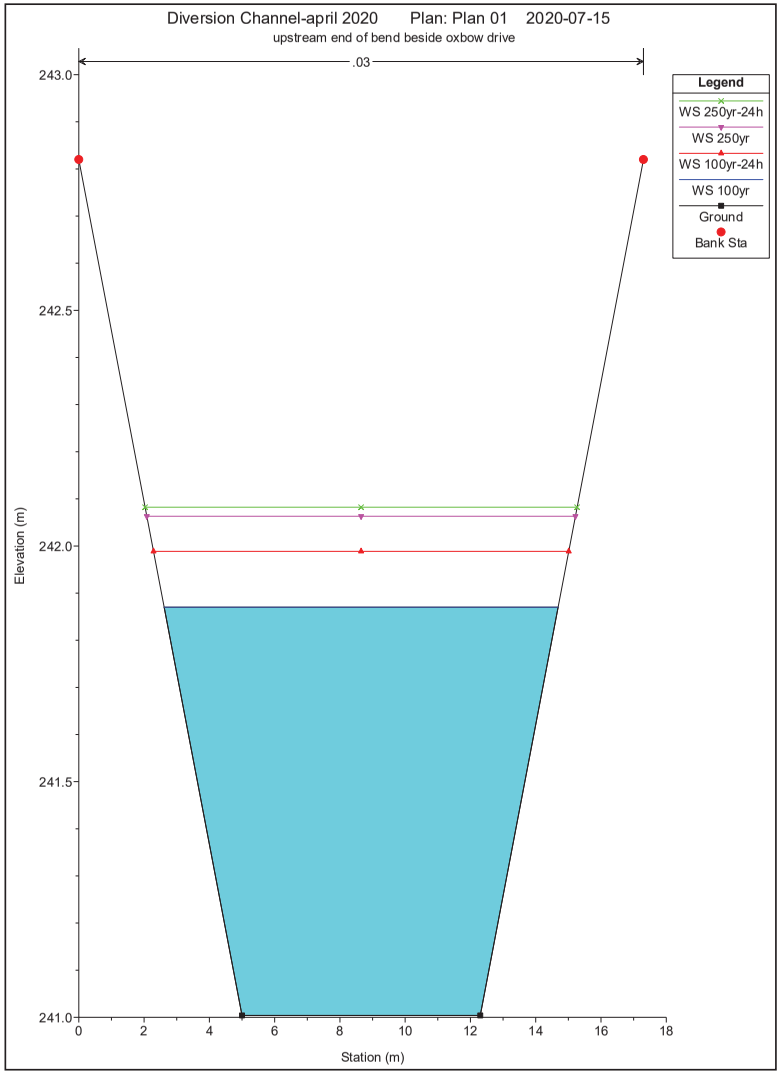

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
upstream end of bend at wedge with existing residential
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
242.6
242.4
242.2
242.0
241.8
241.6
241.4
241.2
0
2
4
6
8
10
12
14
16

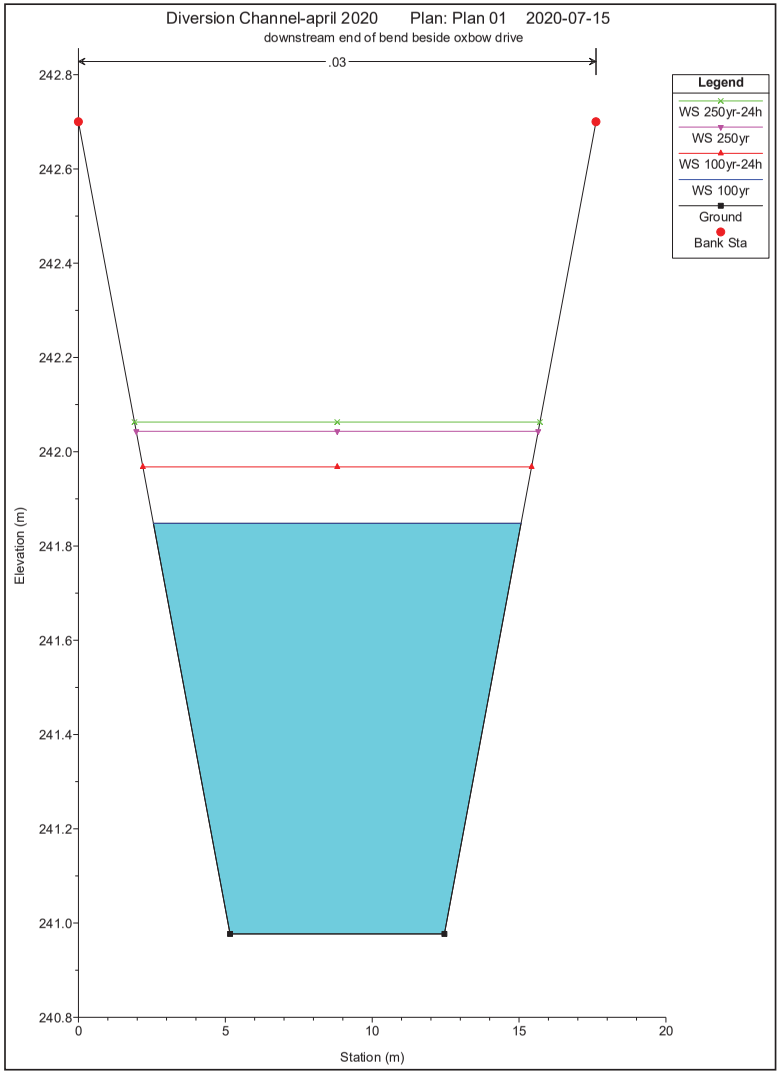

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
rip rap upstream
.04
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
242.6
242.4
242.2
242.0
241.8
241.6
241.4
241.2
0
2
4
6
8
10
12
14
16

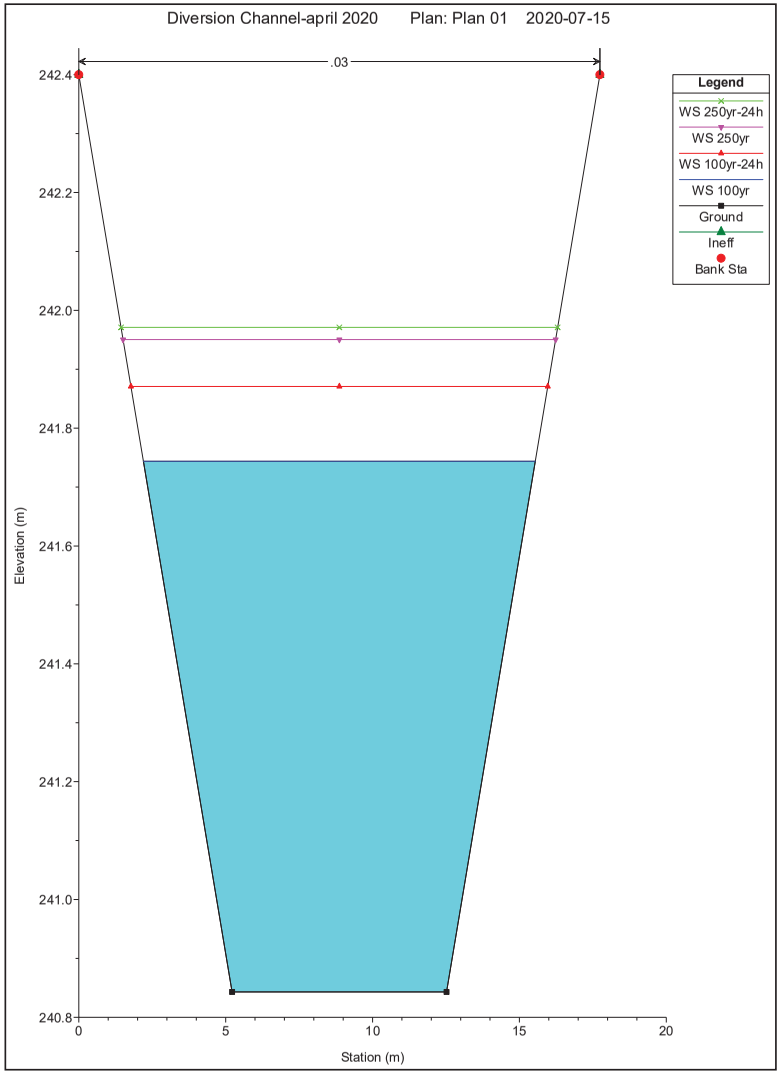

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
rip rap zone downstream
.04
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
242.6
242.4
242.2
242.0
241.8
241.6
241.4
241.2
0
2
4
6
8
10
12
14
16

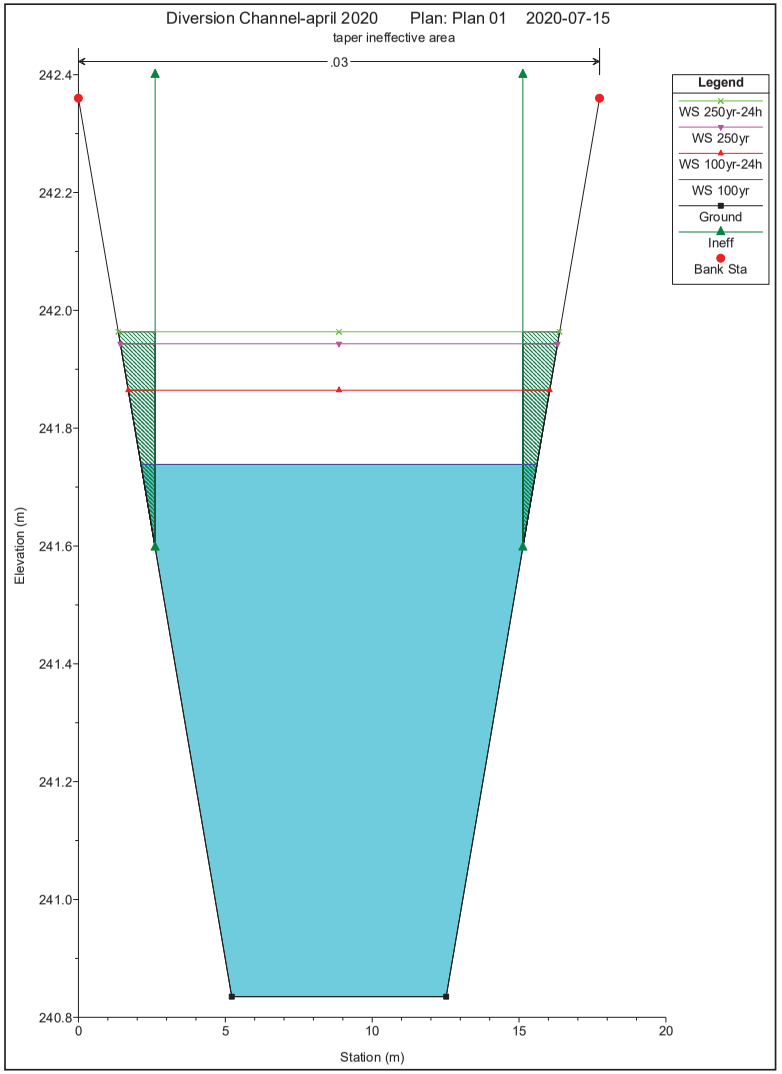

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
downstream end of bend along wedge of existing residential lots
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
242.6
242.4
242.2
242.0
241.8
241.6
241.4
241.2
0
2
4
6
8
10
12
14
16

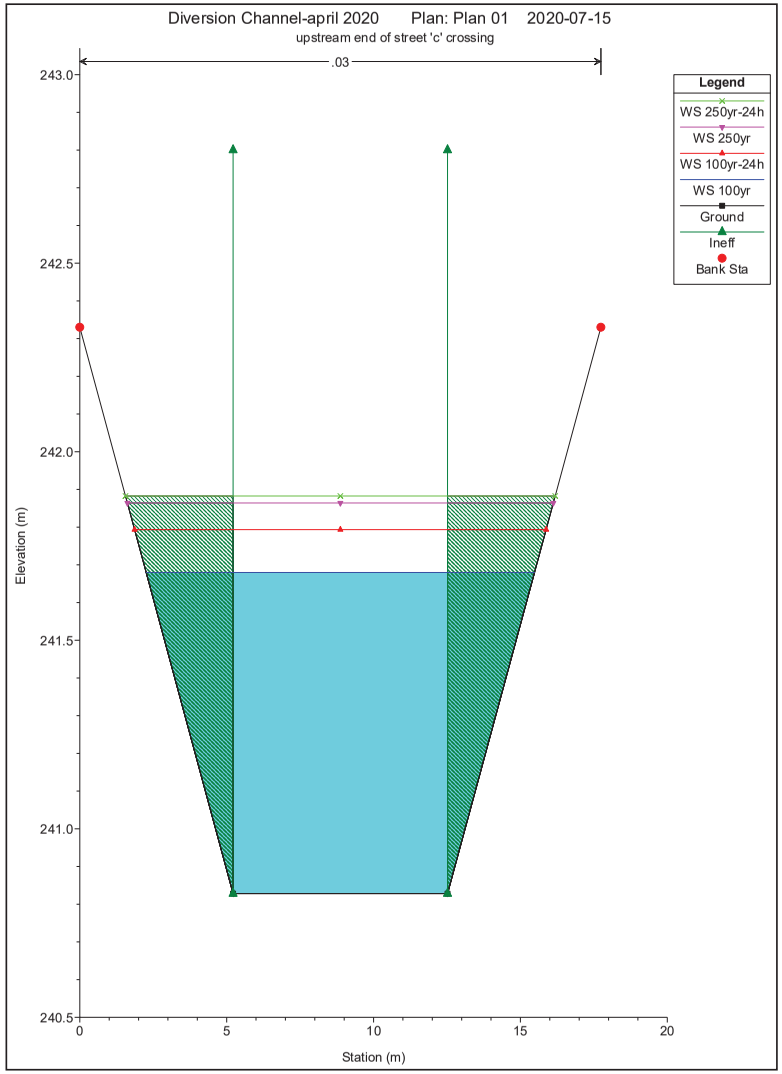

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
intermediate section
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
242.8
242.6
242.4
242.2
242.0
241.8
241.6
241.4
241.2
0
2
4
6
8
10
12
14
16
18

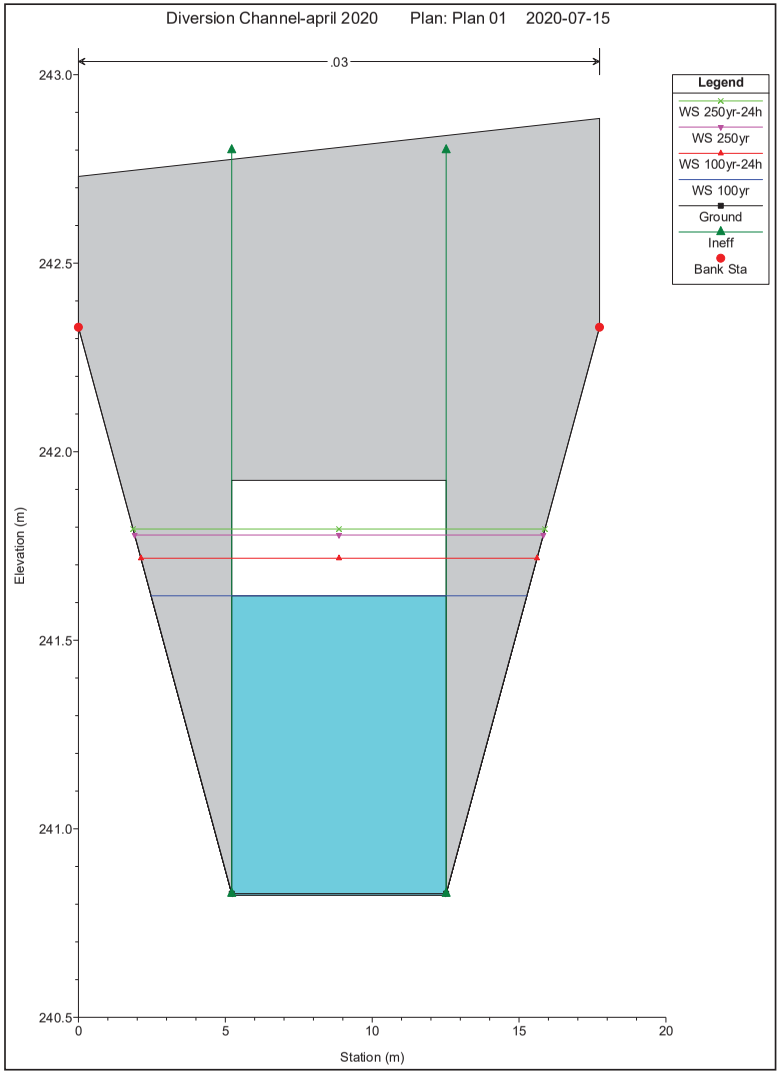

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
upstream end of bend beside oxbow drive
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
243.0
242.5
242.0
241.5
241.0
0
2
4
6
8
10
12
14
16
18

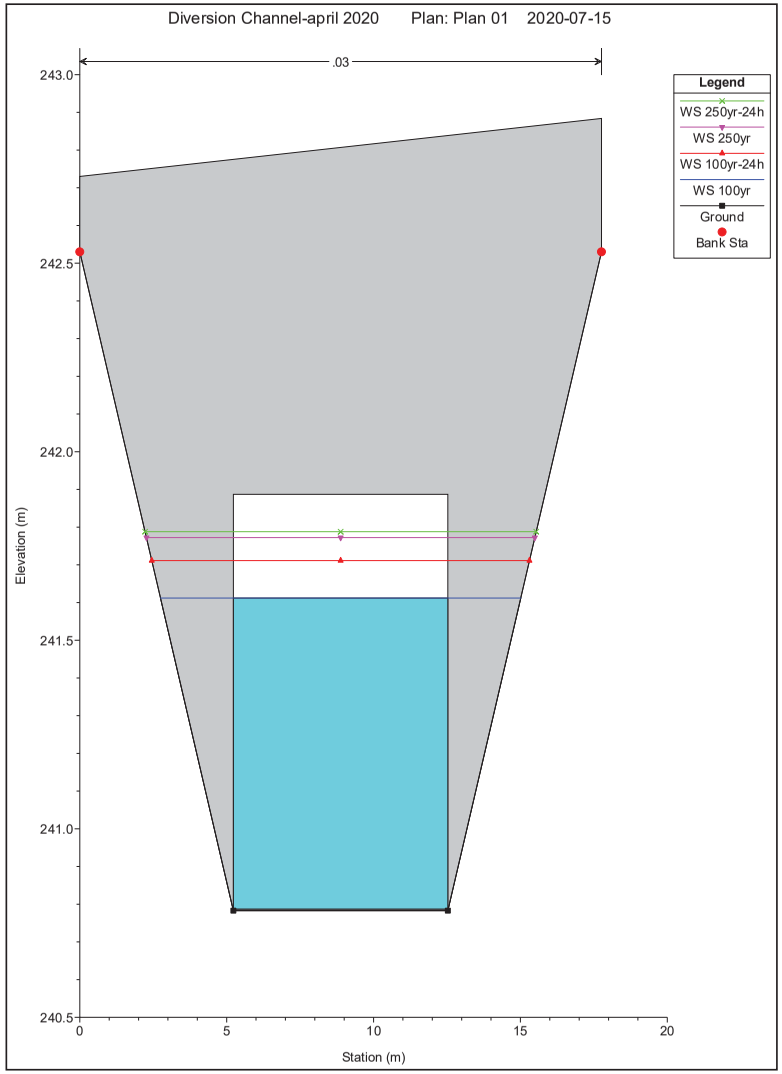

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
downstream end of bend beside oxbow drive
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
242.8
242.6
242.4
242.2
242.0
241.8
241.6
241.4
241.2
241.0
240.8
0
5
10
15
20

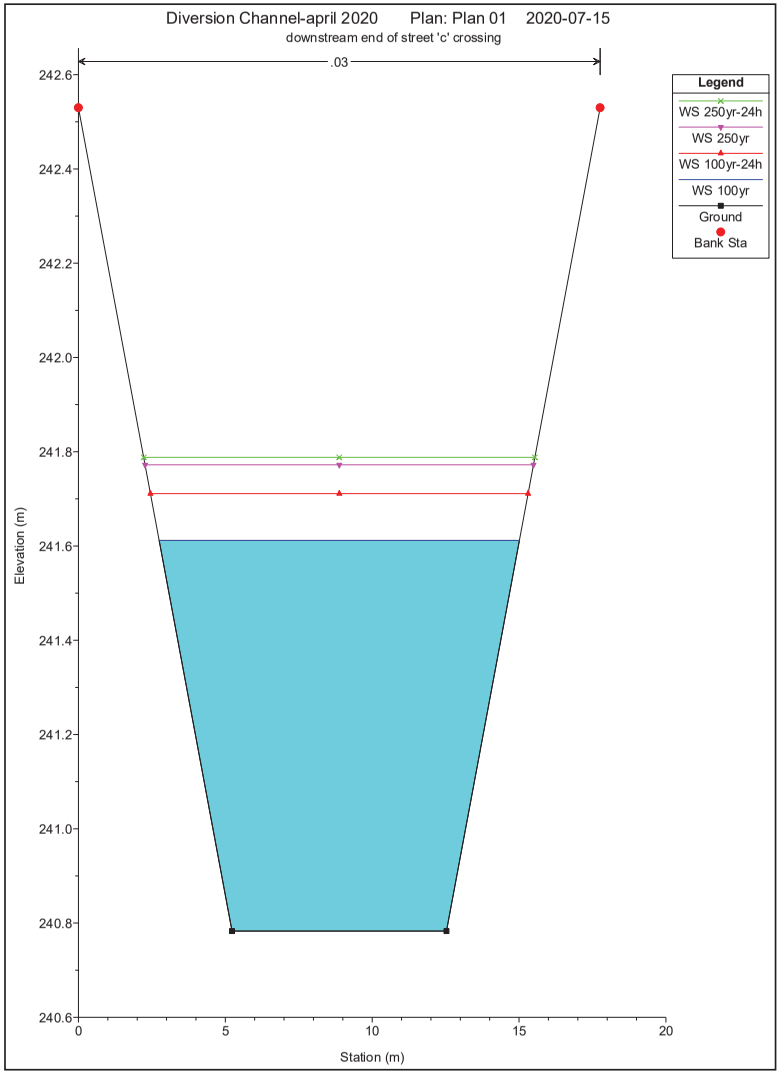

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
242.4
242.2
242.0
241.8
241.6
241.4
241.2
241.0
240.8
0
5
10
15
20

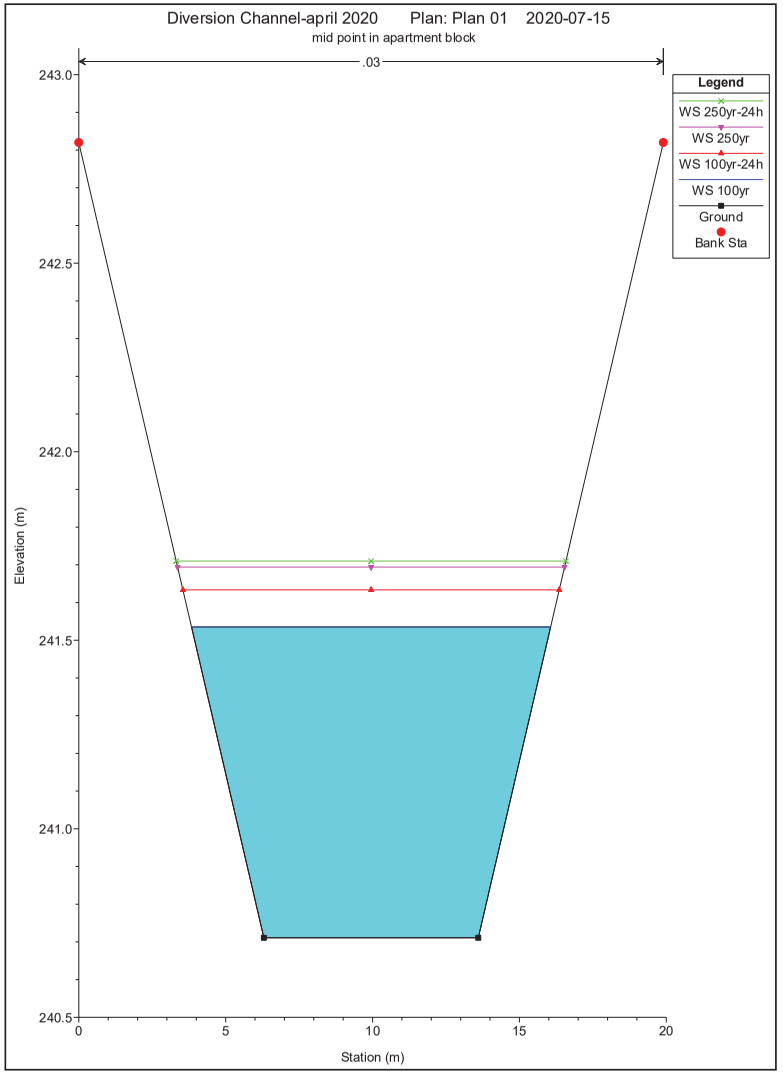

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
taper ineffective area
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
242.4
242.2
242.0
241.8
241.6
241.4
241.2
241.0
240.8
0
5
10
15
20

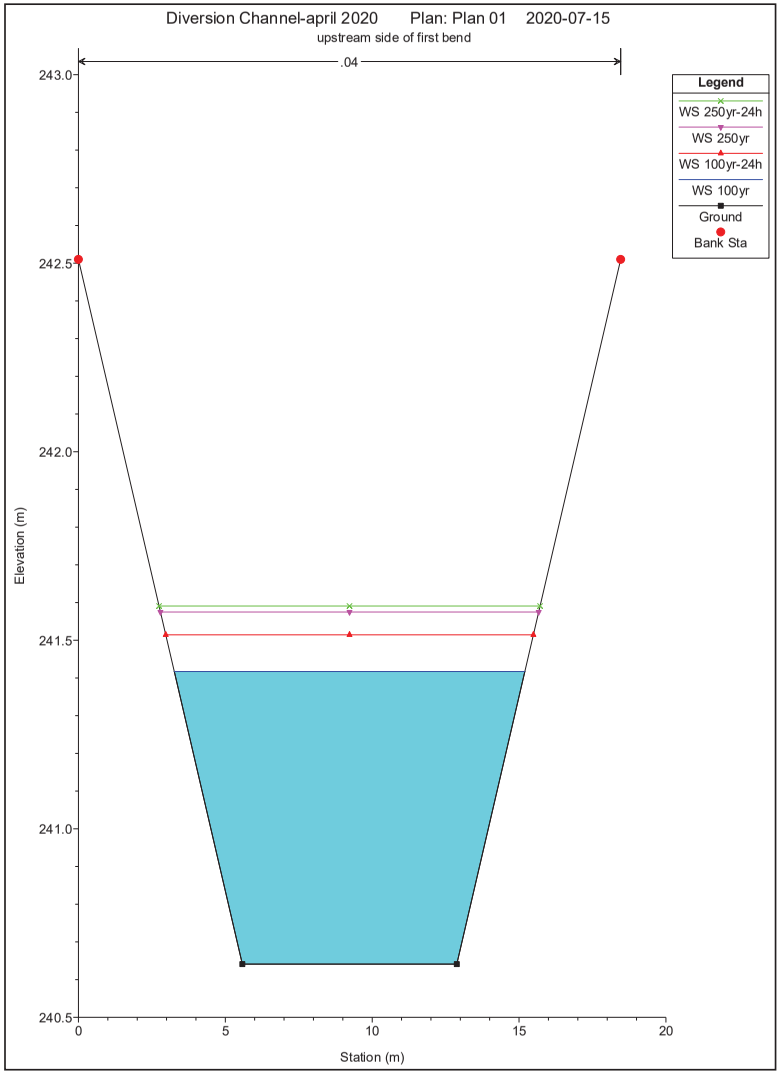

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
upstream end of street 'c' crossing
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
243.0
242.5
242.0
241.5
241.0
240.5
0
5
10
15
20

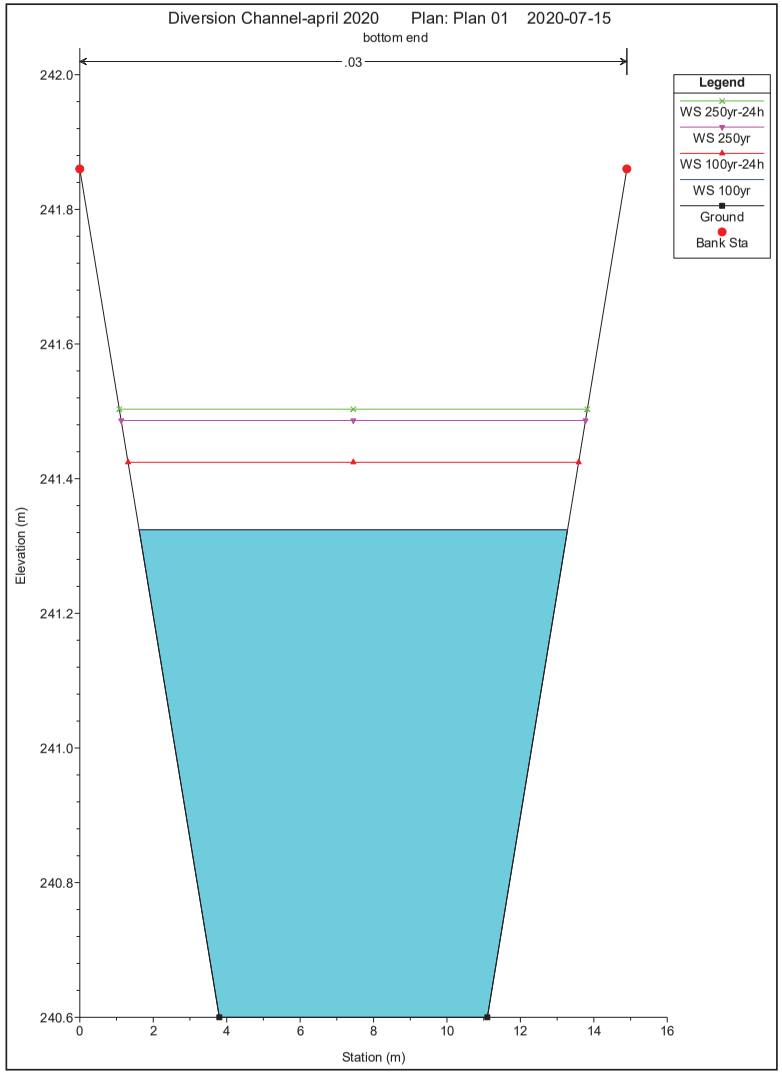

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
243.0
242.5
242.0
241.5
241.0
240.5
0
5
10
15
20

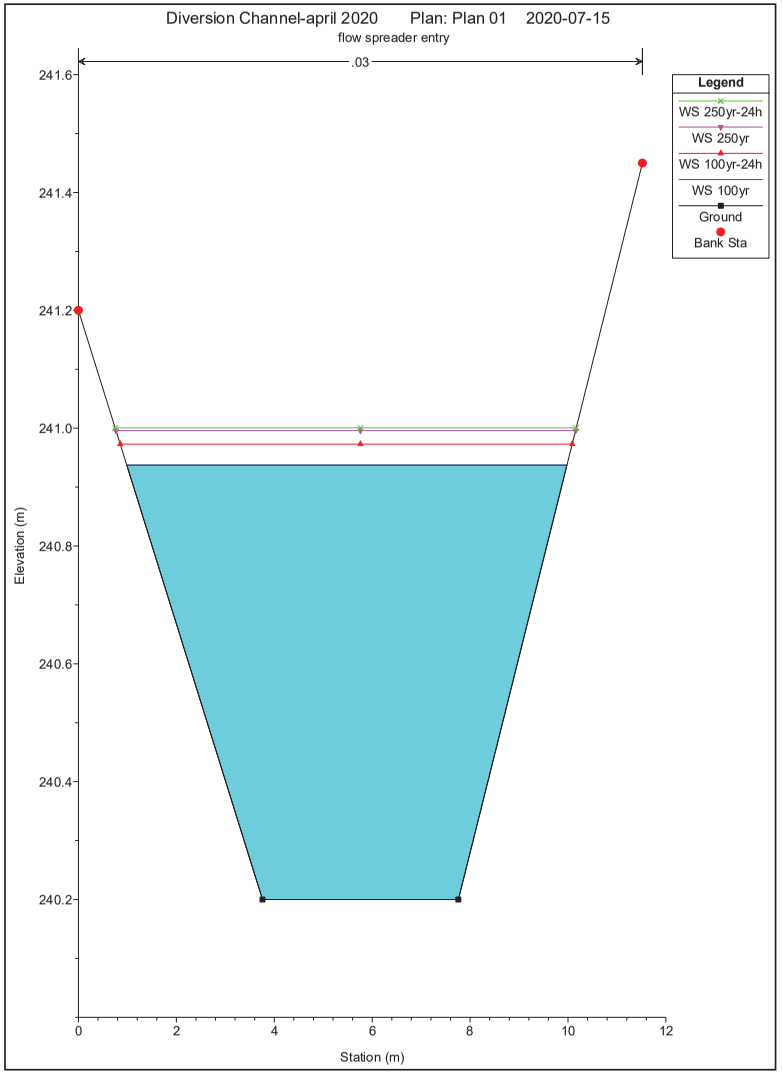

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
243.0
242.5
242.0
241.5
241.0
240.5
0
5
10
15
20

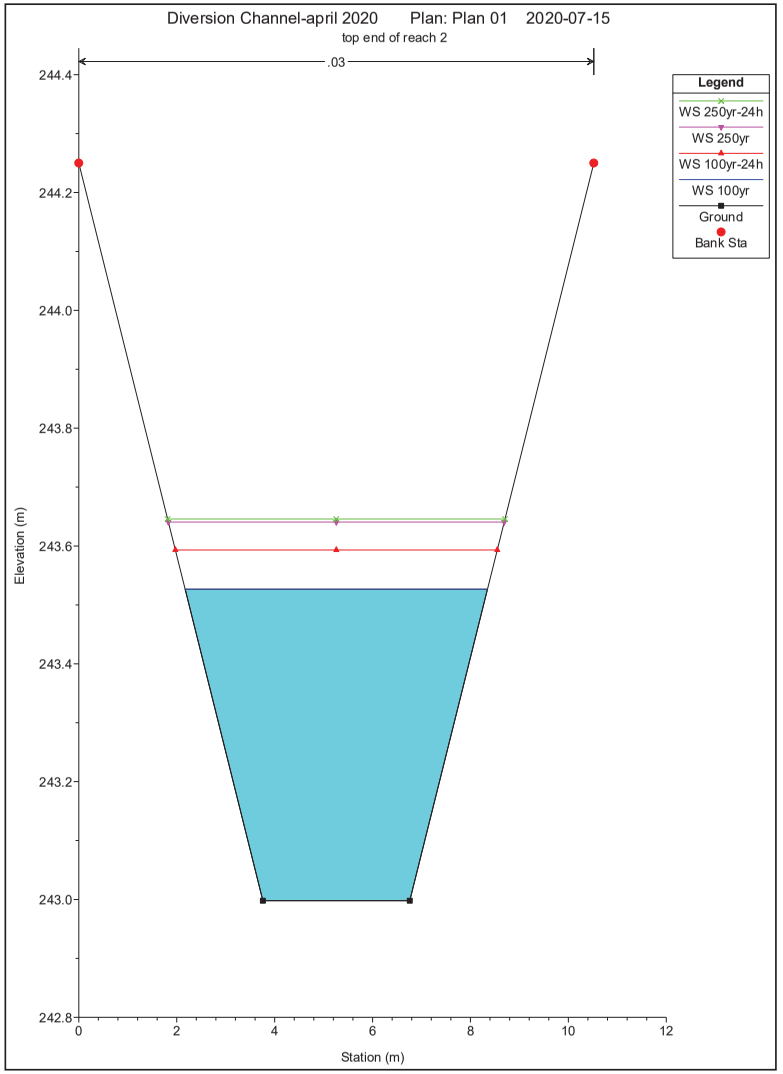

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
downstream end of street 'c' crossing
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
242.6
242.4
242.2
242.0
241.8
241.6
241.4
241.2
241.0
240.8
240.6
0
5
10
15
20

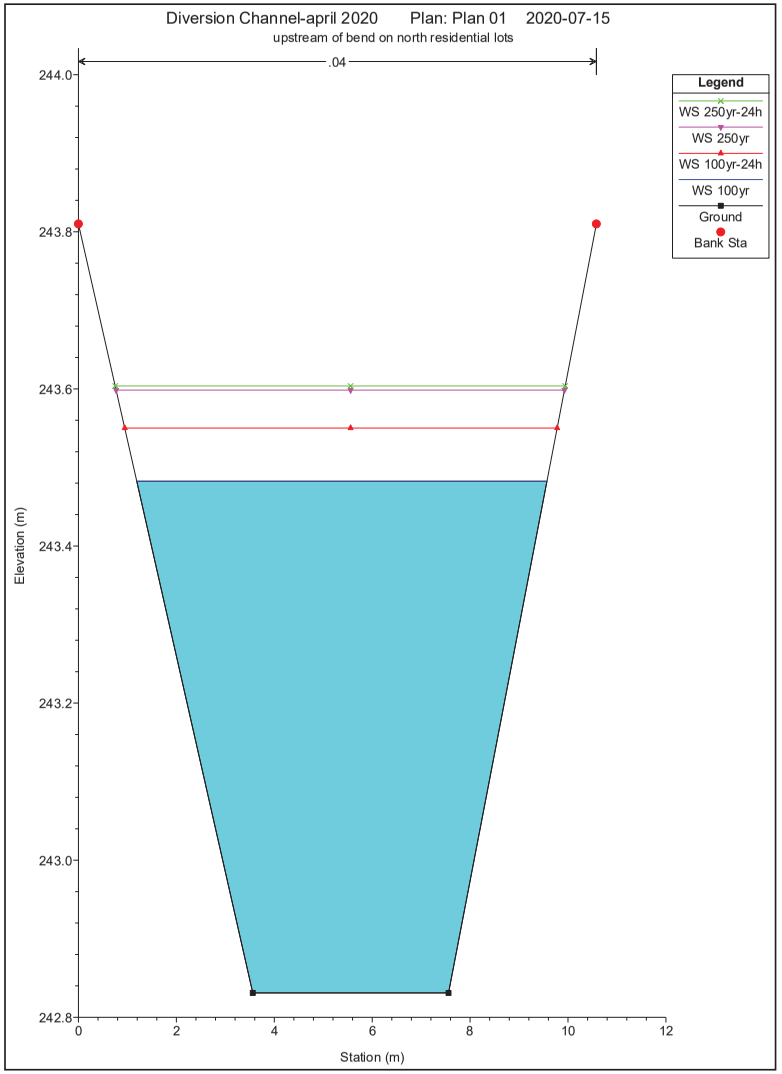

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
mid point in apartment block
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
243.0
242.5
242.0
241.5
241.0
240.5
0
5
10
15
20

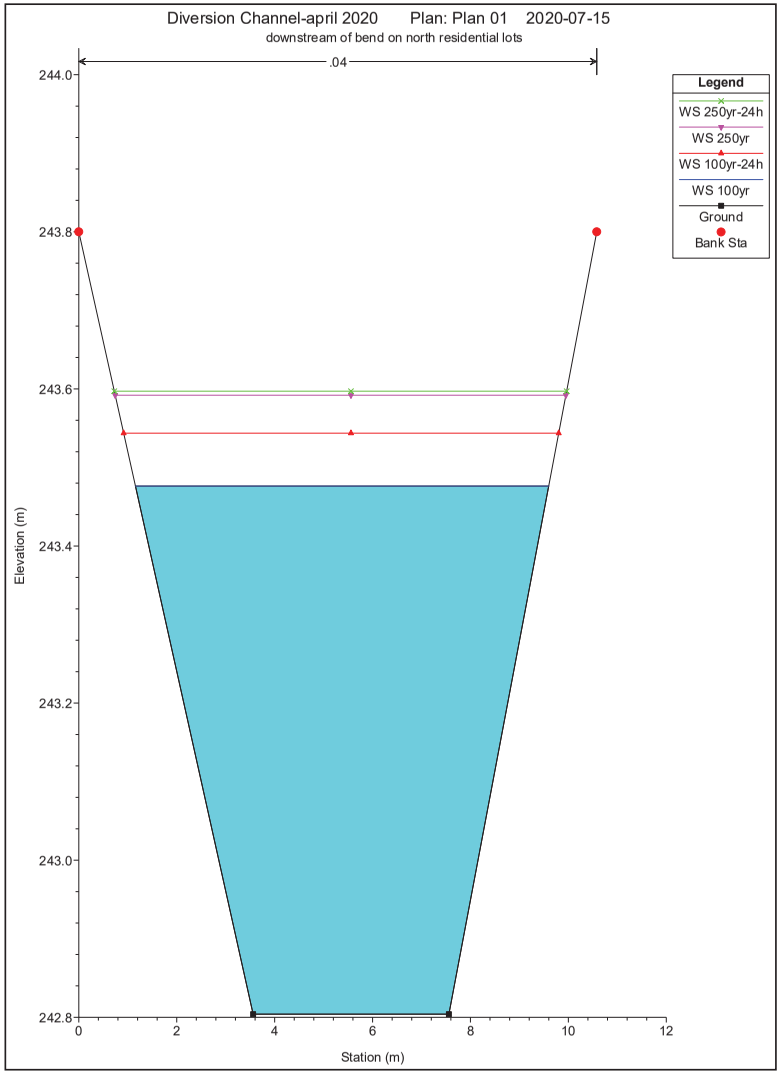

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
upstream side of first bend
.04
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
243.0
242.5
242.0
241.5
241.0
240.5
0
5
10
15
20

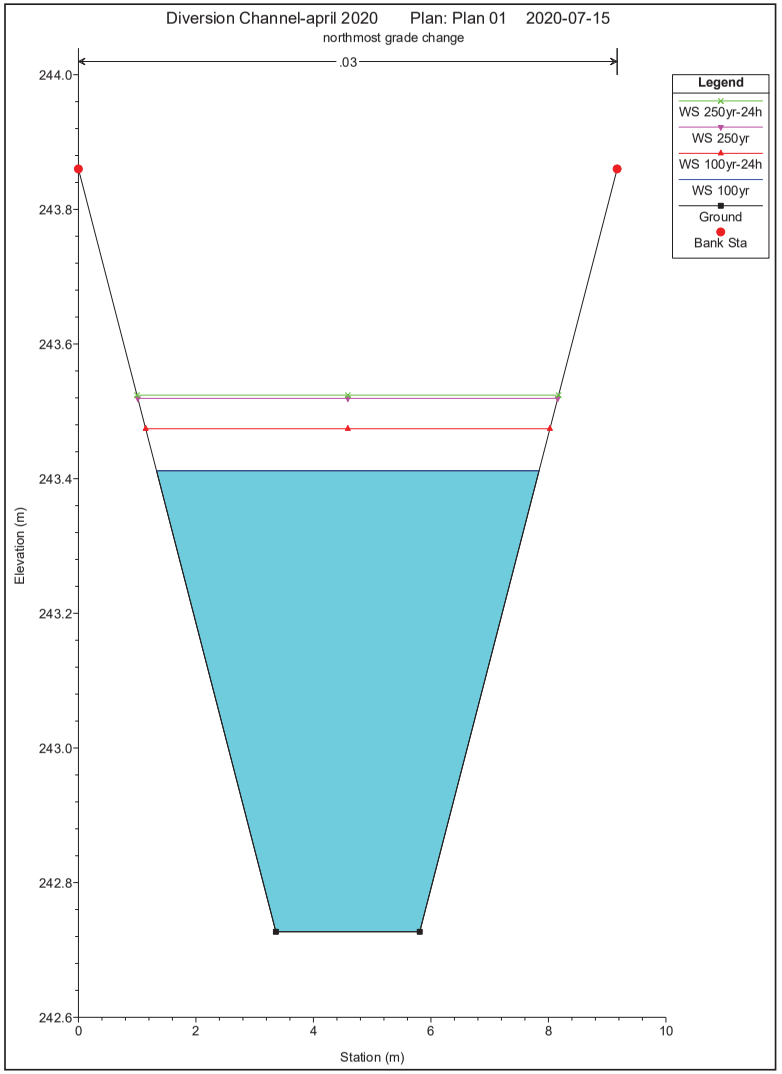

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
bottom end
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
242.0
241.8
241.6
241.4
241.2
241.0
240.8
240.6
0
2
4
6
8
10
12
14
16

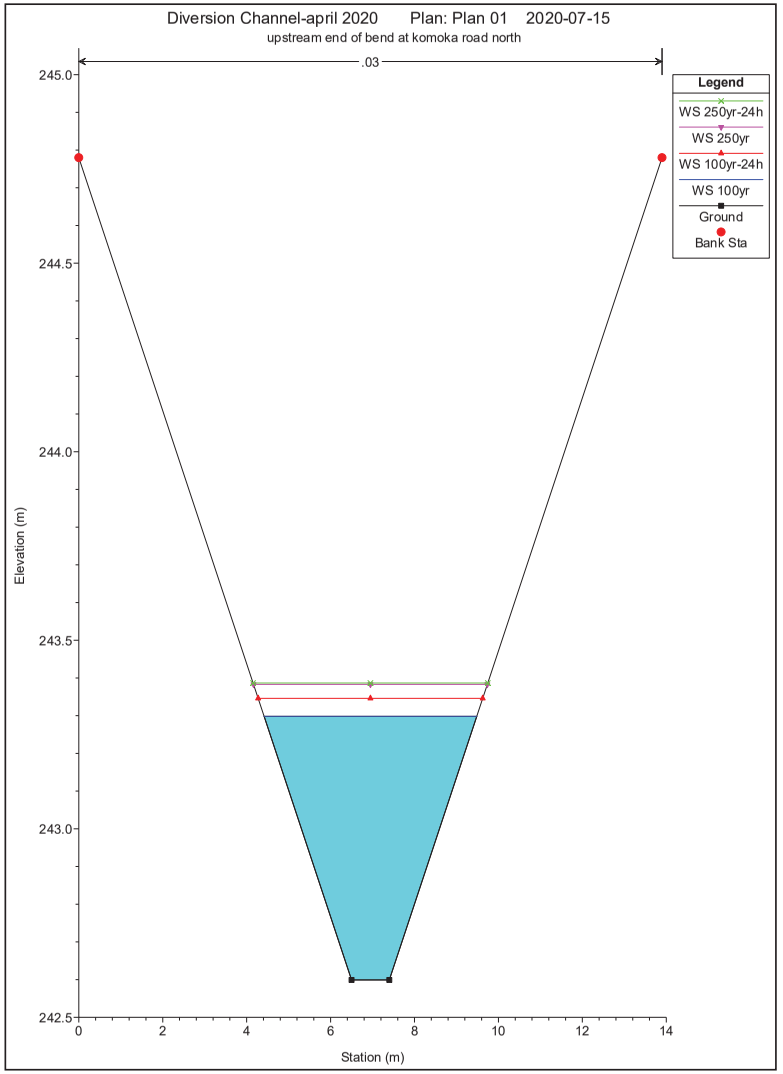

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
flow spreader entry
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
241.6
241.4
241.2
241.0
240.8
240.6
240.4
240.2
0
2
4
6
8
10
12

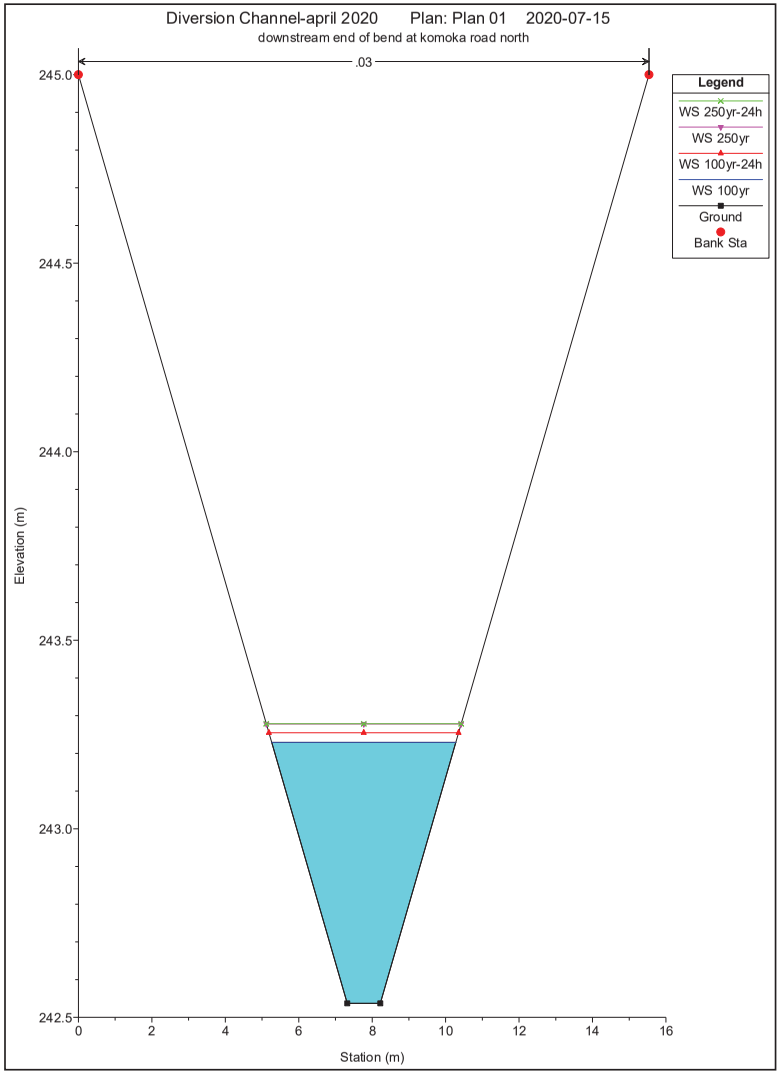

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
top end of reach 2
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
244.4
244.2
244.0
243.8
243.6
243.4
243.2
243.0
242.8
0
2
4
6
8
10
12

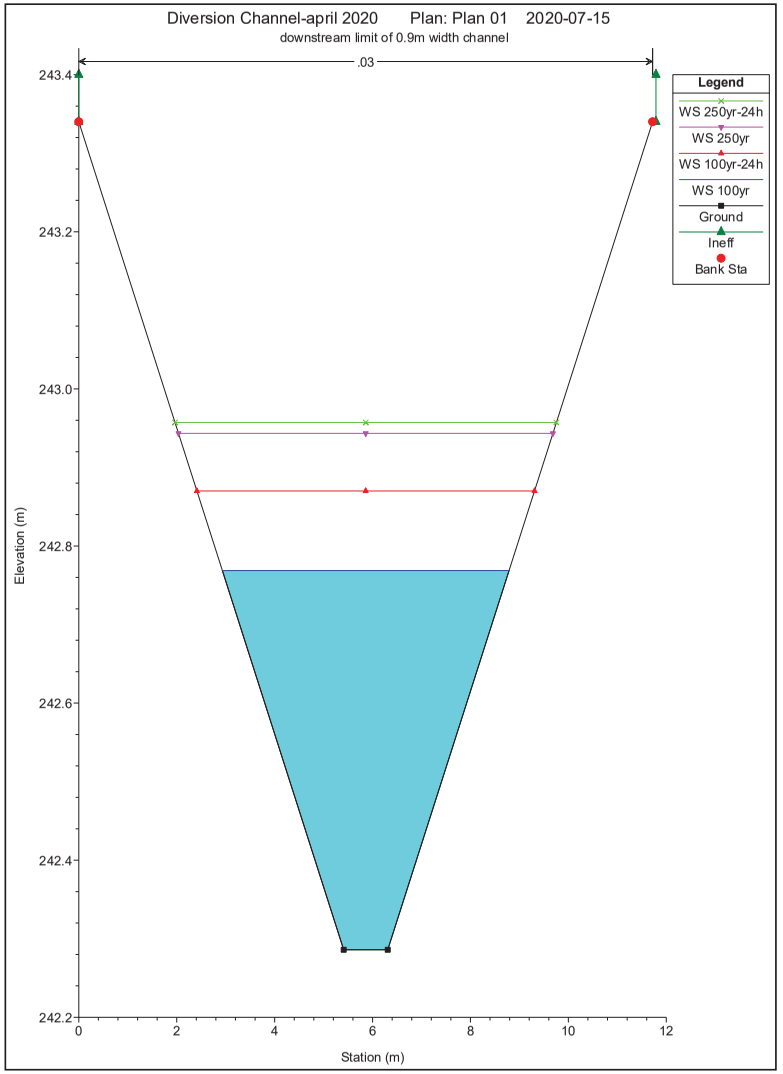

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
upstream of bend on north residential lots
.04
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
244.0
243.8
243.6
243.4
243.2
243.0
242.8
0
2
4
6
8
10
12

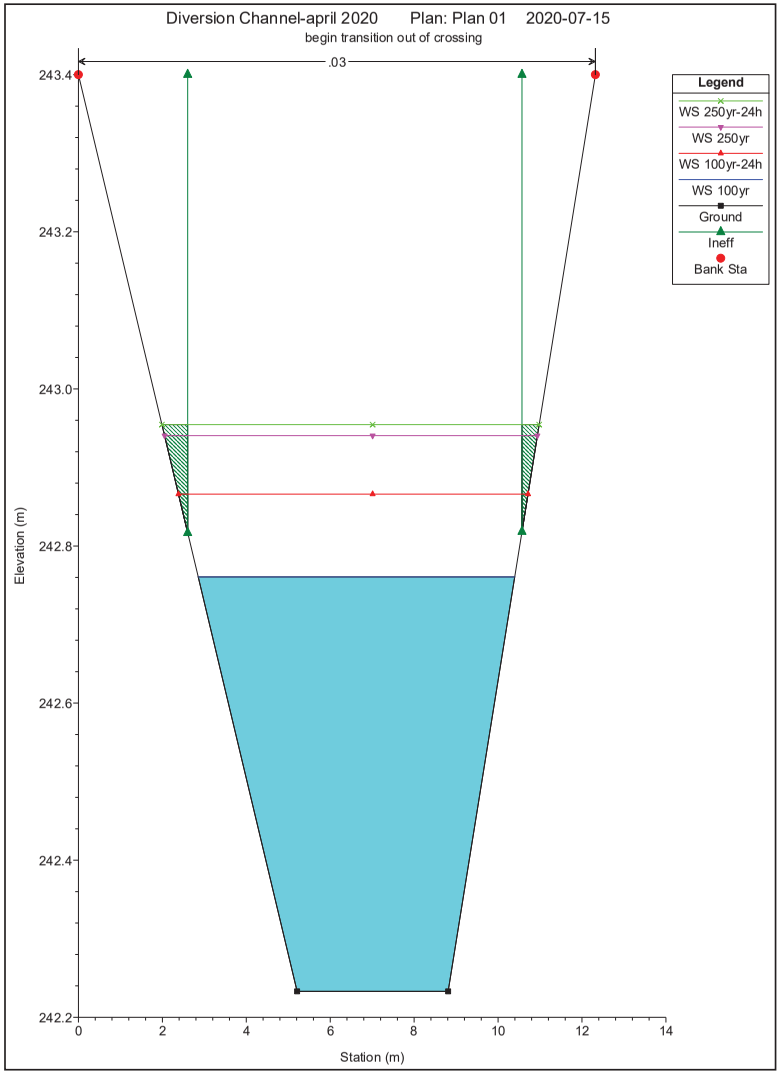

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
downstream of bend on north residential lots
.04
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
244.0
243.8
243.6
243.4
243.2
243.0
242.8
0
2
4
6
8
10
12

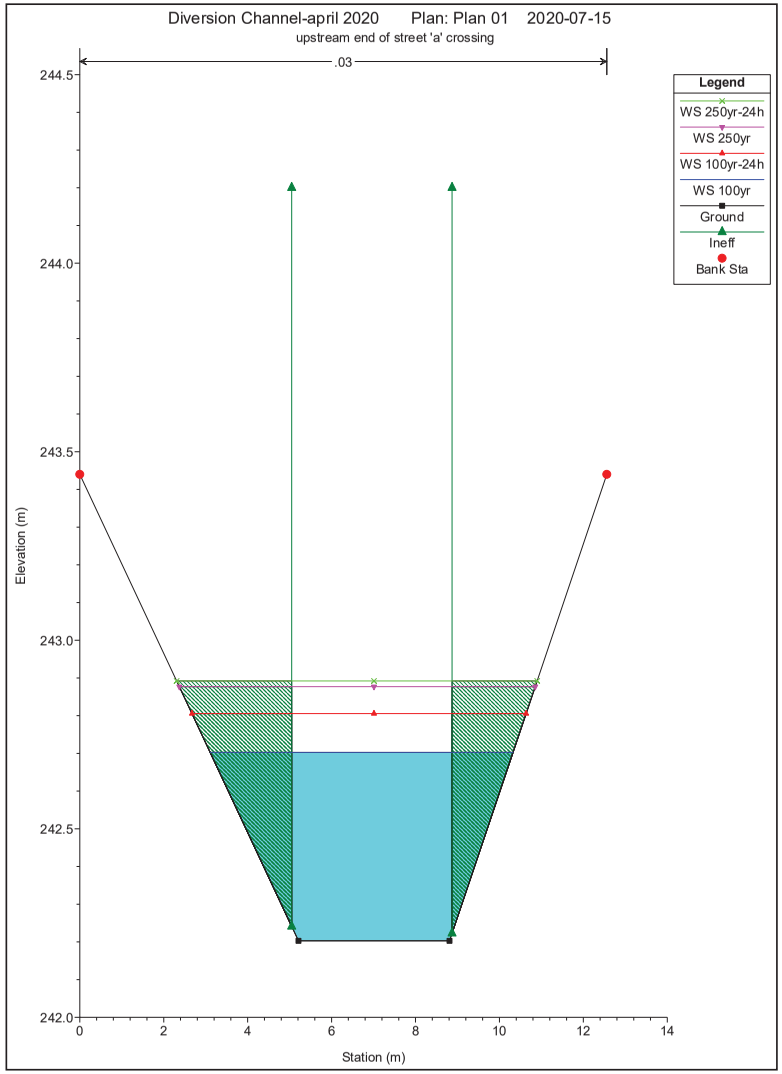

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
northmost grade change
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
0
2
4
6
8
10

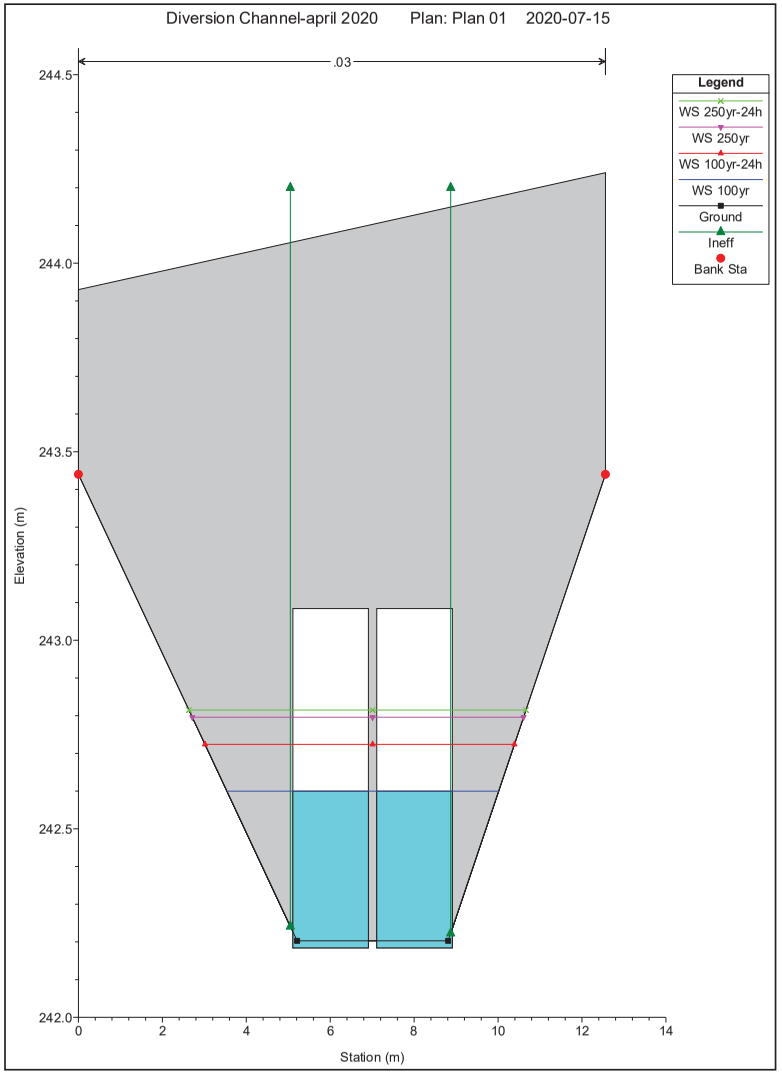

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
upstream end of bend at komoka road north
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
245.0
244.5
244.0
243.5
243.0
242.5
0
2
4
6
8
10
12
14

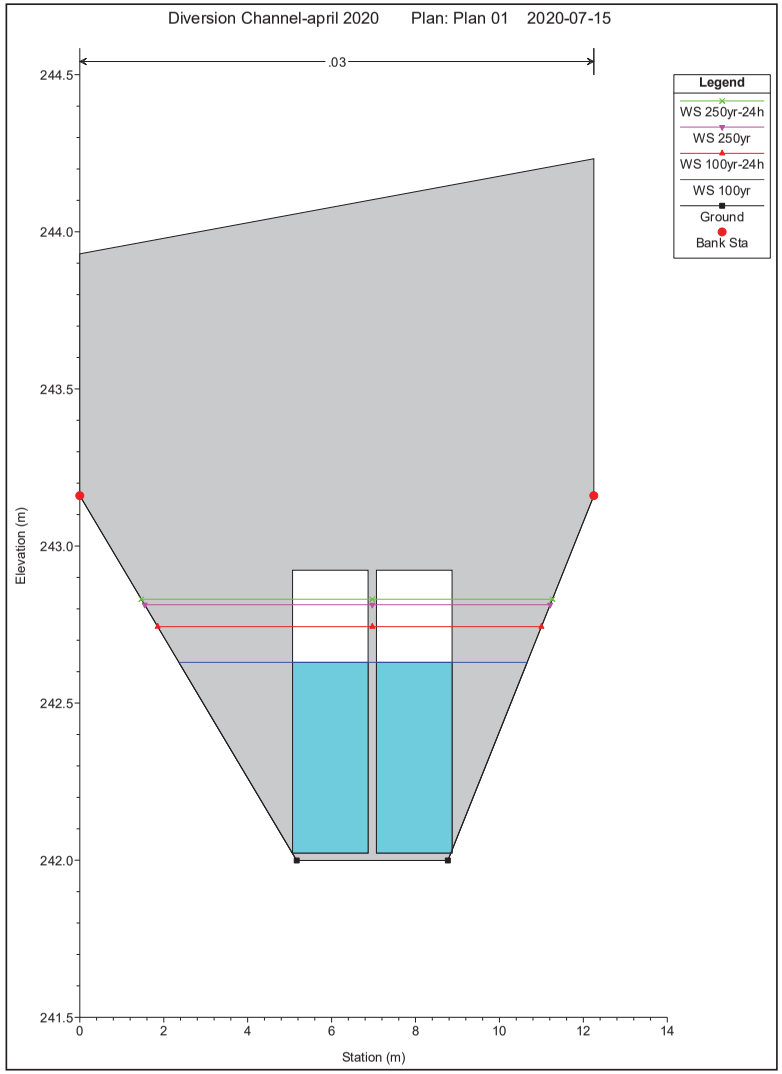

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
downstream end of bend at komoka road north
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
245.0
244.5
244.0
243.5
243.0
242.5
0
2
4
6
8
10
12
14
16

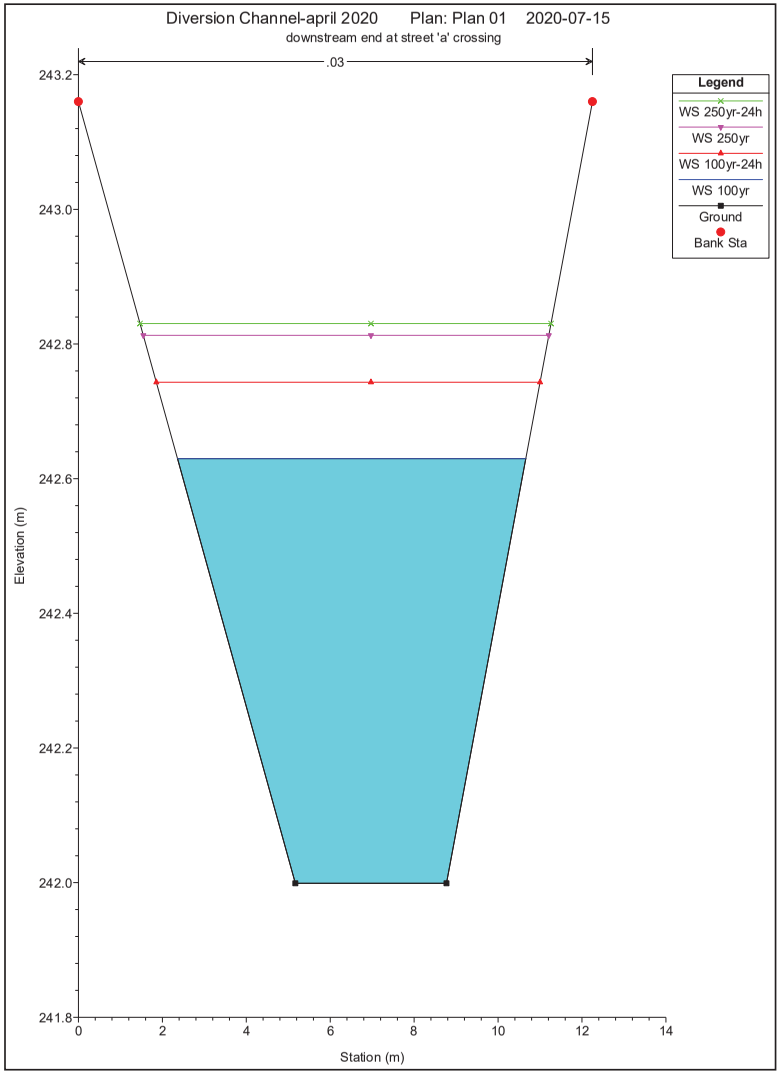

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
downstream limit of 0.9m width channel
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
243.4
243.2
243.0
242.8
242.6
242.4
242.2
0
2
4
6
8
10
12

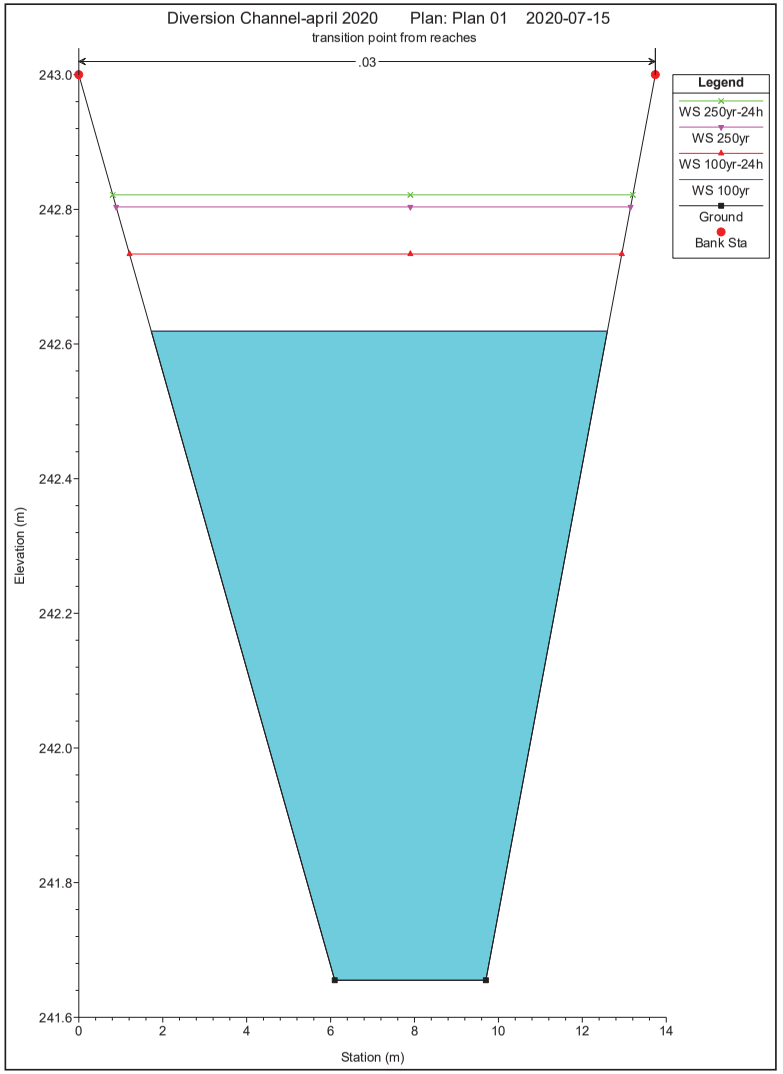

Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
begin transition out of crossing
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
243.4
243.2
243.0
242.8
242.6
242.4
242.2
0
2
4
6
8
10
12
14


Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
upstream end of street 'a' crossing
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
244.5
244.0
243.5
243.0
242.5
242.0
0
2
4
6
8
10
12
14


Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
244.5
244.0
243.5
243.0
242.5
242.0
0
2
4
6
8
10
12
14


Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
244.5
244.0
243.5
243.0
242.5
242.0
241.5
0
2
4
6
8
10
12
14


Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
downstream end at street 'a' crossing
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
243.2
243.0
242.8
242.6
242.4
242.2
242.0
241.8
0
2
4
6
8
10
12
14


Diversion Channel-april 2020 Plan: Plan 01 2020-07-15
transition point from reaches
.03
Legend
WS 250yr-24h
WS 250yr
WS 100yr-24h
WS 100yr
Ground
Bank Sta
Elevation (m)
Station (m)
243.0
242.8
242.6
242.4
242.2
242.0
241.8
241.6
0
2
4
6
8
10
12
14

Performance Tables

HEC-RAS Plan: Plan 01

River	Reach	River Sta	Profile	Q Total	Min Ch El	ROB Elev	W.S. Elev	R. Freeboard	L. Freeboard	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m/s)	(m2)	(m)	
reach 2	2	26	100yr	2.26	243.00	244.25	243.53	0.72	0.72	243.34	243.57	0.93	2.42	6.17	0.48
reach 2	2	26	100yr-24h	2.78	243.00	244.25	243.59	0.66	0.66	243.38	243.64	0.97	2.85	6.57	0.47
reach 2	2	26	250yr	3.18	243.00	244.25	243.64	0.61	0.61	243.42	243.69	1.00	3.17	6.86	0.47
reach 2	2	26	250yr-24h	3.22	243.00	244.25	243.65	0.60	0.60	243.42	243.70	1.01	3.20	6.89	0.47
reach 2	2	25	100yr	2.26	242.83	243.81	243.48	0.33	0.33	243.12	243.50	0.56	4.03	8.38	0.26
reach 2	2	25	100yr-24h	2.78	242.83	243.81	243.55	0.26	0.26	243.16	243.57	0.60	4.61	8.83	0.27
reach 2	2	25	250yr	3.18	242.83	243.81	243.60	0.21	0.21	243.19	243.62	0.63	5.05	9.16	0.27
reach 2	2	25	250yr-24h	3.22	242.83	243.81	243.60	0.21	0.21	243.19	243.62	0.63	5.10	9.19	0.27
reach 2	2	24	100yr	2.26	242.80	243.80	243.48	0.32	0.32	243.10	243.49	0.54	4.18	8.44	0.25
reach 2	2	24	100yr-24h	2.78	242.80	243.80	243.54	0.26	0.26	243.14	243.56	0.58	4.77	8.89	0.25
reach 2	2	24	250yr	3.18	242.80	243.80	243.59	0.21	0.21	243.16	243.61	0.61	5.20	9.20	0.26
reach 2	2	24	250yr-24h	3.22	242.80	243.80	243.60	0.20	0.20	243.17	243.62	0.61	5.25	9.24	0.26
reach 2	2	23	100yr	2.26	242.73	243.86	243.41	0.45	0.45	243.10	243.44	0.74	3.07	6.51	0.34
reach 2	2	23	100yr-24h	2.78	242.73	243.86	243.47	0.39	0.39	243.15	243.51	0.80	3.49	6.88	0.36
reach 2	2	23	250yr	3.18	242.73	243.86	243.52	0.34	0.34	243.18	243.55	0.83	3.80	7.15	0.37
reach 2	2	23	250yr-24h	3.22	242.73	243.86	243.52	0.34	0.34	243.19	243.56	0.84	3.84	7.18	0.37
reach 2	2	22	100yr	2.26	242.60	244.78	243.30	1.48	1.48	243.12	243.36	1.08	2.09	5.07	0.54
reach 2	2	22	100yr-24h	2.78	242.60	244.78	243.35	1.43	1.43	243.17	243.42	1.19	2.34	5.35	0.57
reach 2	2	22	250yr	3.18	242.60	244.78	243.38	1.40	1.40	243.21	243.46	1.25	2.54	5.57	0.59
reach 2	2	22	250yr-24h	3.22	242.60	244.78	243.39	1.39	1.39	243.21	243.47	1.26	2.56	5.60	0.59
reach 2	2	21	100yr	2.26	242.54	245.00	243.23	1.77	1.77	243.06	243.29	1.11	2.05	5.01	0.55
reach 2	2	21	100yr-24h	2.78	242.54	245.00	243.25	1.75	1.75	243.11	243.34	1.28	2.18	5.17	0.63
reach 2	2	21	250yr	3.18	242.54	245.00	243.28	1.72	1.72	243.15	243.38	1.38	2.30	5.30	0.67
reach 2	2	21	250yr-24h	3.22	242.54	245.00	243.28	1.72	1.72	243.15	243.38	1.40	2.30	5.31	0.68
reach 2	2	20	100yr	2.26	242.29	243.34	242.77	0.57	0.57	242.73	242.87	1.39	1.63	5.86	0.84
reach 2	2	20	100yr-24h	2.78	242.29	243.34	242.87	0.47	0.47	242.77	242.95	1.22	2.28	6.89	0.68
reach 2	2	20	250yr	3.18	242.29	243.34	242.94	0.40	0.40	242.80	243.01	1.13	2.81	7.65	0.60
reach 2	2	20	250yr-24h	3.22	242.29	243.34	242.96	0.38	0.38	242.81	243.02	1.10	2.92	7.79	0.58
reach 2	2	19	100yr	2.26	242.23	243.40	242.76	0.64	0.64	242.54	242.79	0.77	2.94	7.54	0.39
reach 2	2	19	100yr-24h	2.78	242.23	243.40	242.87	0.53	0.53	242.58	242.89	0.74	3.77	8.33	0.34
reach 2	2	19	250yr	3.18	242.23	243.40	242.94	0.46	0.46	242.61	242.97	0.73	4.36	8.89	0.31
reach 2	2	19	250yr-24h	3.22	242.23	243.40	242.95	0.45	0.45	242.61	242.98	0.72	4.47	8.99	0.31
reach 2	2	18	100yr	2.26	242.20	243.44	242.70	0.74	0.74	242.53	242.77	1.19	1.90	7.22	0.54
reach 2	2	18	100yr-24h	2.78	242.20	243.44	242.81	0.63	0.63	242.58	242.88	1.21	2.30	7.96	0.50
reach 2	2	18	250yr	3.18	242.20	243.44	242.88	0.56	0.56	242.62	242.95	1.23	2.57	8.48	0.48
reach 2	2	18	250yr-24h	3.22	242.20	243.44	242.89	0.55	0.55	242.62	242.97	1.23	2.63	8.59	0.47
reach 2	2	17.8		Culvert											
reach 2	2	17	100yr	2.26	242.00	243.16	242.63	0.53	0.53	242.30	242.65	0.60	3.75	8.30	0.29
reach 2	2	17	100yr-24h	2.78	242.00	243.16	242.74	0.42	0.42	242.34	242.76	0.59	4.74	9.14	0.26

HEC-RAS Plan: Plan 01 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	ROB Elev	W.S. Elev	R. Freeboard	L. Freeboard	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m/s)	(m2)	(m)	
reach 2	2	17	250yr	3.18	242.00	243.16	242.81	0.35	0.35	242.37	242.83	0.59	5.40	9.66	0.25
reach 2	2	17	250yr-24h	3.22	242.00	243.16	242.83	0.33	0.33	242.38	242.85	0.58	5.57	9.79	0.24
reach 2	2	16	100yr	2.26	241.65	243.00	242.62	0.38	0.38	241.96	242.62	0.32	6.97	10.87	0.13
reach 2	2	16	100yr-24h	2.78	241.65	243.00	242.73	0.27	0.27	242.00	242.74	0.34	8.27	11.73	0.13
reach 2	2	16	250yr	3.18	241.65	243.00	242.80	0.20	0.20	242.03	242.81	0.35	9.11	12.26	0.13
reach 2	2	16	250yr-24h	3.22	241.65	243.00	242.82	0.18	0.18	242.03	242.83	0.35	9.33	12.39	0.13
reach 1	1	15	100yr	8.04	241.63	243.00	242.55	0.45	0.45	242.16	242.61	1.03	7.78	11.20	0.40
reach 1	1	15	100yr-24h	9.92	241.63	243.00	242.66	0.34	0.34	242.24	242.72	1.10	9.01	11.84	0.40
reach 1	1	15	250yr	11.18	241.63	243.00	242.73	0.27	0.27	242.28	242.79	1.14	9.80	12.23	0.41
reach 1	1	15	250yr-24h	11.51	241.63	243.00	242.74	0.26	0.26	242.29	242.81	1.15	10.00	12.33	0.41
reach 1	1	14	100yr	8.04	241.60	243.01	242.51	0.50	0.50	242.13	242.57	1.04	7.70	11.14	0.40
reach 1	1	14	100yr-24h	9.92	241.60	243.01	242.62	0.39	0.39	242.20	242.68	1.11	8.92	11.77	0.41
reach 1	1	14	250yr	11.18	241.60	243.01	242.68	0.33	0.33	242.24	242.75	1.15	9.70	12.16	0.41
reach 1	1	14	250yr-24h	11.51	241.60	243.01	242.70	0.31	0.31	242.26	242.77	1.16	9.91	12.26	0.41
reach 1	1	13	100yr	8.04	241.52	242.95	242.42	0.53	0.53	242.05	242.48	1.08	7.42	10.83	0.42
reach 1	1	13	100yr-24h	9.92	241.52	242.95	242.52	0.43	0.43	242.13	242.59	1.15	8.59	11.43	0.43
reach 1	1	13	250yr	11.18	241.52	242.95	242.59	0.36	0.36	242.17	242.66	1.20	9.34	11.79	0.43
reach 1	1	13	250yr-24h	11.51	241.52	242.95	242.60	0.35	0.35	242.18	242.68	1.21	9.54	11.89	0.43
reach 1	1	12	100yr	8.04	241.45	243.10	242.34	0.76	0.76	241.99	242.40	1.10	7.33	10.94	0.43
reach 1	1	12	100yr-24h	9.92	241.45	243.10	242.44	0.66	0.66	242.06	242.51	1.17	8.52	11.56	0.43
reach 1	1	12	250yr	11.18	241.45	243.10	242.51	0.59	0.59	242.10	242.58	1.20	9.28	11.95	0.44
reach 1	1	12	250yr-24h	11.51	241.45	243.10	242.52	0.58	0.58	242.11	242.60	1.21	9.48	12.05	0.44
reach 1	1	11	100yr	8.04	241.39	243.20	242.24	0.96	0.96	241.92	242.31	1.14	7.03	10.79	0.45
reach 1	1	11	100yr-24h	9.92	241.39	243.20	242.35	0.85	0.85	241.99	242.42	1.21	8.21	11.42	0.46
reach 1	1	11	250yr	11.18	241.39	243.20	242.41	0.79	0.79	242.04	242.49	1.25	8.97	11.81	0.46
reach 1	1	11	250yr-24h	11.51	241.39	243.20	242.43	0.77	0.77	242.05	242.51	1.25	9.17	11.91	0.46
reach 1	1	10	100yr	8.04	241.36	243.13	242.20	0.93	0.93	241.89	242.27	1.17	6.84	10.69	0.47
reach 1	1	10	100yr-24h	9.92	241.36	243.13	242.30	0.83	0.83	241.96	242.38	1.24	8.02	11.33	0.47
reach 1	1	10	250yr	11.18	241.36	243.13	242.37	0.76	0.76	242.01	242.45	1.27	8.79	11.73	0.47
reach 1	1	10	250yr-24h	11.51	241.36	243.13	242.39	0.74	0.74	242.02	242.47	1.28	8.99	11.83	0.47
reach 1	1	9	100yr	8.04	241.31	242.54	242.17	0.37	0.37	241.75	242.21	0.87	9.28	13.41	0.33
reach 1	1	9	100yr-24h	9.92	241.31	242.54	242.28	0.26	0.26	241.81	242.32	0.92	10.79	14.07	0.34
reach 1	1	9	250yr	11.18	241.31	242.54	242.35	0.19	0.19	241.84	242.39	0.95	11.77	14.48	0.34
reach 1	1	9	250yr-24h	11.51	241.31	242.54	242.37	0.17	0.17	241.85	242.41	0.96	12.03	14.59	0.34
reach 1	1	8.7	100yr	8.04	241.31	242.55	242.16	0.39	0.39	241.74	242.20	0.87	9.24	13.34	0.33
reach 1	1	8.7	100yr-24h	9.92	241.31	242.55	242.27	0.28	0.28	241.80	242.32	0.92	10.75	13.99	0.34
reach 1	1	8.7	250yr	11.18	241.31	242.55	242.34	0.21	0.21	241.84	242.39	0.95	11.72	14.40	0.34
reach 1	1	8.7	250yr-24h	11.51	241.31	242.55	242.36	0.19	0.19	241.85	242.41	0.96	11.97	14.50	0.34
reach 1	1	8.4	100yr	8.04	241.29	242.55	242.14	0.41	0.41	241.72	242.18	0.87	9.18	13.36	0.34

HEC-RAS Plan: Plan 01 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	ROB Elev	W.S. Elev	R. Freeboard	L. Freeboard	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m/s)	(m2)	(m)	
reach 1	1	8.4	100yr-24h	9.92	241.29	242.55	242.25	0.30	0.30	241.78	242.29	0.93	10.70	14.02	0.34
reach 1	1	8.4	250yr	11.18	241.29	242.55	242.32	0.23	0.23	241.82	242.37	0.96	11.68	14.44	0.34
reach 1	1	8.4	250yr-24h	11.51	241.29	242.55	242.34	0.21	0.21	241.83	242.38	0.96	11.94	14.54	0.34
reach 1	1	8	100yr	8.04	241.29	242.56	242.13	0.43	0.43	241.72	242.17	0.88	9.17	13.33	0.34
reach 1	1	8	100yr-24h	9.92	241.29	242.56	242.25	0.31	0.31	241.78	242.29	0.93	10.68	13.99	0.34
reach 1	1	8	250yr	11.18	241.29	242.56	242.31	0.25	0.25	241.82	242.36	0.96	11.66	14.40	0.34
reach 1	1	8	250yr-24h	11.51	241.29	242.56	242.33	0.23	0.23	241.83	242.38	0.97	11.91	14.50	0.34
reach 1	1	7.5	100yr	8.04	241.18	242.64	242.04	0.60	0.60	241.65	242.08	0.95	8.44	12.46	0.37
reach 1	1	7.5	100yr-24h	9.92	241.18	242.64	242.15	0.49	0.49	241.71	242.20	1.00	9.88	13.14	0.37
reach 1	1	7.5	250yr	11.18	241.18	242.64	242.22	0.42	0.42	241.75	242.27	1.03	10.82	13.56	0.37
reach 1	1	7.5	250yr-24h	11.51	241.18	242.64	242.24	0.40	0.40	241.76	242.29	1.04	11.06	13.67	0.37
reach 1	1	7	100yr	8.04	241.00	242.82	241.87	0.95	0.95	241.47	241.92	0.96	8.39	12.07	0.37
reach 1	1	7	100yr-24h	9.92	241.00	242.82	241.99	0.83	0.83	241.54	242.04	1.01	9.85	12.72	0.37
reach 1	1	7	250yr	11.18	241.00	242.82	242.06	0.76	0.76	241.58	242.12	1.03	10.82	13.13	0.36
reach 1	1	7	250yr-24h	11.51	241.00	242.82	242.08	0.74	0.74	241.59	242.14	1.04	11.07	13.24	0.36
reach 1	1	6	100yr	8.04	240.98	242.70	241.85	0.85	0.85	241.44	241.89	0.93	8.63	12.52	0.36
reach 1	1	6	100yr-24h	9.92	240.98	242.70	241.97	0.73	0.73	241.51	242.02	0.98	10.17	13.23	0.36
reach 1	1	6	250yr	11.18	240.98	242.70	242.04	0.66	0.66	241.55	242.09	1.00	11.19	13.69	0.35
reach 1	1	6	250yr-24h	11.51	240.98	242.70	242.06	0.64	0.64	241.56	242.11	1.00	11.46	13.80	0.35
reach 1	1	5.2	100yr	8.04	240.84	242.40	241.74	0.66	0.66	241.31	241.78	0.86	9.30	13.34	0.33
reach 1	1	5.2	100yr-24h	9.92	240.84	242.40	241.87	0.53	0.53	241.37	241.91	0.90	11.05	14.19	0.33
reach 1	1	5.2	250yr	11.18	240.84	242.40	241.95	0.45	0.45	241.41	241.99	0.92	12.20	14.73	0.32
reach 1	1	5.2	250yr-24h	11.51	240.84	242.40	241.97	0.43	0.43	241.42	242.01	0.92	12.50	14.86	0.32
reach 1	1	5.1	100yr	8.04	240.84	242.36	241.74	0.62	0.62	241.29	241.78	0.86	9.32	13.49	0.32
reach 1	1	5.1	100yr-24h	9.92	240.84	242.36	241.86	0.50	0.50	241.36	241.91	0.91	10.90	14.35	0.31
reach 1	1	5.1	250yr	11.18	240.84	242.36	241.94	0.42	0.42	241.40	241.99	0.94	11.89	14.89	0.31
reach 1	1	5.1	250yr-24h	11.51	240.84	242.36	241.96	0.40	0.40	241.41	242.01	0.95	12.14	15.03	0.31
reach 1	1	5	100yr	8.04	240.83	242.33	241.68	0.65	0.65	241.33	241.76	1.29	6.22	13.22	0.45
reach 1	1	5	100yr-24h	9.92	240.83	242.33	241.79	0.54	0.54	241.40	241.89	1.41	7.05	14.01	0.46
reach 1	1	5	250yr	11.18	240.83	242.33	241.86	0.47	0.47	241.45	241.98	1.48	7.56	14.50	0.46
reach 1	1	5	250yr-24h	11.51	240.83	242.33	241.88	0.45	0.45	241.46	242.00	1.49	7.70	14.63	0.46
reach 1	1	4.8		Culvert											
reach 1	1	4	100yr	8.04	240.78	242.53	241.61	0.92	0.92	241.25	241.66	0.99	8.11	12.26	0.39
reach 1	1	4	100yr-24h	9.92	240.78	242.53	241.71	0.82	0.82	241.31	241.77	1.06	9.36	12.86	0.40
reach 1	1	4	250yr	11.18	240.78	242.53	241.77	0.76	0.76	241.35	241.83	1.10	10.15	13.22	0.40
reach 1	1	4	250yr-24h	11.51	240.78	242.53	241.79	0.74	0.74	241.36	241.85	1.11	10.36	13.32	0.40
reach 1	1	3	100yr	8.04	240.71	242.82	241.54	1.28	1.28	241.17	241.59	1.00	8.05	12.22	0.39
reach 1	1	3	100yr-24h	9.92	240.71	242.82	241.63	1.19	1.19	241.24	241.69	1.07	9.28	12.81	0.40
reach 1	1	3	250yr	11.18	240.71	242.82	241.69	1.13	1.13	241.28	241.76	1.11	10.07	13.17	0.41

HEC-RAS Plan: Plan 01 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	ROB Elev	W.S. Elev	R. Freeboard	L. Freeboard	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m/s)	(m2)	(m)	
reach 1	1	3	250yr-24h	11.51	240.71	242.82	241.71	1.11	1.11	241.29	241.77	1.12	10.27	13.27	0.41
reach 1	1	2	100yr	8.04	240.64	242.51	241.42	1.09	1.09	241.11	241.48	1.08	7.46	11.93	0.43
reach 1	1	2	100yr-24h	9.92	240.64	242.51	241.51	1.00	1.00	241.17	241.58	1.15	8.65	12.52	0.44
reach 1	1	2	250yr	11.18	240.64	242.51	241.57	0.94	0.94	241.21	241.65	1.19	9.42	12.88	0.44
reach 1	1	2	250yr-24h	11.51	240.64	242.51	241.59	0.92	0.92	241.22	241.66	1.20	9.63	12.97	0.44
reach 1	1	1	100yr	8.04	240.60	241.86	241.32	0.54	0.54	241.06	241.39	1.17	6.87	11.67	0.49
reach 1	1	1	100yr-24h	9.92	240.60	241.86	241.42	0.44	0.44	241.13	241.50	1.23	8.07	12.27	0.48
reach 1	1	1	250yr	11.18	240.60	241.86	241.49	0.37	0.37	241.17	241.57	1.26	8.84	12.65	0.48
reach 1	1	1	250yr-24h	11.51	240.60	241.86	241.50	0.36	0.36	241.18	241.59	1.27	9.05	12.75	0.48
reach 1	1	0.5	100yr	8.04	240.20	241.45	240.94	0.51	0.26	240.82	241.08	1.68	4.79	8.99	0.73
reach 1	1	0.5	100yr-24h	9.92	240.20	241.45	240.97	0.48	0.23	240.90	241.16	1.94	5.11	9.23	0.83
reach 1	1	0.5	250yr	11.18	240.20	241.45	241.00	0.45	0.20	240.94	241.22	2.10	5.33	9.39	0.89
reach 1	1	0.5	250yr-24h	11.51	240.20	241.45	241.00	0.45	0.20	240.96	241.23	2.14	5.37	9.42	0.91

HEC-RAS Plan: Plan 01

River	Reach	River Sta	Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m)	(m/s)	(m/s)
reach 2	2	17.8 Culvert st A	100yr	242.77	242.70	242.73	242.77	244.06	2.26		0.07	1.51	1.04
reach 2	2	17.8 Culvert st A	100yr-24h	242.88	242.81	242.81	242.88	244.06	2.78		0.06	1.43	1.07
reach 2	2	17.8 Culvert st A	250yr	242.95	242.88	242.87	242.95	244.06	3.18		0.06	1.44	1.12
reach 2	2	17.8 Culvert st A	250yr-24h	242.97	242.89	242.88	242.97	244.06	3.22		0.06	1.42	1.11
reach 1	1	4.8 Culvert #1	100yr	241.76	241.68	241.62	241.76	242.78	8.04		0.07	1.39	1.33
reach 1	1	4.8 Culvert #1	100yr-24h	241.89	241.79	241.74	241.89	242.78	9.92		0.08	1.52	1.47
reach 1	1	4.8 Culvert #1	250yr	241.98	241.86	241.82	241.98	242.78	11.18		0.09	1.60	1.55
reach 1	1	4.8 Culvert #1	250yr-24h	242.00	241.88	241.84	242.00	242.78	11.51		0.09	1.62	1.57

APPENDIX E

Watermain Demands and Elevations

WATERMAIN DEMANDS - RENWICK ESTATES SUBDIVISION

FULL SUBDIVISION WITH FUTURE

WATERCAD MODEL

21-Jul-20

DEMAND = 77 IGCPD

FIRE DEMAND = 1000 IGPM / 75.77 L/s

MAX DAY FACTOR = 2.75

MAX HOUR FACTOR = 4.13

MIN HOUR FACTOR = 0.40

LOW DENSITY 3 PEOPLE PER UNIT

MED DENSITY 2.4 PEOPLE PER UNIT

HIGH DENSITY 1.6 PEOPLE PER UNIT

JUNCTION	LOCATION	ELEVATION (m)	LOTS	POPULATION	AVG. DAY gallons/day	MAX DAY gallons/day	MAX HOUR gallons/day	AVG. DAILY L/s	MAX HOUR L/s	MAX DAY L/s	FIRE TEST L/s
1	OXBOW DRIVE AT ENTRANCE	240.52	0	133.5	10279.5	28269	42454	0.541	2.234	1.487	77.257
2	OXBOW DRIVE AT ENTRANCE	240.52	0	0	0	0	0	0.000	0.000	0.000	**N/A**
3	STREET 'C' - BLOCK 174	240.99	0	64	4928	13552	20353	0.259	1.071	0.713	76.483
4	STREET 'C' - BLOCK 173	240.84	0	103	7946.4	21853	32819	0.418	1.727	1.150	76.920
5	STREET 'C'-BLOCK 172 NORTH	241.40	0	19	1478.4	4066	6106	0.078	0.321	0.214	75.984
6	STREET 'E' LOW POINT	241.10	3	9	693	1906	2862	0.036	0.151	0.100	75.870
7	STREET 'E' @ STREET 'B'	241.38	4	12	924	2541	3816	0.049	0.201	0.134	**N/A**
8	STREET 'E' @ PHASE LIMITS	241.60	1	731	56287	154789	232465	2.962	12.232	8.145	83.915
9	STREET 'B' LOW POINT	241.20	4	12	924	2541	3816	0.049	0.201	0.134	**N/A**
10	STREET 'B' LOW POINT	241.25	8	24	1848	5082	7632	0.097	0.402	0.267	76.037
11	STREET 'B' LOW POINT	241.30	6	18	1386	3812	5724	0.073	0.301	0.201	**N/A**
12	STREET 'B' LOW POINT	241.35	6	18	1386	3812	5724	0.073	0.301	0.201	**N/A**
13	STREET 'B' LOW POINT	241.40	8	24	1848	5082	7632	0.097	0.402	0.267	**N/A**
14	STREET 'B' @ STREET 'A'	241.45	4	12	924	2541	3816	0.049	0.201	0.134	75.904
15	STREET 'B' @ STREET 'A'	241.53	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
16	STREET 'B' LOW POINT	241.72	6	18	1386	3812	5724	0.073	0.301	0.201	**N/A**
17	STREET 'B' @ BEND	242.05	7	21	1617	4447	6678	0.085	0.351	0.234	**N/A**
18	STREET 'B' @ BEND	242.21	0	0	0	0	0	0.000	0.000	0.000	75.770
19	STREET 'B' - TOWNHOMES WEST	242.36	0	21.6	1663.2	4574	6869	0.088	0.361	0.241	76.011
20	STREET 'B' - TOWNHOMES CENTRAL	242.60	0	24	1848	5082	7632	0.097	0.402	0.267	76.037
21	STREET 'B' LOW PONT	242.55	0	0	0	0	0	0.000	0.000	0.000	**N/A**
22	STREET 'B' - TOWNHOMES EAST	242.21	0	24	1848	5082	7632	0.097	0.402	0.267	76.037
23	STREET 'B' @ BEND	242.14	0	0	0	0	0	0.000	0.000	0.000	**N/A**
24	STREET 'B' - BLOCK 171	242.06	3	43	3280.2	9021	13547	0.173	0.713	0.475	76.245
25	STREET 'B' @ STREET 'A'	241.68	6	18	1386	3812	5724	0.073	0.301	0.201	75.971
26	STREET 'B' @ STREET 'A'	241.68	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
27	STREET 'B' LOW POINT	241.41	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
28	STREET 'C'	241.48	1	3	231	635	954	0.012	0.050	0.033	**N/A**
29	STREET 'C'	241.35	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
30	STREET 'C' LOW POINT	241.20	1	3	231	635	954	0.012	0.050	0.033	**N/A**
31	STREET 'C' @ STREET 'D'	241.53	5	15	1155	3176	4770	0.061	0.251	0.167	75.937
32	STREET 'C'	241.45	12	36	2772	7623	11448	0.146	0.602	0.401	**N/A**
33	STREET 'C' @ STREET 'A'	241.88	4	12	924	2541	3816	0.049	0.201	0.134	**N/A**
34	STREET 'C' @ STREET 'A'	241.88	5	15	1155	3176	4770	0.061	0.251	0.167	**N/A**
35	STREET 'C'	242.29	6	18	1386	3812	5724	0.073	0.301	0.201	**N/A**
36	STREET 'C' TOP END	242.38	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
37	STREET 'C' @ STREET 'B'	242.47	0	0	0	0	0	0.000	0.000	0.000	75.770
38	STREET 'D' LOW POINT	241.52	4	12	924	2541	3816	0.049	0.201	0.134	**N/A**
39	STREET 'D' @ STREET 'B'	241.52	5	15	1155	3176	4770	0.061	0.251	0.167	**N/A**
40	STREET 'B'	241.27	9	27	2079	5717	8586	0.109	0.452	0.301	76.071
42	STREET 'D' SOUTH BEND	241.93	3	9	693	1906	2862	0.036	0.151	0.100	75.870
43	STREET 'D' SOUTH BEND	242.03	1	3	231	635	954	0.012	0.050	0.033	**N/A**
44	STREET 'D' SOUTH BEND	242.12	3	9	693	1906	2862	0.036	0.151	0.100	**N/A**
45	STREET 'D' HIGH POINT	242.35	4	12	924	2541	3816	0.049	0.201	0.134	**N/A**
46	STREET 'D' NORTH BEND	242.05	2	6	462	1271	1908	0.024	0.100	0.067	75.837
47	STREET 'D' NORTH BEND	241.96	1	3	231	635	954	0.012	0.050	0.033	**N/A**
48	STREET 'D' NORTH BEND	241.87	3	9	693	1906	2862	0.036	0.151	0.100	**N/A**
49	STREET 'B' @ STREET 'D'	241.56	7	21	1617	4447	6678	0.085	0.351	0.234	**N/A**
50	STREET 'A'	242.25	6	18	1386	3812	5724	0.073	0.301	0.201	**N/A**
51	KOMOKA ROAD	242.25	0	0	0	0	0	0.000	0.000	0.000	**N/A**
52	KOMOKA ROAD AT TOP END	245.69	5	15	1155	3176	4770	0.061	0.251	0.167	75.937
53	KOMOKA ROAD TEE AT UNION	241.85	28	84	6468	17787	26713	0.340	1.406	0.936	**N/A**
54	KOMOKA ROAD @ OXBOW DRIVE	240.34	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
55	KOMOKA ROAD	240.44	1	3	231	635	954	0.012	0.050	0.033	**N/A**
56	KOMOKA ROAD	240.44	5	15	1155	3176	4770	0.061	0.251	0.167	**N/A**
57	STREET 'C'-BLOCK 179 SOUTH	241.17	0	43	3326.4	9148	13738	0.175	0.723	0.481	76.251
58	STREET 'A'	242.25	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
59	STREET 'C' FH	241.58	6	18	1386	3812	5724	0.073	0.301	0.201	75.971
60	KOMOKA ROAD HI POINT	242.27	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
64	OXBOW DRIVE AT PRINCESS	241.33	6	18	1386	3812	5724	0.073	0.301	0.201	**N/A**
65	OXBOW DRIVE AT PRINCESS	241.33	3	9	693	1906	2862	0.036	0.151	0.100	**N/A**
68	OXBOW DRIVE HYDRANT	240.44	0	0	0	0	0	0.000	0.000	0.000	75.770
69	KOMOKA ROAD @ KO-2	242.59	0	0	0	0	0	0.000	0.000	0.000	75.770
70	KO-2	243.84	0	0	0	0	0	0.000	0.000	0.000	**N/A**
71	KO-73	243.20	0	0	0	0	0	0.000	0.000	0.000	**N/A**
72	RESERVE BLOCK 175	241.53	0	727	55979	153942	231193	2.945	12.165	8.100	83.870

8&72 INCLUDES FUTURE DEVELOPMENT MAXIMUM POPULATION 1455

COMMERCIAL BLOCK EQUIVALENT POPULATION = 133.5

WATERMAIN DEMANDS - RENWICK ESTATES SUBDIVISION

FULL SUBDIVISION WITHOUT FUTURE

WATERCAD MODEL

21-Jul-20

DEMAND = 77 IGCPD

FIRE DEMAND = 1000 IGPM / 75.77 L/s

MAX DAY FACTOR = 2.75

MAX HOUR FACTOR = 4.13

MIN HOUR FACTOR = 0.40

LOW DENSITY 3 PEOPLE PER UNIT

MED DENSITY 2.4 PEOPLE PER UNIT

HIGH DENSITY 1.6 PEOPLE PER UNIT

JUNCTION	LOCATION	ELEVATION (m)	LOTS	POPULATION	AVG. DAY gallons/day	MAX DAY gallons/day	MAX HOUR gallons/day	AVG. DAILY L/s	MAX HOUR L/s	MAX DAY L/s	FIRE TEST L/s
1	OXBOW DRIVE AT ENTRANCE	240.52	0	133.5	10279.5	28269	42454	0.541	2.234	1.487	77.257
2	OXBOW DRIVE AT ENTRANCE	240.52	0	0	0	0	0	0.000	0.000	0.000	**N/A**
3	STREET 'C' - BLOCK 174	240.99	0	64	4928	13552	20353	0.259	1.071	0.713	76.483
4	STREET 'C' - BLOCK 173	240.84	0	103	7946.4	21853	32819	0.418	1.727	1.150	76.920
5	STREET 'C'-BLOCK 172 NORTH	241.40	0	19	1478.4	4066	6106	0.078	0.321	0.214	75.984
6	STREET 'E' LOW POINT	241.10	3	9	693	1906	2862	0.036	0.151	0.100	75.870
7	STREET 'E' @ STREET 'B'	241.38	4	12	924	2541	3816	0.049	0.201	0.134	**N/A**
8	STREET 'E' @ PHASE LIMITS	241.60	1	3	231	635	954	0.012	0.050	0.033	**N/A**
9	STREET 'B' LOW POINT	241.20	4	12	924	2541	3816	0.049	0.201	0.134	**N/A**
10	STREET 'B' LOW POINT	241.25	8	24	1848	5082	7632	0.097	0.402	0.267	76.037
11	STREET 'B' LOW POINT	241.30	6	18	1386	3812	5724	0.073	0.301	0.201	**N/A**
12	STREET 'B' LOW POINT	241.35	6	18	1386	3812	5724	0.073	0.301	0.201	**N/A**
13	STREET 'B' LOW POINT	241.40	8	24	1848	5082	7632	0.097	0.402	0.267	**N/A**
14	STREET 'B' @ STREET 'A'	241.45	4	12	924	2541	3816	0.049	0.201	0.134	75.904
15	STREET 'B' @ STREET 'A'	241.53	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
16	STREET 'B' LOW POINT	241.72	6	18	1386	3812	5724	0.073	0.301	0.201	**N/A**
17	STREET 'B' @ BEND	242.05	7	21	1617	4447	6678	0.085	0.351	0.234	**N/A**
18	STREET 'B' @ BEND	242.21	0	0	0	0	0	0.000	0.000	0.000	75.770
19	STREET 'B' - TOWNHOMES WEST	242.36	0	21.6	1663.2	4574	6869	0.088	0.361	0.241	76.011
20	STREET 'B' - TOWNHOMES CENTRAL	242.60	0	24	1848	5082	7632	0.097	0.402	0.267	76.037
21	STREET 'B' LOW PONT	242.55	0	0	0	0	0	0.000	0.000	0.000	**N/A**
22	STREET 'B' - TOWNHOMES EAST	242.21	0	24	1848	5082	7632	0.097	0.402	0.267	76.037
23	STREET 'B' @ BEND	242.14	0	0	0	0	0	0.000	0.000	0.000	**N/A**
24	STREET 'B' - BLOCK 171	242.06	3	43	3280.2	9021	13547	0.173	0.713	0.475	76.245
25	STREET 'B' @ STREET 'A'	241.68	6	18	1386	3812	5724	0.073	0.301	0.201	75.971
26	STREET 'B' @ STREET 'A'	241.68	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
27	STREET 'B' LOW POINT	241.41	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
28	STREET 'C'	241.48	1	3	231	635	954	0.012	0.050	0.033	**N/A**
29	STREET 'C'	241.35	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
30	STREET 'C' LOW POINT	241.20	1	3	231	635	954	0.012	0.050	0.033	**N/A**
31	STREET 'C' @ STREET 'D'	241.53	5	15	1155	3176	4770	0.061	0.251	0.167	75.937
32	STREET 'C'	241.45	12	36	2772	7623	11448	0.146	0.602	0.401	**N/A**
33	STREET 'C' @ STREET 'A'	241.88	4	12	924	2541	3816	0.049	0.201	0.134	**N/A**
34	STREET 'C' @ STREET 'A'	241.88	5	15	1155	3176	4770	0.061	0.251	0.167	**N/A**
35	STREET 'C'	242.29	6	18	1386	3812	5724	0.073	0.301	0.201	**N/A**
36	STREET 'C' TOP END	242.38	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
37	STREET 'C' @ STREET 'B'	242.47	0	0	0	0	0	0.000	0.000	0.000	75.770
38	STREET 'D' LOW POINT	241.52	4	12	924	2541	3816	0.049	0.201	0.134	**N/A**
39	STREET 'D' @ STREET 'B'	241.52	5	15	1155	3176	4770	0.061	0.251	0.167	**N/A**
40	STREET 'B'	241.27	9	27	2079	5717	8586	0.109	0.452	0.301	76.071
42	STREET 'D' SOUTH BEND	241.93	3	9	693	1906	2862	0.036	0.151	0.100	75.870
43	STREET 'D' SOUTH BEND	242.03	1	3	231	635	954	0.012	0.050	0.033	**N/A**
44	STREET 'D' SOUTH BEND	242.12	3	9	693	1906	2862	0.036	0.151	0.100	**N/A**
45	STREET 'D' HIGH POINT	242.35	4	12	924	2541	3816	0.049	0.201	0.134	**N/A**
46	STREET 'D' NORTH BEND	242.05	2	6	462	1271	1908	0.024	0.100	0.067	75.837
47	STREET 'D' NORTH BEND	241.96	1	3	231	635	954	0.012	0.050	0.033	**N/A**
48	STREET 'D' NORTH BEND	241.87	3	9	693	1906	2862	0.036	0.151	0.100	**N/A**
49	STREET 'B' @ STREET 'D'	241.56	7	21	1617	4447	6678	0.085	0.351	0.234	**N/A**
50	STREET 'A'	242.25	6	18	1386	3812	5724	0.073	0.301	0.201	**N/A**
51	KOMOKA ROAD	242.25	0	0	0	0	0	0.000	0.000	0.000	**N/A**
52	KOMOKA ROAD AT TOP END	245.69	5	15	1155	3176	4770	0.061	0.251	0.167	75.937
53	KOMOKA ROAD TEE AT UNION	241.85	28	84	6468	17787	26713	0.340	1.406	0.936	**N/A**
54	KOMOKA ROAD @ OXBOW DRIVE	240.34	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
55	KOMOKA ROAD	240.44	1	3	231	635	954	0.012	0.050	0.033	**N/A**
56	KOMOKA ROAD	240.44	5	15	1155	3176	4770	0.061	0.251	0.167	**N/A**
57	STREET 'C'-BLOCK 179 SOUTH	241.17	0	43	3326.4	9148	13738	0.175	0.723	0.481	76.251
58	STREET 'A'	242.25	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
59	STREET 'C' FH	241.58	6	18	1386	3812	5724	0.073	0.301	0.201	75.971
60	KOMOKA ROAD HI POINT	242.27	2	6	462	1271	1908	0.024	0.100	0.067	**N/A**
64	OXBOW DRIVE AT PRINCESS	241.33	6	18	1386	3812	5724	0.073	0.301	0.201	**N/A**
65	OXBOW DRIVE AT PRINCESS	241.33	3	9	693	1906	2862	0.036	0.151	0.100	**N/A**
68	OXBOW DRIVE HYDRANT	240.44	0	0	0	0	0	0.000	0.000	0.000	75.770
69	KOMOKA ROAD @ KO-2	242.59	0	0	0	0	0	0.000	0.000	0.000	75.770
70	KO-2	243.84	0	0	0	0	0	0.000	0.000	0.000	**N/A**
71	KO-73	243.20	0	0	0	0	0	0.000	0.000	0.000	**N/A**
72	RESERVE BLOCK 175	241.53	0	0	0	0	0	0.000	0.000	0.000	**N/A**

COMMERCIAL BLOCK EQUIVALENT POPULATION = 133.5

WATERMAIN DEMANDS - RENWICK ESTATES SUBDIVISION

PHASE 1

WATERCAD MODEL

22-Jul-20

DEMAND = 77 IGCPD

FIRE DEMAND = 1000 IGPM / 75.77 L/s

MAX DAY FACTOR = 2.75

MAX HOUR FACTOR = 4.13

MIN HOUR FACTOR = 0.40

LOW DENSITY 3 PEOPLE PER UNIT

MED DENSITY 2.4 PEOPLE PER UNIT

HIGH DENSITY 1.6 PEOPLE PER UNIT

JUNCTION	LOCATION	ELEVATION (m)	LOTS	POPULATION	AVG. DAY gallons/day	MAX DAY gallons/day	MAX HOUR gallons/day	AVG. DAILY L/s	MAX HOUR L/s	MAX DAY L/s	FIRE TEST L/s	WATER QUALITY ANALYSIS AVG. DAY 25% BUILD OUT	AVG. DAY 50% BUILD OUT	AVG. DAY 75% BUILD OUT
PHASE 1														
1	OXBOW DRIVE AT ENTRANCE	240.52	0	133.5	10279.5	28269	42454	0.541	2.234	1.487	77.257	0.541	0.541	0.541
2	OXBOW DRIVE AT ENTRANCE	240.52	0	0	0	0	0	0.000	0.000	0.000	N/A	0.000	0.000	0.000
3	STREET 'C' - BLOCK 174	240.99	0	64	4928	13552	20353	0.259	1.071	0.713	76.483	0.065	0.130	0.194
4	STREET 'C' - BLOCK 173	240.84	0	103	7946.4	21853	32819	0.418	1.727	1.150	76.920	0.105	0.209	0.314
5	STREET 'C'-BLOCK 172 NORTH	241.40	0	19	1478.4	4066	6106	0.078	0.321	0.214	75.984	0.019	0.039	0.058
6	STREET 'E' LOW POINT	241.10	3	9	693	1906	2862	0.036	0.151	0.100	75.870	0.009	0.018	0.027
7	STREET 'E' @ STREET 'B'	241.38	4	12	924	2541	3816	0.049	0.201	0.134	N/A	0.012	0.024	0.036
8	STREET 'E' @ PHASE LIMITS	241.60	1	3	231	635	954	0.012	0.050	0.033	N/A	0.000	0.012	0.012
25	STREET 'B' @ STREET 'A'	241.68	4	12	924	2541	3816	0.049	0.201	0.134	75.904	0.012	0.024	0.036
26	STREET 'B' @ STREET 'A'	241.68	2	6	462	1271	1908	0.024	0.100	0.067	N/A	0.006	0.012	0.018
27	STREET 'B' LOW POINT	241.41	2	6	462	1271	1908	0.024	0.100	0.067	N/A	0.006	0.012	0.018
28	STREET 'C'	241.48	1	3	231	635	954	0.012	0.050	0.033	N/A	0.000	0.000	0.012
29	STREET 'C' LOW POINT	241.35	2	6	462	1271	1908	0.024	0.100	0.067	N/A	0.006	0.012	0.018
30	STREET 'C'	241.20	1	3	231	635	954	0.012	0.050	0.033	N/A	0.000	0.000	0.009
31	STREET 'C' @ STREET 'D'	241.53	2	6	462	1271	1908	0.024	0.100	0.067	75.837	0.006	0.012	0.018
38	STREET 'D' LOW POINT	241.52	4	12	924	2541	3816	0.049	0.201	0.134	N/A	0.012	0.024	0.036
39	STREET 'D' @ STREET 'B'	241.52	5	15	1155	3176	4770	0.061	0.251	0.167	N/A	0.015	0.030	0.046
40	STREET 'B'	241.27	9	27	2079	5717	8586	0.109	0.452	0.301	76.071	0.027	0.055	0.082
42	STREET 'D' SOUTH BEND	241.93	3	9	693	1906	2862	0.036	0.151	0.100	75.870	0.009	0.018	0.027
43	STREET 'D' SOUTH BEND	242.03	1	3	231	635	954	0.012	0.050	0.033	N/A	0.000	0.012	0.012
44	STREET 'D' SOUTH BEND	242.12	3	9	693	1906	2862	0.036	0.151	0.100	N/A	0.009	0.018	0.027
45	STREET 'D' HIGH POINT	242.35	4	12	924	2541	3816	0.049	0.201	0.134	N/A	0.012	0.024	0.036
46	STREET 'D' NORTH BEND	242.05	2	6	462	1271	1908	0.024	0.100	0.067	75.837	0.006	0.012	0.018
47	STREET 'D' NORTH BEND	241.96	1	3	231	635	954	0.012	0.050	0.033	N/A	0.000	0.000	0.000
48	STREET 'D' NORTH BEND	241.87	3	9	693	1906	2862	0.036	0.151	0.100	N/A	0.009	0.018	0.027
49	STREET 'B' @ STREET 'D'	241.56	7	21	1617	4447	6678	0.085	0.351	0.234	N/A	0.021	0.043	0.064
50	STREET 'A'	242.25	6	18	1386	3812	5724	0.073	0.301	0.201	N/A	0.018	0.036	0.055
51	KOMOKA ROAD	242.25	0	0	0	0	0	0.000	0.000	0.000	N/A	0.000	0.000	0.000
52	KOMOKA ROAD AT TOP END	245.69	5	15	1155	3176	4770	0.061	0.251	0.167	75.937	0.061	0.061	0.061
53	KOMOKA ROAD TEE AT UNION	241.85	28	84	6468	17787	26713	0.340	1.406	0.936	N/A	0.340	0.340	0.340
54	KOMOKA ROAD @ OXBOW DRIVE	240.34	2	6	462	1271	1908	0.024	0.100	0.067	N/A	0.024	0.024	0.024
55	KOMOKA ROAD	240.44	1	3	231	635	954	0.012	0.050	0.033	N/A	0.012	0.012	0.012
56	KOMOKA ROAD	240.44	5	15	1155	3176	4770	0.061	0.251	0.167	N/A	0.061	0.061	0.061
57	STREET 'C'-BLOCK 179 SOUTH	241.17	0	43	3326.4	9148	13738	0.175	0.723	0.481	76.251	0.044	0.088	0.131
58	STREET 'A'	242.25	2	6	462	1271	1908	0.024	0.100	0.067	N/A	0.006	0.012	0.018
60	KOMOKA ROAD HI POINT	242.27	2	6	462	1271	1908	0.024	0.100	0.067	N/A	0.024	0.024	0.024
64	OXBOW DRIVE AT PRINCESS	241.33	6	18	1386	3812	5724	0.073	0.301	0.201	N/A	0.073	0.073	0.073
65	OXBOW DRIVE AT PRINCESS	241.33	3	9	693	1906	2862	0.036	0.151	0.100	N/A	0.036	0.036	0.036
68	OXBOW DRIVE HYDRANT	240.44	0	0	0	0	0	0.000	0.000	0.000	75.770	0.000	0.000	0.000
69	KOMOKA ROAD @ KO-2	242.59	0	0	0	0	0	0.000	0.000	0.000	75.770	0.000	0.000	0.000

DENOTES JUNCTIONS THAT WILL NOT BE EFFECTED BY SUBDIVISION BUILD OUT DEMANDS.

COMMERCIAL BLOCK EQUIVALENT POPULATION = 133.5

APPENDIX F

WaterCAD Results – Full Subdivision (with future demand)

Average Day Demand

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Average Day Demand

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	0.541	Fixed	284.94	434.7
J-2	240.52	0.000	Fixed	284.94	434.7
J-3	240.99	0.259	Fixed	284.92	430.0
J-4	240.84	0.418	Fixed	284.92	431.4
J-5	241.40	0.078	Fixed	284.90	425.7
J-6	241.10	0.036	Fixed	284.89	428.5
J-7	241.38	0.049	Fixed	284.88	425.7
J-8	241.60	2.962	Fixed	284.88	423.5
J-9	241.20	0.049	Fixed	284.88	427.5
J-10	241.25	0.097	Fixed	284.88	427.0
J-11	241.30	0.073	Fixed	284.88	426.5
J-12	241.35	0.073	Fixed	284.88	426.0
J-13	241.40	0.097	Fixed	284.88	425.5
J-14	241.45	0.049	Fixed	284.88	425.0
J-15	241.53	0.024	Fixed	284.88	424.2
J-16	241.72	0.073	Fixed	284.88	422.4
J-17	242.05	0.085	Fixed	284.88	419.2
J-18	242.21	0.000	Fixed	284.89	417.7
J-19	242.36	0.088	Fixed	284.89	416.2
J-20	242.60	0.097	Fixed	284.89	413.9
J-21	242.55	0.000	Fixed	284.89	414.4
J-22	242.21	0.097	Fixed	284.90	417.8
J-23	242.14	0.000	Fixed	284.90	418.5
J-24	242.06	0.173	Fixed	284.90	419.2
J-25	241.68	0.073	Fixed	284.90	423.0
J-26	241.68	0.024	Fixed	284.90	423.0
J-27	241.41	0.024	Fixed	284.90	425.6
J-28	241.48	0.012	Fixed	284.90	424.9
J-29	241.35	0.024	Fixed	284.90	426.2
J-30	241.20	0.012	Fixed	284.90	427.6
J-31	241.53	0.061	Fixed	284.90	424.4
J-32	241.45	0.146	Fixed	284.89	425.2
J-33	241.88	0.049	Fixed	284.89	421.0
J-34	241.88	0.061	Fixed	284.89	421.0
J-35	242.29	0.073	Fixed	284.89	416.9
J-36	242.38	0.024	Fixed	284.89	416.1
J-37	242.47	0.000	Fixed	284.89	415.2
J-38	241.52	0.049	Fixed	284.90	424.5
J-39	241.52	0.061	Fixed	284.90	424.5
J-40	241.27	0.109	Fixed	284.90	427.0
J-42	241.93	0.036	Fixed	284.90	420.5
J-43	242.03	0.012	Fixed	284.90	419.5
J-44	242.12	0.036	Fixed	284.90	418.7
J-45	242.35	0.049	Fixed	284.90	416.4
J-46	242.05	0.024	Fixed	284.90	419.4

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Average Day Demand

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.012	Fixed	284.90	420.2
J-48	241.87	0.036	Fixed	284.90	421.1
J-49	241.56	0.085	Fixed	284.90	424.2
J-50	242.25	0.073	Fixed	284.91	417.5
J-51	242.25	0.000	Fixed	284.92	417.6
J-52	245.69	0.061	Fixed	284.92	384.0
J-53	241.85	0.340	Fixed	284.92	421.5
J-54	240.34	0.024	Fixed	285.00	437.1
J-55	240.44	0.012	Fixed	285.00	436.1
J-56	240.44	0.061	Fixed	285.00	436.1
J-57	241.17	0.175	Fixed	284.91	428.1
J-58	242.25	0.024	Fixed	284.92	417.6
J-59	241.58	0.073	Fixed	284.89	423.9
J-60	242.27	0.024	Fixed	284.97	417.9
J-64	241.33	0.073	Fixed	285.00	427.4
J-65	241.33	0.036	Fixed	285.00	427.4
J-68	240.44	0.000	Fixed	284.97	435.9
J-69	242.59	0.000	Fixed	284.92	414.3
J-70	243.84	0.000	Fixed	284.92	402.1
J-71	243.20	0.000	Fixed	284.97	408.8
J-72	241.53	2.945	Fixed	284.87	424.2

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	5.005	0.159	284.94	284.94
P-3	62.2	J-2	J-3	200.0	PVC	110.0	5.005	0.159	284.94	284.92
P-4	30.0	J-3	J-4	200.0	PVC	110.0	4.746	0.151	284.92	284.92
P-6	48.1	J-5	J-6	200.0	PVC	110.0	4.065	0.129	284.90	284.89
P-7	54.1	J-6	J-7	200.0	PVC	110.0	4.029	0.128	284.89	284.88
P-8	38.3	J-7	J-8	200.0	PVC	110.0	2.962	0.094	284.88	284.88
P-9	18.9	J-7	J-9	200.0	PVC	110.0	1.018	0.032	284.88	284.88
P-10	48.8	J-9	J-10	200.0	PVC	110.0	0.969	0.031	284.88	284.88
P-11	55.0	J-10	J-11	200.0	PVC	110.0	0.872	0.028	284.88	284.88
P-12	47.2	J-11	J-12	200.0	PVC	110.0	0.799	0.025	284.88	284.88
P-13	48.8	J-12	J-13	200.0	PVC	110.0	0.726	0.023	284.88	284.88
P-14	62.8	J-13	J-14	200.0	PVC	110.0	0.629	0.020	284.88	284.88
P-15	8.4	J-14	J-15	200.0	PVC	110.0	0.580	0.018	284.88	284.88
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-2.389	0.076	284.88	284.88
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-2.462	0.078	284.88	284.88
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-2.547	0.081	284.88	284.89
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-2.547	0.081	284.89	284.89
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-2.635	0.084	284.89	284.89
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-2.079	0.066	284.89	284.89
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-2.079	0.066	284.89	284.90
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-2.176	0.069	284.90	284.90
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-2.176	0.069	284.90	284.90
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-2.349	0.075	284.90	284.90
P-26	10.4	J-25	J-26	200.0	PVC	110.0	1.735	0.055	284.90	284.90
P-27	52.5	J-26	J-27	200.0	PVC	110.0	1.711	0.054	284.90	284.90
P-29	11.2	J-5	J-28	200.0	PVC	110.0	0.011	0.000	284.90	284.90
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-0.001	0.000	284.90	284.90
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-0.025	0.001	284.90	284.90
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-0.037	0.001	284.90	284.90

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	1.079	0.034	284.90	284.89
P-35	10.5	J-33	J-34	200.0	PVC	110.0	0.811	0.026	284.89	284.89
P-36	80.2	J-34	J-35	200.0	PVC	110.0	0.750	0.024	284.89	284.89
P-37	12.8	J-35	J-36	200.0	PVC	110.0	0.677	0.022	284.89	284.89
P-38	10.0	J-36	J-37	200.0	PVC	110.0	0.653	0.021	284.89	284.89
P-39	15.1	J-37	J-20	200.0	PVC	110.0	0.653	0.021	284.89	284.89
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-1.178	0.037	284.90	284.90
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-1.227	0.039	284.90	284.90
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-0.808	0.026	284.90	284.90
P-43	75.4	J-49	J-40	200.0	PVC	110.0	0.917	0.029	284.90	284.90
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-1.687	0.054	284.90	284.90
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-0.480	0.015	284.90	284.90
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-0.516	0.016	284.90	284.90
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-0.528	0.017	284.90	284.90
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-0.564	0.018	284.90	284.90
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-0.613	0.020	284.90	284.90
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-0.637	0.020	284.90	284.90
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-0.649	0.021	284.90	284.90
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-0.685	0.022	284.90	284.90
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-4.157	0.132	284.90	284.91
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-4.655	0.148	284.92	284.97
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-2.434	0.077	285.00	285.00
P-61	13.9	R-1	J-55	200.0	PVC	110.0	2.446	0.078	285.00	285.00
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-0.884	0.028	285.00	285.00
P-64	44.8	J-4	J-57	200.0	PVC	110.0	4.328	0.138	284.92	284.91
P-65	72.6	J-57	J-5	200.0	PVC	110.0	4.153	0.132	284.91	284.90
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-4.230	0.135	284.91	284.92
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-4.254	0.135	284.92	284.92
P-68	74.5	J-32	J-59	200.0	PVC	110.0	0.933	0.030	284.89	284.89

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	0.860	0.027	284.89	284.89
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-4.679	0.149	284.97	285.00
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-0.823	0.026	285.00	285.00
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-3.928	0.125	285.00	285.00
P-76	8.7	R-3	J-65	200.0	PVC	110.0	3.964	0.126	285.00	285.00
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-4.315	0.088	284.92	284.92
P-83	12.8	R-2	J-54	200.0	PVC	110.0	4.021	0.128	285.00	285.00
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-5.546	0.177	284.94	284.97
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-5.546	0.177	284.97	285.00
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.061	0.002	284.92	284.92
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.061	0.002	284.92	284.92
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	284.92	284.92
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	284.97	284.97
P-91	38.6	J-15	J-72	200.0	PVC	110.0	2.945	0.094	284.88	284.87

Maximum Hour Demand

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Hour Demand

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	2.234	Fixed	284.16	427.1
J-2	240.52	0.000	Fixed	284.16	427.1
J-3	240.99	1.071	Fixed	283.95	420.4
J-4	240.84	1.727	Fixed	283.85	421.0
J-5	241.40	0.321	Fixed	283.56	412.6
J-6	241.10	0.151	Fixed	283.45	414.5
J-7	241.38	0.201	Fixed	283.33	410.5
J-8	241.60	12.232	Fixed	283.28	407.9
J-9	241.20	0.201	Fixed	283.32	412.3
J-10	241.25	0.402	Fixed	283.32	411.7
J-11	241.30	0.301	Fixed	283.31	411.1
J-12	241.35	0.301	Fixed	283.30	410.6
J-13	241.40	0.402	Fixed	283.30	410.1
J-14	241.45	0.201	Fixed	283.29	409.5
J-15	241.53	0.100	Fixed	283.29	408.7
J-16	241.72	0.301	Fixed	283.33	407.2
J-17	242.05	0.351	Fixed	283.39	404.6
J-18	242.21	0.000	Fixed	283.42	403.3
J-19	242.36	0.361	Fixed	283.45	402.1
J-20	242.60	0.402	Fixed	283.51	400.4
J-21	242.55	0.000	Fixed	283.52	400.9
J-22	242.21	0.402	Fixed	283.56	404.7
J-23	242.14	0.000	Fixed	283.57	405.4
J-24	242.06	0.713	Fixed	283.58	406.3
J-25	241.68	0.301	Fixed	283.64	410.7
J-26	241.68	0.100	Fixed	283.64	410.6
J-27	241.41	0.100	Fixed	283.61	413.0
J-28	241.48	0.050	Fixed	283.56	411.9
J-29	241.35	0.100	Fixed	283.56	413.1
J-30	241.20	0.050	Fixed	283.56	414.6
J-31	241.53	0.251	Fixed	283.56	411.4
J-32	241.45	0.602	Fixed	283.54	412.0
J-33	241.88	0.201	Fixed	283.53	407.6
J-34	241.88	0.251	Fixed	283.53	407.6
J-35	242.29	0.301	Fixed	283.52	403.5
J-36	242.38	0.100	Fixed	283.52	402.6
J-37	242.47	0.000	Fixed	283.52	401.7
J-38	241.52	0.201	Fixed	283.58	411.6
J-39	241.52	0.251	Fixed	283.58	411.7
J-40	241.27	0.452	Fixed	283.59	414.2
J-42	241.93	0.151	Fixed	283.59	407.7
J-43	242.03	0.050	Fixed	283.59	406.7
J-44	242.12	0.151	Fixed	283.59	405.8
J-45	242.35	0.201	Fixed	283.59	403.6
J-46	242.05	0.100	Fixed	283.59	406.6

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Hour Demand

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.050	Fixed	283.59	407.5
J-48	241.87	0.151	Fixed	283.60	408.4
J-49	241.56	0.351	Fixed	283.60	411.4
J-50	242.25	0.301	Fixed	283.81	406.7
J-51	242.25	0.000	Fixed	283.93	407.9
J-52	245.69	0.251	Fixed	283.93	374.2
J-53	241.85	1.406	Fixed	283.94	411.9
J-54	240.34	0.100	Fixed	284.97	436.8
J-55	240.44	0.050	Fixed	284.99	436.0
J-56	240.44	0.251	Fixed	284.97	435.8
J-57	241.17	0.723	Fixed	283.74	416.6
J-58	242.25	0.100	Fixed	283.86	407.2
J-59	241.58	0.301	Fixed	283.53	410.6
J-60	242.27	0.100	Fixed	284.56	413.8
J-64	241.33	0.301	Fixed	284.95	426.9
J-65	241.33	0.151	Fixed	284.98	427.2
J-68	240.44	0.000	Fixed	284.65	432.7
J-69	242.59	0.000	Fixed	283.93	404.6
J-70	243.84	0.000	Fixed	283.93	392.3
J-71	243.20	0.000	Fixed	284.65	405.7
J-72	241.53	12.165	Fixed	283.24	408.3

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Hour Demand

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	20.676	0.658	284.16	284.16
P-3	62.2	J-2	J-3	200.0	PVC	110.0	20.676	0.658	284.16	283.95
P-4	30.0	J-3	J-4	200.0	PVC	110.0	19.605	0.624	283.95	283.85
P-6	48.1	J-5	J-6	200.0	PVC	110.0	16.787	0.534	283.56	283.45
P-7	54.1	J-6	J-7	200.0	PVC	110.0	16.636	0.530	283.45	283.33
P-8	38.3	J-7	J-8	200.0	PVC	110.0	12.232	0.389	283.33	283.28
P-9	18.9	J-7	J-9	200.0	PVC	110.0	4.203	0.134	283.33	283.32
P-10	48.8	J-9	J-10	200.0	PVC	110.0	4.002	0.127	283.32	283.32
P-11	55.0	J-10	J-11	200.0	PVC	110.0	3.600	0.115	283.32	283.31
P-12	47.2	J-11	J-12	200.0	PVC	110.0	3.299	0.105	283.31	283.30
P-13	48.8	J-12	J-13	200.0	PVC	110.0	2.998	0.095	283.30	283.30
P-14	62.8	J-13	J-14	200.0	PVC	110.0	2.596	0.083	283.30	283.29
P-15	8.4	J-14	J-15	200.0	PVC	110.0	2.395	0.076	283.29	283.29
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-9.870	0.314	283.29	283.33
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-10.171	0.324	283.33	283.39
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-10.522	0.335	283.39	283.42
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-10.522	0.335	283.42	283.45
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-10.883	0.346	283.45	283.51
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-8.585	0.273	283.51	283.52
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-8.585	0.273	283.52	283.56
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-8.987	0.286	283.56	283.57
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-8.987	0.286	283.57	283.58
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-9.700	0.309	283.58	283.64
P-26	10.4	J-25	J-26	200.0	PVC	110.0	7.169	0.228	283.64	283.64
P-27	52.5	J-26	J-27	200.0	PVC	110.0	7.069	0.225	283.64	283.61
P-29	11.2	J-5	J-28	200.0	PVC	110.0	0.047	0.001	283.56	283.56
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-0.003	0.000	283.56	283.56
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-0.103	0.003	283.56	283.56
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-0.153	0.005	283.56	283.56

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Hour Demand

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	4.456	0.142	283.56	283.54
P-35	10.5	J-33	J-34	200.0	PVC	110.0	3.352	0.107	283.53	283.53
P-36	80.2	J-34	J-35	200.0	PVC	110.0	3.101	0.099	283.53	283.52
P-37	12.8	J-35	J-36	200.0	PVC	110.0	2.800	0.089	283.52	283.52
P-38	10.0	J-36	J-37	200.0	PVC	110.0	2.700	0.086	283.52	283.52
P-39	15.1	J-37	J-20	200.0	PVC	110.0	2.700	0.086	283.52	283.51
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-4.860	0.155	283.56	283.58
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-5.061	0.161	283.58	283.58
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-3.333	0.106	283.58	283.59
P-43	75.4	J-49	J-40	200.0	PVC	110.0	3.785	0.120	283.60	283.59
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-6.969	0.222	283.60	283.61
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-1.979	0.063	283.58	283.59
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-2.130	0.068	283.59	283.59
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-2.180	0.069	283.59	283.59
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-2.331	0.074	283.59	283.59
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-2.532	0.081	283.59	283.59
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-2.632	0.084	283.59	283.59
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-2.682	0.085	283.59	283.60
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-2.833	0.090	283.60	283.60
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-17.170	0.547	283.64	283.81
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-19.228	0.612	283.94	284.56
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-10.054	0.320	284.97	284.99
P-61	13.9	R-1	J-55	200.0	PVC	110.0	10.104	0.322	285.00	284.99
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-3.653	0.116	284.97	284.97
P-64	44.8	J-4	J-57	200.0	PVC	110.0	17.878	0.569	283.85	283.74
P-65	72.6	J-57	J-5	200.0	PVC	110.0	17.155	0.546	283.74	283.56
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-17.471	0.556	283.81	283.86
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-17.571	0.559	283.86	283.93
P-68	74.5	J-32	J-59	200.0	PVC	110.0	3.854	0.123	283.54	283.53

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Hour Demand

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	3.553	0.113	283.53	283.53
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-19.328	0.615	284.56	284.95
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-3.402	0.108	284.95	284.97
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-16.227	0.517	284.95	284.98
P-76	8.7	R-3	J-65	200.0	PVC	110.0	16.378	0.521	285.00	284.98
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-17.822	0.363	283.93	283.94
P-83	12.8	R-2	J-54	200.0	PVC	110.0	16.609	0.529	285.00	284.97
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-22.910	0.729	284.16	284.65
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-22.910	0.729	284.65	284.97
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.251	0.008	283.93	283.93
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.251	0.008	283.93	283.93
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	283.93	283.93
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	284.65	284.65
P-91	38.6	J-15	J-72	200.0	PVC	110.0	12.165	0.387	283.29	283.24

Maximum Day Demand + Fire Flow

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-1

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	77.257	Fixed	279.09	377.5
J-2	240.52	0.000	Fixed	279.09	377.5
J-3	240.99	0.713	Fixed	279.16	373.5
J-4	240.84	1.150	Fixed	279.19	375.4
J-5	241.40	0.214	Fixed	279.37	371.6
J-6	241.10	0.100	Fixed	279.35	374.4
J-7	241.38	0.134	Fixed	279.34	371.5
J-8	241.60	8.145	Fixed	279.31	369.1
J-9	241.20	0.134	Fixed	279.34	373.2
J-10	241.25	0.267	Fixed	279.34	372.8
J-11	241.30	0.201	Fixed	279.34	372.3
J-12	241.35	0.201	Fixed	279.35	371.9
J-13	241.40	0.267	Fixed	279.35	371.4
J-14	241.45	0.134	Fixed	279.36	371.0
J-15	241.53	0.067	Fixed	279.36	370.3
J-16	241.72	0.201	Fixed	279.41	368.8
J-17	242.05	0.234	Fixed	279.49	366.4
J-18	242.21	0.000	Fixed	279.53	365.2
J-19	242.36	0.241	Fixed	279.57	364.2
J-20	242.60	0.267	Fixed	279.65	362.6
J-21	242.55	0.000	Fixed	279.67	363.3
J-22	242.21	0.267	Fixed	279.83	368.1
J-23	242.14	0.000	Fixed	279.86	369.1
J-24	242.06	0.475	Fixed	279.89	370.3
J-25	241.68	0.201	Fixed	280.10	376.0
J-26	241.68	0.067	Fixed	280.08	375.8
J-27	241.41	0.067	Fixed	279.95	377.1
J-28	241.48	0.033	Fixed	279.41	371.2
J-29	241.35	0.067	Fixed	279.48	373.2
J-30	241.20	0.033	Fixed	279.54	375.2
J-31	241.53	0.167	Fixed	279.58	372.4
J-32	241.45	0.401	Fixed	279.60	373.3
J-33	241.88	0.134	Fixed	279.62	369.4
J-34	241.88	0.167	Fixed	279.62	369.4
J-35	242.29	0.201	Fixed	279.64	365.6
J-36	242.38	0.067	Fixed	279.65	364.7
J-37	242.47	0.000	Fixed	279.65	363.9
J-38	241.52	0.134	Fixed	279.73	373.9
J-39	241.52	0.167	Fixed	279.77	374.3
J-40	241.27	0.301	Fixed	279.82	377.3
J-42	241.93	0.100	Fixed	279.79	370.5
J-43	242.03	0.033	Fixed	279.80	369.6
J-44	242.12	0.100	Fixed	279.81	368.8
J-45	242.35	0.134	Fixed	279.82	366.8
J-46	242.05	0.067	Fixed	279.85	369.9

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-1

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	279.85	370.9
J-48	241.87	0.100	Fixed	279.86	371.8
J-49	241.56	0.234	Fixed	279.89	375.1
J-50	242.25	0.201	Fixed	280.77	377.0
J-51	242.25	0.000	Fixed	281.24	381.6
J-52	245.69	0.167	Fixed	281.24	348.0
J-53	241.85	0.936	Fixed	281.27	385.8
J-54	240.34	0.067	Fixed	284.83	435.4
J-55	240.44	0.033	Fixed	284.93	435.4
J-56	240.44	0.167	Fixed	284.82	434.4
J-57	241.17	0.481	Fixed	279.26	372.8
J-58	242.25	0.067	Fixed	280.98	379.0
J-59	241.58	0.201	Fixed	279.61	372.2
J-60	242.27	0.067	Fixed	283.43	402.9
J-64	241.33	0.201	Fixed	284.81	425.5
J-65	241.33	0.100	Fixed	284.92	426.6
J-68	240.44	0.000	Fixed	282.54	412.0
J-69	242.59	0.000	Fixed	281.24	378.3
J-70	243.84	0.000	Fixed	281.24	366.1
J-71	243.20	0.000	Fixed	282.54	385.0
J-72	241.53	8.100	Fixed	279.34	370.0

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-1

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	-11.161	0.355	279.09	279.09
P-3	62.2	J-2	J-3	200.0	PVC	110.0	-11.161	0.355	279.09	279.16
P-4	30.0	J-3	J-4	200.0	PVC	110.0	-11.874	0.378	279.16	279.19
P-6	48.1	J-5	J-6	200.0	PVC	110.0	6.031	0.192	279.37	279.35
P-7	54.1	J-6	J-7	200.0	PVC	110.0	5.931	0.189	279.35	279.34
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	279.34	279.31
P-9	18.9	J-7	J-9	200.0	PVC	110.0	-2.348	0.075	279.34	279.34
P-10	48.8	J-9	J-10	200.0	PVC	110.0	-2.482	0.079	279.34	279.34
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-2.749	0.088	279.34	279.34
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-2.950	0.094	279.34	279.35
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-3.151	0.100	279.35	279.35
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-3.418	0.109	279.35	279.36
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-3.552	0.113	279.36	279.36
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-11.719	0.373	279.36	279.41
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-11.920	0.379	279.41	279.49
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-12.154	0.387	279.49	279.53
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-12.154	0.387	279.53	279.57
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-12.395	0.395	279.57	279.65
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-17.827	0.567	279.65	279.67
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-17.827	0.567	279.67	279.83
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-18.094	0.576	279.83	279.86
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-18.094	0.576	279.86	279.89
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-18.569	0.591	279.89	280.10
P-26	10.4	J-25	J-26	200.0	PVC	110.0	17.593	0.560	280.10	280.08
P-27	52.5	J-26	J-27	200.0	PVC	110.0	17.526	0.558	280.08	279.95
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-19.750	0.629	279.37	279.41
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-19.783	0.630	279.41	279.48
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-19.850	0.632	279.48	279.54
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-19.883	0.633	279.54	279.58

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-1

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-3.993	0.127	279.58	279.60
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-4.729	0.151	279.62	279.62
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-4.896	0.156	279.62	279.64
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-5.097	0.162	279.64	279.65
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-5.164	0.164	279.65	279.65
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-5.164	0.164	279.65	279.65
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-16.056	0.511	279.58	279.73
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-16.190	0.515	279.73	279.77
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-9.855	0.314	279.77	279.82
P-43	75.4	J-49	J-40	200.0	PVC	110.0	10.156	0.323	279.89	279.82
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-17.459	0.556	279.89	279.95
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-6.502	0.207	279.77	279.79
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-6.602	0.210	279.79	279.80
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-6.635	0.211	279.80	279.81
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-6.735	0.214	279.81	279.82
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-6.869	0.219	279.82	279.85
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-6.936	0.221	279.85	279.85
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-6.969	0.222	279.85	279.86
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-7.069	0.225	279.86	279.89
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-36.363	1.157	280.10	280.77
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-37.734	1.201	281.27	283.43
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-26.366	0.839	284.83	284.93
P-61	13.9	R-1	J-55	200.0	PVC	110.0	26.399	0.840	285.00	284.93
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-3.691	0.117	284.82	284.83
P-64	44.8	J-4	J-57	200.0	PVC	110.0	-13.024	0.415	279.19	279.26
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-13.505	0.430	279.26	279.37
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-36.564	1.164	280.77	280.98
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-36.631	1.166	280.98	281.24
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-4.394	0.140	279.60	279.61

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-1

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-4.595	0.146	279.61	279.62
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-37.801	1.203	283.43	284.81
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-3.524	0.112	284.81	284.82
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-34.478	1.097	284.81	284.92
P-76	8.7	R-3	J-65	200.0	PVC	110.0	34.578	1.101	285.00	284.92
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-36.798	0.750	281.24	281.27
P-83	12.8	R-2	J-54	200.0	PVC	110.0	43.488	1.384	285.00	284.83
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-66.096	2.104	279.09	282.54
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-66.096	2.104	282.54	284.83
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	281.24	281.24
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	281.24	281.24
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	281.24	281.24
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	282.54	282.54
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	279.36	279.34

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-3

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	279.64	382.9
J-2	240.52	0.000	Fixed	279.60	382.5
J-3	240.99	76.483	Fixed	278.02	362.4
J-4	240.84	1.150	Fixed	278.08	364.5
J-5	241.40	0.214	Fixed	278.35	361.6
J-6	241.10	0.100	Fixed	278.34	364.5
J-7	241.38	0.134	Fixed	278.33	361.6
J-8	241.60	8.145	Fixed	278.30	359.2
J-9	241.20	0.134	Fixed	278.33	363.4
J-10	241.25	0.267	Fixed	278.34	363.0
J-11	241.30	0.201	Fixed	278.34	362.5
J-12	241.35	0.201	Fixed	278.35	362.1
J-13	241.40	0.267	Fixed	278.36	361.7
J-14	241.45	0.134	Fixed	278.37	361.3
J-15	241.53	0.067	Fixed	278.37	360.6
J-16	241.72	0.201	Fixed	278.42	359.2
J-17	242.05	0.234	Fixed	278.52	356.9
J-18	242.21	0.000	Fixed	278.57	355.8
J-19	242.36	0.241	Fixed	278.61	354.8
J-20	242.60	0.267	Fixed	278.71	353.4
J-21	242.55	0.000	Fixed	278.73	354.1
J-22	242.21	0.267	Fixed	278.92	359.2
J-23	242.14	0.000	Fixed	278.95	360.3
J-24	242.06	0.475	Fixed	278.99	361.5
J-25	241.68	0.201	Fixed	279.24	367.6
J-26	241.68	0.067	Fixed	279.21	367.3
J-27	241.41	0.067	Fixed	279.05	368.4
J-28	241.48	0.033	Fixed	278.40	361.3
J-29	241.35	0.067	Fixed	278.49	363.5
J-30	241.20	0.033	Fixed	278.56	365.7
J-31	241.53	0.167	Fixed	278.62	363.0
J-32	241.45	0.401	Fixed	278.64	363.9
J-33	241.88	0.134	Fixed	278.67	360.1
J-34	241.88	0.167	Fixed	278.67	360.1
J-35	242.29	0.201	Fixed	278.70	356.3
J-36	242.38	0.067	Fixed	278.70	355.5
J-37	242.47	0.000	Fixed	278.70	354.6
J-38	241.52	0.134	Fixed	278.79	364.8
J-39	241.52	0.167	Fixed	278.84	365.2
J-40	241.27	0.301	Fixed	278.91	368.3
J-42	241.93	0.100	Fixed	278.87	361.5
J-43	242.03	0.033	Fixed	278.88	360.6
J-44	242.12	0.100	Fixed	278.89	359.8
J-45	242.35	0.134	Fixed	278.91	357.8
J-46	242.05	0.067	Fixed	278.93	361.0

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-3

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	278.94	362.0
J-48	241.87	0.100	Fixed	278.95	362.9
J-49	241.56	0.234	Fixed	278.99	366.3
J-50	242.25	0.201	Fixed	280.03	369.7
J-51	242.25	0.000	Fixed	280.59	375.3
J-52	245.69	0.167	Fixed	280.59	341.6
J-53	241.85	0.936	Fixed	280.63	379.5
J-54	240.34	0.067	Fixed	284.83	435.5
J-55	240.44	0.033	Fixed	284.93	435.4
J-56	240.44	0.167	Fixed	284.82	434.4
J-57	241.17	0.481	Fixed	278.18	362.2
J-58	242.25	0.067	Fixed	280.28	372.2
J-59	241.58	0.201	Fixed	278.66	362.9
J-60	242.27	0.067	Fixed	283.17	400.3
J-64	241.33	0.201	Fixed	284.79	425.3
J-65	241.33	0.100	Fixed	284.92	426.6
J-68	240.44	0.000	Fixed	282.76	414.2
J-69	242.59	0.000	Fixed	280.59	371.9
J-70	243.84	0.000	Fixed	280.59	359.7
J-71	243.20	0.000	Fixed	282.76	387.2
J-72	241.53	8.100	Fixed	278.35	360.4

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-3

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	61.121	1.946	279.64	279.60
P-3	62.2	J-2	J-3	200.0	PVC	110.0	61.121	1.946	279.60	278.02
P-4	30.0	J-3	J-4	200.0	PVC	110.0	-15.362	0.489	278.02	278.08
P-6	48.1	J-5	J-6	200.0	PVC	110.0	5.038	0.160	278.35	278.34
P-7	54.1	J-6	J-7	200.0	PVC	110.0	4.938	0.157	278.34	278.33
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	278.33	278.30
P-9	18.9	J-7	J-9	200.0	PVC	110.0	-3.341	0.106	278.33	278.33
P-10	48.8	J-9	J-10	200.0	PVC	110.0	-3.475	0.111	278.33	278.34
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-3.742	0.119	278.34	278.34
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-3.943	0.125	278.34	278.35
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-4.144	0.132	278.35	278.36
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-4.411	0.140	278.36	278.37
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-4.545	0.145	278.37	278.37
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-12.712	0.405	278.37	278.42
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-12.913	0.411	278.42	278.52
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-13.147	0.418	278.52	278.57
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-13.147	0.418	278.57	278.61
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-13.388	0.426	278.61	278.71
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-19.558	0.623	278.71	278.73
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-19.558	0.623	278.73	278.92
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-19.825	0.631	278.92	278.95
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-19.825	0.631	278.95	278.99
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-20.300	0.646	278.99	279.24
P-26	10.4	J-25	J-26	200.0	PVC	110.0	19.350	0.616	279.24	279.21
P-27	52.5	J-26	J-27	200.0	PVC	110.0	19.283	0.614	279.21	279.05
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-22.245	0.708	278.35	278.40
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-22.278	0.709	278.40	278.49
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-22.345	0.711	278.49	278.56
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-22.378	0.712	278.56	278.62

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-3

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-4.733	0.151	278.62	278.64
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-5.469	0.174	278.67	278.67
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-5.636	0.179	278.67	278.70
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-5.837	0.186	278.70	278.70
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-5.904	0.188	278.70	278.70
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-5.904	0.188	278.70	278.71
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-17.813	0.567	278.62	278.79
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-17.947	0.571	278.79	278.84
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-10.901	0.347	278.84	278.91
P-43	75.4	J-49	J-40	200.0	PVC	110.0	11.202	0.357	278.99	278.91
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-19.216	0.612	278.99	279.05
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-7.212	0.230	278.84	278.87
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-7.312	0.233	278.87	278.88
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-7.345	0.234	278.88	278.89
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-7.445	0.237	278.89	278.91
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-7.579	0.241	278.91	278.93
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-7.646	0.243	278.93	278.94
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-7.679	0.244	278.94	278.95
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-7.779	0.248	278.95	278.99
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-39.851	1.268	279.24	280.03
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-41.222	1.312	280.63	283.17
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-25.764	0.820	284.83	284.93
P-61	13.9	R-1	J-55	200.0	PVC	110.0	25.797	0.821	285.00	284.93
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-5.584	0.178	284.82	284.83
P-64	44.8	J-4	J-57	200.0	PVC	110.0	-16.512	0.526	278.08	278.18
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-16.993	0.541	278.18	278.35
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-40.052	1.275	280.03	280.28
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-40.119	1.277	280.28	280.59
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-5.134	0.163	278.64	278.66

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-3

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-5.335	0.170	278.66	278.67
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-41.289	1.314	283.17	284.79
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-5.417	0.172	284.79	284.82
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-36.073	1.148	284.79	284.92
P-76	8.7	R-3	J-65	200.0	PVC	110.0	36.173	1.151	285.00	284.92
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-40.286	0.821	280.59	280.63
P-83	12.8	R-2	J-54	200.0	PVC	110.0	42.495	1.353	285.00	284.83
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-62.608	1.993	279.64	282.76
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-62.608	1.993	282.76	284.83
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.59	280.59
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.59	280.59
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.59	280.59
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	282.76	282.76
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	278.37	278.35

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-4

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	279.86	385.0
J-2	240.52	0.000	Fixed	279.82	384.6
J-3	240.99	0.713	Fixed	278.31	365.2
J-4	240.84	76.920	Fixed	277.60	359.7
J-5	241.40	0.214	Fixed	277.91	357.4
J-6	241.10	0.100	Fixed	277.90	360.2
J-7	241.38	0.134	Fixed	277.89	357.3
J-8	241.60	8.145	Fixed	277.87	355.0
J-9	241.20	0.134	Fixed	277.90	359.1
J-10	241.25	0.267	Fixed	277.90	358.7
J-11	241.30	0.201	Fixed	277.91	358.3
J-12	241.35	0.201	Fixed	277.92	357.9
J-13	241.40	0.267	Fixed	277.93	357.5
J-14	241.45	0.134	Fixed	277.95	357.2
J-15	241.53	0.067	Fixed	277.95	356.4
J-16	241.72	0.201	Fixed	278.00	355.1
J-17	242.05	0.234	Fixed	278.10	352.8
J-18	242.21	0.000	Fixed	278.15	351.8
J-19	242.36	0.241	Fixed	278.20	350.8
J-20	242.60	0.267	Fixed	278.30	349.4
J-21	242.55	0.000	Fixed	278.32	350.1
J-22	242.21	0.267	Fixed	278.52	355.4
J-23	242.14	0.000	Fixed	278.56	356.5
J-24	242.06	0.475	Fixed	278.61	357.7
J-25	241.68	0.201	Fixed	278.87	364.0
J-26	241.68	0.067	Fixed	278.84	363.7
J-27	241.41	0.067	Fixed	278.67	364.7
J-28	241.48	0.033	Fixed	277.96	357.0
J-29	241.35	0.067	Fixed	278.06	359.3
J-30	241.20	0.033	Fixed	278.14	361.5
J-31	241.53	0.167	Fixed	278.20	358.9
J-32	241.45	0.401	Fixed	278.22	359.9
J-33	241.88	0.134	Fixed	278.26	356.0
J-34	241.88	0.167	Fixed	278.26	356.1
J-35	242.29	0.201	Fixed	278.29	352.3
J-36	242.38	0.067	Fixed	278.29	351.5
J-37	242.47	0.000	Fixed	278.30	350.6
J-38	241.52	0.134	Fixed	278.39	360.8
J-39	241.52	0.167	Fixed	278.44	361.3
J-40	241.27	0.301	Fixed	278.51	364.5
J-42	241.93	0.100	Fixed	278.47	357.6
J-43	242.03	0.033	Fixed	278.48	356.7
J-44	242.12	0.100	Fixed	278.49	356.0
J-45	242.35	0.134	Fixed	278.52	354.0
J-46	242.05	0.067	Fixed	278.54	357.2

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-4

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	278.55	358.1
J-48	241.87	0.100	Fixed	278.56	359.1
J-49	241.56	0.234	Fixed	278.60	362.5
J-50	242.25	0.201	Fixed	279.71	366.6
J-51	242.25	0.000	Fixed	280.31	372.5
J-52	245.69	0.167	Fixed	280.31	338.9
J-53	241.85	0.936	Fixed	280.35	376.8
J-54	240.34	0.067	Fixed	284.84	435.5
J-55	240.44	0.033	Fixed	284.93	435.4
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	277.71	357.7
J-58	242.25	0.067	Fixed	279.98	369.2
J-59	241.58	0.201	Fixed	278.24	358.8
J-60	242.27	0.067	Fixed	283.06	399.2
J-64	241.33	0.201	Fixed	284.78	425.3
J-65	241.33	0.100	Fixed	284.91	426.5
J-68	240.44	0.000	Fixed	282.85	415.1
J-69	242.59	0.000	Fixed	280.31	369.2
J-70	243.84	0.000	Fixed	280.31	357.0
J-71	243.20	0.000	Fixed	282.85	388.1
J-72	241.53	8.100	Fixed	277.92	356.2

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-4

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	59.699	1.900	279.86	279.82
P-3	62.2	J-2	J-3	200.0	PVC	110.0	59.699	1.900	279.82	278.31
P-4	30.0	J-3	J-4	200.0	PVC	110.0	58.986	1.878	278.31	277.60
P-6	48.1	J-5	J-6	200.0	PVC	110.0	4.630	0.147	277.91	277.90
P-7	54.1	J-6	J-7	200.0	PVC	110.0	4.530	0.144	277.90	277.89
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	277.89	277.87
P-9	18.9	J-7	J-9	200.0	PVC	110.0	-3.749	0.119	277.89	277.90
P-10	48.8	J-9	J-10	200.0	PVC	110.0	-3.883	0.124	277.90	277.90
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-4.150	0.132	277.90	277.91
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-4.351	0.139	277.91	277.92
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-4.552	0.145	277.92	277.93
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-4.819	0.153	277.93	277.95
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-4.953	0.158	277.95	277.95
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-13.120	0.418	277.95	278.00
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-13.321	0.424	278.00	278.10
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-13.555	0.431	278.10	278.15
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-13.555	0.431	278.15	278.20
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-13.796	0.439	278.20	278.30
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-20.265	0.645	278.30	278.32
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-20.265	0.645	278.32	278.52
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-20.532	0.654	278.52	278.56
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-20.532	0.654	278.56	278.61
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-21.007	0.669	278.61	278.87
P-26	10.4	J-25	J-26	200.0	PVC	110.0	20.065	0.639	278.87	278.84
P-27	52.5	J-26	J-27	200.0	PVC	110.0	19.998	0.637	278.84	278.67
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-23.259	0.740	277.91	277.96
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-23.292	0.741	277.96	278.06
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-23.359	0.744	278.06	278.14
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-23.392	0.745	278.14	278.20

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-4

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-5.030	0.160	278.20	278.22
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-5.766	0.184	278.26	278.26
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-5.933	0.189	278.26	278.29
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-6.134	0.195	278.29	278.29
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-6.201	0.197	278.29	278.30
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-6.201	0.197	278.30	278.30
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-18.528	0.590	278.20	278.39
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-18.662	0.594	278.39	278.44
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-11.328	0.361	278.44	278.51
P-43	75.4	J-49	J-40	200.0	PVC	110.0	11.629	0.370	278.60	278.51
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-19.931	0.634	278.60	278.67
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-7.501	0.239	278.44	278.47
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-7.601	0.242	278.47	278.48
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-7.634	0.243	278.48	278.49
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-7.734	0.246	278.49	278.52
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-7.868	0.250	278.52	278.54
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-7.935	0.253	278.54	278.55
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-7.968	0.254	278.55	278.56
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-8.068	0.257	278.56	278.60
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-41.273	1.314	278.87	279.71
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-42.644	1.357	280.35	283.06
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-25.491	0.811	284.84	284.93
P-61	13.9	R-1	J-55	200.0	PVC	110.0	25.524	0.812	285.00	284.93
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-6.284	0.200	284.83	284.84
P-64	44.8	J-4	J-57	200.0	PVC	110.0	-17.934	0.571	277.60	277.71
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-18.415	0.586	277.71	277.91
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-41.474	1.320	279.71	279.98
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-41.541	1.322	279.98	280.31
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-5.431	0.173	278.22	278.24

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-4

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-5.632	0.179	278.24	278.26
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-42.711	1.360	283.06	284.78
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-6.117	0.195	284.78	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-36.795	1.171	284.78	284.91
P-76	8.7	R-3	J-65	200.0	PVC	110.0	36.895	1.174	285.00	284.91
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-41.708	0.850	280.31	280.35
P-83	12.8	R-2	J-54	200.0	PVC	110.0	42.046	1.338	285.00	284.84
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-61.186	1.948	279.86	282.85
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-61.186	1.948	282.85	284.84
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.31	280.31
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.31	280.31
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.31	280.31
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	282.85	282.85
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	277.95	277.92

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-5

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.57	391.9
J-2	240.52	0.000	Fixed	280.53	391.6
J-3	240.99	0.713	Fixed	279.23	374.3
J-4	240.84	1.150	Fixed	278.62	369.8
J-5	241.40	75.984	Fixed	276.35	342.1
J-6	241.10	0.100	Fixed	276.35	345.0
J-7	241.38	0.134	Fixed	276.34	342.2
J-8	241.60	8.145	Fixed	276.32	339.8
J-9	241.20	0.134	Fixed	276.35	344.0
J-10	241.25	0.267	Fixed	276.36	343.6
J-11	241.30	0.201	Fixed	276.38	343.3
J-12	241.35	0.201	Fixed	276.39	343.0
J-13	241.40	0.267	Fixed	276.41	342.6
J-14	241.45	0.134	Fixed	276.43	342.4
J-15	241.53	0.067	Fixed	276.44	341.6
J-16	241.72	0.201	Fixed	276.50	340.4
J-17	242.05	0.234	Fixed	276.62	338.3
J-18	242.21	0.000	Fixed	276.68	337.4
J-19	242.36	0.241	Fixed	276.74	336.5
J-20	242.60	0.267	Fixed	276.86	335.3
J-21	242.55	0.000	Fixed	276.88	336.0
J-22	242.21	0.267	Fixed	277.13	341.8
J-23	242.14	0.000	Fixed	277.18	342.9
J-24	242.06	0.475	Fixed	277.24	344.3
J-25	241.68	0.201	Fixed	277.56	351.1
J-26	241.68	0.067	Fixed	277.52	350.7
J-27	241.41	0.067	Fixed	277.31	351.3
J-28	241.48	0.033	Fixed	276.42	341.9
J-29	241.35	0.067	Fixed	276.55	344.5
J-30	241.20	0.033	Fixed	276.65	346.9
J-31	241.53	0.167	Fixed	276.72	344.4
J-32	241.45	0.401	Fixed	276.75	345.5
J-33	241.88	0.134	Fixed	276.80	341.8
J-34	241.88	0.167	Fixed	276.81	341.8
J-35	242.29	0.201	Fixed	276.84	338.2
J-36	242.38	0.067	Fixed	276.85	337.4
J-37	242.47	0.000	Fixed	276.85	336.5
J-38	241.52	0.134	Fixed	276.96	346.8
J-39	241.52	0.167	Fixed	277.02	347.5
J-40	241.27	0.301	Fixed	277.11	350.8
J-42	241.93	0.100	Fixed	277.06	343.8
J-43	242.03	0.033	Fixed	277.07	343.0
J-44	242.12	0.100	Fixed	277.09	342.2
J-45	242.35	0.134	Fixed	277.12	340.3
J-46	242.05	0.067	Fixed	277.15	343.5

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-5

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	277.16	344.5
J-48	241.87	0.100	Fixed	277.18	345.5
J-49	241.56	0.234	Fixed	277.22	349.0
J-50	242.25	0.201	Fixed	278.58	355.6
J-51	242.25	0.000	Fixed	279.32	362.8
J-52	245.69	0.167	Fixed	279.32	329.1
J-53	241.85	0.936	Fixed	279.36	367.1
J-54	240.34	0.067	Fixed	284.85	435.6
J-55	240.44	0.033	Fixed	284.93	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	277.75	358.0
J-58	242.25	0.067	Fixed	278.91	358.8
J-59	241.58	0.201	Fixed	276.78	344.5
J-60	242.27	0.067	Fixed	282.66	395.3
J-64	241.33	0.201	Fixed	284.75	425.0
J-65	241.33	0.100	Fixed	284.90	426.4
J-68	240.44	0.000	Fixed	283.14	417.9
J-69	242.59	0.000	Fixed	279.32	359.5
J-70	243.84	0.000	Fixed	279.32	347.2
J-71	243.20	0.000	Fixed	283.14	390.9
J-72	241.53	8.100	Fixed	276.41	341.4

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-5

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	54.949	1.749	280.57	280.53
P-3	62.2	J-2	J-3	200.0	PVC	110.0	54.949	1.749	280.53	279.23
P-4	30.0	J-3	J-4	200.0	PVC	110.0	54.236	1.726	279.23	278.62
P-6	48.1	J-5	J-6	200.0	PVC	110.0	3.249	0.103	276.35	276.35
P-7	54.1	J-6	J-7	200.0	PVC	110.0	3.149	0.100	276.35	276.34
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	276.34	276.32
P-9	18.9	J-7	J-9	200.0	PVC	110.0	-5.130	0.163	276.34	276.35
P-10	48.8	J-9	J-10	200.0	PVC	110.0	-5.264	0.168	276.35	276.36
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-5.531	0.176	276.36	276.38
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-5.732	0.182	276.38	276.39
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-5.933	0.189	276.39	276.41
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-6.200	0.197	276.41	276.43
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-6.334	0.202	276.43	276.44
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-14.501	0.462	276.44	276.50
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-14.702	0.468	276.50	276.62
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-14.936	0.475	276.62	276.68
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-14.936	0.475	276.68	276.74
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-15.177	0.483	276.74	276.86
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-22.625	0.720	276.86	276.88
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-22.625	0.720	276.88	277.13
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-22.892	0.729	277.13	277.18
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-22.892	0.729	277.18	277.24
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-23.367	0.744	277.24	277.56
P-26	10.4	J-25	J-26	200.0	PVC	110.0	22.455	0.715	277.56	277.52
P-27	52.5	J-26	J-27	200.0	PVC	110.0	22.388	0.713	277.52	277.31
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-26.629	0.848	276.35	276.42
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-26.662	0.849	276.42	276.55
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-26.729	0.851	276.55	276.65
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-26.762	0.852	276.65	276.72

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-5

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-6.010	0.191	276.72	276.75
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-6.746	0.215	276.80	276.81
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-6.913	0.220	276.81	276.84
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-7.114	0.226	276.84	276.85
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-7.181	0.229	276.85	276.85
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-7.181	0.229	276.85	276.86
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-20.918	0.666	276.72	276.96
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-21.052	0.670	276.96	277.02
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-12.752	0.406	277.02	277.11
P-43	75.4	J-49	J-40	200.0	PVC	110.0	13.053	0.415	277.22	277.11
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-22.321	0.711	277.22	277.31
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-8.467	0.270	277.02	277.06
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-8.567	0.273	277.06	277.07
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-8.600	0.274	277.07	277.09
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-8.700	0.277	277.09	277.12
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-8.834	0.281	277.12	277.15
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-8.901	0.283	277.15	277.16
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-8.934	0.284	277.16	277.18
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-9.034	0.288	277.18	277.22
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-46.023	1.465	277.56	278.58
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-47.394	1.509	279.36	282.66
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-24.507	0.780	284.85	284.93
P-61	13.9	R-1	J-55	200.0	PVC	110.0	24.540	0.781	285.00	284.93
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-8.428	0.268	284.83	284.85
P-64	44.8	J-4	J-57	200.0	PVC	110.0	53.086	1.690	278.62	277.75
P-65	72.6	J-57	J-5	200.0	PVC	110.0	52.605	1.674	277.75	276.35
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-46.224	1.471	278.58	278.91
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-46.291	1.474	278.91	279.32
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-6.411	0.204	276.75	276.78

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-5

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-6.612	0.210	276.78	276.80
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-47.461	1.511	282.66	284.75
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-8.261	0.263	284.75	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-39.401	1.254	284.75	284.90
P-76	8.7	R-3	J-65	200.0	PVC	110.0	39.501	1.257	285.00	284.90
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-46.458	0.946	279.32	279.36
P-83	12.8	R-2	J-54	200.0	PVC	110.0	40.424	1.287	285.00	284.85
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-56.436	1.796	280.57	283.14
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-56.436	1.796	283.14	284.85
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	279.32	279.32
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	279.32	279.32
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	279.32	279.32
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.14	283.14
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	276.44	276.41

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-6

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.63	392.6
J-2	240.52	0.000	Fixed	280.60	392.2
J-3	240.99	0.713	Fixed	279.32	375.1
J-4	240.84	1.150	Fixed	278.72	370.7
J-5	241.40	0.214	Fixed	276.49	343.4
J-6	241.10	75.870	Fixed	274.95	331.3
J-7	241.38	0.134	Fixed	274.98	328.8
J-8	241.60	8.145	Fixed	274.95	326.4
J-9	241.20	0.134	Fixed	275.01	330.9
J-10	241.25	0.267	Fixed	275.10	331.3
J-11	241.30	0.201	Fixed	275.21	331.9
J-12	241.35	0.201	Fixed	275.30	332.3
J-13	241.40	0.267	Fixed	275.41	332.8
J-14	241.45	0.134	Fixed	275.54	333.6
J-15	241.53	0.067	Fixed	275.56	333.0
J-16	241.72	0.201	Fixed	275.72	332.8
J-17	242.05	0.234	Fixed	276.04	332.6
J-18	242.21	0.000	Fixed	276.19	332.5
J-19	242.36	0.241	Fixed	276.34	332.6
J-20	242.60	0.267	Fixed	276.64	333.2
J-21	242.55	0.000	Fixed	276.67	333.9
J-22	242.21	0.267	Fixed	276.95	340.0
J-23	242.14	0.000	Fixed	277.00	341.1
J-24	242.06	0.475	Fixed	277.06	342.6
J-25	241.68	0.201	Fixed	277.42	349.8
J-26	241.68	0.067	Fixed	277.38	349.4
J-27	241.41	0.067	Fixed	277.19	350.2
J-28	241.48	0.033	Fixed	276.52	342.9
J-29	241.35	0.067	Fixed	276.58	344.8
J-30	241.20	0.033	Fixed	276.62	346.7
J-31	241.53	0.167	Fixed	276.66	343.8
J-32	241.45	0.401	Fixed	276.65	344.5
J-33	241.88	0.134	Fixed	276.65	340.2
J-34	241.88	0.167	Fixed	276.65	340.2
J-35	242.29	0.201	Fixed	276.64	336.2
J-36	242.38	0.067	Fixed	276.64	335.3
J-37	242.47	0.000	Fixed	276.64	334.4
J-38	241.52	0.134	Fixed	276.87	346.0
J-39	241.52	0.167	Fixed	276.93	346.6
J-40	241.27	0.301	Fixed	277.01	349.8
J-42	241.93	0.100	Fixed	276.97	342.9
J-43	242.03	0.033	Fixed	276.98	342.0
J-44	242.12	0.100	Fixed	276.99	341.3
J-45	242.35	0.134	Fixed	277.02	339.3
J-46	242.05	0.067	Fixed	277.05	342.5

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-6

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	277.06	343.5
J-48	241.87	0.100	Fixed	277.07	344.5
J-49	241.56	0.234	Fixed	277.11	347.9
J-50	242.25	0.201	Fixed	278.47	354.4
J-51	242.25	0.000	Fixed	279.22	361.8
J-52	245.69	0.167	Fixed	279.22	328.1
J-53	241.85	0.936	Fixed	279.26	366.1
J-54	240.34	0.067	Fixed	284.85	435.6
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	277.86	359.1
J-58	242.25	0.067	Fixed	278.80	357.7
J-59	241.58	0.201	Fixed	276.65	343.2
J-60	242.27	0.067	Fixed	282.62	394.9
J-64	241.33	0.201	Fixed	284.75	424.9
J-65	241.33	0.100	Fixed	284.90	426.4
J-68	240.44	0.000	Fixed	283.17	418.2
J-69	242.59	0.000	Fixed	279.22	358.5
J-70	243.84	0.000	Fixed	279.22	346.2
J-71	243.20	0.000	Fixed	283.17	391.2
J-72	241.53	8.100	Fixed	275.53	332.8

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-6

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	54.481	1.734	280.63	280.60
P-3	62.2	J-2	J-3	200.0	PVC	110.0	54.481	1.734	280.60	279.32
P-4	30.0	J-3	J-4	200.0	PVC	110.0	53.768	1.711	279.32	278.72
P-6	48.1	J-5	J-6	200.0	PVC	110.0	69.237	2.204	276.49	274.95
P-7	54.1	J-6	J-7	200.0	PVC	110.0	-6.633	0.211	274.95	274.98
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	274.98	274.95
P-9	18.9	J-7	J-9	200.0	PVC	110.0	-14.912	0.475	274.98	275.01
P-10	48.8	J-9	J-10	200.0	PVC	110.0	-15.046	0.479	275.01	275.10
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-15.313	0.487	275.10	275.21
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-15.514	0.494	275.21	275.30
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-15.715	0.500	275.30	275.41
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-15.982	0.509	275.41	275.54
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-16.116	0.513	275.54	275.56
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-24.283	0.773	275.56	275.72
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-24.484	0.779	275.72	276.04
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-24.718	0.787	276.04	276.19
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-24.718	0.787	276.19	276.34
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-24.959	0.794	276.34	276.64
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-24.075	0.766	276.64	276.67
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-24.075	0.766	276.67	276.95
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-24.342	0.775	276.95	277.00
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-24.342	0.775	277.00	277.06
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-24.817	0.790	277.06	277.42
P-26	10.4	J-25	J-26	200.0	PVC	110.0	21.473	0.684	277.42	277.38
P-27	52.5	J-26	J-27	200.0	PVC	110.0	21.406	0.681	277.38	277.19
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-17.314	0.551	276.49	276.52
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-17.347	0.552	276.52	276.58
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-17.414	0.554	276.58	276.62
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-17.447	0.555	276.62	276.66

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-6

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	2.323	0.074	276.66	276.65
P-35	10.5	J-33	J-34	200.0	PVC	110.0	1.587	0.051	276.65	276.65
P-36	80.2	J-34	J-35	200.0	PVC	110.0	1.420	0.045	276.65	276.64
P-37	12.8	J-35	J-36	200.0	PVC	110.0	1.219	0.039	276.64	276.64
P-38	10.0	J-36	J-37	200.0	PVC	110.0	1.152	0.037	276.64	276.64
P-39	15.1	J-37	J-20	200.0	PVC	110.0	1.152	0.037	276.64	276.64
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-19.936	0.635	276.66	276.87
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-20.070	0.639	276.87	276.93
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-12.167	0.387	276.93	277.01
P-43	75.4	J-49	J-40	200.0	PVC	110.0	12.468	0.397	277.11	277.01
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-21.339	0.679	277.11	277.19
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-8.070	0.257	276.93	276.97
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-8.170	0.260	276.97	276.98
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-8.203	0.261	276.98	276.99
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-8.303	0.264	276.99	277.02
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-8.437	0.269	277.02	277.05
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-8.504	0.271	277.05	277.06
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-8.537	0.272	277.06	277.07
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-8.637	0.275	277.07	277.11
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-46.491	1.480	277.42	278.47
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-47.862	1.523	279.26	282.62
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-24.405	0.777	284.85	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	24.438	0.778	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-8.626	0.275	284.83	284.85
P-64	44.8	J-4	J-57	200.0	PVC	110.0	52.618	1.675	278.72	277.86
P-65	72.6	J-57	J-5	200.0	PVC	110.0	52.137	1.660	277.86	276.49
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-46.692	1.486	278.47	278.80
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-46.759	1.488	278.80	279.22
P-68	74.5	J-32	J-59	200.0	PVC	110.0	1.922	0.061	276.65	276.65

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-6

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	1.721	0.055	276.65	276.65
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-47.929	1.526	282.62	284.75
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-8.459	0.269	284.75	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-39.671	1.263	284.75	284.90
P-76	8.7	R-3	J-65	200.0	PVC	110.0	39.771	1.266	285.00	284.90
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-46.926	0.956	279.22	279.26
P-83	12.8	R-2	J-54	200.0	PVC	110.0	40.256	1.281	285.00	284.85
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-55.968	1.782	280.63	283.17
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-55.968	1.782	283.17	284.85
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	279.22	279.22
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	279.22	279.22
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	279.22	279.22
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.17	283.17
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	275.56	275.53

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-8

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.67	392.9
J-2	240.52	0.000	Fixed	280.63	392.6
J-3	240.99	0.713	Fixed	279.37	375.6
J-4	240.84	1.150	Fixed	278.77	371.3
J-5	241.40	0.214	Fixed	276.56	344.1
J-6	241.10	0.100	Fixed	275.26	334.4
J-7	241.38	0.134	Fixed	273.81	317.4
J-8	241.60	83.915	Fixed	272.06	298.1
J-9	241.20	0.134	Fixed	273.87	319.8
J-10	241.25	0.267	Fixed	274.04	321.0
J-11	241.30	0.201	Fixed	274.24	322.4
J-12	241.35	0.201	Fixed	274.42	323.6
J-13	241.40	0.267	Fixed	274.60	324.9
J-14	241.45	0.134	Fixed	274.84	326.8
J-15	241.53	0.067	Fixed	274.87	326.3
J-16	241.72	0.201	Fixed	275.12	326.9
J-17	242.05	0.234	Fixed	275.59	328.3
J-18	242.21	0.000	Fixed	275.82	328.9
J-19	242.36	0.241	Fixed	276.05	329.7
J-20	242.60	0.267	Fixed	276.50	331.8
J-21	242.55	0.000	Fixed	276.53	332.5
J-22	242.21	0.267	Fixed	276.83	338.8
J-23	242.14	0.000	Fixed	276.89	340.0
J-24	242.06	0.475	Fixed	276.96	341.5
J-25	241.68	0.201	Fixed	277.35	349.1
J-26	241.68	0.067	Fixed	277.31	348.7
J-27	241.41	0.067	Fixed	277.14	349.6
J-28	241.48	0.033	Fixed	276.58	343.5
J-29	241.35	0.067	Fixed	276.60	345.0
J-30	241.20	0.033	Fixed	276.62	346.7
J-31	241.53	0.167	Fixed	276.64	343.6
J-32	241.45	0.401	Fixed	276.60	344.0
J-33	241.88	0.134	Fixed	276.55	339.3
J-34	241.88	0.167	Fixed	276.54	339.2
J-35	242.29	0.201	Fixed	276.51	334.9
J-36	242.38	0.067	Fixed	276.51	334.0
J-37	242.47	0.000	Fixed	276.50	333.1
J-38	241.52	0.134	Fixed	276.84	345.6
J-39	241.52	0.167	Fixed	276.89	346.2
J-40	241.27	0.301	Fixed	276.97	349.4
J-42	241.93	0.100	Fixed	276.93	342.5
J-43	242.03	0.033	Fixed	276.94	341.6
J-44	242.12	0.100	Fixed	276.95	340.8
J-45	242.35	0.134	Fixed	276.97	338.9
J-46	242.05	0.067	Fixed	277.00	342.1

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-8

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	277.01	343.0
J-48	241.87	0.100	Fixed	277.02	344.0
J-49	241.56	0.234	Fixed	277.06	347.4
J-50	242.25	0.201	Fixed	278.40	353.8
J-51	242.25	0.000	Fixed	279.16	361.2
J-52	245.69	0.167	Fixed	279.16	327.6
J-53	241.85	0.936	Fixed	279.20	365.6
J-54	240.34	0.067	Fixed	284.85	435.6
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	277.92	359.7
J-58	242.25	0.067	Fixed	278.74	357.1
J-59	241.58	0.201	Fixed	276.57	342.4
J-60	242.27	0.067	Fixed	282.60	394.7
J-64	241.33	0.201	Fixed	284.75	424.9
J-65	241.33	0.100	Fixed	284.90	426.4
J-68	240.44	0.000	Fixed	283.18	418.3
J-69	242.59	0.000	Fixed	279.16	357.9
J-70	243.84	0.000	Fixed	279.16	345.7
J-71	243.20	0.000	Fixed	283.18	391.3
J-72	241.53	8.100	Fixed	274.85	326.1

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-8

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	54.226	1.726	280.67	280.63
P-3	62.2	J-2	J-3	200.0	PVC	110.0	54.226	1.726	280.63	279.37
P-4	30.0	J-3	J-4	200.0	PVC	110.0	53.513	1.703	279.37	278.77
P-6	48.1	J-5	J-6	200.0	PVC	110.0	63.227	2.013	276.56	275.26
P-7	54.1	J-6	J-7	200.0	PVC	110.0	63.127	2.009	275.26	273.81
P-8	38.3	J-7	J-8	200.0	PVC	110.0	83.915	2.671	273.81	272.06
P-9	18.9	J-7	J-9	200.0	PVC	110.0	-20.922	0.666	273.81	273.87
P-10	48.8	J-9	J-10	200.0	PVC	110.0	-21.056	0.670	273.87	274.04
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-21.323	0.679	274.04	274.24
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-21.524	0.685	274.24	274.42
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-21.725	0.692	274.42	274.60
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-21.992	0.700	274.60	274.84
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-22.126	0.704	274.84	274.87
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-30.293	0.964	274.87	275.12
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-30.494	0.971	275.12	275.59
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-30.728	0.978	275.59	275.82
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-30.728	0.978	275.82	276.05
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-30.969	0.986	276.05	276.50
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-25.228	0.803	276.50	276.53
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-25.228	0.803	276.53	276.83
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-25.495	0.812	276.83	276.89
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-25.495	0.812	276.89	276.96
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-25.970	0.827	276.96	277.35
P-26	10.4	J-25	J-26	200.0	PVC	110.0	20.576	0.655	277.35	277.31
P-27	52.5	J-26	J-27	200.0	PVC	110.0	20.509	0.653	277.31	277.14
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-11.560	0.368	276.56	276.58
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-11.593	0.369	276.58	276.60
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-11.660	0.371	276.60	276.62
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-11.693	0.372	276.62	276.64

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-8

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	7.179	0.229	276.64	276.60
P-35	10.5	J-33	J-34	200.0	PVC	110.0	6.443	0.205	276.55	276.54
P-36	80.2	J-34	J-35	200.0	PVC	110.0	6.276	0.200	276.54	276.51
P-37	12.8	J-35	J-36	200.0	PVC	110.0	6.075	0.193	276.51	276.51
P-38	10.0	J-36	J-37	200.0	PVC	110.0	6.008	0.191	276.51	276.50
P-39	15.1	J-37	J-20	200.0	PVC	110.0	6.008	0.191	276.50	276.50
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-19.039	0.606	276.64	276.84
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-19.173	0.610	276.84	276.89
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-11.632	0.370	276.89	276.97
P-43	75.4	J-49	J-40	200.0	PVC	110.0	11.933	0.380	277.06	276.97
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-20.442	0.651	277.06	277.14
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-7.708	0.245	276.89	276.93
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-7.808	0.249	276.93	276.94
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-7.841	0.250	276.94	276.95
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-7.941	0.253	276.95	276.97
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-8.075	0.257	276.97	277.00
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-8.142	0.259	277.00	277.01
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-8.175	0.260	277.01	277.02
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-8.275	0.263	277.02	277.06
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-46.746	1.488	277.35	278.40
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-48.117	1.532	279.20	282.60
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-24.349	0.775	284.85	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	24.382	0.776	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-8.734	0.278	284.83	284.85
P-64	44.8	J-4	J-57	200.0	PVC	110.0	52.363	1.667	278.77	277.92
P-65	72.6	J-57	J-5	200.0	PVC	110.0	51.882	1.651	277.92	276.56
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-46.947	1.494	278.40	278.74
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-47.014	1.497	278.74	279.16
P-68	74.5	J-32	J-59	200.0	PVC	110.0	6.778	0.216	276.60	276.57

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-8

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	6.577	0.209	276.57	276.55
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-48.184	1.534	282.60	284.75
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-8.567	0.273	284.75	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-39.818	1.267	284.75	284.90
P-76	8.7	R-3	J-65	200.0	PVC	110.0	39.918	1.271	285.00	284.90
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-47.181	0.961	279.16	279.20
P-83	12.8	R-2	J-54	200.0	PVC	110.0	40.164	1.278	285.00	284.85
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-55.713	1.773	280.67	283.18
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-55.713	1.773	283.18	284.85
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	279.16	279.16
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	279.16	279.16
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	279.16	279.16
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.18	283.18
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	274.87	274.85

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-10

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.70	393.2
J-2	240.52	0.000	Fixed	280.66	392.9
J-3	240.99	0.713	Fixed	279.41	376.0
J-4	240.84	1.150	Fixed	278.82	371.7
J-5	241.40	0.214	Fixed	276.62	344.7
J-6	241.10	0.100	Fixed	275.50	336.6
J-7	241.38	0.134	Fixed	274.23	321.5
J-8	241.60	8.145	Fixed	274.21	319.1
J-9	241.20	0.134	Fixed	273.90	320.0
J-10	241.25	76.037	Fixed	273.05	311.2
J-11	241.30	0.201	Fixed	273.33	313.5
J-12	241.35	0.201	Fixed	273.58	315.5
J-13	241.40	0.267	Fixed	273.84	317.5
J-14	241.45	0.134	Fixed	274.19	320.4
J-15	241.53	0.067	Fixed	274.23	320.1
J-16	241.72	0.201	Fixed	274.57	321.5
J-17	242.05	0.234	Fixed	275.17	324.2
J-18	242.21	0.000	Fixed	275.47	325.5
J-19	242.36	0.241	Fixed	275.77	327.0
J-20	242.60	0.267	Fixed	276.35	330.3
J-21	242.55	0.000	Fixed	276.38	331.1
J-22	242.21	0.267	Fixed	276.72	337.7
J-23	242.14	0.000	Fixed	276.78	339.0
J-24	242.06	0.475	Fixed	276.85	340.5
J-25	241.68	0.201	Fixed	277.28	348.5
J-26	241.68	0.067	Fixed	277.25	348.2
J-27	241.41	0.067	Fixed	277.10	349.2
J-28	241.48	0.033	Fixed	276.63	344.0
J-29	241.35	0.067	Fixed	276.64	345.4
J-30	241.20	0.033	Fixed	276.65	346.9
J-31	241.53	0.167	Fixed	276.65	343.8
J-32	241.45	0.401	Fixed	276.57	343.7
J-33	241.88	0.134	Fixed	276.46	338.4
J-34	241.88	0.167	Fixed	276.45	338.3
J-35	242.29	0.201	Fixed	276.38	333.6
J-36	242.38	0.067	Fixed	276.37	332.7
J-37	242.47	0.000	Fixed	276.36	331.7
J-38	241.52	0.134	Fixed	276.83	345.6
J-39	241.52	0.167	Fixed	276.88	346.0
J-40	241.27	0.301	Fixed	276.94	349.1
J-42	241.93	0.100	Fixed	276.91	342.3
J-43	242.03	0.033	Fixed	276.92	341.4
J-44	242.12	0.100	Fixed	276.93	340.6
J-45	242.35	0.134	Fixed	276.95	338.6
J-46	242.05	0.067	Fixed	276.97	341.8

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-10

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	276.98	342.8
J-48	241.87	0.100	Fixed	276.99	343.8
J-49	241.56	0.234	Fixed	277.03	347.1
J-50	242.25	0.201	Fixed	278.35	353.3
J-51	242.25	0.000	Fixed	279.11	360.8
J-52	245.69	0.167	Fixed	279.11	327.1
J-53	241.85	0.936	Fixed	279.16	365.1
J-54	240.34	0.067	Fixed	284.85	435.6
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	277.97	360.2
J-58	242.25	0.067	Fixed	278.69	356.6
J-59	241.58	0.201	Fixed	276.50	341.8
J-60	242.27	0.067	Fixed	282.58	394.5
J-64	241.33	0.201	Fixed	284.75	424.9
J-65	241.33	0.100	Fixed	284.90	426.4
J-68	240.44	0.000	Fixed	283.20	418.4
J-69	242.59	0.000	Fixed	279.11	357.4
J-70	243.84	0.000	Fixed	279.11	345.2
J-71	243.20	0.000	Fixed	283.20	391.4
J-72	241.53	8.100	Fixed	274.21	319.8

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-10

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	54.017	1.719	280.70	280.66
P-3	62.2	J-2	J-3	200.0	PVC	110.0	54.017	1.719	280.66	279.41
P-4	30.0	J-3	J-4	200.0	PVC	110.0	53.304	1.697	279.41	278.82
P-6	48.1	J-5	J-6	200.0	PVC	110.0	58.544	1.864	276.62	275.50
P-7	54.1	J-6	J-7	200.0	PVC	110.0	58.444	1.860	275.50	274.23
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	274.23	274.21
P-9	18.9	J-7	J-9	200.0	PVC	110.0	50.165	1.597	274.23	273.90
P-10	48.8	J-9	J-10	200.0	PVC	110.0	50.031	1.593	273.90	273.05
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-26.006	0.828	273.05	273.33
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-26.207	0.834	273.33	273.58
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-26.408	0.841	273.58	273.84
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-26.675	0.849	273.84	274.19
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-26.809	0.853	274.19	274.23
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-34.976	1.113	274.23	274.57
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-35.177	1.120	274.57	275.17
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-35.411	1.127	275.17	275.47
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-35.411	1.127	275.47	275.77
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-35.652	1.135	275.77	276.35
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-26.587	0.846	276.35	276.38
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-26.587	0.846	276.38	276.72
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-26.854	0.855	276.72	276.78
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-26.854	0.855	276.78	276.85
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-27.329	0.870	276.85	277.28
P-26	10.4	J-25	J-26	200.0	PVC	110.0	19.425	0.618	277.28	277.25
P-27	52.5	J-26	J-27	200.0	PVC	110.0	19.358	0.616	277.25	277.10
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-7.085	0.226	276.62	276.63
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-7.118	0.227	276.63	276.64
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-7.185	0.229	276.64	276.65
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-7.218	0.230	276.65	276.65

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-10

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	10.503	0.334	276.65	276.57
P-35	10.5	J-33	J-34	200.0	PVC	110.0	9.767	0.311	276.46	276.45
P-36	80.2	J-34	J-35	200.0	PVC	110.0	9.600	0.306	276.45	276.38
P-37	12.8	J-35	J-36	200.0	PVC	110.0	9.399	0.299	276.38	276.37
P-38	10.0	J-36	J-37	200.0	PVC	110.0	9.332	0.297	276.37	276.36
P-39	15.1	J-37	J-20	200.0	PVC	110.0	9.332	0.297	276.36	276.35
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-17.888	0.569	276.65	276.83
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-18.022	0.574	276.83	276.88
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-10.946	0.348	276.88	276.94
P-43	75.4	J-49	J-40	200.0	PVC	110.0	11.247	0.358	277.03	276.94
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-19.291	0.614	277.03	277.10
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-7.242	0.231	276.88	276.91
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-7.342	0.234	276.91	276.92
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-7.375	0.235	276.92	276.93
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-7.475	0.238	276.93	276.95
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-7.609	0.242	276.95	276.97
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-7.676	0.244	276.97	276.98
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-7.709	0.245	276.98	276.99
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-7.809	0.249	276.99	277.03
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-46.955	1.495	277.28	278.35
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-48.326	1.538	279.16	282.58
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-24.304	0.774	284.85	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	24.337	0.775	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-8.821	0.281	284.83	284.85
P-64	44.8	J-4	J-57	200.0	PVC	110.0	52.154	1.660	278.82	277.97
P-65	72.6	J-57	J-5	200.0	PVC	110.0	51.673	1.645	277.97	276.62
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-47.156	1.501	278.35	278.69
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-47.223	1.503	278.69	279.11
P-68	74.5	J-32	J-59	200.0	PVC	110.0	10.102	0.322	276.57	276.50

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-10

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	9.901	0.315	276.50	276.46
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-48.393	1.540	282.58	284.75
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-8.654	0.275	284.75	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-39.940	1.271	284.75	284.90
P-76	8.7	R-3	J-65	200.0	PVC	110.0	40.040	1.275	285.00	284.90
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-47.390	0.965	279.11	279.16
P-83	12.8	R-2	J-54	200.0	PVC	110.0	40.089	1.276	285.00	284.85
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-55.504	1.767	280.70	283.20
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-55.504	1.767	283.20	284.85
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	279.11	279.11
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	279.11	279.11
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	279.11	279.11
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.20	283.20
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	274.23	274.21

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-14

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.76	393.9
J-2	240.52	0.000	Fixed	280.73	393.5
J-3	240.99	0.713	Fixed	279.49	376.8
J-4	240.84	1.150	Fixed	278.91	372.6
J-5	241.40	0.214	Fixed	276.75	346.0
J-6	241.10	0.100	Fixed	276.01	341.6
J-7	241.38	0.134	Fixed	275.17	330.7
J-8	241.60	8.145	Fixed	275.15	328.3
J-9	241.20	0.134	Fixed	274.97	330.5
J-10	241.25	0.267	Fixed	274.45	324.9
J-11	241.30	0.201	Fixed	273.87	318.7
J-12	241.35	0.201	Fixed	273.37	313.4
J-13	241.40	0.267	Fixed	272.87	308.0
J-14	241.45	75.904	Fixed	272.23	301.2
J-15	241.53	0.067	Fixed	272.32	301.3
J-16	241.72	0.201	Fixed	272.88	305.0
J-17	242.05	0.234	Fixed	273.92	311.9
J-18	242.21	0.000	Fixed	274.42	315.2
J-19	242.36	0.241	Fixed	274.93	318.8
J-20	242.60	0.267	Fixed	275.91	326.0
J-21	242.55	0.000	Fixed	275.95	326.9
J-22	242.21	0.267	Fixed	276.40	334.6
J-23	242.14	0.000	Fixed	276.48	336.1
J-24	242.06	0.475	Fixed	276.58	337.8
J-25	241.68	0.201	Fixed	277.15	347.1
J-26	241.68	0.067	Fixed	277.13	346.9
J-27	241.41	0.067	Fixed	277.02	348.5
J-28	241.48	0.033	Fixed	276.75	345.2
J-29	241.35	0.067	Fixed	276.75	346.4
J-30	241.20	0.033	Fixed	276.74	347.9
J-31	241.53	0.167	Fixed	276.74	344.6
J-32	241.45	0.401	Fixed	276.52	343.2
J-33	241.88	0.134	Fixed	276.21	336.0
J-34	241.88	0.167	Fixed	276.18	335.7
J-35	242.29	0.201	Fixed	276.00	329.9
J-36	242.38	0.067	Fixed	275.97	328.7
J-37	242.47	0.000	Fixed	275.95	327.6
J-38	241.52	0.134	Fixed	276.85	345.8
J-39	241.52	0.167	Fixed	276.88	346.1
J-40	241.27	0.301	Fixed	276.93	349.0
J-42	241.93	0.100	Fixed	276.90	342.3
J-43	242.03	0.033	Fixed	276.91	341.3
J-44	242.12	0.100	Fixed	276.91	340.5
J-45	242.35	0.134	Fixed	276.93	338.4
J-46	242.05	0.067	Fixed	276.94	341.5

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-14

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	276.95	342.4
J-48	241.87	0.100	Fixed	276.96	343.4
J-49	241.56	0.234	Fixed	276.98	346.6
J-50	242.25	0.201	Fixed	278.23	352.1
J-51	242.25	0.000	Fixed	279.01	359.8
J-52	245.69	0.167	Fixed	279.01	326.1
J-53	241.85	0.936	Fixed	279.05	364.1
J-54	240.34	0.067	Fixed	284.85	435.6
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	278.08	361.2
J-58	242.25	0.067	Fixed	278.58	355.5
J-59	241.58	0.201	Fixed	276.33	340.1
J-60	242.27	0.067	Fixed	282.54	394.1
J-64	241.33	0.201	Fixed	284.74	424.9
J-65	241.33	0.100	Fixed	284.90	426.4
J-68	240.44	0.000	Fixed	283.22	418.7
J-69	242.59	0.000	Fixed	279.01	356.4
J-70	243.84	0.000	Fixed	279.01	344.2
J-71	243.20	0.000	Fixed	283.22	391.7
J-72	241.53	8.100	Fixed	272.29	301.1

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-14

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	53.552	1.705	280.76	280.73
P-3	62.2	J-2	J-3	200.0	PVC	110.0	53.552	1.705	280.73	279.49
P-4	30.0	J-3	J-4	200.0	PVC	110.0	52.839	1.682	279.49	278.91
P-6	48.1	J-5	J-6	200.0	PVC	110.0	46.862	1.492	276.75	276.01
P-7	54.1	J-6	J-7	200.0	PVC	110.0	46.762	1.488	276.01	275.17
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	275.17	275.15
P-9	18.9	J-7	J-9	200.0	PVC	110.0	38.483	1.225	275.17	274.97
P-10	48.8	J-9	J-10	200.0	PVC	110.0	38.349	1.221	274.97	274.45
P-11	55.0	J-10	J-11	200.0	PVC	110.0	38.082	1.212	274.45	273.87
P-12	47.2	J-11	J-12	200.0	PVC	110.0	37.881	1.206	273.87	273.37
P-13	48.8	J-12	J-13	200.0	PVC	110.0	37.680	1.199	273.37	272.87
P-14	62.8	J-13	J-14	200.0	PVC	110.0	37.413	1.191	272.87	272.23
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-38.491	1.225	272.23	272.32
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-46.658	1.485	272.32	272.88
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-46.859	1.492	272.88	273.92
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-47.093	1.499	273.92	274.42
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-47.093	1.499	274.42	274.93
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-47.334	1.507	274.93	275.91
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-31.014	0.987	275.91	275.95
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-31.014	0.987	275.95	276.40
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-31.281	0.996	276.40	276.48
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-31.281	0.996	276.48	276.58
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-31.756	1.011	276.58	277.15
P-26	10.4	J-25	J-26	200.0	PVC	110.0	15.463	0.492	277.15	277.13
P-27	52.5	J-26	J-27	200.0	PVC	110.0	15.396	0.490	277.13	277.02
P-29	11.2	J-5	J-28	200.0	PVC	110.0	4.132	0.132	276.75	276.75
P-30	24.4	J-28	J-29	200.0	PVC	110.0	4.099	0.130	276.75	276.75
P-31	18.1	J-29	J-30	200.0	PVC	110.0	4.032	0.128	276.75	276.74
P-32	13.7	J-30	J-31	200.0	PVC	110.0	3.999	0.127	276.74	276.74

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-14

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	17.758	0.565	276.74	276.52
P-35	10.5	J-33	J-34	200.0	PVC	110.0	17.022	0.542	276.21	276.18
P-36	80.2	J-34	J-35	200.0	PVC	110.0	16.855	0.537	276.18	276.00
P-37	12.8	J-35	J-36	200.0	PVC	110.0	16.654	0.530	276.00	275.97
P-38	10.0	J-36	J-37	200.0	PVC	110.0	16.587	0.528	275.97	275.95
P-39	15.1	J-37	J-20	200.0	PVC	110.0	16.587	0.528	275.95	275.91
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-13.926	0.443	276.74	276.85
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-14.060	0.448	276.85	276.88
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-8.585	0.273	276.88	276.93
P-43	75.4	J-49	J-40	200.0	PVC	110.0	8.886	0.283	276.98	276.93
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-15.329	0.488	276.98	277.02
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-5.641	0.180	276.88	276.90
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-5.741	0.183	276.90	276.91
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-5.774	0.184	276.91	276.91
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-5.874	0.187	276.91	276.93
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-6.008	0.191	276.93	276.94
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-6.075	0.193	276.94	276.95
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-6.108	0.194	276.95	276.96
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-6.208	0.198	276.96	276.98
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-47.420	1.509	277.15	278.23
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-48.791	1.553	279.05	282.54
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-24.201	0.770	284.85	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	24.234	0.771	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-9.015	0.287	284.83	284.85
P-64	44.8	J-4	J-57	200.0	PVC	110.0	51.689	1.645	278.91	278.08
P-65	72.6	J-57	J-5	200.0	PVC	110.0	51.208	1.630	278.08	276.75
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-47.621	1.516	278.23	278.58
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-47.688	1.518	278.58	279.01
P-68	74.5	J-32	J-59	200.0	PVC	110.0	17.357	0.552	276.52	276.33

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-14

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	17.156	0.546	276.33	276.21
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-48.858	1.555	282.54	284.74
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-8.848	0.282	284.74	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-40.211	1.280	284.74	284.90
P-76	8.7	R-3	J-65	200.0	PVC	110.0	40.311	1.283	285.00	284.90
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-47.855	0.975	279.01	279.05
P-83	12.8	R-2	J-54	200.0	PVC	110.0	39.920	1.271	285.00	284.85
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-55.039	1.752	280.76	283.22
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-55.039	1.752	283.22	284.85
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	279.01	279.01
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	279.01	279.01
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	279.01	279.01
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.22	283.22
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	272.32	272.29

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-18

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.82	394.4
J-2	240.52	0.000	Fixed	280.79	394.1
J-3	240.99	0.713	Fixed	279.57	377.6
J-4	240.84	1.150	Fixed	279.00	373.4
J-5	241.40	0.214	Fixed	276.87	347.1
J-6	241.10	0.100	Fixed	276.36	345.0
J-7	241.38	0.134	Fixed	275.78	336.7
J-8	241.60	8.145	Fixed	275.76	334.3
J-9	241.20	0.134	Fixed	275.66	337.2
J-10	241.25	0.267	Fixed	275.33	333.5
J-11	241.30	0.201	Fixed	274.97	329.5
J-12	241.35	0.201	Fixed	274.66	326.0
J-13	241.40	0.267	Fixed	274.35	322.5
J-14	241.45	0.134	Fixed	273.95	318.1
J-15	241.53	0.067	Fixed	273.90	316.8
J-16	241.72	0.201	Fixed	273.78	313.7
J-17	242.05	0.234	Fixed	273.56	308.4
J-18	242.21	75.770	Fixed	273.45	305.8
J-19	242.36	0.241	Fixed	274.15	311.1
J-20	242.60	0.267	Fixed	275.49	321.9
J-21	242.55	0.000	Fixed	275.54	322.8
J-22	242.21	0.267	Fixed	276.09	331.6
J-23	242.14	0.000	Fixed	276.19	333.3
J-24	242.06	0.475	Fixed	276.32	335.3
J-25	241.68	0.201	Fixed	277.03	345.9
J-26	241.68	0.067	Fixed	277.01	345.8
J-27	241.41	0.067	Fixed	276.95	347.8
J-28	241.48	0.033	Fixed	276.85	346.2
J-29	241.35	0.067	Fixed	276.82	347.2
J-30	241.20	0.033	Fixed	276.80	348.4
J-31	241.53	0.167	Fixed	276.78	345.0
J-32	241.45	0.401	Fixed	276.43	342.4
J-33	241.88	0.134	Fixed	275.96	333.5
J-34	241.88	0.167	Fixed	275.92	333.1
J-35	242.29	0.201	Fixed	275.62	326.2
J-36	242.38	0.067	Fixed	275.58	324.9
J-37	242.47	0.000	Fixed	275.54	323.7
J-38	241.52	0.134	Fixed	276.85	345.7
J-39	241.52	0.167	Fixed	276.86	345.9
J-40	241.27	0.301	Fixed	276.89	348.6
J-42	241.93	0.100	Fixed	276.87	342.0
J-43	242.03	0.033	Fixed	276.88	341.1
J-44	242.12	0.100	Fixed	276.88	340.2
J-45	242.35	0.134	Fixed	276.89	338.0
J-46	242.05	0.067	Fixed	276.90	341.1

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-18

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	276.90	342.0
J-48	241.87	0.100	Fixed	276.91	342.9
J-49	241.56	0.234	Fixed	276.92	346.1
J-50	242.25	0.201	Fixed	278.13	351.1
J-51	242.25	0.000	Fixed	278.92	358.9
J-52	245.69	0.167	Fixed	278.92	325.2
J-53	241.85	0.936	Fixed	278.96	363.2
J-54	240.34	0.067	Fixed	284.85	435.6
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	278.17	362.2
J-58	242.25	0.067	Fixed	278.48	354.6
J-59	241.58	0.201	Fixed	276.15	338.3
J-60	242.27	0.067	Fixed	282.50	393.7
J-64	241.33	0.201	Fixed	284.74	424.8
J-65	241.33	0.100	Fixed	284.90	426.4
J-68	240.44	0.000	Fixed	283.25	418.9
J-69	242.59	0.000	Fixed	278.92	355.5
J-70	243.84	0.000	Fixed	278.92	343.3
J-71	243.20	0.000	Fixed	283.25	391.9
J-72	241.53	8.100	Fixed	273.88	316.6

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-18

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	53.143	1.692	280.82	280.79
P-3	62.2	J-2	J-3	200.0	PVC	110.0	53.143	1.692	280.79	279.57
P-4	30.0	J-3	J-4	200.0	PVC	110.0	52.430	1.669	279.57	279.00
P-6	48.1	J-5	J-6	200.0	PVC	110.0	38.264	1.218	276.87	276.36
P-7	54.1	J-6	J-7	200.0	PVC	110.0	38.164	1.215	276.36	275.78
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	275.78	275.76
P-9	18.9	J-7	J-9	200.0	PVC	110.0	29.885	0.951	275.78	275.66
P-10	48.8	J-9	J-10	200.0	PVC	110.0	29.751	0.947	275.66	275.33
P-11	55.0	J-10	J-11	200.0	PVC	110.0	29.484	0.939	275.33	274.97
P-12	47.2	J-11	J-12	200.0	PVC	110.0	29.283	0.932	274.97	274.66
P-13	48.8	J-12	J-13	200.0	PVC	110.0	29.082	0.926	274.66	274.35
P-14	62.8	J-13	J-14	200.0	PVC	110.0	28.815	0.917	274.35	273.95
P-15	8.4	J-14	J-15	200.0	PVC	110.0	28.681	0.913	273.95	273.90
P-16	36.8	J-15	J-16	200.0	PVC	110.0	20.514	0.653	273.90	273.78
P-17	66.7	J-16	J-17	200.0	PVC	110.0	20.313	0.647	273.78	273.56
P-18	32.1	J-17	J-18	200.0	PVC	110.0	20.079	0.639	273.56	273.45
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-55.691	1.773	273.45	274.15
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-55.932	1.780	274.15	275.49
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-34.950	1.112	275.49	275.54
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-34.950	1.112	275.54	276.09
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-35.217	1.121	276.09	276.19
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-35.217	1.121	276.19	276.32
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-35.692	1.136	276.32	277.03
P-26	10.4	J-25	J-26	200.0	PVC	110.0	11.936	0.380	277.03	277.01
P-27	52.5	J-26	J-27	200.0	PVC	110.0	11.869	0.378	277.01	276.95
P-29	11.2	J-5	J-28	200.0	PVC	110.0	12.321	0.392	276.87	276.85
P-30	24.4	J-28	J-29	200.0	PVC	110.0	12.288	0.391	276.85	276.82
P-31	18.1	J-29	J-30	200.0	PVC	110.0	12.221	0.389	276.82	276.80
P-32	13.7	J-30	J-31	200.0	PVC	110.0	12.188	0.388	276.80	276.78

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-18

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	22.421	0.714	276.78	276.43
P-35	10.5	J-33	J-34	200.0	PVC	110.0	21.685	0.690	275.96	275.92
P-36	80.2	J-34	J-35	200.0	PVC	110.0	21.518	0.685	275.92	275.62
P-37	12.8	J-35	J-36	200.0	PVC	110.0	21.317	0.679	275.62	275.58
P-38	10.0	J-36	J-37	200.0	PVC	110.0	21.250	0.676	275.58	275.54
P-39	15.1	J-37	J-20	200.0	PVC	110.0	21.250	0.676	275.54	275.49
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-10.399	0.331	276.78	276.85
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-10.533	0.335	276.85	276.86
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-6.485	0.206	276.86	276.89
P-43	75.4	J-49	J-40	200.0	PVC	110.0	6.786	0.216	276.92	276.89
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-11.802	0.376	276.92	276.95
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-4.216	0.134	276.86	276.87
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-4.316	0.137	276.87	276.88
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-4.349	0.138	276.88	276.88
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-4.449	0.142	276.88	276.89
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-4.583	0.146	276.89	276.90
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-4.650	0.148	276.90	276.90
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-4.683	0.149	276.90	276.91
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-4.783	0.152	276.91	276.92
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-47.829	1.522	277.03	278.13
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-49.200	1.566	278.96	282.50
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-24.111	0.767	284.85	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	24.144	0.769	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-9.184	0.292	284.83	284.85
P-64	44.8	J-4	J-57	200.0	PVC	110.0	51.280	1.632	279.00	278.17
P-65	72.6	J-57	J-5	200.0	PVC	110.0	50.799	1.617	278.17	276.87
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-48.030	1.529	278.13	278.48
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-48.097	1.531	278.48	278.92
P-68	74.5	J-32	J-59	200.0	PVC	110.0	22.020	0.701	276.43	276.15

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-18

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	21.819	0.695	276.15	275.96
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-49.267	1.568	282.50	284.74
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-9.017	0.287	284.74	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-40.451	1.288	284.74	284.90
P-76	8.7	R-3	J-65	200.0	PVC	110.0	40.551	1.291	285.00	284.90
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-48.264	0.983	278.92	278.96
P-83	12.8	R-2	J-54	200.0	PVC	110.0	39.770	1.266	285.00	284.85
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-54.630	1.739	280.82	283.25
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-54.630	1.739	283.25	284.85
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	278.92	278.92
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	278.92	278.92
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	278.92	278.92
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.25	283.25
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	273.90	273.88

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-19

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.84	394.6
J-2	240.52	0.000	Fixed	280.80	394.2
J-3	240.99	0.713	Fixed	279.59	377.8
J-4	240.84	1.150	Fixed	279.02	373.7
J-5	241.40	0.214	Fixed	276.90	347.5
J-6	241.10	0.100	Fixed	276.45	346.0
J-7	241.38	0.134	Fixed	275.94	338.3
J-8	241.60	8.145	Fixed	275.92	335.9
J-9	241.20	0.134	Fixed	275.83	339.0
J-10	241.25	0.267	Fixed	275.56	335.7
J-11	241.30	0.201	Fixed	275.25	332.2
J-12	241.35	0.201	Fixed	274.99	329.2
J-13	241.40	0.267	Fixed	274.72	326.1
J-14	241.45	0.134	Fixed	274.38	322.3
J-15	241.53	0.067	Fixed	274.34	321.1
J-16	241.72	0.201	Fixed	274.24	318.3
J-17	242.05	0.234	Fixed	274.07	313.4
J-18	242.21	0.000	Fixed	273.99	311.0
J-19	242.36	76.011	Fixed	273.90	308.7
J-20	242.60	0.267	Fixed	275.35	320.5
J-21	242.55	0.000	Fixed	275.40	321.5
J-22	242.21	0.267	Fixed	275.99	330.6
J-23	242.14	0.000	Fixed	276.10	332.4
J-24	242.06	0.475	Fixed	276.24	334.5
J-25	241.68	0.201	Fixed	276.99	345.5
J-26	241.68	0.067	Fixed	276.98	345.4
J-27	241.41	0.067	Fixed	276.92	347.6
J-28	241.48	0.033	Fixed	276.88	346.5
J-29	241.35	0.067	Fixed	276.84	347.3
J-30	241.20	0.033	Fixed	276.81	348.5
J-31	241.53	0.167	Fixed	276.78	345.0
J-32	241.45	0.401	Fixed	276.40	342.0
J-33	241.88	0.134	Fixed	275.87	332.7
J-34	241.88	0.167	Fixed	275.83	332.2
J-35	242.29	0.201	Fixed	275.50	325.0
J-36	242.38	0.067	Fixed	275.45	323.7
J-37	242.47	0.000	Fixed	275.41	322.4
J-38	241.52	0.134	Fixed	276.84	345.6
J-39	241.52	0.167	Fixed	276.85	345.8
J-40	241.27	0.301	Fixed	276.87	348.4
J-42	241.93	0.100	Fixed	276.86	341.9
J-43	242.03	0.033	Fixed	276.86	340.9
J-44	242.12	0.100	Fixed	276.87	340.1
J-45	242.35	0.134	Fixed	276.87	337.9
J-46	242.05	0.067	Fixed	276.88	340.9

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-19

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	276.89	341.8
J-48	241.87	0.100	Fixed	276.89	342.7
J-49	241.56	0.234	Fixed	276.90	345.9
J-50	242.25	0.201	Fixed	278.09	350.8
J-51	242.25	0.000	Fixed	278.89	358.6
J-52	245.69	0.167	Fixed	278.89	324.9
J-53	241.85	0.936	Fixed	278.93	362.9
J-54	240.34	0.067	Fixed	284.85	435.6
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	278.20	362.5
J-58	242.25	0.067	Fixed	278.45	354.2
J-59	241.58	0.201	Fixed	276.08	337.7
J-60	242.27	0.067	Fixed	282.49	393.6
J-64	241.33	0.201	Fixed	284.74	424.8
J-65	241.33	0.100	Fixed	284.90	426.4
J-68	240.44	0.000	Fixed	283.25	419.0
J-69	242.59	0.000	Fixed	278.89	355.2
J-70	243.84	0.000	Fixed	278.89	343.0
J-71	243.20	0.000	Fixed	283.25	392.0
J-72	241.53	8.100	Fixed	274.32	320.9

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-19

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	53.015	1.688	280.84	280.80
P-3	62.2	J-2	J-3	200.0	PVC	110.0	53.015	1.688	280.80	279.59
P-4	30.0	J-3	J-4	200.0	PVC	110.0	52.302	1.665	279.59	279.02
P-6	48.1	J-5	J-6	200.0	PVC	110.0	35.829	1.140	276.90	276.45
P-7	54.1	J-6	J-7	200.0	PVC	110.0	35.729	1.137	276.45	275.94
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	275.94	275.92
P-9	18.9	J-7	J-9	200.0	PVC	110.0	27.450	0.874	275.94	275.83
P-10	48.8	J-9	J-10	200.0	PVC	110.0	27.316	0.870	275.83	275.56
P-11	55.0	J-10	J-11	200.0	PVC	110.0	27.049	0.861	275.56	275.25
P-12	47.2	J-11	J-12	200.0	PVC	110.0	26.848	0.855	275.25	274.99
P-13	48.8	J-12	J-13	200.0	PVC	110.0	26.647	0.848	274.99	274.72
P-14	62.8	J-13	J-14	200.0	PVC	110.0	26.380	0.840	274.72	274.38
P-15	8.4	J-14	J-15	200.0	PVC	110.0	26.246	0.835	274.38	274.34
P-16	36.8	J-15	J-16	200.0	PVC	110.0	18.079	0.575	274.34	274.24
P-17	66.7	J-16	J-17	200.0	PVC	110.0	17.878	0.569	274.24	274.07
P-18	32.1	J-17	J-18	200.0	PVC	110.0	17.644	0.562	274.07	273.99
P-19	32.6	J-18	J-19	200.0	PVC	110.0	17.644	0.562	273.99	273.90
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-58.367	1.858	273.90	275.35
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-36.144	1.150	275.35	275.40
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-36.144	1.150	275.40	275.99
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-36.411	1.159	275.99	276.10
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-36.411	1.159	276.10	276.24
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-36.886	1.174	276.24	276.99
P-26	10.4	J-25	J-26	200.0	PVC	110.0	10.870	0.346	276.99	276.98
P-27	52.5	J-26	J-27	200.0	PVC	110.0	10.803	0.344	276.98	276.92
P-29	11.2	J-5	J-28	200.0	PVC	110.0	14.628	0.466	276.90	276.88
P-30	24.4	J-28	J-29	200.0	PVC	110.0	14.595	0.465	276.88	276.84
P-31	18.1	J-29	J-30	200.0	PVC	110.0	14.528	0.462	276.84	276.81
P-32	13.7	J-30	J-31	200.0	PVC	110.0	14.495	0.461	276.81	276.78

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-19

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	23.661	0.753	276.78	276.40
P-35	10.5	J-33	J-34	200.0	PVC	110.0	22.925	0.730	275.87	275.83
P-36	80.2	J-34	J-35	200.0	PVC	110.0	22.758	0.724	275.83	275.50
P-37	12.8	J-35	J-36	200.0	PVC	110.0	22.557	0.718	275.50	275.45
P-38	10.0	J-36	J-37	200.0	PVC	110.0	22.490	0.716	275.45	275.41
P-39	15.1	J-37	J-20	200.0	PVC	110.0	22.490	0.716	275.41	275.35
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-9.333	0.297	276.78	276.84
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-9.467	0.301	276.84	276.85
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-5.849	0.186	276.85	276.87
P-43	75.4	J-49	J-40	200.0	PVC	110.0	6.150	0.196	276.90	276.87
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-10.736	0.342	276.90	276.92
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-3.785	0.120	276.85	276.86
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-3.885	0.124	276.86	276.86
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-3.918	0.125	276.86	276.87
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-4.018	0.128	276.87	276.87
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-4.152	0.132	276.87	276.88
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-4.219	0.134	276.88	276.89
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-4.252	0.135	276.89	276.89
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-4.352	0.139	276.89	276.90
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-47.957	1.527	276.99	278.09
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-49.328	1.570	278.93	282.49
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-24.082	0.767	284.85	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	24.115	0.768	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-9.236	0.294	284.83	284.85
P-64	44.8	J-4	J-57	200.0	PVC	110.0	51.152	1.628	279.02	278.20
P-65	72.6	J-57	J-5	200.0	PVC	110.0	50.671	1.613	278.20	276.90
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-48.158	1.533	278.09	278.45
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-48.225	1.535	278.45	278.89
P-68	74.5	J-32	J-59	200.0	PVC	110.0	23.260	0.740	276.40	276.08

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-19

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	23.059	0.734	276.08	275.87
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-49.395	1.572	282.49	284.74
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-9.069	0.289	284.74	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-40.527	1.290	284.74	284.90
P-76	8.7	R-3	J-65	200.0	PVC	110.0	40.627	1.293	285.00	284.90
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-48.392	0.986	278.89	278.93
P-83	12.8	R-2	J-54	200.0	PVC	110.0	39.723	1.264	285.00	284.85
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-54.502	1.735	280.84	283.25
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-54.502	1.735	283.25	284.85
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	278.89	278.89
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	278.89	278.89
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	278.89	278.89
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.25	283.25
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	274.34	274.32

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-20

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.88	395.0
J-2	240.52	0.000	Fixed	280.85	394.7
J-3	240.99	0.713	Fixed	279.65	378.4
J-4	240.84	1.150	Fixed	279.09	374.3
J-5	241.40	0.214	Fixed	276.99	348.3
J-6	241.10	0.100	Fixed	276.67	348.1
J-7	241.38	0.134	Fixed	276.30	341.8
J-8	241.60	8.145	Fixed	276.28	339.4
J-9	241.20	0.134	Fixed	276.23	342.8
J-10	241.25	0.267	Fixed	276.05	340.6
J-11	241.30	0.201	Fixed	275.86	338.2
J-12	241.35	0.201	Fixed	275.69	336.1
J-13	241.40	0.267	Fixed	275.52	333.9
J-14	241.45	0.134	Fixed	275.31	331.4
J-15	241.53	0.067	Fixed	275.28	330.3
J-16	241.72	0.201	Fixed	275.23	328.0
J-17	242.05	0.234	Fixed	275.15	323.9
J-18	242.21	0.000	Fixed	275.11	322.0
J-19	242.36	0.241	Fixed	275.07	320.1
J-20	242.60	76.037	Fixed	275.00	317.1
J-21	242.55	0.000	Fixed	275.06	318.2
J-22	242.21	0.267	Fixed	275.75	328.2
J-23	242.14	0.000	Fixed	275.87	330.1
J-24	242.06	0.475	Fixed	276.03	332.4
J-25	241.68	0.201	Fixed	276.89	344.6
J-26	241.68	0.067	Fixed	276.88	344.5
J-27	241.41	0.067	Fixed	276.85	346.9
J-28	241.48	0.033	Fixed	276.96	347.2
J-29	241.35	0.067	Fixed	276.88	347.7
J-30	241.20	0.033	Fixed	276.82	348.6
J-31	241.53	0.167	Fixed	276.78	344.9
J-32	241.45	0.401	Fixed	276.30	341.1
J-33	241.88	0.134	Fixed	275.65	330.5
J-34	241.88	0.167	Fixed	275.59	329.9
J-35	242.29	0.201	Fixed	275.19	322.0
J-36	242.38	0.067	Fixed	275.12	320.5
J-37	242.47	0.000	Fixed	275.07	319.1
J-38	241.52	0.134	Fixed	276.80	345.3
J-39	241.52	0.167	Fixed	276.81	345.4
J-40	241.27	0.301	Fixed	276.82	348.0
J-42	241.93	0.100	Fixed	276.82	341.4
J-43	242.03	0.033	Fixed	276.82	340.5
J-44	242.12	0.100	Fixed	276.82	339.6
J-45	242.35	0.134	Fixed	276.82	337.4
J-46	242.05	0.067	Fixed	276.83	340.4

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-20

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	276.83	341.3
J-48	241.87	0.100	Fixed	276.83	342.2
J-49	241.56	0.234	Fixed	276.84	345.3
J-50	242.25	0.201	Fixed	278.01	350.0
J-51	242.25	0.000	Fixed	278.82	357.9
J-52	245.69	0.167	Fixed	278.82	324.2
J-53	241.85	0.936	Fixed	278.86	362.2
J-54	240.34	0.067	Fixed	284.85	435.7
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	278.28	363.2
J-58	242.25	0.067	Fixed	278.37	353.5
J-59	241.58	0.201	Fixed	275.91	336.0
J-60	242.27	0.067	Fixed	282.46	393.3
J-64	241.33	0.201	Fixed	284.74	424.8
J-65	241.33	0.100	Fixed	284.90	426.4
J-68	240.44	0.000	Fixed	283.27	419.2
J-69	242.59	0.000	Fixed	278.82	354.5
J-70	243.84	0.000	Fixed	278.82	342.3
J-71	243.20	0.000	Fixed	283.27	392.2
J-72	241.53	8.100	Fixed	275.26	330.1

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-20

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	52.697	1.677	280.88	280.85
P-3	62.2	J-2	J-3	200.0	PVC	110.0	52.697	1.677	280.85	279.65
P-4	30.0	J-3	J-4	200.0	PVC	110.0	51.984	1.655	279.65	279.09
P-6	48.1	J-5	J-6	200.0	PVC	110.0	30.010	0.955	276.99	276.67
P-7	54.1	J-6	J-7	200.0	PVC	110.0	29.910	0.952	276.67	276.30
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	276.30	276.28
P-9	18.9	J-7	J-9	200.0	PVC	110.0	21.631	0.689	276.30	276.23
P-10	48.8	J-9	J-10	200.0	PVC	110.0	21.497	0.684	276.23	276.05
P-11	55.0	J-10	J-11	200.0	PVC	110.0	21.230	0.676	276.05	275.86
P-12	47.2	J-11	J-12	200.0	PVC	110.0	21.029	0.669	275.86	275.69
P-13	48.8	J-12	J-13	200.0	PVC	110.0	20.828	0.663	275.69	275.52
P-14	62.8	J-13	J-14	200.0	PVC	110.0	20.561	0.654	275.52	275.31
P-15	8.4	J-14	J-15	200.0	PVC	110.0	20.427	0.650	275.31	275.28
P-16	36.8	J-15	J-16	200.0	PVC	110.0	12.260	0.390	275.28	275.23
P-17	66.7	J-16	J-17	200.0	PVC	110.0	12.059	0.384	275.23	275.15
P-18	32.1	J-17	J-18	200.0	PVC	110.0	11.825	0.376	275.15	275.11
P-19	32.6	J-18	J-19	200.0	PVC	110.0	11.825	0.376	275.11	275.07
P-20	62.1	J-19	J-20	200.0	PVC	110.0	11.584	0.369	275.07	275.00
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-39.122	1.245	275.00	275.06
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-39.122	1.245	275.06	275.75
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-39.389	1.254	275.75	275.87
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-39.389	1.254	275.87	276.03
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-39.864	1.269	276.03	276.89
P-26	10.4	J-25	J-26	200.0	PVC	110.0	8.210	0.261	276.89	276.88
P-27	52.5	J-26	J-27	200.0	PVC	110.0	8.143	0.259	276.88	276.85
P-29	11.2	J-5	J-28	200.0	PVC	110.0	20.129	0.641	276.99	276.96
P-30	24.4	J-28	J-29	200.0	PVC	110.0	20.096	0.640	276.96	276.88
P-31	18.1	J-29	J-30	200.0	PVC	110.0	20.029	0.638	276.88	276.82
P-32	13.7	J-30	J-31	200.0	PVC	110.0	19.996	0.636	276.82	276.78

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-20

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	26.502	0.844	276.78	276.30
P-35	10.5	J-33	J-34	200.0	PVC	110.0	25.766	0.820	275.65	275.59
P-36	80.2	J-34	J-35	200.0	PVC	110.0	25.599	0.815	275.59	275.19
P-37	12.8	J-35	J-36	200.0	PVC	110.0	25.398	0.808	275.19	275.12
P-38	10.0	J-36	J-37	200.0	PVC	110.0	25.331	0.806	275.12	275.07
P-39	15.1	J-37	J-20	200.0	PVC	110.0	25.331	0.806	275.07	275.00
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-6.673	0.212	276.78	276.80
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-6.807	0.217	276.80	276.81
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-4.265	0.136	276.81	276.82
P-43	75.4	J-49	J-40	200.0	PVC	110.0	4.566	0.145	276.84	276.82
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-8.076	0.257	276.84	276.85
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-2.709	0.086	276.81	276.82
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-2.809	0.089	276.82	276.82
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-2.842	0.090	276.82	276.82
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-2.942	0.094	276.82	276.82
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-3.076	0.098	276.82	276.83
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-3.143	0.100	276.83	276.83
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-3.176	0.101	276.83	276.83
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-3.276	0.104	276.83	276.84
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-48.275	1.537	276.89	278.01
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-49.646	1.580	278.86	282.46
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-24.011	0.764	284.85	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	24.044	0.765	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-9.366	0.298	284.83	284.85
P-64	44.8	J-4	J-57	200.0	PVC	110.0	50.834	1.618	279.09	278.28
P-65	72.6	J-57	J-5	200.0	PVC	110.0	50.353	1.603	278.28	276.99
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-48.476	1.543	278.01	278.37
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-48.543	1.545	278.37	278.82
P-68	74.5	J-32	J-59	200.0	PVC	110.0	26.101	0.831	276.30	275.91

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-20

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	25.900	0.824	275.91	275.65
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-49.713	1.582	282.46	284.74
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-9.199	0.293	284.74	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-40.715	1.296	284.74	284.90
P-76	8.7	R-3	J-65	200.0	PVC	110.0	40.815	1.299	285.00	284.90
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-48.710	0.992	278.82	278.86
P-83	12.8	R-2	J-54	200.0	PVC	110.0	39.606	1.261	285.00	284.85
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-54.184	1.725	280.88	283.27
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-54.184	1.725	283.27	284.85
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	278.82	278.82
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	278.82	278.82
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	278.82	278.82
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.27	283.27
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	275.28	275.26

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-22

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.92	395.4
J-2	240.52	0.000	Fixed	280.89	395.1
J-3	240.99	0.713	Fixed	279.70	378.9
J-4	240.84	1.150	Fixed	279.15	374.9
J-5	241.40	0.214	Fixed	277.08	349.2
J-6	241.10	0.100	Fixed	276.81	349.5
J-7	241.38	0.134	Fixed	276.51	343.9
J-8	241.60	8.145	Fixed	276.49	341.5
J-9	241.20	0.134	Fixed	276.46	345.1
J-10	241.25	0.267	Fixed	276.33	343.3
J-11	241.30	0.201	Fixed	276.18	341.4
J-12	241.35	0.201	Fixed	276.06	339.7
J-13	241.40	0.267	Fixed	275.94	338.0
J-14	241.45	0.134	Fixed	275.78	336.0
J-15	241.53	0.067	Fixed	275.76	335.0
J-16	241.72	0.201	Fixed	275.73	332.9
J-17	242.05	0.234	Fixed	275.68	329.2
J-18	242.21	0.000	Fixed	275.66	327.4
J-19	242.36	0.241	Fixed	275.64	325.7
J-20	242.60	0.267	Fixed	275.60	323.0
J-21	242.55	0.000	Fixed	275.57	323.1
J-22	242.21	76.037	Fixed	275.18	322.7
J-23	242.14	0.000	Fixed	275.36	325.1
J-24	242.06	0.475	Fixed	275.58	328.1
J-25	241.68	0.201	Fixed	276.80	343.7
J-26	241.68	0.067	Fixed	276.80	343.7
J-27	241.41	0.067	Fixed	276.80	346.3
J-28	241.48	0.033	Fixed	277.03	347.9
J-29	241.35	0.067	Fixed	276.93	348.2
J-30	241.20	0.033	Fixed	276.86	349.0
J-31	241.53	0.167	Fixed	276.80	345.2
J-32	241.45	0.401	Fixed	276.48	342.8
J-33	241.88	0.134	Fixed	276.03	334.3
J-34	241.88	0.167	Fixed	276.00	333.9
J-35	242.29	0.201	Fixed	275.73	327.2
J-36	242.38	0.067	Fixed	275.68	325.9
J-37	242.47	0.000	Fixed	275.65	324.7
J-38	241.52	0.134	Fixed	276.80	345.3
J-39	241.52	0.167	Fixed	276.80	345.3
J-40	241.27	0.301	Fixed	276.80	347.7
J-42	241.93	0.100	Fixed	276.80	341.3
J-43	242.03	0.033	Fixed	276.80	340.3
J-44	242.12	0.100	Fixed	276.80	339.4
J-45	242.35	0.134	Fixed	276.80	337.1
J-46	242.05	0.067	Fixed	276.80	340.1

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-22

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	276.80	341.0
J-48	241.87	0.100	Fixed	276.80	341.8
J-49	241.56	0.234	Fixed	276.80	344.9
J-50	242.25	0.201	Fixed	277.93	349.2
J-51	242.25	0.000	Fixed	278.75	357.2
J-52	245.69	0.167	Fixed	278.75	323.5
J-53	241.85	0.936	Fixed	278.79	361.6
J-54	240.34	0.067	Fixed	284.86	435.7
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	278.35	363.9
J-58	242.25	0.067	Fixed	278.29	352.8
J-59	241.58	0.201	Fixed	276.21	338.9
J-60	242.27	0.067	Fixed	282.43	393.0
J-64	241.33	0.201	Fixed	284.73	424.8
J-65	241.33	0.100	Fixed	284.89	426.4
J-68	240.44	0.000	Fixed	283.29	419.3
J-69	242.59	0.000	Fixed	278.75	353.9
J-70	243.84	0.000	Fixed	278.75	341.6
J-71	243.20	0.000	Fixed	283.29	392.3
J-72	241.53	8.100	Fixed	275.74	334.8

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-22

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	52.392	1.668	280.92	280.89
P-3	62.2	J-2	J-3	200.0	PVC	110.0	52.392	1.668	280.89	279.70
P-4	30.0	J-3	J-4	200.0	PVC	110.0	51.679	1.645	279.70	279.15
P-6	48.1	J-5	J-6	200.0	PVC	110.0	26.863	0.855	277.08	276.81
P-7	54.1	J-6	J-7	200.0	PVC	110.0	26.763	0.852	276.81	276.51
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	276.51	276.49
P-9	18.9	J-7	J-9	200.0	PVC	110.0	18.484	0.588	276.51	276.46
P-10	48.8	J-9	J-10	200.0	PVC	110.0	18.350	0.584	276.46	276.33
P-11	55.0	J-10	J-11	200.0	PVC	110.0	18.083	0.576	276.33	276.18
P-12	47.2	J-11	J-12	200.0	PVC	110.0	17.882	0.569	276.18	276.06
P-13	48.8	J-12	J-13	200.0	PVC	110.0	17.681	0.563	276.06	275.94
P-14	62.8	J-13	J-14	200.0	PVC	110.0	17.414	0.554	275.94	275.78
P-15	8.4	J-14	J-15	200.0	PVC	110.0	17.280	0.550	275.78	275.76
P-16	36.8	J-15	J-16	200.0	PVC	110.0	9.113	0.290	275.76	275.73
P-17	66.7	J-16	J-17	200.0	PVC	110.0	8.912	0.284	275.73	275.68
P-18	32.1	J-17	J-18	200.0	PVC	110.0	8.678	0.276	275.68	275.66
P-19	32.6	J-18	J-19	200.0	PVC	110.0	8.678	0.276	275.66	275.64
P-20	62.1	J-19	J-20	200.0	PVC	110.0	8.437	0.269	275.64	275.60
P-21	5.5	J-20	J-21	200.0	PVC	110.0	28.552	0.909	275.60	275.57
P-22	61.7	J-21	J-22	200.0	PVC	110.0	28.552	0.909	275.57	275.18
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-47.485	1.511	275.18	275.36
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-47.485	1.511	275.36	275.58
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-47.960	1.527	275.58	276.80
P-26	10.4	J-25	J-26	200.0	PVC	110.0	0.419	0.013	276.80	276.80
P-27	52.5	J-26	J-27	200.0	PVC	110.0	0.352	0.011	276.80	276.80
P-29	11.2	J-5	J-28	200.0	PVC	110.0	22.971	0.731	277.08	277.03
P-30	24.4	J-28	J-29	200.0	PVC	110.0	22.938	0.730	277.03	276.93
P-31	18.1	J-29	J-30	200.0	PVC	110.0	22.871	0.728	276.93	276.86
P-32	13.7	J-30	J-31	200.0	PVC	110.0	22.838	0.727	276.86	276.80

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-22

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	21.553	0.686	276.80	276.48
P-35	10.5	J-33	J-34	200.0	PVC	110.0	20.817	0.663	276.03	276.00
P-36	80.2	J-34	J-35	200.0	PVC	110.0	20.650	0.657	276.00	275.73
P-37	12.8	J-35	J-36	200.0	PVC	110.0	20.449	0.651	275.73	275.68
P-38	10.0	J-36	J-37	200.0	PVC	110.0	20.382	0.649	275.68	275.65
P-39	15.1	J-37	J-20	200.0	PVC	110.0	20.382	0.649	275.65	275.60
P-40	67.1	J-31	J-38	200.0	PVC	110.0	1.118	0.036	276.80	276.80
P-41	18.9	J-38	J-39	200.0	PVC	110.0	0.984	0.031	276.80	276.80
P-42	63.2	J-39	J-40	200.0	PVC	110.0	0.418	0.013	276.80	276.80
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-0.117	0.004	276.80	276.80
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-0.285	0.009	276.80	276.80
P-45	60.5	J-39	J-42	200.0	PVC	110.0	0.399	0.013	276.80	276.80
P-46	18.0	J-42	J-43	200.0	PVC	110.0	0.299	0.010	276.80	276.80
P-47	17.9	J-43	J-44	200.0	PVC	110.0	0.266	0.008	276.80	276.80
P-48	45.9	J-44	J-45	200.0	PVC	110.0	0.166	0.005	276.80	276.80
P-49	45.9	J-45	J-46	200.0	PVC	110.0	0.032	0.001	276.80	276.80
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-0.035	0.001	276.80	276.80
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-0.068	0.002	276.80	276.80
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-0.168	0.005	276.80	276.80
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-48.580	1.546	276.80	277.93
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-49.951	1.590	278.79	282.43
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-23.943	0.762	284.86	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	23.976	0.763	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-9.490	0.302	284.83	284.86
P-64	44.8	J-4	J-57	200.0	PVC	110.0	50.529	1.608	279.15	278.35
P-65	72.6	J-57	J-5	200.0	PVC	110.0	50.048	1.593	278.35	277.08
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-48.781	1.553	277.93	278.29
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-48.848	1.555	278.29	278.75
P-68	74.5	J-32	J-59	200.0	PVC	110.0	21.152	0.673	276.48	276.21

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-22

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	20.951	0.667	276.21	276.03
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-50.018	1.592	282.43	284.73
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-9.323	0.297	284.73	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-40.896	1.302	284.73	284.89
P-76	8.7	R-3	J-65	200.0	PVC	110.0	40.996	1.305	285.00	284.89
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-49.015	0.999	278.75	278.79
P-83	12.8	R-2	J-54	200.0	PVC	110.0	39.494	1.257	285.00	284.86
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-53.879	1.715	280.92	283.29
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-53.879	1.715	283.29	284.86
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	278.75	278.75
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	278.75	278.75
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	278.75	278.75
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.29	283.29
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	275.76	275.74

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-24

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.94	395.6
J-2	240.52	0.000	Fixed	280.90	395.2
J-3	240.99	0.713	Fixed	279.72	379.1
J-4	240.84	1.150	Fixed	279.17	375.1
J-5	241.40	0.214	Fixed	277.11	349.5
J-6	241.10	0.100	Fixed	276.86	350.0
J-7	241.38	0.134	Fixed	276.59	344.6
J-8	241.60	8.145	Fixed	276.57	342.3
J-9	241.20	0.134	Fixed	276.55	346.0
J-10	241.25	0.267	Fixed	276.43	344.3
J-11	241.30	0.201	Fixed	276.31	342.6
J-12	241.35	0.201	Fixed	276.20	341.1
J-13	241.40	0.267	Fixed	276.09	339.5
J-14	241.45	0.134	Fixed	275.96	337.7
J-15	241.53	0.067	Fixed	275.94	336.8
J-16	241.72	0.201	Fixed	275.92	334.7
J-17	242.05	0.234	Fixed	275.88	331.1
J-18	242.21	0.000	Fixed	275.87	329.4
J-19	242.36	0.241	Fixed	275.85	327.8
J-20	242.60	0.267	Fixed	275.82	325.1
J-21	242.55	0.000	Fixed	275.80	325.4
J-22	242.21	0.267	Fixed	275.50	325.8
J-23	242.14	0.000	Fixed	275.44	325.9
J-24	242.06	76.245	Fixed	275.38	326.1
J-25	241.68	0.201	Fixed	276.77	343.4
J-26	241.68	0.067	Fixed	276.77	343.4
J-27	241.41	0.067	Fixed	276.77	346.1
J-28	241.48	0.033	Fixed	277.06	348.2
J-29	241.35	0.067	Fixed	276.94	348.4
J-30	241.20	0.033	Fixed	276.86	349.0
J-31	241.53	0.167	Fixed	276.80	345.2
J-32	241.45	0.401	Fixed	276.54	343.4
J-33	241.88	0.134	Fixed	276.18	335.6
J-34	241.88	0.167	Fixed	276.15	335.4
J-35	242.29	0.201	Fixed	275.92	329.2
J-36	242.38	0.067	Fixed	275.89	328.0
J-37	242.47	0.000	Fixed	275.86	326.8
J-38	241.52	0.134	Fixed	276.79	345.2
J-39	241.52	0.167	Fixed	276.78	345.1
J-40	241.27	0.301	Fixed	276.78	347.5
J-42	241.93	0.100	Fixed	276.78	341.1
J-43	242.03	0.033	Fixed	276.78	340.1
J-44	242.12	0.100	Fixed	276.78	339.2
J-45	242.35	0.134	Fixed	276.78	337.0
J-46	242.05	0.067	Fixed	276.78	339.9

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-24

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	276.78	340.8
J-48	241.87	0.100	Fixed	276.78	341.6
J-49	241.56	0.234	Fixed	276.78	344.7
J-50	242.25	0.201	Fixed	277.91	349.0
J-51	242.25	0.000	Fixed	278.72	356.9
J-52	245.69	0.167	Fixed	278.72	323.3
J-53	241.85	0.936	Fixed	278.77	361.3
J-54	240.34	0.067	Fixed	284.86	435.7
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	278.37	364.1
J-58	242.25	0.067	Fixed	278.27	352.5
J-59	241.58	0.201	Fixed	276.32	340.0
J-60	242.27	0.067	Fixed	282.42	392.9
J-64	241.33	0.201	Fixed	284.73	424.8
J-65	241.33	0.100	Fixed	284.89	426.4
J-68	240.44	0.000	Fixed	283.29	419.4
J-69	242.59	0.000	Fixed	278.72	353.6
J-70	243.84	0.000	Fixed	278.72	341.4
J-71	243.20	0.000	Fixed	283.29	392.4
J-72	241.53	8.100	Fixed	275.92	336.5

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-24

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	52.287	1.664	280.94	280.90
P-3	62.2	J-2	J-3	200.0	PVC	110.0	52.287	1.664	280.90	279.72
P-4	30.0	J-3	J-4	200.0	PVC	110.0	51.574	1.642	279.72	279.17
P-6	48.1	J-5	J-6	200.0	PVC	110.0	25.527	0.813	277.11	276.86
P-7	54.1	J-6	J-7	200.0	PVC	110.0	25.427	0.809	276.86	276.59
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	276.59	276.57
P-9	18.9	J-7	J-9	200.0	PVC	110.0	17.148	0.546	276.59	276.55
P-10	48.8	J-9	J-10	200.0	PVC	110.0	17.014	0.542	276.55	276.43
P-11	55.0	J-10	J-11	200.0	PVC	110.0	16.747	0.533	276.43	276.31
P-12	47.2	J-11	J-12	200.0	PVC	110.0	16.546	0.527	276.31	276.20
P-13	48.8	J-12	J-13	200.0	PVC	110.0	16.345	0.520	276.20	276.09
P-14	62.8	J-13	J-14	200.0	PVC	110.0	16.078	0.512	276.09	275.96
P-15	8.4	J-14	J-15	200.0	PVC	110.0	15.944	0.508	275.96	275.94
P-16	36.8	J-15	J-16	200.0	PVC	110.0	7.777	0.248	275.94	275.92
P-17	66.7	J-16	J-17	200.0	PVC	110.0	7.576	0.241	275.92	275.88
P-18	32.1	J-17	J-18	200.0	PVC	110.0	7.342	0.234	275.88	275.87
P-19	32.6	J-18	J-19	200.0	PVC	110.0	7.342	0.234	275.87	275.85
P-20	62.1	J-19	J-20	200.0	PVC	110.0	7.101	0.226	275.85	275.82
P-21	5.5	J-20	J-21	200.0	PVC	110.0	25.015	0.796	275.82	275.80
P-22	61.7	J-21	J-22	200.0	PVC	110.0	25.015	0.796	275.80	275.50
P-23	11.1	J-22	J-23	200.0	PVC	110.0	24.748	0.788	275.50	275.44
P-24	13.9	J-23	J-24	200.0	PVC	110.0	24.748	0.788	275.44	275.38
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-51.497	1.639	275.38	276.77
P-26	10.4	J-25	J-26	200.0	PVC	110.0	-3.013	0.096	276.77	276.77
P-27	52.5	J-26	J-27	200.0	PVC	110.0	-3.080	0.098	276.77	276.77
P-29	11.2	J-5	J-28	200.0	PVC	110.0	24.202	0.770	277.11	277.06
P-30	24.4	J-28	J-29	200.0	PVC	110.0	24.169	0.769	277.06	276.94
P-31	18.1	J-29	J-30	200.0	PVC	110.0	24.102	0.767	276.94	276.86
P-32	13.7	J-30	J-31	200.0	PVC	110.0	24.069	0.766	276.86	276.80

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-24

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	19.353	0.616	276.80	276.54
P-35	10.5	J-33	J-34	200.0	PVC	110.0	18.617	0.593	276.18	276.15
P-36	80.2	J-34	J-35	200.0	PVC	110.0	18.450	0.587	276.15	275.92
P-37	12.8	J-35	J-36	200.0	PVC	110.0	18.249	0.581	275.92	275.89
P-38	10.0	J-36	J-37	200.0	PVC	110.0	18.182	0.579	275.89	275.86
P-39	15.1	J-37	J-20	200.0	PVC	110.0	18.182	0.579	275.86	275.82
P-40	67.1	J-31	J-38	200.0	PVC	110.0	4.550	0.145	276.80	276.79
P-41	18.9	J-38	J-39	200.0	PVC	110.0	4.416	0.141	276.79	276.78
P-42	63.2	J-39	J-40	200.0	PVC	110.0	2.431	0.077	276.78	276.78
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-2.130	0.068	276.78	276.78
P-44	22.4	J-49	J-27	200.0	PVC	110.0	3.147	0.100	276.78	276.77
P-45	60.5	J-39	J-42	200.0	PVC	110.0	1.817	0.058	276.78	276.78
P-46	18.0	J-42	J-43	200.0	PVC	110.0	1.717	0.055	276.78	276.78
P-47	17.9	J-43	J-44	200.0	PVC	110.0	1.684	0.054	276.78	276.78
P-48	45.9	J-44	J-45	200.0	PVC	110.0	1.584	0.050	276.78	276.78
P-49	45.9	J-45	J-46	200.0	PVC	110.0	1.450	0.046	276.78	276.78
P-50	17.9	J-46	J-47	200.0	PVC	110.0	1.383	0.044	276.78	276.78
P-51	17.9	J-47	J-48	200.0	PVC	110.0	1.350	0.043	276.78	276.78
P-52	60.6	J-48	J-49	200.0	PVC	110.0	1.250	0.040	276.78	276.78
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-48.685	1.550	276.77	277.91
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-50.056	1.593	278.77	282.42
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-23.919	0.761	284.86	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	23.952	0.762	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-9.533	0.303	284.83	284.86
P-64	44.8	J-4	J-57	200.0	PVC	110.0	50.424	1.605	279.17	278.37
P-65	72.6	J-57	J-5	200.0	PVC	110.0	49.943	1.590	278.37	277.11
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-48.886	1.556	277.91	278.27
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-48.953	1.558	278.27	278.72
P-68	74.5	J-32	J-59	200.0	PVC	110.0	18.952	0.603	276.54	276.32

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-24

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	18.751	0.597	276.32	276.18
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-50.123	1.595	282.42	284.73
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-9.366	0.298	284.73	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-40.958	1.304	284.73	284.89
P-76	8.7	R-3	J-65	200.0	PVC	110.0	41.058	1.307	285.00	284.89
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-49.120	1.001	278.72	278.77
P-83	12.8	R-2	J-54	200.0	PVC	110.0	39.455	1.256	285.00	284.86
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-53.774	1.712	280.94	283.29
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-53.774	1.712	283.29	284.86
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	278.72	278.72
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	278.72	278.72
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	278.72	278.72
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.29	283.29
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	275.94	275.92

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-25

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.07	396.8
J-2	240.52	0.000	Fixed	281.04	396.5
J-3	240.99	0.713	Fixed	279.90	380.8
J-4	240.84	1.150	Fixed	279.36	377.0
J-5	241.40	0.214	Fixed	277.37	352.0
J-6	241.10	0.100	Fixed	277.20	353.4
J-7	241.38	0.134	Fixed	277.02	348.8
J-8	241.60	8.145	Fixed	277.00	346.4
J-9	241.20	0.134	Fixed	277.00	350.3
J-10	241.25	0.267	Fixed	276.93	349.2
J-11	241.30	0.201	Fixed	276.87	348.1
J-12	241.35	0.201	Fixed	276.81	347.0
J-13	241.40	0.267	Fixed	276.75	346.0
J-14	241.45	0.134	Fixed	276.68	344.8
J-15	241.53	0.067	Fixed	276.67	343.9
J-16	241.72	0.201	Fixed	276.67	342.1
J-17	242.05	0.234	Fixed	276.66	338.8
J-18	242.21	0.000	Fixed	276.66	337.2
J-19	242.36	0.241	Fixed	276.66	335.7
J-20	242.60	0.267	Fixed	276.66	333.3
J-21	242.55	0.000	Fixed	276.65	333.7
J-22	242.21	0.267	Fixed	276.58	336.4
J-23	242.14	0.000	Fixed	276.57	336.9
J-24	242.06	0.475	Fixed	276.55	337.6
J-25	241.68	75.971	Fixed	276.47	340.5
J-26	241.68	0.067	Fixed	276.49	340.7
J-27	241.41	0.067	Fixed	276.60	344.4
J-28	241.48	0.033	Fixed	277.30	350.6
J-29	241.35	0.067	Fixed	277.16	350.4
J-30	241.20	0.033	Fixed	277.05	350.9
J-31	241.53	0.167	Fixed	276.97	346.8
J-32	241.45	0.401	Fixed	276.88	346.7
J-33	241.88	0.134	Fixed	276.76	341.4
J-34	241.88	0.167	Fixed	276.76	341.3
J-35	242.29	0.201	Fixed	276.69	336.6
J-36	242.38	0.067	Fixed	276.68	335.7
J-37	242.47	0.000	Fixed	276.67	334.7
J-38	241.52	0.134	Fixed	276.81	345.4
J-39	241.52	0.167	Fixed	276.76	344.9
J-40	241.27	0.301	Fixed	276.71	346.8
J-42	241.93	0.100	Fixed	276.74	340.6
J-43	242.03	0.033	Fixed	276.73	339.6
J-44	242.12	0.100	Fixed	276.72	338.6
J-45	242.35	0.134	Fixed	276.70	336.2
J-46	242.05	0.067	Fixed	276.68	339.0

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-25

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	276.68	339.8
J-48	241.87	0.100	Fixed	276.67	340.6
J-49	241.56	0.234	Fixed	276.65	343.4
J-50	242.25	0.201	Fixed	277.65	346.5
J-51	242.25	0.000	Fixed	278.50	354.8
J-52	245.69	0.167	Fixed	278.50	321.1
J-53	241.85	0.936	Fixed	278.55	359.2
J-54	240.34	0.067	Fixed	284.86	435.7
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.5
J-57	241.17	0.481	Fixed	278.59	366.2
J-58	242.25	0.067	Fixed	278.03	350.2
J-59	241.58	0.201	Fixed	276.81	344.8
J-60	242.27	0.067	Fixed	282.33	392.1
J-64	241.33	0.201	Fixed	284.73	424.7
J-65	241.33	0.100	Fixed	284.89	426.3
J-68	240.44	0.000	Fixed	283.35	419.9
J-69	242.59	0.000	Fixed	278.50	351.5
J-70	243.84	0.000	Fixed	278.50	339.2
J-71	243.20	0.000	Fixed	283.35	392.9
J-72	241.53	8.100	Fixed	276.65	343.7

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-25

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	51.330	1.634	281.07	281.04
P-3	62.2	J-2	J-3	200.0	PVC	110.0	51.330	1.634	281.04	279.90
P-4	30.0	J-3	J-4	200.0	PVC	110.0	50.617	1.611	279.90	279.36
P-6	48.1	J-5	J-6	200.0	PVC	110.0	20.733	0.660	277.37	277.20
P-7	54.1	J-6	J-7	200.0	PVC	110.0	20.633	0.657	277.20	277.02
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	277.02	277.00
P-9	18.9	J-7	J-9	200.0	PVC	110.0	12.354	0.393	277.02	277.00
P-10	48.8	J-9	J-10	200.0	PVC	110.0	12.220	0.389	277.00	276.93
P-11	55.0	J-10	J-11	200.0	PVC	110.0	11.953	0.380	276.93	276.87
P-12	47.2	J-11	J-12	200.0	PVC	110.0	11.752	0.374	276.87	276.81
P-13	48.8	J-12	J-13	200.0	PVC	110.0	11.551	0.368	276.81	276.75
P-14	62.8	J-13	J-14	200.0	PVC	110.0	11.284	0.359	276.75	276.68
P-15	8.4	J-14	J-15	200.0	PVC	110.0	11.150	0.355	276.68	276.67
P-16	36.8	J-15	J-16	200.0	PVC	110.0	2.983	0.095	276.67	276.67
P-17	66.7	J-16	J-17	200.0	PVC	110.0	2.782	0.089	276.67	276.66
P-18	32.1	J-17	J-18	200.0	PVC	110.0	2.548	0.081	276.66	276.66
P-19	32.6	J-18	J-19	200.0	PVC	110.0	2.548	0.081	276.66	276.66
P-20	62.1	J-19	J-20	200.0	PVC	110.0	2.307	0.073	276.66	276.66
P-21	5.5	J-20	J-21	200.0	PVC	110.0	11.542	0.367	276.66	276.65
P-22	61.7	J-21	J-22	200.0	PVC	110.0	11.542	0.367	276.65	276.58
P-23	11.1	J-22	J-23	200.0	PVC	110.0	11.275	0.359	276.58	276.57
P-24	13.9	J-23	J-24	200.0	PVC	110.0	11.275	0.359	276.57	276.55
P-25	75.3	J-24	J-25	200.0	PVC	110.0	10.800	0.344	276.55	276.47
P-26	10.4	J-25	J-26	200.0	PVC	110.0	-15.529	0.494	276.47	276.49
P-27	52.5	J-26	J-27	200.0	PVC	110.0	-15.596	0.496	276.49	276.60
P-29	11.2	J-5	J-28	200.0	PVC	110.0	28.039	0.892	277.37	277.30
P-30	24.4	J-28	J-29	200.0	PVC	110.0	28.006	0.891	277.30	277.16
P-31	18.1	J-29	J-30	200.0	PVC	110.0	27.939	0.889	277.16	277.05
P-32	13.7	J-30	J-31	200.0	PVC	110.0	27.906	0.888	277.05	276.97

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-25

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	10.673	0.340	276.97	276.88
P-35	10.5	J-33	J-34	200.0	PVC	110.0	9.937	0.316	276.76	276.76
P-36	80.2	J-34	J-35	200.0	PVC	110.0	9.770	0.311	276.76	276.69
P-37	12.8	J-35	J-36	200.0	PVC	110.0	9.569	0.305	276.69	276.68
P-38	10.0	J-36	J-37	200.0	PVC	110.0	9.502	0.302	276.68	276.67
P-39	15.1	J-37	J-20	200.0	PVC	110.0	9.502	0.302	276.67	276.66
P-40	67.1	J-31	J-38	200.0	PVC	110.0	17.066	0.543	276.97	276.81
P-41	18.9	J-38	J-39	200.0	PVC	110.0	16.932	0.539	276.81	276.76
P-42	63.2	J-39	J-40	200.0	PVC	110.0	9.886	0.315	276.76	276.71
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-9.585	0.305	276.65	276.71
P-44	22.4	J-49	J-27	200.0	PVC	110.0	15.663	0.499	276.65	276.60
P-45	60.5	J-39	J-42	200.0	PVC	110.0	6.879	0.219	276.76	276.74
P-46	18.0	J-42	J-43	200.0	PVC	110.0	6.779	0.216	276.74	276.73
P-47	17.9	J-43	J-44	200.0	PVC	110.0	6.746	0.215	276.73	276.72
P-48	45.9	J-44	J-45	200.0	PVC	110.0	6.646	0.212	276.72	276.70
P-49	45.9	J-45	J-46	200.0	PVC	110.0	6.512	0.207	276.70	276.68
P-50	17.9	J-46	J-47	200.0	PVC	110.0	6.445	0.205	276.68	276.68
P-51	17.9	J-47	J-48	200.0	PVC	110.0	6.412	0.204	276.68	276.67
P-52	60.6	J-48	J-49	200.0	PVC	110.0	6.312	0.201	276.67	276.65
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-49.642	1.580	276.47	277.65
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-51.013	1.624	278.55	282.33
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-23.703	0.754	284.86	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	23.736	0.756	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-9.917	0.316	284.83	284.86
P-64	44.8	J-4	J-57	200.0	PVC	110.0	49.467	1.575	279.36	278.59
P-65	72.6	J-57	J-5	200.0	PVC	110.0	48.986	1.559	278.59	277.37
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-49.843	1.587	277.65	278.03
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-49.910	1.589	278.03	278.50
P-68	74.5	J-32	J-59	200.0	PVC	110.0	10.272	0.327	276.88	276.81

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-25

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	10.071	0.321	276.81	276.76
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-51.080	1.626	282.33	284.73
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-9.750	0.310	284.73	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-41.531	1.322	284.73	284.89
P-76	8.7	R-3	J-65	200.0	PVC	110.0	41.631	1.325	285.00	284.89
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-50.077	1.020	278.50	278.55
P-83	12.8	R-2	J-54	200.0	PVC	110.0	39.098	1.245	285.00	284.86
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-52.817	1.681	281.07	283.35
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-52.817	1.681	283.35	284.86
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	278.50	278.50
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	278.50	278.50
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	278.50	278.50
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.35	283.35
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	276.67	276.65

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-31

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.76	393.8
J-2	240.52	0.000	Fixed	280.72	393.4
J-3	240.99	0.713	Fixed	279.48	376.7
J-4	240.84	1.150	Fixed	278.90	372.5
J-5	241.40	0.214	Fixed	276.74	345.9
J-6	241.10	0.100	Fixed	276.67	348.1
J-7	241.38	0.134	Fixed	276.59	344.6
J-8	241.60	8.145	Fixed	276.57	342.2
J-9	241.20	0.134	Fixed	276.59	346.3
J-10	241.25	0.267	Fixed	276.58	345.7
J-11	241.30	0.201	Fixed	276.57	345.1
J-12	241.35	0.201	Fixed	276.56	344.6
J-13	241.40	0.267	Fixed	276.55	344.0
J-14	241.45	0.134	Fixed	276.54	343.4
J-15	241.53	0.067	Fixed	276.54	342.6
J-16	241.72	0.201	Fixed	276.55	340.9
J-17	242.05	0.234	Fixed	276.56	337.8
J-18	242.21	0.000	Fixed	276.57	336.3
J-19	242.36	0.241	Fixed	276.58	334.9
J-20	242.60	0.267	Fixed	276.60	332.7
J-21	242.55	0.000	Fixed	276.62	333.4
J-22	242.21	0.267	Fixed	276.82	338.7
J-23	242.14	0.000	Fixed	276.85	339.7
J-24	242.06	0.475	Fixed	276.90	341.0
J-25	241.68	0.201	Fixed	277.16	347.3
J-26	241.68	0.067	Fixed	277.11	346.7
J-27	241.41	0.067	Fixed	276.83	346.6
J-28	241.48	0.033	Fixed	276.62	343.9
J-29	241.35	0.067	Fixed	276.37	342.7
J-30	241.20	0.033	Fixed	276.18	342.3
J-31	241.53	75.937	Fixed	276.04	337.7
J-32	241.45	0.401	Fixed	276.17	339.8
J-33	241.88	0.134	Fixed	276.37	337.6
J-34	241.88	0.167	Fixed	276.39	337.8
J-35	242.29	0.201	Fixed	276.53	335.1
J-36	242.38	0.067	Fixed	276.55	334.4
J-37	242.47	0.000	Fixed	276.57	333.7
J-38	241.52	0.134	Fixed	276.35	340.9
J-39	241.52	0.167	Fixed	276.45	341.8
J-40	241.27	0.301	Fixed	276.56	345.4
J-42	241.93	0.100	Fixed	276.50	338.3
J-43	242.03	0.033	Fixed	276.52	337.5
J-44	242.12	0.100	Fixed	276.53	336.8
J-45	242.35	0.134	Fixed	276.57	334.9
J-46	242.05	0.067	Fixed	276.62	338.3

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-31

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	276.63	339.4
J-48	241.87	0.100	Fixed	276.65	340.4
J-49	241.56	0.234	Fixed	276.71	344.0
J-50	242.25	0.201	Fixed	278.24	352.3
J-51	242.25	0.000	Fixed	279.02	359.9
J-52	245.69	0.167	Fixed	279.02	326.2
J-53	241.85	0.936	Fixed	279.06	364.2
J-54	240.34	0.067	Fixed	284.85	435.6
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	278.07	361.1
J-58	242.25	0.067	Fixed	278.59	355.6
J-59	241.58	0.201	Fixed	276.29	339.7
J-60	242.27	0.067	Fixed	282.54	394.1
J-64	241.33	0.201	Fixed	284.74	424.9
J-65	241.33	0.100	Fixed	284.90	426.4
J-68	240.44	0.000	Fixed	283.22	418.7
J-69	242.59	0.000	Fixed	279.02	356.5
J-70	243.84	0.000	Fixed	279.02	344.3
J-71	243.20	0.000	Fixed	283.22	391.7
J-72	241.53	8.100	Fixed	276.52	342.4

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-31

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	53.600	1.706	280.76	280.72
P-3	62.2	J-2	J-3	200.0	PVC	110.0	53.600	1.706	280.72	279.48
P-4	30.0	J-3	J-4	200.0	PVC	110.0	52.887	1.683	279.48	278.90
P-6	48.1	J-5	J-6	200.0	PVC	110.0	13.103	0.417	276.74	276.67
P-7	54.1	J-6	J-7	200.0	PVC	110.0	13.003	0.414	276.67	276.59
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	276.59	276.57
P-9	18.9	J-7	J-9	200.0	PVC	110.0	4.724	0.150	276.59	276.59
P-10	48.8	J-9	J-10	200.0	PVC	110.0	4.590	0.146	276.59	276.58
P-11	55.0	J-10	J-11	200.0	PVC	110.0	4.323	0.138	276.58	276.57
P-12	47.2	J-11	J-12	200.0	PVC	110.0	4.122	0.131	276.57	276.56
P-13	48.8	J-12	J-13	200.0	PVC	110.0	3.921	0.125	276.56	276.55
P-14	62.8	J-13	J-14	200.0	PVC	110.0	3.654	0.116	276.55	276.54
P-15	8.4	J-14	J-15	200.0	PVC	110.0	3.520	0.112	276.54	276.54
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-4.647	0.148	276.54	276.55
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-4.848	0.154	276.55	276.56
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-5.082	0.162	276.56	276.57
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-5.082	0.162	276.57	276.58
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-5.323	0.169	276.58	276.60
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-20.164	0.642	276.60	276.62
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-20.164	0.642	276.62	276.82
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-20.431	0.650	276.82	276.85
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-20.431	0.650	276.85	276.90
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-20.906	0.665	276.90	277.16
P-26	10.4	J-25	J-26	200.0	PVC	110.0	26.264	0.836	277.16	277.11
P-27	52.5	J-26	J-27	200.0	PVC	110.0	26.197	0.834	277.11	276.83
P-29	11.2	J-5	J-28	200.0	PVC	110.0	37.940	1.208	276.74	276.62
P-30	24.4	J-28	J-29	200.0	PVC	110.0	37.907	1.207	276.62	276.37
P-31	18.1	J-29	J-30	200.0	PVC	110.0	37.840	1.204	276.37	276.18
P-32	13.7	J-30	J-31	200.0	PVC	110.0	37.807	1.203	276.18	276.04

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-31

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-13.403	0.427	276.04	276.17
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-14.139	0.450	276.37	276.39
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-14.306	0.455	276.39	276.53
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-14.507	0.462	276.53	276.55
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-14.574	0.464	276.55	276.57
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-14.574	0.464	276.57	276.60
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-24.727	0.787	276.04	276.35
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-24.861	0.791	276.35	276.45
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-15.022	0.478	276.45	276.56
P-43	75.4	J-49	J-40	200.0	PVC	110.0	15.323	0.488	276.71	276.56
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-26.130	0.832	276.71	276.83
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-10.006	0.319	276.45	276.50
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-10.106	0.322	276.50	276.52
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-10.139	0.323	276.52	276.53
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-10.239	0.326	276.53	276.57
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-10.373	0.330	276.57	276.62
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-10.440	0.332	276.62	276.63
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-10.473	0.333	276.63	276.65
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-10.573	0.337	276.65	276.71
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-47.372	1.508	277.16	278.24
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-48.743	1.552	279.06	282.54
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-24.212	0.771	284.85	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	24.245	0.772	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-8.995	0.286	284.83	284.85
P-64	44.8	J-4	J-57	200.0	PVC	110.0	51.737	1.647	278.90	278.07
P-65	72.6	J-57	J-5	200.0	PVC	110.0	51.256	1.632	278.07	276.74
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-47.573	1.514	278.24	278.59
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-47.640	1.516	278.59	279.02
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-13.804	0.439	276.17	276.29

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-31

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-14.005	0.446	276.29	276.37
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-48.810	1.554	282.54	284.74
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-8.828	0.281	284.74	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-40.183	1.279	284.74	284.90
P-76	8.7	R-3	J-65	200.0	PVC	110.0	40.283	1.282	285.00	284.90
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-47.807	0.974	279.02	279.06
P-83	12.8	R-2	J-54	200.0	PVC	110.0	39.937	1.271	285.00	284.85
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-55.087	1.753	280.76	283.22
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-55.087	1.753	283.22	284.85
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	279.02	279.02
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	279.02	279.02
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	279.02	279.02
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.22	283.22
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	276.54	276.52

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-37

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.88	395.0
J-2	240.52	0.000	Fixed	280.84	394.6
J-3	240.99	0.713	Fixed	279.64	378.3
J-4	240.84	1.150	Fixed	279.08	374.3
J-5	241.40	0.214	Fixed	276.98	348.3
J-6	241.10	0.100	Fixed	276.67	348.1
J-7	241.38	0.134	Fixed	276.32	341.9
J-8	241.60	8.145	Fixed	276.30	339.6
J-9	241.20	0.134	Fixed	276.25	343.1
J-10	241.25	0.267	Fixed	276.08	340.9
J-11	241.30	0.201	Fixed	275.90	338.6
J-12	241.35	0.201	Fixed	275.74	336.6
J-13	241.40	0.267	Fixed	275.58	334.5
J-14	241.45	0.134	Fixed	275.38	332.1
J-15	241.53	0.067	Fixed	275.35	331.0
J-16	241.72	0.201	Fixed	275.31	328.8
J-17	242.05	0.234	Fixed	275.24	324.8
J-18	242.21	0.000	Fixed	275.20	322.9
J-19	242.36	0.241	Fixed	275.16	321.1
J-20	242.60	0.267	Fixed	275.10	318.1
J-21	242.55	0.000	Fixed	275.16	319.1
J-22	242.21	0.267	Fixed	275.81	328.8
J-23	242.14	0.000	Fixed	275.93	330.7
J-24	242.06	0.475	Fixed	276.08	332.9
J-25	241.68	0.201	Fixed	276.90	344.7
J-26	241.68	0.067	Fixed	276.89	344.6
J-27	241.41	0.067	Fixed	276.85	346.9
J-28	241.48	0.033	Fixed	276.95	347.1
J-29	241.35	0.067	Fixed	276.86	347.6
J-30	241.20	0.033	Fixed	276.80	348.4
J-31	241.53	0.167	Fixed	276.75	344.7
J-32	241.45	0.401	Fixed	276.22	340.3
J-33	241.88	0.134	Fixed	275.49	328.9
J-34	241.88	0.167	Fixed	275.43	328.3
J-35	242.29	0.201	Fixed	274.97	319.9
J-36	242.38	0.067	Fixed	274.90	318.3
J-37	242.47	75.770	Fixed	274.85	316.9
J-38	241.52	0.134	Fixed	276.79	345.2
J-39	241.52	0.167	Fixed	276.80	345.3
J-40	241.27	0.301	Fixed	276.82	347.9
J-42	241.93	0.100	Fixed	276.81	341.3
J-43	242.03	0.033	Fixed	276.81	340.4
J-44	242.12	0.100	Fixed	276.81	339.5
J-45	242.35	0.134	Fixed	276.82	337.3
J-46	242.05	0.067	Fixed	276.82	340.3

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-37

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	276.83	341.2
J-48	241.87	0.100	Fixed	276.83	342.1
J-49	241.56	0.234	Fixed	276.84	345.2
J-50	242.25	0.201	Fixed	278.02	350.1
J-51	242.25	0.000	Fixed	278.82	357.9
J-52	245.69	0.167	Fixed	278.82	324.3
J-53	241.85	0.936	Fixed	278.87	362.3
J-54	240.34	0.067	Fixed	284.85	435.7
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	278.27	363.1
J-58	242.25	0.067	Fixed	278.38	353.6
J-59	241.58	0.201	Fixed	275.79	334.8
J-60	242.27	0.067	Fixed	282.46	393.3
J-64	241.33	0.201	Fixed	284.74	424.8
J-65	241.33	0.100	Fixed	284.90	426.4
J-68	240.44	0.000	Fixed	283.27	419.2
J-69	242.59	0.000	Fixed	278.82	354.6
J-70	243.84	0.000	Fixed	278.82	342.4
J-71	243.20	0.000	Fixed	283.27	392.2
J-72	241.53	8.100	Fixed	275.33	330.8

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-37

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	52.726	1.678	280.88	280.84
P-3	62.2	J-2	J-3	200.0	PVC	110.0	52.726	1.678	280.84	279.64
P-4	30.0	J-3	J-4	200.0	PVC	110.0	52.013	1.656	279.64	279.08
P-6	48.1	J-5	J-6	200.0	PVC	110.0	29.390	0.936	276.98	276.67
P-7	54.1	J-6	J-7	200.0	PVC	110.0	29.290	0.932	276.67	276.32
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	276.32	276.30
P-9	18.9	J-7	J-9	200.0	PVC	110.0	21.011	0.669	276.32	276.25
P-10	48.8	J-9	J-10	200.0	PVC	110.0	20.877	0.665	276.25	276.08
P-11	55.0	J-10	J-11	200.0	PVC	110.0	20.610	0.656	276.08	275.90
P-12	47.2	J-11	J-12	200.0	PVC	110.0	20.409	0.650	275.90	275.74
P-13	48.8	J-12	J-13	200.0	PVC	110.0	20.208	0.643	275.74	275.58
P-14	62.8	J-13	J-14	200.0	PVC	110.0	19.941	0.635	275.58	275.38
P-15	8.4	J-14	J-15	200.0	PVC	110.0	19.807	0.630	275.38	275.35
P-16	36.8	J-15	J-16	200.0	PVC	110.0	11.640	0.371	275.35	275.31
P-17	66.7	J-16	J-17	200.0	PVC	110.0	11.439	0.364	275.31	275.24
P-18	32.1	J-17	J-18	200.0	PVC	110.0	11.205	0.357	275.24	275.20
P-19	32.6	J-18	J-19	200.0	PVC	110.0	11.205	0.357	275.20	275.16
P-20	62.1	J-19	J-20	200.0	PVC	110.0	10.964	0.349	275.16	275.10
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-38.089	1.212	275.10	275.16
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-38.089	1.212	275.16	275.81
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-38.356	1.221	275.81	275.93
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-38.356	1.221	275.93	276.08
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-38.831	1.236	276.08	276.90
P-26	10.4	J-25	J-26	200.0	PVC	110.0	9.213	0.293	276.90	276.89
P-27	52.5	J-26	J-27	200.0	PVC	110.0	9.146	0.291	276.89	276.85
P-29	11.2	J-5	J-28	200.0	PVC	110.0	20.778	0.661	276.98	276.95
P-30	24.4	J-28	J-29	200.0	PVC	110.0	20.745	0.660	276.95	276.86
P-31	18.1	J-29	J-30	200.0	PVC	110.0	20.678	0.658	276.86	276.80
P-32	13.7	J-30	J-31	200.0	PVC	110.0	20.645	0.657	276.80	276.75

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-37

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	28.154	0.896	276.75	276.22
P-35	10.5	J-33	J-34	200.0	PVC	110.0	27.418	0.873	275.49	275.43
P-36	80.2	J-34	J-35	200.0	PVC	110.0	27.251	0.867	275.43	274.97
P-37	12.8	J-35	J-36	200.0	PVC	110.0	27.050	0.861	274.97	274.90
P-38	10.0	J-36	J-37	200.0	PVC	110.0	26.983	0.859	274.90	274.85
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-48.787	1.553	274.85	275.10
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-7.676	0.244	276.75	276.79
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-7.810	0.249	276.79	276.80
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-4.862	0.155	276.80	276.82
P-43	75.4	J-49	J-40	200.0	PVC	110.0	5.163	0.164	276.84	276.82
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-9.079	0.289	276.84	276.85
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-3.115	0.099	276.80	276.81
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-3.215	0.102	276.81	276.81
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-3.248	0.103	276.81	276.81
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-3.348	0.107	276.81	276.82
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-3.482	0.111	276.82	276.82
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-3.549	0.113	276.82	276.83
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-3.582	0.114	276.83	276.83
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-3.682	0.117	276.83	276.84
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-48.246	1.536	276.90	278.02
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-49.617	1.579	278.87	282.46
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-24.018	0.765	284.85	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	24.051	0.766	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-9.354	0.298	284.83	284.85
P-64	44.8	J-4	J-57	200.0	PVC	110.0	50.863	1.619	279.08	278.27
P-65	72.6	J-57	J-5	200.0	PVC	110.0	50.382	1.604	278.27	276.98
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-48.447	1.542	278.02	278.38
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-48.514	1.544	278.38	278.82
P-68	74.5	J-32	J-59	200.0	PVC	110.0	27.753	0.883	276.22	275.79

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-37

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	27.552	0.877	275.79	275.49
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-49.684	1.581	282.46	284.74
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-9.187	0.292	284.74	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-40.697	1.295	284.74	284.90
P-76	8.7	R-3	J-65	200.0	PVC	110.0	40.797	1.299	285.00	284.90
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-48.681	0.992	278.82	278.87
P-83	12.8	R-2	J-54	200.0	PVC	110.0	39.617	1.261	285.00	284.85
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-54.213	1.726	280.88	283.27
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-54.213	1.726	283.27	284.85
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	278.82	278.82
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	278.82	278.82
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	278.82	278.82
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.27	283.27
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	275.35	275.33

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-40

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.94	395.6
J-2	240.52	0.000	Fixed	280.91	395.2
J-3	240.99	0.713	Fixed	279.72	379.1
J-4	240.84	1.150	Fixed	279.17	375.1
J-5	241.40	0.214	Fixed	277.11	349.5
J-6	241.10	0.100	Fixed	276.99	351.2
J-7	241.38	0.134	Fixed	276.86	347.2
J-8	241.60	8.145	Fixed	276.83	344.8
J-9	241.20	0.134	Fixed	276.84	348.8
J-10	241.25	0.267	Fixed	276.81	348.0
J-11	241.30	0.201	Fixed	276.77	347.2
J-12	241.35	0.201	Fixed	276.74	346.4
J-13	241.40	0.267	Fixed	276.71	345.6
J-14	241.45	0.134	Fixed	276.68	344.8
J-15	241.53	0.067	Fixed	276.67	343.9
J-16	241.72	0.201	Fixed	276.67	342.1
J-17	242.05	0.234	Fixed	276.67	338.9
J-18	242.21	0.000	Fixed	276.67	337.3
J-19	242.36	0.241	Fixed	276.67	335.8
J-20	242.60	0.267	Fixed	276.68	333.5
J-21	242.55	0.000	Fixed	276.68	334.0
J-22	242.21	0.267	Fixed	276.71	337.6
J-23	242.14	0.000	Fixed	276.71	338.4
J-24	242.06	0.475	Fixed	276.72	339.2
J-25	241.68	0.201	Fixed	276.77	343.4
J-26	241.68	0.067	Fixed	276.64	342.2
J-27	241.41	0.067	Fixed	276.03	338.8
J-28	241.48	0.033	Fixed	277.02	347.8
J-29	241.35	0.067	Fixed	276.83	347.2
J-30	241.20	0.033	Fixed	276.69	347.3
J-31	241.53	0.167	Fixed	276.58	343.1
J-32	241.45	0.401	Fixed	276.60	344.0
J-33	241.88	0.134	Fixed	276.64	340.1
J-34	241.88	0.167	Fixed	276.64	340.2
J-35	242.29	0.201	Fixed	276.66	336.4
J-36	242.38	0.067	Fixed	276.67	335.6
J-37	242.47	0.000	Fixed	276.67	334.7
J-38	241.52	0.134	Fixed	275.92	336.6
J-39	241.52	0.167	Fixed	275.73	334.8
J-40	241.27	76.071	Fixed	275.02	330.3
J-42	241.93	0.100	Fixed	275.74	330.9
J-43	242.03	0.033	Fixed	275.74	329.9
J-44	242.12	0.100	Fixed	275.74	329.0
J-45	242.35	0.134	Fixed	275.74	326.8
J-46	242.05	0.067	Fixed	275.75	329.8

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-40

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	275.75	330.7
J-48	241.87	0.100	Fixed	275.75	331.6
J-49	241.56	0.234	Fixed	275.76	334.7
J-50	242.25	0.201	Fixed	277.90	348.9
J-51	242.25	0.000	Fixed	278.72	356.9
J-52	245.69	0.167	Fixed	278.72	323.3
J-53	241.85	0.936	Fixed	278.77	361.3
J-54	240.34	0.067	Fixed	284.86	435.7
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	278.37	364.1
J-58	242.25	0.067	Fixed	278.27	352.5
J-59	241.58	0.201	Fixed	276.62	342.9
J-60	242.27	0.067	Fixed	282.42	392.9
J-64	241.33	0.201	Fixed	284.73	424.8
J-65	241.33	0.100	Fixed	284.89	426.4
J-68	240.44	0.000	Fixed	283.29	419.4
J-69	242.59	0.000	Fixed	278.72	353.6
J-70	243.84	0.000	Fixed	278.72	341.4
J-71	243.20	0.000	Fixed	283.29	392.4
J-72	241.53	8.100	Fixed	276.65	343.7

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-40

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	52.283	1.664	280.94	280.91
P-3	62.2	J-2	J-3	200.0	PVC	110.0	52.283	1.664	280.91	279.72
P-4	30.0	J-3	J-4	200.0	PVC	110.0	51.570	1.642	279.72	279.17
P-6	48.1	J-5	J-6	200.0	PVC	110.0	17.327	0.552	277.11	276.99
P-7	54.1	J-6	J-7	200.0	PVC	110.0	17.227	0.548	276.99	276.86
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	276.86	276.83
P-9	18.9	J-7	J-9	200.0	PVC	110.0	8.948	0.285	276.86	276.84
P-10	48.8	J-9	J-10	200.0	PVC	110.0	8.814	0.281	276.84	276.81
P-11	55.0	J-10	J-11	200.0	PVC	110.0	8.547	0.272	276.81	276.77
P-12	47.2	J-11	J-12	200.0	PVC	110.0	8.346	0.266	276.77	276.74
P-13	48.8	J-12	J-13	200.0	PVC	110.0	8.145	0.259	276.74	276.71
P-14	62.8	J-13	J-14	200.0	PVC	110.0	7.878	0.251	276.71	276.68
P-15	8.4	J-14	J-15	200.0	PVC	110.0	7.744	0.247	276.68	276.67
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-0.423	0.013	276.67	276.67
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-0.624	0.020	276.67	276.67
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-0.858	0.027	276.67	276.67
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-0.858	0.027	276.67	276.67
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-1.099	0.035	276.67	276.68
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-7.260	0.231	276.68	276.68
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-7.260	0.231	276.68	276.71
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-7.527	0.240	276.71	276.71
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-7.527	0.240	276.71	276.72
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-8.002	0.255	276.72	276.77
P-26	10.4	J-25	J-26	200.0	PVC	110.0	40.486	1.289	276.77	276.64
P-27	52.5	J-26	J-27	200.0	PVC	110.0	40.419	1.287	276.64	276.03
P-29	11.2	J-5	J-28	200.0	PVC	110.0	32.398	1.031	277.11	277.02
P-30	24.4	J-28	J-29	200.0	PVC	110.0	32.365	1.030	277.02	276.83
P-31	18.1	J-29	J-30	200.0	PVC	110.0	32.298	1.028	276.83	276.69
P-32	13.7	J-30	J-31	200.0	PVC	110.0	32.265	1.027	276.69	276.58

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-40

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-4.724	0.150	276.58	276.60
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-5.460	0.174	276.64	276.64
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-5.627	0.179	276.64	276.66
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-5.828	0.186	276.66	276.67
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-5.895	0.188	276.67	276.67
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-5.895	0.188	276.67	276.68
P-40	67.1	J-31	J-38	200.0	PVC	110.0	36.821	1.172	276.58	275.92
P-41	18.9	J-38	J-39	200.0	PVC	110.0	36.687	1.168	275.92	275.73
P-42	63.2	J-39	J-40	200.0	PVC	110.0	39.412	1.255	275.73	275.02
P-43	75.4	J-49	J-40	200.0	PVC	110.0	36.659	1.167	275.76	275.02
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-40.352	1.284	275.76	276.03
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-2.892	0.092	275.73	275.74
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-2.992	0.095	275.74	275.74
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-3.025	0.096	275.74	275.74
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-3.125	0.099	275.74	275.74
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-3.259	0.104	275.74	275.75
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-3.326	0.106	275.75	275.75
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-3.359	0.107	275.75	275.75
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-3.459	0.110	275.75	275.76
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-48.689	1.550	276.77	277.90
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-50.060	1.593	278.77	282.42
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-23.918	0.761	284.86	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	23.951	0.762	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-9.534	0.303	284.83	284.86
P-64	44.8	J-4	J-57	200.0	PVC	110.0	50.420	1.605	279.17	278.37
P-65	72.6	J-57	J-5	200.0	PVC	110.0	49.939	1.590	278.37	277.11
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-48.890	1.556	277.90	278.27
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-48.957	1.558	278.27	278.72
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-5.125	0.163	276.60	276.62

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-40

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-5.326	0.170	276.62	276.64
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-50.127	1.596	282.42	284.73
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-9.367	0.298	284.73	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-40.961	1.304	284.73	284.89
P-76	8.7	R-3	J-65	200.0	PVC	110.0	41.061	1.307	285.00	284.89
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-49.124	1.001	278.72	278.77
P-83	12.8	R-2	J-54	200.0	PVC	110.0	39.453	1.256	285.00	284.86
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-53.770	1.712	280.94	283.29
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-53.770	1.712	283.29	284.86
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	278.72	278.72
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	278.72	278.72
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	278.72	278.72
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.29	283.29
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	276.67	276.65

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-42

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.93	395.5
J-2	240.52	0.000	Fixed	280.90	395.2
J-3	240.99	0.713	Fixed	279.71	379.0
J-4	240.84	1.150	Fixed	279.16	375.0
J-5	241.40	0.214	Fixed	277.09	349.3
J-6	241.10	0.100	Fixed	276.97	351.1
J-7	241.38	0.134	Fixed	276.85	347.1
J-8	241.60	8.145	Fixed	276.82	344.7
J-9	241.20	0.134	Fixed	276.83	348.7
J-10	241.25	0.267	Fixed	276.80	347.9
J-11	241.30	0.201	Fixed	276.77	347.1
J-12	241.35	0.201	Fixed	276.74	346.3
J-13	241.40	0.267	Fixed	276.71	345.6
J-14	241.45	0.134	Fixed	276.67	344.7
J-15	241.53	0.067	Fixed	276.67	343.9
J-16	241.72	0.201	Fixed	276.67	342.1
J-17	242.05	0.234	Fixed	276.67	338.8
J-18	242.21	0.000	Fixed	276.67	337.3
J-19	242.36	0.241	Fixed	276.67	335.8
J-20	242.60	0.267	Fixed	276.67	333.5
J-21	242.55	0.000	Fixed	276.68	334.0
J-22	242.21	0.267	Fixed	276.72	337.7
J-23	242.14	0.000	Fixed	276.72	338.5
J-24	242.06	0.475	Fixed	276.73	339.3
J-25	241.68	0.201	Fixed	276.79	343.6
J-26	241.68	0.067	Fixed	276.67	342.4
J-27	241.41	0.067	Fixed	276.08	339.3
J-28	241.48	0.033	Fixed	277.00	347.6
J-29	241.35	0.067	Fixed	276.81	347.0
J-30	241.20	0.033	Fixed	276.66	347.1
J-31	241.53	0.167	Fixed	276.55	342.8
J-32	241.45	0.401	Fixed	276.58	343.8
J-33	241.88	0.134	Fixed	276.62	340.0
J-34	241.88	0.167	Fixed	276.63	340.1
J-35	242.29	0.201	Fixed	276.66	336.4
J-36	242.38	0.067	Fixed	276.66	335.5
J-37	242.47	0.000	Fixed	276.67	334.7
J-38	241.52	0.134	Fixed	275.85	336.0
J-39	241.52	0.167	Fixed	275.66	334.1
J-40	241.27	0.301	Fixed	275.73	337.3
J-42	241.93	75.870	Fixed	274.62	319.9
J-43	242.03	0.033	Fixed	274.71	319.8
J-44	242.12	0.100	Fixed	274.81	319.9
J-45	242.35	0.134	Fixed	275.05	320.1
J-46	242.05	0.067	Fixed	275.30	325.4

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-42

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	275.40	327.3
J-48	241.87	0.100	Fixed	275.50	329.1
J-49	241.56	0.234	Fixed	275.83	335.4
J-50	242.25	0.201	Fixed	277.92	349.1
J-51	242.25	0.000	Fixed	278.74	357.1
J-52	245.69	0.167	Fixed	278.74	323.4
J-53	241.85	0.936	Fixed	278.78	361.5
J-54	240.34	0.067	Fixed	284.86	435.7
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	278.36	364.0
J-58	242.25	0.067	Fixed	278.28	352.7
J-59	241.58	0.201	Fixed	276.60	342.8
J-60	242.27	0.067	Fixed	282.43	393.0
J-64	241.33	0.201	Fixed	284.73	424.8
J-65	241.33	0.100	Fixed	284.89	426.4
J-68	240.44	0.000	Fixed	283.29	419.4
J-69	242.59	0.000	Fixed	278.74	353.8
J-70	243.84	0.000	Fixed	278.74	341.5
J-71	243.20	0.000	Fixed	283.29	392.4
J-72	241.53	8.100	Fixed	276.65	343.7

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-42

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	52.352	1.666	280.93	280.90
P-3	62.2	J-2	J-3	200.0	PVC	110.0	52.352	1.666	280.90	279.71
P-4	30.0	J-3	J-4	200.0	PVC	110.0	51.639	1.644	279.71	279.16
P-6	48.1	J-5	J-6	200.0	PVC	110.0	17.089	0.544	277.09	276.97
P-7	54.1	J-6	J-7	200.0	PVC	110.0	16.989	0.541	276.97	276.85
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	276.85	276.82
P-9	18.9	J-7	J-9	200.0	PVC	110.0	8.710	0.277	276.85	276.83
P-10	48.8	J-9	J-10	200.0	PVC	110.0	8.576	0.273	276.83	276.80
P-11	55.0	J-10	J-11	200.0	PVC	110.0	8.309	0.264	276.80	276.77
P-12	47.2	J-11	J-12	200.0	PVC	110.0	8.108	0.258	276.77	276.74
P-13	48.8	J-12	J-13	200.0	PVC	110.0	7.907	0.252	276.74	276.71
P-14	62.8	J-13	J-14	200.0	PVC	110.0	7.640	0.243	276.71	276.67
P-15	8.4	J-14	J-15	200.0	PVC	110.0	7.506	0.239	276.67	276.67
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-0.661	0.021	276.67	276.67
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-0.862	0.027	276.67	276.67
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-1.096	0.035	276.67	276.67
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-1.096	0.035	276.67	276.67
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-1.337	0.043	276.67	276.67
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-8.265	0.263	276.67	276.68
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-8.265	0.263	276.68	276.72
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-8.532	0.272	276.72	276.72
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-8.532	0.272	276.72	276.73
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-9.007	0.287	276.73	276.79
P-26	10.4	J-25	J-26	200.0	PVC	110.0	39.411	1.255	276.79	276.67
P-27	52.5	J-26	J-27	200.0	PVC	110.0	39.344	1.252	276.67	276.08
P-29	11.2	J-5	J-28	200.0	PVC	110.0	32.706	1.041	277.09	277.00
P-30	24.4	J-28	J-29	200.0	PVC	110.0	32.673	1.040	277.00	276.81
P-31	18.1	J-29	J-30	200.0	PVC	110.0	32.606	1.038	276.81	276.66
P-32	13.7	J-30	J-31	200.0	PVC	110.0	32.573	1.037	276.66	276.55

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-42

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-5.490	0.175	276.55	276.58
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-6.226	0.198	276.62	276.63
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-6.393	0.203	276.63	276.66
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-6.594	0.210	276.66	276.66
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-6.661	0.212	276.66	276.67
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-6.661	0.212	276.67	276.67
P-40	67.1	J-31	J-38	200.0	PVC	110.0	37.896	1.206	276.55	275.85
P-41	18.9	J-38	J-39	200.0	PVC	110.0	37.762	1.202	275.85	275.66
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-11.953	0.380	275.66	275.73
P-43	75.4	J-49	J-40	200.0	PVC	110.0	12.254	0.390	275.83	275.73
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-39.277	1.250	275.83	276.08
P-45	60.5	J-39	J-42	200.0	PVC	110.0	49.547	1.577	275.66	274.62
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-26.323	0.838	274.62	274.71
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-26.356	0.839	274.71	274.81
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-26.456	0.842	274.81	275.05
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-26.590	0.846	275.05	275.30
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-26.657	0.849	275.30	275.40
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-26.690	0.850	275.40	275.50
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-26.790	0.853	275.50	275.83
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-48.620	1.548	276.79	277.92
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-49.991	1.591	278.78	282.43
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-23.934	0.762	284.86	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	23.967	0.763	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-9.506	0.303	284.83	284.86
P-64	44.8	J-4	J-57	200.0	PVC	110.0	50.489	1.607	279.16	278.36
P-65	72.6	J-57	J-5	200.0	PVC	110.0	50.008	1.592	278.36	277.09
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-48.821	1.554	277.92	278.28
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-48.888	1.556	278.28	278.74
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-5.891	0.188	276.58	276.60

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-42

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-6.092	0.194	276.60	276.62
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-50.058	1.593	282.43	284.73
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-9.339	0.297	284.73	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-40.919	1.303	284.73	284.89
P-76	8.7	R-3	J-65	200.0	PVC	110.0	41.019	1.306	285.00	284.89
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-49.055	0.999	278.74	278.78
P-83	12.8	R-2	J-54	200.0	PVC	110.0	39.479	1.257	285.00	284.86
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-53.839	1.714	280.93	283.29
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-53.839	1.714	283.29	284.86
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	278.74	278.74
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	278.74	278.74
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	278.74	278.74
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.29	283.29
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	276.67	276.65

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-46

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.94	395.6
J-2	240.52	0.000	Fixed	280.91	395.3
J-3	240.99	0.713	Fixed	279.73	379.1
J-4	240.84	1.150	Fixed	279.17	375.2
J-5	241.40	0.214	Fixed	277.11	349.5
J-6	241.10	0.100	Fixed	277.00	351.3
J-7	241.38	0.134	Fixed	276.86	347.3
J-8	241.60	8.145	Fixed	276.84	344.9
J-9	241.20	0.134	Fixed	276.85	348.9
J-10	241.25	0.267	Fixed	276.81	348.1
J-11	241.30	0.201	Fixed	276.78	347.2
J-12	241.35	0.201	Fixed	276.75	346.4
J-13	241.40	0.267	Fixed	276.72	345.6
J-14	241.45	0.134	Fixed	276.68	344.8
J-15	241.53	0.067	Fixed	276.67	344.0
J-16	241.72	0.201	Fixed	276.67	342.1
J-17	242.05	0.234	Fixed	276.68	338.9
J-18	242.21	0.000	Fixed	276.68	337.3
J-19	242.36	0.241	Fixed	276.68	335.8
J-20	242.60	0.267	Fixed	276.68	333.5
J-21	242.55	0.000	Fixed	276.68	334.0
J-22	242.21	0.267	Fixed	276.71	337.6
J-23	242.14	0.000	Fixed	276.71	338.3
J-24	242.06	0.475	Fixed	276.72	339.2
J-25	241.68	0.201	Fixed	276.76	343.3
J-26	241.68	0.067	Fixed	276.63	342.1
J-27	241.41	0.067	Fixed	276.00	338.6
J-28	241.48	0.033	Fixed	277.03	347.9
J-29	241.35	0.067	Fixed	276.84	347.3
J-30	241.20	0.033	Fixed	276.70	347.4
J-31	241.53	0.167	Fixed	276.59	343.2
J-32	241.45	0.401	Fixed	276.61	344.1
J-33	241.88	0.134	Fixed	276.64	340.2
J-34	241.88	0.167	Fixed	276.64	340.2
J-35	242.29	0.201	Fixed	276.67	336.4
J-36	242.38	0.067	Fixed	276.67	335.6
J-37	242.47	0.000	Fixed	276.67	334.7
J-38	241.52	0.134	Fixed	275.94	336.9
J-39	241.52	0.167	Fixed	275.76	335.1
J-40	241.27	0.301	Fixed	275.75	337.4
J-42	241.93	0.100	Fixed	275.31	326.7
J-43	242.03	0.033	Fixed	275.17	324.4
J-44	242.12	0.100	Fixed	275.04	322.2
J-45	242.35	0.134	Fixed	274.70	316.6
J-46	242.05	75.837	Fixed	274.37	316.3

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-46

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	274.62	319.6
J-48	241.87	0.100	Fixed	274.87	323.0
J-49	241.56	0.234	Fixed	275.73	334.5
J-50	242.25	0.201	Fixed	277.90	348.9
J-51	242.25	0.000	Fixed	278.72	356.9
J-52	245.69	0.167	Fixed	278.72	323.2
J-53	241.85	0.936	Fixed	278.76	361.3
J-54	240.34	0.067	Fixed	284.86	435.7
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	278.38	364.2
J-58	242.25	0.067	Fixed	278.26	352.4
J-59	241.58	0.201	Fixed	276.63	343.0
J-60	242.27	0.067	Fixed	282.42	392.9
J-64	241.33	0.201	Fixed	284.73	424.8
J-65	241.33	0.100	Fixed	284.89	426.4
J-68	240.44	0.000	Fixed	283.30	419.4
J-69	242.59	0.000	Fixed	278.72	353.6
J-70	243.84	0.000	Fixed	278.72	341.3
J-71	243.20	0.000	Fixed	283.30	392.4
J-72	241.53	8.100	Fixed	276.65	343.7

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-46

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	52.257	1.663	280.94	280.91
P-3	62.2	J-2	J-3	200.0	PVC	110.0	52.257	1.663	280.91	279.73
P-4	30.0	J-3	J-4	200.0	PVC	110.0	51.544	1.641	279.73	279.17
P-6	48.1	J-5	J-6	200.0	PVC	110.0	17.417	0.554	277.11	277.00
P-7	54.1	J-6	J-7	200.0	PVC	110.0	17.317	0.551	277.00	276.86
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	276.86	276.84
P-9	18.9	J-7	J-9	200.0	PVC	110.0	9.038	0.288	276.86	276.85
P-10	48.8	J-9	J-10	200.0	PVC	110.0	8.904	0.283	276.85	276.81
P-11	55.0	J-10	J-11	200.0	PVC	110.0	8.637	0.275	276.81	276.78
P-12	47.2	J-11	J-12	200.0	PVC	110.0	8.436	0.269	276.78	276.75
P-13	48.8	J-12	J-13	200.0	PVC	110.0	8.235	0.262	276.75	276.72
P-14	62.8	J-13	J-14	200.0	PVC	110.0	7.968	0.254	276.72	276.68
P-15	8.4	J-14	J-15	200.0	PVC	110.0	7.834	0.249	276.68	276.67
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-0.333	0.011	276.67	276.67
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-0.534	0.017	276.67	276.68
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-0.768	0.024	276.68	276.68
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-0.768	0.024	276.68	276.68
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-1.009	0.032	276.68	276.68
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-6.860	0.218	276.68	276.68
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-6.860	0.218	276.68	276.71
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-7.127	0.227	276.71	276.71
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-7.127	0.227	276.71	276.72
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-7.602	0.242	276.72	276.76
P-26	10.4	J-25	J-26	200.0	PVC	110.0	40.912	1.302	276.76	276.63
P-27	52.5	J-26	J-27	200.0	PVC	110.0	40.845	1.300	276.63	276.00
P-29	11.2	J-5	J-28	200.0	PVC	110.0	32.283	1.028	277.11	277.03
P-30	24.4	J-28	J-29	200.0	PVC	110.0	32.250	1.027	277.03	276.84
P-31	18.1	J-29	J-30	200.0	PVC	110.0	32.183	1.024	276.84	276.70
P-32	13.7	J-30	J-31	200.0	PVC	110.0	32.150	1.023	276.70	276.59

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-46

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-4.413	0.140	276.59	276.61
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-5.149	0.164	276.64	276.64
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-5.316	0.169	276.64	276.67
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-5.517	0.176	276.67	276.67
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-5.584	0.178	276.67	276.67
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-5.584	0.178	276.67	276.68
P-40	67.1	J-31	J-38	200.0	PVC	110.0	36.395	1.159	276.59	275.94
P-41	18.9	J-38	J-39	200.0	PVC	110.0	36.261	1.154	275.94	275.76
P-42	63.2	J-39	J-40	200.0	PVC	110.0	4.476	0.142	275.76	275.75
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-4.175	0.133	275.73	275.75
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-40.778	1.298	275.73	276.00
P-45	60.5	J-39	J-42	200.0	PVC	110.0	31.618	1.006	275.76	275.31
P-46	18.0	J-42	J-43	200.0	PVC	110.0	31.518	1.003	275.31	275.17
P-47	17.9	J-43	J-44	200.0	PVC	110.0	31.485	1.002	275.17	275.04
P-48	45.9	J-44	J-45	200.0	PVC	110.0	31.385	0.999	275.04	274.70
P-49	45.9	J-45	J-46	200.0	PVC	110.0	31.251	0.995	274.70	274.37
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-44.586	1.419	274.37	274.62
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-44.619	1.420	274.62	274.87
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-44.719	1.423	274.87	275.73
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-48.715	1.551	276.76	277.90
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-50.086	1.594	278.76	282.42
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-23.912	0.761	284.86	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	23.945	0.762	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-9.545	0.304	284.83	284.86
P-64	44.8	J-4	J-57	200.0	PVC	110.0	50.394	1.604	279.17	278.38
P-65	72.6	J-57	J-5	200.0	PVC	110.0	49.913	1.589	278.38	277.11
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-48.916	1.557	277.90	278.26
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-48.983	1.559	278.26	278.72
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-4.814	0.153	276.61	276.63

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-46

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-5.015	0.160	276.63	276.64
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-50.153	1.596	282.42	284.73
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-9.378	0.299	284.73	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-40.976	1.304	284.73	284.89
P-76	8.7	R-3	J-65	200.0	PVC	110.0	41.076	1.307	285.00	284.89
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-49.150	1.001	278.72	278.76
P-83	12.8	R-2	J-54	200.0	PVC	110.0	39.444	1.256	285.00	284.86
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-53.744	1.711	280.94	283.30
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-53.744	1.711	283.30	284.86
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	278.72	278.72
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	278.72	278.72
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	278.72	278.72
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.30	283.30
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	276.67	276.65

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-52

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.66	402.6
J-2	240.52	0.000	Fixed	281.63	402.3
J-3	240.99	0.713	Fixed	280.66	388.3
J-4	240.84	1.150	Fixed	280.21	385.3
J-5	241.40	0.214	Fixed	278.55	363.5
J-6	241.10	0.100	Fixed	278.40	365.1
J-7	241.38	0.134	Fixed	278.24	360.8
J-8	241.60	8.145	Fixed	278.22	358.4
J-9	241.20	0.134	Fixed	278.22	362.3
J-10	241.25	0.267	Fixed	278.17	361.3
J-11	241.30	0.201	Fixed	278.12	360.3
J-12	241.35	0.201	Fixed	278.07	359.4
J-13	241.40	0.267	Fixed	278.03	358.5
J-14	241.45	0.134	Fixed	277.97	357.5
J-15	241.53	0.067	Fixed	277.97	356.6
J-16	241.72	0.201	Fixed	277.97	354.7
J-17	242.05	0.234	Fixed	277.96	351.5
J-18	242.21	0.000	Fixed	277.96	349.9
J-19	242.36	0.241	Fixed	277.96	348.4
J-20	242.60	0.267	Fixed	277.96	346.1
J-21	242.55	0.000	Fixed	277.96	346.5
J-22	242.21	0.267	Fixed	277.91	349.4
J-23	242.14	0.000	Fixed	277.90	350.0
J-24	242.06	0.475	Fixed	277.89	350.7
J-25	241.68	0.201	Fixed	277.84	353.9
J-26	241.68	0.067	Fixed	277.86	354.1
J-27	241.41	0.067	Fixed	277.94	357.5
J-28	241.48	0.033	Fixed	278.49	362.2
J-29	241.35	0.067	Fixed	278.38	362.4
J-30	241.20	0.033	Fixed	278.29	363.0
J-31	241.53	0.167	Fixed	278.22	359.1
J-32	241.45	0.401	Fixed	278.15	359.2
J-33	241.88	0.134	Fixed	278.05	354.0
J-34	241.88	0.167	Fixed	278.04	353.9
J-35	242.29	0.201	Fixed	277.99	349.4
J-36	242.38	0.067	Fixed	277.98	348.4
J-37	242.47	0.000	Fixed	277.97	347.5
J-38	241.52	0.134	Fixed	278.10	358.0
J-39	241.52	0.167	Fixed	278.06	357.7
J-40	241.27	0.301	Fixed	278.02	359.7
J-42	241.93	0.100	Fixed	278.04	353.4
J-43	242.03	0.033	Fixed	278.04	352.4
J-44	242.12	0.100	Fixed	278.03	351.5
J-45	242.35	0.134	Fixed	278.02	349.1
J-46	242.05	0.067	Fixed	278.00	351.9

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-52

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	278.00	352.7
J-48	241.87	0.100	Fixed	277.99	353.5
J-49	241.56	0.234	Fixed	277.97	356.4
J-50	242.25	0.201	Fixed	277.59	345.9
J-51	242.25	0.000	Fixed	277.41	344.1
J-52	245.69	75.937	Fixed	271.16	249.3
J-53	241.85	0.936	Fixed	277.47	348.6
J-54	240.34	0.067	Fixed	284.87	435.8
J-55	240.44	0.033	Fixed	284.94	435.6
J-56	240.44	0.167	Fixed	284.83	434.5
J-57	241.17	0.481	Fixed	279.57	375.8
J-58	242.25	0.067	Fixed	277.51	345.1
J-59	241.58	0.201	Fixed	278.09	357.3
J-60	242.27	0.067	Fixed	281.89	387.8
J-64	241.33	0.201	Fixed	284.69	424.4
J-65	241.33	0.100	Fixed	284.88	426.2
J-68	240.44	0.000	Fixed	283.59	422.3
J-69	242.59	0.000	Fixed	276.63	333.2
J-70	243.84	0.000	Fixed	276.63	320.9
J-71	243.20	0.000	Fixed	283.59	395.3
J-72	241.53	8.100	Fixed	277.94	356.4

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-52

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	46.840	1.491	281.66	281.63
P-3	62.2	J-2	J-3	200.0	PVC	110.0	46.840	1.491	281.63	280.66
P-4	30.0	J-3	J-4	200.0	PVC	110.0	46.127	1.468	280.66	280.21
P-6	48.1	J-5	J-6	200.0	PVC	110.0	19.328	0.615	278.55	278.40
P-7	54.1	J-6	J-7	200.0	PVC	110.0	19.228	0.612	278.40	278.24
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	278.24	278.22
P-9	18.9	J-7	J-9	200.0	PVC	110.0	10.949	0.349	278.24	278.22
P-10	48.8	J-9	J-10	200.0	PVC	110.0	10.815	0.344	278.22	278.17
P-11	55.0	J-10	J-11	200.0	PVC	110.0	10.548	0.336	278.17	278.12
P-12	47.2	J-11	J-12	200.0	PVC	110.0	10.347	0.329	278.12	278.07
P-13	48.8	J-12	J-13	200.0	PVC	110.0	10.146	0.323	278.07	278.03
P-14	62.8	J-13	J-14	200.0	PVC	110.0	9.879	0.314	278.03	277.97
P-15	8.4	J-14	J-15	200.0	PVC	110.0	9.745	0.310	277.97	277.97
P-16	36.8	J-15	J-16	200.0	PVC	110.0	1.578	0.050	277.97	277.97
P-17	66.7	J-16	J-17	200.0	PVC	110.0	1.377	0.044	277.97	277.96
P-18	32.1	J-17	J-18	200.0	PVC	110.0	1.143	0.036	277.96	277.96
P-19	32.6	J-18	J-19	200.0	PVC	110.0	1.143	0.036	277.96	277.96
P-20	62.1	J-19	J-20	200.0	PVC	110.0	0.902	0.029	277.96	277.96
P-21	5.5	J-20	J-21	200.0	PVC	110.0	9.217	0.293	277.96	277.96
P-22	61.7	J-21	J-22	200.0	PVC	110.0	9.217	0.293	277.96	277.91
P-23	11.1	J-22	J-23	200.0	PVC	110.0	8.950	0.285	277.91	277.90
P-24	13.9	J-23	J-24	200.0	PVC	110.0	8.950	0.285	277.90	277.89
P-25	75.3	J-24	J-25	200.0	PVC	110.0	8.475	0.270	277.89	277.84
P-26	10.4	J-25	J-26	200.0	PVC	110.0	-13.364	0.425	277.84	277.86
P-27	52.5	J-26	J-27	200.0	PVC	110.0	-13.431	0.428	277.86	277.94
P-29	11.2	J-5	J-28	200.0	PVC	110.0	24.953	0.794	278.55	278.49
P-30	24.4	J-28	J-29	200.0	PVC	110.0	24.920	0.793	278.49	278.38
P-31	18.1	J-29	J-30	200.0	PVC	110.0	24.853	0.791	278.38	278.29
P-32	13.7	J-30	J-31	200.0	PVC	110.0	24.820	0.790	278.29	278.22

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-52

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	9.752	0.310	278.22	278.15
P-35	10.5	J-33	J-34	200.0	PVC	110.0	9.016	0.287	278.05	278.04
P-36	80.2	J-34	J-35	200.0	PVC	110.0	8.849	0.282	278.04	277.99
P-37	12.8	J-35	J-36	200.0	PVC	110.0	8.648	0.275	277.99	277.98
P-38	10.0	J-36	J-37	200.0	PVC	110.0	8.581	0.273	277.98	277.97
P-39	15.1	J-37	J-20	200.0	PVC	110.0	8.581	0.273	277.97	277.96
P-40	67.1	J-31	J-38	200.0	PVC	110.0	14.901	0.474	278.22	278.10
P-41	18.9	J-38	J-39	200.0	PVC	110.0	14.767	0.470	278.10	278.06
P-42	63.2	J-39	J-40	200.0	PVC	110.0	8.596	0.274	278.06	278.02
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-8.295	0.264	277.97	278.02
P-44	22.4	J-49	J-27	200.0	PVC	110.0	13.498	0.430	277.97	277.94
P-45	60.5	J-39	J-42	200.0	PVC	110.0	6.004	0.191	278.06	278.04
P-46	18.0	J-42	J-43	200.0	PVC	110.0	5.904	0.188	278.04	278.04
P-47	17.9	J-43	J-44	200.0	PVC	110.0	5.871	0.187	278.04	278.03
P-48	45.9	J-44	J-45	200.0	PVC	110.0	5.771	0.184	278.03	278.02
P-49	45.9	J-45	J-46	200.0	PVC	110.0	5.637	0.179	278.02	278.00
P-50	17.9	J-46	J-47	200.0	PVC	110.0	5.570	0.177	278.00	278.00
P-51	17.9	J-47	J-48	200.0	PVC	110.0	5.537	0.176	278.00	277.99
P-52	60.6	J-48	J-49	200.0	PVC	110.0	5.437	0.173	277.99	277.97
P-53	68.4	J-25	J-50	200.0	PVC	110.0	21.638	0.689	277.84	277.59
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-55.503	1.767	277.47	281.89
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-22.660	0.721	284.87	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	22.693	0.722	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-11.645	0.371	284.83	284.87
P-64	44.8	J-4	J-57	200.0	PVC	110.0	44.977	1.432	280.21	279.57
P-65	72.6	J-57	J-5	200.0	PVC	110.0	44.496	1.416	279.57	278.55
P-66	21.6	J-50	J-58	200.0	PVC	110.0	21.437	0.682	277.59	277.51
P-67	27.0	J-58	J-51	200.0	PVC	110.0	21.370	0.680	277.51	277.41
P-68	74.5	J-32	J-59	200.0	PVC	110.0	9.351	0.298	278.15	278.09

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-52

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	9.150	0.291	278.09	278.05
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-55.570	1.769	281.89	284.69
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-11.478	0.365	284.69	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-44.293	1.410	284.69	284.88
P-76	8.7	R-3	J-65	200.0	PVC	110.0	44.393	1.413	285.00	284.88
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-54.567	1.112	277.41	277.47
P-83	12.8	R-2	J-54	200.0	PVC	110.0	37.379	1.190	285.00	284.87
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-48.327	1.538	281.66	283.59
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-48.327	1.538	283.59	284.87
P-86	20.6	J-51	J-69	200.0	PVC	110.0	75.937	2.417	277.41	276.63
P-87	144.3	J-69	J-52	200.0	PVC	110.0	75.937	2.417	276.63	271.16
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	276.63	276.63
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.59	283.59
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	277.97	277.94

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-57

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.15	387.9
J-2	240.52	0.000	Fixed	280.11	387.5
J-3	240.99	0.713	Fixed	278.69	369.0
J-4	240.84	1.150	Fixed	278.02	363.9
J-5	241.40	0.214	Fixed	277.30	351.3
J-6	241.10	0.100	Fixed	277.29	354.2
J-7	241.38	0.134	Fixed	277.28	351.4
J-8	241.60	8.145	Fixed	277.26	349.0
J-9	241.20	0.134	Fixed	277.29	353.2
J-10	241.25	0.267	Fixed	277.30	352.8
J-11	241.30	0.201	Fixed	277.31	352.4
J-12	241.35	0.201	Fixed	277.32	352.0
J-13	241.40	0.267	Fixed	277.33	351.7
J-14	241.45	0.134	Fixed	277.35	351.3
J-15	241.53	0.067	Fixed	277.35	350.6
J-16	241.72	0.201	Fixed	277.41	349.3
J-17	242.05	0.234	Fixed	277.52	347.1
J-18	242.21	0.000	Fixed	277.57	346.1
J-19	242.36	0.241	Fixed	277.63	345.2
J-20	242.60	0.267	Fixed	277.73	343.9
J-21	242.55	0.000	Fixed	277.75	344.5
J-22	242.21	0.267	Fixed	277.97	350.0
J-23	242.14	0.000	Fixed	278.02	351.1
J-24	242.06	0.475	Fixed	278.07	352.4
J-25	241.68	0.201	Fixed	278.35	358.9
J-26	241.68	0.067	Fixed	278.32	358.6
J-27	241.41	0.067	Fixed	278.13	359.4
J-28	241.48	0.033	Fixed	277.35	351.1
J-29	241.35	0.067	Fixed	277.47	353.5
J-30	241.20	0.033	Fixed	277.55	355.8
J-31	241.53	0.167	Fixed	277.62	353.2
J-32	241.45	0.401	Fixed	277.64	354.2
J-33	241.88	0.134	Fixed	277.68	350.4
J-34	241.88	0.167	Fixed	277.69	350.5
J-35	242.29	0.201	Fixed	277.72	346.7
J-36	242.38	0.067	Fixed	277.72	345.9
J-37	242.47	0.000	Fixed	277.73	345.1
J-38	241.52	0.134	Fixed	277.82	355.3
J-39	241.52	0.167	Fixed	277.88	355.9
J-40	241.27	0.301	Fixed	277.96	359.1
J-42	241.93	0.100	Fixed	277.92	352.2
J-43	242.03	0.033	Fixed	277.93	351.3
J-44	242.12	0.100	Fixed	277.94	350.5
J-45	242.35	0.134	Fixed	277.96	348.6
J-46	242.05	0.067	Fixed	277.99	351.8

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-57

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	278.00	352.8
J-48	241.87	0.100	Fixed	278.02	353.8
J-49	241.56	0.234	Fixed	278.06	357.2
J-50	242.25	0.201	Fixed	279.27	362.3
J-51	242.25	0.000	Fixed	279.92	368.7
J-52	245.69	0.167	Fixed	279.92	335.0
J-53	241.85	0.936	Fixed	279.96	373.0
J-54	240.34	0.067	Fixed	284.84	435.5
J-55	240.44	0.033	Fixed	284.93	435.4
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	76.251	Fixed	277.06	351.2
J-58	242.25	0.067	Fixed	279.56	365.1
J-59	241.58	0.201	Fixed	277.67	353.2
J-60	242.27	0.067	Fixed	282.90	397.7
J-64	241.33	0.201	Fixed	284.77	425.1
J-65	241.33	0.100	Fixed	284.91	426.5
J-68	240.44	0.000	Fixed	282.97	416.3
J-69	242.59	0.000	Fixed	279.92	365.4
J-70	243.84	0.000	Fixed	279.92	353.1
J-71	243.20	0.000	Fixed	282.97	389.3
J-72	241.53	8.100	Fixed	277.33	350.4

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-57

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	57.771	1.839	280.15	280.11
P-3	62.2	J-2	J-3	200.0	PVC	110.0	57.771	1.839	280.11	278.69
P-4	30.0	J-3	J-4	200.0	PVC	110.0	57.058	1.816	278.69	278.02
P-6	48.1	J-5	J-6	200.0	PVC	110.0	4.072	0.130	277.30	277.29
P-7	54.1	J-6	J-7	200.0	PVC	110.0	3.972	0.126	277.29	277.28
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	277.28	277.26
P-9	18.9	J-7	J-9	200.0	PVC	110.0	-4.307	0.137	277.28	277.29
P-10	48.8	J-9	J-10	200.0	PVC	110.0	-4.441	0.141	277.29	277.30
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-4.708	0.150	277.30	277.31
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-4.909	0.156	277.31	277.32
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-5.110	0.163	277.32	277.33
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-5.377	0.171	277.33	277.35
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-5.511	0.175	277.35	277.35
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-13.678	0.435	277.35	277.41
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-13.879	0.442	277.41	277.52
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-14.113	0.449	277.52	277.57
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-14.113	0.449	277.57	277.63
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-14.354	0.457	277.63	277.73
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-21.223	0.676	277.73	277.75
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-21.223	0.676	277.75	277.97
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-21.490	0.684	277.97	278.02
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-21.490	0.684	278.02	278.07
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-21.965	0.699	278.07	278.35
P-26	10.4	J-25	J-26	200.0	PVC	110.0	21.036	0.670	278.35	278.32
P-27	52.5	J-26	J-27	200.0	PVC	110.0	20.969	0.667	278.32	278.13
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-24.629	0.784	277.30	277.35
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-24.662	0.785	277.35	277.47
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-24.729	0.787	277.47	277.55
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-24.762	0.788	277.55	277.62

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-57

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-5.430	0.173	277.62	277.64
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-6.166	0.196	277.68	277.69
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-6.333	0.202	277.69	277.72
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-6.534	0.208	277.72	277.72
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-6.601	0.210	277.72	277.73
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-6.601	0.210	277.73	277.73
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-19.499	0.621	277.62	277.82
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-19.633	0.625	277.82	277.88
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-11.906	0.379	277.88	277.96
P-43	75.4	J-49	J-40	200.0	PVC	110.0	12.207	0.389	278.06	277.96
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-20.902	0.665	278.06	278.13
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-7.893	0.251	277.88	277.92
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-7.993	0.254	277.92	277.93
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-8.026	0.255	277.93	277.94
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-8.126	0.259	277.94	277.96
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-8.260	0.263	277.96	277.99
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-8.327	0.265	277.99	278.00
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-8.360	0.266	278.00	278.02
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-8.460	0.269	278.02	278.06
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-43.201	1.375	278.35	279.27
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-44.572	1.419	279.96	282.90
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-25.104	0.799	284.84	284.93
P-61	13.9	R-1	J-55	200.0	PVC	110.0	25.137	0.800	285.00	284.93
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-7.186	0.229	284.83	284.84
P-64	44.8	J-4	J-57	200.0	PVC	110.0	55.908	1.780	278.02	277.06
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-20.343	0.648	277.06	277.30
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-43.402	1.382	279.27	279.56
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-43.469	1.384	279.56	279.92
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-5.831	0.186	277.64	277.67

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-57

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-6.032	0.192	277.67	277.68
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-44.639	1.421	282.90	284.77
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.019	0.223	284.77	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-37.821	1.204	284.77	284.91
P-76	8.7	R-3	J-65	200.0	PVC	110.0	37.921	1.207	285.00	284.91
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-43.636	0.889	279.92	279.96
P-83	12.8	R-2	J-54	200.0	PVC	110.0	41.407	1.318	285.00	284.84
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-59.258	1.886	280.15	282.97
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-59.258	1.886	282.97	284.84
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	279.92	279.92
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	279.92	279.92
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	279.92	279.92
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	282.97	282.97
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	277.35	277.33

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-59

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.83	394.5
J-2	240.52	0.000	Fixed	280.79	394.1
J-3	240.99	0.713	Fixed	279.58	377.6
J-4	240.84	1.150	Fixed	279.00	373.5
J-5	241.40	0.214	Fixed	276.88	347.2
J-6	241.10	0.100	Fixed	276.68	348.2
J-7	241.38	0.134	Fixed	276.45	343.2
J-8	241.60	8.145	Fixed	276.42	340.8
J-9	241.20	0.134	Fixed	276.41	344.6
J-10	241.25	0.267	Fixed	276.32	343.3
J-11	241.30	0.201	Fixed	276.23	341.8
J-12	241.35	0.201	Fixed	276.15	340.5
J-13	241.40	0.267	Fixed	276.06	339.2
J-14	241.45	0.134	Fixed	275.96	337.8
J-15	241.53	0.067	Fixed	275.95	336.9
J-16	241.72	0.201	Fixed	275.94	334.9
J-17	242.05	0.234	Fixed	275.92	331.5
J-18	242.21	0.000	Fixed	275.91	329.8
J-19	242.36	0.241	Fixed	275.90	328.3
J-20	242.60	0.267	Fixed	275.89	325.8
J-21	242.55	0.000	Fixed	275.92	326.6
J-22	242.21	0.267	Fixed	276.33	333.9
J-23	242.14	0.000	Fixed	276.40	335.3
J-24	242.06	0.475	Fixed	276.50	337.0
J-25	241.68	0.201	Fixed	277.01	345.8
J-26	241.68	0.067	Fixed	276.99	345.5
J-27	241.41	0.067	Fixed	276.86	346.9
J-28	241.48	0.033	Fixed	276.82	345.8
J-29	241.35	0.067	Fixed	276.68	345.8
J-30	241.20	0.033	Fixed	276.58	346.2
J-31	241.53	0.167	Fixed	276.50	342.2
J-32	241.45	0.401	Fixed	275.34	331.7
J-33	241.88	0.134	Fixed	274.80	322.2
J-34	241.88	0.167	Fixed	274.89	323.0
J-35	242.29	0.201	Fixed	275.56	325.7
J-36	242.38	0.067	Fixed	275.67	325.8
J-37	242.47	0.000	Fixed	275.76	325.8
J-38	241.52	0.134	Fixed	276.64	343.7
J-39	241.52	0.167	Fixed	276.68	344.1
J-40	241.27	0.301	Fixed	276.73	347.1
J-42	241.93	0.100	Fixed	276.70	340.3
J-43	242.03	0.033	Fixed	276.71	339.4
J-44	242.12	0.100	Fixed	276.72	338.6
J-45	242.35	0.134	Fixed	276.74	336.6
J-46	242.05	0.067	Fixed	276.76	339.7

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-59

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	276.77	340.6
J-48	241.87	0.100	Fixed	276.77	341.6
J-49	241.56	0.234	Fixed	276.80	344.9
J-50	242.25	0.201	Fixed	278.12	351.0
J-51	242.25	0.000	Fixed	278.91	358.8
J-52	245.69	0.167	Fixed	278.91	325.1
J-53	241.85	0.936	Fixed	278.95	363.1
J-54	240.34	0.067	Fixed	284.85	435.6
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	278.18	362.3
J-58	242.25	0.067	Fixed	278.47	354.5
J-59	241.58	75.971	Fixed	274.38	321.0
J-60	242.27	0.067	Fixed	282.49	393.7
J-64	241.33	0.201	Fixed	284.74	424.8
J-65	241.33	0.100	Fixed	284.90	426.4
J-68	240.44	0.000	Fixed	283.25	419.0
J-69	242.59	0.000	Fixed	278.91	355.4
J-70	243.84	0.000	Fixed	278.91	343.2
J-71	243.20	0.000	Fixed	283.25	391.9
J-72	241.53	8.100	Fixed	275.93	336.6

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-59

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	53.102	1.690	280.83	280.79
P-3	62.2	J-2	J-3	200.0	PVC	110.0	53.102	1.690	280.79	279.58
P-4	30.0	J-3	J-4	200.0	PVC	110.0	52.389	1.668	279.58	279.00
P-6	48.1	J-5	J-6	200.0	PVC	110.0	23.280	0.741	276.88	276.68
P-7	54.1	J-6	J-7	200.0	PVC	110.0	23.180	0.738	276.68	276.45
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	276.45	276.42
P-9	18.9	J-7	J-9	200.0	PVC	110.0	14.901	0.474	276.45	276.41
P-10	48.8	J-9	J-10	200.0	PVC	110.0	14.767	0.470	276.41	276.32
P-11	55.0	J-10	J-11	200.0	PVC	110.0	14.500	0.462	276.32	276.23
P-12	47.2	J-11	J-12	200.0	PVC	110.0	14.299	0.455	276.23	276.15
P-13	48.8	J-12	J-13	200.0	PVC	110.0	14.098	0.449	276.15	276.06
P-14	62.8	J-13	J-14	200.0	PVC	110.0	13.831	0.440	276.06	275.96
P-15	8.4	J-14	J-15	200.0	PVC	110.0	13.697	0.436	275.96	275.95
P-16	36.8	J-15	J-16	200.0	PVC	110.0	5.530	0.176	275.95	275.94
P-17	66.7	J-16	J-17	200.0	PVC	110.0	5.329	0.170	275.94	275.92
P-18	32.1	J-17	J-18	200.0	PVC	110.0	5.095	0.162	275.92	275.91
P-19	32.6	J-18	J-19	200.0	PVC	110.0	5.095	0.162	275.91	275.90
P-20	62.1	J-19	J-20	200.0	PVC	110.0	4.854	0.154	275.90	275.89
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-29.452	0.937	275.89	275.92
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-29.452	0.937	275.92	276.33
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-29.719	0.946	276.33	276.40
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-29.719	0.946	276.40	276.50
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-30.194	0.961	276.50	277.01
P-26	10.4	J-25	J-26	200.0	PVC	110.0	17.475	0.556	277.01	276.99
P-27	52.5	J-26	J-27	200.0	PVC	110.0	17.408	0.554	276.99	276.86
P-29	11.2	J-5	J-28	200.0	PVC	110.0	27.265	0.868	276.88	276.82
P-30	24.4	J-28	J-29	200.0	PVC	110.0	27.232	0.867	276.82	276.68
P-31	18.1	J-29	J-30	200.0	PVC	110.0	27.165	0.865	276.68	276.58
P-32	13.7	J-30	J-31	200.0	PVC	110.0	27.132	0.864	276.58	276.50

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-59

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	42.902	1.366	276.50	275.34
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-33.604	1.070	274.80	274.89
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-33.771	1.075	274.89	275.56
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-33.972	1.081	275.56	275.67
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-34.039	1.083	275.67	275.76
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-34.039	1.083	275.76	275.89
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-15.938	0.507	276.50	276.64
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-16.072	0.512	276.64	276.68
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-9.784	0.311	276.68	276.73
P-43	75.4	J-49	J-40	200.0	PVC	110.0	10.085	0.321	276.80	276.73
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-17.341	0.552	276.80	276.86
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-6.454	0.205	276.68	276.70
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-6.554	0.209	276.70	276.71
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-6.587	0.210	276.71	276.72
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-6.687	0.213	276.72	276.74
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-6.821	0.217	276.74	276.76
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-6.888	0.219	276.76	276.77
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-6.921	0.220	276.77	276.77
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-7.021	0.224	276.77	276.80
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-47.870	1.524	277.01	278.12
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-49.241	1.567	278.95	282.49
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-24.101	0.767	284.85	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	24.134	0.768	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-9.200	0.293	284.83	284.85
P-64	44.8	J-4	J-57	200.0	PVC	110.0	51.239	1.631	279.00	278.18
P-65	72.6	J-57	J-5	200.0	PVC	110.0	50.758	1.616	278.18	276.88
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-48.071	1.530	278.12	278.47
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-48.138	1.532	278.47	278.91
P-68	74.5	J-32	J-59	200.0	PVC	110.0	42.501	1.353	275.34	274.38

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-59

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-33.470	1.065	274.38	274.80
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-49.308	1.570	282.49	284.74
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-9.033	0.288	284.74	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-40.476	1.288	284.74	284.90
P-76	8.7	R-3	J-65	200.0	PVC	110.0	40.576	1.292	285.00	284.90
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-48.305	0.984	278.91	278.95
P-83	12.8	R-2	J-54	200.0	PVC	110.0	39.755	1.265	285.00	284.85
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-54.589	1.738	280.83	283.25
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-54.589	1.738	283.25	284.85
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	278.91	278.91
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	278.91	278.91
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	278.91	278.91
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.25	283.25
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	275.95	275.93

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-68

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.84	404.4
J-2	240.52	0.000	Fixed	281.84	404.4
J-3	240.99	0.713	Fixed	281.84	399.8
J-4	240.84	1.150	Fixed	281.84	401.2
J-5	241.40	0.214	Fixed	281.85	395.9
J-6	241.10	0.100	Fixed	281.82	398.5
J-7	241.38	0.134	Fixed	281.78	395.4
J-8	241.60	8.145	Fixed	281.76	393.0
J-9	241.20	0.134	Fixed	281.78	397.2
J-10	241.25	0.267	Fixed	281.78	396.7
J-11	241.30	0.201	Fixed	281.78	396.2
J-12	241.35	0.201	Fixed	281.78	395.7
J-13	241.40	0.267	Fixed	281.78	395.2
J-14	241.45	0.134	Fixed	281.78	394.7
J-15	241.53	0.067	Fixed	281.78	393.9
J-16	241.72	0.201	Fixed	281.81	392.3
J-17	242.05	0.234	Fixed	281.86	389.6
J-18	242.21	0.000	Fixed	281.88	388.3
J-19	242.36	0.241	Fixed	281.91	387.1
J-20	242.60	0.267	Fixed	281.96	385.2
J-21	242.55	0.000	Fixed	281.97	385.8
J-22	242.21	0.267	Fixed	282.05	390.0
J-23	242.14	0.000	Fixed	282.07	390.8
J-24	242.06	0.475	Fixed	282.09	391.8
J-25	241.68	0.201	Fixed	282.21	396.6
J-26	241.68	0.067	Fixed	282.19	396.5
J-27	241.41	0.067	Fixed	282.12	398.5
J-28	241.48	0.033	Fixed	281.87	395.2
J-29	241.35	0.067	Fixed	281.90	396.8
J-30	241.20	0.033	Fixed	281.92	398.5
J-31	241.53	0.167	Fixed	281.94	395.5
J-32	241.45	0.401	Fixed	281.94	396.3
J-33	241.88	0.134	Fixed	281.95	392.2
J-34	241.88	0.167	Fixed	281.95	392.2
J-35	242.29	0.201	Fixed	281.96	388.2
J-36	242.38	0.067	Fixed	281.96	387.3
J-37	242.47	0.000	Fixed	281.96	386.5
J-38	241.52	0.134	Fixed	282.01	396.3
J-39	241.52	0.167	Fixed	282.03	396.5
J-40	241.27	0.301	Fixed	282.06	399.2
J-42	241.93	0.100	Fixed	282.04	392.6
J-43	242.03	0.033	Fixed	282.05	391.6
J-44	242.12	0.100	Fixed	282.05	390.8
J-45	242.35	0.134	Fixed	282.06	388.6
J-46	242.05	0.067	Fixed	282.07	391.7

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-68

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	282.08	392.6
J-48	241.87	0.100	Fixed	282.08	393.5
J-49	241.56	0.234	Fixed	282.10	396.7
J-50	242.25	0.201	Fixed	282.57	394.6
J-51	242.25	0.000	Fixed	282.83	397.2
J-52	245.69	0.167	Fixed	282.83	363.5
J-53	241.85	0.936	Fixed	282.85	401.2
J-54	240.34	0.067	Fixed	284.81	435.3
J-55	240.44	0.033	Fixed	284.92	435.3
J-56	240.44	0.167	Fixed	284.82	434.3
J-57	241.17	0.481	Fixed	281.84	398.1
J-58	242.25	0.067	Fixed	282.69	395.8
J-59	241.58	0.201	Fixed	281.95	395.1
J-60	242.27	0.067	Fixed	284.06	409.0
J-64	241.33	0.201	Fixed	284.84	425.8
J-65	241.33	0.100	Fixed	284.93	426.8
J-68	240.44	75.770	Fixed	281.84	405.1
J-69	242.59	0.000	Fixed	282.83	393.9
J-70	243.84	0.000	Fixed	282.83	381.6
J-71	243.20	0.000	Fixed	281.84	378.1
J-72	241.53	8.100	Fixed	281.76	393.7

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-68

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	-1.059	0.034	281.84	281.84
P-3	62.2	J-2	J-3	200.0	PVC	110.0	-1.059	0.034	281.84	281.84
P-4	30.0	J-3	J-4	200.0	PVC	110.0	-1.772	0.056	281.84	281.84
P-6	48.1	J-5	J-6	200.0	PVC	110.0	8.785	0.280	281.85	281.82
P-7	54.1	J-6	J-7	200.0	PVC	110.0	8.685	0.276	281.82	281.78
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	281.78	281.76
P-9	18.9	J-7	J-9	200.0	PVC	110.0	0.406	0.013	281.78	281.78
P-10	48.8	J-9	J-10	200.0	PVC	110.0	0.272	0.009	281.78	281.78
P-11	55.0	J-10	J-11	200.0	PVC	110.0	0.005	0.000	281.78	281.78
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-0.196	0.006	281.78	281.78
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-0.397	0.013	281.78	281.78
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-0.664	0.021	281.78	281.78
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-0.798	0.025	281.78	281.78
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-8.965	0.285	281.78	281.81
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-9.166	0.292	281.81	281.86
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-9.400	0.299	281.86	281.88
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-9.400	0.299	281.88	281.91
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-9.641	0.307	281.91	281.96
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-12.806	0.408	281.96	281.97
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-12.806	0.408	281.97	282.05
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-13.073	0.416	282.05	282.07
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-13.073	0.416	282.07	282.09
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-13.548	0.431	282.09	282.21
P-26	10.4	J-25	J-26	200.0	PVC	110.0	12.512	0.398	282.21	282.19
P-27	52.5	J-26	J-27	200.0	PVC	110.0	12.445	0.396	282.19	282.12
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-12.402	0.395	281.85	281.87
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-12.435	0.396	281.87	281.90
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-12.502	0.398	281.90	281.92
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-12.535	0.399	281.92	281.94

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-68

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-1.727	0.055	281.94	281.94
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-2.463	0.078	281.95	281.95
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-2.630	0.084	281.95	281.96
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-2.831	0.090	281.96	281.96
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-2.898	0.092	281.96	281.96
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-2.898	0.092	281.96	281.96
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-10.975	0.349	281.94	282.01
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-11.109	0.354	282.01	282.03
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-6.827	0.217	282.03	282.06
P-43	75.4	J-49	J-40	200.0	PVC	110.0	7.128	0.227	282.10	282.06
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-12.378	0.394	282.10	282.12
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-4.449	0.142	282.03	282.04
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-4.549	0.145	282.04	282.05
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-4.582	0.146	282.05	282.05
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-4.682	0.149	282.05	282.06
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-4.816	0.153	282.06	282.07
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-4.883	0.155	282.07	282.08
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-4.916	0.156	282.08	282.08
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-5.016	0.160	282.08	282.10
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-26.261	0.836	282.21	282.57
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-27.632	0.880	282.85	284.06
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-27.438	0.873	284.81	284.92
P-61	13.9	R-1	J-55	200.0	PVC	110.0	27.471	0.874	285.00	284.92
P-62	29.9	J-56	J-54	200.0	PVC	110.0	3.573	0.114	284.82	284.81
P-64	44.8	J-4	J-57	200.0	PVC	110.0	-2.922	0.093	281.84	281.84
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-3.403	0.108	281.84	281.85
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-26.462	0.842	282.57	282.69
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-26.529	0.844	282.69	282.83
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-2.128	0.068	281.94	281.95

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-68

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-2.329	0.074	281.95	281.95
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-27.699	0.882	284.06	284.84
P-74	123.3	J-64	J-56	200.0	PVC	110.0	3.740	0.119	284.84	284.82
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-31.639	1.007	284.84	284.93
P-76	8.7	R-3	J-65	200.0	PVC	110.0	31.739	1.010	285.00	284.93
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-26.696	0.544	282.83	282.85
P-83	12.8	R-2	J-54	200.0	PVC	110.0	45.255	1.441	285.00	284.81
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-0.428	0.014	281.84	281.84
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-76.198	2.425	281.84	284.81
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	282.83	282.83
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	282.83	282.83
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	282.83	282.83
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	281.84	281.84
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	281.78	281.76

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-69

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.66	402.6
J-2	240.52	0.000	Fixed	281.63	402.3
J-3	240.99	0.713	Fixed	280.66	388.3
J-4	240.84	1.150	Fixed	280.21	385.3
J-5	241.40	0.214	Fixed	278.55	363.5
J-6	241.10	0.100	Fixed	278.40	365.1
J-7	241.38	0.134	Fixed	278.24	360.8
J-8	241.60	8.145	Fixed	278.22	358.4
J-9	241.20	0.134	Fixed	278.22	362.3
J-10	241.25	0.267	Fixed	278.17	361.3
J-11	241.30	0.201	Fixed	278.12	360.3
J-12	241.35	0.201	Fixed	278.07	359.4
J-13	241.40	0.267	Fixed	278.03	358.5
J-14	241.45	0.134	Fixed	277.97	357.5
J-15	241.53	0.067	Fixed	277.97	356.6
J-16	241.72	0.201	Fixed	277.97	354.7
J-17	242.05	0.234	Fixed	277.96	351.5
J-18	242.21	0.000	Fixed	277.96	349.9
J-19	242.36	0.241	Fixed	277.96	348.4
J-20	242.60	0.267	Fixed	277.96	346.1
J-21	242.55	0.000	Fixed	277.96	346.5
J-22	242.21	0.267	Fixed	277.91	349.4
J-23	242.14	0.000	Fixed	277.90	350.0
J-24	242.06	0.475	Fixed	277.89	350.7
J-25	241.68	0.201	Fixed	277.84	353.9
J-26	241.68	0.067	Fixed	277.86	354.1
J-27	241.41	0.067	Fixed	277.94	357.5
J-28	241.48	0.033	Fixed	278.49	362.2
J-29	241.35	0.067	Fixed	278.38	362.4
J-30	241.20	0.033	Fixed	278.29	363.0
J-31	241.53	0.167	Fixed	278.22	359.1
J-32	241.45	0.401	Fixed	278.15	359.2
J-33	241.88	0.134	Fixed	278.05	354.0
J-34	241.88	0.167	Fixed	278.04	353.9
J-35	242.29	0.201	Fixed	277.99	349.4
J-36	242.38	0.067	Fixed	277.98	348.4
J-37	242.47	0.000	Fixed	277.97	347.5
J-38	241.52	0.134	Fixed	278.10	358.0
J-39	241.52	0.167	Fixed	278.06	357.7
J-40	241.27	0.301	Fixed	278.02	359.7
J-42	241.93	0.100	Fixed	278.04	353.4
J-43	242.03	0.033	Fixed	278.04	352.4
J-44	242.12	0.100	Fixed	278.03	351.5
J-45	242.35	0.134	Fixed	278.02	349.1
J-46	242.05	0.067	Fixed	278.00	351.9

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-69

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	278.00	352.7
J-48	241.87	0.100	Fixed	277.99	353.5
J-49	241.56	0.234	Fixed	277.97	356.4
J-50	242.25	0.201	Fixed	277.59	345.9
J-51	242.25	0.000	Fixed	277.41	344.1
J-52	245.69	0.167	Fixed	276.63	302.8
J-53	241.85	0.936	Fixed	277.47	348.6
J-54	240.34	0.067	Fixed	284.87	435.8
J-55	240.44	0.033	Fixed	284.94	435.6
J-56	240.44	0.167	Fixed	284.83	434.5
J-57	241.17	0.481	Fixed	279.57	375.8
J-58	242.25	0.067	Fixed	277.51	345.1
J-59	241.58	0.201	Fixed	278.09	357.3
J-60	242.27	0.067	Fixed	281.89	387.8
J-64	241.33	0.201	Fixed	284.69	424.4
J-65	241.33	0.100	Fixed	284.88	426.2
J-68	240.44	0.000	Fixed	283.59	422.3
J-69	242.59	75.770	Fixed	276.63	333.2
J-70	243.84	0.000	Fixed	276.63	320.9
J-71	243.20	0.000	Fixed	283.59	395.3
J-72	241.53	8.100	Fixed	277.94	356.4

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-69

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	46.840	1.491	281.66	281.63
P-3	62.2	J-2	J-3	200.0	PVC	110.0	46.840	1.491	281.63	280.66
P-4	30.0	J-3	J-4	200.0	PVC	110.0	46.127	1.468	280.66	280.21
P-6	48.1	J-5	J-6	200.0	PVC	110.0	19.328	0.615	278.55	278.40
P-7	54.1	J-6	J-7	200.0	PVC	110.0	19.228	0.612	278.40	278.24
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	278.24	278.22
P-9	18.9	J-7	J-9	200.0	PVC	110.0	10.949	0.349	278.24	278.22
P-10	48.8	J-9	J-10	200.0	PVC	110.0	10.815	0.344	278.22	278.17
P-11	55.0	J-10	J-11	200.0	PVC	110.0	10.548	0.336	278.17	278.12
P-12	47.2	J-11	J-12	200.0	PVC	110.0	10.347	0.329	278.12	278.07
P-13	48.8	J-12	J-13	200.0	PVC	110.0	10.146	0.323	278.07	278.03
P-14	62.8	J-13	J-14	200.0	PVC	110.0	9.879	0.314	278.03	277.97
P-15	8.4	J-14	J-15	200.0	PVC	110.0	9.745	0.310	277.97	277.97
P-16	36.8	J-15	J-16	200.0	PVC	110.0	1.578	0.050	277.97	277.97
P-17	66.7	J-16	J-17	200.0	PVC	110.0	1.377	0.044	277.97	277.96
P-18	32.1	J-17	J-18	200.0	PVC	110.0	1.143	0.036	277.96	277.96
P-19	32.6	J-18	J-19	200.0	PVC	110.0	1.143	0.036	277.96	277.96
P-20	62.1	J-19	J-20	200.0	PVC	110.0	0.902	0.029	277.96	277.96
P-21	5.5	J-20	J-21	200.0	PVC	110.0	9.217	0.293	277.96	277.96
P-22	61.7	J-21	J-22	200.0	PVC	110.0	9.217	0.293	277.96	277.91
P-23	11.1	J-22	J-23	200.0	PVC	110.0	8.950	0.285	277.91	277.90
P-24	13.9	J-23	J-24	200.0	PVC	110.0	8.950	0.285	277.90	277.89
P-25	75.3	J-24	J-25	200.0	PVC	110.0	8.475	0.270	277.89	277.84
P-26	10.4	J-25	J-26	200.0	PVC	110.0	-13.364	0.425	277.84	277.86
P-27	52.5	J-26	J-27	200.0	PVC	110.0	-13.431	0.428	277.86	277.94
P-29	11.2	J-5	J-28	200.0	PVC	110.0	24.953	0.794	278.55	278.49
P-30	24.4	J-28	J-29	200.0	PVC	110.0	24.920	0.793	278.49	278.38
P-31	18.1	J-29	J-30	200.0	PVC	110.0	24.853	0.791	278.38	278.29
P-32	13.7	J-30	J-31	200.0	PVC	110.0	24.820	0.790	278.29	278.22

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-69

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	9.752	0.310	278.22	278.15
P-35	10.5	J-33	J-34	200.0	PVC	110.0	9.016	0.287	278.05	278.04
P-36	80.2	J-34	J-35	200.0	PVC	110.0	8.849	0.282	278.04	277.99
P-37	12.8	J-35	J-36	200.0	PVC	110.0	8.648	0.275	277.99	277.98
P-38	10.0	J-36	J-37	200.0	PVC	110.0	8.581	0.273	277.98	277.97
P-39	15.1	J-37	J-20	200.0	PVC	110.0	8.581	0.273	277.97	277.96
P-40	67.1	J-31	J-38	200.0	PVC	110.0	14.901	0.474	278.22	278.10
P-41	18.9	J-38	J-39	200.0	PVC	110.0	14.767	0.470	278.10	278.06
P-42	63.2	J-39	J-40	200.0	PVC	110.0	8.596	0.274	278.06	278.02
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-8.295	0.264	277.97	278.02
P-44	22.4	J-49	J-27	200.0	PVC	110.0	13.498	0.430	277.97	277.94
P-45	60.5	J-39	J-42	200.0	PVC	110.0	6.004	0.191	278.06	278.04
P-46	18.0	J-42	J-43	200.0	PVC	110.0	5.904	0.188	278.04	278.04
P-47	17.9	J-43	J-44	200.0	PVC	110.0	5.871	0.187	278.04	278.03
P-48	45.9	J-44	J-45	200.0	PVC	110.0	5.771	0.184	278.03	278.02
P-49	45.9	J-45	J-46	200.0	PVC	110.0	5.637	0.179	278.02	278.00
P-50	17.9	J-46	J-47	200.0	PVC	110.0	5.570	0.177	278.00	278.00
P-51	17.9	J-47	J-48	200.0	PVC	110.0	5.537	0.176	278.00	277.99
P-52	60.6	J-48	J-49	200.0	PVC	110.0	5.437	0.173	277.99	277.97
P-53	68.4	J-25	J-50	200.0	PVC	110.0	21.638	0.689	277.84	277.59
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-55.503	1.767	277.47	281.89
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-22.660	0.721	284.87	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	22.693	0.722	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-11.645	0.371	284.83	284.87
P-64	44.8	J-4	J-57	200.0	PVC	110.0	44.977	1.432	280.21	279.57
P-65	72.6	J-57	J-5	200.0	PVC	110.0	44.496	1.416	279.57	278.55
P-66	21.6	J-50	J-58	200.0	PVC	110.0	21.437	0.682	277.59	277.51
P-67	27.0	J-58	J-51	200.0	PVC	110.0	21.370	0.680	277.51	277.41
P-68	74.5	J-32	J-59	200.0	PVC	110.0	9.351	0.298	278.15	278.09

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-69

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	9.150	0.291	278.09	278.05
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-55.570	1.769	281.89	284.69
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-11.478	0.365	284.69	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-44.293	1.410	284.69	284.88
P-76	8.7	R-3	J-65	200.0	PVC	110.0	44.393	1.413	285.00	284.88
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-54.567	1.112	277.41	277.47
P-83	12.8	R-2	J-54	200.0	PVC	110.0	37.379	1.190	285.00	284.87
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-48.327	1.538	281.66	283.59
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-48.327	1.538	283.59	284.87
P-86	20.6	J-51	J-69	200.0	PVC	110.0	75.937	2.417	277.41	276.63
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	276.63	276.63
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	276.63	276.63
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.59	283.59
P-91	38.6	J-15	J-72	200.0	PVC	110.0	8.100	0.258	277.97	277.94

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-72

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.77	393.9
J-2	240.52	0.000	Fixed	280.73	393.5
J-3	240.99	0.713	Fixed	279.50	376.9
J-4	240.84	1.150	Fixed	278.92	372.6
J-5	241.40	0.214	Fixed	276.76	346.0
J-6	241.10	0.100	Fixed	276.03	341.8
J-7	241.38	0.134	Fixed	275.20	331.0
J-8	241.60	8.145	Fixed	275.18	328.6
J-9	241.20	0.134	Fixed	275.00	330.8
J-10	241.25	0.267	Fixed	274.49	325.4
J-11	241.30	0.201	Fixed	273.93	319.3
J-12	241.35	0.201	Fixed	273.44	314.1
J-13	241.40	0.267	Fixed	272.95	308.7
J-14	241.45	0.134	Fixed	272.32	302.1
J-15	241.53	0.067	Fixed	272.24	300.5
J-16	241.72	0.201	Fixed	272.81	304.3
J-17	242.05	0.234	Fixed	273.86	311.4
J-18	242.21	0.000	Fixed	274.38	314.8
J-19	242.36	0.241	Fixed	274.89	318.4
J-20	242.60	0.267	Fixed	275.89	325.8
J-21	242.55	0.000	Fixed	275.93	326.7
J-22	242.21	0.267	Fixed	276.38	334.4
J-23	242.14	0.000	Fixed	276.47	335.9
J-24	242.06	0.475	Fixed	276.57	337.7
J-25	241.68	0.201	Fixed	277.14	347.1
J-26	241.68	0.067	Fixed	277.12	346.9
J-27	241.41	0.067	Fixed	277.02	348.5
J-28	241.48	0.033	Fixed	276.76	345.2
J-29	241.35	0.067	Fixed	276.75	346.5
J-30	241.20	0.033	Fixed	276.75	347.9
J-31	241.53	0.167	Fixed	276.74	344.6
J-32	241.45	0.401	Fixed	276.51	343.2
J-33	241.88	0.134	Fixed	276.20	335.9
J-34	241.88	0.167	Fixed	276.17	335.6
J-35	242.29	0.201	Fixed	275.98	329.7
J-36	242.38	0.067	Fixed	275.95	328.6
J-37	242.47	0.000	Fixed	275.93	327.4
J-38	241.52	0.134	Fixed	276.85	345.8
J-39	241.52	0.167	Fixed	276.88	346.1
J-40	241.27	0.301	Fixed	276.92	348.9
J-42	241.93	0.100	Fixed	276.90	342.3
J-43	242.03	0.033	Fixed	276.91	341.3
J-44	242.12	0.100	Fixed	276.91	340.5
J-45	242.35	0.134	Fixed	276.93	338.4
J-46	242.05	0.067	Fixed	276.94	341.5

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-72

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	276.95	342.4
J-48	241.87	0.100	Fixed	276.96	343.4
J-49	241.56	0.234	Fixed	276.98	346.6
J-50	242.25	0.201	Fixed	278.23	352.1
J-51	242.25	0.000	Fixed	279.01	359.7
J-52	245.69	0.167	Fixed	279.01	326.1
J-53	241.85	0.936	Fixed	279.05	364.1
J-54	240.34	0.067	Fixed	284.85	435.6
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.83	434.4
J-57	241.17	0.481	Fixed	278.08	361.3
J-58	242.25	0.067	Fixed	278.57	355.5
J-59	241.58	0.201	Fixed	276.32	340.0
J-60	242.27	0.067	Fixed	282.53	394.1
J-64	241.33	0.201	Fixed	284.74	424.9
J-65	241.33	0.100	Fixed	284.90	426.4
J-68	240.44	0.000	Fixed	283.22	418.7
J-69	242.59	0.000	Fixed	279.01	356.4
J-70	243.84	0.000	Fixed	279.01	344.2
J-71	243.20	0.000	Fixed	283.22	391.7
J-72	241.53	83.870	Fixed	270.48	283.3

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-72

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	53.534	1.704	280.77	280.73
P-3	62.2	J-2	J-3	200.0	PVC	110.0	53.534	1.704	280.73	279.50
P-4	30.0	J-3	J-4	200.0	PVC	110.0	52.821	1.681	279.50	278.92
P-6	48.1	J-5	J-6	200.0	PVC	110.0	46.433	1.478	276.76	276.03
P-7	54.1	J-6	J-7	200.0	PVC	110.0	46.333	1.475	276.03	275.20
P-8	38.3	J-7	J-8	200.0	PVC	110.0	8.145	0.259	275.20	275.18
P-9	18.9	J-7	J-9	200.0	PVC	110.0	38.054	1.211	275.20	275.00
P-10	48.8	J-9	J-10	200.0	PVC	110.0	37.920	1.207	275.00	274.49
P-11	55.0	J-10	J-11	200.0	PVC	110.0	37.653	1.199	274.49	273.93
P-12	47.2	J-11	J-12	200.0	PVC	110.0	37.452	1.192	273.93	273.44
P-13	48.8	J-12	J-13	200.0	PVC	110.0	37.251	1.186	273.44	272.95
P-14	62.8	J-13	J-14	200.0	PVC	110.0	36.984	1.177	272.95	272.32
P-15	8.4	J-14	J-15	200.0	PVC	110.0	36.850	1.173	272.32	272.24
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-47.087	1.499	272.24	272.81
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-47.288	1.505	272.81	273.86
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-47.522	1.513	273.86	274.38
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-47.522	1.513	274.38	274.89
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-47.763	1.520	274.89	275.89
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-31.199	0.993	275.89	275.93
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-31.199	0.993	275.93	276.38
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-31.466	1.002	276.38	276.47
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-31.466	1.002	276.47	276.57
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-31.941	1.017	276.57	277.14
P-26	10.4	J-25	J-26	200.0	PVC	110.0	15.296	0.487	277.14	277.12
P-27	52.5	J-26	J-27	200.0	PVC	110.0	15.229	0.485	277.12	277.02
P-29	11.2	J-5	J-28	200.0	PVC	110.0	4.543	0.145	276.76	276.76
P-30	24.4	J-28	J-29	200.0	PVC	110.0	4.510	0.144	276.76	276.75
P-31	18.1	J-29	J-30	200.0	PVC	110.0	4.443	0.141	276.75	276.75
P-32	13.7	J-30	J-31	200.0	PVC	110.0	4.410	0.140	276.75	276.74

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-72

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	18.003	0.573	276.74	276.51
P-35	10.5	J-33	J-34	200.0	PVC	110.0	17.267	0.550	276.20	276.17
P-36	80.2	J-34	J-35	200.0	PVC	110.0	17.100	0.544	276.17	275.98
P-37	12.8	J-35	J-36	200.0	PVC	110.0	16.899	0.538	275.98	275.95
P-38	10.0	J-36	J-37	200.0	PVC	110.0	16.832	0.536	275.95	275.93
P-39	15.1	J-37	J-20	200.0	PVC	110.0	16.832	0.536	275.93	275.89
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-13.759	0.438	276.74	276.85
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-13.893	0.442	276.85	276.88
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-8.486	0.270	276.88	276.92
P-43	75.4	J-49	J-40	200.0	PVC	110.0	8.787	0.280	276.98	276.92
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-15.162	0.483	276.98	277.02
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-5.574	0.177	276.88	276.90
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-5.674	0.181	276.90	276.91
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-5.707	0.182	276.91	276.91
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-5.807	0.185	276.91	276.93
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-5.941	0.189	276.93	276.94
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-6.008	0.191	276.94	276.95
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-6.041	0.192	276.95	276.96
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-6.141	0.195	276.96	276.98
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-47.438	1.510	277.14	278.23
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-48.809	1.554	279.05	282.53
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-24.197	0.770	284.85	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	24.230	0.771	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-9.022	0.287	284.83	284.85
P-64	44.8	J-4	J-57	200.0	PVC	110.0	51.671	1.645	278.92	278.08
P-65	72.6	J-57	J-5	200.0	PVC	110.0	51.190	1.629	278.08	276.76
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-47.639	1.516	278.23	278.57
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-47.706	1.519	278.57	279.01
P-68	74.5	J-32	J-59	200.0	PVC	110.0	17.602	0.560	276.51	276.32

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-72

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	17.401	0.554	276.32	276.20
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-48.876	1.556	282.53	284.74
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-8.855	0.282	284.74	284.83
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-40.222	1.280	284.74	284.90
P-76	8.7	R-3	J-65	200.0	PVC	110.0	40.322	1.283	285.00	284.90
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-47.873	0.975	279.01	279.05
P-83	12.8	R-2	J-54	200.0	PVC	110.0	39.913	1.270	285.00	284.85
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-55.021	1.751	280.77	283.22
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-55.021	1.751	283.22	284.85
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	279.01	279.01
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	279.01	279.01
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	279.01	279.01
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.22	283.22
P-91	38.6	J-15	J-72	200.0	PVC	110.0	83.870	2.670	272.24	270.48

APPENDIX G

Water Quality Results – Full Subdivision (with future demand)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: age analysis with future

Current Time: 0.00 hours

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)	Age (Calculated) (hours)	Age (Maximum) (hours)
J-1	240.52	0.541	Fixed	284.94	434.7	0.000	0.446
J-2	240.52	0.000	Fixed	284.94	434.7	0.000	0.546
J-3	240.99	0.259	Fixed	284.92	430.0	0.000	0.654
J-4	240.84	0.418	Fixed	284.92	431.4	0.000	0.754
J-5	241.40	0.078	Fixed	284.90	425.7	0.000	1.007
J-6	241.10	0.036	Fixed	284.89	428.5	0.000	1.110
J-7	241.38	0.049	Fixed	284.88	425.7	0.000	1.227
J-8	241.60	2.962	Fixed	284.88	423.5	0.000	1.340
J-9	241.20	0.049	Fixed	284.88	427.5	0.000	1.389
J-10	241.25	0.097	Fixed	284.88	427.0	0.000	1.829
J-11	241.30	0.073	Fixed	284.88	426.5	0.000	2.379
J-12	241.35	0.073	Fixed	284.88	426.0	0.000	2.896
J-13	241.40	0.097	Fixed	284.88	425.5	0.000	3.483
J-14	241.45	0.049	Fixed	284.88	425.0	0.000	4.354
J-15	241.53	0.024	Fixed	284.88	424.2	0.000	4.637
J-16	241.72	0.073	Fixed	284.88	422.4	0.000	4.541
J-17	242.05	0.085	Fixed	284.88	419.2	0.000	4.304
J-18	242.21	0.000	Fixed	284.89	417.7	0.000	4.194
J-19	242.36	0.088	Fixed	284.89	416.2	0.000	4.082
J-20	242.60	0.097	Fixed	284.89	413.9	0.000	3.877
J-21	242.55	0.000	Fixed	284.89	414.4	0.000	2.285
J-22	242.21	0.097	Fixed	284.90	417.8	0.000	2.026
J-23	242.14	0.000	Fixed	284.90	418.5	0.000	1.926
J-24	242.06	0.173	Fixed	284.90	419.2	0.000	1.826
J-25	241.68	0.073	Fixed	284.90	423.0	0.000	1.547
J-26	241.68	0.024	Fixed	284.90	423.0	0.000	1.647
J-27	241.41	0.024	Fixed	284.90	425.6	0.000	1.915
J-28	241.48	0.012	Fixed	284.90	424.9	0.000	20.664
J-29	241.35	0.024	Fixed	284.90	426.2	0.000	14.547
J-30	241.20	0.012	Fixed	284.90	427.6	0.000	8.344
J-31	241.53	0.061	Fixed	284.90	424.4	0.000	5.152
J-32	241.45	0.146	Fixed	284.89	425.2	0.000	5.864
J-33	241.88	0.049	Fixed	284.89	421.0	0.000	7.077
J-34	241.88	0.061	Fixed	284.89	421.0	0.000	7.190
J-35	242.29	0.073	Fixed	284.89	416.9	0.000	8.122
J-36	242.38	0.024	Fixed	284.89	416.1	0.000	8.287
J-37	242.47	0.000	Fixed	284.89	415.2	0.000	8.420
J-38	241.52	0.049	Fixed	284.90	424.5	0.000	4.654
J-39	241.52	0.061	Fixed	284.90	424.5	0.000	4.520
J-40	241.27	0.109	Fixed	284.90	427.0	0.000	2.748
J-42	241.93	0.036	Fixed	284.90	420.5	0.000	5.251
J-43	242.03	0.012	Fixed	284.90	419.5	0.000	4.947
J-44	242.12	0.036	Fixed	284.90	418.7	0.000	4.651

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: age analysis with future

Current Time: 0.00 hours

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)	Age (Calculated) (hours)	Age (Maximum) (hours)
J-45	242.35	0.049	Fixed	284.90	416.4	0.000	3.941
J-46	242.05	0.024	Fixed	284.90	419.4	0.000	3.288
J-47	241.96	0.012	Fixed	284.90	420.2	0.000	3.043
J-48	241.87	0.036	Fixed	284.90	421.1	0.000	2.803
J-49	241.56	0.085	Fixed	284.90	424.2	0.000	2.031
J-50	242.25	0.073	Fixed	284.91	417.5	0.000	1.403
J-51	242.25	0.000	Fixed	284.92	417.6	0.000	1.203
J-52	245.69	0.061	Fixed	284.92	384.0	0.000	24.804
J-53	241.85	0.340	Fixed	284.92	421.5	0.000	1.103
J-54	240.34	0.024	Fixed	285.00	437.1	0.000	0.138
J-55	240.44	0.012	Fixed	285.00	436.1	0.000	0.100
J-56	240.44	0.061	Fixed	285.00	436.1	0.000	0.433
J-57	241.17	0.175	Fixed	284.91	428.1	0.000	0.854
J-58	242.25	0.024	Fixed	284.92	417.6	0.000	1.303
J-59	241.58	0.073	Fixed	284.89	423.9	0.000	6.560
J-60	242.27	0.024	Fixed	284.97	417.9	0.000	0.713
J-64	241.33	0.073	Fixed	285.00	427.4	0.000	0.467
J-65	241.33	0.036	Fixed	285.00	427.4	0.000	0.100
J-68	240.44	0.000	Fixed	284.97	435.9	0.000	0.261
J-69	242.59	0.000	Fixed	284.92	414.3	0.000	4.156
J-70	243.84	(N/A)	Fixed	(N/A)	(N/A)	(N/A)	(N/A)
J-71	243.20	(N/A)	Fixed	(N/A)	(N/A)	(N/A)	(N/A)
J-72	241.53	2.945	Fixed	284.87	424.2	0.000	4.751

APPENDIX H

WaterCAD Results – Full Subdivision (without future demand)

Average Day Demand

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Average Day Demand No Future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	0.541	Fixed	284.99	435.2
J-2	240.52	0.000	Fixed	284.99	435.2
J-3	240.99	0.259	Fixed	284.98	430.6
J-4	240.84	0.418	Fixed	284.98	432.0
J-5	241.40	0.078	Fixed	284.98	426.5
J-6	241.10	0.036	Fixed	284.98	429.5
J-7	241.38	0.049	Fixed	284.98	426.7
J-8	241.60	0.012	Fixed	284.98	424.6
J-9	241.20	0.049	Fixed	284.98	428.5
J-10	241.25	0.097	Fixed	284.98	428.0
J-11	241.30	0.073	Fixed	284.98	427.5
J-12	241.35	0.073	Fixed	284.98	427.0
J-13	241.40	0.097	Fixed	284.98	426.5
J-14	241.45	0.049	Fixed	284.98	426.0
J-15	241.53	0.024	Fixed	284.98	425.3
J-16	241.72	0.073	Fixed	284.98	423.4
J-17	242.05	0.085	Fixed	284.98	420.2
J-18	242.21	0.000	Fixed	284.98	418.6
J-19	242.36	0.088	Fixed	284.98	417.1
J-20	242.60	0.097	Fixed	284.98	414.8
J-21	242.55	0.000	Fixed	284.98	415.3
J-22	242.21	0.097	Fixed	284.98	418.6
J-23	242.14	0.000	Fixed	284.98	419.3
J-24	242.06	0.173	Fixed	284.98	420.1
J-25	241.68	0.073	Fixed	284.98	423.8
J-26	241.68	0.024	Fixed	284.98	423.8
J-27	241.41	0.024	Fixed	284.98	426.4
J-28	241.48	0.012	Fixed	284.98	425.7
J-29	241.35	0.024	Fixed	284.98	427.0
J-30	241.20	0.012	Fixed	284.98	428.5
J-31	241.53	0.061	Fixed	284.98	425.3
J-32	241.45	0.146	Fixed	284.98	426.0
J-33	241.88	0.049	Fixed	284.98	421.8
J-34	241.88	0.061	Fixed	284.98	421.8
J-35	242.29	0.073	Fixed	284.98	417.8
J-36	242.38	0.024	Fixed	284.98	416.9
J-37	242.47	0.000	Fixed	284.98	416.1
J-38	241.52	0.049	Fixed	284.98	425.4
J-39	241.52	0.061	Fixed	284.98	425.4
J-40	241.27	0.109	Fixed	284.98	427.8
J-42	241.93	0.036	Fixed	284.98	421.3
J-43	242.03	0.012	Fixed	284.98	420.4
J-44	242.12	0.036	Fixed	284.98	419.5
J-45	242.35	0.049	Fixed	284.98	417.2
J-46	242.05	0.024	Fixed	284.98	420.2

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Average Day Demand No Future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.012	Fixed	284.98	421.0
J-48	241.87	0.036	Fixed	284.98	421.9
J-49	241.56	0.085	Fixed	284.98	425.0
J-50	242.25	0.073	Fixed	284.98	418.2
J-51	242.25	0.000	Fixed	284.99	418.2
J-52	245.69	0.061	Fixed	284.99	384.6
J-53	241.85	0.340	Fixed	284.99	422.2
J-54	240.34	0.024	Fixed	285.00	437.1
J-55	240.44	0.012	Fixed	285.00	436.1
J-56	240.44	0.061	Fixed	285.00	436.1
J-57	241.17	0.175	Fixed	284.98	428.8
J-58	242.25	0.024	Fixed	284.98	418.2
J-59	241.58	0.073	Fixed	284.98	424.8
J-60	242.27	0.024	Fixed	284.99	418.1
J-64	241.33	0.073	Fixed	285.00	427.4
J-65	241.33	0.036	Fixed	285.00	427.4
J-68	240.44	0.000	Fixed	284.99	436.0
J-69	242.59	0.000	Fixed	284.99	414.9
J-70	243.84	0.000	Fixed	284.99	402.7
J-71	243.20	0.000	Fixed	284.99	409.0
J-72	241.53	0.000	Fixed	284.98	425.3

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Average Day Demand No Future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	1.867	0.059	284.99	284.99
P-3	62.2	J-2	J-3	200.0	PVC	110.0	1.867	0.059	284.99	284.98
P-4	30.0	J-3	J-4	200.0	PVC	110.0	1.608	0.051	284.98	284.98
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.508	0.016	284.98	284.98
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.472	0.015	284.98	284.98
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.012	0.000	284.98	284.98
P-9	18.9	J-7	J-9	200.0	PVC	110.0	0.411	0.013	284.98	284.98
P-10	48.8	J-9	J-10	200.0	PVC	110.0	0.362	0.012	284.98	284.98
P-11	55.0	J-10	J-11	200.0	PVC	110.0	0.265	0.008	284.98	284.98
P-12	47.2	J-11	J-12	200.0	PVC	110.0	0.192	0.006	284.98	284.98
P-13	48.8	J-12	J-13	200.0	PVC	110.0	0.119	0.004	284.98	284.98
P-14	62.8	J-13	J-14	200.0	PVC	110.0	0.022	0.001	284.98	284.98
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-0.027	0.001	284.98	284.98
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-0.051	0.002	284.98	284.98
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-0.124	0.004	284.98	284.98
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-0.209	0.007	284.98	284.98
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-0.209	0.007	284.98	284.98
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-0.297	0.009	284.98	284.98
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-0.440	0.014	284.98	284.98
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-0.440	0.014	284.98	284.98
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-0.537	0.017	284.98	284.98
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-0.537	0.017	284.98	284.98
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-0.710	0.023	284.98	284.98
P-26	10.4	J-25	J-26	200.0	PVC	110.0	0.617	0.020	284.98	284.98
P-27	52.5	J-26	J-27	200.0	PVC	110.0	0.593	0.019	284.98	284.98
P-29	11.2	J-5	J-28	200.0	PVC	110.0	0.429	0.014	284.98	284.98
P-30	24.4	J-28	J-29	200.0	PVC	110.0	0.417	0.013	284.98	284.98
P-31	18.1	J-29	J-30	200.0	PVC	110.0	0.393	0.013	284.98	284.98
P-32	13.7	J-30	J-31	200.0	PVC	110.0	0.381	0.012	284.98	284.98

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Average Day Demand No Future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	0.380	0.012	284.98	284.98
P-35	10.5	J-33	J-34	200.0	PVC	110.0	0.112	0.004	284.98	284.98
P-36	80.2	J-34	J-35	200.0	PVC	110.0	0.051	0.002	284.98	284.98
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-0.022	0.001	284.98	284.98
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-0.046	0.001	284.98	284.98
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-0.046	0.001	284.98	284.98
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-0.060	0.002	284.98	284.98
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-0.109	0.003	284.98	284.98
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-0.148	0.005	284.98	284.98
P-43	75.4	J-49	J-40	200.0	PVC	110.0	0.257	0.008	284.98	284.98
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-0.569	0.018	284.98	284.98
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-0.022	0.001	284.98	284.98
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-0.058	0.002	284.98	284.98
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-0.070	0.002	284.98	284.98
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-0.106	0.003	284.98	284.98
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-0.155	0.005	284.98	284.98
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-0.179	0.006	284.98	284.98
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-0.191	0.006	284.98	284.98
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-0.227	0.007	284.98	284.98
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-1.400	0.045	284.98	284.98
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-1.898	0.060	284.99	284.99
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-1.062	0.034	285.00	285.00
P-61	13.9	R-1	J-55	200.0	PVC	110.0	1.074	0.034	285.00	285.00
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-0.390	0.012	285.00	285.00
P-64	44.8	J-4	J-57	200.0	PVC	110.0	1.190	0.038	284.98	284.98
P-65	72.6	J-57	J-5	200.0	PVC	110.0	1.015	0.032	284.98	284.98
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-1.473	0.047	284.98	284.98
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-1.497	0.048	284.98	284.99
P-68	74.5	J-32	J-59	200.0	PVC	110.0	0.234	0.007	284.98	284.98

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Average Day Demand No Future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	0.161	0.005	284.98	284.98
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-1.922	0.061	284.99	285.00
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-0.329	0.010	285.00	285.00
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-1.666	0.053	285.00	285.00
P-76	8.7	R-3	J-65	200.0	PVC	110.0	1.702	0.054	285.00	285.00
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-1.558	0.032	284.99	284.99
P-83	12.8	R-2	J-54	200.0	PVC	110.0	1.760	0.056	285.00	285.00
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-2.408	0.077	284.99	284.99
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-2.408	0.077	284.99	285.00
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.061	0.002	284.99	284.99
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.061	0.002	284.99	284.99
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	284.99	284.99
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	284.99	284.99
P-91	38.6	J-15	J-72	200.0	PVC	110.0	0.000	0.000	284.98	284.98

Maximum Hour Demand

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Hour No Future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	2.234	Fixed	284.82	433.6
J-2	240.52	0.000	Fixed	284.82	433.6
J-3	240.99	1.071	Fixed	284.79	428.6
J-4	240.84	1.727	Fixed	284.77	430.0
J-5	241.40	0.321	Fixed	284.75	424.3
J-6	241.10	0.151	Fixed	284.75	427.2
J-7	241.38	0.201	Fixed	284.75	424.4
J-8	241.60	0.050	Fixed	284.75	422.3
J-9	241.20	0.201	Fixed	284.75	426.2
J-10	241.25	0.402	Fixed	284.74	425.7
J-11	241.30	0.301	Fixed	284.74	425.2
J-12	241.35	0.301	Fixed	284.74	424.7
J-13	241.40	0.402	Fixed	284.74	424.2
J-14	241.45	0.201	Fixed	284.74	423.7
J-15	241.53	0.100	Fixed	284.74	422.9
J-16	241.72	0.301	Fixed	284.74	421.1
J-17	242.05	0.351	Fixed	284.74	417.8
J-18	242.21	0.000	Fixed	284.74	416.3
J-19	242.36	0.361	Fixed	284.74	414.8
J-20	242.60	0.402	Fixed	284.74	412.5
J-21	242.55	0.000	Fixed	284.74	413.0
J-22	242.21	0.402	Fixed	284.75	416.3
J-23	242.14	0.000	Fixed	284.75	417.0
J-24	242.06	0.713	Fixed	284.75	417.8
J-25	241.68	0.301	Fixed	284.76	421.6
J-26	241.68	0.100	Fixed	284.75	421.6
J-27	241.41	0.100	Fixed	284.75	424.2
J-28	241.48	0.050	Fixed	284.75	423.5
J-29	241.35	0.100	Fixed	284.75	424.7
J-30	241.20	0.050	Fixed	284.75	426.2
J-31	241.53	0.251	Fixed	284.75	423.0
J-32	241.45	0.602	Fixed	284.75	423.7
J-33	241.88	0.201	Fixed	284.74	419.5
J-34	241.88	0.251	Fixed	284.74	419.5
J-35	242.29	0.301	Fixed	284.74	415.5
J-36	242.38	0.100	Fixed	284.74	414.6
J-37	242.47	0.000	Fixed	284.74	413.7
J-38	241.52	0.201	Fixed	284.75	423.1
J-39	241.52	0.251	Fixed	284.75	423.1
J-40	241.27	0.452	Fixed	284.75	425.5
J-42	241.93	0.151	Fixed	284.75	419.1
J-43	242.03	0.050	Fixed	284.75	418.1
J-44	242.12	0.151	Fixed	284.75	417.2
J-45	242.35	0.201	Fixed	284.75	414.9
J-46	242.05	0.100	Fixed	284.75	417.9

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Max Hour No Future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.050	Fixed	284.75	418.8
J-48	241.87	0.151	Fixed	284.75	419.7
J-49	241.56	0.351	Fixed	284.75	422.7
J-50	242.25	0.301	Fixed	284.78	416.2
J-51	242.25	0.000	Fixed	284.79	416.4
J-52	245.69	0.251	Fixed	284.79	382.7
J-53	241.85	1.406	Fixed	284.80	420.3
J-54	240.34	0.100	Fixed	284.99	437.0
J-55	240.44	0.050	Fixed	285.00	436.1
J-56	240.44	0.251	Fixed	284.99	436.0
J-57	241.17	0.723	Fixed	284.76	426.6
J-58	242.25	0.100	Fixed	284.78	416.3
J-59	241.58	0.301	Fixed	284.74	422.4
J-60	242.27	0.100	Fixed	284.91	417.3
J-64	241.33	0.301	Fixed	284.99	427.3
J-65	241.33	0.151	Fixed	285.00	427.4
J-68	240.44	0.000	Fixed	284.93	435.4
J-69	242.59	0.000	Fixed	284.79	413.1
J-70	243.84	0.000	Fixed	284.79	400.8
J-71	243.20	0.000	Fixed	284.93	408.4
J-72	241.53	0.000	Fixed	284.74	422.9

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Hour No Future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	7.715	0.246	284.82	284.82
P-3	62.2	J-2	J-3	200.0	PVC	110.0	7.715	0.246	284.82	284.79
P-4	30.0	J-3	J-4	200.0	PVC	110.0	6.644	0.211	284.79	284.77
P-6	48.1	J-5	J-6	200.0	PVC	110.0	2.098	0.067	284.75	284.75
P-7	54.1	J-6	J-7	200.0	PVC	110.0	1.947	0.062	284.75	284.75
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.050	0.002	284.75	284.75
P-9	18.9	J-7	J-9	200.0	PVC	110.0	1.696	0.054	284.75	284.75
P-10	48.8	J-9	J-10	200.0	PVC	110.0	1.495	0.048	284.75	284.74
P-11	55.0	J-10	J-11	200.0	PVC	110.0	1.093	0.035	284.74	284.74
P-12	47.2	J-11	J-12	200.0	PVC	110.0	0.792	0.025	284.74	284.74
P-13	48.8	J-12	J-13	200.0	PVC	110.0	0.491	0.016	284.74	284.74
P-14	62.8	J-13	J-14	200.0	PVC	110.0	0.089	0.003	284.74	284.74
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-0.112	0.004	284.74	284.74
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-0.212	0.007	284.74	284.74
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-0.513	0.016	284.74	284.74
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-0.864	0.027	284.74	284.74
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-0.864	0.027	284.74	284.74
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-1.225	0.039	284.74	284.74
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-1.816	0.058	284.74	284.74
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-1.816	0.058	284.74	284.75
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-2.218	0.071	284.75	284.75
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-2.218	0.071	284.75	284.75
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-2.931	0.093	284.75	284.76
P-26	10.4	J-25	J-26	200.0	PVC	110.0	2.552	0.081	284.76	284.75
P-27	52.5	J-26	J-27	200.0	PVC	110.0	2.452	0.078	284.75	284.75
P-29	11.2	J-5	J-28	200.0	PVC	110.0	1.775	0.056	284.75	284.75
P-30	24.4	J-28	J-29	200.0	PVC	110.0	1.725	0.055	284.75	284.75
P-31	18.1	J-29	J-30	200.0	PVC	110.0	1.625	0.052	284.75	284.75
P-32	13.7	J-30	J-31	200.0	PVC	110.0	1.575	0.050	284.75	284.75

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Hour No Future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	1.566	0.050	284.75	284.75
P-35	10.5	J-33	J-34	200.0	PVC	110.0	0.462	0.015	284.74	284.74
P-36	80.2	J-34	J-35	200.0	PVC	110.0	0.211	0.007	284.74	284.74
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-0.090	0.003	284.74	284.74
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-0.190	0.006	284.74	284.74
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-0.190	0.006	284.74	284.74
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-0.243	0.008	284.75	284.75
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-0.444	0.014	284.75	284.75
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-0.609	0.019	284.75	284.75
P-43	75.4	J-49	J-40	200.0	PVC	110.0	1.061	0.034	284.75	284.75
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-2.352	0.075	284.75	284.75
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-0.086	0.003	284.75	284.75
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-0.237	0.008	284.75	284.75
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-0.287	0.009	284.75	284.75
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-0.438	0.014	284.75	284.75
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-0.639	0.020	284.75	284.75
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-0.739	0.024	284.75	284.75
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-0.789	0.025	284.75	284.75
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-0.940	0.030	284.75	284.75
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-5.784	0.184	284.76	284.78
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-7.842	0.250	284.80	284.91
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-4.388	0.140	284.99	285.00
P-61	13.9	R-1	J-55	200.0	PVC	110.0	4.438	0.141	285.00	285.00
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-1.609	0.051	284.99	284.99
P-64	44.8	J-4	J-57	200.0	PVC	110.0	4.917	0.157	284.77	284.76
P-65	72.6	J-57	J-5	200.0	PVC	110.0	4.194	0.133	284.76	284.75
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-6.085	0.194	284.78	284.78
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-6.185	0.197	284.78	284.79
P-68	74.5	J-32	J-59	200.0	PVC	110.0	0.964	0.031	284.75	284.74

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Hour No Future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	0.663	0.021	284.74	284.74
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-7.942	0.253	284.91	284.99
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-1.358	0.043	284.99	284.99
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-6.885	0.219	284.99	285.00
P-76	8.7	R-3	J-65	200.0	PVC	110.0	7.036	0.224	285.00	285.00
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-6.436	0.131	284.79	284.80
P-83	12.8	R-2	J-54	200.0	PVC	110.0	7.270	0.231	285.00	284.99
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-9.949	0.317	284.82	284.93
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-9.949	0.317	284.93	284.99
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.251	0.008	284.79	284.79
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.251	0.008	284.79	284.79
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	284.79	284.79
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	284.93	284.93
P-91	38.6	J-15	J-72	200.0	PVC	110.0	0.000	0.000	284.74	284.74

Maximum Day Demand + Fire Flow

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-1 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	77.257	Fixed	280.46	390.9
J-2	240.52	0.000	Fixed	280.47	391.0
J-3	240.99	0.713	Fixed	280.67	388.3
J-4	240.84	1.150	Fixed	280.77	390.8
J-5	241.40	0.214	Fixed	281.22	389.7
J-6	241.10	0.100	Fixed	281.23	392.8
J-7	241.38	0.134	Fixed	281.25	390.2
J-8	241.60	0.033	Fixed	281.25	388.0
J-9	241.20	0.134	Fixed	281.26	392.0
J-10	241.25	0.267	Fixed	281.27	391.7
J-11	241.30	0.201	Fixed	281.29	391.4
J-12	241.35	0.201	Fixed	281.31	391.1
J-13	241.40	0.267	Fixed	281.33	390.8
J-14	241.45	0.134	Fixed	281.35	390.5
J-15	241.53	0.067	Fixed	281.36	389.8
J-16	241.72	0.201	Fixed	281.37	388.1
J-17	242.05	0.234	Fixed	281.40	385.2
J-18	242.21	0.000	Fixed	281.42	383.7
J-19	242.36	0.241	Fixed	281.44	382.4
J-20	242.60	0.267	Fixed	281.47	380.4
J-21	242.55	0.000	Fixed	281.48	381.0
J-22	242.21	0.267	Fixed	281.57	385.2
J-23	242.14	0.000	Fixed	281.59	386.1
J-24	242.06	0.475	Fixed	281.61	387.1
J-25	241.68	0.201	Fixed	281.74	392.1
J-26	241.68	0.067	Fixed	281.72	391.9
J-27	241.41	0.067	Fixed	281.63	393.6
J-28	241.48	0.033	Fixed	281.25	389.2
J-29	241.35	0.067	Fixed	281.31	391.1
J-30	241.20	0.033	Fixed	281.35	393.0
J-31	241.53	0.167	Fixed	281.38	390.0
J-32	241.45	0.401	Fixed	281.40	391.0
J-33	241.88	0.134	Fixed	281.43	387.1
J-34	241.88	0.167	Fixed	281.44	387.1
J-35	242.29	0.201	Fixed	281.46	383.3
J-36	242.38	0.067	Fixed	281.46	382.5
J-37	242.47	0.000	Fixed	281.47	381.6
J-38	241.52	0.134	Fixed	281.48	391.1
J-39	241.52	0.167	Fixed	281.51	391.4
J-40	241.27	0.301	Fixed	281.55	394.2
J-42	241.93	0.100	Fixed	281.52	387.5
J-43	242.03	0.033	Fixed	281.53	386.6
J-44	242.12	0.100	Fixed	281.53	385.7
J-45	242.35	0.134	Fixed	281.55	383.6
J-46	242.05	0.067	Fixed	281.56	386.7

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-1 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	281.57	387.6
J-48	241.87	0.100	Fixed	281.57	388.6
J-49	241.56	0.234	Fixed	281.59	391.8
J-50	242.25	0.201	Fixed	282.18	390.8
J-51	242.25	0.000	Fixed	282.49	393.8
J-52	245.69	0.167	Fixed	282.49	360.2
J-53	241.85	0.936	Fixed	282.51	397.9
J-54	240.34	0.067	Fixed	284.87	435.8
J-55	240.44	0.033	Fixed	284.94	435.6
J-56	240.44	0.167	Fixed	284.87	434.8
J-57	241.17	0.481	Fixed	280.94	389.2
J-58	242.25	0.067	Fixed	282.32	392.1
J-59	241.58	0.201	Fixed	281.42	389.9
J-60	242.27	0.067	Fixed	283.95	407.9
J-64	241.33	0.201	Fixed	284.86	426.1
J-65	241.33	0.100	Fixed	284.95	426.9
J-68	240.44	0.000	Fixed	283.11	417.6
J-69	242.59	0.000	Fixed	282.49	390.5
J-70	243.84	0.000	Fixed	282.49	378.3
J-71	243.20	0.000	Fixed	283.11	390.6
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-1 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	-19.941	0.635	280.46	280.47
P-3	62.2	J-2	J-3	200.0	PVC	110.0	-19.941	0.635	280.47	280.67
P-4	30.0	J-3	J-4	200.0	PVC	110.0	-20.654	0.657	280.67	280.77
P-6	48.1	J-5	J-6	200.0	PVC	110.0	-5.349	0.170	281.22	281.23
P-7	54.1	J-6	J-7	200.0	PVC	110.0	-5.449	0.173	281.23	281.25
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	281.25	281.25
P-9	18.9	J-7	J-9	200.0	PVC	110.0	-5.616	0.179	281.25	281.26
P-10	48.8	J-9	J-10	200.0	PVC	110.0	-5.750	0.183	281.26	281.27
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-6.017	0.192	281.27	281.29
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-6.218	0.198	281.29	281.31
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-6.419	0.204	281.31	281.33
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-6.686	0.213	281.33	281.35
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-6.820	0.217	281.35	281.36
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-6.887	0.219	281.36	281.37
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-7.088	0.226	281.37	281.40
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-7.322	0.233	281.40	281.42
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-7.322	0.233	281.42	281.44
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-7.563	0.241	281.44	281.47
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-13.490	0.429	281.47	281.48
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-13.490	0.429	281.48	281.57
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-13.757	0.438	281.57	281.59
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-13.757	0.438	281.59	281.61
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-14.232	0.453	281.61	281.74
P-26	10.4	J-25	J-26	200.0	PVC	110.0	14.498	0.461	281.74	281.72
P-27	52.5	J-26	J-27	200.0	PVC	110.0	14.431	0.459	281.72	281.63
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-17.150	0.546	281.22	281.25
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-17.183	0.547	281.25	281.31
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-17.250	0.549	281.31	281.35
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-17.283	0.550	281.35	281.38

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-1 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-4.489	0.143	281.38	281.40
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-5.225	0.166	281.43	281.44
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-5.392	0.172	281.44	281.46
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-5.593	0.178	281.46	281.46
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-5.660	0.180	281.46	281.47
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-5.660	0.180	281.47	281.47
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-12.961	0.413	281.38	281.48
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-13.095	0.417	281.48	281.51
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-8.011	0.255	281.51	281.55
P-43	75.4	J-49	J-40	200.0	PVC	110.0	8.312	0.265	281.59	281.55
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-14.364	0.457	281.59	281.63
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-5.251	0.167	281.51	281.52
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-5.351	0.170	281.52	281.53
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-5.384	0.171	281.53	281.53
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-5.484	0.175	281.53	281.55
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-5.618	0.179	281.55	281.56
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-5.685	0.181	281.56	281.57
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-5.718	0.182	281.57	281.57
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-5.818	0.185	281.57	281.59
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-28.931	0.921	281.74	282.18
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-30.302	0.965	282.51	283.95
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-22.485	0.716	284.87	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	22.518	0.717	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-2.192	0.070	284.87	284.87
P-64	44.8	J-4	J-57	200.0	PVC	110.0	-21.804	0.694	280.77	280.94
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-22.285	0.709	280.94	281.22
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-29.132	0.927	282.18	282.32
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-29.199	0.929	282.32	282.49
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-4.890	0.156	281.40	281.42

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-1 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-5.091	0.162	281.42	281.43
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-30.369	0.967	283.95	284.86
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-2.025	0.064	284.86	284.87
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-28.545	0.909	284.86	284.95
P-76	8.7	R-3	J-65	200.0	PVC	110.0	28.645	0.912	285.00	284.95
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-29.366	0.598	282.49	282.51
P-83	12.8	R-2	J-54	200.0	PVC	110.0	37.090	1.181	285.00	284.87
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-57.316	1.824	280.46	283.11
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-57.316	1.824	283.11	284.87
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	282.49	282.49
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	282.49	282.49
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	282.49	282.49
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.11	283.11
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-3 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.92	395.4
J-2	240.52	0.000	Fixed	280.89	395.1
J-3	240.99	76.483	Fixed	279.70	378.8
J-4	240.84	1.150	Fixed	279.83	381.6
J-5	241.40	0.214	Fixed	280.42	381.9
J-6	241.10	0.100	Fixed	280.44	385.0
J-7	241.38	0.134	Fixed	280.46	382.4
J-8	241.60	0.033	Fixed	280.46	380.3
J-9	241.20	0.134	Fixed	280.46	384.3
J-10	241.25	0.267	Fixed	280.48	384.0
J-11	241.30	0.201	Fixed	280.51	383.7
J-12	241.35	0.201	Fixed	280.53	383.5
J-13	241.40	0.267	Fixed	280.56	383.2
J-14	241.45	0.134	Fixed	280.59	383.0
J-15	241.53	0.067	Fixed	280.59	382.3
J-16	241.72	0.201	Fixed	280.61	380.7
J-17	242.05	0.234	Fixed	280.65	377.8
J-18	242.21	0.000	Fixed	280.67	376.4
J-19	242.36	0.241	Fixed	280.69	375.2
J-20	242.60	0.267	Fixed	280.73	373.2
J-21	242.55	0.000	Fixed	280.74	373.8
J-22	242.21	0.267	Fixed	280.86	378.3
J-23	242.14	0.000	Fixed	280.88	379.2
J-24	242.06	0.475	Fixed	280.91	380.2
J-25	241.68	0.201	Fixed	281.07	385.5
J-26	241.68	0.067	Fixed	281.05	385.3
J-27	241.41	0.067	Fixed	280.93	386.8
J-28	241.48	0.033	Fixed	280.45	381.4
J-29	241.35	0.067	Fixed	280.53	383.4
J-30	241.20	0.033	Fixed	280.58	385.4
J-31	241.53	0.167	Fixed	280.63	382.6
J-32	241.45	0.401	Fixed	280.65	383.6
J-33	241.88	0.134	Fixed	280.69	379.8
J-34	241.88	0.167	Fixed	280.69	379.8
J-35	242.29	0.201	Fixed	280.72	376.1
J-36	242.38	0.067	Fixed	280.72	375.3
J-37	242.47	0.000	Fixed	280.73	374.4
J-38	241.52	0.134	Fixed	280.75	383.9
J-39	241.52	0.167	Fixed	280.78	384.2
J-40	241.27	0.301	Fixed	280.83	387.1
J-42	241.93	0.100	Fixed	280.80	380.4
J-43	242.03	0.033	Fixed	280.81	379.5
J-44	242.12	0.100	Fixed	280.81	378.7
J-45	242.35	0.134	Fixed	280.83	376.6
J-46	242.05	0.067	Fixed	280.85	379.7

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-3 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	280.85	380.6
J-48	241.87	0.100	Fixed	280.86	381.6
J-49	241.56	0.234	Fixed	280.89	384.9
J-50	242.25	0.201	Fixed	281.60	385.1
J-51	242.25	0.000	Fixed	281.98	388.8
J-52	245.69	0.167	Fixed	281.98	355.2
J-53	241.85	0.936	Fixed	282.00	393.0
J-54	240.34	0.067	Fixed	284.88	435.9
J-55	240.44	0.033	Fixed	284.95	435.6
J-56	240.44	0.167	Fixed	284.87	434.8
J-57	241.17	0.481	Fixed	280.05	380.5
J-58	242.25	0.067	Fixed	281.77	386.7
J-59	241.58	0.201	Fixed	280.67	382.6
J-60	242.27	0.067	Fixed	283.74	405.9
J-64	241.33	0.201	Fixed	284.85	425.9
J-65	241.33	0.100	Fixed	284.94	426.8
J-68	240.44	0.000	Fixed	283.30	419.5
J-69	242.59	0.000	Fixed	281.98	385.5
J-70	243.84	0.000	Fixed	281.98	373.3
J-71	243.20	0.000	Fixed	283.30	392.5
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-3 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	52.545	1.673	280.92	280.89
P-3	62.2	J-2	J-3	200.0	PVC	110.0	52.545	1.673	280.89	279.70
P-4	30.0	J-3	J-4	200.0	PVC	110.0	-23.938	0.762	279.70	279.83
P-6	48.1	J-5	J-6	200.0	PVC	110.0	-6.255	0.199	280.42	280.44
P-7	54.1	J-6	J-7	200.0	PVC	110.0	-6.355	0.202	280.44	280.46
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	280.46	280.46
P-9	18.9	J-7	J-9	200.0	PVC	110.0	-6.522	0.208	280.46	280.46
P-10	48.8	J-9	J-10	200.0	PVC	110.0	-6.656	0.212	280.46	280.48
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-6.923	0.220	280.48	280.51
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-7.124	0.227	280.51	280.53
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-7.325	0.233	280.53	280.56
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-7.592	0.242	280.56	280.59
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-7.726	0.246	280.59	280.59
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-7.793	0.248	280.59	280.61
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-7.994	0.254	280.61	280.65
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-8.228	0.262	280.65	280.67
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-8.228	0.262	280.67	280.69
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-8.469	0.270	280.69	280.73
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-15.101	0.481	280.73	280.74
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-15.101	0.481	280.74	280.86
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-15.368	0.489	280.86	280.88
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-15.368	0.489	280.88	280.91
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-15.843	0.504	280.91	281.07
P-26	10.4	J-25	J-26	200.0	PVC	110.0	16.170	0.515	281.07	281.05
P-27	52.5	J-26	J-27	200.0	PVC	110.0	16.103	0.513	281.05	280.93
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-19.528	0.622	280.42	280.45
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-19.561	0.623	280.45	280.53
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-19.628	0.625	280.53	280.58
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-19.661	0.626	280.58	280.63

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-3 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-5.195	0.165	280.63	280.65
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-5.931	0.189	280.69	280.69
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-6.098	0.194	280.69	280.72
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-6.299	0.200	280.72	280.72
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-6.366	0.203	280.72	280.73
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-6.366	0.203	280.73	280.73
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-14.633	0.466	280.63	280.75
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-14.767	0.470	280.75	280.78
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-9.007	0.287	280.78	280.83
P-43	75.4	J-49	J-40	200.0	PVC	110.0	9.308	0.296	280.89	280.83
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-16.036	0.510	280.89	280.93
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-5.927	0.189	280.78	280.80
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-6.027	0.192	280.80	280.81
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-6.060	0.193	280.81	280.81
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-6.160	0.196	280.81	280.83
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-6.294	0.200	280.83	280.85
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-6.361	0.202	280.85	280.85
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-6.394	0.204	280.85	280.86
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-6.494	0.207	280.86	280.89
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-32.215	1.025	281.07	281.60
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-33.586	1.069	282.00	283.74
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-21.975	0.699	284.88	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	22.008	0.701	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-4.125	0.131	284.87	284.88
P-64	44.8	J-4	J-57	200.0	PVC	110.0	-25.088	0.799	279.83	280.05
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-25.569	0.814	280.05	280.42
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-32.416	1.032	281.60	281.77
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-32.483	1.034	281.77	281.98
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-5.596	0.178	280.65	280.67

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-3 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-5.797	0.185	280.67	280.69
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-33.653	1.071	283.74	284.85
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-3.958	0.126	284.85	284.87
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-29.895	0.952	284.85	284.94
P-76	8.7	R-3	J-65	200.0	PVC	110.0	29.995	0.955	285.00	284.94
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-32.650	0.665	281.98	282.00
P-83	12.8	R-2	J-54	200.0	PVC	110.0	36.250	1.154	285.00	284.88
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-54.032	1.720	280.92	283.30
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-54.032	1.720	283.30	284.88
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	281.98	281.98
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	281.98	281.98
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	281.98	281.98
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.30	283.30
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-4 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.11	397.3
J-2	240.52	0.000	Fixed	281.08	397.0
J-3	240.99	0.713	Fixed	279.95	381.3
J-4	240.84	76.920	Fixed	279.41	377.5
J-5	241.40	0.214	Fixed	280.06	378.3
J-6	241.10	0.100	Fixed	280.08	381.5
J-7	241.38	0.134	Fixed	280.10	379.0
J-8	241.60	0.033	Fixed	280.10	376.8
J-9	241.20	0.134	Fixed	280.11	380.8
J-10	241.25	0.267	Fixed	280.13	380.5
J-11	241.30	0.201	Fixed	280.16	380.3
J-12	241.35	0.201	Fixed	280.18	380.1
J-13	241.40	0.267	Fixed	280.21	379.8
J-14	241.45	0.134	Fixed	280.25	379.7
J-15	241.53	0.067	Fixed	280.25	379.0
J-16	241.72	0.201	Fixed	280.27	377.3
J-17	242.05	0.234	Fixed	280.32	374.5
J-18	242.21	0.000	Fixed	280.34	373.2
J-19	242.36	0.241	Fixed	280.36	371.9
J-20	242.60	0.267	Fixed	280.40	370.0
J-21	242.55	0.000	Fixed	280.42	370.6
J-22	242.21	0.267	Fixed	280.54	375.2
J-23	242.14	0.000	Fixed	280.57	376.1
J-24	242.06	0.475	Fixed	280.60	377.2
J-25	241.68	0.201	Fixed	280.77	382.5
J-26	241.68	0.067	Fixed	280.74	382.3
J-27	241.41	0.067	Fixed	280.62	383.7
J-28	241.48	0.033	Fixed	280.09	377.9
J-29	241.35	0.067	Fixed	280.18	380.0
J-30	241.20	0.033	Fixed	280.24	382.1
J-31	241.53	0.167	Fixed	280.29	379.3
J-32	241.45	0.401	Fixed	280.31	380.3
J-33	241.88	0.134	Fixed	280.35	376.5
J-34	241.88	0.167	Fixed	280.36	376.6
J-35	242.29	0.201	Fixed	280.39	372.9
J-36	242.38	0.067	Fixed	280.39	372.0
J-37	242.47	0.000	Fixed	280.40	371.2
J-38	241.52	0.134	Fixed	280.42	380.7
J-39	241.52	0.167	Fixed	280.45	381.0
J-40	241.27	0.301	Fixed	280.50	384.0
J-42	241.93	0.100	Fixed	280.48	377.2
J-43	242.03	0.033	Fixed	280.48	376.3
J-44	242.12	0.100	Fixed	280.49	375.5
J-45	242.35	0.134	Fixed	280.51	373.4
J-46	242.05	0.067	Fixed	280.53	376.6

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-4 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	280.53	377.5
J-48	241.87	0.100	Fixed	280.54	378.5
J-49	241.56	0.234	Fixed	280.57	381.8
J-50	242.25	0.201	Fixed	281.34	382.6
J-51	242.25	0.000	Fixed	281.75	386.6
J-52	245.69	0.167	Fixed	281.75	352.9
J-53	241.85	0.936	Fixed	281.77	390.7
J-54	240.34	0.067	Fixed	284.88	435.9
J-55	240.44	0.033	Fixed	284.95	435.6
J-56	240.44	0.167	Fixed	284.87	434.8
J-57	241.17	0.481	Fixed	279.65	376.6
J-58	242.25	0.067	Fixed	281.52	384.3
J-59	241.58	0.201	Fixed	280.34	379.3
J-60	242.27	0.067	Fixed	283.65	405.0
J-64	241.33	0.201	Fixed	284.85	425.9
J-65	241.33	0.100	Fixed	284.94	426.8
J-68	240.44	0.000	Fixed	283.38	420.2
J-69	242.59	0.000	Fixed	281.75	383.3
J-70	243.84	0.000	Fixed	281.75	371.0
J-71	243.20	0.000	Fixed	283.38	393.2
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-4 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	51.164	1.629	281.11	281.08
P-3	62.2	J-2	J-3	200.0	PVC	110.0	51.164	1.629	281.08	279.95
P-4	30.0	J-3	J-4	200.0	PVC	110.0	50.451	1.606	279.95	279.41
P-6	48.1	J-5	J-6	200.0	PVC	110.0	-6.636	0.211	280.06	280.08
P-7	54.1	J-6	J-7	200.0	PVC	110.0	-6.736	0.214	280.08	280.10
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	280.10	280.10
P-9	18.9	J-7	J-9	200.0	PVC	110.0	-6.903	0.220	280.10	280.11
P-10	48.8	J-9	J-10	200.0	PVC	110.0	-7.037	0.224	280.11	280.13
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-7.304	0.232	280.13	280.16
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-7.505	0.239	280.16	280.18
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-7.706	0.245	280.18	280.21
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-7.973	0.254	280.21	280.25
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-8.107	0.258	280.25	280.25
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-8.174	0.260	280.25	280.27
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-8.375	0.267	280.27	280.32
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-8.609	0.274	280.32	280.34
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-8.609	0.274	280.34	280.36
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-8.850	0.282	280.36	280.40
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-15.779	0.502	280.40	280.42
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-15.779	0.502	280.42	280.54
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-16.046	0.511	280.54	280.57
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-16.046	0.511	280.57	280.60
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-16.521	0.526	280.60	280.77
P-26	10.4	J-25	J-26	200.0	PVC	110.0	16.874	0.537	280.77	280.74
P-27	52.5	J-26	J-27	200.0	PVC	110.0	16.807	0.535	280.74	280.62
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-20.528	0.653	280.06	280.09
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-20.561	0.654	280.09	280.18
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-20.628	0.657	280.18	280.24
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-20.661	0.658	280.24	280.29

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-4 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-5.491	0.175	280.29	280.31
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-6.227	0.198	280.35	280.36
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-6.394	0.204	280.36	280.39
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-6.595	0.210	280.39	280.39
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-6.662	0.212	280.39	280.40
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-6.662	0.212	280.40	280.40
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-15.337	0.488	280.29	280.42
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-15.471	0.492	280.42	280.45
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-9.426	0.300	280.45	280.50
P-43	75.4	J-49	J-40	200.0	PVC	110.0	9.727	0.310	280.57	280.50
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-16.740	0.533	280.57	280.62
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-6.212	0.198	280.45	280.48
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-6.312	0.201	280.48	280.48
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-6.345	0.202	280.48	280.49
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-6.445	0.205	280.49	280.51
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-6.579	0.209	280.51	280.53
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-6.646	0.212	280.53	280.53
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-6.679	0.213	280.53	280.54
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-6.779	0.216	280.54	280.57
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-33.596	1.069	280.77	281.34
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-34.967	1.113	281.77	283.65
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-21.723	0.691	284.88	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	21.756	0.693	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-4.838	0.154	284.87	284.88
P-64	44.8	J-4	J-57	200.0	PVC	110.0	-26.469	0.843	279.41	279.65
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-26.950	0.858	279.65	280.06
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-33.797	1.076	281.34	281.52
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-33.864	1.078	281.52	281.75
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-5.892	0.188	280.31	280.34

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-4 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-6.093	0.194	280.34	280.35
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-35.034	1.115	283.65	284.85
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-4.671	0.149	284.85	284.87
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-30.564	0.973	284.85	284.94
P-76	8.7	R-3	J-65	200.0	PVC	110.0	30.664	0.976	285.00	284.94
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-34.031	0.693	281.75	281.77
P-83	12.8	R-2	J-54	200.0	PVC	110.0	35.833	1.141	285.00	284.88
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-52.651	1.676	281.11	283.38
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-52.651	1.676	283.38	284.88
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	281.75	281.75
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	281.75	281.75
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	281.75	281.75
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.38	283.38
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-5 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.74	403.4
J-2	240.52	0.000	Fixed	281.71	403.1
J-3	240.99	0.713	Fixed	280.77	389.3
J-4	240.84	1.150	Fixed	280.32	386.4
J-5	241.40	75.984	Fixed	278.69	365.0
J-6	241.10	0.100	Fixed	278.72	368.2
J-7	241.38	0.134	Fixed	278.75	365.8
J-8	241.60	0.033	Fixed	278.75	363.6
J-9	241.20	0.134	Fixed	278.77	367.6
J-10	241.25	0.267	Fixed	278.80	367.5
J-11	241.30	0.201	Fixed	278.83	367.3
J-12	241.35	0.201	Fixed	278.87	367.2
J-13	241.40	0.267	Fixed	278.90	367.0
J-14	241.45	0.134	Fixed	278.95	367.0
J-15	241.53	0.067	Fixed	278.96	366.3
J-16	241.72	0.201	Fixed	278.99	364.7
J-17	242.05	0.234	Fixed	279.04	362.1
J-18	242.21	0.000	Fixed	279.07	360.8
J-19	242.36	0.241	Fixed	279.10	359.6
J-20	242.60	0.267	Fixed	279.16	357.8
J-21	242.55	0.000	Fixed	279.17	358.4
J-22	242.21	0.267	Fixed	279.34	363.4
J-23	242.14	0.000	Fixed	279.37	364.4
J-24	242.06	0.475	Fixed	279.41	365.5
J-25	241.68	0.201	Fixed	279.62	371.4
J-26	241.68	0.067	Fixed	279.59	371.0
J-27	241.41	0.067	Fixed	279.44	372.2
J-28	241.48	0.033	Fixed	278.74	364.7
J-29	241.35	0.067	Fixed	278.85	367.0
J-30	241.20	0.033	Fixed	278.94	369.3
J-31	241.53	0.167	Fixed	279.00	366.7
J-32	241.45	0.401	Fixed	279.03	367.8
J-33	241.88	0.134	Fixed	279.09	364.2
J-34	241.88	0.167	Fixed	279.10	364.2
J-35	242.29	0.201	Fixed	279.14	360.6
J-36	242.38	0.067	Fixed	279.14	359.8
J-37	242.47	0.000	Fixed	279.15	359.0
J-38	241.52	0.134	Fixed	279.17	368.5
J-39	241.52	0.167	Fixed	279.22	369.0
J-40	241.27	0.301	Fixed	279.29	372.1
J-42	241.93	0.100	Fixed	279.25	365.2
J-43	242.03	0.033	Fixed	279.26	364.4
J-44	242.12	0.100	Fixed	279.27	363.6
J-45	242.35	0.134	Fixed	279.29	361.5
J-46	242.05	0.067	Fixed	279.32	364.7

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-5 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	279.33	365.7
J-48	241.87	0.100	Fixed	279.34	366.7
J-49	241.56	0.234	Fixed	279.37	370.0
J-50	242.25	0.201	Fixed	280.36	373.0
J-51	242.25	0.000	Fixed	280.89	378.1
J-52	245.69	0.167	Fixed	280.89	344.5
J-53	241.85	0.936	Fixed	280.92	382.3
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.6
J-56	240.44	0.167	Fixed	284.87	434.9
J-57	241.17	0.481	Fixed	279.69	377.0
J-58	242.25	0.067	Fixed	280.59	375.3
J-59	241.58	0.201	Fixed	279.07	366.9
J-60	242.27	0.067	Fixed	283.31	401.6
J-64	241.33	0.201	Fixed	284.82	425.6
J-65	241.33	0.100	Fixed	284.93	426.7
J-68	240.44	0.000	Fixed	283.63	422.7
J-69	242.59	0.000	Fixed	280.89	374.8
J-70	243.84	0.000	Fixed	280.89	362.6
J-71	243.20	0.000	Fixed	283.63	395.7
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-5 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	46.328	1.475	281.74	281.71
P-3	62.2	J-2	J-3	200.0	PVC	110.0	46.328	1.475	281.71	280.77
P-4	30.0	J-3	J-4	200.0	PVC	110.0	45.615	1.452	280.77	280.32
P-6	48.1	J-5	J-6	200.0	PVC	110.0	-7.968	0.254	278.69	278.72
P-7	54.1	J-6	J-7	200.0	PVC	110.0	-8.068	0.257	278.72	278.75
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	278.75	278.75
P-9	18.9	J-7	J-9	200.0	PVC	110.0	-8.235	0.262	278.75	278.77
P-10	48.8	J-9	J-10	200.0	PVC	110.0	-8.369	0.266	278.77	278.80
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-8.636	0.275	278.80	278.83
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-8.837	0.281	278.83	278.87
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-9.038	0.288	278.87	278.90
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-9.305	0.296	278.90	278.95
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-9.439	0.300	278.95	278.96
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-9.506	0.303	278.96	278.99
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-9.707	0.309	278.99	279.04
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-9.941	0.316	279.04	279.07
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-9.941	0.316	279.07	279.10
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-10.182	0.324	279.10	279.16
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-18.151	0.578	279.16	279.17
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-18.151	0.578	279.17	279.34
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-18.418	0.586	279.34	279.37
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-18.418	0.586	279.37	279.41
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-18.893	0.601	279.41	279.62
P-26	10.4	J-25	J-26	200.0	PVC	110.0	19.339	0.616	279.62	279.59
P-27	52.5	J-26	J-27	200.0	PVC	110.0	19.272	0.613	279.59	279.44
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-24.032	0.765	278.69	278.74
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-24.065	0.766	278.74	278.85
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-24.132	0.768	278.85	278.94
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-24.165	0.769	278.94	279.00

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-5 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-6.531	0.208	279.00	279.03
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-7.267	0.231	279.09	279.10
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-7.434	0.237	279.10	279.14
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-7.635	0.243	279.14	279.14
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-7.702	0.245	279.14	279.15
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-7.702	0.245	279.15	279.16
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-17.802	0.567	279.00	279.17
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-17.936	0.571	279.17	279.22
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-10.895	0.347	279.22	279.29
P-43	75.4	J-49	J-40	200.0	PVC	110.0	11.196	0.356	279.37	279.29
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-19.205	0.611	279.37	279.44
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-7.208	0.229	279.22	279.25
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-7.308	0.233	279.25	279.26
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-7.341	0.234	279.26	279.27
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-7.441	0.237	279.27	279.29
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-7.575	0.241	279.29	279.32
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-7.642	0.243	279.32	279.33
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-7.675	0.244	279.33	279.34
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-7.775	0.247	279.34	279.37
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-38.432	1.223	279.62	280.36
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-39.803	1.267	280.92	283.31
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.737	0.660	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.770	0.661	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-7.064	0.225	284.87	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	44.465	1.415	280.32	279.69
P-65	72.6	J-57	J-5	200.0	PVC	110.0	43.984	1.400	279.69	278.69
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-38.633	1.230	280.36	280.59
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-38.700	1.232	280.59	280.89
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-6.932	0.221	279.03	279.07

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-5 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-7.133	0.227	279.07	279.09
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-39.870	1.269	283.31	284.82
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-6.897	0.220	284.82	284.87
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-33.174	1.056	284.82	284.93
P-76	8.7	R-3	J-65	200.0	PVC	110.0	33.274	1.059	285.00	284.93
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-38.867	0.792	280.89	280.92
P-83	12.8	R-2	J-54	200.0	PVC	110.0	34.209	1.089	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-47.815	1.522	281.74	283.63
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-47.815	1.522	283.63	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.89	280.89
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.89	280.89
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.89	280.89
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.63	283.63
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-6 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.79	403.9
J-2	240.52	0.000	Fixed	281.77	403.7
J-3	240.99	0.713	Fixed	280.84	390.0
J-4	240.84	1.150	Fixed	280.40	387.2
J-5	241.40	0.214	Fixed	278.80	366.1
J-6	241.10	75.870	Fixed	277.62	357.4
J-7	241.38	0.134	Fixed	277.73	355.8
J-8	241.60	0.033	Fixed	277.73	353.6
J-9	241.20	0.134	Fixed	277.77	357.9
J-10	241.25	0.267	Fixed	277.88	358.5
J-11	241.30	0.201	Fixed	278.00	359.2
J-12	241.35	0.201	Fixed	278.10	359.7
J-13	241.40	0.267	Fixed	278.22	360.3
J-14	241.45	0.134	Fixed	278.37	361.3
J-15	241.53	0.067	Fixed	278.39	360.7
J-16	241.72	0.201	Fixed	278.47	359.7
J-17	242.05	0.234	Fixed	278.64	358.1
J-18	242.21	0.000	Fixed	278.72	357.3
J-19	242.36	0.241	Fixed	278.80	356.7
J-20	242.60	0.267	Fixed	278.97	355.9
J-21	242.55	0.000	Fixed	278.98	356.6
J-22	242.21	0.267	Fixed	279.18	361.8
J-23	242.14	0.000	Fixed	279.21	362.8
J-24	242.06	0.475	Fixed	279.26	364.1
J-25	241.68	0.201	Fixed	279.51	370.3
J-26	241.68	0.067	Fixed	279.48	370.0
J-27	241.41	0.067	Fixed	279.35	371.3
J-28	241.48	0.033	Fixed	278.83	365.5
J-29	241.35	0.067	Fixed	278.89	367.4
J-30	241.20	0.033	Fixed	278.93	369.2
J-31	241.53	0.167	Fixed	278.96	366.3
J-32	241.45	0.401	Fixed	278.96	367.1
J-33	241.88	0.134	Fixed	278.96	362.9
J-34	241.88	0.167	Fixed	278.96	362.9
J-35	242.29	0.201	Fixed	278.97	358.9
J-36	242.38	0.067	Fixed	278.97	358.1
J-37	242.47	0.000	Fixed	278.97	357.2
J-38	241.52	0.134	Fixed	279.11	367.9
J-39	241.52	0.167	Fixed	279.16	368.3
J-40	241.27	0.301	Fixed	279.21	371.4
J-42	241.93	0.100	Fixed	279.18	364.6
J-43	242.03	0.033	Fixed	279.19	363.7
J-44	242.12	0.100	Fixed	279.20	362.9
J-45	242.35	0.134	Fixed	279.22	360.8
J-46	242.05	0.067	Fixed	279.24	364.0

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-6 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	279.25	364.9
J-48	241.87	0.100	Fixed	279.26	365.9
J-49	241.56	0.234	Fixed	279.29	369.2
J-50	242.25	0.201	Fixed	280.26	372.0
J-51	242.25	0.000	Fixed	280.80	377.3
J-52	245.69	0.167	Fixed	280.80	343.6
J-53	241.85	0.936	Fixed	280.83	381.5
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.6
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	279.79	377.9
J-58	242.25	0.067	Fixed	280.50	374.4
J-59	241.58	0.201	Fixed	278.96	365.9
J-60	242.27	0.067	Fixed	283.27	401.3
J-64	241.33	0.201	Fixed	284.82	425.6
J-65	241.33	0.100	Fixed	284.93	426.7
J-68	240.44	0.000	Fixed	283.66	422.9
J-69	242.59	0.000	Fixed	280.80	374.0
J-70	243.84	0.000	Fixed	280.80	361.7
J-71	243.20	0.000	Fixed	283.66	395.9
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-6 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	45.883	1.461	281.79	281.77
P-3	62.2	J-2	J-3	200.0	PVC	110.0	45.883	1.461	281.77	280.84
P-4	30.0	J-3	J-4	200.0	PVC	110.0	45.170	1.438	280.84	280.40
P-6	48.1	J-5	J-6	200.0	PVC	110.0	60.108	1.913	278.80	277.62
P-7	54.1	J-6	J-7	200.0	PVC	110.0	-15.762	0.502	277.62	277.73
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	277.73	277.73
P-9	18.9	J-7	J-9	200.0	PVC	110.0	-15.929	0.507	277.73	277.77
P-10	48.8	J-9	J-10	200.0	PVC	110.0	-16.063	0.511	277.77	277.88
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-16.330	0.520	277.88	278.00
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-16.531	0.526	278.00	278.10
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-16.732	0.533	278.10	278.22
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-16.999	0.541	278.22	278.37
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-17.133	0.545	278.37	278.39
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-17.200	0.548	278.39	278.47
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-17.401	0.554	278.47	278.64
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-17.635	0.561	278.64	278.72
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-17.635	0.561	278.72	278.80
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-17.876	0.569	278.80	278.97
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-19.820	0.631	278.97	278.98
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-19.820	0.631	278.98	279.18
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-20.087	0.639	279.18	279.21
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-20.087	0.639	279.21	279.26
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-20.562	0.655	279.26	279.51
P-26	10.4	J-25	J-26	200.0	PVC	110.0	18.114	0.577	279.51	279.48
P-27	52.5	J-26	J-27	200.0	PVC	110.0	18.047	0.574	279.48	279.35
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-16.783	0.534	278.80	278.83
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-16.816	0.535	278.83	278.89
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-16.883	0.537	278.89	278.93
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-16.916	0.538	278.93	278.96

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-6 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-0.506	0.016	278.96	278.96
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-1.242	0.040	278.96	278.96
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-1.409	0.045	278.96	278.97
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-1.610	0.051	278.97	278.97
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-1.677	0.053	278.97	278.97
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-1.677	0.053	278.97	278.97
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-16.577	0.528	278.96	279.11
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-16.711	0.532	279.11	279.16
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-10.165	0.324	279.16	279.21
P-43	75.4	J-49	J-40	200.0	PVC	110.0	10.466	0.333	279.29	279.21
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-17.980	0.572	279.29	279.35
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-6.713	0.214	279.16	279.18
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-6.813	0.217	279.18	279.19
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-6.846	0.218	279.19	279.20
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-6.946	0.221	279.20	279.22
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-7.080	0.225	279.22	279.24
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-7.147	0.227	279.24	279.25
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-7.180	0.229	279.25	279.26
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-7.280	0.232	279.26	279.29
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-38.877	1.237	279.51	280.26
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-40.248	1.281	280.83	283.27
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.641	0.657	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.674	0.658	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-7.253	0.231	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	44.020	1.401	280.40	279.79
P-65	72.6	J-57	J-5	200.0	PVC	110.0	43.539	1.386	279.79	278.80
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-39.078	1.244	280.26	280.50
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-39.145	1.246	280.50	280.80
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-0.907	0.029	278.96	278.96

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-6 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-1.108	0.035	278.96	278.96
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-40.315	1.283	283.27	284.82
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.086	0.226	284.82	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-33.430	1.064	284.82	284.93
P-76	8.7	R-3	J-65	200.0	PVC	110.0	33.530	1.067	285.00	284.93
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-39.312	0.801	280.80	280.83
P-83	12.8	R-2	J-54	200.0	PVC	110.0	34.050	1.084	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-47.370	1.508	281.79	283.66
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-47.370	1.508	283.66	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.80	280.80
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.80	280.80
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.80	280.80
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.66	283.66
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-10 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.85	404.5
J-2	240.52	0.000	Fixed	281.82	404.2
J-3	240.99	0.713	Fixed	280.91	390.7
J-4	240.84	1.150	Fixed	280.48	388.0
J-5	241.40	0.214	Fixed	278.91	367.1
J-6	241.10	0.100	Fixed	278.10	362.1
J-7	241.38	0.134	Fixed	277.18	350.4
J-8	241.60	0.033	Fixed	277.18	348.2
J-9	241.20	0.134	Fixed	276.86	349.0
J-10	241.25	76.037	Fixed	276.05	340.5
J-11	241.30	0.201	Fixed	276.36	343.1
J-12	241.35	0.201	Fixed	276.63	345.3
J-13	241.40	0.267	Fixed	276.91	347.5
J-14	241.45	0.134	Fixed	277.28	350.7
J-15	241.53	0.067	Fixed	277.33	350.4
J-16	241.72	0.201	Fixed	277.55	350.7
J-17	242.05	0.234	Fixed	277.96	351.4
J-18	242.21	0.000	Fixed	278.16	351.8
J-19	242.36	0.241	Fixed	278.36	352.3
J-20	242.60	0.267	Fixed	278.75	353.8
J-21	242.55	0.000	Fixed	278.77	354.5
J-22	242.21	0.267	Fixed	279.00	360.1
J-23	242.14	0.000	Fixed	279.04	361.2
J-24	242.06	0.475	Fixed	279.10	362.5
J-25	241.68	0.201	Fixed	279.40	369.2
J-26	241.68	0.067	Fixed	279.38	368.9
J-27	241.41	0.067	Fixed	279.26	370.4
J-28	241.48	0.033	Fixed	278.92	366.4
J-29	241.35	0.067	Fixed	278.93	367.8
J-30	241.20	0.033	Fixed	278.93	369.3
J-31	241.53	0.167	Fixed	278.94	366.1
J-32	241.45	0.401	Fixed	278.88	366.4
J-33	241.88	0.134	Fixed	278.81	361.5
J-34	241.88	0.167	Fixed	278.81	361.4
J-35	242.29	0.201	Fixed	278.77	357.0
J-36	242.38	0.067	Fixed	278.76	356.0
J-37	242.47	0.000	Fixed	278.76	355.1
J-38	241.52	0.134	Fixed	279.07	367.5
J-39	241.52	0.167	Fixed	279.10	367.8
J-40	241.27	0.301	Fixed	279.15	370.7
J-42	241.93	0.100	Fixed	279.12	364.0
J-43	242.03	0.033	Fixed	279.13	363.1
J-44	242.12	0.100	Fixed	279.14	362.3
J-45	242.35	0.134	Fixed	279.15	360.2
J-46	242.05	0.067	Fixed	279.17	363.3

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-10 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	279.18	364.2
J-48	241.87	0.100	Fixed	279.19	365.2
J-49	241.56	0.234	Fixed	279.21	368.5
J-50	242.25	0.201	Fixed	280.17	371.1
J-51	242.25	0.000	Fixed	280.72	376.5
J-52	245.69	0.167	Fixed	280.72	342.8
J-53	241.85	0.936	Fixed	280.75	380.7
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.6
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	279.88	378.8
J-58	242.25	0.067	Fixed	280.41	373.5
J-59	241.58	0.201	Fixed	278.84	364.7
J-60	242.27	0.067	Fixed	283.24	400.9
J-64	241.33	0.201	Fixed	284.81	425.6
J-65	241.33	0.100	Fixed	284.93	426.7
J-68	240.44	0.000	Fixed	283.68	423.2
J-69	242.59	0.000	Fixed	280.72	373.2
J-70	243.84	0.000	Fixed	280.72	360.9
J-71	243.20	0.000	Fixed	283.68	396.1
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-10 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	45.441	1.446	281.85	281.82
P-3	62.2	J-2	J-3	200.0	PVC	110.0	45.441	1.446	281.82	280.91
P-4	30.0	J-3	J-4	200.0	PVC	110.0	44.728	1.424	280.91	280.48
P-6	48.1	J-5	J-6	200.0	PVC	110.0	49.245	1.568	278.91	278.10
P-7	54.1	J-6	J-7	200.0	PVC	110.0	49.145	1.564	278.10	277.18
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	277.18	277.18
P-9	18.9	J-7	J-9	200.0	PVC	110.0	48.978	1.559	277.18	276.86
P-10	48.8	J-9	J-10	200.0	PVC	110.0	48.844	1.555	276.86	276.05
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-27.193	0.866	276.05	276.36
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-27.394	0.872	276.36	276.63
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-27.595	0.878	276.63	276.91
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-27.862	0.887	276.91	277.28
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-27.996	0.891	277.28	277.33
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-28.063	0.893	277.33	277.55
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-28.264	0.900	277.55	277.96
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-28.498	0.907	277.96	278.16
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-28.498	0.907	278.16	278.36
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-28.739	0.915	278.36	278.75
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-21.854	0.696	278.75	278.77
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-21.854	0.696	278.77	279.00
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-22.121	0.704	279.00	279.04
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-22.121	0.704	279.04	279.10
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-22.596	0.719	279.10	279.40
P-26	10.4	J-25	J-26	200.0	PVC	110.0	16.522	0.526	279.40	279.38
P-27	52.5	J-26	J-27	200.0	PVC	110.0	16.455	0.524	279.38	279.26
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-6.362	0.203	278.91	278.92
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-6.395	0.204	278.92	278.93
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-6.462	0.206	278.93	278.93
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-6.495	0.207	278.93	278.94

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-10 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	8.322	0.265	278.94	278.88
P-35	10.5	J-33	J-34	200.0	PVC	110.0	7.586	0.241	278.81	278.81
P-36	80.2	J-34	J-35	200.0	PVC	110.0	7.419	0.236	278.81	278.77
P-37	12.8	J-35	J-36	200.0	PVC	110.0	7.218	0.230	278.77	278.76
P-38	10.0	J-36	J-37	200.0	PVC	110.0	7.151	0.228	278.76	278.76
P-39	15.1	J-37	J-20	200.0	PVC	110.0	7.151	0.228	278.76	278.75
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-14.985	0.477	278.94	279.07
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-15.119	0.481	279.07	279.10
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-9.216	0.293	279.10	279.15
P-43	75.4	J-49	J-40	200.0	PVC	110.0	9.517	0.303	279.21	279.15
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-16.388	0.522	279.21	279.26
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-6.069	0.193	279.10	279.12
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-6.169	0.196	279.12	279.13
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-6.202	0.197	279.13	279.14
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-6.302	0.201	279.14	279.15
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-6.436	0.205	279.15	279.17
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-6.503	0.207	279.17	279.18
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-6.536	0.208	279.18	279.19
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-6.636	0.211	279.19	279.21
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-39.319	1.252	279.40	280.17
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-40.690	1.295	280.75	283.24
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.544	0.654	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.577	0.655	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-7.440	0.237	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	43.578	1.387	280.48	279.88
P-65	72.6	J-57	J-5	200.0	PVC	110.0	43.097	1.372	279.88	278.91
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-39.520	1.258	280.17	280.41
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-39.587	1.260	280.41	280.72
P-68	74.5	J-32	J-59	200.0	PVC	110.0	7.921	0.252	278.88	278.84

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-10 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	7.720	0.246	278.84	278.81
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-40.757	1.297	283.24	284.81
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.273	0.231	284.81	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-33.685	1.072	284.81	284.93
P-76	8.7	R-3	J-65	200.0	PVC	110.0	33.785	1.075	285.00	284.93
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-39.754	0.810	280.72	280.75
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.891	1.079	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-46.928	1.494	281.85	283.68
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-46.928	1.494	283.68	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.72	280.72
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.72	280.72
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.72	280.72
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.68	283.68
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-14 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.91	405.1
J-2	240.52	0.000	Fixed	281.88	404.8
J-3	240.99	0.713	Fixed	280.99	391.5
J-4	240.84	1.150	Fixed	280.58	388.9
J-5	241.40	0.214	Fixed	279.04	368.4
J-6	241.10	0.100	Fixed	278.57	366.7
J-7	241.38	0.134	Fixed	278.04	358.8
J-8	241.60	0.033	Fixed	278.04	356.7
J-9	241.20	0.134	Fixed	277.86	358.8
J-10	241.25	0.267	Fixed	277.40	353.8
J-11	241.30	0.201	Fixed	276.88	348.2
J-12	241.35	0.201	Fixed	276.44	343.4
J-13	241.40	0.267	Fixed	275.98	338.5
J-14	241.45	75.904	Fixed	275.41	332.4
J-15	241.53	0.067	Fixed	275.51	332.6
J-16	241.72	0.201	Fixed	275.95	335.1
J-17	242.05	0.234	Fixed	276.76	339.7
J-18	242.21	0.000	Fixed	277.16	342.0
J-19	242.36	0.241	Fixed	277.56	344.5
J-20	242.60	0.267	Fixed	278.32	349.6
J-21	242.55	0.000	Fixed	278.35	350.4
J-22	242.21	0.267	Fixed	278.69	357.1
J-23	242.14	0.000	Fixed	278.76	358.4
J-24	242.06	0.475	Fixed	278.83	359.9
J-25	241.68	0.201	Fixed	279.27	367.9
J-26	241.68	0.067	Fixed	279.26	367.7
J-27	241.41	0.067	Fixed	279.19	369.7
J-28	241.48	0.033	Fixed	279.04	367.5
J-29	241.35	0.067	Fixed	279.03	368.7
J-30	241.20	0.033	Fixed	279.02	370.2
J-31	241.53	0.167	Fixed	279.02	366.9
J-32	241.45	0.401	Fixed	278.83	365.8
J-33	241.88	0.134	Fixed	278.57	359.1
J-34	241.88	0.167	Fixed	278.55	358.9
J-35	242.29	0.201	Fixed	278.40	353.4
J-36	242.38	0.067	Fixed	278.37	352.2
J-37	242.47	0.000	Fixed	278.35	351.2
J-38	241.52	0.134	Fixed	279.08	367.6
J-39	241.52	0.167	Fixed	279.10	367.8
J-40	241.27	0.301	Fixed	279.13	370.5
J-42	241.93	0.100	Fixed	279.11	363.9
J-43	242.03	0.033	Fixed	279.12	363.0
J-44	242.12	0.100	Fixed	279.12	362.1
J-45	242.35	0.134	Fixed	279.13	360.0
J-46	242.05	0.067	Fixed	279.14	363.0

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-14 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	279.14	363.9
J-48	241.87	0.100	Fixed	279.15	364.8
J-49	241.56	0.234	Fixed	279.16	368.0
J-50	242.25	0.201	Fixed	280.05	370.0
J-51	242.25	0.000	Fixed	280.62	375.5
J-52	245.69	0.167	Fixed	280.62	341.8
J-53	241.85	0.936	Fixed	280.65	379.7
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.6
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	279.98	379.8
J-58	242.25	0.067	Fixed	280.30	372.4
J-59	241.58	0.201	Fixed	278.67	363.0
J-60	242.27	0.067	Fixed	283.20	400.5
J-64	241.33	0.201	Fixed	284.81	425.5
J-65	241.33	0.100	Fixed	284.93	426.7
J-68	240.44	0.000	Fixed	283.70	423.4
J-69	242.59	0.000	Fixed	280.62	372.2
J-70	243.84	0.000	Fixed	280.62	359.9
J-71	243.20	0.000	Fixed	283.70	396.4
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-14 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	44.925	1.430	281.91	281.88
P-3	62.2	J-2	J-3	200.0	PVC	110.0	44.925	1.430	281.88	280.99
P-4	30.0	J-3	J-4	200.0	PVC	110.0	44.212	1.407	280.99	280.58
P-6	48.1	J-5	J-6	200.0	PVC	110.0	36.502	1.162	279.04	278.57
P-7	54.1	J-6	J-7	200.0	PVC	110.0	36.402	1.159	278.57	278.04
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	278.04	278.04
P-9	18.9	J-7	J-9	200.0	PVC	110.0	36.235	1.153	278.04	277.86
P-10	48.8	J-9	J-10	200.0	PVC	110.0	36.101	1.149	277.86	277.40
P-11	55.0	J-10	J-11	200.0	PVC	110.0	35.834	1.141	277.40	276.88
P-12	47.2	J-11	J-12	200.0	PVC	110.0	35.633	1.134	276.88	276.44
P-13	48.8	J-12	J-13	200.0	PVC	110.0	35.432	1.128	276.44	275.98
P-14	62.8	J-13	J-14	200.0	PVC	110.0	35.165	1.119	275.98	275.41
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-40.739	1.297	275.41	275.51
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-40.806	1.299	275.51	275.95
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-41.007	1.305	275.95	276.76
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-41.241	1.313	276.76	277.16
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-41.241	1.313	277.16	277.56
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-41.482	1.320	277.56	278.32
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-26.769	0.852	278.32	278.35
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-26.769	0.852	278.35	278.69
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-27.036	0.861	278.69	278.76
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-27.036	0.861	278.76	278.83
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-27.511	0.876	278.83	279.27
P-26	10.4	J-25	J-26	200.0	PVC	110.0	12.123	0.386	279.27	279.26
P-27	52.5	J-26	J-27	200.0	PVC	110.0	12.056	0.384	279.26	279.19
P-29	11.2	J-5	J-28	200.0	PVC	110.0	5.865	0.187	279.04	279.04
P-30	24.4	J-28	J-29	200.0	PVC	110.0	5.832	0.186	279.04	279.03
P-31	18.1	J-29	J-30	200.0	PVC	110.0	5.765	0.184	279.03	279.02
P-32	13.7	J-30	J-31	200.0	PVC	110.0	5.732	0.182	279.02	279.02

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-14 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	16.151	0.514	279.02	278.83
P-35	10.5	J-33	J-34	200.0	PVC	110.0	15.415	0.491	278.57	278.55
P-36	80.2	J-34	J-35	200.0	PVC	110.0	15.248	0.485	278.55	278.40
P-37	12.8	J-35	J-36	200.0	PVC	110.0	15.047	0.479	278.40	278.37
P-38	10.0	J-36	J-37	200.0	PVC	110.0	14.980	0.477	278.37	278.35
P-39	15.1	J-37	J-20	200.0	PVC	110.0	14.980	0.477	278.35	278.32
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-10.586	0.337	279.02	279.08
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-10.720	0.341	279.08	279.10
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-6.596	0.210	279.10	279.13
P-43	75.4	J-49	J-40	200.0	PVC	110.0	6.897	0.220	279.16	279.13
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-11.989	0.382	279.16	279.19
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-4.291	0.137	279.10	279.11
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-4.391	0.140	279.11	279.12
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-4.424	0.141	279.12	279.12
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-4.524	0.144	279.12	279.13
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-4.658	0.148	279.13	279.14
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-4.725	0.150	279.14	279.14
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-4.758	0.151	279.14	279.15
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-4.858	0.155	279.15	279.16
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-39.835	1.268	279.27	280.05
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-41.206	1.312	280.65	283.20
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.430	0.650	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.463	0.651	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-7.654	0.244	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	43.062	1.371	280.58	279.98
P-65	72.6	J-57	J-5	200.0	PVC	110.0	42.581	1.355	279.98	279.04
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-40.036	1.274	280.05	280.30
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-40.103	1.277	280.30	280.62
P-68	74.5	J-32	J-59	200.0	PVC	110.0	15.750	0.501	278.83	278.67

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-14 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	15.549	0.495	278.67	278.57
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-41.273	1.314	283.20	284.81
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.487	0.238	284.81	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-33.987	1.082	284.81	284.93
P-76	8.7	R-3	J-65	200.0	PVC	110.0	34.087	1.085	285.00	284.93
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-40.270	0.820	280.62	280.65
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.703	1.073	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-46.412	1.477	281.91	283.70
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-46.412	1.477	283.70	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.62	280.62
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.62	280.62
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.62	280.62
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.70	283.70
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-18 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.96	405.6
J-2	240.52	0.000	Fixed	281.94	405.4
J-3	240.99	0.713	Fixed	281.06	392.2
J-4	240.84	1.150	Fixed	280.65	389.7
J-5	241.40	0.214	Fixed	279.15	369.4
J-6	241.10	0.100	Fixed	278.87	369.6
J-7	241.38	0.134	Fixed	278.55	363.8
J-8	241.60	0.033	Fixed	278.55	361.6
J-9	241.20	0.134	Fixed	278.44	364.5
J-10	241.25	0.267	Fixed	278.17	361.3
J-11	241.30	0.201	Fixed	277.86	357.8
J-12	241.35	0.201	Fixed	277.60	354.7
J-13	241.40	0.267	Fixed	277.33	351.7
J-14	241.45	0.134	Fixed	277.00	347.9
J-15	241.53	0.067	Fixed	276.95	346.7
J-16	241.72	0.201	Fixed	276.76	342.9
J-17	242.05	0.234	Fixed	276.41	336.3
J-18	242.21	75.770	Fixed	276.25	333.1
J-19	242.36	0.241	Fixed	276.82	337.3
J-20	242.60	0.267	Fixed	277.92	345.7
J-21	242.55	0.000	Fixed	277.96	346.5
J-22	242.21	0.267	Fixed	278.40	354.2
J-23	242.14	0.000	Fixed	278.48	355.7
J-24	242.06	0.475	Fixed	278.59	357.5
J-25	241.68	0.201	Fixed	279.15	366.7
J-26	241.68	0.067	Fixed	279.15	366.7
J-27	241.41	0.067	Fixed	279.11	369.0
J-28	241.48	0.033	Fixed	279.13	368.5
J-29	241.35	0.067	Fixed	279.09	369.3
J-30	241.20	0.033	Fixed	279.06	370.5
J-31	241.53	0.167	Fixed	279.03	367.0
J-32	241.45	0.401	Fixed	278.73	364.9
J-33	241.88	0.134	Fixed	278.32	356.6
J-34	241.88	0.167	Fixed	278.29	356.3
J-35	242.29	0.201	Fixed	278.03	349.8
J-36	242.38	0.067	Fixed	277.99	348.6
J-37	242.47	0.000	Fixed	277.96	347.4
J-38	241.52	0.134	Fixed	279.06	367.4
J-39	241.52	0.167	Fixed	279.07	367.5
J-40	241.27	0.301	Fixed	279.08	370.1
J-42	241.93	0.100	Fixed	279.08	363.5
J-43	242.03	0.033	Fixed	279.08	362.6
J-44	242.12	0.100	Fixed	279.08	361.7
J-45	242.35	0.134	Fixed	279.08	359.5
J-46	242.05	0.067	Fixed	279.09	362.5

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-18 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	279.09	363.4
J-48	241.87	0.100	Fixed	279.09	364.3
J-49	241.56	0.234	Fixed	279.10	367.4
J-50	242.25	0.201	Fixed	279.95	369.0
J-51	242.25	0.000	Fixed	280.53	374.6
J-52	245.69	0.167	Fixed	280.53	341.0
J-53	241.85	0.936	Fixed	280.56	378.9
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.7
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	280.07	380.7
J-58	242.25	0.067	Fixed	280.21	371.5
J-59	241.58	0.201	Fixed	278.49	361.2
J-60	242.27	0.067	Fixed	283.16	400.2
J-64	241.33	0.201	Fixed	284.81	425.5
J-65	241.33	0.100	Fixed	284.92	426.7
J-68	240.44	0.000	Fixed	283.73	423.6
J-69	242.59	0.000	Fixed	280.53	371.3
J-70	243.84	0.000	Fixed	280.53	359.1
J-71	243.20	0.000	Fixed	283.73	396.6
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-18 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	44.476	1.416	281.96	281.94
P-3	62.2	J-2	J-3	200.0	PVC	110.0	44.476	1.416	281.94	281.06
P-4	30.0	J-3	J-4	200.0	PVC	110.0	43.763	1.393	281.06	280.65
P-6	48.1	J-5	J-6	200.0	PVC	110.0	27.690	0.881	279.15	278.87
P-7	54.1	J-6	J-7	200.0	PVC	110.0	27.590	0.878	278.87	278.55
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	278.55	278.55
P-9	18.9	J-7	J-9	200.0	PVC	110.0	27.423	0.873	278.55	278.44
P-10	48.8	J-9	J-10	200.0	PVC	110.0	27.289	0.869	278.44	278.17
P-11	55.0	J-10	J-11	200.0	PVC	110.0	27.022	0.860	278.17	277.86
P-12	47.2	J-11	J-12	200.0	PVC	110.0	26.821	0.854	277.86	277.60
P-13	48.8	J-12	J-13	200.0	PVC	110.0	26.620	0.847	277.60	277.33
P-14	62.8	J-13	J-14	200.0	PVC	110.0	26.353	0.839	277.33	277.00
P-15	8.4	J-14	J-15	200.0	PVC	110.0	26.219	0.835	277.00	276.95
P-16	36.8	J-15	J-16	200.0	PVC	110.0	26.152	0.832	276.95	276.76
P-17	66.7	J-16	J-17	200.0	PVC	110.0	25.951	0.826	276.76	276.41
P-18	32.1	J-17	J-18	200.0	PVC	110.0	25.717	0.819	276.41	276.25
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-50.053	1.593	276.25	276.82
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-50.294	1.601	276.82	277.92
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-30.997	0.987	277.92	277.96
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-30.997	0.987	277.96	278.40
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-31.264	0.995	278.40	278.48
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-31.264	0.995	278.48	278.59
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-31.739	1.010	278.59	279.15
P-26	10.4	J-25	J-26	200.0	PVC	110.0	8.344	0.266	279.15	279.15
P-27	52.5	J-26	J-27	200.0	PVC	110.0	8.277	0.263	279.15	279.11
P-29	11.2	J-5	J-28	200.0	PVC	110.0	14.228	0.453	279.15	279.13
P-30	24.4	J-28	J-29	200.0	PVC	110.0	14.195	0.452	279.13	279.09
P-31	18.1	J-29	J-30	200.0	PVC	110.0	14.128	0.450	279.09	279.06
P-32	13.7	J-30	J-31	200.0	PVC	110.0	14.095	0.449	279.06	279.03

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-18 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	20.735	0.660	279.03	278.73
P-35	10.5	J-33	J-34	200.0	PVC	110.0	19.999	0.637	278.32	278.29
P-36	80.2	J-34	J-35	200.0	PVC	110.0	19.832	0.631	278.29	278.03
P-37	12.8	J-35	J-36	200.0	PVC	110.0	19.631	0.625	278.03	277.99
P-38	10.0	J-36	J-37	200.0	PVC	110.0	19.564	0.623	277.99	277.96
P-39	15.1	J-37	J-20	200.0	PVC	110.0	19.564	0.623	277.96	277.92
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-6.807	0.217	279.03	279.06
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-6.941	0.221	279.06	279.07
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-4.344	0.138	279.07	279.08
P-43	75.4	J-49	J-40	200.0	PVC	110.0	4.645	0.148	279.10	279.08
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-8.210	0.261	279.10	279.11
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-2.763	0.088	279.07	279.08
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-2.863	0.091	279.08	279.08
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-2.896	0.092	279.08	279.08
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-2.996	0.095	279.08	279.08
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-3.130	0.100	279.08	279.09
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-3.197	0.102	279.09	279.09
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-3.230	0.103	279.09	279.09
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-3.330	0.106	279.09	279.10
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-40.284	1.282	279.15	279.95
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-41.655	1.326	280.56	283.16
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.331	0.647	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.364	0.648	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-7.839	0.250	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	42.613	1.356	280.65	280.07
P-65	72.6	J-57	J-5	200.0	PVC	110.0	42.132	1.341	280.07	279.15
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-40.485	1.289	279.95	280.21
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-40.552	1.291	280.21	280.53
P-68	74.5	J-32	J-59	200.0	PVC	110.0	20.334	0.647	278.73	278.49

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-18 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	20.133	0.641	278.49	278.32
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-41.722	1.328	283.16	284.81
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.672	0.244	284.81	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-34.251	1.090	284.81	284.92
P-76	8.7	R-3	J-65	200.0	PVC	110.0	34.351	1.093	285.00	284.92
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-40.719	0.830	280.53	280.56
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.539	1.068	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-45.963	1.463	281.96	283.73
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-45.963	1.463	283.73	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.53	280.53
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.53	280.53
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.53	280.53
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.73	283.73
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-19 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.98	405.8
J-2	240.52	0.000	Fixed	281.96	405.5
J-3	240.99	0.713	Fixed	281.08	392.4
J-4	240.84	1.150	Fixed	280.68	389.9
J-5	241.40	0.214	Fixed	279.18	369.7
J-6	241.10	0.100	Fixed	278.94	370.3
J-7	241.38	0.134	Fixed	278.67	365.0
J-8	241.60	0.033	Fixed	278.67	362.8
J-9	241.20	0.134	Fixed	278.58	365.9
J-10	241.25	0.267	Fixed	278.35	363.1
J-11	241.30	0.201	Fixed	278.09	360.0
J-12	241.35	0.201	Fixed	277.87	357.4
J-13	241.40	0.267	Fixed	277.65	354.7
J-14	241.45	0.134	Fixed	277.36	351.5
J-15	241.53	0.067	Fixed	277.33	350.3
J-16	241.72	0.201	Fixed	277.16	346.9
J-17	242.05	0.234	Fixed	276.87	340.8
J-18	242.21	0.000	Fixed	276.74	337.9
J-19	242.36	76.011	Fixed	276.60	335.1
J-20	242.60	0.267	Fixed	277.79	344.4
J-21	242.55	0.000	Fixed	277.84	345.3
J-22	242.21	0.267	Fixed	278.31	353.3
J-23	242.14	0.000	Fixed	278.40	354.9
J-24	242.06	0.475	Fixed	278.51	356.7
J-25	241.68	0.201	Fixed	279.12	366.4
J-26	241.68	0.067	Fixed	279.11	366.4
J-27	241.41	0.067	Fixed	279.09	368.8
J-28	241.48	0.033	Fixed	279.15	368.7
J-29	241.35	0.067	Fixed	279.10	369.5
J-30	241.20	0.033	Fixed	279.06	370.5
J-31	241.53	0.167	Fixed	279.03	367.0
J-32	241.45	0.401	Fixed	278.70	364.5
J-33	241.88	0.134	Fixed	278.24	355.9
J-34	241.88	0.167	Fixed	278.20	355.5
J-35	242.29	0.201	Fixed	277.92	348.7
J-36	242.38	0.067	Fixed	277.88	347.4
J-37	242.47	0.000	Fixed	277.85	346.2
J-38	241.52	0.134	Fixed	279.05	367.3
J-39	241.52	0.167	Fixed	279.06	367.4
J-40	241.27	0.301	Fixed	279.07	369.9
J-42	241.93	0.100	Fixed	279.06	363.4
J-43	242.03	0.033	Fixed	279.06	362.4
J-44	242.12	0.100	Fixed	279.06	361.6
J-45	242.35	0.134	Fixed	279.07	359.3
J-46	242.05	0.067	Fixed	279.07	362.3

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-19 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	279.07	363.2
J-48	241.87	0.100	Fixed	279.07	364.1
J-49	241.56	0.234	Fixed	279.08	367.2
J-50	242.25	0.201	Fixed	279.93	368.7
J-51	242.25	0.000	Fixed	280.50	374.4
J-52	245.69	0.167	Fixed	280.50	340.7
J-53	241.85	0.936	Fixed	280.54	378.6
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.7
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	280.10	381.0
J-58	242.25	0.067	Fixed	280.18	371.2
J-59	241.58	0.201	Fixed	278.42	360.6
J-60	242.27	0.067	Fixed	283.15	400.1
J-64	241.33	0.201	Fixed	284.81	425.5
J-65	241.33	0.100	Fixed	284.92	426.6
J-68	240.44	0.000	Fixed	283.73	423.7
J-69	242.59	0.000	Fixed	280.50	371.1
J-70	243.84	0.000	Fixed	280.50	358.8
J-71	243.20	0.000	Fixed	283.73	396.7
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-19 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	44.346	1.412	281.98	281.96
P-3	62.2	J-2	J-3	200.0	PVC	110.0	44.346	1.412	281.96	281.08
P-4	30.0	J-3	J-4	200.0	PVC	110.0	43.633	1.389	281.08	280.68
P-6	48.1	J-5	J-6	200.0	PVC	110.0	25.319	0.806	279.18	278.94
P-7	54.1	J-6	J-7	200.0	PVC	110.0	25.219	0.803	278.94	278.67
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	278.67	278.67
P-9	18.9	J-7	J-9	200.0	PVC	110.0	25.052	0.797	278.67	278.58
P-10	48.8	J-9	J-10	200.0	PVC	110.0	24.918	0.793	278.58	278.35
P-11	55.0	J-10	J-11	200.0	PVC	110.0	24.651	0.785	278.35	278.09
P-12	47.2	J-11	J-12	200.0	PVC	110.0	24.450	0.778	278.09	277.87
P-13	48.8	J-12	J-13	200.0	PVC	110.0	24.249	0.772	277.87	277.65
P-14	62.8	J-13	J-14	200.0	PVC	110.0	23.982	0.763	277.65	277.36
P-15	8.4	J-14	J-15	200.0	PVC	110.0	23.848	0.759	277.36	277.33
P-16	36.8	J-15	J-16	200.0	PVC	110.0	23.781	0.757	277.33	277.16
P-17	66.7	J-16	J-17	200.0	PVC	110.0	23.580	0.751	277.16	276.87
P-18	32.1	J-17	J-18	200.0	PVC	110.0	23.346	0.743	276.87	276.74
P-19	32.6	J-18	J-19	200.0	PVC	110.0	23.346	0.743	276.74	276.60
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-52.665	1.676	276.60	277.79
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-32.220	1.026	277.79	277.84
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-32.220	1.026	277.84	278.31
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-32.487	1.034	278.31	278.40
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-32.487	1.034	278.40	278.51
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-32.962	1.049	278.51	279.12
P-26	10.4	J-25	J-26	200.0	PVC	110.0	7.252	0.231	279.12	279.11
P-27	52.5	J-26	J-27	200.0	PVC	110.0	7.185	0.229	279.11	279.09
P-29	11.2	J-5	J-28	200.0	PVC	110.0	16.468	0.524	279.18	279.15
P-30	24.4	J-28	J-29	200.0	PVC	110.0	16.435	0.523	279.15	279.10
P-31	18.1	J-29	J-30	200.0	PVC	110.0	16.368	0.521	279.10	279.06
P-32	13.7	J-30	J-31	200.0	PVC	110.0	16.335	0.520	279.06	279.03

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-19 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	21.883	0.697	279.03	278.70
P-35	10.5	J-33	J-34	200.0	PVC	110.0	21.147	0.673	278.24	278.20
P-36	80.2	J-34	J-35	200.0	PVC	110.0	20.980	0.668	278.20	277.92
P-37	12.8	J-35	J-36	200.0	PVC	110.0	20.779	0.661	277.92	277.88
P-38	10.0	J-36	J-37	200.0	PVC	110.0	20.712	0.659	277.88	277.85
P-39	15.1	J-37	J-20	200.0	PVC	110.0	20.712	0.659	277.85	277.79
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-5.715	0.182	279.03	279.05
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-5.849	0.186	279.05	279.06
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-3.694	0.118	279.06	279.07
P-43	75.4	J-49	J-40	200.0	PVC	110.0	3.995	0.127	279.08	279.07
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-7.118	0.227	279.08	279.09
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-2.322	0.074	279.06	279.06
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-2.422	0.077	279.06	279.06
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-2.455	0.078	279.06	279.06
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-2.555	0.081	279.06	279.07
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-2.689	0.086	279.07	279.07
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-2.756	0.088	279.07	279.07
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-2.789	0.089	279.07	279.07
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-2.889	0.092	279.07	279.08
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-40.414	1.286	279.12	279.93
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-41.785	1.330	280.54	283.15
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.301	0.646	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.334	0.647	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-7.893	0.251	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	42.483	1.352	280.68	280.10
P-65	72.6	J-57	J-5	200.0	PVC	110.0	42.002	1.337	280.10	279.18
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-40.615	1.293	279.93	280.18
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-40.682	1.295	280.18	280.50
P-68	74.5	J-32	J-59	200.0	PVC	110.0	21.482	0.684	278.70	278.42

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-19 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	21.281	0.677	278.42	278.24
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-41.852	1.332	283.15	284.81
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.726	0.246	284.81	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-34.328	1.093	284.81	284.92
P-76	8.7	R-3	J-65	200.0	PVC	110.0	34.428	1.096	285.00	284.92
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-40.849	0.832	280.50	280.54
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.491	1.066	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-45.833	1.459	281.98	283.73
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-45.833	1.459	283.73	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.50	280.50
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.50	280.50
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.50	280.50
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.73	283.73
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-20 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.02	406.1
J-2	240.52	0.000	Fixed	281.99	405.9
J-3	240.99	0.713	Fixed	281.13	392.9
J-4	240.84	1.150	Fixed	280.73	390.4
J-5	241.40	0.214	Fixed	279.25	370.5
J-6	241.10	0.100	Fixed	279.10	371.9
J-7	241.38	0.134	Fixed	278.93	367.5
J-8	241.60	0.033	Fixed	278.93	365.4
J-9	241.20	0.134	Fixed	278.87	368.7
J-10	241.25	0.267	Fixed	278.72	366.8
J-11	241.30	0.201	Fixed	278.56	364.7
J-12	241.35	0.201	Fixed	278.42	362.8
J-13	241.40	0.267	Fixed	278.29	361.0
J-14	241.45	0.134	Fixed	278.11	358.8
J-15	241.53	0.067	Fixed	278.09	357.8
J-16	241.72	0.201	Fixed	277.99	354.9
J-17	242.05	0.234	Fixed	277.81	350.0
J-18	242.21	0.000	Fixed	277.73	347.6
J-19	242.36	0.241	Fixed	277.64	345.3
J-20	242.60	76.037	Fixed	277.48	341.4
J-21	242.55	0.000	Fixed	277.53	342.4
J-22	242.21	0.267	Fixed	278.10	351.2
J-23	242.14	0.000	Fixed	278.20	352.9
J-24	242.06	0.475	Fixed	278.33	354.9
J-25	241.68	0.201	Fixed	279.04	365.6
J-26	241.68	0.067	Fixed	279.04	365.6
J-27	241.41	0.067	Fixed	279.03	368.1
J-28	241.48	0.033	Fixed	279.21	369.3
J-29	241.35	0.067	Fixed	279.12	369.7
J-30	241.20	0.033	Fixed	279.05	370.5
J-31	241.53	0.167	Fixed	279.00	366.8
J-32	241.45	0.401	Fixed	278.60	363.5
J-33	241.88	0.134	Fixed	278.04	353.9
J-34	241.88	0.167	Fixed	277.99	353.4
J-35	242.29	0.201	Fixed	277.64	346.0
J-36	242.38	0.067	Fixed	277.59	344.6
J-37	242.47	0.000	Fixed	277.55	343.3
J-38	241.52	0.134	Fixed	279.01	366.9
J-39	241.52	0.167	Fixed	279.01	366.9
J-40	241.27	0.301	Fixed	279.02	369.4
J-42	241.93	0.100	Fixed	279.01	362.9
J-43	242.03	0.033	Fixed	279.01	362.0
J-44	242.12	0.100	Fixed	279.02	361.1
J-45	242.35	0.134	Fixed	279.02	358.8
J-46	242.05	0.067	Fixed	279.02	361.8

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-20 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	279.02	362.7
J-48	241.87	0.100	Fixed	279.02	363.6
J-49	241.56	0.234	Fixed	279.02	366.6
J-50	242.25	0.201	Fixed	279.86	368.1
J-51	242.25	0.000	Fixed	280.44	373.8
J-52	245.69	0.167	Fixed	280.44	340.1
J-53	241.85	0.936	Fixed	280.48	378.0
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.7
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	280.16	381.6
J-58	242.25	0.067	Fixed	280.12	370.6
J-59	241.58	0.201	Fixed	278.26	359.0
J-60	242.27	0.067	Fixed	283.13	399.9
J-64	241.33	0.201	Fixed	284.81	425.5
J-65	241.33	0.100	Fixed	284.92	426.6
J-68	240.44	0.000	Fixed	283.75	423.8
J-69	242.59	0.000	Fixed	280.44	370.5
J-70	243.84	0.000	Fixed	280.44	358.2
J-71	243.20	0.000	Fixed	283.75	396.8
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-20 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	44.039	1.402	282.02	281.99
P-3	62.2	J-2	J-3	200.0	PVC	110.0	44.039	1.402	281.99	281.13
P-4	30.0	J-3	J-4	200.0	PVC	110.0	43.326	1.379	281.13	280.73
P-6	48.1	J-5	J-6	200.0	PVC	110.0	19.851	0.632	279.25	279.10
P-7	54.1	J-6	J-7	200.0	PVC	110.0	19.751	0.629	279.10	278.93
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	278.93	278.93
P-9	18.9	J-7	J-9	200.0	PVC	110.0	19.584	0.623	278.93	278.87
P-10	48.8	J-9	J-10	200.0	PVC	110.0	19.450	0.619	278.87	278.72
P-11	55.0	J-10	J-11	200.0	PVC	110.0	19.183	0.611	278.72	278.56
P-12	47.2	J-11	J-12	200.0	PVC	110.0	18.982	0.604	278.56	278.42
P-13	48.8	J-12	J-13	200.0	PVC	110.0	18.781	0.598	278.42	278.29
P-14	62.8	J-13	J-14	200.0	PVC	110.0	18.514	0.589	278.29	278.11
P-15	8.4	J-14	J-15	200.0	PVC	110.0	18.380	0.585	278.11	278.09
P-16	36.8	J-15	J-16	200.0	PVC	110.0	18.313	0.583	278.09	277.99
P-17	66.7	J-16	J-17	200.0	PVC	110.0	18.112	0.577	277.99	277.81
P-18	32.1	J-17	J-18	200.0	PVC	110.0	17.878	0.569	277.81	277.73
P-19	32.6	J-18	J-19	200.0	PVC	110.0	17.878	0.569	277.73	277.64
P-20	62.1	J-19	J-20	200.0	PVC	110.0	17.637	0.561	277.64	277.48
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-35.159	1.119	277.48	277.53
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-35.159	1.119	277.53	278.10
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-35.426	1.128	278.10	278.20
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-35.426	1.128	278.20	278.33
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-35.901	1.143	278.33	279.04
P-26	10.4	J-25	J-26	200.0	PVC	110.0	4.619	0.147	279.04	279.04
P-27	52.5	J-26	J-27	200.0	PVC	110.0	4.552	0.145	279.04	279.03
P-29	11.2	J-5	J-28	200.0	PVC	110.0	21.631	0.689	279.25	279.21
P-30	24.4	J-28	J-29	200.0	PVC	110.0	21.598	0.687	279.21	279.12
P-31	18.1	J-29	J-30	200.0	PVC	110.0	21.531	0.685	279.12	279.05
P-32	13.7	J-30	J-31	200.0	PVC	110.0	21.498	0.684	279.05	279.00

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-20 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	24.412	0.777	279.00	278.60
P-35	10.5	J-33	J-34	200.0	PVC	110.0	23.676	0.754	278.04	277.99
P-36	80.2	J-34	J-35	200.0	PVC	110.0	23.509	0.748	277.99	277.64
P-37	12.8	J-35	J-36	200.0	PVC	110.0	23.308	0.742	277.64	277.59
P-38	10.0	J-36	J-37	200.0	PVC	110.0	23.241	0.740	277.59	277.55
P-39	15.1	J-37	J-20	200.0	PVC	110.0	23.241	0.740	277.55	277.48
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-3.082	0.098	279.00	279.01
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-3.216	0.102	279.01	279.01
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-2.127	0.068	279.01	279.02
P-43	75.4	J-49	J-40	200.0	PVC	110.0	2.428	0.077	279.02	279.02
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-4.485	0.143	279.02	279.03
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-1.256	0.040	279.01	279.01
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-1.356	0.043	279.01	279.01
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-1.389	0.044	279.01	279.02
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-1.489	0.047	279.02	279.02
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-1.623	0.052	279.02	279.02
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-1.690	0.054	279.02	279.02
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-1.723	0.055	279.02	279.02
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-1.823	0.058	279.02	279.02
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-40.721	1.296	279.04	279.86
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-42.092	1.340	280.48	283.13
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.233	0.644	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.266	0.645	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-8.018	0.255	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	42.176	1.343	280.73	280.16
P-65	72.6	J-57	J-5	200.0	PVC	110.0	41.695	1.327	280.16	279.25
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-40.922	1.303	279.86	280.12
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-40.989	1.305	280.12	280.44
P-68	74.5	J-32	J-59	200.0	PVC	110.0	24.011	0.764	278.60	278.26

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-20 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	23.810	0.758	278.26	278.04
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-42.159	1.342	283.13	284.81
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.851	0.250	284.81	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-34.509	1.098	284.81	284.92
P-76	8.7	R-3	J-65	200.0	PVC	110.0	34.609	1.102	285.00	284.92
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-41.156	0.838	280.44	280.48
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.378	1.062	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-45.526	1.449	282.02	283.75
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-45.526	1.449	283.75	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.44	280.44
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.44	280.44
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.44	280.44
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.75	283.75
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-22 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.05	406.5
J-2	240.52	0.000	Fixed	282.03	406.2
J-3	240.99	0.713	Fixed	281.18	393.3
J-4	240.84	1.150	Fixed	280.78	390.9
J-5	241.40	0.214	Fixed	279.32	371.1
J-6	241.10	0.100	Fixed	279.21	373.0
J-7	241.38	0.134	Fixed	279.09	369.1
J-8	241.60	0.033	Fixed	279.09	366.9
J-9	241.20	0.134	Fixed	279.05	370.4
J-10	241.25	0.267	Fixed	278.94	368.9
J-11	241.30	0.201	Fixed	278.82	367.2
J-12	241.35	0.201	Fixed	278.73	365.8
J-13	241.40	0.267	Fixed	278.63	364.3
J-14	241.45	0.134	Fixed	278.50	362.7
J-15	241.53	0.067	Fixed	278.49	361.7
J-16	241.72	0.201	Fixed	278.42	359.2
J-17	242.05	0.234	Fixed	278.29	354.7
J-18	242.21	0.000	Fixed	278.24	352.6
J-19	242.36	0.241	Fixed	278.18	350.5
J-20	242.60	0.267	Fixed	278.07	347.1
J-21	242.55	0.000	Fixed	278.03	347.2
J-22	242.21	76.037	Fixed	277.55	345.9
J-23	242.14	0.000	Fixed	277.71	348.1
J-24	242.06	0.475	Fixed	277.90	350.8
J-25	241.68	0.201	Fixed	278.96	364.9
J-26	241.68	0.067	Fixed	278.96	364.9
J-27	241.41	0.067	Fixed	278.97	367.6
J-28	241.48	0.033	Fixed	279.27	369.8
J-29	241.35	0.067	Fixed	279.16	370.0
J-30	241.20	0.033	Fixed	279.07	370.7
J-31	241.53	0.167	Fixed	279.01	366.8
J-32	241.45	0.401	Fixed	278.75	365.1
J-33	241.88	0.134	Fixed	278.41	357.5
J-34	241.88	0.167	Fixed	278.38	357.2
J-35	242.29	0.201	Fixed	278.17	351.1
J-36	242.38	0.067	Fixed	278.13	349.9
J-37	242.47	0.000	Fixed	278.11	348.8
J-38	241.52	0.134	Fixed	278.99	366.7
J-39	241.52	0.167	Fixed	278.99	366.7
J-40	241.27	0.301	Fixed	278.98	369.1
J-42	241.93	0.100	Fixed	278.98	362.6
J-43	242.03	0.033	Fixed	278.98	361.6
J-44	242.12	0.100	Fixed	278.98	360.8
J-45	242.35	0.134	Fixed	278.98	358.5
J-46	242.05	0.067	Fixed	278.98	361.4

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-22 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	278.98	362.3
J-48	241.87	0.100	Fixed	278.98	363.2
J-49	241.56	0.234	Fixed	278.98	366.2
J-50	242.25	0.201	Fixed	279.79	367.4
J-51	242.25	0.000	Fixed	280.39	373.2
J-52	245.69	0.167	Fixed	280.39	339.6
J-53	241.85	0.936	Fixed	280.42	377.5
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.7
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	280.22	382.1
J-58	242.25	0.067	Fixed	280.06	370.0
J-59	241.58	0.201	Fixed	278.55	361.8
J-60	242.27	0.067	Fixed	283.10	399.6
J-64	241.33	0.201	Fixed	284.80	425.5
J-65	241.33	0.100	Fixed	284.92	426.6
J-68	240.44	0.000	Fixed	283.76	424.0
J-69	242.59	0.000	Fixed	280.39	369.9
J-70	243.84	0.000	Fixed	280.39	357.7
J-71	243.20	0.000	Fixed	283.76	397.0
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-22 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	43.748	1.393	282.05	282.03
P-3	62.2	J-2	J-3	200.0	PVC	110.0	43.748	1.393	282.03	281.18
P-4	30.0	J-3	J-4	200.0	PVC	110.0	43.035	1.370	281.18	280.78
P-6	48.1	J-5	J-6	200.0	PVC	110.0	16.671	0.531	279.32	279.21
P-7	54.1	J-6	J-7	200.0	PVC	110.0	16.571	0.527	279.21	279.09
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	279.09	279.09
P-9	18.9	J-7	J-9	200.0	PVC	110.0	16.404	0.522	279.09	279.05
P-10	48.8	J-9	J-10	200.0	PVC	110.0	16.270	0.518	279.05	278.94
P-11	55.0	J-10	J-11	200.0	PVC	110.0	16.003	0.509	278.94	278.82
P-12	47.2	J-11	J-12	200.0	PVC	110.0	15.802	0.503	278.82	278.73
P-13	48.8	J-12	J-13	200.0	PVC	110.0	15.601	0.497	278.73	278.63
P-14	62.8	J-13	J-14	200.0	PVC	110.0	15.334	0.488	278.63	278.50
P-15	8.4	J-14	J-15	200.0	PVC	110.0	15.200	0.484	278.50	278.49
P-16	36.8	J-15	J-16	200.0	PVC	110.0	15.133	0.482	278.49	278.42
P-17	66.7	J-16	J-17	200.0	PVC	110.0	14.932	0.475	278.42	278.29
P-18	32.1	J-17	J-18	200.0	PVC	110.0	14.698	0.468	278.29	278.24
P-19	32.6	J-18	J-19	200.0	PVC	110.0	14.698	0.468	278.24	278.18
P-20	62.1	J-19	J-20	200.0	PVC	110.0	14.457	0.460	278.18	278.07
P-21	5.5	J-20	J-21	200.0	PVC	110.0	31.979	1.018	278.07	278.03
P-22	61.7	J-21	J-22	200.0	PVC	110.0	31.979	1.018	278.03	277.55
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-44.058	1.402	277.55	277.71
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-44.058	1.402	277.71	277.90
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-44.533	1.418	277.90	278.96
P-26	10.4	J-25	J-26	200.0	PVC	110.0	-3.722	0.118	278.96	278.96
P-27	52.5	J-26	J-27	200.0	PVC	110.0	-3.789	0.121	278.96	278.97
P-29	11.2	J-5	J-28	200.0	PVC	110.0	24.519	0.780	279.32	279.27
P-30	24.4	J-28	J-29	200.0	PVC	110.0	24.486	0.779	279.27	279.16
P-31	18.1	J-29	J-30	200.0	PVC	110.0	24.419	0.777	279.16	279.07
P-32	13.7	J-30	J-31	200.0	PVC	110.0	24.386	0.776	279.07	279.01

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-22 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	18.961	0.604	279.01	278.75
P-35	10.5	J-33	J-34	200.0	PVC	110.0	18.225	0.580	278.41	278.38
P-36	80.2	J-34	J-35	200.0	PVC	110.0	18.058	0.575	278.38	278.17
P-37	12.8	J-35	J-36	200.0	PVC	110.0	17.857	0.568	278.17	278.13
P-38	10.0	J-36	J-37	200.0	PVC	110.0	17.790	0.566	278.13	278.11
P-39	15.1	J-37	J-20	200.0	PVC	110.0	17.790	0.566	278.11	278.07
P-40	67.1	J-31	J-38	200.0	PVC	110.0	5.259	0.167	279.01	278.99
P-41	18.9	J-38	J-39	200.0	PVC	110.0	5.125	0.163	278.99	278.99
P-42	63.2	J-39	J-40	200.0	PVC	110.0	2.853	0.091	278.99	278.98
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-2.552	0.081	278.98	278.98
P-44	22.4	J-49	J-27	200.0	PVC	110.0	3.856	0.123	278.98	278.97
P-45	60.5	J-39	J-42	200.0	PVC	110.0	2.105	0.067	278.99	278.98
P-46	18.0	J-42	J-43	200.0	PVC	110.0	2.005	0.064	278.98	278.98
P-47	17.9	J-43	J-44	200.0	PVC	110.0	1.972	0.063	278.98	278.98
P-48	45.9	J-44	J-45	200.0	PVC	110.0	1.872	0.060	278.98	278.98
P-49	45.9	J-45	J-46	200.0	PVC	110.0	1.738	0.055	278.98	278.98
P-50	17.9	J-46	J-47	200.0	PVC	110.0	1.671	0.053	278.98	278.98
P-51	17.9	J-47	J-48	200.0	PVC	110.0	1.638	0.052	278.98	278.98
P-52	60.6	J-48	J-49	200.0	PVC	110.0	1.538	0.049	278.98	278.98
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-41.012	1.305	278.96	279.79
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-42.383	1.349	280.42	283.10
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.167	0.642	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.200	0.643	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-8.135	0.259	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	41.885	1.333	280.78	280.22
P-65	72.6	J-57	J-5	200.0	PVC	110.0	41.404	1.318	280.22	279.32
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-41.213	1.312	279.79	280.06
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-41.280	1.314	280.06	280.39
P-68	74.5	J-32	J-59	200.0	PVC	110.0	18.560	0.591	278.75	278.55

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-22 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	18.359	0.584	278.55	278.41
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-42.450	1.351	283.10	284.80
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.968	0.254	284.80	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-34.683	1.104	284.80	284.92
P-76	8.7	R-3	J-65	200.0	PVC	110.0	34.783	1.107	285.00	284.92
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-41.447	0.844	280.39	280.42
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.270	1.059	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-45.235	1.440	282.05	283.76
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-45.235	1.440	283.76	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.39	280.39
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.39	280.39
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.39	280.39
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.76	283.76
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-24 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.07	406.7
J-2	240.52	0.000	Fixed	282.05	406.4
J-3	240.99	0.713	Fixed	281.21	393.6
J-4	240.84	1.150	Fixed	280.81	391.2
J-5	241.40	0.214	Fixed	279.37	371.6
J-6	241.10	0.100	Fixed	279.27	373.6
J-7	241.38	0.134	Fixed	279.16	369.8
J-8	241.60	0.033	Fixed	279.16	367.6
J-9	241.20	0.134	Fixed	279.13	371.2
J-10	241.25	0.267	Fixed	279.03	369.8
J-11	241.30	0.201	Fixed	278.93	368.3
J-12	241.35	0.201	Fixed	278.85	367.0
J-13	241.40	0.267	Fixed	278.76	365.7
J-14	241.45	0.134	Fixed	278.66	364.1
J-15	241.53	0.067	Fixed	278.64	363.2
J-16	241.72	0.201	Fixed	278.58	360.7
J-17	242.05	0.234	Fixed	278.47	356.5
J-18	242.21	0.000	Fixed	278.42	354.4
J-19	242.36	0.241	Fixed	278.37	352.4
J-20	242.60	0.267	Fixed	278.28	349.2
J-21	242.55	0.000	Fixed	278.24	349.3
J-22	242.21	0.267	Fixed	277.86	348.9
J-23	242.14	0.000	Fixed	277.79	348.9
J-24	242.06	76.245	Fixed	277.70	348.8
J-25	241.68	0.201	Fixed	278.91	364.4
J-26	241.68	0.067	Fixed	278.92	364.4
J-27	241.41	0.067	Fixed	278.94	367.3
J-28	241.48	0.033	Fixed	279.31	370.2
J-29	241.35	0.067	Fixed	279.19	370.3
J-30	241.20	0.033	Fixed	279.10	370.9
J-31	241.53	0.167	Fixed	279.03	367.0
J-32	241.45	0.401	Fixed	278.83	365.8
J-33	241.88	0.134	Fixed	278.55	358.9
J-34	241.88	0.167	Fixed	278.53	358.6
J-35	242.29	0.201	Fixed	278.36	353.0
J-36	242.38	0.067	Fixed	278.33	351.8
J-37	242.47	0.000	Fixed	278.31	350.8
J-38	241.52	0.134	Fixed	278.99	366.7
J-39	241.52	0.167	Fixed	278.98	366.6
J-40	241.27	0.301	Fixed	278.96	368.9
J-42	241.93	0.100	Fixed	278.97	362.5
J-43	242.03	0.033	Fixed	278.97	361.5
J-44	242.12	0.100	Fixed	278.97	360.6
J-45	242.35	0.134	Fixed	278.96	358.3
J-46	242.05	0.067	Fixed	278.96	361.2

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-24 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	278.96	362.1
J-48	241.87	0.100	Fixed	278.95	362.9
J-49	241.56	0.234	Fixed	278.95	365.9
J-50	242.25	0.201	Fixed	279.75	367.0
J-51	242.25	0.000	Fixed	280.35	372.9
J-52	245.69	0.167	Fixed	280.35	339.2
J-53	241.85	0.936	Fixed	280.38	377.1
J-54	240.34	0.067	Fixed	284.89	436.1
J-55	240.44	0.033	Fixed	284.95	435.7
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	280.25	382.5
J-58	242.25	0.067	Fixed	280.01	369.6
J-59	241.58	0.201	Fixed	278.66	362.9
J-60	242.27	0.067	Fixed	283.09	399.5
J-64	241.33	0.201	Fixed	284.80	425.5
J-65	241.33	0.100	Fixed	284.92	426.6
J-68	240.44	0.000	Fixed	283.77	424.1
J-69	242.59	0.000	Fixed	280.35	369.5
J-70	243.84	0.000	Fixed	280.35	357.3
J-71	243.20	0.000	Fixed	283.77	397.1
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-24 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	43.557	1.386	282.07	282.05
P-3	62.2	J-2	J-3	200.0	PVC	110.0	43.557	1.386	282.05	281.21
P-4	30.0	J-3	J-4	200.0	PVC	110.0	42.844	1.364	281.21	280.81
P-6	48.1	J-5	J-6	200.0	PVC	110.0	15.525	0.494	279.37	279.27
P-7	54.1	J-6	J-7	200.0	PVC	110.0	15.425	0.491	279.27	279.16
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	279.16	279.16
P-9	18.9	J-7	J-9	200.0	PVC	110.0	15.258	0.486	279.16	279.13
P-10	48.8	J-9	J-10	200.0	PVC	110.0	15.124	0.481	279.13	279.03
P-11	55.0	J-10	J-11	200.0	PVC	110.0	14.857	0.473	279.03	278.93
P-12	47.2	J-11	J-12	200.0	PVC	110.0	14.656	0.467	278.93	278.85
P-13	48.8	J-12	J-13	200.0	PVC	110.0	14.455	0.460	278.85	278.76
P-14	62.8	J-13	J-14	200.0	PVC	110.0	14.188	0.452	278.76	278.66
P-15	8.4	J-14	J-15	200.0	PVC	110.0	14.054	0.447	278.66	278.64
P-16	36.8	J-15	J-16	200.0	PVC	110.0	13.987	0.445	278.64	278.58
P-17	66.7	J-16	J-17	200.0	PVC	110.0	13.786	0.439	278.58	278.47
P-18	32.1	J-17	J-18	200.0	PVC	110.0	13.552	0.431	278.47	278.42
P-19	32.6	J-18	J-19	200.0	PVC	110.0	13.552	0.431	278.42	278.37
P-20	62.1	J-19	J-20	200.0	PVC	110.0	13.311	0.424	278.37	278.28
P-21	5.5	J-20	J-21	200.0	PVC	110.0	28.740	0.915	278.28	278.24
P-22	61.7	J-21	J-22	200.0	PVC	110.0	28.740	0.915	278.24	277.86
P-23	11.1	J-22	J-23	200.0	PVC	110.0	28.473	0.906	277.86	277.79
P-24	13.9	J-23	J-24	200.0	PVC	110.0	28.473	0.906	277.79	277.70
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-47.772	1.521	277.70	278.91
P-26	10.4	J-25	J-26	200.0	PVC	110.0	-6.769	0.215	278.91	278.92
P-27	52.5	J-26	J-27	200.0	PVC	110.0	-6.836	0.218	278.92	278.94
P-29	11.2	J-5	J-28	200.0	PVC	110.0	25.473	0.811	279.37	279.31
P-30	24.4	J-28	J-29	200.0	PVC	110.0	25.440	0.810	279.31	279.19
P-31	18.1	J-29	J-30	200.0	PVC	110.0	25.373	0.808	279.19	279.10
P-32	13.7	J-30	J-31	200.0	PVC	110.0	25.340	0.807	279.10	279.03

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-24 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	16.867	0.537	279.03	278.83
P-35	10.5	J-33	J-34	200.0	PVC	110.0	16.131	0.513	278.55	278.53
P-36	80.2	J-34	J-35	200.0	PVC	110.0	15.964	0.508	278.53	278.36
P-37	12.8	J-35	J-36	200.0	PVC	110.0	15.763	0.502	278.36	278.33
P-38	10.0	J-36	J-37	200.0	PVC	110.0	15.696	0.500	278.33	278.31
P-39	15.1	J-37	J-20	200.0	PVC	110.0	15.696	0.500	278.31	278.28
P-40	67.1	J-31	J-38	200.0	PVC	110.0	8.306	0.264	279.03	278.99
P-41	18.9	J-38	J-39	200.0	PVC	110.0	8.172	0.260	278.99	278.98
P-42	63.2	J-39	J-40	200.0	PVC	110.0	4.667	0.149	278.98	278.96
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-4.366	0.139	278.95	278.96
P-44	22.4	J-49	J-27	200.0	PVC	110.0	6.903	0.220	278.95	278.94
P-45	60.5	J-39	J-42	200.0	PVC	110.0	3.338	0.106	278.98	278.97
P-46	18.0	J-42	J-43	200.0	PVC	110.0	3.238	0.103	278.97	278.97
P-47	17.9	J-43	J-44	200.0	PVC	110.0	3.205	0.102	278.97	278.97
P-48	45.9	J-44	J-45	200.0	PVC	110.0	3.105	0.099	278.97	278.96
P-49	45.9	J-45	J-46	200.0	PVC	110.0	2.971	0.095	278.96	278.96
P-50	17.9	J-46	J-47	200.0	PVC	110.0	2.904	0.092	278.96	278.96
P-51	17.9	J-47	J-48	200.0	PVC	110.0	2.871	0.091	278.96	278.95
P-52	60.6	J-48	J-49	200.0	PVC	110.0	2.771	0.088	278.95	278.95
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-41.203	1.312	278.91	279.75
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-42.574	1.355	280.38	283.09
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.124	0.641	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.157	0.642	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-8.212	0.261	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	41.694	1.327	280.81	280.25
P-65	72.6	J-57	J-5	200.0	PVC	110.0	41.213	1.312	280.25	279.37
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-41.404	1.318	279.75	280.01
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-41.471	1.320	280.01	280.35
P-68	74.5	J-32	J-59	200.0	PVC	110.0	16.466	0.524	278.83	278.66

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-24 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	16.265	0.518	278.66	278.55
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-42.641	1.357	283.09	284.80
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-8.045	0.256	284.80	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-34.797	1.108	284.80	284.92
P-76	8.7	R-3	J-65	200.0	PVC	110.0	34.897	1.111	285.00	284.92
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-41.638	0.848	280.35	280.38
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.199	1.057	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-45.044	1.434	282.07	283.77
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-45.044	1.434	283.77	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.35	280.35
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.35	280.35
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.35	280.35
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.77	283.77
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-25 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.20	407.9
J-2	240.52	0.000	Fixed	282.18	407.7
J-3	240.99	0.713	Fixed	281.38	395.3
J-4	240.84	1.150	Fixed	281.00	393.0
J-5	241.40	0.214	Fixed	279.62	374.1
J-6	241.10	0.100	Fixed	279.57	376.5
J-7	241.38	0.134	Fixed	279.50	373.1
J-8	241.60	0.033	Fixed	279.50	370.9
J-9	241.20	0.134	Fixed	279.48	374.7
J-10	241.25	0.267	Fixed	279.43	373.6
J-11	241.30	0.201	Fixed	279.37	372.6
J-12	241.35	0.201	Fixed	279.32	371.6
J-13	241.40	0.267	Fixed	279.27	370.6
J-14	241.45	0.134	Fixed	279.21	369.5
J-15	241.53	0.067	Fixed	279.20	368.7
J-16	241.72	0.201	Fixed	279.17	366.5
J-17	242.05	0.234	Fixed	279.11	362.7
J-18	242.21	0.000	Fixed	279.08	360.8
J-19	242.36	0.241	Fixed	279.05	359.1
J-20	242.60	0.267	Fixed	279.00	356.3
J-21	242.55	0.000	Fixed	278.99	356.6
J-22	242.21	0.267	Fixed	278.84	358.5
J-23	242.14	0.000	Fixed	278.82	358.9
J-24	242.06	0.475	Fixed	278.78	359.4
J-25	241.68	75.971	Fixed	278.62	361.5
J-26	241.68	0.067	Fixed	278.64	361.8
J-27	241.41	0.067	Fixed	278.77	365.7
J-28	241.48	0.033	Fixed	279.56	372.7
J-29	241.35	0.067	Fixed	279.41	372.5
J-30	241.20	0.033	Fixed	279.30	372.9
J-31	241.53	0.167	Fixed	279.22	368.9
J-32	241.45	0.401	Fixed	279.16	369.0
J-33	241.88	0.134	Fixed	279.08	364.0
J-34	241.88	0.167	Fixed	279.07	364.0
J-35	242.29	0.201	Fixed	279.02	359.5
J-36	242.38	0.067	Fixed	279.02	358.5
J-37	242.47	0.000	Fixed	279.01	357.6
J-38	241.52	0.134	Fixed	279.03	367.1
J-39	241.52	0.167	Fixed	278.97	366.5
J-40	241.27	0.301	Fixed	278.91	368.3
J-42	241.93	0.100	Fixed	278.94	362.2
J-43	242.03	0.033	Fixed	278.93	361.1
J-44	242.12	0.100	Fixed	278.92	360.2
J-45	242.35	0.134	Fixed	278.90	357.7
J-46	242.05	0.067	Fixed	278.88	360.4

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-25 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	278.87	361.2
J-48	241.87	0.100	Fixed	278.86	362.0
J-49	241.56	0.234	Fixed	278.83	364.8
J-50	242.25	0.201	Fixed	279.50	364.5
J-51	242.25	0.000	Fixed	280.13	370.7
J-52	245.69	0.167	Fixed	280.13	337.0
J-53	241.85	0.936	Fixed	280.16	375.0
J-54	240.34	0.067	Fixed	284.90	436.1
J-55	240.44	0.033	Fixed	284.96	435.7
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	280.47	384.6
J-58	242.25	0.067	Fixed	279.78	367.3
J-59	241.58	0.201	Fixed	279.11	367.3
J-60	242.27	0.067	Fixed	283.00	398.6
J-64	241.33	0.201	Fixed	284.80	425.4
J-65	241.33	0.100	Fixed	284.92	426.6
J-68	240.44	0.000	Fixed	283.82	424.6
J-69	242.59	0.000	Fixed	280.13	367.4
J-70	243.84	0.000	Fixed	280.13	355.1
J-71	243.20	0.000	Fixed	283.82	397.6
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-25 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	42.458	1.351	282.20	282.18
P-3	62.2	J-2	J-3	200.0	PVC	110.0	42.458	1.351	282.18	281.38
P-4	30.0	J-3	J-4	200.0	PVC	110.0	41.745	1.329	281.38	281.00
P-6	48.1	J-5	J-6	200.0	PVC	110.0	11.768	0.375	279.62	279.57
P-7	54.1	J-6	J-7	200.0	PVC	110.0	11.668	0.371	279.57	279.50
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	279.50	279.50
P-9	18.9	J-7	J-9	200.0	PVC	110.0	11.501	0.366	279.50	279.48
P-10	48.8	J-9	J-10	200.0	PVC	110.0	11.367	0.362	279.48	279.43
P-11	55.0	J-10	J-11	200.0	PVC	110.0	11.100	0.353	279.43	279.37
P-12	47.2	J-11	J-12	200.0	PVC	110.0	10.899	0.347	279.37	279.32
P-13	48.8	J-12	J-13	200.0	PVC	110.0	10.698	0.341	279.32	279.27
P-14	62.8	J-13	J-14	200.0	PVC	110.0	10.431	0.332	279.27	279.21
P-15	8.4	J-14	J-15	200.0	PVC	110.0	10.297	0.328	279.21	279.20
P-16	36.8	J-15	J-16	200.0	PVC	110.0	10.230	0.326	279.20	279.17
P-17	66.7	J-16	J-17	200.0	PVC	110.0	10.029	0.319	279.17	279.11
P-18	32.1	J-17	J-18	200.0	PVC	110.0	9.795	0.312	279.11	279.08
P-19	32.6	J-18	J-19	200.0	PVC	110.0	9.795	0.312	279.08	279.05
P-20	62.1	J-19	J-20	200.0	PVC	110.0	9.554	0.304	279.05	279.00
P-21	5.5	J-20	J-21	200.0	PVC	110.0	17.038	0.542	279.00	278.99
P-22	61.7	J-21	J-22	200.0	PVC	110.0	17.038	0.542	278.99	278.84
P-23	11.1	J-22	J-23	200.0	PVC	110.0	16.771	0.534	278.84	278.82
P-24	13.9	J-23	J-24	200.0	PVC	110.0	16.771	0.534	278.82	278.78
P-25	75.3	J-24	J-25	200.0	PVC	110.0	16.296	0.519	278.78	278.62
P-26	10.4	J-25	J-26	200.0	PVC	110.0	-17.373	0.553	278.62	278.64
P-27	52.5	J-26	J-27	200.0	PVC	110.0	-17.440	0.555	278.64	278.77
P-29	11.2	J-5	J-28	200.0	PVC	110.0	28.133	0.895	279.62	279.56
P-30	24.4	J-28	J-29	200.0	PVC	110.0	28.100	0.894	279.56	279.41
P-31	18.1	J-29	J-30	200.0	PVC	110.0	28.033	0.892	279.41	279.30
P-32	13.7	J-30	J-31	200.0	PVC	110.0	28.000	0.891	279.30	279.22

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-25 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	8.922	0.284	279.22	279.16
P-35	10.5	J-33	J-34	200.0	PVC	110.0	8.186	0.261	279.08	279.07
P-36	80.2	J-34	J-35	200.0	PVC	110.0	8.019	0.255	279.07	279.02
P-37	12.8	J-35	J-36	200.0	PVC	110.0	7.818	0.249	279.02	279.02
P-38	10.0	J-36	J-37	200.0	PVC	110.0	7.751	0.247	279.02	279.01
P-39	15.1	J-37	J-20	200.0	PVC	110.0	7.751	0.247	279.01	279.00
P-40	67.1	J-31	J-38	200.0	PVC	110.0	18.910	0.602	279.22	279.03
P-41	18.9	J-38	J-39	200.0	PVC	110.0	18.776	0.598	279.03	278.97
P-42	63.2	J-39	J-40	200.0	PVC	110.0	10.985	0.350	278.97	278.91
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-10.684	0.340	278.83	278.91
P-44	22.4	J-49	J-27	200.0	PVC	110.0	17.507	0.557	278.83	278.77
P-45	60.5	J-39	J-42	200.0	PVC	110.0	7.624	0.243	278.97	278.94
P-46	18.0	J-42	J-43	200.0	PVC	110.0	7.524	0.240	278.94	278.93
P-47	17.9	J-43	J-44	200.0	PVC	110.0	7.491	0.238	278.93	278.92
P-48	45.9	J-44	J-45	200.0	PVC	110.0	7.391	0.235	278.92	278.90
P-49	45.9	J-45	J-46	200.0	PVC	110.0	7.257	0.231	278.90	278.88
P-50	17.9	J-46	J-47	200.0	PVC	110.0	7.190	0.229	278.88	278.87
P-51	17.9	J-47	J-48	200.0	PVC	110.0	7.157	0.228	278.87	278.86
P-52	60.6	J-48	J-49	200.0	PVC	110.0	7.057	0.225	278.86	278.83
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-42.302	1.347	278.62	279.50
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-43.673	1.390	280.16	283.00
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-19.875	0.633	284.90	284.96
P-61	13.9	R-1	J-55	200.0	PVC	110.0	19.908	0.634	285.00	284.96
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-8.649	0.275	284.88	284.90
P-64	44.8	J-4	J-57	200.0	PVC	110.0	40.595	1.292	281.00	280.47
P-65	72.6	J-57	J-5	200.0	PVC	110.0	40.114	1.277	280.47	279.62
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-42.503	1.353	279.50	279.78
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-42.570	1.355	279.78	280.13
P-68	74.5	J-32	J-59	200.0	PVC	110.0	8.521	0.271	279.16	279.11

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-25 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	8.320	0.265	279.11	279.08
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-43.740	1.392	283.00	284.80
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-8.482	0.270	284.80	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-35.459	1.129	284.80	284.92
P-76	8.7	R-3	J-65	200.0	PVC	110.0	35.559	1.132	285.00	284.92
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-42.737	0.871	280.13	280.16
P-83	12.8	R-2	J-54	200.0	PVC	110.0	32.787	1.044	285.00	284.90
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-43.945	1.399	282.20	283.82
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-43.945	1.399	283.82	284.90
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.13	280.13
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.13	280.13
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.13	280.13
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.82	283.82
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-31 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.90	405.0
J-2	240.52	0.000	Fixed	281.88	404.8
J-3	240.99	0.713	Fixed	280.99	391.4
J-4	240.84	1.150	Fixed	280.57	388.8
J-5	241.40	0.214	Fixed	279.03	368.3
J-6	241.10	0.100	Fixed	279.02	371.1
J-7	241.38	0.134	Fixed	279.01	368.3
J-8	241.60	0.033	Fixed	279.01	366.1
J-9	241.20	0.134	Fixed	279.01	370.0
J-10	241.25	0.267	Fixed	279.00	369.5
J-11	241.30	0.201	Fixed	279.00	368.9
J-12	241.35	0.201	Fixed	278.99	368.4
J-13	241.40	0.267	Fixed	278.99	367.9
J-14	241.45	0.134	Fixed	278.98	367.3
J-15	241.53	0.067	Fixed	278.98	366.5
J-16	241.72	0.201	Fixed	278.98	364.7
J-17	242.05	0.234	Fixed	278.98	361.4
J-18	242.21	0.000	Fixed	278.98	359.8
J-19	242.36	0.241	Fixed	278.97	358.3
J-20	242.60	0.267	Fixed	278.97	356.0
J-21	242.55	0.000	Fixed	278.98	356.5
J-22	242.21	0.267	Fixed	279.09	360.9
J-23	242.14	0.000	Fixed	279.11	361.8
J-24	242.06	0.475	Fixed	279.14	362.9
J-25	241.68	0.201	Fixed	279.28	368.0
J-26	241.68	0.067	Fixed	279.23	367.5
J-27	241.41	0.067	Fixed	278.99	367.8
J-28	241.48	0.033	Fixed	278.91	366.3
J-29	241.35	0.067	Fixed	278.65	365.0
J-30	241.20	0.033	Fixed	278.45	364.6
J-31	241.53	75.937	Fixed	278.31	359.9
J-32	241.45	0.401	Fixed	278.47	362.3
J-33	241.88	0.134	Fixed	278.71	360.4
J-34	241.88	0.167	Fixed	278.73	360.6
J-35	242.29	0.201	Fixed	278.89	358.2
J-36	242.38	0.067	Fixed	278.92	357.6
J-37	242.47	0.000	Fixed	278.94	356.9
J-38	241.52	0.134	Fixed	278.58	362.7
J-39	241.52	0.167	Fixed	278.66	363.5
J-40	241.27	0.301	Fixed	278.76	366.9
J-42	241.93	0.100	Fixed	278.70	359.9
J-43	242.03	0.033	Fixed	278.72	359.1
J-44	242.12	0.100	Fixed	278.73	358.3
J-45	242.35	0.134	Fixed	278.77	356.4
J-46	242.05	0.067	Fixed	278.81	359.7

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-31 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	278.82	360.8
J-48	241.87	0.100	Fixed	278.84	361.8
J-49	241.56	0.234	Fixed	278.89	365.3
J-50	242.25	0.201	Fixed	280.06	370.1
J-51	242.25	0.000	Fixed	280.63	375.6
J-52	245.69	0.167	Fixed	280.63	341.9
J-53	241.85	0.936	Fixed	280.66	379.8
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.6
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	279.97	379.7
J-58	242.25	0.067	Fixed	280.31	372.5
J-59	241.58	0.201	Fixed	278.61	362.4
J-60	242.27	0.067	Fixed	283.20	400.6
J-64	241.33	0.201	Fixed	284.81	425.6
J-65	241.33	0.100	Fixed	284.93	426.7
J-68	240.44	0.000	Fixed	283.70	423.4
J-69	242.59	0.000	Fixed	280.63	372.3
J-70	243.84	0.000	Fixed	280.63	360.0
J-71	243.20	0.000	Fixed	283.70	396.4
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-31 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	44.972	1.432	281.90	281.88
P-3	62.2	J-2	J-3	200.0	PVC	110.0	44.972	1.432	281.88	280.99
P-4	30.0	J-3	J-4	200.0	PVC	110.0	44.259	1.409	280.99	280.57
P-6	48.1	J-5	J-6	200.0	PVC	110.0	3.933	0.125	279.03	279.02
P-7	54.1	J-6	J-7	200.0	PVC	110.0	3.833	0.122	279.02	279.01
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	279.01	279.01
P-9	18.9	J-7	J-9	200.0	PVC	110.0	3.666	0.117	279.01	279.01
P-10	48.8	J-9	J-10	200.0	PVC	110.0	3.532	0.112	279.01	279.00
P-11	55.0	J-10	J-11	200.0	PVC	110.0	3.265	0.104	279.00	279.00
P-12	47.2	J-11	J-12	200.0	PVC	110.0	3.064	0.098	279.00	278.99
P-13	48.8	J-12	J-13	200.0	PVC	110.0	2.863	0.091	278.99	278.99
P-14	62.8	J-13	J-14	200.0	PVC	110.0	2.596	0.083	278.99	278.98
P-15	8.4	J-14	J-15	200.0	PVC	110.0	2.462	0.078	278.98	278.98
P-16	36.8	J-15	J-16	200.0	PVC	110.0	2.395	0.076	278.98	278.98
P-17	66.7	J-16	J-17	200.0	PVC	110.0	2.194	0.070	278.98	278.98
P-18	32.1	J-17	J-18	200.0	PVC	110.0	1.960	0.062	278.98	278.98
P-19	32.6	J-18	J-19	200.0	PVC	110.0	1.960	0.062	278.98	278.97
P-20	62.1	J-19	J-20	200.0	PVC	110.0	1.719	0.055	278.97	278.97
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-14.472	0.461	278.97	278.98
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-14.472	0.461	278.98	279.09
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-14.739	0.469	279.09	279.11
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-14.739	0.469	279.11	279.14
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-15.214	0.484	279.14	279.28
P-26	10.4	J-25	J-26	200.0	PVC	110.0	24.373	0.776	279.28	279.23
P-27	52.5	J-26	J-27	200.0	PVC	110.0	24.306	0.774	279.23	278.99
P-29	11.2	J-5	J-28	200.0	PVC	110.0	38.481	1.225	279.03	278.91
P-30	24.4	J-28	J-29	200.0	PVC	110.0	38.448	1.224	278.91	278.65
P-31	18.1	J-29	J-30	200.0	PVC	110.0	38.381	1.222	278.65	278.45
P-32	13.7	J-30	J-31	200.0	PVC	110.0	38.348	1.221	278.45	278.31

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-31 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-14.753	0.470	278.31	278.47
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-15.489	0.493	278.71	278.73
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-15.656	0.498	278.73	278.89
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-15.857	0.505	278.89	278.92
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-15.924	0.507	278.92	278.94
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-15.924	0.507	278.94	278.97
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-22.836	0.727	278.31	278.58
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-22.970	0.731	278.58	278.66
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-13.895	0.442	278.66	278.76
P-43	75.4	J-49	J-40	200.0	PVC	110.0	14.196	0.452	278.89	278.76
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-24.239	0.772	278.89	278.99
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-9.242	0.294	278.66	278.70
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-9.342	0.297	278.70	278.72
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-9.375	0.298	278.72	278.73
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-9.475	0.302	278.73	278.77
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-9.609	0.306	278.77	278.81
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-9.676	0.308	278.81	278.82
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-9.709	0.309	278.82	278.84
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-9.809	0.312	278.84	278.89
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-39.788	1.266	279.28	280.06
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-41.159	1.310	280.66	283.20
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.441	0.651	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.474	0.652	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-7.635	0.243	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	43.109	1.372	280.57	279.97
P-65	72.6	J-57	J-5	200.0	PVC	110.0	42.628	1.357	279.97	279.03
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-39.989	1.273	280.06	280.31
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-40.056	1.275	280.31	280.63
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-15.154	0.482	278.47	278.61

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-31 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-15.355	0.489	278.61	278.71
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-41.226	1.312	283.20	284.81
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.468	0.238	284.81	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-33.959	1.081	284.81	284.93
P-76	8.7	R-3	J-65	200.0	PVC	110.0	34.059	1.084	285.00	284.93
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-40.223	0.819	280.63	280.66
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.720	1.073	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-46.459	1.479	281.90	283.70
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-46.459	1.479	283.70	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.63	280.63
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.63	280.63
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.63	280.63
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.70	283.70
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-37 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.01	406.1
J-2	240.52	0.000	Fixed	281.99	405.9
J-3	240.99	0.713	Fixed	281.13	392.8
J-4	240.84	1.150	Fixed	280.73	390.4
J-5	241.40	0.214	Fixed	279.25	370.4
J-6	241.10	0.100	Fixed	279.11	372.0
J-7	241.38	0.134	Fixed	278.95	367.6
J-8	241.60	0.033	Fixed	278.95	365.5
J-9	241.20	0.134	Fixed	278.89	368.9
J-10	241.25	0.267	Fixed	278.75	367.0
J-11	241.30	0.201	Fixed	278.60	365.0
J-12	241.35	0.201	Fixed	278.47	363.3
J-13	241.40	0.267	Fixed	278.34	361.5
J-14	241.45	0.134	Fixed	278.17	359.4
J-15	241.53	0.067	Fixed	278.15	358.4
J-16	241.72	0.201	Fixed	278.06	355.6
J-17	242.05	0.234	Fixed	277.89	350.8
J-18	242.21	0.000	Fixed	277.81	348.4
J-19	242.36	0.241	Fixed	277.73	346.2
J-20	242.60	0.267	Fixed	277.59	342.4
J-21	242.55	0.000	Fixed	277.63	343.3
J-22	242.21	0.267	Fixed	278.16	351.8
J-23	242.14	0.000	Fixed	278.25	353.5
J-24	242.06	0.475	Fixed	278.38	355.4
J-25	241.68	0.201	Fixed	279.04	365.7
J-26	241.68	0.067	Fixed	279.04	365.6
J-27	241.41	0.067	Fixed	279.02	368.1
J-28	241.48	0.033	Fixed	279.20	369.2
J-29	241.35	0.067	Fixed	279.11	369.6
J-30	241.20	0.033	Fixed	279.04	370.3
J-31	241.53	0.167	Fixed	278.99	366.6
J-32	241.45	0.401	Fixed	278.52	362.8
J-33	241.88	0.134	Fixed	277.88	352.3
J-34	241.88	0.167	Fixed	277.82	351.8
J-35	242.29	0.201	Fixed	277.43	343.9
J-36	242.38	0.067	Fixed	277.36	342.4
J-37	242.47	75.770	Fixed	277.32	341.0
J-38	241.52	0.134	Fixed	279.00	366.8
J-39	241.52	0.167	Fixed	279.00	366.8
J-40	241.27	0.301	Fixed	279.01	369.3
J-42	241.93	0.100	Fixed	279.01	362.8
J-43	242.03	0.033	Fixed	279.01	361.9
J-44	242.12	0.100	Fixed	279.01	361.0
J-45	242.35	0.134	Fixed	279.01	358.8
J-46	242.05	0.067	Fixed	279.01	361.7

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-37 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	279.01	362.6
J-48	241.87	0.100	Fixed	279.01	363.5
J-49	241.56	0.234	Fixed	279.02	366.6
J-50	242.25	0.201	Fixed	279.86	368.1
J-51	242.25	0.000	Fixed	280.45	373.8
J-52	245.69	0.167	Fixed	280.45	340.2
J-53	241.85	0.936	Fixed	280.48	378.1
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.7
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	280.16	381.5
J-58	242.25	0.067	Fixed	280.12	370.6
J-59	241.58	0.201	Fixed	278.14	357.8
J-60	242.27	0.067	Fixed	283.13	399.9
J-64	241.33	0.201	Fixed	284.81	425.5
J-65	241.33	0.100	Fixed	284.92	426.6
J-68	240.44	0.000	Fixed	283.75	423.8
J-69	242.59	0.000	Fixed	280.45	370.5
J-70	243.84	0.000	Fixed	280.45	358.3
J-71	243.20	0.000	Fixed	283.75	396.8
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-37 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	44.056	1.402	282.01	281.99
P-3	62.2	J-2	J-3	200.0	PVC	110.0	44.056	1.402	281.99	281.13
P-4	30.0	J-3	J-4	200.0	PVC	110.0	43.343	1.380	281.13	280.73
P-6	48.1	J-5	J-6	200.0	PVC	110.0	19.234	0.612	279.25	279.11
P-7	54.1	J-6	J-7	200.0	PVC	110.0	19.134	0.609	279.11	278.95
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	278.95	278.95
P-9	18.9	J-7	J-9	200.0	PVC	110.0	18.967	0.604	278.95	278.89
P-10	48.8	J-9	J-10	200.0	PVC	110.0	18.833	0.599	278.89	278.75
P-11	55.0	J-10	J-11	200.0	PVC	110.0	18.566	0.591	278.75	278.60
P-12	47.2	J-11	J-12	200.0	PVC	110.0	18.365	0.585	278.60	278.47
P-13	48.8	J-12	J-13	200.0	PVC	110.0	18.164	0.578	278.47	278.34
P-14	62.8	J-13	J-14	200.0	PVC	110.0	17.897	0.570	278.34	278.17
P-15	8.4	J-14	J-15	200.0	PVC	110.0	17.763	0.565	278.17	278.15
P-16	36.8	J-15	J-16	200.0	PVC	110.0	17.696	0.563	278.15	278.06
P-17	66.7	J-16	J-17	200.0	PVC	110.0	17.495	0.557	278.06	277.89
P-18	32.1	J-17	J-18	200.0	PVC	110.0	17.261	0.549	277.89	277.81
P-19	32.6	J-18	J-19	200.0	PVC	110.0	17.261	0.549	277.81	277.73
P-20	62.1	J-19	J-20	200.0	PVC	110.0	17.020	0.542	277.73	277.59
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-33.937	1.080	277.59	277.63
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-33.937	1.080	277.63	278.16
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-34.204	1.089	278.16	278.25
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-34.204	1.089	278.25	278.38
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-34.679	1.104	278.38	279.04
P-26	10.4	J-25	J-26	200.0	PVC	110.0	5.824	0.185	279.04	279.04
P-27	52.5	J-26	J-27	200.0	PVC	110.0	5.757	0.183	279.04	279.02
P-29	11.2	J-5	J-28	200.0	PVC	110.0	22.264	0.709	279.25	279.20
P-30	24.4	J-28	J-29	200.0	PVC	110.0	22.231	0.708	279.20	279.11
P-31	18.1	J-29	J-30	200.0	PVC	110.0	22.164	0.706	279.11	279.04
P-32	13.7	J-30	J-31	200.0	PVC	110.0	22.131	0.704	279.04	278.99

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-37 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	26.251	0.836	278.99	278.52
P-35	10.5	J-33	J-34	200.0	PVC	110.0	25.515	0.812	277.88	277.82
P-36	80.2	J-34	J-35	200.0	PVC	110.0	25.348	0.807	277.82	277.43
P-37	12.8	J-35	J-36	200.0	PVC	110.0	25.147	0.800	277.43	277.36
P-38	10.0	J-36	J-37	200.0	PVC	110.0	25.080	0.798	277.36	277.32
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-50.690	1.614	277.32	277.59
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-4.287	0.136	278.99	279.00
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-4.421	0.141	279.00	279.00
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-2.844	0.091	279.00	279.01
P-43	75.4	J-49	J-40	200.0	PVC	110.0	3.145	0.100	279.02	279.01
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-5.690	0.181	279.02	279.02
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-1.744	0.056	279.00	279.01
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-1.844	0.059	279.01	279.01
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-1.877	0.060	279.01	279.01
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-1.977	0.063	279.01	279.01
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-2.111	0.067	279.01	279.01
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-2.178	0.069	279.01	279.01
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-2.211	0.070	279.01	279.01
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-2.311	0.074	279.01	279.02
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-40.704	1.296	279.04	279.86
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-42.075	1.339	280.48	283.13
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.237	0.644	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.270	0.645	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-8.011	0.255	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	42.193	1.343	280.73	280.16
P-65	72.6	J-57	J-5	200.0	PVC	110.0	41.712	1.328	280.16	279.25
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-40.905	1.302	279.86	280.12
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-40.972	1.304	280.12	280.45
P-68	74.5	J-32	J-59	200.0	PVC	110.0	25.850	0.823	278.52	278.14

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-37 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	25.649	0.816	278.14	277.88
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-42.142	1.341	283.13	284.81
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.844	0.250	284.81	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-34.499	1.098	284.81	284.92
P-76	8.7	R-3	J-65	200.0	PVC	110.0	34.599	1.101	285.00	284.92
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-41.139	0.838	280.45	280.48
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.384	1.063	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-45.543	1.450	282.01	283.75
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-45.543	1.450	283.75	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.45	280.45
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.45	280.45
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.45	280.45
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.75	283.75
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-40 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.06	406.5
J-2	240.52	0.000	Fixed	282.03	406.3
J-3	240.99	0.713	Fixed	281.18	393.4
J-4	240.84	1.150	Fixed	280.79	391.0
J-5	241.40	0.214	Fixed	279.33	371.2
J-6	241.10	0.100	Fixed	279.29	373.8
J-7	241.38	0.134	Fixed	279.25	370.7
J-8	241.60	0.033	Fixed	279.25	368.5
J-9	241.20	0.134	Fixed	279.24	372.3
J-10	241.25	0.267	Fixed	279.21	371.5
J-11	241.30	0.201	Fixed	279.17	370.6
J-12	241.35	0.201	Fixed	279.14	369.8
J-13	241.40	0.267	Fixed	279.11	369.0
J-14	241.45	0.134	Fixed	279.07	368.2
J-15	241.53	0.067	Fixed	279.07	367.4
J-16	241.72	0.201	Fixed	279.05	365.3
J-17	242.05	0.234	Fixed	279.01	361.7
J-18	242.21	0.000	Fixed	279.00	360.0
J-19	242.36	0.241	Fixed	278.98	358.4
J-20	242.60	0.267	Fixed	278.95	355.8
J-21	242.55	0.000	Fixed	278.95	356.3
J-22	242.21	0.267	Fixed	278.95	359.6
J-23	242.14	0.000	Fixed	278.95	360.3
J-24	242.06	0.475	Fixed	278.95	361.0
J-25	241.68	0.201	Fixed	278.95	364.8
J-26	241.68	0.067	Fixed	278.83	363.6
J-27	241.41	0.067	Fixed	278.23	360.3
J-28	241.48	0.033	Fixed	279.25	369.6
J-29	241.35	0.067	Fixed	279.06	369.1
J-30	241.20	0.033	Fixed	278.93	369.2
J-31	241.53	0.167	Fixed	278.82	365.0
J-32	241.45	0.401	Fixed	278.85	366.0
J-33	241.88	0.134	Fixed	278.90	362.3
J-34	241.88	0.167	Fixed	278.90	362.3
J-35	242.29	0.201	Fixed	278.93	358.6
J-36	242.38	0.067	Fixed	278.94	357.8
J-37	242.47	0.000	Fixed	278.94	357.0
J-38	241.52	0.134	Fixed	278.14	358.4
J-39	241.52	0.167	Fixed	277.95	356.5
J-40	241.27	76.071	Fixed	277.23	352.0
J-42	241.93	0.100	Fixed	277.95	352.5
J-43	242.03	0.033	Fixed	277.95	351.6
J-44	242.12	0.100	Fixed	277.95	350.7
J-45	242.35	0.134	Fixed	277.96	348.5
J-46	242.05	0.067	Fixed	277.96	351.5

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-40 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	277.96	352.4
J-48	241.87	0.100	Fixed	277.97	353.3
J-49	241.56	0.234	Fixed	277.97	356.3
J-50	242.25	0.201	Fixed	279.78	367.3
J-51	242.25	0.000	Fixed	280.38	373.2
J-52	245.69	0.167	Fixed	280.38	339.5
J-53	241.85	0.936	Fixed	280.41	377.4
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.7
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	280.22	382.2
J-58	242.25	0.067	Fixed	280.05	369.9
J-59	241.58	0.201	Fixed	278.88	365.0
J-60	242.27	0.067	Fixed	283.10	399.6
J-64	241.33	0.201	Fixed	284.80	425.5
J-65	241.33	0.100	Fixed	284.92	426.6
J-68	240.44	0.000	Fixed	283.76	424.0
J-69	242.59	0.000	Fixed	280.38	369.8
J-70	243.84	0.000	Fixed	280.38	357.6
J-71	243.20	0.000	Fixed	283.76	397.0
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-40 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	43.707	1.391	282.06	282.03
P-3	62.2	J-2	J-3	200.0	PVC	110.0	43.707	1.391	282.03	281.18
P-4	30.0	J-3	J-4	200.0	PVC	110.0	42.994	1.369	281.18	280.79
P-6	48.1	J-5	J-6	200.0	PVC	110.0	9.264	0.295	279.33	279.29
P-7	54.1	J-6	J-7	200.0	PVC	110.0	9.164	0.292	279.29	279.25
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	279.25	279.25
P-9	18.9	J-7	J-9	200.0	PVC	110.0	8.997	0.286	279.25	279.24
P-10	48.8	J-9	J-10	200.0	PVC	110.0	8.863	0.282	279.24	279.21
P-11	55.0	J-10	J-11	200.0	PVC	110.0	8.596	0.274	279.21	279.17
P-12	47.2	J-11	J-12	200.0	PVC	110.0	8.395	0.267	279.17	279.14
P-13	48.8	J-12	J-13	200.0	PVC	110.0	8.194	0.261	279.14	279.11
P-14	62.8	J-13	J-14	200.0	PVC	110.0	7.927	0.252	279.11	279.07
P-15	8.4	J-14	J-15	200.0	PVC	110.0	7.793	0.248	279.07	279.07
P-16	36.8	J-15	J-16	200.0	PVC	110.0	7.726	0.246	279.07	279.05
P-17	66.7	J-16	J-17	200.0	PVC	110.0	7.525	0.240	279.05	279.01
P-18	32.1	J-17	J-18	200.0	PVC	110.0	7.291	0.232	279.01	279.00
P-19	32.6	J-18	J-19	200.0	PVC	110.0	7.291	0.232	279.00	278.98
P-20	62.1	J-19	J-20	200.0	PVC	110.0	7.050	0.224	278.98	278.95
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-0.143	0.005	278.95	278.95
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-0.143	0.005	278.95	278.95
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-0.410	0.013	278.95	278.95
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-0.410	0.013	278.95	278.95
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-0.885	0.028	278.95	278.95
P-26	10.4	J-25	J-26	200.0	PVC	110.0	39.967	1.272	278.95	278.83
P-27	52.5	J-26	J-27	200.0	PVC	110.0	39.900	1.270	278.83	278.23
P-29	11.2	J-5	J-28	200.0	PVC	110.0	31.885	1.015	279.33	279.25
P-30	24.4	J-28	J-29	200.0	PVC	110.0	31.852	1.014	279.25	279.06
P-31	18.1	J-29	J-30	200.0	PVC	110.0	31.785	1.012	279.06	278.93
P-32	13.7	J-30	J-31	200.0	PVC	110.0	31.752	1.011	278.93	278.82

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-40 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-5.755	0.183	278.82	278.85
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-6.491	0.207	278.90	278.90
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-6.658	0.212	278.90	278.93
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-6.859	0.218	278.93	278.94
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-6.926	0.220	278.94	278.94
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-6.926	0.220	278.94	278.95
P-40	67.1	J-31	J-38	200.0	PVC	110.0	37.340	1.189	278.82	278.14
P-41	18.9	J-38	J-39	200.0	PVC	110.0	37.206	1.184	278.14	277.95
P-42	63.2	J-39	J-40	200.0	PVC	110.0	39.511	1.258	277.95	277.23
P-43	75.4	J-49	J-40	200.0	PVC	110.0	36.560	1.164	277.97	277.23
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-39.833	1.268	277.97	278.23
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-2.472	0.079	277.95	277.95
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-2.572	0.082	277.95	277.95
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-2.605	0.083	277.95	277.95
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-2.705	0.086	277.95	277.96
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-2.839	0.090	277.96	277.96
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-2.906	0.092	277.96	277.96
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-2.939	0.094	277.96	277.97
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-3.039	0.097	277.97	277.97
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-41.053	1.307	278.95	279.78
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-42.424	1.350	280.41	283.10
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.158	0.642	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.191	0.643	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-8.152	0.259	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	41.844	1.332	280.79	280.22
P-65	72.6	J-57	J-5	200.0	PVC	110.0	41.363	1.317	280.22	279.33
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-41.254	1.313	279.78	280.05
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-41.321	1.315	280.05	280.38
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-6.156	0.196	278.85	278.88

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-40 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-6.357	0.202	278.88	278.90
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-42.491	1.353	283.10	284.80
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.985	0.254	284.80	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-34.707	1.105	284.80	284.92
P-76	8.7	R-3	J-65	200.0	PVC	110.0	34.807	1.108	285.00	284.92
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-41.488	0.845	280.38	280.41
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.255	1.059	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-45.194	1.439	282.06	283.76
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-45.194	1.439	283.76	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.38	280.38
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.38	280.38
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.38	280.38
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.76	283.76
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-42 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.05	406.4
J-2	240.52	0.000	Fixed	282.03	406.2
J-3	240.99	0.713	Fixed	281.18	393.3
J-4	240.84	1.150	Fixed	280.78	390.9
J-5	241.40	0.214	Fixed	279.32	371.1
J-6	241.10	0.100	Fixed	279.28	373.7
J-7	241.38	0.134	Fixed	279.24	370.6
J-8	241.60	0.033	Fixed	279.24	368.4
J-9	241.20	0.134	Fixed	279.23	372.2
J-10	241.25	0.267	Fixed	279.20	371.4
J-11	241.30	0.201	Fixed	279.16	370.6
J-12	241.35	0.201	Fixed	279.14	369.8
J-13	241.40	0.267	Fixed	279.11	369.0
J-14	241.45	0.134	Fixed	279.07	368.2
J-15	241.53	0.067	Fixed	279.07	367.4
J-16	241.72	0.201	Fixed	279.05	365.3
J-17	242.05	0.234	Fixed	279.02	361.8
J-18	242.21	0.000	Fixed	279.00	360.1
J-19	242.36	0.241	Fixed	278.99	358.5
J-20	242.60	0.267	Fixed	278.96	355.9
J-21	242.55	0.000	Fixed	278.96	356.4
J-22	242.21	0.267	Fixed	278.96	359.7
J-23	242.14	0.000	Fixed	278.96	360.4
J-24	242.06	0.475	Fixed	278.96	361.2
J-25	241.68	0.201	Fixed	278.97	364.9
J-26	241.68	0.067	Fixed	278.85	363.8
J-27	241.41	0.067	Fixed	278.28	360.8
J-28	241.48	0.033	Fixed	279.23	369.5
J-29	241.35	0.067	Fixed	279.04	368.9
J-30	241.20	0.033	Fixed	278.90	369.0
J-31	241.53	0.167	Fixed	278.80	364.7
J-32	241.45	0.401	Fixed	278.84	365.9
J-33	241.88	0.134	Fixed	278.89	362.2
J-34	241.88	0.167	Fixed	278.90	362.3
J-35	242.29	0.201	Fixed	278.94	358.7
J-36	242.38	0.067	Fixed	278.95	357.9
J-37	242.47	0.000	Fixed	278.95	357.1
J-38	241.52	0.134	Fixed	278.08	357.8
J-39	241.52	0.167	Fixed	277.87	355.8
J-40	241.27	0.301	Fixed	277.95	359.0
J-42	241.93	75.870	Fixed	276.83	341.6
J-43	242.03	0.033	Fixed	276.92	341.5
J-44	242.12	0.100	Fixed	277.02	341.6
J-45	242.35	0.134	Fixed	277.26	341.7
J-46	242.05	0.067	Fixed	277.51	347.1

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-42 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	277.61	348.9
J-48	241.87	0.100	Fixed	277.71	350.7
J-49	241.56	0.234	Fixed	278.04	357.0
J-50	242.25	0.201	Fixed	279.79	367.4
J-51	242.25	0.000	Fixed	280.39	373.3
J-52	245.69	0.167	Fixed	280.39	339.6
J-53	241.85	0.936	Fixed	280.42	377.5
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.7
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	280.21	382.1
J-58	242.25	0.067	Fixed	280.06	370.0
J-59	241.58	0.201	Fixed	278.87	364.9
J-60	242.27	0.067	Fixed	283.10	399.6
J-64	241.33	0.201	Fixed	284.80	425.5
J-65	241.33	0.100	Fixed	284.92	426.6
J-68	240.44	0.000	Fixed	283.76	424.0
J-69	242.59	0.000	Fixed	280.39	369.9
J-70	243.84	0.000	Fixed	280.39	357.7
J-71	243.20	0.000	Fixed	283.76	397.0
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-42 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	43.762	1.393	282.05	282.03
P-3	62.2	J-2	J-3	200.0	PVC	110.0	43.762	1.393	282.03	281.18
P-4	30.0	J-3	J-4	200.0	PVC	110.0	43.049	1.370	281.18	280.78
P-6	48.1	J-5	J-6	200.0	PVC	110.0	8.992	0.286	279.32	279.28
P-7	54.1	J-6	J-7	200.0	PVC	110.0	8.892	0.283	279.28	279.24
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	279.24	279.24
P-9	18.9	J-7	J-9	200.0	PVC	110.0	8.725	0.278	279.24	279.23
P-10	48.8	J-9	J-10	200.0	PVC	110.0	8.591	0.273	279.23	279.20
P-11	55.0	J-10	J-11	200.0	PVC	110.0	8.324	0.265	279.20	279.16
P-12	47.2	J-11	J-12	200.0	PVC	110.0	8.123	0.259	279.16	279.14
P-13	48.8	J-12	J-13	200.0	PVC	110.0	7.922	0.252	279.14	279.11
P-14	62.8	J-13	J-14	200.0	PVC	110.0	7.655	0.244	279.11	279.07
P-15	8.4	J-14	J-15	200.0	PVC	110.0	7.521	0.239	279.07	279.07
P-16	36.8	J-15	J-16	200.0	PVC	110.0	7.454	0.237	279.07	279.05
P-17	66.7	J-16	J-17	200.0	PVC	110.0	7.253	0.231	279.05	279.02
P-18	32.1	J-17	J-18	200.0	PVC	110.0	7.019	0.223	279.02	279.00
P-19	32.6	J-18	J-19	200.0	PVC	110.0	7.019	0.223	279.00	278.99
P-20	62.1	J-19	J-20	200.0	PVC	110.0	6.778	0.216	278.99	278.96
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-1.236	0.039	278.96	278.96
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-1.236	0.039	278.96	278.96
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-1.503	0.048	278.96	278.96
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-1.503	0.048	278.96	278.96
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-1.978	0.063	278.96	278.97
P-26	10.4	J-25	J-26	200.0	PVC	110.0	38.819	1.236	278.97	278.85
P-27	52.5	J-26	J-27	200.0	PVC	110.0	38.752	1.234	278.85	278.28
P-29	11.2	J-5	J-28	200.0	PVC	110.0	32.212	1.025	279.32	279.23
P-30	24.4	J-28	J-29	200.0	PVC	110.0	32.179	1.024	279.23	279.04
P-31	18.1	J-29	J-30	200.0	PVC	110.0	32.112	1.022	279.04	278.90
P-32	13.7	J-30	J-31	200.0	PVC	110.0	32.079	1.021	278.90	278.80

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-42 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-6.576	0.209	278.80	278.84
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-7.312	0.233	278.89	278.90
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-7.479	0.238	278.90	278.94
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-7.680	0.244	278.94	278.95
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-7.747	0.247	278.95	278.95
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-7.747	0.247	278.95	278.96
P-40	67.1	J-31	J-38	200.0	PVC	110.0	38.488	1.225	278.80	278.08
P-41	18.9	J-38	J-39	200.0	PVC	110.0	38.354	1.221	278.08	277.87
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-11.465	0.365	277.87	277.95
P-43	75.4	J-49	J-40	200.0	PVC	110.0	11.765	0.375	278.04	277.95
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-38.685	1.231	278.04	278.28
P-45	60.5	J-39	J-42	200.0	PVC	110.0	49.652	1.580	277.87	276.83
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-26.218	0.835	276.83	276.92
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-26.251	0.836	276.92	277.02
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-26.351	0.839	277.02	277.26
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-26.485	0.843	277.26	277.51
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-26.552	0.845	277.51	277.61
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-26.585	0.846	277.61	277.71
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-26.685	0.849	277.71	278.04
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-40.998	1.305	278.97	279.79
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-42.369	1.349	280.42	283.10
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.171	0.642	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.204	0.643	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-8.130	0.259	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	41.899	1.334	280.78	280.21
P-65	72.6	J-57	J-5	200.0	PVC	110.0	41.418	1.318	280.21	279.32
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-41.199	1.311	279.79	280.06
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-41.266	1.314	280.06	280.39
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-6.977	0.222	278.84	278.87

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-42 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-7.178	0.228	278.87	278.89
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-42.436	1.351	283.10	284.80
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.963	0.253	284.80	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-34.674	1.104	284.80	284.92
P-76	8.7	R-3	J-65	200.0	PVC	110.0	34.774	1.107	285.00	284.92
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-41.433	0.844	280.39	280.42
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.275	1.059	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-45.249	1.440	282.05	283.76
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-45.249	1.440	283.76	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.39	280.39
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.39	280.39
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.39	280.39
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.76	283.76
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-46 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.06	406.5
J-2	240.52	0.000	Fixed	282.03	406.3
J-3	240.99	0.713	Fixed	281.19	393.4
J-4	240.84	1.150	Fixed	280.79	391.0
J-5	241.40	0.214	Fixed	279.34	371.3
J-6	241.10	0.100	Fixed	279.30	373.8
J-7	241.38	0.134	Fixed	279.26	370.7
J-8	241.60	0.033	Fixed	279.26	368.5
J-9	241.20	0.134	Fixed	279.24	372.3
J-10	241.25	0.267	Fixed	279.21	371.5
J-11	241.30	0.201	Fixed	279.17	370.6
J-12	241.35	0.201	Fixed	279.14	369.8
J-13	241.40	0.267	Fixed	279.11	369.0
J-14	241.45	0.134	Fixed	279.07	368.2
J-15	241.53	0.067	Fixed	279.07	367.4
J-16	241.72	0.201	Fixed	279.05	365.3
J-17	242.05	0.234	Fixed	279.01	361.7
J-18	242.21	0.000	Fixed	278.99	360.0
J-19	242.36	0.241	Fixed	278.98	358.4
J-20	242.60	0.267	Fixed	278.95	355.7
J-21	242.55	0.000	Fixed	278.95	356.2
J-22	242.21	0.267	Fixed	278.95	359.5
J-23	242.14	0.000	Fixed	278.95	360.2
J-24	242.06	0.475	Fixed	278.95	361.0
J-25	241.68	0.201	Fixed	278.95	364.7
J-26	241.68	0.067	Fixed	278.82	363.5
J-27	241.41	0.067	Fixed	278.21	360.1
J-28	241.48	0.033	Fixed	279.25	369.7
J-29	241.35	0.067	Fixed	279.07	369.1
J-30	241.20	0.033	Fixed	278.93	369.3
J-31	241.53	0.167	Fixed	278.83	365.1
J-32	241.45	0.401	Fixed	278.86	366.1
J-33	241.88	0.134	Fixed	278.90	362.3
J-34	241.88	0.167	Fixed	278.90	362.3
J-35	242.29	0.201	Fixed	278.93	358.6
J-36	242.38	0.067	Fixed	278.94	357.8
J-37	242.47	0.000	Fixed	278.94	356.9
J-38	241.52	0.134	Fixed	278.16	358.6
J-39	241.52	0.167	Fixed	277.98	356.8
J-40	241.27	0.301	Fixed	277.96	359.1
J-42	241.93	0.100	Fixed	277.52	348.3
J-43	242.03	0.033	Fixed	277.39	346.0
J-44	242.12	0.100	Fixed	277.25	343.9
J-45	242.35	0.134	Fixed	276.92	338.3
J-46	242.05	75.837	Fixed	276.58	337.9

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-46 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	276.83	341.3
J-48	241.87	0.100	Fixed	277.08	344.6
J-49	241.56	0.234	Fixed	277.94	356.1
J-50	242.25	0.201	Fixed	279.78	367.3
J-51	242.25	0.000	Fixed	280.37	373.1
J-52	245.69	0.167	Fixed	280.37	339.5
J-53	241.85	0.936	Fixed	280.41	377.4
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.7
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	280.23	382.3
J-58	242.25	0.067	Fixed	280.04	369.9
J-59	241.58	0.201	Fixed	278.88	365.0
J-60	242.27	0.067	Fixed	283.10	399.6
J-64	241.33	0.201	Fixed	284.80	425.5
J-65	241.33	0.100	Fixed	284.92	426.6
J-68	240.44	0.000	Fixed	283.76	424.0
J-69	242.59	0.000	Fixed	280.37	369.8
J-70	243.84	0.000	Fixed	280.37	357.6
J-71	243.20	0.000	Fixed	283.76	397.0
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-46 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	43.688	1.391	282.06	282.03
P-3	62.2	J-2	J-3	200.0	PVC	110.0	43.688	1.391	282.03	281.19
P-4	30.0	J-3	J-4	200.0	PVC	110.0	42.975	1.368	281.19	280.79
P-6	48.1	J-5	J-6	200.0	PVC	110.0	9.368	0.298	279.34	279.30
P-7	54.1	J-6	J-7	200.0	PVC	110.0	9.268	0.295	279.30	279.26
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	279.26	279.26
P-9	18.9	J-7	J-9	200.0	PVC	110.0	9.101	0.290	279.26	279.24
P-10	48.8	J-9	J-10	200.0	PVC	110.0	8.967	0.285	279.24	279.21
P-11	55.0	J-10	J-11	200.0	PVC	110.0	8.700	0.277	279.21	279.17
P-12	47.2	J-11	J-12	200.0	PVC	110.0	8.499	0.271	279.17	279.14
P-13	48.8	J-12	J-13	200.0	PVC	110.0	8.298	0.264	279.14	279.11
P-14	62.8	J-13	J-14	200.0	PVC	110.0	8.031	0.256	279.11	279.07
P-15	8.4	J-14	J-15	200.0	PVC	110.0	7.897	0.251	279.07	279.07
P-16	36.8	J-15	J-16	200.0	PVC	110.0	7.830	0.249	279.07	279.05
P-17	66.7	J-16	J-17	200.0	PVC	110.0	7.629	0.243	279.05	279.01
P-18	32.1	J-17	J-18	200.0	PVC	110.0	7.395	0.235	279.01	278.99
P-19	32.6	J-18	J-19	200.0	PVC	110.0	7.395	0.235	278.99	278.98
P-20	62.1	J-19	J-20	200.0	PVC	110.0	7.154	0.228	278.98	278.95
P-21	5.5	J-20	J-21	200.0	PVC	110.0	0.301	0.010	278.95	278.95
P-22	61.7	J-21	J-22	200.0	PVC	110.0	0.301	0.010	278.95	278.95
P-23	11.1	J-22	J-23	200.0	PVC	110.0	0.034	0.001	278.95	278.95
P-24	13.9	J-23	J-24	200.0	PVC	110.0	0.034	0.001	278.95	278.95
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-0.441	0.014	278.95	278.95
P-26	10.4	J-25	J-26	200.0	PVC	110.0	40.430	1.287	278.95	278.82
P-27	52.5	J-26	J-27	200.0	PVC	110.0	40.363	1.285	278.82	278.21
P-29	11.2	J-5	J-28	200.0	PVC	110.0	31.762	1.011	279.34	279.25
P-30	24.4	J-28	J-29	200.0	PVC	110.0	31.729	1.010	279.25	279.07
P-31	18.1	J-29	J-30	200.0	PVC	110.0	31.662	1.008	279.07	278.93
P-32	13.7	J-30	J-31	200.0	PVC	110.0	31.629	1.007	278.93	278.83

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-46 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-5.415	0.172	278.83	278.86
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-6.151	0.196	278.90	278.90
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-6.318	0.201	278.90	278.93
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-6.519	0.208	278.93	278.94
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-6.586	0.210	278.94	278.94
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-6.586	0.210	278.94	278.95
P-40	67.1	J-31	J-38	200.0	PVC	110.0	36.877	1.174	278.83	278.16
P-41	18.9	J-38	J-39	200.0	PVC	110.0	36.743	1.170	278.16	277.98
P-42	63.2	J-39	J-40	200.0	PVC	110.0	4.921	0.157	277.98	277.96
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-4.620	0.147	277.94	277.96
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-40.296	1.283	277.94	278.21
P-45	60.5	J-39	J-42	200.0	PVC	110.0	31.655	1.008	277.98	277.52
P-46	18.0	J-42	J-43	200.0	PVC	110.0	31.555	1.004	277.52	277.39
P-47	17.9	J-43	J-44	200.0	PVC	110.0	31.522	1.003	277.39	277.25
P-48	45.9	J-44	J-45	200.0	PVC	110.0	31.422	1.000	277.25	276.92
P-49	45.9	J-45	J-46	200.0	PVC	110.0	31.288	0.996	276.92	276.58
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-44.549	1.418	276.58	276.83
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-44.582	1.419	276.83	277.08
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-44.682	1.422	277.08	277.94
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-41.072	1.307	278.95	279.78
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-42.443	1.351	280.41	283.10
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.154	0.642	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.187	0.643	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-8.159	0.260	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	41.825	1.331	280.79	280.23
P-65	72.6	J-57	J-5	200.0	PVC	110.0	41.344	1.316	280.23	279.34
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-41.273	1.314	279.78	280.04
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-41.340	1.316	280.04	280.37
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-5.816	0.185	278.86	278.88

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-46 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-6.017	0.192	278.88	278.90
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-42.510	1.353	283.10	284.80
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.992	0.254	284.80	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-34.718	1.105	284.80	284.92
P-76	8.7	R-3	J-65	200.0	PVC	110.0	34.818	1.108	285.00	284.92
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-41.507	0.846	280.37	280.41
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.248	1.058	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-45.175	1.438	282.06	283.76
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-45.175	1.438	283.76	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.37	280.37
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.37	280.37
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.37	280.37
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.76	283.76
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-52 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.72	413.0
J-2	240.52	0.000	Fixed	282.70	412.8
J-3	240.99	0.713	Fixed	282.05	401.8
J-4	240.84	1.150	Fixed	281.75	400.4
J-5	241.40	0.214	Fixed	280.65	384.1
J-6	241.10	0.100	Fixed	280.60	386.6
J-7	241.38	0.134	Fixed	280.55	383.4
J-8	241.60	0.033	Fixed	280.55	381.2
J-9	241.20	0.134	Fixed	280.54	385.0
J-10	241.25	0.267	Fixed	280.49	384.0
J-11	241.30	0.201	Fixed	280.44	383.1
J-12	241.35	0.201	Fixed	280.40	382.2
J-13	241.40	0.267	Fixed	280.37	381.4
J-14	241.45	0.134	Fixed	280.32	380.4
J-15	241.53	0.067	Fixed	280.31	379.6
J-16	241.72	0.201	Fixed	280.29	377.4
J-17	242.05	0.234	Fixed	280.24	373.8
J-18	242.21	0.000	Fixed	280.22	372.0
J-19	242.36	0.241	Fixed	280.20	370.3
J-20	242.60	0.267	Fixed	280.16	367.6
J-21	242.55	0.000	Fixed	280.15	368.0
J-22	242.21	0.267	Fixed	280.04	370.2
J-23	242.14	0.000	Fixed	280.02	370.7
J-24	242.06	0.475	Fixed	279.99	371.2
J-25	241.68	0.201	Fixed	279.87	373.7
J-26	241.68	0.067	Fixed	279.89	373.9
J-27	241.41	0.067	Fixed	279.99	377.5
J-28	241.48	0.033	Fixed	280.60	382.8
J-29	241.35	0.067	Fixed	280.48	383.0
J-30	241.20	0.033	Fixed	280.40	383.6
J-31	241.53	0.167	Fixed	280.33	379.7
J-32	241.45	0.401	Fixed	280.28	380.0
J-33	241.88	0.134	Fixed	280.22	375.2
J-34	241.88	0.167	Fixed	280.21	375.1
J-35	242.29	0.201	Fixed	280.17	370.8
J-36	242.38	0.067	Fixed	280.17	369.8
J-37	242.47	0.000	Fixed	280.16	368.9
J-38	241.52	0.134	Fixed	280.18	378.4
J-39	241.52	0.167	Fixed	280.14	378.0
J-40	241.27	0.301	Fixed	280.09	379.9
J-42	241.93	0.100	Fixed	280.11	373.7
J-43	242.03	0.033	Fixed	280.11	372.6
J-44	242.12	0.100	Fixed	280.10	371.7
J-45	242.35	0.134	Fixed	280.08	369.3
J-46	242.05	0.067	Fixed	280.06	372.0

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-52 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	280.06	372.8
J-48	241.87	0.100	Fixed	280.05	373.7
J-49	241.56	0.234	Fixed	280.03	376.5
J-50	242.25	0.201	Fixed	279.44	363.9
J-51	242.25	0.000	Fixed	279.13	361.0
J-52	245.69	75.937	Fixed	272.88	266.1
J-53	241.85	0.936	Fixed	279.18	365.3
J-54	240.34	0.067	Fixed	284.91	436.2
J-55	240.44	0.033	Fixed	284.96	435.7
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	281.32	393.0
J-58	242.25	0.067	Fixed	279.30	362.6
J-59	241.58	0.201	Fixed	280.24	378.4
J-60	242.27	0.067	Fixed	282.60	394.7
J-64	241.33	0.201	Fixed	284.76	425.1
J-65	241.33	0.100	Fixed	284.91	426.5
J-68	240.44	0.000	Fixed	284.03	426.6
J-69	242.59	0.000	Fixed	278.35	350.0
J-70	243.84	0.000	Fixed	278.35	337.8
J-71	243.20	0.000	Fixed	284.03	399.6
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-52 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	37.814	1.204	282.72	282.70
P-3	62.2	J-2	J-3	200.0	PVC	110.0	37.814	1.204	282.70	282.05
P-4	30.0	J-3	J-4	200.0	PVC	110.0	37.101	1.181	282.05	281.75
P-6	48.1	J-5	J-6	200.0	PVC	110.0	10.489	0.334	280.65	280.60
P-7	54.1	J-6	J-7	200.0	PVC	110.0	10.389	0.331	280.60	280.55
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	280.55	280.55
P-9	18.9	J-7	J-9	200.0	PVC	110.0	10.222	0.325	280.55	280.54
P-10	48.8	J-9	J-10	200.0	PVC	110.0	10.088	0.321	280.54	280.49
P-11	55.0	J-10	J-11	200.0	PVC	110.0	9.821	0.313	280.49	280.44
P-12	47.2	J-11	J-12	200.0	PVC	110.0	9.620	0.306	280.44	280.40
P-13	48.8	J-12	J-13	200.0	PVC	110.0	9.419	0.300	280.40	280.37
P-14	62.8	J-13	J-14	200.0	PVC	110.0	9.152	0.291	280.37	280.32
P-15	8.4	J-14	J-15	200.0	PVC	110.0	9.018	0.287	280.32	280.31
P-16	36.8	J-15	J-16	200.0	PVC	110.0	8.951	0.285	280.31	280.29
P-17	66.7	J-16	J-17	200.0	PVC	110.0	8.750	0.279	280.29	280.24
P-18	32.1	J-17	J-18	200.0	PVC	110.0	8.516	0.271	280.24	280.22
P-19	32.6	J-18	J-19	200.0	PVC	110.0	8.516	0.271	280.22	280.20
P-20	62.1	J-19	J-20	200.0	PVC	110.0	8.275	0.263	280.20	280.16
P-21	5.5	J-20	J-21	200.0	PVC	110.0	14.760	0.470	280.16	280.15
P-22	61.7	J-21	J-22	200.0	PVC	110.0	14.760	0.470	280.15	280.04
P-23	11.1	J-22	J-23	200.0	PVC	110.0	14.493	0.461	280.04	280.02
P-24	13.9	J-23	J-24	200.0	PVC	110.0	14.493	0.461	280.02	279.99
P-25	75.3	J-24	J-25	200.0	PVC	110.0	14.018	0.446	279.99	279.87
P-26	10.4	J-25	J-26	200.0	PVC	110.0	-15.007	0.478	279.87	279.89
P-27	52.5	J-26	J-27	200.0	PVC	110.0	-15.074	0.480	279.89	279.99
P-29	11.2	J-5	J-28	200.0	PVC	110.0	24.767	0.788	280.65	280.60
P-30	24.4	J-28	J-29	200.0	PVC	110.0	24.734	0.787	280.60	280.48
P-31	18.1	J-29	J-30	200.0	PVC	110.0	24.667	0.785	280.48	280.40
P-32	13.7	J-30	J-31	200.0	PVC	110.0	24.634	0.784	280.40	280.33

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-52 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	7.923	0.252	280.33	280.28
P-35	10.5	J-33	J-34	200.0	PVC	110.0	7.187	0.229	280.22	280.21
P-36	80.2	J-34	J-35	200.0	PVC	110.0	7.020	0.223	280.21	280.17
P-37	12.8	J-35	J-36	200.0	PVC	110.0	6.819	0.217	280.17	280.17
P-38	10.0	J-36	J-37	200.0	PVC	110.0	6.752	0.215	280.17	280.16
P-39	15.1	J-37	J-20	200.0	PVC	110.0	6.752	0.215	280.16	280.16
P-40	67.1	J-31	J-38	200.0	PVC	110.0	16.544	0.527	280.33	280.18
P-41	18.9	J-38	J-39	200.0	PVC	110.0	16.410	0.522	280.18	280.14
P-42	63.2	J-39	J-40	200.0	PVC	110.0	9.575	0.305	280.14	280.09
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-9.274	0.295	280.03	280.09
P-44	22.4	J-49	J-27	200.0	PVC	110.0	15.141	0.482	280.03	279.99
P-45	60.5	J-39	J-42	200.0	PVC	110.0	6.668	0.212	280.14	280.11
P-46	18.0	J-42	J-43	200.0	PVC	110.0	6.568	0.209	280.11	280.11
P-47	17.9	J-43	J-44	200.0	PVC	110.0	6.535	0.208	280.11	280.10
P-48	45.9	J-44	J-45	200.0	PVC	110.0	6.435	0.205	280.10	280.08
P-49	45.9	J-45	J-46	200.0	PVC	110.0	6.301	0.201	280.08	280.06
P-50	17.9	J-46	J-47	200.0	PVC	110.0	6.234	0.198	280.06	280.06
P-51	17.9	J-47	J-48	200.0	PVC	110.0	6.201	0.197	280.06	280.05
P-52	60.6	J-48	J-49	200.0	PVC	110.0	6.101	0.194	280.05	280.03
P-53	68.4	J-25	J-50	200.0	PVC	110.0	28.824	0.918	279.87	279.44
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-48.317	1.538	279.18	282.60
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-18.784	0.598	284.91	284.96
P-61	13.9	R-1	J-55	200.0	PVC	110.0	18.817	0.599	285.00	284.96
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-10.406	0.331	284.88	284.91
P-64	44.8	J-4	J-57	200.0	PVC	110.0	35.951	1.144	281.75	281.32
P-65	72.6	J-57	J-5	200.0	PVC	110.0	35.470	1.129	281.32	280.65
P-66	21.6	J-50	J-58	200.0	PVC	110.0	28.623	0.911	279.44	279.30
P-67	27.0	J-58	J-51	200.0	PVC	110.0	28.556	0.909	279.30	279.13
P-68	74.5	J-32	J-59	200.0	PVC	110.0	7.522	0.239	280.28	280.24

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-52 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	7.321	0.233	280.24	280.22
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-48.384	1.540	282.60	284.76
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-10.239	0.326	284.76	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-38.346	1.221	284.76	284.91
P-76	8.7	R-3	J-65	200.0	PVC	110.0	38.446	1.224	285.00	284.91
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-47.381	0.965	279.13	279.18
P-83	12.8	R-2	J-54	200.0	PVC	110.0	30.990	0.986	285.00	284.91
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-39.301	1.251	282.72	284.03
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-39.301	1.251	284.03	284.91
P-86	20.6	J-51	J-69	200.0	PVC	110.0	75.937	2.417	279.13	278.35
P-87	144.3	J-69	J-52	200.0	PVC	110.0	75.937	2.417	278.35	272.88
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	278.35	278.35
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	284.03	284.03
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-57 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.37	399.8
J-2	240.52	0.000	Fixed	281.34	399.5
J-3	240.99	0.713	Fixed	280.28	384.5
J-4	240.84	1.150	Fixed	279.78	381.1
J-5	241.40	0.214	Fixed	279.53	373.2
J-6	241.10	0.100	Fixed	279.56	376.4
J-7	241.38	0.134	Fixed	279.58	373.9
J-8	241.60	0.033	Fixed	279.58	371.7
J-9	241.20	0.134	Fixed	279.59	375.7
J-10	241.25	0.267	Fixed	279.62	375.5
J-11	241.30	0.201	Fixed	279.65	375.3
J-12	241.35	0.201	Fixed	279.68	375.1
J-13	241.40	0.267	Fixed	279.71	374.9
J-14	241.45	0.134	Fixed	279.75	374.8
J-15	241.53	0.067	Fixed	279.76	374.1
J-16	241.72	0.201	Fixed	279.78	372.5
J-17	242.05	0.234	Fixed	279.83	369.7
J-18	242.21	0.000	Fixed	279.85	368.4
J-19	242.36	0.241	Fixed	279.88	367.2
J-20	242.60	0.267	Fixed	279.93	365.3
J-21	242.55	0.000	Fixed	279.94	365.9
J-22	242.21	0.267	Fixed	280.08	370.6
J-23	242.14	0.000	Fixed	280.11	371.6
J-24	242.06	0.475	Fixed	280.14	372.7
J-25	241.68	0.201	Fixed	280.33	378.2
J-26	241.68	0.067	Fixed	280.30	378.0
J-27	241.41	0.067	Fixed	280.16	379.3
J-28	241.48	0.033	Fixed	279.58	372.8
J-29	241.35	0.067	Fixed	279.67	375.0
J-30	241.20	0.033	Fixed	279.74	377.2
J-31	241.53	0.167	Fixed	279.79	374.5
J-32	241.45	0.401	Fixed	279.82	375.5
J-33	241.88	0.134	Fixed	279.87	371.8
J-34	241.88	0.167	Fixed	279.87	371.8
J-35	242.29	0.201	Fixed	279.91	368.2
J-36	242.38	0.067	Fixed	279.91	367.3
J-37	242.47	0.000	Fixed	279.92	366.5
J-38	241.52	0.134	Fixed	279.94	376.0
J-39	241.52	0.167	Fixed	279.98	376.4
J-40	241.27	0.301	Fixed	280.04	379.4
J-42	241.93	0.100	Fixed	280.01	372.6
J-43	242.03	0.033	Fixed	280.01	371.7
J-44	242.12	0.100	Fixed	280.02	370.9
J-45	242.35	0.134	Fixed	280.04	368.9
J-46	242.05	0.067	Fixed	280.06	372.0

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-57 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	280.07	373.0
J-48	241.87	0.100	Fixed	280.08	373.9
J-49	241.56	0.234	Fixed	280.11	377.3
J-50	242.25	0.201	Fixed	280.96	378.9
J-51	242.25	0.000	Fixed	281.42	383.3
J-52	245.69	0.167	Fixed	281.42	349.7
J-53	241.85	0.936	Fixed	281.45	387.5
J-54	240.34	0.067	Fixed	284.88	435.9
J-55	240.44	0.033	Fixed	284.95	435.6
J-56	240.44	0.167	Fixed	284.87	434.9
J-57	241.17	76.251	Fixed	279.07	371.0
J-58	242.25	0.067	Fixed	281.16	380.9
J-59	241.58	0.201	Fixed	279.85	374.5
J-60	242.27	0.067	Fixed	283.52	403.7
J-64	241.33	0.201	Fixed	284.84	425.8
J-65	241.33	0.100	Fixed	284.93	426.8
J-68	240.44	0.000	Fixed	283.48	421.2
J-69	242.59	0.000	Fixed	281.42	380.0
J-70	243.84	0.000	Fixed	281.42	367.8
J-71	243.20	0.000	Fixed	283.48	394.2
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-57 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	49.241	1.567	281.37	281.34
P-3	62.2	J-2	J-3	200.0	PVC	110.0	49.241	1.567	281.34	280.28
P-4	30.0	J-3	J-4	200.0	PVC	110.0	48.528	1.545	280.28	279.78
P-6	48.1	J-5	J-6	200.0	PVC	110.0	-7.166	0.228	279.53	279.56
P-7	54.1	J-6	J-7	200.0	PVC	110.0	-7.266	0.231	279.56	279.58
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	279.58	279.58
P-9	18.9	J-7	J-9	200.0	PVC	110.0	-7.433	0.237	279.58	279.59
P-10	48.8	J-9	J-10	200.0	PVC	110.0	-7.567	0.241	279.59	279.62
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-7.834	0.249	279.62	279.65
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-8.035	0.256	279.65	279.68
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-8.236	0.262	279.68	279.71
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-8.503	0.271	279.71	279.75
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-8.637	0.275	279.75	279.76
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-8.704	0.277	279.76	279.78
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-8.905	0.283	279.78	279.83
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-9.139	0.291	279.83	279.85
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-9.139	0.291	279.85	279.88
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-9.380	0.299	279.88	279.93
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-16.722	0.532	279.93	279.94
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-16.722	0.532	279.94	280.08
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-16.989	0.541	280.08	280.11
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-16.989	0.541	280.11	280.14
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-17.464	0.556	280.14	280.33
P-26	10.4	J-25	J-26	200.0	PVC	110.0	17.854	0.568	280.33	280.30
P-27	52.5	J-26	J-27	200.0	PVC	110.0	17.787	0.566	280.30	280.16
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-21.922	0.698	279.53	279.58
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-21.955	0.699	279.58	279.67
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-22.022	0.701	279.67	279.74
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-22.055	0.702	279.74	279.79

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-57 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-5.905	0.188	279.79	279.82
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-6.641	0.211	279.87	279.87
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-6.808	0.217	279.87	279.91
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-7.009	0.223	279.91	279.91
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-7.076	0.225	279.91	279.92
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-7.076	0.225	279.92	279.93
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-16.317	0.519	279.79	279.94
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-16.451	0.524	279.94	279.98
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-10.010	0.319	279.98	280.04
P-43	75.4	J-49	J-40	200.0	PVC	110.0	10.311	0.328	280.11	280.04
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-17.720	0.564	280.11	280.16
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-6.608	0.210	279.98	280.01
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-6.708	0.214	280.01	280.01
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-6.741	0.215	280.01	280.02
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-6.841	0.218	280.02	280.04
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-6.975	0.222	280.04	280.06
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-7.042	0.224	280.06	280.07
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-7.075	0.225	280.07	280.08
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-7.175	0.228	280.08	280.11
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-35.519	1.131	280.33	280.96
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-36.890	1.174	281.45	283.52
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-21.347	0.679	284.88	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	21.380	0.681	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-5.766	0.184	284.87	284.88
P-64	44.8	J-4	J-57	200.0	PVC	110.0	47.378	1.508	279.78	279.07
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-28.873	0.919	279.07	279.53
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-35.720	1.137	280.96	281.16
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-35.787	1.139	281.16	281.42
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-6.306	0.201	279.82	279.85

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-57 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-6.507	0.207	279.85	279.87
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-36.957	1.176	283.52	284.84
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-5.599	0.178	284.84	284.87
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-31.560	1.005	284.84	284.93
P-76	8.7	R-3	J-65	200.0	PVC	110.0	31.660	1.008	285.00	284.93
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-35.954	0.732	281.42	281.45
P-83	12.8	R-2	J-54	200.0	PVC	110.0	35.214	1.121	285.00	284.88
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-50.728	1.615	281.37	283.48
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-50.728	1.615	283.48	284.88
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	281.42	281.42
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	281.42	281.42
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	281.42	281.42
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.48	283.48
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-59 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.97	405.7
J-2	240.52	0.000	Fixed	281.95	405.4
J-3	240.99	0.713	Fixed	281.07	392.3
J-4	240.84	1.150	Fixed	280.66	389.8
J-5	241.40	0.214	Fixed	279.16	369.6
J-6	241.10	0.100	Fixed	279.09	371.8
J-7	241.38	0.134	Fixed	279.01	368.2
J-8	241.60	0.033	Fixed	279.01	366.1
J-9	241.20	0.134	Fixed	278.98	369.7
J-10	241.25	0.267	Fixed	278.91	368.6
J-11	241.30	0.201	Fixed	278.83	367.3
J-12	241.35	0.201	Fixed	278.77	366.2
J-13	241.40	0.267	Fixed	278.70	365.1
J-14	241.45	0.134	Fixed	278.62	363.8
J-15	241.53	0.067	Fixed	278.61	362.9
J-16	241.72	0.201	Fixed	278.57	360.6
J-17	242.05	0.234	Fixed	278.49	356.6
J-18	242.21	0.000	Fixed	278.45	354.7
J-19	242.36	0.241	Fixed	278.42	352.9
J-20	242.60	0.267	Fixed	278.35	349.9
J-21	242.55	0.000	Fixed	278.37	350.6
J-22	242.21	0.267	Fixed	278.66	356.7
J-23	242.14	0.000	Fixed	278.71	357.9
J-24	242.06	0.475	Fixed	278.77	359.3
J-25	241.68	0.201	Fixed	279.14	366.6
J-26	241.68	0.067	Fixed	279.12	366.4
J-27	241.41	0.067	Fixed	279.02	368.1
J-28	241.48	0.033	Fixed	279.09	368.1
J-29	241.35	0.067	Fixed	278.94	367.9
J-30	241.20	0.033	Fixed	278.83	368.3
J-31	241.53	0.167	Fixed	278.75	364.3
J-32	241.45	0.401	Fixed	277.65	354.3
J-33	241.88	0.134	Fixed	277.19	345.5
J-34	241.88	0.167	Fixed	277.28	346.5
J-35	242.29	0.201	Fixed	278.00	349.5
J-36	242.38	0.067	Fixed	278.12	349.8
J-37	242.47	0.000	Fixed	278.21	349.8
J-38	241.52	0.134	Fixed	278.85	365.4
J-39	241.52	0.167	Fixed	278.88	365.7
J-40	241.27	0.301	Fixed	278.93	368.5
J-42	241.93	0.100	Fixed	278.90	361.8
J-43	242.03	0.033	Fixed	278.91	360.9
J-44	242.12	0.100	Fixed	278.91	360.1
J-45	242.35	0.134	Fixed	278.93	358.0
J-46	242.05	0.067	Fixed	278.94	361.1

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-59 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	278.95	362.0
J-48	241.87	0.100	Fixed	278.96	362.9
J-49	241.56	0.234	Fixed	278.98	366.2
J-50	242.25	0.201	Fixed	279.94	368.9
J-51	242.25	0.000	Fixed	280.52	374.5
J-52	245.69	0.167	Fixed	280.52	340.9
J-53	241.85	0.936	Fixed	280.55	378.8
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.7
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	280.08	380.8
J-58	242.25	0.067	Fixed	280.20	371.4
J-59	241.58	75.971	Fixed	276.73	344.1
J-60	242.27	0.067	Fixed	283.16	400.2
J-64	241.33	0.201	Fixed	284.81	425.5
J-65	241.33	0.100	Fixed	284.92	426.6
J-68	240.44	0.000	Fixed	283.73	423.7
J-69	242.59	0.000	Fixed	280.52	371.2
J-70	243.84	0.000	Fixed	280.52	359.0
J-71	243.20	0.000	Fixed	283.73	396.6
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-59 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	44.418	1.414	281.97	281.95
P-3	62.2	J-2	J-3	200.0	PVC	110.0	44.418	1.414	281.95	281.07
P-4	30.0	J-3	J-4	200.0	PVC	110.0	43.705	1.391	281.07	280.66
P-6	48.1	J-5	J-6	200.0	PVC	110.0	13.427	0.427	279.16	279.09
P-7	54.1	J-6	J-7	200.0	PVC	110.0	13.327	0.424	279.09	279.01
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	279.01	279.01
P-9	18.9	J-7	J-9	200.0	PVC	110.0	13.160	0.419	279.01	278.98
P-10	48.8	J-9	J-10	200.0	PVC	110.0	13.026	0.415	278.98	278.91
P-11	55.0	J-10	J-11	200.0	PVC	110.0	12.759	0.406	278.91	278.83
P-12	47.2	J-11	J-12	200.0	PVC	110.0	12.558	0.400	278.83	278.77
P-13	48.8	J-12	J-13	200.0	PVC	110.0	12.357	0.393	278.77	278.70
P-14	62.8	J-13	J-14	200.0	PVC	110.0	12.090	0.385	278.70	278.62
P-15	8.4	J-14	J-15	200.0	PVC	110.0	11.956	0.381	278.62	278.61
P-16	36.8	J-15	J-16	200.0	PVC	110.0	11.889	0.378	278.61	278.57
P-17	66.7	J-16	J-17	200.0	PVC	110.0	11.688	0.372	278.57	278.49
P-18	32.1	J-17	J-18	200.0	PVC	110.0	11.454	0.365	278.49	278.45
P-19	32.6	J-18	J-19	200.0	PVC	110.0	11.454	0.365	278.45	278.42
P-20	62.1	J-19	J-20	200.0	PVC	110.0	11.213	0.357	278.42	278.35
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-24.279	0.773	278.35	278.37
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-24.279	0.773	278.37	278.66
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-24.546	0.781	278.66	278.71
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-24.546	0.781	278.71	278.77
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-25.021	0.796	278.77	279.14
P-26	10.4	J-25	J-26	200.0	PVC	110.0	15.120	0.481	279.14	279.12
P-27	52.5	J-26	J-27	200.0	PVC	110.0	15.053	0.479	279.12	279.02
P-29	11.2	J-5	J-28	200.0	PVC	110.0	28.433	0.905	279.16	279.09
P-30	24.4	J-28	J-29	200.0	PVC	110.0	28.400	0.904	279.09	278.94
P-31	18.1	J-29	J-30	200.0	PVC	110.0	28.333	0.902	278.94	278.83
P-32	13.7	J-30	J-31	200.0	PVC	110.0	28.300	0.901	278.83	278.75

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-59 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	41.715	1.328	278.75	277.65
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-34.791	1.107	277.19	277.28
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-34.958	1.113	277.28	278.00
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-35.159	1.119	278.00	278.12
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-35.226	1.121	278.12	278.21
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-35.226	1.121	278.21	278.35
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-13.583	0.432	278.75	278.85
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-13.717	0.437	278.85	278.88
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-8.381	0.267	278.88	278.93
P-43	75.4	J-49	J-40	200.0	PVC	110.0	8.682	0.276	278.98	278.93
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-14.986	0.477	278.98	279.02
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-5.503	0.175	278.88	278.90
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-5.603	0.178	278.90	278.91
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-5.636	0.179	278.91	278.91
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-5.736	0.183	278.91	278.93
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-5.870	0.187	278.93	278.94
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-5.937	0.189	278.94	278.95
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-5.970	0.190	278.95	278.96
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-6.070	0.193	278.96	278.98
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-40.342	1.284	279.14	279.94
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-41.713	1.328	280.55	283.16
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.318	0.647	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.351	0.648	285.00	284.95
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-7.863	0.250	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	42.555	1.355	280.66	280.08
P-65	72.6	J-57	J-5	200.0	PVC	110.0	42.074	1.339	280.08	279.16
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-40.543	1.291	279.94	280.20
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-40.610	1.293	280.20	280.52
P-68	74.5	J-32	J-59	200.0	PVC	110.0	41.314	1.315	277.65	276.73

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-59 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-34.657	1.103	276.73	277.19
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-41.780	1.330	283.16	284.81
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.696	0.245	284.81	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-34.285	1.091	284.81	284.92
P-76	8.7	R-3	J-65	200.0	PVC	110.0	34.385	1.095	285.00	284.92
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-40.777	0.831	280.52	280.55
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.517	1.067	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-45.905	1.461	281.97	283.73
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-45.905	1.461	283.73	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.52	280.52
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.52	280.52
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	280.52	280.52
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	283.73	283.73
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-68 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.68	412.6
J-2	240.52	0.000	Fixed	282.69	412.7
J-3	240.99	0.713	Fixed	282.75	408.7
J-4	240.84	1.150	Fixed	282.79	410.6
J-5	241.40	0.214	Fixed	282.97	406.9
J-6	241.10	0.100	Fixed	282.98	409.9
J-7	241.38	0.134	Fixed	282.98	407.2
J-8	241.60	0.033	Fixed	282.98	405.0
J-9	241.20	0.134	Fixed	282.99	408.9
J-10	241.25	0.267	Fixed	282.99	408.5
J-11	241.30	0.201	Fixed	283.00	408.1
J-12	241.35	0.201	Fixed	283.01	407.7
J-13	241.40	0.267	Fixed	283.01	407.3
J-14	241.45	0.134	Fixed	283.03	406.9
J-15	241.53	0.067	Fixed	283.03	406.1
J-16	241.72	0.201	Fixed	283.03	404.3
J-17	242.05	0.234	Fixed	283.05	401.3
J-18	242.21	0.000	Fixed	283.06	399.8
J-19	242.36	0.241	Fixed	283.06	398.4
J-20	242.60	0.267	Fixed	283.08	396.2
J-21	242.55	0.000	Fixed	283.09	396.7
J-22	242.21	0.267	Fixed	283.13	400.5
J-23	242.14	0.000	Fixed	283.14	401.3
J-24	242.06	0.475	Fixed	283.15	402.2
J-25	241.68	0.201	Fixed	283.22	406.5
J-26	241.68	0.067	Fixed	283.21	406.4
J-27	241.41	0.067	Fixed	283.16	408.6
J-28	241.48	0.033	Fixed	282.98	406.2
J-29	241.35	0.067	Fixed	283.01	407.7
J-30	241.20	0.033	Fixed	283.03	409.4
J-31	241.53	0.167	Fixed	283.04	406.3
J-32	241.45	0.401	Fixed	283.05	407.1
J-33	241.88	0.134	Fixed	283.06	403.1
J-34	241.88	0.167	Fixed	283.06	403.1
J-35	242.29	0.201	Fixed	283.08	399.2
J-36	242.38	0.067	Fixed	283.08	398.3
J-37	242.47	0.000	Fixed	283.08	397.4
J-38	241.52	0.134	Fixed	283.09	406.8
J-39	241.52	0.167	Fixed	283.10	407.0
J-40	241.27	0.301	Fixed	283.12	409.6
J-42	241.93	0.100	Fixed	283.11	403.0
J-43	242.03	0.033	Fixed	283.11	402.1
J-44	242.12	0.100	Fixed	283.11	401.2
J-45	242.35	0.134	Fixed	283.12	399.0
J-46	242.05	0.067	Fixed	283.13	402.0

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-68 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	283.13	402.9
J-48	241.87	0.100	Fixed	283.13	403.8
J-49	241.56	0.234	Fixed	283.14	407.0
J-50	242.25	0.201	Fixed	283.44	403.2
J-51	242.25	0.000	Fixed	283.61	404.8
J-52	245.69	0.167	Fixed	283.61	371.1
J-53	241.85	0.936	Fixed	283.62	408.8
J-54	240.34	0.067	Fixed	284.86	435.7
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.87	434.8
J-57	241.17	0.481	Fixed	282.86	408.0
J-58	242.25	0.067	Fixed	283.52	403.9
J-59	241.58	0.201	Fixed	283.06	405.9
J-60	242.27	0.067	Fixed	284.39	412.2
J-64	241.33	0.201	Fixed	284.89	426.3
J-65	241.33	0.100	Fixed	284.95	426.9
J-68	240.44	75.770	Fixed	282.58	412.4
J-69	242.59	0.000	Fixed	283.61	401.4
J-70	243.84	0.000	Fixed	283.61	389.2
J-71	243.20	0.000	Fixed	282.58	385.4
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-68 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	-11.313	0.360	282.68	282.69
P-3	62.2	J-2	J-3	200.0	PVC	110.0	-11.313	0.360	282.69	282.75
P-4	30.0	J-3	J-4	200.0	PVC	110.0	-12.026	0.383	282.75	282.79
P-6	48.1	J-5	J-6	200.0	PVC	110.0	-2.964	0.094	282.97	282.98
P-7	54.1	J-6	J-7	200.0	PVC	110.0	-3.064	0.098	282.98	282.98
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	282.98	282.98
P-9	18.9	J-7	J-9	200.0	PVC	110.0	-3.231	0.103	282.98	282.99
P-10	48.8	J-9	J-10	200.0	PVC	110.0	-3.365	0.107	282.99	282.99
P-11	55.0	J-10	J-11	200.0	PVC	110.0	-3.632	0.116	282.99	283.00
P-12	47.2	J-11	J-12	200.0	PVC	110.0	-3.833	0.122	283.00	283.01
P-13	48.8	J-12	J-13	200.0	PVC	110.0	-4.034	0.128	283.01	283.01
P-14	62.8	J-13	J-14	200.0	PVC	110.0	-4.301	0.137	283.01	283.03
P-15	8.4	J-14	J-15	200.0	PVC	110.0	-4.435	0.141	283.03	283.03
P-16	36.8	J-15	J-16	200.0	PVC	110.0	-4.502	0.143	283.03	283.03
P-17	66.7	J-16	J-17	200.0	PVC	110.0	-4.703	0.150	283.03	283.05
P-18	32.1	J-17	J-18	200.0	PVC	110.0	-4.937	0.157	283.05	283.06
P-19	32.6	J-18	J-19	200.0	PVC	110.0	-4.937	0.157	283.06	283.06
P-20	62.1	J-19	J-20	200.0	PVC	110.0	-5.178	0.165	283.06	283.08
P-21	5.5	J-20	J-21	200.0	PVC	110.0	-9.252	0.295	283.08	283.09
P-22	61.7	J-21	J-22	200.0	PVC	110.0	-9.252	0.295	283.09	283.13
P-23	11.1	J-22	J-23	200.0	PVC	110.0	-9.519	0.303	283.13	283.14
P-24	13.9	J-23	J-24	200.0	PVC	110.0	-9.519	0.303	283.14	283.15
P-25	75.3	J-24	J-25	200.0	PVC	110.0	-9.994	0.318	283.15	283.22
P-26	10.4	J-25	J-26	200.0	PVC	110.0	10.108	0.322	283.22	283.21
P-27	52.5	J-26	J-27	200.0	PVC	110.0	10.041	0.320	283.21	283.16
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-10.906	0.347	282.97	282.98
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-10.939	0.348	282.98	283.01
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-11.006	0.350	283.01	283.03
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-11.039	0.351	283.03	283.04

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-68 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	-2.636	0.084	283.04	283.05
P-35	10.5	J-33	J-34	200.0	PVC	110.0	-3.372	0.107	283.06	283.06
P-36	80.2	J-34	J-35	200.0	PVC	110.0	-3.539	0.113	283.06	283.08
P-37	12.8	J-35	J-36	200.0	PVC	110.0	-3.740	0.119	283.08	283.08
P-38	10.0	J-36	J-37	200.0	PVC	110.0	-3.807	0.121	283.08	283.08
P-39	15.1	J-37	J-20	200.0	PVC	110.0	-3.807	0.121	283.08	283.08
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-8.571	0.273	283.04	283.09
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-8.705	0.277	283.09	283.10
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-5.395	0.172	283.10	283.12
P-43	75.4	J-49	J-40	200.0	PVC	110.0	5.696	0.181	283.14	283.12
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-9.974	0.317	283.14	283.16
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-3.477	0.111	283.10	283.11
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-3.577	0.114	283.11	283.11
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-3.610	0.115	283.11	283.11
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-3.710	0.118	283.11	283.12
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-3.844	0.122	283.12	283.13
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-3.911	0.124	283.13	283.13
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-3.944	0.126	283.13	283.13
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-4.044	0.129	283.13	283.14
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-20.303	0.646	283.22	283.44
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-21.674	0.690	283.62	284.39
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-23.453	0.747	284.86	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	23.486	0.748	285.00	284.94
P-62	29.9	J-56	J-54	200.0	PVC	110.0	3.872	0.123	284.87	284.86
P-64	44.8	J-4	J-57	200.0	PVC	110.0	-13.176	0.419	282.79	282.86
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-13.657	0.435	282.86	282.97
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-20.504	0.653	283.44	283.52
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-20.571	0.655	283.52	283.61
P-68	74.5	J-32	J-59	200.0	PVC	110.0	-3.037	0.097	283.05	283.06

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-68 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	-3.238	0.103	283.06	283.06
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-21.741	0.692	284.39	284.89
P-74	123.3	J-64	J-56	200.0	PVC	110.0	4.039	0.129	284.89	284.87
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-25.981	0.827	284.89	284.95
P-76	8.7	R-3	J-65	200.0	PVC	110.0	26.081	0.830	285.00	284.95
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-20.738	0.422	283.61	283.62
P-83	12.8	R-2	J-54	200.0	PVC	110.0	38.686	1.231	285.00	284.86
P-84	117.8	J-1	J-68	200.0	PVC	110.0	9.826	0.313	282.68	282.58
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-65.944	2.099	282.58	284.86
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	283.61	283.61
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	283.61	283.61
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	283.61	283.61
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	282.58	282.58
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-69 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.72	413.0
J-2	240.52	0.000	Fixed	282.70	412.8
J-3	240.99	0.713	Fixed	282.05	401.8
J-4	240.84	1.150	Fixed	281.75	400.4
J-5	241.40	0.214	Fixed	280.65	384.1
J-6	241.10	0.100	Fixed	280.60	386.6
J-7	241.38	0.134	Fixed	280.55	383.4
J-8	241.60	0.033	Fixed	280.55	381.2
J-9	241.20	0.134	Fixed	280.54	385.0
J-10	241.25	0.267	Fixed	280.49	384.0
J-11	241.30	0.201	Fixed	280.44	383.1
J-12	241.35	0.201	Fixed	280.40	382.2
J-13	241.40	0.267	Fixed	280.37	381.4
J-14	241.45	0.134	Fixed	280.32	380.4
J-15	241.53	0.067	Fixed	280.31	379.6
J-16	241.72	0.201	Fixed	280.29	377.4
J-17	242.05	0.234	Fixed	280.24	373.8
J-18	242.21	0.000	Fixed	280.22	372.0
J-19	242.36	0.241	Fixed	280.20	370.3
J-20	242.60	0.267	Fixed	280.16	367.6
J-21	242.55	0.000	Fixed	280.15	368.0
J-22	242.21	0.267	Fixed	280.04	370.2
J-23	242.14	0.000	Fixed	280.02	370.7
J-24	242.06	0.475	Fixed	279.99	371.2
J-25	241.68	0.201	Fixed	279.87	373.7
J-26	241.68	0.067	Fixed	279.89	373.9
J-27	241.41	0.067	Fixed	279.99	377.5
J-28	241.48	0.033	Fixed	280.60	382.8
J-29	241.35	0.067	Fixed	280.48	383.0
J-30	241.20	0.033	Fixed	280.40	383.6
J-31	241.53	0.167	Fixed	280.33	379.7
J-32	241.45	0.401	Fixed	280.28	380.0
J-33	241.88	0.134	Fixed	280.22	375.2
J-34	241.88	0.167	Fixed	280.21	375.1
J-35	242.29	0.201	Fixed	280.17	370.8
J-36	242.38	0.067	Fixed	280.17	369.8
J-37	242.47	0.000	Fixed	280.16	368.9
J-38	241.52	0.134	Fixed	280.18	378.4
J-39	241.52	0.167	Fixed	280.14	378.0
J-40	241.27	0.301	Fixed	280.09	379.9
J-42	241.93	0.100	Fixed	280.11	373.7
J-43	242.03	0.033	Fixed	280.11	372.6
J-44	242.12	0.100	Fixed	280.10	371.7
J-45	242.35	0.134	Fixed	280.08	369.3
J-46	242.05	0.067	Fixed	280.06	372.0

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Max Day + Fire J-69 no future

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-47	241.96	0.033	Fixed	280.06	372.8
J-48	241.87	0.100	Fixed	280.05	373.7
J-49	241.56	0.234	Fixed	280.03	376.5
J-50	242.25	0.201	Fixed	279.44	363.9
J-51	242.25	0.000	Fixed	279.13	361.0
J-52	245.69	0.167	Fixed	278.35	319.7
J-53	241.85	0.936	Fixed	279.18	365.3
J-54	240.34	0.067	Fixed	284.91	436.2
J-55	240.44	0.033	Fixed	284.96	435.7
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	281.32	393.0
J-58	242.25	0.067	Fixed	279.30	362.6
J-59	241.58	0.201	Fixed	280.24	378.4
J-60	242.27	0.067	Fixed	282.60	394.7
J-64	241.33	0.201	Fixed	284.76	425.1
J-65	241.33	0.100	Fixed	284.91	426.5
J-68	240.44	0.000	Fixed	284.03	426.6
J-69	242.59	75.770	Fixed	278.35	350.0
J-70	243.84	0.000	Fixed	278.35	337.8
J-71	243.20	0.000	Fixed	284.03	399.6
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-69 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	37.814	1.204	282.72	282.70
P-3	62.2	J-2	J-3	200.0	PVC	110.0	37.814	1.204	282.70	282.05
P-4	30.0	J-3	J-4	200.0	PVC	110.0	37.101	1.181	282.05	281.75
P-6	48.1	J-5	J-6	200.0	PVC	110.0	10.489	0.334	280.65	280.60
P-7	54.1	J-6	J-7	200.0	PVC	110.0	10.389	0.331	280.60	280.55
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	280.55	280.55
P-9	18.9	J-7	J-9	200.0	PVC	110.0	10.222	0.325	280.55	280.54
P-10	48.8	J-9	J-10	200.0	PVC	110.0	10.088	0.321	280.54	280.49
P-11	55.0	J-10	J-11	200.0	PVC	110.0	9.821	0.313	280.49	280.44
P-12	47.2	J-11	J-12	200.0	PVC	110.0	9.620	0.306	280.44	280.40
P-13	48.8	J-12	J-13	200.0	PVC	110.0	9.419	0.300	280.40	280.37
P-14	62.8	J-13	J-14	200.0	PVC	110.0	9.152	0.291	280.37	280.32
P-15	8.4	J-14	J-15	200.0	PVC	110.0	9.018	0.287	280.32	280.31
P-16	36.8	J-15	J-16	200.0	PVC	110.0	8.951	0.285	280.31	280.29
P-17	66.7	J-16	J-17	200.0	PVC	110.0	8.750	0.279	280.29	280.24
P-18	32.1	J-17	J-18	200.0	PVC	110.0	8.516	0.271	280.24	280.22
P-19	32.6	J-18	J-19	200.0	PVC	110.0	8.516	0.271	280.22	280.20
P-20	62.1	J-19	J-20	200.0	PVC	110.0	8.275	0.263	280.20	280.16
P-21	5.5	J-20	J-21	200.0	PVC	110.0	14.760	0.470	280.16	280.15
P-22	61.7	J-21	J-22	200.0	PVC	110.0	14.760	0.470	280.15	280.04
P-23	11.1	J-22	J-23	200.0	PVC	110.0	14.493	0.461	280.04	280.02
P-24	13.9	J-23	J-24	200.0	PVC	110.0	14.493	0.461	280.02	279.99
P-25	75.3	J-24	J-25	200.0	PVC	110.0	14.018	0.446	279.99	279.87
P-26	10.4	J-25	J-26	200.0	PVC	110.0	-15.007	0.478	279.87	279.89
P-27	52.5	J-26	J-27	200.0	PVC	110.0	-15.074	0.480	279.89	279.99
P-29	11.2	J-5	J-28	200.0	PVC	110.0	24.767	0.788	280.65	280.60
P-30	24.4	J-28	J-29	200.0	PVC	110.0	24.734	0.787	280.60	280.48
P-31	18.1	J-29	J-30	200.0	PVC	110.0	24.667	0.785	280.48	280.40
P-32	13.7	J-30	J-31	200.0	PVC	110.0	24.634	0.784	280.40	280.33

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-69 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-33	88.1	J-31	J-32	200.0	PVC	110.0	7.923	0.252	280.33	280.28
P-35	10.5	J-33	J-34	200.0	PVC	110.0	7.187	0.229	280.22	280.21
P-36	80.2	J-34	J-35	200.0	PVC	110.0	7.020	0.223	280.21	280.17
P-37	12.8	J-35	J-36	200.0	PVC	110.0	6.819	0.217	280.17	280.17
P-38	10.0	J-36	J-37	200.0	PVC	110.0	6.752	0.215	280.17	280.16
P-39	15.1	J-37	J-20	200.0	PVC	110.0	6.752	0.215	280.16	280.16
P-40	67.1	J-31	J-38	200.0	PVC	110.0	16.544	0.527	280.33	280.18
P-41	18.9	J-38	J-39	200.0	PVC	110.0	16.410	0.522	280.18	280.14
P-42	63.2	J-39	J-40	200.0	PVC	110.0	9.575	0.305	280.14	280.09
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-9.274	0.295	280.03	280.09
P-44	22.4	J-49	J-27	200.0	PVC	110.0	15.141	0.482	280.03	279.99
P-45	60.5	J-39	J-42	200.0	PVC	110.0	6.668	0.212	280.14	280.11
P-46	18.0	J-42	J-43	200.0	PVC	110.0	6.568	0.209	280.11	280.11
P-47	17.9	J-43	J-44	200.0	PVC	110.0	6.535	0.208	280.11	280.10
P-48	45.9	J-44	J-45	200.0	PVC	110.0	6.435	0.205	280.10	280.08
P-49	45.9	J-45	J-46	200.0	PVC	110.0	6.301	0.201	280.08	280.06
P-50	17.9	J-46	J-47	200.0	PVC	110.0	6.234	0.198	280.06	280.06
P-51	17.9	J-47	J-48	200.0	PVC	110.0	6.201	0.197	280.06	280.05
P-52	60.6	J-48	J-49	200.0	PVC	110.0	6.101	0.194	280.05	280.03
P-53	68.4	J-25	J-50	200.0	PVC	110.0	28.824	0.918	279.87	279.44
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-48.317	1.538	279.18	282.60
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-18.784	0.598	284.91	284.96
P-61	13.9	R-1	J-55	200.0	PVC	110.0	18.817	0.599	285.00	284.96
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-10.406	0.331	284.88	284.91
P-64	44.8	J-4	J-57	200.0	PVC	110.0	35.951	1.144	281.75	281.32
P-65	72.6	J-57	J-5	200.0	PVC	110.0	35.470	1.129	281.32	280.65
P-66	21.6	J-50	J-58	200.0	PVC	110.0	28.623	0.911	279.44	279.30
P-67	27.0	J-58	J-51	200.0	PVC	110.0	28.556	0.909	279.30	279.13
P-68	74.5	J-32	J-59	200.0	PVC	110.0	7.522	0.239	280.28	280.24

Renwick Estates Subdivision

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-69 no future

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-69	50.9	J-59	J-33	200.0	PVC	110.0	7.321	0.233	280.24	280.22
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-48.384	1.540	282.60	284.76
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-10.239	0.326	284.76	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-38.346	1.221	284.76	284.91
P-76	8.7	R-3	J-65	200.0	PVC	110.0	38.446	1.224	285.00	284.91
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-47.381	0.965	279.13	279.18
P-83	12.8	R-2	J-54	200.0	PVC	110.0	30.990	0.986	285.00	284.91
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-39.301	1.251	282.72	284.03
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-39.301	1.251	284.03	284.91
P-86	20.6	J-51	J-69	200.0	PVC	110.0	75.937	2.417	279.13	278.35
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	278.35	278.35
P-88	6.7	J-69	J-70	150.0	PVC	100.0	0.000	0.000	278.35	278.35
P-89	8.2	J-68	J-71	150.0	PVC	100.0	0.000	0.000	284.03	284.03
P-91	38.6	J-15	J-72	200.0	PVC	110.0	(N/A)	(N/A)	(N/A)	(N/A)

APPENDIX I

Water Quality Results – Full Subdivision (without future demand)

Renwick Estates Subdivision

FlexTable: Junction Table

Active Scenario: Age Analysis no future

Current Time: 0.00 hours

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)	Age (Calculated) (hours)	Age (Maximum) (hours)
J-1	240.52	0.541	Fixed	284.99	435.2	0.000	0.872
J-2	240.52	0.000	Fixed	284.99	435.2	0.000	0.972
J-3	240.99	0.259	Fixed	284.98	430.6	0.000	1.262
J-4	240.84	0.418	Fixed	284.98	432.0	0.000	1.425
J-5	241.40	0.078	Fixed	284.98	426.5	0.000	2.378
J-6	241.10	0.036	Fixed	284.98	429.5	0.000	3.204
J-7	241.38	0.049	Fixed	284.98	426.7	0.000	4.205
J-8	241.60	0.012	Fixed	284.98	424.6	0.000	32.037
J-9	241.20	0.049	Fixed	284.98	428.5	0.000	4.606
J-10	241.25	0.097	Fixed	284.98	428.0	0.000	5.781
J-11	241.30	0.073	Fixed	284.98	427.5	0.000	7.593
J-12	241.35	0.073	Fixed	284.98	427.0	0.000	9.739
J-13	241.40	0.097	Fixed	284.98	426.5	0.000	13.318
J-14	241.45	0.049	Fixed	284.98	426.0	0.000	30.436
J-15	241.53	0.024	Fixed	284.98	425.3	0.000	21.406
J-16	241.72	0.073	Fixed	284.98	423.4	0.000	15.106
J-17	242.05	0.085	Fixed	284.98	420.2	0.000	10.408
J-18	242.21	0.000	Fixed	284.98	418.6	0.000	9.065
J-19	242.36	0.088	Fixed	284.98	417.1	0.000	7.702
J-20	242.60	0.097	Fixed	284.98	414.8	0.000	5.876
J-21	242.55	0.000	Fixed	284.98	415.3	0.000	5.768
J-22	242.21	0.097	Fixed	284.98	418.6	0.000	4.544
J-23	242.14	0.000	Fixed	284.98	419.3	0.000	4.363
J-24	242.06	0.173	Fixed	284.98	420.1	0.000	4.137
J-25	241.68	0.073	Fixed	284.98	423.8	0.000	3.212
J-26	241.68	0.024	Fixed	284.98	423.8	0.000	3.358
J-27	241.41	0.024	Fixed	284.98	426.4	0.000	4.131
J-28	241.48	0.012	Fixed	284.98	425.7	0.000	2.605
J-29	241.35	0.024	Fixed	284.98	427.0	0.000	3.115
J-30	241.20	0.012	Fixed	284.98	428.5	0.000	3.517
J-31	241.53	0.061	Fixed	284.98	425.3	0.000	6.890
J-32	241.45	0.146	Fixed	284.98	426.0	0.000	8.914
J-33	241.88	0.049	Fixed	284.98	421.8	0.000	14.454
J-34	241.88	0.061	Fixed	284.98	421.8	0.000	15.273
J-35	242.29	0.073	Fixed	284.98	417.8	0.000	24.979
J-36	242.38	0.024	Fixed	284.98	416.9	0.000	10.621
J-37	242.47	0.000	Fixed	284.98	416.1	0.000	8.733
J-38	241.52	0.049	Fixed	284.98	425.4	0.000	16.557
J-39	241.52	0.061	Fixed	284.98	425.4	0.000	15.046
J-40	241.27	0.109	Fixed	284.98	427.8	0.000	7.035
J-42	241.93	0.036	Fixed	284.98	421.3	0.000	19.779
J-43	242.03	0.012	Fixed	284.98	420.4	0.000	17.078
J-44	242.12	0.036	Fixed	284.98	419.5	0.000	14.851

Renwick Estates Subdivision
FlexTable: Junction Table
Active Scenario: Age Analysis no future
Current Time: 0.00 hours

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)	Age (Calculated) (hours)	Age (Maximum) (hours)
J-45	242.35	0.049	Fixed	284.98	417.2	0.000	11.076
J-46	242.05	0.024	Fixed	284.98	420.2	0.000	8.494
J-47	241.96	0.012	Fixed	284.98	421.0	0.000	7.621
J-48	241.87	0.036	Fixed	284.98	421.9	0.000	6.804
J-49	241.56	0.085	Fixed	284.98	425.0	0.000	4.475
J-50	242.25	0.073	Fixed	284.98	418.2	0.000	2.786
J-51	242.25	0.000	Fixed	284.99	418.2	0.000	2.500
J-52	245.69	0.061	Fixed	284.99	384.6	0.000	26.101
J-53	241.85	0.340	Fixed	284.99	422.2	0.000	2.400
J-54	240.34	0.024	Fixed	285.00	437.1	0.000	0.162
J-55	240.44	0.012	Fixed	285.00	436.1	0.000	0.113
J-56	240.44	0.061	Fixed	285.00	436.1	0.000	0.831
J-57	241.17	0.175	Fixed	284.98	428.8	0.000	1.754
J-58	242.25	0.024	Fixed	284.98	418.2	0.000	2.658
J-59	241.58	0.073	Fixed	284.98	424.8	0.000	11.692
J-60	242.27	0.024	Fixed	284.99	418.1	0.000	1.442
J-64	241.33	0.073	Fixed	285.00	427.4	0.000	0.843
J-65	241.33	0.036	Fixed	285.00	427.4	0.000	0.100
J-68	240.44	0.000	Fixed	284.99	436.0	0.000	0.445
J-69	242.59	0.000	Fixed	284.99	414.9	0.000	5.453
J-70	243.84	(N/A)	Fixed	(N/A)	(N/A)	(N/A)	(N/A)
J-71	243.20	(N/A)	Fixed	(N/A)	(N/A)	(N/A)	(N/A)
J-72	241.53	(N/A)	Fixed	(N/A)	(N/A)	(N/A)	(N/A)

APPENDIX J

WaterCAD Results – Phase 1

Average Day Demand

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Average Day Demand

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	0.541	Fixed	284.99	435.3
J-2	240.52	0.000	Fixed	284.99	435.3
J-3	240.99	0.259	Fixed	284.99	430.7
J-4	240.84	0.418	Fixed	284.99	432.1
J-5	241.40	0.078	Fixed	284.99	426.6
J-6	241.10	0.036	Fixed	284.99	429.6
J-7	241.38	0.049	Fixed	284.99	426.8
J-8	241.60	0.012	Fixed	284.99	424.7
J-25	241.68	0.049	Fixed	284.99	423.9
J-26	241.68	0.024	Fixed	284.99	423.9
J-27	241.41	0.024	Fixed	284.99	426.5
J-28	241.48	0.012	Fixed	284.99	425.9
J-29	241.35	0.024	Fixed	284.99	427.1
J-30	241.20	0.012	Fixed	284.99	428.6
J-31	241.53	0.024	Fixed	284.99	425.4
J-38	241.52	0.049	Fixed	284.99	425.5
J-39	241.52	0.061	Fixed	284.99	425.5
J-40	241.27	0.109	Fixed	284.99	427.9
J-42	241.93	0.036	Fixed	284.99	421.4
J-43	242.03	0.012	Fixed	284.99	420.5
J-44	242.12	0.036	Fixed	284.99	419.6
J-45	242.35	0.049	Fixed	284.99	417.3
J-46	242.05	0.024	Fixed	284.99	420.3
J-47	241.96	0.012	Fixed	284.99	421.2
J-48	241.87	0.036	Fixed	284.99	422.0
J-49	241.56	0.085	Fixed	284.99	425.1
J-50	242.25	0.073	Fixed	284.99	418.3
J-51	242.25	0.000	Fixed	284.99	418.3
J-52	245.69	0.061	Fixed	284.99	384.7
J-53	241.85	0.340	Fixed	284.99	422.2
J-54	240.34	0.024	Fixed	285.00	437.1
J-55	240.44	0.012	Fixed	285.00	436.1
J-56	240.44	0.061	Fixed	285.00	436.1
J-57	241.17	0.175	Fixed	284.99	428.9
J-58	242.25	0.024	Fixed	284.99	418.3
J-60	242.27	0.024	Fixed	285.00	418.2
J-64	241.33	0.073	Fixed	285.00	427.4
J-65	241.33	0.036	Fixed	285.00	427.4
J-68	240.44	0.000	Fixed	285.00	436.1
J-69	242.59	0.000	Fixed	284.99	415.0

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	1.047	0.033	284.99	284.99
P-3	62.2	J-2	J-3	200.0	PVC	110.0	1.047	0.033	284.99	284.99
P-4	30.0	J-3	J-4	200.0	PVC	110.0	0.788	0.025	284.99	284.99
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.097	0.003	284.99	284.99
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.061	0.002	284.99	284.99
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.012	0.000	284.99	284.99
P-26	10.4	J-25	J-26	200.0	PVC	110.0	0.609	0.019	284.99	284.99
P-27	52.5	J-26	J-27	200.0	PVC	110.0	0.585	0.019	284.99	284.99
P-29	11.2	J-5	J-28	200.0	PVC	110.0	0.020	0.001	284.99	284.99
P-30	24.4	J-28	J-29	200.0	PVC	110.0	0.008	0.000	284.99	284.99
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-0.016	0.001	284.99	284.99
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-0.028	0.001	284.99	284.99
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-0.052	0.002	284.99	284.99
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-0.101	0.003	284.99	284.99
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-0.143	0.005	284.99	284.99
P-43	75.4	J-49	J-40	200.0	PVC	110.0	0.252	0.008	284.99	284.99
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-0.561	0.018	284.99	284.99
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-0.019	0.001	284.99	284.99
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-0.055	0.002	284.99	284.99
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-0.067	0.002	284.99	284.99
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-0.103	0.003	284.99	284.99
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-0.152	0.005	284.99	284.99
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-0.176	0.006	284.99	284.99
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-0.188	0.006	284.99	284.99
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-0.224	0.007	284.99	284.99
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-0.658	0.021	284.99	284.99
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-1.156	0.037	284.99	285.00
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-0.701	0.022	285.00	285.00
P-61	13.9	R-1	J-55	200.0	PVC	110.0	0.713	0.023	285.00	285.00

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Average Day Demand

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-0.253	0.008	285.00	285.00
P-64	44.8	J-4	J-57	200.0	PVC	110.0	0.370	0.012	284.99	284.99
P-65	72.6	J-57	J-5	200.0	PVC	110.0	0.195	0.006	284.99	284.99
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-0.731	0.023	284.99	284.99
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-0.755	0.024	284.99	284.99
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-1.180	0.038	285.00	285.00
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-0.192	0.006	285.00	285.00
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-1.061	0.034	285.00	285.00
P-76	8.7	R-3	J-65	200.0	PVC	110.0	1.097	0.035	285.00	285.00
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-0.816	0.017	284.99	284.99
P-83	12.8	R-2	J-54	200.0	PVC	110.0	1.164	0.037	285.00	285.00
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-1.588	0.051	284.99	285.00
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-1.588	0.051	285.00	285.00
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.061	0.002	284.99	284.99
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.061	0.002	284.99	284.99

Maximum Hour Demand

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Hour Demand

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	2.234	Fixed	284.92	434.5
J-2	240.52	0.000	Fixed	284.92	434.5
J-3	240.99	1.071	Fixed	284.91	429.8
J-4	240.84	1.727	Fixed	284.90	431.2
J-5	241.40	0.321	Fixed	284.90	425.7
J-6	241.10	0.151	Fixed	284.90	428.7
J-7	241.38	0.201	Fixed	284.90	425.9
J-8	241.60	0.050	Fixed	284.90	423.8
J-25	241.68	0.201	Fixed	284.91	423.1
J-26	241.68	0.100	Fixed	284.91	423.0
J-27	241.41	0.100	Fixed	284.90	425.7
J-28	241.48	0.050	Fixed	284.90	424.9
J-29	241.35	0.100	Fixed	284.90	426.2
J-30	241.20	0.050	Fixed	284.90	427.7
J-31	241.53	0.100	Fixed	284.90	424.5
J-38	241.52	0.201	Fixed	284.90	424.6
J-39	241.52	0.251	Fixed	284.90	424.6
J-40	241.27	0.452	Fixed	284.90	427.0
J-42	241.93	0.151	Fixed	284.90	420.5
J-43	242.03	0.050	Fixed	284.90	419.6
J-44	242.12	0.151	Fixed	284.90	418.7
J-45	242.35	0.201	Fixed	284.90	416.4
J-46	242.05	0.100	Fixed	284.90	419.4
J-47	241.96	0.050	Fixed	284.90	420.3
J-48	241.87	0.151	Fixed	284.90	421.1
J-49	241.56	0.351	Fixed	284.90	424.2
J-50	242.25	0.301	Fixed	284.91	417.5
J-51	242.25	0.000	Fixed	284.92	417.6
J-52	245.69	0.251	Fixed	284.92	383.9
J-53	241.85	1.406	Fixed	284.92	421.5
J-54	240.34	0.100	Fixed	285.00	437.1
J-55	240.44	0.050	Fixed	285.00	436.1
J-56	240.44	0.251	Fixed	285.00	436.1
J-57	241.17	0.723	Fixed	284.90	428.0
J-58	242.25	0.100	Fixed	284.91	417.6
J-60	242.27	0.100	Fixed	284.96	417.8
J-64	241.33	0.301	Fixed	285.00	427.3
J-65	241.33	0.151	Fixed	285.00	427.4
J-68	240.44	0.000	Fixed	284.97	435.8
J-69	242.59	0.000	Fixed	284.92	414.3

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Hour Demand

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	4.332	0.138	284.92	284.92
P-3	62.2	J-2	J-3	200.0	PVC	110.0	4.332	0.138	284.92	284.91
P-4	30.0	J-3	J-4	200.0	PVC	110.0	3.261	0.104	284.91	284.90
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.402	0.013	284.90	284.90
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.251	0.008	284.90	284.90
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.050	0.002	284.90	284.90
P-26	10.4	J-25	J-26	200.0	PVC	110.0	2.521	0.080	284.91	284.91
P-27	52.5	J-26	J-27	200.0	PVC	110.0	2.421	0.077	284.91	284.90
P-29	11.2	J-5	J-28	200.0	PVC	110.0	0.088	0.003	284.90	284.90
P-30	24.4	J-28	J-29	200.0	PVC	110.0	0.038	0.001	284.90	284.90
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-0.062	0.002	284.90	284.90
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-0.112	0.004	284.90	284.90
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-0.212	0.007	284.90	284.90
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-0.413	0.013	284.90	284.90
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-0.591	0.019	284.90	284.90
P-43	75.4	J-49	J-40	200.0	PVC	110.0	1.043	0.033	284.90	284.90
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-2.321	0.074	284.90	284.90
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-0.072	0.002	284.90	284.90
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-0.223	0.007	284.90	284.90
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-0.273	0.009	284.90	284.90
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-0.424	0.014	284.90	284.90
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-0.625	0.020	284.90	284.90
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-0.725	0.023	284.90	284.90
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-0.775	0.025	284.90	284.90
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-0.926	0.029	284.90	284.90
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-2.722	0.087	284.91	284.91
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-4.780	0.152	284.92	284.96
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-2.898	0.092	285.00	285.00
P-61	13.9	R-1	J-55	200.0	PVC	110.0	2.948	0.094	285.00	285.00

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Hour Demand

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-1.045	0.033	285.00	285.00
P-64	44.8	J-4	J-57	200.0	PVC	110.0	1.534	0.049	284.90	284.90
P-65	72.6	J-57	J-5	200.0	PVC	110.0	0.811	0.026	284.90	284.90
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-3.023	0.096	284.91	284.91
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-3.123	0.099	284.91	284.92
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-4.880	0.155	284.96	285.00
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-0.794	0.025	285.00	285.00
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-4.387	0.140	285.00	285.00
P-76	8.7	R-3	J-65	200.0	PVC	110.0	4.538	0.144	285.00	285.00
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-3.374	0.069	284.92	284.92
P-83	12.8	R-2	J-54	200.0	PVC	110.0	4.813	0.153	285.00	285.00
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-6.566	0.209	284.92	284.97
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-6.566	0.209	284.97	285.00
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.251	0.008	284.92	284.92
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.251	0.008	284.92	284.92

Maximum Day Demand + Fire Flow

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-1

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	77.257	Fixed	280.49	391.1
J-2	240.52	0.000	Fixed	280.49	391.2
J-3	240.99	0.713	Fixed	280.69	388.5
J-4	240.84	1.150	Fixed	280.79	391.0
J-5	241.40	0.214	Fixed	281.25	390.0
J-6	241.10	0.100	Fixed	281.25	392.9
J-7	241.38	0.134	Fixed	281.25	390.2
J-8	241.60	0.033	Fixed	281.25	388.0
J-25	241.68	0.134	Fixed	282.52	399.7
J-26	241.68	0.067	Fixed	282.47	399.2
J-27	241.41	0.067	Fixed	282.23	399.5
J-28	241.48	0.033	Fixed	281.30	389.7
J-29	241.35	0.067	Fixed	281.40	391.9
J-30	241.20	0.033	Fixed	281.47	394.1
J-31	241.53	0.067	Fixed	281.53	391.4
J-38	241.52	0.134	Fixed	281.81	394.3
J-39	241.52	0.167	Fixed	281.89	395.1
J-40	241.27	0.301	Fixed	281.99	398.5
J-42	241.93	0.100	Fixed	281.93	391.5
J-43	242.03	0.033	Fixed	281.95	390.7
J-44	242.12	0.100	Fixed	281.96	389.9
J-45	242.35	0.134	Fixed	282.00	388.0
J-46	242.05	0.067	Fixed	282.04	391.4
J-47	241.96	0.033	Fixed	282.05	392.4
J-48	241.87	0.100	Fixed	282.07	393.4
J-49	241.56	0.234	Fixed	282.12	397.0
J-50	242.25	0.201	Fixed	282.84	397.3
J-51	242.25	0.000	Fixed	283.08	399.6
J-52	245.69	0.167	Fixed	283.08	365.9
J-53	241.85	0.936	Fixed	283.09	403.6
J-54	240.34	0.067	Fixed	284.88	435.9
J-55	240.44	0.033	Fixed	284.95	435.6
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	280.96	389.5
J-58	242.25	0.067	Fixed	282.95	398.3
J-60	242.27	0.067	Fixed	284.19	410.2
J-64	241.33	0.201	Fixed	284.88	426.2
J-65	241.33	0.100	Fixed	284.95	426.9
J-68	240.44	0.000	Fixed	283.13	417.8
J-69	242.59	0.000	Fixed	283.08	396.3

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-1

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	-20.033	0.638	280.49	280.49
P-3	62.2	J-2	J-3	200.0	PVC	110.0	-20.033	0.638	280.49	280.69
P-4	30.0	J-3	J-4	200.0	PVC	110.0	-20.746	0.660	280.69	280.79
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.267	0.008	281.25	281.25
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.167	0.005	281.25	281.25
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	281.25	281.25
P-26	10.4	J-25	J-26	200.0	PVC	110.0	24.595	0.783	282.52	282.47
P-27	52.5	J-26	J-27	200.0	PVC	110.0	24.528	0.781	282.47	282.23
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-22.858	0.728	281.25	281.30
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-22.891	0.729	281.30	281.40
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-22.958	0.731	281.40	281.47
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-22.991	0.732	281.47	281.53
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-23.058	0.734	281.53	281.81
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-23.192	0.738	281.81	281.89
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-14.027	0.446	281.89	281.99
P-43	75.4	J-49	J-40	200.0	PVC	110.0	14.328	0.456	282.12	281.99
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-24.461	0.779	282.12	282.23
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-9.332	0.297	281.89	281.93
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-9.432	0.300	281.93	281.95
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-9.465	0.301	281.95	281.96
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-9.565	0.304	281.96	282.00
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-9.699	0.309	282.00	282.04
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-9.766	0.311	282.04	282.05
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-9.799	0.312	282.05	282.07
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-9.899	0.315	282.07	282.12
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-24.729	0.787	282.52	282.84
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-26.100	0.831	283.09	284.19
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-21.597	0.687	284.88	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	21.630	0.689	285.00	284.95

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-1

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	0.068	0.002	284.88	284.88
P-64	44.8	J-4	J-57	200.0	PVC	110.0	-21.896	0.697	280.79	280.96
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-22.377	0.712	280.96	281.25
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-24.930	0.794	282.84	282.95
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-24.997	0.796	282.95	283.08
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-26.167	0.833	284.19	284.88
P-74	123.3	J-64	J-56	200.0	PVC	110.0	0.235	0.007	284.88	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-26.603	0.847	284.88	284.95
P-76	8.7	R-3	J-65	200.0	PVC	110.0	26.703	0.850	285.00	284.95
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-25.164	0.513	283.08	283.09
P-83	12.8	R-2	J-54	200.0	PVC	110.0	35.626	1.134	285.00	284.88
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-57.224	1.822	280.49	283.13
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-57.224	1.822	283.13	284.88
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	283.08	283.08
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	283.08	283.08

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-3

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	280.91	395.3
J-2	240.52	0.000	Fixed	280.88	394.9
J-3	240.99	76.483	Fixed	279.68	378.6
J-4	240.84	1.150	Fixed	279.81	381.4
J-5	241.40	0.214	Fixed	280.39	381.6
J-6	241.10	0.100	Fixed	280.39	384.5
J-7	241.38	0.134	Fixed	280.39	381.8
J-8	241.60	0.033	Fixed	280.39	379.6
J-25	241.68	0.134	Fixed	281.98	394.4
J-26	241.68	0.067	Fixed	281.91	393.8
J-27	241.41	0.067	Fixed	281.61	393.4
J-28	241.48	0.033	Fixed	280.44	381.3
J-29	241.35	0.067	Fixed	280.57	383.8
J-30	241.20	0.033	Fixed	280.66	386.2
J-31	241.53	0.067	Fixed	280.74	383.7
J-38	241.52	0.134	Fixed	281.09	387.2
J-39	241.52	0.167	Fixed	281.19	388.2
J-40	241.27	0.301	Fixed	281.32	392.0
J-42	241.93	0.100	Fixed	281.25	384.8
J-43	242.03	0.033	Fixed	281.26	384.0
J-44	242.12	0.100	Fixed	281.28	383.3
J-45	242.35	0.134	Fixed	281.33	381.5
J-46	242.05	0.067	Fixed	281.38	384.9
J-47	241.96	0.033	Fixed	281.40	386.0
J-48	241.87	0.100	Fixed	281.42	387.0
J-49	241.56	0.234	Fixed	281.48	390.7
J-50	242.25	0.201	Fixed	282.38	392.7
J-51	242.25	0.000	Fixed	282.67	395.6
J-52	245.69	0.167	Fixed	282.67	361.9
J-53	241.85	0.936	Fixed	282.68	399.6
J-54	240.34	0.067	Fixed	284.88	435.9
J-55	240.44	0.033	Fixed	284.95	435.6
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	280.02	380.3
J-58	242.25	0.067	Fixed	282.51	394.0
J-60	242.27	0.067	Fixed	284.02	408.6
J-64	241.33	0.201	Fixed	284.87	426.2
J-65	241.33	0.100	Fixed	284.95	426.9
J-68	240.44	0.000	Fixed	283.30	419.5
J-69	242.59	0.000	Fixed	282.67	392.2

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-3

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	52.707	1.678	280.91	280.88
P-3	62.2	J-2	J-3	200.0	PVC	110.0	52.707	1.678	280.88	279.68
P-4	30.0	J-3	J-4	200.0	PVC	110.0	-23.776	0.757	279.68	279.81
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.267	0.008	280.39	280.39
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.167	0.005	280.39	280.39
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	280.39	280.39
P-26	10.4	J-25	J-26	200.0	PVC	110.0	27.625	0.879	281.98	281.91
P-27	52.5	J-26	J-27	200.0	PVC	110.0	27.558	0.877	281.91	281.61
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-25.888	0.824	280.39	280.44
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-25.921	0.825	280.44	280.57
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-25.988	0.827	280.57	280.66
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-26.021	0.828	280.66	280.74
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-26.088	0.830	280.74	281.09
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-26.222	0.835	281.09	281.19
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-15.833	0.504	281.19	281.32
P-43	75.4	J-49	J-40	200.0	PVC	110.0	16.134	0.514	281.48	281.32
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-27.491	0.875	281.48	281.61
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-10.556	0.336	281.19	281.25
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-10.656	0.339	281.25	281.26
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-10.689	0.340	281.26	281.28
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-10.789	0.343	281.28	281.33
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-10.923	0.348	281.33	281.38
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-10.990	0.350	281.38	281.40
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-11.023	0.351	281.40	281.42
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-11.123	0.354	281.42	281.48
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-27.759	0.884	281.98	282.38
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-29.130	0.927	282.68	284.02
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-21.347	0.680	284.88	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	21.380	0.681	285.00	284.95

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-3

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-2.301	0.073	284.88	284.88
P-64	44.8	J-4	J-57	200.0	PVC	110.0	-24.926	0.793	279.81	280.02
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-25.407	0.809	280.02	280.39
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-27.960	0.890	282.38	282.51
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-28.027	0.892	282.51	282.67
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-29.197	0.929	284.02	284.87
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-2.134	0.068	284.87	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-27.264	0.868	284.87	284.95
P-76	8.7	R-3	J-65	200.0	PVC	110.0	27.364	0.871	285.00	284.95
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-28.194	0.574	282.67	282.68
P-83	12.8	R-2	J-54	200.0	PVC	110.0	35.215	1.121	285.00	284.88
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-54.194	1.725	280.91	283.30
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-54.194	1.725	283.30	284.88
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	282.67	282.67
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	282.67	282.67

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-4

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.08	397.0
J-2	240.52	0.000	Fixed	281.05	396.7
J-3	240.99	0.713	Fixed	279.90	380.8
J-4	240.84	76.920	Fixed	279.37	377.0
J-5	241.40	0.214	Fixed	280.00	377.8
J-6	241.10	0.100	Fixed	280.00	380.7
J-7	241.38	0.134	Fixed	280.00	377.9
J-8	241.60	0.033	Fixed	280.00	375.8
J-25	241.68	0.134	Fixed	281.73	392.0
J-26	241.68	0.067	Fixed	281.66	391.3
J-27	241.41	0.067	Fixed	281.33	390.7
J-28	241.48	0.033	Fixed	280.06	377.6
J-29	241.35	0.067	Fixed	280.20	380.2
J-30	241.20	0.033	Fixed	280.30	382.7
J-31	241.53	0.067	Fixed	280.38	380.2
J-38	241.52	0.134	Fixed	280.76	384.1
J-39	241.52	0.167	Fixed	280.87	385.1
J-40	241.27	0.301	Fixed	281.02	389.0
J-42	241.93	0.100	Fixed	280.94	381.8
J-43	242.03	0.033	Fixed	280.96	381.0
J-44	242.12	0.100	Fixed	280.98	380.3
J-45	242.35	0.134	Fixed	281.03	378.5
J-46	242.05	0.067	Fixed	281.08	382.0
J-47	241.96	0.033	Fixed	281.10	383.1
J-48	241.87	0.100	Fixed	281.12	384.1
J-49	241.56	0.234	Fixed	281.19	387.9
J-50	242.25	0.201	Fixed	282.17	390.7
J-51	242.25	0.000	Fixed	282.48	393.7
J-52	245.69	0.167	Fixed	282.48	360.1
J-53	241.85	0.936	Fixed	282.50	397.8
J-54	240.34	0.067	Fixed	284.88	436.0
J-55	240.44	0.033	Fixed	284.95	435.6
J-56	240.44	0.167	Fixed	284.88	434.9
J-57	241.17	0.481	Fixed	279.60	376.1
J-58	242.25	0.067	Fixed	282.31	392.0
J-60	242.27	0.067	Fixed	283.95	407.9
J-64	241.33	0.201	Fixed	284.87	426.1
J-65	241.33	0.100	Fixed	284.95	426.9
J-68	240.44	0.000	Fixed	283.37	420.1
J-69	242.59	0.000	Fixed	282.48	390.4

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-4

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	51.436	1.637	281.08	281.05
P-3	62.2	J-2	J-3	200.0	PVC	110.0	51.436	1.637	281.05	279.90
P-4	30.0	J-3	J-4	200.0	PVC	110.0	50.723	1.615	279.90	279.37
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.267	0.008	280.00	280.00
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.167	0.005	280.00	280.00
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	280.00	280.00
P-26	10.4	J-25	J-26	200.0	PVC	110.0	28.896	0.920	281.73	281.66
P-27	52.5	J-26	J-27	200.0	PVC	110.0	28.829	0.918	281.66	281.33
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-27.159	0.864	280.00	280.06
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-27.192	0.866	280.06	280.20
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-27.259	0.868	280.20	280.30
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-27.292	0.869	280.30	280.38
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-27.359	0.871	280.38	280.76
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-27.493	0.875	280.76	280.87
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-16.590	0.528	280.87	281.02
P-43	75.4	J-49	J-40	200.0	PVC	110.0	16.891	0.538	281.19	281.02
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-28.762	0.916	281.19	281.33
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-11.070	0.352	280.87	280.94
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-11.170	0.356	280.94	280.96
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-11.203	0.357	280.96	280.98
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-11.303	0.360	280.98	281.03
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-11.437	0.364	281.03	281.08
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-11.504	0.366	281.08	281.10
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-11.537	0.367	281.10	281.12
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-11.637	0.370	281.12	281.19
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-29.030	0.924	281.73	282.17
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-30.401	0.968	282.50	283.95
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-21.161	0.674	284.88	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	21.194	0.675	285.00	284.95

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-4

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-3.078	0.098	284.88	284.88
P-64	44.8	J-4	J-57	200.0	PVC	110.0	-26.197	0.834	279.37	279.60
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-26.678	0.849	279.60	280.00
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-29.231	0.930	282.17	282.31
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-29.298	0.933	282.31	282.48
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-30.468	0.970	283.95	284.87
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-2.911	0.093	284.87	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-27.758	0.884	284.87	284.95
P-76	8.7	R-3	J-65	200.0	PVC	110.0	27.858	0.887	285.00	284.95
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-29.465	0.600	282.48	282.50
P-83	12.8	R-2	J-54	200.0	PVC	110.0	34.907	1.111	285.00	284.88
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-52.923	1.685	281.08	283.37
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-52.923	1.685	283.37	284.88
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	282.48	282.48
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	282.48	282.48

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-5

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.66	402.6
J-2	240.52	0.000	Fixed	281.63	402.3
J-3	240.99	0.713	Fixed	280.66	388.2
J-4	240.84	1.150	Fixed	280.21	385.3
J-5	241.40	75.984	Fixed	278.53	363.4
J-6	241.10	0.100	Fixed	278.53	366.3
J-7	241.38	0.134	Fixed	278.53	363.6
J-8	241.60	0.033	Fixed	278.53	361.4
J-25	241.68	0.134	Fixed	280.80	382.9
J-26	241.68	0.067	Fixed	280.72	382.0
J-27	241.41	0.067	Fixed	280.29	380.5
J-28	241.48	0.033	Fixed	278.61	363.4
J-29	241.35	0.067	Fixed	278.79	366.5
J-30	241.20	0.033	Fixed	278.93	369.3
J-31	241.53	0.067	Fixed	279.03	367.0
J-38	241.52	0.134	Fixed	279.54	372.1
J-39	241.52	0.167	Fixed	279.68	373.5
J-40	241.27	0.301	Fixed	279.87	377.8
J-42	241.93	0.100	Fixed	279.77	370.3
J-43	242.03	0.033	Fixed	279.79	369.6
J-44	242.12	0.100	Fixed	279.82	369.0
J-45	242.35	0.134	Fixed	279.89	367.4
J-46	242.05	0.067	Fixed	279.96	371.0
J-47	241.96	0.033	Fixed	279.98	372.1
J-48	241.87	0.100	Fixed	280.01	373.3
J-49	241.56	0.234	Fixed	280.10	377.2
J-50	242.25	0.201	Fixed	281.37	382.9
J-51	242.25	0.000	Fixed	281.78	386.9
J-52	245.69	0.167	Fixed	281.78	353.2
J-53	241.85	0.936	Fixed	281.80	391.0
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.6
J-56	240.44	0.167	Fixed	284.88	435.0
J-57	241.17	0.481	Fixed	279.56	375.7
J-58	242.25	0.067	Fixed	281.55	384.6
J-60	242.27	0.067	Fixed	283.67	405.2
J-64	241.33	0.201	Fixed	284.85	425.9
J-65	241.33	0.100	Fixed	284.94	426.8
J-68	240.44	0.000	Fixed	283.60	422.4
J-69	242.59	0.000	Fixed	281.78	383.5

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-5

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	47.010	1.496	281.66	281.63
P-3	62.2	J-2	J-3	200.0	PVC	110.0	47.010	1.496	281.63	280.66
P-4	30.0	J-3	J-4	200.0	PVC	110.0	46.297	1.474	280.66	280.21
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.267	0.008	278.53	278.53
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.167	0.005	278.53	278.53
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	278.53	278.53
P-26	10.4	J-25	J-26	200.0	PVC	110.0	33.322	1.061	280.80	280.72
P-27	52.5	J-26	J-27	200.0	PVC	110.0	33.255	1.059	280.72	280.29
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-31.585	1.005	278.53	278.61
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-31.618	1.006	278.61	278.79
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-31.685	1.009	278.79	278.93
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-31.718	1.010	278.93	279.03
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-31.785	1.012	279.03	279.54
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-31.919	1.016	279.54	279.68
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-19.228	0.612	279.68	279.87
P-43	75.4	J-49	J-40	200.0	PVC	110.0	19.529	0.622	280.10	279.87
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-33.188	1.056	280.10	280.29
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-12.859	0.409	279.68	279.77
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-12.958	0.412	279.77	279.79
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-12.992	0.414	279.79	279.82
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-13.091	0.417	279.82	279.89
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-13.226	0.421	279.89	279.96
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-13.293	0.423	279.96	279.98
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-13.326	0.424	279.98	280.01
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-13.425	0.427	280.01	280.10
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-33.456	1.065	280.80	281.37
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-34.827	1.109	281.80	283.67
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.357	0.648	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.390	0.649	285.00	284.95

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-5

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-5.374	0.171	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	45.147	1.437	280.21	279.56
P-65	72.6	J-57	J-5	200.0	PVC	110.0	44.666	1.422	279.56	278.53
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-33.657	1.071	281.37	281.55
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-33.724	1.073	281.55	281.78
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-34.894	1.111	283.67	284.85
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-5.207	0.166	284.85	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-29.888	0.951	284.85	284.94
P-76	8.7	R-3	J-65	200.0	PVC	110.0	29.988	0.955	285.00	284.94
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-33.891	0.690	281.78	281.80
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.582	1.069	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-48.497	1.544	281.66	283.60
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-48.497	1.544	283.60	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	281.78	281.78
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	281.78	281.78

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-6

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.66	402.6
J-2	240.52	0.000	Fixed	281.63	402.3
J-3	240.99	0.713	Fixed	280.66	388.2
J-4	240.84	1.150	Fixed	280.21	385.3
J-5	241.40	0.214	Fixed	278.53	363.4
J-6	241.10	75.870	Fixed	276.70	348.4
J-7	241.38	0.134	Fixed	276.70	345.7
J-8	241.60	0.033	Fixed	276.70	343.5
J-25	241.68	0.134	Fixed	280.80	382.9
J-26	241.68	0.067	Fixed	280.72	382.0
J-27	241.41	0.067	Fixed	280.29	380.5
J-28	241.48	0.033	Fixed	278.61	363.4
J-29	241.35	0.067	Fixed	278.79	366.5
J-30	241.20	0.033	Fixed	278.93	369.3
J-31	241.53	0.067	Fixed	279.03	367.0
J-38	241.52	0.134	Fixed	279.54	372.1
J-39	241.52	0.167	Fixed	279.68	373.5
J-40	241.27	0.301	Fixed	279.87	377.8
J-42	241.93	0.100	Fixed	279.77	370.3
J-43	242.03	0.033	Fixed	279.79	369.6
J-44	242.12	0.100	Fixed	279.82	369.0
J-45	242.35	0.134	Fixed	279.89	367.4
J-46	242.05	0.067	Fixed	279.96	371.0
J-47	241.96	0.033	Fixed	279.98	372.1
J-48	241.87	0.100	Fixed	280.01	373.3
J-49	241.56	0.234	Fixed	280.10	377.2
J-50	242.25	0.201	Fixed	281.37	382.9
J-51	242.25	0.000	Fixed	281.78	386.9
J-52	245.69	0.167	Fixed	281.78	353.2
J-53	241.85	0.936	Fixed	281.80	391.0
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.6
J-56	240.44	0.167	Fixed	284.88	435.0
J-57	241.17	0.481	Fixed	279.56	375.7
J-58	242.25	0.067	Fixed	281.55	384.6
J-60	242.27	0.067	Fixed	283.67	405.2
J-64	241.33	0.201	Fixed	284.85	425.9
J-65	241.33	0.100	Fixed	284.94	426.8
J-68	240.44	0.000	Fixed	283.60	422.4
J-69	242.59	0.000	Fixed	281.78	383.5

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-6

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	47.010	1.496	281.66	281.63
P-3	62.2	J-2	J-3	200.0	PVC	110.0	47.010	1.496	281.63	280.66
P-4	30.0	J-3	J-4	200.0	PVC	110.0	46.297	1.474	280.66	280.21
P-6	48.1	J-5	J-6	200.0	PVC	110.0	76.037	2.420	278.53	276.70
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.167	0.005	276.70	276.70
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	276.70	276.70
P-26	10.4	J-25	J-26	200.0	PVC	110.0	33.322	1.061	280.80	280.72
P-27	52.5	J-26	J-27	200.0	PVC	110.0	33.255	1.059	280.72	280.29
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-31.585	1.005	278.53	278.61
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-31.618	1.006	278.61	278.79
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-31.685	1.009	278.79	278.93
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-31.718	1.010	278.93	279.03
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-31.785	1.012	279.03	279.54
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-31.919	1.016	279.54	279.68
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-19.228	0.612	279.68	279.87
P-43	75.4	J-49	J-40	200.0	PVC	110.0	19.529	0.622	280.10	279.87
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-33.188	1.056	280.10	280.29
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-12.859	0.409	279.68	279.77
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-12.959	0.412	279.77	279.79
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-12.992	0.414	279.79	279.82
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-13.092	0.417	279.82	279.89
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-13.226	0.421	279.89	279.96
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-13.293	0.423	279.96	279.98
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-13.326	0.424	279.98	280.01
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-13.426	0.427	280.01	280.10
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-33.456	1.065	280.80	281.37
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-34.827	1.109	281.80	283.67
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.357	0.648	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.390	0.649	285.00	284.95

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-6

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-5.374	0.171	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	45.147	1.437	280.21	279.56
P-65	72.6	J-57	J-5	200.0	PVC	110.0	44.666	1.422	279.56	278.53
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-33.657	1.071	281.37	281.55
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-33.724	1.073	281.55	281.78
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-34.894	1.111	283.67	284.85
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-5.207	0.166	284.85	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-29.888	0.951	284.85	284.94
P-76	8.7	R-3	J-65	200.0	PVC	110.0	29.988	0.955	285.00	284.94
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-33.891	0.690	281.78	281.80
P-83	12.8	R-2	J-54	200.0	PVC	110.0	33.582	1.069	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-48.497	1.544	281.66	283.60
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-48.497	1.544	283.60	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	281.78	281.78
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	281.78	281.78

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-25

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.79	413.6
J-2	240.52	0.000	Fixed	282.77	413.5
J-3	240.99	0.713	Fixed	282.14	402.7
J-4	240.84	1.150	Fixed	281.85	401.3
J-5	241.40	0.214	Fixed	280.78	385.5
J-6	241.10	0.100	Fixed	280.78	388.4
J-7	241.38	0.134	Fixed	280.78	385.6
J-8	241.60	0.033	Fixed	280.78	383.5
J-25	241.68	75.971	Fixed	278.34	358.8
J-26	241.68	0.067	Fixed	278.42	359.6
J-27	241.41	0.067	Fixed	278.84	366.3
J-28	241.48	0.033	Fixed	280.69	383.7
J-29	241.35	0.067	Fixed	280.48	382.9
J-30	241.20	0.033	Fixed	280.32	382.8
J-31	241.53	0.067	Fixed	280.20	378.4
J-38	241.52	0.134	Fixed	279.62	372.9
J-39	241.52	0.167	Fixed	279.46	371.3
J-40	241.27	0.301	Fixed	279.25	371.7
J-42	241.93	0.100	Fixed	279.36	366.3
J-43	242.03	0.033	Fixed	279.33	365.1
J-44	242.12	0.100	Fixed	279.30	363.9
J-45	242.35	0.134	Fixed	279.23	361.0
J-46	242.05	0.067	Fixed	279.16	363.2
J-47	241.96	0.033	Fixed	279.13	363.8
J-48	241.87	0.100	Fixed	279.11	364.4
J-49	241.56	0.234	Fixed	279.02	366.6
J-50	242.25	0.201	Fixed	279.26	362.2
J-51	242.25	0.000	Fixed	279.92	368.6
J-52	245.69	0.167	Fixed	279.92	335.0
J-53	241.85	0.936	Fixed	279.95	372.9
J-54	240.34	0.067	Fixed	284.91	436.2
J-55	240.44	0.033	Fixed	284.96	435.7
J-56	240.44	0.167	Fixed	284.89	435.0
J-57	241.17	0.481	Fixed	281.43	394.1
J-58	242.25	0.067	Fixed	279.55	365.0
J-60	242.27	0.067	Fixed	282.92	397.8
J-64	241.33	0.201	Fixed	284.79	425.4
J-65	241.33	0.100	Fixed	284.92	426.6
J-68	240.44	0.000	Fixed	284.06	426.9
J-69	242.59	0.000	Fixed	279.92	365.3

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-25

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	37.191	1.184	282.79	282.77
P-3	62.2	J-2	J-3	200.0	PVC	110.0	37.191	1.184	282.77	282.14
P-4	30.0	J-3	J-4	200.0	PVC	110.0	36.478	1.161	282.14	281.85
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.267	0.008	280.78	280.78
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.167	0.005	280.78	280.78
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	280.78	280.78
P-26	10.4	J-25	J-26	200.0	PVC	110.0	-32.629	1.039	278.34	278.42
P-27	52.5	J-26	J-27	200.0	PVC	110.0	-32.696	1.041	278.42	278.84
P-29	11.2	J-5	J-28	200.0	PVC	110.0	34.366	1.094	280.78	280.69
P-30	24.4	J-28	J-29	200.0	PVC	110.0	34.333	1.093	280.69	280.48
P-31	18.1	J-29	J-30	200.0	PVC	110.0	34.266	1.091	280.48	280.32
P-32	13.7	J-30	J-31	200.0	PVC	110.0	34.233	1.090	280.32	280.20
P-40	67.1	J-31	J-38	200.0	PVC	110.0	34.166	1.088	280.20	279.62
P-41	18.9	J-38	J-39	200.0	PVC	110.0	34.032	1.083	279.62	279.46
P-42	63.2	J-39	J-40	200.0	PVC	110.0	20.076	0.639	279.46	279.25
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-19.775	0.629	279.02	279.25
P-44	22.4	J-49	J-27	200.0	PVC	110.0	32.763	1.043	279.02	278.84
P-45	60.5	J-39	J-42	200.0	PVC	110.0	13.789	0.439	279.46	279.36
P-46	18.0	J-42	J-43	200.0	PVC	110.0	13.689	0.436	279.36	279.33
P-47	17.9	J-43	J-44	200.0	PVC	110.0	13.656	0.435	279.33	279.30
P-48	45.9	J-44	J-45	200.0	PVC	110.0	13.556	0.432	279.30	279.23
P-49	45.9	J-45	J-46	200.0	PVC	110.0	13.422	0.427	279.23	279.16
P-50	17.9	J-46	J-47	200.0	PVC	110.0	13.355	0.425	279.16	279.13
P-51	17.9	J-47	J-48	200.0	PVC	110.0	13.322	0.424	279.13	279.11
P-52	60.6	J-48	J-49	200.0	PVC	110.0	13.222	0.421	279.11	279.02
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-43.342	1.380	278.34	279.26
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-44.713	1.423	279.95	282.92
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-18.186	0.579	284.91	284.96
P-61	13.9	R-1	J-55	200.0	PVC	110.0	18.219	0.580	285.00	284.96

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-25

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-9.445	0.301	284.89	284.91
P-64	44.8	J-4	J-57	200.0	PVC	110.0	35.328	1.125	281.85	281.43
P-65	72.6	J-57	J-5	200.0	PVC	110.0	34.847	1.109	281.43	280.78
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-43.543	1.386	279.26	279.55
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-43.610	1.388	279.55	279.92
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-44.780	1.425	282.92	284.79
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-9.278	0.295	284.79	284.89
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-35.703	1.136	284.79	284.92
P-76	8.7	R-3	J-65	200.0	PVC	110.0	35.803	1.140	285.00	284.92
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-43.777	0.892	279.92	279.95
P-83	12.8	R-2	J-54	200.0	PVC	110.0	30.004	0.955	285.00	284.91
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-38.678	1.231	282.79	284.06
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-38.678	1.231	284.06	284.91
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	279.92	279.92
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	279.92	279.92

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-31

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.94	405.3
J-2	240.52	0.000	Fixed	281.91	405.1
J-3	240.99	0.713	Fixed	281.03	391.8
J-4	240.84	1.150	Fixed	280.61	389.3
J-5	241.40	0.214	Fixed	279.09	368.9
J-6	241.10	0.100	Fixed	279.09	371.8
J-7	241.38	0.134	Fixed	279.09	369.1
J-8	241.60	0.033	Fixed	279.09	366.9
J-25	241.68	0.134	Fixed	280.26	377.6
J-26	241.68	0.067	Fixed	280.16	376.6
J-27	241.41	0.067	Fixed	279.67	374.5
J-28	241.48	0.033	Fixed	278.95	366.7
J-29	241.35	0.067	Fixed	278.64	365.0
J-30	241.20	0.033	Fixed	278.41	364.2
J-31	241.53	75.937	Fixed	278.24	359.3
J-38	241.52	0.134	Fixed	278.82	365.1
J-39	241.52	0.167	Fixed	278.99	366.7
J-40	241.27	0.301	Fixed	279.20	371.2
J-42	241.93	0.100	Fixed	279.08	363.6
J-43	242.03	0.033	Fixed	279.11	362.9
J-44	242.12	0.100	Fixed	279.14	362.3
J-45	242.35	0.134	Fixed	279.22	360.8
J-46	242.05	0.067	Fixed	279.30	364.5
J-47	241.96	0.033	Fixed	279.33	365.7
J-48	241.87	0.100	Fixed	279.36	366.9
J-49	241.56	0.234	Fixed	279.46	371.0
J-50	242.25	0.201	Fixed	280.90	378.3
J-51	242.25	0.000	Fixed	281.37	382.9
J-52	245.69	0.167	Fixed	281.37	349.2
J-53	241.85	0.936	Fixed	281.40	387.0
J-54	240.34	0.067	Fixed	284.90	436.1
J-55	240.44	0.033	Fixed	284.96	435.7
J-56	240.44	0.167	Fixed	284.89	435.0
J-57	241.17	0.481	Fixed	280.02	380.3
J-58	242.25	0.067	Fixed	281.11	380.3
J-60	242.27	0.067	Fixed	283.50	403.5
J-64	241.33	0.201	Fixed	284.84	425.8
J-65	241.33	0.100	Fixed	284.94	426.8
J-68	240.44	0.000	Fixed	283.72	423.5
J-69	242.59	0.000	Fixed	281.37	379.5

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-31

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	44.737	1.424	281.94	281.91
P-3	62.2	J-2	J-3	200.0	PVC	110.0	44.737	1.424	281.91	281.03
P-4	30.0	J-3	J-4	200.0	PVC	110.0	44.024	1.401	281.03	280.61
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.267	0.008	279.09	279.09
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.167	0.005	279.09	279.09
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	279.09	279.09
P-26	10.4	J-25	J-26	200.0	PVC	110.0	35.695	1.136	280.26	280.16
P-27	52.5	J-26	J-27	200.0	PVC	110.0	35.628	1.134	280.16	279.67
P-29	11.2	J-5	J-28	200.0	PVC	110.0	41.912	1.334	279.09	278.95
P-30	24.4	J-28	J-29	200.0	PVC	110.0	41.879	1.333	278.95	278.64
P-31	18.1	J-29	J-30	200.0	PVC	110.0	41.812	1.331	278.64	278.41
P-32	13.7	J-30	J-31	200.0	PVC	110.0	41.779	1.330	278.41	278.24
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-34.158	1.087	278.24	278.82
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-34.292	1.092	278.82	278.99
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-20.642	0.657	278.99	279.20
P-43	75.4	J-49	J-40	200.0	PVC	110.0	20.943	0.667	279.46	279.20
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-35.561	1.132	279.46	279.67
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-13.817	0.440	278.99	279.08
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-13.917	0.443	279.08	279.11
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-13.950	0.444	279.11	279.14
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-14.050	0.447	279.14	279.22
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-14.184	0.452	279.22	279.30
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-14.251	0.454	279.30	279.33
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-14.284	0.455	279.33	279.36
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-14.384	0.458	279.36	279.46
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-35.829	1.140	280.26	280.90
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-37.200	1.184	281.40	283.50
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-19.899	0.633	284.90	284.96
P-61	13.9	R-1	J-55	200.0	PVC	110.0	19.932	0.634	285.00	284.96

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-31

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-6.435	0.205	284.89	284.90
P-64	44.8	J-4	J-57	200.0	PVC	110.0	42.874	1.365	280.61	280.02
P-65	72.6	J-57	J-5	200.0	PVC	110.0	42.393	1.349	280.02	279.09
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-36.030	1.147	280.90	281.11
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-36.097	1.149	281.11	281.37
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-37.267	1.186	283.50	284.84
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-6.268	0.200	284.84	284.89
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-31.200	0.993	284.84	284.94
P-76	8.7	R-3	J-65	200.0	PVC	110.0	31.300	0.996	285.00	284.94
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-36.264	0.739	281.37	281.40
P-83	12.8	R-2	J-54	200.0	PVC	110.0	32.827	1.045	285.00	284.90
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-46.224	1.471	281.94	283.72
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-46.224	1.471	283.72	284.90
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	281.37	281.37
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	281.37	281.37

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-40

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.38	409.7
J-2	240.52	0.000	Fixed	282.36	409.5
J-3	240.99	0.713	Fixed	281.61	397.6
J-4	240.84	1.150	Fixed	281.26	395.6
J-5	241.40	0.214	Fixed	279.98	377.6
J-6	241.10	0.100	Fixed	279.98	380.5
J-7	241.38	0.134	Fixed	279.98	377.8
J-8	241.60	0.033	Fixed	279.98	375.6
J-25	241.68	0.134	Fixed	279.35	368.6
J-26	241.68	0.067	Fixed	279.23	367.5
J-27	241.41	0.067	Fixed	278.64	364.4
J-28	241.48	0.033	Fixed	279.86	375.6
J-29	241.35	0.067	Fixed	279.61	374.4
J-30	241.20	0.033	Fixed	279.42	374.0
J-31	241.53	0.067	Fixed	279.27	369.4
J-38	241.52	0.134	Fixed	278.57	362.6
J-39	241.52	0.167	Fixed	278.37	360.7
J-40	241.27	76.071	Fixed	277.66	356.1
J-42	241.93	0.100	Fixed	278.38	356.7
J-43	242.03	0.033	Fixed	278.38	355.7
J-44	242.12	0.100	Fixed	278.38	354.9
J-45	242.35	0.134	Fixed	278.38	352.6
J-46	242.05	0.067	Fixed	278.38	355.6
J-47	241.96	0.033	Fixed	278.38	356.5
J-48	241.87	0.100	Fixed	278.39	357.4
J-49	241.56	0.234	Fixed	278.39	360.5
J-50	242.25	0.201	Fixed	280.12	370.6
J-51	242.25	0.000	Fixed	280.68	376.1
J-52	245.69	0.167	Fixed	280.68	342.4
J-53	241.85	0.936	Fixed	280.71	380.3
J-54	240.34	0.067	Fixed	284.91	436.2
J-55	240.44	0.033	Fixed	284.96	435.7
J-56	240.44	0.167	Fixed	284.89	435.0
J-57	241.17	0.481	Fixed	280.77	387.5
J-58	242.25	0.067	Fixed	280.37	373.1
J-60	242.27	0.067	Fixed	283.22	400.8
J-64	241.33	0.201	Fixed	284.82	425.6
J-65	241.33	0.100	Fixed	284.93	426.7
J-68	240.44	0.000	Fixed	283.90	425.3
J-69	242.59	0.000	Fixed	280.68	372.8

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-40

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	40.916	1.302	282.38	282.36
P-3	62.2	J-2	J-3	200.0	PVC	110.0	40.916	1.302	282.36	281.61
P-4	30.0	J-3	J-4	200.0	PVC	110.0	40.203	1.280	281.61	281.26
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.267	0.008	279.98	279.98
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.167	0.005	279.98	279.98
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	279.98	279.98
P-26	10.4	J-25	J-26	200.0	PVC	110.0	39.416	1.255	279.35	279.23
P-27	52.5	J-26	J-27	200.0	PVC	110.0	39.349	1.253	279.23	278.64
P-29	11.2	J-5	J-28	200.0	PVC	110.0	38.091	1.212	279.98	279.86
P-30	24.4	J-28	J-29	200.0	PVC	110.0	38.058	1.211	279.86	279.61
P-31	18.1	J-29	J-30	200.0	PVC	110.0	37.991	1.209	279.61	279.42
P-32	13.7	J-30	J-31	200.0	PVC	110.0	37.958	1.208	279.42	279.27
P-40	67.1	J-31	J-38	200.0	PVC	110.0	37.891	1.206	279.27	278.57
P-41	18.9	J-38	J-39	200.0	PVC	110.0	37.757	1.202	278.57	278.37
P-42	63.2	J-39	J-40	200.0	PVC	110.0	39.605	1.261	278.37	277.66
P-43	75.4	J-49	J-40	200.0	PVC	110.0	36.466	1.161	278.39	277.66
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-39.282	1.250	278.39	278.64
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-2.015	0.064	278.37	278.38
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-2.115	0.067	278.38	278.38
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-2.148	0.068	278.38	278.38
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-2.248	0.072	278.38	278.38
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-2.382	0.076	278.38	278.38
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-2.449	0.078	278.38	278.38
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-2.482	0.079	278.38	278.39
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-2.582	0.082	278.39	278.39
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-39.550	1.259	279.35	280.12
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-40.921	1.303	280.71	283.22
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-19.045	0.606	284.91	284.96
P-61	13.9	R-1	J-55	200.0	PVC	110.0	19.078	0.607	285.00	284.96

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-40

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-7.994	0.254	284.89	284.91
P-64	44.8	J-4	J-57	200.0	PVC	110.0	39.053	1.243	281.26	280.77
P-65	72.6	J-57	J-5	200.0	PVC	110.0	38.572	1.228	280.77	279.98
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-39.751	1.265	280.12	280.37
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-39.818	1.267	280.37	280.68
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-40.988	1.305	283.22	284.82
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.827	0.249	284.82	284.89
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-33.362	1.062	284.82	284.93
P-76	8.7	R-3	J-65	200.0	PVC	110.0	33.462	1.065	285.00	284.93
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-39.985	0.815	280.68	280.71
P-83	12.8	R-2	J-54	200.0	PVC	110.0	31.419	1.000	285.00	284.91
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-42.403	1.350	282.38	283.90
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-42.403	1.350	283.90	284.91
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.68	280.68
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.68	280.68

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-42

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.35	409.4
J-2	240.52	0.000	Fixed	282.33	409.2
J-3	240.99	0.713	Fixed	281.57	397.2
J-4	240.84	1.150	Fixed	281.22	395.2
J-5	241.40	0.214	Fixed	279.92	377.0
J-6	241.10	0.100	Fixed	279.92	380.0
J-7	241.38	0.134	Fixed	279.92	377.2
J-8	241.60	0.033	Fixed	279.92	375.1
J-25	241.68	0.134	Fixed	279.41	369.3
J-26	241.68	0.067	Fixed	279.30	368.1
J-27	241.41	0.067	Fixed	278.71	365.1
J-28	241.48	0.033	Fixed	279.80	375.1
J-29	241.35	0.067	Fixed	279.54	373.8
J-30	241.20	0.033	Fixed	279.35	373.4
J-31	241.53	0.067	Fixed	279.21	368.7
J-38	241.52	0.134	Fixed	278.50	361.9
J-39	241.52	0.167	Fixed	278.30	359.9
J-40	241.27	0.301	Fixed	278.37	363.1
J-42	241.93	75.870	Fixed	277.25	345.7
J-43	242.03	0.033	Fixed	277.35	345.7
J-44	242.12	0.100	Fixed	277.44	345.7
J-45	242.35	0.134	Fixed	277.69	345.9
J-46	242.05	0.067	Fixed	277.94	351.2
J-47	241.96	0.033	Fixed	278.04	353.1
J-48	241.87	0.100	Fixed	278.13	354.9
J-49	241.56	0.234	Fixed	278.47	361.2
J-50	242.25	0.201	Fixed	280.18	371.2
J-51	242.25	0.000	Fixed	280.73	376.6
J-52	245.69	0.167	Fixed	280.73	342.9
J-53	241.85	0.936	Fixed	280.76	380.8
J-54	240.34	0.067	Fixed	284.90	436.1
J-55	240.44	0.033	Fixed	284.96	435.7
J-56	240.44	0.167	Fixed	284.89	435.0
J-57	241.17	0.481	Fixed	280.72	387.0
J-58	242.25	0.067	Fixed	280.42	373.6
J-60	242.27	0.067	Fixed	283.24	401.0
J-64	241.33	0.201	Fixed	284.82	425.6
J-65	241.33	0.100	Fixed	284.93	426.7
J-68	240.44	0.000	Fixed	283.89	425.2
J-69	242.59	0.000	Fixed	280.73	373.2

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-42

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	41.170	1.310	282.35	282.33
P-3	62.2	J-2	J-3	200.0	PVC	110.0	41.170	1.310	282.33	281.57
P-4	30.0	J-3	J-4	200.0	PVC	110.0	40.457	1.288	281.57	281.22
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.267	0.008	279.92	279.92
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.167	0.005	279.92	279.92
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	279.92	279.92
P-26	10.4	J-25	J-26	200.0	PVC	110.0	39.162	1.247	279.41	279.30
P-27	52.5	J-26	J-27	200.0	PVC	110.0	39.095	1.244	279.30	278.71
P-29	11.2	J-5	J-28	200.0	PVC	110.0	38.345	1.221	279.92	279.80
P-30	24.4	J-28	J-29	200.0	PVC	110.0	38.312	1.220	279.80	279.54
P-31	18.1	J-29	J-30	200.0	PVC	110.0	38.245	1.217	279.54	279.35
P-32	13.7	J-30	J-31	200.0	PVC	110.0	38.212	1.216	279.35	279.21
P-40	67.1	J-31	J-38	200.0	PVC	110.0	38.145	1.214	279.21	278.50
P-41	18.9	J-38	J-39	200.0	PVC	110.0	38.011	1.210	278.50	278.30
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-11.748	0.374	278.30	278.37
P-43	75.4	J-49	J-40	200.0	PVC	110.0	12.049	0.384	278.47	278.37
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-39.028	1.242	278.47	278.71
P-45	60.5	J-39	J-42	200.0	PVC	110.0	49.592	1.579	278.30	277.25
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-26.278	0.836	277.25	277.35
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-26.311	0.838	277.35	277.44
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-26.411	0.841	277.44	277.69
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-26.545	0.845	277.69	277.94
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-26.612	0.847	277.94	278.04
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-26.645	0.848	278.04	278.13
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-26.745	0.851	278.13	278.47
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-39.296	1.251	279.41	280.18
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-40.667	1.294	280.76	283.24
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-19.102	0.608	284.90	284.96
P-61	13.9	R-1	J-55	200.0	PVC	110.0	19.135	0.609	285.00	284.96

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-42

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-7.892	0.251	284.89	284.90
P-64	44.8	J-4	J-57	200.0	PVC	110.0	39.307	1.251	281.22	280.72
P-65	72.6	J-57	J-5	200.0	PVC	110.0	38.826	1.236	280.72	279.92
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-39.497	1.257	280.18	280.42
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-39.564	1.259	280.42	280.73
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-40.734	1.297	283.24	284.82
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.725	0.246	284.82	284.89
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-33.210	1.057	284.82	284.93
P-76	8.7	R-3	J-65	200.0	PVC	110.0	33.310	1.060	285.00	284.93
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-39.731	0.809	280.73	280.76
P-83	12.8	R-2	J-54	200.0	PVC	110.0	31.514	1.003	285.00	284.90
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-42.657	1.358	282.35	283.89
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-42.657	1.358	283.89	284.90
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.73	280.73
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.73	280.73

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-46

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.39	409.8
J-2	240.52	0.000	Fixed	282.37	409.6
J-3	240.99	0.713	Fixed	281.63	397.7
J-4	240.84	1.150	Fixed	281.28	395.8
J-5	241.40	0.214	Fixed	280.00	377.8
J-6	241.10	0.100	Fixed	280.00	380.7
J-7	241.38	0.134	Fixed	280.00	378.0
J-8	241.60	0.033	Fixed	280.00	375.8
J-25	241.68	0.134	Fixed	279.32	368.4
J-26	241.68	0.067	Fixed	279.20	367.2
J-27	241.41	0.067	Fixed	278.61	364.1
J-28	241.48	0.033	Fixed	279.89	375.9
J-29	241.35	0.067	Fixed	279.63	374.6
J-30	241.20	0.033	Fixed	279.44	374.3
J-31	241.53	0.067	Fixed	279.30	369.6
J-38	241.52	0.134	Fixed	278.60	362.9
J-39	241.52	0.167	Fixed	278.40	361.0
J-40	241.27	0.301	Fixed	278.38	363.2
J-42	241.93	0.100	Fixed	277.95	352.5
J-43	242.03	0.033	Fixed	277.81	350.2
J-44	242.12	0.100	Fixed	277.68	348.0
J-45	242.35	0.134	Fixed	277.34	342.4
J-46	242.05	75.837	Fixed	277.00	342.0
J-47	241.96	0.033	Fixed	277.25	345.4
J-48	241.87	0.100	Fixed	277.50	348.7
J-49	241.56	0.234	Fixed	278.36	360.2
J-50	242.25	0.201	Fixed	280.10	370.4
J-51	242.25	0.000	Fixed	280.66	375.9
J-52	245.69	0.167	Fixed	280.66	342.2
J-53	241.85	0.936	Fixed	280.69	380.1
J-54	240.34	0.067	Fixed	284.91	436.2
J-55	240.44	0.033	Fixed	284.96	435.7
J-56	240.44	0.167	Fixed	284.89	435.0
J-57	241.17	0.481	Fixed	280.78	387.7
J-58	242.25	0.067	Fixed	280.35	372.9
J-60	242.27	0.067	Fixed	283.22	400.7
J-64	241.33	0.201	Fixed	284.82	425.6
J-65	241.33	0.100	Fixed	284.93	426.7
J-68	240.44	0.000	Fixed	283.90	425.4
J-69	242.59	0.000	Fixed	280.66	372.6

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-46

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	40.819	1.299	282.39	282.37
P-3	62.2	J-2	J-3	200.0	PVC	110.0	40.819	1.299	282.37	281.63
P-4	30.0	J-3	J-4	200.0	PVC	110.0	40.106	1.277	281.63	281.28
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.267	0.008	280.00	280.00
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.167	0.005	280.00	280.00
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	280.00	280.00
P-26	10.4	J-25	J-26	200.0	PVC	110.0	39.513	1.258	279.32	279.20
P-27	52.5	J-26	J-27	200.0	PVC	110.0	39.446	1.256	279.20	278.61
P-29	11.2	J-5	J-28	200.0	PVC	110.0	37.994	1.209	280.00	279.89
P-30	24.4	J-28	J-29	200.0	PVC	110.0	37.961	1.208	279.89	279.63
P-31	18.1	J-29	J-30	200.0	PVC	110.0	37.894	1.206	279.63	279.44
P-32	13.7	J-30	J-31	200.0	PVC	110.0	37.861	1.205	279.44	279.30
P-40	67.1	J-31	J-38	200.0	PVC	110.0	37.794	1.203	279.30	278.60
P-41	18.9	J-38	J-39	200.0	PVC	110.0	37.660	1.199	278.60	278.40
P-42	63.2	J-39	J-40	200.0	PVC	110.0	5.759	0.183	278.40	278.38
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-5.458	0.174	278.36	278.38
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-39.379	1.253	278.36	278.61
P-45	60.5	J-39	J-42	200.0	PVC	110.0	31.734	1.010	278.40	277.95
P-46	18.0	J-42	J-43	200.0	PVC	110.0	31.634	1.007	277.95	277.81
P-47	17.9	J-43	J-44	200.0	PVC	110.0	31.601	1.006	277.81	277.68
P-48	45.9	J-44	J-45	200.0	PVC	110.0	31.501	1.003	277.68	277.34
P-49	45.9	J-45	J-46	200.0	PVC	110.0	31.367	0.998	277.34	277.00
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-44.470	1.416	277.00	277.25
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-44.503	1.417	277.25	277.50
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-44.603	1.420	277.50	278.36
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-39.647	1.262	279.32	280.10
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-41.018	1.306	280.69	283.22
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-19.023	0.606	284.91	284.96
P-61	13.9	R-1	J-55	200.0	PVC	110.0	19.056	0.607	285.00	284.96

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-46

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-8.032	0.256	284.89	284.91
P-64	44.8	J-4	J-57	200.0	PVC	110.0	38.956	1.240	281.28	280.78
P-65	72.6	J-57	J-5	200.0	PVC	110.0	38.475	1.225	280.78	280.00
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-39.848	1.268	280.10	280.35
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-39.915	1.271	280.35	280.66
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-41.085	1.308	283.22	284.82
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-7.865	0.250	284.82	284.89
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-33.421	1.064	284.82	284.93
P-76	8.7	R-3	J-65	200.0	PVC	110.0	33.521	1.067	285.00	284.93
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-40.082	0.817	280.66	280.69
P-83	12.8	R-2	J-54	200.0	PVC	110.0	31.382	0.999	285.00	284.91
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-42.306	1.347	282.39	283.90
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-42.306	1.347	283.90	284.91
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	280.66	280.66
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	280.66	280.66

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-52

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	283.21	417.8
J-2	240.52	0.000	Fixed	283.19	417.6
J-3	240.99	0.713	Fixed	282.69	408.1
J-4	240.84	1.150	Fixed	282.46	407.3
J-5	241.40	0.214	Fixed	281.62	393.6
J-6	241.10	0.100	Fixed	281.62	396.6
J-7	241.38	0.134	Fixed	281.62	393.8
J-8	241.60	0.033	Fixed	281.62	391.7
J-25	241.68	0.134	Fixed	279.72	372.2
J-26	241.68	0.067	Fixed	279.78	372.9
J-27	241.41	0.067	Fixed	280.10	378.7
J-28	241.48	0.033	Fixed	281.54	392.1
J-29	241.35	0.067	Fixed	281.38	391.8
J-30	241.20	0.033	Fixed	281.26	392.0
J-31	241.53	0.067	Fixed	281.16	387.9
J-38	241.52	0.134	Fixed	280.71	383.5
J-39	241.52	0.167	Fixed	280.58	382.3
J-40	241.27	0.301	Fixed	280.42	383.2
J-42	241.93	0.100	Fixed	280.51	377.5
J-43	242.03	0.033	Fixed	280.48	376.3
J-44	242.12	0.100	Fixed	280.46	375.3
J-45	242.35	0.134	Fixed	280.41	372.5
J-46	242.05	0.067	Fixed	280.35	374.9
J-47	241.96	0.033	Fixed	280.33	375.5
J-48	241.87	0.100	Fixed	280.31	376.2
J-49	241.56	0.234	Fixed	280.24	378.6
J-50	242.25	0.201	Fixed	279.30	362.6
J-51	242.25	0.000	Fixed	279.01	359.8
J-52	245.69	75.937	Fixed	272.76	264.9
J-53	241.85	0.936	Fixed	279.05	364.1
J-54	240.34	0.067	Fixed	284.92	436.3
J-55	240.44	0.033	Fixed	284.97	435.8
J-56	240.44	0.167	Fixed	284.89	435.0
J-57	241.17	0.481	Fixed	282.13	400.9
J-58	242.25	0.067	Fixed	279.17	361.3
J-60	242.27	0.067	Fixed	282.55	394.2
J-64	241.33	0.201	Fixed	284.76	425.1
J-65	241.33	0.100	Fixed	284.91	426.5
J-68	240.44	0.000	Fixed	284.24	428.6
J-69	242.59	0.000	Fixed	278.23	348.8

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-52

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	32.948	1.049	283.21	283.19
P-3	62.2	J-2	J-3	200.0	PVC	110.0	32.948	1.049	283.19	282.69
P-4	30.0	J-3	J-4	200.0	PVC	110.0	32.235	1.026	282.69	282.46
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.267	0.008	281.62	281.62
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.167	0.005	281.62	281.62
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	281.62	281.62
P-26	10.4	J-25	J-26	200.0	PVC	110.0	-28.386	0.904	279.72	279.78
P-27	52.5	J-26	J-27	200.0	PVC	110.0	-28.453	0.906	279.78	280.10
P-29	11.2	J-5	J-28	200.0	PVC	110.0	30.123	0.959	281.62	281.54
P-30	24.4	J-28	J-29	200.0	PVC	110.0	30.090	0.958	281.54	281.38
P-31	18.1	J-29	J-30	200.0	PVC	110.0	30.023	0.956	281.38	281.26
P-32	13.7	J-30	J-31	200.0	PVC	110.0	29.990	0.955	281.26	281.16
P-40	67.1	J-31	J-38	200.0	PVC	110.0	29.923	0.952	281.16	280.71
P-41	18.9	J-38	J-39	200.0	PVC	110.0	29.789	0.948	280.71	280.58
P-42	63.2	J-39	J-40	200.0	PVC	110.0	17.547	0.559	280.58	280.42
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-17.246	0.549	280.24	280.42
P-44	22.4	J-49	J-27	200.0	PVC	110.0	28.520	0.908	280.24	280.10
P-45	60.5	J-39	J-42	200.0	PVC	110.0	12.074	0.384	280.58	280.51
P-46	18.0	J-42	J-43	200.0	PVC	110.0	11.974	0.381	280.51	280.48
P-47	17.9	J-43	J-44	200.0	PVC	110.0	11.941	0.380	280.48	280.46
P-48	45.9	J-44	J-45	200.0	PVC	110.0	11.841	0.377	280.46	280.41
P-49	45.9	J-45	J-46	200.0	PVC	110.0	11.707	0.373	280.41	280.35
P-50	17.9	J-46	J-47	200.0	PVC	110.0	11.640	0.371	280.35	280.33
P-51	17.9	J-47	J-48	200.0	PVC	110.0	11.607	0.369	280.33	280.31
P-52	60.6	J-48	J-49	200.0	PVC	110.0	11.507	0.366	280.31	280.24
P-53	68.4	J-25	J-50	200.0	PVC	110.0	28.252	0.899	279.72	279.30
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-48.889	1.556	279.05	282.55
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-17.155	0.546	284.92	284.97
P-61	13.9	R-1	J-55	200.0	PVC	110.0	17.188	0.547	285.00	284.97

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-52

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-10.958	0.349	284.89	284.92
P-64	44.8	J-4	J-57	200.0	PVC	110.0	31.085	0.989	282.46	282.13
P-65	72.6	J-57	J-5	200.0	PVC	110.0	30.604	0.974	282.13	281.62
P-66	21.6	J-50	J-58	200.0	PVC	110.0	28.051	0.893	279.30	279.17
P-67	27.0	J-58	J-51	200.0	PVC	110.0	27.984	0.891	279.17	279.01
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-48.956	1.558	282.55	284.76
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-10.791	0.343	284.76	284.89
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-38.367	1.221	284.76	284.91
P-76	8.7	R-3	J-65	200.0	PVC	110.0	38.467	1.224	285.00	284.91
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-47.953	0.977	279.01	279.05
P-83	12.8	R-2	J-54	200.0	PVC	110.0	28.304	0.901	285.00	284.92
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-34.435	1.096	283.21	284.24
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-34.435	1.096	284.24	284.92
P-86	20.6	J-51	J-69	200.0	PVC	110.0	75.937	2.417	279.01	278.23
P-87	144.3	J-69	J-52	200.0	PVC	110.0	75.937	2.417	278.23	272.76

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-57

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	281.32	399.3
J-2	240.52	0.000	Fixed	281.29	399.0
J-3	240.99	0.713	Fixed	280.21	383.9
J-4	240.84	1.150	Fixed	279.71	380.4
J-5	241.40	0.214	Fixed	279.43	372.2
J-6	241.10	0.100	Fixed	279.43	375.2
J-7	241.38	0.134	Fixed	279.43	372.4
J-8	241.60	0.033	Fixed	279.43	370.3
J-25	241.68	0.134	Fixed	281.37	388.5
J-26	241.68	0.067	Fixed	281.30	387.8
J-27	241.41	0.067	Fixed	280.93	386.8
J-28	241.48	0.033	Fixed	279.50	372.1
J-29	241.35	0.067	Fixed	279.66	374.9
J-30	241.20	0.033	Fixed	279.77	377.5
J-31	241.53	0.067	Fixed	279.86	375.1
J-38	241.52	0.134	Fixed	280.29	379.5
J-39	241.52	0.167	Fixed	280.42	380.7
J-40	241.27	0.301	Fixed	280.58	384.7
J-42	241.93	0.100	Fixed	280.49	377.4
J-43	242.03	0.033	Fixed	280.51	376.6
J-44	242.12	0.100	Fixed	280.53	375.9
J-45	242.35	0.134	Fixed	280.59	374.2
J-46	242.05	0.067	Fixed	280.65	377.8
J-47	241.96	0.033	Fixed	280.67	378.9
J-48	241.87	0.100	Fixed	280.69	380.0
J-49	241.56	0.234	Fixed	280.77	383.8
J-50	242.25	0.201	Fixed	281.86	387.7
J-51	242.25	0.000	Fixed	282.21	391.1
J-52	245.69	0.167	Fixed	282.21	357.4
J-53	241.85	0.936	Fixed	282.23	395.2
J-54	240.34	0.067	Fixed	284.89	436.0
J-55	240.44	0.033	Fixed	284.95	435.6
J-56	240.44	0.167	Fixed	284.88	435.0
J-57	241.17	76.251	Fixed	278.99	370.1
J-58	242.25	0.067	Fixed	282.02	389.2
J-60	242.27	0.067	Fixed	283.84	406.9
J-64	241.33	0.201	Fixed	284.86	426.1
J-65	241.33	0.100	Fixed	284.95	426.9
J-68	240.44	0.000	Fixed	283.46	421.1
J-69	242.59	0.000	Fixed	282.21	387.8

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-57

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	49.670	1.581	281.32	281.29
P-3	62.2	J-2	J-3	200.0	PVC	110.0	49.670	1.581	281.29	280.21
P-4	30.0	J-3	J-4	200.0	PVC	110.0	48.957	1.558	280.21	279.71
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.267	0.008	279.43	279.43
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.167	0.005	279.43	279.43
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	279.43	279.43
P-26	10.4	J-25	J-26	200.0	PVC	110.0	30.662	0.976	281.37	281.30
P-27	52.5	J-26	J-27	200.0	PVC	110.0	30.595	0.974	281.30	280.93
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-28.925	0.921	279.43	279.50
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-28.958	0.922	279.50	279.66
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-29.025	0.924	279.66	279.77
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-29.058	0.925	279.77	279.86
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-29.125	0.927	279.86	280.29
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-29.259	0.931	280.29	280.42
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-17.642	0.562	280.42	280.58
P-43	75.4	J-49	J-40	200.0	PVC	110.0	17.943	0.571	280.77	280.58
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-30.528	0.972	280.77	280.93
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-11.783	0.375	280.42	280.49
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-11.883	0.378	280.49	280.51
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-11.916	0.379	280.51	280.53
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-12.016	0.382	280.53	280.59
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-12.150	0.387	280.59	280.65
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-12.217	0.389	280.65	280.67
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-12.250	0.390	280.67	280.69
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-12.350	0.393	280.69	280.77
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-30.796	0.980	281.37	281.86
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-32.167	1.024	282.23	283.84
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-20.863	0.664	284.89	284.95
P-61	13.9	R-1	J-55	200.0	PVC	110.0	20.896	0.665	285.00	284.95

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-57

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-4.054	0.129	284.88	284.89
P-64	44.8	J-4	J-57	200.0	PVC	110.0	47.807	1.522	279.71	278.99
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-28.444	0.905	278.99	279.43
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-30.997	0.987	281.86	282.02
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-31.064	0.989	282.02	282.21
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-32.234	1.026	283.84	284.86
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-3.887	0.124	284.86	284.88
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-28.547	0.909	284.86	284.95
P-76	8.7	R-3	J-65	200.0	PVC	110.0	28.647	0.912	285.00	284.95
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-31.231	0.636	282.21	282.23
P-83	12.8	R-2	J-54	200.0	PVC	110.0	34.416	1.095	285.00	284.89
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-51.157	1.628	281.32	283.46
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-51.157	1.628	283.46	284.89
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	282.21	282.21
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	282.21	282.21

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-68

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	282.77	413.4
J-2	240.52	0.000	Fixed	282.77	413.5
J-3	240.99	0.713	Fixed	282.85	409.7
J-4	240.84	1.150	Fixed	282.89	411.5
J-5	241.40	0.214	Fixed	283.09	408.1
J-6	241.10	0.100	Fixed	283.09	411.0
J-7	241.38	0.134	Fixed	283.09	408.2
J-8	241.60	0.033	Fixed	283.09	406.1
J-25	241.68	0.134	Fixed	283.70	411.2
J-26	241.68	0.067	Fixed	283.67	411.0
J-27	241.41	0.067	Fixed	283.55	412.4
J-28	241.48	0.033	Fixed	283.11	407.5
J-29	241.35	0.067	Fixed	283.16	409.2
J-30	241.20	0.033	Fixed	283.20	411.0
J-31	241.53	0.067	Fixed	283.22	408.0
J-38	241.52	0.134	Fixed	283.35	409.4
J-39	241.52	0.167	Fixed	283.39	409.8
J-40	241.27	0.301	Fixed	283.44	412.7
J-42	241.93	0.100	Fixed	283.41	406.0
J-43	242.03	0.033	Fixed	283.42	405.1
J-44	242.12	0.100	Fixed	283.42	404.2
J-45	242.35	0.134	Fixed	283.44	402.2
J-46	242.05	0.067	Fixed	283.46	405.3
J-47	241.96	0.033	Fixed	283.47	406.2
J-48	241.87	0.100	Fixed	283.48	407.2
J-49	241.56	0.234	Fixed	283.50	410.5
J-50	242.25	0.201	Fixed	283.86	407.2
J-51	242.25	0.000	Fixed	283.97	408.3
J-52	245.69	0.167	Fixed	283.97	374.7
J-53	241.85	0.936	Fixed	283.98	412.3
J-54	240.34	0.067	Fixed	284.87	435.8
J-55	240.44	0.033	Fixed	284.94	435.5
J-56	240.44	0.167	Fixed	284.87	434.9
J-57	241.17	0.481	Fixed	282.96	409.0
J-58	242.25	0.067	Fixed	283.91	407.7
J-60	242.27	0.067	Fixed	284.55	413.7
J-64	241.33	0.201	Fixed	284.90	426.5
J-65	241.33	0.100	Fixed	284.96	427.0
J-68	240.44	75.770	Fixed	282.65	413.1
J-69	242.59	0.000	Fixed	283.97	405.0

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-68

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	-12.203	0.388	282.77	282.77
P-3	62.2	J-2	J-3	200.0	PVC	110.0	-12.203	0.388	282.77	282.85
P-4	30.0	J-3	J-4	200.0	PVC	110.0	-12.916	0.411	282.85	282.89
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.267	0.008	283.09	283.09
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.167	0.005	283.09	283.09
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	283.09	283.09
P-26	10.4	J-25	J-26	200.0	PVC	110.0	16.765	0.534	283.70	283.67
P-27	52.5	J-26	J-27	200.0	PVC	110.0	16.698	0.532	283.67	283.55
P-29	11.2	J-5	J-28	200.0	PVC	110.0	-15.028	0.478	283.09	283.11
P-30	24.4	J-28	J-29	200.0	PVC	110.0	-15.061	0.479	283.11	283.16
P-31	18.1	J-29	J-30	200.0	PVC	110.0	-15.128	0.482	283.16	283.20
P-32	13.7	J-30	J-31	200.0	PVC	110.0	-15.161	0.483	283.20	283.22
P-40	67.1	J-31	J-38	200.0	PVC	110.0	-15.228	0.485	283.22	283.35
P-41	18.9	J-38	J-39	200.0	PVC	110.0	-15.362	0.489	283.35	283.39
P-42	63.2	J-39	J-40	200.0	PVC	110.0	-9.362	0.298	283.39	283.44
P-43	75.4	J-49	J-40	200.0	PVC	110.0	9.663	0.308	283.50	283.44
P-44	22.4	J-49	J-27	200.0	PVC	110.0	-16.631	0.529	283.50	283.55
P-45	60.5	J-39	J-42	200.0	PVC	110.0	-6.168	0.196	283.39	283.41
P-46	18.0	J-42	J-43	200.0	PVC	110.0	-6.268	0.200	283.41	283.42
P-47	17.9	J-43	J-44	200.0	PVC	110.0	-6.301	0.201	283.42	283.42
P-48	45.9	J-44	J-45	200.0	PVC	110.0	-6.401	0.204	283.42	283.44
P-49	45.9	J-45	J-46	200.0	PVC	110.0	-6.535	0.208	283.44	283.46
P-50	17.9	J-46	J-47	200.0	PVC	110.0	-6.602	0.210	283.46	283.47
P-51	17.9	J-47	J-48	200.0	PVC	110.0	-6.635	0.211	283.47	283.48
P-52	60.6	J-48	J-49	200.0	PVC	110.0	-6.735	0.214	283.48	283.50
P-53	68.4	J-25	J-50	200.0	PVC	110.0	-16.899	0.538	283.70	283.86
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-18.270	0.582	283.98	284.55
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-22.765	0.725	284.87	284.94
P-61	13.9	R-1	J-55	200.0	PVC	110.0	22.798	0.726	285.00	284.94

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-68

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	4.805	0.153	284.87	284.87
P-64	44.8	J-4	J-57	200.0	PVC	110.0	-14.066	0.448	282.89	282.96
P-65	72.6	J-57	J-5	200.0	PVC	110.0	-14.547	0.463	282.96	283.09
P-66	21.6	J-50	J-58	200.0	PVC	110.0	-17.100	0.544	283.86	283.91
P-67	27.0	J-58	J-51	200.0	PVC	110.0	-17.167	0.546	283.91	283.97
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-18.337	0.584	284.55	284.90
P-74	123.3	J-64	J-56	200.0	PVC	110.0	4.972	0.158	284.90	284.87
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-23.510	0.748	284.90	284.96
P-76	8.7	R-3	J-65	200.0	PVC	110.0	23.610	0.752	285.00	284.96
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-17.334	0.353	283.97	283.98
P-83	12.8	R-2	J-54	200.0	PVC	110.0	37.551	1.195	285.00	284.87
P-84	117.8	J-1	J-68	200.0	PVC	110.0	10.716	0.341	282.77	282.65
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-65.054	2.071	282.65	284.87
P-86	20.6	J-51	J-69	200.0	PVC	110.0	0.167	0.005	283.97	283.97
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	283.97	283.97

Renwick Estates Subdivision Phase 1
FlexTable: Junction Table
Active Scenario: Max Day + Fire J-69

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)
J-1	240.52	1.487	Fixed	283.21	417.8
J-2	240.52	0.000	Fixed	283.19	417.6
J-3	240.99	0.713	Fixed	282.69	408.1
J-4	240.84	1.150	Fixed	282.46	407.3
J-5	241.40	0.214	Fixed	281.62	393.6
J-6	241.10	0.100	Fixed	281.62	396.6
J-7	241.38	0.134	Fixed	281.62	393.8
J-8	241.60	0.033	Fixed	281.62	391.7
J-25	241.68	0.134	Fixed	279.72	372.2
J-26	241.68	0.067	Fixed	279.78	372.9
J-27	241.41	0.067	Fixed	280.10	378.7
J-28	241.48	0.033	Fixed	281.54	392.1
J-29	241.35	0.067	Fixed	281.38	391.8
J-30	241.20	0.033	Fixed	281.26	392.0
J-31	241.53	0.067	Fixed	281.16	387.9
J-38	241.52	0.134	Fixed	280.71	383.5
J-39	241.52	0.167	Fixed	280.58	382.3
J-40	241.27	0.301	Fixed	280.42	383.2
J-42	241.93	0.100	Fixed	280.51	377.5
J-43	242.03	0.033	Fixed	280.48	376.3
J-44	242.12	0.100	Fixed	280.46	375.3
J-45	242.35	0.134	Fixed	280.41	372.5
J-46	242.05	0.067	Fixed	280.35	374.9
J-47	241.96	0.033	Fixed	280.33	375.5
J-48	241.87	0.100	Fixed	280.31	376.2
J-49	241.56	0.234	Fixed	280.24	378.6
J-50	242.25	0.201	Fixed	279.30	362.6
J-51	242.25	0.000	Fixed	279.01	359.8
J-52	245.69	0.167	Fixed	278.23	318.4
J-53	241.85	0.936	Fixed	279.05	364.1
J-54	240.34	0.067	Fixed	284.92	436.3
J-55	240.44	0.033	Fixed	284.97	435.8
J-56	240.44	0.167	Fixed	284.89	435.0
J-57	241.17	0.481	Fixed	282.13	400.9
J-58	242.25	0.067	Fixed	279.17	361.3
J-60	242.27	0.067	Fixed	282.55	394.2
J-64	241.33	0.201	Fixed	284.76	425.1
J-65	241.33	0.100	Fixed	284.91	426.5
J-68	240.44	0.000	Fixed	284.24	428.6
J-69	242.59	75.770	Fixed	278.23	348.8

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-69

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-2	1.8	J-1	J-2	200.0	PVC	110.0	32.948	1.049	283.21	283.19
P-3	62.2	J-2	J-3	200.0	PVC	110.0	32.948	1.049	283.19	282.69
P-4	30.0	J-3	J-4	200.0	PVC	110.0	32.235	1.026	282.69	282.46
P-6	48.1	J-5	J-6	200.0	PVC	110.0	0.267	0.008	281.62	281.62
P-7	54.1	J-6	J-7	200.0	PVC	110.0	0.167	0.005	281.62	281.62
P-8	38.3	J-7	J-8	200.0	PVC	110.0	0.033	0.001	281.62	281.62
P-26	10.4	J-25	J-26	200.0	PVC	110.0	-28.386	0.904	279.72	279.78
P-27	52.5	J-26	J-27	200.0	PVC	110.0	-28.453	0.906	279.78	280.10
P-29	11.2	J-5	J-28	200.0	PVC	110.0	30.123	0.959	281.62	281.54
P-30	24.4	J-28	J-29	200.0	PVC	110.0	30.090	0.958	281.54	281.38
P-31	18.1	J-29	J-30	200.0	PVC	110.0	30.023	0.956	281.38	281.26
P-32	13.7	J-30	J-31	200.0	PVC	110.0	29.990	0.955	281.26	281.16
P-40	67.1	J-31	J-38	200.0	PVC	110.0	29.923	0.952	281.16	280.71
P-41	18.9	J-38	J-39	200.0	PVC	110.0	29.789	0.948	280.71	280.58
P-42	63.2	J-39	J-40	200.0	PVC	110.0	17.547	0.559	280.58	280.42
P-43	75.4	J-49	J-40	200.0	PVC	110.0	-17.246	0.549	280.24	280.42
P-44	22.4	J-49	J-27	200.0	PVC	110.0	28.520	0.908	280.24	280.10
P-45	60.5	J-39	J-42	200.0	PVC	110.0	12.074	0.384	280.58	280.51
P-46	18.0	J-42	J-43	200.0	PVC	110.0	11.974	0.381	280.51	280.48
P-47	17.9	J-43	J-44	200.0	PVC	110.0	11.941	0.380	280.48	280.46
P-48	45.9	J-44	J-45	200.0	PVC	110.0	11.841	0.377	280.46	280.41
P-49	45.9	J-45	J-46	200.0	PVC	110.0	11.707	0.373	280.41	280.35
P-50	17.9	J-46	J-47	200.0	PVC	110.0	11.640	0.371	280.35	280.33
P-51	17.9	J-47	J-48	200.0	PVC	110.0	11.607	0.369	280.33	280.31
P-52	60.6	J-48	J-49	200.0	PVC	110.0	11.507	0.366	280.31	280.24
P-53	68.4	J-25	J-50	200.0	PVC	110.0	28.252	0.899	279.72	279.30
P-58	208.4	J-53	J-60	200.0	PVC	110.0	-48.889	1.556	279.05	282.55
P-60	18.5	J-54	J-55	200.0	PVC	110.0	-17.155	0.546	284.92	284.97
P-61	13.9	R-1	J-55	200.0	PVC	110.0	17.188	0.547	285.00	284.97

Renwick Estates Subdivision Phase 1

FlexTable: Pipe Table

Active Scenario: Max Day + Fire J-69

Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Hydraulic Grade (Start) (m)	Hydraulic Grade (Stop) (m)
P-62	29.9	J-56	J-54	200.0	PVC	110.0	-10.958	0.349	284.89	284.92
P-64	44.8	J-4	J-57	200.0	PVC	110.0	31.085	0.989	282.46	282.13
P-65	72.6	J-57	J-5	200.0	PVC	110.0	30.604	0.974	282.13	281.62
P-66	21.6	J-50	J-58	200.0	PVC	110.0	28.051	0.893	279.30	279.17
P-67	27.0	J-58	J-51	200.0	PVC	110.0	27.984	0.891	279.17	279.01
P-73	131.8	J-60	J-64	200.0	PVC	110.0	-48.956	1.558	282.55	284.76
P-74	123.3	J-64	J-56	200.0	PVC	110.0	-10.791	0.343	284.76	284.89
P-75	13.3	J-64	J-65	200.0	PVC	110.0	-38.367	1.221	284.76	284.91
P-76	8.7	R-3	J-65	200.0	PVC	110.0	38.467	1.224	285.00	284.91
P-79	8.2	J-51	J-53	250.0	PVC	110.0	-47.953	0.977	279.01	279.05
P-83	12.8	R-2	J-54	200.0	PVC	110.0	28.304	0.901	285.00	284.92
P-84	117.8	J-1	J-68	200.0	PVC	110.0	-34.435	1.096	283.21	284.24
P-85	78.1	J-68	J-54	200.0	PVC	110.0	-34.435	1.096	284.24	284.92
P-86	20.6	J-51	J-69	200.0	PVC	110.0	75.937	2.417	279.01	278.23
P-87	144.3	J-69	J-52	200.0	PVC	110.0	0.167	0.005	278.23	278.23

APPENDIX K

Water Quality Results – Phase 1

NO Buildout

Renwick Estates Subdivision Phase 1

FlexTable: Junction Table

Active Scenario: Age Analysis 0% Build Out

Current Time: 0.00 hours

AUTOMATIC FLUSHING DEVICE SET TO RUN FOR 50min EVERY 24 HR

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)	Age (Calculated) (hours)	Age (Maximum) (hours)
J-1	240.52	0.541	Fixed	284.91	434.5	0.000	3.665
J-2	240.52	0.000	Fixed	284.91	434.5	0.000	5.490
J-3	240.99	0.000	Fixed	284.89	429.6	0.000	23.547
J-4	240.84	0.000	Fixed	284.88	431.0	0.000	23.584
J-5	241.40	0.000	Fixed	284.84	425.1	0.000	39.752
J-6	241.10	0.000	Fixed	284.79	427.6	0.000	40.500
J-7	241.38	0.000	Fixed	284.73	424.3	0.000	40.720
J-8	241.60	10.640	Fixed	284.70	421.8	0.000	40.877
J-25	241.68	0.000	Fixed	284.89	422.9	0.000	27.874
J-26	241.68	0.000	Fixed	284.89	422.9	0.000	28.069
J-27	241.41	0.000	Fixed	284.88	425.4	0.000	29.272
J-28	241.48	0.000	Fixed	284.84	424.3	0.000	61.871
J-29	241.35	0.000	Fixed	284.84	425.7	0.000	62.979
J-30	241.20	0.000	Fixed	284.85	427.2	0.000	62.573
J-31	241.53	0.000	Fixed	284.85	424.0	0.000	62.347
J-38	241.52	0.000	Fixed	284.86	424.2	0.000	60.780
J-39	241.52	0.000	Fixed	284.87	424.2	0.000	60.546
J-40	241.27	0.000	Fixed	284.87	426.7	0.000	32.847
J-42	241.93	0.000	Fixed	284.87	420.2	0.000	57.446
J-43	242.03	0.000	Fixed	284.87	419.3	0.000	56.422
J-44	242.12	0.000	Fixed	284.87	418.4	0.000	55.351
J-45	242.35	0.000	Fixed	284.87	416.2	0.000	52.663
J-46	242.05	0.000	Fixed	284.87	419.1	0.000	50.384
J-47	241.96	0.000	Fixed	284.87	420.0	0.000	38.879
J-48	241.87	0.000	Fixed	284.87	420.9	0.000	33.382
J-49	241.56	0.000	Fixed	284.88	423.9	0.000	29.787
J-50	242.25	0.000	Fixed	284.91	417.5	0.000	26.434
J-51	242.25	0.000	Fixed	284.92	417.6	0.000	13.996
J-52	245.69	0.061	Fixed	284.92	383.9	0.000	37.569
J-53	241.85	0.340	Fixed	284.92	421.5	0.000	10.189
J-54	240.34	0.024	Fixed	285.00	437.1	0.000	0.550
J-55	240.44	0.012	Fixed	285.00	436.1	0.000	0.440
J-56	240.44	0.061	Fixed	285.00	436.1	0.000	2.480
J-57	241.17	0.000	Fixed	284.86	427.6	0.000	23.643
J-58	242.25	0.000	Fixed	284.91	417.5	0.000	26.337
J-60	242.27	0.024	Fixed	284.97	417.9	0.000	5.720
J-64	241.33	0.073	Fixed	285.00	427.4	0.000	2.955
J-65	241.33	0.036	Fixed	285.00	427.4	0.000	0.168
J-68	240.44	0.000	Fixed	284.96	435.7	0.000	1.793
J-69	242.59	0.000	Fixed	284.92	414.2	0.000	16.925

25% Buildout

Renwick Estates Subdivision Phase 1

FlexTable: Junction Table

Active Scenario: Age Analysis 25% Build Out

Current Time: 0.00 hours

Automatic Flushing Device set to run 30 minutes every 24 Hr

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)	Age (Calculated) (hours)	Age (Maximum) (hours)
J-1	240.52	0.541	Fixed	284.91	434.4	0.000	2.531
J-2	240.52	0.000	Fixed	284.91	434.4	0.000	2.590
J-3	240.99	0.065	Fixed	284.88	429.6	0.000	4.683
J-4	240.84	0.105	Fixed	284.87	430.9	0.000	6.031
J-5	241.40	0.019	Fixed	284.83	425.0	0.000	23.599
J-6	241.10	0.009	Fixed	284.78	427.5	0.000	36.896
J-7	241.38	0.012	Fixed	284.72	424.2	0.000	41.277
J-8	241.60	10.640	Fixed	284.69	421.7	0.000	42.559
J-25	241.68	0.012	Fixed	284.89	422.8	0.000	13.911
J-26	241.68	0.006	Fixed	284.88	422.8	0.000	14.470
J-27	241.41	0.006	Fixed	284.87	425.4	0.000	17.571
J-28	241.48	0.000	Fixed	284.83	424.3	0.000	56.733
J-29	241.35	0.006	Fixed	284.83	425.6	0.000	61.269
J-30	241.20	0.003	Fixed	284.84	427.1	0.000	59.351
J-31	241.53	0.006	Fixed	284.84	423.9	0.000	57.336
J-38	241.52	0.012	Fixed	284.85	424.1	0.000	40.016
J-39	241.52	0.015	Fixed	284.86	424.1	0.000	37.441
J-40	241.27	0.027	Fixed	284.86	426.6	0.000	27.018
J-42	241.93	0.009	Fixed	284.86	420.1	0.000	51.878
J-43	242.03	0.000	Fixed	284.86	419.2	0.000	49.494
J-44	242.12	0.009	Fixed	284.86	418.3	0.000	45.038
J-45	242.35	0.012	Fixed	284.86	416.1	0.000	32.992
J-46	242.05	0.006	Fixed	284.86	419.0	0.000	29.120
J-47	241.96	0.000	Fixed	284.86	419.9	0.000	27.982
J-48	241.87	0.009	Fixed	284.87	420.8	0.000	26.290
J-49	241.56	0.021	Fixed	284.87	423.8	0.000	19.036
J-50	242.25	0.018	Fixed	284.90	417.4	0.000	10.120
J-51	242.25	0.000	Fixed	284.91	417.5	0.000	7.695
J-52	245.69	0.061	Fixed	284.91	383.8	0.000	31.295
J-53	241.85	0.340	Fixed	284.91	421.4	0.000	7.224
J-54	240.34	0.024	Fixed	285.00	437.1	0.000	0.395
J-55	240.44	0.012	Fixed	285.00	436.1	0.000	0.319
J-56	240.44	0.061	Fixed	285.00	436.1	0.000	1.980
J-57	241.17	0.044	Fixed	284.85	427.5	0.000	10.411
J-58	242.25	0.006	Fixed	284.90	417.5	0.000	9.021
J-60	242.27	0.024	Fixed	284.96	417.8	0.000	4.081
J-64	241.33	0.073	Fixed	285.00	427.4	0.000	2.173
J-65	241.33	0.036	Fixed	285.00	427.4	0.000	0.125
J-68	240.44	0.000	Fixed	284.96	435.7	0.000	1.247
J-69	242.59	0.000	Fixed	284.91	414.2	0.000	10.647

50% Buildout

Renwick Estates Subdivision Phase 1

FlexTable: Junction Table

Active Scenario: Age Analysis 50% Build Out

Current Time: 0.00 hours

Automatic Flushing Device set to run 15 minutes every 24 Hr.

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)	Age (Calculated) (hours)	Age (Maximum) (hours)
J-1	240.52	0.541	Fixed	284.90	434.3	0.000	1.912
J-2	240.52	0.000	Fixed	284.90	434.3	0.000	1.943
J-3	240.99	0.130	Fixed	284.87	429.5	0.000	2.980
J-4	240.84	0.209	Fixed	284.86	430.8	0.000	3.646
J-5	241.40	0.039	Fixed	284.82	424.9	0.000	15.486
J-6	241.10	0.018	Fixed	284.77	427.4	0.000	23.236
J-7	241.38	0.024	Fixed	284.71	424.1	0.000	36.236
J-8	241.60	10.652	Fixed	284.68	421.6	0.000	47.528
J-25	241.68	0.024	Fixed	284.88	422.8	0.000	8.775
J-26	241.68	0.012	Fixed	284.88	422.7	0.000	9.077
J-27	241.41	0.012	Fixed	284.86	425.3	0.000	10.672
J-28	241.48	0.000	Fixed	284.82	424.2	0.000	54.295
J-29	241.35	0.012	Fixed	284.82	425.5	0.000	59.236
J-30	241.20	0.000	Fixed	284.83	427.0	0.000	57.271
J-31	241.53	0.012	Fixed	284.83	423.8	0.000	54.958
J-38	241.52	0.024	Fixed	284.84	424.0	0.000	33.207
J-39	241.52	0.030	Fixed	284.85	424.0	0.000	29.707
J-40	241.27	0.055	Fixed	284.85	426.5	0.000	16.546
J-42	241.93	0.018	Fixed	284.85	420.0	0.000	38.884
J-43	242.03	0.012	Fixed	284.85	419.1	0.000	32.891
J-44	242.12	0.018	Fixed	284.85	418.2	0.000	29.328
J-45	242.35	0.024	Fixed	284.85	416.0	0.000	24.767
J-46	242.05	0.012	Fixed	284.85	418.9	0.000	19.601
J-47	241.96	0.000	Fixed	284.86	419.8	0.000	17.889
J-48	241.87	0.018	Fixed	284.86	420.7	0.000	16.231
J-49	241.56	0.043	Fixed	284.86	423.8	0.000	11.383
J-50	242.25	0.036	Fixed	284.89	417.3	0.000	6.928
J-51	242.25	0.000	Fixed	284.90	417.4	0.000	5.767
J-52	245.69	0.061	Fixed	284.90	383.8	0.000	29.367
J-53	241.85	0.340	Fixed	284.90	421.4	0.000	5.507
J-54	240.34	0.024	Fixed	285.00	437.0	0.000	0.306
J-55	240.44	0.012	Fixed	285.00	436.1	0.000	0.247
J-56	240.44	0.061	Fixed	285.00	436.1	0.000	1.648
J-57	241.17	0.088	Fixed	284.84	427.4	0.000	5.774
J-58	242.25	0.012	Fixed	284.90	417.4	0.000	6.403
J-60	242.27	0.024	Fixed	284.96	417.8	0.000	3.152
J-64	241.33	0.073	Fixed	285.00	427.3	0.000	1.709
J-65	241.33	0.036	Fixed	285.00	427.4	0.000	0.098
J-68	240.44	0.000	Fixed	284.96	435.7	0.000	0.946
J-69	242.59	0.000	Fixed	284.90	414.1	0.000	8.720

75% Buildout

Renwick Estates Subdivision Phase 1

FlexTable: Junction Table

Active Scenario: Age Analysis 75% Build Out

Current Time: 0.00 hours

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)	Age (Calculated) (hours)	Age (Maximum) (hours)
J-1	240.52	0.541	Fixed	285.00	435.3	0.000	1.537
J-2	240.52	0.000	Fixed	285.00	435.3	0.000	1.562
J-3	240.99	0.194	Fixed	285.00	430.7	0.000	2.261
J-4	240.84	0.314	Fixed	285.00	432.1	0.000	2.696
J-5	241.40	0.058	Fixed	284.99	426.7	0.000	8.428
J-6	241.10	0.027	Fixed	284.99	429.6	0.000	14.023
J-7	241.38	0.036	Fixed	284.99	426.9	0.000	23.862
J-8	241.60	0.012	Fixed	284.99	424.7	0.000	51.697
J-25	241.68	0.036	Fixed	285.00	423.9	0.000	6.620
J-26	241.68	0.018	Fixed	285.00	423.9	0.000	6.818
J-27	241.41	0.018	Fixed	285.00	426.6	0.000	7.868
J-28	241.48	0.012	Fixed	284.99	425.9	0.000	15.634
J-29	241.35	0.018	Fixed	284.99	427.1	0.000	58.195
J-30	241.20	0.009	Fixed	284.99	428.6	0.000	42.867
J-31	241.53	0.018	Fixed	284.99	425.4	0.000	38.172
J-38	241.52	0.036	Fixed	284.99	425.5	0.000	24.695
J-39	241.52	0.046	Fixed	284.99	425.5	0.000	22.623
J-40	241.27	0.082	Fixed	285.00	427.9	0.000	11.785
J-42	241.93	0.027	Fixed	284.99	421.5	0.000	28.436
J-43	242.03	0.012	Fixed	284.99	420.5	0.000	24.854
J-44	242.12	0.027	Fixed	284.99	419.6	0.000	22.056
J-45	242.35	0.036	Fixed	285.00	417.4	0.000	17.219
J-46	242.05	0.018	Fixed	285.00	420.3	0.000	13.848
J-47	241.96	0.000	Fixed	285.00	421.2	0.000	12.706
J-48	241.87	0.027	Fixed	285.00	422.1	0.000	11.565
J-49	241.56	0.064	Fixed	285.00	425.1	0.000	8.335
J-50	242.25	0.055	Fixed	285.00	418.3	0.000	5.402
J-51	242.25	0.000	Fixed	285.00	418.3	0.000	4.638
J-52	245.69	0.061	Fixed	285.00	384.7	0.000	28.238
J-53	241.85	0.340	Fixed	285.00	422.3	0.000	4.458
J-54	240.34	0.024	Fixed	285.00	437.1	0.000	0.249
J-55	240.44	0.012	Fixed	285.00	436.1	0.000	0.202
J-56	240.44	0.061	Fixed	285.00	436.1	0.000	1.415
J-57	241.17	0.131	Fixed	285.00	428.9	0.000	4.105
J-58	242.25	0.018	Fixed	285.00	418.3	0.000	5.056
J-60	242.27	0.024	Fixed	285.00	418.2	0.000	2.572
J-64	241.33	0.073	Fixed	285.00	427.4	0.000	1.409
J-65	241.33	0.036	Fixed	285.00	427.4	0.000	0.081
J-68	240.44	0.000	Fixed	285.00	436.1	0.000	0.767
J-69	242.59	0.000	Fixed	285.00	415.0	0.000	7.591

100% Buildout

Renwick Estates Subdivision Phase 1

FlexTable: Junction Table

Active Scenario: Age Analysis

Current Time: 0.00 hours

Label	Elevation (m)	Demand (L/s)	Pattern (Constituent)	Hydraulic Grade (m)	Pressure (kPa)	Age (Calculated) (hours)	Age (Maximum) (hours)
J-1	240.52	0.541	Fixed	284.99	435.3	0.000	1.289
J-2	240.52	0.000	Fixed	284.99	435.3	0.000	1.389
J-3	240.99	0.259	Fixed	284.99	430.7	0.000	1.907
J-4	240.84	0.418	Fixed	284.99	432.1	0.000	2.240
J-5	241.40	0.078	Fixed	284.99	426.6	0.000	6.543
J-6	241.10	0.036	Fixed	284.99	429.6	0.000	10.870
J-7	241.38	0.049	Fixed	284.99	426.8	0.000	18.612
J-8	241.60	0.012	Fixed	284.99	424.7	0.000	46.445
J-25	241.68	0.049	Fixed	284.99	423.9	0.000	5.390
J-26	241.68	0.024	Fixed	284.99	423.9	0.000	5.539
J-27	241.41	0.024	Fixed	284.99	426.5	0.000	6.322
J-28	241.48	0.012	Fixed	284.99	425.9	0.000	11.402
J-29	241.35	0.024	Fixed	284.99	427.1	0.000	42.280
J-30	241.20	0.012	Fixed	284.99	428.6	0.000	34.662
J-31	241.53	0.024	Fixed	284.99	425.4	0.000	30.381
J-38	241.52	0.049	Fixed	284.99	425.5	0.000	19.101
J-39	241.52	0.061	Fixed	284.99	425.5	0.000	17.470
J-40	241.27	0.109	Fixed	284.99	427.9	0.000	9.278
J-42	241.93	0.036	Fixed	284.99	421.4	0.000	22.519
J-43	242.03	0.012	Fixed	284.99	420.5	0.000	19.646
J-44	242.12	0.036	Fixed	284.99	419.6	0.000	17.302
J-45	242.35	0.049	Fixed	284.99	417.3	0.000	13.399
J-46	242.05	0.024	Fixed	284.99	420.3	0.000	10.758
J-47	241.96	0.012	Fixed	284.99	421.2	0.000	9.868
J-48	241.87	0.036	Fixed	284.99	422.0	0.000	9.036
J-49	241.56	0.085	Fixed	284.99	425.1	0.000	6.670
J-50	242.25	0.073	Fixed	284.99	418.3	0.000	4.483
J-51	242.25	0.000	Fixed	284.99	418.3	0.000	3.912
J-52	245.69	0.061	Fixed	284.99	384.7	0.000	27.513
J-53	241.85	0.340	Fixed	284.99	422.2	0.000	3.775
J-54	240.34	0.024	Fixed	285.00	437.1	0.000	0.213
J-55	240.44	0.012	Fixed	285.00	436.1	0.000	0.171
J-56	240.44	0.061	Fixed	285.00	436.1	0.000	1.244
J-57	241.17	0.175	Fixed	284.99	428.9	0.000	3.296
J-58	242.25	0.024	Fixed	284.99	418.3	0.000	4.225
J-60	242.27	0.024	Fixed	285.00	418.2	0.000	2.201
J-64	241.33	0.073	Fixed	285.00	427.4	0.000	1.227
J-65	241.33	0.036	Fixed	285.00	427.4	0.000	0.100
J-68	240.44	0.000	Fixed	285.00	436.1	0.000	0.642
J-69	242.59	0.000	Fixed	284.99	415.0	0.000	6.865