APPENDIX GRADE

CIVIL ENGINEERING FEASIBILITY STUDY

The area of the project has been reduced in size due to an avoidance of wetlands. The presence of wetlands will also require redesign of the underground detention system.

Civil Engineering Feasibility Study

Kenosha Casino Project

Kenosha, WI

Submitted to:

Montrose Environmental
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Rendering by HBG Design

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Overview

Introduction

Eriksson Engineering Associates, Ltd. (EEA) was retained by Montrose Environmental (Montrose) to assess the civil engineering components of 3 alternative designs for a new casino venue in Kenosha, WI on behalf of the Menominee Tribe. This report will be incorporated into the Environmental Assessment for the project. The study is based on 3 alternative designs as provided to EEA by Montrose. The alternative designs – A, B, and C – vary in size and function of the building. Alternative A ("Full Gaming") is the largest building and utilizes all four parcels for building and parking lots. Alternative B ("Reduced Gaming") still maintains some casino space and is limited to the two western parcels to house the building and parking lots. Alternative C ("Non-Gaming") is the smallest alternative in terms of building and parking footprint.

The civil engineering study for this assessment includes the following for each alternative design:

- Stormwater management design following Section 438 of the Energy Independent Act (See Figure 2)
- Review of existing utility infrastructure (sanitary sewer, water, and storm sewer mains) for their capacity and ability to meet the demand of the buildings in each alternative
- Mass grading with cut/fill analysis
- Estimated finished floor elevations

Existing Site

There are four parcels (See Figure 1) within the proposed development. Parcel A (Kenosha PIN: 03-121-01-101-101) is located at the southeast corner of 122nd Ave and County Highway K and is 5.80 acres. Parcel B (Kenosha PIN: 03-121-01-101-422) is located on the east side of 122nd Ave midway between County Highway K and 71st St and is 10.55 acres. Parcel C (Kenosha PIN: 03-121-01-101-102) is located at the southwest corner of 122nd Ave and County Highway K and is 18.65 acres. Parcel D (Kenosha PIN: 03-121-01-101-423) is located on the west side of 122nd Ave midway between County Highway K and 71st St and is 24.19 acres. All four parcels are active farmland. Between parcels A and B are 2 existing commercial properties. Parcel B surrounds a single-family home property whose access to 122nd Ave is maintained through Parcel B.

Review of the FEMA FIRM map (Figure 12) panel number 55059C0179D, effective 6/19/2012, shows the entire property lies within a "Zone X" flood hazard area. "Zone X" areas are defined as areas of "Minimal Flood Hazard" and are not Special Flood Hazard Areas. Therefore, no special accommodation is required for the project area, as it relates to floodplain mitigation.

Review of the preliminary wetlands map (Figure 8) dated August 11th, 2023, by Montrose shows multiple environmental resources within the subject property. Parcel A includes a wetland swale along its southern property line. Parcel B has a wetland swale just south of the single-family home property and a mature tree grove with lithic scatter just south of that swale. Parcel D contains a seasonal wetland along the western property line and a portion of a larger pond encroaches the property from the south. All four of the hydrologic resources include a 25' buffer to be accounted for in the design of the site.

Drainage patterns in all four parcels generally flow from south to north and from west to east. The exception to that rule is the southern half of Parcel B flows south. There is approximately 23' of grade change within the four properties. The highest elevations per Kenosha County GIS (Figure 1) are 734'

located at the western edge of Parcel C. The lowest are 711' located in the wetland swales in Parcels A and B.

The properties are currently served by Kenosha Water Utility (KWU) for domestic water and sanitary sewer. There is a KWU water tower located just south of Parcel D. KWU has a 100' easement (Figure 5) along the southern property line of Parcels B and D, a 45' easement along the eastern property lines of Parcels C and D, and a 25' easement along the northern property line of Parcel C. There is an existing gravel access road within Parcel D that is used to maintain the water tower.

KWU operates 16" watermains along 60th St and 122nd Ave within the easements in Parcels C and D (Figure 3), a 24" main in 60th St right-of-way north of Parcel A, and a 20" main within the easement along the southern property lines of Parcels B and D. The City of Kenosha also owns various storm sewer infrastructure (Figure 3) that collects storm runoff and directs them to existing swales and culverts that carry the water to Kilbourn Road Ditch which is a waterbody tributary to the Des Plaines River to the south.

Basis of Design

Information provided by Montrose, Kenosha County, City of Kenosha, and Kenosha Water Utility was used to generate a base plan within AutoCAD. The plan includes the GIS contours and property lines (Figure 1), existing utility routing(Figure 3), easements(Figure 5), and environmental resources (Figure 8). This file has been used as the basis for the following civil engineering assessment. Assumptions have been made to complete this scope of work and are noted as appropriate in each section of the study.

EEA recommends that more precise studies be completed by the owner prior to start of any bidding/permitting/construction design. These studies include, but are not limited to, topographic and utility surveys, ALTA survey, geotechnical exploration, wetland delineation and jurisdictional determination, Phase 1 environmental study, tree survey, endangered resource review.

Stormwater Management

Requirements

As this is a federal project, stormwater management shall meet the requirements set forth by Section 438 of the Energy Independence and Security Act of 2007. The Act states any federal project over 5,000 sf shall "maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow". In 2009, a Technical Guidance document was created by the Environmental Protection Agency to provide guidance on implementing Section 438.

The technical guidance manual provides two options for establishing the performance design objectives. Option 1 is to determine the 95th Percentile Rainfall event and infiltrate 100% of the volume associated with that storm event. Option 2 is to conduct a site-specific hydrologic analysis of the pre-development runoff conditions and ensure that the post-development runoff conditions do not exceed the pre-development conditions. Without a site-specific geotechnical study, it is difficult to ensure that infiltration rates of the in-situ soils can accommodate the requirements set forth in Option 1. Therefore, this study utilizes Option 2 to establish the Hard Rock Hotel and Casino performance design objectives.

The state of Wisconsin Department of Natural Resources has authority in Wisconsin to under state administrative code NR 151 to regulate stormwater discharge from sites that disturb greater than 1 acre. The City of Kenosha has modeled their stormwater ordinance, City Ordinance Chapter 36, after the statewide regulation. Both require new development sites over 1 acre to meet three objectives:

- Remove at least 80% of the Total Suspended Solids (TSS) from the discharge leaving the site
- maintain or reduce existing stormwater flows for the 1-year and 2-year, 24-hour storm events
- infiltrate at least 90% of the volume of pre-development infiltration volume

The Alternatives can be designed to meet the local and state regulations in addition to the federal requirements as requested by the owner and/or federal officials. This report assumes the federal guidelines take precedence.

Methodology

United States Department of Agriculture (USDA) Technical Release 55 "Urban Hydrology for Small Watersheds" (TR-55) was followed in conjunction with Win TR20 to establish the pre-development and post-development runoff rates for the subject property. Win TR20 is a hydrologic modeling software developed by the Army Corps of Engineers, which can be applied to analyze existing watershed conditions as well as assess the impact of proposed changes made within the watershed. The model uses site conditions to determine peak runoffs of stormwater events. The conditions analyzed include impervious coverage, type of soil, time of concentrations for subareas, and size of subareas. Each subarea generates a hydrograph, and those hydrographs are added together to determine the total maximum expected stormwater release from the site at any given point in time after the beginning of the storm event.

Existing Conditions

As noted above, the existing topography of the site has significant elevation change – approximately 23' – for the region. The GIS contours provided by Kenosha County (Figure 1) were analyzed to determine the general drainage patterns of the existing parcels. It was determined that over the 4 parcels, there were 12 catchment areas. These catchment areas are delineated in Figure 13. The longest flow path was found in each area and the flow path was broken out into overland sheet flow, shallow concentrated flow and open channel flow sections. A total time of concentration was determined following TR-55 methodologies. These times have been summarized in the Table 1.

A curve number was calculated for each subarea following the USDA tables for land cover. The curve numbers, total area in square mileage, and time of concentrations were input into the WinTR20 modeling software described above. Using rainfall data (Figure 6) for this site from the National Oceanic and Atmospheric Administration with the rainfall distribution (Figure 7) following State of Wisconsin guidelines, the model generated catchment area specific stormwater runoff values. These models can be found in Figure 41. The summary of the existing runoff values can be found in Table 2.

The 12 catchment areas can be further reduced to combined offsite discharge points. Based on review of the offsite stormwater atlases from the City of Kenosha and the County GIS contours, Areas 1 and 2 are tributary to a public catch basin that flows under 122nd Ave at the intersection of 60th St. Areas 3 and 4 flow through a sewer under 122nd Ave to the wetland swale in Parcel B. Areas 9 and 10 drain to the wetland swale on Parcel B. Areas 11 and 12 drain to the culvert that crosses under I-94 along 60th St. These flows are the basis for design of the proposed stormwater management facilities for Alternatives A, B, and C and can be found in Table 3.

Table 1 – Existing Catchment Area Time of Concentrations

Parcel	Catchment Name	Catchment Area (mi²)	Time of Concentration: Overland Sheet Flow (min)	Time of Concentration: Shallow Concentrated Flow (min)	Time of Concentration: Open Channel Flow (min)	Total Time of Concentration (min)
C	Catchment Area 1	0.010	14.20	1.38	0.64	**16.22**
	Catchment Area 2	0.011	9.50	0.93	2.93	**13.36**
	Catchment Area 3	0.013	12.30	0.32	4.01	**16.63**
D	Catchment Area 4	0.016	8.30	0.26	14.59	**23.15**
	Catchment Area 5	0.009	10.20	1.36	-	**11.56**
	Catchment Area 6	0.003	8.70	0.26	2.50	**11.46**
	Catchment Area 7	0.004	6.50	0.22	0.05	**6.77**
B	Catchment Area 8	0.004	10.60	0.40	0.06	**11.06**
	Catchment Area 9	0.010	11.60	1.07	0.17	**12.84**
	Catchment Area 10	0.003	7.60	2.34	-	**9.94**
A	Catchment Area 11	0.005	5.40	0.22	0.19	**5.81**
	Catchment Area 12	0.003	9.20	0.33	0.07	**9.60**

Table 2 – Existing Stormwater Runoff Flows by Catchment Area

Parcel	Catchment Name	Catchment Area (mi²)	Storm Event: 1-Year Flow (CFS)	2-Year Flow (CFS)	10-Year Flow (CFS)	100-Year Flow (CFS)
C	Catchment Area 1	0.010	4.1	5.6	11.7	25.9
	Catchment Area 2	0.011	4.7	6.5	13.6	29.9
	Catchment Area 3	0.013	5.2	7.2	15.1	33.1
D	Catchment Area 4	0.016	5.2	7.2	15.3	33.8
	Catchment Area 5	0.009	4.1	5.7	11.9	26.0
	Catchment Area 6	0.003	1.4	1.9	4.0	8.7
	Catchment Area 7	0.004	2.1	2.9	5.9	12.7
B	Catchment Area 8	0.004	1.9	2.6	5.5	12.0
	Catchment Area 9	0.010	4.4	6.0	12.6	27.5
	Catchment Area 10	0.003	1.7	2.3	4.8	10.4
A	Catchment Area 11	0.005	3.2	4.4	8.9	19.2
	Catchment Area 12	0.003	1.8	2.5	5.1	11.1

Table 3 – Combined Catchment Area Release Rates

		Storm Event			
		1-Year	2-Year	10-Year	100-Year
Catchments	Catchment Area (mi²)	Flow (CFS)			
1, 2	0.021	8.7	12.0	25.1	55.4
3, 4	0.029	10.1	14.0	29.5	65.2
9, 10	0.013	6.0	8.2	17.2	37.5
11, 12	0.009	4.8	6.6	13.7	29.6

It should be noted that Catchment Area 5 is the onsite tributary to the seasonal wetland in Parcel D, Catchment Area 6 flows offsite from Parcel D to a low point on the neighboring property to the west, Catchment Area 7 directs water to the pond south of Parcel D, and Catchment Area 8 flows south to the neighboring parcel. These tributaries in the proposed conditions are reduced in size with a majority of the areas 5, 6, and 7 being directed east in proposed conditions via storm sewer networks. Conservatively, the flows from these four existing catchment areas are not accounted for in the future conditions assessment.

Proposed Conditions

Assumptions for the proposed stormwater management include adequate draining soil for infiltration benefits where needed, and existing downstream sewer capacity is adequate for existing condition flows (which will not be exceeded).

Water quality is provided for in the three alternatives through the use of a variety of Best Management Practices (BMPs). These BMPs include, catch basins, infiltration trenching, and naturalized detention basins. To meet water quality needs, it is recommended that all at grade detention basins be planted with native vegetation along the bottom and side slopes. Specific plan species shall be curated by a licensed Landscape Architect to promote infiltration and evapotranspiration of stormwater. Basins with these types of flora species are shown to removal suspended solids and other pollutants through chemical and physical properties of the vegetation, soil, and microbes that naturally occur in these environments. These plants are taller than standard turf grass and slow the flow of water through the basins. This allows solids to settle in the system and provides greater ability for infiltration in the soil.

Catch basins and infiltration trenching rely on the physical removal of debris and solids to provide water quality benefits in downstream discharges. In catch basins, the sump below the pipes allows larger debris and particles to settle and remain within the structure. Infiltration trenches include geotextile fabrics and trap the pollutants on their surface as water passes through and into the surrounding stone.

All these BMPs can be preform even better with increased longevity through the use of pretreatment devices, such as oil and grease separators within select catch basins, forebays in the detention basins, permeable pavers, or vegetated filter strips. These additional measures should be evaluated in more detail with the full design of the chosen Alternative.

Alternative A

Alternative A includes outlot parking in Parcels A and B in addition to the main casino and hotel building and parking lots which are housed in Parcels C and D (see Figure 9). The development area for Alternative A is a combined 2,464,126 sf or 56.57 acres. Nearly 70% of that development area is proposed impervious surfaces (building roof, parking lot, sidewalk, patios, etc.) as illustrated in Figure 14. The proposed building will be 257,156 sf, consisting of 95,003 sf dedicated casino space and 188,734 sf

for hotel lodging and amenities. Within the casino space there is 59,750 sf of floor space for 1,830 gaming seats, an 25,639 sf back of house for gaming support, and 9,560 sf front of house for gaming amenities. The hotel rooms will consist of 1 hospitality suite, 30 bay suites, and 139 typical guest rooms. Proposed hotel amenities, including back of house support, front of house support, and spa/fitness facilities, total 25,980 sf. Surface parking lots in Parcels C and D will cover 24.6-acres, and are supplemented by 6.6 acres of outlot parking in Parcels A and B.

To ensure that the post-development conditions do not exceed the pre-development, detention basins and underground detention practices will be implemented. Parcel C will contain an underground plastic arch detention system that promotes infiltration. Parcel A, B, and D will contain at grade detention basins (Figure 16).

NORTHERN TRIBUTARY ON WESTERN LOT

The underground detention system will be a plastic arch pipe that is open on the bottom (Figure 35). These pipes will be surrounded by a well graded stone that allows for water to percolate between the different chambers of the detention. The total available volume to be provided in both the chambers and the stone is 6.02 ac-ft. The outfall from the chambers will be controlled by a 9" rectangular weir restrictor that will drain to the discharge point attributed to existing catchment areas 1 and 2 (Figure 15). There will be undetained area around the north and east perimeter of the parking lot in this area as well. The detained and undetained areas were modeled in WinTR20 (Figure 42). The results can be found in Table 4. The proposed conditions reduce the flows in all 4 storm events compared to the existing conditions. (*Note that the total flows from the detained areas and the undetained areas do not add directly up to the total discharge as the modeling software utilizes hydrograph methods to determine the peak run off.)

Table 4 – Alternative A Proposed Runoff for Northern Tributary on Western Parcels

		Storm Event			
		1-Year	2-Year	10-Year	100-Year
Catchments	**Catchment Area (mi²)**	**Flow (CFS)**			
Detained	0.0344	5.4	6.3	10.5	23.4
Undetained	0.0032	2.1	2.8	5.4	11.1
Total	0.0376	5.7	6.7	11.2	24.9

SOUTHERN TRIBUTARY ON WESTERN LOT

The southern half of the western lot will drain to a new at grade detention basin east of the proposed building. The total available volume to be provided in the basin is 2.21 ac-ft. The outfall from the detention pond will be controlled by a 2.1" orifice with a 3.50' rectangular overflow weir restrictor that drains to the discharge point attributed to existing catchment areas 3 and 4 (Figure 15). There will be undetained area around the east perimeter of the parking lot that is also tributary to this discharge point. The detained and undetained areas were modeled in WinTR20 (Figure 42). The results can be found in Table 5.

Table 5 – Alternative A Proposed Runoff for Southern Tributary on Western Parcels

		Storm Event			
		1-Year	2-Year	10-Year	100-Year
Catchments	Catchment Area (mi²)	Flow (CFS)			
Detained	0.0194	3.4	5.7	13.7	33.2
Undetained	0.0012	0.7	1.0	1.9	4.0
Total	0.0206	3.5	5.8	14.1	34.2

NORTHEASTERN LOT

The northeastern lot, Parcel A, will drain to a new at grade detention basin north of the proposed parking area. The design allows for sheet draining to the basin without any need for underground sewers. The total available volume to be provided in the basin is 0.78 ac-ft. The outfall from the detention pond will be controlled by a 4" rectangular overflow weir restrictor that drains to the discharge point attributed to existing catchment areas 11 and 12 (Figure 15). There is undetained area around the entire perimeter of the parcel that is also tributary to this discharge point. The detained and undetained areas were modeled in WinTR20 (Figure 42). The results can be found in Table 6.

Table 6 – Alternative A Proposed Runoff for Tributary on Northeastern Parcel

		Storm Event			
		1-Year	2-Year	10-Year	100-Year
Catchments	Catchment Area (mi²)	Flow (CFS)			
Detained	0.0060	2.8	3.4	5.4	7.9
Undetained	0.0032	1.8	2.4	4.8	10.3
Total	0.0092	4.8	6.6	13.7	29.6

NORTHWESTERN LOT

The northwestern lot, Parcel B, will drain to a new at grade detention basin between the two proposed parking lots. The total available volume to be provided in the basin is 1.64 ac-ft. The outfall from the detention pond will be controlled by a 2" rectangular overflow weir restrictor that drains to the discharge point attributed to existing catchment areas 9 and 10 (Figure 15). There will be undetained area around the entire perimeter of the parcel that is also tributary to this discharge point. The detained and undetained areas were modeled in WinTR20 (Figure 42). The results can be found in Table 7.

Table 7 – Alternative A Proposed Runoff for Tributary on Northwestern Parcel

		Storm Event			
		1-Year	2-Year	10-Year	100-Year
Catchments	Catchment Area (mi²)	Flow (CFS)			
Detained	0.0087	4.2	4.7	6.2	8.5
Undetained	0.0072	3.8	5.2	10.7	23.1
Total	0.0159	6.5	8.2	14.8	28.8

Alternative B

Alternative B does not contain any proposed work in Parcels A and B. The main casino and hotel building and parking lots will be constructed in Parcels C and D (Figure 10). The development area for Alternative B is a combined 1,834,277 sf or 42.11 acres. Approximately 66% of that development area is proposed impervious surfaces (building roof, parking lot, sidewalk, patios, etc.) – see Figure 21. The proposed building will be 156,460 sf, consisting of 47,501 sf of dedicated casino space and 188,734 sf for hotel lodging and amenities. Within the casino space, there will be 29,875 sf of floor space for 845 gaming seats, a 12,846 sf back of house area for gaming support, and 4,780 sf front of house area for gaming amenities. The hotel rooms will consist of 1 hospitality suite, 30 bay suites, and 139 typical guest rooms. Proposed hotel amenities, including back of house support, front of house support, and spa/fitness facilities, total 25,980 sf. Surface parking lots in Parcels C and D will cover 26.4 acres.

To ensure that the post-development conditions do not exceed the pre-development, detention basins and underground detention practices will be implemented. Parcel C will contain an underground plastic arch detention system that promotes infiltration. Parcel D will contain an at grade detention basin (Figure 23).

NORTHERN TRIBUTARY ON WESTERN LOT

The underground detention system will be a plastic arch pipe that is open on the bottom identical to the system proposed in Alternative A (Figure 35). The total available volume to be provided in both the chambers and the stone is 6.02 ac-ft. The outfall from the chambers will be controlled by a 9" rectangular weir restrictor that drains to the discharge point attributed to existing catchment areas 1 and 2 (Figure 22). There will be undetained area around the north and east perimeter of the parking lot in this area as well. The detained and undetained areas were modeled in WinTR20 (Figure 43). The results can be found in Table 8.

Table 8 – Alternative B Proposed Runoff for Northern Tributary on Western Parcels

		Storm Event			
		1-Year	2-Year	10-Year	100-Year
Catchments	Catchment Area (mi^2)	Flow (CFS)			
Detained	0.0344	5.4	6.3	10.5	23.4
Undetained	0.0032	2.1	2.8	5.4	11.1
Total	0.0376	5.7	6.7	11.2	24.9

SOUTHERN TRIBUTARY ON WESTERN LOT

The southern half of the western lot will drain to a new at grade detention basin east of the proposed building. The total available volume to be provided in the basin is 2.68 ac-ft. The outfall from the detention pond will be controlled by a 2.0" orifice with a 2.50' rectangular overflow weir restrictor that drains to the discharge point attributed to existing catchment areas 3 and 4 (Figure 22). There will be undetained area around the east perimeter of the parking lot that is also tributary to this discharge point. The detained and undetained areas were modeled in WinTR20 (Figure 43). The results can be found in Table 9.

Table 9 – Alternative B Proposed Runoff for Southern Tributary on Western Parcels

		Storm Event			
		1-Year	2-Year	10-Year	100-Year
Catchments	Catchment Area (mi²)	Flow (CFS)			
Detained	0.0194	1.1	3.2	14.4	29.4
Undetained	0.0012	0.7	1.0	1.9	4.0
Total	0.0206	1.8	4.2	16.3	33.4

Alternative C

Similar to Alternative B, Alternative C does not contain any proposed work in Parcels A and B. The main building is reduced to a hotel and convention center and parking lots will be constructed in Parcels C and D (Figure 11). The parking lots are reduced in size commensurate with the building reduction. The development area for Alternative C is a combined 1,834,229 sf or 42.11 acres. Nearly 58% of that development area is proposed impervious surfaces (building roof, parking lot, sidewalk, patios, etc.) as can be seen in Figure 28. The proposed building will be 171,943 sf, which consists of 149,150 sf dedicated convention center space and 188,734 sf for hotel lodging and amenities. There is no casino gaming proposed as part of Alternative C. Within the convention center space, there will be a 14,250-sf ballroom, 28,800 sf exhibit space, 20,000 sf of meeting rooms, and 43,051 sf of front of house & back of house support. The hotel rooms will consist of 1 hospitality suite, 30 bay suites, and 139 typical guest rooms. Proposed hotel amenities, including back of house support, front of house support, and spa/fitness facilities, total 25,980 sf. Surface parking lots in Parcels C and D will cover 19.6-acres.

To ensure that the post-development conditions do not exceed the pre-development, detention basins have been designed on both Parcel C and D (Figure 30).

NORTHERN TRIBUTARY ON WESTERN LOT

The northern half of the western lot will drain to a new at grade detention basin north of the proposed parking lot. The total available volume to be provided in the basin is 6.33 ac-ft. The outfall from the detention pond will be controlled by a 2.1" orifice with a 3.00' rectangular overflow weir restrictor that drains to the discharge point attributed to existing catchment areas 3 and 4 (Figure 29). There will be undetained area around the east perimeter of the parking lot that is also tributary to this discharge point. The detained and undetained areas were modeled in WinTR20 (Figure 44). The results can be found in Table 10.

Table 10 – Alternative C Proposed Runoff for Northern Tributary on Western Parcels

		Storm Event			
		1-Year	2-Year	10-Year	100-Year
Catchments	Catchment Area (mi²)	Flow (CFS)			
Detained	0.0210	0.9	1.2	2.3	5.1
Undetained	0.0032	0.6	0.8	1.7	3.6
Total	0.0376	1.0	1.3	2.6	5.9

SOUTHERN TRIBUTARY ON WESTERN LOT

The southern half of the western lot will drain to an at grade detention basin east of the proposed building. The total available volume to be provided in the basin is 3.28 ac-ft. The outfall from the detention pond will be controlled by a 2.1" orifice with a 5.00' rectangular overflow weir restrictor that drains to the discharge point attributed to existing catchment areas 3 and 4 (Figure 29). There will be undetained area around the east perimeter of the parking lot that is also tributary to this discharge point. The detained and undetained areas were modeled in WinTR20 (Figure 44). The results can be found in Table 11.

Table 11 – Alternative C Proposed Runoff for Southern Tributary on Western Parcels

		Storm Event			
		1-Year	2-Year	10-Year	100-Year
Catchments	Catchment Area (mi^2)	Flow (CFS)			
Detained	0.0194	6.1	7.3	11.1	18.4
Undetained	0.0012	2.7	3.5	6.8	13.9
Total	0.0206	7.7	9.4	15.5	27.8

Conclusion

Site discharge from all stormwater events in each alternative are reduced in total flow. In reducing the flows of these events water attenuation through the stormwater BMPs occurs. This promotes infiltration in the designed systems, reduces pollution leaving the site, and reduce the temperature of the water. Meeting these criteria is key to improving the water quality downstream of the development. This impact is expected for all stormwater events up to the 100-year 24-hour rainfall.

Utility Layouts and Design

Summary

EEA corresponded with Kenosha Water Utility (KWU) to determine the existing utility infrastructure in the vicinity of the project (Figure 3). Information gathered in this stage assisted in determining the existing utility capacities. EEA consulted with Accendis Consulting Engineers (ACE) to review the proposed building plans to determine water demand and sanitary outflow from the proposed project (Appendix E). EEA utilized Hydraflow modeling software to size the site storm sewer systems for each of the Alternative designs (Figure 45, Figure 46, Figure 47).

Assumptions include that the building will be automatically sprinklered.

Water Main

KWU owns a water tower located just south of Parcel D. The water tower feeds a 20" water main that runs east-west within an easement along the southern 100' of Parcels B and D. A 16" water main runs north from that 20" main to the intersection of 60th Street and 122nd Ave where it then runs east-west in 60th St. (Figure 3). KWU provide fire flow test results from existing fire hydrants. Three tests were conducted (Figure 4). Test 1 used two hydrants north of Parcels A and C, test 2 used two hydrants east of Parcel D, and test 3 used two hydrants south of Parcel D. The results are summarized in Table 12.

Table 12 – Fire Flow Test Results

Test #	Flow Rate (gpm)	Static Pressure (psi)	Residual Pressure (psi)
1	1300	68	67
2	1300	64	63
3	1250	62	61

Based on general water usage per this building type based on Las Vegas Casino studies, Table 13 was created to show the expected daily water usage for Alternative A. As this building is the largest building with the heaviest water use functions, and as it is illustrated in Table 14 that fire flows for all three alternatives exceed daily use flows from Alternative A, the other buildings were not analyzed.

Table 13 – Anticipated Daily Flow Requirements for Alternative A

Space	Water Usage (gpm)	Water Usage (gpd)	Notes
Public Restrooms	37.5	54,000	Assume each restroom grouping has 16 lavs (8 wsfu), 8 urinals (16 wsfu), 16 water closets (104 wsfu), & janitor mop basin (3 wsfu) = Approx 130 wsfu per group x 4 groups = approx. 520 wsfu = 150 gpm. Assume a diversity factor of 0.25.
Hotels	18.89	27,200	200 GPD per occupied guest room. 136 rooms x 200 gpd/room = 27,200 GPD
Restaurants	19.45	28,000	4 restaurants x 7,000 GPD for a typical sit-down restaurant – 28,000 GPD
Laundry	3.12	4,488	(Approx 3 gallons per pound of laundry)(Approx 11lbs/day/room)(136 rooms) = 4,488 GPD
Pool	0.25	325	Assume 30x30x4 pool, 1 refill per year, ¼" evaporation per day, 30 gpm x 15 min filter backwash per month
HVAC	0.95	1,360	10 Gallons per guest per day x 136 rooms = 1360 gpd
Icemakers	0.1	136	1 Gallon per guest per day x 136 rooms = 136 gpd
Totals	**81**	**115,375**	

ACE reviewed (see Appendix E) applicable National Fire Protection Association (NFPA) 1 tables to determine the water flow requirement for the site based on the building type and size. With the sprinkler system assumption, the required fire flow can be reduced by 75%. The worst-case scenario is Alternative C. This reduction sees the required flow drop from 6,000 gpm at 20 psi for 4 hours to 1,500 gpm at 20 psi for four hours.

Table 14 – Fire Flow Requirements

Alternative	Building Size (sf)	Flow Rate (gpm)	Pressure (PSI)
A	283,737	1,437.5	20
B	236,235	1,312.5	20
C	337,884	1,500.0	20

The fire flows are anticipated to be the controlling factor. Therefore, the demand target at the building entrance is 1,000 gpm at 30 psi. In Figure 36, the water main flow calculations can be found. Using the lowest flow and pressure data in the surrounding public mains in a test provided by KWU (Figure 4), the available pressure in the new main in the site is nearly 59 psi at 1,000 gpm, far exceeding the required 30 psi. Therefore, there is adequate supply in the water mains.

While there is capacity for any alternative as currently conceptualized, there is always an opportunity to reduce the water usage to help decrease the long term environmental footprint of the project as well has reduce on going costs for the owner.

When the project moves forward with a selected alternative, the follow water use saving strategies can be vetted:

1) Ultra Low flow fixtures beyond code
    a. These are not recommended in private areas as user frustration typically results in multi-flushes and heavier use/damage, but these types of fixtures could be explored for use in the public areas.
2) Heat reclaim from the pool dehumidification unit
3) Harvesting clean water that would be produced as condensate from dehumidification and cooling processes
4) Landscape irrigation reduction or elimination
    a. Work in conjunction with Landscape Architect to select plant species with lower water demand requirements.
5) Gray water harvesting
6) Waste heat recovery
7) Water softening control systems to optimize the quality of the wastewater being delivered back to the municipality.

To provide fire protection coverage from the exterior of the buildings, a looped connection is required to safely feed the fire hydrants (Figure 18, Figure 25, Figure 32). Hydrants should be spaced 300' apart surrounding the building. A 12" water main will connect to three points on the existing public water infrastructure in all three Alternatives, once to the 20" main south of Parcel D and twice to the 16" main in 122nd Ave. The water supply for the building will tie into the new 12" main within the site.

Sanitary Sewer

KWU also controls the public sanitary sewers for Kenosha. Currently, there is a 21" sanitary sewer that runs in the 100' easement on the southside of Parcels B and D, but no other sewer is adjacent to the properties (Figure 3). KWU has informed EEA that there is an internal study that has recommended an extension of the sewer north and west to serve future developments. They have noted that the main has capacity for this development (Figure 40). The proposed extension would run in the 45' KWU easement along the eastern edge of Parcels C and D and the 25' KWU easement along the northern edge of Parcel C, both within the casino property. It is recommended that that sewer be installed in conjunction with the construction of the casino (with cost sharing to be negotiated by the owner with the city) to reduce future disruption of the building operations.

The proposed building sewer service will connect to the new 21" main within the easement along 122nd Ave (Figure 17, Figure 24, Figure 31). Based on ACE's review of the Alternatives (Appendix E), Alternative A will have the highest sanitary demand based on the number of amenities. The total estimate drainage fixture units for Alternative A is 3,500. Following Wisconsin Plumbing Code (SPS 382) 3,500 dfu requires a 12" sanitary sewer slopes at 1/16" per foot.

Table 15 – Population Equivalent Calculations

Alternative	Average Flow (GPD)	Peak Flow (GPD)	Peak Flow (gpm)	Peak Flow (cfs)
A	113,162	426,026	296	0.66
B	73,577	285,625	198	0.44
C	85,895	329,975	229	0.51

This aligns with a review of the peak demand flow based on population equivalency. Using the building use sizes and industry standard estimates for population density per square foot of space, a PE calculation was performed for all three options (Figure 37, Figure 38, Figure 39). The results of the calculations are tabulated in Table 15. The 0.66 cfs peak flow anticipated for the sanitary flow from the building can be routed through a single 12" sewer pitched at 0.75% slope.

Beyond the proposed site, the city main extends roughly 3.75 miles to the city's water reclamation plant. The 21" sewer main leaving the site heads southeast under I-94 approximately 0.75 miles to a lift station. That lift station uses a 1 mile long forcemain that discharges to a gravity sewer that continues east for 1.5 miles. At that point, it is tributary to a second lift station. That lift station discharges to a gravity sewer line that flows directly to the treatment plant 0.5 miles away. Given the tributary area to these lines and lift stations, EEA relied on KWU to confirm that the existing infrastructure has capacity for this project. KWU officials confirmed that, even for the largest anticipated flows, their infrastructure has that capacity (Figure 40).

Storm Sewer

Storm sewer sizing is based on flow demands from the 10-year storm event. These sewer networks were modeled in Hydraflow. Similar to WinTR-20, Hydraflow analyzes subbasins to determine flow rates for specific storm events through drainage infrastructure. The network is analyzed as a whole with the storm event starting at the same time in each catchment area. That allows the model to use time of concentration through the pipes to determine flows at junctures. These form energy and hydrologic grade lines. The hydrologic grade line (HGL) is the theoretical water elevation of the water flowing through the pipes. This must remain below the rim elevations in a 10 year event for the system to function properly.

Each drainage structure was assigned a catchment area with runoff coefficient based on impervious coverage within that drainage footprint (Figure 15, Figure 22, Figure 29). Each alternative has their storm sewer system completed based on these models. Refer to Figure 16, Figure 23, and Figure 30 for the storm sewer networks in plan view and Figure 45, Figure 46, and Figure 47 for the Hydraflow models. Downstream sewers nearest the detention basins will be as large as 54". The furthest upstream on-site sewers are typically 12" to 18" pipes.

Water discharges off-site at three locations: one at the northeast corner, one midway along the eastern border of the site, and one along the south border. At the northeast corner, drainage discharges south through a swale, then continues east through a 36" culvert crossing under Frontage Road. Midway along the eastern border of the site, drainage discharges east through a 60" culvert crossing under Frontage Road, then continues east through a drainage swale. Lastly, runoff discharges to a drainage swale that runs along the entire south border of the site. Capacity calculations for these existing public drainage infrastructure are included in Figure 48, and the results of which are summarized in Table 16.

Table 16 – Off-Site Storm Capacity

Discharge Point	Receiving Sewer Pipe Diameter (Inches)	Sewer Capacity (cfs)	Drainage Swale Capacity (cfs)
North	36	66.7	40.0
Central	60	260.4	387.1
South	N/A	N/A	148.0

In reducing the total runoff that is tributary to the systems above, the total load on public infrastructure will be lessened. No adverse impact on the city storm network is anticipated from this development as long as the stormwater management systems are implemented. Ultimately all of the discharge points listed above are tributary to the Kilbourn Road Ditch, which is a tributary of the Des Plaines River.

Mass Grading

Summary

The intent with mass grading is to balance the earthwork on the site to limit what materials need to be hauled off or brought on to the site during construction. This was completed using Civil 3D to estimate existing topsoil quantities and to build surfaces to compare existing and proposed conditions.

The three alternative site designs varied greatly in earthwork design due to fluctuation in parking and building areas. All three were constrained by the existing elevations at the property lines and wetland areas. These locations need to be matched to ensure drainage patterns are maintained and to mitigate disruption of neighboring properties and environmental resources. Several assumptions are included in the calculation of the cut/fill analysis.

- 12" of topsoil is assumed based on three recent projects in the region EEA performed with existing farmland
- 1.15 cut factor is included in the calculations
- An average fill depth of 2' across the building footprint
- 16" average depth of pavement sections
- 9" average depth of sidewalks and patios
- 6' wide by 7' deep trenches for utilities

The proposed sites were built including the building and parking footprints provided by Montrose and with the stormwater management criteria laid out in the Stormwater Management section of this report.

Analysis

All three alternatives can be balanced in regards to subgrade material at the finished floor elevations (FFE) indicated in Table 17.

Table 17 – Finished Floor Elevations

Alternative	A	B	C
Elevation	725.1	727.0	728.0

*Elevations are approximate and can fluctuate based on detail topographic and geotechnical assessments of the properties

The existing topsoil of the site will have a large impact on the deign intent. Topsoil can be sold if it is in good condition, bermed around the perimeter of the site or on Parcel's A and B or be buried under

detention areas or other green spaces. Topsoil, however, is not a suitable material to remain within pavement or building footprints.

In Alternative A, all four parcels are being altered with parking lots or buildings. This limits the area, especially on Parcels C and D, that topsoil can be utilized onsite. To help balance this design, berms have been added to Parcel A and B near existing highpoints (Figure 19 and Figure 20). On Parcel A, the green spaces all contain 24" of topsoil and Parcel B contains 49". This still results in a total haul off of the topsoil material of 40,500 cubic yards. Again, this can be sold, and it assumes that there is an average topsoil depth of 1' across the entire site. Deep topsoil depths, especially like the 49" in Parcel B, can lead maintenance issues in basins as wet conditions can cause the topsoil to be saturated. Mowing can be difficult when these soils are wet. It also limits potential future site uses. The owner can choose to haul off more topsoil in lieu of adding the topsoil to Parcels A and B.

In Alternative B, Parcels C and D will need approximately 1,500 cubic yards of subgrade material to be brought on the site to reach the 727.0 FFE. This material can be sourced from Parcel A or B and the remaining topsoil from Parcels C and D not utilized in green space can be spread across Parcels A and B at a depth of 27" or sold (Figure 26 and Figure 27).

In Alternative C, there is significant green area left on Parcel C after development. This area contains the detention pond and also provides area to berm and bury topsoil. After balancing the site, the remaining topsoil is 25,021 cubic yards. This spread across Parcels A and B at a depth of 11" or sold. (Figure 33 and Figure 34)

The data from the AutoCAD Civil 3D models was input into excel files to analyze the full cut and fill scope. Pavement sections, building foundations, utility infrastructure, are all accounted for in the calculations. The final results of that work is tabulated in Table 18 with the calculations found in Figure 49, Figure 50, and Figure 51.

Table 18 – Topsoil Haul Off

Alternative	Existing Topsoil (cy)	Reused Topsoil (cy)	Remaining Topsoil (cy)	Estimated Disturbance Area (acres)
A	91,264	50,762	40,502	56.57
B	67,925	8,597	59,328	42.11
C	61,539	36,518	25,021	42.11

Conclusion

From a civil engineering perspective, there are no impediments to developing any of the three alternative designs under consideration. The site can be balanced even accounting for stormwater management. The existing utilities within the area have adequate capacity with only an extension of the sanitary sewer required to serve the site. Development will become more difficult if soil conditions (deeper existing topsoil, contaminated soils, unsuitable subgrade for foundations, etc.) are found to be unfavorable in future geotechnical studies.

The study provided was conducted based on record review and GIS contour data. A geotechnical report may provide new information that can influence the scope of recommended work.

We appreciate this opportunity to serve Montrose Environmental with this report. Please feel free to contact either Tim Brown with any questions.

Sincerely,

Dan Nate, EIT
Design Engineer

Larua Rosenbauer
Senior Design Engineer

Timothy Brown, PE
Project Manager

APPENDIX A – EXISTING DATA AND REGULATIONS

Figure 1 – GIS Data

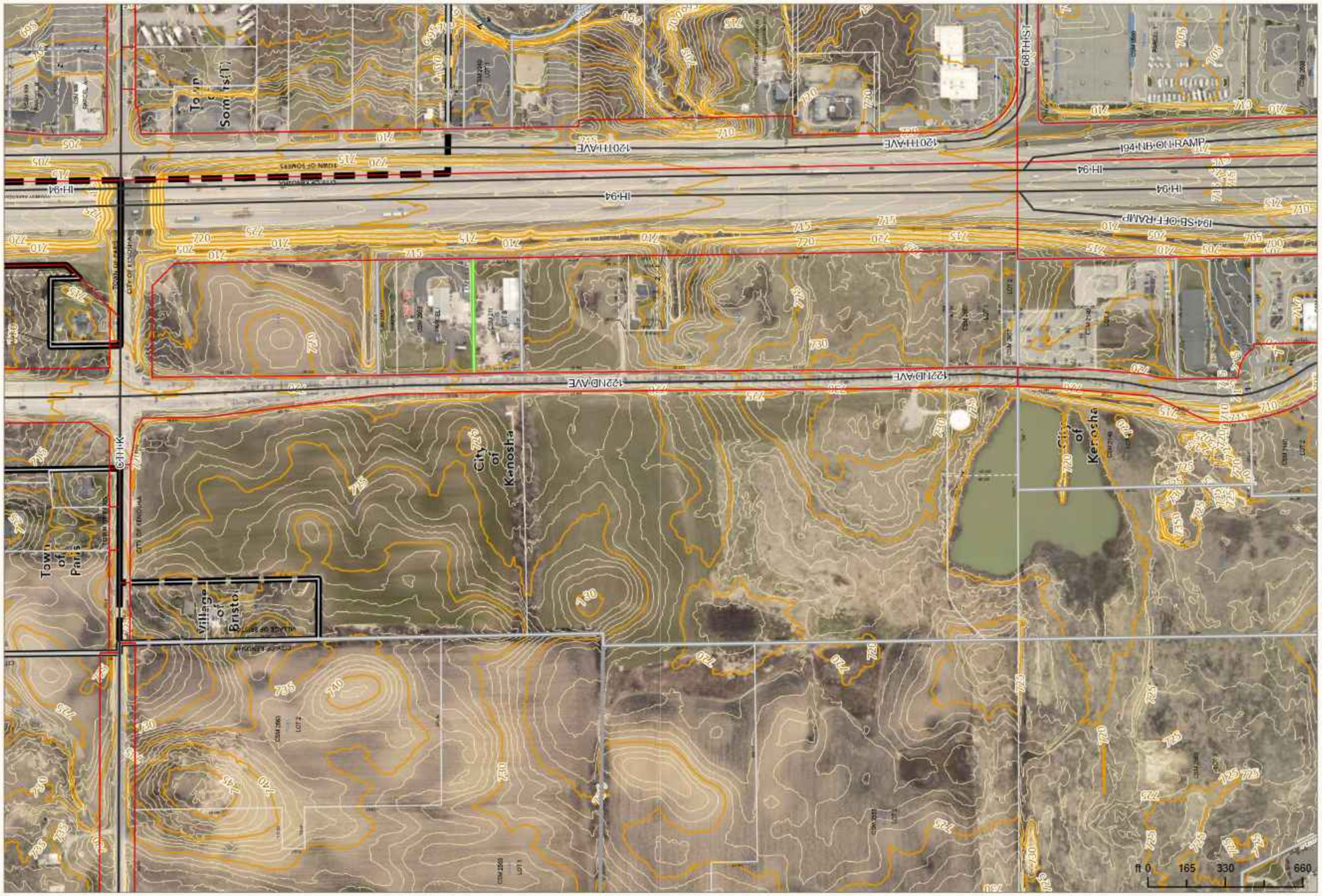
KENOSHA COUNTY
INTERACTIVE MAPPING

1:4,888
1" = 407'

Date Printed: 9/15/2023

DISCLAIMER This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, data and information located in various state, county and municipal offices and other sources affecting the area shown and is to be used for reference purposes only. Kenosha County is not responsible for any inaccuracies herein contained. If discrepancies are found, please contact Kenosha County.

GIS Contouring Exhibit



KENOSHA COUNTY
INTERACTIVE MAPPING

1:4,888
1" = 407'

DISCLAIMER This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, data and information located in various state, county and municipal offices and other sources affecting the area shown and is to be used for reference purposes only. Kenosha County is not responsible for any inaccuracies herein contained. If discrepancies are found, please contact Kenosha County.

Date Printed: 9/15/2023

Figure 2 - Energy Independence Act Fact Sheet

Fact Sheet

Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act

December 2009

Summary

Stormwater runoff in urban areas is one of the leading sources of water pollution in the United States. Under Section 438 of the Energy Independence and Security Act of 2007 (EISA), Congress requires federal agencies to provide national leadership to reduce water quality problems from stormwater runoff. Section 438 specifically calls for federal developments that exceed 5,000 square feet to maintain or restore pre-development hydrology. EPA, in close coordination with other federal agencies, has written Technical Guidance to help federal agencies in implementing EISA Section 438. The guidance focuses generally on retaining rainfall on-site through infiltration, evaporation/transpiration, and re-use to the same extent as occurred prior to development. The Technical Guidance provides background information, key definitions, case studies, and guidance on meeting the new requirements. Agencies have two options to demonstrate that they are maintaining pre-development hydrology: managing on-site the total volume of rainfall from the 95th percentile storm or managing on-site the total volume of rainfall based on a site-specific hydrologic analysis. Federal agencies can comply with Section 438 by using a variety of stormwater management practices often referred to as "green infrastructure" or "low impact development" practices, including, for example, reducing impervious surfaces, using vegetative practices, porous pavements, cisterns and green roofs.

Background on Section 438

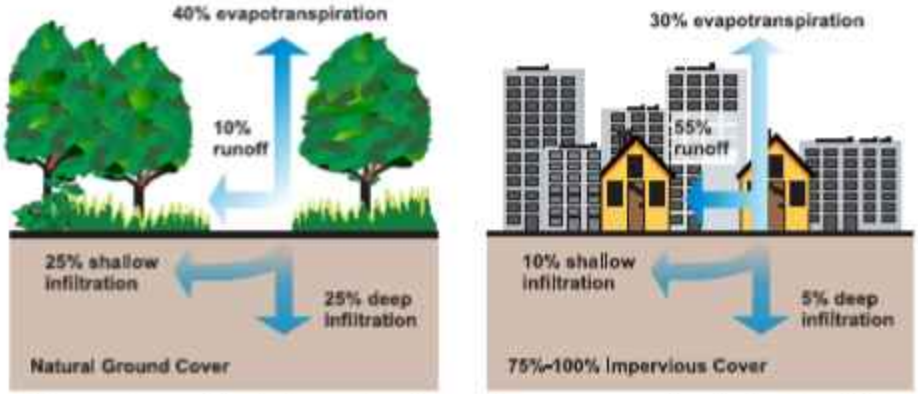
In December 2007, Congress enacted the Energy Independence and Security Act of 2007 (EISA). Section 438 of EISA establishes strict stormwater runoff requirements for federal development and redevelopment projects. Section 438 requires federal agencies to develop and redevelop facilities with a footprint that exceeds 5,000 square feet in a manner that maintains or restores the pre-development site hydrology to the maximum extent technically feasible.

Executive Order (EO) 13514, Federal Leadership in Environmental, Energy, and Economic Performance (October 5, 2009) sets a policy that federal agencies "conserve and protect water resources through efficiency, reuse, and stormwater management." Section 14 of EO 13514 required EPA to issue guidance on the implementation of Section 438 by December 5, 2009.

Background on Stormwater Runoff

In a natural, undisturbed environment rain that falls is quickly absorbed by trees, other vegetation, and the ground. Traditional urban areas typically include large areas of impervious surfaces such as roads, sidewalks and buildings. These impervious surfaces prevent rainwater from infiltrating into the ground, and as a result, stormwater runs off the site at rates and volumes that are much higher than would naturally occur. These higher stormwater rates and volumes can cause increased flooding and stream channel erosion, larger pollutant loadings to surface waters, and increased temperature of runoff, among other impacts.

Stormwater impacts from developed sites can be reduced by using stormwater management practices often referred to as "green infrastructure" or "low impact development" practices that retain water



Stormwater runoff rates from natural ground cover versus a largely developed site.

on-site and mimic the natural hydrology. Site designers can use practices that 1) infiltrate and recharge stormwater into the ground, 2) promote evapotranspiration through increased vegetation, and/or 3) harvest and use precipitation near to where it falls to earth.

Tools to Implement the Requirements of Section 438

The Section 438 Technical Guidance provides two options for meeting the performance objective of preserving or restoring the hydrology of a site:

Option 1 (retaining the 95th percentile rainfall event) calls upon site designers to design, construct, and maintain stormwater management practices that manage rainfall on-site, and prevent the off-site discharge of stormwater from all rainfall events less than or equal to the 95th percentile rainfall event.

Option 2 (site-specific hydrologic analysis) provides site designers with a process to design, construct, and maintain stormwater management practices using a site-specific hydrologic analysis to determine pre-development runoff conditions instead of using the estimated volume approach of Option 1. Under Option 2, pre-development hydrology would be determined based on site-specific conditions and local meteorology by using continuous simulation modeling techniques, published data, studies, or other established tools.

Option 1 (retaining the 95th percentile rainfall event) is a performance-based, simplified approach that site designers can use to meet Section 438, while Option 2 (site-based hydrologic analysis) allows the site designer to conduct a hydrologic analysis of the site based on site-specific conditions.

Parking lot bioswales and permeable pavers can help reduce the volume of stormwater runoff.

Design Practices

Federal agencies have many alternatives for meeting the requirements of Section 438. Agencies will likely use green infrastructure or low impact development management approaches and technologies that enhance or mimic the natural hydrologic cycle processes of infiltration, evapotranspiration, and use. Federal agencies can also use footprint-reduction practices (e.g., building up instead of out) to reduce their stormwater impact. Some of the practices that agencies can use to meet Section 438, include but are not limited to the following practices (Go to www.epa.gov/greeninfrastructure and select "Technologies and Approaches" for additional information on these practices or visit www.epa.gov/nps/lid):

- **Rain gardens, bioretention, and infiltration planters** promote infiltration of stormwater, and allow for evapotranspiration to occur.
- **Porous pavements** allow stormwater to infiltrate where traditional impervious pavements would otherwise be used
- **Vegetated swales and bioswales** treat stormwater runoff as it flows through these channels.
- **Green roofs** absorb and store rainfall, thereby reducing runoff volume. Green roofs also help reduce energy costs.
- **Trees and tree boxes** help break up the landscape of impervious surfaces and absorb stormwater runoff.
- **Pocket wetlands** are small wetland systems designed to treat stormwater.
- **Reforestation/revegetation** practices help restore areas to more natural vegetative cover, which promote infiltration.
- **Protection and enhancement of riparian buffers and floodplains** ensures that streams are protected and shaded, improving water quality.
- **Rainwater harvesting** (e.g., irrigation, air conditioning cooling water, non-potable indoor uses such as watering plants) uses cisterns and rain barrels to capture and use stormwater.

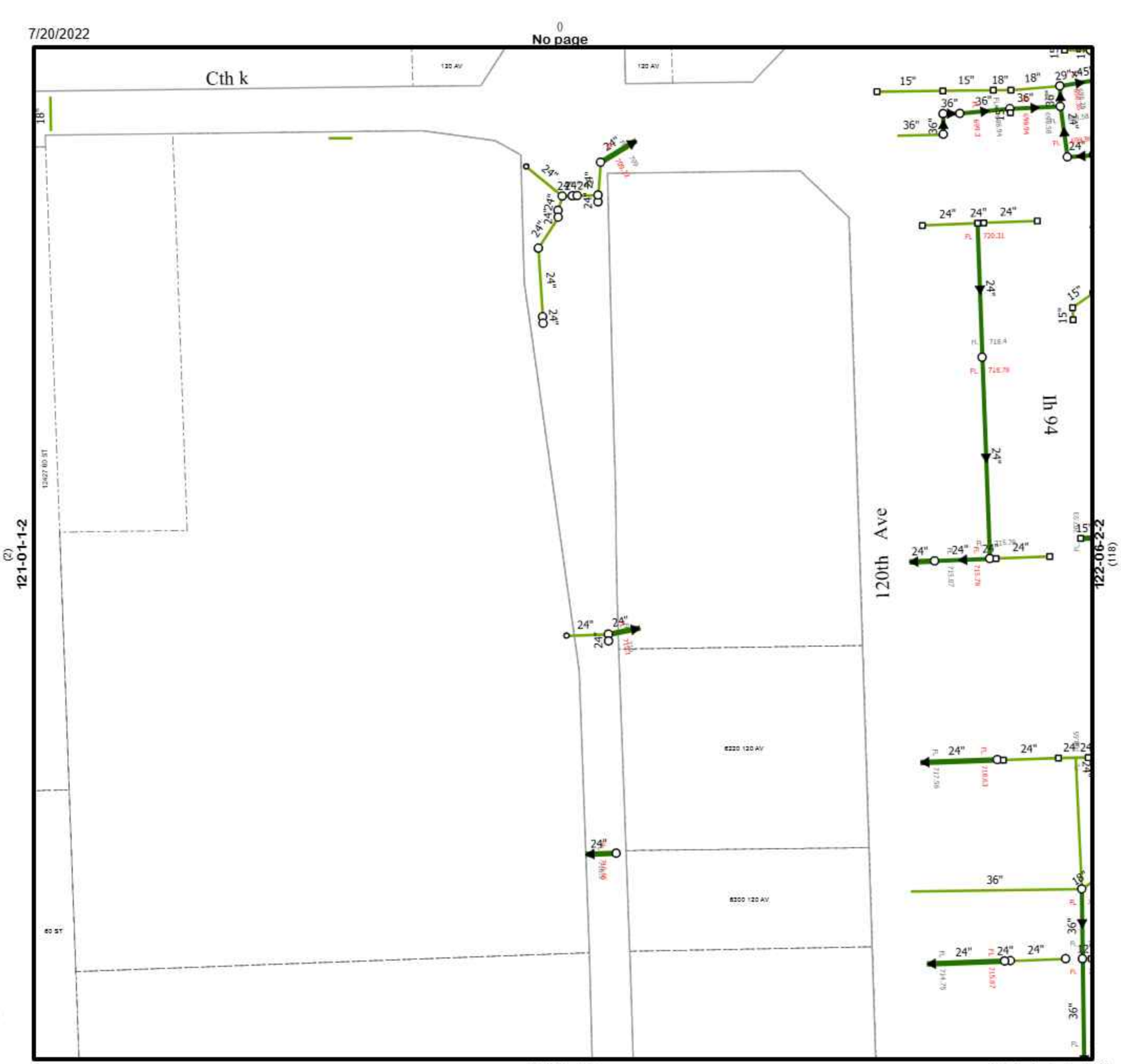
For additional information on Section 438 and for a copy of the Technical Guidance, go to:

http://www.epa.gov/owow/nps/lid/section438

Figure 3 – Utility Atlases

KENOSHA MUNICIPAL WATER & SEWER SERVICE
KWU
SINCE 1895
WATER UTILITY

St.
60th
60th St.
24"
16"
25' WATER MAIN EASEMENT
16"
Ave.
N
Legend
Water Tank
Water Main
Water Service
Water Valve
Hydrant
Sanitary Main
Sanitary Main Private
Sanitary Service
Sanitary Manhole
16"
120th
122nd
12"
Note: Information is for reference only It is the user's responsibility to verify all information
For Facility locations call diggers hotline 1 (800) 242-8511
45' WATER MAIN EASEMENT
16"
12"
16"
100' UTILITY EASEMENT
16"
20"
16"
8"
21"
KWU WATER TANK
6704
122nd Ave
21"
Ave.
20"
20"
21"
21"
8"
CHILDREN'S HOSPITAL OF WISCONSIN


Cth k
120 AV
120 AV
18"
60 ST
12427 60 ST
(2)
121-01-1-2
15"
15"
18"
18"
29"x45"
36"
36"
36"
36"
24"
24"
24

7/20/2022

(1)
121-01-1-1

N

0 25 50 100 150
Feet
1 inch = 150 feet

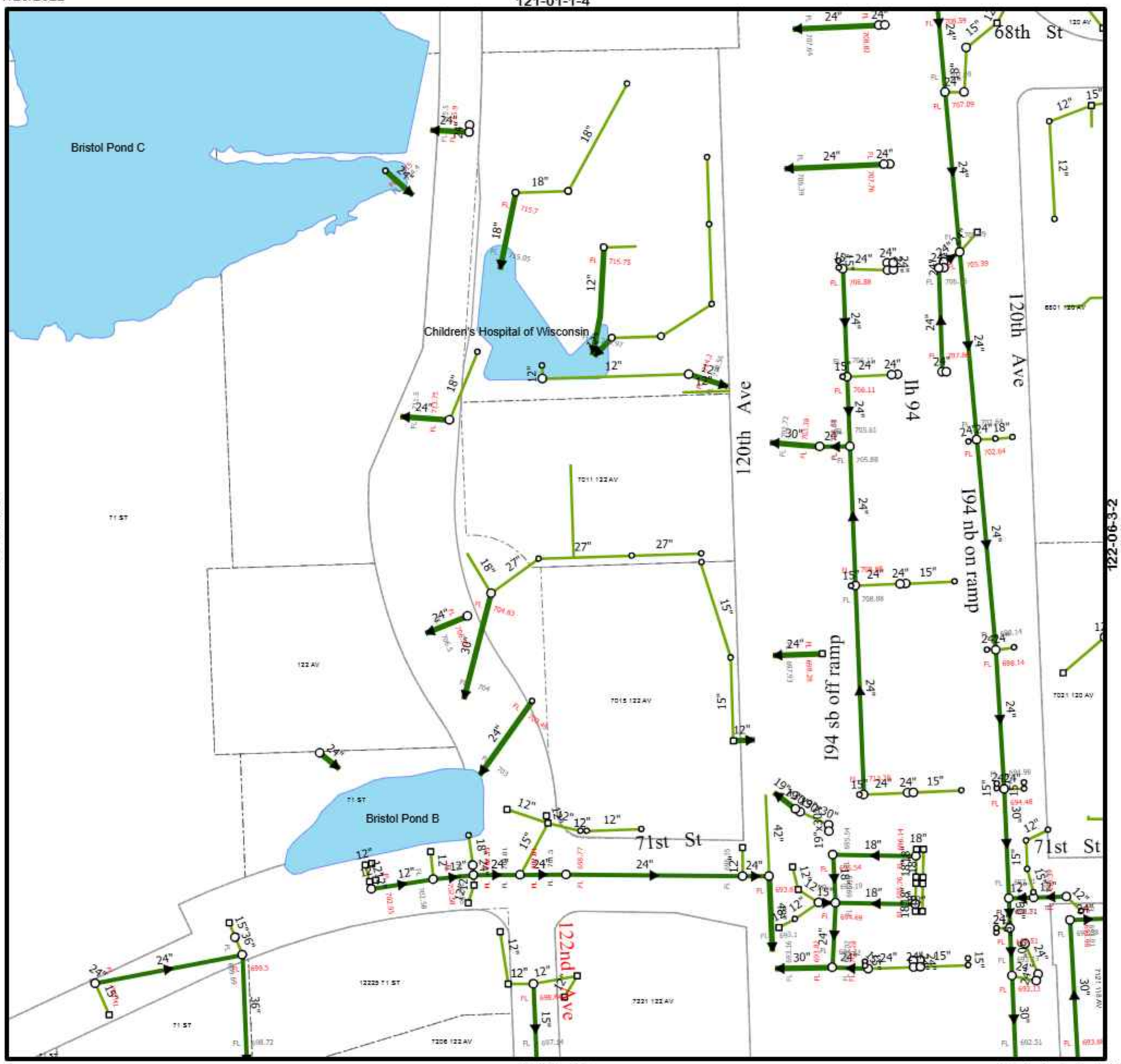
Return to Index

Kenosha Storm Water Utility

Storm Sewer Plat Book

(4) 121-01-1-4

(12) 121-01-4-2



122-06-3-2 (122)

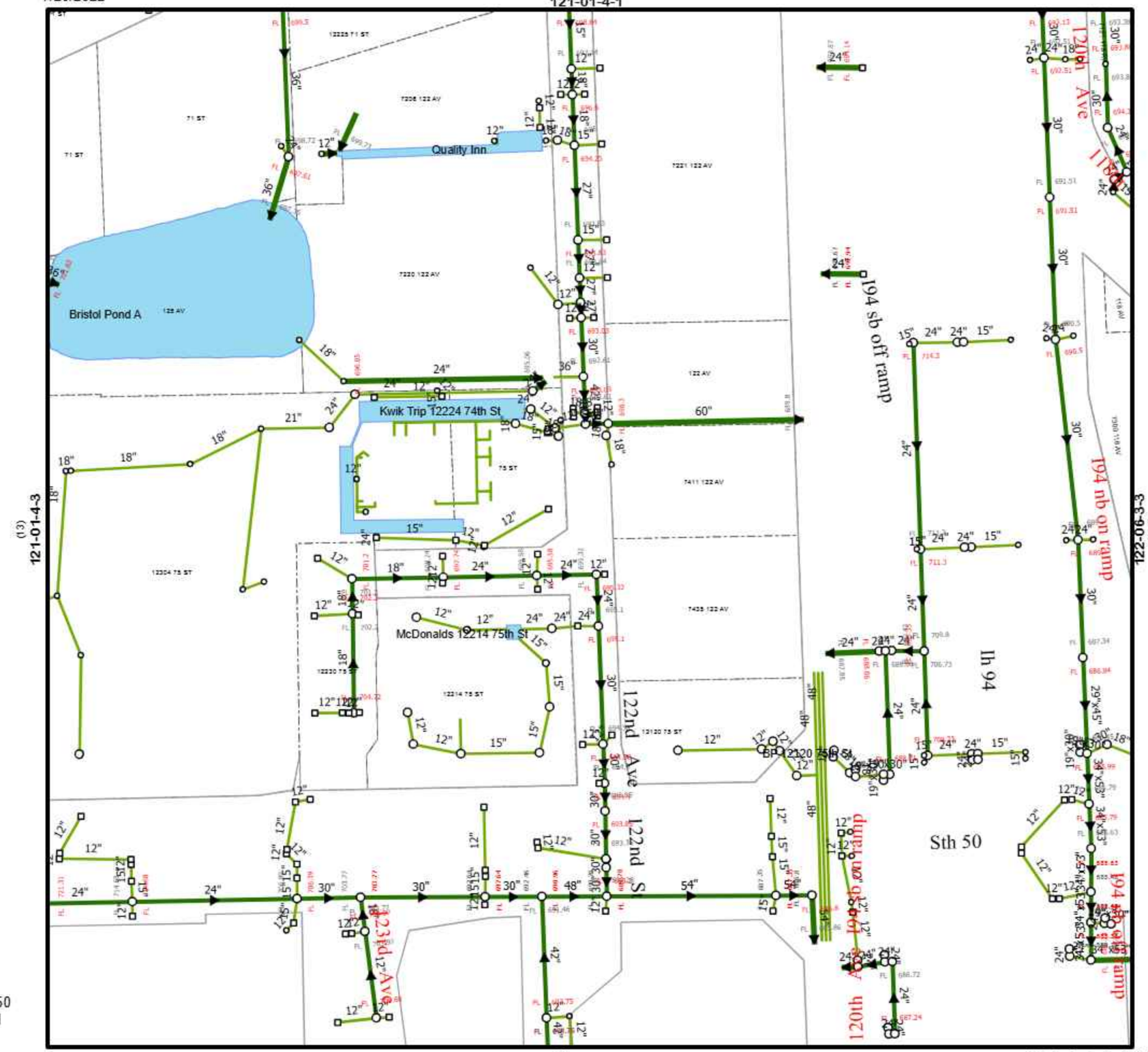
N

0 25 50 100 150

Feet

1 inch = 150 feet

Return to Index



(13)
121-01-4-3

122-06-3-3
(123)

N

0 25 50 100 150
Feet

1 inch = 150 feet

Return to Index

Figure 4 – Fire Flow Test Results

Test 1

Static : 68 Gpm
Residual : 67 Gpm

1
Flow Rate
2.5" Nozzle
1300 Gpm

Test 2

2
Flow Rate
2.5" Nozzle
1500 Gpm

2
Static : 64 Gpm
Residual : 63 Gpm

Test 3

3

3
Flow Rate
2.5" Nozzle
1250 Gpm

Static : 62 Gpm
Residual : 61 Gpm

Legend
Water Tank
Water Main
Water Main Private
Water Service
Water Valve
Hydrant
Hydrant Private
Sanitary Main
Sanitary Main Private
Sanitary Force Main
Sanitary Service
Sanitary Manhole
Sanitary Manhole Private

0 28 56 ft

N

Interstate Highway 41 / 94

Figure 5 – Utility Easements

Document Number

Kenosha Water Utility
Permanent
Public Works Easements
Sanitary Sewer and Water

Document Title

DOCUMENT NUMBER

EASEMENT RECORDED
Kenosha County, WI
Louise J. Principe, Register of Deeds
On 10/25/2001 at 2:52PM $13.00
1054116 REQUESTED
SUEB

Recording Area

Name and Return Address
Town of Bristol
83rd St & 198 Ave
P.O. Box 187
Bristol, WI 53104-0187

13

Part of Tax Parcel No.
03-121-01-101-400, 03-121-01-101-410,
03-121-01-301-100, 03-121-01-301-200,
03-121-01-301-430

Parcel Identification Number (PIN)

Town of Bristol CDA, hereinafter referred to as "grantors," owners of land, in consideration of the sum of One Dollar and other good and valuable consideration the receipt of which is hereby acknowledged, hereby grants unto the Kenosha Water Utility, Wisconsin, hereinafter referred to as "grantee," of Kenosha County, its successors and assigns, a permanent easement and right-of-way in, under and over the land hereinafter described including the right to enter upon said land for purposes of constructing, installing, repairing, altering, maintaining, and operating thereon a sanitary sewer and/or water main and associated appurtenances, said right-of-way and permanent easement being through and upon that certain tract of land located in the City of Kenosha, Kenosha County, State of Wisconsin, described as follows:

Part of the SW 1/4, SE 1/4, and NE 1/4 of Section 1, Town 1 North, Range 21 East, City of Kenosha, Kenosha County, Wisconsin, referenced to the following reference lines:

Reference Line one: Commencing at the West 1/4 Corner of said Section 1; thence S1°25'50"E, 50.00 feet, to the point of beginning; thence N88°57'13"E, 1855.37 feet to Point A; thence N88°57'13"E, 859.91feet; thence N53°24'56"E, 239.56 feet; thence N90°0'0"E, 650.32 feet; thence along a curve to the left of radius 200 feet whose long chord bears N66°58'57"E, 156.40 feet; thence N43°57'55"E, 108.78 feet; thence along a curve to the right of radius 200 feet whose long chord bears N66°27'55"E, 153.07 feet; thence N88°57'55"E, 556.98 feet to Point B; thence N88°57'55"E, 434.87 feet; thence S1°34'33"E, 272.10 feet to the south line of the NE 1/4 of said Section 1.

Reference line two: Commencing at said Point B, thence N1°2'5"W, 150.00 feet.

Reference line three: Commencing at said Point A, thence S0°59'4"E, 1021.68 feet; thence S16°1'30"W, 325.10 feet to Point C; thence S0°27'33"W, 250.61 feet; thence S48°55'32"E, 225.30 feet; thence S22°21'56"E, 226.26 feet; thence S2°19'3"E, 524.59 feet to the north right-of-way line of STH 50.

Reference line four: Commencing at said Point C, thence S79°22'2"W, 330.00 feet.

Reference line five: Commencing at said Point C, thence S76°18'32"E, 320.00 feet.

Said permanent easement being 100 feet wide centered on all of the above described reference lines. Said permanent easement contains 837,475 square feet (or 19.25 acres) of land, more or less.

Grantors shall have the right to use the strip for purposes not inconsistent with the GRANTEE'S full enjoyment of the rights hereby granted, provided that GRANTORS shall not erect or construct any building or other structure, or drill or operate any well, nor place any tree within the above described parcel.

Above easement has been prepared by Strand Associates, Inc., Consulting Engineers.

This grant of permanent easement shall run with the land and shall be binding on and shall inure to the benefit of the parties hereto, their heirs, successors, or assigns.

IN WITNESS THEREOF, the said grantors have hereunto set their hands and seals this 22nd day of October, 2001.

Grantor:
James Redmond
Chairman, Town of Bristol CDA

STATE OF WISCONSIN)
) SS
KENOSHA COUNTY)

Personally came before me this 22nd day of October, 2001, the above named to be the person who executed the foregoing instrument and acknowledged the same.

Notary Public State of Wisconsin Kathleen A. Herrera

(NOTARY STAMP/SEAL)

My commission expires 7-11-2004

This instrument drafted by Strand Associates, Inc. for the Town Bristol, Wisconsin

PROPOSED PERMANENT SANITARY SEWER AND WATERMAIN EASEMENT (TYP.)
EXISTING PERMANENT WATERMAIN EASEMENT (TYP.)
PROPOSED PERMANENT WATERMAIN EASEMENT (TYP.)
POINT A
POINT B
POINT C
POINT D
50.00'
S1°55'05"E
855.37'
N88°57'13"E
858.98'
N88°57'13"E
556.98'
N88°57'55"E
150.00'
N1°29'W
354.58'
N88°57'55"E
222.10'
S1°34'33"E
470.12'
S1°48'E
430.20'
S89°10'54"W
246.20'
S2°56'42"E
824.58'
S2°49'53"E
228.26'
S2°22'56"E
130.00'
S1°48'32"E
102.68'
S0°58'E
239.56'
N1°49'W
S89°10'54"W
N88°57'55"E
EXHIBIT A
KENOSHA WATER UTILITY EASEMENTS

Document Number	WATER MAIN EASEMENT AND AGREEMENT BETWEEN THE COMMUNITY DEVELOPMENT AUTHORITY OF THE VILLAGE OF BRISTOL AND KENOSHA WATER UTILITY Document Title

DOCUMENT
1891060
RECORDED
At Kenosha County, Kenosha WI 53140
Joëlle M. Storz, Register of Deeds
February 17, 2021 8:07 AM
$30.00
Pages 7

This space is reserved for recording data

Return to:

Office of the City Attorney
City of Kenosha
625 52nd Street, Room 201
Kenosha, WI 53140

03-121-01-101-102 and
03-121-01-101-423
Parcel Identification Numbers

WATER MAIN EASEMENT
ANDAGREEMENT

Between

THE COMMUNITY DEVELOPMENT
AUTHORITY OF THE VILLAGE OF
BRISTOL

And

KENOSHA WATER UTILITY
A Municipal Water Utility

This Water Main Easement Agreement (this "Easement and Agreement"), is made between The Community Development Authority of the Village of Bristol with principal offices located at 19801 83rd Street, Bristol, Wisconsin 53104, and its successors and assigns ("Grantor"), and the Kenosha Water Utility, a municipally owned public water utility duly organized and existing under the Code of General Ordinances for the City of Kenosha and Section 66.0805 of the Wisconsin Statutes with offices located at 4401 Green Bay road, Kenosha, Wisconsin 53144 ("Utility"), collectively referred to as the Parties.

Grantor is the owner of the real estate legally described on Exhibit A situated in the City of Kenosha, County of Kenosha, State of Wisconsin, hereafter referred to as the "Real Estate".

Grantor, in consideration of One Dollar ($1.00) and other valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and subject to the terms and conditions below provided, does hereby grant to the Utility and the Utility's authorized agents and employees a non-exclusive permanent easement, in, to and under and across that certain portion the Real Estate legally described and shown on Exhibit A (the "Easement Area") to install, construct, expand, reconstruct, repair, remove, replace, inspect, maintain, and operate water mains and appurtenances, all of which is hereafter referred to as the "Permitted Work", for the purposes of conveying potable water over, across, through, and under the Easement Area, together with the right to, within the Easement Area, excavate and refill ditches and/or trenches, install appurtenances, and the further right to, within the Easement Area, remove, cut or trim trees, shrubs, bushes, plants, undergrowth, fences, pavement or any other improvements, structures and obstructions interfering with the Permitted Work. Grantor will not push, plow or deposit snow, ice, or debris within the Easement Area.

Notwithstanding anything in this Easement and Agreement to the contrary, and notwithstanding any power of the City of Kenosha or the Utility (together, "City") to levy a special assessment, special charge or other charge or lien on the Property, in consideration of granting this Easement and Agreement to the Utility, the City agrees that the City shall pay for all costs of, and may not charge the Real Estate, or the owner of the Real Estate, for the cost of, installing, repairing,

enlarging, reconstructing, relocating, maintaining, using or inspecting the water mains and equipment installed under the power of this Easement and Agreement, or for any hook up or connection fee, by whatever name, to connect the Real Estate to such water mains or equipment, other than such connection or similar fee which is required to be charged under any then-existing legally adopted Public Service Commission Tariff.

Grantor shall have and retain all other rights not granted to the Utility to the use and occupancy of the Easement Area, provided that no improvements, structures, landscaping or pavement shall be erected or placed over or upon the Easement Area without the advance, written approval of the General Manager of the Utility, and then subject to reasonable conditions, such as, but not limited to, replacement or removal of authorized improvements at the cost of the Grantor, when required by the Utility. Unauthorized improvements, structures, landscaping, or pavement on the Easement Area by the Grantor are subject to removal by the Utility at the cost of the Grantor.

For the purpose of performing the Permitted Work, the Utility shall have the right to enter and pass over the Real Estate at any location deemed advantageous by the Utility in order to use the Easement Area and the Real Estate reasonably adjacent thereto for the temporary transportation, laying down and storage of materials, backfill, tools and equipment, the depositing and removal of excavated materials, and for other purposes incidental to the Permitted Work. Upon completion of the Permitted Work, restoration of the Easement Area by the Utility shall be limited to backfilling ditches and/or trenches and debris removal. Upon completion of the Permitted Work, the Grantor, at the Grantor's cost and expense, shall be responsible for all other restoration, including restoration of any landscaping, any fencing, any concrete and asphalt surfaces, or any other improvements or structures within the Easement Area and the Real Estate to the condition prior to such Permitted Work.

The Utility will hold Grantor harmless from loss or injury resulting from the Utility's willful or negligent acts or omissions under this Easement and Agreement. Grantor will hold the Utility harmless from loss or injury resulting from Grantor's willful or negligent acts or omissions under this Easement and Agreement. If there is joint negligence or culpability on the part of the Utility and Grantor, liability shall be borne by them, respectively, in proportion to their respective negligence or culpability. The foregoing provisions are subject to legal defenses available, respectively, to the Utility and Grantor.

This Easement and Agreement shall run with the land and be binding upon the heirs, successors and assigns of the parties hereto. Nonuse or limited use of the easement rights granted in this Easement and Agreement shall not prevent later use of the easement to the fullest extent authorized in this Easement and Agreement and re-recording of this Easement and Agreement as a result thereof shall not be required. Nothing in this Easement and Agreement shall be deemed to be a gift or dedication of any portion of the Easement Area granted under this Easement and Agreement to the general public for any public use whatsoever. This Easement and Agreement shall not take effect until it is fully executed by the Grantor and the Utility. Each person who executes this Easement and Agreement certifies that they are acting within the scope of their respective authority in doing so. This Easement and Agreement may only be amended by a written instrument signed by all parties.

This Easement and Agreement shall be governed by and construed in accordance with the laws of the State of Wisconsin. Grantor, the Utility and their respective successors, assigns, and successors in title shall have all rights to enforce this Easement and Agreement at law or in equity.

Signature Pages Follow

GRANTOR:

THE COMMUNITY DEVELOPMENT AUTHORITY OF THE VILLAGE OF BRISTOL

BY: Jeffrey C Thompson

Date: 1-25-2021

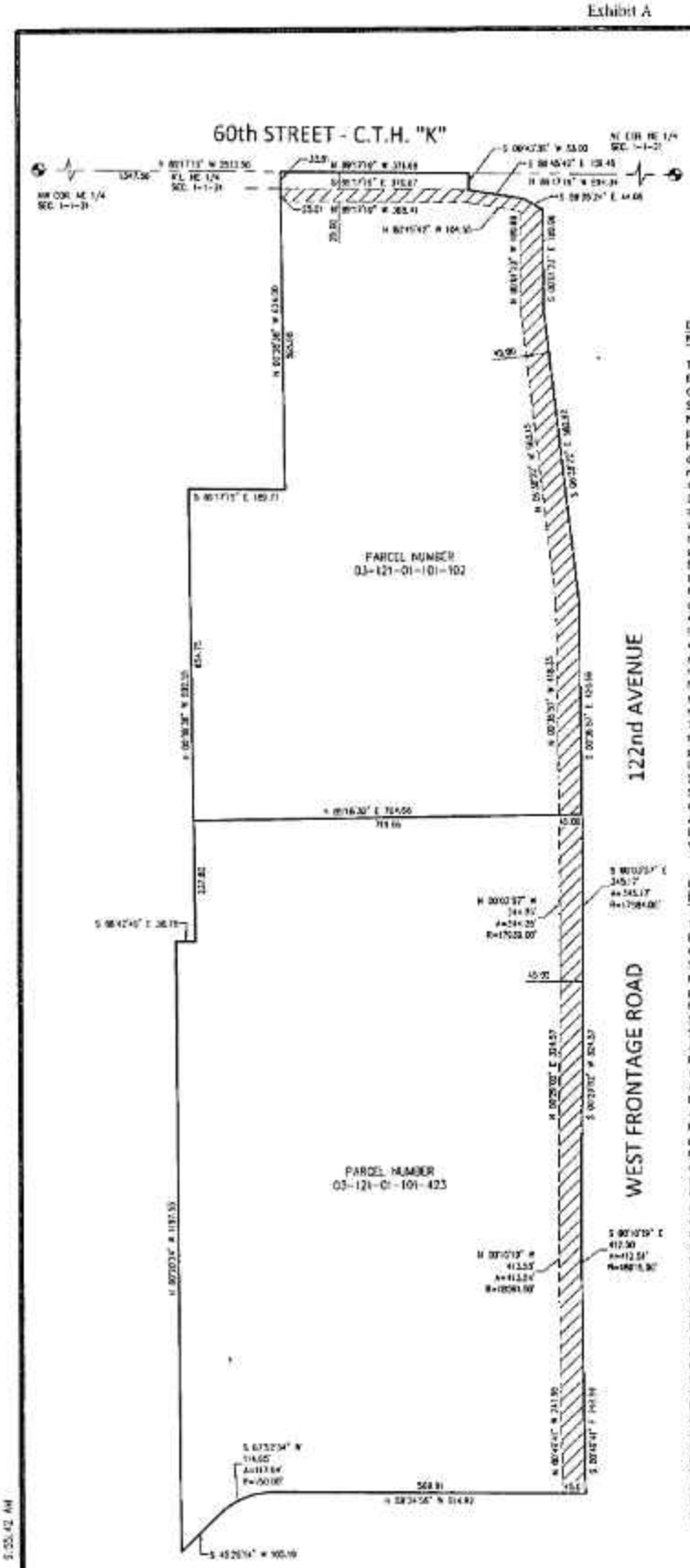
STATE OF WISCONSIN)
: SS.
COUNTY OF Kenosha)

Personally came before me this 25th day of January, 2021, Jeffrey C Thompson of The Community Development Authority of the Village of Bristol, to me known to be such Chairman of said CDA, and acknowledged to me that he executed the foregoing instrument as such authorized signatory, as the agreement of said Authority, by its authority.

Amy E Klemko
Print Name: Amy E Klemko
Notary Public, Kenosha County, WI.
My Commission expires/is: 5/2/2023

AMY E. KLEMKO
NOTARY PUBLIC
STATE OF WISCONSIN

Exhibit A



Description of a proposed variable width watermain easement on Parcel Number 03-121-01-101-102:

That part of the Northeast 1/4 of Section 1, Township 1 North, Range 21 East of the Fourth Principal Meridian bounded and described as follows: Commencing at the Northeast corner of the Northeast 1/4 of said Section 1; thence N89°37'19"W, 894.34 feet along the North line of the Northeast 1/4 of said Section 1; thence S00°43'39"W, 33.00 feet to a point on the Southerly right-of-way line of 60th Avenue - County Trunk Highway "K" (C.T.H. "K"), said point being the point of beginning of this description; run thence S80°45'42"E, 108.45 feet along the Southerly right-of-way line of said 60th Avenue - C.T.H. "K"; thence S59°35'24"E, 44.05 feet along the Southerly right-of-way line of said 60th Avenue - C.T.H. "K" to a point on the Westerly right-of-way line of West Frontage Road - 122nd Avenue; thence S00°01'23"E, 189.96 feet along the Westerly right-of-way line of said West Frontage Road - 122nd Avenue; thence S06°38'22"E, 582.92 feet along the Westerly right-of-way line of said West Frontage Road - 122nd Avenue; thence S00°36'57"E, 420.66 feet along the Westerly right-of-way line of said West Frontage Road - 122nd Avenue; thence S89°18'30"W, 45.00 feet to a point that is 45.00 feet Westerly of, as measured normal to, the Westerly right-of-way line of said West Frontage Road - 122nd Avenue; thence N00°36'57"W, 418.35 feet parallel with the Westerly right-of-way line of said West Frontage Road - 122nd Avenue; thence N06°38'22"W, 583.15 feet parallel with the Westerly right-of-way line of said West Frontage Road - 122nd Avenue; thence N00°01'23"W, 190.69 feet parallel with the Westerly right-of-way line of said West Frontage Road - 122nd Avenue; thence N80°45'42"W, 104.55 feet parallel with the Southerly right-of-way line of said 60th Avenue - C.T.H. "K" to a point that is 55.00 feet Southerly of, as measured normal to, the North line of the Northeast 1/4 of said Section 1; thence N89°37'19"W, 308.41 feet parallel with the North line of the Northeast 1/4 of said Section 1; thence N00°38'38"W, 35.05 feet to a point that is 33.00 feet Southerly of, as measured normal to, the North line of the Northeast 1/4 of said Section 1, said point being on the Southerly right-of-way line of said 60th Avenue - C.T.H. "K"; thence S89°37'19"E, 390.83 feet parallel with the North line of the Northeast 1/4 of said Section 1 and along the Southerly right-of-way line of said 60th Avenue - C.T.H. "K" to the point of beginning of this description. Said land being in the City of Kenosha, County of Kenosha and State of Wisconsin. Containing 65,333 square feet or 1.500 acres.

Description of a proposed 45 foot wide watermain easement on Parcel Number 03-121-01-101-423:

That part of the Northeast 1/4 of Section 1, Township 1 North, Range 21 East of the Fourth Principal Meridian bounded and described as follows: Commencing at the Northeast corner of the Northeast 1/4 of said Section 1; thence N89°37'19"W, 894.34 feet along the North line of the Northeast 1/4 of said Section 1; thence S00°43'39"W, 33.00 feet to a point on the Southerly right-of-way line of 60th Avenue - County Trunk Highway "K" (C.T.H. "K"); thence S80°45'42"E, 108.45 feet along the Southerly right-of-way line of said 60th Avenue - C.T.H. "K"; thence S59°35'24"E, 44.05 feet along the Southerly right-of-way line of said 60th Avenue - C.T.H. "K" to a point on the Westerly right-of-way line of West Frontage Road - 122nd Avenue; thence S00°01'23"E, 189.96 feet along the Westerly right-of-way line of said West Frontage Road - 122nd Avenue; thence S06°38'22"E, 582.92 feet along the Westerly right-of-way line of said West Frontage Road - 122nd Avenue; thence S00°36'57"E, 420.66 feet along the Westerly right-of-way line of said West Frontage Road - 122nd Avenue to the point of beginning of this description, said point of beginning being a point of curvature to the right, having an Easterly convexity, a radius of 17984.00 feet and a chord bearing and distance of S00°03'57"E, 345.17 feet; run thence Southerly 345.17 feet along the arc of said curve and the Westerly right-of-way line of said West Frontage Road - 122nd Avenue; thence S20°29'02"W, 324.57 feet along the Westerly right-of-way line of said West Frontage Road - 122nd Avenue to a point of curvature to the left, having a Westerly convexity, a radius of 18016.00 feet and a chord bearing and distance of S00°10'19"E, 412.50 feet; thence Southerly 412.51 feet along the arc of said curve and the Westerly right-of-way line of said West Frontage Road - 122nd Avenue; thence S00°09'41"E, 248.94 feet; thence N89°34'56"W, 45.01 feet to a point that is 45.00 feet Westerly of, as measured normal to, the Westerly right-of-way line of said West Frontage Road - 122nd Avenue; thence N00°49'41"W, 247.36 feet parallel with the Westerly right-of-way line of said West Frontage Road - 122nd Avenue to a point of curvature to the right, having a Westerly convexity, a radius of 18061.00 feet and a chord bearing and distance of N00°10'19"W, 413.53 feet; thence Northerly 413.54 feet along the arc of said curve and parallel with the Westerly right-of-way line of said West Frontage Road - 122nd Avenue; thence N00°29'02"E, 324.57 feet parallel with the Westerly right-of-way line of said West Frontage Road - 122nd Avenue to a point of curvature to the left, having an Easterly convexity, a radius of 17935.00 feet and a chord and bearing of N00°03'57"W, 344.25 feet; thence Northerly 344.25 feet along the arc of said curve and parallel with the Westerly right-of-way line of said West Frontage Road - 122nd Avenue; thence N89°18'30"E, 45.00 feet to a point on the Westerly right-of-way line of said West Frontage Road - 122nd Avenue, said point being the point of beginning of this description. Said land being in the City of Kenosha, County of Kenosha and State of Wisconsin. Containing 50,567 square feet or 1.350 acres.

NOTES
BEARING BASE: WISCONSIN COUNTY COORDINATE SYSTEM, KENOSHA COUNTY ZONE, NAD 83 (1991)

WISCONSIN MARK R. MADSEN S-2271 RACINE SURVEYOR

Nielsen Madsen + Barber
CIVIL ENGINEERS AND LAND SURVEYORS
1458 Horizon Blvd. Suite 200, Racine, WI. 53406
Tele: (262)634-5588 Website: www.nmbinc.net

PART OF THE NORTHEAST 1/4 OF SECTION 1-1-21
WATERMAIN EASEMENT EXHIBIT DRAWING
FOR
KENOSHA WATER UTILITY
CITY OF KENOSHA, COUNTY OF KENOSHA, STATE OF WISCONSIN

NO.	REVISION	BY	DATE

PROJ. MGR: MDE
DRAFTED: EFH
DATE: 11-16-2020
CHECKED: MRM
DATE: 11-16-2020

2020.0259.01

SHEET 1 OF 1

Wednesday, November 25, 2020 8:55:42 AM

UTILITY:

KENOSHA WATER UTILITY
A Wisconsin Municipal Water Utility

BY: _____
DAVID F. BOGDALA
Chairperson Board of Water Commissioners

Date: 2-8-21

BY: _____
CURT CZARNECKI
General Manager Kenosha Water Utility

Date: 2-8-2021

STATE OF WISCONSIN)
: SS.
COUNTY OF KENOSHA)

Personally came before me this 8th day of February 2021, David F. Bogdala, Chairperson of the Board of Water Commissioners, and Curt Czarnecki, General Manager of the Kenosha Water Utility, a Wisconsin municipal water utility, to me known to be such Chairperson and General Manager of said municipal water utility, and acknowledged to me that they executed the foregoing instrument as such officers as the agreement of said municipal water utility, by its authority.

SUSAN E. HILL NOTARY PUBLIC STATE OF WISCONSIN

_____
Print Name: Susan E. Hill
Notary Public, Kenosha County, WI.
My Commission expires/is: April 5, 2023

DRAFTED BY:
Matthew A. Knight
Deputy City Attorney
City of Kenosha
625 52nd Street, Room 201
Kenosha, Wisconsin 53140
Phone: 262-653-4170
Fax: 262-925-5933
mknight@kenosha.org

THESE PLANS AND DESIGNS ARE COPYRIGHT PROTECTED AND MAY NOT BE USED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF PINNACLE ENGINEERING GROUP, LLC

www.pinnacle-engr.com

LEGAL DESCRIPTION:

AS DESCRIBED IN LANDMARK TITLE CORPORATION COMMITMENT NUMBER LT-141995 WITH AN EFFECTIVE DATE OF FEBRUARY 29, 2016 AND AMENDED MARCH 22, 2016.

PARCEL I:

Part of the Northeast 1/4 of Section 1, Town 1 North, Range 21 East of the Fourth Principal Meridian, and being more particularly described as: Beginning on the North line of said 1/4 section at a point 434.07 feet West from the Northeast corner thereof; thence West along and upon the North line of said 1/4 section 832.43 feet and to a point 189.75 feet East from the West line of the North 41 acres of the East 49 acres of the North 1/2 of said Northeast 1/4 section - (as previously defined by former Kenosha County Surveyor, H.S. Southmayd, in December 1942); thence South parallel to the North 41 acres of the East 49 acres of the North 1/2 of said Northeast 1/4 section 624.0 feet; thence West parallel to the North line of said 1/4 section 189.75 feet and to the West line of the North 41 acres of the East 49 acres of the North 1/2 of said Northeast 1/4 section; thence South along and upon the West line of the North 41 acres of the East 49 acres of the North 1/2 of said Northeast 1/4 section 654.75 feet and to the Southwest corner of the North 41 acres of the East 49 acres of the North 1/2 of said Northeast 1/4 section; thence East along and upon the South line of the North 41 acres of the East 49 acres of the North 1/2 of said Northeast 1/4 section 824.94 feet and to a point 630.0 feet West from the East line of said 1/4 section; thence North parallel to the East line of said 1/4 section 450.00 feet; thence East parallel to the South line of the North 41 acres of the East 49 acres of the North 1/2 of said Northeast 1/4 section 362.8 feet and to the Westerly right-of-way line of Interstate Highway 94; thence North along upon the Westerly right-of-way line of said highway 635.88 feet; thence Northwesterly along and upon said right-of-way line 242.65 feet and to the point of beginning, lying and being in the City of Kenosha, County of Kenosha and State of Wisconsin; EXCEPTING THEREFROM those lands conveyed in Warranty Deed from The Community Development Authority of the Town of Bristol to the State of Wisconsin, Department of Transportation, dated August 4, 2008 and recorded in the Kenosha County Register of Deeds office on August 5, 2008 as Document No. 1564651; FURTHER EXCEPTING THEREFROM those lands conveyed in Special Warranty Deed from Community Development Authority of the Town of Bristol, n/k/a Village of Bristol to City of Kenosha, dated November 10, 2010 and recorded in the Kenosha County Register of Deeds office on December 3, 2010 as Document No. 1634242.

Address: 122nd Avenue
Tax Key No.: 03-121-01-101-101 and 03-121-01-101-102

PARCEL II:

Part of the Northeast 1/4 of Section 1, Town 1 North, Range 21 East of the Fourth Principal Meridian, and being more particularly described as: Commencing at the center of said Section 1; thence North 88 degrees 57 minutes 55 seconds East, 1126.64 feet along the South line of said Northeast 1/4 to the point of beginning; thence North 01 degree 47 minutes 34 seconds West 1300.76 feet; thence North 89 degrees 50 minutes 02 seconds East 38.75 feet; thence North 02 degrees 05 minutes 48 seconds West 238.00 feet; thence North 88 degrees 09 minutes 51 seconds East 1186.01 feet to the Westerly right-of-way line of Interstate Highway 94; thence South 01 degrees 49 minutes 56 seconds East 336.06 feet along said right-of-way; thence South 88 degrees 34 minutes 00 seconds West 235.21 feet; thence South 01 degrees 49 minutes 56 seconds East 120.00 feet; thence North 88 degrees 34 minutes 00 seconds East 235.20 feet to the Westerly right-of-way line of Interstate Highway 94; thence South 01 degrees 49 minutes 56 seconds East 877.05 feet along said right-of-way; thence South 88 degrees 57 minutes 55 seconds West 708.63 feet; thence South 02 degrees 03 minutes 19 seconds East 221.66 feet to the South line of said Northeast 1/4; thence South 88 degrees 57 minutes 55 seconds West 516.88 feet along said south line to the point of beginning, lying and being in the City of Kenosha, County of Kenosha and State of Wisconsin.
AND
Commencing at Northeast corner of the Northeast 1/4 of Section 1, Town 1 North, Range 21 East; thence South 0036'35" East, along the east line of the Northeast 1/4 of said Section 1, a distance of 1561.42 feet; thence North 8917'19" West, parallel with the north line of the Northeast 1/4 of said section 1, a distance of 268.71 feet to the west line of Interstate 94 as monumented and the point of beginning; thence continue North 8917'19" West, a distance of 235.10 feet; thence South 0011'41" West, a distance of 33.08 feet; thence South 8956'43" East, a distance of 235.09 feet, to the west line of said Interstate 94 as monumented; thence North 0011'42" East, along said west line a distance of 30.38 feet to the point of beginning, lying and being in the City of Kenosha, County of Kenosha and State of Wisconsin.

EXCEPTING THEREFROM those lands contained in conveyed in Warranty Deed from The Town of Bristol (as to Parcels I, II and III) and The Community Development Authority of the Town of Bristol (as to Parcel IV and part of Parcel III), to Gateway Center, LLC, a Wisconsin limited liability company, dated November 16, 2006 and recorded in the Kenosha County Register of Deeds office on November 29, 2006 as Document No. 1502945; FURTHER EXCEPTING THEREFROM those lands conveyed in Special Warranty Deed from Community Development Authority of the Town of Bristol, n/k/a Village of Bristol to City of Kenosha, dated November 10, 2010 and recorded in said Register's office on December 3, 2010 as Document No. 1634242; FURTHER EXCEPTING THEREFROM those lands conveyed in Quit Claim Deed from Community Development Authority to Evelyn E. Roberts, dated September 16, 2015 and recorded in said Register's office on September 24, 2015 as Document No. 1757896.

Address: 122nd Avenue and 6530 122nd Avenue
Tax Key No.: 03-121-01-101-422 and 03-121-01-101-423

TABLE A

4. PARCEL I: Gross Land Area: 1,064,252 Square Feet (24.4318 Acres), Net Land Area 1,052,000 Square Feet (24.1505 Acres).
   PARCEL II: Gross Land Area: 1,513,619 Square Feet (34.7479 Acres).
9. There are no designated parking spaces on the subject properties.
11. Underground utility locations shown are based on field location markings by Digger's Hotline ticket #20160702568, #20160702571, #20160702576 and #20160702585 with a clear date of FEBRUARY 16, 2016. The location and size of underground structures and utilities shown hereon have been located based on a reasonable visual observation and are shown for informational purposes only. PINNACLE ENGINEERING GROUP, LLC. does not guarantee the location of utilities shown. Contact Digger's Hotline prior to the start of any activity.
20. Certificate of Professional Liability Insurance furnished upon request and in effect throughout the contract term.

STATEMENT OF ENCROACHMENTS

(AA) -No Easement for Existing Billboard listed in Title.

CERTIFICATION

To: The Community Development Authority of the Town of Bristol nka Village of Bristol, aka Community Development Authority; Landmark Title Corporation:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2016 Minimum Standard Detail Requirements for ALTA/NSPS LAND TITLE SURVEYS, jointly established and adopted by ALTA and NSPS, and includes items 1, 4, 8, 9, 11 & 20 of Table A thereof. The fieldwork was completed on FEBRUARY 18, 2016.

John P. Konopacki, PLS
License No. S-2461

WISCONSIN JOHN P. KONOPACKI S-2461 Waukesha, WI LAND SURVEYOR

Date of Plat or Map: MARCH 24, 2016

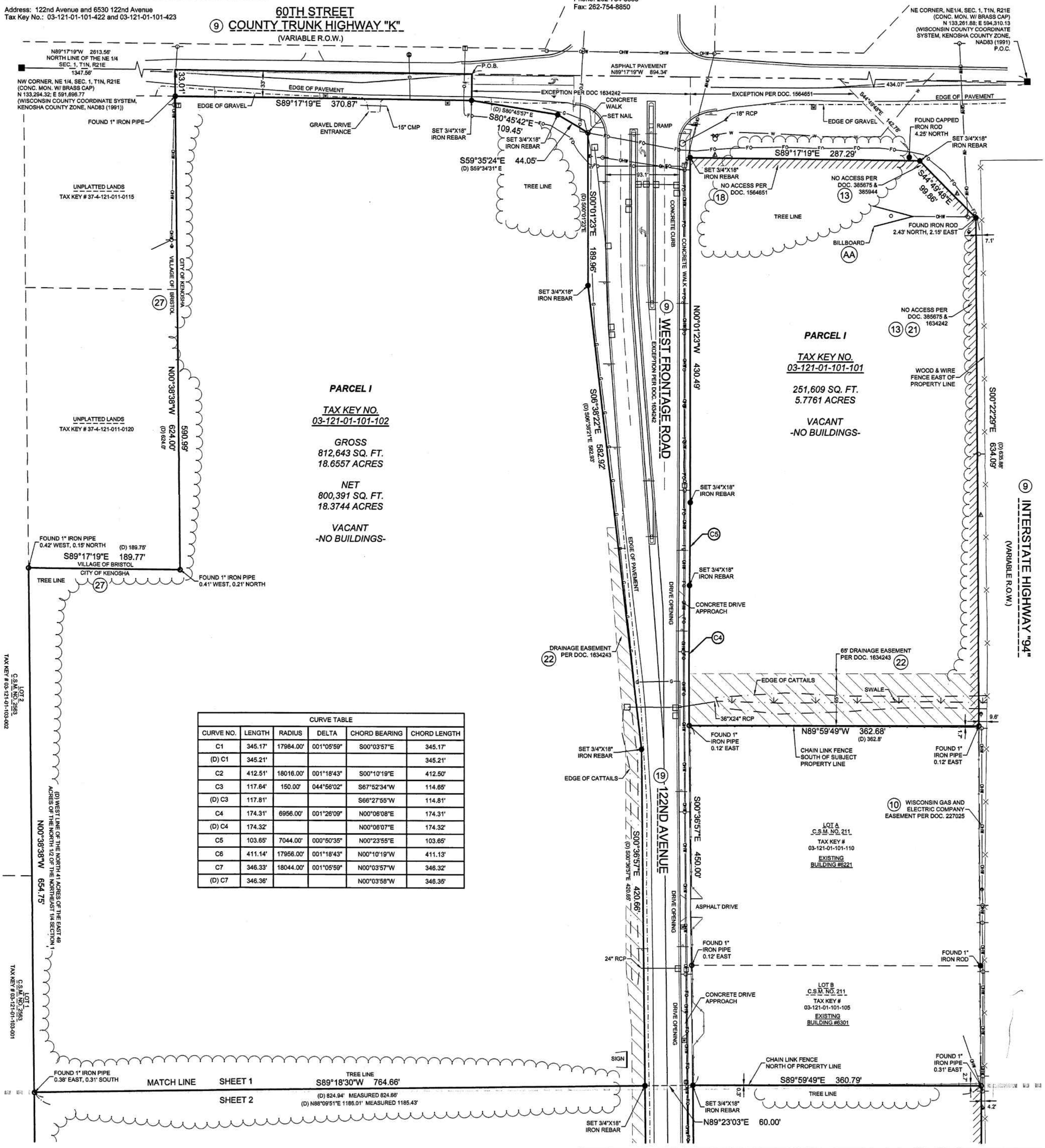
PINNACLE ENGINEERING GROUP, LLC.
15850 West Bluemound Road Suite 210
Brookfield, WI 53005
Phone: 262-754-8888
Fax: 262-754-8850

NORTH

GRAPHICAL SCALE (FEET)
0 — 1" = 60' — 120'

Bearings referenced to the Wisconsin County Coordinate System, Kenosha County Zone, NAD83 (1991). The north line of the Northeast 1/4 of Section 1, Township 1 North, Range 21 East has a bearing of S89°17'19"E.

VICINITY MAP
SCALE 1":1000'



CURVE TABLE					
CURVE NO.	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH
C1	345.17'	17984.00'	001°05'59"	S00°03'57"E	345.17'
(D) C1	345.21'				345.21'
C2	412.51'	18016.00'	001°18'43"	S00°10'19"E	412.50'
C3	117.64'	150.00'	044°56'02"	S67°52'34"W	114.65'
(D) C3	117.81'			S66°27'55"W	114.81'
C4	174.31'	6956.00'	001°26'09"	N00°06'08"E	174.31'
(D) C4	174.32'			N00°06'07"E	174.32'
C5	103.65'	7044.00'	000°50'35"	N00°23'55"E	103.65'
C6	411.14'	17956.00'	001°18'43"	N00°10'19"W	411.13'
C7	346.33'	18044.00'	001°05'59"	N00°03'57"W	346.32'
(D) C7	346.36'			N00°03'58"W	346.35'

LOCATION: 122ND AVENUE - KENOSHA, WISCONSIN

PART OF THE NE 1/4 AND SE 1/4 OF THE NE 1/4 SEC. 1, T1N, R21E, CITY OF KENOSHA, KENOSHA COUNTY, WISCONSIN

REVIEWED: JPK
DESIGNED: -
DRAFTED: ST

PLAN | DESIGN | DELIVER
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PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING
WISCONSIN OFFICE: 15850 W. BLUEMOUND ROAD BROOKFIELD, WI 53005 (262) 754-8888
CHICAGO | MILWAUKEE : NATIONWIDE

ALTA/NSPS LAND TITLE SURVEY

REVISIONS

PEG JOB No. 633.00
PEG PM
DATE 03/24/2016
SCALE 1"=60'

SHEET 1 & 2

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SURVEY

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LEGEND OF SYMBOLS & ABBREVIATIONS

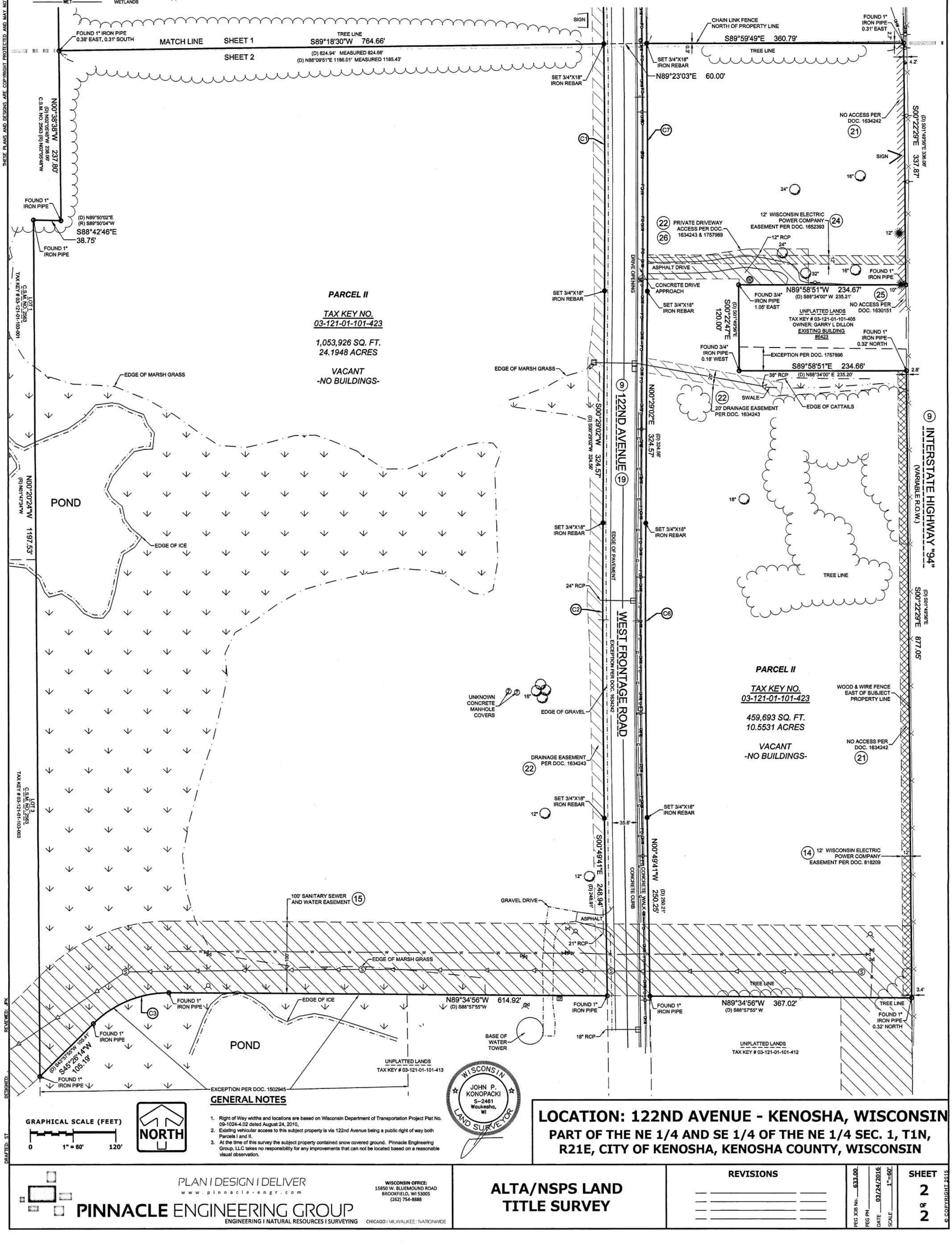
SANITARY MANHOLE	FIBER OPTIC MARKER	SIGN	
STORM MANHOLE	FIBER OPTIC MANHOLE	MAIL BOX	
STORM INLET	TELEPHONE PEDESTAL	FLAG POLE	
CLEANOUT	TELEPHONE MANHOLE	BOLLARD	
CATCH BASIN	TELEPHONE MARKER	CROSS CUT	
LATERAL	UTILITY POLE	IRON PIPE	
BASKETBALL HOOP	GUY WIRE	IRON REBAR/ROD	
SPOT ELEVATION	TRANSFORMER	MAG NAIL	
AIR CONDITIONING UNIT	ELECTRIC PEDESTAL	SECTION MONUMENT	
UNKNOWN MANHOLE	ELECTRIC MANHOLE	BENCH MARK	
DUMPSTER	CABLE TV RISER/BOX	CL.	=CENTERLINE
HANDICAP STALL	CABLE TV MANHOLE	CONC.	=CONCRETE
WELL	GAS VALVE	EL.	=ELEVATION
HYDRANT	GAS METER	EXT.	=EXISTING
WATER VALVE	GAS MARKER	F.I.P.	=FOUND IRON PIPE
WATER SERVICE BOX	DIRECTIONAL ARROW	F.M.N.	=FOUND MAG NAIL
SPRINKLER VALVE	CONIFER TREE	MON.	=MONUMENT
TRAFFIC SIGNAL	DECIDUOUS TREE	P.O.B.	=POINT OF BEGINNING
FLOOD LIGHT	BUSH	P.O.C.	=POINT OF COMMENCEMENT
LIGHT POLE	WETLAND SYMBOL	R.O.W	=RIGHT OF WAY
UNDERGROUND UTILITY LINES		SEC.	=SECTION
SANITARY SEWER		SQ. FT.	=SQUARE FEET
STORM SEWER		T.O.C.	=TOP OF CURB
W WATER MAIN		W/	=WITH
FO FIBER OPTIC		(R)	=RECORDED AS
T TELEPHONE		(D)	=DEEDED
E ELECTRICAL			
OHW OVERHEAD WIRES			
CATV CABLE TELEVISION			
G GAS MAIN			
WET WETLANDS			

NOTES CORRESPONDING TO SCHEDULE B - II

1 - 3, 11, 12 VISIBLE EVIDENCE SHOWN IF ANY

4 - 8, 16 NOT SURVEY RELATED

9. Public or private rights, if any, in such portion of the insured premises as may be used , laid out, taken of dedicated in any manner whatsoever for highway or road purposes. Interstate Highway "94", County Trunk Highway "K" and 122nd Avenue graphically shown on survey.
10. Easement granted to Wisconsin Gas and Electric Company, it successors and assigns, dated May 28, 1937 and recorded in the Kenosha County Register of Deeds office on June 15, 1937 in Volume 198 of Deeds, page 132, as Document No. 227025. Easement for poles and wires along the highway known as "Super Highway #41" (Interstate Highway "94"). Poles and wires graphically shown on survey.
13. Restrictions on access to and from Interstate Highway 94 and County Trunk Highway K, as contained in Award of Damages dated July 3, 1957 and recorded in the Kenosha County Register of Deeds office on July 12, 1957 in Volume 460 of Records, pages 30-31, as Document No. 385675, and in Warranty Deed dated July 12, 1957 and recorded in said Register's office on July 23, 1957 in Volume 460 of Records, page 537, as Document No. 385944. (Affects Parcel I and II). No Access graphically shown on survey.
14. Easement granted to Wisconsin Electric Power Company, dated March 30, 1988 recorded in the Kenosha Count Register of Deeds office on April 10, 1989 in Volume 1345 of Records, pages 829-31, as Document No. 818209 for pole lines, conduits and incidental purposes, over, upon and under land herein. (Affect Parcel II). 12' easement graphically shown on survey.
15. Easement granted to Kenosha Water Utility, its successors and assigns, dated October 22, 2001 and recorded in the Kenosha County Register of Deeds office on October 25, 2001 as Document No. 1239959 for the purposes of construction, install, repairing, altering, maintaining and operating a water main and associated appurtenances in, under and over the land herein. (Affects Parcel II). 100' wide Sanitary Sewer and Water Main Easement as graphically shown on survey.
17. Developer's Agreement by and between Town of Bristol, American Heritage Hospitality, Kenosha Water Utility and the City of Kenosha, recorded in the Kenosha County Register of Deeds office on December 23, 1997 as Document No. 1080697. (Affects Parcel I). It is the surveyor's opinion the recorded Document does not affect the subject properties.
18. Easements or right of access contained in Warranty Deed, dated August 4, 2008 and recorded in the Kenosha County Register of Deeds office on August 5, 2008 as Document No. 1564651. (Affects Parcel I). No Access graphically shown on survey.
19. Resolution contained in Amendment of Official Map, dated February 16, 2010 and recorded in the Kenosha County Register of Deeds office on February 24, 2010 as Document No. 1611702. (Affects Parcels I and II). Resolution to amend Official Map to shown 122nd Avenue - graphically shown on survey.
20. Restriction, easements and provision as contained in Department of Transportation Corridor Preservation map for the I-94 Interchanges in Kenosha County, recorded in the Kenosha County Register of Deeds office on February 9, 1999 as Document No. 1132559. (Affects Parcel I and II). It is the surveyor's opinion the recorded Document does not affect the subject properties.
21. Easement or access as contained in Special Warranty Deed, dated November 10, 2010 and recorded in the Kenosha County Register of Deeds office on December 3, 2010 as Document No. 1634242. (Affects Parcels I and II). No Vehicular Access as graphically shown on survey.
22. Easement contained in Permanent Limited Easement, dated November 10, 2010 and recorded in the Kenosha County Register of Deeds office on December 3, 2010 as Document No. 1634243. (Affects Parcels I and II). Drainage Easements and a Private Driveway Access Easement as graphically shown on survey.
23. Easement contained in Temporary Limited Easement, dated November 10, 2010 and recorded in the Kenosha County Register of Deeds office on December 3, 2010 as Documents No. 1634244. (Affects Parcels I and II). It is the surveyor's opinion the Temporary Limited Easement for slopes has terminated. The highway is open to the traveling public.
24. Easement contained in Distribution Easement Underground Joint granted to Wisconsin Electric Power Company, a Wisconsin corporation doing business as We Energies and Frontier North Inc., a Wisconsin corporation, dated June 13, 2011 and recorded in the Kenosha County Register of Deeds office on August 30, 2011 as Document No. 1652393. (Affects Parcel II). 12' Easement as graphically shown on survey.
25. Easement or right of access contained in Temporary Limited Easement, dated July 19, 2010 and recorded in the Kenosha County Register of Deeds office on October 19, 2010 as Document No. 1630151. (Affects Parcel II). No Vehicular Access as graphically shown on survey and it is the surveyor's opinion the Temporary Limited Easement for slopes has terminated. The highway is open to the traveling public.
26. Access easement contained in Declaration of Access Easement by the Community Development Authority of the Village of Bristol for the benefit of Evelyn E. Roberts and her successors in interest, dated August 21, 2015 and recorded in the Kenosha County Register of Deeds office on September 24, 2015 as Document No. 1757898. (Affects Parcel II). Access Easement graphically shown on survey.
27. Certificate of Attachment contained in instrument executed by the City Clerk, dated December 18, 2000 and recorded in the Kenosha County Register of Deeds office on December 5, 2000 as Document No. 1202936. (Affects Parcels I and II). Annexation of the subject property from the Town of Bristol to the City of Kenosha - affects subject property as graphically shown on survey.
28. Notice And Order Establishing Locations and Right-Of-Way Widths For Future Freeways Or Expressways contained in instrument, dated February 2, 1999 and recorded in the Kenosha County Register of Deeds office on February 9, 1999 as Document No. 1132567. Affects subject property but cannot be plotted.



GRAPHICAL SCALE (FEET)
0 1" = 60' 120'

NORTH

GENERAL NOTES

1. Right of Way widths and locations are based on Wisconsin Department of Transportation Project Plat No. 09-1024-4.02 dated August 24, 2010,
2. Existing vehicular access to this subject property is via 122nd Avenue being a public right of way both Parcels I and II.
3. At the time of this survey the subject property contained snow covered ground. Pinnacle Engineering Group, LLC takes no responsibility for any improvements that can not be located based on a reasonable visual observation.

WISCONSIN
JOHN P. KONOPACKI
S-2461
Waukesha, WI
LAND SURVEYOR

LOCATION: 122ND AVENUE - KENOSHA, WISCONSIN

PART OF THE NE 1/4 AND SE 1/4 OF THE NE 1/4 SEC. 1, T1N, R21E, CITY OF KENOSHA, KENOSHA COUNTY, WISCONSIN

REVIEWED: JPK
DESIGNED:
DRAFTED: ST

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SCALE 1"=60'

SHEET 2 OF 2

SURVEY

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Figure 6 – NOAA Rainfall Data

NOAA Atlas 14, Volume 8, Version 2
Location name: Kenosha, Wisconsin, USA*
Latitude: 42.5792°, Longitude: -87.9551°
Elevation: 718 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.334 (0.266-0.417)	0.393 (0.312-0.491)	0.490 (0.388-0.613)	0.573 (0.451-0.719)	0.689 (0.527-0.883)	0.781 (0.584-1.01)	0.874 (0.634-1.14)	0.970 (0.677-1.29)	1.10 (0.741-1.49)	1.20 (0.789-1.64)
10-min	0.489 (0.389-0.611)	0.575 (0.457-0.718)	0.718 (0.569-0.898)	0.839 (0.661-1.05)	1.01 (0.772-1.29)	1.14 (0.855-1.48)	1.28 (0.928-1.68)	1.42 (0.992-1.89)	1.61 (1.08-2.18)	1.76 (1.16-2.40)
15-min	0.597 (0.475-0.745)	0.701 (0.557-0.876)	0.876 (0.693-1.10)	1.02 (0.806-1.28)	1.23 (0.941-1.58)	1.39 (1.04-1.80)	1.56 (1.13-2.04)	1.73 (1.21-2.31)	1.96 (1.32-2.66)	2.14 (1.41-2.93)
30-min	0.834 (0.663-1.04)	0.985 (0.782-1.23)	1.23 (0.978-1.54)	1.44 (1.14-1.81)	1.74 (1.33-2.23)	1.97 (1.48-2.55)	2.21 (1.60-2.90)	2.46 (1.71-3.27)	2.78 (1.88-3.77)	3.04 (2.00-4.15)
60-min	1.05 (0.833-1.31)	1.27 (1.01-1.58)	1.63 (1.29-2.04)	1.94 (1.53-2.43)	2.37 (1.81-3.04)	2.71 (2.03-3.50)	3.05 (2.21-4.00)	3.41 (2.38-4.54)	3.89 (2.62-5.27)	4.26 (2.80-5.82)
2-hr	1.26 (1.02-1.56)	1.55 (1.24-1.91)	2.02 (1.62-2.50)	2.43 (1.94-3.01)	3.00 (2.32-3.80)	3.44 (2.61-4.40)	3.90 (2.86-5.05)	4.37 (3.09-5.76)	5.00 (3.42-6.70)	5.49 (3.66-7.42)
3-hr	1.39 (1.12-1.70)	1.72 (1.39-2.10)	2.27 (1.83-2.78)	2.74 (2.20-3.37)	3.40 (2.66-4.29)	3.93 (3.00-4.99)	4.47 (3.31-5.76)	5.02 (3.59-6.59)	5.78 (3.99-7.71)	6.37 (4.29-8.56)
6-hr	1.66 (1.36-2.01)	2.02 (1.66-2.45)	2.63 (2.15-3.19)	3.16 (2.57-3.85)	3.93 (3.12-4.92)	4.55 (3.53-5.72)	5.19 (3.91-6.63)	5.86 (4.26-7.62)	6.79 (4.76-8.98)	7.52 (5.15-10.0)
12-hr	2.03 (1.69-2.42)	2.35 (1.95-2.81)	2.92 (2.42-3.50)	3.43 (2.83-4.12)	4.20 (3.39-5.21)	4.83 (3.81-6.03)	5.50 (4.22-6.98)	6.23 (4.60-8.03)	7.25 (5.18-9.51)	8.07 (5.61-10.6)
24-hr	2.39 (2.01-2.82)	2.70 (2.27-3.19)	3.26 (2.73-3.86)	3.77 (3.15-4.47)	4.54 (3.72-5.57)	5.18 (4.15-6.40)	5.88 (4.57-7.37)	6.63 (4.97-8.45)	7.69 (5.58-9.98)	8.55 (6.04-11.1)
2-day	2.69 (2.30-3.14)	3.08 (2.63-3.60)	3.76 (3.19-4.39)	4.36 (3.68-5.10)	5.22 (4.32-6.30)	5.94 (4.81-7.21)	6.68 (5.26-8.25)	7.48 (5.68-9.40)	8.58 (6.31-11.0)	9.46 (6.79-12.2)
3-day	2.95 (2.53-3.41)	3.37 (2.89-3.89)	4.09 (3.50-4.74)	4.72 (4.02-5.49)	5.64 (4.70-6.75)	6.39 (5.22-7.70)	7.18 (5.70-8.79)	8.00 (6.14-9.99)	9.15 (6.80-11.6)	10.1 (7.30-12.9)
4-day	3.17 (2.74-3.65)	3.60 (3.11-4.15)	4.35 (3.74-5.01)	5.00 (4.29-5.78)	5.96 (4.99-7.09)	6.73 (5.53-8.07)	7.54 (6.02-9.20)	8.40 (6.49-10.4)	9.59 (7.17-12.1)	10.5 (7.69-13.4)
7-day	3.74 (3.26-4.26)	4.21 (3.67-4.79)	5.01 (4.36-5.72)	5.72 (4.95-6.54)	6.74 (5.71-7.93)	7.57 (6.29-8.98)	8.44 (6.82-10.2)	9.36 (7.32-11.5)	10.6 (8.06-13.3)	11.7 (8.62-14.7)
10-day	4.26 (3.74-4.81)	4.76 (4.18-5.38)	5.62 (4.92-6.37)	6.37 (5.55-7.24)	7.45 (6.36-8.70)	8.32 (6.96-9.80)	9.23 (7.52-11.1)	10.2 (8.03-12.4)	11.5 (8.79-14.3)	12.5 (9.36-15.8)
20-day	5.83 (5.19-6.50)	6.46 (5.75-7.21)	7.51 (6.67-8.40)	8.39 (7.42-9.41)	9.62 (8.30-11.0)	10.6 (8.96-12.2)	11.5 (9.53-13.6)	12.5 (10.0-15.1)	13.9 (10.8-17.0)	14.9 (11.3-18.5)
30-day	7.22 (6.48-7.98)	7.99 (7.16-8.84)	9.23 (8.26-10.2)	10.2 (9.12-11.4)	11.6 (10.1-13.1)	12.6 (10.8-14.5)	13.6 (11.3-15.9)	14.6 (11.8-17.4)	15.9 (12.4-19.3)	16.9 (12.9-20.8)
45-day	9.04 (8.18-9.92)	10.0 (9.05-11.0)	11.5 (10.4-12.7)	12.7 (11.4-14.0)	14.3 (12.4-16.0)	15.4 (13.2-17.4)	16.4 (13.7-18.9)	17.4 (14.1-20.5)	18.6 (14.6-22.4)	19.4 (15.1-23.8)
60-day	10.6 (9.68-11.6)	11.8 (10.7-12.9)	13.6 (12.3-14.9)	14.9 (13.5-16.4)	16.7 (14.6-18.5)	17.8 (15.4-20.1)	18.9 (15.9-21.7)	19.9 (16.2-23.2)	21.0 (16.6-25.1)	21.7 (16.9-26.5)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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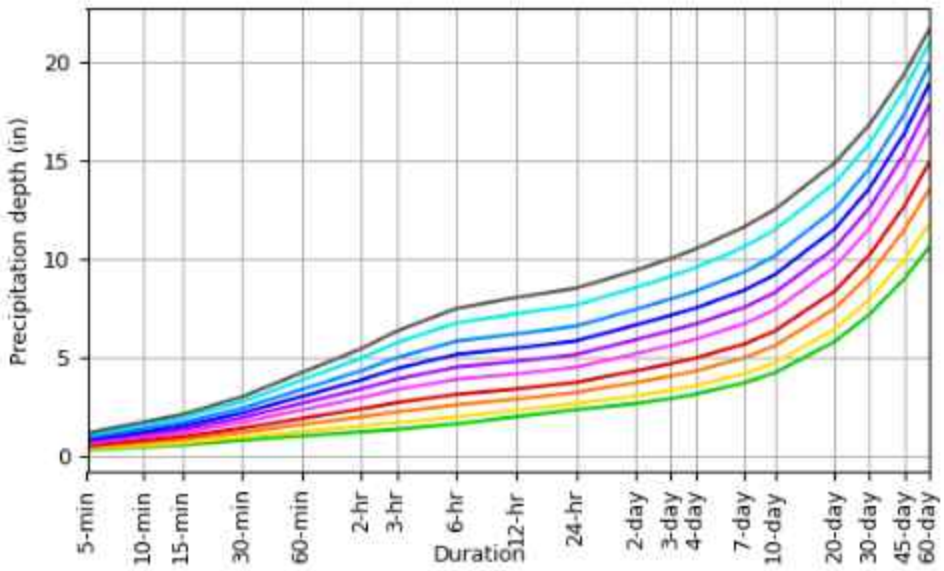
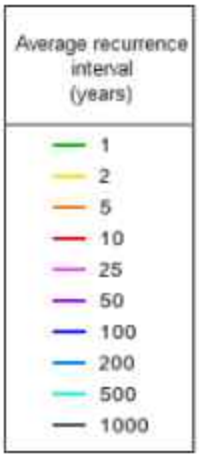
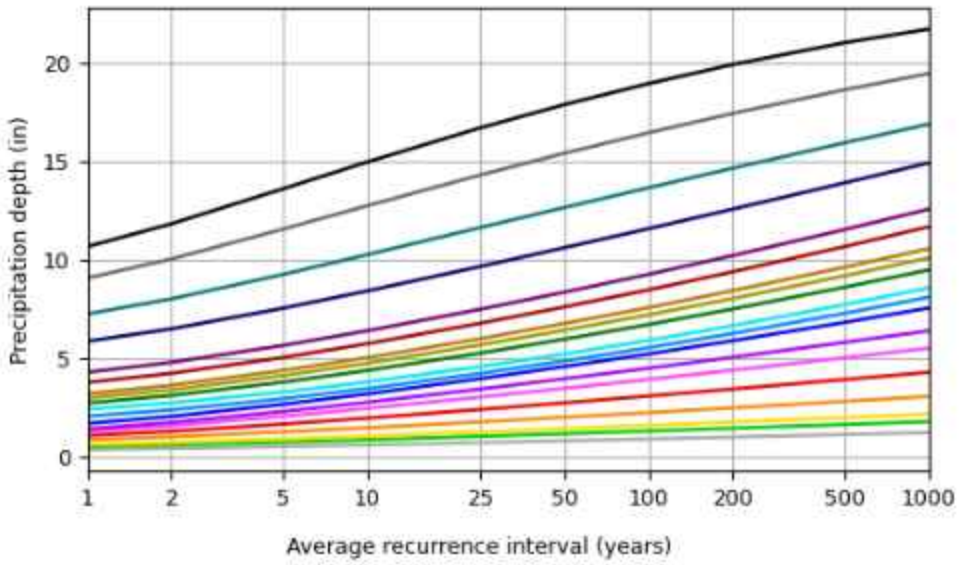
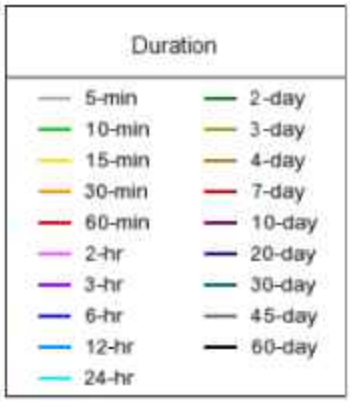
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 42.5792°, Longitude: -87.9551°









NOAA Atlas 14, Volume 8, Version 2

Created (GMT): Fri Aug 11 19:24:51 2023

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Maps & aerials

Small scale terrain

Large scale terrain

Large scale map

Large scale aerial

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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Figure 7 – Wisconsin Rainfall Distributions

County	Applicable NRCS Rainfall Distribution	County	Distribution
Adams	MSE3	Oconto	MSE4
Ashland	MSE4	Oneida	MSE4
Barron	MSE3	Outagamie	MSE4
Bayfield	MSE4	Ozaukee	MSE3
Brown	MSE4	Pepin	MSE3
Buffalo	MSE3	Pierce	MSE3
Burnett	MSE4	Polk	MSE3
Calumet	MSE4	Portage	MSE3
Chippewa	MSE3	Price	MSE4
Clark	MSE3	Racine	MSE3
Columbia	MSE4	Richland	MSE4
Crawford	MSE4	Rock	MSE3
Dane	MSE4	Rusk	MSE4
Dodge	MSE3	Sauk	MSE4
Door	MSE4	Sawyer	MSE4
Douglas	MSE4	Shawano	MSE4
Dunn	MSE3	Sheboygan	MSE4
Eau Claire	MSE3	St. Croix	MSE3
Florence	MSE4	Taylor	MSE4
Fond du Lac	MSE4	Trempealea	MSE3
Forest	MSE4	Vernon	MSE4
Grant	MSE4	Vilas	MSE4
Green	MSE4	Walworth	MSE3
Green Lake	MSE3	Washburn	MSE4
Iowa	MSE4	Washingtor	MSE3
Iron	MSE4	Waukesha	MSE3
Jackson	MSE3	Waupaca	MSE3
Jefferson	MSE3	Waushara	MSE3
Juneau	MSE3	Winnebagc	MSE4
Kenosha	MSE3	Wood	MSE3
Kewaunee	MSE4		
La Crosse	MSE4		
Lafayette	MSE4		
Langlade	MSE4		
Lincoln	MSE4		
Manitowoc	MSE4		
Marathon	MSE3		
Marinette	MSE4		
Marquette	MSE3		
Menominee	MSE4		
Milwaukee	MSE3		
Monroe	MSE4		

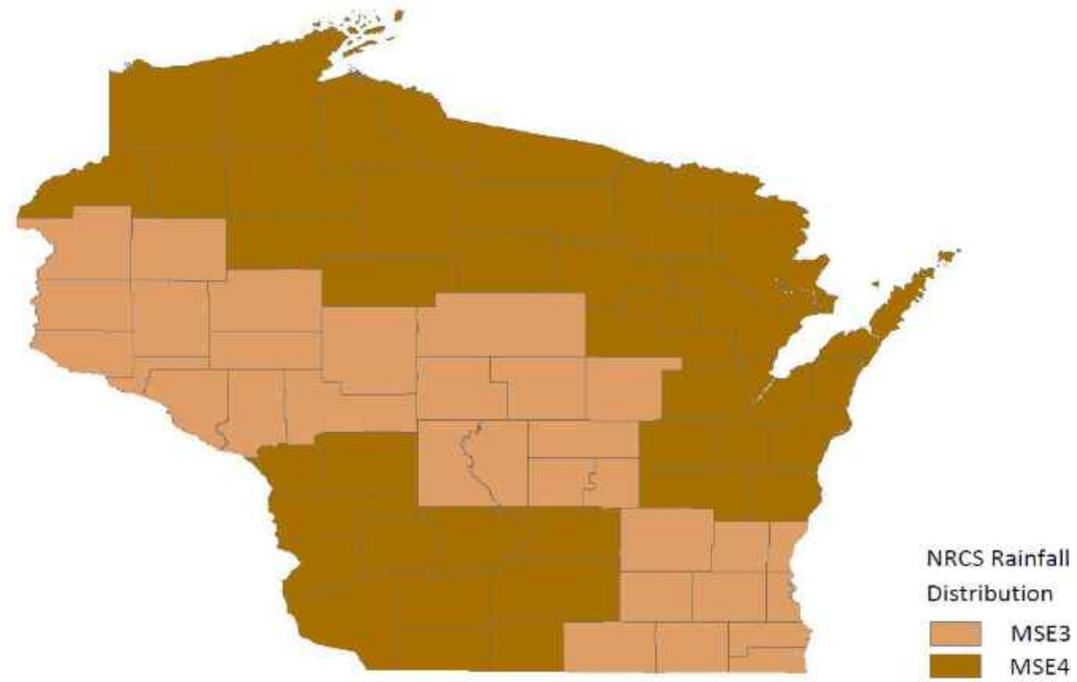
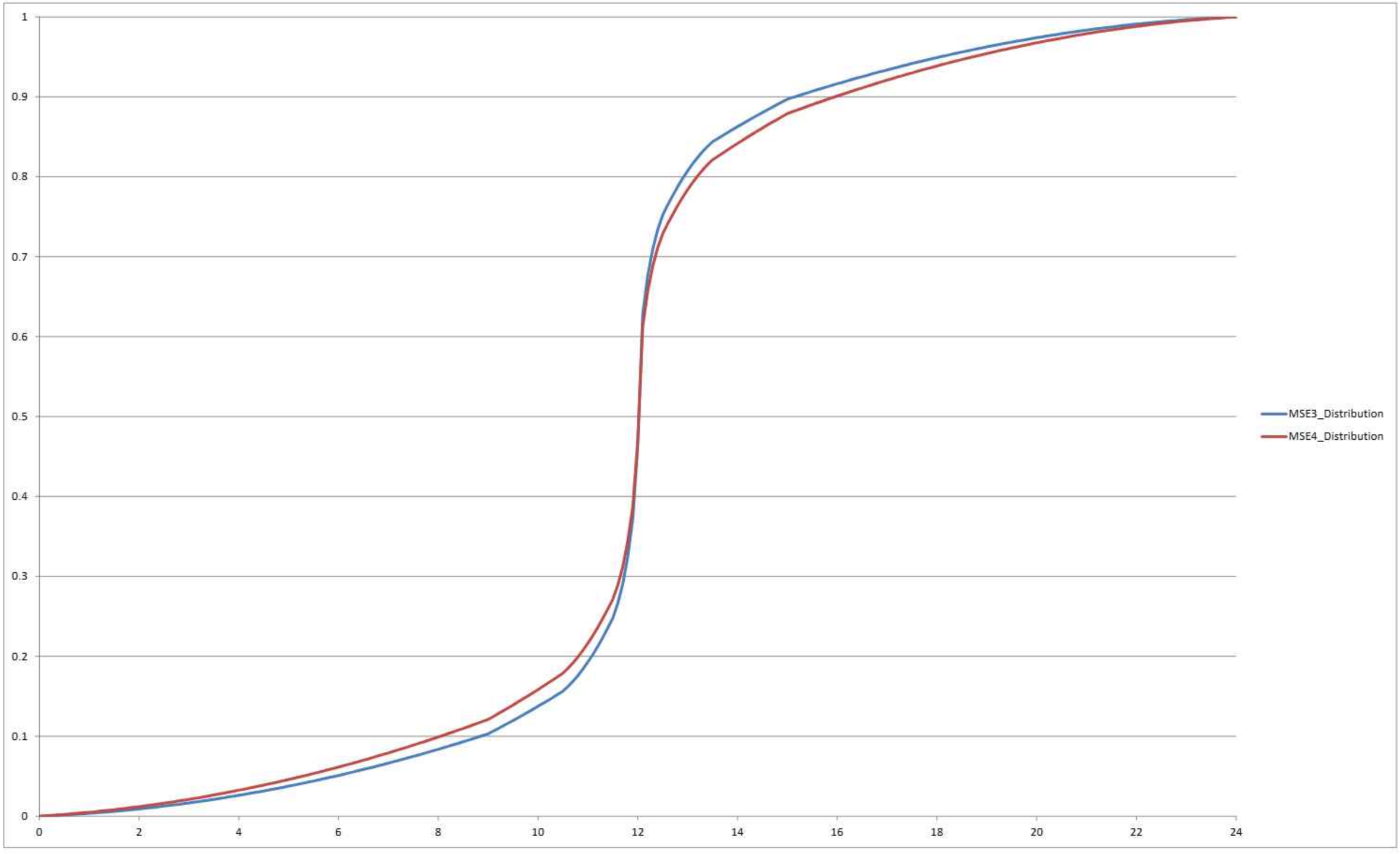


Figure WI 2-1: NRCS Wisconsin Rainfall Distribution Regions based on data from NOAA Atlas 14 Volumes 8 and 9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16
18
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22
24
MSE3_Distribution
MSE4_Distribution

Figure 8 – Montrose Environmental Exhibit

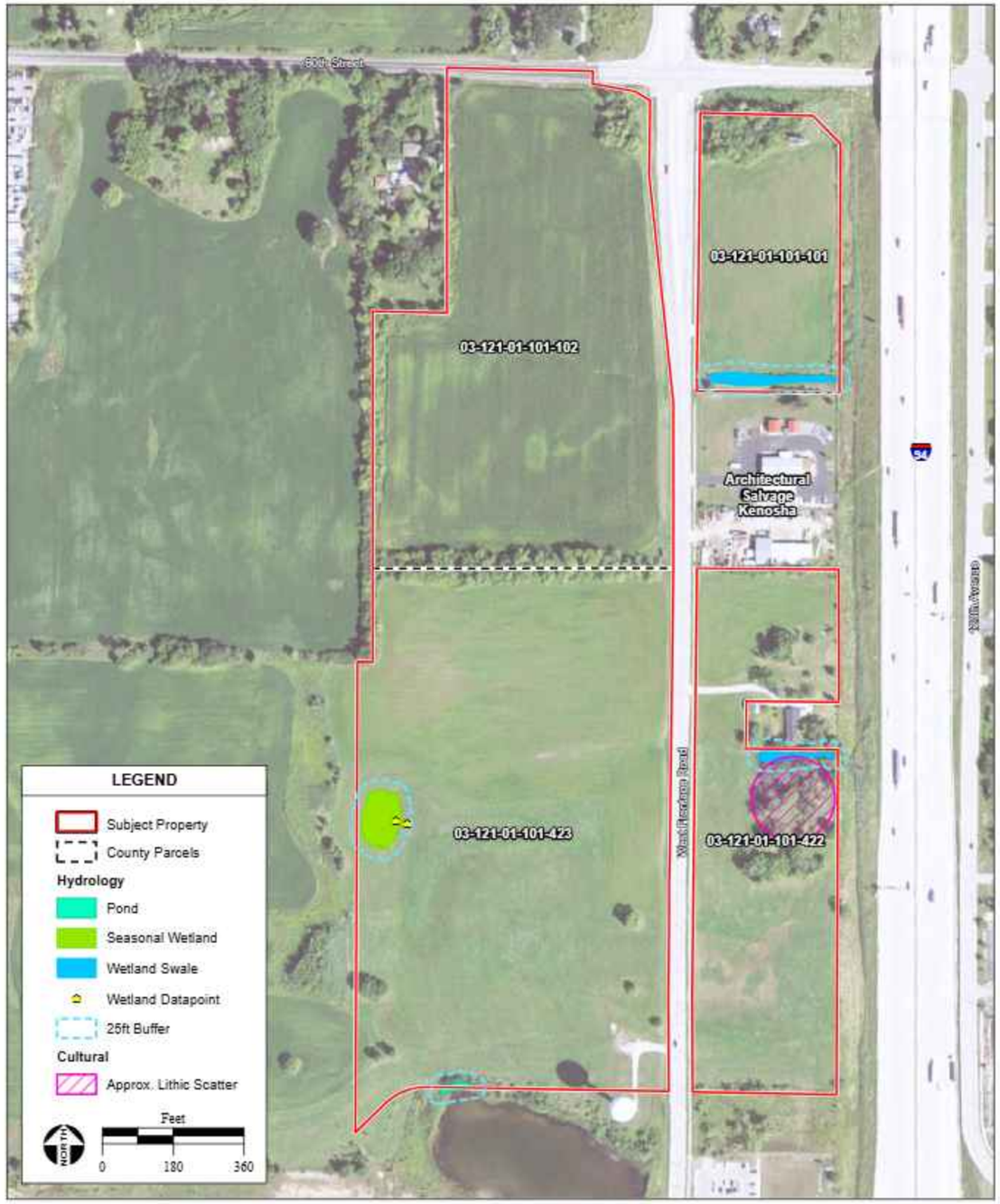

60th Street
03-121-01-101-102
03-121-01-101-101
Architectural Salvage Kenosha
94
Green Bay Road
03-121-01-101-423
03-121-01-101-422
Wood Road
LEGEND
Subject Property
County Parcels
Hydrology
Pond
Seasonal Wetland
Wetland Swale
Wetland Datapoint
25ft Buffer
Cultural
Approx. Lithic Scatter
NORTH
Feet
0
180
360

Figure 9 – Montrose Alternative A

SOURCE: HBG Design, 2023; Montrose Environmental, 9/26/2023

Figure 4
Site Plan - Alternative A

Figure 10 – Montrose Alternative B

SOURCE: HBG Design, 2023; Montrose Environmental, 9/26/2023

Figure 6
Site Plan - Alternative B

Figure 11 – Montrose Alternative C

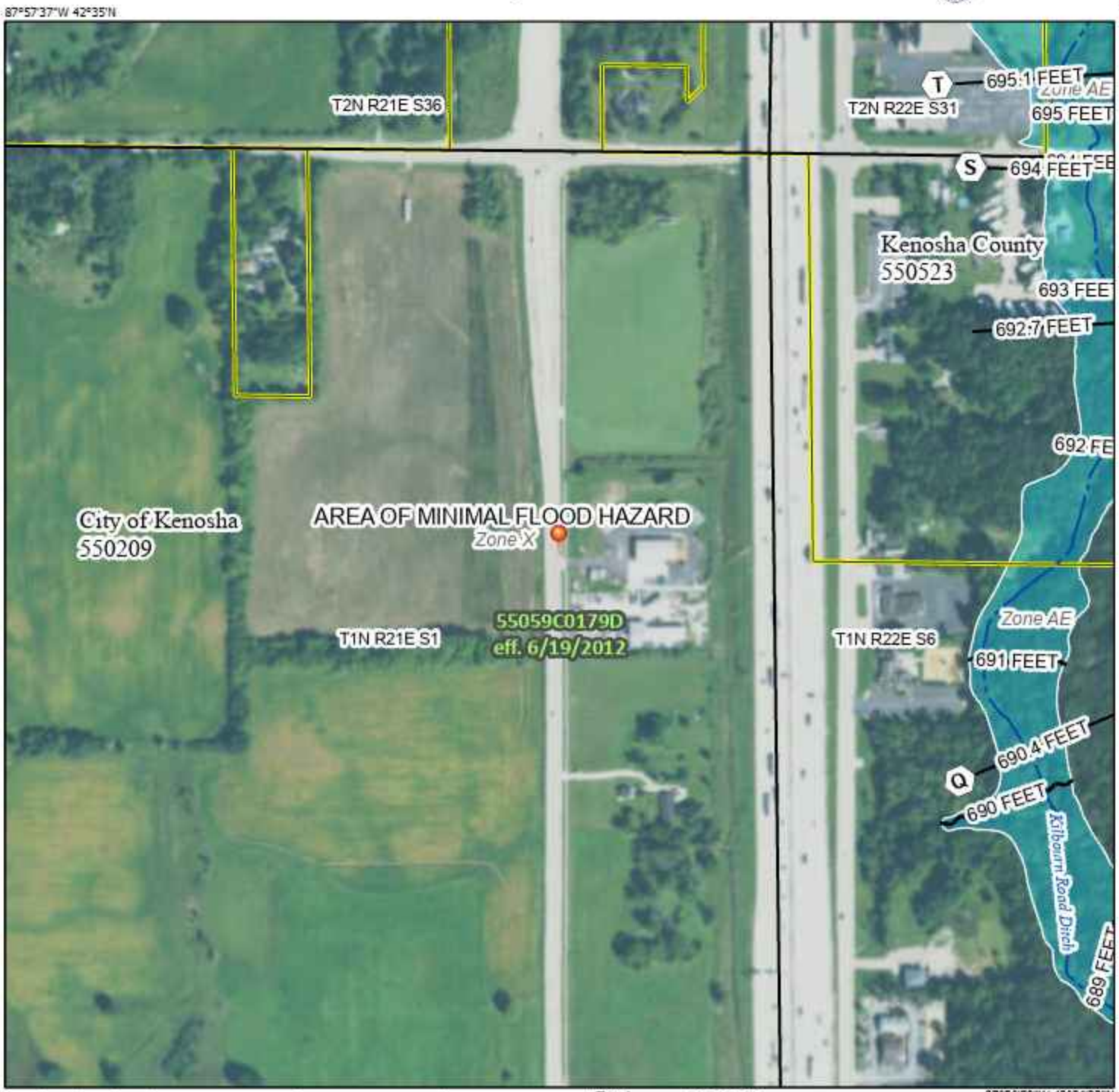
SOURCE: HBG Design, 2023; Montrose Environmental, 9/26/2023

Figure 7
Site Plan - Alternative C

Figure 12 – FEMA FIRM Map

National Flood Hazard Layer FIRMette

FEMA



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee. See Notes. Zone X
- Area with Flood Risk due to Levee Zone D

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard Zone X
- Effective LOMRs
- Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

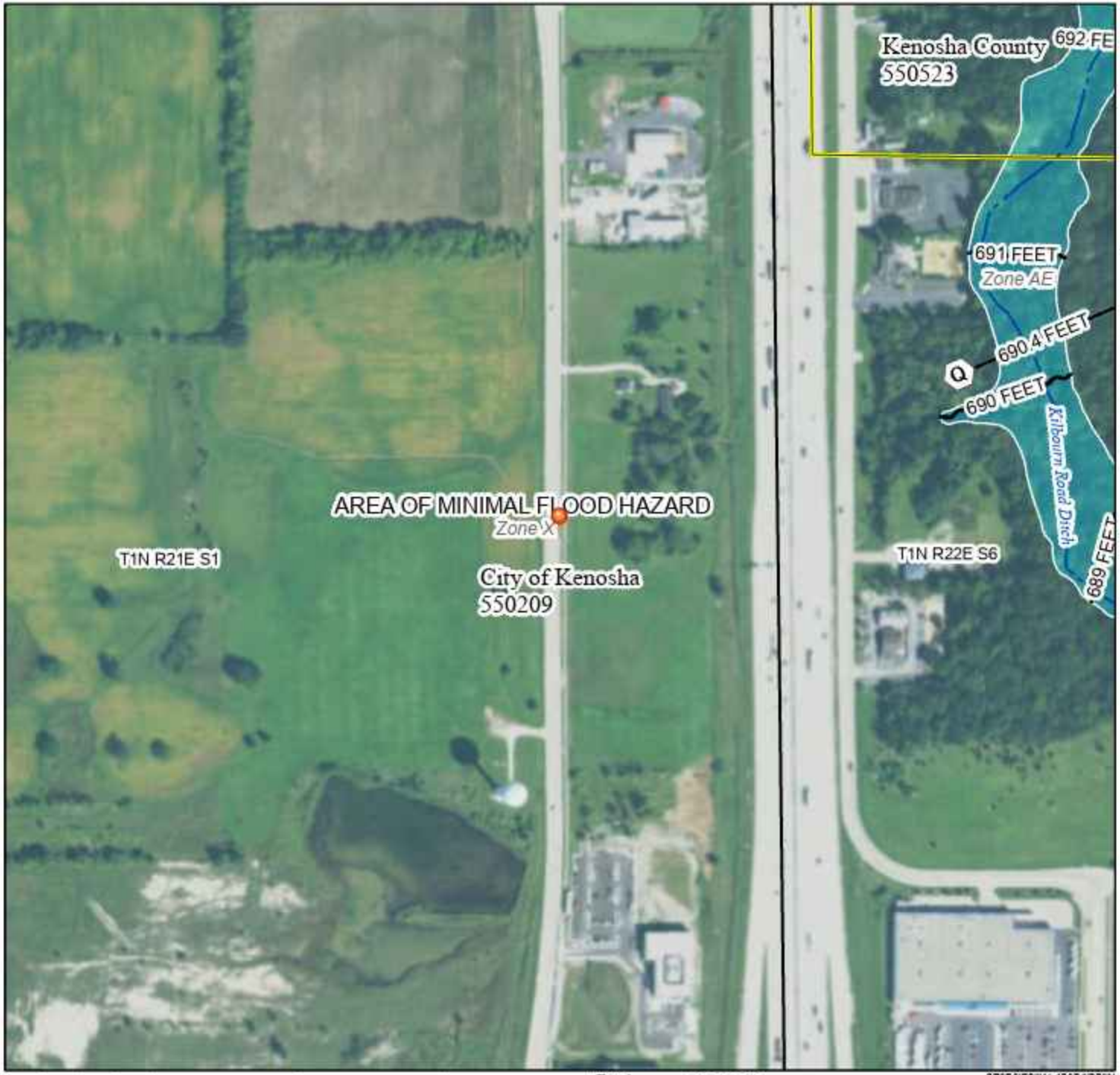
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/2/2023 at 2:26 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMette

FEMA

87°57'37"W 42°34'50"N



87°56'59"W 42°34'23"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
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- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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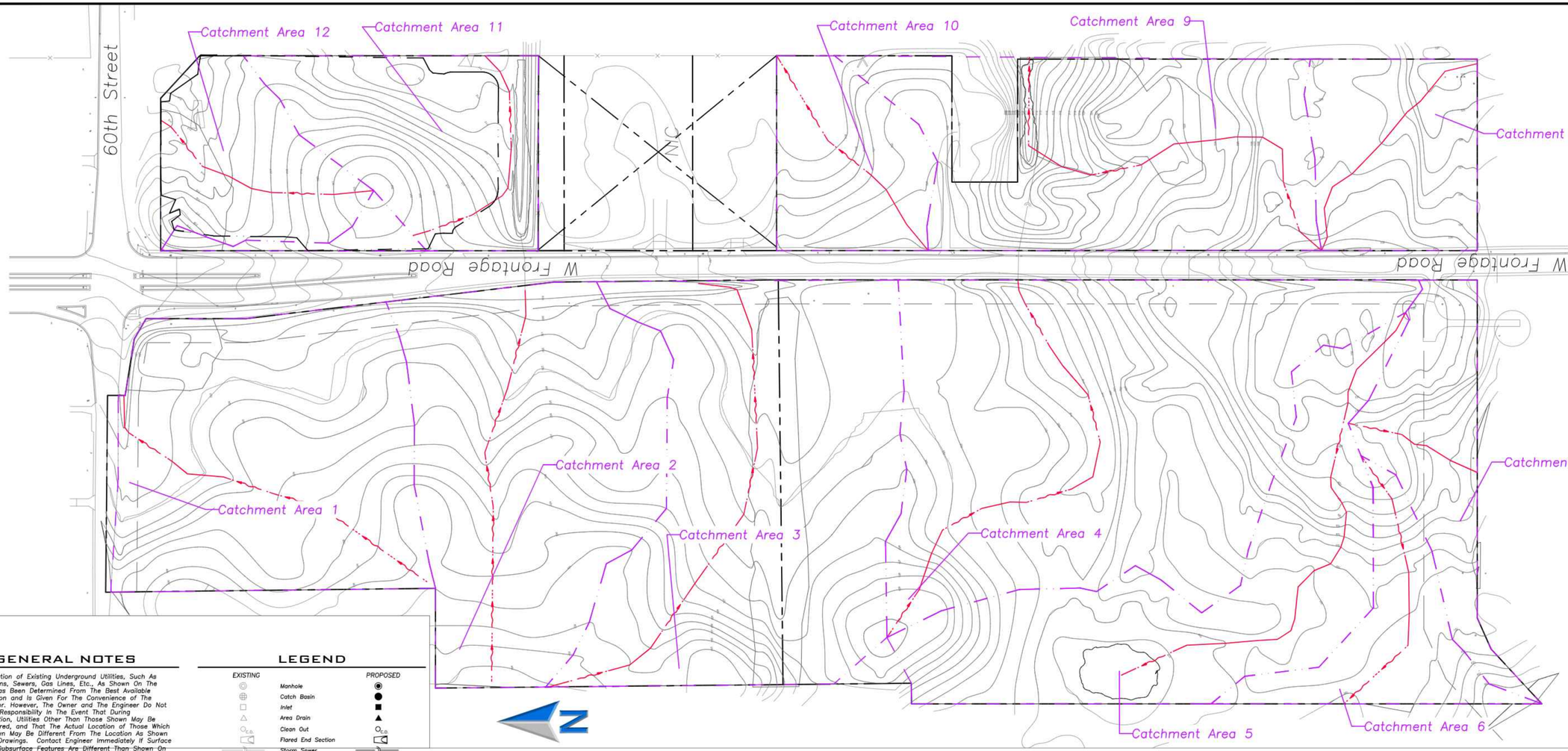
APPENDIX B – ENGINEERING EXHIBITS

Figure 13 –Existing Catchment Area Exhibit



GENERAL NOTES

1. *The Location of Existing Underground Utilities, Such As Watermains, Sewers, Gas Lines, Etc., As Shown On The Plans, Has Been Determined From The Best Available Information and Is Given For The Convenience of The Contractor. However, The Owner and The Engineer Do Not Assume Responsibility In The Event That During Construction, Utilities Other Than Those Shown May Be Encountered, and That The Actual Location of Those Which Are Shown May Be Different From The Location As Shown On The Drawings. Contact Engineer Immediately If Surface and/or Subsurface Features Are Different Than Shown On The Drawings.*
2. *Notify The Engineer Without Delay of Any Discrepancies Between the Drawings and Existing Field Conditions.*
3. ***Contractor Shall Provide Private Utility Locating Services for the Project Area.***
4. *Notify The Owner, Engineer and The *****City of Chicago: Utility Alert Network at 312—744—7000***** A Minimum of 48 Hours In Advance of Performing Any Work.*
5. *All Areas, On or Off Site, Disturbed During Construction Operations and Not Part of the Work As Shown Hereon Shall Be Restored To Original Condition to the Satisfaction of the Owner at No Additional Cost to the Owner. It is Incumbent Upon Contractor to Show That Damaged Areas Were Not Disturbed By Construction Operations.*
6. *These Drawings Assume That The Contractor Will Utilize An Electronic Drawing File (DWG) to Stake All Site Improvements Accordingly. **Contractor Shall Re—Establish Horizontal Control. Horizontal Control Points Not Provided.***
7. *No Person May Utilize The Information Contained Within These Drawings Without Written Approval From Eriksson Engineering Associates, Ltd.*
8. *The Engineer Is Furnishing These Drawings For Construction Purposes As A Convenience To The Owner, Architect, Surveyor, or Contractor. Prior To The Use Of These Drawings For Construction Purposes, The User Of This Media Shall Verify All Dimensions And Locations Of Buildings With The Foundation Drawings And Architectural Site Plan, and Coordinate All Dimensions and Locations of All Site Items. If Conflicts Exist The User Of This Information Shall Contact The Engineer Immediately.*
9. ***Provide An As—built Survey Prepared By A Licensed Professional Land Surveyor In Accordance With The Authorities Having Jurisdiction Which Shall Include As a Minimum All Detention Basins and Best Management Practices, Include All Storm and Sanitary Sewers, Structure Locations, Sizes, Rim and Invert Elevations, Final Detention Volume Calculations For The Basin(s), Watermain and Valve and Appurtenance Locations.***
10. *The Illinois Department Of Transportation Standard Specifications For Road And Bridge Construction Latest Edition, And All Addenda Thereto, Shall Govern The Earthwork And Paving Work Under This Contract Unless Noted Otherwise.*

LEGEND

EXISTING		PROPOSED
	Manhole	
	Catch Basin	
	Inlet	
	Area Drain	
C.O.	Clean Out	C.O.
	Flared End Section	
S	Storm Sewer	S
S	Sanitary Sewer	S
S	Combined Sewer	S
W	Water Main	W
G	Gas Line	G
OH	Overhead Wires	OH
E	Electrical Cable (Buried)	E
T	Telephone Line	T
	Fire Hydrant	
	Valve Vault	
B	Buffalo Box	B
DS	Downspout	DS
BOL	Bollard	BOL
G	Gas Valve	
G	Gas Meter	
E	Electric Meter	
E	Electric Manhole	
	Hand Hole	
	Light Pole	
	Light Pole w/ Mast Arm	
	Utility Pole	
T	Telephone Pedestal	
T	Telephone Manhole	
	Sign	
	Fence	
	Accessible Parking Stall	
	Curb & Gutter	
	Depressed Curb	
× C 782.50	Curb Elevation	C 782.50
× G 782.00	Gutter Elevation	G 782.00
× P 783.25	Pavement Elevation	P 783.25
× W 782.10	Sidewalk Elevation	W 782.10
× 784.0	Ground Elevation	× 784.0
× T/W 785.20	Top of Retaining Wall Elevation	T/W 785.20
	Swale	
781	Contour Line	781
	Deciduous Tree	
	Coniferous Tree	
	Brushline	
	Tree Protection Fencing at Drip Line	

			Storm Event			
			1-Year	2-Year	10-Year	100-Year
	Catchment Name	Catchment Area (mi²)	Flow (CFS)			
West Property	Catchment Area 1	0.010	1.3	1.8	3.8	8.6
	Catchment Area 2	0.011	1.8	2.5	5.2	11.7
	Catchment Area 3	0.013	3.4	4.7	9.8	21.8
	Catchment Area 4	0.016	3.9	5.4	11.4	25.3
	Catchment Area 5	0.009	1.2	1.6	3.5	7.7
	Catchment Area 6	0.003	0.9	1.2	2.6	5.7
	Catchment Area 7	0.004	1.3	1.7	3.7	8.1
East Properties	Catchment Area 8	0.004	1.0	1.4	3.0	6.7
	Catchment Area 9	0.010	1.5	2.1	4.4	9.8
	Catchment Area 10	0.003	0.3	0.4	0.9	2.1
	Catchment Area 11	0.005	1.9	2.6	5.5	12.0
	Catchment Area 12	0.003	1.0	1.4	2.9	6.5

			Time of Concentration			
	Catchment Name	Catchment Area (mi²)	Overland Sheet Flow (min)	Shallow Concentrated Flow (min)	Open Channel Flow (min)	Total Time of Concentration (min)
West Property	Catchment Area 1	0.010	14.20	82.65	0.64	**97.53**
	Catchment Area 2	0.011	9.50	55.82	2.93	**68.26**
	Catchment Area 3	0.013	12.30	19.40	4.01	**35.75**
	Catchment Area 4	0.016	8.30	15.55	14.59	**38.40**
	Catchment Area 5	0.009	10.20	81.62	-	**91.86**
	Catchment Area 6	0.003	8.70	15.33	2.50	**26.53**
	Catchment Area 7	0.004	6.50	13.31	0.05	**19.85**
East Properties	Catchment Area 8	0.004	10.60	23.80	0.06	**34.51**
	Catchment Area 9	0.010	11.60	64.15	0.17	**75.92**
	Catchment Area 10	0.003	7.60	140.35	-	**147.96**
	Catchment Area 11	0.005	5.40	13.11	0.19	**18.70**
	Catchment Area 12	0.003	9.20	19.80	0.07	**29.11**

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HARDROCK HOTEL & CASINO

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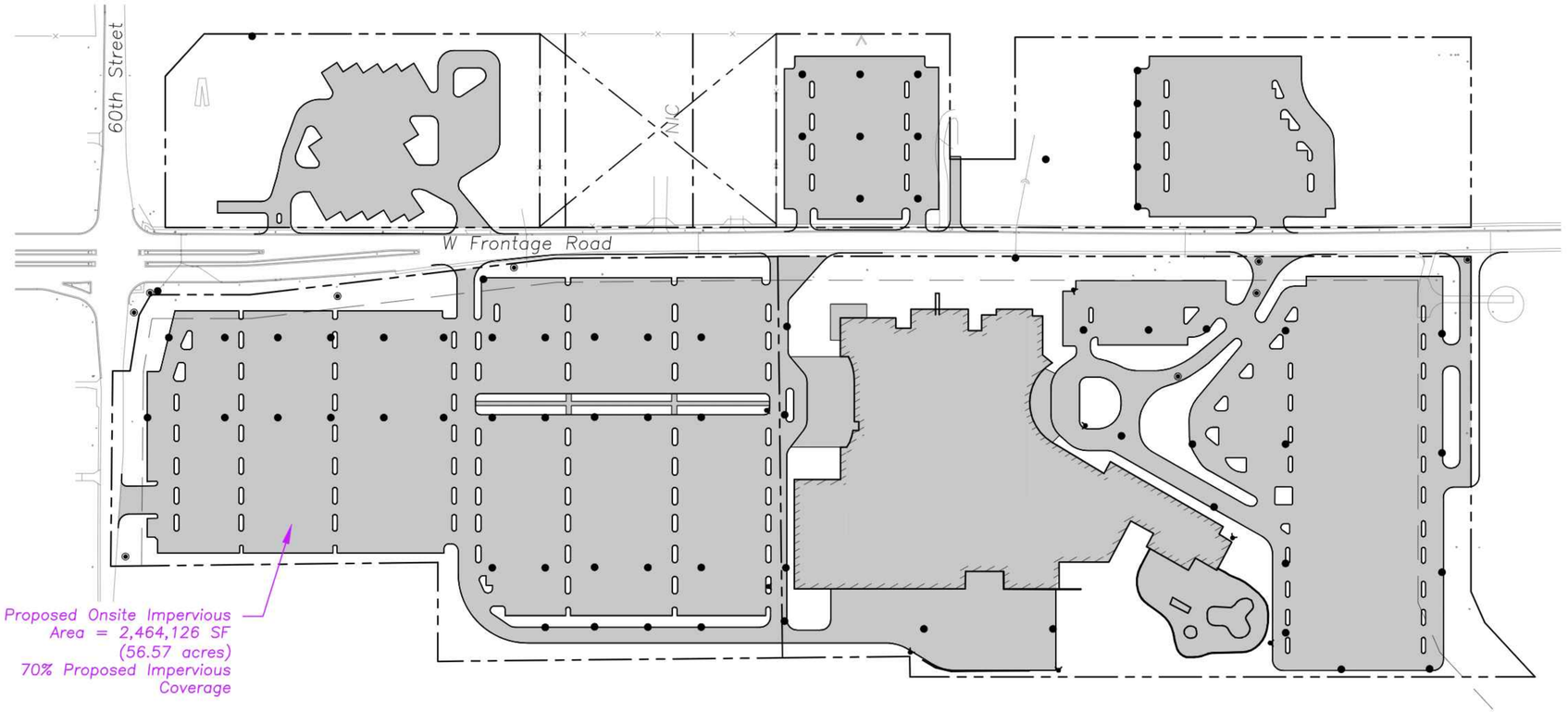
XXX	XXX	XX/XX/XX

Sheet Title:
EXISTING CONDITIONS - CATCHMENT EXHIBIT

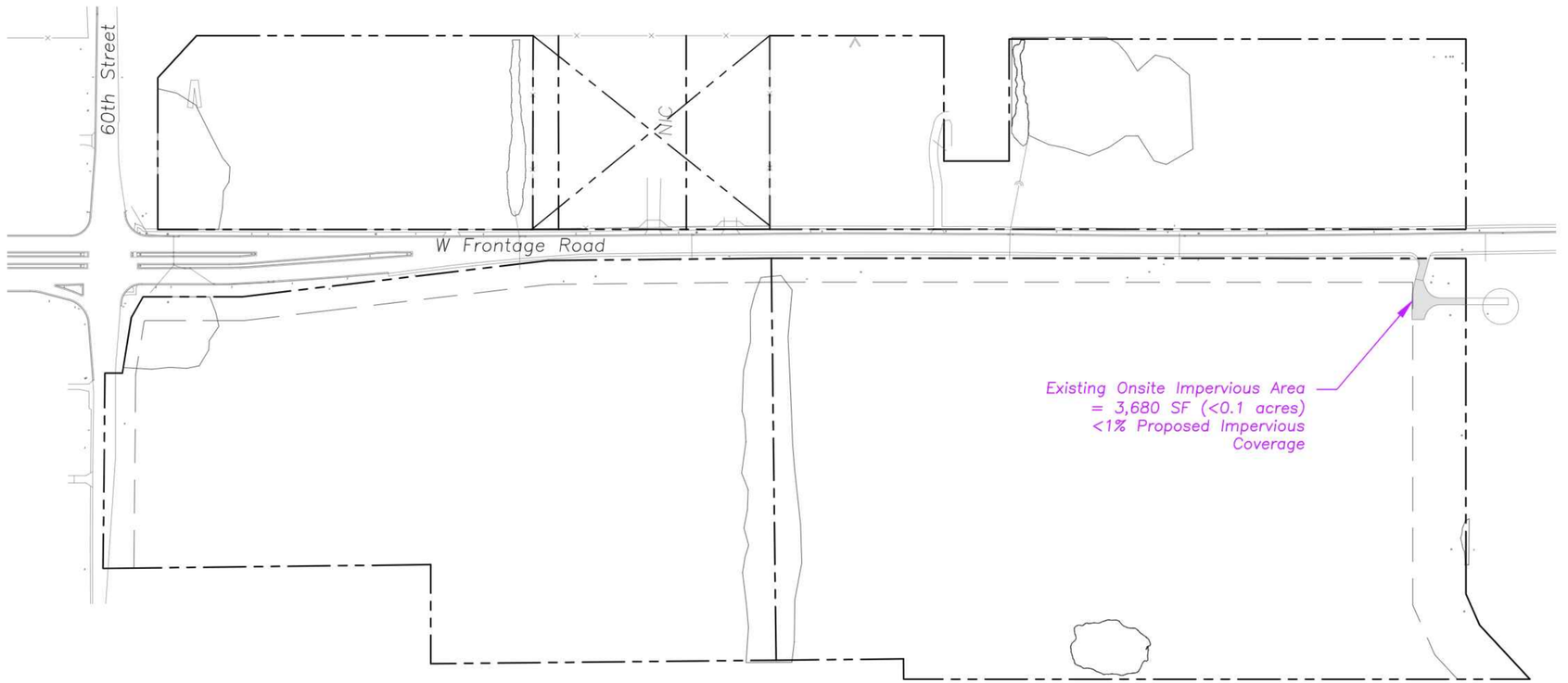
Sheet No:
CEX3

EEA — P:\23170 — Hard Rock Hotel and Casino Study\Drawings\Existing Drainage Exhibits.dwg
Plotted: 9/11/23 @ 5:00pm By: dnate

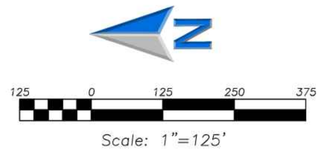
Figure 14 –Alternative A Impervious Area Exhibit



PROPOSED CONDITIONS



EXISTING CONDITIONS



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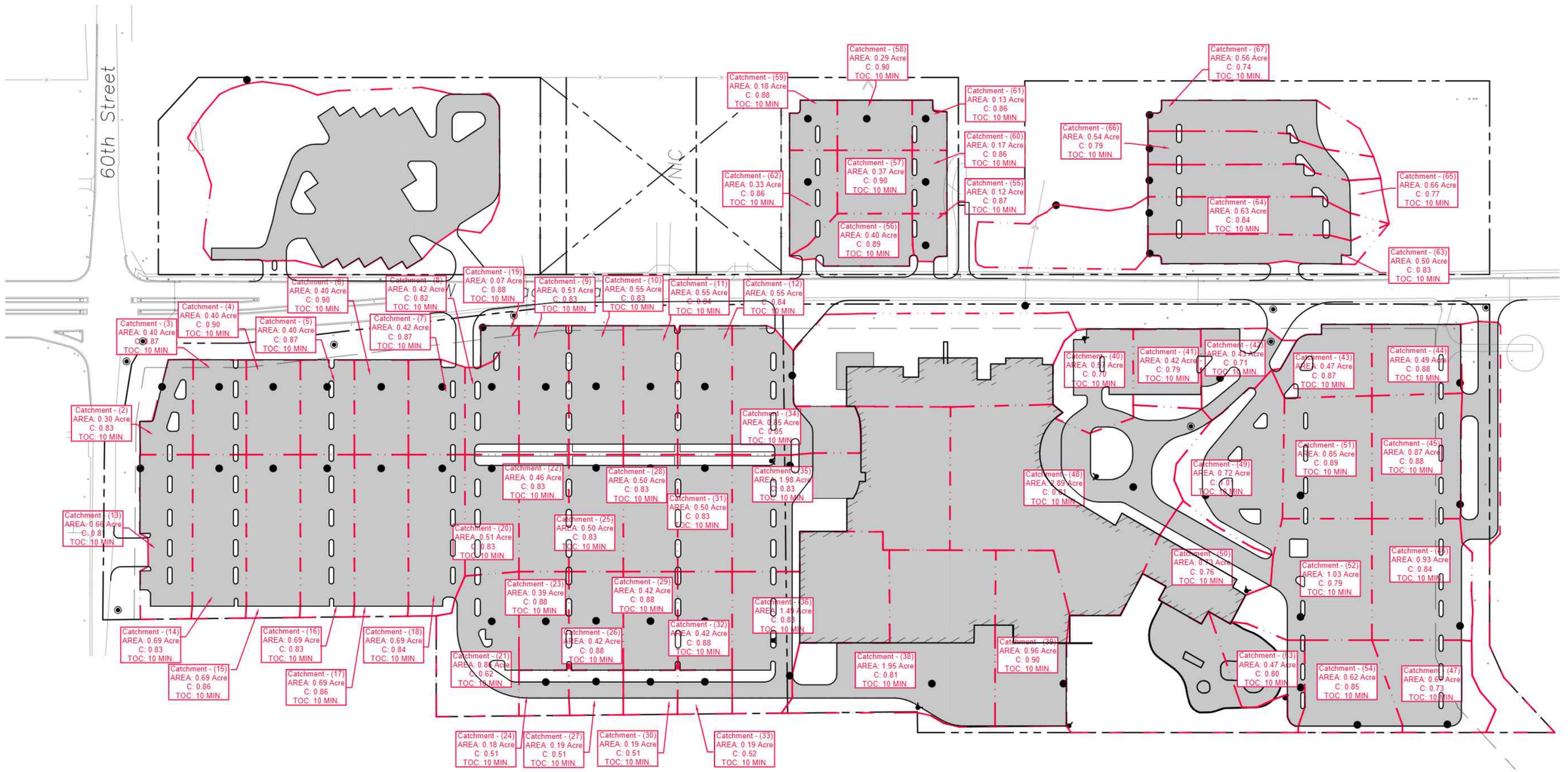
IMPERVIOUS EXHIBIT

Sheet No:

CEX1-A

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option A.dwg
Plotted: 9/15/23 @ 10:14am By: tbrown

Figure 15 –Alternative A Catchment Area Exhibit



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Scale: 1"=100'

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CATCHMENT AREA EXHIBIT

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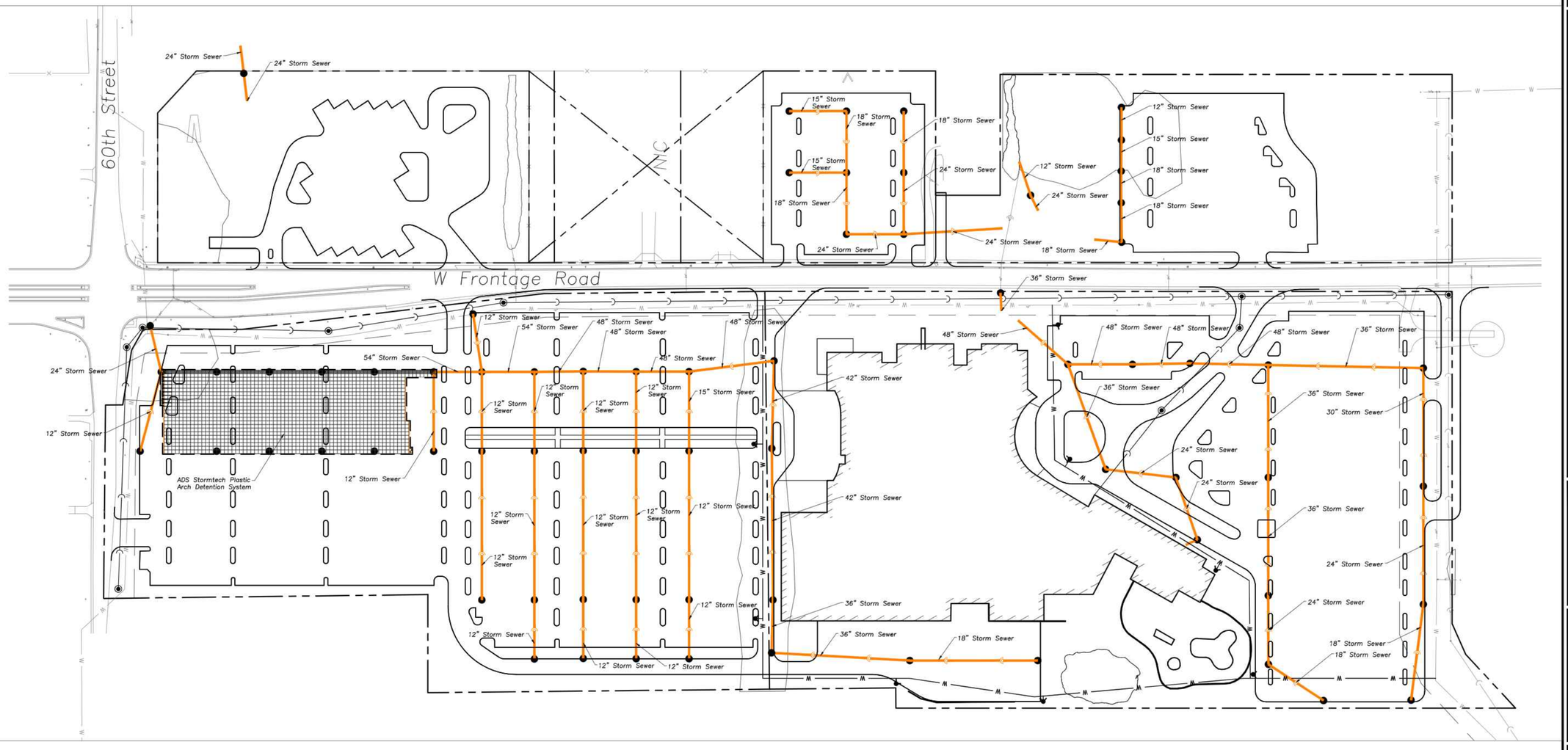
CEX2-A

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option A.dwg
Plotted: 9/15/23 @ 10:36am By: tbrown

Figure 16 –Alternative A Storm Routing Exhibit



100 0 100 200 300

Scale: 1"=100'

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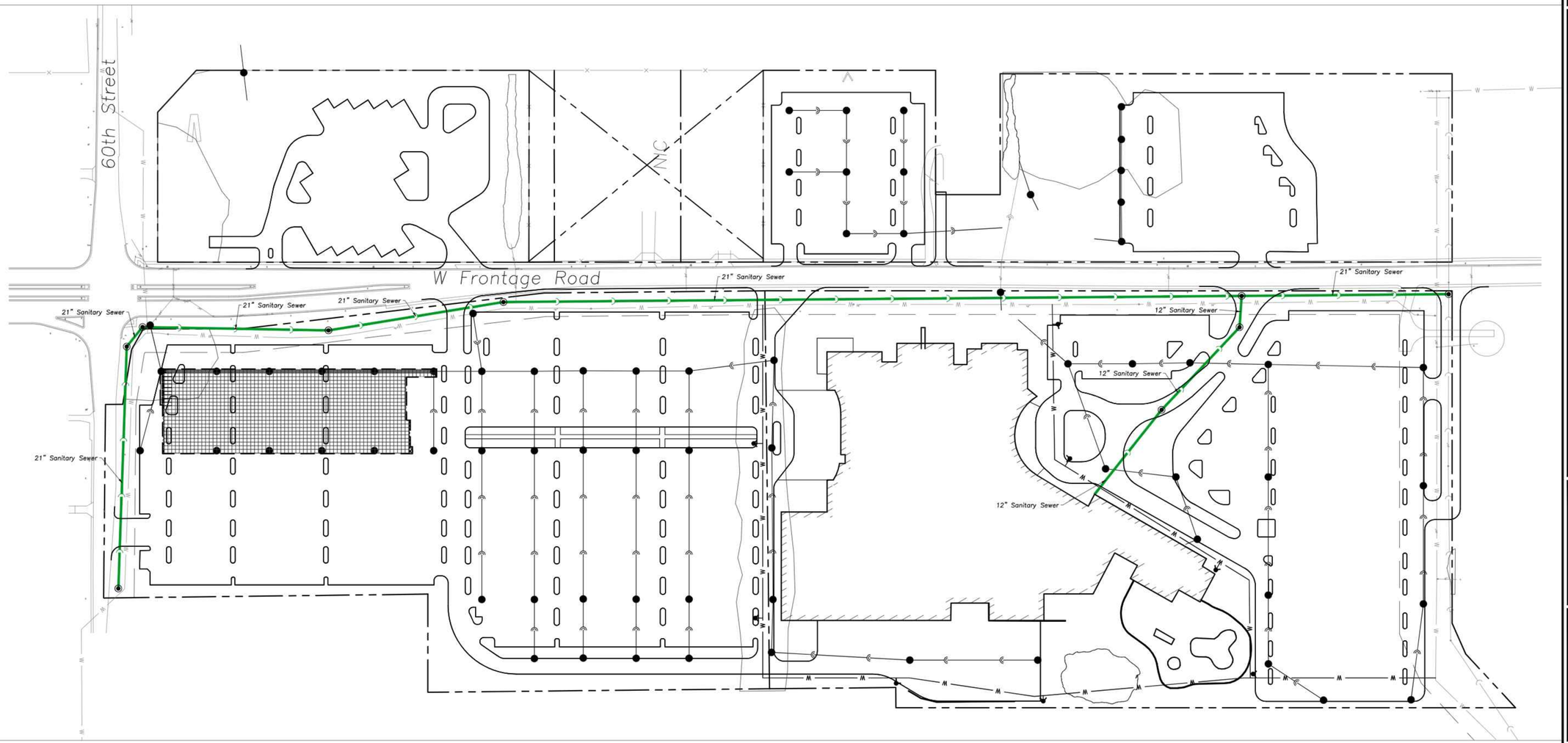
STORM ROUTING EXHIBIT

Sheet No:

CEX3-A

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option A.dwg
Plotted: 9/15/23 @ 9:43am By: tbrown

Figure 17 –Alternative A Sanitary Routing Exhibit



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100 0 100 200 300

Scale: 1"=100'

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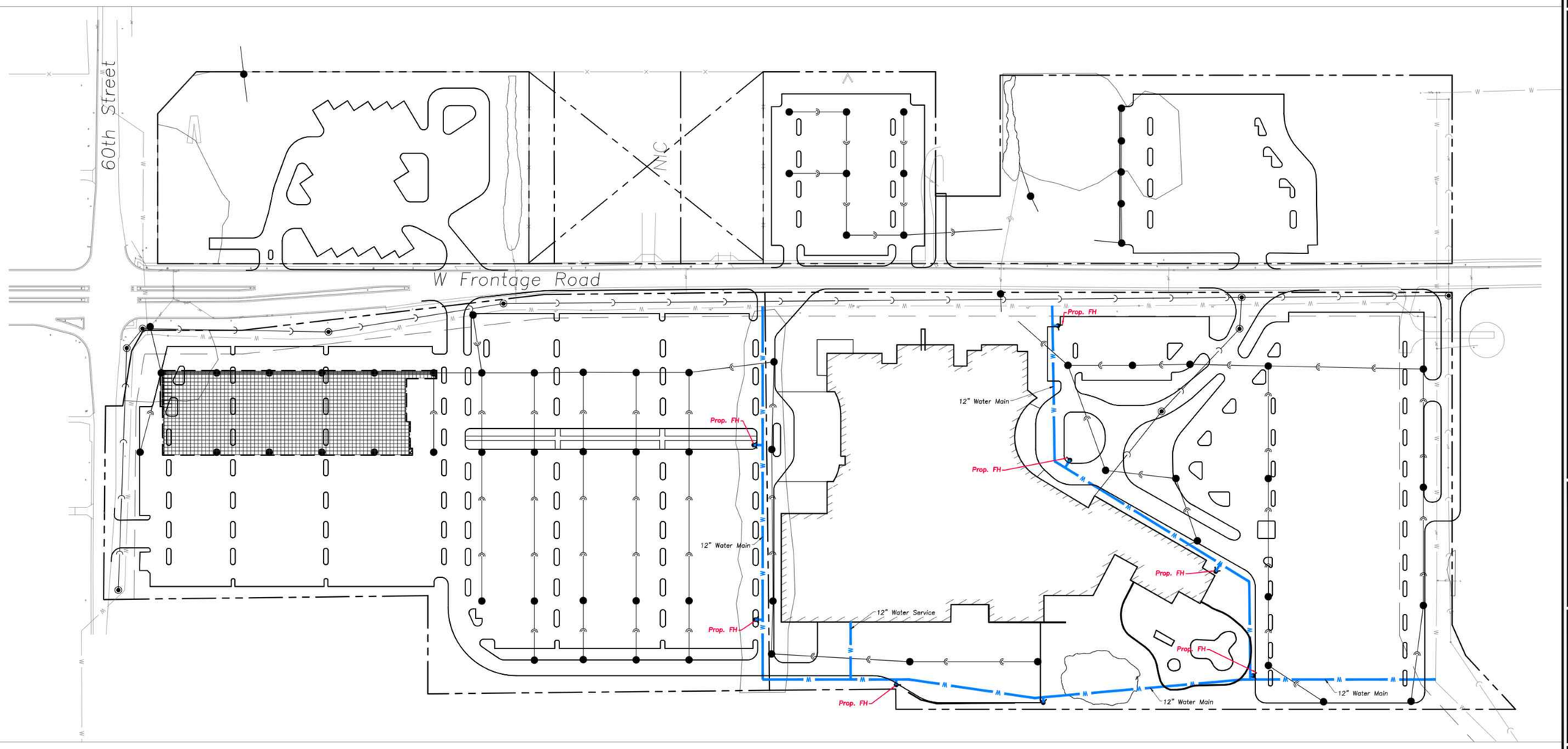
SANITARY ROUTING EXHIBIT

Sheet No:

CEX4-A

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option A.dwg
Plotted: 9/15/23 @ 9:41am By: tbrown

Figure 18 –Alternative A Water Routing Exhibit



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Sheet Title:

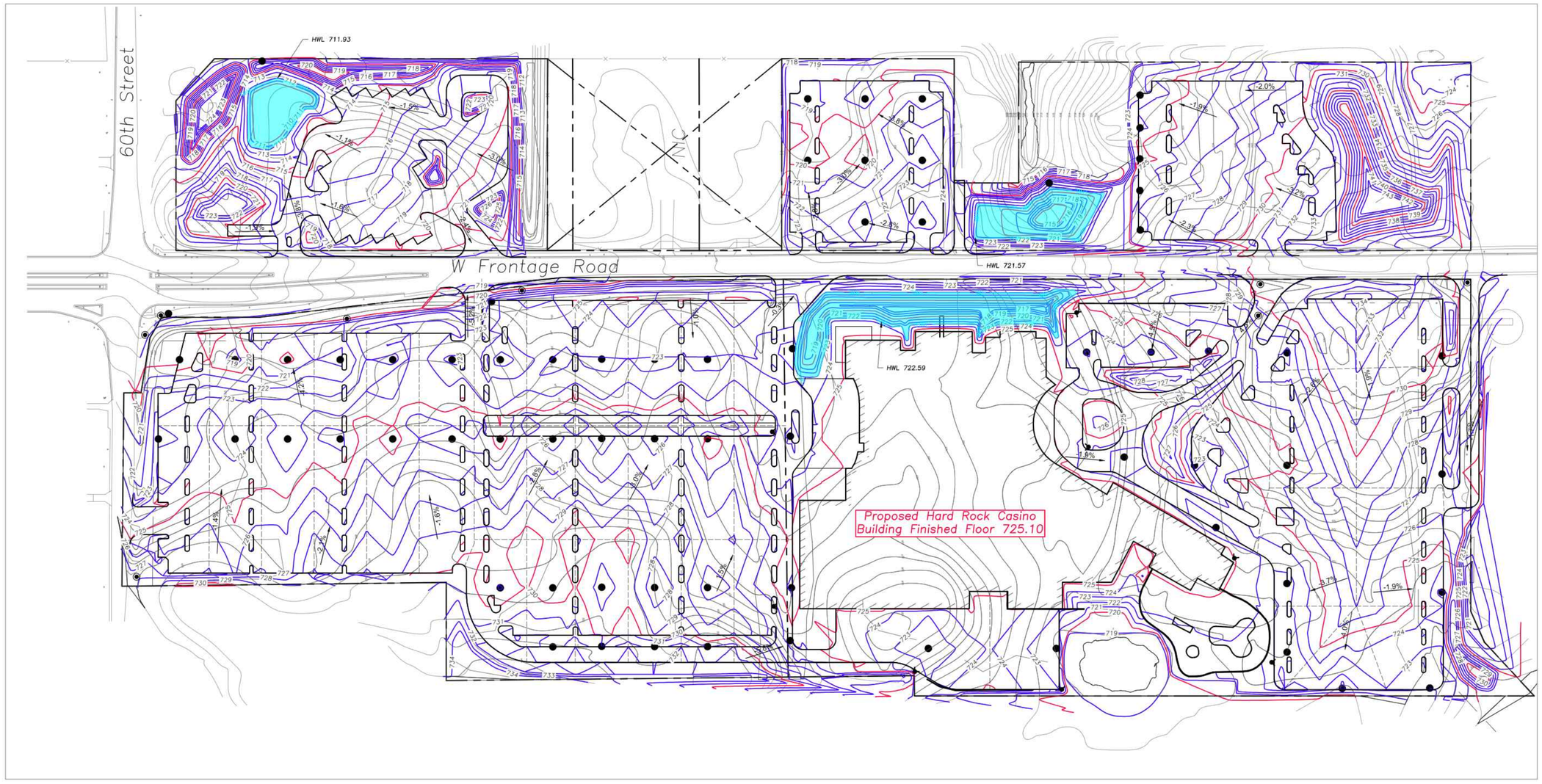
WATER ROUTING EXHIBIT

Sheet No:

CEX5-A

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option A.dwg
Plotted: 9/15/23 @ 9:49am By: tbrown

Figure 19 –Alternative A Contouring Exhibit



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Sheet Title:

CONTOURING EXHIBIT

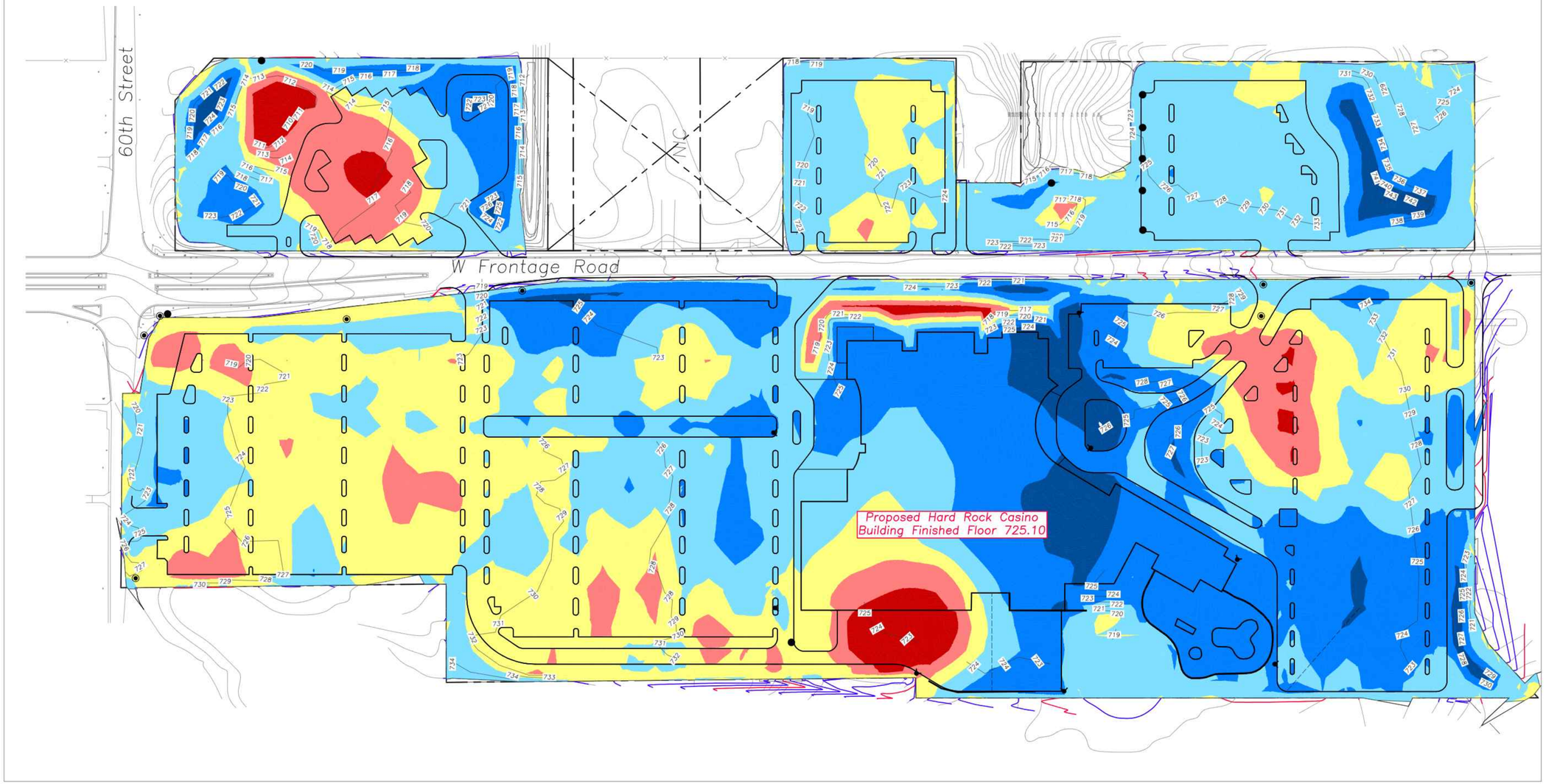
Sheet No:

CEX6-A

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option A.dwg
Plotted: 11/07/23 @ 4:22pm By: dnate

Figure 20 – Alternative A Cut Fill Exhibit

Elevations Table				
Number	Minimum Elevation	Maximum Elevation	Area	Color
1	-6.00	-3.00	28393.45	
2	-3.00	-1.00	115156.71	
3	-1.00	1.00	549843.80	
4	1.00	3.00	616924.17	
5	3.00	6.00	454082.32	
6	6.00	9.00	69571.10	



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Scale: 1"=100'

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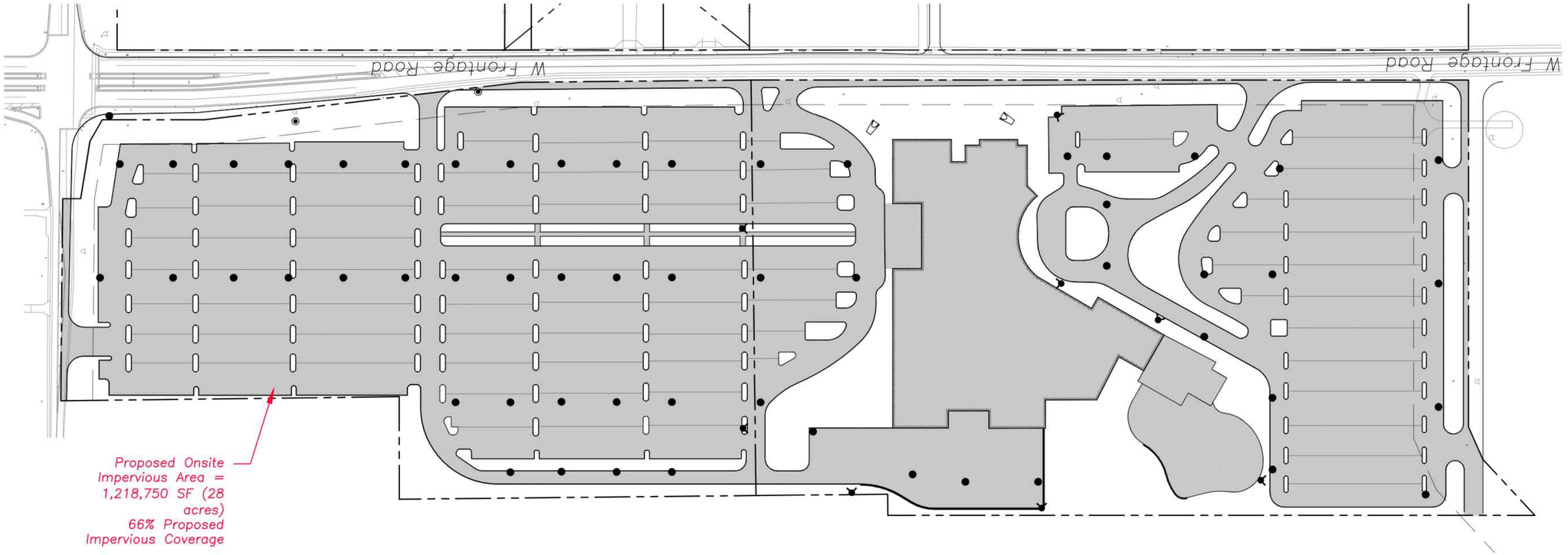
CUT FILL EXHIBIT

Sheet No:

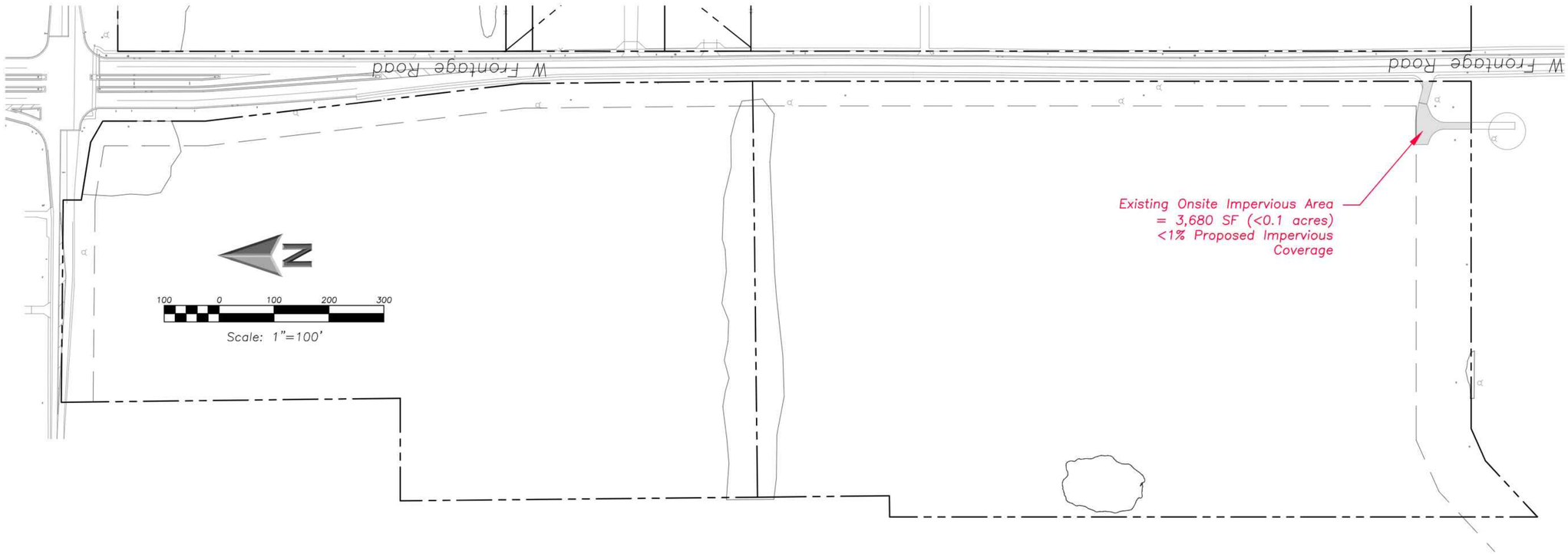
CEX7-A

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option A.dwg
Plotted: 9/15/23 @ 11:19am By: tbrown

Figure 21 –Alternative B Impervious Area Exhibit



PROPOSED CONDITIONS



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IMPERVIOUS EXHIBIT

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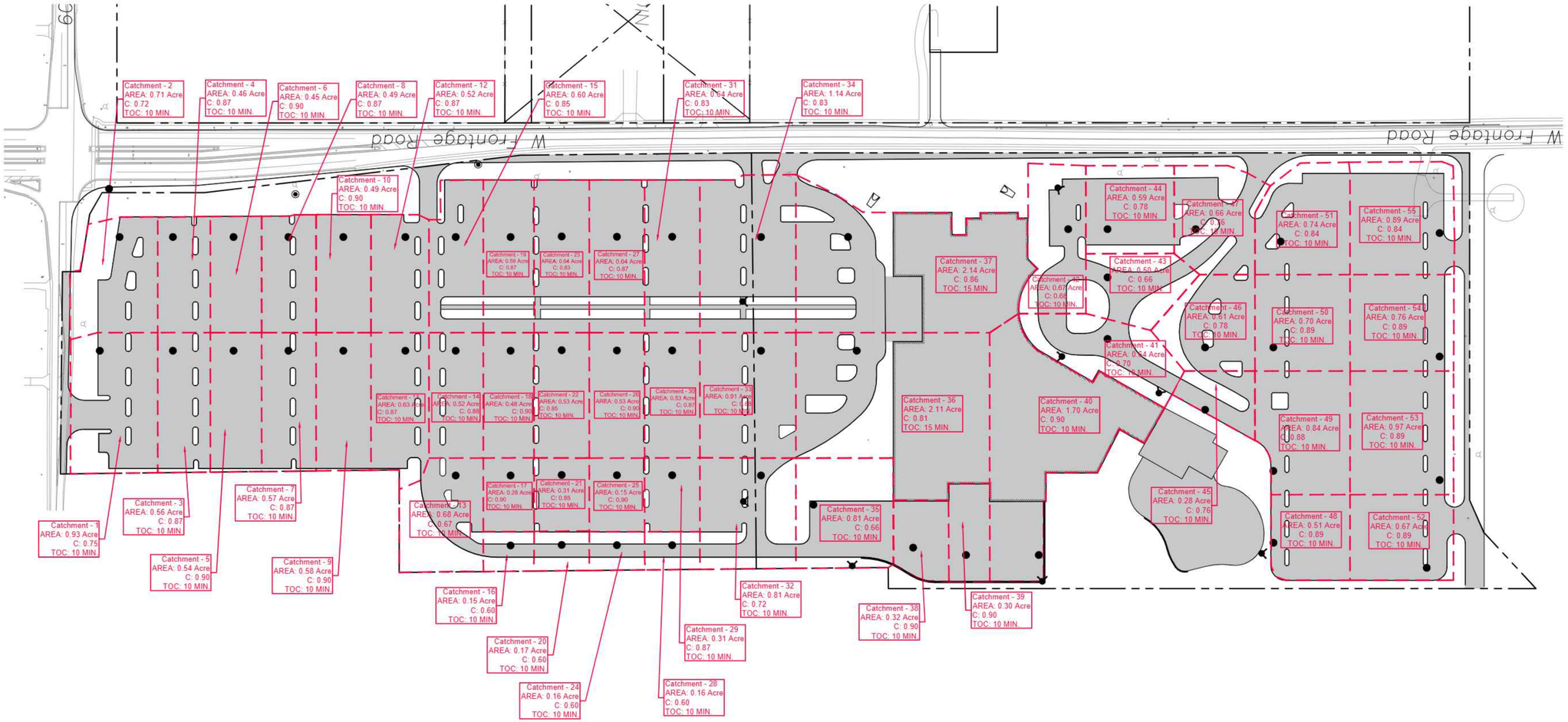
CEX1-B

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option B.dwg
Plotted: 9/14/23 @ 9:20am By: lrosenbauer

Figure 22 –Alternative B Catchment Area Exhibit



100 0 100 200 300

Scale: 1"=100'

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CATCHMENT AREA EXHIBIT

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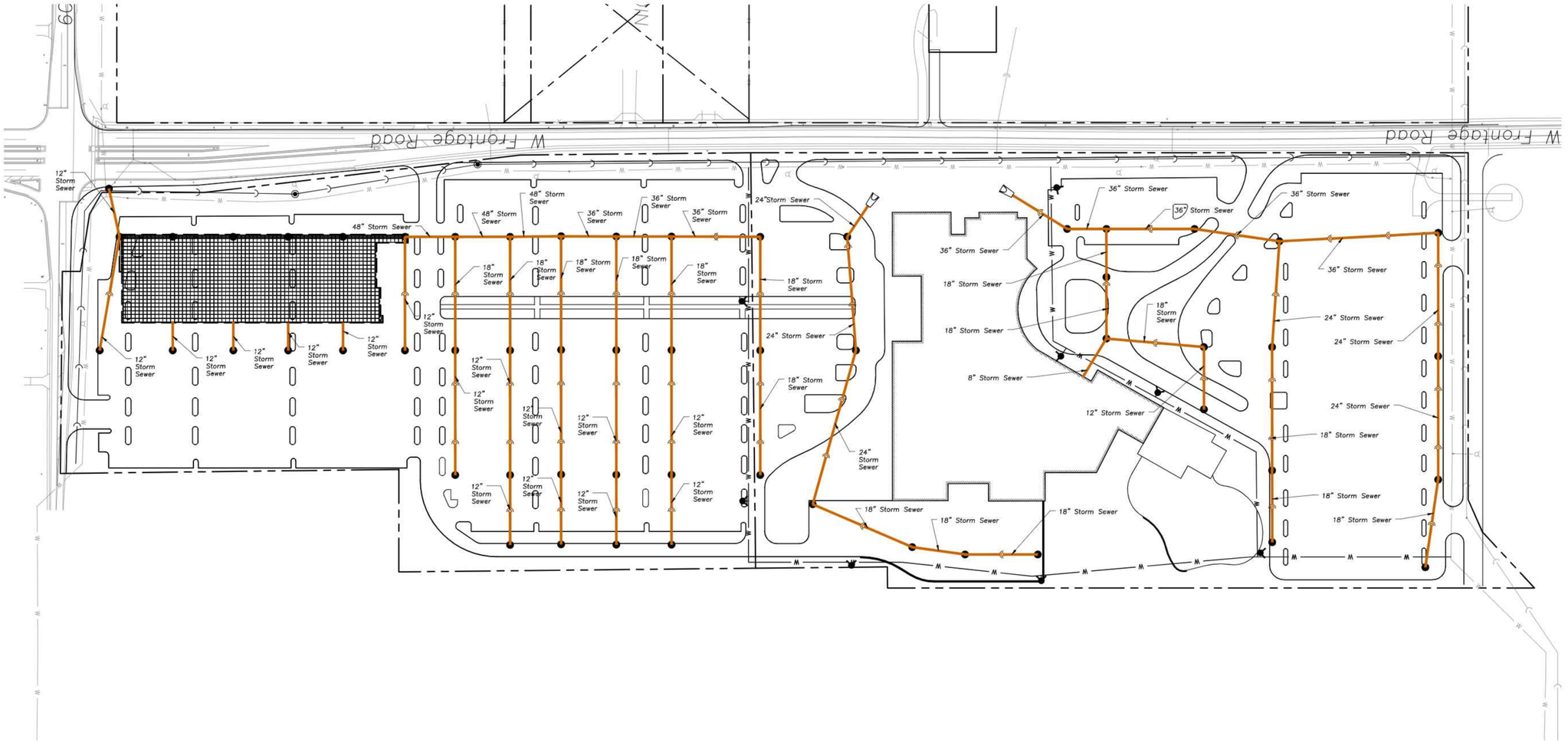
CEX2-B

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option B.dwg
Plotted: 9/14/23 @ 9:28am By: lrosenbauer

Figure 23 –Alternative B Storm Routing Exhibit



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100 0 100 200 300

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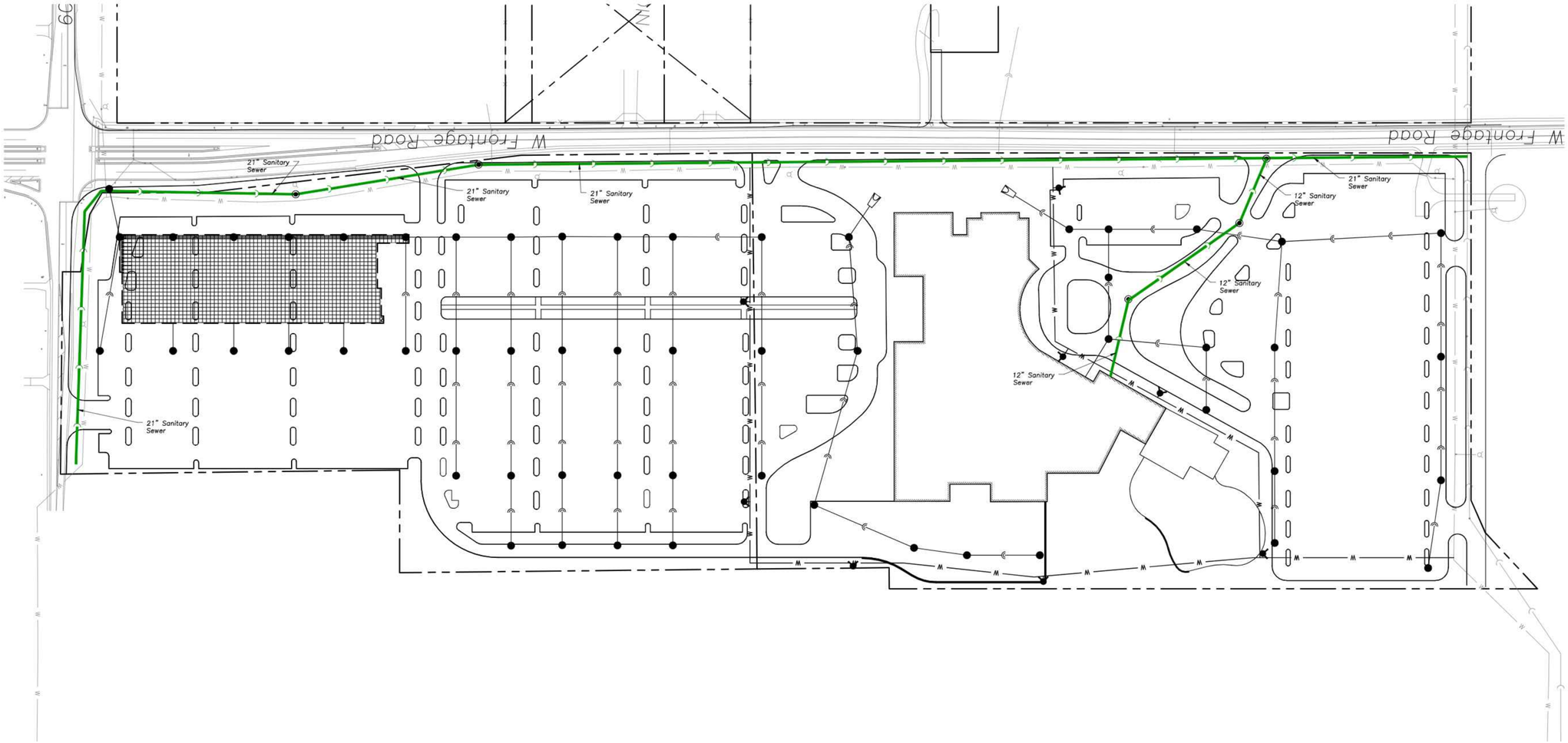
STORM ROUTING EXHIBIT

Sheet No:

CEX3-B

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option B.dwg
Plotted: 9/14/23 @ 2:16pm By: lrasenbauer

Figure 24 –Alternative B Sanitary Routing Exhibit



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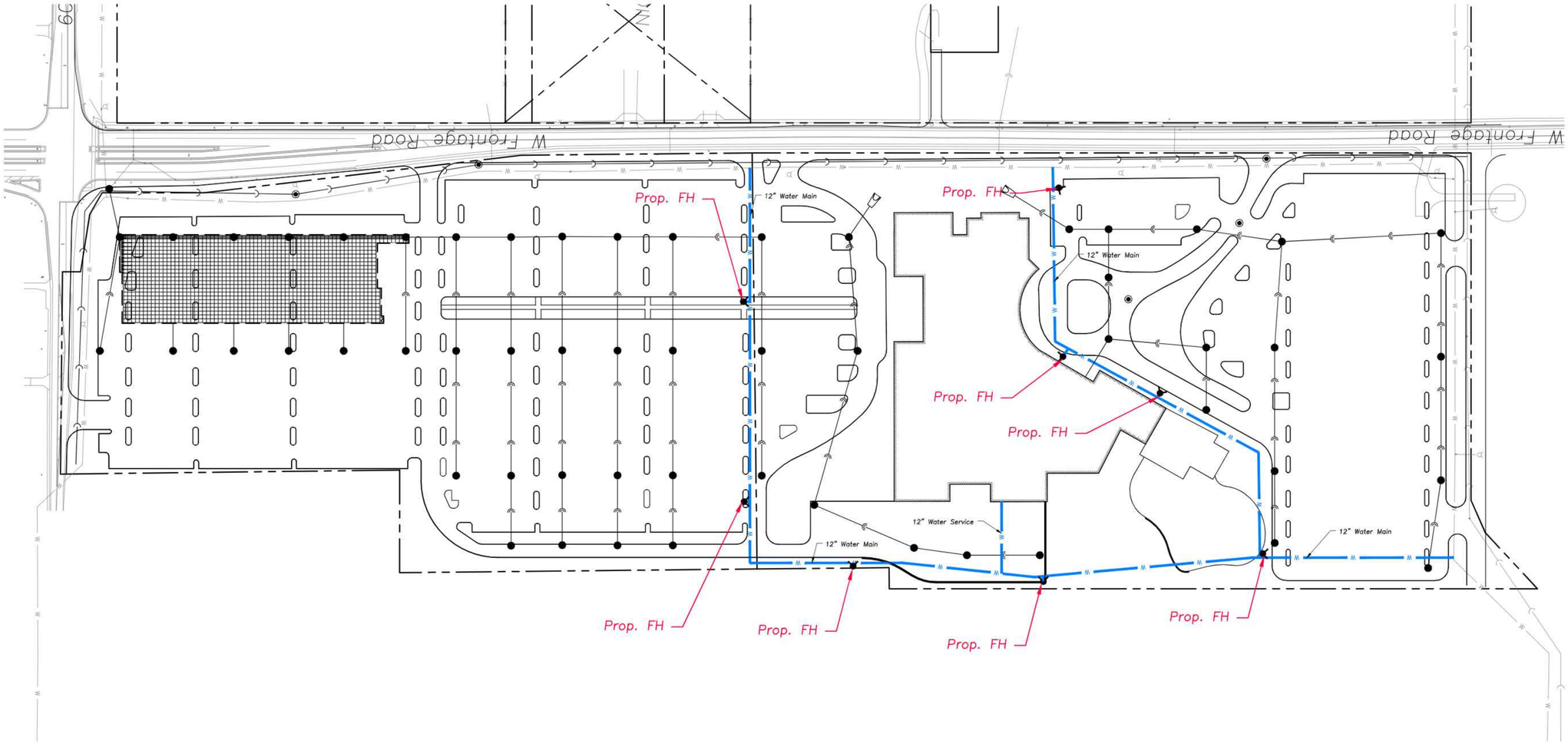
SANITARY ROUTING EXHIBIT

Sheet No:

CEX4-B

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option B.dwg
Plotted: 9/15/23 @ 11:26am By: tbrown

Figure 25 –Alternative B Water Routing Exhibit



100 0 100 200 300

Scale: 1"=100'

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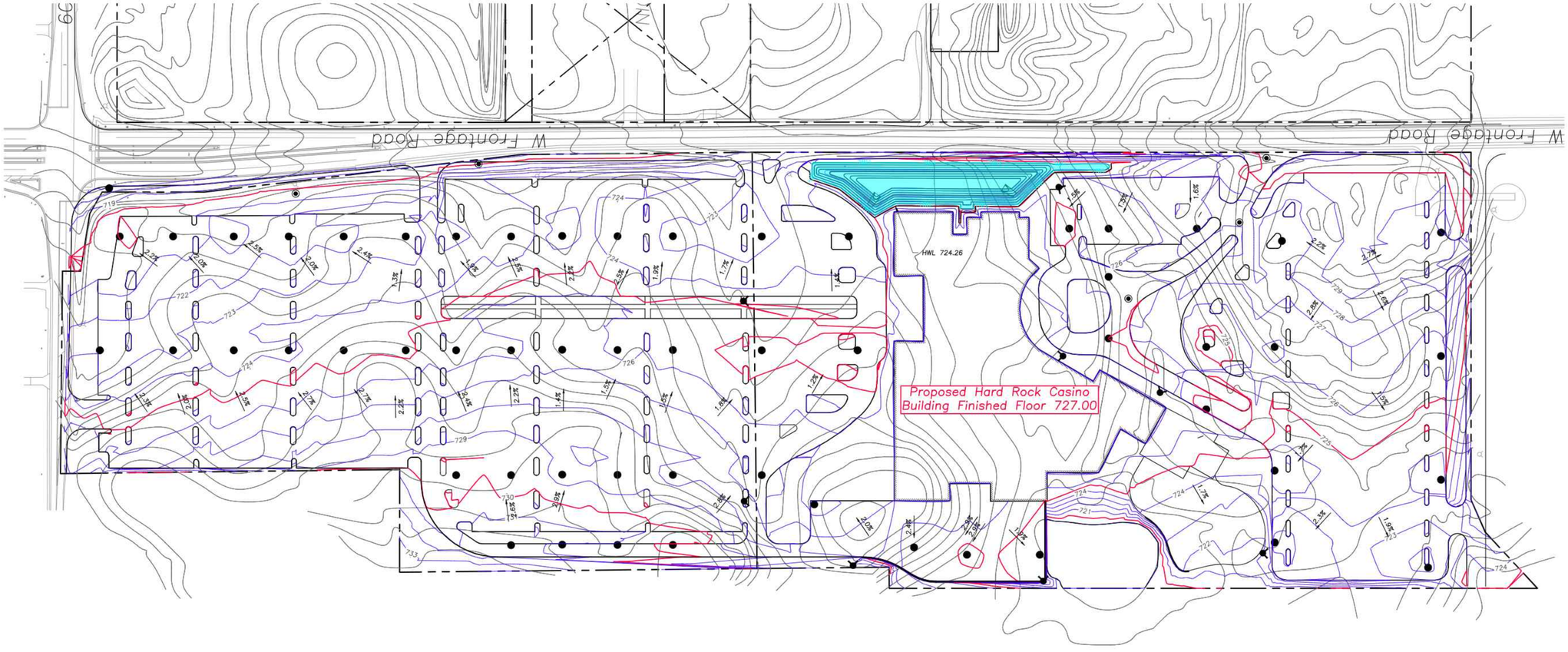
WATER ROUTING EXHIBIT

Sheet No:

CEX5-B

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option B.dwg
Plotted: 9/15/23 @ 11:29am By: tbrown

Figure 26 –Alternative B Contouring Exhibit



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100 0 100 200 300

Scale: 1"=100'

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CONTOURING EXHIBIT

Sheet No:

CEX6-B

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option B.dwg
Plotted: 11/07/23 @ 4:18pm By: dnate

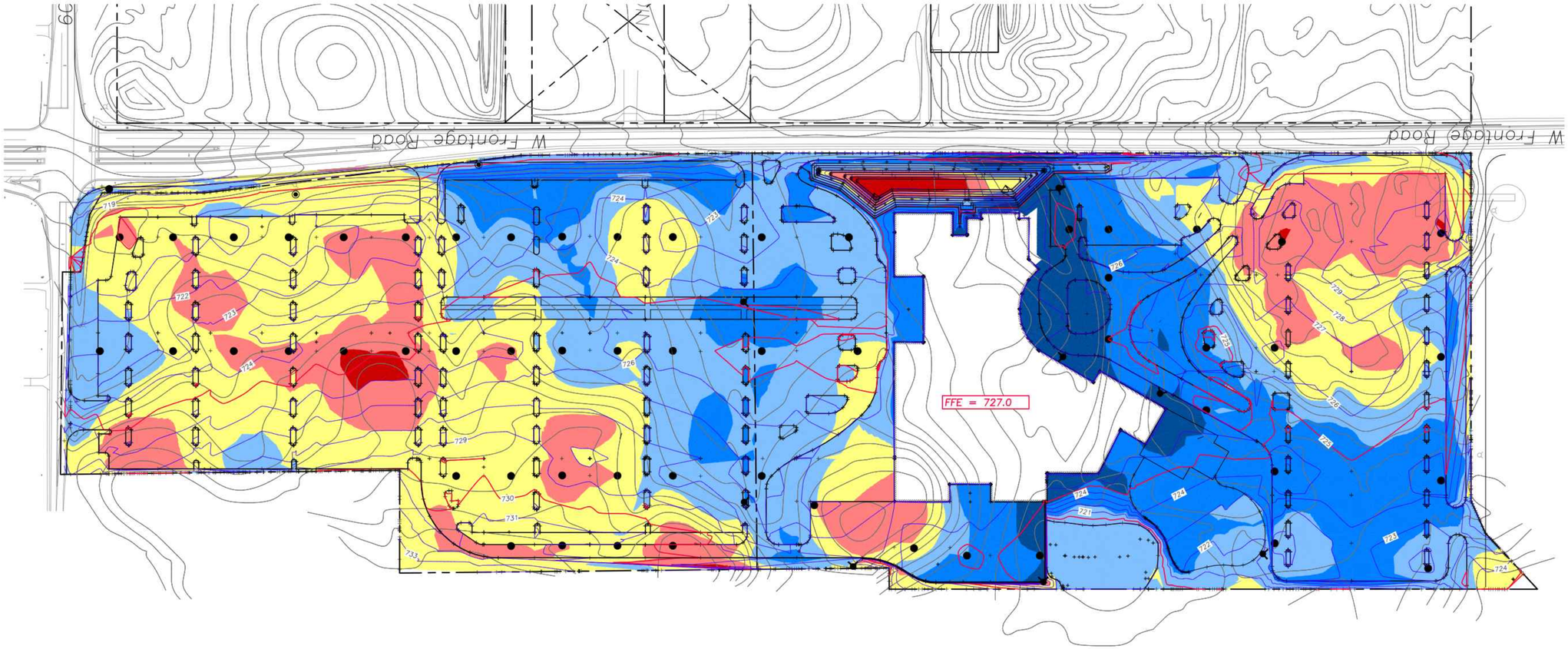
Figure 27 – Alternative B Cut Fill Exhibit

Elevations Table				
Number	Minimum Elevation	Maximum Elevation	Area	Color
1	-5.00	-3.00	13189.77	
2	-3.00	-1.00	224510.85	
3	-1.00	1.00	541355.54	
4	1.00	3.00	504670.41	
5	3.00	6.00	339970.43	
6	6.00	9.50	65291.00	

N

100 0 100 200 300

Scale: 1"=100'



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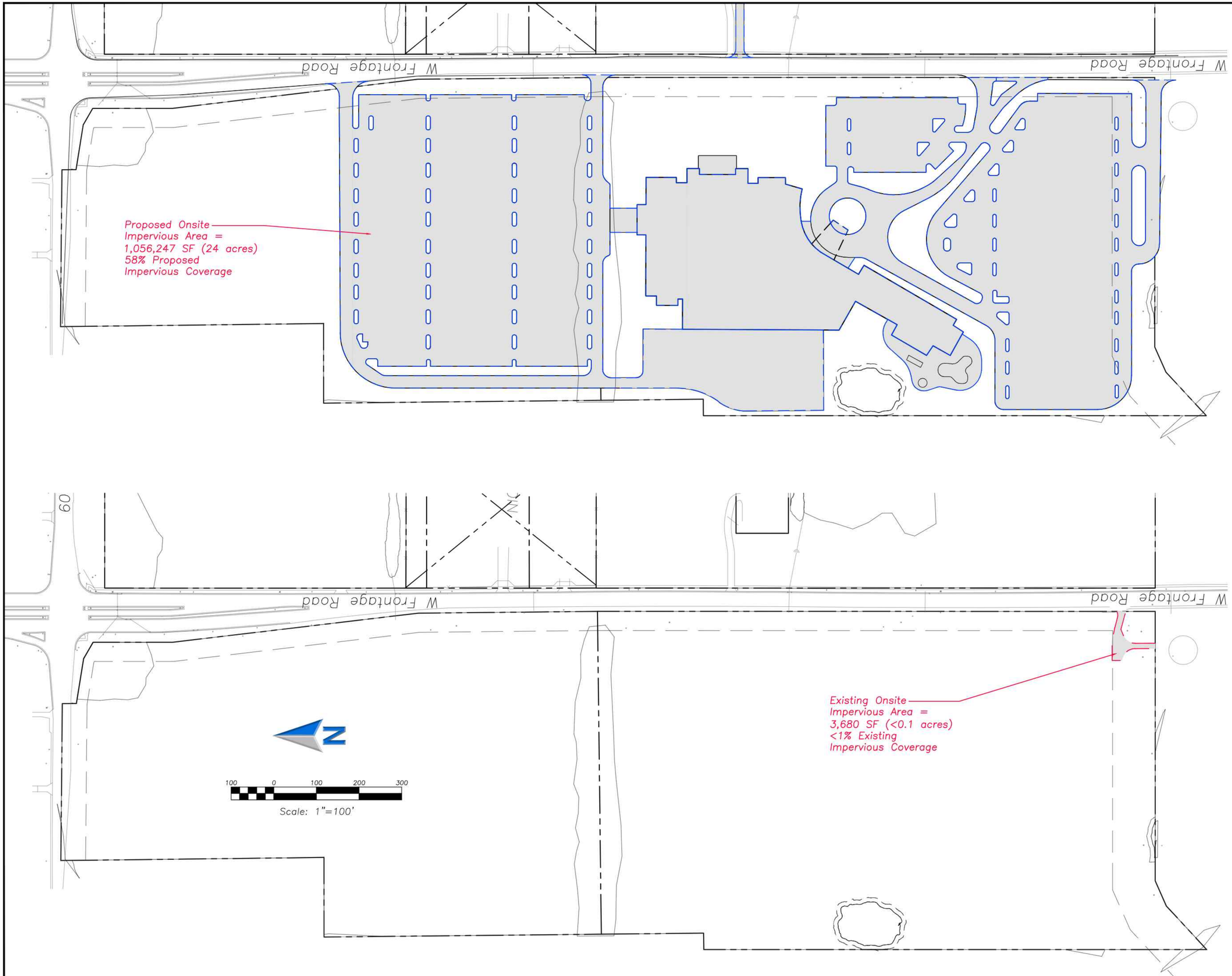
CUT FILL EXHIBIT

Sheet No:

CEX7-B

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option B.dwg
Plotted: 9/14/23 @ 12:30pm By: lrosenbauer

Figure 28 –Alternative C Impervious Area Exhibit



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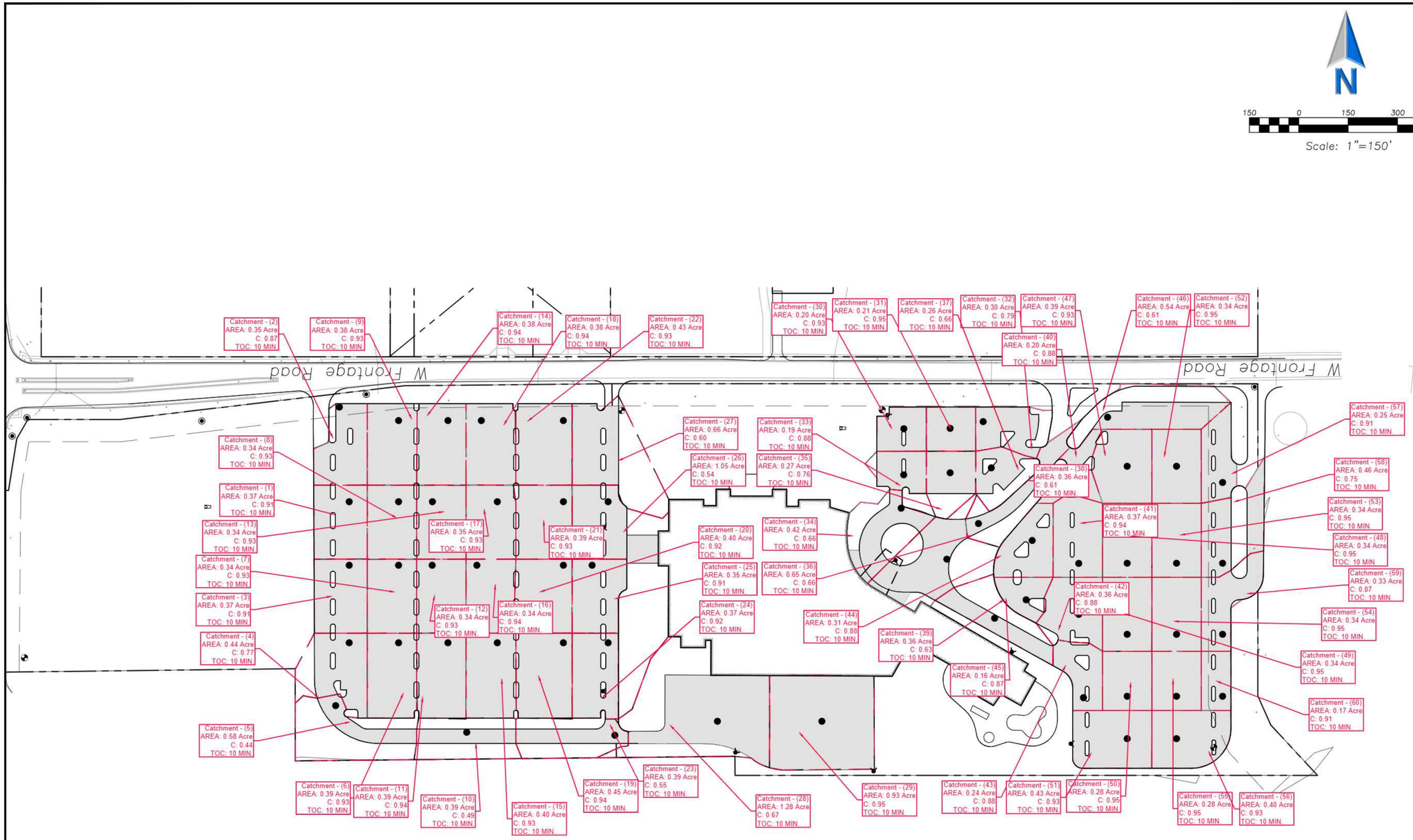
PROPOSED IMPERVIOUS AREA EXHIBIT

Sheet No:

CEX1-C

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option C.dwg
Plotted: 9/14/23 @ 9:24am By: dnate

Figure 29 –Alternative C Catchment Area Exhibit



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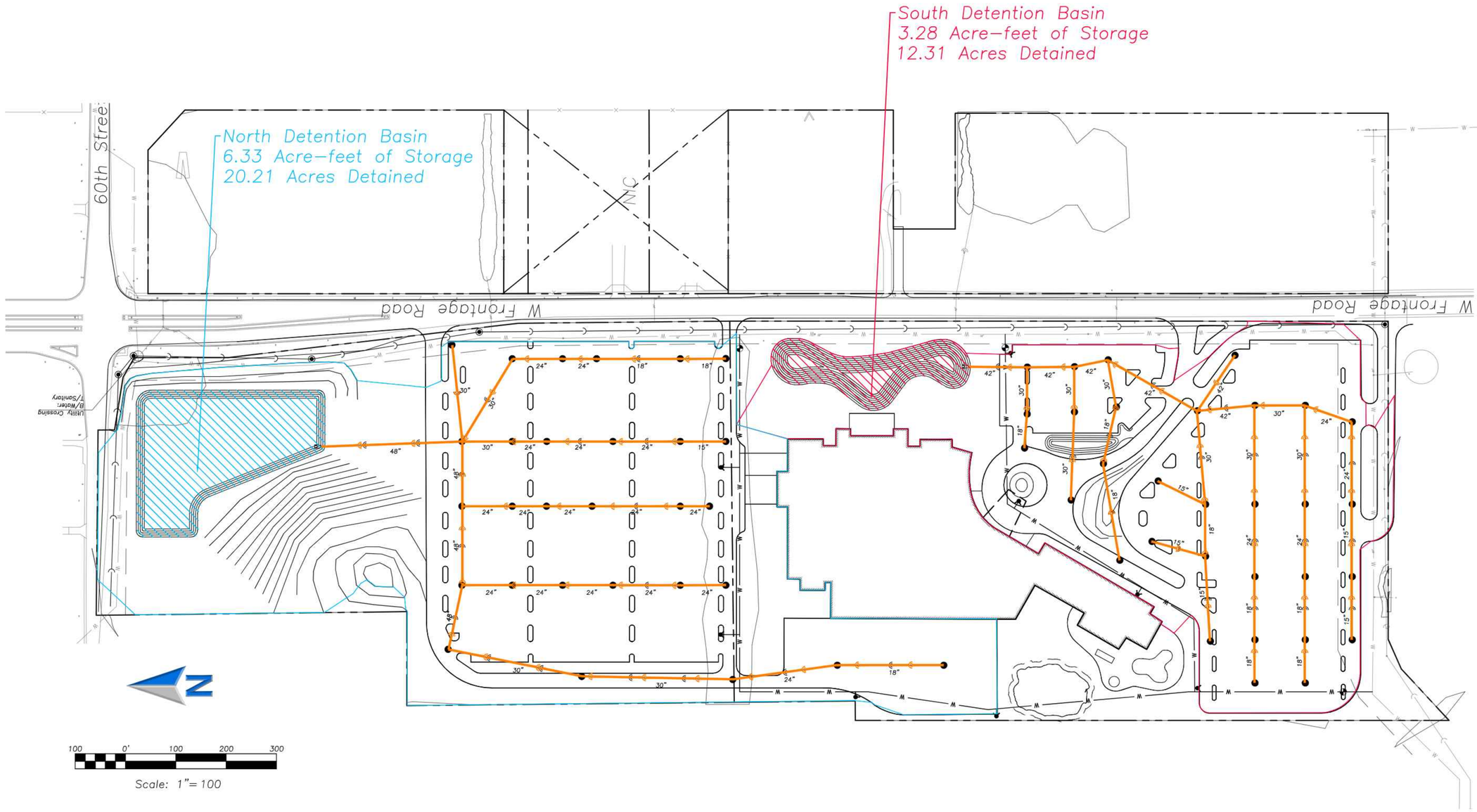
CATCHMENT AREA EXHIBIT

Sheet No:

CEX2-C

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option C.dwg
Plotted: 9/14/23 @ 9:25am By: dnote

Figure 30 –Alternative C Storm Routing Exhibit



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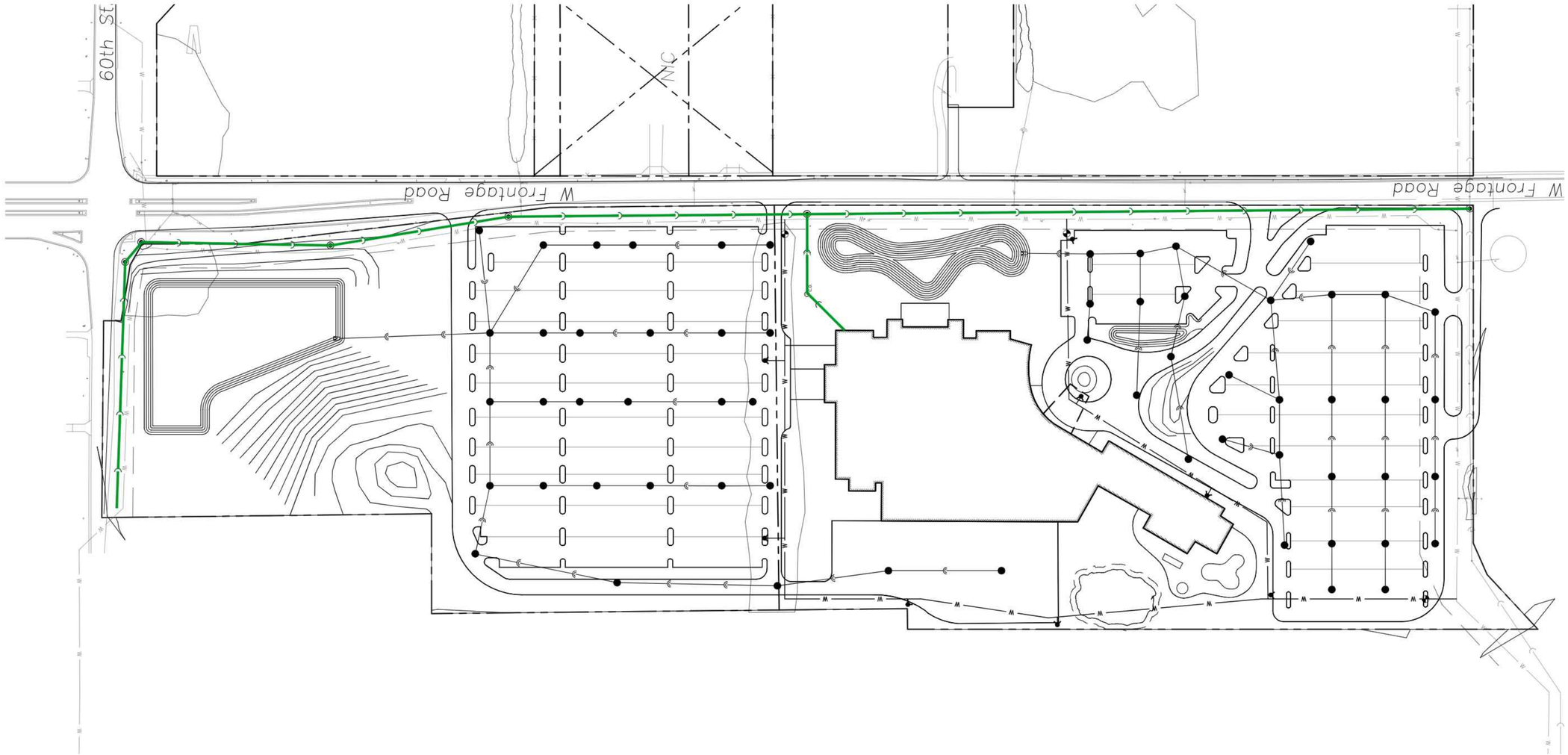
STORMWATER ROUTING EXHIBIT

Sheet No:

CEX3-C

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option C.dwg
Plotted: 9/14/23 @ 2:38pm By: dnate

Figure 31 –Alternative C Sanitary Routing Exhibit



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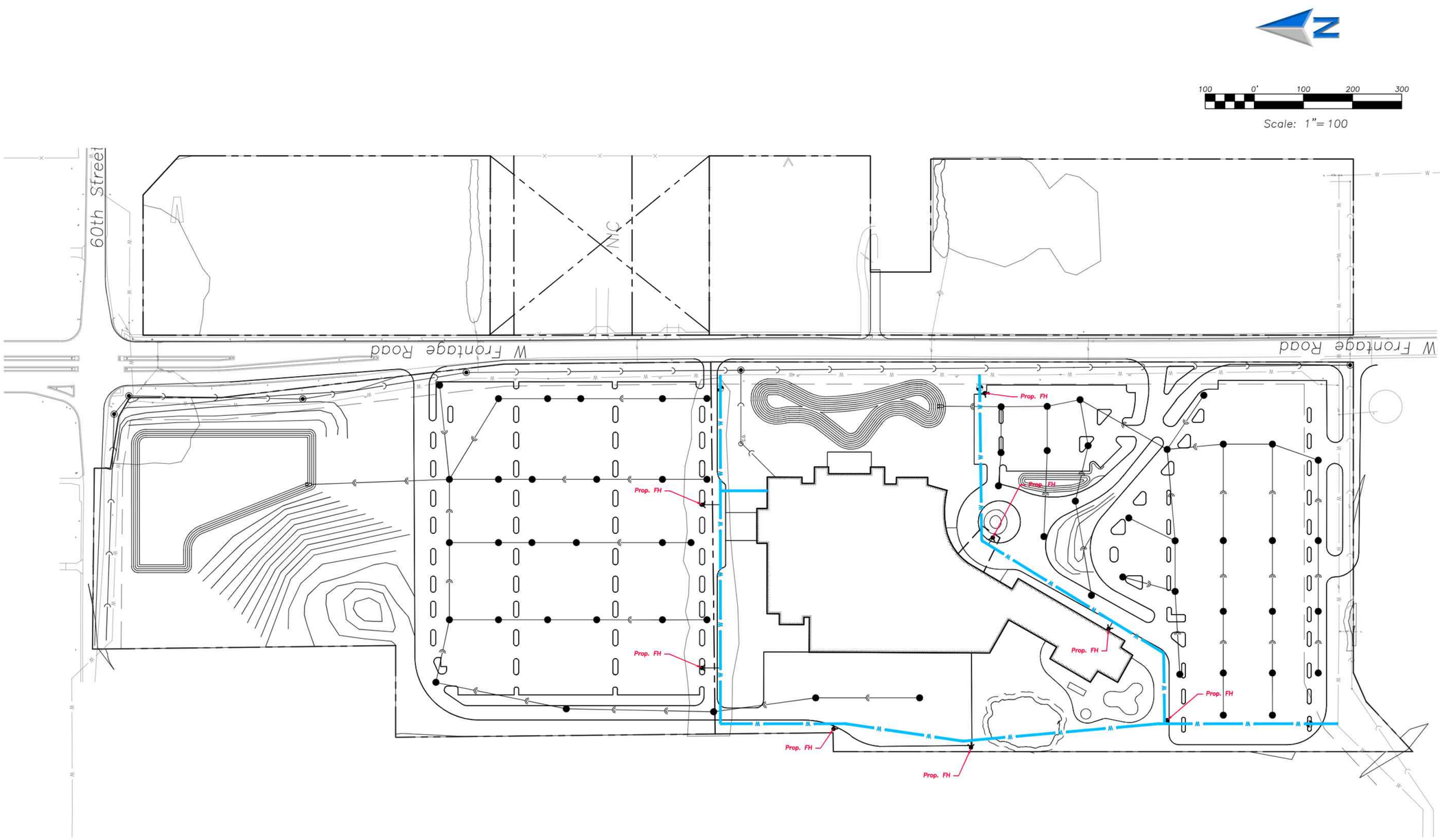
SANITARY ROUTING EXHIBIT

Sheet No:

CEX4-C

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option C.dwg
Plotted: 9/15/23 @ 1:26pm By: dnate

Figure 32 –Alternative C Water Routing Exhibit



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Scale: 1"= 100

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WATER ROUTING EXHIBIT

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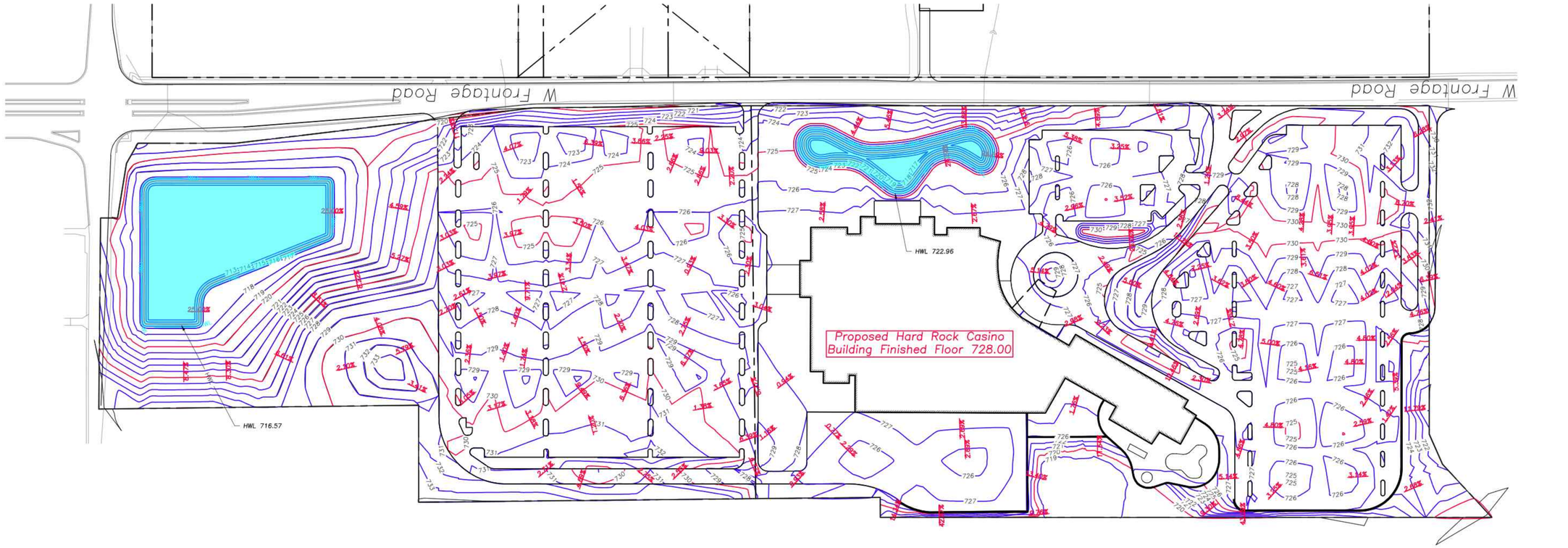
CEX5-C

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option C.dwg
Plotted: 9/15/23 @ 1:26pm By: dnate

Figure 33 –Alternative C Contouring Exhibit



100 0' 100 200 300

Scale: 1"= 100

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CEX6-C

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option C.dwg
Plotted: 11/07/23 @ 4:21pm By: dnate

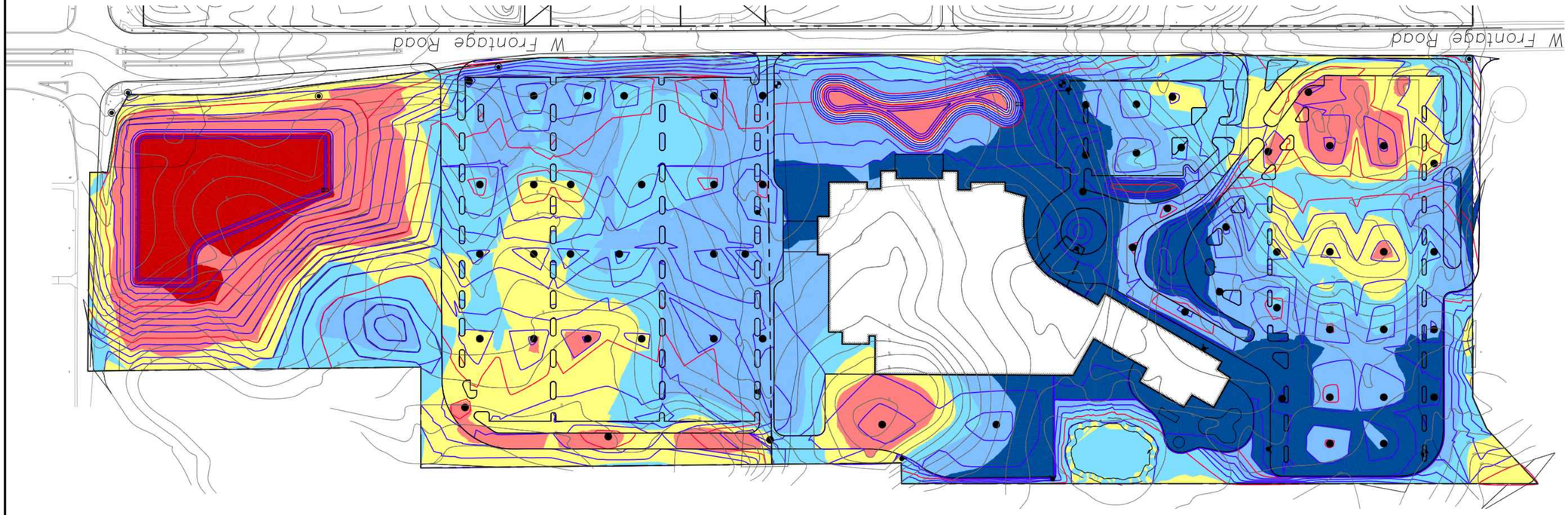
Figure 34 – Alternative C Cut Fill Exhibit

Elevations Table

Number	Minimum Elevation	Maximum Elevation	Area	Color
1	-11.39	-6.00	82227.97	
2	-6.00	-1.00	196194.86	
3	-1.00	1.00	329216.61	
4	1.00	3.00	374482.62	
5	3.00	6.00	433741.23	
6	6.00	11.75	245684.75	

100' 0' 100' 200' 300'

Scale: 1"= 100'



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CUT AND FILL EXHIBIT

Sheet No:

CEX7-C

EEA – P:\23170 – Hard Rock Hotel and Casino Study\Drawings\23170_Hard Rock Casino Site Plan Option C.dwg
Plotted: 9/15/23 @ 8:47am By: dnate

Figure 35 – ADS StormTech Infiltration Chamber System

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	

Advanced Drainage Systems, Inc.

ADS SiteAssist
FOR STORMTECH
INSTALLATION INSTRUCTIONS
VISIT OUR APP

STUDY

KENOSHA, WI, USA

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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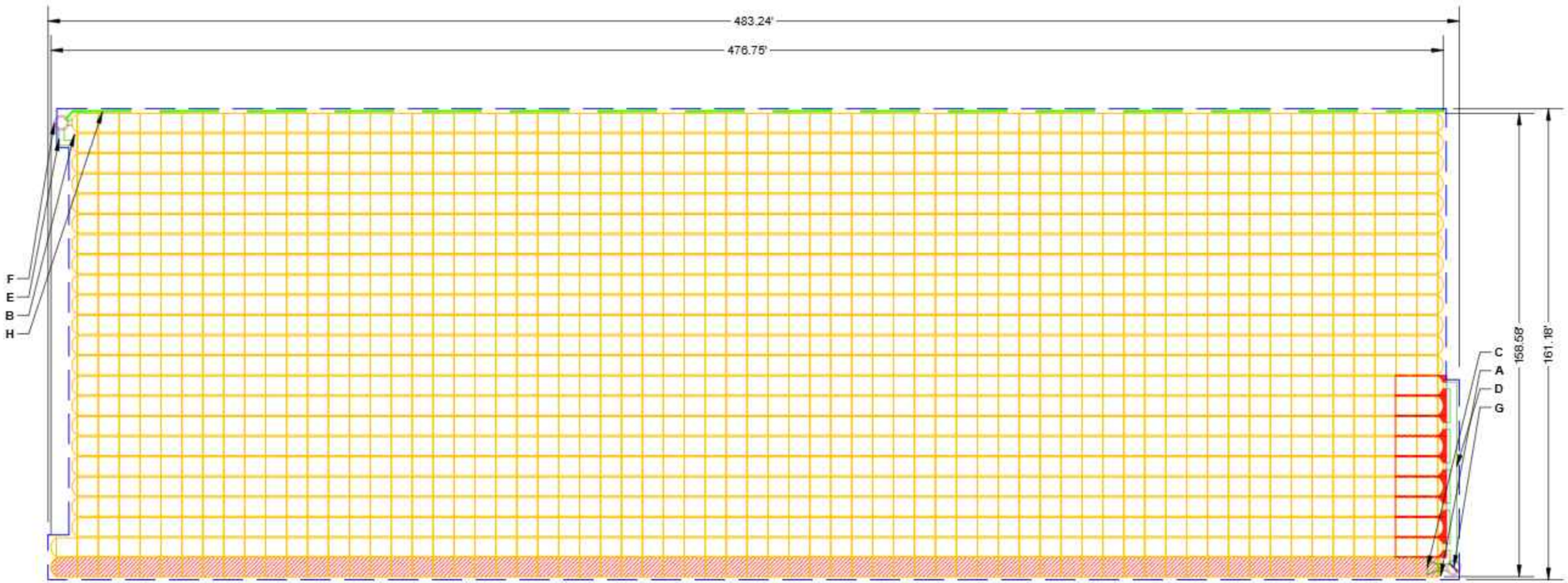
PROPOSED LAYOUT		PROPOSED ELEVATIONS:	
1497	STORMTECH MC-3500 CHAMBERS	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	725.50
46	STORMTECH MC-3500 END CAPS	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	719.50
12	STONE ABOVE (in)	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	719.00
9	STONE BELOW (in)	MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	719.00
38	STONE VOID	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	719.00
262324	INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)	TOP OF STONE:	718.50
		TOP OF MC-3500 CHAMBER:	717.50
		24" x 24" BOTTOM MANIFOLD INVERT:	713.92
		24" ISOLATOR ROW PLUS INVERT:	713.92
76484	SYSTEM AREA (SF)	18" x 18" BOTTOM MANIFOLD INVERT:	713.90
1297.1	SYSTEM PERIMETER (ft)	18" BOTTOM CONNECTION INVERT:	713.90
		BOTTOM OF MC-3500 CHAMBER:	713.75
		UNDERDRAIN INVERT:	713.00
		BOTTOM OF STONE:	713.00

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED END CAP	A	24" BOTTOM CORED END CAP, PART#: MC3500IEPP24BC / TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	2.06"	
PREFABRICATED END CAP	B	18" BOTTOM CORED END CAP, PART#: MC3500IEPP18BC / TYP OF ALL 18" BOTTOM CONNECTIONS	1.77"	
FLAMP	C	INSTALL FLAMP ON 24" ACCESS PIPE / PART#: MCFLAMP		
MANIFOLD	D	24" x 24" BOTTOM MANIFOLD, ADS N-12	2.06"	
MANIFOLD	E	18" x 18" BOTTOM MANIFOLD, ADS N-12	1.77"	
CONCRETE STRUCTURE	F	OCS (DESIGN BY ENGINEER / PROVIDED BY OTHERS)		8.0 CFS OUT
CONCRETE STRUCTURE W/WEIR	G	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		35.8 CFS IN
UNDERDRAIN	H	6" ADS N-12 DUAL WALL PERFORATED HDPE UNDERDRAIN		



ISOLATOR ROW PLUS
(SEE DETAIL)

PLACE MINIMUM 17.50' OF ADSPLUS175 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- **NOT FOR CONSTRUCTION:** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

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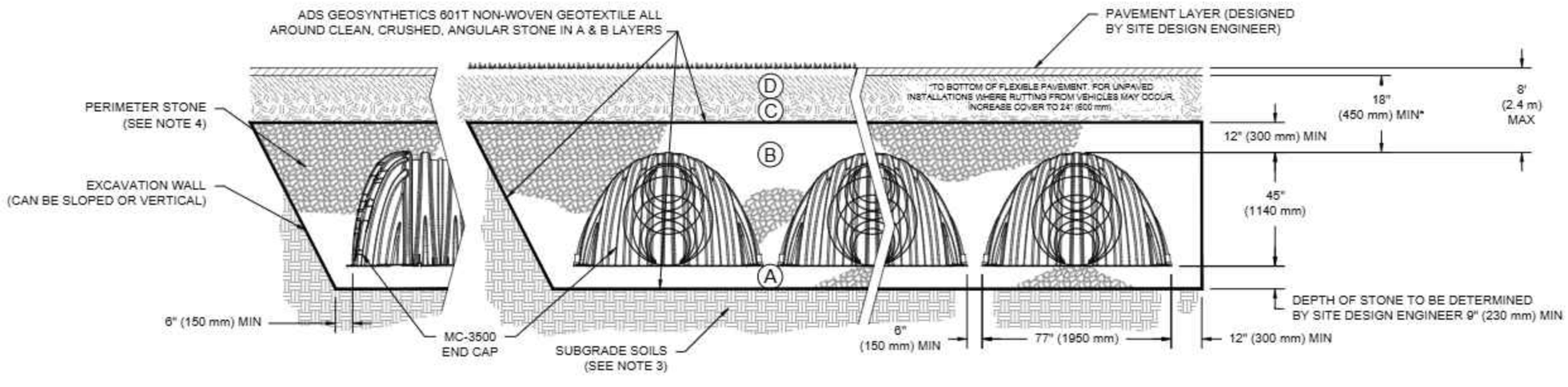
ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

STUDY
KENOSHA, WI, USA
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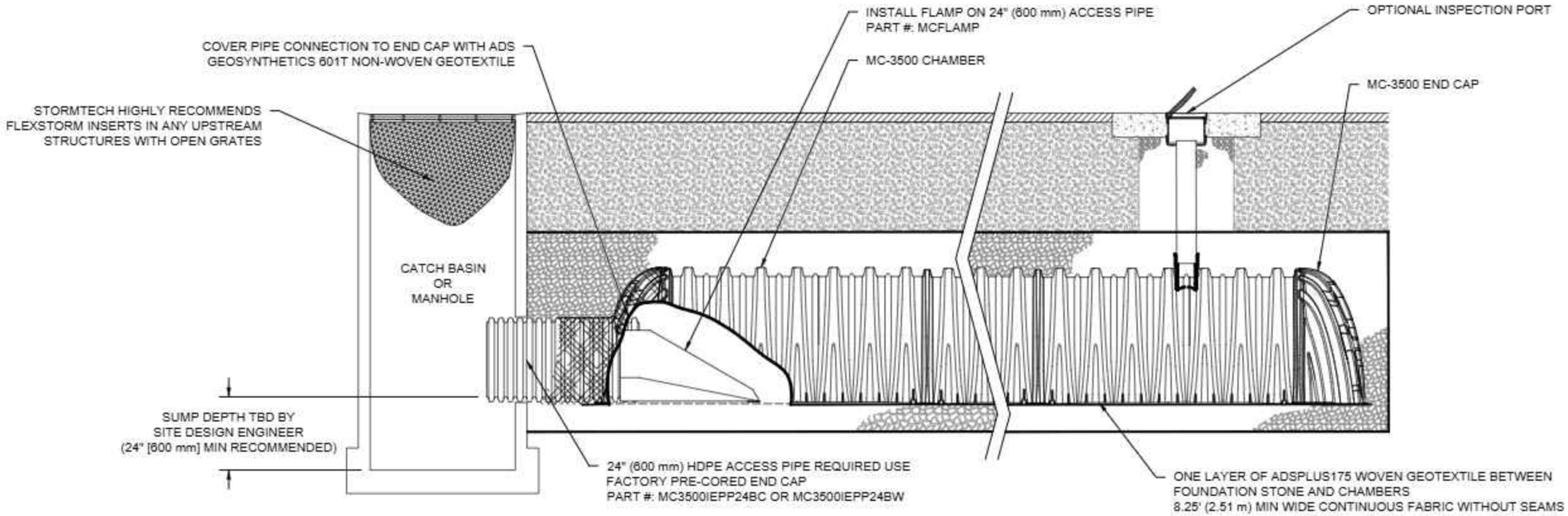

MC-3500 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

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UNDERDRAIN DETAIL

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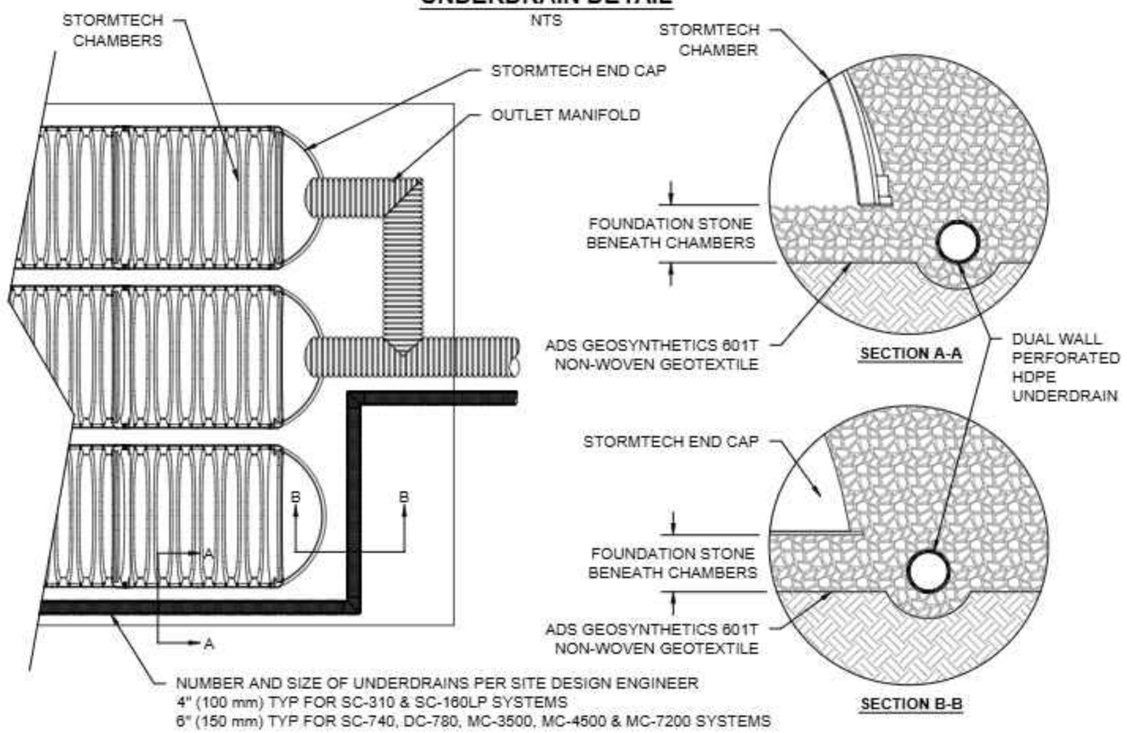

MC-SERIES END CAP INSERTION DETAIL

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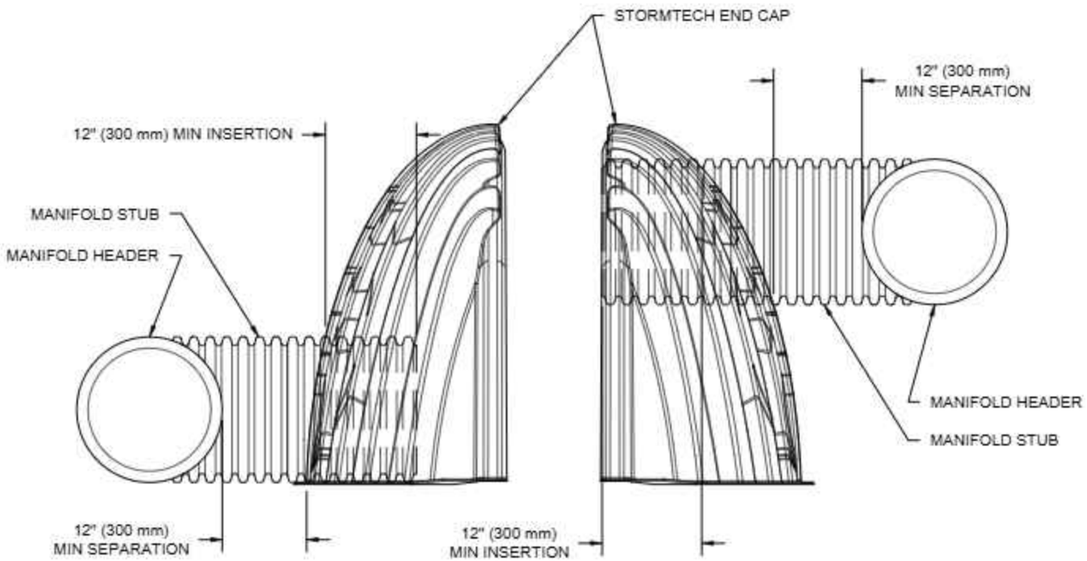

NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

MC-3500 TECHNICAL SPECIFICATION

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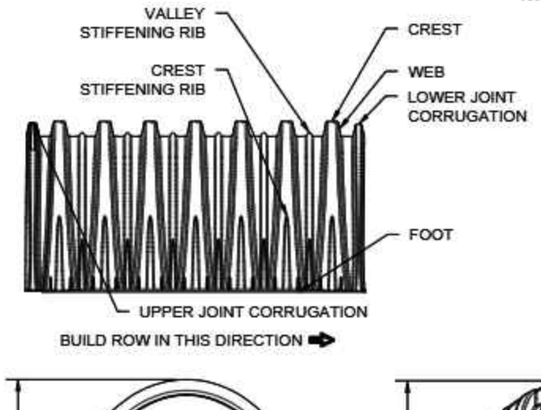
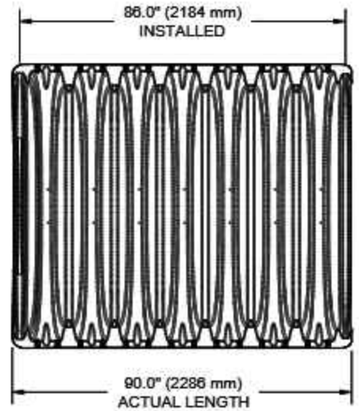
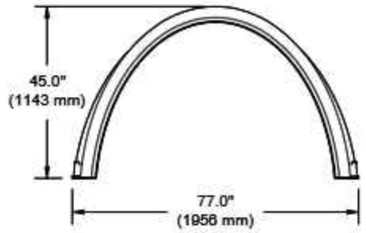
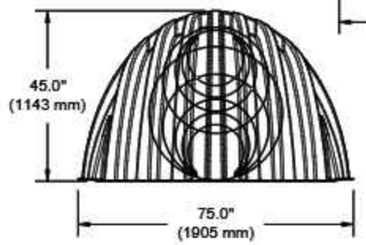
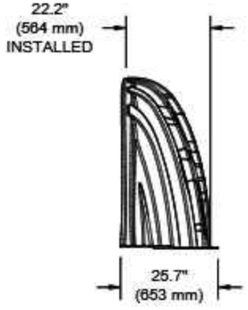










NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m³)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	(4.96 m³)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

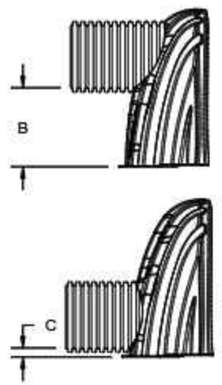
SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	(1.28 m³)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" SPACING BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC		---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC		---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

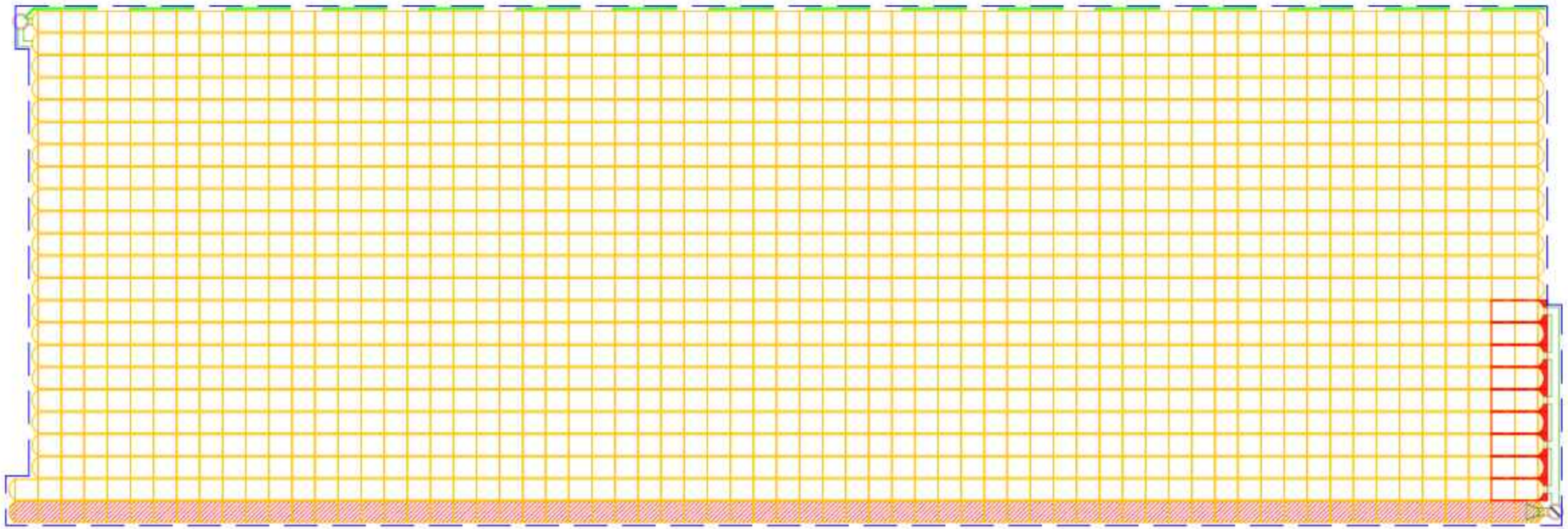
STUDY
KENOSHA, WI, USA
DATE: | DRAWN: TB | PROJECT #: | CHECKED: N/A

DATE	DRW	CHK	DESCRIPTION

StormTech®
Chamber System

4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473
888-892-2694 | WWW.STORMTECH.COM

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCTS DEPICTED AND ALL ASSOCIATED DRAWINGS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.



APPENDIX C – UTILITY CALCULATIONS AND MODELS

Figure 36 – Water Capacity Calculation

Water Main Flow Calculations

Kenosha Casino
Kenosha, WI
TOB

Describe Location

Fire Flow Date

Static Pressure:	62.0	psi
Residual Pressure:	61.0	psi
Flow Rate:	1,250	gpm

Water Main Through Site

Desired Flow:	1,000	gpm	*	* Largest Demand For Fire Flow
Available Pressure:	61.3	psi		Alternative C
Proposed Main Dia:	12	Inches		
C:	130	(Typical)		
Friction loss per 1,000':	2.55	Feet		
Loss Per Gate Valve:	6.96	Feet		
Loss Per 90 Bend:	29.8	Feet		
Loss Per 45 Bend:	13.9	Feet		
Loss Per Tee:	59.6	Feet		
Length of Pipe:	2100	Feet		
# Gate Valves	4	Each	=	27.84 Feet
# 90 Bend	1	Each	=	29.8 Feet
#45 Bend	2	Each	=	27.8 Feet
#Tee	1	Each	=	59.6 Feet
Equivelant Length 8":	2,245	Feet		
Start Elevation (Top):	720	Feet		
End Elevation (Top):	720	Feet		
ΔH:	0	Feet		
Total Loss:	6	Feet		
	2.48	psi		
Available Pressure:	58.85	psi		

Figure 37 – Alternative A Sanitary Flow Calculation

SANITARY FLOW CALCULATIONS

Kenosha Casino
Option A
LMR

11.7.2023

ERIKSSON ENGINEERING ASSOCIATES, LTD.

POPULATION EQUIVALENT (PE CALCULATION) - RESIDENTIAL

No. of Units	Unit Type	GPD/Unit	Total GPD	PE
0	Studio	100.0	0	**0.0**
139	1 Bedroom	150.0	20850	**208.5**
26	2 Bedroom	300.0	7800	**78.0**
5	3 Bedroom	300.0	1500	**15.0**
0	Single Family Dwelling	350.0	0	**0.0**
0	Mobile Home	225.00	0	**0.0**

POPULATION EQUIVALENT (PE CALCULATION) - Casino

No. of Units	Unit Type	GPD/Unit	Total GPD	PE
95003	Square Feet	0.83	79169.16667	**791.7**

POPULATION EQUIVALENT (PE CALCULATION) - Spa & Fitness

No. of Units	Unit Type	GPD/Unit	Total GPD	PE
1281	Square Feet	3.00	3843	**38.4**

TOTAL PE = 1131.6

FLOW CALCULATIONS

Average Flow = 1131.6 x 100 Gal / Day = **113,162 GPD**

IEPA PEAK FACTOR = $\frac{18+\sqrt{(PE/1000)}}{4+\sqrt{(PE/1000)}}$ = 3.7647

PEAK FLOW = Average Flow x Peak Factor =

426,026 GPD
296 gpm
0.66 cfs

Figure 38 – Alternative B Sanitary Flow Calculation

SANITARY FLOW CALCULATIONS

Kenosha Casino
Option B
LMR

11.7.2023

ERIKSSON ENGINEERING ASSOCIATES, LTD.

POPULATION EQUIVALENT (PE CALCULATION) - RESIDENTIAL

No. of Units	Unit Type	GPD/Unit	Total GPD	PE
0	Studio	100.0	0	**0.0**
139	1 Bedroom	150.0	20850	**208.5**
26	2 Bedroom	300.0	7800	**78.0**
5	3 Bedroom	300.0	1500	**15.0**
0	Single Family Dwelling	350.0	0	**0.0**
0	Mobile Home	225.00	0	**0.0**

POPULATION EQUIVALENT (PE CALCULATION) - Casino

No. of Units	Unit Type	GPD/Unit	Total GPD	PE
47501	Square Feet	0.83	39584.16667	**395.8**

POPULATION EQUIVALENT (PE CALCULATION) - Spa & Fitness

No. of Units	Unit Type	GPD/Unit	Total GPD	PE
1281	Square Feet	3.00	3843	**38.4**

TOTAL PE = 735.8

FLOW CALCULATIONS

Average Flow = 735.8 x 100 Gal / Day = **73,577 GPD**

IEPA PEAK FACTOR = $\frac{18+\sqrt{(PE/1000)}}{4+\sqrt{(PE/1000)}}$ = 3.8820

PEAK FLOW = Average Flow x Peak Factor =

285,625 GPD
198 gpm
0.44 cfs

Figure 39 – Alternative C Sanitary Flow Calculation

SANITARY FLOW CALCULATIONS

Kenosha Casino
Option C
DJN

11.7.2023

ERIKSSON ENGINEERING ASSOCIATES, LTD.

POPULATION EQUIVALENT (PE CALCULATION) - RESIDENTIAL

No. of Units	Unit Type	GPD/Unit	Total GPD	PE
0	Studio	100.0	0	**0.0**
139	1 Bedroom	150.0	20850	**208.5**
26	2 Bedroom	300.0	7800	**78.0**
5	3 Bedroom	300.0	1500	**15.0**
0	Single Family Dwelling	350.0	0	**0.0**
0	Mobile Home	225.00	0	**0.0**

POPULATION EQUIVALENT (PE CALCULATION) - Convention

No. of Units	Unit Type	GPD/Unit	Total GPD	PE
149150	Square Feet	0.10	14387.1514	**143.9**

POPULATION EQUIVALENT (PE CALCULATION) - Spa & Fitness

No. of Units	Unit Type	GPD/Unit	Total GPD	PE
13786	Square Feet	3.00	41358	**413.6**

TOTAL PE = 859.0

FLOW CALCULATIONS

Average Flow = 859.0 x 100 Gal / Day = **85,895 GPD**

IEPA PEAK FACTOR = $\frac{18+\sqrt{(PE/1000)}}{4+\sqrt{(PE/1000)}}$ = 3.8416

PEAK FLOW = Average Flow x Peak Factor =

329,975 GPD
229 gpm
0.51 cfs

Figure 40 – Sanitary Main Capacity Confirmation (KWU Emails)

Tim Brown

From: Ian Bagley <ibagley@kenosha.org>
Sent: Thursday, October 19, 2023 8:57 AM
To: Tim Brown
Cc: Laura Rosenbauer
Subject: Re: [EXTERNAL] RE: 122nd Ave Property - Sanitary Main Follow Up

Tim,

We have confirmed that we have capacity in the downstream collection system and lift stations to accommodate the full project scope. Please let me know if you need any additional information.

Thank you,
Ian C. Bagley, P.E.
Director of Engineering
Kenosha Water Utility
Phone: (262)653-4349
Fax: (262)653-4303
https://www.kenosha.org/departments/water-utility
ibagley@kenosha.org

On Wed, Oct 18, 2023 at 1:27 PM Tim Brown <tbrown@eea-ltd.com> wrote:

This message originated from outside your organization

Ian,

Any update you can provide?

Thanks in advance,

Tim

Tim Brown, PE (WI, IL)
Project Manager
Main: 414.249.6108
Direct: 414.930.7222
Mobile: 708.819.0501

ERIKSSON ENGINEERING ASSOCIATES, LTD.

From: Tim Brown
Sent: Tuesday, October 10, 2023 8:50 AM
To: Ian Bagley <ibagley@kenosha.org>
Cc: Laura Rosenbauer <LRosenbauer@eea-ltd.com>
Subject: RE: [EXTERNAL] RE: 122nd Ave Property - Sanitary Main Follow Up

Thank you, Ian!

Tim Brown, PE (WI, IL)
Project Manager
Main: 414.249.6108
Direct: 414.930.7222
Mobile: 708.819.0501

ERIKSSON ENGINEERING ASSOCIATES, LTD.

From: Ian Bagley <ibagley@kenosha.org>
Sent: Tuesday, October 10, 2023 8:42 AM
To: Tim Brown <tbrown@eea-ltd.com>
Cc: Laura Rosenbauer <lrosenbauer@eea-ltd.com>
Subject: Re: [EXTERNAL] RE: 122nd Ave Property - Sanitary Main Follow Up

Tim,

I have the sanitary main capacity but I'm working on the lift station capacity downstream.

Thank you,
Ian C. Bagley, P.E.
Director of Engineering

Kenosha Water Utility
Phone: (262)653-4349
Fax: (262)653-4303
https://www.kenosha.org/departments/water-utility
ibagley@kenosha.org

On Tue, Oct 10, 2023 at 8:28 AM Tim Brown <tbrown@eea-ltd.com> wrote:

This message originated from outside your organization

Ian,

Are you able to provide that documentation of the sewer capacity that we discussed last week?

Thanks,

Tim

Tim Brown, PE (WI, IL)
Project Manager
Main: 414.249.6108
Direct: 414.930.7222
Mobile: 708.819.0501

ERIKSSON ENGINEERING ASSOCIATES, LTD.

From: Tim Brown
Sent: Monday, October 2, 2023 3:52 PM
To: Ian Bagley <ibagley@kenosha.org>
Cc: Laura Rosenbauer <LRosenbauer@eea-ltd.com>
Subject: RE: [EXTERNAL] RE: 122nd Ave Property - Sanitary Main Follow Up

Ian,

Alternative A is 59.19 acres. All but roughly 2 acres of that would be developed with either parking area, building area, or stormwater management facilities or is an existing environmental asset that will remain. The building and main parking facilities would be on the west side of 122nd, in the 42.8 acres you mentioned. Additional parking and that remaining 2 acres is on the east side of 122nd. That 2 acre piece is a very steeply slope portion of the site

Sincerely,

Tim

Tim Brown, PE (WI, IL)
Project Manager
Main: 414.249.6108
Direct: 414.930.7222
Mobile: 708.819.0501

ERIKSSON ENGINEERING ASSOCIATES, LTD.

From: Ian Bagley <ibagley@kenosha.org>
Sent: Monday, October 2, 2023 3:37 PM
To: Tim Brown <tbrown@eea-ltd.com>
Cc: Laura Rosenbauer <lrosenbauer@eea-ltd.com>
Subject: Re: [EXTERNAL] RE: 122nd Ave Property - Sanitary Main Follow Up

Tim,

What is the total acreage of the buildout? Is it the two existing parcels which total 42.8 acres?

Thank you,
Ian C. Bagley, P.E.
Director of Engineering

Kenosha Water Utility
Phone: (262)653-4349
Fax: (262)653-4303
https://www.kenosha.org/departments/water-utility
ibagley@kenosha.org

On Mon, Oct 2, 2023 at 3:24 PM Tim Brown <tbrown@eea-ltd.com> wrote:

This message originated from outside your organization

Ian,

Per our call, here is the PE Table for the alternative designs for the site:

Alternate	Average Flow (GPD)	Peak Flow (GPD)	Peak Flow (gpm)	Peak Flow (cfs)
A	509,008	1,648,070	1,144	2.55
B	271,498	944,508	656	1.46
C	295,233	1,018,054	707	1.58

As I mentioned, Alternative A has the highest demand and is the full build out of the western properties in this study. Please confirm that the 21" sanitary main and lift stations have capacity for this scope. Feel free to call with any questions.

Sincerely,
Tim

Tim Brown, PE (WI, IL)
Project Manager
Main: 414.249.6108
Direct: 414.930.7222
Mobile: 708.819.0501

ERIKSSON ENGINEERING ASSOCIATES, LTD.

From: Tim Brown
Sent: Monday, October 2, 2023 2:01 PM
To: ibagley@kenosha.org
Cc: Laura Rosenbauer <LRosenbauer@eea-ltd.com>
Subject: 122nd Ave Property - Sanitary Main Follow Up

Ian,

We have had some discussions with my client on this property and they are asking for some additional information on the sanitary main data. They are presenting our report to the federal government and they want to ensure that this project would not negatively impact your existing system. They want to know where the sewer main goes, confirm the adequacy of lift stations, etc. Could you provide us some information on that? Also, they want to confirm the location of affected sewer plant we are tributary to and its current capacity (during peak events). Is this something you can share?

Thanks,

Tim

Tim Brown, PE (WI, IL)
Project Manager
Main: 414.249.6108
Direct: 414.930.7222
Mobile: 708.819.0501

ERIKSSON ENGINEERING ASSOCIATES, LTD.

Illinois | Wisconsin | Indiana | www.eea-ltd.com

229 E. Wisconsin Ave, Suite 1102, Milwaukee, WI 53202

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Figure 41 – Existing Stormwater TR-20 Models

TR-20 Results – Option C

Hard Rock Hotel & Casino
Option C – Non-Gaming
DJN **09.12.23**

ERIKSSON ENGINEERING ASSOCIATES, LTD.

West Property - Draining Towards 60th Street

WinTR-20 Printed Page File Beginning of Input Data List
C:\Work\60th\Hard Rock Casino Existing Catchment 1.inp

WinTR-20: version 3.10 0 0 .1 0
Subareas 1 and 2

SUB-AREA:

Sub 1	Outlet	0.0102029474.	1.6255
Sub 2	Outlet	0.0107361074.	1.13766667

STORM ANALYSIS:

1-Year	2.39	MSE3	2
2-Year	2.70	MSE3	2
10-Year	3.77	MSE3	2
100-Year	5.88	MSE3	2

RAINFALL DISTRIBUTION:

MSE3 0.1

0.	0.000267	0.000555	0.000861	0.00119
0.00153	0.0019	0.00229	0.00269	0.00312
0.00356	0.00403	0.00451	0.00501	0.00554
0.00608	0.00665	0.00723	0.00783	0.00845
0.0091	0.00976	0.01044	0.01114	0.01186
0.0126	0.01336	0.01414	0.01494	0.01576
0.0166	0.01746	0.01834	0.01924	0.02016
0.02109	0.02205	0.02303	0.02403	0.02504
0.02608	0.02714	0.02821	0.02931	0.03042
0.03156	0.03271	0.03389	0.03508	0.0363
0.03753	0.03878	0.04006	0.04135	0.04266
0.04399	0.04535	0.04672	0.04811	0.04952
0.05095	0.0524	0.05387	0.05536	0.05687
0.0584	0.05995	0.06152	0.063111	0.06472
0.06635	0.06799	0.06966	0.07135	0.07306
0.07478	0.07653	0.0783	0.08008	0.08189
0.08371	0.08556	0.08742	0.08931	0.09121
0.09314	0.09508	0.09704	0.09903	0.10103
0.10305	0.10628	0.10956	0.11289	0.11626
0.11967	0.12314	0.12664	0.1302	0.1338
0.13744	0.14113	0.14487	0.14866	0.15248
0.15636	0.16212	0.16863	0.17591	0.18394
0.19272	0.20226	0.21256	0.22362	0.23543
0.248	0.2663	0.29062	0.32445	0.37245

0.46289 0.62755 0.67555 0.70938 0.7337
0.752 0.76457 0.77638 0.78744 0.79774
0.80728 0.81606 0.82409 0.83137 0.83788
0.84364 0.84752 0.85134 0.85513 0.85887
0.86256 0.8662 0.8698 0.87336 0.87686
0.88033 0.88374 0.88711 0.89044 0.89372
0.89695 0.89897 0.90097 0.90296 0.90492
0.90686 0.90879 0.91069 0.91258 0.91444
0.91629 0.91811 0.91992 0.9217 0.92347
0.92522 0.92694 0.92865 0.93034 0.93201
0.93365 0.93528 0.93689 0.93848 0.94005
0.9416 0.94313 0.94464 0.94613 0.9476
0.94905 0.95048 0.95189 0.95328 0.95465
0.95601 0.95734 0.95865 0.95994 0.96122
0.96247 0.9637 0.96492 0.96611 0.96729
0.96844 0.96958 0.97069 0.97179 0.97286
0.97392 0.97496 0.97597 0.97697 0.97795
0.97891 0.97984 0.98076 0.98166 0.98254
0.9834 0.98424 0.98506 0.98586 0.98664
0.9874 0.98814 0.98886 0.98956 0.99024
0.9909 0.99155 0.99217 0.99277 0.99335
0.99392 0.99446 0.99499 0.99549 0.99597
0.99644 0.99688 0.99731 0.99771 0.9981
0.99847 0.99881 0.999139 0.999445 0.999733
1.

GLOBAL OUTPUT:
1 .04 0.10 YY Y YY Y

WinTR-20 Printed Page File End of Input Data List

Subareas 1 and 2

Name of printed page file:
C:\Work\60th\Hard Rock Casino Existing Catchment 1.out

STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 1	0.010		0.503		13.25	1.3	130.26

Line
Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.100	0.0	0.880E-01	0.2	0.3	0.5	0.6	0.8
12.800	1.0	1.1	1.2	1.3	1.3	1.3	1.3
13.500	1.2	1.2	1.1	1.0	0.9	0.9	0.8
14.200	0.8	0.7	0.6	0.6	0.6	0.5	0.5
14.900	0.4	0.4	0.4	0.4	0.4	0.3	0.3
15.600	0.3	0.3	0.3	0.3	0.3	0.2	0.2
16.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.000	0.2	0.2	0.2	0.2	0.2	0.2	0.1
17.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.500	0.996E-01	0.981E-01	0.965E-01	0.950E-01	0.935E-01	0.919E-01	0.904E-01
21.200	0.889E-01	0.873E-01	0.858E-01	0.842E-01	0.827E-01	0.812E-01	0.796E-01
21.900	0.781E-01	0.765E-01	0.750E-01	0.735E-01	0.719E-01	0.704E-01	0.689E-01
22.600	0.673E-01	0.658E-01	0.642E-01	0.627E-01	0.612E-01	0.596E-01	0.581E-01
23.300	0.565E-01	0.550E-01	0.535E-01	0.519E-01	0.504E-01	0.489E-01	0.473E-01
24.000	0.458E-01	0.442E-01	0.427E-01	0.412E-01	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 2	0.011		0.507		12.86	1.8	167.03

Line
Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.000	0.0	0.588E-01	0.2	0.5	0.8	1.1	1.4
12.700	1.6	1.8	1.8	1.7	1.6	1.5	1.3
13.400	1.2	1.1	1.0	0.9	0.8	0.8	0.7
14.100	0.6	0.6	0.5	0.5	0.4	0.4	0.4
14.800	0.4	0.3	0.3	0.3	0.3	0.3	0.3
15.500	0.3	0.3	0.2	0.2	0.2	0.2	0.2
16.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.900	0.2	0.2	0.2	0.2	0.1	0.1	0.1
17.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1

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Choose an item.

Subareas 1 and 2

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
20.400	0.1	0.987E-01	0.970E-01	0.954E-01	0.938E-01	0.921E-01	0.905E-01
21.100	0.889E-01	0.872E-01	0.856E-01	0.840E-01	0.823E-01	0.807E-01	0.791E-01
21.800	0.774E-01	0.758E-01	0.741E-01	0.725E-01	0.709E-01	0.692E-01	0.676E-01
22.500	0.660E-01	0.643E-01	0.627E-01	0.611E-01	0.594E-01	0.578E-01	0.562E-01
23.200	0.545E-01	0.529E-01	0.513E-01	0.496E-01	0.480E-01	0.464E-01	0.447E-01
23.900	0.431E-01	0.415E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.021		0.504		13.00	3.0	142.01

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
12.000	0.0	0.685E-01	0.3	0.7	1.1	1.6	2.1
12.700	2.5	2.8	2.9	3.0	2.9	2.8	2.7
13.400	2.5	2.4	2.2	2.0	1.9	1.7	1.6
14.100	1.4	1.3	1.2	1.1	1.0	1.0	0.9
14.800	0.8	0.8	0.8	0.7	0.7	0.7	0.6
15.500	0.6	0.6	0.5	0.5	0.5	0.5	0.4
16.200	0.4	0.4	0.4	0.4	0.4	0.3	0.3
16.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
17.600	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.300	0.3	0.3	0.3	0.3	0.3	0.3	0.2
19.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.400	0.2	0.0					

STORM 2-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 1	0.010		0.688		13.21	1.8	178.90

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
12.100	0.274E-01	0.2	0.3	0.5	0.7	0.9	1.2
12.800	1.4	1.6	1.7	1.8	1.8	1.8	1.8
13.500	1.7	1.6	1.5	1.4	1.3	1.2	1.1
14.200	1.0	0.9	0.8	0.8	0.7	0.7	0.6
14.900	0.6	0.5	0.5	0.5	0.5	0.4	0.4
15.600	0.4	0.4	0.4	0.3	0.3	0.3	0.3
16.300	0.3	0.3	0.2	0.2	0.2	0.2	0.2

17.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Subareas 1 and 2

Line
Start Time ---------- Flow Values @ time increment of 0.100 hr ----------
(hr) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs)

18.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.100	0.2	0.1	0.1	0.1	0.1	0.1	0.1
19.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.200	0.1	0.1	0.1	0.1	0.1	0.999E-01	0.980E-01
21.900	0.960E-01	0.940E-01	0.920E-01	0.901E-01	0.881E-01	0.861E-01	0.841E-01
22.600	0.821E-01	0.802E-01	0.782E-01	0.762E-01	0.742E-01	0.723E-01	0.703E-01
23.300	0.683E-01	0.663E-01	0.643E-01	0.624E-01	0.604E-01	0.584E-01	0.564E-01
24.000	0.544E-01	0.525E-01	0.505E-01	0.485E-01	0.465E-01	0.446E-01	0.426E-01
24.700	0.406E-01	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Sub 2	0.011		0.693		12.86	2.5	230.51

Line
Start Time ---------- Flow Values @ time increment of 0.100 hr ----------
(hr) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs)

12.000	0.318E-02	0.2	0.4	0.7	1.2	1.6	2.0
12.700	2.3	2.5	2.5	2.4	2.2	2.0	1.8
13.400	1.6	1.5	1.3	1.2	1.1	1.0	0.9
14.100	0.8	0.7	0.7	0.6	0.6	0.5	0.5
14.800	0.5	0.4	0.4	0.4	0.4	0.4	0.4
15.500	0.3	0.3	0.3	0.3	0.3	0.3	0.2
16.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.000	0.2	0.2	0.1	0.1	0.1	0.1	0.1
19.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.100	0.1	0.1	0.1	0.1	0.1	0.993E-01	0.972E-01
21.800	0.951E-01	0.931E-01	0.910E-01	0.889E-01	0.868E-01	0.847E-01	0.826E-01
22.500	0.805E-01	0.784E-01	0.763E-01	0.742E-01	0.721E-01	0.700E-01	0.679E-01
23.200	0.658E-01	0.638E-01	0.617E-01	0.596E-01	0.575E-01	0.554E-01	0.533E-01
23.900	0.512E-01	0.491E-01	0.470E-01	0.449E-01	0.428E-01	0.407E-01	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)

OUTLET	0.021	0.690	13.00	4.1	195.60

Line
Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.000	0.318E-02	0.2	0.6	1.0	1.6	2.3	3.0
12.700	3.5	3.9	4.0	4.1	4.0	3.8	3.6

Subareas 1 and 2

Line
Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
13.400	3.4	3.1	2.9	2.7	2.4	2.2	2.0
14.100	1.9	1.7	1.6	1.4	1.3	1.2	1.1
14.800	1.1	1.0	1.0	0.9	0.9	0.8	0.8
15.500	0.8	0.7	0.7	0.6	0.6	0.6	0.5
16.200	0.5	0.5	0.5	0.5	0.4	0.4	0.4
16.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
17.600	0.4	0.4	0.4	0.3	0.3	0.3	0.3
18.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
19.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3
19.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
20.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.100	0.2	0.2	0.2	0.2	0.2	0.1	0.0

STORM 10-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 1	0.010		1.410		13.19	3.8	377.26

Line
Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.800	0.0	0.603E-01	0.2	0.3	0.6	0.9	1.3
12.500	1.7	2.3	2.8	3.2	3.5	3.7	3.8
13.200	3.8	3.8	3.6	3.4	3.2	2.9	2.7
13.900	2.4	2.2	2.1	1.9	1.7	1.6	1.5
14.600	1.3	1.2	1.1	1.1	1.0	0.9	0.9
15.300	0.8	0.8	0.7	0.7	0.7	0.6	0.6
16.000	0.6	0.5	0.5	0.5	0.5	0.4	0.4
16.700	0.4	0.4	0.4	0.4	0.4	0.3	0.3
17.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.800	0.3	0.3	0.3	0.3	0.3	0.2	0.2
19.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Choose an item.

20.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
23.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
23.700	0.1	0.970E-01	0.935E-01	0.900E-01	0.866E-01	0.831E-01	0.797E-01
24.400	0.762E-01	0.727E-01	0.693E-01	0.658E-01	0.624E-01	0.589E-01	0.554E-01
25.100	0.520E-01	0.485E-01	0.451E-01	0.416E-01	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 2	0.011		1.412		12.80	5.2	487.93

Subareas 1 and 2

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.700	0.0	0.1	0.2	0.4	0.7	1.2	2.0
12.400	2.9	3.9	4.6	5.0	5.2	5.1	4.9
13.100	4.4	4.0	3.5	3.1	2.8	2.5	2.3
13.800	2.0	1.8	1.6	1.5	1.3	1.2	1.1
14.500	1.0	0.9	0.9	0.8	0.8	0.7	0.7
15.200	0.7	0.7	0.6	0.6	0.6	0.5	0.5
15.900	0.5	0.4	0.4	0.4	0.4	0.4	0.4
16.600	0.4	0.3	0.3	0.3	0.3	0.3	0.3
17.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.700	0.3	0.3	0.3	0.3	0.3	0.3	0.2
19.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.500	0.2	0.2	0.2	0.2	0.2	0.2	0.1
22.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
22.900	0.1	0.1	0.1	0.1	0.1	0.1	0.991E-01
23.600	0.954E-01	0.918E-01	0.881E-01	0.845E-01	0.808E-01	0.772E-01	0.735E-01
24.300	0.699E-01	0.662E-01	0.626E-01	0.589E-01	0.553E-01	0.516E-01	0.480E-01
25.000	0.443E-01	0.407E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.021		1.410		12.94	8.7	414.14

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.700	0.0	0.1	0.3	0.6	1.0	1.8	2.8
12.400	4.2	5.6	6.9	7.8	8.4	8.7	8.6

13.100	8.3	7.8	7.3	6.7	6.2	5.7	5.2
13.800	4.7	4.3	3.9	3.5	3.2	2.9	2.7
14.500	2.5	2.3	2.1	2.0	1.8	1.7	1.6
15.200	1.6	1.5	1.4	1.3	1.3	1.2	1.1
15.900	1.1	1.0	0.9	0.9	0.9	0.8	0.8
16.600	0.8	0.7	0.7	0.7	0.7	0.7	0.7
17.300	0.7	0.6	0.6	0.6	0.6	0.6	0.6
18.000	0.6	0.6	0.6	0.6	0.6	0.6	0.5
18.700	0.5	0.5	0.5	0.5	0.5	0.5	0.5
19.400	0.5	0.5	0.5	0.5	0.5	0.5	0.4
20.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.800	0.4	0.4	0.4	0.4	0.4	0.4	0.4
21.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.200	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.900	0.2	0.2	0.2	0.2	0.2	0.2	0.1
23.600	0.1	0.575E-01	0.0				

Subareas 1 and 2

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 1	0.010		3.070		13.09	8.6	845.94

Line Start Time (hr) — Flow Values (cfs) @ time increment of 0.100 hr

11.000	0.0	0.709E-01	0.1	0.2	0.2	0.3	0.3
11.700	0.4	0.5	0.7	0.9	1.3	1.8	2.6
12.400	3.5	4.5	5.6	6.7	7.5	8.1	8.5
13.100	8.6	8.5	8.3	7.9	7.3	6.7	6.1
13.800	5.6	5.1	4.6	4.2	3.9	3.5	3.2
14.500	2.9	2.7	2.5	2.3	2.1	2.0	1.8
15.200	1.7	1.6	1.5	1.4	1.4	1.3	1.2
15.900	1.1	1.1	1.0	1.0	0.9	0.9	0.8
16.600	0.8	0.8	0.7	0.7	0.7	0.7	0.6
17.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
18.000	0.5	0.5	0.5	0.5	0.5	0.5	0.5
18.700	0.5	0.5	0.5	0.5	0.5	0.5	0.5
19.400	0.5	0.4	0.4	0.4	0.4	0.4	0.4
20.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.800	0.4	0.4	0.4	0.3	0.3	0.3	0.3
21.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.200	0.3	0.3	0.3	0.3	0.3	0.2	0.2
22.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24.300	0.1	0.1	0.1	0.1	0.1	0.967E-01	0.862E-01
25.000	0.757E-01	0.652E-01	0.546E-01	0.441E-01	0.0		

Choose an item.

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 2	0.011		3.073		12.80	11.7	1089.42

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.800	0.166E-01	0.1	0.1	0.2	0.2	0.3	0.4
11.500	0.5	0.6	0.7	0.9	1.1	1.6	2.4
12.200	3.7	5.3	7.3	9.3	10.7	11.5	11.7
12.900	11.3	10.5	9.5	8.4	7.4	6.5	5.8
13.600	5.2	4.6	4.1	3.7	3.3	2.9	2.6
14.300	2.3	2.1	1.9	1.8	1.7	1.6	1.5
15.000	1.4	1.3	1.3	1.2	1.2	1.1	1.0
15.700	1.0	0.9	0.9	0.8	0.8	0.7	0.7
16.400	0.7	0.7	0.7	0.7	0.6	0.6	0.6
17.100	0.6	0.6	0.6	0.6	0.6	0.6	0.6
17.800	0.6	0.5	0.5	0.5	0.5	0.5	0.5
18.500	0.5	0.5	0.5	0.5	0.5	0.5	0.5
19.200	0.5	0.5	0.5	0.4	0.4	0.4	0.4
19.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Subareas 1 and 2

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
20.600	0.4	0.4	0.4	0.4	0.3	0.3	0.3
21.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.000	0.3	0.3	0.3	0.3	0.3	0.2	0.2
22.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.400	0.2	0.2	0.2	0.2	0.2	0.2	0.1
24.100	0.1	0.1	0.1	0.1	0.992E-01	0.860E-01	0.728E-01
24.800	0.596E-01	0.464E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.021		3.070		12.87	19.5	930.27

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.800	0.166E-01	0.1	0.1	0.3	0.4	0.5	0.6
11.500	0.7	0.9	1.1	1.4	1.8	2.5	3.7
12.200	5.5	7.9	10.8	13.8	16.3	18.2	19.2

Choose an item.

12.900	19.4	19.0	18.1	16.9	15.6	14.4	13.1
13.600	11.9	10.7	9.7	8.8	7.9	7.2	6.5
14.300	5.9	5.3	4.9	4.5	4.1	3.8	3.6
15.000	3.4	3.2	3.0	2.8	2.7	2.5	2.4
15.700	2.2	2.1	2.0	1.9	1.8	1.7	1.6
16.400	1.6	1.5	1.4	1.4	1.4	1.3	1.3
17.100	1.3	1.2	1.2	1.2	1.2	1.2	1.1
17.800	1.1	1.1	1.1	1.1	1.1	1.0	1.0
18.500	1.0	1.0	1.0	1.0	1.0	1.0	0.9
19.200	0.9	0.9	0.9	0.9	0.9	0.9	0.9
19.900	0.8	0.8	0.8	0.8	0.8	0.8	0.8
20.600	0.8	0.7	0.7	0.7	0.7	0.7	0.7
21.300	0.7	0.6	0.6	0.6	0.6	0.6	0.6
22.000	0.6	0.6	0.5	0.5	0.5	0.5	0.5
22.700	0.5	0.5	0.5	0.4	0.4	0.4	0.4
23.400	0.4	0.4	0.4	0.4	0.3	0.3	0.3
24.100	0.3	0.3	0.3	0.2	0.1	0.1	0.848E-01
24.800	0.0						

Subareas 1 and 2

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)
Sub 1	0.010	1.3	1.8	3.8	8.6
Sub 2	0.011	1.8	2.5	5.2	11.7
OUTLET	0.021	3.0	4.1	8.7	19.5

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Choose an item.

West Property - Draining Towards I-94

WinTR-20 Printed Page File Beginning of Input Data List
C:\Work\I-94\Hard Rock Casino Existing Catchment 1.inp

WinTR-20: version 3.10 0 0 .1 0
Subareas 3 and 4

SUB-AREA:

Sub 3	Outlet	0.0132308274.	0.59583333
Sub 4	Outlet	0.0159599574.	0.64

STORM ANALYSIS:

1-Year	2.39	MSE3	2
2-Year	2.70	MSE3	2
10-Year	3.77	MSE3	2
100-Year	5.88	MSE3	2

RAINFALL DISTRIBUTION:

MSE3 0.1

0.	0.000267	0.000555	0.000861	0.00119
0.00153	0.0019	0.00229	0.00269	0.00312
0.00356	0.00403	0.00451	0.00501	0.00554
0.00608	0.00665	0.00723	0.00783	0.00845
0.0091	0.00976	0.01044	0.01114	0.01186
0.0126	0.01336	0.01414	0.01494	0.01576
0.0166	0.01746	0.01834	0.01924	0.02016
0.02109	0.02205	0.02303	0.02403	0.02504
0.02608	0.02714	0.02821	0.02931	0.03042
0.03156	0.03271	0.03389	0.03508	0.0363
0.03753	0.03878	0.04006	0.04135	0.04266
0.04399	0.04535	0.04672	0.04811	0.04952
0.05095	0.0524	0.05387	0.05536	0.05687
0.0584	0.05995	0.06152	0.063111	0.06472
0.06635	0.06799	0.06966	0.07135	0.07306
0.07478	0.07653	0.0783	0.08008	0.08189
0.08371	0.08556	0.08742	0.08931	0.09121
0.09314	0.09508	0.09704	0.09903	0.10103
0.10305	0.10628	0.10956	0.11289	0.11626
0.11967	0.12314	0.12664	0.1302	0.1338
0.13744	0.14113	0.14487	0.14866	0.15248
0.15636	0.16212	0.16863	0.17591	0.18394
0.19272	0.20226	0.21256	0.22362	0.23543
0.248	0.2663	0.29062	0.32445	0.37245
0.46289	0.62755	0.67555	0.70938	0.7337
0.752	0.76457	0.77638	0.78744	0.79774
0.80728	0.81606	0.82409	0.83137	0.83788
0.84364	0.84752	0.85134	0.85513	0.85887
0.86256	0.8662	0.8698	0.87336	0.87686
0.88033	0.88374	0.88711	0.89044	0.89372

0.89695 0.89897 0.90097 0.90296 0.90492
0.90686 0.90879 0.91069 0.91258 0.91444
0.91629 0.91811 0.91992 0.9217 0.92347
0.92522 0.92694 0.92865 0.93034 0.93201
0.93365 0.93528 0.93689 0.93848 0.94005
0.9416 0.94313 0.94464 0.94613 0.9476
0.94905 0.95048 0.95189 0.95328 0.95465
0.95601 0.95734 0.95865 0.95994 0.96122
0.96247 0.9637 0.96492 0.96611 0.96729
0.96844 0.96958 0.97069 0.97179 0.97286
0.97392 0.97496 0.97597 0.97697 0.97795
0.97891 0.97984 0.98076 0.98166 0.98254
0.9834 0.98424 0.98506 0.98586 0.98664
0.9874 0.98814 0.98886 0.98956 0.99024
0.9909 0.99155 0.99217 0.99277 0.99335
0.99392 0.99446 0.99499 0.99549 0.99597
0.99644 0.99688 0.99731 0.99771 0.9981
0.99847 0.99881 0.999139 0.999445 0.999733
1.

GLOBAL OUTPUT:
1 .04 0.10 YY Y YY Y

WinTR-20 Printed Page File End of Input Data List

Subareas 3 and 4

Name of printed page file:
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STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 3	0.013		0.522		12.50	3.4	253.77

Line Start Time (hr) | Flow Values @ time increment of 0.100 hr (cfs)

11.900	0.0	0.967E-01	0.5	1.3	2.4	3.2	3.4
12.600	3.1	2.6	2.2	1.8	1.5	1.3	1.2
13.300	1.1	1.0	0.9	0.8	0.7	0.6	0.5
14.000	0.5	0.4	0.4	0.4	0.4	0.4	0.4

14.700	0.4	0.4	0.3	0.3	0.3	0.3	0.3
15.400	0.3	0.3	0.2	0.2	0.2	0.2	0.2
16.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.200	0.2	0.2	0.2	0.2	0.2	0.1	0.1
18.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.000	0.1	0.1	0.986E-01	0.966E-01	0.945E-01	0.925E-01	0.905E-01
21.700	0.884E-01	0.864E-01	0.844E-01	0.823E-01	0.803E-01	0.782E-01	0.762E-01
22.400	0.742E-01	0.721E-01	0.701E-01	0.681E-01	0.660E-01	0.640E-01	0.620E-01
23.100	0.599E-01	0.579E-01	0.558E-01	0.538E-01	0.518E-01	0.497E-01	0.477E-01
23.800	0.457E-01	0.436E-01	0.416E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Sub 4	0.016		0.531		12.52	3.9	243.59

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.900	0.0	0.1	0.5	1.4	2.6	3.5	3.9
12.600	3.7	3.2	2.7	2.3	2.0	1.7	1.5
13.300	1.3	1.2	1.1	1.0	0.9	0.8	0.7
14.000	0.6	0.6	0.5	0.5	0.5	0.5	0.4
14.700	0.4	0.4	0.4	0.4	0.4	0.4	0.4
15.400	0.3	0.3	0.3	0.3	0.3	0.3	0.2
16.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.600	0.2	0.2	0.2	0.2	0.1	0.1	0.1

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Subareas 3 and 4

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
20.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.700	0.1	0.1	0.1	0.994E-01	0.968E-01	0.942E-01	0.916E-01
22.400	0.890E-01	0.865E-01	0.839E-01	0.813E-01	0.787E-01	0.761E-01	0.735E-01
23.100	0.709E-01	0.684E-01	0.658E-01	0.632E-01	0.606E-01	0.580E-01	0.554E-01
23.800	0.528E-01	0.503E-01	0.477E-01	0.451E-01	0.425E-01	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.029		0.526		12.50	7.2	247.65

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.900	0.0	0.2	1.0	2.7	5.0	6.7	7.2
12.600	6.8	5.9	4.9	4.1	3.5	3.0	2.7
13.300	2.4	2.2	2.0	1.8	1.6	1.4	1.2
14.000	1.1	1.0	0.9	0.9	0.8	0.8	0.8
14.700	0.8	0.8	0.8	0.8	0.7	0.7	0.7
15.400	0.6	0.6	0.5	0.5	0.5	0.5	0.4
16.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
16.800	0.4	0.4	0.4	0.4	0.4	0.4	0.4
17.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
18.200	0.4	0.3	0.3	0.3	0.3	0.3	0.3
18.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
19.600	0.3	0.3	0.3	0.3	0.3	0.3	0.3
20.300	0.3	0.3	0.3	0.2	0.2	0.2	0.2
21.000	0.2	0.2	0.1	0.1	0.1	0.1	0.1
21.700	0.1	0.1	0.1	0.428E-01	0.0		

STORM 2-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 3	0.013		0.704		12.47	4.7	351.81

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.900	0.0	0.3	0.9	2.1	3.6	4.5	4.6
12.600	4.2	3.5	2.9	2.4	2.0	1.7	1.5
13.300	1.3	1.2	1.1	1.0	0.9	0.8	0.7
14.000	0.6	0.6	0.5	0.5	0.5	0.5	0.5
14.700	0.4	0.4	0.4	0.4	0.4	0.4	0.4

15.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
16.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Subareas 3 and 4

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
16.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.600	0.2	0.2	0.2	0.2	0.2	0.1	0.1
20.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.700	0.1	0.1	0.1	0.1	0.982E-01	0.956E-01	0.929E-01
22.400	0.903E-01	0.876E-01	0.850E-01	0.823E-01	0.797E-01	0.771E-01	0.744E-01
23.100	0.718E-01	0.691E-01	0.665E-01	0.639E-01	0.612E-01	0.586E-01	0.559E-01
23.800	0.533E-01	0.506E-01	0.480E-01	0.454E-01	0.427E-01	0.401E-01	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 4	0.016		0.711		12.50	5.4	336.76

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.900	0.318E-01	0.3	0.9	2.2	3.8	5.0	5.4
12.600	5.1	4.4	3.6	3.0	2.6	2.2	1.9
13.300	1.7	1.5	1.4	1.3	1.1	1.0	0.9
14.000	0.8	0.7	0.6	0.6	0.6	0.6	0.6
14.700	0.5	0.5	0.5	0.5	0.5	0.5	0.5
15.400	0.4	0.4	0.4	0.3	0.3	0.3	0.3
16.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
16.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
17.500	0.3	0.3	0.3	0.2	0.2	0.2	0.2
18.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.000	0.2	0.2	0.1	0.1	0.1	0.1	0.1
21.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
22.400	0.1	0.1	0.1	0.1	0.974E-01	0.943E-01	0.911E-01
23.100	0.880E-01	0.849E-01	0.817E-01	0.786E-01	0.754E-01	0.723E-01	0.691E-01
23.800	0.660E-01	0.628E-01	0.597E-01	0.565E-01	0.534E-01	0.502E-01	0.471E-01
24.500	0.439E-01	0.408E-01	0.0				

Area or	Drainage	Rain Gage	Runoff	Peak Flow

Reach Identifier	Area (sq mi)	ID or Location	Amount (in)	Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.029		0.707		12.47	10.0	341.96

Subareas 3 and 4

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.900	0.0	0.6	1.8	4.3	7.4	9.5	10.0
12.600	9.2	7.8	6.5	5.4	4.5	3.9	3.4
13.300	3.1	2.8	2.5	2.3	2.0	1.8	1.6
14.000	1.4	1.2	1.2	1.1	1.1	1.0	1.0
14.700	1.0	1.0	1.0	0.9	0.9	0.9	0.8
15.400	0.8	0.7	0.7	0.6	0.6	0.6	0.6
16.100	0.5	0.5	0.5	0.5	0.5	0.5	0.5
16.800	0.5	0.5	0.5	0.5	0.5	0.5	0.5
17.500	0.5	0.5	0.5	0.5	0.5	0.4	0.4
18.200	0.4	0.4	0.4	0.4	0.4	0.4	0.4
18.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19.600	0.4	0.4	0.3	0.3	0.3	0.3	0.3
20.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.000	0.3	0.3	0.3	0.3	0.3	0.3	0.2
21.700	0.2	0.2	0.2	0.2	0.1	0.1	0.1
22.400	0.1	0.1	0.1	0.522E-01	0.0		

STORM 10-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 3	0.013		1.420		12.43	9.8	743.38

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.400	0.0	0.1	0.2	0.3	0.5	0.8	1.4
12.100	2.8	5.3	8.2	9.7	9.6	8.4	6.9
12.800	5.6	4.5	3.7	3.2	2.8	2.5	2.2
13.500	2.0	1.8	1.6	1.4	1.2	1.1	1.0
14.200	0.9	0.9	0.8	0.8	0.8	0.8	0.8
14.900	0.8	0.7	0.7	0.7	0.6	0.6	0.5
15.600	0.5	0.5	0.5	0.4	0.4	0.4	0.4
16.300	0.4	0.4	0.4	0.4	0.4	0.4	0.4
17.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
17.700	0.4	0.4	0.3	0.3	0.3	0.3	0.3
18.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3

Choose an item.

19.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
19.800	0.3	0.3	0.3	0.3	0.2	0.2	0.2
20.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.900	0.2	0.2	0.2	0.2	0.2	0.2	0.1
22.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
23.300	0.1	0.1	0.1	0.985E-01	0.941E-01	0.897E-01	0.852E-01
24.000	0.808E-01	0.763E-01	0.719E-01	0.675E-01	0.630E-01	0.586E-01	0.542E-01
24.700	0.497E-01	0.453E-01	0.408E-01	0.0			

Subareas 3 and 4

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 4	0.016		1.424		12.46	11.4	711.97

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.400	0.0	0.1	0.2	0.3	0.5	0.9	1.5
12.100	3.0	5.7	8.9	10.9	11.3	10.3	8.7
12.800	7.1	5.8	4.8	4.1	3.6	3.1	2.8
13.500	2.5	2.2	2.0	1.8	1.5	1.4	1.2
14.200	1.1	1.1	1.0	1.0	1.0	0.9	0.9
14.900	0.9	0.9	0.9	0.9	0.8	0.7	0.7
15.600	0.6	0.6	0.6	0.5	0.5	0.5	0.5
16.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
17.000	0.5	0.5	0.5	0.4	0.4	0.4	0.4
17.700	0.4	0.4	0.4	0.4	0.4	0.4	0.4
18.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19.100	0.4	0.4	0.3	0.3	0.3	0.3	0.3
19.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
20.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.200	0.3	0.2	0.2	0.2	0.2	0.2	0.2
21.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.600	0.2	0.2	0.2	0.2	0.2	0.1	0.1
23.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
24.000	0.989E-01	0.934E-01	0.879E-01	0.824E-01	0.769E-01	0.715E-01	0.660E-01
24.700	0.605E-01	0.550E-01	0.495E-01	0.440E-01	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.029		1.422		12.47	21.1	724.24

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						

11.400	0.0	0.2	0.4	0.6	1.0	1.7	3.0
12.100	5.9	11.1	17.0	20.6	20.9	18.8	15.5
12.800	12.7	10.4	8.6	7.3	6.3	5.6	5.0
13.500	4.5	4.0	3.6	3.1	2.7	2.4	2.2
14.200	2.0	1.9	1.8	1.8	1.8	1.7	1.7
14.900	1.7	1.6	1.6	1.6	1.4	1.3	1.2
15.600	1.1	1.1	1.0	1.0	1.0	0.9	0.9
16.300	0.9	0.9	0.9	0.9	0.9	0.9	0.9
17.000	0.8	0.8	0.8	0.8	0.8	0.8	0.8
17.700	0.8	0.8	0.8	0.8	0.7	0.7	0.7
18.400	0.7	0.7	0.7	0.7	0.7	0.7	0.7
19.100	0.7	0.6	0.6	0.6	0.6	0.6	0.6
19.800	0.6	0.6	0.6	0.6	0.6	0.5	0.5
20.500	0.5	0.5	0.5	0.5	0.5	0.5	0.5
21.200	0.5	0.4	0.4	0.4	0.4	0.4	0.4

Subareas 3 and 4

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
21.900	0.4	0.4	0.4	0.4	0.3	0.3	0.3
22.600	0.3	0.3	0.3	0.3	0.3	0.3	0.3
23.300	0.2	0.2	0.2	0.1	0.1	0.1	0.1
24.000	0.691E-01	0.0					

STORM 100-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 3	0.013		3.078		12.43	21.8	1651.35

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.400	0.440E-02	0.1	0.1	0.2	0.2	0.3	0.4
11.100	0.5	0.6	0.7	0.9	1.1	1.3	1.6
11.800	2.1	3.0	4.6	7.8	13.3	19.0	21.7
12.500	21.0	18.0	14.4	11.5	9.3	7.6	6.4
13.200	5.5	4.8	4.3	3.8	3.4	3.0	2.6
13.900	2.3	2.0	1.8	1.7	1.6	1.6	1.5
14.600	1.5	1.5	1.4	1.4	1.4	1.4	1.3
15.300	1.2	1.1	1.0	0.9	0.9	0.9	0.8
16.000	0.8	0.8	0.8	0.8	0.8	0.8	0.7
16.700	0.7	0.7	0.7	0.7	0.7	0.7	0.7
17.400	0.7	0.7	0.7	0.7	0.6	0.6	0.6
18.100	0.6	0.6	0.6	0.6	0.6	0.6	0.6
18.800	0.6	0.6	0.6	0.5	0.5	0.5	0.5
19.500	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Choose an item.

20.200	0.5	0.4	0.4	0.4	0.4	0.4	0.4
20.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
21.600	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.300	0.3	0.3	0.3	0.3	0.3	0.2	0.2
23.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.700	0.2	0.2	0.2	0.1	0.1	0.1	0.959E-01
24.400	0.703E-01	0.447E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 4	0.016		3.080		12.45	25.3	1582.51

Line Start Time (hr) — Flow Values @ time increment of 0.100 hr (cfs)

10.300	0.0	0.1	0.1	0.2	0.2	0.3	0.3
11.000	0.4	0.5	0.7	0.8	1.0	1.2	1.5
11.700	1.8	2.4	3.3	5.0	8.5	14.3	20.8

Subareas 3 and 4

Line Start Time (hr) — Flow Values @ time increment of 0.100 hr (cfs)

12.400	24.7	24.9	22.3	18.4	14.8	12.0	9.9
13.100	8.3	7.1	6.2	5.5	4.9	4.3	3.8
13.800	3.4	2.9	2.6	2.3	2.1	2.0	1.9
14.500	1.9	1.8	1.8	1.7	1.7	1.7	1.7
15.200	1.6	1.5	1.4	1.3	1.2	1.1	1.0
15.900	1.0	1.0	1.0	0.9	0.9	0.9	0.9
16.600	0.9	0.9	0.9	0.9	0.9	0.9	0.8
17.300	0.8	0.8	0.8	0.8	0.8	0.8	0.8
18.000	0.8	0.8	0.7	0.7	0.7	0.7	0.7
18.700	0.7	0.7	0.7	0.7	0.7	0.7	0.6
19.400	0.6	0.6	0.6	0.6	0.6	0.6	0.6
20.100	0.6	0.6	0.5	0.5	0.5	0.5	0.5
20.800	0.5	0.5	0.5	0.5	0.5	0.4	0.4
21.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
22.200	0.4	0.3	0.3	0.3	0.3	0.3	0.3
22.900	0.3	0.3	0.3	0.3	0.3	0.2	0.2
23.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24.300	0.1	0.931E-01	0.629E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.029		3.078		12.43	47.0	1608.56

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.300	0.0	0.1	0.2	0.3	0.4	0.5	0.6
11.000	0.8	1.0	1.3	1.6	1.9	2.3	2.8
11.700	3.4	4.5	6.3	9.7	16.4	27.6	39.8
12.400	46.4	45.8	40.3	32.8	26.4	21.3	17.4
13.100	14.6	12.6	11.0	9.7	8.7	7.8	6.9
13.800	6.0	5.2	4.6	4.1	3.8	3.6	3.5
14.500	3.4	3.3	3.2	3.2	3.1	3.1	3.0
15.200	2.9	2.7	2.5	2.3	2.1	2.0	1.9
15.900	1.8	1.8	1.8	1.7	1.7	1.7	1.7
16.600	1.6	1.6	1.6	1.6	1.6	1.6	1.5
17.300	1.5	1.5	1.5	1.5	1.5	1.4	1.4
18.000	1.4	1.4	1.4	1.3	1.3	1.3	1.3
18.700	1.3	1.3	1.2	1.2	1.2	1.2	1.2
19.400	1.2	1.1	1.1	1.1	1.1	1.1	1.0
20.100	1.0	1.0	1.0	1.0	1.0	0.9	0.9
20.800	0.9	0.9	0.9	0.9	0.8	0.8	0.8
21.500	0.8	0.8	0.7	0.7	0.7	0.7	0.7
22.200	0.7	0.6	0.6	0.6	0.6	0.6	0.5
22.900	0.5	0.5	0.5	0.5	0.5	0.4	0.4
23.600	0.4	0.4	0.4	0.3	0.3	0.3	0.3
24.300	0.1	0.0					

Subareas 3 and 4

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)
Sub 3	0.013	3.4	4.7	9.8	21.8
Sub 4	0.016	3.9	5.4	11.4	25.3
OUTLET	0.029	7.2	10.0	21.1	47.0

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Choose an item.

West Property – Draining Towards Wetland 1 (West Wetland)

WinTR-20 Printed Page File Beginning of Input Data List
C:\Work\Wetland1\Hard Rock Casino Existing Catchment 1.inp

WinTR-20: version 3.10 0 0 .1 0
Subareas 5 and 6

SUB-AREA:

Sub 5	Outlet	0.0087698274.	1.531	
Sub 6	Outlet	0.0029108674.	0.44216666	

STORM ANALYSIS:

1-Year	2.39	MSE3	2
2-Year	2.70	MSE3	2
10-Year	3.77	MSE3	2
100-Year	5.88	MSE3	2

RAINFALL DISTRIBUTION:

MSE3 0.1

0.	0.000267	0.000555	0.000861	0.00119
0.00153	0.0019	0.00229	0.00269	0.00312
0.00356	0.00403	0.00451	0.00501	0.00554
0.00608	0.00665	0.00723	0.00783	0.00845
0.0091	0.00976	0.01044	0.01114	0.01186
0.0126	0.01336	0.01414	0.01494	0.01576
0.0166	0.01746	0.01834	0.01924	0.02016
0.02109	0.02205	0.02303	0.02403	0.02504
0.02608	0.02714	0.02821	0.02931	0.03042
0.03156	0.03271	0.03389	0.03508	0.0363
0.03753	0.03878	0.04006	0.04135	0.04266
0.04399	0.04535	0.04672	0.04811	0.04952
0.05095	0.0524	0.05387	0.05536	0.05687
0.0584	0.05995	0.06152	0.063111	0.06472
0.06635	0.06799	0.06966	0.07135	0.07306
0.07478	0.07653	0.0783	0.08008	0.08189
0.08371	0.08556	0.08742	0.08931	0.09121
0.09314	0.09508	0.09704	0.09903	0.10103
0.10305	0.10628	0.10956	0.11289	0.11626
0.11967	0.12314	0.12664	0.1302	0.1338
0.13744	0.14113	0.14487	0.14866	0.15248
0.15636	0.16212	0.16863	0.17591	0.18394
0.19272	0.20226	0.21256	0.22362	0.23543
0.248	0.2663	0.29062	0.32445	0.37245
0.46289	0.62755	0.67555	0.70938	0.7337
0.752	0.76457	0.77638	0.78744	0.79774
0.80728	0.81606	0.82409	0.83137	0.83788
0.84364	0.84752	0.85134	0.85513	0.85887
0.86256	0.8662	0.8698	0.87336	0.87686
0.88033	0.88374	0.88711	0.89044	0.89372

0.89695 0.89897 0.90097 0.90296 0.90492
0.90686 0.90879 0.91069 0.91258 0.91444
0.91629 0.91811 0.91992 0.9217 0.92347
0.92522 0.92694 0.92865 0.93034 0.93201
0.93365 0.93528 0.93689 0.93848 0.94005
0.9416 0.94313 0.94464 0.94613 0.9476
0.94905 0.95048 0.95189 0.95328 0.95465
0.95601 0.95734 0.95865 0.95994 0.96122
0.96247 0.9637 0.96492 0.96611 0.96729
0.96844 0.96958 0.97069 0.97179 0.97286
0.97392 0.97496 0.97597 0.97697 0.97795
0.97891 0.97984 0.98076 0.98166 0.98254
0.9834 0.98424 0.98506 0.98586 0.98664
0.9874 0.98814 0.98886 0.98956 0.99024
0.9909 0.99155 0.99217 0.99277 0.99335
0.99392 0.99446 0.99499 0.99549 0.99597
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0.99847 0.99881 0.999139 0.999445 0.999733
1.

GLOBAL OUTPUT:
1 .04 0.10 YY Y YY Y

WinTR-20 Printed Page File End of Input Data List
Subareas 5 and 6

Name of printed page file:
C:\Work\Wetland1\Hard Rock Casino Existing Catchment 1.out

STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 5	0.009		0.483		13.16	1.2	135.73

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.200	0.116E-01	0.2	0.3	0.5	0.6	0.8	1.0
12.900	1.1	1.1	1.2	1.2	1.2	1.1	1.1
13.600	1.0	0.9	0.8	0.8	0.7	0.7	0.6
14.300	0.6	0.5	0.5	0.4	0.4	0.4	0.4
15.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3
15.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.400	0.2	0.2	0.2	0.2	0.1	0.1	0.1
17.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1

17.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.200	0.1	0.1	0.990E-01	0.977E-01	0.964E-01	0.951E-01	0.938E-01
19.900	0.925E-01	0.912E-01	0.899E-01	0.886E-01	0.873E-01	0.860E-01	0.847E-01
20.600	0.834E-01	0.821E-01	0.808E-01	0.795E-01	0.782E-01	0.769E-01	0.756E-01
21.300	0.743E-01	0.730E-01	0.717E-01	0.704E-01	0.691E-01	0.678E-01	0.665E-01
22.000	0.652E-01	0.639E-01	0.626E-01	0.613E-01	0.600E-01	0.587E-01	0.574E-01
22.700	0.561E-01	0.548E-01	0.535E-01	0.522E-01	0.509E-01	0.496E-01	0.483E-01
23.400	0.470E-01	0.457E-01	0.444E-01	0.431E-01	0.418E-01	0.405E-01	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 6	0.003		0.356		12.35	0.9	302.27

Line Start Time (hr) — Flow Values (cfs) @ time increment of 0.100 hr

12.000	0.0	0.2	0.5	0.8	0.9	0.7	0.6
12.700	0.5	0.4	0.3	0.3	0.2	0.2	0.2
13.400	0.2	0.2	0.1	0.1	0.1	0.989E-01	0.881E-01
14.100	0.773E-01	0.665E-01	0.557E-01	0.449E-01	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.012		0.450		13.08	1.4	121.70

Subareas 5 and 6

Line Start Time (hr) — Flow Values (cfs) @ time increment of 0.100 hr

12.000	0.0	0.2	0.6	1.0	1.2	1.2	1.2
12.700	1.3	1.3	1.4	1.4	1.4	1.4	1.4
13.400	1.3	1.2	1.1	1.0	1.0	0.8	0.7
14.100	0.7	0.6	0.6	0.5	0.5	0.4	0.4
14.800	0.4	0.4	0.3	0.3	0.3	0.3	0.3
15.500	0.3	0.3	0.2	0.2	0.2	0.2	0.2
16.200	0.2	0.2	0.2	0.2	0.2	0.2	0.1
16.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.000	0.1	0.1	0.1	0.529E-01	0.0		

STORM 2-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 5	0.009		0.676		13.11	1.6	186.61

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
12.000	0.0	0.545E-01	0.2	0.3	0.5	0.7	0.9
12.700	1.2	1.3	1.5	1.6	1.6	1.6	1.6
13.400	1.5	1.4	1.3	1.2	1.1	1.0	1.0
14.100	0.9	0.8	0.7	0.7	0.6	0.6	0.5
14.800	0.5	0.5	0.4	0.4	0.4	0.4	0.4
15.500	0.3	0.3	0.3	0.3	0.3	0.3	0.2
16.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.600	0.2	0.2	0.2	0.1	0.1	0.1	0.1
18.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.400	0.1	0.1	0.1	0.1	0.998E-01	0.981E-01	0.965E-01
21.100	0.948E-01	0.931E-01	0.915E-01	0.898E-01	0.881E-01	0.865E-01	0.848E-01
21.800	0.831E-01	0.815E-01	0.798E-01	0.781E-01	0.765E-01	0.748E-01	0.731E-01
22.500	0.714E-01	0.698E-01	0.681E-01	0.664E-01	0.648E-01	0.631E-01	0.614E-01
23.200	0.598E-01	0.581E-01	0.564E-01	0.548E-01	0.531E-01	0.514E-01	0.497E-01
23.900	0.481E-01	0.464E-01	0.447E-01	0.431E-01	0.414E-01	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 6	0.003		0.514		12.35	1.2	419.20

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Choose an item.

Subareas 5 and 6

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.900	0.0	0.1	0.4	0.8	1.2	1.2	1.0
12.600	0.8	0.6	0.5	0.4	0.3	0.3	0.3
13.300	0.3	0.2	0.2	0.2	0.2	0.1	0.1
14.000	0.1	0.1	0.1	0.1	0.996E-01	0.979E-01	0.962E-01
14.700	0.946E-01	0.929E-01	0.913E-01	0.896E-01	0.879E-01	0.863E-01	0.846E-01
15.400	0.830E-01	0.813E-01	0.796E-01	0.780E-01	0.763E-01	0.746E-01	0.730E-01
16.100	0.713E-01	0.697E-01	0.680E-01	0.663E-01	0.647E-01	0.630E-01	0.614E-01
16.800	0.597E-01	0.580E-01	0.564E-01	0.547E-01	0.530E-01	0.514E-01	0.497E-01
17.500	0.481E-01	0.464E-01	0.447E-01	0.431E-01	0.414E-01	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.012		0.633		13.02	1.9	165.89

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.900	0.0	0.1	0.4	1.0	1.5	1.7	1.7
12.600	1.7	1.8	1.8	1.9	1.9	1.9	1.9
13.300	1.8	1.8	1.6	1.5	1.4	1.3	1.2
14.000	1.1	1.0	0.9	0.8	0.7	0.6	0.6
14.700	0.5	0.5	0.5	0.4	0.4	0.4	0.4
15.400	0.4	0.3	0.3	0.3	0.3	0.3	0.3
16.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.500	0.2	0.2	0.2	0.2	0.1	0.1	0.1
18.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.300	0.1	0.1	0.1	0.1	0.1	0.954E-01	0.878E-01
21.000	0.801E-01	0.724E-01	0.648E-01	0.571E-01	0.494E-01	0.418E-01	0.0

STORM 10-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 5	0.009		1.401		13.06	3.5	394.87

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.900	0.805E-02	0.2	0.3	0.5	0.8	1.2	1.7
12.600	2.2	2.7	3.0	3.3	3.4	3.5	3.4
13.300	3.3	3.1	2.9	2.6	2.4	2.2	2.0

14.000	1.8	1.7	1.5	1.4	1.3	1.2	1.1
14.700	1.0	0.9	0.8	0.8	0.7	0.7	0.7

Subareas 5 and 6

Line
Start Time ---------- Flow Values @ time increment of 0.100 hr ----------
(hr) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs)

15.400	0.6	0.6	0.6	0.5	0.5	0.5	0.5
16.100	0.4	0.4	0.4	0.4	0.4	0.3	0.3
16.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
17.500	0.3	0.3	0.3	0.3	0.3	0.3	0.2
18.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.000	0.2	0.2	0.2	0.2	0.2	0.1	0.1
21.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
22.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
23.100	0.1	0.990E-01	0.960E-01	0.931E-01	0.901E-01	0.872E-01	0.842E-01
23.800	0.812E-01	0.783E-01	0.753E-01	0.724E-01	0.694E-01	0.665E-01	0.635E-01
24.500	0.605E-01	0.576E-01	0.546E-01	0.517E-01	0.487E-01	0.458E-01	0.428E-01
25.200	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 6	0.003		1.164		12.32	2.6	884.98

Line
Start Time ---------- Flow Values @ time increment of 0.100 hr ----------
(hr) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs)

11.700	0.0	0.2	0.3	0.5	1.0	1.9	2.5
12.400	2.5	2.0	1.5	1.2	0.9	0.7	0.6
13.100	0.6	0.5	0.4	0.4	0.4	0.3	0.3
13.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
14.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
15.200	0.1	0.1	0.1	0.1	0.1	0.973E-01	0.938E-01
15.900	0.903E-01	0.868E-01	0.834E-01	0.799E-01	0.764E-01	0.729E-01	0.694E-01
16.600	0.659E-01	0.624E-01	0.589E-01	0.554E-01	0.519E-01	0.484E-01	0.449E-01
17.300	0.415E-01	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.012		1.340		12.97	4.1	346.84

Line

Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.700	0.0	0.2	0.3	0.6	1.3	2.4	3.4
12.400	3.7	3.7	3.8	3.9	4.0	4.0	4.0
13.100	4.0	3.9	3.7	3.5	3.2	2.9	2.7
13.800	2.4	2.2	2.0	1.9	1.7	1.6	1.4
14.500	1.3	1.2	1.2	1.1	1.0	1.0	0.9
15.200	0.9	0.8	0.7	0.7	0.7	0.5	0.5

Subareas 5 and 6

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
15.900	0.5	0.5	0.4	0.4	0.4	0.4	0.4
16.600	0.3	0.3	0.3	0.3	0.3	0.3	0.3
17.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.000	0.3	0.2	0.2	0.2	0.2	0.2	0.2
18.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
22.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
22.900	0.1	0.1	0.1	0.0			

STORM 100-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 5	0.009		3.067		13.07	7.7	883.70

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.000	0.0	0.640E-01	0.1	0.2	0.2	0.2	0.3
11.700	0.4	0.5	0.6	0.8	1.2	1.7	2.5
12.400	3.4	4.4	5.5	6.4	7.1	7.5	7.7
13.100	7.7	7.5	7.1	6.7	6.1	5.5	5.0
13.800	4.5	4.1	3.8	3.4	3.1	2.8	2.6
14.500	2.3	2.1	2.0	1.8	1.7	1.6	1.5
15.200	1.4	1.3	1.2	1.2	1.1	1.0	1.0
15.900	0.9	0.9	0.8	0.8	0.7	0.7	0.7
16.600	0.6	0.6	0.6	0.6	0.6	0.5	0.5
17.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
18.000	0.5	0.5	0.5	0.4	0.4	0.4	0.4
18.700	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Choose an item.

20.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
20.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.500	0.3	0.3	0.3	0.3	0.3	0.2	0.2
22.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.600	0.2	0.2	0.1	0.1	0.1	0.1	0.1
24.300	0.1	0.1	0.1	0.958E-01	0.872E-01	0.787E-01	0.701E-01
25.000	0.616E-01	0.530E-01	0.445E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Sub 6	0.003		2.925		12.32	5.7	1961.57

Subareas 5 and 6

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.900	0.0	0.939E-01	0.1	0.2	0.2	0.2	0.3
11.600	0.3	0.4	0.6	0.9	1.4	2.6	4.5
12.300	5.7	5.3	4.2	3.2	2.4	1.9	1.5
13.000	1.2	1.1	1.0	0.9	0.8	0.7	0.6
13.700	0.6	0.5	0.4	0.4	0.4	0.3	0.3
14.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
15.100	0.3	0.3	0.2	0.2	0.2	0.2	0.2
15.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.200	0.2	0.1	0.1	0.1	0.1	0.1	0.1
17.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.000	0.1	0.1	0.987E-01	0.969E-01	0.952E-01	0.935E-01	0.918E-01
20.700	0.901E-01	0.884E-01	0.867E-01	0.850E-01	0.833E-01	0.816E-01	0.799E-01
21.400	0.782E-01	0.765E-01	0.748E-01	0.731E-01	0.714E-01	0.697E-01	0.680E-01
22.100	0.663E-01	0.646E-01	0.629E-01	0.612E-01	0.595E-01	0.578E-01	0.561E-01
22.800	0.544E-01	0.526E-01	0.509E-01	0.492E-01	0.475E-01	0.458E-01	0.441E-01
23.500	0.424E-01	0.407E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.012		3.030		12.87	9.0	771.73

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.900	0.0	0.939E-01	0.2	0.3	0.4	0.4	0.5
11.600	0.6	0.8	1.1	1.5	2.2	3.8	6.2
12.300	8.1	8.7	8.6	8.7	8.8	9.0	9.0

13.000	9.0	8.8	8.4	8.0	7.4	6.8	6.2
13.700	5.6	5.0	4.5	4.1	3.8	3.4	3.1
14.400	2.9	2.7	2.4	2.3	2.1	2.0	1.9
15.100	1.7	1.6	1.5	1.4	1.4	1.3	1.2
15.800	1.1	1.1	1.0	1.0	0.9	0.9	0.9
16.500	0.8	0.8	0.8	0.7	0.7	0.7	0.7
17.200	0.7	0.7	0.7	0.6	0.6	0.6	0.6
17.900	0.6	0.6	0.6	0.6	0.6	0.6	0.6
18.600	0.6	0.5	0.5	0.5	0.5	0.5	0.5
19.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
20.000	0.5	0.4	0.3	0.3	0.3	0.3	0.3
20.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.400	0.3	0.3	0.3	0.3	0.3	0.3	0.2
22.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.500	0.2	0.2	0.2	0.1	0.1	0.1	0.1
24.200	0.1	0.1	0.1	0.932E-01	0.545E-01		0.0

Subareas 5 and 6

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)
Sub 5	0.009	1.2	1.6	3.5	7.7
Sub 6	0.003	0.9	1.2	2.6	5.7
OUTLET	0.012	1.4	1.9	4.1	9.0

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Choose an item.

West Property – Draining Towards Wetland 2 (South Pond)

WinTR-20 Printed Page File Beginning of Input Data List
C:\Work\Hard Rock Casino Existing Catchment 1.inp

WinTR-20: version 3.10 0 0 .1 0
Subarea 7

SUB-AREA:
Existing Outlet 0.0035173074. 0.331

STORM ANALYSIS:

1-Year	2.39	MSE3	2
2-Year	2.70	MSE3	2
10-Year	3.77	MSE3	2
100-Year	5.88	MSE3	2

RAINFALL DISTRIBUTION:
MSE3 0.1

0.	0.000267	0.000555	0.000861	0.00119
0.00153	0.0019	0.00229	0.00269	0.00312
0.00356	0.00403	0.00451	0.00501	0.00554
0.00608	0.00665	0.00723	0.00783	0.00845
0.0091	0.00976	0.01044	0.01114	0.01186
0.0126	0.01336	0.01414	0.01494	0.01576
0.0166	0.01746	0.01834	0.01924	0.02016
0.02109	0.02205	0.02303	0.02403	0.02504
0.02608	0.02714	0.02821	0.02931	0.03042
0.03156	0.03271	0.03389	0.03508	0.0363
0.03753	0.03878	0.04006	0.04135	0.04266
0.04399	0.04535	0.04672	0.04811	0.04952
0.05095	0.0524	0.05387	0.05536	0.05687
0.0584	0.05995	0.06152	0.063111	0.06472
0.06635	0.06799	0.06966	0.07135	0.07306
0.07478	0.07653	0.0783	0.08008	0.08189
0.08371	0.08556	0.08742	0.08931	0.09121
0.09314	0.09508	0.09704	0.09903	0.10103
0.10305	0.10628	0.10956	0.11289	0.11626
0.11967	0.12314	0.12664	0.1302	0.1338
0.13744	0.14113	0.14487	0.14866	0.15248
0.15636	0.16212	0.16863	0.17591	0.18394
0.19272	0.20226	0.21256	0.22362	0.23543
0.248	0.2663	0.29062	0.32445	0.37245
0.46289	0.62755	0.67555	0.70938	0.7337
0.752	0.76457	0.77638	0.78744	0.79774
0.80728	0.81606	0.82409	0.83137	0.83788
0.84364	0.84752	0.85134	0.85513	0.85887
0.86256	0.8662	0.8698	0.87336	0.87686
0.88033	0.88374	0.88711	0.89044	0.89372
0.89695	0.89897	0.90097	0.90296	0.90492

0.90686 0.90879 0.91069 0.91258 0.91444
0.91629 0.91811 0.91992 0.9217 0.92347
0.92522 0.92694 0.92865 0.93034 0.93201
0.93365 0.93528 0.93689 0.93848 0.94005
0.9416 0.94313 0.94464 0.94613 0.9476
0.94905 0.95048 0.95189 0.95328 0.95465
0.95601 0.95734 0.95865 0.95994 0.96122
0.96247 0.9637 0.96492 0.96611 0.96729
0.96844 0.96958 0.97069 0.97179 0.97286
0.97392 0.97496 0.97597 0.97697 0.97795
0.97891 0.97984 0.98076 0.98166 0.98254
0.9834 0.98424 0.98506 0.98586 0.98664
0.9874 0.98814 0.98886 0.98956 0.99024
0.9909 0.99155 0.99217 0.99277 0.99335
0.99392 0.99446 0.99499 0.99549 0.99597
0.99644 0.99688 0.99731 0.99771 0.9981
0.99847 0.99881 0.999139 0.999445 0.999733
1.

GLOBAL OUTPUT:
1 .04 0.10 YY Y YY Y

WinTR-20 Printed Page File End of Input Data List

Subarea 7

Name of printed page file:
C:\Work\Hard Rock Casino Existing Catchment 1.out

STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Existing	0.004		0.368		12.27	1.3	355.81

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.900	0.0	0.1	0.4	1.0	1.2	1.0	0.8
12.600	0.6	0.5	0.4	0.3	0.3	0.3	0.2
13.300	0.2	0.2	0.2	0.2	0.1	0.1	0.1
14.000	0.1	0.982E-01	0.952E-01	0.922E-01	0.892E-01	0.862E-01	0.832E-01
14.700	0.802E-01	0.772E-01	0.742E-01	0.712E-01	0.682E-01	0.652E-01	0.622E-01

15.400 0.592E-01 0.562E-01 0.532E-01 0.502E-01 0.472E-01 0.442E-01 0.412E-01
16.100 0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.004		0.367		12.27	1.3	355.81

Line Start Time (hr) — Flow Values @ time increment of 0.100 hr (cfs)

11.900	0.0	0.1	0.4	1.0	1.2	1.0	0.8
12.600	0.6	0.5	0.4	0.3	0.3	0.3	0.2
13.300	0.2	0.2	0.2	0.2	0.1	0.1	0.1
14.000	0.1	0.0					

STORM 2-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Existing	0.004		0.557		12.28	1.7	492.82

Line Start Time (hr) — Flow Values @ time increment of 0.100 hr (cfs)

11.900	0.0	0.2	0.7	1.5	1.7	1.4	1.0
12.600	0.8	0.6	0.5	0.4	0.4	0.3	0.3
13.300	0.3	0.3	0.2	0.2	0.2	0.1	0.1
14.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
14.700	0.1	0.1	0.1	0.1	0.1	0.943E-01	0.803E-01
15.400	0.663E-01	0.523E-01	0.0				

Subarea 7

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.004		0.556		12.28	1.7	492.82

Line Start Time (hr) — Flow Values @ time increment of 0.100 hr (cfs)

11.900	0.0	0.2	0.7	1.5	1.7	1.4	1.0
12.600	0.8	0.6	0.5	0.4	0.4	0.3	0.3
13.300	0.3	0.3	0.2	0.2	0.2	0.1	0.1
14.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1

14.700	0.1	0.1	0.1	0.1	0.1	0.0

STORM 10-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Existing	0.004		1.234		12.27	3.7	1038.00

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.600	0.148E-01	0.1	0.3	0.4	0.8	1.8	3.3
12.300	3.5	2.7	2.0	1.5	1.1	0.9	0.7
13.000	0.6	0.6	0.5	0.5	0.4	0.4	0.4
13.700	0.3	0.3	0.2	0.2	0.2	0.2	0.2
14.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
15.100	0.2	0.2	0.1	0.1	0.1	0.1	0.1
15.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16.500	0.1	0.1	0.1	0.1	0.1	0.999E-01	0.987E-01
17.200	0.976E-01	0.965E-01	0.954E-01	0.943E-01	0.931E-01	0.920E-01	0.909E-01
17.900	0.898E-01	0.887E-01	0.875E-01	0.864E-01	0.853E-01	0.842E-01	0.831E-01
18.600	0.819E-01	0.808E-01	0.797E-01	0.786E-01	0.774E-01	0.763E-01	0.752E-01
19.300	0.741E-01	0.730E-01	0.718E-01	0.707E-01	0.696E-01	0.685E-01	0.674E-01
20.000	0.662E-01	0.651E-01	0.640E-01	0.629E-01	0.618E-01	0.606E-01	0.595E-01
20.700	0.584E-01	0.573E-01	0.562E-01	0.550E-01	0.539E-01	0.528E-01	0.517E-01
21.400	0.506E-01	0.494E-01	0.483E-01	0.472E-01	0.461E-01	0.450E-01	0.438E-01
22.100	0.427E-01	0.416E-01	0.405E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.004		1.233		12.27	3.7	1038.00

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Subarea 7

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.600	0.148E-01	0.1	0.3	0.4	0.8	1.8	3.3
12.300	3.5	2.7	2.0	1.5	1.1	0.9	0.7
13.000	0.6	0.6	0.5	0.5	0.4	0.4	0.4
13.700	0.3	0.3	0.2	0.2	0.2	0.2	0.2
14.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
15.100	0.2	0.2	0.1	0.1	0.1	0.1	0.1
15.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16.500	0.1	0.1	0.1	0.1	0.1	0.0	

STORM 100-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Existing	0.004		2.976		12.25	8.1	2291.19

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.800	0.0	0.1	0.2	0.2	0.2	0.3	0.3
11.500	0.4	0.5	0.6	0.9	1.4	2.3	4.5
12.200	7.5	7.7	5.7	4.1	3.0	2.2	1.7
12.900	1.4	1.2	1.1	1.0	0.9	0.9	0.8
13.600	0.7	0.6	0.5	0.4	0.4	0.4	0.4
14.300	0.4	0.4	0.4	0.4	0.4	0.4	0.4
15.000	0.4	0.3	0.3	0.3	0.2	0.2	0.2
15.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.500	0.2	0.2	0.1	0.1	0.1	0.1	0.1
19.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.600	0.1	0.1	0.1	0.1	0.1	0.980E-01	0.958E-01
21.300	0.937E-01	0.916E-01	0.894E-01	0.873E-01	0.852E-01	0.831E-01	0.809E-01
22.000	0.788E-01	0.767E-01	0.745E-01	0.724E-01	0.703E-01	0.682E-01	0.660E-01
22.700	0.639E-01	0.618E-01	0.596E-01	0.575E-01	0.554E-01	0.533E-01	0.511E-01
23.400	0.490E-01	0.469E-01	0.447E-01	0.426E-01	0.405E-01	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.004		2.976		12.25	8.1	2291.19

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Choose an item.

Subarea 7

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.800	0.0	0.1	0.2	0.2	0.2	0.3	0.3
11.500	0.4	0.5	0.6	0.9	1.4	2.3	4.5
12.200	7.5	7.7	5.7	4.1	3.0	2.2	1.7
12.900	1.4	1.2	1.1	1.0	0.9	0.9	0.8
13.600	0.7	0.6	0.5	0.4	0.4	0.4	0.4
14.300	0.4	0.4	0.4	0.4	0.4	0.4	0.4
15.000	0.4	0.3	0.3	0.3	0.2	0.2	0.2
15.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.500	0.2	0.2	0.1	0.1	0.1	0.1	0.1
19.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.600	0.1	0.1	0.1	0.1	0.673E-01	0.0	

Subarea 7

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)
Existing	0.004	1.3	1.7	3.7	8.1
OUTLET	0.004	1.3	1.7	3.7	8.1

Choose an item.

East Property – Draining Towards I-94 (Catchment Area 8)
WinTR-20 Printed Page File Beginning of Input Data List
C:\Local File Transfer Folder\Hard Rock Casino Existing East Property.inp

WinTR-20: version 3.10 0 0 .1 0
CA8

SUB-AREA:
CA8 Outlet 0.0039650674. 0.57516667

STORM ANALYSIS:

1-Year	2.39	MSE3	2
2-Year	2.70	MSE3	2
10-Year	3.77	MSE3	2
100-Year	5.88	MSE3	2

RAINFALL DISTRIBUTION:
MSE3 0.1

0.	0.000267	0.000555	0.000861	0.00119
0.00153	0.0019	0.00229	0.00269	0.00312
0.00356	0.00403	0.00451	0.00501	0.00554
0.00608	0.00665	0.00723	0.00783	0.00845
0.0091	0.00976	0.01044	0.01114	0.01186
0.0126	0.01336	0.01414	0.01494	0.01576
0.0166	0.01746	0.01834	0.01924	0.02016
0.02109	0.02205	0.02303	0.02403	0.02504
0.02608	0.02714	0.02821	0.02931	0.03042
0.03156	0.03271	0.03389	0.03508	0.0363
0.03753	0.03878	0.04006	0.04135	0.04266
0.04399	0.04535	0.04672	0.04811	0.04952
0.05095	0.0524	0.05387	0.05536	0.05687
0.0584	0.05995	0.06152	0.063111	0.06472
0.06635	0.06799	0.06966	0.07135	0.07306
0.07478	0.07653	0.0783	0.08008	0.08189
0.08371	0.08556	0.08742	0.08931	0.09121
0.09314	0.09508	0.09704	0.09903	0.10103
0.10305	0.10628	0.10956	0.11289	0.11626
0.11967	0.12314	0.12664	0.1302	0.1338
0.13744	0.14113	0.14487	0.14866	0.15248
0.15636	0.16212	0.16863	0.17591	0.18394
0.19272	0.20226	0.21256	0.22362	0.23543
0.248	0.2663	0.29062	0.32445	0.37245
0.46289	0.62755	0.67555	0.70938	0.7337
0.752	0.76457	0.77638	0.78744	0.79774
0.80728	0.81606	0.82409	0.83137	0.83788
0.84364	0.84752	0.85134	0.85513	0.85887
0.86256	0.8662	0.8698	0.87336	0.87686

0.88033 0.88374 0.88711 0.89044 0.89372
0.89695 0.89897 0.90097 0.90296 0.90492
0.90686 0.90879 0.91069 0.91258 0.91444
0.91629 0.91811 0.91992 0.9217 0.92347
0.92522 0.92694 0.92865 0.93034 0.93201
0.93365 0.93528 0.93689 0.93848 0.94005
0.9416 0.94313 0.94464 0.94613 0.9476
0.94905 0.95048 0.95189 0.95328 0.95465
0.95601 0.95734 0.95865 0.95994 0.96122
0.96247 0.9637 0.96492 0.96611 0.96729
0.96844 0.96958 0.97069 0.97179 0.97286
0.97392 0.97496 0.97597 0.97697 0.97795
0.97891 0.97984 0.98076 0.98166 0.98254
0.9834 0.98424 0.98506 0.98586 0.98664
0.9874 0.98814 0.98886 0.98956 0.99024
0.9909 0.99155 0.99217 0.99277 0.99335
0.99392 0.99446 0.99499 0.99549 0.99597
0.99644 0.99688 0.99731 0.99771 0.9981
0.99847 0.99881 0.999139 0.999445 0.999733
1.

GLOBAL OUTPUT:
1 .04 0.10 YY Y YY Y

WinTR-20 Printed Page File End of Input Data List

CA8

Name of printed page file:
C:\Local File Transfer Folder\Hard Rock Casino Existing East Property.out

STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
CA8	0.004		0.405		12.47	1.0	259.90

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
12.000	0.0	0.2	0.4	0.8	1.0	1.0	0.9
12.700	0.8	0.6	0.5	0.4	0.4	0.3	0.3
13.400	0.3	0.3	0.2	0.2	0.2	0.2	0.1

14.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
14.800	0.1	0.1	0.1	0.1	0.977E-01	0.948E-01	0.919E-01
15.500	0.891E-01	0.862E-01	0.833E-01	0.804E-01	0.776E-01	0.747E-01	0.718E-01
16.200	0.689E-01	0.661E-01	0.632E-01	0.603E-01	0.574E-01	0.546E-01	0.517E-01
16.900	0.488E-01	0.459E-01	0.431E-01	0.402E-01	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.004		0.404		12.47	1.0	259.90

Line Start Time (hr) — Flow Values @ time increment of 0.100 hr (cfs)

12.000	0.0	0.2	0.4	0.8	1.0	1.0	0.9
12.700	0.8	0.6	0.5	0.4	0.4	0.3	0.3
13.400	0.3	0.3	0.2	0.2	0.2	0.2	0.1
14.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
14.800	0.1	0.1	0.1	0.687E-01	0.0		

STORM 2-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA8	0.004		0.559		12.44	1.4	358.97

Line Start Time (hr) — Flow Values @ time increment of 0.100 hr (cfs)

12.000	0.0	0.3	0.7	1.1	1.4	1.4	1.2
12.700	1.0	0.8	0.7	0.6	0.5	0.4	0.4
13.400	0.4	0.3	0.3	0.3	0.2	0.2	0.2
14.100	0.2	0.2	0.1	0.1	0.1	0.1	0.1

CA8

Line Start Time (hr) — Flow Values @ time increment of 0.100 hr (cfs)

14.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
15.500	0.914E-01	0.816E-01	0.717E-01	0.619E-01	0.520E-01	0.422E-01	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.004		0.557		12.44	1.4	358.97

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.000	0.0	0.3	0.7	1.1	1.4	1.4	1.2
12.700	1.0	0.8	0.7	0.6	0.5	0.4	0.4
13.400	0.4	0.3	0.3	0.3	0.2	0.2	0.2
14.100	0.2	0.2	0.1	0.1	0.1	0.1	0.1
14.800	0.1	0.1	0.1	0.1	0.1	0.1	0.499E-01
15.500	0.0						

STORM 10-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA8	0.004		1.279	12.42	3.0	759.22	

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.700	0.263E-01	0.1	0.2	0.5	0.9	1.7	2.6
12.400	3.0	2.9	2.5	2.0	1.6	1.3	1.1
13.100	0.9	0.8	0.7	0.6	0.6	0.5	0.5
13.800	0.4	0.3	0.3	0.3	0.3	0.3	0.2
14.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
15.200	0.2	0.2	0.2	0.2	0.1	0.1	0.1
15.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.000	0.1	0.1	0.1	0.988E-01	0.975E-01	0.963E-01	0.950E-01
18.700	0.937E-01	0.925E-01	0.912E-01	0.899E-01	0.887E-01	0.874E-01	0.861E-01
19.400	0.849E-01	0.836E-01	0.824E-01	0.811E-01	0.798E-01	0.786E-01	0.773E-01
20.100	0.760E-01	0.748E-01	0.735E-01	0.722E-01	0.710E-01	0.697E-01	0.684E-01
20.800	0.672E-01	0.659E-01	0.646E-01	0.634E-01	0.621E-01	0.608E-01	0.596E-01
21.500	0.583E-01	0.570E-01	0.558E-01	0.545E-01	0.532E-01	0.520E-01	0.507E-01
22.200	0.494E-01	0.482E-01	0.469E-01	0.456E-01	0.444E-01	0.431E-01	0.419E-01
22.900	0.406E-01	0.0					

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CA8

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.004		1.278		12.42	3.0	759.22

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.700	0.263E-01	0.1	0.2	0.5	0.9	1.7	2.6
12.400	3.0	2.9	2.5	2.0	1.6	1.3	1.1
13.100	0.9	0.8	0.7	0.6	0.6	0.5	0.5
13.800	0.4	0.3	0.3	0.3	0.3	0.3	0.2
14.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
15.200	0.2	0.2	0.2	0.2	0.1	0.1	0.1
15.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.000	0.1	0.1	0.814E-01	0.0			

STORM 100-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA8	0.004		3.000		12.40	6.7	1686.64

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.900	0.0	0.1	0.1	0.2	0.2	0.3	0.3
11.600	0.4	0.5	0.7	0.9	1.4	2.5	4.2
12.300	6.0	6.7	6.3	5.3	4.2	3.3	2.7
13.000	2.2	1.8	1.6	1.4	1.2	1.1	1.0
13.700	0.9	0.8	0.7	0.6	0.5	0.5	0.5
14.400	0.5	0.5	0.4	0.4	0.4	0.4	0.4
15.100	0.4	0.4	0.4	0.3	0.3	0.3	0.3
15.800	0.3	0.2	0.2	0.2	0.2	0.2	0.2
16.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.300	0.2	0.2	0.2	0.2	0.1	0.1	0.1
20.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.400	0.1	0.1	0.1	0.1	0.978E-01	0.953E-01	0.929E-01
22.100	0.904E-01	0.879E-01	0.854E-01	0.830E-01	0.805E-01	0.780E-01	0.755E-01
22.800	0.730E-01	0.706E-01	0.681E-01	0.656E-01	0.631E-01	0.606E-01	0.582E-01
23.500	0.557E-01	0.532E-01	0.507E-01	0.483E-01	0.458E-01	0.433E-01	0.408E-01
24.200	0.0						

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CA8

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.004		2.999		12.40	6.7	1686.64

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.900	0.0	0.1	0.1	0.2	0.2	0.3	0.3
11.600	0.4	0.5	0.7	0.9	1.4	2.5	4.2
12.300	6.0	6.7	6.3	5.3	4.2	3.3	2.7
13.000	2.2	1.8	1.6	1.4	1.2	1.1	1.0
13.700	0.9	0.8	0.7	0.6	0.5	0.5	0.5
14.400	0.5	0.5	0.4	0.4	0.4	0.4	0.4
15.100	0.4	0.4	0.4	0.3	0.3	0.3	0.3
15.800	0.3	0.2	0.2	0.2	0.2	0.2	0.2
16.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.300	0.2	0.2	0.2	0.2	0.1	0.1	0.1
20.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.400	0.1	0.1	0.1	0.1	0.0		

CA8

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)
CA8	0.004	1.0	1.4	3.0	6.7
OUTLET	0.004	1.0	1.4	3.0	6.7

East Property – Draining Towards I-94 (Catchment Area 9-10)
WinTR-20 Printed Page File Beginning of Input Data List
C:\Local File Transfer Folder\Hard Rock CA9 CA10.inp

WinTR-20: version 3.10 0 0 .1 0
CA 9 CA 10

SUB-AREA:

CA9	Outlet	0.0097133574.	1.26533333
CA10	Outlet	0.0032990774.	2.466

STORM ANALYSIS:

1-Year	2.39	MSE3	2
2-Year	2.70	MSE3	2
10-Year	3.77	MSE3	2
100-Year	5.88	MSE3	2

RAINFALL DISTRIBUTION:
MSE3 0.1

0.	0.000267	0.000555	0.000861	0.00119
0.00153	0.0019	0.00229	0.00269	0.00312
0.00356	0.00403	0.00451	0.00501	0.00554
0.00608	0.00665	0.00723	0.00783	0.00845
0.0091	0.00976	0.01044	0.01114	0.01186
0.0126	0.01336	0.01414	0.01494	0.01576
0.0166	0.01746	0.01834	0.01924	0.02016
0.02109	0.02205	0.02303	0.02403	0.02504
0.02608	0.02714	0.02821	0.02931	0.03042
0.03156	0.03271	0.03389	0.03508	0.0363
0.03753	0.03878	0.04006	0.04135	0.04266
0.04399	0.04535	0.04672	0.04811	0.04952
0.05095	0.0524	0.05387	0.05536	0.05687
0.0584	0.05995	0.06152	0.063111	0.06472
0.06635	0.06799	0.06966	0.07135	0.07306
0.07478	0.07653	0.0783	0.08008	0.08189
0.08371	0.08556	0.08742	0.08931	0.09121
0.09314	0.09508	0.09704	0.09903	0.10103
0.10305	0.10628	0.10956	0.11289	0.11626
0.11967	0.12314	0.12664	0.1302	0.1338
0.13744	0.14113	0.14487	0.14866	0.15248
0.15636	0.16212	0.16863	0.17591	0.18394
0.19272	0.20226	0.21256	0.22362	0.23543
0.248	0.2663	0.29062	0.32445	0.37245
0.46289	0.62755	0.67555	0.70938	0.7337
0.752	0.76457	0.77638	0.78744	0.79774

0.80728 0.81606 0.82409 0.83137 0.83788
0.84364 0.84752 0.85134 0.85513 0.85887
0.86256 0.8662 0.8698 0.87336 0.87686
0.88033 0.88374 0.88711 0.89044 0.89372
0.89695 0.89897 0.90097 0.90296 0.90492
0.90686 0.90879 0.91069 0.91258 0.91444
0.91629 0.91811 0.91992 0.9217 0.92347
0.92522 0.92694 0.92865 0.93034 0.93201
0.93365 0.93528 0.93689 0.93848 0.94005
0.9416 0.94313 0.94464 0.94613 0.9476
0.94905 0.95048 0.95189 0.95328 0.95465
0.95601 0.95734 0.95865 0.95994 0.96122
0.96247 0.9637 0.96492 0.96611 0.96729
0.96844 0.96958 0.97069 0.97179 0.97286
0.97392 0.97496 0.97597 0.97697 0.97795
0.97891 0.97984 0.98076 0.98166 0.98254
0.9834 0.98424 0.98506 0.98586 0.98664
0.9874 0.98814 0.98886 0.98956 0.99024
0.9909 0.99155 0.99217 0.99277 0.99335
0.99392 0.99446 0.99499 0.99549 0.99597
0.99644 0.99688 0.99731 0.99771 0.9981
0.99847 0.99881 0.999139 0.999445 0.999733
1.

GLOBAL OUTPUT:
1 .04 0.10 YY Y YY Y

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STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA9	0.010		0.498		12.99	1.5	154.88

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
12.100	0.0	0.2	0.3	0.5	0.8	1.1	1.3

12.800	1.4	1.5	1.5	1.5	1.4	1.3	1.2
13.500	1.1	1.0	0.9	0.8	0.8	0.7	0.6
14.200	0.6	0.5	0.5	0.4	0.4	0.4	0.4
14.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
15.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.300	0.2	0.2	0.2	0.2	0.2	0.1	0.1
17.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.800	0.1	0.995E-01	0.981E-01	0.966E-01	0.952E-01	0.937E-01	0.923E-01
20.500	0.908E-01	0.894E-01	0.879E-01	0.865E-01	0.850E-01	0.836E-01	0.821E-01
21.200	0.807E-01	0.792E-01	0.778E-01	0.763E-01	0.749E-01	0.734E-01	0.720E-01
21.900	0.706E-01	0.691E-01	0.677E-01	0.662E-01	0.648E-01	0.633E-01	0.619E-01
22.600	0.604E-01	0.590E-01	0.575E-01	0.561E-01	0.546E-01	0.532E-01	0.517E-01
23.300	0.503E-01	0.488E-01	0.474E-01	0.459E-01	0.445E-01	0.430E-01	0.416E-01
24.000	0.401E-01	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA10	0.003		0.381		13.89	0.3	97.14

Line Start Time (hr) — Flow Values @ time increment of 0.100 hr (cfs)

12.600	0.0	0.436E-01	0.1	0.2	0.2	0.2	0.2
13.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
14.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3
14.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
15.400	0.2	0.2	0.1	0.1	0.1	0.1	0.1
16.100	0.1	0.1	0.1	0.1	0.968E-01	0.923E-01	0.877E-01
16.800	0.832E-01	0.786E-01	0.741E-01	0.695E-01	0.650E-01	0.604E-01	0.559E-01
17.500	0.513E-01	0.468E-01	0.422E-01	0.0			

CA 9 CA 10

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.013		0.465		13.07	1.7	129.65

Line Start Time (hr) — Flow Values @ time increment of 0.100 hr (cfs)

12.100	0.0	0.2	0.3	0.5	0.8	1.1	1.3
12.800	1.5	1.6	1.7	1.7	1.6	1.5	1.4
13.500	1.4	1.3	1.2	1.1	1.1	1.0	0.9
14.200	0.9	0.8	0.8	0.7	0.7	0.6	0.6
14.900	0.6	0.5	0.5	0.5	0.5	0.4	0.4

15.600	0.4	0.4	0.4	0.3	0.3	0.3	0.3
16.300	0.3	0.2	0.2	0.2	0.2	0.1	0.1
17.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.800	0.1	0.518E-01	0.0				

STORM 2-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA9	0.010		0.685		12.93	2.1	213.66

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
12.000	0.0	0.1	0.3	0.5	0.8	1.2	1.5
12.700	1.8	2.0	2.1	2.1	2.0	1.9	1.7
13.400	1.6	1.4	1.3	1.2	1.1	1.0	0.9
14.100	0.8	0.7	0.7	0.6	0.6	0.5	0.5
14.800	0.5	0.4	0.4	0.4	0.4	0.4	0.3
15.500	0.3	0.3	0.3	0.3	0.3	0.2	0.2
16.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.300	0.2	0.1	0.1	0.1	0.1	0.1	0.1
19.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.100	0.1	0.993E-01	0.974E-01	0.955E-01	0.937E-01	0.918E-01	0.899E-01
21.800	0.880E-01	0.862E-01	0.843E-01	0.824E-01	0.805E-01	0.787E-01	0.768E-01
22.500	0.749E-01	0.730E-01	0.712E-01	0.693E-01	0.674E-01	0.656E-01	0.637E-01
23.200	0.618E-01	0.599E-01	0.581E-01	0.562E-01	0.543E-01	0.524E-01	0.506E-01
23.900	0.487E-01	0.468E-01	0.450E-01	0.431E-01	0.412E-01	0.0	

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CA 9 CA 10

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA10	0.003		0.544		13.75	0.4	132.32

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
12.500	0.0	0.785E-01	0.1	0.2	0.2	0.3	0.3
13.200	0.3	0.4	0.4	0.4	0.4	0.4	0.4
13.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
14.600	0.3	0.3	0.3	0.3	0.3	0.3	0.2
15.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.000	0.2	0.2	0.1	0.1	0.1	0.1	0.1
16.700	0.1	0.1	0.1	0.986E-01	0.943E-01	0.900E-01	0.856E-01
17.400	0.813E-01	0.770E-01	0.727E-01	0.684E-01	0.640E-01	0.597E-01	0.554E-01
18.100	0.511E-01	0.467E-01	0.424E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.013		0.647		13.01	2.3	178.90

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
12.000	0.0	0.1	0.3	0.5	0.8	1.2	1.6
12.700	1.9	2.2	2.3	2.3	2.3	2.2	2.1
13.400	1.9	1.8	1.7	1.6	1.5	1.4	1.3
14.100	1.2	1.1	1.1	1.0	0.9	0.9	0.8
14.800	0.8	0.7	0.7	0.6	0.6	0.6	0.6
15.500	0.5	0.5	0.5	0.4	0.4	0.4	0.4
16.200	0.4	0.3	0.3	0.3	0.3	0.3	0.3
16.900	0.3	0.2	0.2	0.2	0.2	0.2	0.2
17.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.300	0.2	0.1	0.1	0.1	0.1	0.1	0.1
19.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.100	0.1	0.461E-01	0.0				

STORM 10-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA9	0.010		1.407		12.93	4.4	452.25

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Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.800	0.0	0.2	0.3	0.5	0.9	1.4	2.1
12.500	2.9	3.5	4.0	4.3	4.4	4.3	4.1
13.200	3.8	3.4	3.1	2.8	2.5	2.3	2.1
13.900	1.9	1.7	1.5	1.4	1.2	1.1	1.0
14.600	0.9	0.9	0.8	0.8	0.7	0.7	0.7
15.300	0.6	0.6	0.6	0.5	0.5	0.5	0.4
16.000	0.4	0.4	0.4	0.4	0.4	0.3	0.3
16.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
17.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.100	0.3	0.3	0.3	0.3	0.3	0.2	0.2
18.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.600	0.2	0.2	0.1	0.1	0.1	0.1	0.1
22.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
23.000	0.1	0.1	0.1	0.995E-01	0.962E-01	0.929E-01	0.896E-01
23.700	0.863E-01	0.830E-01	0.797E-01	0.764E-01	0.731E-01	0.698E-01	0.665E-01
24.400	0.632E-01	0.599E-01	0.566E-01	0.533E-01	0.500E-01	0.467E-01	0.434E-01
25.100	0.401E-01	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA10	0.003		1.249		13.73	0.9	278.16

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
12.200	0.195E-01	0.943E-01	0.2	0.2	0.3	0.3	0.4
12.900	0.5	0.6	0.7	0.7	0.8	0.9	0.9
13.600	0.9	0.9	0.9	0.9	0.9	0.9	0.8
14.300	0.8	0.7	0.7	0.7	0.6	0.6	0.5
15.000	0.5	0.5	0.5	0.4	0.4	0.4	0.4
15.700	0.3	0.3	0.3	0.3	0.3	0.3	0.2
16.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.100	0.2	0.2	0.2	0.2	0.1	0.1	0.1
17.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.500	0.1	0.1	0.1	0.1	0.1	0.986E-01	0.966E-01
19.200	0.946E-01	0.926E-01	0.906E-01	0.886E-01	0.866E-01	0.846E-01	0.825E-01
19.900	0.805E-01	0.785E-01	0.765E-01	0.745E-01	0.725E-01	0.705E-01	0.685E-01
20.600	0.665E-01	0.645E-01	0.625E-01	0.605E-01	0.585E-01	0.565E-01	0.545E-01
21.300	0.525E-01	0.505E-01	0.485E-01	0.465E-01	0.445E-01	0.425E-01	0.405E-01
22.000	0.0						

Choose an item.

CA 9 CA 10

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.013		1.364		12.93	4.9	379.21

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.800	0.0	0.2	0.3	0.5	0.9	1.5	2.3
12.500	3.1	3.8	4.4	4.7	4.9	4.9	4.8
13.200	4.5	4.2	3.9	3.7	3.4	3.2	3.0
13.900	2.8	2.6	2.4	2.2	2.0	1.9	1.7
14.600	1.6	1.5	1.4	1.3	1.2	1.2	1.1
15.300	1.1	1.0	1.0	0.9	0.9	0.8	0.8
16.000	0.7	0.7	0.6	0.6	0.6	0.6	0.5
16.700	0.5	0.5	0.5	0.5	0.5	0.5	0.4
17.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
18.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
18.800	0.3	0.3	0.3	0.2	0.2	0.2	0.2
19.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.600	0.2	0.2	0.1	0.1	0.1	0.1	0.1
22.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
23.000	0.1	0.1	0.1	0.0			

STORM 100-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA9	0.010		3.070		12.85	9.8	1012.42

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.900	0.0	0.978E-01	0.1	0.2	0.2	0.3	0.4
11.600	0.4	0.6	0.7	0.9	1.2	1.8	2.7
12.300	3.9	5.4	7.0	8.3	9.3	9.7	9.8
13.000	9.5	8.9	8.1	7.3	6.5	5.8	5.2
13.700	4.7	4.2	3.8	3.4	3.0	2.7	2.4
14.400	2.2	2.0	1.8	1.7	1.6	1.5	1.4
15.100	1.3	1.3	1.2	1.1	1.1	1.0	1.0
15.800	0.9	0.8	0.8	0.8	0.7	0.7	0.7
16.500	0.6	0.6	0.6	0.6	0.6	0.6	0.6
17.200	0.6	0.5	0.5	0.5	0.5	0.5	0.5
17.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
18.600	0.5	0.5	0.4	0.4	0.4	0.4	0.4
19.300	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.000	0.4	0.4	0.4	0.4	0.4	0.3	0.3

20.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3

CA 9 CA 10

Line
Start Time ---------- Flow Values @ time increment of 0.100 hr ----------
(hr) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs)

22.100	0.3	0.2	0.2	0.2	0.2	0.2	0.2
22.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.500	0.2	0.2	0.2	0.2	0.1	0.1	0.1
24.200	0.1	0.1	0.1	0.988E-01	0.880E-01	0.773E-01	0.665E-01
24.900	0.558E-01	0.450E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA10	0.003		2.960		13.70	2.1	622.05

Line
Start Time ---------- Flow Values @ time increment of 0.100 hr ----------
(hr) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs)

11.800	0.0	0.563E-01	0.1	0.2	0.3	0.4	0.5
12.500	0.6	0.7	0.9	1.1	1.3	1.5	1.6
13.200	1.8	1.9	2.0	2.0	2.0	2.1	2.0
13.900	2.0	1.9	1.9	1.8	1.7	1.6	1.5
14.600	1.4	1.3	1.2	1.1	1.1	1.0	0.9
15.300	0.9	0.8	0.8	0.7	0.7	0.7	0.6
16.000	0.6	0.6	0.5	0.5	0.5	0.4	0.4
16.700	0.4	0.4	0.4	0.3	0.3	0.3	0.3
17.400	0.3	0.3	0.3	0.3	0.2	0.2	0.2
18.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.500	0.2	0.2	0.2	0.2	0.2	0.2	0.1
20.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
22.300	0.1	0.993E-01	0.972E-01	0.952E-01	0.932E-01	0.911E-01	0.891E-01
23.000	0.870E-01	0.850E-01	0.830E-01	0.809E-01	0.789E-01	0.768E-01	0.748E-01
23.700	0.728E-01	0.707E-01	0.687E-01	0.666E-01	0.646E-01	0.626E-01	0.605E-01
24.400	0.585E-01	0.564E-01	0.544E-01	0.524E-01	0.503E-01	0.483E-01	0.463E-01
25.100	0.442E-01	0.422E-01	0.401E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.013		3.039		12.93	11.1	853.18

Line

Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.900	0.0	0.978E-01	0.1	0.2	0.2	0.3	0.4
11.600	0.4	0.6	0.7	0.9	1.4	2.0	3.0
12.300	4.3	5.9	7.6	9.1	10.2	10.8	11.1
13.000	11.0	10.6	9.9	9.2	8.4	7.8	7.2
13.700	6.7	6.2	5.7	5.3	4.9	4.5	4.1

CA 9 CA 10

Line

Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
14.400	3.8	3.5	3.2	3.0	2.8	2.6	2.5
15.100	2.3	2.2	2.1	2.0	1.9	1.8	1.7
15.800	1.6	1.5	1.4	1.3	1.2	1.2	1.1
16.500	1.1	1.0	1.0	1.0	0.9	0.9	0.9
17.200	0.9	0.8	0.8	0.8	0.8	0.8	0.8
17.900	0.7	0.7	0.7	0.7	0.7	0.7	0.7
18.600	0.7	0.7	0.6	0.6	0.6	0.6	0.6
19.300	0.6	0.6	0.6	0.6	0.6	0.5	0.5
20.000	0.5	0.5	0.5	0.5	0.5	0.5	0.5
20.700	0.5	0.5	0.5	0.4	0.4	0.4	0.4
21.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
22.100	0.4	0.4	0.3	0.3	0.2	0.2	0.2
22.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.500	0.2	0.2	0.2	0.2	0.1	0.1	0.1
24.200	0.1	0.1	0.1	0.0			

CA 9 CA 10

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)
CA9	0.010	1.5	2.1	4.4	9.8
CA10	0.003	0.3	0.4	0.9	2.1
OUTLET	0.013	1.7	2.3	4.9	11.1

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East Property – Draining Towards I-94 (Catchment Area 11-12)

WinTR-20 Printed Page File Beginning of Input Data List
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WinTR-20: version 3.10 0 0 .1 0
CA 11, 12

SUB-AREA:

CA11	Outlet	0.0050959074.	0.31166667
CA12	Outlet	0.0034653774.	0.48516667

STORM ANALYSIS:

1-Year	2.39	MSE3	2
2-Year	2.70	MSE3	2
10-Year	3.77	MSE3	2
100-Year	5.88	MSE3	2

RAINFALL DISTRIBUTION:

MSE3 0.1

0.	0.000267	0.000555	0.000861	0.00119
0.00153	0.0019	0.00229	0.00269	0.00312
0.00356	0.00403	0.00451	0.00501	0.00554
0.00608	0.00665	0.00723	0.00783	0.00845
0.0091	0.00976	0.01044	0.01114	0.01186
0.0126	0.01336	0.01414	0.01494	0.01576
0.0166	0.01746	0.01834	0.01924	0.02016
0.02109	0.02205	0.02303	0.02403	0.02504
0.02608	0.02714	0.02821	0.02931	0.03042
0.03156	0.03271	0.03389	0.03508	0.0363
0.03753	0.03878	0.04006	0.04135	0.04266
0.04399	0.04535	0.04672	0.04811	0.04952
0.05095	0.0524	0.05387	0.05536	0.05687
0.0584	0.05995	0.06152	0.063111	0.06472
0.06635	0.06799	0.06966	0.07135	0.07306
0.07478	0.07653	0.0783	0.08008	0.08189
0.08371	0.08556	0.08742	0.08931	0.09121
0.09314	0.09508	0.09704	0.09903	0.10103
0.10305	0.10628	0.10956	0.11289	0.11626
0.11967	0.12314	0.12664	0.1302	0.1338
0.13744	0.14113	0.14487	0.14866	0.15248
0.15636	0.16212	0.16863	0.17591	0.18394
0.19272	0.20226	0.21256	0.22362	0.23543
0.248	0.2663	0.29062	0.32445	0.37245
0.46289	0.62755	0.67555	0.70938	0.7337
0.752	0.76457	0.77638	0.78744	0.79774
0.80728	0.81606	0.82409	0.83137	0.83788
0.84364	0.84752	0.85134	0.85513	0.85887
0.86256	0.8662	0.8698	0.87336	0.87686
0.88033	0.88374	0.88711	0.89044	0.89372

0.89695 0.89897 0.90097 0.90296 0.90492
0.90686 0.90879 0.91069 0.91258 0.91444
0.91629 0.91811 0.91992 0.9217 0.92347
0.92522 0.92694 0.92865 0.93034 0.93201
0.93365 0.93528 0.93689 0.93848 0.94005
0.9416 0.94313 0.94464 0.94613 0.9476
0.94905 0.95048 0.95189 0.95328 0.95465
0.95601 0.95734 0.95865 0.95994 0.96122
0.96247 0.9637 0.96492 0.96611 0.96729
0.96844 0.96958 0.97069 0.97179 0.97286
0.97392 0.97496 0.97597 0.97697 0.97795
0.97891 0.97984 0.98076 0.98166 0.98254
0.9834 0.98424 0.98506 0.98586 0.98664
0.9874 0.98814 0.98886 0.98956 0.99024
0.9909 0.99155 0.99217 0.99277 0.99335
0.99392 0.99446 0.99499 0.99549 0.99597
0.99644 0.99688 0.99731 0.99771 0.9981
0.99847 0.99881 0.999139 0.999445 0.999733
1.

GLOBAL OUTPUT:
1 .04 0.10 YY Y YY Y

WinTR-20 Printed Page File End of Input Data List

CA 11, 12

Name of printed page file:
C:\Local File Transfer Folder\Hard Rock CA11 CA12.out

STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
CA11	0.005		0.418		12.26	1.9	367.86

Line Start Time (hr) — Flow Values @ time increment of 0.100 hr (cfs)

11.900	0.0	0.2	0.7	1.6	1.8	1.4	1.1
12.600	0.8	0.6	0.5	0.4	0.4	0.4	0.3
13.300	0.3	0.3	0.3	0.2	0.2	0.2	0.2
14.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
14.700	0.1	0.1	0.1	0.1	0.1	0.1	0.900E-01
15.400	0.738E-01	0.576E-01	0.414E-01	0.0			

Area or Reach	Drainage Area	Rain Gage ID or	Runoff Amount	Peak Flow Elevation	Peak Flow Time	Peak Flow Rate	Peak Flow Rate

Identifier	Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA12	0.003		0.369		12.38	1.0	286.64

Line Start Time (hr) — Flow Values (cfs) @ time increment of 0.100 hr

12.000	0.0	0.2	0.5	0.9	1.0	0.9	0.7
12.700	0.6	0.5	0.4	0.3	0.3	0.3	0.2
13.400	0.2	0.2	0.2	0.2	0.1	0.1	0.1
14.100	0.1	0.1	0.971E-01	0.936E-01	0.901E-01	0.867E-01	0.832E-01
14.800	0.797E-01	0.762E-01	0.728E-01	0.693E-01	0.658E-01	0.623E-01	0.589E-01
15.500	0.554E-01	0.519E-01	0.484E-01	0.450E-01	0.415E-01	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.009		0.397		12.30	2.7	317.77

Line Start Time (hr) — Flow Values (cfs) @ time increment of 0.100 hr

11.900	0.0	0.2	0.9	2.2	2.7	2.4	2.0
12.600	1.6	1.2	1.0	0.8	0.7	0.7	0.6
13.300	0.6	0.5	0.5	0.4	0.4	0.3	0.3
14.000	0.3	0.2	0.2	0.1	0.1	0.1	0.1
14.700	0.1	0.1	0.1	0.1	0.1	0.1	0.0

STORM 2-Year

CA 11, 12

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA11	0.005		0.571		12.26	2.6	509.58

Line Start Time (hr) — Flow Values (cfs) @ time increment of 0.100 hr

11.800	0.0	0.1	0.4	1.1	2.3	2.5	1.9
12.500	1.4	1.1	0.8	0.6	0.6	0.5	0.5
13.200	0.4	0.4	0.4	0.3	0.3	0.2	0.2
13.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
14.600	0.2	0.2	0.2	0.2	0.2	0.2	0.1
15.300	0.1	0.1	0.999E-01	0.965E-01	0.930E-01	0.896E-01	0.861E-01
16.000	0.827E-01	0.793E-01	0.758E-01	0.724E-01	0.689E-01	0.655E-01	0.620E-01
16.700	0.586E-01	0.552E-01	0.517E-01	0.483E-01	0.448E-01	0.414E-01	0.0

Choose an item.

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA12	0.003		0.555		12.39	1.4	397.43

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.900	0.0	0.1	0.4	0.8	1.3	1.4	1.2
12.600	1.0	0.8	0.6	0.5	0.4	0.4	0.3
13.300	0.3	0.3	0.3	0.2	0.2	0.2	0.2
14.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
14.700	0.1	0.1	0.1	0.1	0.1	0.1	0.925E-01
15.400	0.826E-01	0.726E-01	0.627E-01	0.528E-01	0.429E-01	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.009		0.564		12.30	3.8	440.98

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.800	0.0	0.1	0.5	1.5	3.2	3.8	3.3
12.500	2.7	2.1	1.6	1.3	1.1	0.9	0.8
13.200	0.8	0.7	0.6	0.6	0.5	0.5	0.4
13.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
14.600	0.3	0.3	0.3	0.3	0.3	0.3	0.2
15.300	0.1	0.1	0.0				

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Choose an item.

CA 11, 12

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA11	0.005		1.340		12.25	5.5	1071.40

Line
Start Time (hr) ---------- Flow Values @ time increment of 0.100 hr ----------

11.500	0.631E-02	0.1	0.2	0.4	0.7	1.3	2.8
12.200	5.1	5.2	3.8	2.8	2.0	1.5	1.2
12.900	1.0	0.9	0.8	0.8	0.7	0.6	0.6
13.600	0.5	0.4	0.4	0.3	0.3	0.3	0.3
14.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
15.000	0.3	0.3	0.2	0.2	0.2	0.2	0.2
15.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.400	0.2	0.2	0.2	0.1	0.1	0.1	0.1
17.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.200	0.1	0.1	0.1	0.1	0.1	0.1	0.990E-01
19.900	0.973E-01	0.955E-01	0.938E-01	0.921E-01	0.903E-01	0.886E-01	0.868E-01
20.600	0.851E-01	0.834E-01	0.816E-01	0.799E-01	0.782E-01	0.764E-01	0.747E-01
21.300	0.729E-01	0.712E-01	0.695E-01	0.677E-01	0.660E-01	0.642E-01	0.625E-01
22.000	0.608E-01	0.590E-01	0.573E-01	0.555E-01	0.538E-01	0.521E-01	0.503E-01
22.700	0.486E-01	0.469E-01	0.451E-01	0.434E-01	0.416E-01	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA12	0.003		1.227		12.37	2.9	840.15

Line
Start Time (hr) ---------- Flow Values @ time increment of 0.100 hr ----------

11.700	0.217E-01	0.2	0.3	0.5	1.0	2.0	2.8
12.400	2.9	2.5	2.0	1.5	1.2	1.0	0.8
13.100	0.7	0.6	0.6	0.5	0.5	0.4	0.4
13.800	0.3	0.3	0.2	0.2	0.2	0.2	0.2
14.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
15.200	0.2	0.2	0.1	0.1	0.1	0.1	0.1
15.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16.600	0.1	0.1	0.1	0.1	0.996E-01	0.986E-01	0.976E-01
17.300	0.965E-01	0.955E-01	0.945E-01	0.935E-01	0.924E-01	0.914E-01	0.904E-01
18.000	0.893E-01	0.883E-01	0.873E-01	0.863E-01	0.852E-01	0.842E-01	0.832E-01
18.700	0.821E-01	0.811E-01	0.801E-01	0.791E-01	0.780E-01	0.770E-01	0.760E-01
19.400	0.749E-01	0.739E-01	0.729E-01	0.719E-01	0.708E-01	0.698E-01	0.688E-01
20.100	0.677E-01	0.667E-01	0.657E-01	0.646E-01	0.636E-01	0.626E-01	0.616E-01
20.800	0.605E-01	0.595E-01	0.585E-01	0.574E-01	0.564E-01	0.554E-01	0.544E-01
21.500	0.533E-01	0.523E-01	0.513E-01	0.502E-01	0.492E-01	0.482E-01	0.472E-01
22.200	0.461E-01	0.451E-01	0.441E-01	0.430E-01	0.420E-01	0.410E-01	0.0

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CA 11, 12

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.009		1.294		12.29	8.0	932.26

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.500	0.631E-02	0.1	0.2	0.5	0.9	1.8	3.9
12.200	7.1	7.9	6.7	5.3	4.0	3.0	2.4
12.900	2.0	1.7	1.5	1.4	1.3	1.1	1.0
13.600	0.9	0.8	0.7	0.6	0.6	0.5	0.5
14.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
15.000	0.5	0.5	0.4	0.4	0.3	0.3	0.3
15.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
16.400	0.3	0.3	0.3	0.3	0.2	0.2	0.1
17.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.200	0.1	0.1	0.1	0.1	0.1	0.1	0.0

STORM 100-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
C11	0.005		3.033		12.23	12.0	2360.84

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.600	0.0	0.1	0.1	0.2	0.2	0.3	0.3
11.300	0.4	0.5	0.6	0.7	0.9	1.4	2.1
12.000	3.6	7.0	11.5	11.1	8.0	5.7	4.1
12.700	3.0	2.3	1.9	1.7	1.6	1.4	1.3
13.400	1.2	1.1	1.0	0.8	0.7	0.6	0.6
14.100	0.6	0.6	0.6	0.6	0.6	0.5	0.5
14.800	0.5	0.5	0.5	0.5	0.4	0.4	0.3
15.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
16.200	0.3	0.3	0.3	0.3	0.3	0.3	0.3
16.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
17.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.400	0.2	0.2	0.2	0.2	0.2	0.1	0.1
21.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
22.500	0.967E-01	0.933E-01	0.899E-01	0.865E-01	0.831E-01	0.797E-01	0.763E-01
23.200	0.729E-01	0.695E-01	0.661E-01	0.627E-01	0.593E-01	0.559E-01	0.525E-01
23.900	0.491E-01	0.457E-01	0.423E-01	0.0			

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Choose an item.

CA 11, 12

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
CA12	0.003		2.973		12.34	6.5	1862.92

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.900	0.0	0.1	0.1	0.2	0.2	0.3	0.3
11.600	0.4	0.5	0.7	1.0	1.5	2.7	4.7
12.300	6.3	6.3	5.3	4.1	3.2	2.4	1.9
13.000	1.6	1.4	1.2	1.1	1.0	0.9	0.8
13.700	0.7	0.6	0.5	0.5	0.4	0.4	0.4
14.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
15.100	0.4	0.3	0.3	0.3	0.2	0.2	0.2
15.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.600	0.2	0.1	0.1	0.1	0.1	0.1	0.1
19.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.700	0.1	0.1	0.1	0.1	0.990E-01	0.970E-01	0.949E-01
21.400	0.928E-01	0.907E-01	0.886E-01	0.865E-01	0.844E-01	0.823E-01	0.803E-01
22.100	0.782E-01	0.761E-01	0.740E-01	0.719E-01	0.698E-01	0.677E-01	0.657E-01
22.800	0.636E-01	0.615E-01	0.594E-01	0.573E-01	0.552E-01	0.531E-01	0.510E-01
23.500	0.490E-01	0.469E-01	0.448E-01	0.427E-01	0.406E-01	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.009		3.008		12.27	17.7	2070.70

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.600	0.0	0.1	0.1	0.2	0.3	0.4	0.5
11.300	0.6	0.8	0.9	1.1	1.4	2.0	3.1
12.000	5.1	9.7	16.2	17.4	14.3	11.0	8.2
12.700	6.1	4.8	3.9	3.3	2.9	2.7	2.4
13.400	2.2	2.0	1.8	1.5	1.3	1.1	1.1
14.100	1.0	1.0	1.0	1.0	0.9	0.9	0.9
14.800	0.9	0.9	0.9	0.8	0.8	0.7	0.6
15.500	0.6	0.5	0.5	0.5	0.5	0.5	0.5
16.200	0.5	0.5	0.5	0.5	0.5	0.5	0.5
16.900	0.5	0.5	0.4	0.4	0.4	0.4	0.4
17.600	0.4	0.4	0.4	0.4	0.4	0.4	0.4
18.300	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19.000	0.4	0.3	0.3	0.3	0.3	0.3	0.3
19.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3

20.400	0.3	0.3	0.3	0.3	0.3	0.3	0.2
21.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1

CA 11, 12

Line
Start Time ---------- Flow Values @ time increment of 0.100 hr ----------
(hr) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs)

21.800	0.1	0.1	0.1	0.1	0.1	0.1	0.412E-01
22.500	0.0						

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Choose an item.

CA 11, 12

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)
CA11	0.005	1.9	2.6	5.5	12.0
CA12	0.003	1.0	1.4	2.9	6.5
OUTLET	0.009	2.7	3.8	8.0	17.7

Figure 42 – Alternative A Stormwater TR-20 Models

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WinTR-20 Printed Page File      Beginning of Input Data List
C:\Work\Hard Rock Casino Option A North
Underground.inp

WinTR-20: version 3.20                  0         0         .1        0
Option A West Lot Underground

SUB-AREA:
          Op A Se   Restrictor           0.0345    94.91     0.27
          Undetained Outlet              0.00323   77.21     0.17


STREAM REACH:
          Restrictor Outlet              Restrictor


STORM ANALYSIS:
          1-Year                         2.39      MSE3      2
          2-Year                         2.70      MSE3      2
          10-Year                        3.77      MSE3      2
          100-Year                       5.88      MSE3      2


STRUCTURE RATING:
          Restrictor 713.
                    713.      0.00      0.00
                    714.      2.27      0.89
                    715.      6.43      2.40
                    716.      11.81     3.80
                    717.      18.18     4.96
                    718.      25.41     5.69
                    718.5     29.31     6.02


RAINFALL DISTRIBUTION:
          MSE3                0.1
                    0.        0.000267  0.000555  0.000861  0.00119
                    0.00153   0.0019    0.00229   0.00269   0.00312
                    0.00356   0.00403   0.00451   0.00501   0.00554
                    0.00608   0.00665   0.00723   0.00783   0.00845
                    0.0091    0.00976   0.01044   0.01114   0.01186
                    0.0126    0.01336   0.01414   0.01494   0.01576
                    0.0166    0.01746   0.01834   0.01924   0.02016
                    0.02109   0.02205   0.02303   0.02403   0.02504
                    0.02608   0.02714   0.02821   0.02931   0.03042
                    0.03156   0.03271   0.03389   0.03508   0.0363
                    0.03753   0.03878   0.04006   0.04135   0.04266
                    0.04399   0.04535   0.04672   0.04811   0.04952
                    0.05095   0.0524    0.05387   0.05536   0.05687
                    0.0584    0.05995   0.06152   0.063111  0.06472
                    0.06635   0.06799   0.06966   0.07135   0.07306
                    0.07478   0.07653   0.0783    0.08008   0.08189
                    0.08371   0.08556   0.08742   0.08931   0.09121
                    0.09314   0.09508   0.09704   0.09903   0.10103
                    0.10305   0.10628   0.10956   0.11289   0.11626
                    0.11967   0.12314   0.12664   0.1302    0.1338
                    0.13744   0.14113   0.14487   0.14866   0.15248
                    0.15636   0.16212   0.16863   0.17591   0.18394
                    0.19272   0.20226   0.21256   0.22362   0.23543
                    0.248     0.2663    0.29062   0.32445   0.37245
                    0.46289   0.62755   0.67555   0.70938   0.7337
                    0.752     0.76457   0.77638   0.78744   0.79774
                    0.80728   0.81606   0.82409   0.83137   0.83788
                    0.84364   0.84752   0.85134   0.85513   0.85887
                    0.86256   0.8662    0.8698    0.87336   0.87686
                    0.88033   0.88374   0.88711   0.89044   0.89372
                    0.89695   0.89897   0.90097   0.90296   0.90492
                    0.90686   0.90879   0.91069   0.91258   0.91444
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0.91629   0.91811   0.91992   0.9217    0.92347
0.92522   0.92694   0.92865   0.93034   0.93201
0.93365   0.93528   0.93689   0.93848   0.94005
0.9416    0.94313   0.94464   0.94613   0.9476
0.94905   0.95048   0.95189   0.95328   0.95465
0.95601   0.95734   0.95865   0.95994   0.96122
0.96247   0.9637    0.96492   0.96611   0.96729
0.96844   0.96958   0.97069   0.97179   0.97286
0.97392   0.97496   0.97597   0.97697   0.97795
0.97891   0.97984   0.98076   0.98166   0.98254
0.9834    0.98424   0.98506   0.98586   0.98664
0.9874    0.98814   0.98886   0.98956   0.99024
0.9909    0.99155   0.99217   0.99277   0.99335
0.99392   0.99446   0.99499   0.99549   0.99597
0.99644   0.99688   0.99731   0.99771   0.9981
0.99847   0.99881   0.999139  0.999445  0.999733
1.
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GLOBAL OUTPUT:
         1         .04       0.10      YY  Y     YY  Y
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WinTR-20 Printed Page File End of Input Data List

Option A West Lot Underground

Name of printed page file:
C:\Work\Hard Rock Casino Option A North Underground.out

STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Op A Se	0.034		1.846		12.20	50.4	1462.28

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
6.700	0.0	0.409E-01	0.1	0.1	0.1	0.1	0.2
7.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
8.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
8.800	0.3	0.4	0.4	0.4	0.5	0.6	0.7
9.500	0.7	0.8	0.8	0.8	0.9	0.9	0.9
10.200	1.0	1.0	1.0	1.1	1.2	1.5	1.8
10.900	2.1	2.4	2.7	3.1	3.4	3.8	4.2
11.600	4.8	6.3	8.7	12.4	19.3	34.9	50.4
12.300	40.3	26.1	17.7	12.5	9.0	7.1	6.1
13.000	5.5	5.1	4.7	4.3	3.9	3.5	3.1
13.700	2.5	2.2	2.0	1.9	1.9	1.9	1.8
14.400	1.8	1.8	1.8	1.8	1.7	1.7	1.7
15.100	1.6	1.3	1.1	1.1	1.0	1.0	1.0
15.800	1.0	1.0	1.0	0.9	0.9	0.9	0.9
16.500	0.9	0.9	0.9	0.9	0.9	0.9	0.8
17.200	0.8	0.8	0.8	0.8	0.8	0.8	0.8
17.900	0.8	0.8	0.7	0.7	0.7	0.7	0.7
18.600	0.7	0.7	0.7	0.7	0.7	0.6	0.6
19.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
20.000	0.6	0.5	0.5	0.5	0.5	0.5	0.5
20.700	0.5	0.5	0.5	0.5	0.4	0.4	0.4

21.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
22.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.800	0.3	0.3	0.3	0.2	0.2	0.2	0.2
23.500	0.2	0.2	0.2	0.2	0.2	0.2	0.1
24.200	0.654E-01	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.034	Upstream	1.846		12.20	50.4	1462.28

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
6.700	0.0	0.409E-01	0.1	0.1	0.1	0.1	0.2
7.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
8.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
8.800	0.3	0.4	0.4	0.4	0.5	0.6	0.7

Option A West Lot Underground

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
9.500	0.7	0.8	0.8	0.8	0.9	0.9	0.9
10.200	1.0	1.0	1.0	1.1	1.2	1.5	1.8
10.900	2.1	2.4	2.7	3.1	3.4	3.8	4.2
11.600	4.8	6.3	8.7	12.4	19.3	34.9	50.4
12.300	40.3	26.1	17.7	12.5	9.0	7.1	6.1
13.000	5.5	5.1	4.7	4.3	3.9	3.5	3.1
13.700	2.5	2.2	2.0	1.9	1.9	1.9	1.8
14.400	1.8	1.8	1.8	1.8	1.7	1.7	1.7
15.100	1.6	1.3	1.1	1.1	1.0	1.0	1.0
15.800	1.0	1.0	1.0	0.9	0.9	0.9	0.9
16.500	0.9	0.9	0.9	0.9	0.9	0.9	0.8
17.200	0.8	0.8	0.8	0.8	0.8	0.8	0.8
17.900	0.8	0.8	0.7	0.7	0.7	0.7	0.7
18.600	0.7	0.7	0.7	0.7	0.7	0.6	0.6
19.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
20.000	0.6	0.5	0.5	0.5	0.5	0.5	0.5
20.700	0.5	0.5	0.5	0.5	0.4	0.4	0.4
21.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
22.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.800	0.3	0.3	0.3	0.2	0.2	0.2	0.2
23.500	0.2	0.2	0.2	0.2	0.2	0.2	0.1
24.200	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.034	Downstream	1.820	714.76	13.02	5.4	156.93

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
9.100	0.0	0.1	0.1	0.1	0.1	0.1	0.2
9.800	0.2	0.2	0.2	0.2	0.2	0.3	0.3
10.500	0.3	0.3	0.3	0.3	0.4	0.4	0.5
11.200	0.5	0.6	0.6	0.7	0.8	0.9	1.0
11.900	1.2	1.5	2.0	3.0	3.9	4.6	5.0
12.600	5.2	5.3	5.4	5.4	5.4	5.4	5.4
13.300	5.4	5.3	5.3	5.3	5.2	5.1	5.1
14.000	5.0	4.9	4.9	4.8	4.7	4.7	4.6
14.700	4.5	4.5	4.4	4.4	4.3	4.2	4.2
15.400	4.1	4.0	4.0	3.9	3.8	3.8	3.7
16.100	3.6	3.6	3.5	3.5	3.4	3.3	3.3
16.800	3.2	3.2	3.1	3.1	3.0	3.0	2.9
17.500	2.9	2.8	2.8	2.7	2.7	2.7	2.6
18.200	2.6	2.5	2.5	2.4	2.4	2.4	2.3
18.900	2.3	2.3	2.2	2.2	2.2	2.1	2.1
19.600	2.1	2.0	2.0	2.0	1.9	1.9	1.9
20.300	1.9	1.8	1.8	1.8	1.7	1.7	1.7
21.000	1.7	1.6	1.6	1.6	1.6	1.5	1.5
21.700	1.5	1.5	1.5	1.4	1.4	1.4	1.4

Option A West Lot Underground

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
22.400	1.3	1.3	1.3	1.3	1.3	1.2	1.2
23.100	1.2	1.2	1.2	1.1	1.1	1.1	1.1
23.800	1.1	1.0	1.0	1.0	1.0	1.0	0.9
24.500	0.9	0.9	0.9	0.9	0.8	0.8	0.8
25.200	0.8	0.8	0.8	0.7	0.7	0.7	0.7
25.900	0.7	0.7	0.7	0.6	0.6	0.6	0.6
26.600	0.6	0.6	0.6	0.6	0.5	0.5	0.5
27.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
28.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
28.700	0.4	0.4	0.4	0.4	0.4	0.3	0.3
29.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
30.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
30.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.900	0.2	0.2	0.2	0.1	0.1	0.1	0.1
33.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
34.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
35.000	0.1	0.990E-01	0.969E-01	0.948E-01	0.927E-01	0.906E-01	0.885E-01
35.700	0.864E-01	0.843E-01	0.822E-01	0.800E-01	0.779E-01	0.758E-01	0.737E-01
36.400	0.716E-01	0.695E-01	0.674E-01	0.653E-01	0.632E-01	0.611E-01	0.590E-01
37.100	0.569E-01	0.548E-01	0.527E-01	0.506E-01	0.485E-01	0.464E-01	0.443E-01
37.800	0.422E-01	0.401E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Undetained	0.003		0.493		12.17	2.1	659.56

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.800	0.0	0.2	0.5	1.5	2.0	1.2	0.8
12.500	0.6	0.4	0.3	0.3	0.3	0.3	0.2
13.200	0.2	0.2	0.2	0.2	0.1	0.1	0.1
13.900	0.1	0.1	0.1	0.1	0.998E-01	0.989E-01	0.981E-01
14.600	0.972E-01	0.963E-01	0.954E-01	0.946E-01	0.937E-01	0.928E-01	0.920E-01
15.300	0.911E-01	0.902E-01	0.894E-01	0.885E-01	0.876E-01	0.868E-01	0.859E-01
16.000	0.850E-01	0.841E-01	0.833E-01	0.824E-01	0.815E-01	0.807E-01	0.798E-01
16.700	0.789E-01	0.781E-01	0.772E-01	0.763E-01	0.755E-01	0.746E-01	0.737E-01
17.400	0.728E-01	0.720E-01	0.711E-01	0.702E-01	0.694E-01	0.685E-01	0.676E-01
18.100	0.668E-01	0.659E-01	0.650E-01	0.642E-01	0.633E-01	0.624E-01	0.615E-01
18.800	0.607E-01	0.598E-01	0.589E-01	0.581E-01	0.572E-01	0.563E-01	0.555E-01
19.500	0.546E-01	0.537E-01	0.529E-01	0.520E-01	0.511E-01	0.502E-01	0.494E-01
20.200	0.485E-01	0.476E-01	0.468E-01	0.459E-01	0.450E-01	0.442E-01	0.433E-01
20.900	0.424E-01	0.416E-01	0.407E-01	0.0			

Option A West Lot Underground

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.038		1.706		12.88	5.7	150.70

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
9.100	0.0	0.1	0.1	0.1	0.1	0.1	0.2
9.800	0.2	0.2	0.2	0.2	0.2	0.3	0.3
10.500	0.3	0.3	0.3	0.3	0.4	0.4	0.5
11.200	0.5	0.6	0.6	0.7	0.8	0.9	1.0
11.900	1.4	2.0	3.5	4.9	5.1	5.4	5.6
12.600	5.6	5.7	5.7	5.7	5.7	5.7	5.6
13.300	5.6	5.5	5.5	5.4	5.3	5.3	5.2
14.000	5.1	5.0	5.0	4.8	4.7	4.7	4.6
14.700	4.5	4.5	4.4	4.4	4.3	4.2	4.2
15.400	4.1	4.0	4.0	3.9	3.8	3.8	3.7
16.100	3.6	3.6	3.5	3.5	3.4	3.3	3.3
16.800	3.2	3.2	3.1	3.1	3.0	3.0	2.9
17.500	2.9	2.8	2.8	2.7	2.7	2.7	2.6
18.200	2.6	2.5	2.5	2.4	2.4	2.4	2.3
18.900	2.3	2.3	2.2	2.2	2.2	2.1	2.1
19.600	2.1	2.0	2.0	2.0	1.9	1.9	1.9
20.300	1.9	1.8	1.8	1.8	1.7	1.7	1.7
21.000	1.7	1.6	1.6	1.6	1.6	1.5	1.5
21.700	1.5	1.5	1.5	1.4	1.4	1.4	1.4
22.400	1.3	1.3	1.3	1.3	1.3	1.2	1.2
23.100	1.2	1.2	1.2	1.1	1.1	1.1	1.1
23.800	1.1	1.0	1.0	1.0	1.0	1.0	0.9
24.500	0.9	0.9	0.9	0.9	0.9	0.8	0.8
25.200	0.8	0.8	0.8	0.7	0.7	0.7	0.7
25.900	0.7	0.7	0.7	0.6	0.6	0.6	0.6
26.600	0.6	0.6	0.6	0.6	0.5	0.5	0.5
27.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
28.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
28.700	0.4	0.4	0.4	0.4	0.4	0.3	0.3
29.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
30.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
30.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.900	0.2	0.2	0.2	0.1	0.1	0.1	0.1
33.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
34.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
35.000	0.1	0.0					

STORM 2-Year

Option A West Lot Underground

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Op A Se	0.034		2.146		12.20	58.2	1687.36

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
6.200	0.0	0.1	0.1	0.1	0.1	0.2	0.2
6.900	0.2	0.2	0.2	0.2	0.2	0.2	0.3
7.600	0.3	0.3	0.3	0.3	0.3	0.3	0.4
8.300	0.4	0.4	0.4	0.4	0.4	0.5	0.5
9.000	0.5	0.5	0.7	0.8	0.9	0.9	1.0
9.700	1.0	1.1	1.1	1.1	1.2	1.2	1.2
10.400	1.3	1.3	1.5	1.8	2.2	2.6	2.9
11.100	3.3	3.7	4.1	4.5	5.0	5.7	7.5
11.800	10.3	14.5	22.6	40.5	58.2	46.4	30.0
12.500	20.3	14.3	10.3	8.1	7.0	6.3	5.8
13.200	5.3	4.9	4.5	4.0	3.5	2.9	2.5
13.900	2.3	2.2	2.2	2.1	2.1	2.1	2.0
14.600	2.0	2.0	2.0	1.9	1.9	1.8	1.5
15.300	1.3	1.2	1.2	1.1	1.1	1.1	1.1
16.000	1.1	1.1	1.1	1.1	1.0	1.0	1.0
16.700	1.0	1.0	1.0	1.0	1.0	1.0	0.9
17.400	0.9	0.9	0.9	0.9	0.9	0.9	0.9
18.100	0.9	0.8	0.8	0.8	0.8	0.8	0.8
18.800	0.8	0.8	0.7	0.7	0.7	0.7	0.7
19.500	0.7	0.7	0.7	0.7	0.6	0.6	0.6
20.200	0.6	0.6	0.6	0.6	0.6	0.6	0.5
20.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
21.600	0.5	0.4	0.4	0.4	0.4	0.4	0.4
22.300	0.4	0.4	0.3	0.3	0.3	0.3	0.3
23.000	0.3	0.3	0.3	0.3	0.2	0.2	0.2
23.700	0.2	0.2	0.2	0.2	0.1	0.744E-01	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.034	Upstream	2.146		12.20	58.2	1687.36

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
6.200	0.0	0.1	0.1	0.1	0.1	0.2	0.2
6.900	0.2	0.2	0.2	0.2	0.2	0.2	0.3
7.600	0.3	0.3	0.3	0.3	0.3	0.3	0.4
8.300	0.4	0.4	0.4	0.4	0.4	0.5	0.5
9.000	0.5	0.5	0.7	0.8	0.9	0.9	1.0
9.700	1.0	1.1	1.1	1.1	1.2	1.2	1.2
10.400	1.3	1.3	1.5	1.8	2.2	2.6	2.9
11.100	3.3	3.7	4.1	4.5	5.0	5.7	7.5
11.800	10.3	14.5	22.6	40.5	58.2	46.4	30.0

Option A West Lot Underground

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.500	20.3	14.3	10.3	8.1	7.0	6.3	5.8
13.200	5.3	4.9	4.5	4.0	3.5	2.9	2.5
13.900	2.3	2.2	2.2	2.1	2.1	2.1	2.0
14.600	2.0	2.0	2.0	1.9	1.9	1.8	1.5
15.300	1.3	1.2	1.2	1.1	1.1	1.1	1.1
16.000	1.1	1.1	1.1	1.1	1.0	1.0	1.0
16.700	1.0	1.0	1.0	1.0	1.0	1.0	0.9
17.400	0.9	0.9	0.9	0.9	0.9	0.9	0.9
18.100	0.9	0.8	0.8	0.8	0.8	0.8	0.8
18.800	0.8	0.8	0.7	0.7	0.7	0.7	0.7
19.500	0.7	0.7	0.7	0.7	0.6	0.6	0.6
20.200	0.6	0.6	0.6	0.6	0.6	0.6	0.5
20.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
21.600	0.5	0.4	0.4	0.4	0.4	0.4	0.4
22.300	0.4	0.4	0.3	0.3	0.3	0.3	0.3
23.000	0.3	0.3	0.3	0.3	0.2	0.2	0.2
23.700	0.2	0.2	0.2	0.2	0.1	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.034	Downstream	2.120	714.98	13.00	6.3	183.37

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.500	0.0	0.1	0.1	0.1	0.1	0.1	0.1
9.200	0.1	0.2	0.2	0.2	0.2	0.2	0.2
9.900	0.3	0.3	0.3	0.3	0.3	0.4	0.4
10.600	0.4	0.4	0.5	0.5	0.5	0.6	0.7
11.300	0.7	0.8	0.9	1.0	1.1	1.2	1.5
12.000	1.8	2.4	3.5	4.7	5.4	5.8	6.1
12.700	6.2	6.3	6.3	6.3	6.3	6.3	6.3
13.400	6.2	6.2	6.1	6.1	6.0	5.9	5.8
14.100	5.7	5.7	5.6	5.5	5.4	5.4	5.3
14.800	5.2	5.1	5.1	5.0	4.9	4.8	4.8
15.500	4.7	4.6	4.5	4.4	4.4	4.3	4.2
16.200	4.1	4.1	4.0	3.9	3.9	3.8	3.8
16.900	3.7	3.6	3.6	3.5	3.5	3.4	3.3
17.600	3.3	3.2	3.2	3.1	3.1	3.0	3.0
18.300	2.9	2.9	2.8	2.8	2.7	2.7	2.7
19.000	2.6	2.6	2.5	2.5	2.4	2.4	2.4
19.700	2.3	2.3	2.3	2.2	2.2	2.2	2.1
20.400	2.1	2.1	2.0	2.0	2.0	1.9	1.9
21.100	1.9	1.9	1.8	1.8	1.8	1.7	1.7
21.800	1.7	1.7	1.6	1.6	1.6	1.6	1.5
22.500	1.5	1.5	1.5	1.4	1.4	1.4	1.4
23.200	1.3	1.3	1.3	1.3	1.3	1.2	1.2
23.900	1.2	1.2	1.1	1.1	1.1	1.1	1.1
24.600	1.0	1.0	1.0	1.0	1.0	0.9	0.9

Option A West Lot Underground

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
25.300	0.9	0.9	0.9	0.8	0.8	0.8	0.8
26.000	0.8	0.8	0.7	0.7	0.7	0.7	0.7
26.700	0.7	0.7	0.6	0.6	0.6	0.6	0.6
27.400	0.6	0.6	0.6	0.5	0.5	0.5	0.5
28.100	0.5	0.5	0.5	0.5	0.5	0.4	0.4
28.800	0.4	0.4	0.4	0.4	0.4	0.4	0.4
29.500	0.4	0.4	0.4	0.3	0.3	0.3	0.3
30.200	0.3	0.3	0.3	0.3	0.3	0.3	0.3
30.900	0.3	0.3	0.3	0.3	0.3	0.2	0.2
31.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.700	0.2	0.1	0.1	0.1	0.1	0.1	0.1
34.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
35.100	0.1	0.1	0.1	0.1	0.1	0.1	0.997E-01
35.800	0.976E-01	0.955E-01	0.934E-01	0.913E-01	0.892E-01	0.871E-01	0.850E-01
36.500	0.829E-01	0.808E-01	0.787E-01	0.766E-01	0.745E-01	0.723E-01	0.702E-01
37.200	0.681E-01	0.660E-01	0.639E-01	0.618E-01	0.597E-01	0.576E-01	0.555E-01
37.900	0.534E-01	0.513E-01	0.492E-01	0.471E-01	0.450E-01	0.428E-01	0.407E-01
38.600	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Undetained	0.003		0.694		12.17	2.8	868.57

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.700	0.0	0.2	0.3	0.8	2.1	2.6	1.5
12.400	1.0	0.7	0.5	0.4	0.4	0.3	0.3
13.100	0.3	0.3	0.3	0.2	0.2	0.2	0.1
13.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
14.500	0.1	0.1	0.1	0.1	0.1	0.1	0.976E-01
15.200	0.680E-01	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.038		1.998		12.85	6.7	176.79

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
8.500	0.0	0.1	0.1	0.1	0.1	0.1	0.1
9.200	0.1	0.2	0.2	0.2	0.2	0.2	0.2
9.900	0.3	0.3	0.3	0.3	0.3	0.4	0.4
10.600	0.4	0.4	0.5	0.5	0.5	0.6	0.7

Option A West Lot Underground

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.300	0.7	0.8	0.9	1.0	1.1	1.4	1.8
12.000	2.6	4.5	6.1	6.2	6.4	6.6	6.6
12.700	6.6	6.7	6.7	6.7	6.6	6.6	6.5
13.400	6.5	6.4	6.3	6.2	6.1	6.0	6.0
14.100	5.9	5.8	5.7	5.6	5.6	5.5	5.4
14.800	5.3	5.2	5.2	5.0	4.9	4.8	4.8
15.500	4.7	4.6	4.5	4.4	4.4	4.3	4.2
16.200	4.1	4.1	4.0	3.9	3.9	3.8	3.8
16.900	3.7	3.6	3.6	3.5	3.5	3.4	3.3
17.600	3.3	3.2	3.2	3.1	3.1	3.0	3.0
18.300	2.9	2.9	2.8	2.8	2.7	2.7	2.7
19.000	2.6	2.6	2.5	2.5	2.4	2.4	2.4
19.700	2.3	2.3	2.3	2.2	2.2	2.2	2.1
20.400	2.1	2.1	2.0	2.0	2.0	1.9	1.9
21.100	1.9	1.9	1.8	1.8	1.8	1.7	1.7
21.800	1.7	1.7	1.6	1.6	1.6	1.6	1.5
22.500	1.5	1.5	1.5	1.4	1.4	1.4	1.4
23.200	1.3	1.3	1.3	1.3	1.3	1.2	1.2
23.900	1.2	1.2	1.1	1.1	1.1	1.1	1.1
24.600	1.0	1.0	1.0	1.0	1.0	0.9	0.9
25.300	0.9	0.9	0.9	0.8	0.8	0.8	0.8
26.000	0.8	0.8	0.7	0.7	0.7	0.7	0.7
26.700	0.7	0.7	0.6	0.6	0.6	0.6	0.6
27.400	0.6	0.6	0.6	0.5	0.5	0.5	0.5
28.100	0.5	0.5	0.5	0.5	0.5	0.4	0.4
28.800	0.4	0.4	0.4	0.4	0.4	0.4	0.4
29.500	0.4	0.4	0.4	0.3	0.3	0.3	0.3
30.200	0.3	0.3	0.3	0.3	0.3	0.3	0.3
30.900	0.3	0.3	0.3	0.3	0.3	0.2	0.2
31.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.700	0.2	0.1	0.1	0.1	0.1	0.1	0.1
34.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
35.100	0.1	0.1	0.1	0.1	0.1	0.1	0.983E-01
35.800	0.912E-01	0.841E-01	0.770E-01	0.699E-01	0.628E-01	0.557E-01	0.485E-01
36.500	0.414E-01	0.0					

STORM 10-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Op A Se	0.034		3.193		12.20	84.8	2459.01

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
5.000	0.0	0.1	0.1	0.1	0.2	0.2	0.2
5.700	0.2	0.2	0.2	0.3	0.3	0.3	0.3

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
6.400	0.3	0.4	0.4	0.4	0.4	0.5	0.5
7.100	0.5	0.5	0.5	0.6	0.6	0.6	0.6
7.800	0.6	0.7	0.7	0.7	0.7	0.8	0.8
8.500	0.8	0.8	0.9	0.9	0.9	0.9	1.0
9.200	1.3	1.5	1.6	1.7	1.7	1.8	1.9
9.900	1.9	2.0	2.0	2.1	2.1	2.2	2.2
10.600	2.4	3.0	3.7	4.2	4.8	5.4	6.0
11.300	6.6	7.2	7.8	8.9	11.5	15.7	22.0
12.000	33.7	59.6	84.7	67.0	43.1	29.2	20.4
12.700	14.7	11.5	9.9	9.0	8.2	7.6	7.0
13.400	6.3	5.7	5.0	4.1	3.5	3.3	3.1
14.100	3.1	3.0	3.0	2.9	2.9	2.9	2.8
14.800	2.8	2.8	2.7	2.6	2.1	1.8	1.7
15.500	1.7	1.6	1.6	1.6	1.6	1.5	1.5
16.200	1.5	1.5	1.5	1.5	1.4	1.4	1.4
16.900	1.4	1.4	1.4	1.4	1.3	1.3	1.3
17.600	1.3	1.3	1.3	1.2	1.2	1.2	1.2
18.300	1.2	1.2	1.1	1.1	1.1	1.1	1.1
19.000	1.1	1.0	1.0	1.0	1.0	1.0	1.0
19.700	0.9	0.9	0.9	0.9	0.9	0.9	0.8
20.400	0.8	0.8	0.8	0.8	0.8	0.8	0.7
21.100	0.7	0.7	0.7	0.7	0.7	0.6	0.6
21.800	0.6	0.6	0.6	0.6	0.5	0.5	0.5
22.500	0.5	0.5	0.5	0.4	0.4	0.4	0.4
23.200	0.4	0.4	0.3	0.3	0.3	0.3	0.3
23.900	0.3	0.2	0.2	0.1	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.034	Upstream	3.193		12.20	84.8	2459.01

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
5.000	0.0	0.1	0.1	0.1	0.2	0.2	0.2
5.700	0.2	0.2	0.2	0.3	0.3	0.3	0.3
6.400	0.3	0.4	0.4	0.4	0.4	0.5	0.5
7.100	0.5	0.5	0.5	0.6	0.6	0.6	0.6
7.800	0.6	0.7	0.7	0.7	0.7	0.8	0.8
8.500	0.8	0.8	0.9	0.9	0.9	0.9	1.0
9.200	1.3	1.5	1.6	1.7	1.7	1.8	1.9
9.900	1.9	2.0	2.0	2.1	2.1	2.2	2.2
10.600	2.4	3.0	3.7	4.2	4.8	5.4	6.0
11.300	6.6	7.2	7.8	8.9	11.5	15.7	22.0
12.000	33.7	59.6	84.7	67.0	43.1	29.2	20.4
12.700	14.7	11.5	9.9	9.0	8.2	7.6	7.0
13.400	6.3	5.7	5.0	4.1	3.5	3.3	3.1
14.100	3.1	3.0	3.0	2.9	2.9	2.9	2.8
14.800	2.8	2.8	2.7	2.6	2.1	1.8	1.7

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
15.500	1.7	1.6	1.6	1.6	1.6	1.5	1.5
16.200	1.5	1.5	1.5	1.5	1.4	1.4	1.4
16.900	1.4	1.4	1.4	1.4	1.3	1.3	1.3
17.600	1.3	1.3	1.3	1.2	1.2	1.2	1.2
18.300	1.2	1.2	1.1	1.1	1.1	1.1	1.1
19.000	1.1	1.0	1.0	1.0	1.0	1.0	1.0
19.700	0.9	0.9	0.9	0.9	0.9	0.9	0.8
20.400	0.8	0.8	0.8	0.8	0.8	0.8	0.7
21.100	0.7	0.7	0.7	0.7	0.7	0.6	0.6
21.800	0.6	0.6	0.6	0.6	0.5	0.5	0.5
22.500	0.5	0.5	0.5	0.4	0.4	0.4	0.4
23.200	0.4	0.4	0.3	0.3	0.3	0.3	0.3
23.900	0.3	0.2	0.2	0.514E-01	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.034	Downstream	3.168	715.76	12.85	10.5	305.07

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
7.000	0.0	0.1	0.1	0.1	0.1	0.1	0.1
7.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
8.400	0.2	0.2	0.3	0.3	0.3	0.3	0.3
9.100	0.3	0.3	0.4	0.4	0.4	0.4	0.5
9.800	0.5	0.5	0.6	0.6	0.6	0.6	0.7
10.500	0.7	0.7	0.8	0.8	0.9	1.0	1.1
11.200	1.2	1.3	1.4	1.5	1.7	1.8	2.1
11.900	2.4	3.0	3.9	5.5	7.5	8.9	9.8
12.600	10.2	10.4	10.5	10.5	10.5	10.4	10.3
13.300	10.3	10.1	10.0	9.9	9.7	9.5	9.3
14.000	9.1	8.9	8.8	8.6	8.4	8.2	8.1
14.700	7.9	7.7	7.6	7.4	7.3	7.1	7.0
15.400	6.8	6.6	6.5	6.4	6.3	6.1	6.0
16.100	5.9	5.8	5.7	5.7	5.6	5.5	5.4
16.800	5.3	5.2	5.1	5.0	4.9	4.9	4.8
17.500	4.7	4.6	4.6	4.5	4.4	4.3	4.3
18.200	4.2	4.1	4.1	4.0	3.9	3.9	3.8
18.900	3.7	3.7	3.6	3.6	3.5	3.5	3.4
19.600	3.3	3.3	3.2	3.2	3.1	3.1	3.0
20.300	3.0	2.9	2.9	2.8	2.8	2.7	2.7
21.000	2.7	2.6	2.6	2.5	2.5	2.4	2.4
21.700	2.4	2.3	2.3	2.3	2.2	2.2	2.1
22.400	2.1	2.1	2.0	2.0	2.0	1.9	1.9
23.100	1.9	1.9	1.8	1.8	1.8	1.7	1.7
23.800	1.7	1.6	1.6	1.6	1.6	1.5	1.5
24.500	1.5	1.4	1.4	1.4	1.3	1.3	1.3
25.200	1.3	1.2	1.2	1.2	1.2	1.1	1.1
25.900	1.1	1.1	1.0	1.0	1.0	1.0	1.0

Option A West Lot Underground

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
26.600	0.9	0.9	0.9	0.9	0.9	0.8	0.8
27.300	0.8	0.8	0.8	0.8	0.7	0.7	0.7
28.000	0.7	0.7	0.7	0.7	0.6	0.6	0.6
28.700	0.6	0.6	0.6	0.6	0.6	0.5	0.5
29.400	0.5	0.5	0.5	0.5	0.5	0.5	0.5
30.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
30.800	0.4	0.4	0.4	0.4	0.4	0.3	0.3
31.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
32.200	0.3	0.3	0.3	0.3	0.3	0.3	0.3
32.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
34.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
35.000	0.2	0.2	0.2	0.1	0.1	0.1	0.1
35.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
36.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
37.100	0.1	0.1	0.984E-01	0.963E-01	0.941E-01	0.920E-01	0.899E-01
37.800	0.878E-01	0.857E-01	0.836E-01	0.815E-01	0.794E-01	0.773E-01	0.752E-01
38.500	0.731E-01	0.710E-01	0.689E-01	0.668E-01	0.647E-01	0.626E-01	0.605E-01
39.200	0.584E-01	0.562E-01	0.541E-01	0.520E-01	0.499E-01	0.478E-01	0.457E-01
39.900	0.436E-01	0.415E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Undetained	0.003		1.432		12.16	5.4	1673.43

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.200	0.0	0.1	0.1	0.2	0.2	0.3	0.6
11.900	0.9	1.8	4.2	4.8	2.7	1.8	1.3
12.600	0.9	0.7	0.6	0.6	0.6	0.5	0.5
13.300	0.4	0.4	0.4	0.3	0.2	0.2	0.2
14.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
14.700	0.2	0.2	0.2	0.2	0.2	0.1	0.1
15.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16.800	0.1	0.990E-01	0.980E-01	0.970E-01	0.960E-01	0.950E-01	0.941E-01
17.500	0.931E-01	0.921E-01	0.911E-01	0.901E-01	0.891E-01	0.881E-01	0.871E-01
18.200	0.861E-01	0.851E-01	0.841E-01	0.831E-01	0.821E-01	0.812E-01	0.802E-01
18.900	0.792E-01	0.782E-01	0.772E-01	0.762E-01	0.752E-01	0.742E-01	0.732E-01
19.600	0.722E-01	0.712E-01	0.702E-01	0.692E-01	0.683E-01	0.673E-01	0.663E-01
20.300	0.653E-01	0.643E-01	0.633E-01	0.623E-01	0.613E-01	0.603E-01	0.593E-01
21.000	0.583E-01	0.573E-01	0.563E-01	0.553E-01	0.544E-01	0.534E-01	0.524E-01
21.700	0.514E-01	0.504E-01	0.494E-01	0.484E-01	0.474E-01	0.464E-01	0.454E-01
22.400	0.444E-01	0.434E-01	0.424E-01	0.415E-01	0.405E-01	0.0	

Option A West Lot Underground

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.038		3.019		12.75	11.2	295.82

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
7.000	0.0	0.1	0.1	0.1	0.1	0.1	0.1
7.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
8.400	0.2	0.2	0.3	0.3	0.3	0.3	0.3
9.100	0.3	0.3	0.4	0.4	0.4	0.4	0.5
9.800	0.5	0.5	0.6	0.6	0.6	0.6	0.7
10.500	0.7	0.7	0.8	0.8	0.9	1.0	1.1
11.200	1.2	1.4	1.5	1.7	1.9	2.2	2.6
11.900	3.4	4.8	8.1	10.4	10.2	10.7	11.0
12.600	11.1	11.2	11.2	11.1	11.0	10.9	10.8
13.300	10.7	10.5	10.4	10.2	9.9	9.7	9.5
14.000	9.3	9.1	9.0	8.8	8.6	8.4	8.3
14.700	8.1	7.9	7.8	7.6	7.4	7.3	7.1
15.400	6.9	6.8	6.6	6.5	6.4	6.3	6.2
16.100	6.1	6.0	5.9	5.8	5.7	5.6	5.5
16.800	5.3	5.2	5.1	5.0	4.9	4.9	4.8
17.500	4.7	4.6	4.6	4.5	4.4	4.3	4.3
18.200	4.2	4.1	4.1	4.0	3.9	3.9	3.8
18.900	3.7	3.7	3.6	3.6	3.5	3.5	3.4
19.600	3.3	3.3	3.2	3.2	3.1	3.1	3.0
20.300	3.0	2.9	2.9	2.8	2.8	2.8	2.7
21.000	2.7	2.6	2.6	2.5	2.5	2.4	2.4
21.700	2.4	2.3	2.3	2.3	2.2	2.2	2.1
22.400	2.1	2.1	2.0	2.0	2.0	1.9	1.9
23.100	1.9	1.9	1.8	1.8	1.8	1.7	1.7
23.800	1.7	1.6	1.6	1.6	1.6	1.5	1.5
24.500	1.5	1.4	1.4	1.4	1.3	1.3	1.3
25.200	1.3	1.2	1.2	1.2	1.2	1.1	1.1
25.900	1.1	1.1	1.0	1.0	1.0	1.0	1.0
26.600	0.9	0.9	0.9	0.9	0.9	0.8	0.8
27.300	0.8	0.8	0.8	0.8	0.7	0.7	0.7
28.000	0.7	0.7	0.7	0.7	0.6	0.6	0.6
28.700	0.6	0.6	0.6	0.6	0.6	0.5	0.5
29.400	0.5	0.5	0.5	0.5	0.5	0.5	0.5
30.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
30.800	0.4	0.4	0.4	0.4	0.4	0.3	0.3
31.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
32.200	0.3	0.3	0.3	0.3	0.3	0.3	0.3
32.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
34.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
35.000	0.2	0.2	0.2	0.1	0.1	0.1	0.1
35.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
36.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
37.100	0.1	0.1	0.0				

Option A West Lot Underground

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Op A Se	0.034		5.281		12.21	136.0	3941.30

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
3.800	0.0	0.1	0.1	0.2	0.2	0.2	0.3
4.500	0.3	0.3	0.4	0.4	0.4	0.5	0.5
5.200	0.5	0.5	0.6	0.6	0.6	0.7	0.7
5.900	0.8	0.8	0.8	0.9	0.9	0.9	1.0
6.600	1.0	1.0	1.1	1.1	1.1	1.2	1.2
7.300	1.3	1.3	1.3	1.4	1.4	1.4	1.5
8.000	1.5	1.5	1.6	1.6	1.7	1.7	1.7
8.700	1.8	1.8	1.8	1.9	2.1	2.6	3.0
9.400	3.2	3.3	3.4	3.5	3.6	3.6	3.7
10.100	3.8	3.9	4.0	4.1	4.1	4.5	5.5
10.800	6.6	7.6	8.6	9.5	10.5	11.5	12.4
11.500	13.4	15.2	19.5	26.3	36.6	55.5	96.9
12.200	135.8	107.3	68.8	46.4	32.5	23.3	18.3
12.900	15.7	14.2	13.0	12.0	11.0	10.0	9.0
13.600	7.9	6.4	5.5	5.1	5.0	4.8	4.8
14.300	4.7	4.6	4.6	4.5	4.5	4.4	4.4
15.000	4.3	4.0	3.4	2.9	2.7	2.6	2.6
15.700	2.5	2.5	2.5	2.4	2.4	2.4	2.4
16.400	2.3	2.3	2.3	2.3	2.2	2.2	2.2
17.100	2.2	2.1	2.1	2.1	2.1	2.0	2.0
17.800	2.0	2.0	1.9	1.9	1.9	1.8	1.8
18.500	1.8	1.8	1.7	1.7	1.7	1.7	1.6
19.200	1.6	1.6	1.6	1.5	1.5	1.5	1.5
19.900	1.4	1.4	1.4	1.4	1.3	1.3	1.3
20.600	1.3	1.2	1.2	1.2	1.2	1.1	1.1
21.300	1.1	1.1	1.0	1.0	1.0	1.0	0.9
22.000	0.9	0.9	0.9	0.8	0.8	0.8	0.7
22.700	0.7	0.7	0.7	0.6	0.6	0.6	0.6
23.400	0.5	0.5	0.5	0.5	0.4	0.4	0.4
24.100	0.3	0.2	0.559E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.034	Upstream	5.281		12.21	136.0	3941.30

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
3.800	0.0	0.1	0.1	0.2	0.2	0.2	0.3
4.500	0.3	0.3	0.4	0.4	0.4	0.5	0.5
5.200	0.5	0.5	0.6	0.6	0.6	0.7	0.7
5.900	0.8	0.8	0.8	0.9	0.9	0.9	1.0
6.600	1.0	1.0	1.1	1.1	1.1	1.2	1.2

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
7.300	1.3	1.3	1.3	1.4	1.4	1.4	1.5
8.000	1.5	1.5	1.6	1.6	1.7	1.7	1.7
8.700	1.8	1.8	1.8	1.9	2.1	2.6	3.0
9.400	3.2	3.3	3.4	3.5	3.6	3.6	3.7
10.100	3.8	3.9	4.0	4.1	4.1	4.5	5.5
10.800	6.6	7.6	8.6	9.5	10.5	11.5	12.4
11.500	13.4	15.2	19.5	26.3	36.6	55.5	96.9
12.200	135.8	107.3	68.8	46.4	32.5	23.3	18.3
12.900	15.7	14.2	13.0	12.0	11.0	10.0	9.0
13.600	7.9	6.4	5.5	5.1	5.0	4.8	4.8
14.300	4.7	4.6	4.6	4.5	4.5	4.4	4.4
15.000	4.3	4.0	3.4	2.9	2.7	2.6	2.6
15.700	2.5	2.5	2.5	2.4	2.4	2.4	2.4
16.400	2.3	2.3	2.3	2.3	2.2	2.2	2.2
17.100	2.2	2.1	2.1	2.1	2.1	2.0	2.0
17.800	2.0	2.0	1.9	1.9	1.9	1.8	1.8
18.500	1.8	1.8	1.7	1.7	1.7	1.7	1.6
19.200	1.6	1.6	1.6	1.5	1.5	1.5	1.5
19.900	1.4	1.4	1.4	1.4	1.3	1.3	1.3
20.600	1.3	1.2	1.2	1.2	1.2	1.1	1.1
21.300	1.1	1.1	1.0	1.0	1.0	1.0	0.9
22.000	0.9	0.9	0.9	0.8	0.8	0.8	0.7
22.700	0.7	0.7	0.7	0.6	0.6	0.6	0.6
23.400	0.5	0.5	0.5	0.5	0.4	0.4	0.4
24.100	0.3	0.2	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.034	Downstream	5.257	717.73	12.70	23.4	679.30

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
5.400	0.0	0.1	0.1	0.1	0.1	0.2	0.2
6.100	0.2	0.2	0.2	0.2	0.2	0.3	0.3
6.800	0.3	0.3	0.3	0.3	0.4	0.4	0.4
7.500	0.4	0.4	0.5	0.5	0.5	0.5	0.5
8.200	0.6	0.6	0.6	0.6	0.6	0.7	0.7
8.900	0.7	0.7	0.8	0.8	0.8	0.9	0.9
9.600	1.0	1.0	1.1	1.1	1.2	1.2	1.3
10.300	1.4	1.4	1.5	1.5	1.6	1.7	1.8
11.000	1.9	2.1	2.2	2.4	2.7	2.9	3.1
11.700	3.5	3.9	4.5	5.4	7.2	10.7	15.4
12.400	18.8	21.8	23.1	23.4	23.2	22.7	22.1
13.100	21.4	20.7	20.0	19.2	18.5	17.9	17.4
13.800	16.9	16.4	15.9	15.4	14.9	14.5	14.1
14.500	13.6	13.2	12.8	12.5	12.1	11.8	11.5
15.200	11.3	11.0	10.8	10.5	10.3	10.0	9.8
15.900	9.6	9.4	9.1	8.9	8.7	8.5	8.3

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
16.600	8.1	8.0	7.8	7.6	7.4	7.3	7.1
17.300	7.0	6.8	6.7	6.5	6.4	6.3	6.2
18.000	6.1	6.0	5.9	5.8	5.7	5.6	5.6
18.700	5.5	5.4	5.3	5.2	5.1	5.1	5.0
19.400	4.9	4.8	4.8	4.7	4.6	4.5	4.5
20.100	4.4	4.3	4.3	4.2	4.1	4.1	4.0
20.800	3.9	3.9	3.8	3.8	3.7	3.6	3.6
21.500	3.5	3.5	3.4	3.4	3.3	3.2	3.2
22.200	3.1	3.1	3.0	3.0	2.9	2.9	2.8
22.900	2.8	2.7	2.7	2.7	2.6	2.6	2.5
23.600	2.5	2.4	2.4	2.3	2.3	2.2	2.2
24.300	2.2	2.1	2.1	2.0	2.0	1.9	1.9
25.000	1.9	1.8	1.8	1.8	1.7	1.7	1.6
25.700	1.6	1.6	1.5	1.5	1.5	1.4	1.4
26.400	1.4	1.4	1.3	1.3	1.3	1.2	1.2
27.100	1.2	1.2	1.1	1.1	1.1	1.1	1.1
27.800	1.0	1.0	1.0	1.0	1.0	0.9	0.9
28.500	0.9	0.9	0.9	0.8	0.8	0.8	0.8
29.200	0.8	0.8	0.7	0.7	0.7	0.7	0.7
29.900	0.7	0.7	0.6	0.6	0.6	0.6	0.6
30.600	0.6	0.6	0.5	0.5	0.5	0.5	0.5
31.300	0.5	0.5	0.5	0.5	0.5	0.4	0.4
32.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
32.700	0.4	0.4	0.4	0.3	0.3	0.3	0.3
33.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
34.100	0.3	0.3	0.3	0.3	0.3	0.2	0.2
34.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
35.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.900	0.2	0.1	0.1	0.1	0.1	0.1	0.1
37.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
38.300	0.1	0.1	0.1	0.1	0.1	0.1	0.996E-01
39.000	0.975E-01	0.954E-01	0.933E-01	0.912E-01	0.891E-01	0.870E-01	0.849E-01
39.700	0.828E-01	0.807E-01	0.786E-01	0.765E-01	0.744E-01	0.723E-01	0.701E-01
40.400	0.680E-01	0.659E-01	0.638E-01	0.617E-01	0.596E-01	0.575E-01	0.554E-01
41.100	0.533E-01	0.512E-01	0.491E-01	0.470E-01	0.449E-01	0.428E-01	0.407E-01
41.800	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Undetained	0.003		3.257		12.15	11.1	3438.94

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.500	0.0	0.1	0.1	0.2	0.2	0.3	0.3
11.200	0.4	0.4	0.5	0.5	0.7	1.0	1.5
11.900	2.4	4.3	9.0	9.7	5.3	3.4	2.4
12.600	1.7	1.3	1.2	1.1	1.0	1.0	0.9

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
13.300	0.8	0.7	0.7	0.5	0.4	0.4	0.4
14.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
14.700	0.4	0.3	0.3	0.3	0.3	0.2	0.2
15.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.200	0.2	0.1	0.1	0.1	0.1	0.1	0.1
18.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.300	0.1	0.1	0.1	0.1	0.989E-01	0.967E-01	0.944E-01
21.000	0.922E-01	0.899E-01	0.877E-01	0.854E-01	0.832E-01	0.809E-01	0.787E-01
21.700	0.764E-01	0.742E-01	0.719E-01	0.697E-01	0.675E-01	0.652E-01	0.630E-01
22.400	0.607E-01	0.585E-01	0.562E-01	0.540E-01	0.517E-01	0.495E-01	0.472E-01
23.100	0.450E-01	0.427E-01	0.405E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.038		5.085		12.64	24.9	658.72

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
5.400	0.0	0.1	0.1	0.1	0.1	0.2	0.2
6.100	0.2	0.2	0.2	0.2	0.2	0.3	0.3
6.800	0.3	0.3	0.3	0.3	0.4	0.4	0.4
7.500	0.4	0.4	0.5	0.5	0.5	0.5	0.5
8.200	0.6	0.6	0.6	0.6	0.6	0.7	0.7
8.900	0.7	0.7	0.8	0.8	0.8	0.9	0.9
9.600	1.0	1.0	1.1	1.1	1.2	1.2	1.3
10.300	1.4	1.4	1.5	1.6	1.7	1.9	2.0
11.000	2.2	2.4	2.6	2.9	3.1	3.4	3.8
11.700	4.5	5.4	6.9	9.7	16.1	20.5	20.7
12.400	22.2	24.2	24.8	24.8	24.4	23.8	23.1
13.100	22.4	21.6	20.8	20.0	19.1	18.4	17.9
13.800	17.3	16.8	16.3	15.8	15.3	14.9	14.4
14.500	14.0	13.6	13.2	12.8	12.5	12.1	11.8
15.200	11.5	11.3	11.0	10.7	10.5	10.2	10.0
15.900	9.8	9.5	9.3	9.1	8.9	8.7	8.5
16.600	8.3	8.1	8.0	7.8	7.6	7.4	7.3
17.300	7.1	7.0	6.8	6.7	6.5	6.4	6.3
18.000	6.2	6.2	6.1	6.0	5.9	5.8	5.7
18.700	5.6	5.5	5.4	5.4	5.3	5.2	5.1
19.400	5.0	5.0	4.9	4.8	4.7	4.7	4.6
20.100	4.5	4.4	4.4	4.3	4.2	4.2	4.0
20.800	3.9	3.9	3.8	3.8	3.7	3.6	3.6
21.500	3.5	3.5	3.4	3.4	3.3	3.3	3.2
22.200	3.1	3.1	3.0	3.0	2.9	2.9	2.8
22.900	2.8	2.7	2.7	2.7	2.6	2.6	2.5

Option A West Lot Underground

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
23.600	2.5	2.4	2.4	2.3	2.3	2.2	2.2
24.300	2.2	2.1	2.1	2.0	2.0	1.9	1.9
25.000	1.9	1.8	1.8	1.8	1.7	1.7	1.6
25.700	1.6	1.6	1.5	1.5	1.5	1.4	1.4
26.400	1.4	1.4	1.3	1.3	1.3	1.3	1.2
27.100	1.2	1.2	1.1	1.1	1.1	1.1	1.1
27.800	1.0	1.0	1.0	1.0	1.0	0.9	0.9
28.500	0.9	0.9	0.9	0.8	0.8	0.8	0.8
29.200	0.8	0.8	0.7	0.7	0.7	0.7	0.7
29.900	0.7	0.7	0.6	0.6	0.6	0.6	0.6
30.600	0.6	0.6	0.5	0.5	0.5	0.5	0.5
31.300	0.5	0.5	0.5	0.5	0.5	0.4	0.4
32.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
32.700	0.4	0.4	0.4	0.3	0.3	0.3	0.3
33.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
34.100	0.3	0.3	0.3	0.3	0.3	0.2	0.2
34.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
35.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.900	0.2	0.1	0.1	0.1	0.1	0.1	0.1
37.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
38.300	0.1	0.1	0.1	0.1	0.1	0.1	0.0

Option A West Lot Underground

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)	(cfs)
Op A Se	0.034	50.4	58.2	84.8	136.0	
Undetained	0.003	2.1	2.8	5.4	11.1	
Restrictor	0.034	50.4	58.2	84.8	136.0	
DOWNSTREAM		5.4	6.3	10.5	23.4	
OUTLET	0.038	5.7	6.7	11.2	24.9	

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WinTR-20 Printed Page File      Beginning of Input Data List
C:\Work\Hard Rock Casino Option A West
Pond.inp

WinTR-20: version 3.20                  0         0         .1        0
Option A West Lot Basin

SUB-AREA:
          Op A Se   Restrictor          0.0195    94.09     0.29
          Undetained Outlet             0.0012    76.41     0.17


STREAM REACH:
          Restrictor Outlet             Restrictor


STORM ANALYSIS:
          1-Year                        2.39      MSE3      2
          2-Year                        2.70      MSE3      2
          10-Year                       3.77      MSE3      2
          100-Year                      5.88      MSE3      2


STRUCTURE RATING:
          Restrictor 716.75
                    716.75    0.        0.
                    717.      0.38      0.01
                    718.      1.02      0.07
                    719.      1.39      0.23
                    720.      1.68      0.52
                    721.      2.05      0.93
                    722.      13.56     1.50
                    723.      33.47     2.21



RAINFALL DISTRIBUTION:
          MSE3              0.1
                    0.        0.000267  0.000555  0.000861  0.00119
                    0.00153   0.0019    0.00229   0.00269   0.00312
                    0.00356   0.00403   0.00451   0.00501   0.00554
                    0.00608   0.00665   0.00723   0.00783   0.00845
                    0.0091    0.00976   0.01044   0.01114   0.01186
                    0.0126    0.01336   0.01414   0.01494   0.01576
                    0.0166    0.01746   0.01834   0.01924   0.02016
                    0.02109   0.02205   0.02303   0.02403   0.02504
                    0.02608   0.02714   0.02821   0.02931   0.03042
                    0.03156   0.03271   0.03389   0.03508   0.0363
                    0.03753   0.03878   0.04006   0.04135   0.04266
                    0.04399   0.04535   0.04672   0.04811   0.04952
                    0.05095   0.0524    0.05387   0.05536   0.05687
                    0.0584    0.05995   0.06152   0.063111  0.06472
                    0.06635   0.06799   0.06966   0.07135   0.07306
                    0.07478   0.07653   0.0783    0.08008   0.08189
                    0.08371   0.08556   0.08742   0.08931   0.09121
                    0.09314   0.09508   0.09704   0.09903   0.10103
                    0.10305   0.10628   0.10956   0.11289   0.11626
                    0.11967   0.12314   0.12664   0.1302    0.1338
                    0.13744   0.14113   0.14487   0.14866   0.15248
                    0.15636   0.16212   0.16863   0.17591   0.18394
                    0.19272   0.20226   0.21256   0.22362   0.23543
                    0.248     0.2663    0.29062   0.32445   0.37245
                    0.46289   0.62755   0.67555   0.70938   0.7337
                    0.752     0.76457   0.77638   0.78744   0.79774
                    0.80728   0.81606   0.82409   0.83137   0.83788
                    0.84364   0.84752   0.85134   0.85513   0.85887
                    0.86256   0.8662    0.8698    0.87336   0.87686
                    0.88033   0.88374   0.88711   0.89044   0.89372
                    0.89695   0.89897   0.90097   0.90296   0.90492
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0.90686	0.90879	0.91069	0.91258	0.91444
0.91629	0.91811	0.91992	0.9217	0.92347
0.92522	0.92694	0.92865	0.93034	0.93201
0.93365	0.93528	0.93689	0.93848	0.94005
0.9416	0.94313	0.94464	0.94613	0.9476
0.94905	0.95048	0.95189	0.95328	0.95465
0.95601	0.95734	0.95865	0.95994	0.96122
0.96247	0.9637	0.96492	0.96611	0.96729
0.96844	0.96958	0.97069	0.97179	0.97286
0.97392	0.97496	0.97597	0.97697	0.97795
0.97891	0.97984	0.98076	0.98166	0.98254
0.9834	0.98424	0.98506	0.98586	0.98664
0.9874	0.98814	0.98886	0.98956	0.99024
0.9909	0.99155	0.99217	0.99277	0.99335
0.99392	0.99446	0.99499	0.99549	0.99597
0.99644	0.99688	0.99731	0.99771	0.9981
0.99847	0.99881	0.999139	0.999445	0.999733
1.				

GLOBAL OUTPUT:

1	.04	0.10	YY Y	YY Y

WinTR-20 Printed Page File End of Input Data List

Option A West Lot Basin

Name of printed page file:
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STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Op A Se	0.020		1.763		12.21	26.7	1370.75

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
8.000	0.0	0.1	0.1	0.1	0.1	0.1	0.1
8.700	0.1	0.2	0.2	0.2	0.2	0.2	0.3
9.400	0.3	0.3	0.4	0.4	0.4	0.4	0.4
10.100	0.4	0.5	0.5	0.5	0.5	0.6	0.7
10.800	0.9	1.0	1.2	1.4	1.5	1.7	1.9
11.500	2.1	2.4	3.2	4.4	6.3	9.8	17.7
12.200	26.5	22.8	15.3	10.5	7.4	5.3	4.1
12.900	3.5	3.1	2.9	2.6	2.4	2.2	2.0
13.600	1.8	1.4	1.2	1.1	1.1	1.1	1.0
14.300	1.0	1.0	1.0	1.0	1.0	1.0	1.0
15.000	0.9	0.9	0.8	0.6	0.6	0.6	0.6
15.700	0.6	0.5	0.5	0.5	0.5	0.5	0.5
16.400	0.5	0.5	0.5	0.5	0.5	0.5	0.5
17.100	0.5	0.5	0.5	0.5	0.5	0.4	0.4
17.800	0.4	0.4	0.4	0.4	0.4	0.4	0.4
18.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19.200	0.4	0.4	0.3	0.3	0.3	0.3	0.3
19.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
20.600	0.3	0.3	0.3	0.3	0.3	0.3	0.2
21.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2

22.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.700	0.2	0.2	0.1	0.1	0.1	0.1	0.1
23.400	0.1	0.1	0.1	0.1	0.978E-01	0.922E-01	0.867E-01
24.100	0.811E-01	0.756E-01	0.700E-01	0.645E-01	0.589E-01	0.533E-01	0.478E-01
24.800	0.422E-01	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.020	Upstream	1.763		12.21	26.7	1370.75

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.000	0.0	0.1	0.1	0.1	0.1	0.1	0.1
8.700	0.1	0.2	0.2	0.2	0.2	0.2	0.3
9.400	0.3	0.3	0.4	0.4	0.4	0.4	0.4
10.100	0.4	0.5	0.5	0.5	0.5	0.6	0.7
10.800	0.9	1.0	1.2	1.4	1.5	1.7	1.9

Option A West Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.500	2.1	2.4	3.2	4.4	6.3	9.8	17.7
12.200	26.5	22.8	15.3	10.5	7.4	5.3	4.1
12.900	3.5	3.1	2.9	2.6	2.4	2.2	2.0
13.600	1.8	1.4	1.2	1.1	1.1	1.1	1.0
14.300	1.0	1.0	1.0	1.0	1.0	1.0	1.0
15.000	0.9	0.9	0.8	0.6	0.6	0.6	0.6
15.700	0.6	0.5	0.5	0.5	0.5	0.5	0.5
16.400	0.5	0.5	0.5	0.5	0.5	0.5	0.5
17.100	0.5	0.5	0.5	0.5	0.5	0.4	0.4
17.800	0.4	0.4	0.4	0.4	0.4	0.4	0.4
18.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19.200	0.4	0.4	0.3	0.3	0.3	0.3	0.3
19.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
20.600	0.3	0.3	0.3	0.3	0.3	0.3	0.2
21.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.700	0.2	0.2	0.1	0.1	0.1	0.1	0.1
23.400	0.1	0.1	0.1	0.1	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.020	Downstream	1.758	721.12	12.92	3.4	174.75

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.500	0.0	0.894E-01	0.1	0.1	0.1	0.1	0.1
9.200	0.2	0.2	0.2	0.2	0.3	0.3	0.3
9.900	0.3	0.4	0.4	0.4	0.4	0.4	0.4
10.600	0.4	0.4	0.5	0.5	0.6	0.6	0.7
11.300	0.8	0.9	1.0	1.0	1.1	1.1	1.2
12.000	1.3	1.5	1.6	1.8	1.9	2.0	2.5
12.700	3.1	3.3	3.4	3.4	3.3	3.2	3.1
13.400	3.0	2.9	2.7	2.5	2.4	2.2	2.0
14.100	2.0	2.0	2.0	2.0	2.0	2.0	2.0
14.800	2.0	2.0	2.0	2.0	2.0	1.9	1.9
15.500	1.9	1.9	1.9	1.9	1.9	1.9	1.9
16.200	1.9	1.8	1.8	1.8	1.8	1.8	1.8
16.900	1.8	1.8	1.8	1.8	1.7	1.7	1.7
17.600	1.7	1.7	1.7	1.7	1.7	1.7	1.7
18.300	1.7	1.6	1.6	1.6	1.6	1.6	1.6
19.000	1.6	1.6	1.6	1.6	1.5	1.5	1.5
19.700	1.5	1.5	1.5	1.5	1.5	1.5	1.5
20.400	1.4	1.4	1.4	1.4	1.4	1.4	1.4
21.100	1.4	1.3	1.3	1.3	1.3	1.3	1.2
21.800	1.2	1.2	1.2	1.2	1.1	1.1	1.1
22.500	1.1	1.1	1.1	1.0	1.0	1.0	0.9
23.200	0.8	0.8	0.7	0.7	0.6	0.6	0.5
23.900	0.5	0.4	0.4	0.4	0.3	0.2	0.1

Option A West Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
24.600	0.1	0.699E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Undetained	0.001		0.353		12.17	0.7	619.31

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.900	0.0	0.2	0.5	0.7	0.4	0.3	0.2
12.600	0.2	0.1	0.1	0.1	0.941E-01	0.880E-01	0.818E-01
13.300	0.757E-01	0.695E-01	0.634E-01	0.573E-01	0.511E-01	0.450E-01	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.021		1.676		12.90	3.5	169.34

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
8.500	0.0	0.627E-01	0.1	0.1	0.1	0.1	0.1
9.200	0.2	0.2	0.2	0.2	0.3	0.3	0.3
9.900	0.3	0.4	0.4	0.4	0.4	0.4	0.4
10.600	0.4	0.4	0.5	0.5	0.6	0.6	0.7
11.300	0.8	0.9	1.0	1.0	1.1	1.1	1.2
12.000	1.5	2.0	2.3	2.2	2.2	2.2	2.7
12.700	3.2	3.4	3.5	3.4	3.3	3.2	3.1
13.400	3.0	2.9	2.7	2.5	2.4	2.2	2.0
14.100	2.0	2.0	2.0	2.0	2.0	2.0	2.0
14.800	2.0	2.0	2.0	2.0	2.0	1.9	1.9
15.500	1.9	1.9	1.9	1.9	1.9	1.9	1.9
16.200	1.9	1.8	1.8	1.8	1.8	1.8	1.8
16.900	1.8	1.8	1.8	1.8	1.7	1.7	1.7
17.600	1.7	1.7	1.7	1.7	1.7	1.7	1.7
18.300	1.7	1.6	1.6	1.6	1.6	1.6	1.6
19.000	1.6	1.6	1.6	1.6	1.5	1.5	1.5
19.700	1.5	1.5	1.5	1.5	1.5	1.5	1.5
20.400	1.4	1.4	1.4	1.4	1.4	1.4	1.4
21.100	1.4	1.3	1.3	1.3	1.3	1.3	1.2
21.800	1.2	1.2	1.2	1.2	1.1	1.1	1.1
22.500	1.1	1.1	1.1	1.0	1.0	1.0	0.9
23.200	0.8	0.8	0.7	0.7	0.6	0.6	0.5
23.900	0.5	0.4	0.4	0.4	0.3	0.2	0.1
24.600	0.593E-01	0.0					

Option A West Lot Basin

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Op A Se	0.020		2.062		12.22	30.9	1585.99

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
7.400	0.0	0.1	0.1	0.1	0.1	0.1	0.1
8.100	0.1	0.2	0.2	0.2	0.2	0.2	0.2
8.800	0.2	0.2	0.2	0.2	0.3	0.4	0.4
9.500	0.4	0.5	0.5	0.5	0.5	0.6	0.6
10.200	0.6	0.6	0.6	0.7	0.7	0.9	1.1
10.900	1.3	1.5	1.7	1.9	2.1	2.3	2.6
11.600	2.9	3.8	5.2	7.4	11.5	20.6	30.7
12.300	26.4	17.6	12.1	8.5	6.1	4.7	4.0
13.000	3.6	3.3	3.0	2.8	2.5	2.3	2.0
13.700	1.7	1.4	1.3	1.2	1.2	1.2	1.2
14.400	1.2	1.1	1.1	1.1	1.1	1.1	1.1
15.100	1.0	0.9	0.7	0.7	0.7	0.6	0.6
15.800	0.6	0.6	0.6	0.6	0.6	0.6	0.6
16.500	0.6	0.6	0.6	0.6	0.6	0.5	0.5
17.200	0.5	0.5	0.5	0.5	0.5	0.5	0.5
17.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
18.600	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19.300	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.000	0.4	0.3	0.3	0.3	0.3	0.3	0.3
20.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.400	0.3	0.3	0.3	0.2	0.2	0.2	0.2
22.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.800	0.2	0.2	0.2	0.2	0.2	0.1	0.1
23.500	0.1	0.1	0.1	0.1	0.1	0.988E-01	0.924E-01
24.200	0.861E-01	0.797E-01	0.733E-01	0.669E-01	0.606E-01	0.542E-01	0.478E-01
24.900	0.415E-01	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.020	Upstream	2.062		12.22	30.9	1585.99

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
7.400	0.0	0.1	0.1	0.1	0.1	0.1	0.1
8.100	0.1	0.2	0.2	0.2	0.2	0.2	0.2
8.800	0.2	0.2	0.2	0.2	0.3	0.4	0.4
9.500	0.4	0.5	0.5	0.5	0.5	0.6	0.6
10.200	0.6	0.6	0.6	0.7	0.7	0.9	1.1
10.900	1.3	1.5	1.7	1.9	2.1	2.3	2.6
11.600	2.9	3.8	5.2	7.4	11.5	20.6	30.7
12.300	26.4	17.6	12.1	8.5	6.1	4.7	4.0
13.000	3.6	3.3	3.0	2.8	2.5	2.3	2.0

Option A West Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
13.700	1.7	1.4	1.3	1.2	1.2	1.2	1.2
14.400	1.2	1.1	1.1	1.1	1.1	1.1	1.1
15.100	1.0	0.9	0.7	0.7	0.7	0.6	0.6
15.800	0.6	0.6	0.6	0.6	0.6	0.6	0.6
16.500	0.6	0.6	0.6	0.6	0.6	0.5	0.5
17.200	0.5	0.5	0.5	0.5	0.5	0.5	0.5
17.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
18.600	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19.300	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.000	0.4	0.3	0.3	0.3	0.3	0.3	0.3
20.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.400	0.3	0.3	0.3	0.2	0.2	0.2	0.2
22.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.800	0.2	0.2	0.2	0.2	0.2	0.1	0.1
23.500	0.1	0.1	0.1	0.1	0.1	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.020	Downstream	2.057	721.32	12.72	5.7	291.80

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
7.900	0.0	0.1	0.1	0.1	0.1	0.1	0.2
8.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
9.300	0.3	0.3	0.3	0.4	0.4	0.4	0.4
10.000	0.4	0.4	0.4	0.5	0.5	0.5	0.5
10.700	0.5	0.6	0.6	0.7	0.8	0.8	0.9
11.400	1.0	1.1	1.1	1.1	1.2	1.3	1.4
12.100	1.5	1.7	1.9	2.7	4.6	5.4	5.7
12.800	5.6	5.4	5.2	4.9	4.6	4.4	4.1
13.500	3.8	3.6	3.3	3.0	2.8	2.5	2.3
14.200	2.2	2.0	2.0	2.0	2.0	2.0	2.0
14.900	2.0	2.0	2.0	2.0	2.0	2.0	2.0
15.600	1.9	1.9	1.9	1.9	1.9	1.9	1.9
16.300	1.9	1.9	1.9	1.9	1.8	1.8	1.8
17.000	1.8	1.8	1.8	1.8	1.8	1.8	1.8
17.700	1.7	1.7	1.7	1.7	1.7	1.7	1.7
18.400	1.7	1.7	1.7	1.7	1.6	1.6	1.6
19.100	1.6	1.6	1.6	1.6	1.6	1.6	1.6
19.800	1.5	1.5	1.5	1.5	1.5	1.5	1.5
20.500	1.5	1.5	1.5	1.4	1.4	1.4	1.4
21.200	1.4	1.4	1.4	1.4	1.4	1.3	1.3
21.900	1.3	1.3	1.3	1.2	1.2	1.2	1.2
22.600	1.2	1.1	1.1	1.1	1.1	1.1	1.1
23.300	1.0	1.0	0.9	0.9	0.8	0.7	0.7
24.000	0.6	0.6	0.5	0.5	0.4	0.4	0.4
24.700	0.3	0.2	0.1	0.1	0.726E-01	0.419E-01	0.0

Option A West Lot Basin

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Undetained	0.001		0.521		12.16	1.0	823.37

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.800	0.0	0.1	0.3	0.7	0.9	0.5	0.4
12.500	0.3	0.2	0.1	0.1	0.1	0.1	0.1
13.200	0.1	0.938E-01	0.859E-01	0.781E-01	0.703E-01	0.624E-01	0.546E-01
13.900	0.467E-01	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.021		1.968		12.72	5.8	281.88

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
7.900	0.0	0.1	0.1	0.1	0.1	0.1	0.2
8.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
9.300	0.3	0.3	0.3	0.4	0.4	0.4	0.4
10.000	0.4	0.4	0.4	0.5	0.5	0.5	0.5
10.700	0.5	0.6	0.6	0.7	0.8	0.8	0.9
11.400	1.0	1.1	1.1	1.1	1.2	1.4	1.7
12.100	2.2	2.6	2.5	3.1	4.8	5.6	5.8
12.800	5.8	5.6	5.3	5.0	4.7	4.4	4.1
13.500	3.8	3.6	3.3	3.0	2.8	2.5	2.3
14.200	2.2	2.0	2.0	2.0	2.0	2.0	2.0
14.900	2.0	2.0	2.0	2.0	2.0	2.0	2.0
15.600	1.9	1.9	1.9	1.9	1.9	1.9	1.9
16.300	1.9	1.9	1.9	1.9	1.8	1.8	1.8
17.000	1.8	1.8	1.8	1.8	1.8	1.8	1.8
17.700	1.7	1.7	1.7	1.7	1.7	1.7	1.7
18.400	1.7	1.7	1.7	1.7	1.6	1.6	1.6
19.100	1.6	1.6	1.6	1.6	1.6	1.6	1.6
19.800	1.5	1.5	1.5	1.5	1.5	1.5	1.5
20.500	1.5	1.5	1.5	1.4	1.4	1.4	1.4
21.200	1.4	1.4	1.4	1.4	1.4	1.3	1.3
21.900	1.3	1.3	1.3	1.2	1.2	1.2	1.2
22.600	1.2	1.1	1.1	1.1	1.1	1.1	1.1
23.300	1.0	1.0	0.9	0.9	0.8	0.7	0.7
24.000	0.6	0.6	0.5	0.5	0.4	0.4	0.4
24.700	0.3	0.2	0.1	0.1	0.0		

STORM 10-Year

Option A West Lot Basin

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Op A Se	0.020		3.104		12.22	45.5	2335.59

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
5.900	0.0	0.1	0.1	0.1	0.1	0.1	0.2
6.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
7.300	0.2	0.3	0.3	0.3	0.3	0.3	0.3
8.000	0.3	0.3	0.4	0.4	0.4	0.4	0.4
8.700	0.4	0.4	0.4	0.5	0.5	0.6	0.7
9.400	0.8	0.8	0.9	0.9	0.9	1.0	1.0
10.100	1.0	1.1	1.1	1.1	1.2	1.3	1.5
10.800	1.9	2.2	2.5	2.8	3.1	3.5	3.8
11.500	4.2	4.7	6.0	8.2	11.5	17.6	30.8
12.200	45.2	38.6	25.6	17.5	12.3	8.8	6.8
12.900	5.8	5.1	4.7	4.3	4.0	3.6	3.3
13.600	2.9	2.4	2.0	1.9	1.8	1.7	1.7
14.300	1.7	1.7	1.6	1.6	1.6	1.6	1.6
15.000	1.5	1.5	1.2	1.1	1.0	0.9	0.9
15.700	0.9	0.9	0.9	0.9	0.9	0.9	0.8
16.400	0.8	0.8	0.8	0.8	0.8	0.8	0.8
17.100	0.8	0.8	0.8	0.7	0.7	0.7	0.7
17.800	0.7	0.7	0.7	0.7	0.7	0.7	0.7
18.500	0.6	0.6	0.6	0.6	0.6	0.6	0.6
19.200	0.6	0.6	0.6	0.6	0.5	0.5	0.5
19.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
20.600	0.5	0.4	0.4	0.4	0.4	0.4	0.4
21.300	0.4	0.4	0.4	0.4	0.4	0.3	0.3
22.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.700	0.3	0.3	0.2	0.2	0.2	0.2	0.2
23.400	0.2	0.2	0.2	0.2	0.2	0.1	0.1
24.100	0.1	0.679E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.020	Upstream	3.103		12.22	45.5	2335.59

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
5.900	0.0	0.1	0.1	0.1	0.1	0.1	0.2
6.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
7.300	0.2	0.3	0.3	0.3	0.3	0.3	0.3
8.000	0.3	0.3	0.4	0.4	0.4	0.4	0.4
8.700	0.4	0.4	0.4	0.5	0.5	0.6	0.7
9.400	0.8	0.8	0.9	0.9	0.9	1.0	1.0
10.100	1.0	1.1	1.1	1.1	1.2	1.3	1.5
10.800	1.9	2.2	2.5	2.8	3.1	3.5	3.8

Option A West Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.500	4.2	4.7	6.0	8.2	11.5	17.6	30.8
12.200	45.2	38.6	25.6	17.5	12.3	8.8	6.8
12.900	5.8	5.1	4.7	4.3	4.0	3.6	3.3
13.600	2.9	2.4	2.0	1.9	1.8	1.7	1.7
14.300	1.7	1.7	1.6	1.6	1.6	1.6	1.6
15.000	1.5	1.5	1.2	1.1	1.0	0.9	0.9
15.700	0.9	0.9	0.9	0.9	0.9	0.9	0.8
16.400	0.8	0.8	0.8	0.8	0.8	0.8	0.8
17.100	0.8	0.8	0.8	0.7	0.7	0.7	0.7
17.800	0.7	0.7	0.7	0.7	0.7	0.7	0.7
18.500	0.6	0.6	0.6	0.6	0.6	0.6	0.6
19.200	0.6	0.6	0.6	0.6	0.5	0.5	0.5
19.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
20.600	0.5	0.4	0.4	0.4	0.4	0.4	0.4
21.300	0.4	0.4	0.4	0.4	0.4	0.3	0.3
22.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.700	0.3	0.3	0.2	0.2	0.2	0.2	0.2
23.400	0.2	0.2	0.2	0.2	0.2	0.1	0.1
24.100	0.1	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.020	Downstream	3.099	722.01	12.56	13.7	702.62

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
6.400	0.0	0.1	0.1	0.1	0.1	0.2	0.2
7.100	0.2	0.2	0.2	0.2	0.2	0.2	0.3
7.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
8.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
9.200	0.4	0.4	0.5	0.5	0.5	0.6	0.6
9.900	0.6	0.7	0.7	0.7	0.7	0.8	0.8
10.600	0.8	0.9	1.0	1.0	1.1	1.1	1.1
11.300	1.2	1.2	1.3	1.3	1.4	1.4	1.5
12.000	1.6	1.8	2.2	8.5	12.1	13.4	13.6
12.700	13.1	12.3	11.4	10.4	9.6	8.8	8.1
13.400	7.4	6.8	6.2	5.7	5.1	4.6	4.2
14.100	3.8	3.5	3.2	3.0	2.8	2.6	2.4
14.800	2.3	2.2	2.1	2.0	2.0	2.0	2.0
15.500	2.0	2.0	2.0	2.0	2.0	2.0	2.0
16.200	2.0	2.0	1.9	1.9	1.9	1.9	1.9
16.900	1.9	1.9	1.9	1.9	1.9	1.9	1.9
17.600	1.8	1.8	1.8	1.8	1.8	1.8	1.8
18.300	1.8	1.8	1.8	1.8	1.8	1.7	1.7
19.000	1.7	1.7	1.7	1.7	1.7	1.7	1.7
19.700	1.7	1.7	1.6	1.6	1.6	1.6	1.6
20.400	1.6	1.6	1.6	1.6	1.6	1.6	1.5
21.100	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Option A West Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
21.800	1.5	1.5	1.5	1.4	1.4	1.4	1.4
22.500	1.4	1.4	1.4	1.4	1.3	1.3	1.3
23.200	1.3	1.3	1.2	1.2	1.2	1.2	1.2
23.900	1.1	1.1	1.1	1.1	1.1	1.0	1.0
24.600	1.0	0.9	0.8	0.7	0.7	0.6	0.6
25.300	0.5	0.5	0.4	0.4	0.3	0.2	0.2
26.000	0.1	0.897E-01	0.588E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Undetained	0.001		1.127		12.16	1.9	1614.75

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.600	0.0	0.1	0.2	0.3	0.6	1.5	1.7
12.300	1.0	0.6	0.5	0.3	0.3	0.2	0.2
13.000	0.2	0.2	0.2	0.2	0.1	0.1	0.1
13.700	0.789E-01	0.516E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.021		2.984		12.56	14.1	680.14

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
6.400	0.0	0.1	0.1	0.1	0.1	0.2	0.2
7.100	0.2	0.2	0.2	0.2	0.2	0.2	0.3
7.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
8.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
9.200	0.4	0.4	0.5	0.5	0.5	0.6	0.6
9.900	0.6	0.7	0.7	0.7	0.7	0.8	0.8
10.600	0.8	0.9	1.0	1.0	1.1	1.1	1.1
11.300	1.2	1.2	1.3	1.3	1.5	1.6	1.8
12.000	2.3	3.3	4.0	9.5	12.7	13.9	14.0
12.700	13.4	12.5	11.6	10.6	9.8	9.0	8.2
13.400	7.6	6.9	6.3	5.7	5.1	4.6	4.2
14.100	3.8	3.5	3.2	3.0	2.8	2.6	2.4
14.800	2.3	2.2	2.1	2.0	2.0	2.0	2.0
15.500	2.0	2.0	2.0	2.0	2.0	2.0	2.0
16.200	2.0	2.0	1.9	1.9	1.9	1.9	1.9
16.900	1.9	1.9	1.9	1.9	1.9	1.9	1.9
17.600	1.8	1.8	1.8	1.8	1.8	1.8	1.8
18.300	1.8	1.8	1.8	1.8	1.8	1.7	1.7
19.000	1.7	1.7	1.7	1.7	1.7	1.7	1.7

Option A West Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
19.700	1.7	1.7	1.6	1.6	1.6	1.6	1.6
20.400	1.6	1.6	1.6	1.6	1.6	1.6	1.5
21.100	1.5	1.5	1.5	1.5	1.5	1.5	1.5
21.800	1.5	1.5	1.5	1.4	1.4	1.4	1.4
22.500	1.4	1.4	1.4	1.4	1.3	1.3	1.3
23.200	1.3	1.3	1.2	1.2	1.2	1.2	1.2
23.900	1.1	1.1	1.1	1.1	1.1	1.0	1.0
24.600	1.0	0.9	0.8	0.7	0.7	0.6	0.6
25.300	0.5	0.5	0.4	0.4	0.3	0.2	0.2
26.000	0.1	0.547E-01	0.0				

STORM 100-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Op A Se	0.020		5.184		12.21	73.9	3792.13

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
4.400	0.0	0.1	0.1	0.1	0.2	0.2	0.2
5.100	0.2	0.2	0.2	0.3	0.3	0.3	0.3
5.800	0.3	0.3	0.4	0.4	0.4	0.4	0.4
6.500	0.5	0.5	0.5	0.5	0.5	0.6	0.6
7.200	0.6	0.6	0.6	0.7	0.7	0.7	0.7
7.900	0.7	0.8	0.8	0.8	0.8	0.9	0.9
8.600	0.9	0.9	0.9	1.0	1.0	1.1	1.3
9.300	1.5	1.6	1.7	1.8	1.8	1.9	1.9
10.000	2.0	2.0	2.1	2.1	2.2	2.2	2.4
10.700	2.9	3.5	4.0	4.6	5.1	5.6	6.2
11.400	6.7	7.3	8.2	10.4	14.0	19.5	29.3
12.100	50.7	73.4	62.2	41.1	27.9	19.6	14.0
12.800	10.8	9.2	8.2	7.5	6.9	6.3	5.7
13.500	5.2	4.5	3.7	3.2	2.9	2.8	2.7
14.200	2.7	2.7	2.6	2.6	2.6	2.5	2.5
14.900	2.5	2.4	2.3	1.9	1.7	1.5	1.5
15.600	1.4	1.4	1.4	1.4	1.4	1.4	1.3
16.300	1.3	1.3	1.3	1.3	1.3	1.3	1.2
17.000	1.2	1.2	1.2	1.2	1.2	1.2	1.1
17.700	1.1	1.1	1.1	1.1	1.1	1.1	1.0
18.400	1.0	1.0	1.0	1.0	1.0	1.0	0.9
19.100	0.9	0.9	0.9	0.9	0.9	0.9	0.8
19.800	0.8	0.8	0.8	0.8	0.8	0.8	0.7
20.500	0.7	0.7	0.7	0.7	0.7	0.7	0.6
21.200	0.6	0.6	0.6	0.6	0.6	0.6	0.5
21.900	0.5	0.5	0.5	0.5	0.5	0.5	0.4
22.600	0.4	0.4	0.4	0.4	0.4	0.4	0.3
23.300	0.3	0.3	0.3	0.3	0.3	0.3	0.2
24.000	0.2	0.2	0.1	0.0			

Option A West Lot Basin

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.020	Upstream	5.184		12.21	73.9	3792.13

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
4.400	0.0	0.1	0.1	0.1	0.2	0.2	0.2
5.100	0.2	0.2	0.2	0.3	0.3	0.3	0.3
5.800	0.3	0.3	0.4	0.4	0.4	0.4	0.4
6.500	0.5	0.5	0.5	0.5	0.5	0.6	0.6
7.200	0.6	0.6	0.6	0.7	0.7	0.7	0.7
7.900	0.7	0.8	0.8	0.8	0.8	0.9	0.9
8.600	0.9	0.9	0.9	1.0	1.0	1.1	1.3
9.300	1.5	1.6	1.7	1.8	1.8	1.9	1.9
10.000	2.0	2.0	2.1	2.1	2.2	2.2	2.4
10.700	2.9	3.5	4.0	4.6	5.1	5.6	6.2
11.400	6.7	7.3	8.2	10.4	14.0	19.5	29.3
12.100	50.7	73.4	62.2	41.1	27.9	19.6	14.0
12.800	10.8	9.2	8.2	7.5	6.9	6.3	5.7
13.500	5.2	4.5	3.7	3.2	2.9	2.8	2.7
14.200	2.7	2.7	2.6	2.6	2.6	2.5	2.5
14.900	2.5	2.4	2.3	1.9	1.7	1.5	1.5
15.600	1.4	1.4	1.4	1.4	1.4	1.4	1.3
16.300	1.3	1.3	1.3	1.3	1.3	1.3	1.2
17.000	1.2	1.2	1.2	1.2	1.2	1.2	1.1
17.700	1.1	1.1	1.1	1.1	1.1	1.1	1.0
18.400	1.0	1.0	1.0	1.0	1.0	1.0	0.9
19.100	0.9	0.9	0.9	0.9	0.9	0.9	0.8
19.800	0.8	0.8	0.8	0.8	0.8	0.8	0.7
20.500	0.7	0.7	0.7	0.7	0.7	0.7	0.6
21.200	0.6	0.6	0.6	0.6	0.6	0.6	0.5
21.900	0.5	0.5	0.5	0.5	0.5	0.5	0.4
22.600	0.4	0.4	0.4	0.4	0.4	0.4	0.3
23.300	0.3	0.3	0.3	0.3	0.3	0.3	0.2
24.000	0.2	0.2	0.1	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.020	Downstream	5.180	722.99	12.45	33.2	1702.20

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
4.800	0.0	0.1	0.1	0.1	0.2	0.2	0.2
5.500	0.2	0.2	0.3	0.3	0.3	0.3	0.3
6.200	0.3	0.4	0.4	0.4	0.4	0.4	0.4
6.900	0.4	0.4	0.4	0.5	0.5	0.5	0.5
7.600	0.5	0.5	0.5	0.6	0.6	0.6	0.6
8.300	0.6	0.6	0.7	0.7	0.7	0.7	0.7

Option A West Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
9.000	0.8	0.8	0.8	0.9	0.9	1.0	1.0
9.700	1.0	1.1	1.1	1.1	1.1	1.1	1.1
10.400	1.2	1.2	1.2	1.2	1.3	1.3	1.4
11.100	1.4	1.4	1.5	1.5	1.6	1.6	1.7
11.800	1.8	1.9	2.0	7.4	17.1	28.0	32.7
12.500	32.9	30.9	27.9	24.7	21.6	18.9	16.6
13.200	14.7	13.1	12.0	11.0	10.1	9.2	8.3
13.900	7.5	6.8	6.2	5.6	5.2	4.8	4.4
14.600	4.2	3.9	3.7	3.5	3.3	3.2	3.0
15.300	2.8	2.6	2.5	2.3	2.2	2.1	2.0
16.000	2.0	2.0	2.0	2.0	2.0	2.0	2.0
16.700	2.0	2.0	2.0	2.0	2.0	2.0	2.0
17.400	2.0	2.0	2.0	1.9	1.9	1.9	1.9
18.100	1.9	1.9	1.9	1.9	1.9	1.9	1.9
18.800	1.9	1.9	1.9	1.9	1.8	1.8	1.8
19.500	1.8	1.8	1.8	1.8	1.8	1.8	1.8
20.200	1.8	1.8	1.8	1.8	1.7	1.7	1.7
20.900	1.7	1.7	1.7	1.7	1.7	1.7	1.7
21.600	1.7	1.7	1.6	1.6	1.6	1.6	1.6
22.300	1.6	1.6	1.6	1.6	1.6	1.6	1.5
23.000	1.5	1.5	1.5	1.5	1.5	1.5	1.5
23.700	1.5	1.5	1.4	1.4	1.4	1.4	1.4
24.400	1.4	1.4	1.3	1.3	1.3	1.3	1.2
25.100	1.2	1.2	1.2	1.2	1.1	1.1	1.1
25.800	1.1	1.0	1.0	1.0	0.9	0.8	0.7
26.500	0.7	0.6	0.6	0.5	0.5	0.4	0.4
27.200	0.3	0.2	0.2	0.1	0.937E-01	0.630E-01	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Undetained	0.001		2.732		12.15	4.0	3361.52

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.000	0.0	0.1	0.1	0.1	0.2	0.2	0.2
11.700	0.4	0.5	0.8	1.6	3.2	3.5	1.9
12.400	1.3	0.9	0.6	0.5	0.4	0.4	0.4
13.100	0.3	0.3	0.3	0.3	0.2	0.2	0.2
13.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
14.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
15.200	0.762E-01	0.454E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.021		5.038		12.44	34.2	1653.90

Option A West Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
4.800	0.0	0.1	0.1	0.1	0.2	0.2	0.2
5.500	0.2	0.2	0.3	0.3	0.3	0.3	0.3
6.200	0.3	0.4	0.4	0.4	0.4	0.4	0.4
6.900	0.4	0.4	0.4	0.5	0.5	0.5	0.5
7.600	0.5	0.5	0.5	0.6	0.6	0.6	0.6
8.300	0.6	0.6	0.7	0.7	0.7	0.7	0.7
9.000	0.8	0.8	0.8	0.9	0.9	1.0	1.0
9.700	1.0	1.1	1.1	1.1	1.1	1.1	1.1
10.400	1.2	1.2	1.2	1.2	1.3	1.3	1.4
11.100	1.5	1.6	1.6	1.7	1.8	1.9	2.0
11.800	2.3	2.7	3.6	10.6	20.6	29.9	33.9
12.500	33.8	31.6	28.4	25.1	22.0	19.3	17.0
13.200	15.0	13.4	12.3	11.3	10.3	9.3	8.4
13.900	7.6	6.9	6.3	5.8	5.3	4.9	4.6
14.600	4.3	4.0	3.8	3.6	3.5	3.3	3.0
15.300	2.8	2.6	2.5	2.3	2.2	2.1	2.0
16.000	2.0	2.0	2.0	2.0	2.0	2.0	2.0
16.700	2.0	2.0	2.0	2.0	2.0	2.0	2.0
17.400	2.0	2.0	2.0	1.9	1.9	1.9	1.9
18.100	1.9	1.9	1.9	1.9	1.9	1.9	1.9
18.800	1.9	1.9	1.9	1.9	1.8	1.8	1.8
19.500	1.8	1.8	1.8	1.8	1.8	1.8	1.8
20.200	1.8	1.8	1.8	1.8	1.7	1.7	1.7
20.900	1.7	1.7	1.7	1.7	1.7	1.7	1.7
21.600	1.7	1.7	1.6	1.6	1.6	1.6	1.6
22.300	1.6	1.6	1.6	1.6	1.6	1.6	1.5
23.000	1.5	1.5	1.5	1.5	1.5	1.5	1.5
23.700	1.5	1.5	1.4	1.4	1.4	1.4	1.4
24.400	1.4	1.4	1.3	1.3	1.3	1.3	1.2
25.100	1.2	1.2	1.2	1.2	1.1	1.1	1.1
25.800	1.1	1.0	1.0	1.0	0.9	0.8	0.7
26.500	0.7	0.6	0.6	0.5	0.5	0.4	0.4
27.200	0.3	0.2	0.2	0.1	0.0		

Option A West Lot Basin

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)	(cfs)
Op A Se	0.020	26.7	30.9	45.5	73.9	
Undetained	0.001	0.7	1.0	1.9	4.0	
Restrictor	0.020	26.7	30.9	45.5	73.9	
DOWNSTREAM		3.4	5.7	13.7	33.2	
OUTLET	0.021	3.5	5.8	14.1	34.2	

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WinTR-20 Printed Page File      Beginning of Input Data List
C:\Work\Hard Rock Casino Option A NE
Pond.inp

WinTR-20: version 3.20                  0         0         .1        0
Option A NE Lot Basin

SUB-AREA:
          Op A Se   Restrictor           0.00598   87.06     0.33
          Undetained Outlet              0.00318   75.14     0.17


STREAM REACH:
          Restrictor Outlet              Restrictor


STORM ANALYSIS:
          1-Year                         2.39      MSE3      2
          2-Year                         2.70      MSE3      2
          10-Year                        3.77      MSE3      2
          100-Year                       5.88      MSE3      2


STRUCTURE RATING:
          Restrictor 710.
                    710.      0.00      0.00
                    711.      5.25      0.20
                    712.      8.08      0.45
                    713.      11.29     0.78



RAINFALL DISTRIBUTION:
          MSE3                0.1
                    0.        0.000267  0.000555  0.000861  0.00119
                    0.00153   0.0019    0.00229   0.00269   0.00312
                    0.00356   0.00403   0.00451   0.00501   0.00554
                    0.00608   0.00665   0.00723   0.00783   0.00845
                    0.0091    0.00976   0.01044   0.01114   0.01186
                    0.0126    0.01336   0.01414   0.01494   0.01576
                    0.0166    0.01746   0.01834   0.01924   0.02016
                    0.02109   0.02205   0.02303   0.02403   0.02504
                    0.02608   0.02714   0.02821   0.02931   0.03042
                    0.03156   0.03271   0.03389   0.03508   0.0363
                    0.03753   0.03878   0.04006   0.04135   0.04266
                    0.04399   0.04535   0.04672   0.04811   0.04952
                    0.05095   0.0524    0.05387   0.05536   0.05687
                    0.0584    0.05995   0.06152   0.063111  0.06472
                    0.06635   0.06799   0.06966   0.07135   0.07306
                    0.07478   0.07653   0.0783    0.08008   0.08189
                    0.08371   0.08556   0.08742   0.08931   0.09121
                    0.09314   0.09508   0.09704   0.09903   0.10103
                    0.10305   0.10628   0.10956   0.11289   0.11626
                    0.11967   0.12314   0.12664   0.1302    0.1338
                    0.13744   0.14113   0.14487   0.14866   0.15248
                    0.15636   0.16212   0.16863   0.17591   0.18394
                    0.19272   0.20226   0.21256   0.22362   0.23543
                    0.248     0.2663    0.29062   0.32445   0.37245
                    0.46289   0.62755   0.67555   0.70938   0.7337
                    0.752     0.76457   0.77638   0.78744   0.79774
                    0.80728   0.81606   0.82409   0.83137   0.83788
                    0.84364   0.84752   0.85134   0.85513   0.85887
                    0.86256   0.8662    0.8698    0.87336   0.87686
                    0.88033   0.88374   0.88711   0.89044   0.89372
                    0.89695   0.89897   0.90097   0.90296   0.90492
                    0.90686   0.90879   0.91069   0.91258   0.91444
                    0.91629   0.91811   0.91992   0.9217    0.92347
                    0.92522   0.92694   0.92865   0.93034   0.93201
                    0.93365   0.93528   0.93689   0.93848   0.94005
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0.9416    0.94313   0.94464   0.94613   0.9476
0.94905   0.95048   0.95189   0.95328   0.95465
0.95601   0.95734   0.95865   0.95994   0.96122
0.96247   0.9637    0.96492   0.96611   0.96729
0.96844   0.96958   0.97069   0.97179   0.97286
0.97392   0.97496   0.97597   0.97697   0.97795
0.97891   0.97984   0.98076   0.98166   0.98254
0.9834    0.98424   0.98506   0.98586   0.98664
0.9874    0.98814   0.98886   0.98956   0.99024
0.9909    0.99155   0.99217   0.99277   0.99335
0.99392   0.99446   0.99499   0.99549   0.99597
0.99644   0.99688   0.99731   0.99771   0.9981
0.99847   0.99881   0.999139  0.999445  0.999733
1.
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GLOBAL OUTPUT:
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WinTR-20 Printed Page File      End of Input Data List
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Option A NE Lot Basin

Name of printed page file:
C:\Work\Hard Rock Casino Option A NE Pond.out

STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Op A Se	0.006		1.131		12.24	5.4	908.38

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.000	0.0	0.1	0.1	0.2	0.2	0.2	0.3
11.700	0.4	0.6	0.9	1.5	3.0	5.1	5.2
12.400	3.9	2.8	2.0	1.5	1.1	0.9	0.8
13.100	0.8	0.7	0.6	0.6	0.5	0.5	0.4
13.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
14.500	0.3	0.3	0.3	0.3	0.2	0.2	0.2
15.200	0.2	0.2	0.2	0.2	0.1	0.1	0.1
15.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.700	0.1	0.1	0.990E-01	0.975E-01	0.959E-01	0.944E-01	0.929E-01
19.400	0.914E-01	0.899E-01	0.884E-01	0.869E-01	0.854E-01	0.838E-01	0.823E-01
20.100	0.808E-01	0.793E-01	0.778E-01	0.763E-01	0.748E-01	0.733E-01	0.717E-01
20.800	0.702E-01	0.687E-01	0.672E-01	0.657E-01	0.642E-01	0.627E-01	0.612E-01
21.500	0.597E-01	0.581E-01	0.566E-01	0.551E-01	0.536E-01	0.521E-01	0.506E-01
22.200	0.491E-01	0.476E-01	0.460E-01	0.445E-01	0.430E-01	0.415E-01	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.006	Upstream	1.130		12.24	5.4	908.38

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.000	0.0	0.1	0.1	0.2	0.2	0.2	0.3
11.700	0.4	0.6	0.9	1.5	3.0	5.1	5.2
12.400	3.9	2.8	2.0	1.5	1.1	0.9	0.8
13.100	0.8	0.7	0.6	0.6	0.5	0.5	0.4
13.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
14.500	0.3	0.3	0.3	0.3	0.2	0.2	0.2
15.200	0.2	0.2	0.2	0.2	0.1	0.1	0.1
15.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.700	0.1	0.1	0.0				

Option A NE Lot Basin

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.006	Downstream	1.113	710.53	12.49	2.8	468.46

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.400	0.0	0.1	0.1	0.2	0.2	0.3	0.5
12.100	0.8	1.5	2.2	2.7	2.8	2.7	2.5
12.800	2.3	2.0	1.8	1.6	1.4	1.3	1.2
13.500	1.0	0.9	0.8	0.7	0.7	0.6	0.5
14.200	0.5	0.4	0.4	0.4	0.4	0.3	0.3
14.900	0.3	0.3	0.3	0.3	0.3	0.2	0.2
15.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.300	0.2	0.2	0.1	0.1	0.1	0.1	0.1
17.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.400	0.1	0.1	0.1	0.1	0.1	0.927E-01	0.706E-01
19.100	0.485E-01	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Undetained	0.003		0.394		12.17	1.8	557.07

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.800	0.0	0.1	0.4	1.2	1.6	1.0	0.7
12.500	0.5	0.4	0.3	0.3	0.2	0.2	0.2
13.200	0.2	0.2	0.2	0.2	0.1	0.1	0.912E-01
13.900	0.808E-01	0.704E-01	0.599E-01	0.495E-01	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.009		0.863		12.41	3.4	369.28

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.400	0.0	0.1	0.1	0.2	0.2	0.4	0.9
12.100	2.1	3.1	3.2	3.4	3.3	3.1	2.8
12.800	2.5	2.3	2.0	1.8	1.6	1.5	1.3
13.500	1.2	1.1	0.9	0.7	0.7	0.6	0.5
14.200	0.5	0.4	0.4	0.4	0.4	0.3	0.3
14.900	0.3	0.3	0.3	0.3	0.3	0.2	0.2
15.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.300	0.2	0.2	0.1	0.1	0.1	0.1	0.1

Option A NE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
17.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.400	0.1	0.1	0.1	0.1	0.1	0.0	

STORM 2-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Op A Se	0.006		1.402		12.24	6.6	1102.44

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.800	0.0	0.1	0.1	0.2	0.2	0.3	0.3
11.500	0.3	0.4	0.6	0.8	1.2	2.0	3.7
12.200	6.2	6.3	4.7	3.3	2.4	1.8	1.3
12.900	1.1	1.0	0.9	0.8	0.7	0.7	0.6
13.600	0.5	0.5	0.4	0.4	0.3	0.3	0.3
14.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
15.000	0.3	0.3	0.2	0.2	0.2	0.2	0.2
15.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.400	0.2	0.2	0.2	0.2	0.2	0.1	0.1
17.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.900	0.986E-01	0.969E-01	0.952E-01	0.935E-01	0.917E-01	0.900E-01	0.883E-01
20.600	0.866E-01	0.848E-01	0.831E-01	0.814E-01	0.797E-01	0.779E-01	0.762E-01
21.300	0.745E-01	0.728E-01	0.710E-01	0.693E-01	0.676E-01	0.659E-01	0.642E-01
22.000	0.624E-01	0.607E-01	0.590E-01	0.573E-01	0.555E-01	0.538E-01	0.521E-01
22.700	0.504E-01	0.486E-01	0.469E-01	0.452E-01	0.435E-01	0.417E-01	0.400E-01
23.400	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.006	Upstream	1.401		12.24	6.6	1102.44

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.800	0.0	0.1	0.1	0.2	0.2	0.3	0.3
11.500	0.3	0.4	0.6	0.8	1.2	2.0	3.7
12.200	6.2	6.3	4.7	3.3	2.4	1.8	1.3
12.900	1.1	1.0	0.9	0.8	0.7	0.7	0.6
13.600	0.5	0.5	0.4	0.4	0.3	0.3	0.3
14.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3

Option A NE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
15.000	0.3	0.3	0.2	0.2	0.2	0.2	0.2
15.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.400	0.2	0.2	0.2	0.2	0.2	0.1	0.1
17.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.900	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.006	Downstream	1.385	710.65	12.49	3.4	571.70

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.200	0.0	0.1	0.1	0.2	0.2	0.3	0.3
11.900	0.5	0.7	1.1	1.9	2.8	3.3	3.4
12.600	3.3	3.1	2.8	2.5	2.2	1.9	1.7
13.300	1.5	1.4	1.2	1.1	1.0	0.9	0.8
14.000	0.7	0.6	0.6	0.5	0.5	0.4	0.4
14.700	0.4	0.4	0.4	0.3	0.3	0.3	0.3
15.400	0.3	0.3	0.2	0.2	0.2	0.2	0.2
16.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.800	0.2	0.2	0.2	0.2	0.2	0.2	0.1
17.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.600	0.1	0.1	0.1	0.893E-01	0.679E-01	0.465E-01	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Undetained	0.003		0.604		12.16	2.4	755.09

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.800	0.116E-01	0.2	0.6	1.7	2.2	1.3	0.9
12.500	0.7	0.5	0.4	0.3	0.3	0.3	0.3
13.200	0.3	0.2	0.2	0.2	0.2	0.1	0.1
13.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
14.600	0.1	0.1	0.1	0.1	0.1	0.917E-01	0.741E-01
15.300	0.565E-01	0.0					

Option A NE Lot Basin

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.009		1.113		12.40	4.2	457.08

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.200	0.0	0.1	0.1	0.2	0.2	0.3	0.4
11.900	0.7	1.3	2.8	4.1	4.1	4.2	4.1
12.600	3.8	3.4	3.1	2.8	2.5	2.2	2.0
13.300	1.8	1.6	1.4	1.3	1.1	1.0	0.9
14.000	0.8	0.7	0.7	0.6	0.6	0.6	0.5
14.700	0.5	0.5	0.5	0.4	0.3	0.3	0.3
15.400	0.3	0.3	0.2	0.2	0.2	0.2	0.2
16.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.800	0.2	0.2	0.2	0.2	0.2	0.2	0.1
17.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.600	0.1	0.1	0.1	0.0			

STORM 10-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Op A Se	0.006		2.371		12.25	10.7	1795.76

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
9.800	0.0	0.1	0.1	0.1	0.1	0.1	0.1
10.500	0.1	0.2	0.2	0.3	0.3	0.4	0.4
11.200	0.5	0.6	0.6	0.7	0.8	1.1	1.5
11.900	2.2	3.5	6.4	10.2	10.1	7.4	5.2
12.600	3.7	2.7	2.1	1.7	1.5	1.3	1.2
13.300	1.1	1.0	0.9	0.8	0.7	0.6	0.5
14.000	0.5	0.5	0.5	0.5	0.5	0.5	0.5
14.700	0.4	0.4	0.4	0.4	0.4	0.4	0.3
15.400	0.3	0.3	0.3	0.3	0.3	0.2	0.2
16.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.600	0.2	0.2	0.1	0.1	0.1	0.1	0.1
20.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.700	0.1	0.980E-01	0.954E-01	0.928E-01	0.901E-01	0.875E-01	0.848E-01
22.400	0.822E-01	0.796E-01	0.769E-01	0.743E-01	0.717E-01	0.690E-01	0.664E-01
23.100	0.637E-01	0.611E-01	0.585E-01	0.558E-01	0.532E-01	0.506E-01	0.479E-01

Option A NE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
23.800	0.453E-01	0.426E-01	0.400E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.006	Upstream	2.370		12.25	10.7	1795.76

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
9.800	0.0	0.1	0.1	0.1	0.1	0.1	0.1
10.500	0.1	0.2	0.2	0.3	0.3	0.4	0.4
11.200	0.5	0.6	0.6	0.7	0.8	1.1	1.5
11.900	2.2	3.5	6.4	10.2	10.1	7.4	5.2
12.600	3.7	2.7	2.1	1.7	1.5	1.3	1.2
13.300	1.1	1.0	0.9	0.8	0.7	0.6	0.5
14.000	0.5	0.5	0.5	0.5	0.5	0.5	0.5
14.700	0.4	0.4	0.4	0.4	0.4	0.4	0.3
15.400	0.3	0.3	0.3	0.3	0.3	0.2	0.2
16.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.600	0.2	0.2	0.1	0.1	0.1	0.1	0.1
20.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.700	0.1	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.006	Downstream	2.350	711.06	12.48	5.4	908.26

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.500	0.0	0.1	0.1	0.1	0.2	0.2	0.2
11.200	0.3	0.3	0.4	0.4	0.5	0.6	0.7
11.900	1.0	1.3	2.0	3.3	4.7	5.4	5.4
12.600	5.3	5.0	4.5	4.0	3.5	3.1	2.8
13.300	2.5	2.2	2.0	1.7	1.6	1.4	1.2
14.000	1.1	1.0	0.9	0.8	0.7	0.7	0.6
14.700	0.6	0.6	0.5	0.5	0.5	0.5	0.5
15.400	0.4	0.4	0.4	0.3	0.3	0.3	0.3
16.100	0.3	0.3	0.3	0.3	0.3	0.3	0.2
16.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Option A NE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
18.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.700	0.1	0.955E-01	0.743E-01	0.530E-01	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Undetained	0.003		1.268		12.16	4.8	1520.54

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.400	0.0	0.1	0.2	0.3	0.4	0.8	1.6
12.100	3.7	4.3	2.5	1.6	1.2	0.9	0.7
12.800	0.6	0.6	0.5	0.5	0.4	0.4	0.4
13.500	0.3	0.3	0.2	0.2	0.2	0.2	0.2
14.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
14.900	0.2	0.2	0.2	0.1	0.1	0.1	0.1
15.600	0.1	0.1	0.1	0.1	0.1	0.1	0.994E-01
16.300	0.984E-01	0.973E-01	0.963E-01	0.952E-01	0.942E-01	0.931E-01	0.921E-01
17.000	0.910E-01	0.899E-01	0.889E-01	0.878E-01	0.868E-01	0.857E-01	0.847E-01
17.700	0.836E-01	0.826E-01	0.815E-01	0.805E-01	0.794E-01	0.783E-01	0.773E-01
18.400	0.762E-01	0.752E-01	0.741E-01	0.731E-01	0.720E-01	0.710E-01	0.699E-01
19.100	0.688E-01	0.678E-01	0.667E-01	0.657E-01	0.646E-01	0.636E-01	0.625E-01
19.800	0.615E-01	0.604E-01	0.593E-01	0.583E-01	0.572E-01	0.562E-01	0.551E-01
20.500	0.541E-01	0.530E-01	0.520E-01	0.509E-01	0.499E-01	0.488E-01	0.477E-01
21.200	0.467E-01	0.456E-01	0.446E-01	0.435E-01	0.425E-01	0.414E-01	0.404E-01
21.900	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.009		1.974		12.18	7.7	836.19

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.500	0.0	0.1	0.1	0.1	0.2	0.2	0.2
11.200	0.3	0.3	0.4	0.6	0.7	0.9	1.2
11.900	1.7	2.9	5.7	7.6	7.2	7.0	6.6
12.600	6.2	5.7	5.1	4.5	4.0	3.6	3.2
13.300	2.9	2.6	2.3	2.0	1.8	1.6	1.4
14.000	1.3	1.2	1.1	1.0	0.9	0.9	0.8
14.700	0.8	0.8	0.7	0.7	0.7	0.6	0.6
15.400	0.5	0.5	0.5	0.5	0.4	0.4	0.4

Option A NE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
16.100	0.4	0.3	0.3	0.3	0.3	0.3	0.2
16.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.700	0.1	0.0					

STORM 100-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Op A Se	0.006		4.362		12.25	19.1	3195.15

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.400	0.0	0.1	0.1	0.1	0.1	0.1	0.1
9.100	0.1	0.2	0.2	0.2	0.3	0.3	0.3
9.800	0.3	0.3	0.3	0.3	0.4	0.4	0.4
10.500	0.4	0.4	0.5	0.6	0.8	0.9	1.0
11.200	1.2	1.3	1.4	1.6	1.8	2.3	3.1
11.900	4.4	6.7	11.8	18.3	17.8	12.9	9.0
12.600	6.4	4.6	3.5	2.9	2.5	2.3	2.1
13.300	1.9	1.7	1.6	1.4	1.2	1.0	0.9
14.000	0.8	0.8	0.8	0.8	0.8	0.8	0.8
14.700	0.7	0.7	0.7	0.7	0.7	0.6	0.5
15.400	0.5	0.4	0.4	0.4	0.4	0.4	0.4
16.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
16.800	0.4	0.4	0.4	0.4	0.4	0.4	0.3
17.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.200	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
19.600	0.3	0.3	0.2	0.2	0.2	0.2	0.2
20.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.700	0.2	0.2	0.2	0.2	0.1	0.1	0.1
22.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
23.100	0.1	0.1	0.968E-01	0.926E-01	0.884E-01	0.841E-01	0.799E-01
23.800	0.756E-01	0.714E-01	0.672E-01	0.629E-01	0.587E-01	0.545E-01	0.502E-01
24.500	0.460E-01	0.418E-01	0.0				

Option A NE Lot Basin

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.006	Upstream	4.361		12.25	19.1	3195.15

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
8.400	0.0	0.1	0.1	0.1	0.1	0.1	0.1
9.100	0.1	0.2	0.2	0.2	0.3	0.3	0.3
9.800	0.3	0.3	0.3	0.3	0.4	0.4	0.4
10.500	0.4	0.4	0.5	0.6	0.8	0.9	1.0
11.200	1.2	1.3	1.4	1.6	1.8	2.3	3.1
11.900	4.4	6.7	11.8	18.3	17.8	12.9	9.0
12.600	6.4	4.6	3.5	2.9	2.5	2.3	2.1
13.300	1.9	1.7	1.6	1.4	1.2	1.0	0.9
14.000	0.8	0.8	0.8	0.8	0.8	0.8	0.8
14.700	0.7	0.7	0.7	0.7	0.7	0.6	0.5
15.400	0.5	0.4	0.4	0.4	0.4	0.4	0.4
16.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
16.800	0.4	0.4	0.4	0.4	0.4	0.4	0.3
17.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.200	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
19.600	0.3	0.3	0.2	0.2	0.2	0.2	0.2
20.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.700	0.2	0.2	0.2	0.2	0.1	0.1	0.1
22.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
23.100	0.1	0.1	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.006	Downstream	4.339	711.93	12.54	7.9	1319.47

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
9.100	0.0	0.1	0.1	0.1	0.2	0.2	0.2
9.800	0.2	0.2	0.3	0.3	0.3	0.3	0.3
10.500	0.3	0.4	0.4	0.4	0.5	0.5	0.6
11.200	0.7	0.8	0.9	1.0	1.2	1.3	1.6
11.900	2.0	2.7	3.9	5.7	6.8	7.6	7.9
12.600	7.8	7.6	7.3	6.9	6.6	6.2	5.8
13.300	5.5	5.0	4.4	3.8	3.3	2.9	2.5
14.000	2.2	1.9	1.7	1.5	1.4	1.3	1.2
14.700	1.1	1.0	1.0	0.9	0.9	0.8	0.8
15.400	0.7	0.7	0.6	0.6	0.6	0.5	0.5
16.100	0.5	0.5	0.5	0.4	0.4	0.4	0.4
16.800	0.4	0.4	0.4	0.4	0.4	0.4	0.4
17.500	0.4	0.4	0.4	0.4	0.3	0.3	0.3

Option A NE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
18.200	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
19.600	0.3	0.3	0.3	0.3	0.3	0.3	0.2
20.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.400	0.2	0.2	0.1	0.1	0.1	0.1	0.1
23.100	0.1	0.1	0.1	0.790E-01	0.573E-01	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Undetained	0.003		3.060		12.16	10.3	3242.93

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.600	0.0	0.1	0.1	0.2	0.2	0.2	0.3
11.300	0.3	0.4	0.5	0.6	0.9	1.3	2.1
12.000	3.9	8.2	9.1	5.0	3.2	2.3	1.6
12.700	1.3	1.1	1.0	1.0	0.9	0.8	0.8
13.400	0.7	0.6	0.5	0.4	0.4	0.4	0.4
14.100	0.4	0.4	0.4	0.4	0.3	0.3	0.3
14.800	0.3	0.3	0.3	0.3	0.2	0.2	0.2
15.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.600	0.2	0.2	0.2	0.2	0.1	0.1	0.1
18.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.400	0.1	0.995E-01	0.975E-01	0.954E-01	0.934E-01	0.914E-01	0.893E-01
21.100	0.873E-01	0.853E-01	0.832E-01	0.812E-01	0.792E-01	0.771E-01	0.751E-01
21.800	0.731E-01	0.710E-01	0.690E-01	0.670E-01	0.649E-01	0.629E-01	0.609E-01
22.500	0.588E-01	0.568E-01	0.548E-01	0.527E-01	0.507E-01	0.487E-01	0.466E-01
23.200	0.446E-01	0.426E-01	0.405E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.009		3.894		12.17	15.5	1692.61

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
9.100	0.0	0.1	0.1	0.1	0.2	0.2	0.2
9.800	0.2	0.2	0.3	0.3	0.3	0.3	0.3
10.500	0.3	0.4	0.5	0.6	0.6	0.7	0.9

Option A NE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.200	1.0	1.2	1.3	1.5	1.8	2.2	2.9
11.900	4.1	6.6	12.2	14.7	11.8	10.8	10.2
12.600	9.5	8.9	8.4	8.0	7.5	7.1	6.7
13.300	6.2	5.7	5.0	4.3	3.7	3.3	2.9
14.000	2.5	2.3	2.1	1.9	1.7	1.6	1.5
14.700	1.4	1.3	1.3	1.2	1.1	1.0	1.0
15.400	0.9	0.9	0.8	0.8	0.7	0.7	0.7
16.100	0.7	0.6	0.6	0.6	0.6	0.6	0.6
16.800	0.6	0.6	0.6	0.6	0.5	0.5	0.5
17.500	0.5	0.5	0.5	0.5	0.5	0.5	0.5
18.200	0.5	0.5	0.5	0.5	0.5	0.4	0.4
18.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19.600	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.300	0.3	0.3	0.2	0.2	0.2	0.2	0.2
21.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.400	0.2	0.2	0.1	0.1	0.1	0.1	0.1
23.100	0.1	0.1	0.655E-01	0.0			

Option A NE Lot Basin

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)	(cfs)
Op A Se	0.006	5.4	6.6	10.7	19.1	
Undetained	0.003	1.8	2.4	4.8	10.3	
Restrictor	0.006	5.4	6.6	10.7	19.1	
DOWNSTREAM		2.8	3.4	5.4	7.9	
OUTLET	0.009	3.4	4.2	7.7	15.5	

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WinTR-20 Printed Page File      Beginning of Input Data List
C:\Work\Hard Rock Casino Option A SE
Pond.inp

WinTR-20: version 3.20                  0         0         .1        0
Option A SE Lot Basin

SUB-AREA:
          Op A Se   Restrictor           0.00869   95.26     0.28
          UndetainedOutlet               0.007236  74.56     0.17


STREAM REACH:
          RestrictorOutlet               Restrictor


STORM ANALYSIS:
          1-Year                         2.39      MSE3      2
          2-Year                         2.70      MSE3      2
          10-Year                        3.77      MSE3      2
          100-Year                       5.88      MSE3      2


STRUCTURE RATING:
          Restrictor715.0
                    715.      0.00      0.00
                    716.      0.51      0.04
                    717.      1.43      0.10
                    718.      2.62      0.19
                    719.      4.04      0.31
                    720.      5.65      0.50
                    721.      7.42      0.78
                    722.      9.35      1.17
                    723.      11.43     1.64



RAINFALL DISTRIBUTION:
          MSE3                0.1
                    0.        0.000267  0.000555  0.000861  0.00119
                    0.00153   0.0019    0.00229   0.00269   0.00312
                    0.00356   0.00403   0.00451   0.00501   0.00554
                    0.00608   0.00665   0.00723   0.00783   0.00845
                    0.0091    0.00976   0.01044   0.01114   0.01186
                    0.0126    0.01336   0.01414   0.01494   0.01576
                    0.0166    0.01746   0.01834   0.01924   0.02016
                    0.02109   0.02205   0.02303   0.02403   0.02504
                    0.02608   0.02714   0.02821   0.02931   0.03042
                    0.03156   0.03271   0.03389   0.03508   0.0363
                    0.03753   0.03878   0.04006   0.04135   0.04266
                    0.04399   0.04535   0.04672   0.04811   0.04952
                    0.05095   0.0524    0.05387   0.05536   0.05687
                    0.0584    0.05995   0.06152   0.063111  0.06472
                    0.06635   0.06799   0.06966   0.07135   0.07306
                    0.07478   0.07653   0.0783    0.08008   0.08189
                    0.08371   0.08556   0.08742   0.08931   0.09121
                    0.09314   0.09508   0.09704   0.09903   0.10103
                    0.10305   0.10628   0.10956   0.11289   0.11626
                    0.11967   0.12314   0.12664   0.1302    0.1338
                    0.13744   0.14113   0.14487   0.14866   0.15248
                    0.15636   0.16212   0.16863   0.17591   0.18394
                    0.19272   0.20226   0.21256   0.22362   0.23543
                    0.248     0.2663    0.29062   0.32445   0.37245
                    0.46289   0.62755   0.67555   0.70938   0.7337
                    0.752     0.76457   0.77638   0.78744   0.79774
                    0.80728   0.81606   0.82409   0.83137   0.83788
                    0.84364   0.84752   0.85134   0.85513   0.85887
                    0.86256   0.8662    0.8698    0.87336   0.87686
                    0.88033   0.88374   0.88711   0.89044   0.89372
```

0.89695	0.89897	0.90097	0.90296	0.90492
0.90686	0.90879	0.91069	0.91258	0.91444
0.91629	0.91811	0.91992	0.9217	0.92347
0.92522	0.92694	0.92865	0.93034	0.93201
0.93365	0.93528	0.93689	0.93848	0.94005
0.9416	0.94313	0.94464	0.94613	0.9476
0.94905	0.95048	0.95189	0.95328	0.95465
0.95601	0.95734	0.95865	0.95994	0.96122
0.96247	0.9637	0.96492	0.96611	0.96729
0.96844	0.96958	0.97069	0.97179	0.97286
0.97392	0.97496	0.97597	0.97697	0.97795
0.97891	0.97984	0.98076	0.98166	0.98254
0.9834	0.98424	0.98506	0.98586	0.98664
0.9874	0.98814	0.98886	0.98956	0.99024
0.9909	0.99155	0.99217	0.99277	0.99335
0.99392	0.99446	0.99499	0.99549	0.99597
0.99644	0.99688	0.99731	0.99771	0.9981
0.99847	0.99881	0.999139	0.999445	0.999733
1.				

GLOBAL OUTPUT:

1	.04	0.10	YY Y	YY Y

WinTR-20 Printed Page File End of Input Data List

Option A SE Lot Basin

Name of printed page file:
C:\Work\Hard Rock Casino Option A SE Pond.out

STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Op A Se	0.009		1.823		12.22	12.6	1455.33

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
8.900	0.0	0.1	0.1	0.1	0.2	0.2	0.2
9.600	0.2	0.2	0.2	0.2	0.2	0.3	0.3
10.300	0.3	0.3	0.3	0.3	0.4	0.5	0.6
11.000	0.6	0.7	0.8	0.9	1.0	1.1	1.2
11.700	1.6	2.2	3.1	4.8	8.6	12.6	10.5
12.400	6.9	4.7	3.3	2.4	1.8	1.6	1.4
13.100	1.3	1.2	1.1	1.0	0.9	0.8	0.6
13.800	0.6	0.5	0.5	0.5	0.5	0.5	0.5
14.500	0.5	0.4	0.4	0.4	0.4	0.4	0.4
15.200	0.3	0.3	0.3	0.3	0.3	0.3	0.2
15.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.400	0.2	0.2	0.2	0.1	0.1	0.1	0.1
20.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.500	0.1	0.1	0.977E-01	0.951E-01	0.925E-01	0.899E-01	0.873E-01

22.200	0.847E-01	0.821E-01	0.795E-01	0.769E-01	0.743E-01	0.717E-01	0.691E-01
22.900	0.665E-01	0.639E-01	0.613E-01	0.587E-01	0.561E-01	0.535E-01	0.509E-01
23.600	0.483E-01	0.457E-01	0.431E-01	0.405E-01	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.009	Upstream	1.823		12.22	12.6	1455.33

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.900	0.0	0.1	0.1	0.1	0.2	0.2	0.2
9.600	0.2	0.2	0.2	0.2	0.2	0.3	0.3
10.300	0.3	0.3	0.3	0.3	0.4	0.5	0.6
11.000	0.6	0.7	0.8	0.9	1.0	1.1	1.2
11.700	1.6	2.2	3.1	4.8	8.6	12.6	10.5
12.400	6.9	4.7	3.3	2.4	1.8	1.6	1.4
13.100	1.3	1.2	1.1	1.0	0.9	0.8	0.6
13.800	0.6	0.5	0.5	0.5	0.5	0.5	0.5

Option A SE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
14.500	0.5	0.4	0.4	0.4	0.4	0.4	0.4
15.200	0.3	0.3	0.3	0.3	0.3	0.3	0.2
15.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.400	0.2	0.2	0.2	0.1	0.1	0.1	0.1
20.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.500	0.1	0.1	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.009	Downstream	1.799	719.11	12.52	4.2	485.71

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
9.700	0.0	0.1	0.1	0.1	0.1	0.2	0.2
10.400	0.2	0.2	0.2	0.2	0.2	0.3	0.3
11.100	0.3	0.4	0.4	0.5	0.5	0.6	0.7
11.800	0.8	1.1	1.4	1.9	2.8	3.7	4.1
12.500	4.2	4.2	4.1	3.9	3.7	3.5	3.3
13.200	3.1	2.9	2.8	2.6	2.4	2.2	2.1
13.900	1.9	1.8	1.6	1.5	1.4	1.3	1.2
14.600	1.1	1.0	1.0	0.9	0.8	0.8	0.7
15.300	0.7	0.6	0.6	0.6	0.5	0.5	0.5
16.000	0.4	0.4	0.4	0.4	0.4	0.4	0.3
16.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
17.400	0.3	0.3	0.3	0.3	0.2	0.2	0.2
18.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.200	0.2	0.2	0.2	0.2	0.2	0.1	0.1
20.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.600	0.1	0.1	0.1	0.923E-01	0.818E-01	0.713E-01	0.608E-01
22.300	0.503E-01	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Undetained	0.007		0.476		12.16	3.8	528.93

Option A SE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.800	0.0	0.2	0.8	2.6	3.6	2.2	1.5
12.500	1.1	0.8	0.7	0.6	0.6	0.5	0.5
13.200	0.5	0.4	0.4	0.3	0.3	0.2	0.2
13.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
14.600	0.2	0.2	0.2	0.2	0.2	0.2	0.1
15.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16.700	0.1	0.998E-01	0.989E-01	0.980E-01	0.970E-01	0.961E-01	0.952E-01
17.400	0.943E-01	0.933E-01	0.924E-01	0.915E-01	0.906E-01	0.896E-01	0.887E-01
18.100	0.878E-01	0.869E-01	0.859E-01	0.850E-01	0.841E-01	0.832E-01	0.822E-01
18.800	0.813E-01	0.804E-01	0.795E-01	0.785E-01	0.776E-01	0.767E-01	0.758E-01
19.500	0.748E-01	0.739E-01	0.730E-01	0.721E-01	0.711E-01	0.702E-01	0.693E-01
20.200	0.684E-01	0.674E-01	0.665E-01	0.656E-01	0.646E-01	0.637E-01	0.628E-01
20.900	0.619E-01	0.609E-01	0.600E-01	0.591E-01	0.582E-01	0.572E-01	0.563E-01
21.600	0.554E-01	0.545E-01	0.535E-01	0.526E-01	0.517E-01	0.508E-01	0.498E-01
22.300	0.489E-01	0.480E-01	0.471E-01	0.461E-01	0.452E-01	0.443E-01	0.434E-01
23.000	0.424E-01	0.415E-01	0.406E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.016		1.197		12.18	6.5	405.11

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
9.700	0.0	0.1	0.1	0.1	0.1	0.2	0.2
10.400	0.2	0.2	0.2	0.2	0.2	0.3	0.3
11.100	0.3	0.4	0.4	0.5	0.5	0.6	0.7
11.800	0.8	1.3	2.2	4.5	6.4	5.9	5.6
12.500	5.3	5.0	4.8	4.5	4.3	4.0	3.8
13.200	3.6	3.4	3.1	2.9	2.7	2.5	2.3
13.900	2.1	2.0	1.8	1.7	1.6	1.5	1.4
14.600	1.3	1.2	1.1	1.1	1.0	0.9	0.9
15.300	0.8	0.8	0.7	0.7	0.6	0.6	0.6
16.000	0.6	0.5	0.5	0.5	0.5	0.5	0.4
16.700	0.4	0.3	0.3	0.3	0.3	0.3	0.3
17.400	0.3	0.3	0.3	0.3	0.2	0.2	0.2
18.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.200	0.2	0.2	0.2	0.2	0.2	0.1	0.1
20.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.600	0.1	0.1	0.1	0.0			

STORM 2-Year

Option A SE Lot Basin

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Op A Se	0.009		2.132		12.21	14.6	1677.65

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.100	0.0	0.1	0.1	0.1	0.1	0.1	0.1
8.800	0.1	0.1	0.1	0.1	0.2	0.2	0.2
9.500	0.2	0.3	0.3	0.3	0.3	0.3	0.3
10.200	0.3	0.3	0.3	0.4	0.4	0.5	0.6
10.900	0.7	0.8	0.9	1.0	1.1	1.2	1.3
11.600	1.5	1.9	2.6	3.7	5.6	10.0	14.5
12.300	12.0	7.9	5.3	3.7	2.7	2.1	1.8
13.000	1.6	1.5	1.4	1.2	1.1	1.0	0.9
13.700	0.7	0.6	0.6	0.6	0.5	0.5	0.5
14.400	0.5	0.5	0.5	0.5	0.5	0.5	0.5
15.100	0.5	0.4	0.3	0.3	0.3	0.3	0.3
15.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
16.500	0.3	0.3	0.3	0.3	0.3	0.2	0.2
17.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.000	0.2	0.2	0.2	0.2	0.1	0.1	0.1
20.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
22.100	0.995E-01	0.970E-01	0.944E-01	0.919E-01	0.893E-01	0.868E-01	0.842E-01
22.800	0.817E-01	0.791E-01	0.766E-01	0.740E-01	0.715E-01	0.689E-01	0.664E-01
23.500	0.638E-01	0.613E-01	0.587E-01	0.562E-01	0.536E-01	0.511E-01	0.485E-01
24.200	0.460E-01	0.434E-01	0.409E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.009	Upstream	2.131		12.21	14.6	1677.65

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.100	0.0	0.1	0.1	0.1	0.1	0.1	0.1
8.800	0.1	0.1	0.1	0.1	0.2	0.2	0.2
9.500	0.2	0.3	0.3	0.3	0.3	0.3	0.3
10.200	0.3	0.3	0.3	0.4	0.4	0.5	0.6
10.900	0.7	0.8	0.9	1.0	1.1	1.2	1.3
11.600	1.5	1.9	2.6	3.7	5.6	10.0	14.5
12.300	12.0	7.9	5.3	3.7	2.7	2.1	1.8
13.000	1.6	1.5	1.4	1.2	1.1	1.0	0.9
13.700	0.7	0.6	0.6	0.6	0.5	0.5	0.5
14.400	0.5	0.5	0.5	0.5	0.5	0.5	0.5
15.100	0.5	0.4	0.3	0.3	0.3	0.3	0.3

Option A SE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
15.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
16.500	0.3	0.3	0.3	0.3	0.3	0.2	0.2
17.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.000	0.2	0.2	0.2	0.2	0.1	0.1	0.1
20.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
22.100	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.009	Downstream	2.105	719.41	12.53	4.7	540.08

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
9.300	0.0	0.1	0.1	0.1	0.1	0.2	0.2
10.000	0.2	0.2	0.2	0.2	0.2	0.2	0.3
10.700	0.3	0.3	0.3	0.4	0.4	0.5	0.5
11.400	0.6	0.7	0.8	0.9	1.0	1.3	1.6
12.100	2.2	3.3	4.2	4.6	4.7	4.7	4.6
12.800	4.4	4.3	4.1	3.9	3.6	3.4	3.2
13.500	3.0	2.8	2.6	2.4	2.2	2.1	1.9
14.200	1.8	1.6	1.5	1.4	1.3	1.2	1.1
14.900	1.1	1.0	0.9	0.9	0.8	0.7	0.7
15.600	0.6	0.6	0.6	0.5	0.5	0.5	0.5
16.300	0.4	0.4	0.4	0.4	0.4	0.4	0.4
17.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3
17.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.400	0.3	0.2	0.2	0.2	0.2	0.2	0.2
19.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.200	0.2	0.2	0.1	0.1	0.1	0.1	0.1
21.900	0.1	0.1	0.1	0.1	0.1	0.918E-01	0.812E-01
22.600	0.707E-01	0.601E-01	0.496E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Undetained	0.007		0.677		12.17	5.2	721.02

Option A SE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.700	0.0	0.2	0.5	1.3	3.7	4.8	2.9
12.400	2.0	1.4	1.1	0.8	0.7	0.7	0.7
13.100	0.6	0.6	0.5	0.5	0.4	0.4	0.3
13.800	0.3	0.3	0.3	0.3	0.3	0.2	0.2
14.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
15.200	0.2	0.1	0.1	0.1	0.1	0.1	0.1
15.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
17.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18.700	0.983E-01	0.966E-01	0.949E-01	0.931E-01	0.914E-01	0.897E-01	0.879E-01
19.400	0.862E-01	0.845E-01	0.828E-01	0.810E-01	0.793E-01	0.776E-01	0.759E-01
20.100	0.741E-01	0.724E-01	0.707E-01	0.690E-01	0.672E-01	0.655E-01	0.638E-01
20.800	0.621E-01	0.603E-01	0.586E-01	0.569E-01	0.552E-01	0.534E-01	0.517E-01
21.500	0.500E-01	0.483E-01	0.465E-01	0.448E-01	0.431E-01	0.414E-01	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.016		1.456		12.18	8.2	513.36

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
9.300	0.0	0.1	0.1	0.1	0.1	0.2	0.2
10.000	0.2	0.2	0.2	0.2	0.2	0.2	0.3
10.700	0.3	0.3	0.3	0.4	0.4	0.5	0.5
11.400	0.6	0.7	0.8	0.9	1.2	1.7	2.9
12.100	6.0	8.1	7.1	6.5	6.1	5.7	5.4
12.800	5.2	4.9	4.7	4.5	4.2	3.9	3.7
13.500	3.4	3.2	2.9	2.7	2.5	2.3	2.2
14.200	2.0	1.9	1.8	1.7	1.6	1.5	1.4
14.900	1.3	1.2	1.1	1.0	1.0	0.9	0.8
15.600	0.8	0.7	0.7	0.7	0.6	0.6	0.6
16.300	0.6	0.6	0.5	0.5	0.5	0.5	0.5
17.000	0.5	0.5	0.4	0.4	0.4	0.4	0.4
17.700	0.4	0.4	0.4	0.4	0.4	0.4	0.4
18.400	0.4	0.3	0.3	0.2	0.2	0.2	0.2
19.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.200	0.2	0.2	0.1	0.1	0.1	0.1	0.1
21.900	0.1	0.1	0.1	0.1	0.1	0.0	

STORM 10-Year

Option A SE Lot Basin

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Op A Se	0.009		3.199		12.22	21.1	2425.37

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
6.400	0.0	0.1	0.1	0.1	0.1	0.1	0.1
7.100	0.1	0.1	0.1	0.2	0.2	0.2	0.2
7.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
8.500	0.2	0.2	0.2	0.2	0.2	0.2	0.3
9.200	0.3	0.4	0.4	0.4	0.5	0.5	0.5
9.900	0.5	0.5	0.5	0.5	0.6	0.6	0.6
10.600	0.6	0.8	0.9	1.1	1.2	1.4	1.5
11.300	1.7	1.8	2.0	2.3	2.9	3.9	5.5
12.000	8.4	14.7	21.1	17.3	11.3	7.6	5.4
12.700	3.8	3.0	2.6	2.3	2.1	1.9	1.8
13.400	1.6	1.5	1.3	1.0	0.9	0.8	0.8
14.100	0.8	0.8	0.8	0.7	0.7	0.7	0.7
14.800	0.7	0.7	0.7	0.7	0.5	0.5	0.4
15.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
16.200	0.4	0.4	0.4	0.4	0.4	0.4	0.4
16.900	0.4	0.3	0.3	0.3	0.3	0.3	0.3
17.600	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
19.000	0.3	0.3	0.3	0.3	0.3	0.2	0.2
19.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.800	0.2	0.1	0.1	0.1	0.1	0.1	0.1
22.500	0.1	0.1	0.1	0.1	0.1	0.1	0.997E-01
23.200	0.958E-01	0.920E-01	0.881E-01	0.843E-01	0.804E-01	0.766E-01	0.727E-01
23.900	0.689E-01	0.650E-01	0.612E-01	0.573E-01	0.535E-01	0.496E-01	0.458E-01
24.600	0.419E-01	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.009	Upstream	3.198		12.22	21.1	2425.37

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
6.400	0.0	0.1	0.1	0.1	0.1	0.1	0.1
7.100	0.1	0.1	0.1	0.2	0.2	0.2	0.2
7.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
8.500	0.2	0.2	0.2	0.2	0.2	0.2	0.3
9.200	0.3	0.4	0.4	0.4	0.5	0.5	0.5
9.900	0.5	0.5	0.5	0.5	0.6	0.6	0.6
10.600	0.6	0.8	0.9	1.1	1.2	1.4	1.5
11.300	1.7	1.8	2.0	2.3	2.9	3.9	5.5

Option A SE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.000	8.4	14.7	21.1	17.3	11.3	7.6	5.4
12.700	3.8	3.0	2.6	2.3	2.1	1.9	1.8
13.400	1.6	1.5	1.3	1.0	0.9	0.8	0.8
14.100	0.8	0.8	0.8	0.7	0.7	0.7	0.7
14.800	0.7	0.7	0.7	0.7	0.5	0.5	0.4
15.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
16.200	0.4	0.4	0.4	0.4	0.4	0.4	0.4
16.900	0.4	0.3	0.3	0.3	0.3	0.3	0.3
17.600	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
19.000	0.3	0.3	0.3	0.3	0.3	0.2	0.2
19.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.800	0.2	0.1	0.1	0.1	0.1	0.1	0.1
22.500	0.1	0.1	0.1	0.1	0.1	0.1	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.009	Downstream	3.170	720.30	12.55	6.2	712.18

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
7.600	0.0	0.1	0.1	0.1	0.1	0.1	0.1
8.300	0.1	0.1	0.2	0.2	0.2	0.2	0.2
9.000	0.2	0.2	0.2	0.2	0.2	0.3	0.3
9.700	0.3	0.3	0.3	0.4	0.4	0.4	0.4
10.400	0.4	0.4	0.5	0.5	0.5	0.6	0.6
11.100	0.7	0.8	0.9	1.0	1.1	1.2	1.4
11.800	1.6	1.9	2.4	3.3	4.5	5.5	6.0
12.500	6.2	6.2	6.1	6.0	5.8	5.6	5.4
13.200	5.2	4.9	4.7	4.5	4.3	4.1	3.8
13.900	3.5	3.3	3.0	2.8	2.6	2.4	2.3
14.600	2.1	2.0	1.8	1.7	1.6	1.5	1.4
15.300	1.3	1.2	1.1	1.0	1.0	0.9	0.8
16.000	0.8	0.7	0.7	0.7	0.6	0.6	0.6
16.700	0.5	0.5	0.5	0.5	0.5	0.5	0.4
17.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
18.100	0.4	0.4	0.4	0.4	0.3	0.3	0.3
18.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
19.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
20.200	0.3	0.3	0.3	0.2	0.2	0.2	0.2
20.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.300	0.2	0.2	0.2	0.2	0.2	0.2	0.1
23.000	0.1	0.1	0.1	0.1	0.1	0.895E-01	0.790E-01
23.700	0.685E-01	0.580E-01	0.475E-01	0.0			

Option A SE Lot Basin

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Undetained	0.007		1.426		12.16	10.7	1479.42

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.200	0.0	0.1	0.2	0.2	0.3	0.6	0.9
11.900	1.6	3.4	8.1	9.6	5.5	3.6	2.6
12.600	1.9	1.5	1.3	1.2	1.2	1.1	1.0
13.300	0.9	0.8	0.7	0.6	0.5	0.5	0.4
14.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
14.700	0.4	0.4	0.4	0.4	0.3	0.3	0.2
15.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
16.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18.900	0.2	0.2	0.2	0.2	0.2	0.1	0.1
19.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21.000	0.1	0.1	0.1	0.1	0.1	0.985E-01	0.961E-01
21.700	0.937E-01	0.913E-01	0.889E-01	0.865E-01	0.841E-01	0.816E-01	0.792E-01
22.400	0.768E-01	0.744E-01	0.720E-01	0.696E-01	0.672E-01	0.648E-01	0.624E-01
23.100	0.600E-01	0.576E-01	0.552E-01	0.528E-01	0.503E-01	0.479E-01	0.455E-01
23.800	0.431E-01	0.407E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.016		2.377		12.16	14.8	928.06

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
7.600	0.0	0.1	0.1	0.1	0.1	0.1	0.1
8.300	0.1	0.1	0.2	0.2	0.2	0.2	0.2
9.000	0.2	0.2	0.2	0.2	0.2	0.3	0.3
9.700	0.3	0.3	0.3	0.4	0.4	0.4	0.4
10.400	0.4	0.4	0.5	0.5	0.5	0.6	0.6
11.100	0.7	0.8	1.0	1.2	1.3	1.6	1.9
11.800	2.5	3.6	5.8	11.4	14.1	11.1	9.6
12.500	8.8	8.1	7.6	7.3	7.0	6.8	6.5
13.200	6.1	5.8	5.5	5.2	4.9	4.6	4.3
13.900	4.0	3.7	3.5	3.3	3.1	2.9	2.7
14.600	2.5	2.4	2.2	2.1	2.0	1.9	1.7
15.300	1.6	1.4	1.4	1.3	1.2	1.1	1.1
16.000	1.0	1.0	0.9	0.9	0.8	0.8	0.8
16.700	0.8	0.7	0.7	0.7	0.7	0.7	0.6
17.400	0.6	0.6	0.6	0.6	0.6	0.6	0.6
18.100	0.6	0.5	0.5	0.5	0.5	0.5	0.5

Option A SE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
18.800	0.5	0.5	0.5	0.5	0.5	0.5	0.4
19.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.200	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.900	0.3	0.3	0.3	0.3	0.3	0.3	0.2
21.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.300	0.2	0.2	0.2	0.2	0.2	0.2	0.1
23.000	0.1	0.1	0.1	0.1	0.677E-01	0.0	

STORM 100-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Op A Se	0.009		5.307		12.22	33.8	3888.51

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
4.600	0.0	0.1	0.1	0.1	0.1	0.1	0.1
5.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
6.000	0.2	0.2	0.2	0.2	0.2	0.3	0.3
6.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
7.400	0.3	0.4	0.4	0.4	0.4	0.4	0.4
8.100	0.4	0.4	0.4	0.4	0.4	0.5	0.5
8.800	0.5	0.5	0.5	0.5	0.7	0.8	0.8
9.500	0.8	0.9	0.9	0.9	0.9	1.0	1.0
10.200	1.0	1.0	1.0	1.1	1.1	1.4	1.7
10.900	1.9	2.2	2.4	2.7	2.9	3.2	3.4
11.600	3.8	4.9	6.6	9.1	13.7	23.7	33.8
12.300	27.6	18.0	12.1	8.5	6.1	4.7	4.0
13.000	3.6	3.3	3.0	2.8	2.5	2.3	2.0
13.700	1.6	1.4	1.3	1.3	1.2	1.2	1.2
14.400	1.2	1.2	1.1	1.1	1.1	1.1	1.1
15.100	1.0	0.9	0.7	0.7	0.7	0.6	0.6
15.800	0.6	0.6	0.6	0.6	0.6	0.6	0.6
16.500	0.6	0.6	0.6	0.6	0.6	0.6	0.5
17.200	0.5	0.5	0.5	0.5	0.5	0.5	0.5
17.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
18.600	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19.300	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.000	0.4	0.4	0.3	0.3	0.3	0.3	0.3
20.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.400	0.3	0.3	0.3	0.2	0.2	0.2	0.2
22.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.800	0.2	0.2	0.2	0.2	0.2	0.1	0.1
23.500	0.1	0.1	0.1	0.1	0.1	0.986E-01	0.923E-01
24.200	0.859E-01	0.795E-01	0.732E-01	0.668E-01	0.605E-01	0.541E-01	0.478E-01
24.900	0.414E-01	0.0					

Option A SE Lot Basin

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.009	Upstream	5.306		12.22	33.8	3888.51

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
4.600	0.0	0.1	0.1	0.1	0.1	0.1	0.1
5.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
6.000	0.2	0.2	0.2	0.2	0.2	0.3	0.3
6.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
7.400	0.3	0.4	0.4	0.4	0.4	0.4	0.4
8.100	0.4	0.4	0.4	0.4	0.4	0.5	0.5
8.800	0.5	0.5	0.5	0.5	0.7	0.8	0.8
9.500	0.8	0.9	0.9	0.9	0.9	1.0	1.0
10.200	1.0	1.0	1.0	1.1	1.1	1.4	1.7
10.900	1.9	2.2	2.4	2.7	2.9	3.2	3.4
11.600	3.8	4.9	6.6	9.1	13.7	23.7	33.8
12.300	27.6	18.0	12.1	8.5	6.1	4.7	4.0
13.000	3.6	3.3	3.0	2.8	2.5	2.3	2.0
13.700	1.6	1.4	1.3	1.3	1.2	1.2	1.2
14.400	1.2	1.2	1.1	1.1	1.1	1.1	1.1
15.100	1.0	0.9	0.7	0.7	0.7	0.6	0.6
15.800	0.6	0.6	0.6	0.6	0.6	0.6	0.6
16.500	0.6	0.6	0.6	0.6	0.6	0.6	0.5
17.200	0.5	0.5	0.5	0.5	0.5	0.5	0.5
17.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
18.600	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19.300	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.000	0.4	0.4	0.3	0.3	0.3	0.3	0.3
20.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.400	0.3	0.3	0.3	0.2	0.2	0.2	0.2
22.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.800	0.2	0.2	0.2	0.2	0.2	0.1	0.1
23.500	0.1	0.1	0.1	0.1	0.1	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.009	Downstream	5.281	721.57	12.60	8.5	979.93

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
5.600	0.0	0.544E-01	0.1	0.1	0.1	0.1	0.1
6.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
7.000	0.2	0.2	0.2	0.2	0.3	0.3	0.3
7.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
8.400	0.3	0.4	0.4	0.4	0.4	0.4	0.4
9.100	0.4	0.4	0.5	0.5	0.5	0.6	0.6
9.800	0.6	0.7	0.7	0.7	0.8	0.8	0.8

Option A SE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.500	0.9	0.9	0.9	1.0	1.1	1.2	1.3
11.200	1.5	1.6	1.8	1.9	2.1	2.3	2.7
11.900	3.1	3.9	4.9	6.3	7.6	8.2	8.4
12.600	8.5	8.5	8.3	8.2	8.0	7.8	7.6
13.300	7.4	7.2	7.0	6.7	6.5	6.2	6.0
14.000	5.7	5.5	5.2	4.9	4.6	4.4	4.2
14.700	4.0	3.7	3.5	3.2	3.0	2.8	2.6
15.400	2.5	2.3	2.1	1.9	1.8	1.7	1.6
16.100	1.5	1.4	1.3	1.2	1.1	1.1	1.0
16.800	1.0	0.9	0.9	0.8	0.8	0.8	0.7
17.500	0.7	0.7	0.7	0.6	0.6	0.6	0.6
18.200	0.6	0.6	0.6	0.5	0.5	0.5	0.5
18.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
19.600	0.5	0.4	0.4	0.4	0.4	0.4	0.4
20.300	0.4	0.4	0.4	0.4	0.4	0.4	0.4
21.000	0.4	0.3	0.3	0.3	0.3	0.3	0.3
21.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.400	0.3	0.3	0.3	0.2	0.2	0.2	0.2
23.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.800	0.2	0.2	0.2	0.1	0.1	0.1	0.1
24.500	0.934E-01	0.829E-01	0.725E-01	0.620E-01	0.516E-01	0.411E-01	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Undetained	0.007		3.114		12.15	23.1	3188.26

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.300	0.0	0.1	0.1	0.2	0.2	0.3	0.4
11.000	0.4	0.5	0.6	0.7	0.9	1.0	1.3
11.700	2.0	3.0	4.6	8.7	18.4	20.3	11.2
12.400	7.2	5.1	3.7	2.8	2.5	2.4	2.2
13.100	2.0	1.9	1.7	1.6	1.4	1.2	0.9
13.800	0.9	0.8	0.8	0.8	0.8	0.8	0.8
14.500	0.8	0.8	0.8	0.8	0.7	0.7	0.6
15.200	0.5	0.5	0.4	0.4	0.4	0.4	0.4
15.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
16.600	0.4	0.4	0.4	0.4	0.4	0.4	0.4
17.300	0.4	0.4	0.4	0.4	0.3	0.3	0.3
18.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3
18.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
19.400	0.3	0.3	0.3	0.3	0.3	0.3	0.2
20.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
22.900	0.1	0.1	0.1	0.1	0.978E-01	0.928E-01	0.877E-01
23.600	0.827E-01	0.777E-01	0.727E-01	0.677E-01	0.627E-01	0.577E-01	0.527E-01

Option A SE Lot Basin

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
24.300	0.477E-01	0.427E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.016		4.296		12.16	28.8	1810.42

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
5.700	0.0	0.1	0.1	0.1	0.1	0.1	0.2
6.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
7.100	0.2	0.2	0.2	0.3	0.3	0.3	0.3
7.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
8.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
9.200	0.4	0.5	0.5	0.5	0.6	0.6	0.6
9.900	0.7	0.7	0.7	0.8	0.8	0.9	1.0
10.600	1.0	1.1	1.3	1.4	1.6	1.9	2.1
11.300	2.3	2.6	2.9	3.4	4.3	5.6	7.8
12.000	12.6	23.3	26.7	18.8	15.4	13.6	12.2
12.700	11.3	10.9	10.5	10.2	9.9	9.5	9.2
13.400	8.8	8.4	7.9	7.4	7.1	6.8	6.6
14.100	6.3	6.0	5.7	5.4	5.2	5.0	4.7
14.800	4.5	4.2	4.0	3.7	3.3	3.1	2.9
15.500	2.7	2.5	2.4	2.2	2.1	2.0	1.9
16.200	1.8	1.7	1.6	1.5	1.5	1.4	1.3
16.900	1.3	1.2	1.2	1.2	1.1	1.1	1.1
17.600	1.0	1.0	1.0	1.0	0.9	0.9	0.9
18.300	0.9	0.9	0.9	0.8	0.8	0.8	0.8
19.000	0.8	0.8	0.8	0.8	0.7	0.7	0.7
19.700	0.7	0.7	0.7	0.7	0.7	0.6	0.6
20.400	0.6	0.6	0.6	0.6	0.6	0.6	0.6
21.100	0.5	0.5	0.5	0.5	0.5	0.5	0.5
21.800	0.5	0.5	0.4	0.4	0.4	0.4	0.4
22.500	0.4	0.4	0.4	0.4	0.3	0.3	0.3
23.200	0.3	0.2	0.2	0.2	0.2	0.2	0.2
23.900	0.2	0.2	0.1	0.1	0.1	0.1	0.898E-01
24.600	0.745E-01	0.592E-01	0.438E-01	0.0			

Option A SE Lot Basin

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)	(cfs)
Op A Se	0.009	12.6	14.6	21.1	33.8	
Undetained	0.007	3.8	5.2	10.7	23.1	
Restrictor	0.009	12.6	14.6	21.1	33.8	
DOWNSTREAM		4.2	4.7	6.2	8.5	
OUTLET	0.016	6.5	8.2	14.8	28.8	

Figure 43 – Alternative B Stormwater TR-20 Models

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WinTR-20 Printed Page File      Beginning of Input Data List
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WinTR-20: version 3.10                  0         0         .1        0
North Parking Lot

SUB-AREA:
          Option B NRestrictor          0.034678  94.26     0.5


STREAM REACH:
          RestrictorOutlet              Restrictor


STORM ANALYSIS:
          1-Year                        2.39      MSE3      2
          2-Year                        2.70      MSE3      2
          10-Year                       3.77      MSE3      2
          100-Year                      5.88      MSE3      2


STRUCTURE RATING:
          Restrictor713.
                    713.      0.        0.
                    714.      1.01      1.09
                    715.      2.86      2.19
                    716.      5.85      3.28
                    717.      8.08      4.38
                    718.      11.29     5.47
                    718.5     18.       6.02


RAINFALL DISTRIBUTION:
          MSE3              0.1
                    0.        0.000267  0.000555  0.000861  0.00119
                    0.00153   0.0019    0.00229   0.00269   0.00312
                    0.00356   0.00403   0.00451   0.00501   0.00554
                    0.00608   0.00665   0.00723   0.00783   0.00845
                    0.0091    0.00976   0.01044   0.01114   0.01186
                    0.0126    0.01336   0.01414   0.01494   0.01576
                    0.0166    0.01746   0.01834   0.01924   0.02016
                    0.02109   0.02205   0.02303   0.02403   0.02504
                    0.02608   0.02714   0.02821   0.02931   0.03042
                    0.03156   0.03271   0.03389   0.03508   0.0363
                    0.03753   0.03878   0.04006   0.04135   0.04266
                    0.04399   0.04535   0.04672   0.04811   0.04952
                    0.05095   0.0524    0.05387   0.05536   0.05687
                    0.0584    0.05995   0.06152   0.063111  0.06472
                    0.06635   0.06799   0.06966   0.07135   0.07306
                    0.07478   0.07653   0.0783    0.08008   0.08189
                    0.08371   0.08556   0.08742   0.08931   0.09121
                    0.09314   0.09508   0.09704   0.09903   0.10103
                    0.10305   0.10628   0.10956   0.11289   0.11626
                    0.11967   0.12314   0.12664   0.1302    0.1338
                    0.13744   0.14113   0.14487   0.14866   0.15248
                    0.15636   0.16212   0.16863   0.17591   0.18394
                    0.19272   0.20226   0.21256   0.22362   0.23543
                    0.248     0.2663    0.29062   0.32445   0.37245
                    0.46289   0.62755   0.67555   0.70938   0.7337
                    0.752     0.76457   0.77638   0.78744   0.79774
                    0.80728   0.81606   0.82409   0.83137   0.83788
                    0.84364   0.84752   0.85134   0.85513   0.85887
                    0.86256   0.8662    0.8698    0.87336   0.87686
                    0.88033   0.88374   0.88711   0.89044   0.89372
                    0.89695   0.89897   0.90097   0.90296   0.90492
                    0.90686   0.90879   0.91069   0.91258   0.91444
                    0.91629   0.91811   0.91992   0.9217    0.92347
                    0.92522   0.92694   0.92865   0.93034   0.93201
```

0.93365	0.93528	0.93689	0.93848	0.94005
0.9416	0.94313	0.94464	0.94613	0.9476
0.94905	0.95048	0.95189	0.95328	0.95465
0.95601	0.95734	0.95865	0.95994	0.96122
0.96247	0.9637	0.96492	0.96611	0.96729
0.96844	0.96958	0.97069	0.97179	0.97286
0.97392	0.97496	0.97597	0.97697	0.97795
0.97891	0.97984	0.98076	0.98166	0.98254
0.9834	0.98424	0.98506	0.98586	0.98664
0.9874	0.98814	0.98886	0.98956	0.99024
0.9909	0.99155	0.99217	0.99277	0.99335
0.99392	0.99446	0.99499	0.99549	0.99597
0.99644	0.99688	0.99731	0.99771	0.9981
0.99847	0.99881	0.999139	0.999445	0.999733
1.				

GLOBAL OUTPUT:

1	.04	0.10	YY Y	YY Y

WinTR-20 Printed Page File End of Input Data List

North Parking Lot

Name of printed page file:
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STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Option B N	0.035		1.785		12.35	36.1	1040.82

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
7.400	0.316E-01	0.1	0.1	0.1	0.1	0.2	0.2
8.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
8.800	0.3	0.3	0.3	0.3	0.3	0.4	0.5
9.500	0.5	0.6	0.6	0.7	0.7	0.7	0.8
10.200	0.8	0.8	0.9	0.9	1.0	1.1	1.2
10.900	1.5	1.7	2.0	2.3	2.6	2.9	3.3
11.600	3.7	4.4	5.5	7.5	10.8	17.4	27.6
12.300	35.2	35.0	29.4	22.5	17.2	13.1	10.3
13.000	8.3	7.0	6.1	5.4	4.8	4.3	3.9
13.700	3.4	2.9	2.5	2.3	2.1	2.0	1.9
14.400	1.9	1.8	1.8	1.8	1.8	1.7	1.7
15.100	1.7	1.6	1.4	1.3	1.2	1.1	1.1
15.800	1.0	1.0	1.0	1.0	1.0	0.9	0.9
16.500	0.9	0.9	0.9	0.9	0.9	0.9	0.9
17.200	0.9	0.8	0.8	0.8	0.8	0.8	0.8
17.900	0.8	0.8	0.8	0.8	0.7	0.7	0.7
18.600	0.7	0.7	0.7	0.7	0.7	0.7	0.7
19.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
20.000	0.6	0.6	0.6	0.5	0.5	0.5	0.5
20.700	0.5	0.5	0.5	0.5	0.5	0.5	0.4
21.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
22.100	0.4	0.4	0.3	0.3	0.3	0.3	0.3
22.800	0.3	0.3	0.3	0.3	0.3	0.2	0.2

23.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24.200	0.1	0.953E-01	0.578E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.035	Upstream	1.785		12.35	36.1	1040.82

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
7.400	0.316E-01	0.1	0.1	0.1	0.1	0.2	0.2
8.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
8.800	0.3	0.3	0.3	0.3	0.3	0.4	0.5
9.500	0.5	0.6	0.6	0.7	0.7	0.7	0.8
10.200	0.8	0.8	0.9	0.9	1.0	1.1	1.2

North Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.900	1.5	1.7	2.0	2.3	2.6	2.9	3.3
11.600	3.7	4.4	5.5	7.5	10.8	17.4	27.6
12.300	35.2	35.0	29.4	22.5	17.2	13.1	10.3
13.000	8.3	7.0	6.1	5.4	4.8	4.3	3.9
13.700	3.4	2.9	2.5	2.3	2.1	2.0	1.9
14.400	1.9	1.8	1.8	1.8	1.8	1.7	1.7
15.100	1.7	1.6	1.4	1.3	1.2	1.1	1.1
15.800	1.0	1.0	1.0	1.0	1.0	0.9	0.9
16.500	0.9	0.9	0.9	0.9	0.9	0.9	0.9
17.200	0.9	0.8	0.8	0.8	0.8	0.8	0.8
17.900	0.8	0.8	0.8	0.8	0.7	0.7	0.7
18.600	0.7	0.7	0.7	0.7	0.7	0.7	0.7
19.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
20.000	0.6	0.6	0.6	0.5	0.5	0.5	0.5
20.700	0.5	0.5	0.5	0.5	0.5	0.5	0.4
21.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
22.100	0.4	0.4	0.3	0.3	0.3	0.3	0.3
22.800	0.3	0.3	0.3	0.3	0.3	0.2	0.2
23.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24.200	0.1	0.524E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.035	Downstream	1.722	715.06	13.77	3.0	87.72

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.600	0.0	0.822E-01	0.1	0.1	0.1	0.1	0.2
11.300	0.2	0.2	0.2	0.2	0.3	0.3	0.4
12.000	0.4	0.5	0.7	0.9	1.3	1.8	2.1
12.700	2.3	2.5	2.6	2.7	2.8	2.9	2.9
13.400	3.0	3.0	3.0	3.0	3.0	3.0	3.0
14.100	3.0	3.0	3.0	2.9	2.9	2.9	2.9
14.800	2.8	2.8	2.8	2.8	2.8	2.8	2.7
15.500	2.7	2.7	2.7	2.7	2.6	2.6	2.6
16.200	2.6	2.5	2.5	2.5	2.5	2.5	2.4
16.900	2.4	2.4	2.4	2.4	2.3	2.3	2.3
17.600	2.3	2.2	2.2	2.2	2.2	2.2	2.2
18.300	2.1	2.1	2.1	2.1	2.1	2.0	2.0
19.000	2.0	2.0	2.0	1.9	1.9	1.9	1.9
19.700	1.9	1.9	1.8	1.8	1.8	1.8	1.8
20.400	1.8	1.7	1.7	1.7	1.7	1.7	1.7
21.100	1.6	1.6	1.6	1.6	1.6	1.6	1.5
21.800	1.5	1.5	1.5	1.5	1.5	1.4	1.4
22.500	1.4	1.4	1.4	1.4	1.4	1.3	1.3
23.200	1.3	1.3	1.3	1.3	1.3	1.2	1.2
23.900	1.2	1.2	1.2	1.2	1.2	1.1	1.1
24.600	1.1	1.1	1.1	1.1	1.0	1.0	1.0

North Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
25.300	1.0	1.0	1.0	1.0	1.0	1.0	1.0
26.000	1.0	0.9	0.9	0.9	0.9	0.9	0.9
26.700	0.9	0.9	0.9	0.9	0.9	0.9	0.9
27.400	0.9	0.8	0.8	0.8	0.8	0.8	0.8
28.100	0.8	0.8	0.8	0.8	0.8	0.8	0.8
28.800	0.8	0.8	0.8	0.8	0.7	0.7	0.7
29.500	0.7	0.7	0.7	0.7	0.7	0.7	0.7
30.200	0.7	0.7	0.7	0.7	0.7	0.7	0.7
30.900	0.7	0.6	0.6	0.6	0.6	0.6	0.6
31.600	0.6	0.6	0.6	0.6	0.6	0.6	0.6
32.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
33.000	0.6	0.6	0.5	0.5	0.5	0.5	0.5
33.700	0.5	0.5	0.5	0.5	0.5	0.5	0.5
34.400	0.5	0.5	0.5	0.5	0.5	0.5	0.5
35.100	0.5	0.5	0.5	0.5	0.5	0.5	0.5
35.800	0.5	0.4	0.4	0.4	0.4	0.4	0.4
36.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
37.200	0.4	0.4	0.4	0.4	0.4	0.4	0.4
37.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
38.600	0.4	0.4	0.4	0.4	0.4	0.3	0.3
39.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
40.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3
40.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
41.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
42.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
42.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
43.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
46.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.800	0.2	0.2	0.2	0.2	0.1	0.1	0.1
50.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
51.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
51.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
52.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
53.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
54.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
54.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
55.400	0.1	0.996E-01	0.988E-01	0.980E-01	0.973E-01	0.965E-01	0.957E-01
56.100	0.950E-01	0.942E-01	0.934E-01	0.927E-01	0.919E-01	0.911E-01	0.904E-01
56.800	0.896E-01	0.888E-01	0.881E-01	0.873E-01	0.865E-01	0.858E-01	0.850E-01
57.500	0.842E-01	0.835E-01	0.827E-01	0.819E-01	0.812E-01	0.804E-01	0.796E-01
58.200	0.789E-01	0.781E-01	0.773E-01	0.766E-01	0.758E-01	0.750E-01	0.743E-01
58.900	0.735E-01	0.727E-01	0.720E-01	0.712E-01	0.704E-01	0.697E-01	0.689E-01
59.600	0.681E-01	0.674E-01	0.666E-01	0.658E-01	0.651E-01	0.643E-01	0.635E-01
60.300	0.628E-01	0.620E-01	0.613E-01	0.605E-01	0.597E-01	0.590E-01	0.582E-01
61.000	0.574E-01	0.567E-01	0.559E-01	0.551E-01	0.544E-01	0.536E-01	0.528E-01

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
61.700	0.521E-01	0.513E-01	0.505E-01	0.498E-01	0.490E-01	0.482E-01	0.475E-01
62.400	0.467E-01	0.459E-01	0.452E-01	0.444E-01	0.436E-01	0.429E-01	0.421E-01
63.100	0.413E-01	0.406E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.035		1.722		13.77	3.0	87.72

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.600	0.0	0.822E-01	0.1	0.1	0.1	0.1	0.2
11.300	0.2	0.2	0.2	0.2	0.3	0.3	0.4
12.000	0.4	0.5	0.7	0.9	1.3	1.8	2.1
12.700	2.3	2.5	2.6	2.7	2.8	2.9	2.9
13.400	3.0	3.0	3.0	3.0	3.0	3.0	3.0
14.100	3.0	3.0	3.0	2.9	2.9	2.9	2.9
14.800	2.8	2.8	2.8	2.8	2.8	2.8	2.7
15.500	2.7	2.7	2.7	2.7	2.6	2.6	2.6
16.200	2.6	2.5	2.5	2.5	2.5	2.5	2.4
16.900	2.4	2.4	2.4	2.4	2.3	2.3	2.3
17.600	2.3	2.2	2.2	2.2	2.2	2.2	2.2
18.300	2.1	2.1	2.1	2.1	2.1	2.0	2.0
19.000	2.0	2.0	2.0	1.9	1.9	1.9	1.9
19.700	1.9	1.9	1.8	1.8	1.8	1.8	1.8
20.400	1.8	1.7	1.7	1.7	1.7	1.7	1.7
21.100	1.6	1.6	1.6	1.6	1.6	1.6	1.5
21.800	1.5	1.5	1.5	1.5	1.5	1.4	1.4
22.500	1.4	1.4	1.4	1.4	1.4	1.3	1.3
23.200	1.3	1.3	1.3	1.3	1.3	1.2	1.2
23.900	1.2	1.2	1.2	1.2	1.2	1.1	1.1
24.600	1.1	1.1	1.1	1.1	1.0	1.0	1.0
25.300	1.0	1.0	1.0	1.0	1.0	1.0	1.0
26.000	1.0	0.9	0.9	0.9	0.9	0.9	0.9
26.700	0.9	0.9	0.9	0.9	0.9	0.9	0.9
27.400	0.9	0.8	0.8	0.8	0.8	0.8	0.8
28.100	0.8	0.8	0.8	0.8	0.8	0.8	0.8
28.800	0.8	0.8	0.8	0.8	0.7	0.7	0.7
29.500	0.7	0.7	0.7	0.7	0.7	0.7	0.7
30.200	0.7	0.7	0.7	0.7	0.7	0.7	0.7
30.900	0.7	0.6	0.6	0.6	0.6	0.6	0.6
31.600	0.6	0.6	0.6	0.6	0.6	0.6	0.6
32.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
33.000	0.6	0.6	0.5	0.5	0.5	0.5	0.5
33.700	0.5	0.5	0.5	0.5	0.5	0.5	0.5
34.400	0.5	0.5	0.5	0.5	0.5	0.5	0.5
35.100	0.5	0.5	0.5	0.5	0.5	0.5	0.5
35.800	0.5	0.4	0.4	0.4	0.4	0.4	0.4
36.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4

North Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
37.200	0.4	0.4	0.4	0.4	0.4	0.4	0.4
37.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
38.600	0.4	0.4	0.4	0.4	0.4	0.3	0.3
39.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
40.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3
40.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
41.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
42.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
42.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
43.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
46.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.800	0.2	0.2	0.2	0.2	0.1	0.1	0.1
50.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
51.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
51.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
52.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
53.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
54.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
54.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
55.400	0.1	0.0					

STORM 2-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Option B N	0.035		2.083		12.34	41.8	1205.51

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
6.800	0.0	0.754E-01	0.1	0.1	0.1	0.2	0.2
7.500	0.2	0.2	0.2	0.2	0.2	0.2	0.3
8.200	0.3	0.3	0.3	0.3	0.3	0.3	0.4
8.900	0.4	0.4	0.4	0.5	0.5	0.6	0.7
9.600	0.8	0.8	0.9	0.9	0.9	1.0	1.0
10.300	1.1	1.1	1.1	1.2	1.3	1.5	1.8
11.000	2.2	2.5	2.8	3.2	3.6	4.0	4.5
11.700	5.2	6.6	8.9	12.8	20.5	32.1	40.8
12.400	40.5	34.0	25.9	19.8	15.1	11.8	9.6
13.100	8.1	7.0	6.2	5.5	5.0	4.4	3.9
13.800	3.3	2.9	2.6	2.4	2.3	2.2	2.2
14.500	2.1	2.1	2.0	2.0	2.0	2.0	1.9

North Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
15.200	1.8	1.6	1.5	1.3	1.3	1.2	1.2
15.900	1.1	1.1	1.1	1.1	1.1	1.1	1.0
16.600	1.0	1.0	1.0	1.0	1.0	1.0	1.0
17.300	1.0	0.9	0.9	0.9	0.9	0.9	0.9
18.000	0.9	0.9	0.9	0.8	0.8	0.8	0.8
18.700	0.8	0.8	0.8	0.8	0.8	0.7	0.7
19.400	0.7	0.7	0.7	0.7	0.7	0.7	0.7
20.100	0.6	0.6	0.6	0.6	0.6	0.6	0.6
20.800	0.6	0.5	0.5	0.5	0.5	0.5	0.5
21.500	0.5	0.5	0.5	0.4	0.4	0.4	0.4
22.200	0.4	0.4	0.4	0.4	0.4	0.3	0.3
22.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
23.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24.300	0.1	0.666E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.035	Upstream	2.083		12.34	41.8	1205.51

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
6.800	0.0	0.754E-01	0.1	0.1	0.1	0.2	0.2
7.500	0.2	0.2	0.2	0.2	0.2	0.2	0.3
8.200	0.3	0.3	0.3	0.3	0.3	0.3	0.4
8.900	0.4	0.4	0.4	0.5	0.5	0.6	0.7
9.600	0.8	0.8	0.9	0.9	0.9	1.0	1.0
10.300	1.1	1.1	1.1	1.2	1.3	1.5	1.8
11.000	2.2	2.5	2.8	3.2	3.6	4.0	4.5
11.700	5.2	6.6	8.9	12.8	20.5	32.1	40.8
12.400	40.5	34.0	25.9	19.8	15.1	11.8	9.6
13.100	8.1	7.0	6.2	5.5	5.0	4.4	3.9
13.800	3.3	2.9	2.6	2.4	2.3	2.2	2.2
14.500	2.1	2.1	2.0	2.0	2.0	2.0	1.9
15.200	1.8	1.6	1.5	1.3	1.3	1.2	1.2
15.900	1.1	1.1	1.1	1.1	1.1	1.1	1.0
16.600	1.0	1.0	1.0	1.0	1.0	1.0	1.0
17.300	1.0	0.9	0.9	0.9	0.9	0.9	0.9
18.000	0.9	0.9	0.9	0.8	0.8	0.8	0.8
18.700	0.8	0.8	0.8	0.8	0.8	0.7	0.7
19.400	0.7	0.7	0.7	0.7	0.7	0.7	0.7
20.100	0.6	0.6	0.6	0.6	0.6	0.6	0.6
20.800	0.6	0.5	0.5	0.5	0.5	0.5	0.5
21.500	0.5	0.5	0.5	0.4	0.4	0.4	0.4
22.200	0.4	0.4	0.4	0.4	0.4	0.3	0.3
22.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
23.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24.300	0.1	0.0					

North Parking Lot

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.035	Downstream	2.020	715.38	13.67	4.0	114.98

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.200	0.0	0.1	0.1	0.1	0.1	0.1	0.1
10.900	0.2	0.2	0.2	0.2	0.2	0.3	0.3
11.600	0.3	0.3	0.4	0.4	0.5	0.6	0.8
12.300	1.2	1.7	2.2	2.6	2.9	3.2	3.5
13.000	3.6	3.7	3.8	3.9	3.9	4.0	4.0
13.700	4.0	4.0	4.0	3.9	3.9	3.9	3.8
14.400	3.8	3.8	3.7	3.7	3.6	3.6	3.6
15.100	3.5	3.5	3.5	3.4	3.4	3.3	3.3
15.800	3.2	3.2	3.1	3.1	3.0	3.0	3.0
16.500	2.9	2.9	2.8	2.8	2.8	2.8	2.7
17.200	2.7	2.7	2.7	2.6	2.6	2.6	2.6
17.900	2.6	2.5	2.5	2.5	2.5	2.4	2.4
18.600	2.4	2.4	2.4	2.3	2.3	2.3	2.3
19.300	2.2	2.2	2.2	2.2	2.2	2.1	2.1
20.000	2.1	2.1	2.1	2.0	2.0	2.0	2.0
20.700	2.0	1.9	1.9	1.9	1.9	1.9	1.8
21.400	1.8	1.8	1.8	1.8	1.8	1.7	1.7
22.100	1.7	1.7	1.7	1.6	1.6	1.6	1.6
22.800	1.6	1.6	1.5	1.5	1.5	1.5	1.5
23.500	1.5	1.4	1.4	1.4	1.4	1.4	1.4
24.200	1.3	1.3	1.3	1.3	1.3	1.3	1.2
24.900	1.2	1.2	1.2	1.2	1.2	1.1	1.1
25.600	1.1	1.1	1.1	1.1	1.0	1.0	1.0
26.300	1.0	1.0	1.0	1.0	1.0	1.0	1.0
27.000	1.0	0.9	0.9	0.9	0.9	0.9	0.9
27.700	0.9	0.9	0.9	0.9	0.9	0.9	0.9
28.400	0.9	0.9	0.8	0.8	0.8	0.8	0.8
29.100	0.8	0.8	0.8	0.8	0.8	0.8	0.8
29.800	0.8	0.8	0.8	0.8	0.7	0.7	0.7
30.500	0.7	0.7	0.7	0.7	0.7	0.7	0.7
31.200	0.7	0.7	0.7	0.7	0.7	0.7	0.7
31.900	0.7	0.7	0.6	0.6	0.6	0.6	0.6
32.600	0.6	0.6	0.6	0.6	0.6	0.6	0.6
33.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
34.000	0.6	0.6	0.6	0.5	0.5	0.5	0.5
34.700	0.5	0.5	0.5	0.5	0.5	0.5	0.5
35.400	0.5	0.5	0.5	0.5	0.5	0.5	0.5
36.100	0.5	0.5	0.5	0.5	0.5	0.5	0.5
36.800	0.5	0.4	0.4	0.4	0.4	0.4	0.4
37.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
38.200	0.4	0.4	0.4	0.4	0.4	0.4	0.4
38.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
39.600	0.4	0.4	0.4	0.4	0.4	0.4	0.3
40.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
41.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3
41.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
42.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
43.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
43.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
44.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
46.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.800	0.2	0.2	0.2	0.2	0.1	0.1	0.1
51.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
52.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
52.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
53.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
54.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
55.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
55.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
56.400	0.1	0.997E-01	0.990E-01	0.982E-01	0.974E-01	0.967E-01	0.959E-01
57.100	0.951E-01	0.944E-01	0.936E-01	0.928E-01	0.921E-01	0.913E-01	0.905E-01
57.800	0.898E-01	0.890E-01	0.882E-01	0.875E-01	0.867E-01	0.859E-01	0.852E-01
58.500	0.844E-01	0.836E-01	0.829E-01	0.821E-01	0.814E-01	0.806E-01	0.798E-01
59.200	0.791E-01	0.783E-01	0.775E-01	0.768E-01	0.760E-01	0.752E-01	0.745E-01
59.900	0.737E-01	0.729E-01	0.722E-01	0.714E-01	0.706E-01	0.699E-01	0.691E-01
60.600	0.683E-01	0.676E-01	0.668E-01	0.660E-01	0.653E-01	0.645E-01	0.637E-01
61.300	0.630E-01	0.622E-01	0.615E-01	0.607E-01	0.599E-01	0.592E-01	0.584E-01
62.000	0.576E-01	0.569E-01	0.561E-01	0.553E-01	0.546E-01	0.538E-01	0.530E-01
62.700	0.523E-01	0.515E-01	0.507E-01	0.500E-01	0.492E-01	0.484E-01	0.477E-01
63.400	0.469E-01	0.461E-01	0.454E-01	0.446E-01	0.438E-01	0.431E-01	0.423E-01
64.100	0.416E-01	0.408E-01	0.400E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.035		2.019		13.67	4.0	114.98

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.200	0.0	0.1	0.1	0.1	0.1	0.1	0.1
10.900	0.2	0.2	0.2	0.2	0.2	0.3	0.3
11.600	0.3	0.3	0.4	0.4	0.5	0.6	0.8
12.300	1.2	1.7	2.2	2.6	2.9	3.2	3.5
13.000	3.6	3.7	3.8	3.9	3.9	4.0	4.0
13.700	4.0	4.0	4.0	3.9	3.9	3.9	3.8
14.400	3.8	3.8	3.7	3.7	3.6	3.6	3.6
15.100	3.5	3.5	3.5	3.4	3.4	3.3	3.3
15.800	3.2	3.2	3.1	3.1	3.0	3.0	3.0

North Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
16.500	2.9	2.9	2.8	2.8	2.8	2.8	2.7
17.200	2.7	2.7	2.7	2.6	2.6	2.6	2.6
17.900	2.6	2.5	2.5	2.5	2.5	2.4	2.4
18.600	2.4	2.4	2.4	2.3	2.3	2.3	2.3
19.300	2.2	2.2	2.2	2.2	2.2	2.1	2.1
20.000	2.1	2.1	2.1	2.0	2.0	2.0	2.0
20.700	2.0	1.9	1.9	1.9	1.9	1.9	1.8
21.400	1.8	1.8	1.8	1.8	1.8	1.7	1.7
22.100	1.7	1.7	1.7	1.6	1.6	1.6	1.6
22.800	1.6	1.6	1.5	1.5	1.5	1.5	1.5
23.500	1.5	1.4	1.4	1.4	1.4	1.4	1.4
24.200	1.3	1.3	1.3	1.3	1.3	1.3	1.2
24.900	1.2	1.2	1.2	1.2	1.2	1.1	1.1
25.600	1.1	1.1	1.1	1.1	1.0	1.0	1.0
26.300	1.0	1.0	1.0	1.0	1.0	1.0	1.0
27.000	1.0	0.9	0.9	0.9	0.9	0.9	0.9
27.700	0.9	0.9	0.9	0.9	0.9	0.9	0.9
28.400	0.9	0.9	0.8	0.8	0.8	0.8	0.8
29.100	0.8	0.8	0.8	0.8	0.8	0.8	0.8
29.800	0.8	0.8	0.8	0.8	0.7	0.7	0.7
30.500	0.7	0.7	0.7	0.7	0.7	0.7	0.7
31.200	0.7	0.7	0.7	0.7	0.7	0.7	0.7
31.900	0.7	0.7	0.6	0.6	0.6	0.6	0.6
32.600	0.6	0.6	0.6	0.6	0.6	0.6	0.6
33.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
34.000	0.6	0.6	0.6	0.5	0.5	0.5	0.5
34.700	0.5	0.5	0.5	0.5	0.5	0.5	0.5
35.400	0.5	0.5	0.5	0.5	0.5	0.5	0.5
36.100	0.5	0.5	0.5	0.5	0.5	0.5	0.5
36.800	0.5	0.4	0.4	0.4	0.4	0.4	0.4
37.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
38.200	0.4	0.4	0.4	0.4	0.4	0.4	0.4
38.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
39.600	0.4	0.4	0.4	0.4	0.4	0.4	0.3
40.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
41.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3
41.700	0.3	0.3	0.3	0.3	0.3	0.3	0.3
42.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
43.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
43.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
44.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
46.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.800	0.2	0.2	0.2	0.2	0.1	0.1	0.1
51.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
52.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1

North Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
52.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
53.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
54.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
55.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
55.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
56.400	0.1	0.0					

STORM 10-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Option B N	0.035		3.124		12.33	61.4	1771.47

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
5.500	0.0	0.784E-01	0.1	0.1	0.1	0.2	0.2
6.200	0.2	0.2	0.2	0.3	0.3	0.3	0.3
6.900	0.3	0.4	0.4	0.4	0.4	0.4	0.5
7.600	0.5	0.5	0.5	0.5	0.6	0.6	0.6
8.300	0.6	0.7	0.7	0.7	0.7	0.7	0.8
9.000	0.8	0.8	0.9	1.1	1.2	1.4	1.5
9.700	1.5	1.6	1.7	1.7	1.8	1.8	1.9
10.400	2.0	2.0	2.1	2.3	2.7	3.1	3.7
11.100	4.2	4.7	5.3	5.9	6.5	7.2	8.3
11.800	10.4	13.9	19.7	31.0	47.9	60.3	59.3
12.500	49.5	37.7	28.6	21.8	17.0	13.8	11.6
13.200	10.1	8.9	7.9	7.1	6.3	5.5	4.8
13.900	4.1	3.7	3.4	3.3	3.2	3.1	3.0
14.600	3.0	2.9	2.9	2.8	2.8	2.7	2.6
15.300	2.3	2.1	1.9	1.8	1.7	1.7	1.6
16.000	1.6	1.6	1.5	1.5	1.5	1.5	1.5
16.700	1.5	1.4	1.4	1.4	1.4	1.4	1.4
17.400	1.3	1.3	1.3	1.3	1.3	1.3	1.3
18.100	1.2	1.2	1.2	1.2	1.2	1.2	1.1
18.800	1.1	1.1	1.1	1.1	1.1	1.0	1.0
19.500	1.0	1.0	1.0	1.0	0.9	0.9	0.9
20.200	0.9	0.9	0.9	0.8	0.8	0.8	0.8
20.900	0.8	0.8	0.7	0.7	0.7	0.7	0.7
21.600	0.7	0.7	0.6	0.6	0.6	0.6	0.6
22.300	0.6	0.5	0.5	0.5	0.5	0.5	0.5
23.000	0.4	0.4	0.4	0.4	0.4	0.4	0.3
23.700	0.3	0.3	0.3	0.3	0.3	0.2	0.2
24.400	0.979E-01	0.456E-01	0.0				

North Parking Lot

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.035	Upstream	3.124		12.33	61.4	1771.47

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
5.500	0.0	0.784E-01	0.1	0.1	0.1	0.2	0.2
6.200	0.2	0.2	0.2	0.3	0.3	0.3	0.3
6.900	0.3	0.4	0.4	0.4	0.4	0.4	0.5
7.600	0.5	0.5	0.5	0.5	0.6	0.6	0.6
8.300	0.6	0.7	0.7	0.7	0.7	0.7	0.8
9.000	0.8	0.8	0.9	1.1	1.2	1.4	1.5
9.700	1.5	1.6	1.7	1.7	1.8	1.8	1.9
10.400	2.0	2.0	2.1	2.3	2.7	3.1	3.7
11.100	4.2	4.7	5.3	5.9	6.5	7.2	8.3
11.800	10.4	13.9	19.7	31.0	47.9	60.3	59.3
12.500	49.5	37.7	28.6	21.8	17.0	13.8	11.6
13.200	10.1	8.9	7.9	7.1	6.3	5.5	4.8
13.900	4.1	3.7	3.4	3.3	3.2	3.1	3.0
14.600	3.0	2.9	2.9	2.8	2.8	2.7	2.6
15.300	2.3	2.1	1.9	1.8	1.7	1.7	1.6
16.000	1.6	1.6	1.5	1.5	1.5	1.5	1.5
16.700	1.5	1.4	1.4	1.4	1.4	1.4	1.4
17.400	1.3	1.3	1.3	1.3	1.3	1.3	1.3
18.100	1.2	1.2	1.2	1.2	1.2	1.2	1.1
18.800	1.1	1.1	1.1	1.1	1.1	1.0	1.0
19.500	1.0	1.0	1.0	1.0	0.9	0.9	0.9
20.200	0.9	0.9	0.9	0.8	0.8	0.8	0.8
20.900	0.8	0.8	0.7	0.7	0.7	0.7	0.7
21.600	0.7	0.7	0.6	0.6	0.6	0.6	0.6
22.300	0.6	0.5	0.5	0.5	0.5	0.5	0.5
23.000	0.4	0.4	0.4	0.4	0.4	0.4	0.3
23.700	0.3	0.3	0.3	0.3	0.3	0.2	0.2
24.400	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.035	Downstream	3.060	716.48	13.53	6.9	199.52

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.900	0.0	0.1	0.1	0.1	0.1	0.1	0.1
9.600	0.1	0.2	0.2	0.2	0.2	0.2	0.2
10.300	0.2	0.2	0.3	0.3	0.3	0.3	0.3
11.000	0.3	0.4	0.4	0.4	0.5	0.5	0.6
11.700	0.6	0.7	0.8	0.9	1.1	1.7	2.4
12.400	3.4	4.6	5.4	6.0	6.3	6.5	6.7
13.100	6.8	6.8	6.9	6.9	6.9	6.9	6.9

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
13.800	6.9	6.8	6.8	6.7	6.7	6.6	6.6
14.500	6.5	6.4	6.4	6.3	6.3	6.2	6.1
15.200	6.1	6.0	6.0	5.9	5.8	5.7	5.6
15.900	5.6	5.5	5.4	5.3	5.2	5.1	5.0
16.600	5.0	4.9	4.8	4.7	4.7	4.6	4.5
17.300	4.4	4.4	4.3	4.2	4.2	4.1	4.0
18.000	4.0	3.9	3.9	3.8	3.7	3.7	3.6
18.700	3.6	3.5	3.5	3.4	3.4	3.3	3.3
19.400	3.2	3.2	3.1	3.1	3.0	3.0	2.9
20.100	2.9	2.8	2.8	2.8	2.8	2.7	2.7
20.800	2.7	2.7	2.6	2.6	2.6	2.6	2.5
21.500	2.5	2.5	2.5	2.4	2.4	2.4	2.4
22.200	2.3	2.3	2.3	2.3	2.2	2.2	2.2
22.900	2.2	2.1	2.1	2.1	2.1	2.0	2.0
23.600	2.0	2.0	2.0	1.9	1.9	1.9	1.9
24.300	1.8	1.8	1.8	1.8	1.7	1.7	1.7
25.000	1.7	1.6	1.6	1.6	1.6	1.6	1.5
25.700	1.5	1.5	1.5	1.5	1.4	1.4	1.4
26.400	1.4	1.4	1.3	1.3	1.3	1.3	1.3
27.100	1.2	1.2	1.2	1.2	1.2	1.2	1.1
27.800	1.1	1.1	1.1	1.1	1.1	1.1	1.0
28.500	1.0	1.0	1.0	1.0	1.0	1.0	1.0
29.200	1.0	1.0	1.0	0.9	0.9	0.9	0.9
29.900	0.9	0.9	0.9	0.9	0.9	0.9	0.9
30.600	0.9	0.9	0.9	0.8	0.8	0.8	0.8
31.300	0.8	0.8	0.8	0.8	0.8	0.8	0.8
32.000	0.8	0.8	0.8	0.8	0.8	0.8	0.7
32.700	0.7	0.7	0.7	0.7	0.7	0.7	0.7
33.400	0.7	0.7	0.7	0.7	0.7	0.7	0.7
34.100	0.7	0.7	0.7	0.6	0.6	0.6	0.6
34.800	0.6	0.6	0.6	0.6	0.6	0.6	0.6
35.500	0.6	0.6	0.6	0.6	0.6	0.6	0.6
36.200	0.6	0.6	0.6	0.6	0.5	0.5	0.5
36.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
37.600	0.5	0.5	0.5	0.5	0.5	0.5	0.5
38.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
39.000	0.5	0.5	0.4	0.4	0.4	0.4	0.4
39.700	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
41.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
41.800	0.4	0.4	0.4	0.4	0.4	0.4	0.4
42.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
43.200	0.3	0.3	0.3	0.3	0.3	0.3	0.3
43.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
44.600	0.3	0.3	0.3	0.3	0.3	0.3	0.3
45.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
46.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3
46.700	0.3	0.3	0.2	0.2	0.2	0.2	0.2
47.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2

North Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
50.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.000	0.2	0.2	0.2	0.2	0.2	0.2	0.1
53.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
54.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
55.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
55.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
56.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
57.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
57.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
58.600	0.1	0.1	0.1	0.993E-01	0.986E-01	0.978E-01	0.970E-01
59.300	0.963E-01	0.955E-01	0.947E-01	0.940E-01	0.932E-01	0.924E-01	0.917E-01
60.000	0.909E-01	0.901E-01	0.894E-01	0.886E-01	0.878E-01	0.871E-01	0.863E-01
60.700	0.855E-01	0.848E-01	0.840E-01	0.832E-01	0.825E-01	0.817E-01	0.809E-01
61.400	0.802E-01	0.794E-01	0.786E-01	0.779E-01	0.771E-01	0.763E-01	0.756E-01
62.100	0.748E-01	0.740E-01	0.733E-01	0.725E-01	0.717E-01	0.710E-01	0.702E-01
62.800	0.694E-01	0.687E-01	0.679E-01	0.671E-01	0.664E-01	0.656E-01	0.648E-01
63.500	0.641E-01	0.633E-01	0.625E-01	0.618E-01	0.610E-01	0.602E-01	0.595E-01
64.200	0.587E-01	0.579E-01	0.572E-01	0.564E-01	0.556E-01	0.549E-01	0.541E-01
64.900	0.533E-01	0.526E-01	0.518E-01	0.510E-01	0.503E-01	0.495E-01	0.487E-01
65.600	0.480E-01	0.472E-01	0.464E-01	0.457E-01	0.449E-01	0.441E-01	0.434E-01
66.300	0.426E-01	0.418E-01	0.411E-01	0.403E-01	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.035		3.060		13.53	6.9	199.52

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.900	0.0	0.1	0.1	0.1	0.1	0.1	0.1
9.600	0.1	0.2	0.2	0.2	0.2	0.2	0.2
10.300	0.2	0.2	0.3	0.3	0.3	0.3	0.3
11.000	0.3	0.4	0.4	0.4	0.5	0.5	0.6
11.700	0.6	0.7	0.8	0.9	1.1	1.7	2.4
12.400	3.4	4.6	5.4	6.0	6.3	6.5	6.7
13.100	6.8	6.8	6.9	6.9	6.9	6.9	6.9
13.800	6.9	6.8	6.8	6.7	6.7	6.6	6.6
14.500	6.5	6.4	6.4	6.3	6.3	6.2	6.1
15.200	6.1	6.0	6.0	5.9	5.8	5.7	5.6
15.900	5.6	5.5	5.4	5.3	5.2	5.1	5.0
16.600	5.0	4.9	4.8	4.7	4.7	4.6	4.5
17.300	4.4	4.4	4.3	4.2	4.2	4.1	4.0
18.000	4.0	3.9	3.9	3.8	3.7	3.7	3.6
18.700	3.6	3.5	3.5	3.4	3.4	3.3	3.3
19.400	3.2	3.2	3.1	3.1	3.0	3.0	2.9
20.100	2.9	2.8	2.8	2.8	2.8	2.7	2.7

North Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
20.800	2.7	2.7	2.6	2.6	2.6	2.6	2.5
21.500	2.5	2.5	2.5	2.4	2.4	2.4	2.4
22.200	2.3	2.3	2.3	2.3	2.2	2.2	2.2
22.900	2.2	2.1	2.1	2.1	2.1	2.0	2.0
23.600	2.0	2.0	2.0	1.9	1.9	1.9	1.9
24.300	1.8	1.8	1.8	1.8	1.7	1.7	1.7
25.000	1.7	1.6	1.6	1.6	1.6	1.6	1.5
25.700	1.5	1.5	1.5	1.5	1.4	1.4	1.4
26.400	1.4	1.4	1.3	1.3	1.3	1.3	1.3
27.100	1.2	1.2	1.2	1.2	1.2	1.2	1.1
27.800	1.1	1.1	1.1	1.1	1.1	1.1	1.0
28.500	1.0	1.0	1.0	1.0	1.0	1.0	1.0
29.200	1.0	1.0	1.0	0.9	0.9	0.9	0.9
29.900	0.9	0.9	0.9	0.9	0.9	0.9	0.9
30.600	0.9	0.9	0.9	0.8	0.8	0.8	0.8
31.300	0.8	0.8	0.8	0.8	0.8	0.8	0.8
32.000	0.8	0.8	0.8	0.8	0.8	0.8	0.7
32.700	0.7	0.7	0.7	0.7	0.7	0.7	0.7
33.400	0.7	0.7	0.7	0.7	0.7	0.7	0.7
34.100	0.7	0.7	0.7	0.6	0.6	0.6	0.6
34.800	0.6	0.6	0.6	0.6	0.6	0.6	0.6
35.500	0.6	0.6	0.6	0.6	0.6	0.6	0.6
36.200	0.6	0.6	0.6	0.6	0.5	0.5	0.5
36.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
37.600	0.5	0.5	0.5	0.5	0.5	0.5	0.5
38.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
39.000	0.5	0.5	0.4	0.4	0.4	0.4	0.4
39.700	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
41.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
41.800	0.4	0.4	0.4	0.4	0.4	0.4	0.4
42.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
43.200	0.3	0.3	0.3	0.3	0.3	0.3	0.3
43.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
44.600	0.3	0.3	0.3	0.3	0.3	0.3	0.3
45.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
46.000	0.3	0.3	0.3	0.3	0.3	0.3	0.3
46.700	0.3	0.3	0.2	0.2	0.2	0.2	0.2
47.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.000	0.2	0.2	0.2	0.2	0.2	0.2	0.1
53.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
54.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
55.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
55.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
56.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1

North Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
57.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
57.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
58.600	0.1	0.1	0.553E-01	0.0			

STORM 100-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Option B N	0.035		5.206		12.33	99.7	2875.50

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
4.200	0.0	0.1	0.1	0.2	0.2	0.2	0.2
4.900	0.3	0.3	0.3	0.4	0.4	0.4	0.5
5.600	0.5	0.5	0.6	0.6	0.6	0.7	0.7
6.300	0.7	0.8	0.8	0.8	0.9	0.9	0.9
7.000	1.0	1.0	1.0	1.1	1.1	1.2	1.2
7.700	1.2	1.3	1.3	1.3	1.4	1.4	1.4
8.400	1.5	1.5	1.6	1.6	1.6	1.7	1.7
9.100	1.8	1.9	2.2	2.5	2.8	3.0	3.1
9.800	3.2	3.3	3.4	3.5	3.6	3.7	3.8
10.500	3.8	4.0	4.3	5.0	5.8	6.7	7.6
11.200	8.6	9.5	10.5	11.4	12.6	14.5	18.0
11.900	23.6	33.3	51.5	78.5	98.1	96.0	79.8
12.600	60.6	45.9	34.9	27.2	22.0	18.5	16.0
13.300	14.1	12.6	11.2	10.0	8.7	7.5	6.6
14.000	5.9	5.5	5.2	5.0	4.9	4.8	4.7
14.700	4.6	4.5	4.5	4.4	4.3	4.1	3.7
15.400	3.3	3.0	2.8	2.7	2.6	2.6	2.5
16.100	2.5	2.4	2.4	2.4	2.4	2.3	2.3
16.800	2.3	2.3	2.2	2.2	2.2	2.2	2.1
17.500	2.1	2.1	2.1	2.0	2.0	2.0	2.0
18.200	1.9	1.9	1.9	1.8	1.8	1.8	1.8
18.900	1.7	1.7	1.7	1.7	1.6	1.6	1.6
19.600	1.6	1.5	1.5	1.5	1.5	1.4	1.4
20.300	1.4	1.4	1.3	1.3	1.3	1.3	1.2
21.000	1.2	1.2	1.2	1.1	1.1	1.1	1.1
21.700	1.0	1.0	1.0	0.9	0.9	0.9	0.9
22.400	0.8	0.8	0.8	0.8	0.7	0.7	0.7
23.100	0.7	0.6	0.6	0.6	0.6	0.5	0.5
23.800	0.5	0.5	0.4	0.4	0.3	0.2	0.2
24.500	0.903E-01	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.035	Upstream	5.205		12.33	99.7	2875.50

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
4.200	0.0	0.1	0.1	0.2	0.2	0.2	0.2
4.900	0.3	0.3	0.3	0.4	0.4	0.4	0.5
5.600	0.5	0.5	0.6	0.6	0.6	0.7	0.7
6.300	0.7	0.8	0.8	0.8	0.9	0.9	0.9
7.000	1.0	1.0	1.0	1.1	1.1	1.2	1.2
7.700	1.2	1.3	1.3	1.3	1.4	1.4	1.4
8.400	1.5	1.5	1.6	1.6	1.6	1.7	1.7
9.100	1.8	1.9	2.2	2.5	2.8	3.0	3.1
9.800	3.2	3.3	3.4	3.5	3.6	3.7	3.8
10.500	3.8	4.0	4.3	5.0	5.8	6.7	7.6
11.200	8.6	9.5	10.5	11.4	12.6	14.5	18.0
11.900	23.6	33.3	51.5	78.5	98.1	96.0	79.8
12.600	60.6	45.9	34.9	27.2	22.0	18.5	16.0
13.300	14.1	12.6	11.2	10.0	8.7	7.5	6.6
14.000	5.9	5.5	5.2	5.0	4.9	4.8	4.7
14.700	4.6	4.5	4.5	4.4	4.3	4.1	3.7
15.400	3.3	3.0	2.8	2.7	2.6	2.6	2.5
16.100	2.5	2.4	2.4	2.4	2.4	2.3	2.3
16.800	2.3	2.3	2.2	2.2	2.2	2.2	2.1
17.500	2.1	2.1	2.1	2.0	2.0	2.0	2.0
18.200	1.9	1.9	1.9	1.8	1.8	1.8	1.8
18.900	1.7	1.7	1.7	1.7	1.6	1.6	1.6
19.600	1.6	1.5	1.5	1.5	1.5	1.4	1.4
20.300	1.4	1.4	1.3	1.3	1.3	1.3	1.2
21.000	1.2	1.2	1.2	1.1	1.1	1.1	1.1
21.700	1.0	1.0	1.0	0.9	0.9	0.9	0.9
22.400	0.8	0.8	0.8	0.8	0.7	0.7	0.7
23.100	0.7	0.6	0.6	0.6	0.6	0.5	0.5
23.800	0.5	0.5	0.4	0.4	0.3	0.2	0.2
24.500	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.035	Downstream	5.143	718.49	13.12	17.9	516.13

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
6.900	0.0	0.1	0.1	0.1	0.1	0.1	0.1
7.600	0.1	0.2	0.2	0.2	0.2	0.2	0.2
8.300	0.2	0.2	0.2	0.2	0.2	0.3	0.3
9.000	0.3	0.3	0.3	0.3	0.3	0.3	0.4
9.700	0.4	0.4	0.4	0.5	0.5	0.5	0.5

North Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.400	0.5	0.6	0.6	0.6	0.7	0.7	0.7
11.100	0.8	0.8	0.9	1.0	1.1	1.2	1.4
11.800	1.6	1.9	2.2	2.8	4.1	6.0	7.5
12.500	9.2	10.7	12.9	15.5	16.9	17.7	17.9
13.200	17.8	17.6	17.1	16.6	16.1	15.4	14.7
13.900	14.0	13.2	12.5	11.8	11.3	11.1	11.0
14.600	10.8	10.7	10.5	10.4	10.2	10.1	9.9
15.300	9.8	9.6	9.5	9.3	9.2	9.0	8.9
16.000	8.7	8.6	8.4	8.3	8.1	8.0	7.9
16.700	7.8	7.7	7.6	7.6	7.5	7.4	7.3
17.400	7.2	7.1	7.0	7.0	6.9	6.8	6.7
18.100	6.6	6.6	6.5	6.4	6.3	6.3	6.2
18.800	6.1	6.0	6.0	5.9	5.8	5.7	5.6
19.500	5.5	5.5	5.4	5.3	5.2	5.1	5.0
20.200	4.9	4.9	4.8	4.7	4.6	4.6	4.5
20.900	4.4	4.3	4.3	4.2	4.1	4.1	4.0
21.600	3.9	3.9	3.8	3.7	3.7	3.6	3.6
22.300	3.5	3.4	3.4	3.3	3.3	3.2	3.2
23.000	3.1	3.0	3.0	2.9	2.9	2.8	2.8
23.700	2.8	2.7	2.7	2.7	2.7	2.6	2.6
24.400	2.6	2.5	2.5	2.5	2.4	2.4	2.4
25.100	2.3	2.3	2.3	2.2	2.2	2.2	2.1
25.800	2.1	2.1	2.0	2.0	2.0	2.0	1.9
26.500	1.9	1.9	1.9	1.8	1.8	1.8	1.8
27.200	1.7	1.7	1.7	1.7	1.6	1.6	1.6
27.900	1.6	1.6	1.5	1.5	1.5	1.5	1.4
28.600	1.4	1.4	1.4	1.4	1.4	1.3	1.3
29.300	1.3	1.3	1.3	1.2	1.2	1.2	1.2
30.000	1.2	1.2	1.1	1.1	1.1	1.1	1.1
30.700	1.1	1.1	1.0	1.0	1.0	1.0	1.0
31.400	1.0	1.0	1.0	1.0	1.0	0.9	0.9
32.100	0.9	0.9	0.9	0.9	0.9	0.9	0.9
32.800	0.9	0.9	0.9	0.9	0.9	0.9	0.8
33.500	0.8	0.8	0.8	0.8	0.8	0.8	0.8
34.200	0.8	0.8	0.8	0.8	0.8	0.8	0.8
34.900	0.8	0.7	0.7	0.7	0.7	0.7	0.7
35.600	0.7	0.7	0.7	0.7	0.7	0.7	0.7
36.300	0.7	0.7	0.7	0.7	0.7	0.7	0.6
37.000	0.6	0.6	0.6	0.6	0.6	0.6	0.6
37.700	0.6	0.6	0.6	0.6	0.6	0.6	0.6
38.400	0.6	0.6	0.6	0.6	0.6	0.6	0.6
39.100	0.5	0.5	0.5	0.5	0.5	0.5	0.5
39.800	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40.500	0.5	0.5	0.5	0.5	0.5	0.5	0.5
41.200	0.5	0.5	0.5	0.5	0.5	0.4	0.4
41.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
42.600	0.4	0.4	0.4	0.4	0.4	0.4	0.4
43.300	0.4	0.4	0.4	0.4	0.4	0.4	0.4
44.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
44.700	0.4	0.4	0.4	0.3	0.3	0.3	0.3
45.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
46.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3

North Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
46.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
47.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
48.200	0.3	0.3	0.3	0.3	0.3	0.3	0.3
48.900	0.3	0.3	0.3	0.3	0.3	0.2	0.2
49.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
54.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.900	0.2	0.1	0.1	0.1	0.1	0.1	0.1
56.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
57.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
58.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
58.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
59.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
60.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
60.800	0.1	0.1	0.1	0.1	0.1	0.999E-01	0.992E-01
61.500	0.984E-01	0.976E-01	0.969E-01	0.961E-01	0.953E-01	0.946E-01	0.938E-01
62.200	0.930E-01	0.923E-01	0.915E-01	0.907E-01	0.900E-01	0.892E-01	0.884E-01
62.900	0.877E-01	0.869E-01	0.861E-01	0.854E-01	0.846E-01	0.839E-01	0.831E-01
63.600	0.823E-01	0.816E-01	0.808E-01	0.800E-01	0.793E-01	0.785E-01	0.777E-01
64.300	0.770E-01	0.762E-01	0.754E-01	0.747E-01	0.739E-01	0.731E-01	0.724E-01
65.000	0.716E-01	0.708E-01	0.701E-01	0.693E-01	0.685E-01	0.678E-01	0.670E-01
65.700	0.662E-01	0.655E-01	0.647E-01	0.639E-01	0.632E-01	0.624E-01	0.617E-01
66.400	0.609E-01	0.601E-01	0.594E-01	0.586E-01	0.578E-01	0.571E-01	0.563E-01
67.100	0.555E-01	0.548E-01	0.540E-01	0.532E-01	0.525E-01	0.517E-01	0.509E-01
67.800	0.502E-01	0.494E-01	0.486E-01	0.479E-01	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.035		5.143		13.12	17.9	516.13

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
6.900	0.0	0.1	0.1	0.1	0.1	0.1	0.1
7.600	0.1	0.2	0.2	0.2	0.2	0.2	0.2
8.300	0.2	0.2	0.2	0.2	0.2	0.3	0.3
9.000	0.3	0.3	0.3	0.3	0.3	0.3	0.4
9.700	0.4	0.4	0.4	0.5	0.5	0.5	0.5
10.400	0.5	0.6	0.6	0.6	0.7	0.7	0.7
11.100	0.8	0.8	0.9	1.0	1.1	1.2	1.4
11.800	1.6	1.9	2.2	2.8	4.1	6.0	7.5
12.500	9.2	10.7	12.9	15.5	16.9	17.7	17.9
13.200	17.8	17.6	17.1	16.6	16.1	15.4	14.7

North Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
13.900	14.0	13.2	12.5	11.8	11.3	11.1	11.0
14.600	10.8	10.7	10.5	10.4	10.2	10.1	9.9
15.300	9.8	9.6	9.5	9.3	9.2	9.0	8.9
16.000	8.7	8.6	8.4	8.3	8.1	8.0	7.9
16.700	7.8	7.7	7.6	7.6	7.5	7.4	7.3
17.400	7.2	7.1	7.0	7.0	6.9	6.8	6.7
18.100	6.6	6.6	6.5	6.4	6.3	6.3	6.2
18.800	6.1	6.0	6.0	5.9	5.8	5.7	5.6
19.500	5.5	5.5	5.4	5.3	5.2	5.1	5.0
20.200	4.9	4.9	4.8	4.7	4.6	4.6	4.5
20.900	4.4	4.3	4.3	4.2	4.1	4.1	4.0
21.600	3.9	3.9	3.8	3.7	3.7	3.6	3.6
22.300	3.5	3.4	3.4	3.3	3.3	3.2	3.2
23.000	3.1	3.0	3.0	2.9	2.9	2.8	2.8
23.700	2.8	2.7	2.7	2.7	2.7	2.6	2.6
24.400	2.6	2.5	2.5	2.5	2.4	2.4	2.4
25.100	2.3	2.3	2.3	2.2	2.2	2.2	2.1
25.800	2.1	2.1	2.0	2.0	2.0	2.0	1.9
26.500	1.9	1.9	1.9	1.8	1.8	1.8	1.8
27.200	1.7	1.7	1.7	1.7	1.6	1.6	1.6
27.900	1.6	1.6	1.5	1.5	1.5	1.5	1.4
28.600	1.4	1.4	1.4	1.4	1.4	1.3	1.3
29.300	1.3	1.3	1.3	1.2	1.2	1.2	1.2
30.000	1.2	1.2	1.1	1.1	1.1	1.1	1.1
30.700	1.1	1.1	1.0	1.0	1.0	1.0	1.0
31.400	1.0	1.0	1.0	1.0	1.0	0.9	0.9
32.100	0.9	0.9	0.9	0.9	0.9	0.9	0.9
32.800	0.9	0.9	0.9	0.9	0.9	0.9	0.8
33.500	0.8	0.8	0.8	0.8	0.8	0.8	0.8
34.200	0.8	0.8	0.8	0.8	0.8	0.8	0.8
34.900	0.8	0.7	0.7	0.7	0.7	0.7	0.7
35.600	0.7	0.7	0.7	0.7	0.7	0.7	0.7
36.300	0.7	0.7	0.7	0.7	0.7	0.7	0.6
37.000	0.6	0.6	0.6	0.6	0.6	0.6	0.6
37.700	0.6	0.6	0.6	0.6	0.6	0.6	0.6
38.400	0.6	0.6	0.6	0.6	0.6	0.6	0.6
39.100	0.5	0.5	0.5	0.5	0.5	0.5	0.5
39.800	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40.500	0.5	0.5	0.5	0.5	0.5	0.5	0.5
41.200	0.5	0.5	0.5	0.5	0.5	0.4	0.4
41.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
42.600	0.4	0.4	0.4	0.4	0.4	0.4	0.4
43.300	0.4	0.4	0.4	0.4	0.4	0.4	0.4
44.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
44.700	0.4	0.4	0.4	0.3	0.3	0.3	0.3
45.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
46.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
46.800	0.3	0.3	0.3	0.3	0.3	0.3	0.3
47.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
48.200	0.3	0.3	0.3	0.3	0.3	0.3	0.3
48.900	0.3	0.3	0.3	0.3	0.3	0.2	0.2
49.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2

North Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
50.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
54.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.900	0.2	0.1	0.1	0.1	0.1	0.1	0.1
56.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
57.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
58.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
58.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
59.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
60.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
60.800	0.1	0.1	0.1	0.1	0.1	0.0	

North Parking Lot

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)	(cfs)
Option B N	0.035	36.1	41.8	61.4	99.7	
Restrictor	0.035	36.1	41.8	61.4	99.7	
DOWNSTREAM		3.0	4.0	6.9	17.9	
OUTLET	0.035	3.0	4.0	6.9	17.9	

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WinTR-20 Printed Page File      Beginning of Input Data List
C:\Users\lrosenbauer\Documents\Hard Rock Casino_South.inp

WinTR-20: Version 3.10                  0         0         .1        0
South Parking Lot

SUB-AREA:
          Option B SRestrictor          0.0233336291.64     0.5


STREAM REACH:
          RestrictorOutlet              Restrictor


STORM ANALYSIS:
          1-Year                        2.39      MSE3      2
          2-Year                        2.70      MSE3      2
          10-Year                       3.77      MSE3      2
          100-Year                      5.88      MSE3      2


STRUCTURE RATING:
          Restrictor717.
                    717.      00.       00.
                    718.      0.11      0.16
                    719.      0.15      0.38
                    720.      0.18      0.68
                    721.      0.21      1.05
                    722.      0.24      1.50
                    723.      17.93     2.03
                    724.      25.27     2.68
                    725.      41.52     3.42


RAINFALL DISTRIBUTION:
          MSE3              0.1
                    0.        0.000267  0.000555  0.000861  0.00119
                    0.00153   0.0019    0.00229   0.00269   0.00312
                    0.00356   0.00403   0.00451   0.00501   0.00554
                    0.00608   0.00665   0.00723   0.00783   0.00845
                    0.0091    0.00976   0.01044   0.01114   0.01186
                    0.0126    0.01336   0.01414   0.01494   0.01576
                    0.0166    0.01746   0.01834   0.01924   0.02016
                    0.02109   0.02205   0.02303   0.02403   0.02504
                    0.02608   0.02714   0.02821   0.02931   0.03042
                    0.03156   0.03271   0.03389   0.03508   0.0363
                    0.03753   0.03878   0.04006   0.04135   0.04266
                    0.04399   0.04535   0.04672   0.04811   0.04952
                    0.05095   0.0524    0.05387   0.05536   0.05687
                    0.0584    0.05995   0.06152   0.063111  0.06472
                    0.06635   0.06799   0.06966   0.07135   0.07306
                    0.07478   0.07653   0.0783    0.08008   0.08189
                    0.08371   0.08556   0.08742   0.08931   0.09121
                    0.09314   0.09508   0.09704   0.09903   0.10103
                    0.10305   0.10628   0.10956   0.11289   0.11626
                    0.11967   0.12314   0.12664   0.1302    0.1338
                    0.13744   0.14113   0.14487   0.14866   0.15248
                    0.15636   0.16212   0.16863   0.17591   0.18394
                    0.19272   0.20226   0.21256   0.22362   0.23543
                    0.248     0.2663    0.29062   0.32445   0.37245
                    0.46289   0.62755   0.67555   0.70938   0.7337
                    0.752     0.76457   0.77638   0.78744   0.79774
                    0.80728   0.81606   0.82409   0.83137   0.83788
                    0.84364   0.84752   0.85134   0.85513   0.85887
                    0.86256   0.8662    0.8698    0.87336   0.87686
                    0.88033   0.88374   0.88711   0.89044   0.89372
                    0.89695   0.89897   0.90097   0.90296   0.90492
                    0.90686   0.90879   0.91069   0.91258   0.91444
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0.91629   0.91811   0.91992   0.9217    0.92347
0.92522   0.92694   0.92865   0.93034   0.93201
0.93365   0.93528   0.93689   0.93848   0.94005
0.9416    0.94313   0.94464   0.94613   0.9476
0.94905   0.95048   0.95189   0.95328   0.95465
0.95601   0.95734   0.95865   0.95994   0.96122
0.96247   0.9637    0.96492   0.96611   0.96729
0.96844   0.96958   0.97069   0.97179   0.97286
0.97392   0.97496   0.97597   0.97697   0.97795
0.97891   0.97984   0.98076   0.98166   0.98254
0.9834    0.98424   0.98506   0.98586   0.98664
0.9874    0.98814   0.98886   0.98956   0.99024
0.9909    0.99155   0.99217   0.99277   0.99335
0.99392   0.99446   0.99499   0.99549   0.99597
0.99644   0.99688   0.99731   0.99771   0.9981
0.99847   0.99881   0.999139  0.999445  0.999733
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GLOBAL OUTPUT:
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WinTR-20 Printed Page File End of Input Data List

South Parking Lot

Name of printed page file:
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STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Option B S	0.023		1.557		12.36	21.6	923.83

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
9.200	0.0	0.1	0.1	0.2	0.2	0.2	0.2
9.900	0.2	0.3	0.3	0.3	0.3	0.3	0.4
10.600	0.4	0.4	0.5	0.6	0.8	0.9	1.1
11.300	1.2	1.4	1.6	1.8	2.2	2.9	4.0
12.000	5.9	9.9	16.1	20.9	21.0	17.8	13.7
12.700	10.5	8.1	6.4	5.2	4.4	3.9	3.4
13.400	3.1	2.7	2.4	2.1	1.9	1.6	1.4
14.100	1.3	1.3	1.2	1.2	1.2	1.2	1.1
14.800	1.1	1.1	1.1	1.1	1.0	0.9	0.8
15.500	0.7	0.7	0.7	0.7	0.6	0.6	0.6
16.200	0.6	0.6	0.6	0.6	0.6	0.6	0.6
16.900	0.6	0.6	0.6	0.5	0.5	0.5	0.5
17.600	0.5	0.5	0.5	0.5	0.5	0.5	0.5
18.300	0.5	0.5	0.5	0.5	0.5	0.4	0.4
19.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19.700	0.4	0.4	0.4	0.4	0.4	0.4	0.3
20.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.800	0.3	0.2	0.2	0.2	0.2	0.2	0.2
22.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.200	0.2	0.2	0.1	0.1	0.1	0.1	0.1

23.900	0.1	0.1	0.1	0.881E-01	0.747E-01	0.612E-01	0.478E-01
24.600	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.023	Upstream	1.557		12.36	21.6	923.83

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
9.200	0.0	0.1	0.1	0.2	0.2	0.2	0.2
9.900	0.2	0.3	0.3	0.3	0.3	0.3	0.4
10.600	0.4	0.4	0.5	0.6	0.8	0.9	1.1
11.300	1.2	1.4	1.6	1.8	2.2	2.9	4.0
12.000	5.9	9.9	16.1	20.9	21.0	17.8	13.7
12.700	10.5	8.1	6.4	5.2	4.4	3.9	3.4
13.400	3.1	2.7	2.4	2.1	1.9	1.6	1.4

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
14.100	1.3	1.3	1.2	1.2	1.2	1.2	1.1
14.800	1.1	1.1	1.1	1.1	1.0	0.9	0.8
15.500	0.7	0.7	0.7	0.7	0.6	0.6	0.6
16.200	0.6	0.6	0.6	0.6	0.6	0.6	0.6
16.900	0.6	0.6	0.6	0.5	0.5	0.5	0.5
17.600	0.5	0.5	0.5	0.5	0.5	0.5	0.5
18.300	0.5	0.5	0.5	0.5	0.5	0.4	0.4
19.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19.700	0.4	0.4	0.4	0.4	0.4	0.4	0.3
20.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.800	0.3	0.2	0.2	0.2	0.2	0.2	0.2
22.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.200	0.2	0.2	0.1	0.1	0.1	0.1	0.1
23.900	0.1	0.1	0.1	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.023	Downstream	1.436	722.05	15.10	1.1	45.45

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.800	0.0	0.1	0.1	0.1	0.1	0.2	0.2
12.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
13.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
13.900	0.2	0.2	0.2	0.4	0.6	0.7	0.8
14.600	0.9	1.0	1.0	1.0	1.1	1.1	1.1
15.300	1.0	1.0	0.9	0.9	0.8	0.8	0.8
16.000	0.7	0.7	0.7	0.7	0.6	0.6	0.6
16.700	0.6	0.6	0.6	0.6	0.6	0.6	0.6
17.400	0.6	0.6	0.5	0.5	0.5	0.5	0.5
18.100	0.5	0.5	0.5	0.5	0.5	0.5	0.5
18.800	0.5	0.5	0.5	0.4	0.4	0.4	0.4
19.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.200	0.4	0.4	0.4	0.4	0.4	0.3	0.3
20.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.600	0.3	0.3	0.3	0.3	0.3	0.3	0.2
22.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
26.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
28.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
30.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
34.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
34.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
35.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
37.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
37.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
38.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
39.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
39.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
40.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
41.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
41.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
42.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
43.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
46.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
46.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
54.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
56.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
57.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
58.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
58.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
59.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
60.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
60.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
61.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
62.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
62.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
63.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
64.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
65.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
65.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
66.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
67.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
67.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
68.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
69.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
69.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
70.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
71.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
72.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
72.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
73.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
74.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
74.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
75.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
77.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
78.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
79.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
79.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
81.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
81.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
82.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
83.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
83.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
84.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
85.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
86.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
86.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
87.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
88.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
88.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
89.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
90.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
90.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
91.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
92.300	0.2	0.2	0.2	0.2	0.2	0.2	0.1
93.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
93.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
94.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
95.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
95.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
96.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
97.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
97.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
98.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
99.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
101.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
102.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
102.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
103.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
104.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
104.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
105.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
106.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
107.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
107.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
108.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
109.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
109.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
110.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
111.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
111.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
112.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
113.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
114.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
114.700	0.1	0.1	0.1	0.1	0.1	0.997E-01	0.991E-01
115.400	0.986E-01	0.980E-01	0.974E-01	0.969E-01	0.963E-01	0.957E-01	0.952E-01
116.100	0.946E-01	0.940E-01	0.935E-01	0.929E-01	0.923E-01	0.918E-01	0.912E-01
116.800	0.906E-01	0.901E-01	0.895E-01	0.889E-01	0.884E-01	0.878E-01	0.872E-01
117.500	0.867E-01	0.861E-01	0.855E-01	0.849E-01	0.844E-01	0.838E-01	0.832E-01
118.200	0.827E-01	0.821E-01	0.815E-01	0.810E-01	0.804E-01	0.798E-01	0.793E-01
118.900	0.787E-01	0.781E-01	0.776E-01	0.770E-01	0.764E-01	0.759E-01	0.753E-01
119.600	0.747E-01	0.742E-01	0.736E-01	0.730E-01	0.725E-01	0.719E-01	0.713E-01
120.300	0.708E-01	0.702E-01	0.696E-01	0.691E-01	0.685E-01	0.679E-01	0.673E-01
121.000	0.668E-01	0.662E-01	0.656E-01	0.651E-01	0.645E-01	0.639E-01	0.634E-01
121.700	0.628E-01	0.622E-01	0.617E-01	0.611E-01	0.605E-01	0.600E-01	0.594E-01
122.400	0.588E-01	0.583E-01	0.577E-01	0.571E-01	0.566E-01	0.560E-01	0.554E-01
123.100	0.549E-01	0.543E-01	0.537E-01	0.532E-01	0.526E-01	0.520E-01	0.515E-01
123.800	0.509E-01	0.503E-01	0.497E-01	0.492E-01	0.486E-01	0.480E-01	0.475E-01
124.500	0.469E-01	0.463E-01	0.458E-01	0.452E-01	0.446E-01	0.441E-01	0.435E-01
125.200	0.429E-01	0.424E-01	0.418E-01	0.412E-01	0.407E-01	0.401E-01	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.023		1.435		15.10	1.1	45.45

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.800	0.0	0.1	0.1	0.1	0.1	0.2	0.2
12.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
13.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
13.900	0.2	0.2	0.2	0.4	0.6	0.7	0.8
14.600	0.9	1.0	1.0	1.0	1.1	1.1	1.1
15.300	1.0	1.0	0.9	0.9	0.8	0.8	0.8
16.000	0.7	0.7	0.7	0.7	0.6	0.6	0.6
16.700	0.6	0.6	0.6	0.6	0.6	0.6	0.6

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
17.400	0.6	0.6	0.5	0.5	0.5	0.5	0.5
18.100	0.5	0.5	0.5	0.5	0.5	0.5	0.5
18.800	0.5	0.5	0.5	0.4	0.4	0.4	0.4
19.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.200	0.4	0.4	0.4	0.4	0.4	0.3	0.3
20.900	0.3	0.3	0.3	0.3	0.3	0.3	0.3
21.600	0.3	0.3	0.3	0.3	0.3	0.3	0.2
22.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
26.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
28.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
34.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
34.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
35.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
37.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
37.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
38.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
39.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
39.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
40.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
41.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
41.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
42.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
43.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
46.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
46.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
53.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
54.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
56.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
57.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
58.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
58.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
59.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
60.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
60.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
61.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
62.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
62.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
63.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
64.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
65.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
65.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
66.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
67.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
67.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
68.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
69.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
69.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
70.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
71.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
72.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
72.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
73.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
74.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
74.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
75.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
77.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
78.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
79.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
79.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
81.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
81.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
82.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
83.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
83.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
84.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
85.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
86.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
86.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
87.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
88.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
88.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
89.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
90.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
90.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
91.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
92.300	0.2	0.2	0.2	0.2	0.2	0.2	0.1
93.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
93.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
94.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
95.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
95.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
96.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
97.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
97.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
98.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
99.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
101.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
102.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
102.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
103.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
104.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
104.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
105.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
106.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
107.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
107.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
108.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
109.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
109.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
110.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
111.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
111.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
112.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
113.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
114.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
114.700	0.1	0.1	0.1	0.1	0.1	0.0	

STORM 2-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Option B S	0.023		1.842		12.35	25.4	1089.30

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
8.700	0.0	0.636E-01	0.1	0.1	0.1	0.1	0.2
9.400	0.2	0.2	0.3	0.3	0.3	0.3	0.4
10.100	0.4	0.4	0.4	0.5	0.5	0.5	0.6

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.800	0.7	0.8	1.0	1.2	1.4	1.6	1.8
11.500	2.0	2.3	2.8	3.5	4.9	7.2	11.8
12.200	19.1	24.7	24.7	20.9	16.1	12.3	9.5
12.900	7.4	6.0	5.1	4.5	4.0	3.5	3.2
13.600	2.8	2.5	2.1	1.9	1.7	1.6	1.5
14.300	1.4	1.4	1.4	1.3	1.3	1.3	1.3
15.000	1.3	1.2	1.2	1.0	0.9	0.9	0.8
15.700	0.8	0.8	0.7	0.7	0.7	0.7	0.7
16.400	0.7	0.7	0.7	0.7	0.7	0.6	0.6
17.100	0.6	0.6	0.6	0.6	0.6	0.6	0.6
17.800	0.6	0.6	0.6	0.6	0.6	0.5	0.5
18.500	0.5	0.5	0.5	0.5	0.5	0.5	0.5
19.200	0.5	0.5	0.5	0.5	0.5	0.4	0.4
19.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.600	0.4	0.4	0.4	0.4	0.3	0.3	0.3
21.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.000	0.3	0.3	0.3	0.3	0.2	0.2	0.2
22.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.400	0.2	0.2	0.2	0.1	0.1	0.1	0.1
24.100	0.1	0.979E-01	0.759E-01	0.540E-01	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.023	Upstream	1.842		12.35	25.4	1089.30

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.700	0.0	0.636E-01	0.1	0.1	0.1	0.1	0.2
9.400	0.2	0.2	0.3	0.3	0.3	0.3	0.4
10.100	0.4	0.4	0.4	0.5	0.5	0.5	0.6
10.800	0.7	0.8	1.0	1.2	1.4	1.6	1.8
11.500	2.0	2.3	2.8	3.5	4.9	7.2	11.8
12.200	19.1	24.7	24.7	20.9	16.1	12.3	9.5
12.900	7.4	6.0	5.1	4.5	4.0	3.5	3.2
13.600	2.8	2.5	2.1	1.9	1.7	1.6	1.5
14.300	1.4	1.4	1.4	1.3	1.3	1.3	1.3
15.000	1.3	1.2	1.2	1.0	0.9	0.9	0.8
15.700	0.8	0.8	0.7	0.7	0.7	0.7	0.7
16.400	0.7	0.7	0.7	0.7	0.7	0.6	0.6
17.100	0.6	0.6	0.6	0.6	0.6	0.6	0.6
17.800	0.6	0.6	0.6	0.6	0.6	0.5	0.5
18.500	0.5	0.5	0.5	0.5	0.5	0.5	0.5
19.200	0.5	0.5	0.5	0.5	0.5	0.4	0.4
19.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.600	0.4	0.4	0.4	0.4	0.3	0.3	0.3
21.300	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.000	0.3	0.3	0.3	0.3	0.2	0.2	0.2
22.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
23.400	0.2	0.2	0.2	0.1	0.1	0.1	0.1
24.100	0.1	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.023	Downstream	1.720	722.17	13.49	3.2	138.08

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.600	0.0	0.1	0.1	0.1	0.1	0.1	0.2
12.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
13.000	0.8	2.0	2.6	3.0	3.2	3.2	3.2
13.700	3.0	2.9	2.6	2.4	2.2	2.1	1.9
14.400	1.8	1.7	1.6	1.5	1.5	1.4	1.4
15.100	1.4	1.3	1.3	1.2	1.1	1.1	1.0
15.800	0.9	0.9	0.8	0.8	0.8	0.8	0.7
16.500	0.7	0.7	0.7	0.7	0.7	0.7	0.7
17.200	0.7	0.6	0.6	0.6	0.6	0.6	0.6
17.900	0.6	0.6	0.6	0.6	0.6	0.6	0.6
18.600	0.6	0.5	0.5	0.5	0.5	0.5	0.5
19.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
20.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.700	0.4	0.4	0.4	0.4	0.4	0.4	0.4
21.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
26.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
28.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
34.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
34.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
35.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
37.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
38.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
38.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
39.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
40.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
41.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
41.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
42.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
43.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
43.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
46.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
54.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
56.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
57.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
57.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
58.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
59.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
59.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
60.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
61.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
62.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
62.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
63.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
64.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
64.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
65.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
66.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
66.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
67.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
68.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
69.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
69.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
70.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
71.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
71.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
72.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
73.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
73.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
74.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
75.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
77.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
78.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
78.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
79.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
81.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
82.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
83.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
83.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
84.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
85.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
85.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
86.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
87.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
87.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
88.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
89.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
90.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
90.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
91.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
92.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
92.800	0.2	0.2	0.2	0.1	0.1	0.1	0.1
93.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
94.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
94.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
95.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
96.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
97.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
97.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
98.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
99.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
99.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
101.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
101.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
102.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
103.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
104.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
104.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
105.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
106.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
106.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
107.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
108.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
108.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
109.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
110.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
111.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
111.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
112.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
113.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
113.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
114.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
115.200	0.1	0.1	0.998E-01	0.992E-01	0.987E-01	0.981E-01	0.975E-01
115.900	0.970E-01	0.964E-01	0.958E-01	0.953E-01	0.947E-01	0.941E-01	0.936E-01
116.600	0.930E-01	0.924E-01	0.919E-01	0.913E-01	0.907E-01	0.901E-01	0.896E-01
117.300	0.890E-01	0.884E-01	0.879E-01	0.873E-01	0.867E-01	0.862E-01	0.856E-01
118.000	0.850E-01	0.845E-01	0.839E-01	0.833E-01	0.828E-01	0.822E-01	0.816E-01
118.700	0.811E-01	0.805E-01	0.799E-01	0.794E-01	0.788E-01	0.782E-01	0.777E-01
119.400	0.771E-01	0.765E-01	0.760E-01	0.754E-01	0.748E-01	0.742E-01	0.737E-01
120.100	0.731E-01	0.725E-01	0.720E-01	0.714E-01	0.708E-01	0.703E-01	0.697E-01
120.800	0.691E-01	0.686E-01	0.680E-01	0.674E-01	0.669E-01	0.663E-01	0.657E-01
121.500	0.652E-01	0.646E-01	0.640E-01	0.635E-01	0.629E-01	0.623E-01	0.618E-01
122.200	0.612E-01	0.606E-01	0.601E-01	0.595E-01	0.589E-01	0.583E-01	0.578E-01
122.900	0.572E-01	0.566E-01	0.561E-01	0.555E-01	0.549E-01	0.544E-01	0.538E-01
123.600	0.532E-01	0.527E-01	0.521E-01	0.515E-01	0.510E-01	0.504E-01	0.498E-01
124.300	0.493E-01	0.487E-01	0.481E-01	0.476E-01	0.470E-01	0.464E-01	0.459E-01
125.000	0.453E-01	0.447E-01	0.441E-01	0.436E-01	0.430E-01	0.424E-01	0.419E-01
125.700	0.413E-01	0.407E-01	0.402E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.023		1.720		13.49	3.2	138.08

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
11.600	0.0	0.1	0.1	0.1	0.1	0.1	0.2
12.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
13.000	0.8	2.0	2.6	3.0	3.2	3.2	3.2
13.700	3.0	2.9	2.6	2.4	2.2	2.1	1.9
14.400	1.8	1.7	1.6	1.5	1.5	1.4	1.4
15.100	1.4	1.3	1.3	1.2	1.1	1.1	1.0
15.800	0.9	0.9	0.8	0.8	0.8	0.8	0.7
16.500	0.7	0.7	0.7	0.7	0.7	0.7	0.7
17.200	0.7	0.6	0.6	0.6	0.6	0.6	0.6
17.900	0.6	0.6	0.6	0.6	0.6	0.6	0.6
18.600	0.6	0.5	0.5	0.5	0.5	0.5	0.5
19.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
20.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20.700	0.4	0.4	0.4	0.4	0.4	0.4	0.4
21.400	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.100	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
25.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
26.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
28.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
34.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
34.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
35.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
37.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
38.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
38.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
39.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
40.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
41.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
41.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
42.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
43.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
43.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
46.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
54.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
56.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
57.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
57.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
58.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
59.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
59.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
60.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
61.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
62.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
62.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
63.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
64.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
64.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
65.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
66.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
66.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
67.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
68.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
69.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
69.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
70.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
71.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
71.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
72.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
73.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
73.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
74.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
75.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
77.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
78.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
78.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
79.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
81.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
82.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
83.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
83.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
84.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
85.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
85.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
86.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
87.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
87.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
88.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
89.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
90.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
90.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
91.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
92.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
92.800	0.2	0.2	0.2	0.1	0.1	0.1	0.1
93.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
94.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
94.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
95.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
96.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
97.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
97.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
98.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
99.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
99.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
101.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
101.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
102.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
103.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
104.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
104.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
105.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
106.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
106.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
107.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
108.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
108.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
109.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
110.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
111.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
111.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
112.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
113.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
113.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
114.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
115.200	0.1	0.1	0.0				

STORM 10-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Option B S	0.023		2.856		12.36	38.7	1657.38

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
7.100	0.0	0.715E-01	0.1	0.1	0.1	0.1	0.2
7.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
8.500	0.3	0.3	0.3	0.3	0.3	0.3	0.4
9.200	0.4	0.5	0.5	0.6	0.7	0.7	0.7
9.900	0.8	0.8	0.9	0.9	0.9	1.0	1.0
10.600	1.1	1.2	1.4	1.6	1.9	2.2	2.5
11.300	2.9	3.2	3.6	4.0	4.7	6.0	8.1
12.000	11.8	18.8	29.7	37.8	37.5	31.5	24.1
12.700	18.3	14.0	11.0	8.9	7.5	6.5	5.8
13.400	5.2	4.6	4.1	3.6	3.1	2.7	2.4
14.100	2.3	2.1	2.1	2.0	2.0	1.9	1.9
14.800	1.9	1.9	1.8	1.8	1.7	1.5	1.4
15.500	1.2	1.2	1.1	1.1	1.1	1.0	1.0
16.200	1.0	1.0	1.0	1.0	1.0	1.0	0.9

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
16.900	0.9	0.9	0.9	0.9	0.9	0.9	0.9
17.600	0.9	0.9	0.8	0.8	0.8	0.8	0.8
18.300	0.8	0.8	0.8	0.8	0.7	0.7	0.7
19.000	0.7	0.7	0.7	0.7	0.7	0.7	0.7
19.700	0.6	0.6	0.6	0.6	0.6	0.6	0.6
20.400	0.6	0.6	0.5	0.5	0.5	0.5	0.5
21.100	0.5	0.5	0.5	0.5	0.5	0.4	0.4
21.800	0.4	0.4	0.4	0.4	0.4	0.4	0.4
22.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
23.200	0.3	0.3	0.2	0.2	0.2	0.2	0.2
23.900	0.2	0.2	0.2	0.1	0.1	0.619E-01	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.023	Upstream	2.856		12.36	38.7	1657.38

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
7.100	0.0	0.715E-01	0.1	0.1	0.1	0.1	0.2
7.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
8.500	0.3	0.3	0.3	0.3	0.3	0.3	0.4
9.200	0.4	0.5	0.5	0.6	0.7	0.7	0.7
9.900	0.8	0.8	0.9	0.9	0.9	1.0	1.0
10.600	1.1	1.2	1.4	1.6	1.9	2.2	2.5
11.300	2.9	3.2	3.6	4.0	4.7	6.0	8.1
12.000	11.8	18.8	29.7	37.8	37.5	31.5	24.1
12.700	18.3	14.0	11.0	8.9	7.5	6.5	5.8
13.400	5.2	4.6	4.1	3.6	3.1	2.7	2.4
14.100	2.3	2.1	2.1	2.0	2.0	1.9	1.9
14.800	1.9	1.9	1.8	1.8	1.7	1.5	1.4
15.500	1.2	1.2	1.1	1.1	1.1	1.0	1.0
16.200	1.0	1.0	1.0	1.0	1.0	1.0	0.9
16.900	0.9	0.9	0.9	0.9	0.9	0.9	0.9
17.600	0.9	0.9	0.8	0.8	0.8	0.8	0.8
18.300	0.8	0.8	0.8	0.8	0.7	0.7	0.7
19.000	0.7	0.7	0.7	0.7	0.7	0.7	0.7
19.700	0.6	0.6	0.6	0.6	0.6	0.6	0.6
20.400	0.6	0.6	0.5	0.5	0.5	0.5	0.5
21.100	0.5	0.5	0.5	0.5	0.5	0.4	0.4
21.800	0.4	0.4	0.4	0.4	0.4	0.4	0.4
22.500	0.3	0.3	0.3	0.3	0.3	0.3	0.3
23.200	0.3	0.3	0.2	0.2	0.2	0.2	0.2
23.900	0.2	0.2	0.2	0.1	0.841E-01	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.023	Downstream	2.731	722.80	12.80	14.4	619.18

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.800	0.0	0.880E-01	0.1	0.1	0.1	0.1	0.1
11.500	0.1	0.1	0.1	0.1	0.2	0.2	0.2
12.200	0.2	0.2	0.2	6.7	11.7	13.9	14.4
12.900	13.9	12.9	11.8	10.6	9.5	8.6	7.7
13.600	6.9	6.1	5.5	4.8	4.3	3.8	3.4
14.300	3.1	2.9	2.6	2.5	2.3	2.2	2.1
15.000	2.1	2.0	1.9	1.9	1.8	1.6	1.5
15.700	1.4	1.4	1.3	1.2	1.2	1.1	1.1
16.400	1.1	1.1	1.0	1.0	1.0	1.0	1.0
17.100	1.0	1.0	0.9	0.9	0.9	0.9	0.9
17.800	0.9	0.9	0.9	0.9	0.8	0.8	0.8
18.500	0.8	0.8	0.8	0.8	0.8	0.8	0.7
19.200	0.7	0.7	0.7	0.7	0.7	0.7	0.7
19.900	0.7	0.6	0.6	0.6	0.6	0.6	0.6
20.600	0.6	0.6	0.6	0.6	0.5	0.5	0.5
21.300	0.5	0.5	0.5	0.5	0.5	0.5	0.4
22.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
22.700	0.4	0.3	0.3	0.3	0.3	0.3	0.3
23.400	0.3	0.3	0.3	0.3	0.2	0.2	0.2
24.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
26.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
26.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
28.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
34.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
35.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
37.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
38.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
38.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
39.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
40.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
40.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
41.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
42.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
43.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
43.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
46.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
54.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
54.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
56.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
57.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
57.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
58.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
59.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
59.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
60.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
61.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
61.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
62.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
63.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
64.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
64.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
65.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
66.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
66.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
67.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
68.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
68.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
69.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
70.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
71.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
71.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
72.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
73.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
73.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
74.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
75.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
75.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
77.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
78.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
78.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
79.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
81.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
82.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
82.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
83.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
84.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
85.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
85.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
86.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
87.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
87.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
88.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
89.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
89.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
90.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
91.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
92.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
92.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
93.400	0.2	0.1	0.1	0.1	0.1	0.1	0.1
94.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
94.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
95.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
96.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
96.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
97.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
98.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
99.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
99.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
101.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
101.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
102.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
103.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
103.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
104.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
105.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
106.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
106.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
107.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
108.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
108.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
109.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
110.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
110.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
111.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
112.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
113.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
113.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
114.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
115.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
115.800	0.999E-01	0.993E-01	0.987E-01	0.982E-01	0.976E-01	0.970E-01	0.965E-01
116.500	0.959E-01	0.953E-01	0.948E-01	0.942E-01	0.936E-01	0.930E-01	0.925E-01
117.200	0.919E-01	0.913E-01	0.908E-01	0.902E-01	0.896E-01	0.891E-01	0.885E-01
117.900	0.879E-01	0.874E-01	0.868E-01	0.862E-01	0.857E-01	0.851E-01	0.845E-01
118.600	0.839E-01	0.834E-01	0.828E-01	0.822E-01	0.817E-01	0.811E-01	0.805E-01
119.300	0.800E-01	0.794E-01	0.788E-01	0.783E-01	0.777E-01	0.771E-01	0.766E-01
120.000	0.760E-01	0.754E-01	0.748E-01	0.743E-01	0.737E-01	0.731E-01	0.726E-01
120.700	0.720E-01	0.714E-01	0.709E-01	0.703E-01	0.697E-01	0.692E-01	0.686E-01
121.400	0.680E-01	0.675E-01	0.669E-01	0.663E-01	0.658E-01	0.652E-01	0.646E-01
122.100	0.640E-01	0.635E-01	0.629E-01	0.623E-01	0.618E-01	0.612E-01	0.606E-01
122.800	0.601E-01	0.595E-01	0.589E-01	0.584E-01	0.578E-01	0.572E-01	0.567E-01
123.500	0.561E-01	0.555E-01	0.549E-01	0.544E-01	0.538E-01	0.532E-01	0.527E-01
124.200	0.521E-01	0.515E-01	0.510E-01	0.504E-01	0.498E-01	0.493E-01	0.487E-01
124.900	0.481E-01	0.476E-01	0.470E-01	0.464E-01	0.458E-01	0.453E-01	0.447E-01
125.600	0.441E-01	0.436E-01	0.430E-01	0.424E-01	0.419E-01	0.413E-01	0.407E-01
126.300	0.402E-01	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.023		2.731		12.80	14.4	619.18

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.800	0.0	0.880E-01	0.1	0.1	0.1	0.1	0.1
11.500	0.1	0.1	0.1	0.1	0.2	0.2	0.2
12.200	0.2	0.2	0.2	6.7	11.7	13.9	14.4
12.900	13.9	12.9	11.8	10.6	9.5	8.6	7.7
13.600	6.9	6.1	5.5	4.8	4.3	3.8	3.4
14.300	3.1	2.9	2.6	2.5	2.3	2.2	2.1
15.000	2.1	2.0	1.9	1.9	1.8	1.6	1.5
15.700	1.4	1.4	1.3	1.2	1.2	1.1	1.1
16.400	1.1	1.1	1.0	1.0	1.0	1.0	1.0
17.100	1.0	1.0	0.9	0.9	0.9	0.9	0.9
17.800	0.9	0.9	0.9	0.9	0.8	0.8	0.8
18.500	0.8	0.8	0.8	0.8	0.8	0.8	0.7
19.200	0.7	0.7	0.7	0.7	0.7	0.7	0.7
19.900	0.7	0.6	0.6	0.6	0.6	0.6	0.6
20.600	0.6	0.6	0.6	0.6	0.5	0.5	0.5
21.300	0.5	0.5	0.5	0.5	0.5	0.5	0.4
22.000	0.4	0.4	0.4	0.4	0.4	0.4	0.4
22.700	0.4	0.3	0.3	0.3	0.3	0.3	0.3
23.400	0.3	0.3	0.3	0.3	0.2	0.2	0.2
24.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
26.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
26.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
28.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
34.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
35.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
37.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
38.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
38.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
39.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
40.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
40.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
41.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
42.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
43.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
43.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
46.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
54.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
54.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
56.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
57.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
57.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
58.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
59.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
59.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
60.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
61.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
61.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
62.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
63.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
64.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
64.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
65.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
66.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
66.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
67.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
68.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
68.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
69.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
70.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
71.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
71.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
72.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
73.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
73.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
74.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
75.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
75.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
77.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
78.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
78.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
79.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
81.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
82.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
82.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
83.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
84.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
85.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
85.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
86.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
87.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
87.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
88.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
89.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
89.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
90.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
91.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
92.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
92.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
93.400	0.2	0.1	0.1	0.1	0.1	0.1	0.1
94.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
94.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
95.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
96.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
96.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
97.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
98.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
99.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
99.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
101.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
101.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
102.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
103.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
103.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
104.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
105.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
106.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
106.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
107.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
108.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
108.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
109.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
110.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
110.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
111.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
112.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
113.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
113.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
114.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
115.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
115.800	0.0						

STORM 100-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Option B S	0.023		4.908		12.35	64.8	2777.95

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
5.400	0.0	0.1	0.1	0.1	0.2	0.2	0.2
6.100	0.2	0.2	0.3	0.3	0.3	0.3	0.3
6.800	0.4	0.4	0.4	0.4	0.4	0.5	0.5
7.500	0.5	0.5	0.6	0.6	0.6	0.6	0.7
8.200	0.7	0.7	0.7	0.7	0.8	0.8	0.8
8.900	0.8	0.9	0.9	1.0	1.2	1.3	1.5
9.600	1.6	1.7	1.7	1.8	1.9	1.9	2.0
10.300	2.0	2.1	2.2	2.3	2.5	2.9	3.4
11.000	3.9	4.5	5.0	5.6	6.3	6.9	7.6
11.700	8.9	11.1	14.7	20.8	32.7	50.5	63.5
12.400	62.5	52.2	39.7	30.2	23.0	17.9	14.5
13.100	12.2	10.6	9.3	8.3	7.5	6.6	5.8
13.800	5.0	4.4	3.9	3.6	3.4	3.3	3.2
14.500	3.2	3.1	3.1	3.0	3.0	2.9	2.9
15.200	2.7	2.4	2.2	2.0	1.9	1.8	1.7
15.900	1.7	1.7	1.6	1.6	1.6	1.6	1.6
16.600	1.6	1.5	1.5	1.5	1.5	1.5	1.5

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
17.300	1.4	1.4	1.4	1.4	1.4	1.4	1.3
18.000	1.3	1.3	1.3	1.3	1.2	1.2	1.2
18.700	1.2	1.2	1.2	1.1	1.1	1.1	1.1
19.400	1.1	1.1	1.0	1.0	1.0	1.0	1.0
20.100	1.0	0.9	0.9	0.9	0.9	0.9	0.9
20.800	0.8	0.8	0.8	0.8	0.8	0.8	0.7
21.500	0.7	0.7	0.7	0.7	0.6	0.6	0.6
22.200	0.6	0.6	0.6	0.5	0.5	0.5	0.5
22.900	0.5	0.5	0.4	0.4	0.4	0.4	0.4
23.600	0.4	0.3	0.3	0.3	0.3	0.3	0.2
24.300	0.2	0.1	0.504E-01	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.023	Upstream	4.908		12.35	64.8	2777.95

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
5.400	0.0	0.1	0.1	0.1	0.2	0.2	0.2
6.100	0.2	0.2	0.3	0.3	0.3	0.3	0.3
6.800	0.4	0.4	0.4	0.4	0.4	0.5	0.5
7.500	0.5	0.5	0.6	0.6	0.6	0.6	0.7
8.200	0.7	0.7	0.7	0.7	0.8	0.8	0.8
8.900	0.8	0.9	0.9	1.0	1.2	1.3	1.5
9.600	1.6	1.7	1.7	1.8	1.9	1.9	2.0
10.300	2.0	2.1	2.2	2.3	2.5	2.9	3.4
11.000	3.9	4.5	5.0	5.6	6.3	6.9	7.6
11.700	8.9	11.1	14.7	20.8	32.7	50.5	63.5
12.400	62.5	52.2	39.7	30.2	23.0	17.9	14.5
13.100	12.2	10.6	9.3	8.3	7.5	6.6	5.8
13.800	5.0	4.4	3.9	3.6	3.4	3.3	3.2
14.500	3.2	3.1	3.1	3.0	3.0	2.9	2.9
15.200	2.7	2.4	2.2	2.0	1.9	1.8	1.7
15.900	1.7	1.7	1.6	1.6	1.6	1.6	1.6
16.600	1.6	1.5	1.5	1.5	1.5	1.5	1.5
17.300	1.4	1.4	1.4	1.4	1.4	1.4	1.3
18.000	1.3	1.3	1.3	1.3	1.2	1.2	1.2
18.700	1.2	1.2	1.2	1.1	1.1	1.1	1.1
19.400	1.1	1.1	1.0	1.0	1.0	1.0	1.0
20.100	1.0	0.9	0.9	0.9	0.9	0.9	0.9
20.800	0.8	0.8	0.8	0.8	0.8	0.8	0.7
21.500	0.7	0.7	0.7	0.7	0.6	0.6	0.6
22.200	0.6	0.6	0.6	0.5	0.5	0.5	0.5
22.900	0.5	0.5	0.4	0.4	0.4	0.4	0.4
23.600	0.4	0.3	0.3	0.3	0.3	0.3	0.2
24.300	0.2	0.409E-01	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.023	Downstream	4.781	724.26	12.70	29.4	1262.10

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
9.200	0.0	0.1	0.1	0.1	0.1	0.1	0.1
9.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
10.600	0.1	0.1	0.1	0.2	0.2	0.2	0.2
11.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
12.000	0.2	0.2	4.7	17.1	21.9	25.2	28.4
12.700	29.4	28.9	27.5	25.6	24.3	23.2	22.0
13.400	20.8	19.7	18.6	16.6	13.9	11.6	9.8
14.100	8.4	7.2	6.3	5.6	5.0	4.5	4.2
14.800	3.9	3.7	3.5	3.4	3.2	3.1	2.9
15.500	2.7	2.5	2.3	2.2	2.1	2.0	1.9
16.200	1.8	1.8	1.7	1.7	1.7	1.6	1.6
16.900	1.6	1.6	1.5	1.5	1.5	1.5	1.5
17.600	1.4	1.4	1.4	1.4	1.4	1.4	1.3
18.300	1.3	1.3	1.3	1.3	1.3	1.2	1.2
19.000	1.2	1.2	1.2	1.2	1.1	1.1	1.1
19.700	1.1	1.1	1.1	1.0	1.0	1.0	1.0
20.400	1.0	1.0	0.9	0.9	0.9	0.9	0.9
21.100	0.8	0.8	0.8	0.8	0.8	0.8	0.7
21.800	0.7	0.7	0.7	0.7	0.7	0.6	0.6
22.500	0.6	0.6	0.6	0.6	0.5	0.5	0.5
23.200	0.5	0.5	0.5	0.4	0.4	0.4	0.4
23.900	0.4	0.4	0.3	0.3	0.3	0.2	0.2
24.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
26.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
26.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
28.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
28.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
34.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
35.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
35.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
37.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
37.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
38.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
39.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
40.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
40.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
41.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
42.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
42.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
43.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
46.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
54.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
54.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
56.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
56.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
57.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
58.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
58.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
59.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
60.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
61.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
61.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
62.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
63.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
63.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
64.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
65.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
65.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
66.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
67.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
68.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
68.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
69.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
70.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
70.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
71.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
72.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
72.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
73.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
74.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
75.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
75.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
77.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
77.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
78.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
79.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
79.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
81.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
82.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
82.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
83.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
84.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
84.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
85.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
86.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
86.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
87.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
88.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
89.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
89.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
90.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
91.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
91.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
92.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
93.200	0.2	0.2	0.2	0.2	0.2	0.2	0.1
93.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
94.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
95.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
96.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
96.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
97.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
98.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
98.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
99.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
101.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
102.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
103.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
103.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
104.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
105.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
105.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
106.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
107.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
107.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
108.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
109.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
110.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
110.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
111.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
112.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
112.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
113.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
114.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
114.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
115.600	0.1	0.1	0.1	0.1	0.1	0.996E-01	0.990E-01
116.300	0.985E-01	0.979E-01	0.973E-01	0.968E-01	0.962E-01	0.956E-01	0.951E-01
117.000	0.945E-01	0.939E-01	0.933E-01	0.928E-01	0.922E-01	0.916E-01	0.911E-01
117.700	0.905E-01	0.899E-01	0.894E-01	0.888E-01	0.882E-01	0.877E-01	0.871E-01
118.400	0.865E-01	0.860E-01	0.854E-01	0.848E-01	0.843E-01	0.837E-01	0.831E-01
119.100	0.826E-01	0.820E-01	0.814E-01	0.809E-01	0.803E-01	0.797E-01	0.791E-01
119.800	0.786E-01	0.780E-01	0.774E-01	0.769E-01	0.763E-01	0.757E-01	0.752E-01
120.500	0.746E-01	0.740E-01	0.735E-01	0.729E-01	0.723E-01	0.718E-01	0.712E-01
121.200	0.706E-01	0.701E-01	0.695E-01	0.689E-01	0.684E-01	0.678E-01	0.672E-01
121.900	0.666E-01	0.661E-01	0.655E-01	0.649E-01	0.644E-01	0.638E-01	0.632E-01
122.600	0.627E-01	0.621E-01	0.615E-01	0.610E-01	0.604E-01	0.598E-01	0.593E-01
123.300	0.587E-01	0.581E-01	0.576E-01	0.570E-01	0.564E-01	0.559E-01	0.553E-01
124.000	0.547E-01	0.542E-01	0.536E-01	0.530E-01	0.524E-01	0.519E-01	0.513E-01
124.700	0.507E-01	0.502E-01	0.496E-01	0.490E-01	0.485E-01	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.023		4.781		12.70	29.4	1262.10

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
9.200	0.0	0.1	0.1	0.1	0.1	0.1	0.1
9.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
10.600	0.1	0.1	0.1	0.2	0.2	0.2	0.2
11.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
12.000	0.2	0.2	4.7	17.1	21.9	25.2	28.4
12.700	29.4	28.9	27.5	25.6	24.3	23.2	22.0
13.400	20.8	19.7	18.6	16.6	13.9	11.6	9.8
14.100	8.4	7.2	6.3	5.6	5.0	4.5	4.2
14.800	3.9	3.7	3.5	3.4	3.2	3.1	2.9
15.500	2.7	2.5	2.3	2.2	2.1	2.0	1.9
16.200	1.8	1.8	1.7	1.7	1.7	1.6	1.6
16.900	1.6	1.6	1.5	1.5	1.5	1.5	1.5
17.600	1.4	1.4	1.4	1.4	1.4	1.4	1.3
18.300	1.3	1.3	1.3	1.3	1.3	1.2	1.2
19.000	1.2	1.2	1.2	1.2	1.1	1.1	1.1
19.700	1.1	1.1	1.1	1.0	1.0	1.0	1.0
20.400	1.0	1.0	0.9	0.9	0.9	0.9	0.9
21.100	0.8	0.8	0.8	0.8	0.8	0.8	0.7
21.800	0.7	0.7	0.7	0.7	0.7	0.6	0.6
22.500	0.6	0.6	0.6	0.6	0.5	0.5	0.5
23.200	0.5	0.5	0.5	0.4	0.4	0.4	0.4
23.900	0.4	0.4	0.3	0.3	0.3	0.2	0.2
24.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
26.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
26.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
28.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
28.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
32.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
33.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
34.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
35.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
35.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
36.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
37.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
37.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
38.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
39.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
40.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
40.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
41.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
42.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
42.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
43.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
44.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
46.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
47.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
48.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
49.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
50.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
51.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
52.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
53.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
54.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
54.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
55.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
56.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
56.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
57.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
58.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
58.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
59.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
60.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
61.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
61.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
62.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
63.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
63.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
64.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
65.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
65.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
66.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
67.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
68.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
68.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
69.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
70.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
70.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
71.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
72.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
72.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
73.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
74.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
75.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
75.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
76.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
77.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
77.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
78.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
79.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
79.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
80.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
81.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
82.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
82.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
83.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
84.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
84.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
85.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
86.200	0.2	0.2	0.2	0.2	0.2	0.2	0.2
86.900	0.2	0.2	0.2	0.2	0.2	0.2	0.2
87.600	0.2	0.2	0.2	0.2	0.2	0.2	0.2
88.300	0.2	0.2	0.2	0.2	0.2	0.2	0.2
89.000	0.2	0.2	0.2	0.2	0.2	0.2	0.2
89.700	0.2	0.2	0.2	0.2	0.2	0.2	0.2
90.400	0.2	0.2	0.2	0.2	0.2	0.2	0.2
91.100	0.2	0.2	0.2	0.2	0.2	0.2	0.2
91.800	0.2	0.2	0.2	0.2	0.2	0.2	0.2
92.500	0.2	0.2	0.2	0.2	0.2	0.2	0.2
93.200	0.2	0.2	0.2	0.2	0.2	0.2	0.1
93.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
94.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
95.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
96.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
96.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
97.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
98.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
98.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1

South Parking Lot

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
99.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
101.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
102.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
103.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
103.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
104.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
105.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
105.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
106.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
107.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
107.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
108.600	0.1	0.1	0.1	0.1	0.1	0.1	0.1
109.300	0.1	0.1	0.1	0.1	0.1	0.1	0.1
110.000	0.1	0.1	0.1	0.1	0.1	0.1	0.1
110.700	0.1	0.1	0.1	0.1	0.1	0.1	0.1
111.400	0.1	0.1	0.1	0.1	0.1	0.1	0.1
112.100	0.1	0.1	0.1	0.1	0.1	0.1	0.1
112.800	0.1	0.1	0.1	0.1	0.1	0.1	0.1
113.500	0.1	0.1	0.1	0.1	0.1	0.1	0.1
114.200	0.1	0.1	0.1	0.1	0.1	0.1	0.1
114.900	0.1	0.1	0.1	0.1	0.1	0.1	0.1
115.600	0.1	0.1	0.1	0.1	0.1	0.0	

South Parking Lot

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)	(cfs)
Option B S	0.023	21.6	25.4	38.7	64.8	
Restrictor	0.023	21.6	25.4	38.7	64.8	
DOWNSTREAM		1.1	3.2	14.4	29.4	
OUTLET	0.023	1.1	3.2	14.4	29.4	

Figure 44 – Alternative C Stormwater TR-20 Models

TR-20 Results – Option C

Hard Rock Hotel & Casino
Option C – Non-Gaming
DJN **09.12.23**

North Parking Lot

WinTR-20 Printed Page File Beginning of Input Data List

C:\Local File Transfer Folder\Hard Rock Casino\Option C\North Parking Lot.inp

WinTR-20: version 3.10 0 0 0.1 0

North Parking Lot

Option C

SUB-AREA:

North Lot Restrictor 0.0340359285.93062650.5

STREAM REACH:

RestrictorOutlet Restrictor

STORM ANALYSIS:

1-Year	2.39	MSE3	2
2-Year	2.70	MSE3	2
10-Year	3.77	MSE3	2
100-Year	5.88	MSE3	2

STRUCTURE RATING:

Restrictor713.

713.	0.	0.
714.	0.76	1.42
715.	2.14	2.95
716.	3.94	4.58
717.	6.06	6.33

RAINFALL DISTRIBUTION:

MSE3 0.1

0. 0.000267 0.000555 0.000861 0.00119

0.00153 0.0019 0.00229 0.00269 0.00312

0.00356 0.00403 0.00451 0.00501 0.00554

0.00608 0.00665 0.00723 0.00783 0.00845

0.0091 0.00976 0.01044 0.01114 0.01186

0.0126 0.01336 0.01414 0.01494 0.01576

0.0166 0.01746 0.01834 0.01924 0.02016

0.02109 0.02205 0.02303 0.02403 0.02504

0.02608 0.02714 0.02821 0.02931 0.03042

0.03156 0.03271 0.03389 0.03508 0.0363

0.03753 0.03878 0.04006 0.04135 0.04266

0.04399 0.04535 0.04672 0.04811 0.04952

0.05095 0.0524 0.05387 0.05536 0.05687

0.0584 0.05995 0.06152 0.06311 0.06472

0.06635 0.06799 0.06966 0.07135 0.07306

0.07478 0.07653 0.0783 0.08008 0.08189

0.08371 0.08556 0.08742 0.08931 0.09121

0.09314 0.09508 0.09704 0.09903 0.10103

0.10305 0.10628 0.10956 0.11289 0.11626

0.11967 0.12314 0.12664 0.1302 0.1338

0.13744 0.14113 0.14487 0.14866 0.15248

0.15636 0.16212 0.16863 0.17591 0.18394

0.19272 0.20226 0.21256 0.22362 0.23543

0.248 0.2663 0.29062 0.32445 0.37245

0.46289 0.62755 0.67555 0.70938 0.7337

0.752 0.76457 0.77638 0.78744 0.79774

0.80728 0.81606 0.82409 0.83137 0.83788

0.84364 0.84752 0.85134 0.85513 0.85887

0.86256 0.8662 0.8698 0.87336 0.87686

0.88033 0.88374 0.88711 0.89044 0.89372

0.89695 0.89897 0.90097 0.90296 0.90492

0.90686 0.90879 0.91069 0.91258 0.91444

0.91629 0.91811 0.91992 0.9217 0.92347

0.92522 0.92694 0.92865 0.93034 0.93201

0.93365 0.93528 0.93689 0.93848 0.94005

0.9416 0.94313 0.94464 0.94613 0.9476

0.94905 0.95601 0.95734 0.95865 0.95994

0.96122 0.96247 0.9637 0.96492 0.96611

0.96729 0.96844 0.96958 0.97069 0.97179

0.97286 0.97392 0.97496 0.97597 0.97697

0.97795 0.97891 0.97984 0.98076 0.98166

0.98254 0.9834 0.98424 0.98506 0.98586

0.98664 0.9874 0.98814 0.98886 0.98956

0.99024 0.9909 0.99155 0.99217 0.99277

0.99335 0.99392 0.99446 0.99499 0.99549

0.99597 0.99644 0.99688 0.99731 0.99771

0.9981 0.99847 0.99881 0.999139 0.999445

0.999733 1.

GLOBAL OUTPUT:

1 0.4 0.10 YY Y YY Y

WinTR-20 Printed Page File End of Input Data List

North Parking Lot

Option C

Name of printed page file:

C:\Local File Transfer Folder\Hard Rock Casino\Option C\North Parking Lot.out

STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
North Lot	0.034		1.148		12.36	23.1	679.67

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.100	0.4	0.5	0.6	0.8	0.9	1.1	1.5
11.800	2.1	3.1	5.0	9.2	16.1	22.0	22.8
12.500	19.8	15.5	12.1	9.4	7.5	6.2	5.3
13.200	4.7	4.2	3.7	3.4	3.0	2.7	2.3
13.900	2.0	1.8	1.7	1.6	1.5	1.5	1.5
14.600	1.4	1.4	1.4	1.4	1.4	1.3	1.3
15.300	1.1	1.0	0.9	0.9	0.8	0.8	0.8
16.000	0.8	0.8	0.8	0.8	0.8	0.7	0.7
16.700	0.7	0.7	0.7	0.7	0.7	0.7	0.7
17.400	0.7	0.7	0.7	0.7	0.6	0.6	0.6
18.100	0.7	0.9	1.1	1.1	0.9	0.8	0.7
18.800	0.6	0.6	0.5	0.5	0.5	0.5	0.5
19.500	0.5	0.5	0.5	0.5	0.4	0.4	0.4
20.200	0.4	0.4	0.4	0.0			

Area or Reach	Drainage Area	Rain Gage ID or	Runoff Amount	Peak Flow Elevation	Peak Flow Time	Peak Flow Rate	Peak Flow Rate

Identifier	(sq mi)	Location	(in)	(ft)	(hr)	(cfs)	(csm)
Restrictor	0.034	Upstream	1.148		12.36	23.1	679.67

Line

Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.100	0.4	0.5	0.6	0.8	0.9	1.1	1.5
11.800	2.1	3.1	5.0	9.2	16.1	22.0	22.8
12.500	19.8	15.5	12.1	9.4	7.5	6.2	5.3
13.200	4.7	4.2	3.7	3.4	3.0	2.7	2.3
13.900	2.0	1.8	1.7	1.6	1.5	1.5	1.5
14.600	1.4	1.4	1.4	1.4	1.4	1.3	1.3
15.300	1.1	1.0	0.9	0.9	0.8	0.8	0.8
16.000	0.8	0.8	0.8	0.8	0.8	0.7	0.7
16.700	0.7	0.7	0.7	0.7	0.7	0.7	0.7
17.400	0.7	0.7	0.7	0.7	0.6	0.6	0.6
18.100	0.7	0.9	1.1	1.1	0.9	0.8	0.7
18.800	0.6	0.6	0.5	0.5	0.5	0.5	0.5
19.500	0.5	0.5	0.5	0.5	0.4	0.4	0.4
20.200	0.4	0.4	0.4	0.0			

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Choose an item.

North Parking Lot

Option C

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.034	Downstream	1.044	714.08	15.64	0.9	25.47

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.400	0.3	0.4	0.5	0.6	0.6	0.6	0.7
13.100	0.7	0.7	0.7	0.7	0.7	0.8	0.8
13.800	0.8	0.8	0.8	0.8	0.8	0.8	0.8
14.500	0.8	0.8	0.8	0.8	0.9	0.9	0.9
15.200	0.9	0.9	0.9	0.9	0.9	0.9	0.9
15.900	0.9	0.9	0.9	0.9	0.9	0.9	0.9
16.600	0.9	0.9	0.9	0.9	0.9	0.9	0.9
17.300	0.9	0.9	0.9	0.8	0.8	0.8	0.8
18.000	0.8	0.8	0.8	0.8	0.8	0.8	0.8
18.700	0.8	0.8	0.8	0.8	0.8	0.8	0.8
19.400	0.8	0.8	0.8	0.8	0.8	0.8	0.8
20.100	0.8	0.8	0.8	0.8	0.8	0.8	0.8
20.800	0.8	0.8	0.8	0.8	0.8	0.8	0.8
21.500	0.8	0.8	0.8	0.8	0.8	0.8	0.8
22.200	0.8	0.7	0.7	0.7	0.7	0.7	0.7
22.900	0.7	0.7	0.7	0.7	0.7	0.7	0.7
23.600	0.7	0.7	0.7	0.7	0.7	0.7	0.7
24.300	0.7	0.7	0.7	0.7	0.7	0.7	0.7
25.000	0.7	0.7	0.7	0.7	0.7	0.7	0.7
25.700	0.7	0.7	0.6	0.6	0.6	0.6	0.6
26.400	0.6	0.6	0.6	0.6	0.6	0.6	0.6
27.100	0.6	0.6	0.6	0.6	0.6	0.6	0.6

27.800	0.6	0.6	0.6	0.6	0.6	0.6	0.6
28.500	0.6	0.6	0.6	0.6	0.6	0.6	0.6
29.200	0.6	0.6	0.6	0.6	0.6	0.5	0.5
29.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
30.600	0.5	0.5	0.5	0.5	0.5	0.5	0.5
31.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
32.000	0.5	0.5	0.5	0.5	0.5	0.5	0.5
32.700	0.5	0.5	0.5	0.5	0.5	0.5	0.5
33.400	0.5	0.5	0.5	0.5	0.5	0.5	0.5
34.100	0.5	0.4	0.4	0.4	0.4	0.4	0.4
34.800	0.4	0.4	0.4	0.4	0.4	0.4	0.4
35.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
36.200	0.4	0.4	0.4	0.4	0.4	0.4	0.4
36.900	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.034		1.044		15.64	0.9	25.47

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North Parking Lot

Option C

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.400	0.3	0.4	0.5	0.6	0.6	0.6	0.7
13.100	0.7	0.7	0.7	0.7	0.7	0.8	0.8
13.800	0.8	0.8	0.8	0.8	0.8	0.8	0.8
14.500	0.8	0.8	0.8	0.8	0.9	0.9	0.9
15.200	0.9	0.9	0.9	0.9	0.9	0.9	0.9
15.900	0.9	0.9	0.9	0.9	0.9	0.9	0.9
16.600	0.9	0.9	0.9	0.9	0.9	0.9	0.9
17.300	0.9	0.9	0.9	0.8	0.8	0.8	0.8
18.000	0.8	0.8	0.8	0.8	0.8	0.8	0.8
18.700	0.8	0.8	0.8	0.8	0.8	0.8	0.8
19.400	0.8	0.8	0.8	0.8	0.8	0.8	0.8
20.100	0.8	0.8	0.8	0.8	0.8	0.8	0.8
20.800	0.8	0.8	0.8	0.8	0.8	0.8	0.8
21.500	0.8	0.8	0.8	0.8	0.8	0.8	0.8
22.200	0.8	0.7	0.7	0.7	0.7	0.7	0.7
22.900	0.7	0.7	0.7	0.7	0.7	0.7	0.7
23.600	0.7	0.7	0.7	0.7	0.7	0.7	0.7
24.300	0.7	0.7	0.7	0.7	0.7	0.7	0.7
25.000	0.7	0.7	0.7	0.7	0.7	0.7	0.7
25.700	0.7	0.7	0.6	0.6	0.6	0.6	0.6
26.400	0.6	0.6	0.6	0.6	0.6	0.6	0.6
27.100	0.6	0.6	0.6	0.6	0.6	0.6	0.6
27.800	0.6	0.6	0.6	0.6	0.6	0.6	0.6
28.500	0.6	0.6	0.6	0.6	0.6	0.6	0.6
29.200	0.6	0.6	0.6	0.6	0.6	0.5	0.5
29.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
30.600	0.5	0.5	0.5	0.5	0.5	0.5	0.5
31.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5

32.000	0.5	0.5	0.5	0.5	0.5	0.5	0.5
32.700	0.5	0.5	0.5	0.5	0.5	0.5	0.5
33.400	0.5	0.5	0.5	0.5	0.5	0.5	0.5
34.100	0.5	0.4	0.4	0.4	0.4	0.4	0.4
34.800	0.4	0.4	0.4	0.4	0.4	0.4	0.4
35.500	0.4	0.4	0.4	0.4	0.4	0.4	0.4
36.200	0.4	0.4	0.4	0.4	0.4	0.4	0.4
36.900	0.0						

STORM 2-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
North Lot	0.034		1.402		12.36	28.4	833.23

Line Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.900	0.4	0.5	0.6	0.8	1.0	1.2	1.4
11.600	1.7	2.1	2.8	4.2	6.6	11.7	20.1

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North Parking Lot

Option C

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
12.300	27.2	27.9	24.0	18.8	14.6	11.3	9.0
13.000	7.4	6.3	5.5	4.9	4.4	4.0	3.6
13.700	3.1	2.7	2.4	2.1	2.0	1.9	1.8
14.400	1.8	1.7	1.7	1.7	1.7	1.6	1.6
15.100	1.6	1.5	1.3	1.2	1.1	1.0	1.0
15.800	1.0	0.9	0.9	0.9	0.9	0.9	0.9
16.500	0.9	0.9	0.9	0.8	0.8	0.8	0.8
17.200	0.8	0.8	0.8	0.8	0.8	0.8	0.8
17.900	0.7	0.7	0.8	1.1	1.3	1.3	1.1
18.600	0.9	0.8	0.7	0.7	0.6	0.6	0.6
19.300	0.6	0.6	0.6	0.6	0.5	0.5	0.5
20.000	0.5	0.5	0.5	0.5	0.5	0.5	0.5
20.700	0.4	0.4	0.4	0.4	0.4	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.034	Upstream	1.402		12.36	28.4	833.23

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)						
10.900	0.4	0.5	0.6	0.8	1.0	1.2	1.4
11.600	1.7	2.1	2.8	4.2	6.6	11.7	20.1
12.300	27.2	27.9	24.0	18.8	14.6	11.3	9.0
13.000	7.4	6.3	5.5	4.9	4.4	4.0	3.6

13.700	3.1	2.7	2.4	2.1	2.0	1.9	1.8
14.400	1.8	1.7	1.7	1.7	1.7	1.6	1.6
15.100	1.6	1.5	1.3	1.2	1.1	1.0	1.0
15.800	1.0	0.9	0.9	0.9	0.9	0.9	0.9
16.500	0.9	0.9	0.9	0.8	0.8	0.8	0.8
17.200	0.8	0.8	0.8	0.8	0.8	0.8	0.8
17.900	0.7	0.7	0.8	1.1	1.3	1.3	1.1
18.600	0.9	0.8	0.7	0.7	0.6	0.6	0.6
19.300	0.6	0.6	0.6	0.6	0.5	0.5	0.5
20.000	0.5	0.5	0.5	0.5	0.5	0.5	0.5
20.700	0.4	0.4	0.4	0.4	0.4	0.0	

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.034	Downstream	1.297	714.29	15.45	1.2	34.20

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Choose an item.

North Parking Lot

Option C

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.300	0.3	0.4	0.5	0.6	0.7	0.8	0.8
13.000	0.9	0.9	1.0	1.0	1.0	1.0	1.1
13.700	1.1	1.1	1.1	1.1	1.1	1.1	1.1
14.400	1.1	1.1	1.1	1.1	1.1	1.2	1.2
15.100	1.2	1.2	1.2	1.2	1.2	1.2	1.2
15.800	1.2	1.2	1.2	1.2	1.2	1.2	1.2
16.500	1.1	1.1	1.1	1.1	1.1	1.1	1.1
17.200	1.1	1.1	1.1	1.1	1.1	1.1	1.1
17.900	1.1	1.1	1.1	1.1	1.1	1.1	1.1
18.600	1.1	1.1	1.1	1.1	1.1	1.1	1.1
19.300	1.1	1.1	1.1	1.1	1.1	1.1	1.1
20.000	1.1	1.1	1.1	1.0	1.0	1.0	1.0
20.700	1.0	1.0	1.0	1.0	1.0	1.0	1.0
21.400	1.0	1.0	1.0	1.0	1.0	1.0	1.0
22.100	1.0	1.0	1.0	1.0	0.9	0.9	0.9
22.800	0.9	0.9	0.9	0.9	0.9	0.9	0.9
23.500	0.9	0.9	0.9	0.9	0.9	0.9	0.9
24.200	0.9	0.8	0.8	0.8	0.8	0.8	0.8
24.900	0.8	0.8	0.8	0.8	0.8	0.8	0.8
25.600	0.8	0.8	0.8	0.8	0.8	0.7	0.7
26.300	0.7	0.7	0.7	0.7	0.7	0.7	0.7
27.000	0.7	0.7	0.7	0.7	0.7	0.7	0.7
27.700	0.7	0.7	0.7	0.7	0.7	0.7	0.7
28.400	0.7	0.7	0.7	0.7	0.7	0.7	0.7
29.100	0.7	0.7	0.6	0.6	0.6	0.6	0.6
29.800	0.6	0.6	0.6	0.6	0.6	0.6	0.6
30.500	0.6	0.6	0.6	0.6	0.6	0.6	0.6
31.200	0.6	0.6	0.6	0.6	0.6	0.6	0.6

31.900	0.6	0.6	0.6	0.6	0.6	0.6	0.6
32.600	0.6	0.6	0.6	0.6	0.6	0.5	0.5
33.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
34.000	0.5	0.5	0.5	0.5	0.5	0.5	0.5
34.700	0.5	0.5	0.5	0.5	0.5	0.5	0.5
35.400	0.5	0.5	0.5	0.5	0.5	0.5	0.5
36.100	0.5	0.5	0.5	0.5	0.5	0.5	0.5
36.800	0.5	0.5	0.5	0.5	0.5	0.5	0.5
37.500	0.5	0.4	0.4	0.4	0.4	0.4	0.4
38.200	0.4	0.4	0.4	0.4	0.4	0.4	0.4
38.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
39.600	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40.300	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.034		1.297		15.45	1.2	34.20

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Choose an item.

North Parking Lot

Option C

Line

Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.300	0.3	0.4	0.5	0.6	0.7	0.8	0.8
13.000	0.9	0.9	1.0	1.0	1.0	1.0	1.1
13.700	1.1	1.1	1.1	1.1	1.1	1.1	1.1
14.400	1.1	1.1	1.1	1.1	1.1	1.2	1.2
15.100	1.2	1.2	1.2	1.2	1.2	1.2	1.2
15.800	1.2	1.2	1.2	1.2	1.2	1.2	1.2
16.500	1.1	1.1	1.1	1.1	1.1	1.1	1.1
17.200	1.1	1.1	1.1	1.1	1.1	1.1	1.1
17.900	1.1	1.1	1.1	1.1	1.1	1.1	1.1
18.600	1.1	1.1	1.1	1.1	1.1	1.1	1.1
19.300	1.1	1.1	1.1	1.1	1.1	1.1	1.1
20.000	1.1	1.1	1.1	1.0	1.0	1.0	1.0
20.700	1.0	1.0	1.0	1.0	1.0	1.0	1.0
21.400	1.0	1.0	1.0	1.0	1.0	1.0	1.0
22.100	1.0	1.0	1.0	1.0	0.9	0.9	0.9
22.800	0.9	0.9	0.9	0.9	0.9	0.9	0.9
23.500	0.9	0.9	0.9	0.9	0.9	0.9	0.9
24.200	0.9	0.8	0.8	0.8	0.8	0.8	0.8
24.900	0.8	0.8	0.8	0.8	0.8	0.8	0.8
25.600	0.8	0.8	0.8	0.8	0.8	0.7	0.7
26.300	0.7	0.7	0.7	0.7	0.7	0.7	0.7
27.000	0.7	0.7	0.7	0.7	0.7	0.7	0.7
27.700	0.7	0.7	0.7	0.7	0.7	0.7	0.7
28.400	0.7	0.7	0.7	0.7	0.7	0.7	0.7
29.100	0.7	0.7	0.6	0.6	0.6	0.6	0.6
29.800	0.6	0.6	0.6	0.6	0.6	0.6	0.6
30.500	0.6	0.6	0.6	0.6	0.6	0.6	0.6
31.200	0.6	0.6	0.6	0.6	0.6	0.6	0.6

31.900	0.6	0.6	0.6	0.6	0.6	0.6	0.6
32.600	0.6	0.6	0.6	0.6	0.6	0.5	0.5
33.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
34.000	0.5	0.5	0.5	0.5	0.5	0.5	0.5
34.700	0.5	0.5	0.5	0.5	0.5	0.5	0.5
35.400	0.5	0.5	0.5	0.5	0.5	0.5	0.5
36.100	0.5	0.5	0.5	0.5	0.5	0.5	0.5
36.800	0.5	0.5	0.5	0.5	0.5	0.5	0.5
37.500	0.5	0.4	0.4	0.4	0.4	0.4	0.4
38.200	0.4	0.4	0.4	0.4	0.4	0.4	0.4
38.900	0.4	0.4	0.4	0.4	0.4	0.4	0.4
39.600	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40.300	0.0						

STORM 10-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Elevation (ft)	Time (hr)	Peak Flow Rate (cfs)	Rate (csm)
North Lot	0.034		2.331		12.34	47.0	1380.72

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Choose an item.

North Parking Lot

Option C

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
9.900	0.4	0.4	0.5	0.5	0.6	0.6	0.7
10.600	0.7	0.8	1.0	1.2	1.5	1.7	2.1
11.300	2.4	2.8	3.2	3.7	4.5	5.9	8.2
12.000	12.4	21.0	34.7	45.5	46.1	39.2	30.4
12.700	23.4	18.0	14.2	11.6	9.8	8.6	7.6
13.400	6.9	6.1	5.5	4.8	4.2	3.6	3.2
14.100	3.0	2.9	2.8	2.7	2.6	2.6	2.6
14.800	2.5	2.5	2.5	2.4	2.3	2.0	1.8
15.500	1.7	1.6	1.5	1.5	1.4	1.4	1.4
16.200	1.4	1.4	1.3	1.3	1.3	1.3	1.3
16.900	1.3	1.3	1.2	1.2	1.2	1.2	1.2
17.600	1.2	1.2	1.1	1.1	1.1	1.2	1.6
18.300	2.0	1.9	1.7	1.4	1.2	1.1	1.0
19.000	1.0	0.9	0.9	0.9	0.9	0.8	0.8
19.700	0.8	0.8	0.8	0.8	0.8	0.7	0.7
20.400	0.7	0.7	0.7	0.7	0.7	0.6	0.6
21.100	0.6	0.6	0.6	0.6	0.6	0.5	0.5
21.800	0.5	0.5	0.5	0.5	0.5	0.4	0.4
22.500	0.4	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.034	Upstream	2.331		12.34	47.0	1380.72

Line

Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
9.900	0.4	0.4	0.5	0.5	0.6	0.6	0.7
10.600	0.7	0.8	1.0	1.2	1.5	1.7	2.1
11.300	2.4	2.8	3.2	3.7	4.5	5.9	8.2
12.000	12.4	21.0	34.7	45.5	46.1	39.2	30.4
12.700	23.4	18.0	14.2	11.6	9.8	8.6	7.6
13.400	6.9	6.1	5.5	4.8	4.2	3.6	3.2
14.100	3.0	2.9	2.8	2.7	2.6	2.6	2.6
14.800	2.5	2.5	2.5	2.4	2.3	2.0	1.8
15.500	1.7	1.6	1.5	1.5	1.4	1.4	1.4
16.200	1.4	1.4	1.3	1.3	1.3	1.3	1.3
16.900	1.3	1.3	1.2	1.2	1.2	1.2	1.2
17.600	1.2	1.2	1.1	1.1	1.1	1.2	1.6
18.300	2.0	1.9	1.7	1.4	1.2	1.1	1.0
19.000	1.0	0.9	0.9	0.9	0.9	0.8	0.8
19.700	0.8	0.8	0.8	0.8	0.8	0.7	0.7
20.400	0.7	0.7	0.7	0.7	0.7	0.6	0.6
21.100	0.6	0.6	0.6	0.6	0.6	0.5	0.5
21.800	0.5	0.5	0.5	0.5	0.5	0.4	0.4
22.500	0.4	0.0					

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Choose an item.

North Parking Lot

Option C

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.034	Downstream	2.225	715.07	15.18	2.3	66.78

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.100	0.3	0.4	0.6	0.8	1.1	1.4	1.6
12.800	1.7	1.8	1.9	2.0	2.0	2.1	2.1
13.500	2.1	2.2	2.2	2.2	2.2	2.2	2.2
14.200	2.2	2.3	2.3	2.3	2.3	2.3	2.3
14.900	2.3	2.3	2.3	2.3	2.3	2.3	2.3
15.600	2.3	2.3	2.2	2.2	2.2	2.2	2.2
16.300	2.2	2.2	2.2	2.2	2.2	2.2	2.2
17.000	2.2	2.1	2.1	2.1	2.1	2.1	2.1
17.700	2.1	2.1	2.1	2.1	2.1	2.1	2.1
18.400	2.1	2.1	2.1	2.1	2.0	2.0	2.0
19.100	2.0	2.0	2.0	2.0	2.0	2.0	2.0
19.800	2.0	2.0	1.9	1.9	1.9	1.9	1.9
20.500	1.9	1.9	1.9	1.9	1.9	1.9	1.8
21.200	1.8	1.8	1.8	1.8	1.8	1.8	1.8
21.900	1.8	1.8	1.8	1.7	1.7	1.7	1.7
22.600	1.7	1.7	1.7	1.7	1.7	1.7	1.6
23.300	1.6	1.6	1.6	1.6	1.6	1.6	1.6
24.000	1.6	1.6	1.5	1.5	1.5	1.5	1.5
24.700	1.5	1.5	1.5	1.5	1.4	1.4	1.4
25.400	1.4	1.4	1.4	1.4	1.4	1.4	1.3
26.100	1.3	1.3	1.3	1.3	1.3	1.3	1.3
26.800	1.3	1.3	1.3	1.2	1.2	1.2	1.2

27.500	1.2	1.2	1.2	1.2	1.2	1.2	1.2
28.200	1.1	1.1	1.1	1.1	1.1	1.1	1.1
28.900	1.1	1.1	1.1	1.1	1.1	1.0	1.0
29.600	1.0	1.0	1.0	1.0	1.0	1.0	1.0
30.300	1.0	1.0	1.0	1.0	0.9	0.9	0.9
31.000	0.9	0.9	0.9	0.9	0.9	0.9	0.9
31.700	0.9	0.9	0.9	0.9	0.9	0.8	0.8
32.400	0.8	0.8	0.8	0.8	0.8	0.8	0.8
33.100	0.8	0.8	0.8	0.8	0.8	0.8	0.8
33.800	0.8	0.8	0.7	0.7	0.7	0.7	0.7
34.500	0.7	0.7	0.7	0.7	0.7	0.7	0.7
35.200	0.7	0.7	0.7	0.7	0.7	0.7	0.7
35.900	0.7	0.7	0.7	0.7	0.7	0.7	0.7
36.600	0.7	0.7	0.7	0.7	0.7	0.7	0.7
37.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
38.000	0.6	0.6	0.6	0.6	0.6	0.6	0.6
38.700	0.6	0.6	0.6	0.6	0.6	0.6	0.6
39.400	0.6	0.6	0.6	0.6	0.6	0.6	0.6
40.100	0.6	0.6	0.6	0.6	0.6	0.6	0.6
40.800	0.6	0.6	0.5	0.5	0.5	0.5	0.5
41.500	0.5	0.5	0.5	0.5	0.5	0.5	0.5
42.200	0.5	0.5	0.5	0.5	0.5	0.5	0.5
42.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5

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Choose an item.

North Parking Lot

Option C

Line

Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
43.600	0.5	0.5	0.5	0.5	0.5	0.5	0.5
44.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
45.000	0.5	0.5	0.5	0.5	0.5	0.5	0.4
45.700	0.4	0.4	0.4	0.4	0.4	0.4	0.4
46.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
47.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
47.800	0.4	0.4	0.4	0.4	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.034		2.225		15.18	2.3	66.78

Line

Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.100	0.3	0.4	0.6	0.8	1.1	1.4	1.6
12.800	1.7	1.8	1.9	2.0	2.0	2.1	2.1
13.500	2.1	2.2	2.2	2.2	2.2	2.2	2.2
14.200	2.2	2.3	2.3	2.3	2.3	2.3	2.3
14.900	2.3	2.3	2.3	2.3	2.3	2.3	2.3
15.600	2.3	2.3	2.2	2.2	2.2	2.2	2.2
16.300	2.2	2.2	2.2	2.2	2.2	2.2	2.2
17.000	2.2	2.1	2.1	2.1	2.1	2.1	2.1
17.700	2.1	2.1	2.1	2.1	2.1	2.1	2.1
18.400	2.1	2.1	2.1	2.1	2.0	2.0	2.0

19.100	2.0	2.0	2.0	2.0	2.0	2.0	2.0
19.800	2.0	2.0	1.9	1.9	1.9	1.9	1.9
20.500	1.9	1.9	1.9	1.9	1.9	1.9	1.8
21.200	1.8	1.8	1.8	1.8	1.8	1.8	1.8
21.900	1.8	1.8	1.8	1.7	1.7	1.7	1.7
22.600	1.7	1.7	1.7	1.7	1.7	1.7	1.6
23.300	1.6	1.6	1.6	1.6	1.6	1.6	1.6
24.000	1.6	1.6	1.5	1.5	1.5	1.5	1.5
24.700	1.5	1.5	1.5	1.5	1.4	1.4	1.4
25.400	1.4	1.4	1.4	1.4	1.4	1.4	1.3
26.100	1.3	1.3	1.3	1.3	1.3	1.3	1.3
26.800	1.3	1.3	1.3	1.2	1.2	1.2	1.2
27.500	1.2	1.2	1.2	1.2	1.2	1.2	1.2
28.200	1.1	1.1	1.1	1.1	1.1	1.1	1.1
28.900	1.1	1.1	1.1	1.1	1.1	1.0	1.0
29.600	1.0	1.0	1.0	1.0	1.0	1.0	1.0
30.300	1.0	1.0	1.0	1.0	0.9	0.9	0.9
31.000	0.9	0.9	0.9	0.9	0.9	0.9	0.9
31.700	0.9	0.9	0.9	0.9	0.9	0.8	0.8
32.400	0.8	0.8	0.8	0.8	0.8	0.8	0.8
33.100	0.8	0.8	0.8	0.8	0.8	0.8	0.8
33.800	0.8	0.8	0.7	0.7	0.7	0.7	0.7
34.500	0.7	0.7	0.7	0.7	0.7	0.7	0.7

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Choose an item.

North Parking Lot

Option C

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
35.200	0.7	0.7	0.7	0.7	0.7	0.7	0.7
35.900	0.7	0.7	0.7	0.7	0.7	0.7	0.7
36.600	0.7	0.7	0.7	0.7	0.7	0.7	0.7
37.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
38.000	0.6	0.6	0.6	0.6	0.6	0.6	0.6
38.700	0.6	0.6	0.6	0.6	0.6	0.6	0.6
39.400	0.6	0.6	0.6	0.6	0.6	0.6	0.6
40.100	0.6	0.6	0.6	0.6	0.6	0.6	0.6
40.800	0.6	0.6	0.5	0.5	0.5	0.5	0.5
41.500	0.5	0.5	0.5	0.5	0.5	0.5	0.5
42.200	0.5	0.5	0.5	0.5	0.5	0.5	0.5
42.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
43.600	0.5	0.5	0.5	0.5	0.5	0.5	0.5
44.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
45.000	0.5	0.5	0.5	0.5	0.5	0.5	0.4
45.700	0.4	0.4	0.4	0.4	0.4	0.4	0.4
46.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
47.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
47.800	0.4	0.4	0.4	0.4	0.0		

STORM 100-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
North Lot	0.034		4.286		12.35	85.3	2505.87

Line

Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.300	0.4	0.4	0.4	0.5	0.5	0.5	0.6
9.000	0.6	0.6	0.7	0.8	1.0	1.1	1.2
9.700	1.3	1.4	1.5	1.6	1.7	1.7	1.8
10.400	1.9	2.0	2.1	2.3	2.8	3.3	3.9
11.100	4.5	5.2	5.9	6.7	7.5	8.4	10.0
11.800	12.7	17.3	25.2	40.8	65.0	83.2	82.7
12.500	69.6	53.3	40.7	31.2	24.4	19.9	16.8
13.200	14.6	12.9	11.6	10.4	9.2	8.1	7.0
13.900	6.1	5.4	5.1	4.8	4.6	4.5	4.4
14.600	4.3	4.3	4.2	4.2	4.1	4.0	3.8
15.300	3.4	3.1	2.8	2.6	2.5	2.4	2.4
16.000	2.3	2.3	2.3	2.3	2.2	2.2	2.2
16.700	2.2	2.1	2.1	2.1	2.1	2.0	2.0
17.400	2.0	2.0	1.9	1.9	1.9	1.9	1.9
18.100	2.0	2.6	3.3	3.2	2.8	2.3	2.0
18.800	1.8	1.7	1.6	1.5	1.5	1.5	1.4
19.500	1.4	1.4	1.3	1.3	1.3	1.3	1.3
20.200	1.2	1.2	1.2	1.2	1.1	1.1	1.1
20.900	1.1	1.0	1.0	1.0	1.0	0.9	0.9

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Choose an item.

North Parking Lot

Option C

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
21.600	0.9	0.9	0.8	0.8	0.8	0.8	0.7
22.300	0.7	0.7	0.7	0.7	0.6	0.6	0.6
23.000	0.6	0.5	0.5	0.5	0.5	0.4	0.4
23.700	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.034	Upstream	4.286		12.35	85.3	2505.87

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.300	0.4	0.4	0.4	0.5	0.5	0.5	0.6
9.000	0.6	0.6	0.7	0.8	1.0	1.1	1.2
9.700	1.3	1.4	1.5	1.6	1.7	1.7	1.8
10.400	1.9	2.0	2.1	2.3	2.8	3.3	3.9
11.100	4.5	5.2	5.9	6.7	7.5	8.4	10.0
11.800	12.7	17.3	25.2	40.8	65.0	83.2	82.7
12.500	69.6	53.3	40.7	31.2	24.4	19.9	16.8
13.200	14.6	12.9	11.6	10.4	9.2	8.1	7.0
13.900	6.1	5.4	5.1	4.8	4.6	4.5	4.4
14.600	4.3	4.3	4.2	4.2	4.1	4.0	3.8
15.300	3.4	3.1	2.8	2.6	2.5	2.4	2.4
16.000	2.3	2.3	2.3	2.3	2.2	2.2	2.2
16.700	2.2	2.1	2.1	2.1	2.1	2.0	2.0

17.400	2.0	2.0	1.9	1.9	1.9	1.9	1.9
18.100	2.0	2.6	3.3	3.2	2.8	2.3	2.0
18.800	1.8	1.7	1.6	1.5	1.5	1.5	1.4
19.500	1.4	1.4	1.3	1.3	1.3	1.3	1.3
20.200	1.2	1.2	1.2	1.2	1.1	1.1	1.1
20.900	1.1	1.0	1.0	1.0	1.0	0.9	0.9
21.600	0.9	0.9	0.8	0.8	0.8	0.8	0.7
22.300	0.7	0.7	0.7	0.7	0.6	0.6	0.6
23.000	0.6	0.5	0.5	0.5	0.5	0.4	0.4
23.700	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.034	Downstream	4.179	716.57	14.09	5.1	151.01

Line

Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.700	0.4	0.4	0.5	0.6	0.7	1.0	1.6
12.400	2.2	2.9	3.4	3.8	4.1	4.4	4.5

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North Parking Lot

Option C

Line

Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
13.100	4.7	4.8	4.9	5.0	5.0	5.1	5.1
13.800	5.1	5.1	5.1	5.1	5.1	5.1	5.1
14.500	5.1	5.1	5.1	5.1	5.1	5.1	5.1
15.200	5.1	5.0	5.0	5.0	5.0	5.0	4.9
15.900	4.9	4.9	4.9	4.8	4.8	4.8	4.8
16.600	4.7	4.7	4.7	4.7	4.6	4.6	4.6
17.300	4.5	4.5	4.5	4.5	4.4	4.4	4.4
18.000	4.4	4.3	4.3	4.3	4.3	4.3	4.3
18.700	4.3	4.2	4.2	4.2	4.2	4.1	4.1
19.400	4.1	4.0	4.0	4.0	4.0	3.9	3.9
20.100	3.9	3.9	3.8	3.8	3.8	3.8	3.7
20.800	3.7	3.7	3.7	3.7	3.6	3.6	3.6
21.500	3.6	3.5	3.5	3.5	3.5	3.4	3.4
22.200	3.4	3.4	3.3	3.3	3.3	3.3	3.2
22.900	3.2	3.2	3.2	3.1	3.1	3.1	3.1
23.600	3.0	3.0	3.0	3.0	3.0	2.9	2.9
24.300	2.9	2.8	2.8	2.8	2.8	2.7	2.7
25.000	2.7	2.7	2.6	2.6	2.6	2.6	2.6
25.700	2.5	2.5	2.5	2.5	2.4	2.4	2.4
26.400	2.4	2.3	2.3	2.3	2.3	2.3	2.2
27.100	2.2	2.2	2.2	2.2	2.1	2.1	2.1
27.800	2.1	2.1	2.1	2.1	2.0	2.0	2.0
28.500	2.0	2.0	2.0	1.9	1.9	1.9	1.9
29.200	1.9	1.9	1.9	1.8	1.8	1.8	1.8
29.900	1.8	1.8	1.8	1.8	1.7	1.7	1.7
30.600	1.7	1.7	1.7	1.7	1.7	1.6	1.6
31.300	1.6	1.6	1.6	1.6	1.6	1.6	1.5
32.000	1.5	1.5	1.5	1.5	1.5	1.5	1.5

32.700	1.5	1.4	1.4	1.4	1.4	1.4	1.4
33.400	1.4	1.4	1.4	1.4	1.3	1.3	1.3
34.100	1.3	1.3	1.3	1.3	1.3	1.3	1.3
34.800	1.2	1.2	1.2	1.2	1.2	1.2	1.2
35.500	1.2	1.2	1.2	1.2	1.1	1.1	1.1
36.200	1.1	1.1	1.1	1.1	1.1	1.1	1.1
36.900	1.1	1.1	1.0	1.0	1.0	1.0	1.0
37.600	1.0	1.0	1.0	1.0	1.0	1.0	1.0
38.300	1.0	1.0	0.9	0.9	0.9	0.9	0.9
39.000	0.9	0.9	0.9	0.9	0.9	0.9	0.9
39.700	0.9	0.9	0.9	0.8	0.8	0.8	0.8
40.400	0.8	0.8	0.8	0.8	0.8	0.8	0.8
41.100	0.8	0.8	0.8	0.8	0.8	0.8	0.8
41.800	0.7	0.7	0.7	0.7	0.7	0.7	0.7
42.500	0.7	0.7	0.7	0.7	0.7	0.7	0.7
43.200	0.7	0.7	0.7	0.7	0.7	0.7	0.7
43.900	0.7	0.7	0.7	0.7	0.7	0.7	0.7
44.600	0.7	0.7	0.7	0.7	0.6	0.6	0.6
45.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
46.000	0.6	0.6	0.6	0.6	0.6	0.6	0.6
46.700	0.6	0.6	0.6	0.6	0.6	0.6	0.6
47.400	0.6	0.6	0.6	0.6	0.6	0.6	0.6
48.100	0.6	0.6	0.6	0.6	0.6	0.6	0.6

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North Parking Lot

Option C

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
48.800	0.5	0.5	0.5	0.5	0.5	0.5	0.5
49.500	0.5	0.5	0.5	0.5	0.5	0.5	0.5
50.200	0.5	0.5	0.5	0.5	0.5	0.5	0.5
50.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
51.600	0.5	0.5	0.5	0.5	0.5	0.5	0.5
52.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
53.000	0.5	0.5	0.5	0.4	0.4	0.4	0.4
53.700	0.4	0.4	0.4	0.4	0.4	0.4	0.4
54.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
55.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
55.800	0.4	0.4	0.0				

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.034		4.179		14.09	5.1	151.01

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.700	0.4	0.4	0.5	0.6	0.7	1.0	1.6
12.400	2.2	2.9	3.4	3.8	4.1	4.4	4.5
13.100	4.7	4.8	4.9	5.0	5.0	5.1	5.1
13.800	5.1	5.1	5.1	5.1	5.1	5.1	5.1
14.500	5.1	5.1	5.1	5.1	5.1	5.1	5.1
15.200	5.1	5.0	5.0	5.0	5.0	5.0	4.9

15.900	4.9	4.9	4.9	4.8	4.8	4.8	4.8
16.600	4.7	4.7	4.7	4.7	4.6	4.6	4.6
17.300	4.5	4.5	4.5	4.5	4.4	4.4	4.4
18.000	4.4	4.3	4.3	4.3	4.3	4.3	4.3
18.700	4.3	4.2	4.2	4.2	4.2	4.1	4.1
19.400	4.1	4.0	4.0	4.0	4.0	3.9	3.9
20.100	3.9	3.9	3.8	3.8	3.8	3.8	3.7
20.800	3.7	3.7	3.7	3.7	3.6	3.6	3.6
21.500	3.6	3.5	3.5	3.5	3.5	3.4	3.4
22.200	3.4	3.4	3.3	3.3	3.3	3.3	3.2
22.900	3.2	3.2	3.2	3.1	3.1	3.1	3.1
23.600	3.0	3.0	3.0	3.0	3.0	2.9	2.9
24.300	2.9	2.8	2.8	2.8	2.8	2.7	2.7
25.000	2.7	2.7	2.6	2.6	2.6	2.6	2.6
25.700	2.5	2.5	2.5	2.5	2.4	2.4	2.4
26.400	2.4	2.3	2.3	2.3	2.3	2.3	2.2
27.100	2.2	2.2	2.2	2.2	2.1	2.1	2.1
27.800	2.1	2.1	2.1	2.1	2.0	2.0	2.0
28.500	2.0	2.0	2.0	1.9	1.9	1.9	1.9
29.200	1.9	1.9	1.9	1.8	1.8	1.8	1.8
29.900	1.8	1.8	1.8	1.8	1.7	1.7	1.7
30.600	1.7	1.7	1.7	1.7	1.7	1.6	1.6
31.300	1.6	1.6	1.6	1.6	1.6	1.6	1.5

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Choose an item.

North Parking Lot

Option C

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
32.000	1.5	1.5	1.5	1.5	1.5	1.5	1.5
32.700	1.5	1.4	1.4	1.4	1.4	1.4	1.4
33.400	1.4	1.4	1.4	1.4	1.3	1.3	1.3
34.100	1.3	1.3	1.3	1.3	1.3	1.3	1.3
34.800	1.2	1.2	1.2	1.2	1.2	1.2	1.2
35.500	1.2	1.2	1.2	1.2	1.1	1.1	1.1
36.200	1.1	1.1	1.1	1.1	1.1	1.1	1.1
36.900	1.1	1.1	1.0	1.0	1.0	1.0	1.0
37.600	1.0	1.0	1.0	1.0	1.0	1.0	1.0
38.300	1.0	1.0	0.9	0.9	0.9	0.9	0.9
39.000	0.9	0.9	0.9	0.9	0.9	0.9	0.9
39.700	0.9	0.9	0.9	0.8	0.8	0.8	0.8
40.400	0.8	0.8	0.8	0.8	0.8	0.8	0.8
41.100	0.8	0.8	0.8	0.8	0.8	0.8	0.8
41.800	0.7	0.7	0.7	0.7	0.7	0.7	0.7
42.500	0.7	0.7	0.7	0.7	0.7	0.7	0.7
43.200	0.7	0.7	0.7	0.7	0.7	0.7	0.7
43.900	0.7	0.7	0.7	0.7	0.7	0.7	0.7
44.600	0.7	0.7	0.7	0.7	0.6	0.6	0.6
45.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
46.000	0.6	0.6	0.6	0.6	0.6	0.6	0.6
46.700	0.6	0.6	0.6	0.6	0.6	0.6	0.6
47.400	0.6	0.6	0.6	0.6	0.6	0.6	0.6
48.100	0.6	0.6	0.6	0.6	0.6	0.6	0.6
48.800	0.5	0.5	0.5	0.5	0.5	0.5	0.5
49.500	0.5	0.5	0.5	0.5	0.5	0.5	0.5
50.200	0.5	0.5	0.5	0.5	0.5	0.5	0.5
50.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5

51.600	0.5	0.5	0.5	0.5	0.5	0.5	0.5
52.300	0.5	0.5	0.5	0.5	0.5	0.5	0.5
53.000	0.5	0.5	0.5	0.4	0.4	0.4	0.4
53.700	0.4	0.4	0.4	0.4	0.4	0.4	0.4
54.400	0.4	0.4	0.4	0.4	0.4	0.4	0.4
55.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
55.800	0.4	0.4	0.0				

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Choose an item.

North Parking Lot

Option C

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)
North Lot	0.034	23.1	28.4	47.0	85.3
Restrictor	0.034	23.1	28.4	47.0	85.3
DOWNSTREAM		0.9	1.2	2.3	5.1
OUTLET	0.034	0.9	1.2	2.3	5.1

Choose an item.

South Parking Lot

WinTR-20 Printed Page File Beginning of Input Data List

C:\Local File Transfer Folder\Hard Rock Casino\Option C\South Parking Lot.inp

WinTR-20: version 3.10 0 0 0.1 0

South Parking Lot

Option C

SUB-AREA:

South Lot Restrictor 0.0188753990.69243490.5

STREAM REACH:

RestrictorOutlet Restrictor

STORM ANALYSIS:

1-Year	2.39	MSE3	2
2-Year	2.70	MSE3	2
10-Year	3.77	MSE3	2
100-Year	5.88	MSE3	2

STRUCTURE RATING:

Restrictor717.

717.	0.	0.
718.	1.26	0.14
719.	3.57	0.36
720.	6.56	0.64
721.	10.10	1.01
722.	14.12	1.46
723.	18.55	1.98
724.	23.38	2.59
725.	28.57	3.28

RAINFALL DISTRIBUTION:

MSE3 0.1

0. 0.000267 0.000555 0.000861 0.00119

0.00153 0.0019 0.00229 0.00269 0.00312

0.00356 0.00403 0.00451 0.00501 0.00554

0.00608 0.00665 0.00723 0.00783 0.00845

0.0091 0.00976 0.01044 0.01114 0.01186

0.0126 0.01336 0.01414 0.01494 0.01576

0.0166 0.01746 0.01834 0.01924 0.02016

0.02109 0.02205 0.02303 0.02403 0.02504

0.02608 0.02714 0.02821 0.02931 0.03042

0.03156 0.03271 0.03389 0.03508 0.0363

0.03753 0.03878 0.04006 0.04135 0.04266

0.04399 0.04535 0.04672 0.04811 0.04952

0.05095 0.0524 0.05387 0.05536 0.05687

0.0584 0.05995 0.06152 0.06311 0.06472

0.06635 0.06799 0.06966 0.07135 0.07306

0.07478 0.07653 0.0783 0.08008 0.08189

0.08371 0.08556 0.08742 0.08931 0.09121

0.09314 0.09508 0.09704 0.09903 0.10103

0.10305 0.10628 0.10956 0.11289 0.11626

0.11967 0.12314 0.12664 0.1302 0.1338

0.13744 0.14113 0.14487 0.14866 0.15248

0.15636 0.16212 0.16863 0.17591 0.18394

0.19272 0.20226 0.21256 0.22362 0.23543

0.248 0.2663 0.29062 0.32445 0.37245

0.46289 0.62755 0.67555 0.70938 0.7337

0.752 0.76457 0.77638 0.78744 0.79774

0.80728 0.81606 0.82409 0.83137 0.83788

0.84364 0.84752 0.85134 0.85513 0.85887

0.86256 0.8662 0.8698 0.87336 0.87686

0.88033 0.88374 0.88711 0.89044 0.89372

0.89695 0.89897 0.90097 0.90296 0.90492

0.90686 0.90879 0.91069 0.91258 0.91444

0.91629 0.91811 0.91992 0.9217 0.92347

0.92522 0.92694 0.92865 0.93034 0.93201

0.93365 0.93528 0.93689 0.93848 0.94005

0.9416 0.94313 0.94464 0.94613 0.9476

0.94905 0.95601 0.95734 0.95865 0.95994

0.96122 0.96247 0.9637 0.96492 0.96611

0.96729 0.96844 0.96958 0.97069 0.97179

0.97286 0.97392 0.97496 0.97597 0.97697

0.97795 0.97891 0.97984 0.98076 0.98166

0.98254 0.9834 0.98424 0.98506 0.98586

0.98664 0.9874 0.98814 0.98886 0.98956

0.99024 0.9909 0.99155 0.99217 0.99277

0.99335 0.99392 0.99446 0.99499 0.99549

0.99597 0.99644 0.99688 0.99731 0.99771

0.9981 0.99847 0.99881 0.999139 0.999445

0.999733 1.

GLOBAL OUTPUT:

1 0.4 0.10 YY Y YY Y

WinTR-20 Printed Page File End of Input Data List

South Parking Lot

Option C

Name of printed page file:

C:\Local File Transfer Folder\Hard Rock Casino\Option C\South Parking Lot.out

STORM 1-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
South Lot	0.019		1.479		12.35	16.7	882.11

Line Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.800	0.4	0.4	0.5	0.6	0.7	0.9	1.0
11.500	1.1	1.3	1.6	2.1	2.9	4.4	7.4
12.200	12.3	16.1	16.3	13.8	10.7	8.2	6.3
12.900	5.0	4.1	3.5	3.0	2.7	2.4	2.2
13.600	1.9	1.7	1.5	1.3	1.1	1.1	1.0
14.300	1.0	1.0	0.9	0.9	0.9	0.9	0.9
15.000	0.9	0.8	0.8	0.7	0.6	0.6	0.6
15.700	0.5	0.5	0.5	0.5	0.5	0.5	0.5
16.400	0.5	0.5	0.5	0.5	0.5	0.4	0.4
17.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
17.800	0.4	0.4	0.4	0.4	0.6	0.7	0.7
18.500	0.6	0.5	0.4	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.019	Upstream	1.479		12.35	16.7	882.11

Line

Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.800	0.4	0.4	0.5	0.6	0.7	0.9	1.0
11.500	1.1	1.3	1.6	2.1	2.9	4.4	7.4
12.200	12.3	16.1	16.3	13.8	10.7	8.2	6.3
12.900	5.0	4.1	3.5	3.0	2.7	2.4	2.2
13.600	1.9	1.7	1.5	1.3	1.1	1.1	1.0
14.300	1.0	1.0	0.9	0.9	0.9	0.9	0.9
15.000	0.9	0.8	0.8	0.7	0.6	0.6	0.6
15.700	0.5	0.5	0.5	0.5	0.5	0.5	0.5
16.400	0.5	0.5	0.5	0.5	0.5	0.4	0.4
17.100	0.4	0.4	0.4	0.4	0.4	0.4	0.4
17.800	0.4	0.4	0.4	0.4	0.6	0.7	0.7
18.500	0.6	0.5	0.4	0.0			

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Choose an item.

South Parking Lot

Option C

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.019	Downstream	1.464	719.85	12.82	6.1	323.72

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.500	0.4	0.4	0.5	0.6	0.7	0.9	1.3
12.200	2.0	3.0	4.2	5.1	5.7	6.0	6.1
12.900	6.1	5.9	5.8	5.5	5.3	5.1	4.8
13.600	4.6	4.4	4.1	3.9	3.7	3.5	3.3
14.300	3.1	2.9	2.7	2.6	2.4	2.3	2.2
15.000	2.1	2.0	1.9	1.8	1.7	1.6	1.5
15.700	1.4	1.4	1.3	1.2	1.2	1.1	1.1
16.400	1.0	1.0	1.0	0.9	0.9	0.9	0.8
17.100	0.8	0.8	0.8	0.7	0.7	0.7	0.7
17.800	0.6	0.6	0.6	0.6	0.6	0.6	0.6
18.500	0.6	0.6	0.6	0.6	0.6	0.5	0.5
19.200	0.5	0.5	0.5	0.5	0.5	0.4	0.4
19.900	0.4	0.4	0.4	0.0			

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.019		1.464		12.82	6.1	323.72

Line

Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.500	0.4	0.4	0.5	0.6	0.7	0.9	1.3
12.200	2.0	3.0	4.2	5.1	5.7	6.0	6.1
12.900	6.1	5.9	5.8	5.5	5.3	5.1	4.8
13.600	4.6	4.4	4.1	3.9	3.7	3.5	3.3
14.300	3.1	2.9	2.7	2.6	2.4	2.3	2.2
15.000	2.1	2.0	1.9	1.8	1.7	1.6	1.5
15.700	1.4	1.4	1.3	1.2	1.2	1.1	1.1
16.400	1.0	1.0	1.0	0.9	0.9	0.9	0.8
17.100	0.8	0.8	0.8	0.7	0.7	0.7	0.7
17.800	0.6	0.6	0.6	0.6	0.6	0.6	0.6
18.500	0.6	0.6	0.6	0.6	0.6	0.5	0.5
19.200	0.5	0.5	0.5	0.5	0.5	0.4	0.4
19.900	0.4	0.4	0.4	0.0			

STORM 2-Year

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Choose an item.

South Parking Lot

Option C

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
South Lot	0.019		1.760		12.34	19.7	1043.92

Line

Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.600	0.4	0.4	0.5	0.6	0.7	0.8	1.0
11.300	1.1	1.3	1.5	1.7	2.0	2.6	3.6
12.000	5.4	9.0	14.7	19.1	19.3	16.3	12.6
12.700	9.7	7.4	5.8	4.8	4.0	3.5	3.1
13.400	2.8	2.5	2.2	2.0	1.7	1.5	1.3
14.100	1.2	1.2	1.1	1.1	1.1	1.1	1.0
14.800	1.0	1.0	1.0	1.0	0.9	0.8	0.7
15.500	0.7	0.6	0.6	0.6	0.6	0.6	0.6
16.200	0.6	0.6	0.5	0.5	0.5	0.5	0.5
16.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
17.600	0.5	0.5	0.5	0.5	0.5	0.5	0.6
18.300	0.8	0.8	0.7	0.6	0.5	0.4	0.4
19.000	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.019	Upstream	1.760		12.34	19.7	1043.92

Line

Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.600	0.4	0.4	0.5	0.6	0.7	0.8	1.0
11.300	1.1	1.3	1.5	1.7	2.0	2.6	3.6
12.000	5.4	9.0	14.7	19.1	19.3	16.3	12.6
12.700	9.7	7.4	5.8	4.8	4.0	3.5	3.1
13.400	2.8	2.5	2.2	2.0	1.7	1.5	1.3
14.100	1.2	1.2	1.1	1.1	1.1	1.1	1.0
14.800	1.0	1.0	1.0	1.0	0.9	0.8	0.7
15.500	0.7	0.6	0.6	0.6	0.6	0.6	0.6
16.200	0.6	0.6	0.5	0.5	0.5	0.5	0.5
16.900	0.5	0.5	0.5	0.5	0.5	0.5	0.5
17.600	0.5	0.5	0.5	0.5	0.5	0.5	0.6
18.300	0.8	0.8	0.7	0.6	0.5	0.4	0.4
19.000	0.0						

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.019	Downstream	1.746	720.20	12.81	7.3	384.19

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Choose an item.

South Parking Lot

Option C

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.300	0.4	0.4	0.5	0.6	0.7	0.8	1.0
12.000	1.2	1.7	2.5	3.7	5.1	6.2	6.8
12.700	7.1	7.2	7.2	7.1	6.8	6.6	6.3
13.400	6.1	5.8	5.5	5.2	4.9	4.6	4.4
14.100	4.1	3.9	3.6	3.4	3.2	3.0	2.9
14.800	2.7	2.6	2.5	2.3	2.2	2.1	2.0
15.500	1.9	1.8	1.7	1.6	1.5	1.4	1.4
16.200	1.3	1.2	1.2	1.1	1.1	1.1	1.0
16.900	1.0	1.0	0.9	0.9	0.9	0.8	0.8
17.600	0.8	0.8	0.7	0.7	0.7	0.7	0.7
18.300	0.7	0.7	0.7	0.7	0.7	0.7	0.6
19.000	0.6	0.6	0.6	0.6	0.6	0.5	0.5
19.700	0.5	0.5	0.5	0.5	0.5	0.5	0.4
20.400	0.4	0.4	0.4	0.4	0.0		

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
OUTLET	0.019		1.746		12.81	7.3	384.19

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
11.300	0.4	0.4	0.5	0.6	0.7	0.8	1.0
12.000	1.2	1.7	2.5	3.7	5.1	6.2	6.8
12.700	7.1	7.2	7.2	7.1	6.8	6.6	6.3

13.400	6.1	5.8	5.5	5.2	4.9	4.6	4.4
14.100	4.1	3.9	3.6	3.4	3.2	3.0	2.9
14.800	2.7	2.6	2.5	2.3	2.2	2.1	2.0
15.500	1.9	1.8	1.7	1.6	1.5	1.4	1.4
16.200	1.3	1.2	1.2	1.1	1.1	1.1	1.0
16.900	1.0	1.0	0.9	0.9	0.9	0.8	0.8
17.600	0.8	0.8	0.7	0.7	0.7	0.7	0.7
18.300	0.7	0.7	0.7	0.7	0.7	0.7	0.6
19.000	0.6	0.6	0.6	0.6	0.6	0.5	0.5
19.700	0.5	0.5	0.5	0.5	0.5	0.5	0.4
20.400	0.4	0.4	0.4	0.4	0.0		

STORM 10-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
South Lot	0.019		2.762		12.33	30.4	1612.68

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Choose an item.

South Parking Lot

Option C

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
9.400	0.4	0.4	0.5	0.5	0.5	0.6	0.6
10.100	0.6	0.6	0.7	0.7	0.7	0.8	0.9
10.800	1.0	1.2	1.4	1.6	1.9	2.1	2.4
11.500	2.7	3.0	3.6	4.6	6.2	9.1	14.7
12.200	23.2	29.8	29.6	24.9	19.1	14.6	11.1
12.900	8.7	7.1	6.0	5.2	4.6	4.1	3.7
13.600	3.3	2.9	2.5	2.2	1.9	1.8	1.7
14.300	1.7	1.6	1.6	1.5	1.5	1.5	1.5
15.000	1.5	1.4	1.3	1.2	1.1	1.0	0.9
15.700	0.9	0.9	0.9	0.8	0.8	0.8	0.8
16.400	0.8	0.8	0.8	0.8	0.8	0.8	0.7
17.100	0.7	0.7	0.7	0.7	0.7	0.7	0.7
17.800	0.7	0.7	0.7	0.7	0.9	1.2	1.1
18.500	1.0	0.8	0.7	0.6	0.6	0.6	0.5
19.200	0.5	0.5	0.5	0.5	0.5	0.5	0.5
19.900	0.5	0.5	0.4	0.4	0.4	0.4	0.4
20.600	0.4	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Elevation (ft)	Peak Flow Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.019	Upstream	2.761		12.33	30.4	1612.68

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)

9.400	0.4	0.4	0.5	0.5	0.5	0.6	0.6
10.100	0.6	0.6	0.7	0.7	0.7	0.8	0.9
10.800	1.0	1.2	1.4	1.6	1.9	2.1	2.4
11.500	2.7	3.0	3.6	4.6	6.2	9.1	14.7
12.200	23.2	29.8	29.6	24.9	19.1	14.6	11.1
12.900	8.7	7.1	6.0	5.2	4.6	4.1	3.7
13.600	3.3	2.9	2.5	2.2	1.9	1.8	1.7
14.300	1.7	1.6	1.6	1.5	1.5	1.5	1.5
15.000	1.5	1.4	1.3	1.2	1.1	1.0	0.9
15.700	0.9	0.9	0.9	0.8	0.8	0.8	0.8
16.400	0.8	0.8	0.8	0.8	0.8	0.8	0.7
17.100	0.7	0.7	0.7	0.7	0.7	0.7	0.7
17.800	0.7	0.7	0.7	0.7	0.9	1.2	1.1
18.500	1.0	0.8	0.7	0.6	0.6	0.6	0.5
19.200	0.5	0.5	0.5	0.5	0.5	0.5	0.5
19.900	0.5	0.5	0.4	0.4	0.4	0.4	0.4
20.600	0.4	0.0					

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Choose an item.

South Parking Lot

Option C

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.019	Downstream	2.746	721.25	12.81	11.1	588.18

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.500	0.4	0.4	0.4	0.5	0.5	0.6	0.6
11.200	0.7	0.8	0.9	1.0	1.2	1.3	1.6
11.900	1.9	2.3	3.1	4.4	6.3	8.2	9.6
12.600	10.5	11.0	11.1	11.0	10.8	10.5	10.1
13.300	9.7	9.3	8.9	8.5	8.1	7.7	7.3
14.000	6.9	6.5	6.1	5.7	5.4	5.1	4.8
14.700	4.5	4.2	4.0	3.8	3.6	3.4	3.2
15.400	3.1	2.9	2.7	2.6	2.4	2.3	2.2
16.100	2.1	2.0	1.9	1.8	1.7	1.6	1.6
16.800	1.5	1.4	1.4	1.3	1.3	1.2	1.2
17.500	1.2	1.1	1.1	1.1	1.0	1.0	1.0
18.200	1.0	1.0	1.0	1.0	1.0	1.0	1.0
18.900	0.9	0.9	0.9	0.9	0.8	0.8	0.8
19.600	0.8	0.7	0.7	0.7	0.7	0.7	0.7
20.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
21.000	0.5	0.5	0.5	0.5	0.5	0.5	0.5
21.700	0.5	0.4	0.4	0.4	0.4	0.4	0.0

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)

OUTLET 0.019 2.745 12.81 11.1 588.18

Line

Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs) (cfs)

10.500	0.4	0.4	0.4	0.5	0.5	0.6	0.6
11.200	0.7	0.8	0.9	1.0	1.2	1.3	1.6
11.900	1.9	2.3	3.1	4.4	6.3	8.2	9.6
12.600	10.5	11.0	11.1	11.0	10.8	10.5	10.1
13.300	9.7	9.3	8.9	8.5	8.1	7.7	7.3
14.000	6.9	6.5	6.1	5.7	5.4	5.1	4.8
14.700	4.5	4.2	4.0	3.8	3.6	3.4	3.2
15.400	3.1	2.9	2.7	2.6	2.4	2.3	2.2
16.100	2.1	2.0	1.9	1.8	1.7	1.6	1.6
16.800	1.5	1.4	1.4	1.3	1.3	1.2	1.2
17.500	1.2	1.1	1.1	1.1	1.0	1.0	1.0
18.200	1.0	1.0	1.0	1.0	1.0	1.0	1.0
18.900	0.9	0.9	0.9	0.9	0.8	0.8	0.8
19.600	0.8	0.7	0.7	0.7	0.7	0.7	0.7
20.300	0.6	0.6	0.6	0.6	0.6	0.6	0.6
21.000	0.5	0.5	0.5	0.5	0.5	0.5	0.5
21.700	0.5	0.4	0.4	0.4	0.4	0.4	0.0

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Choose an item.

South Parking Lot

Option C

STORM 100-Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
South Lot	0.019		4.801		12.33	51.6	2735.14

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
7.700	0.4	0.4	0.4	0.4	0.5	0.5	0.5
8.400	0.5	0.5	0.6	0.6	0.6	0.6	0.6
9.100	0.7	0.7	0.8	1.0	1.1	1.2	1.2
9.800	1.3	1.3	1.4	1.4	1.5	1.5	1.6
10.500	1.6	1.7	1.9	2.2	2.6	3.0	3.4
11.200	3.9	4.3	4.8	5.3	5.9	6.9	8.6
11.900	11.5	16.4	25.9	40.1	50.7	49.9	41.7
12.600	31.8	24.1	18.4	14.3	11.6	9.8	8.5
13.300	7.5	6.7	6.0	5.3	4.7	4.0	3.5
14.000	3.1	2.9	2.8	2.7	2.6	2.5	2.5
14.700	2.5	2.4	2.4	2.4	2.3	2.2	2.0
15.400	1.8	1.6	1.5	1.4	1.4	1.4	1.3
16.100	1.3	1.3	1.3	1.3	1.3	1.3	1.2
16.800	1.2	1.2	1.2	1.2	1.2	1.2	1.1
17.500	1.1	1.1	1.1	1.1	1.1	1.1	1.2
18.200	1.5	1.9	1.8	1.6	1.3	1.1	1.0
18.900	1.0	0.9	0.9	0.9	0.8	0.8	0.8
19.600	0.8	0.8	0.8	0.7	0.7	0.7	0.7
20.300	0.7	0.7	0.7	0.6	0.6	0.6	0.6
21.000	0.6	0.6	0.6	0.6	0.5	0.5	0.5

21.700	0.5	0.5	0.5	0.5	0.4	0.4	0.4
22.400	0.4	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Restrictor	0.019	Upstream	4.801		12.33	51.6	2735.14

Line

Start Time ---------- Flow Values @ time increment of 0.100 hr ----------

(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
7.700	0.4	0.4	0.4	0.4	0.5	0.5	0.5
8.400	0.5	0.5	0.6	0.6	0.6	0.6	0.6
9.100	0.7	0.7	0.8	1.0	1.1	1.2	1.2
9.800	1.3	1.3	1.4	1.4	1.5	1.5	1.6
10.500	1.6	1.7	1.9	2.2	2.6	3.0	3.4
11.200	3.9	4.3	4.8	5.3	5.9	6.9	8.6
11.900	11.5	16.4	25.9	40.1	50.7	49.9	41.7
12.600	31.8	24.1	18.4	14.3	11.6	9.8	8.5
13.300	7.5	6.7	6.0	5.3	4.7	4.0	3.5
14.000	3.1	2.9	2.8	2.7	2.6	2.5	2.5

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South Parking Lot

Option C

Line							
Start Time	---------- Flow Values @ time increment of 0.100 hr ----------						
(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
14.700	2.5	2.4	2.4	2.4	2.3	2.2	2.0
15.400	1.8	1.6	1.5	1.4	1.4	1.4	1.3
16.100	1.3	1.3	1.3	1.3	1.3	1.3	1.2
16.800	1.2	1.2	1.2	1.2	1.2	1.2	1.1
17.500	1.1	1.1	1.1	1.1	1.1	1.1	1.2
18.200	1.5	1.9	1.8	1.6	1.3	1.1	1.0
18.900	1.0	0.9	0.9	0.9	0.8	0.8	0.8
19.600	0.8	0.8	0.8	0.7	0.7	0.7	0.7
20.300	0.7	0.7	0.7	0.6	0.6	0.6	0.6
21.000	0.6	0.6	0.6	0.6	0.5	0.5	0.5
21.700	0.5	0.5	0.5	0.5	0.4	0.4	0.4
22.400	0.4	0.0					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Restrictor	0.019	Downstream	4.786	722.96	12.81	18.4	972.30

Line							
Start Time	---------- Flow Values @ time increment of 0.100 hr ----------						
(hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
9.000	0.4	0.4	0.4	0.5	0.5	0.5	0.6
9.700	0.6	0.7	0.7	0.8	0.8	0.9	0.9
10.400	0.9	1.0	1.0	1.1	1.2	1.2	1.4
11.100	1.5	1.7	1.9	2.1	2.4	2.6	3.0
11.800	3.3	3.9	4.7	6.1	8.2	11.0	13.9

12.500	16.1	17.4	18.1	18.4	18.2	17.8	17.4
13.200	16.8	16.2	15.6	14.9	14.3	13.7	13.0
13.900	12.3	11.7	11.1	10.5	9.9	9.4	8.9
14.600	8.4	7.9	7.5	7.1	6.8	6.4	6.1
15.300	5.7	5.4	5.1	4.8	4.5	4.2	4.0
16.000	3.8	3.6	3.4	3.2	3.1	2.9	2.8
16.700	2.6	2.5	2.4	2.3	2.2	2.1	2.1
17.400	2.0	1.9	1.8	1.8	1.7	1.7	1.6
18.100	1.6	1.6	1.6	1.6	1.6	1.6	1.6
18.800	1.5	1.5	1.4	1.4	1.3	1.3	1.3
19.500	1.2	1.2	1.2	1.1	1.1	1.1	1.1
20.200	1.0	1.0	1.0	1.0	0.9	0.9	0.9
20.900	0.9	0.9	0.8	0.8	0.8	0.8	0.8
21.600	0.7	0.7	0.7	0.7	0.7	0.7	0.6
22.300	0.6	0.6	0.6	0.6	0.6	0.6	0.5
23.000	0.5	0.5	0.5	0.5	0.5	0.4	0.4
23.700	0.4	0.4	0.0				

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South Parking Lot

Option C

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.019		4.786		12.81	18.4	972.30

Line Start Time (hr)	Flow Values @ time increment of 0.100 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
9.000	0.4	0.4	0.4	0.5	0.5	0.5	0.6
9.700	0.6	0.7	0.7	0.8	0.8	0.9	0.9
10.400	0.9	1.0	1.0	1.1	1.2	1.2	1.4
11.100	1.5	1.7	1.9	2.1	2.4	2.6	3.0
11.800	3.3	3.9	4.7	6.1	8.2	11.0	13.9
12.500	16.1	17.4	18.1	18.4	18.2	17.8	17.4
13.200	16.8	16.2	15.6	14.9	14.3	13.7	13.0
13.900	12.3	11.7	11.1	10.5	9.9	9.4	8.9
14.600	8.4	7.9	7.5	7.1	6.8	6.4	6.1
15.300	5.7	5.4	5.1	4.8	4.5	4.2	4.0
16.000	3.8	3.6	3.4	3.2	3.1	2.9	2.8
16.700	2.6	2.5	2.4	2.3	2.2	2.1	2.1
17.400	2.0	1.9	1.8	1.8	1.7	1.7	1.6
18.100	1.6	1.6	1.6	1.6	1.6	1.6	1.6
18.800	1.5	1.5	1.4	1.4	1.3	1.3	1.3
19.500	1.2	1.2	1.2	1.1	1.1	1.1	1.1
20.200	1.0	1.0	1.0	1.0	0.9	0.9	0.9
20.900	0.9	0.9	0.8	0.8	0.8	0.8	0.8
21.600	0.7	0.7	0.7	0.7	0.7	0.7	0.6
22.300	0.6	0.6	0.6	0.6	0.6	0.6	0.5
23.000	0.5	0.5	0.5	0.5	0.5	0.4	0.4
23.700	0.4	0.4	0.0				

South Parking Lot

Option C

Area or Reach Identifier	Drainage Area (sq mi)	Peak Flow by Storm 1-Year (cfs)	2-Year (cfs)	10-Year (cfs)	100-Year (cfs)
South Lot	0.019	16.7	19.7	30.4	51.6
Restrictor	0.019	16.7	19.7	30.4	51.6
DOWNSTREAM		6.1	7.3	11.1	18.4
OUTLET	0.019	6.1	7.3	11.1	18.4

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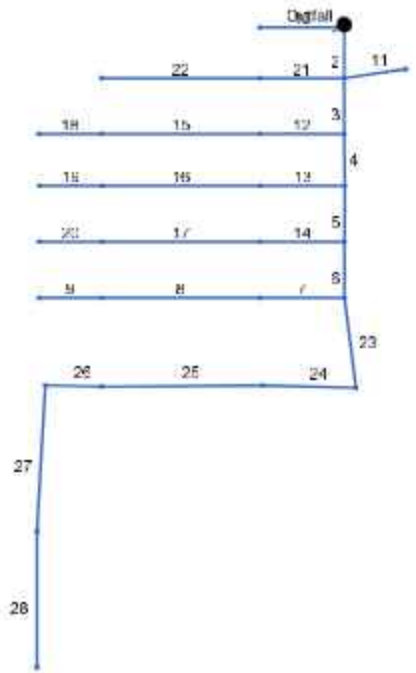
Figure 45 – Alternative A Hydraflow Storm Sewer Models

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: West - North.stm	Number of lines: 28	Date: 9/15/2023

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	5.000	0.42	16.72	0.87	0.37	13.65	20.5	31.1	2.8	38.62	196.6	4.70	54	1.00	715.75	715.80	719.34	717.59	722.50	722.50	
2	1	91.669	0.42	15.61	0.82	0.34	12.70	20.0	30.6	2.9	36.33	61.63	4.04	54	0.10	715.80	715.89	718.29	718.37	722.50	721.50	
3	2	100.000	0.51	13.75	0.83	0.42	11.34	19.5	29.9	2.9	32.86	62.18	3.30	54	0.10	715.90	716.00	718.62	718.68	721.50	722.00	
4	3	93.100	0.55	12.21	0.83	0.46	10.10	19.0	29.3	2.9	29.58	44.67	3.11	48	0.10	716.00	716.09	718.85	718.90	722.00	722.00	
5	4	100.636	0.55	10.55	0.84	0.46	8.74	18.5	28.6	3.0	25.94	45.29	2.63	48	0.10	716.10	716.20	719.06	719.10	722.00	722.00	
6	5	100.724	0.55	8.89	0.84	0.46	7.39	18.0	27.7	3.0	22.31	45.26	2.23	48	0.10	716.20	716.30	719.21	719.23	722.00	722.00	
7	6	151.045	0.50	1.11	0.83	0.42	0.88	16.0	20.5	3.6	3.15	5.63	2.58	15	0.76	717.30	718.45	719.31	719.65	722.00	724.80	
8	7	283.310	0.42	0.61	0.88	0.37	0.47	15.5	18.6	3.8	1.76	3.99	3.05	12	1.25	718.45	722.00	719.66	722.56	724.80	726.50	
9	8	112.439	0.19	0.19	0.52	0.10	0.10	15.0	15.0	4.2	0.41	5.82	1.69	12	2.67	722.00	725.00	722.56	725.27	726.50	730.40	
10	1	151.045	0.69	0.69	0.84	0.58	0.58	15.0	15.0	4.2	2.43	4.76	5.23	12	1.79	717.80	720.50	718.31	721.17	722.50	725.00	
11	2	111.380	0.07	0.07	0.88	0.06	0.06	15.0	15.0	4.2	0.26	1.12	0.46	12	0.10	717.90	718.01	718.62	718.63	721.50	722.50	
12	3	151.045	0.46	1.03	0.83	0.38	0.82	16.0	20.9	3.5	2.88	4.81	4.37	12	1.82	718.00	720.75	718.85	721.48	722.00	725.50	
13	4	151.045	0.50	1.11	0.88	0.44	0.91	16.0	20.6	3.6	3.22	4.72	4.57	12	1.75	718.10	720.75	719.06	721.52	722.00	725.50	
14	5	151.045	0.50	1.11	0.83	0.42	0.88	16.0	20.6	3.6	3.13	3.89	4.45	12	1.19	718.20	720.00	719.21	720.76	722.00	725.50	
15	12	283.310	0.39	0.57	0.88	0.34	0.44	15.5	18.8	3.7	1.62	3.17	3.20	12	0.79	720.75	723.00	721.48	723.54	725.50	729.10	
16	13	283.310	0.42	0.61	0.88	0.37	0.47	15.5	18.6	3.7	1.75	3.17	3.27	12	0.79	720.75	723.00	721.52	723.56	725.50	728.50	
17	14	283.310	0.42	0.61	0.88	0.37	0.47	15.5	18.6	3.7	1.75	2.63	3.29	12	0.55	720.00	721.55	720.76	722.11	725.50	727.30	
18	15	112.439	0.18	0.18	0.51	0.09	0.09	15.0	15.0	4.2	0.38	4.75	1.66	12	1.78	723.00	725.00	723.54	725.26	729.10	731.00	
19	16	112.439	0.19	0.19	0.51	0.10	0.10	15.0	15.0	4.2	0.41	4.75	1.68	12	1.78	723.00	725.00	723.56	725.26	728.50	731.00	
20	17	112.439	0.19	0.19	0.51	0.10	0.10	15.0	15.0	4.2	0.41	6.24	1.68	12	3.07	721.55	725.00	722.11	725.26	727.30	731.00	
21	2	151.045	0.51	1.37	0.83	0.42	0.96	15.5	16.7	4.0	3.80	5.10	5.85	12	2.05	717.90	721.00	718.62	721.83	721.50	724.50	
22	21	283.310	0.86	0.86	0.62	0.53	0.53	15.0	15.0	4.2	2.24	3.35	3.72	12	0.88	721.00	723.50	721.83	724.14	724.50	728.90	
23	6	162.999	0.85	7.23	0.85	0.72	6.05	17.5	26.1	3.1	18.86	45.01	1.90	48	0.10	716.30	716.46	719.31	719.35	722.00	721.50	
24	23	166.725	1.98	6.38	0.83	1.64	5.32	17.0	24.7	3.2	17.12	32.12	2.05	42	0.10	716.50	716.67	719.41	719.45	721.50	722.50	
25	24	288.639	1.49	4.40	0.83	1.24	3.68	16.5	21.4	3.5	12.80	31.89	1.65	42	0.10	716.70	716.99	719.46	719.50	722.50	723.70	
26	25	100.703	0.00	2.91	0.90	0.00	2.44	16.0	20.1	3.6	8.78	21.01	1.41	36	0.10	717.00	717.10	719.51	719.52	723.70	725.40	
27	26	263.530	1.95	2.91	0.81	1.58	2.44	15.5	17.0	3.9	9.61	20.95	1.66	36	0.10	717.15	717.41	719.56	719.61	725.40	722.10	
28	27	243.544	0.96	0.96	0.90	0.86	0.86	15.0	15.0	4.2	3.62	3.30	2.05	18	0.10	717.50	717.74	719.62	719.91	722.10	722.10	

Project File: West - North.stm

Number of lines: 28

Run Date: 9/15/2023

NOTES:Intensity = 25.27 / (Inlet time + 3.20) ^ 0.62; Return period =Yrs. 10 ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
1	54	38.62	715.75	719.34	3.59	5.88	2.84	0.67	720.01	0.000	5.000	715.80	717.59	1.79**	5.88	6.56	0.67	718.26	0.000	0.000	n/a	1.00	0.67
2	54	36.33	715.80	718.29	2.49*	9.01	4.03	0.25	718.54	0.098	91.669	715.89	718.37	2.48	8.98	4.04	0.25	718.62	0.099	0.099	0.090	1.00	0.25
3	54	32.86	715.90	718.62	2.72	10.07	3.26	0.17	718.79	0.060	100.000	716.00	718.68	2.68	9.87	3.33	0.17	718.85	0.063	0.062	0.062	1.00	0.17
4	48	29.58	716.00	718.85	2.85	9.58	3.09	0.15	719.00	0.058	93.100	716.09	718.90	2.81	9.45	3.13	0.15	719.06	0.060	0.059	0.055	1.00	0.15
5	48	25.94	716.10	719.06	2.96	9.96	2.61	0.11	719.16	0.041	100.636	716.20	719.10	2.90	9.74	2.66	0.11	719.21	0.043	0.042	0.042	1.00	0.11
6	48	22.31	716.20	719.21	3.01	10.13	2.20	0.08	719.28	0.029	100.724	716.30	719.23	2.93	9.88	2.26	0.08	719.31	0.031	0.030	0.030	1.00	0.08
7	15	3.15	717.30	719.31	1.25	1.23	2.56	0.10	719.42	0.238	151.045	718.45	719.65	1.20	1.21	2.60	0.11	719.75	0.206	0.222	0.335	0.15	0.02
8	12	1.76	718.45	719.66	1.00	0.46	2.24	0.08	719.74	0.244	283.310	722.00	722.56 j	0.56**	0.46	3.86	0.23	722.79	0.657	0.450	n/a	0.15	n/a
9	12	0.41	722.00	722.56	0.56	0.17	0.91	0.10	722.66	0.000	112.439	725.00	725.27 j	0.27**	0.17	2.47	0.10	725.36	0.000	0.000	n/a	1.00	n/a
10	12	2.43	717.80	718.31	0.51*	0.40	6.09	0.30	718.60	0.000	151.045	720.50	721.17	0.67**	0.56	4.37	0.30	721.46	0.000	0.000	n/a	1.00	0.30
11	12	0.26	717.90	718.62	0.72	0.61	0.42	0.00	718.63	0.007	111.380	718.01	718.63	0.62	0.51	0.50	0.00	718.64	0.010	0.009	0.010	1.00	0.00
12	12	2.88	718.00	718.85	0.85	0.61	4.04	0.34	719.20	0.000	151.045	720.75	721.48 j	0.73**	0.61	4.71	0.34	721.82	0.000	0.000	n/a	0.15	0.05
13	12	3.22	718.10	719.06	0.96	0.65	4.17	0.39	719.44	0.000	151.045	720.75	721.52 j	0.77**	0.65	4.98	0.39	721.90	0.000	0.000	n/a	0.15	n/a
14	12	3.13	718.20	719.21	1.00	0.64	3.99	0.25	719.45	0.775	151.045	720.00	720.76 j	0.76**	0.64	4.91	0.37	721.13	0.909	0.842	n/a	0.15	0.06
15	12	1.62	720.75	721.48	0.73	0.43	2.65	0.22	721.69	0.000	283.310	723.00	723.54 j	0.54**	0.43	3.74	0.22	723.76	0.000	0.000	n/a	0.15	n/a
16	12	1.75	720.75	721.52	0.77	0.45	2.70	0.23	721.75	0.000	283.310	723.00	723.56 j	0.56**	0.45	3.85	0.23	723.79	0.000	0.000	n/a	0.15	0.03
17	12	1.75	720.00	720.76	0.76	0.45	2.74	0.12	720.87	0.283	283.310	721.55	722.11 j	0.56**	0.45	3.85	0.23	722.34	0.656	0.469	n/a	0.15	0.03
18	12	0.38	723.00	723.54	0.54	0.16	0.89	0.09	723.63	0.000	112.439	725.00	725.26 j	0.26**	0.16	2.42	0.09	725.35	0.000	0.000	n/a	1.00	n/a
19	12	0.41	723.00	723.56	0.56	0.17	0.89	0.09	723.66	0.000	112.439	725.00	725.26 j	0.26**	0.17	2.46	0.09	725.36	0.000	0.000	n/a	1.00	0.09
20	12	0.41	721.55	722.11	0.56	0.17	0.89	0.09	722.21	0.000	112.439	725.00	725.26 j	0.26**	0.17	2.46	0.09	725.36	0.000	0.000	n/a	1.00	0.09
21	12	3.80	717.90	718.62	0.72	0.61	6.24	0.46	719.09	0.000	151.045	721.00	721.83	0.83**	0.70	5.46	0.46	722.29	0.000	0.000	n/a	0.15	0.07
22	12	2.24	721.00	721.83	0.83	0.53	3.21	0.28	722.11	0.000	283.310	723.50	724.14 j	0.64**	0.53	4.22	0.28	724.42	0.000	0.000	n/a	1.00	0.28

Project File: West - North.stm | Number of lines: 28 | Run Date: 9/15/2023

Notes: * Normal depth assumed; ** Critical depth ; j-Line contains hyd. jump ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

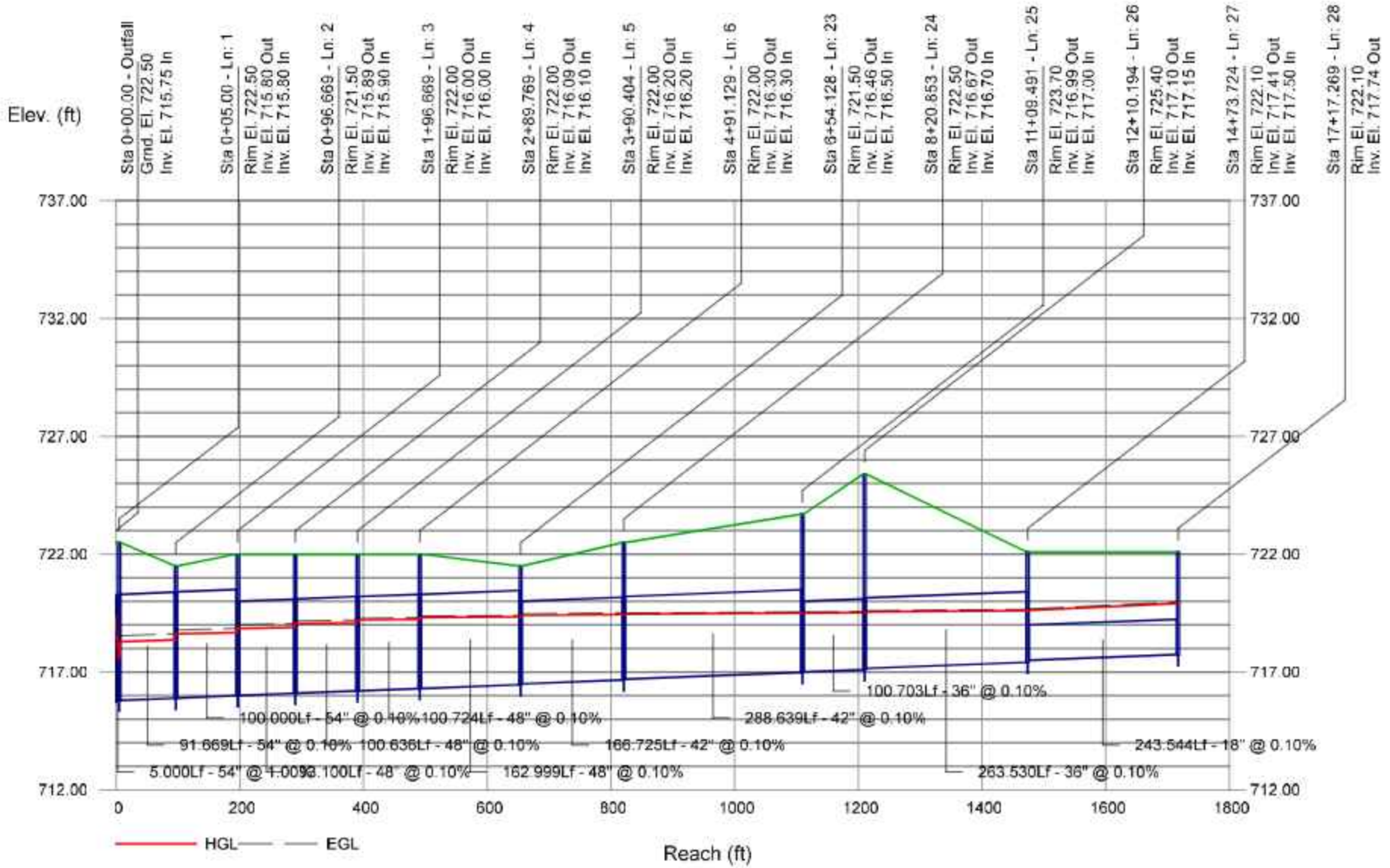
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
23	48	18.86	716.30	719.31	3.01	10.16	1.86	0.05	719.37	0.021	162.999	716.46	719.35	2.89	9.71	1.94	0.06	719.41	0.023	0.022	0.035	1.00	0.06
24	42	17.12	716.50	719.41	2.91	8.54	2.00	0.06	719.47	0.028	166.725	716.67	719.45	2.78	8.19	2.09	0.07	719.52	0.031	0.030	0.049	0.15	0.01
25	42	12.80	716.70	719.46	2.76	8.13	1.57	0.04	719.50	0.017	288.639	716.99	719.50	2.51	7.39	1.73	0.05	719.55	0.022	0.020	0.056	0.15	0.01
26	36	8.78	717.00	719.51	2.51	6.32	1.39	0.03	719.54	0.017	100.703	717.10	719.52	2.42	6.12	1.44	0.03	719.56	0.018	0.017	0.017	1.00	0.03
27	36	9.61	717.15	719.56	2.41	6.08	1.58	0.04	719.60	0.022	263.530	717.41	719.61	2.20	5.56	1.73	0.05	719.66	0.026	0.024	0.063	0.15	0.01
28	18	3.62	717.50	719.62	1.50	1.77	2.05	0.07	719.68	0.119	243.544	717.74	719.91	1.50	1.77	2.05	0.07	719.97	0.119	0.119	0.290	1.00	0.07

Project File: West - North.stm | Number of lines: 28 | Run Date: 9/15/2023

Notes: * Normal depth assumed; ** Critical depth ; j-Line contains hyd. jump ; c = cir e = ellip b = box

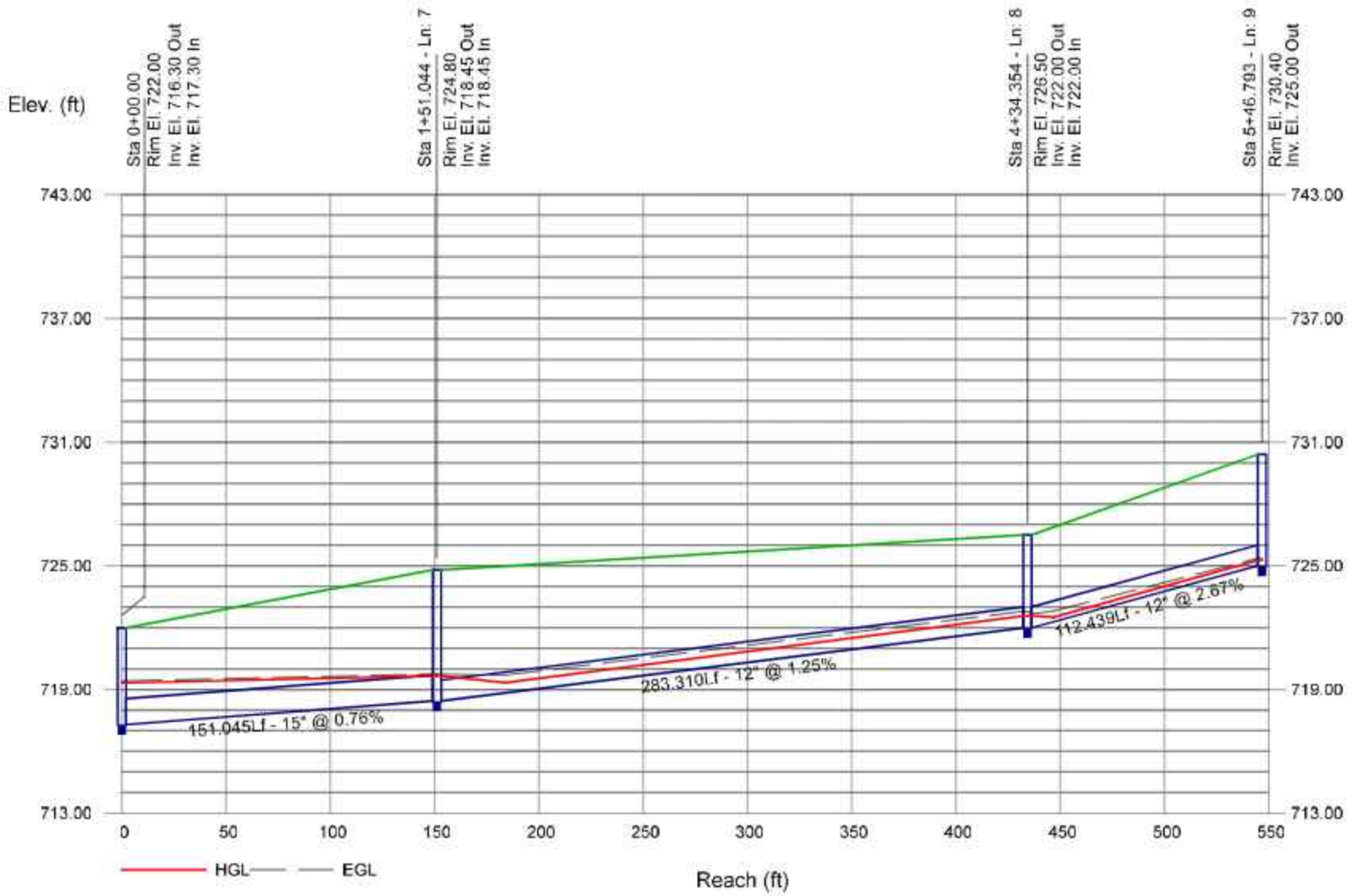
Storm Sewer Profile

Proj. file: West - North.stm



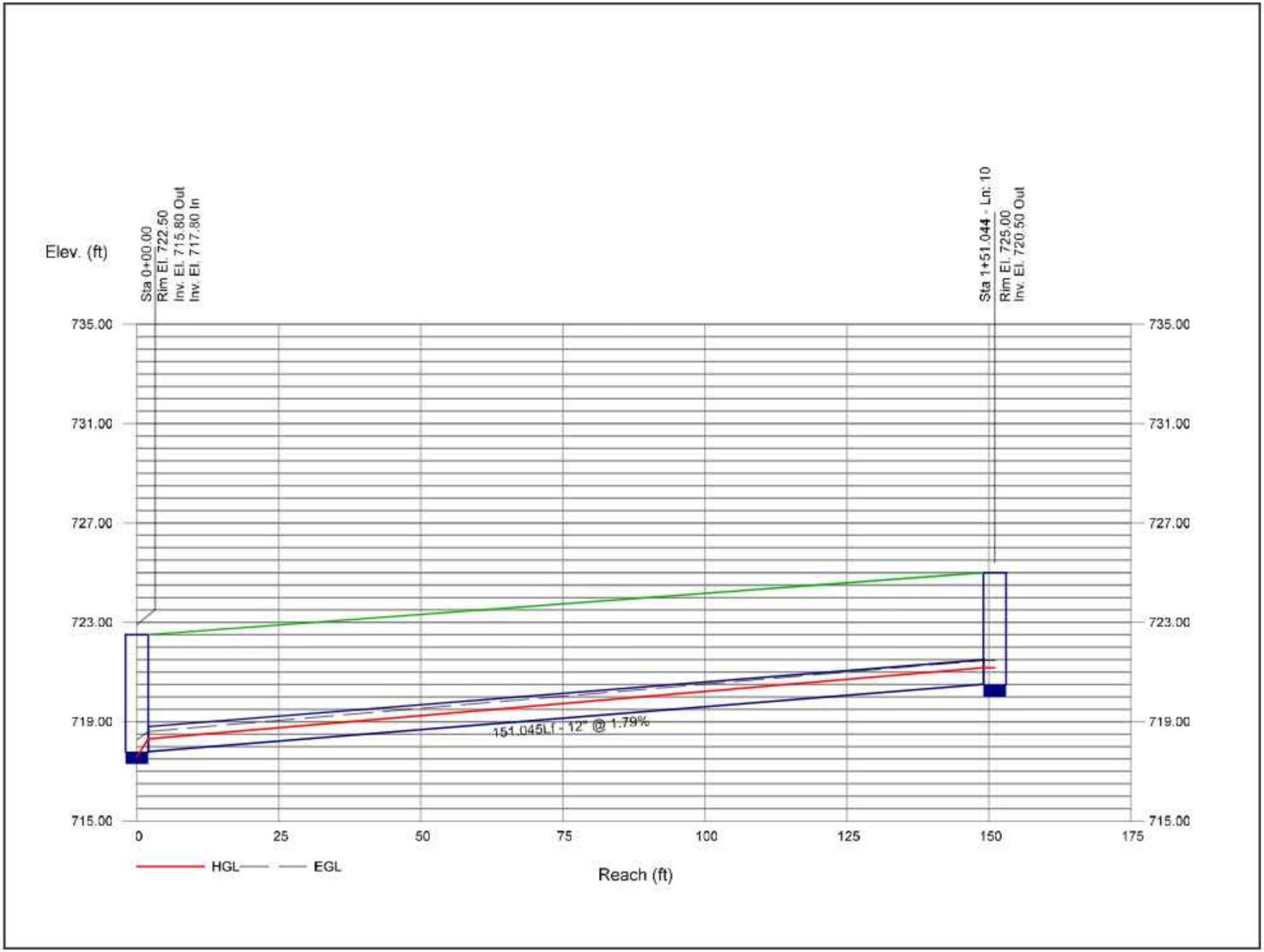
Storm Sewer Profile

Proj. file: West - North.stm



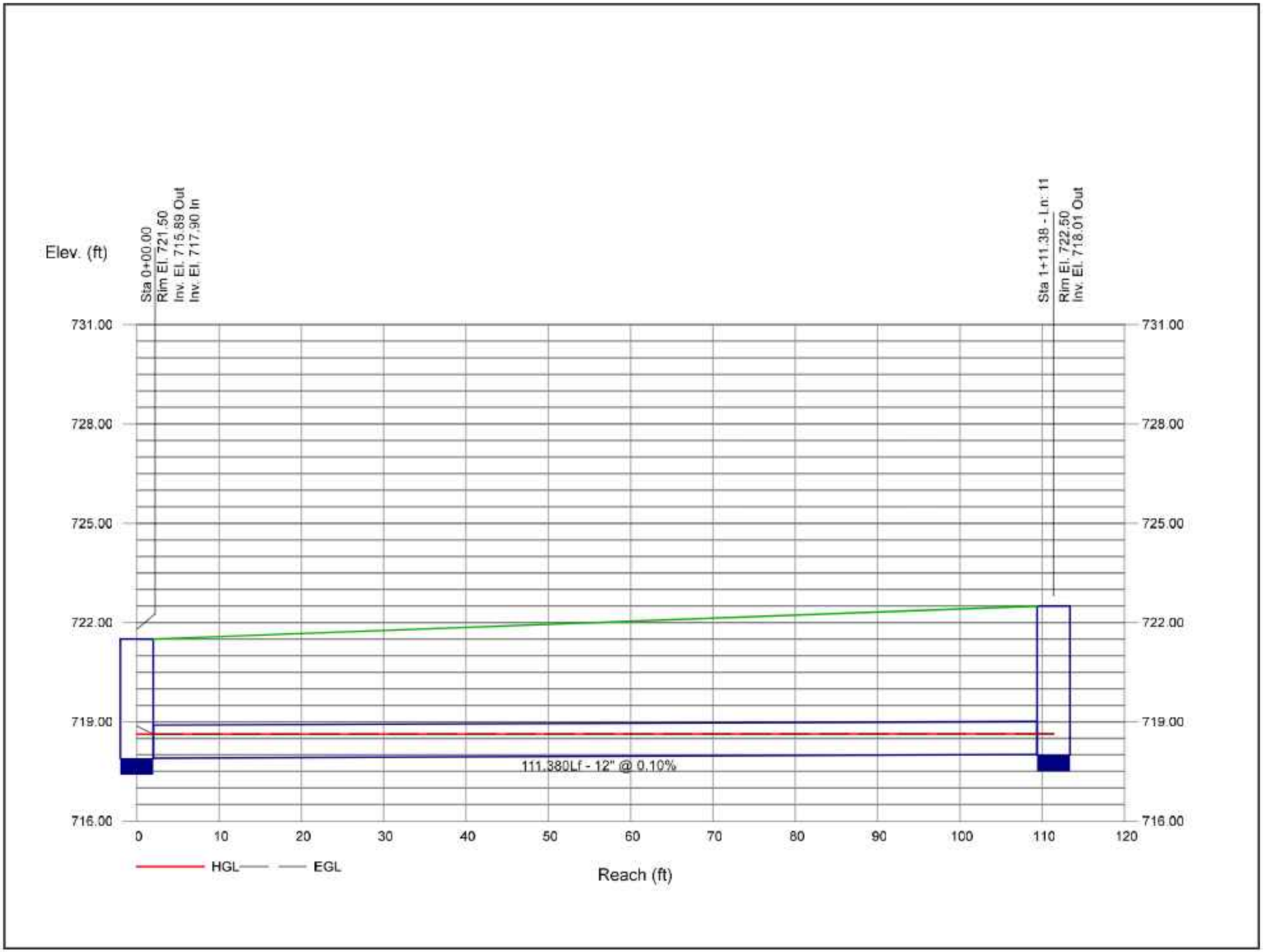
Storm Sewer Profile

Proj. file: West - North.stm



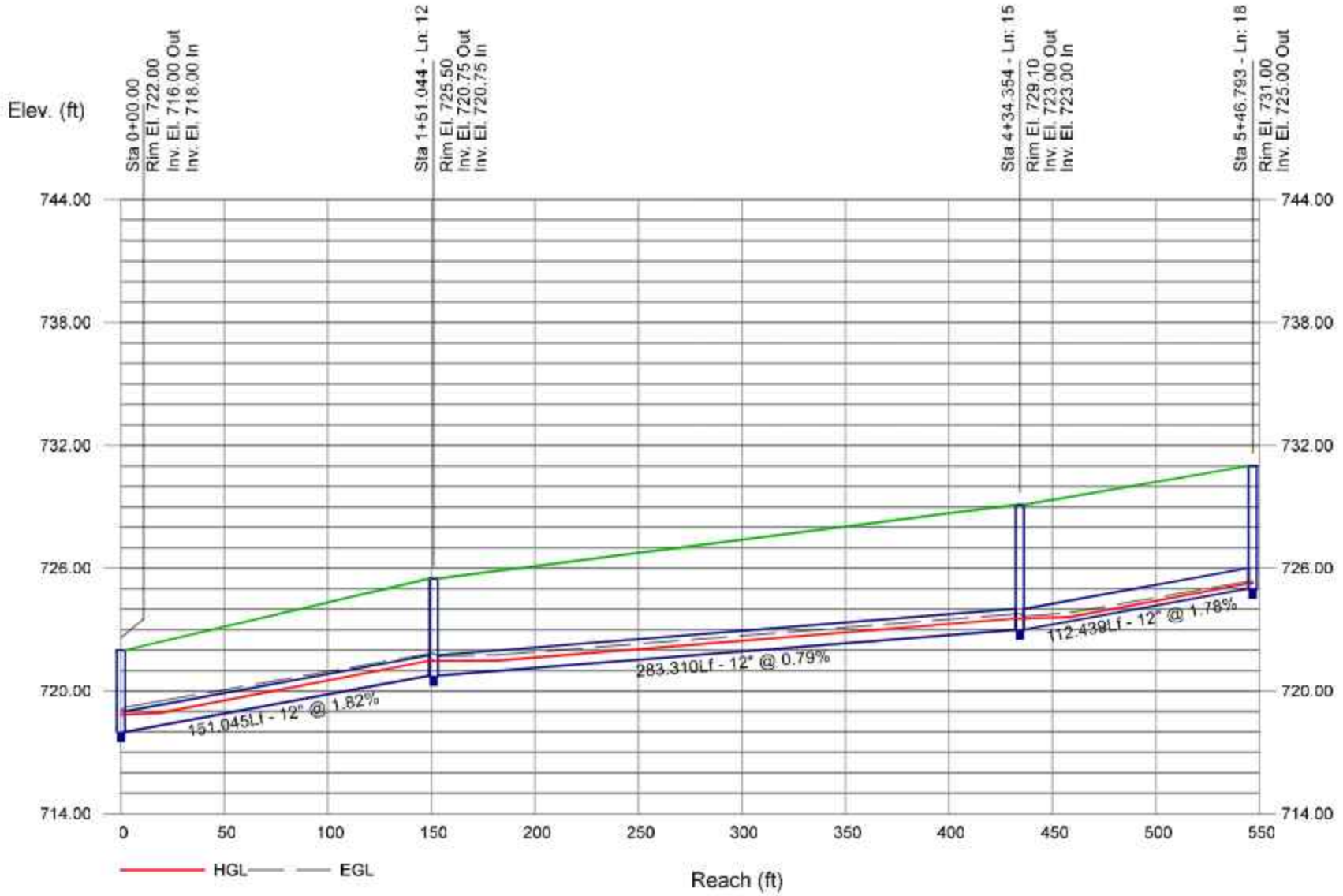
Storm Sewer Profile

Proj. file: West - North.stm



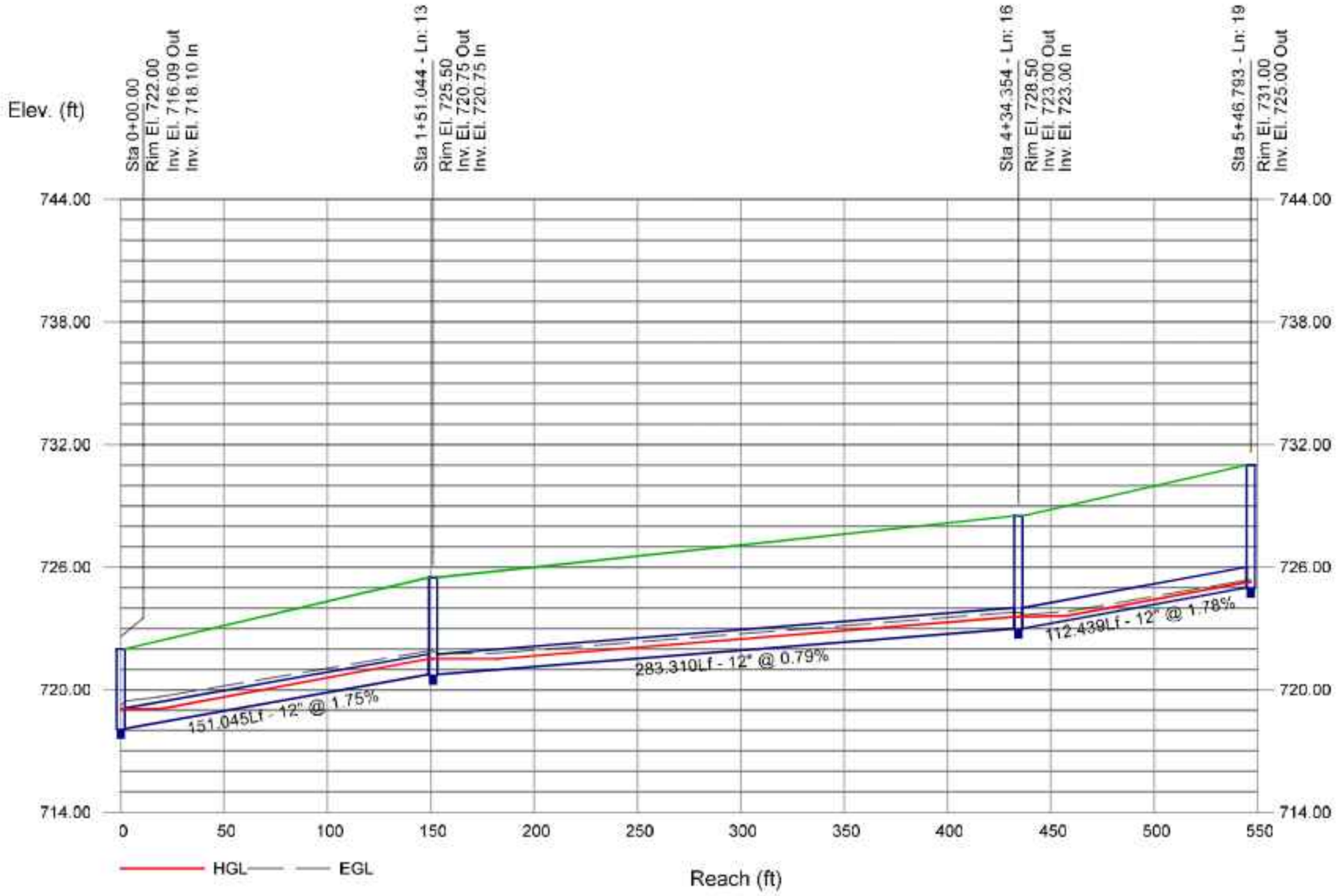
Storm Sewer Profile

Proj. file: West - North.stm



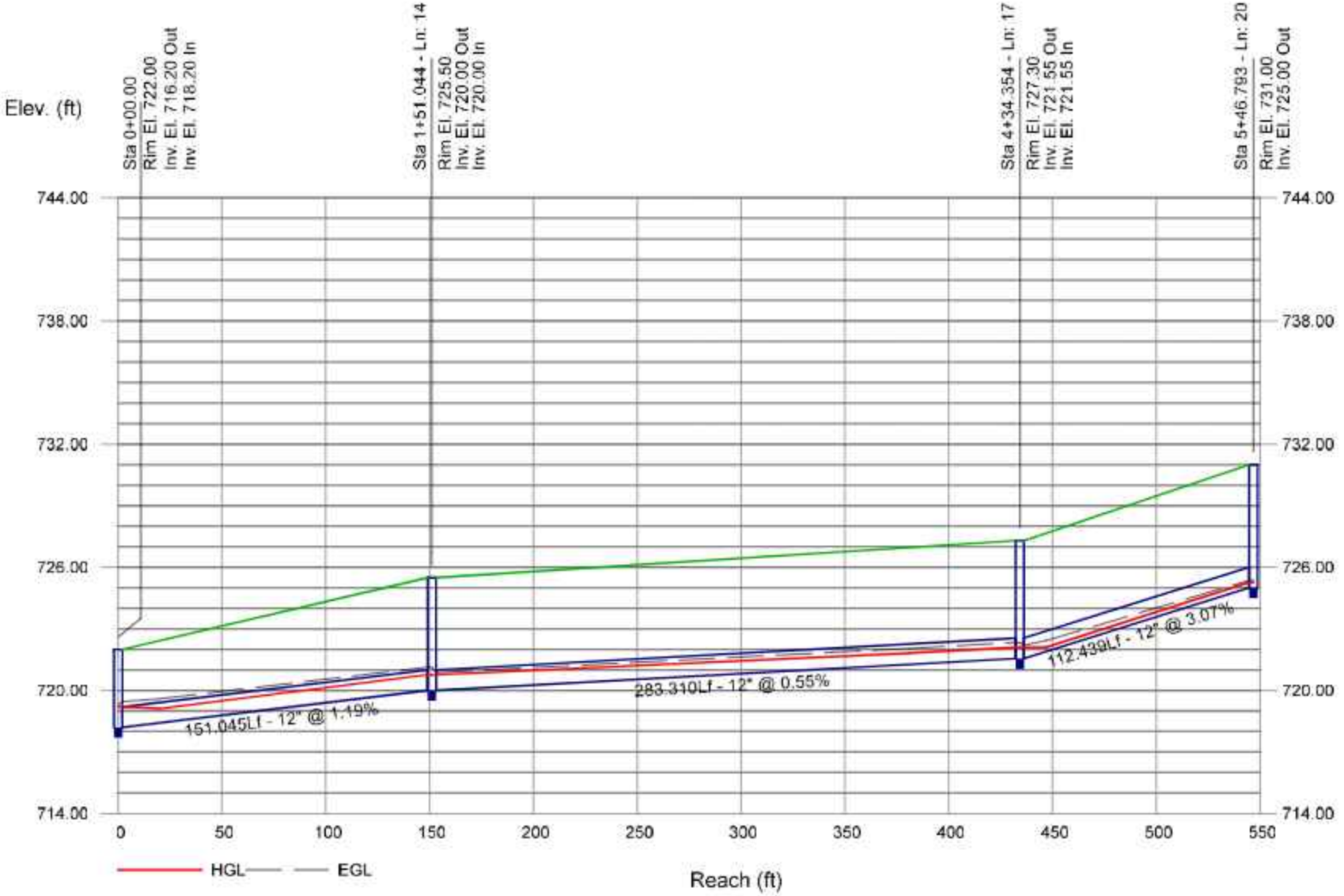
Storm Sewer Profile

Proj. file: West - North.stm



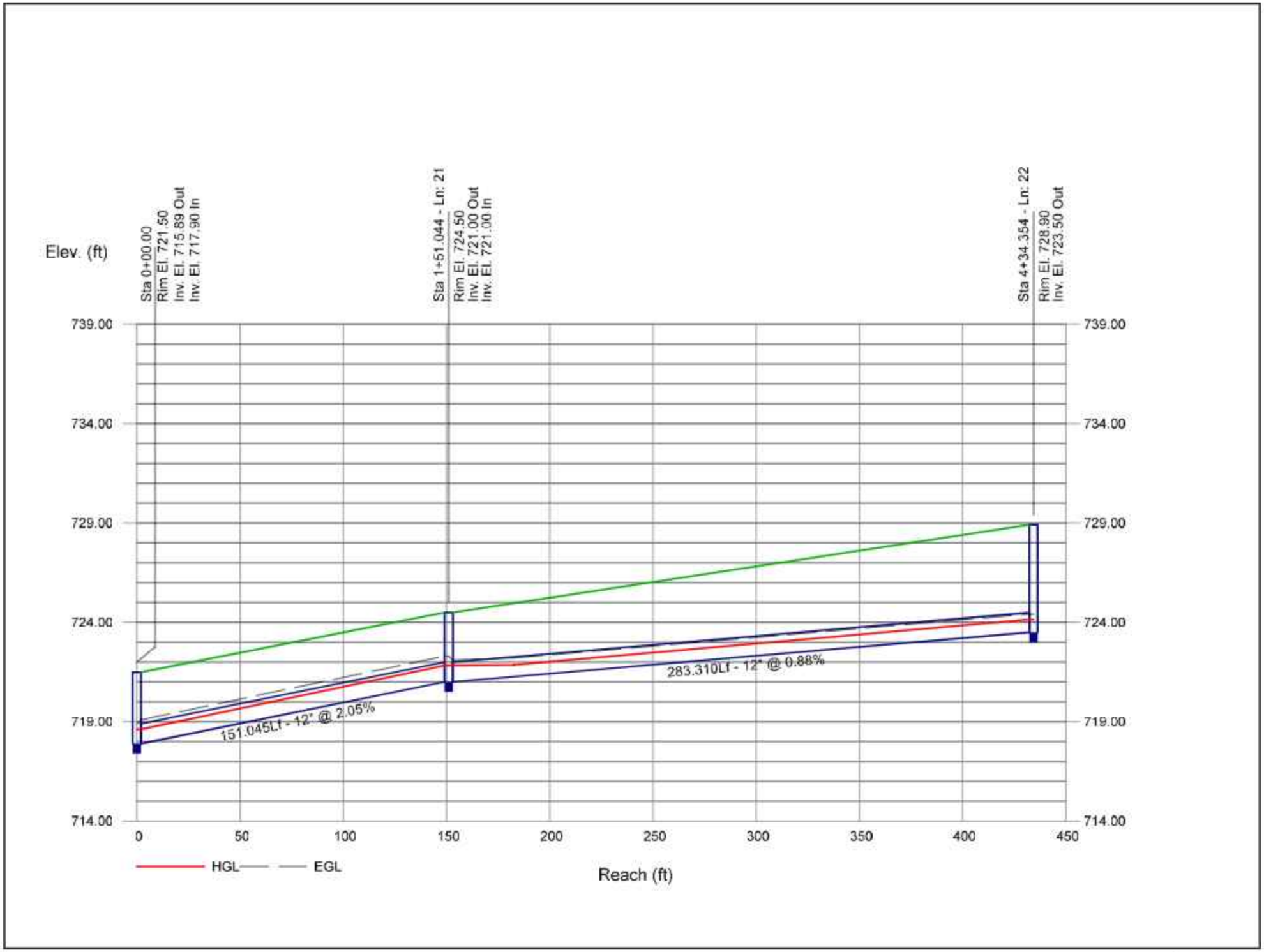
Storm Sewer Profile

Proj. file: West - North.stm

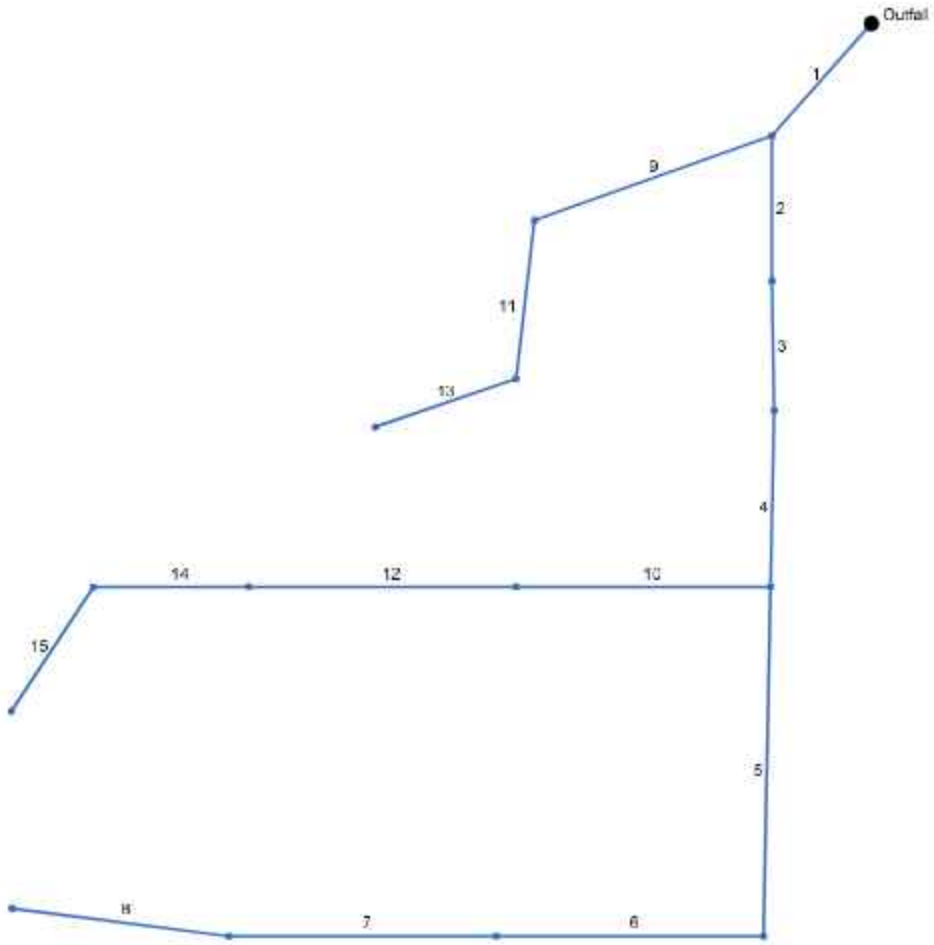


Storm Sewer Profile

Proj. file: West - North.stm



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: West - South.stm	Number of lines: 15	Date: 9/15/2023

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	126.552	0.57	13.01	0.70	0.40	10.45	18.5	29.5	2.9	30.50	46.04	2.43	48	0.10	717.00	717.13	720.99	721.04	721.00	722.90	
2	1	122.777	0.42	7.81	0.79	0.33	6.42	18.0	28.6	3.0	19.08	31.45	1.98	42	0.10	717.13	717.25	721.11	721.15	722.90	722.90	
3	2	109.436	0.43	7.39	0.71	0.31	6.09	17.5	27.5	3.0	18.48	45.54	1.49	48	0.10	717.25	717.36	721.16	721.17	722.90	723.80	
4	3	149.154	0.47	6.96	0.87	0.41	5.79	17.0	26.0	3.1	18.11	45.56	1.48	48	0.10	717.36	717.51	721.18	721.20	723.80	726.50	
5	4	295.304	0.49	2.96	0.88	0.43	2.47	16.5	22.2	3.4	8.41	21.26	1.19	36	0.10	717.51	717.81	721.23	721.28	726.50	729.10	
6	5	225.000	0.87	2.47	0.88	0.77	2.04	16.0	19.9	3.6	7.36	13.11	1.50	30	0.10	717.81	718.04	721.30	721.37	729.10	726.00	
7	6	225.000	0.93	1.60	0.84	0.78	1.27	15.5	17.6	3.9	4.90	7.23	1.56	24	0.10	718.04	718.27	721.38	721.49	726.00	723.50	
8	7	184.000	0.67	0.67	0.73	0.49	0.49	15.0	15.0	4.2	2.05	3.28	1.16	18	0.10	718.27	718.45	721.49	721.56	723.50	722.00	
9	1	212.296	2.89	4.63	0.81	2.34	3.62	16.0	19.2	3.7	13.37	20.98	1.89	36	0.10	717.13	717.34	721.11	721.19	722.90	722.50	
10	4	214.129	0.85	3.53	0.89	0.76	2.91	16.5	21.0	3.5	10.23	20.88	1.45	36	0.10	717.51	717.72	721.23	721.28	726.50	724.10	
11	9	134.709	1.01	1.74	0.72	0.73	1.28	15.5	17.8	3.8	4.92	7.02	1.57	24	0.10	717.34	717.47	721.24	721.31	722.50	722.20	
12	10	225.000	1.03	2.68	0.79	0.81	2.15	16.0	17.9	3.8	8.24	20.86	1.17	36	0.10	717.72	717.94	721.29	721.32	724.10	722.50	
13	11	125.403	0.73	0.73	0.76	0.55	0.55	15.0	15.0	4.2	2.33	7.28	0.74	24	0.10	717.47	717.60	721.34	721.36	722.20	722.40	
14	12	130.796	1.03	1.65	0.79	0.81	1.34	15.5	16.7	4.0	5.32	7.13	1.69	24	0.10	717.94	718.07	721.33	721.40	722.50	722.20	
15	14	125.682	0.62	0.62	0.85	0.53	0.53	15.0	15.0	4.2	2.21	3.38	1.25	18	0.10	718.07	718.20	721.44	721.49	722.20	721.50	

Project File: West - South.stm

Number of lines: 15

Run Date: 9/15/2023

NOTES:Intensity = 25.27 / (Inlet time + 3.20) ^ 0.62; Return period =Yrs. 10 ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

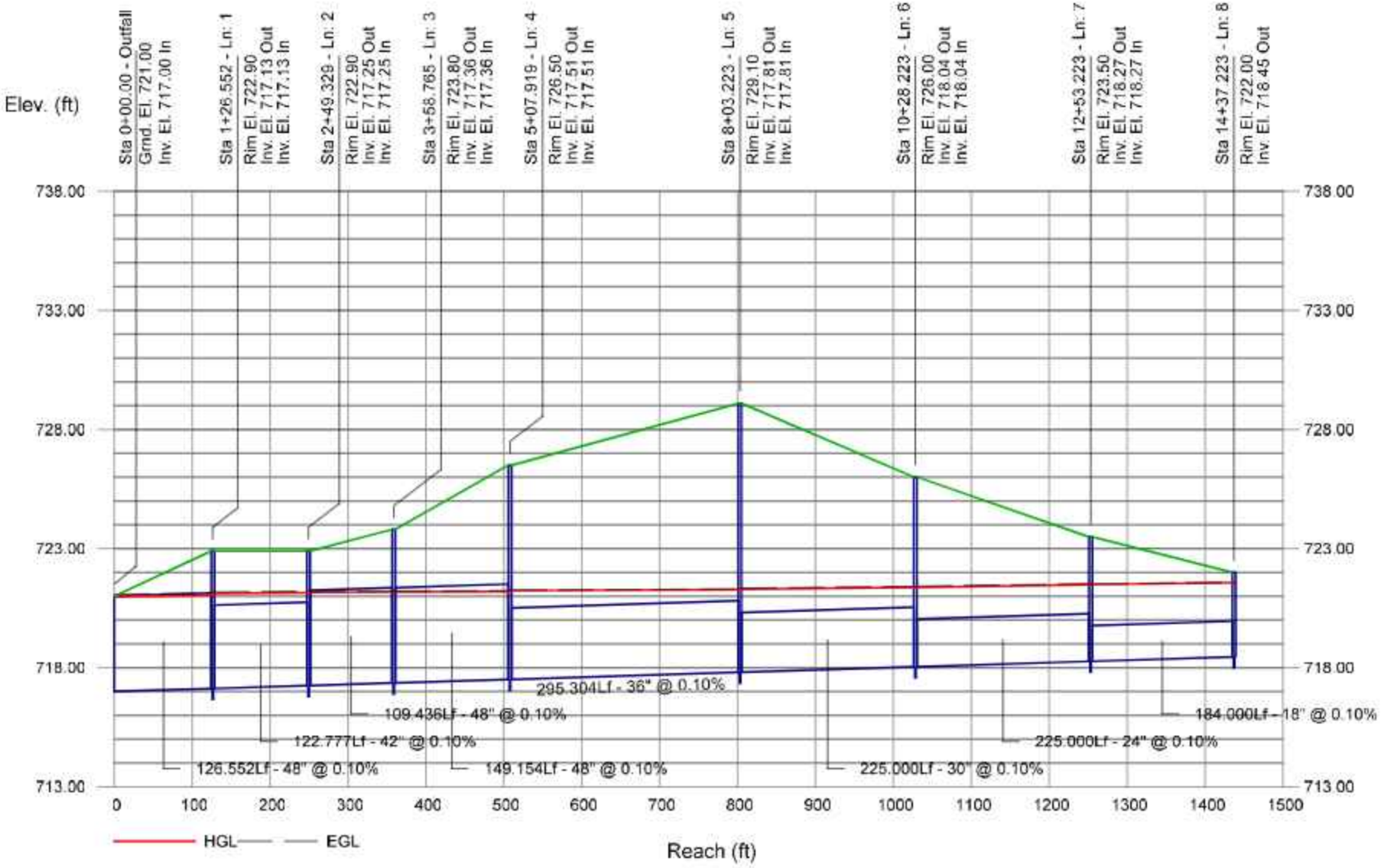
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	48	30.50	717.00	720.99	3.99	12.56	2.43	0.09	721.08	0.043	126.552	717.13	721.04	3.91	12.50	2.44	0.09	721.13	0.040	0.042	0.053	0.71	0.07
2	42	19.08	717.13	721.11	3.50	9.62	1.98	0.06	721.17	0.036	122.777	717.25	721.15	3.50	9.62	1.98	0.06	721.21	0.036	0.036	0.044	0.15	0.01
3	48	18.48	717.25	721.16	3.91	12.50	1.48	0.03	721.19	0.015	109.436	717.36	721.17	3.81	12.36	1.50	0.03	721.21	0.014	0.015	0.016	0.15	0.01
4	48	18.11	717.36	721.18	3.82	12.37	1.46	0.03	721.21	0.014	149.154	717.51	721.20	3.69	12.11	1.49	0.03	721.23	0.014	0.014	0.021	1.00	0.03
5	36	8.41	717.51	721.23	3.00	7.07	1.19	0.02	721.26	0.016	295.304	717.81	721.28	3.00	7.07	1.19	0.02	721.30	0.016	0.016	0.047	1.00	0.02
6	30	7.36	717.81	721.30	2.50	4.91	1.50	0.03	721.34	0.032	225.000	718.04	721.37	2.50	4.91	1.50	0.03	721.41	0.032	0.032	0.072	0.15	0.01
7	24	4.90	718.04	721.38	2.00	3.14	1.56	0.04	721.42	0.047	225.000	718.27	721.49	2.00	3.14	1.56	0.04	721.52	0.047	0.047	0.106	0.16	0.01
8	18	2.05	718.27	721.49	1.50	1.77	1.16	0.02	721.51	0.038	184.000	718.45	721.56	1.50	1.77	1.16	0.02	721.58	0.038	0.038	0.070	1.00	0.02
9	36	13.37	717.13	721.11	3.00	7.07	1.89	0.06	721.16	0.040	212.296	717.34	721.19	3.00	7.07	1.89	0.06	721.25	0.040	0.040	0.085	0.91	0.05
10	36	10.23	717.51	721.23	3.00	7.07	1.45	0.03	721.27	0.024	214.129	717.72	721.28	3.00	7.07	1.45	0.03	721.32	0.024	0.024	0.050	0.15	0.00
11	24	4.92	717.34	721.24	2.00	3.14	1.57	0.04	721.28	0.047	134.709	717.47	721.31	2.00	3.14	1.56	0.04	721.35	0.047	0.047	0.064	0.92	0.04
12	36	8.24	717.72	721.29	3.00	7.07	1.17	0.02	721.31	0.015	225.000	717.94	721.32	3.00	7.07	1.17	0.02	721.34	0.015	0.015	0.034	0.15	0.00
13	24	2.33	717.47	721.34	2.00	3.14	0.74	0.01	721.35	0.011	125.403	717.60	721.36	2.00	3.14	0.74	0.01	721.36	0.011	0.011	0.013	1.00	0.01
14	24	5.32	717.94	721.33	2.00	3.14	1.69	0.04	721.37	0.055	130.796	718.07	721.40	2.00	3.14	1.69	0.04	721.44	0.055	0.055	0.072	0.86	0.04
15	18	2.21	718.07	721.44	1.50	1.77	1.25	0.02	721.46	0.044	125.682	718.20	721.49	1.50	1.77	1.25	0.02	721.52	0.044	0.044	0.056	1.00	0.02

Project File: West - South.stm | Number of lines: 15 | Run Date: 9/15/2023

; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: West - South.stm



Storm Sewer Profile

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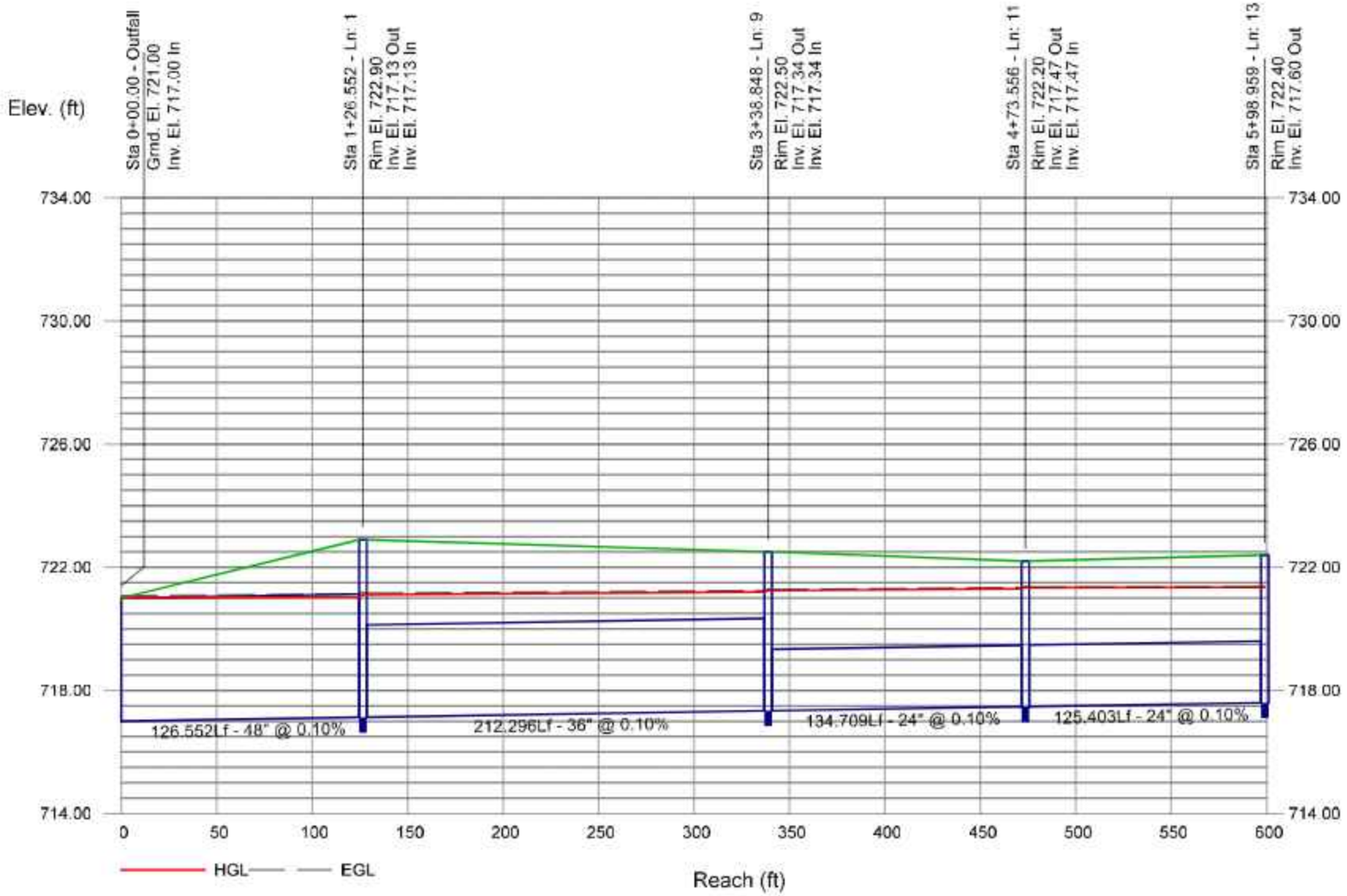

Storm Sewer Profile

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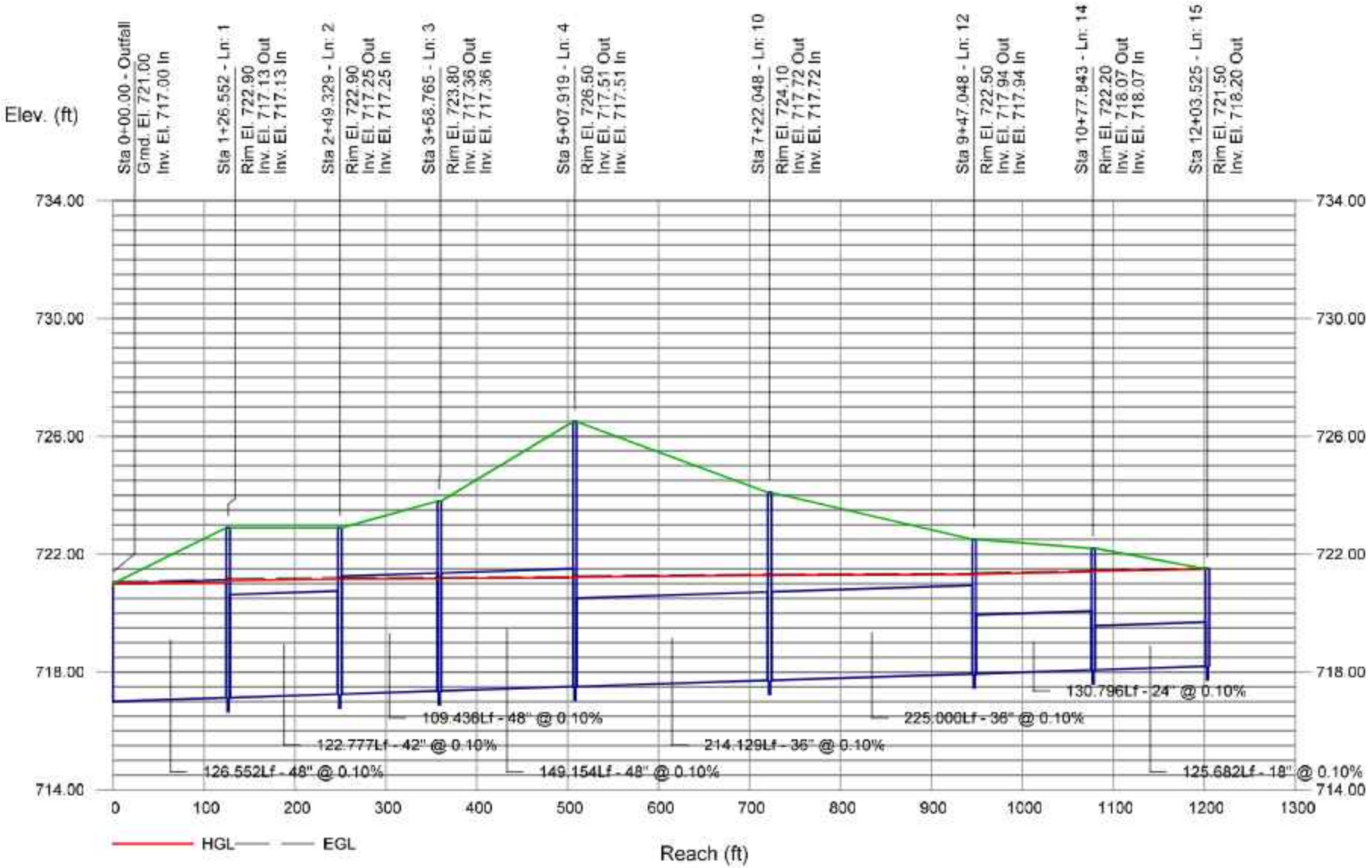
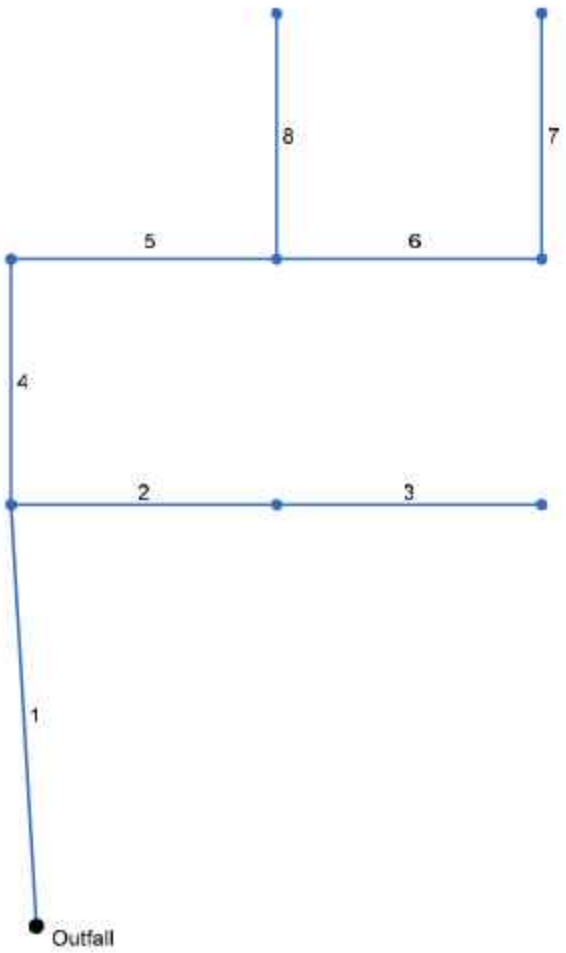


Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: East - Central.stm	Number of lines: 8	Date: 9/15/2023

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	187.442	0.12	1.99	0.87	0.10	1.75	17.0	28.2	3.0	5.25	7.20	2.90	24	0.10	715.00	715.19	716.06	716.38	716.00	722.60	
2	1	117.348	0.17	0.30	0.86	0.15	0.26	15.5	22.4	3.4	0.88	7.23	0.43	24	0.10	715.20	715.32	716.49	716.49	722.60	721.50	
3	2	117.124	0.13	0.13	0.86	0.11	0.11	15.0	15.0	4.2	0.47	3.36	0.36	18	0.10	715.40	715.52	716.49	716.50	721.50	720.40	
4	1	109.009	0.40	1.57	0.89	0.36	1.39	16.5	21.2	3.5	4.87	7.18	2.29	24	0.10	715.20	715.31	716.49	716.58	722.60	720.60	
5	4	117.348	0.37	1.17	0.90	0.33	1.04	16.0	20.4	3.6	3.70	3.36	2.10	18	0.10	715.35	715.47	716.85	716.97	720.60	719.50	
6	5	117.124	0.29	0.47	0.90	0.26	0.42	15.5	18.4	3.8	1.58	3.36	0.90	18	0.10	715.50	715.62	717.04	717.06	719.50	718.50	
7	6	109.009	0.18	0.18	0.88	0.16	0.16	15.0	15.0	4.2	0.66	2.05	0.54	15	0.10	715.70	715.81	717.08	717.09	718.50	718.20	
8	5	109.009	0.33	0.33	0.86	0.28	0.28	15.0	15.0	4.2	1.19	2.05	0.97	15	0.10	715.50	715.61	717.04	717.07	719.50	719.20	

Project File: East - Central.stm

Number of lines: 8

Run Date: 9/15/2023

NOTES:Intensity = 25.27 / (Inlet time + 3.20) ^ 0.62; Return period =Yrs. 10 ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

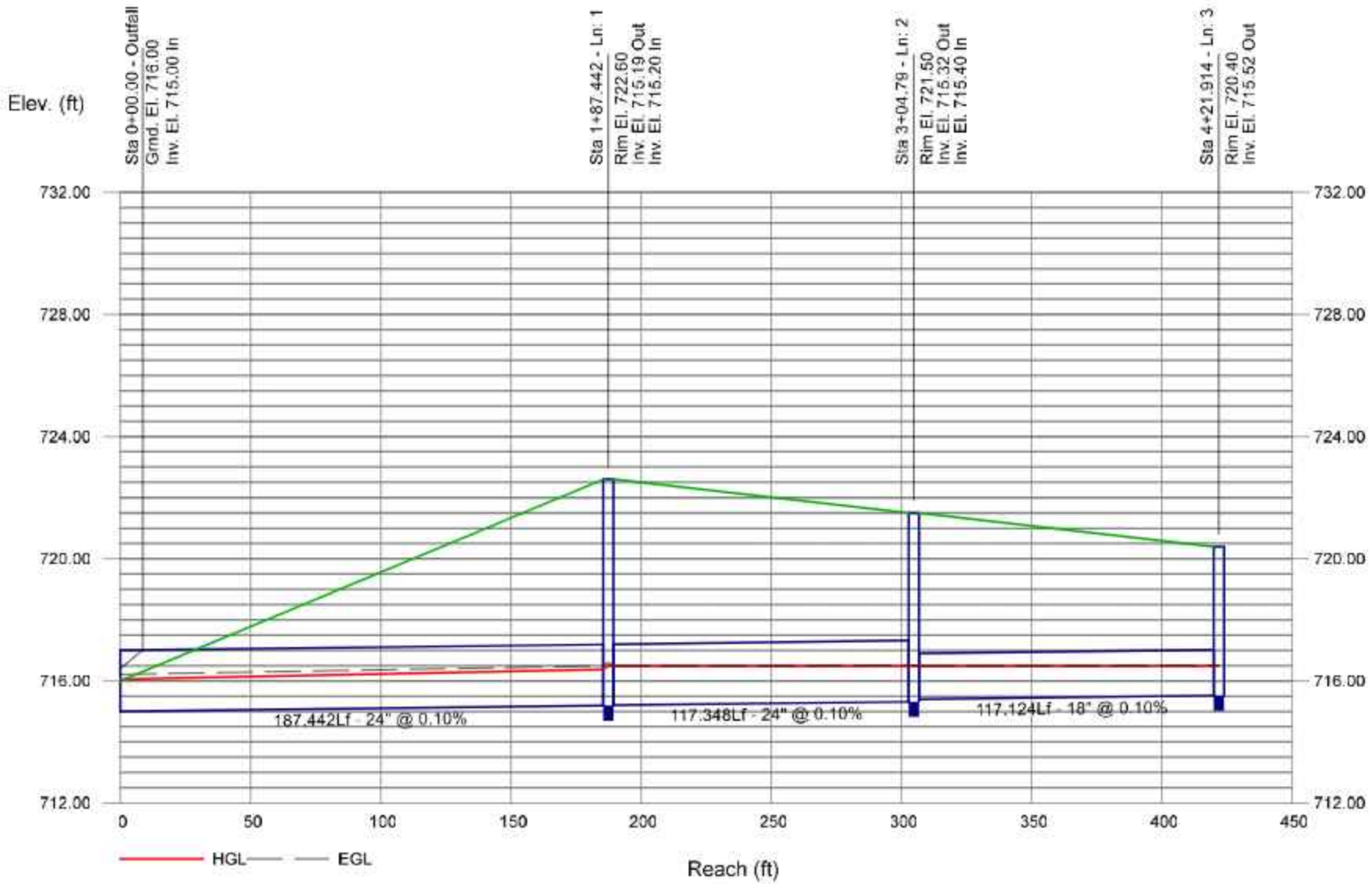
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	24	5.25	715.00	716.06	1.06	1.69	3.11	0.15	716.21	0.177	187.442	715.19	716.38	1.19	1.95	2.70	0.11	716.49	0.123	0.150	0.281	1.00	0.11
2	24	0.88	715.20	716.49	1.29	2.15	0.41	0.00	716.50	0.003	117.348	715.32	716.49	1.17	1.92	0.46	0.00	716.50	0.004	0.003	0.004	0.15	0.00
3	18	0.47	715.40	716.49	1.09	1.38	0.34	0.00	716.50	0.003	117.124	715.52	716.50	0.98	1.22	0.39	0.00	716.50	0.003	0.003	0.004	1.00	0.00
4	24	4.87	715.20	716.49	1.29	2.15	2.27	0.08	716.57	0.082	109.009	715.31	716.58	1.27	2.11	2.31	0.08	716.66	0.087	0.084	0.092	1.00	0.08
5	18	3.70	715.35	716.85	1.50*	1.77	2.10	0.07	716.92	0.124	117.348	715.47	716.97	1.50	1.77	2.10	0.07	717.04	0.122	0.123	0.145	1.00	0.07
6	18	1.58	715.50	717.04	1.50	1.77	0.90	0.01	717.05	0.023	117.124	715.62	717.06	1.44	1.74	0.91	0.01	717.08	0.020	0.021	0.025	1.00	0.01
7	15	0.66	715.70	717.08	1.25	1.23	0.54	0.00	717.08	0.011	109.009	715.81	717.09	1.25	1.23	0.54	0.00	717.09	0.011	0.011	0.012	1.00	0.00
8	15	1.19	715.50	717.04	1.25	1.23	0.97	0.01	717.05	0.034	109.009	715.61	717.07	1.25	1.23	0.97	0.01	717.09	0.034	0.034	0.037	1.00	0.01

Project File: East - Central.stm | Number of lines: 8 | Run Date: 9/15/2023

Notes: * Normal depth assumed ; c = cir e = ellip b = box

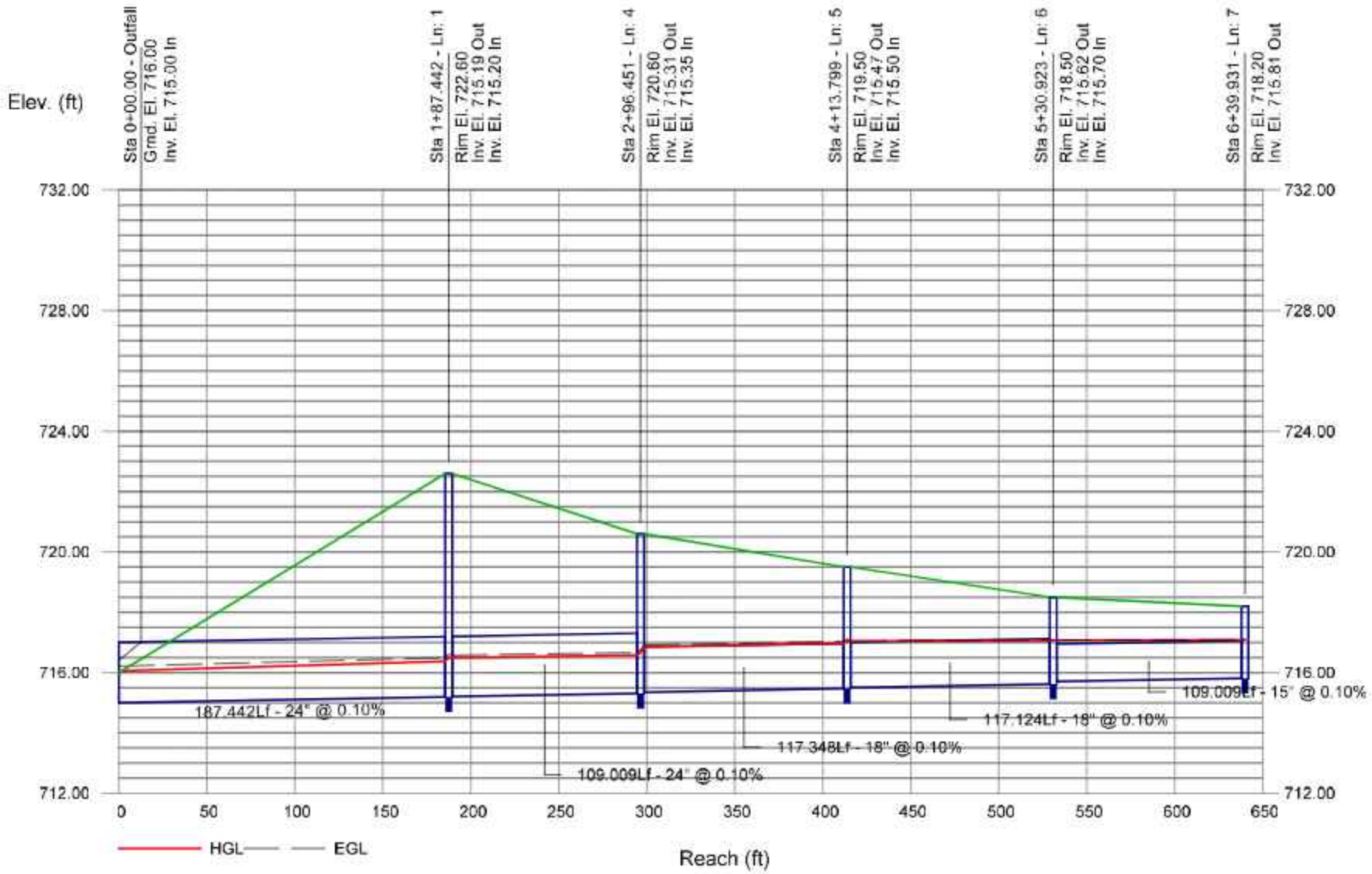
Storm Sewer Profile

Proj. file: East - Central.stm



Storm Sewer Profile

Proj. file: East - Central.stm



Storm Sewer Profile

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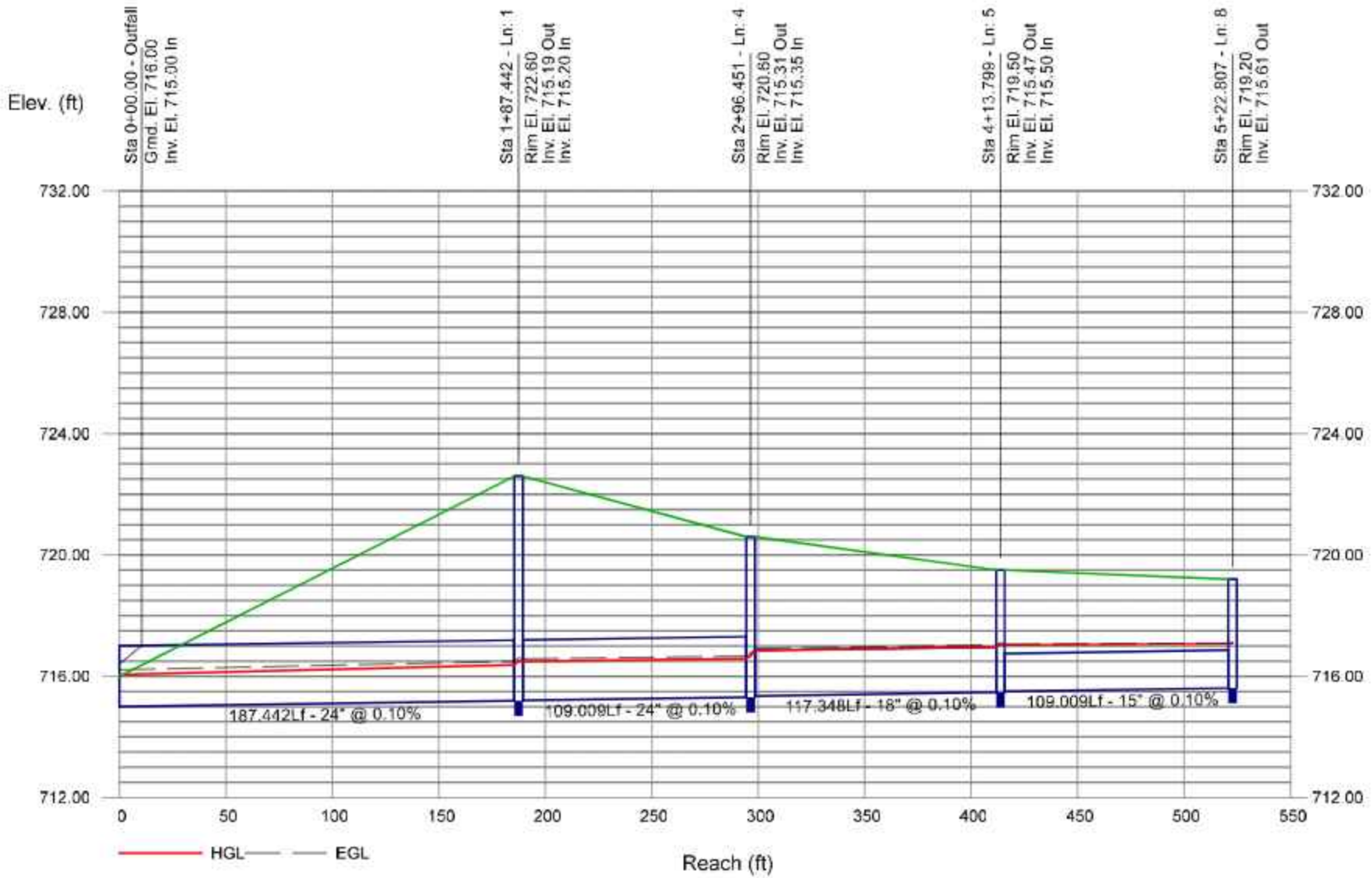
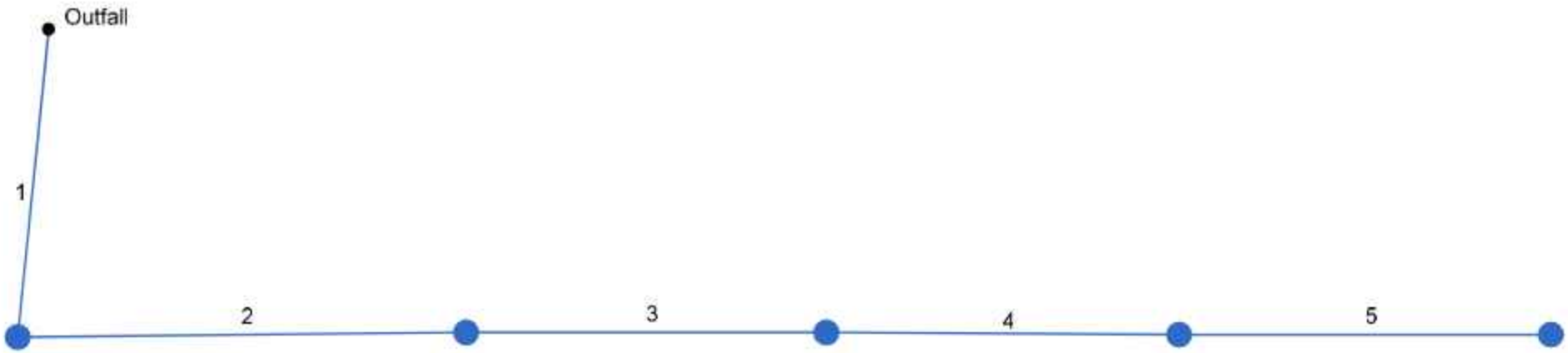


Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: East - South.stm	Number of lines: 5	Date: 9/15/2023

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	52.088	0.50	2.89	0.83	0.42	2.29	17.0	17.0	3.9	9.02	10.49	5.74	18	1.00	717.50	718.02	718.87	719.18	718.00	725.60	
2	1	75.101	0.63	2.39	0.84	0.53	1.88	16.5	16.5	4.0	7.50	7.47	4.82	18	0.51	718.10	718.48	719.34	719.71	725.60	725.00	
3	2	60.330	0.66	1.76	0.77	0.51	1.35	16.0	16.0	4.1	5.47	7.40	3.71	18	0.50	718.50	718.80	719.77	719.89	725.00	724.40	
4	3	59.115	0.54	1.10	0.79	0.43	0.84	15.5	15.5	4.1	3.47	4.60	3.22	15	0.51	718.80	719.10	719.93	720.05	724.40	723.70	
5	4	62.239	0.56	0.56	0.74	0.41	0.41	15.0	15.0	4.2	1.74	2.51	2.43	12	0.50	719.10	719.41	720.08	720.19	723.70	723.00	

Project File: East - South.stm

Number of lines: 5

Run Date: 9/15/2023

NOTES:Intensity = 25.27 / (Inlet time + 3.20) ^ 0.62; Return period =Yrs. 10 ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	18	9.02	717.50	718.87	1.37	1.47	5.33	0.59	719.46	0.000	52.088	718.02	719.18 j	1.16**	1.47	6.15	0.59	719.77	0.000	0.000	n/a	1.00	n/a
2	18	7.50	718.10	719.34	1.23*	1.56	4.82	0.36	719.70	0.506	75.101	718.48	719.71	1.23	1.56	4.82	0.36	720.08	0.507	0.506	0.380	0.15	0.05
3	18	5.47	718.50	719.77	1.27	1.59	3.43	0.18	719.95	0.258	60.330	718.80	719.89	1.09	1.37	3.99	0.25	720.14	0.354	0.306	0.185	0.15	0.04
4	15	3.47	718.80	719.93	1.13	1.16	2.98	0.14	720.06	0.254	59.115	719.10	720.05	0.95	1.00	3.46	0.19	720.24	0.336	0.295	0.174	0.15	0.03
5	12	1.74	719.10	720.08	0.98	0.78	2.22	0.08	720.16	0.213	62.239	719.41	720.19	0.78	0.66	2.63	0.11	720.30	0.259	0.236	0.147	1.00	0.11

Project File: East - South.stm | Number of lines: 5 | Run Date: 9/15/2023

Notes: * Normal depth assumed; ** Critical depth ; j-Line contains hyd. jump ; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: East - South.stm

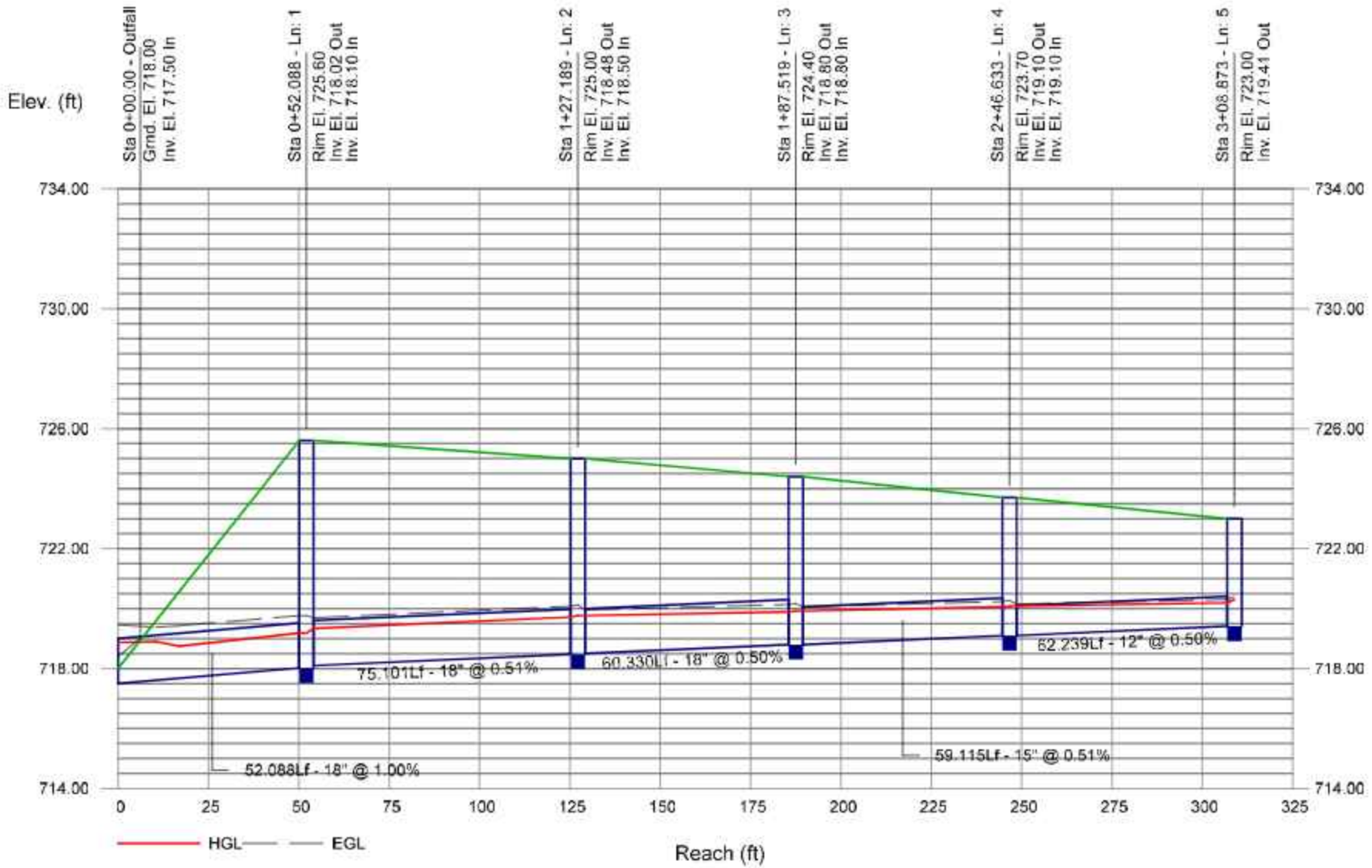
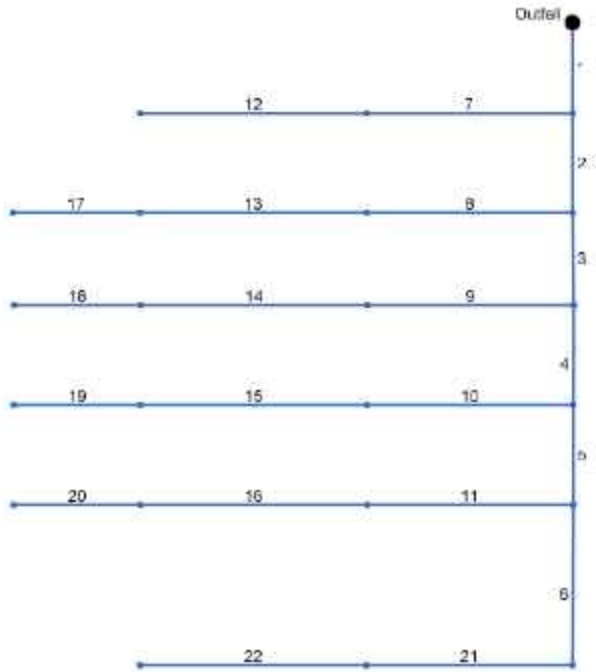


Figure 46 – Alternative B Hydraflow Storm Sewer Models

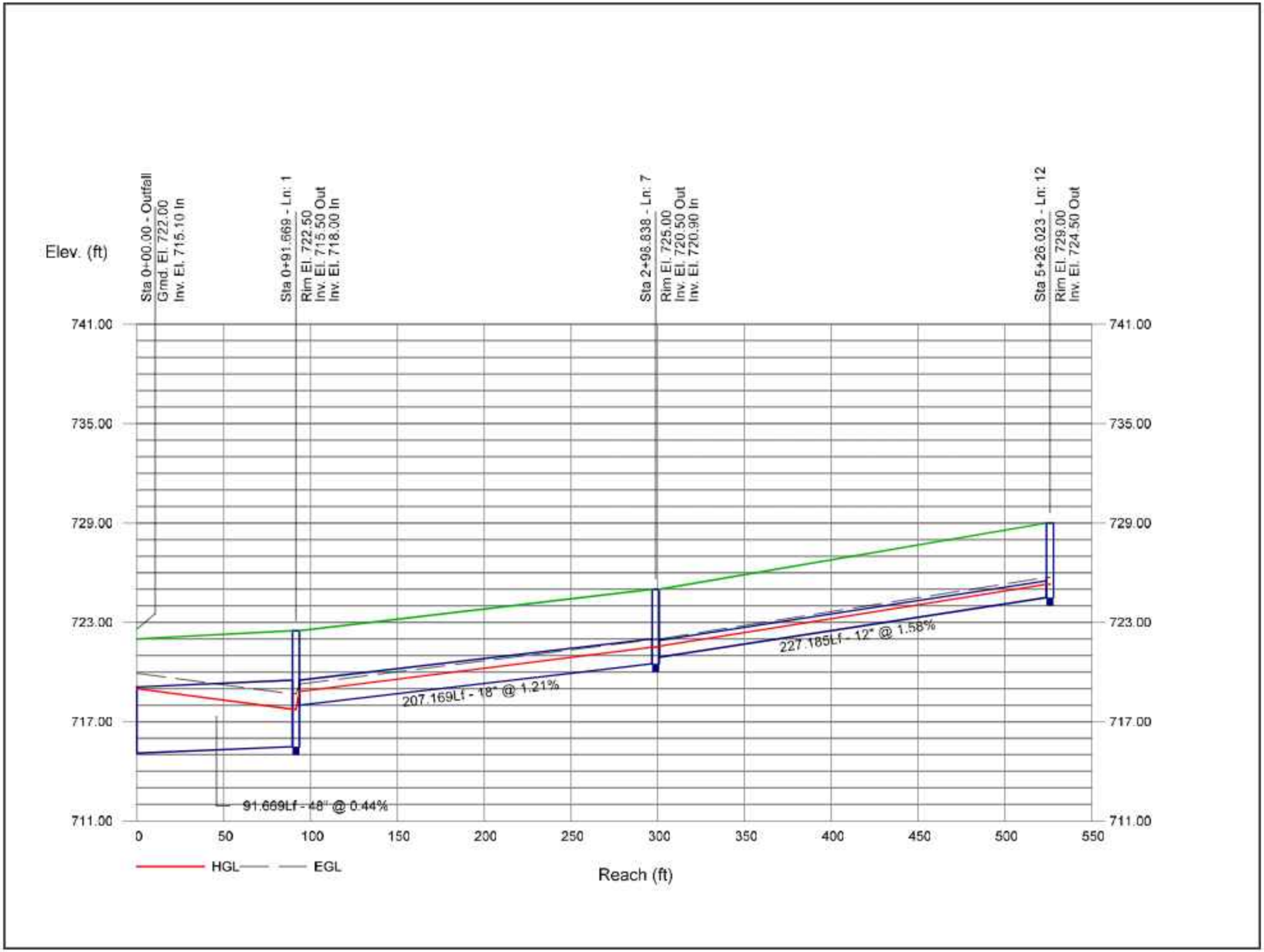
Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: Option B_North Lot_Revised.stm	Number of lines: 22	Date: 9/14/2023

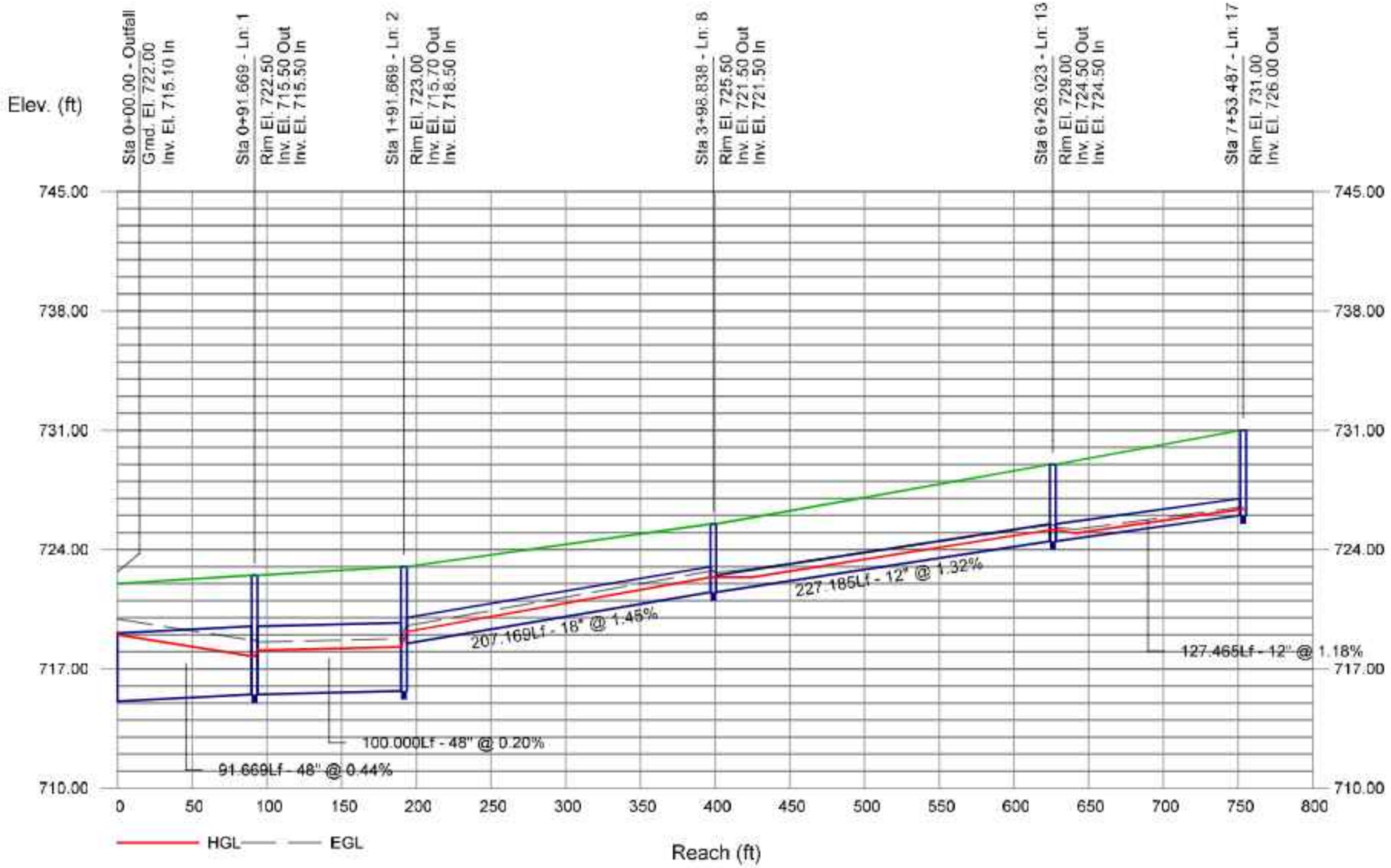
Storm Sewer Profile

Proj. file: Option B_North Lot_Revised.stm



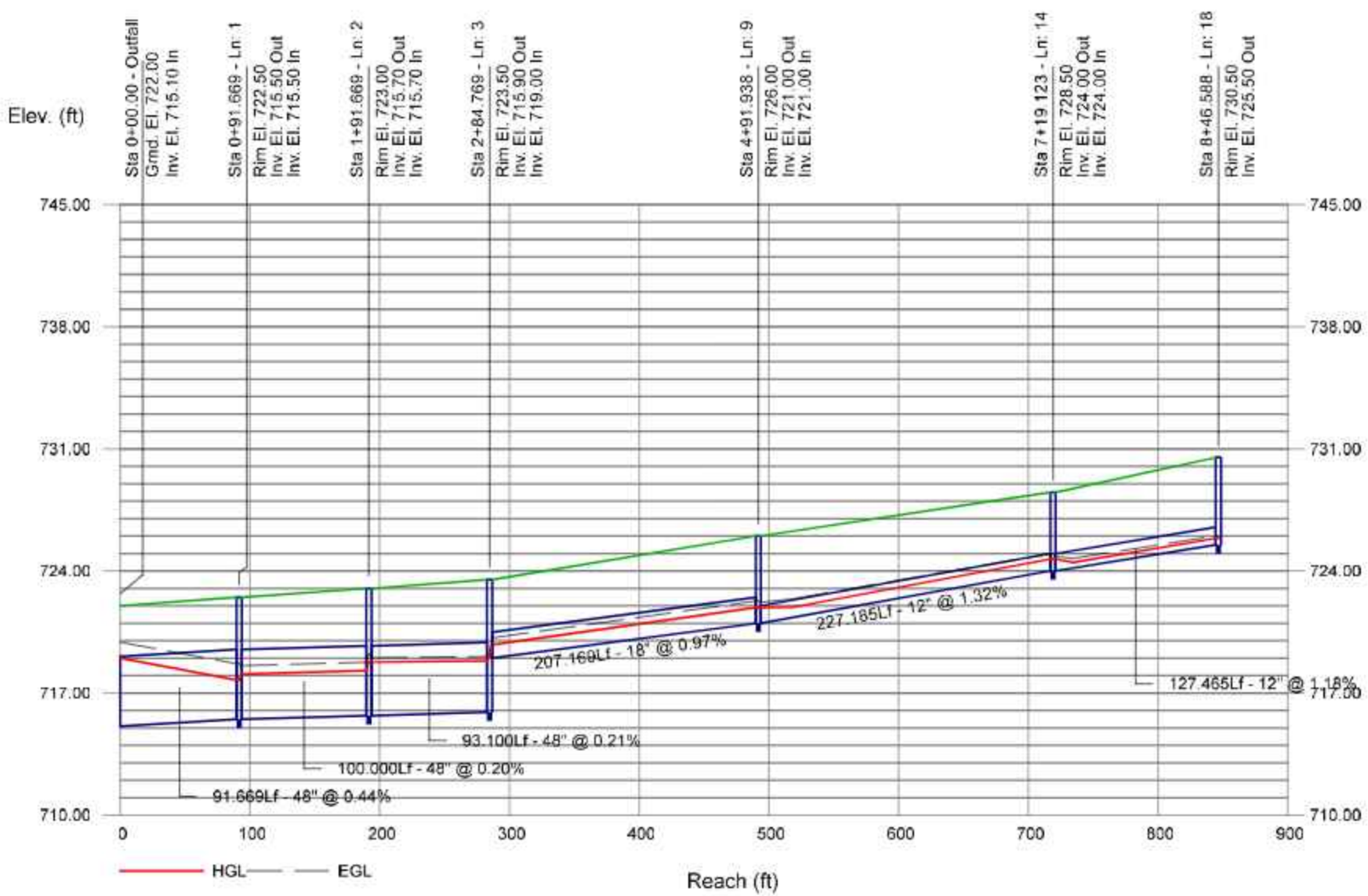
Storm Sewer Profile

Proj. file: Option B_North Lot_Revised.stm



Storm Sewer Profile

Proj. file: Option B_North Lot_Revised.stm



Storm Sewer Profile

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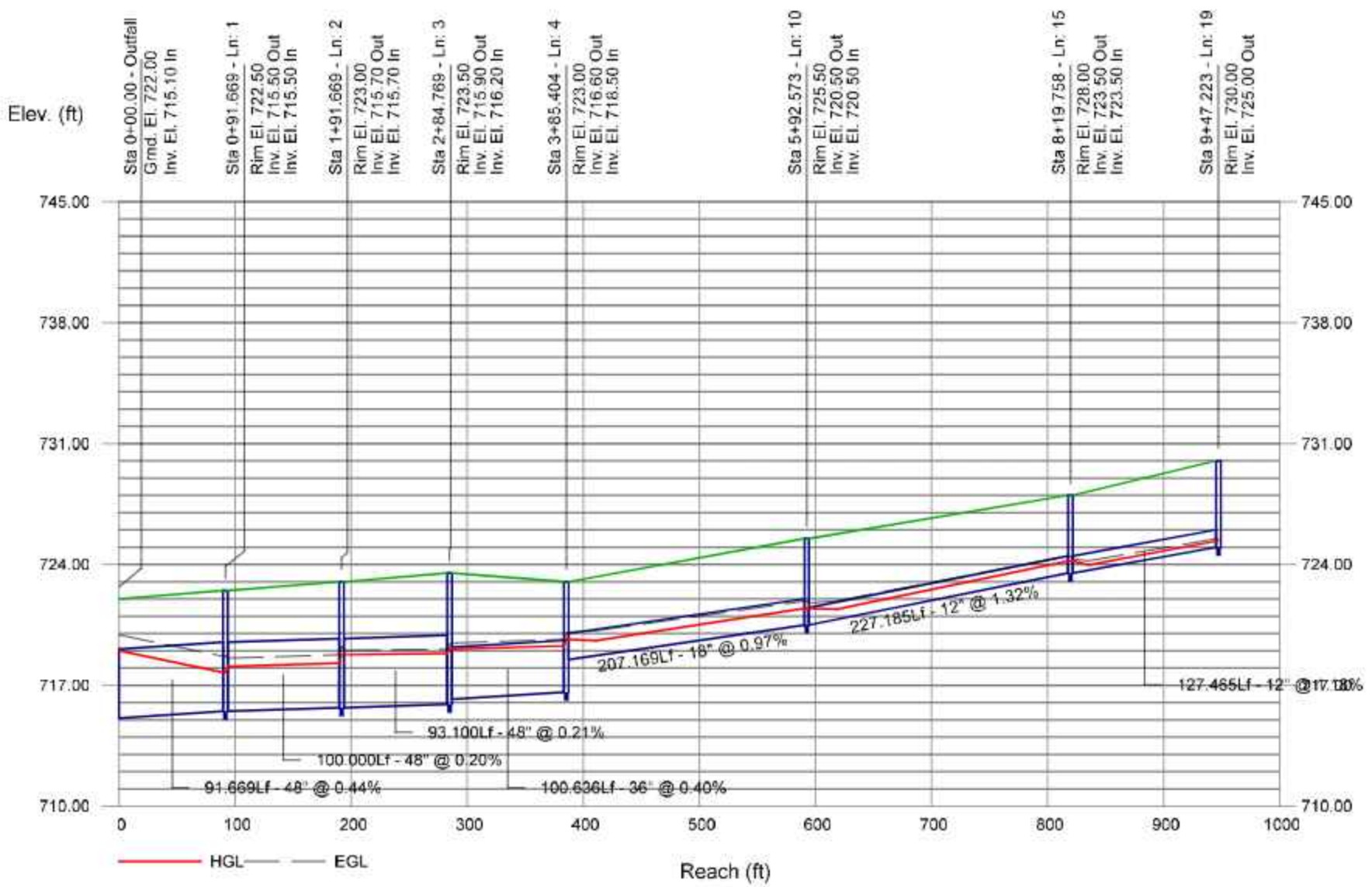
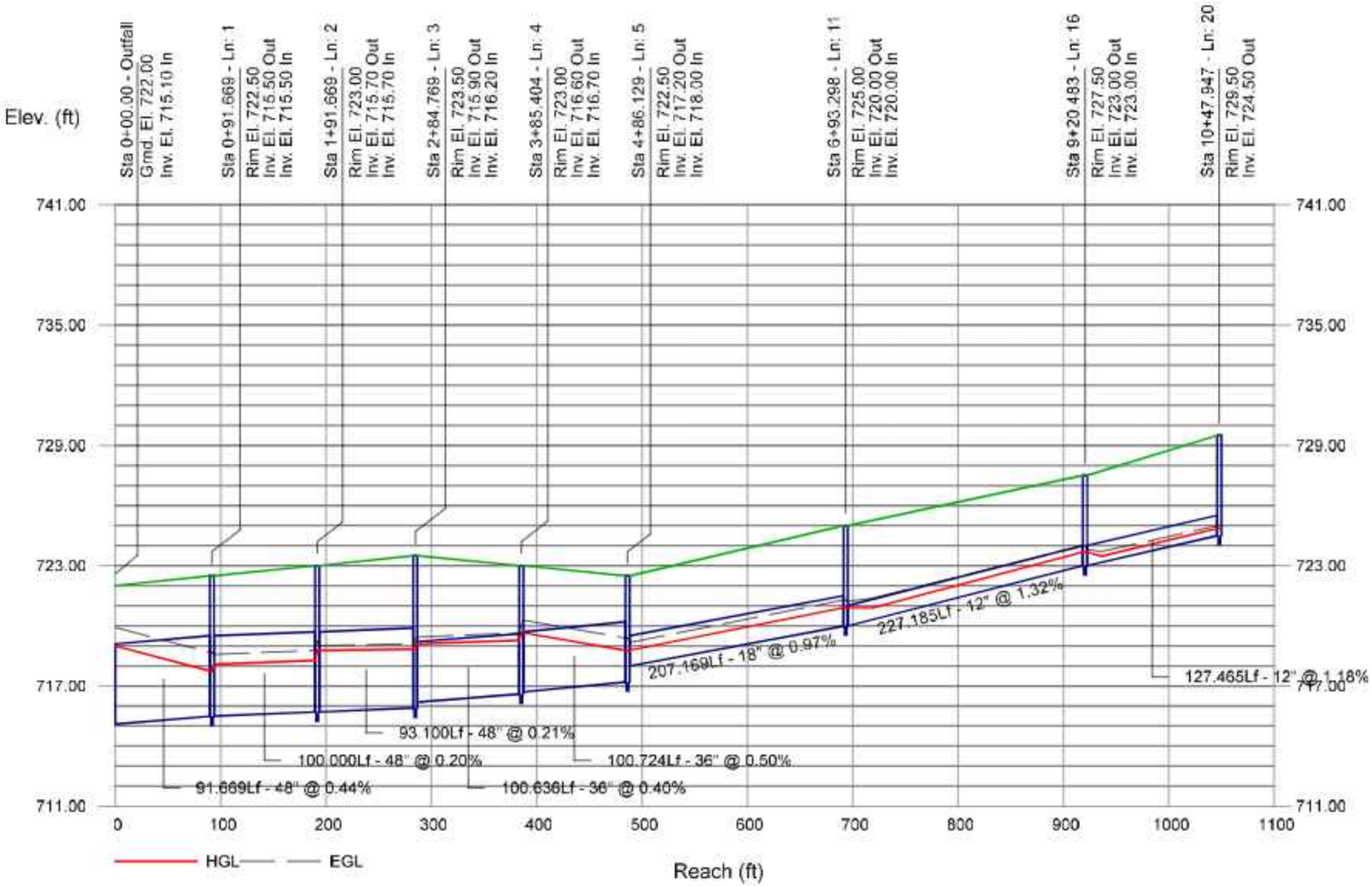


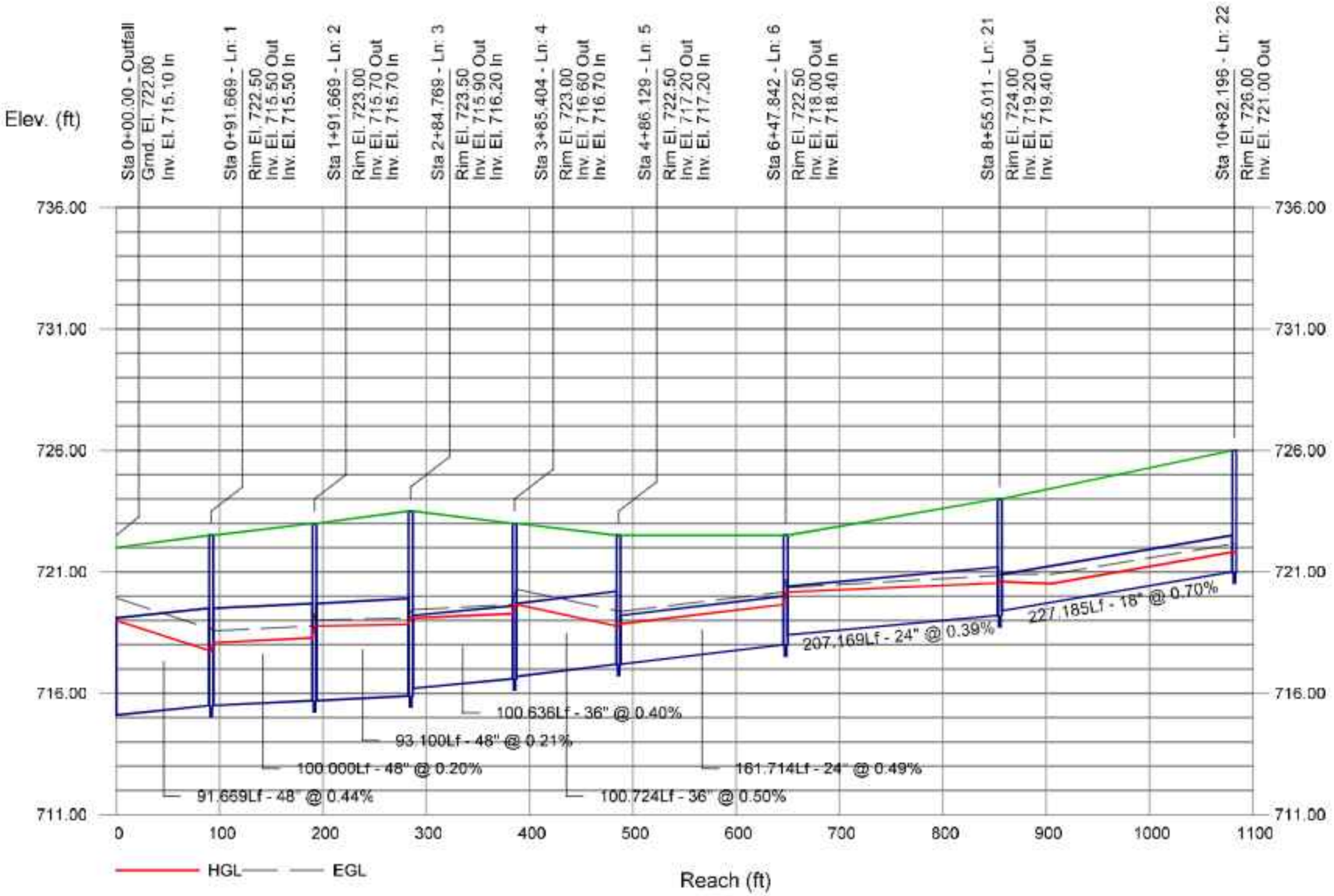
Storm Sewer Profile

Proj. file: Option B_North Lot_Revised.stm

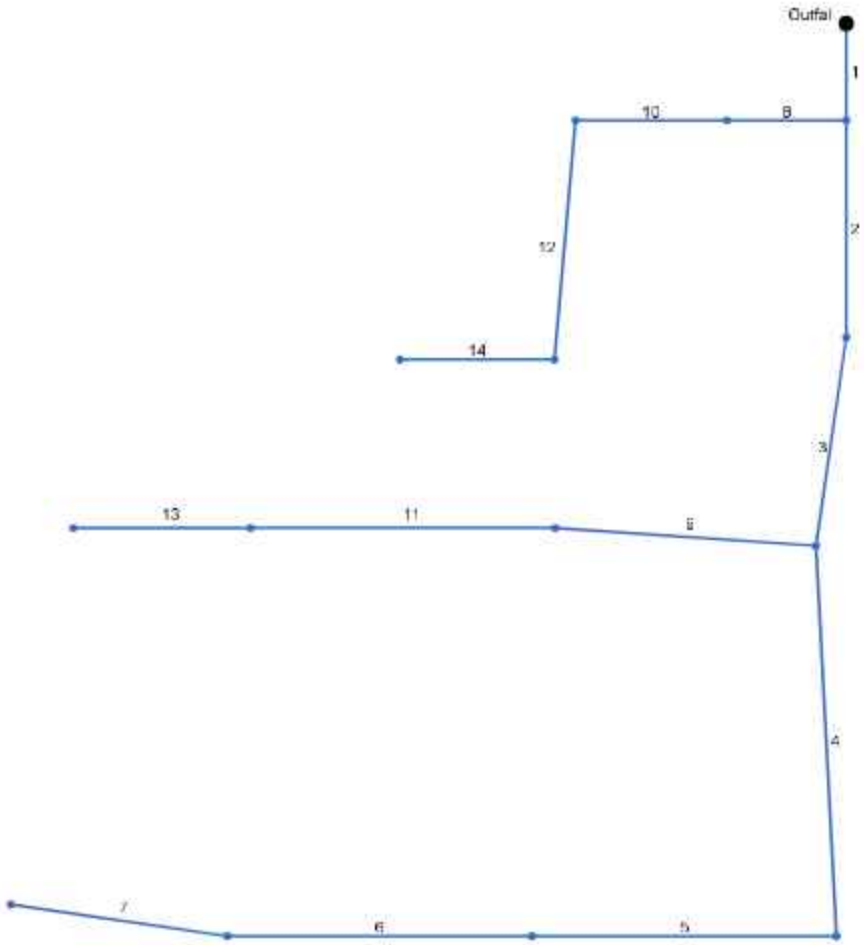


Storm Sewer Profile

Proj. file: Option B_North Lot_Revised.stm



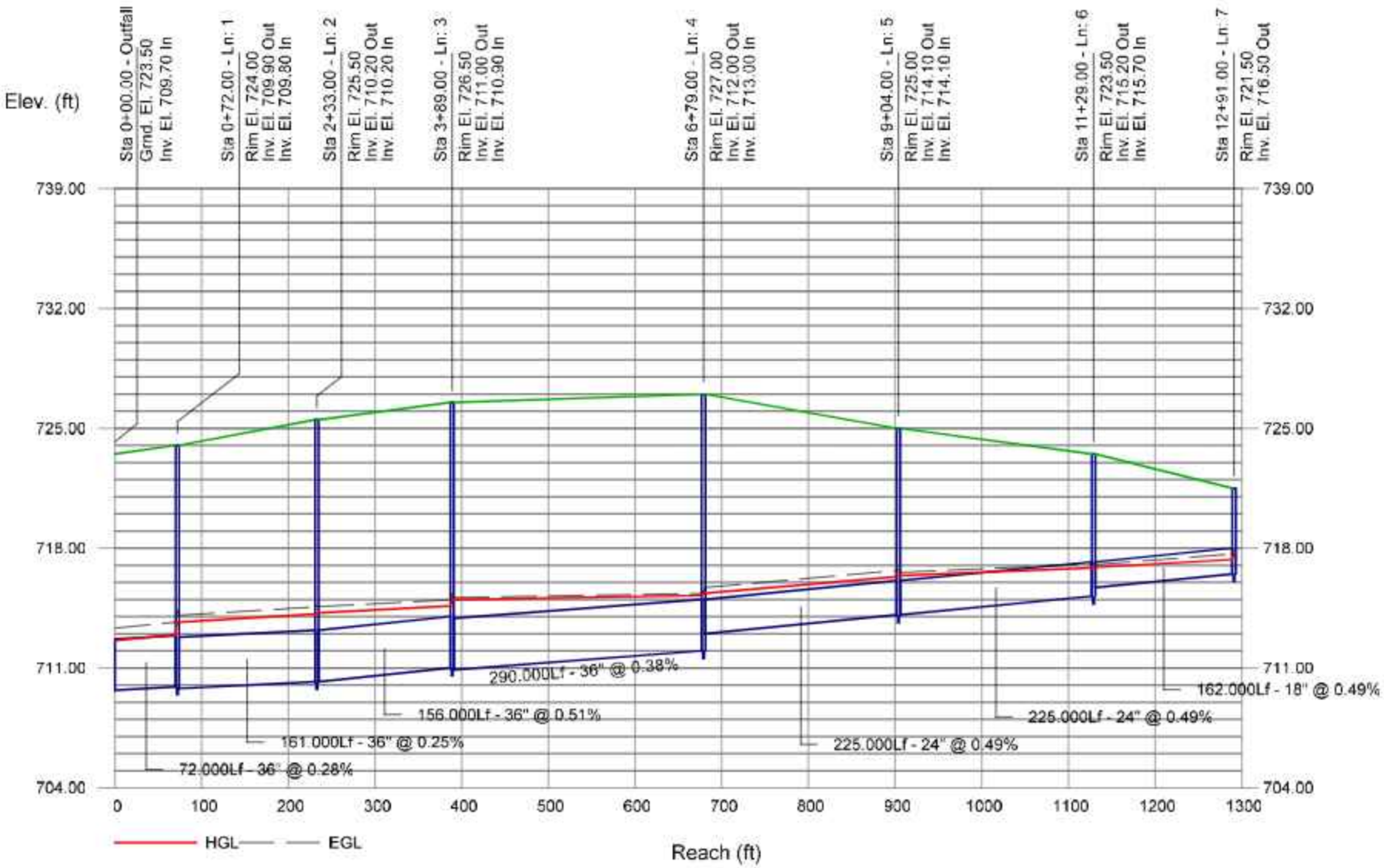
Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: Option B_South Lot.stm	Number of lines: 14	Date: 9/7/2023

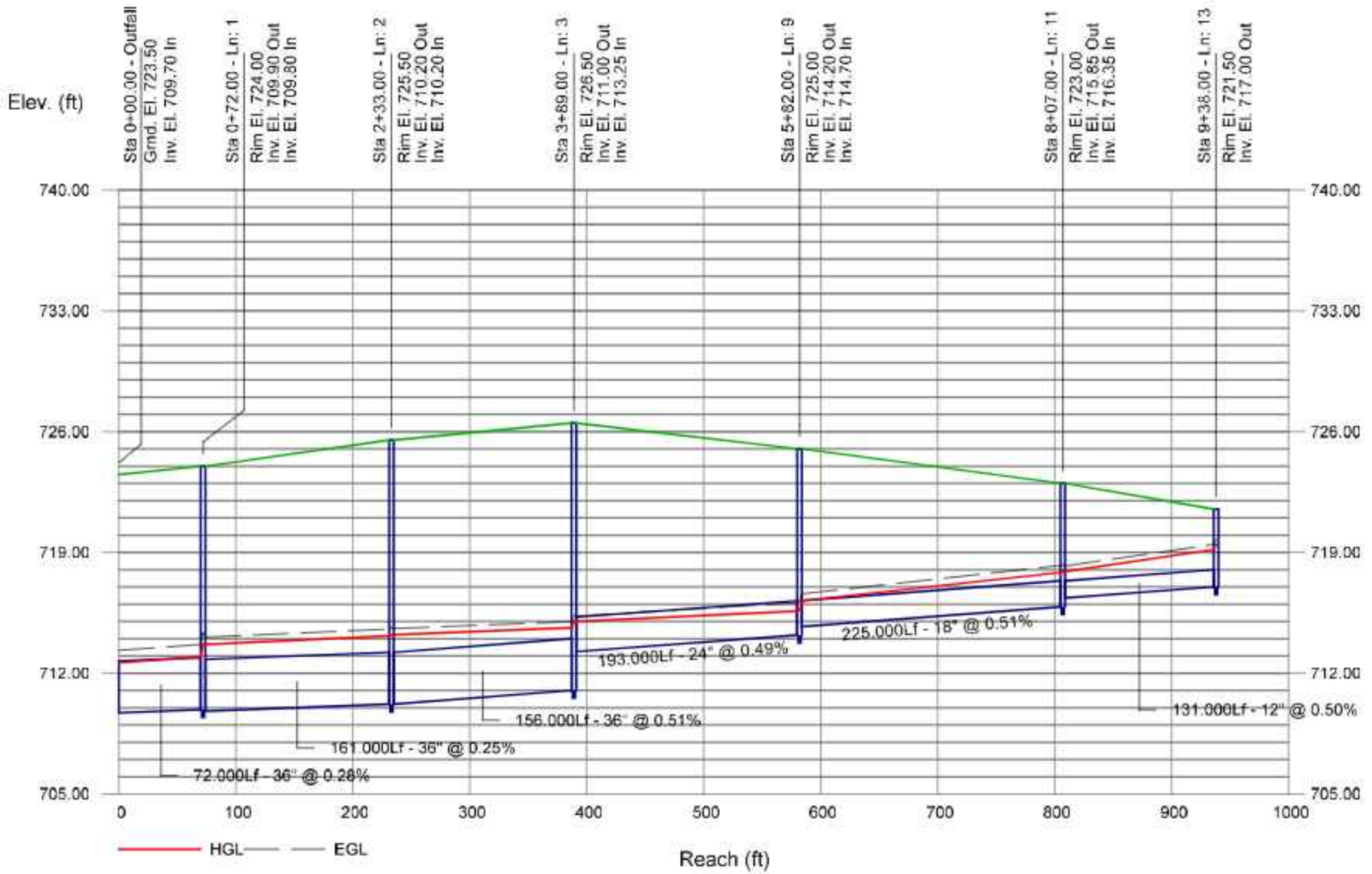
Storm Sewer Profile

Proj. file: Option B_South Lot.stm



Storm Sewer Profile

Proj. file: Option B_South Lot.stm



Storm Sewer Profile

Proj. file: Option B_South Lot.stm

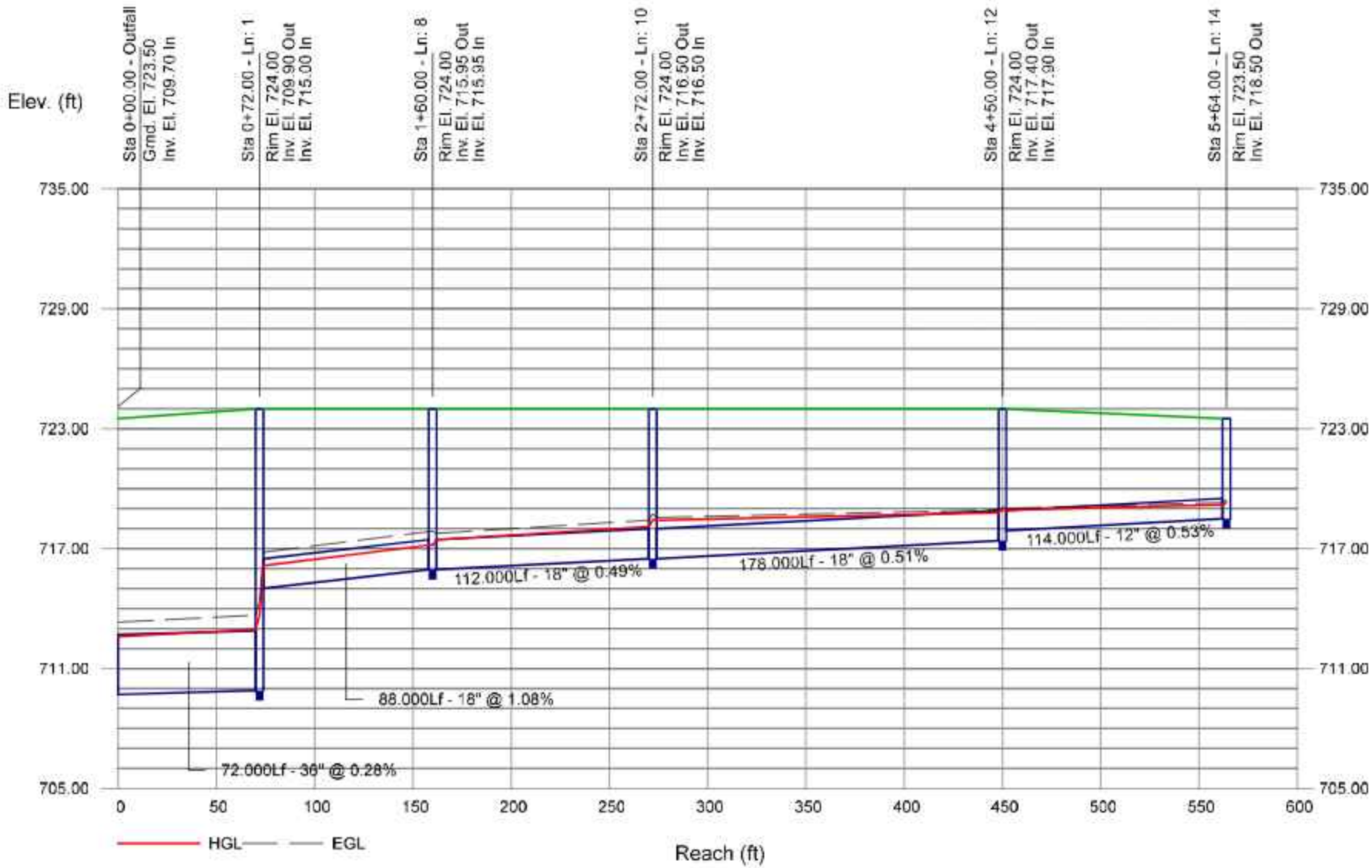


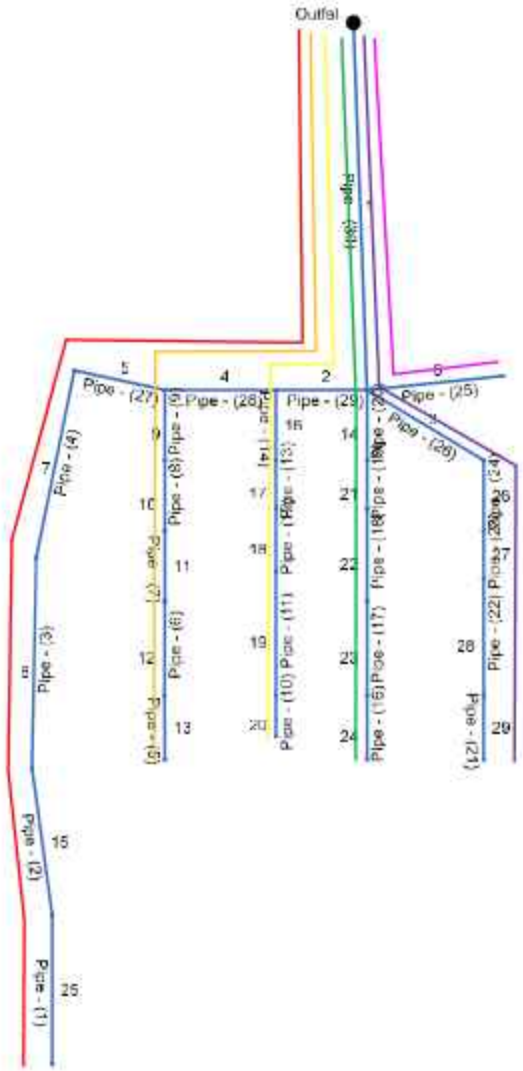
Figure 47 – Alternative C Hydraflow Storm Sewer Models

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan

10-Year Storm

LEGEND

- Reach 1
- Reach 2
- Reach 3
- Reach 4
- Reach 5
- Reach 6



Project File: HRHC North Lot.stm	Number of lines: 29	Date: 8/30/2023

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (30)	36.41	48	Cir	521.543	715.00	717.61	0.500	717.25	719.41	n/a	719.41 j	End	Grate
2	Pipe - (29)	22.39	48	Cir	128.804	717.61	718.25	0.497	719.41	719.64	n/a	719.64 j	1	Grate
3	Pipe - (26)	8.12	30	Cir	192.444	717.61	718.57	0.499	719.41	719.52	n/a	719.52 j	1	Grate
4	Pipe - (28)	16.38	48	Cir	157.051	718.25	719.04	0.503	719.64	720.23	n/a	720.23 j	2	Grate
5	Pipe - (27)	9.23	48	Cir	130.798	719.04	719.43	0.298	720.23	720.36	0.41	720.76	4	Grate
6	Pipe - (25)	1.56	30	Cir	192.776	717.61	718.57	0.498	719.41	718.98	n/a	718.98	1	Grate
7	Pipe - (4)	8.88	30	Cir	270.841	719.43	720.24	0.299	720.76	721.29	0.16	721.45	5	Combination
8	Pipe - (3)	8.92	30	Cir	300.060	720.24	721.14	0.300	721.45	722.19	0.16	722.35	7	Grate
9	Pipe - (9)	7.50	24	Cir	100.000	719.04	719.54	0.500	720.23	720.51	n/a	720.51	4	Grate
10	Pipe - (8)	6.19	24	Cir	100.000	719.54	720.04	0.500	720.51	720.92	n/a	720.92 j	9	Grate
11	Pipe - (7)	4.83	24	Cir	100.000	720.04	720.54	0.500	720.92	721.31	n/a	721.31 j	10	Grate
12	Pipe - (6)	3.48	24	Cir	133.655	720.54	721.21	0.501	721.31	721.86	0.12	721.86	11	Grate
13	Pipe - (5)	1.74	24	Cir	90.725	721.21	721.66	0.496	721.86	722.12	n/a	722.12 j	12	Grate
14	Pipe - (20)	8.27	30	Cir	100.000	717.61	718.11	0.500	719.41	719.07	0.18	719.07	1	Grate
15	Pipe - (2)	8.38	24	Cir	209.683	721.14	721.77	0.300	722.35	722.97	0.14	723.11	8	Grate
16	Pipe - (14)	6.63	24	Cir	99.937	718.25	718.75	0.500	719.64	719.66	0.18	719.66	2	Grate
17	Pipe - (13)	5.45	24	Cir	68.050	718.75	719.09	0.500	719.66	719.91	n/a	719.91 j	16	Grate
18	Pipe - (12)	4.29	24	Cir	90.500	719.09	719.54	0.497	719.91	720.27	0.13	720.27	17	Grate
19	Pipe - (11)	3.24	24	Cir	175.290	719.54	720.42	0.502	720.27	721.05	n/a	721.05 j	18	Grate
20	Pipe - (10)	1.63	24	Cir	58.140	720.42	720.71	0.499	721.05	721.15	n/a	721.15 j	19	Grate
21	Pipe - (19)	7.01	24	Cir	68.550	718.11	718.45	0.496	719.07	719.39	n/a	719.39	14	Grate
22	Pipe - (18)	5.85	24	Cir	131.450	718.45	719.11	0.502	719.39	719.96	n/a	719.96 j	21	Grate
23	Pipe - (17)	4.62	24	Cir	133.840	719.11	719.78	0.501	719.96	720.54	n/a	720.54 j	22	Grate
24	Pipe - (16)	2.90	15	Cir	90.539	719.78	720.23	0.497	720.54	720.94	0.25	721.19	23	Grate

Project File: HRHC North Lot.stm | Number of lines: 29 | Run Date: 8/30/2023

NOTES: Return period = 10 Yrs. ; j - Line contains hyd. jump.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
25	Pipe - (1)	4.52	18	Cir	211.585	721.77	722.40	0.298	723.11	723.49	0.17	723.66	15	Grate
26	Pipe - (24)	6.76	24	Cir	100.015	718.57	719.07	0.500	719.52	719.99	n/a	719.99 j	3	Grate
27	Pipe - (23)	5.29	24	Cir	67.550	719.07	719.41	0.503	719.99	720.22	0.15	720.22	26	Grate
28	Pipe - (22)	3.84	18	Cir	166.228	719.41	720.24	0.499	720.22	720.99	0.15	721.14	27	Grate
29	Pipe - (21)	2.03	18	Cir	90.540	720.24	720.69	0.497	721.14	721.24	0.18	721.43	28	Grate

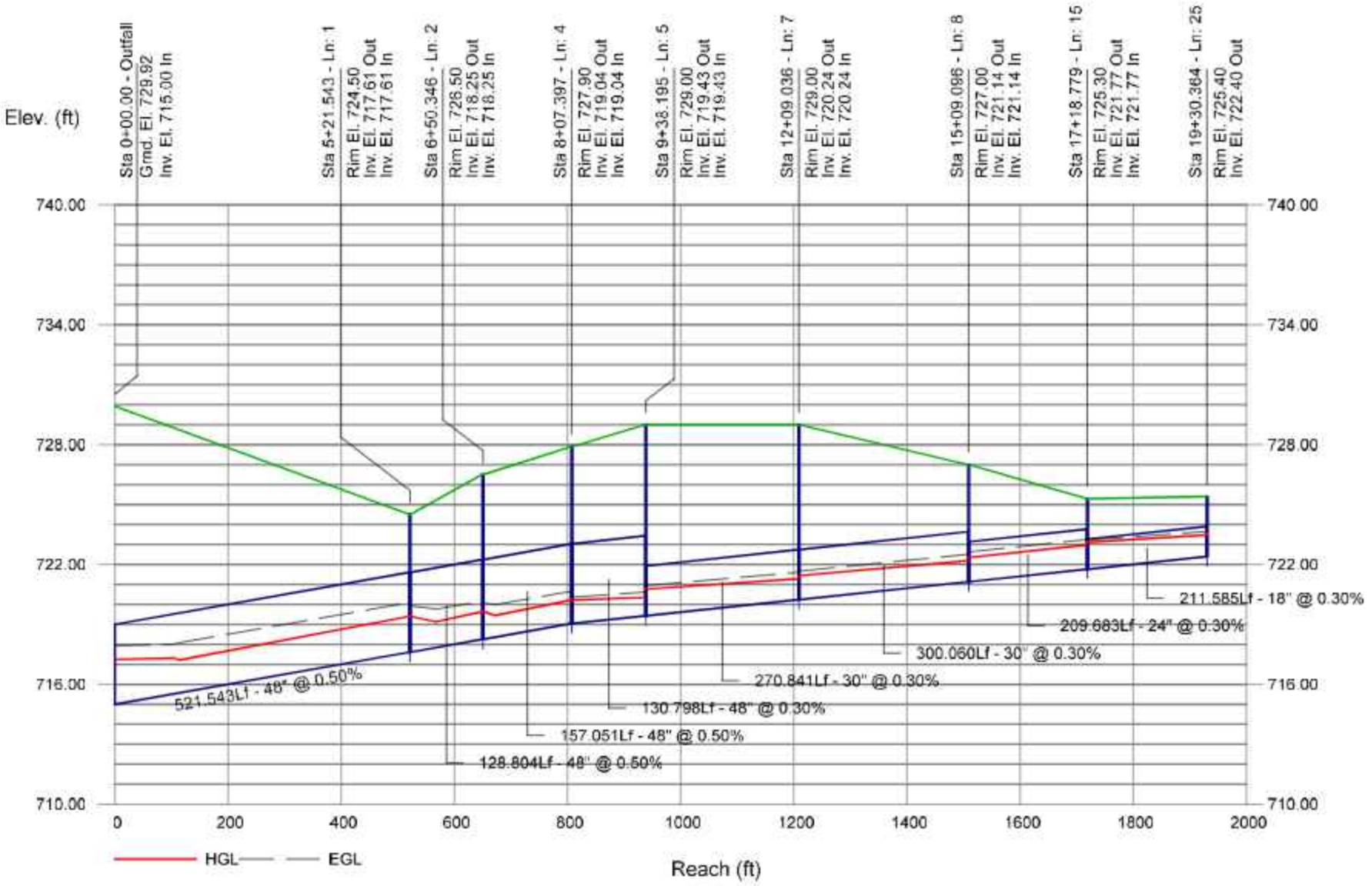
Project File: HRHC North Lot.stm | Number of lines: 29 | Run Date: 8/30/2023

NOTES: Return period = 10 Yrs. ; j - Line contains hyd. jump.

Storm Sewer Profile

Proj. file: HRHC North Lot.stm

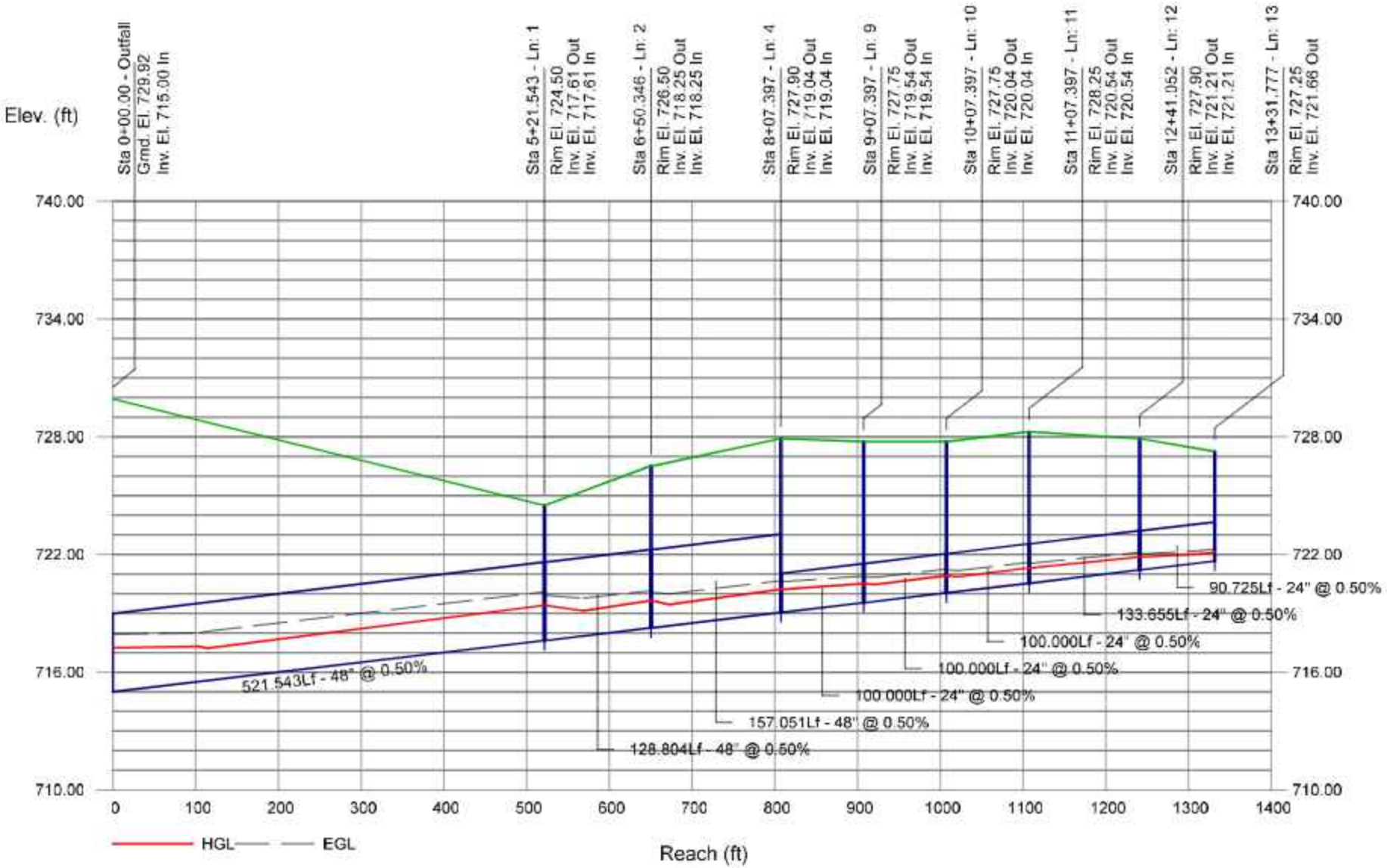
Reach 1



Storm Sewer Profile

Proj. file: HRHC North Lot.stm

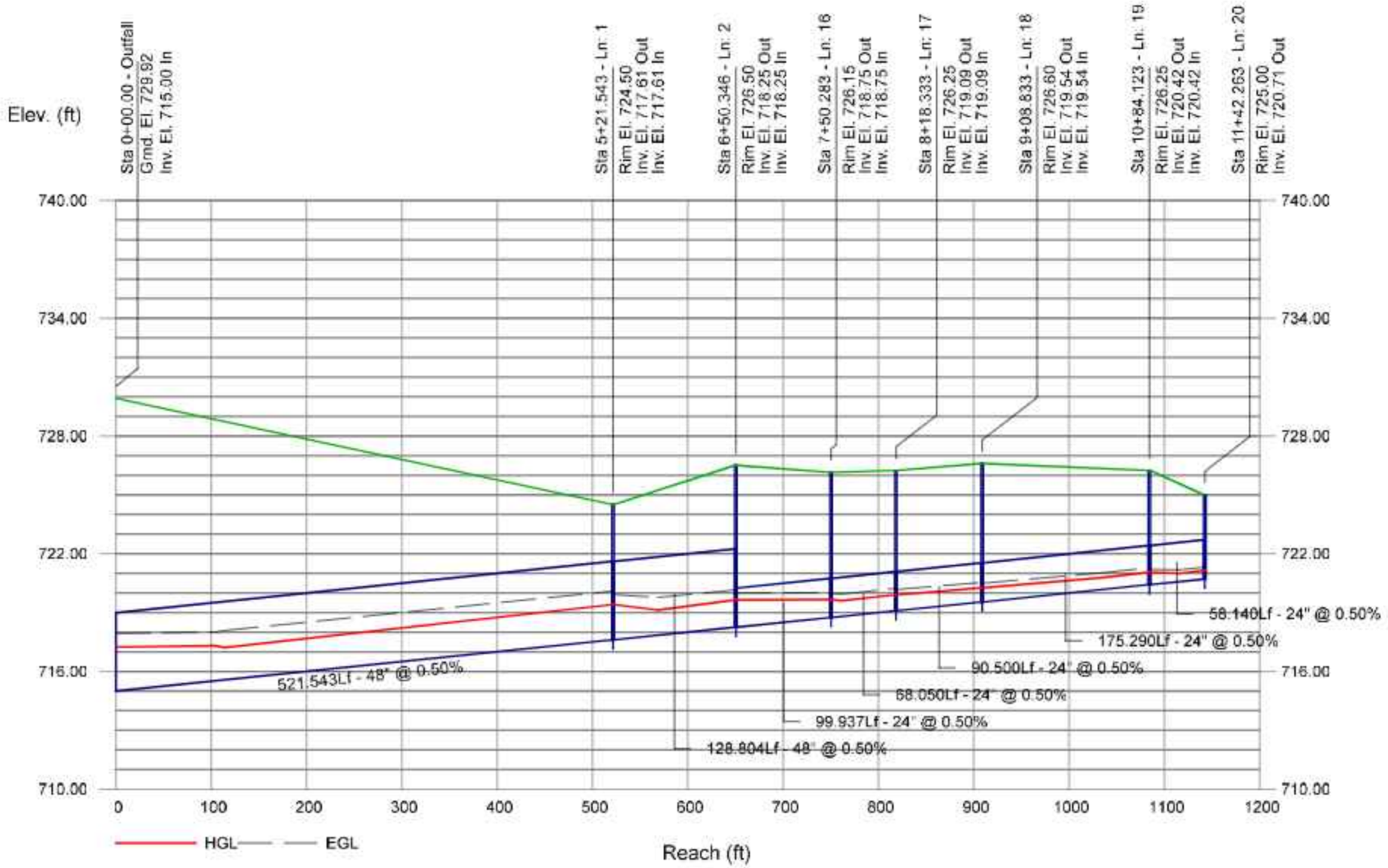
Reach 2



Storm Sewer Profile

Proj. file: HRHC North Lot.stm

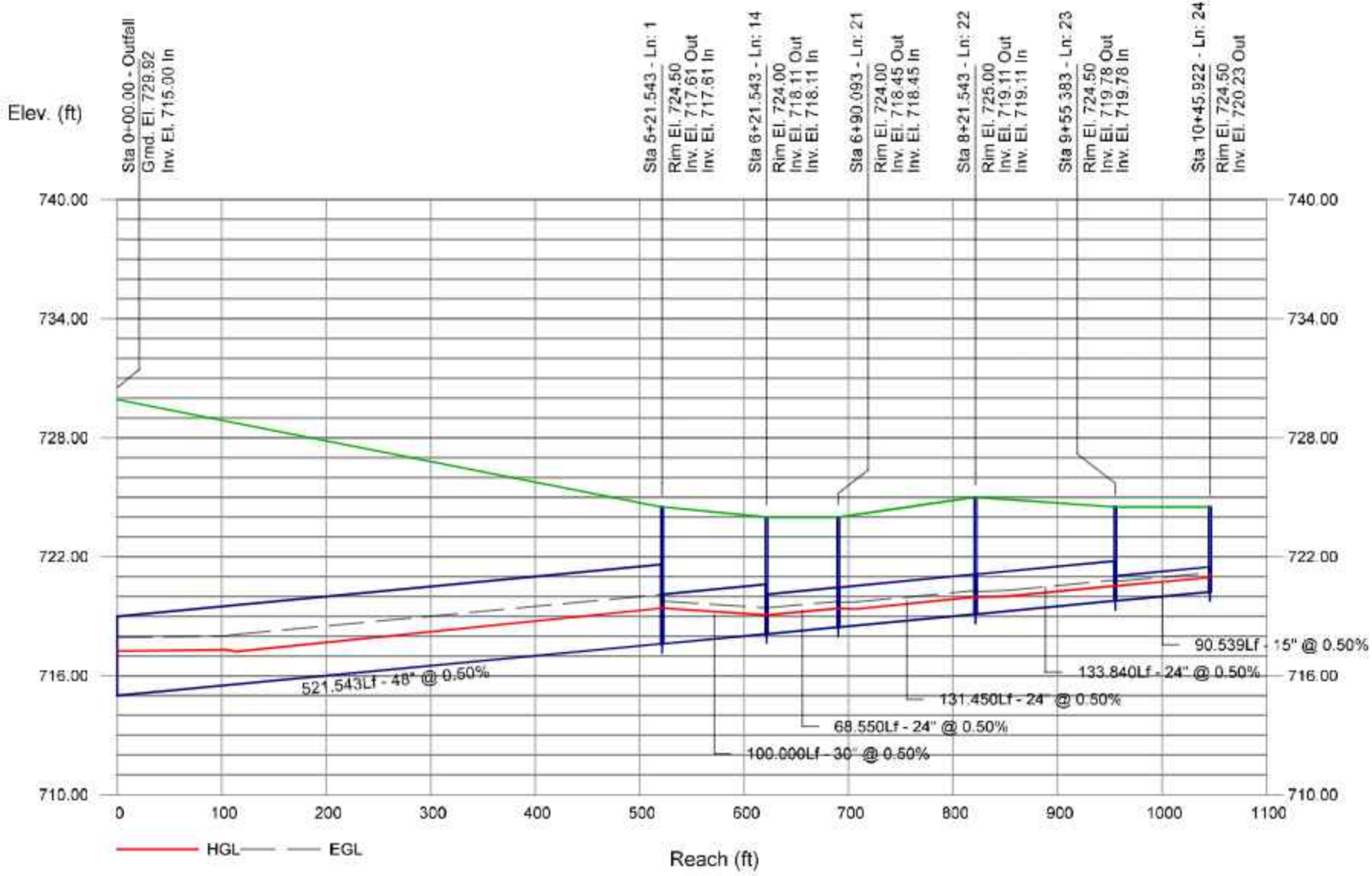
Reach 3



Storm Sewer Profile

Proj. file: HRHC North Lot.stm

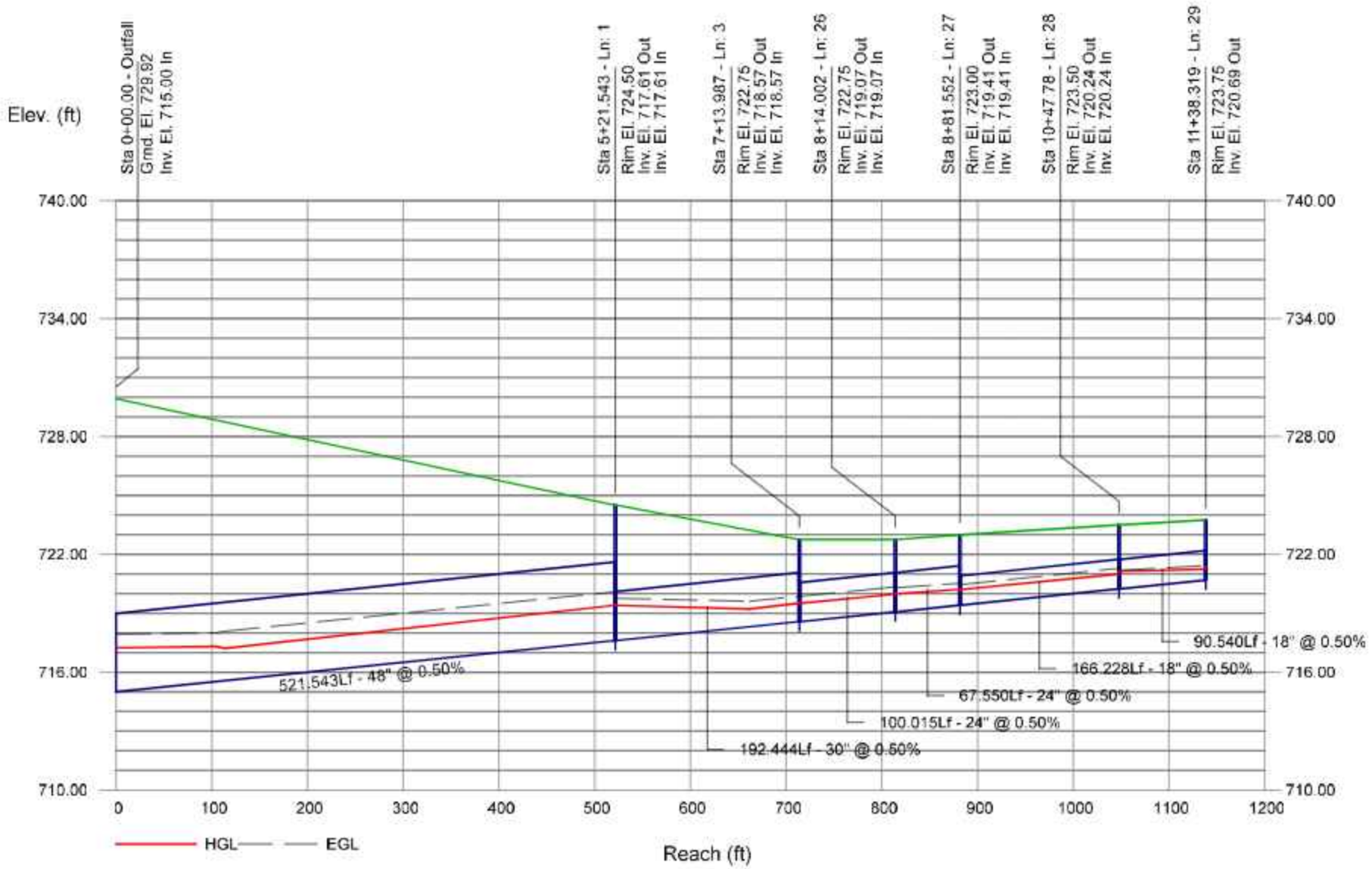
Reach 4



Storm Sewer Profile

Proj. file: HRHC North Lot.stm

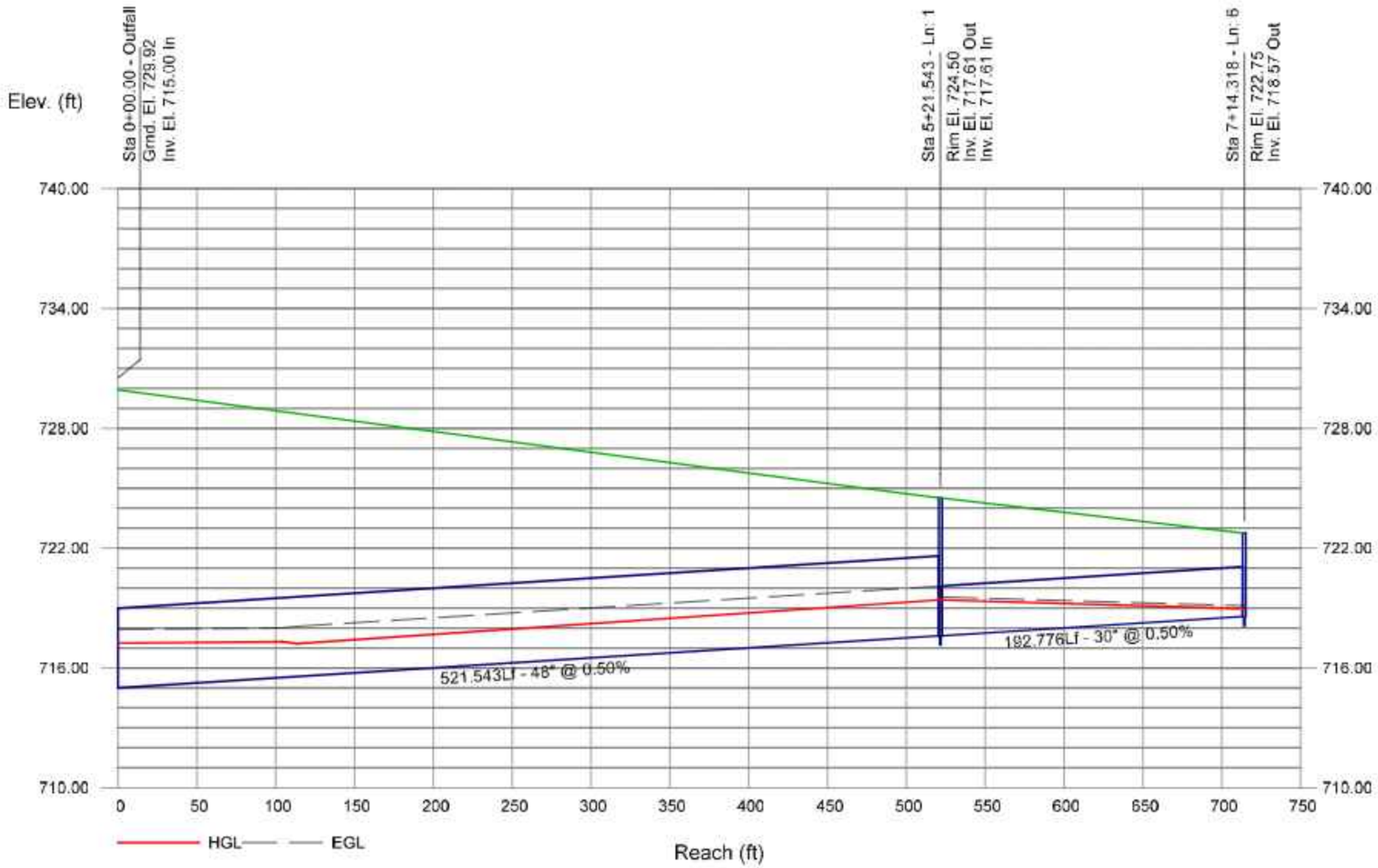
Reach 5



Storm Sewer Profile

Proj. file: HRHC North Lot.stm

Reach 6

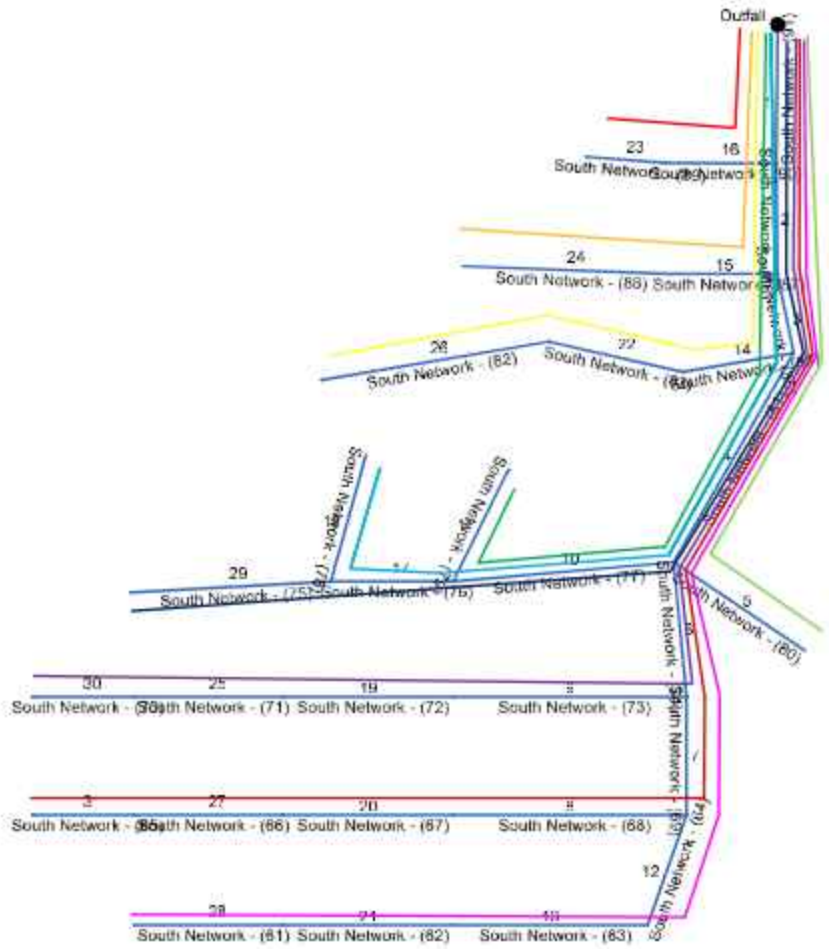


Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan

10-Year Storm

LEGEND

- Reach 1
- Reach 2
- Reach 3
- Reach 4
- Reach 5
- Reach 6
- Reach 7
- Reach 8
- Reach 9
- Reach 10



Project File: HRHC South Lot.stm	Number of lines: 31	Date: 8/30/2023

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	South Network - (91)	36.57	42	Cir	117.544	717.00	717.59	0.502	719.34	719.47	n/a	719.47	End	Manhole
2	South Network - (88)	34.11	42	Cir	93.768	717.59	718.06	0.501	719.47	719.87	n/a	719.87 j	1	Manhole
3	South Network - (85)	30.66	42	Cir	68.270	718.06	718.40	0.498	719.87	720.11	n/a	720.11 j	2	Manhole
4	South Network - (81)	27.51	42	Cir	204.188	718.40	719.42	0.500	720.11	721.04	n/a	721.04 j	3	Manhole
5	South Network - (80)	1.99	42	Cir	133.169	719.42	720.09	0.503	721.04	720.51	0.14	720.51	4	Manhole
6	South Network - (74)	21.10	42	Cir	114.826	719.42	719.99	0.496	721.04	721.40	n/a	721.40 j	4	Manhole
7	South Network - (69)	13.06	30	Cir	100.000	719.99	720.49	0.500	721.40	721.70	n/a	721.70 j	6	Manhole
8	South Network - (68)	6.98	30	Cir	196.460	720.49	721.08	0.300	721.70	722.02	0.04	722.06	7	Manhole
9	South Network - (73)	7.17	30	Cir	196.460	719.99	720.58	0.300	721.40	721.60	0.03	721.63	6	Manhole
10	South Network - (77)	7.00	30	Cir	186.726	719.42	720.35	0.498	721.04	721.23	n/a	721.23 j	4	Manhole
11	South Network - (79)	1.65	15	Cir	105.180	720.35	720.67	0.304	721.23	721.34	0.09	721.43	10	Manhole
12	South Network - (64)	5.18	24	Cir	98.885	720.49	720.79	0.303	721.70	721.80	0.16	721.96	7	Manhole
13	South Network - (63)	4.23	24	Cir	163.693	720.79	721.28	0.299	721.96	722.13	0.03	722.16	12	Manhole
14	South Network - (84)	3.18	30	Cir	95.100	718.40	718.88	0.505	720.11	719.46	0.09	719.46	3	Manhole
15	South Network - (87)	3.26	30	Cir	90.034	718.06	718.51	0.500	719.87	719.10	n/a	719.10	2	Manhole
16	South Network - (90)	2.59	30	Cir	93.368	717.59	718.06	0.503	719.47	718.59	n/a	718.59	1	Manhole
17	South Network - (76)	3.71	18	Cir	103.174	720.35	720.66	0.300	721.23	721.54	0.19	721.72	10	Manhole
18	South Network - (78)	0.84	15	Cir	110.575	720.66	720.99	0.298	721.72	721.74	0.02	721.76	17	Manhole
19	South Network - (72)	5.62	24	Cir	144.040	720.58	721.01	0.299	721.63	721.95	0.04	721.98	9	Manhole
20	South Network - (67)	5.44	24	Cir	144.040	721.08	721.51	0.299	722.06	722.43	0.04	722.46	8	Manhole
21	South Network - (62)	2.45	15	Cir	144.040	721.28	721.71	0.299	722.16	722.48	0.02	722.50	13	Manhole
22	South Network - (83)	2.38	18	Cir	115.747	718.88	719.46	0.501	719.46	720.05	0.09	720.14	14	Manhole
23	South Network - (89)	1.67	18	Cir	67.827	718.06	718.40	0.501	718.59	718.89	0.18	718.89	16	Manhole
24	South Network - (86)	2.59	30	Cir	175.214	718.51	719.39	0.502	719.10	719.92	n/a	719.92 j	15	Manhole

Project File: HRHC South Lot.stm | Number of lines: 31 | Run Date: 8/30/2023

NOTES: Return period = 10 Yrs. ; j - Line contains hyd. jump.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
25	South Network - (71)	3.89	18	Cir	125.554	721.01	721.39	0.303	721.98	722.29	0.03	722.32	19	Manhole
26	South Network - (82)	1.37	18	Cir	194.669	719.46	720.43	0.498	720.14	720.87	n/a	720.87 j	22	Manhole
27	South Network - (66)	3.72	18	Cir	125.554	721.51	721.89	0.303	722.46	722.76	0.03	722.79	20	Manhole
28	South Network - (61)	0.93	15	Cir	125.554	721.71	722.09	0.303	722.50	722.59	0.06	722.66	21	Manhole
29	South Network - (75)	1.28	15	Cir	169.157	720.66	721.17	0.302	721.72	721.83	0.06	721.89	17	Manhole
30	South Network - (70)	2.42	18	Cir	85.904	721.39	721.65	0.303	722.32	722.41	0.11	722.52	25	Manhole
31	South Network - (65)	2.25	18	Cir	85.904	721.89	722.15	0.303	722.79	722.88	0.11	722.99	27	Manhole

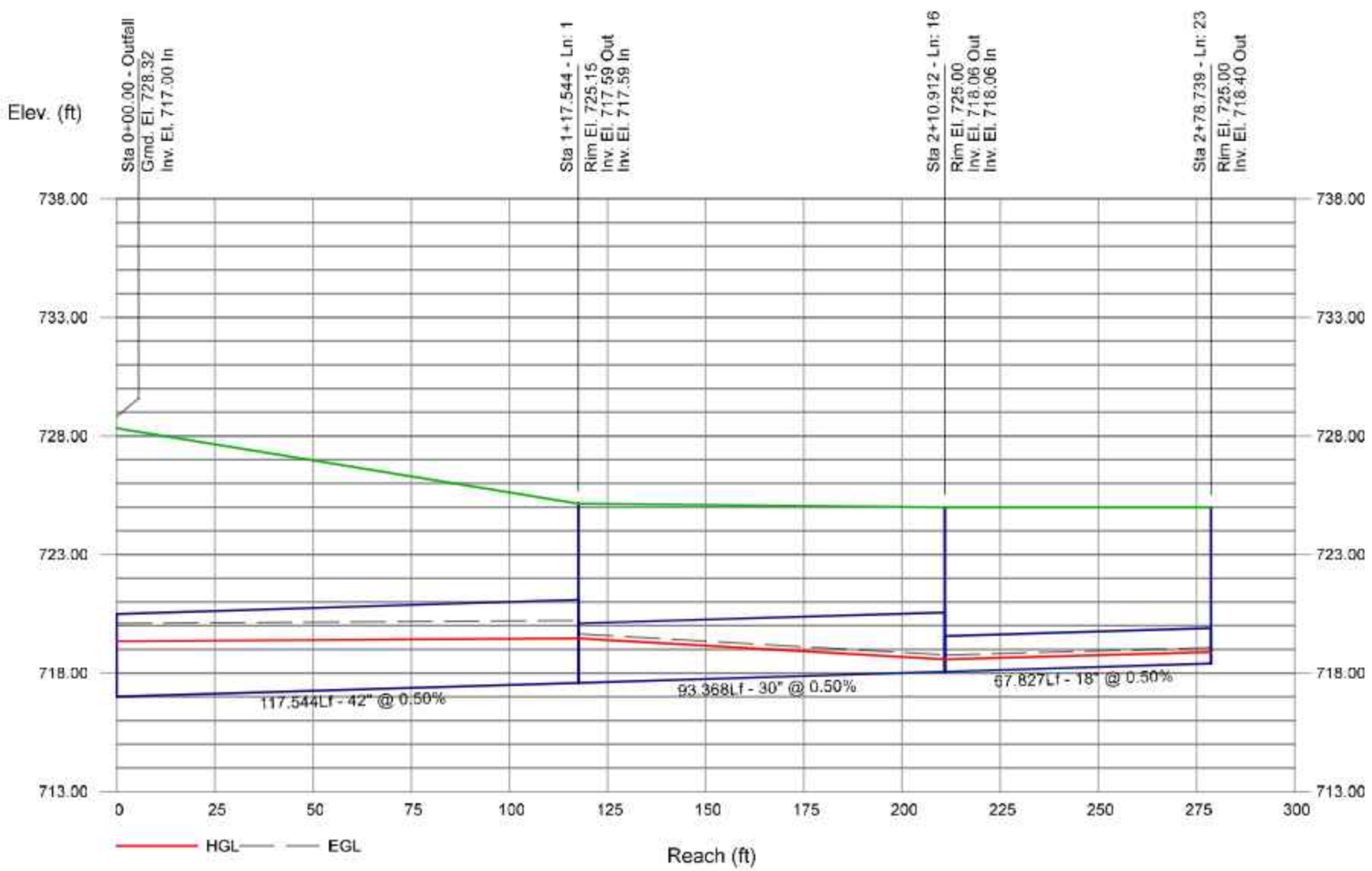
Project File: HRHC South Lot.stm | Number of lines: 31 | Run Date: 8/30/2023

NOTES: Return period = 10 Yrs. ; j - Line contains hyd. jump.

Storm Sewer Profile

Proj. file: HRHC South Lot.stm

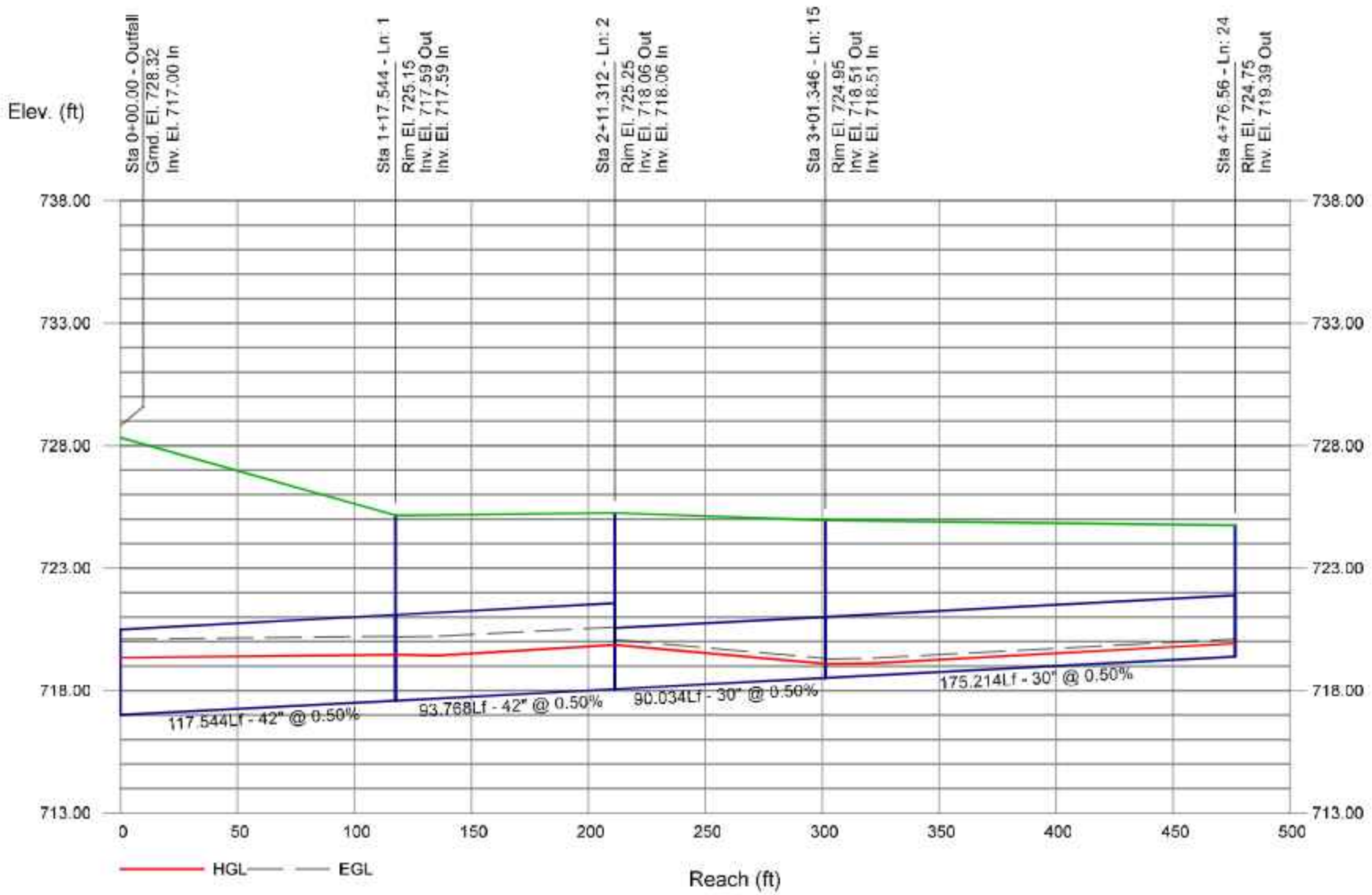
Reach 1



Storm Sewer Profile

Proj. file: HRHC South Lot.stm

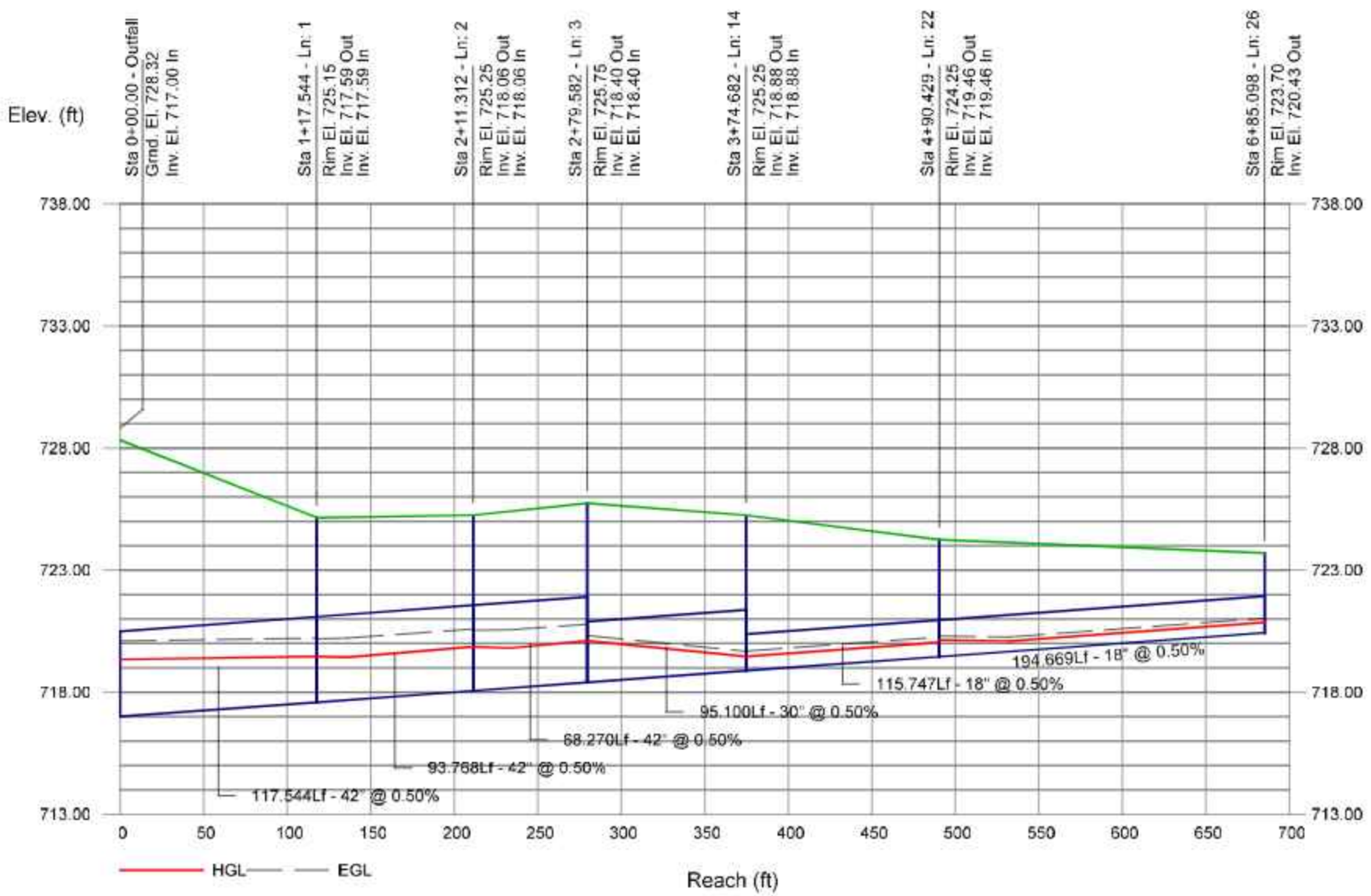
Reach 2



Storm Sewer Profile

Proj. file: HRHC South Lot.stm

Reach 3



Storm Sewer Profile

Proj. file: HRHC South Lot.stm

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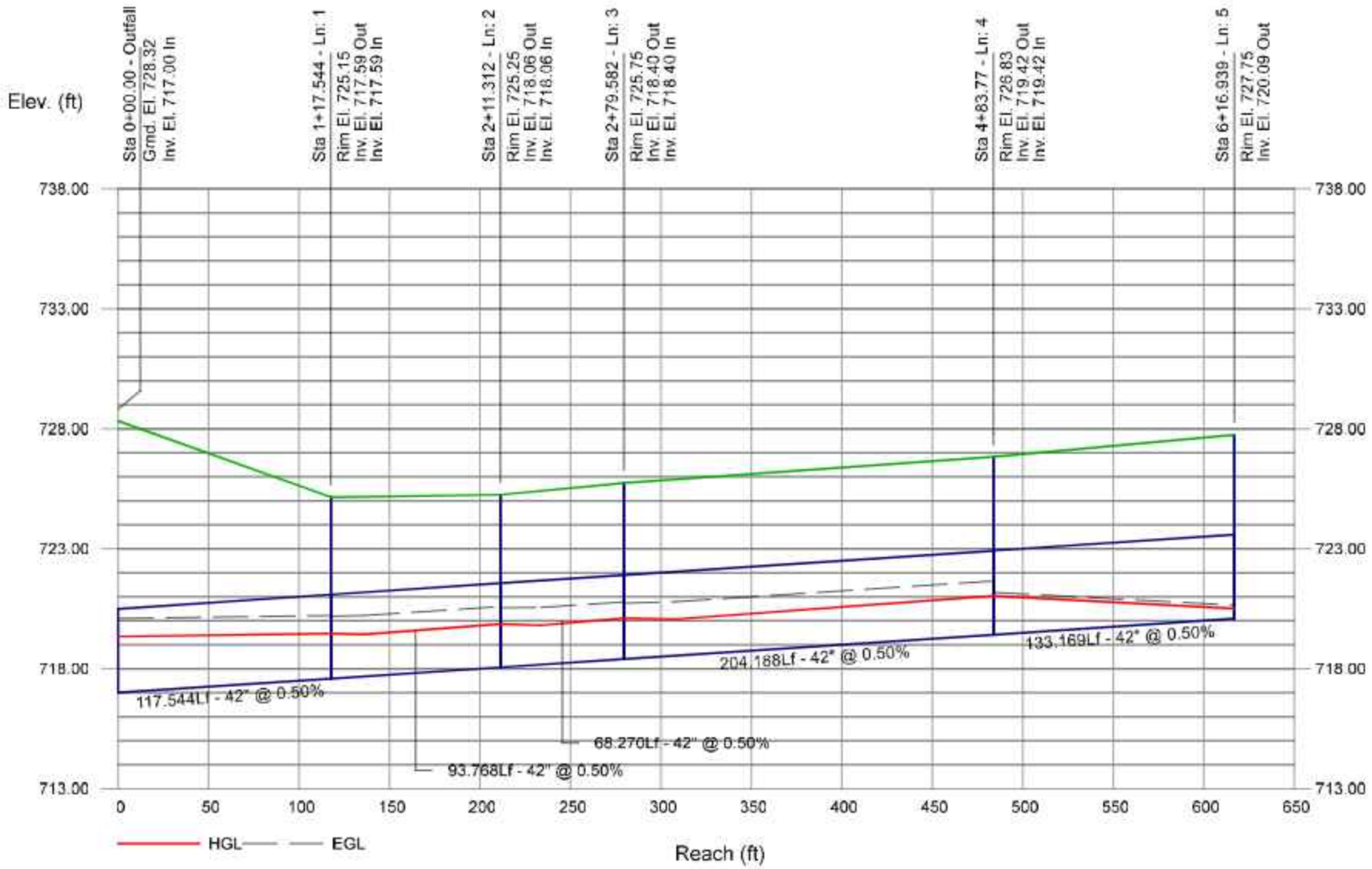
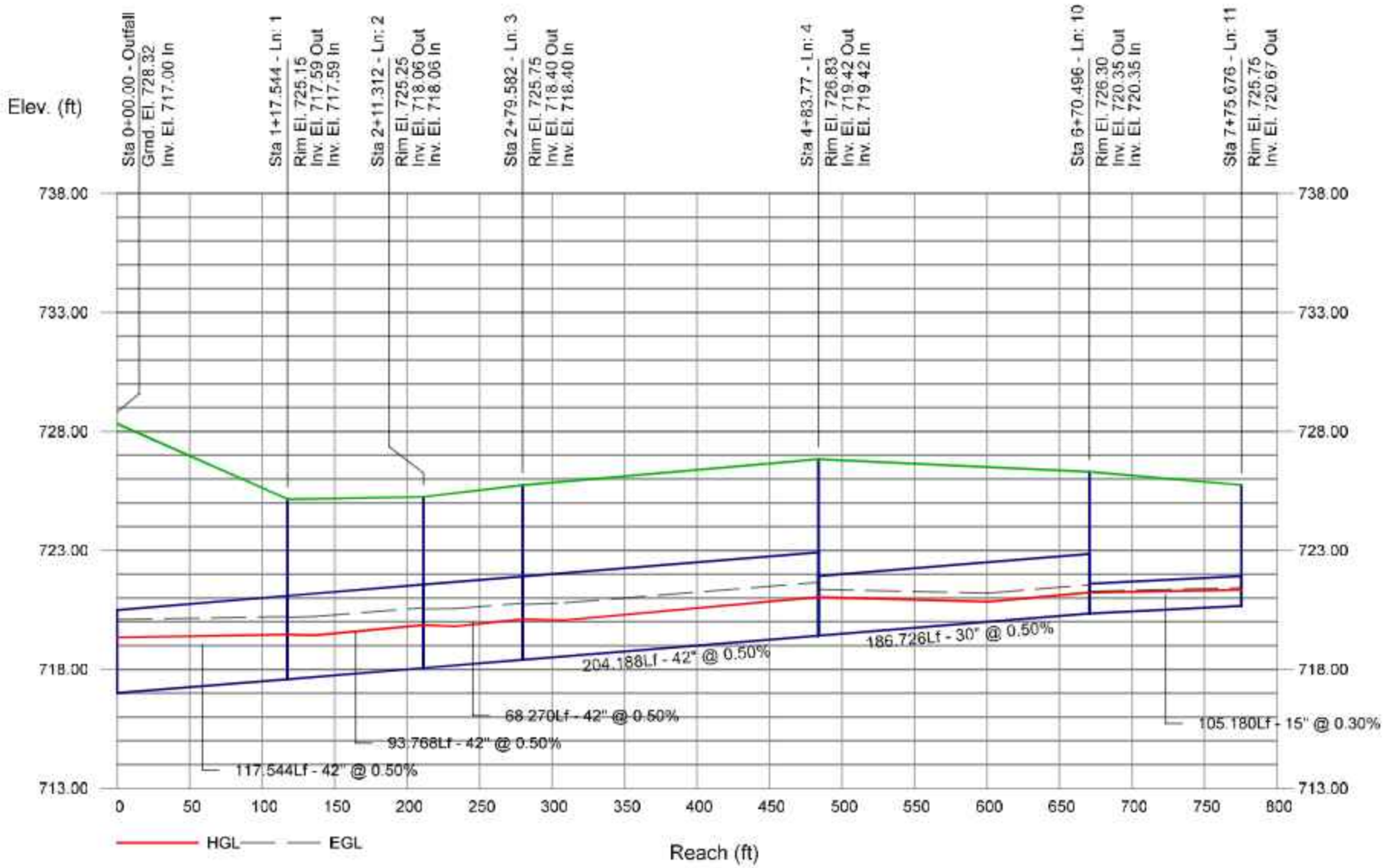


Storm Sewer Profile

Proj. file: HRHC South Lot.stm

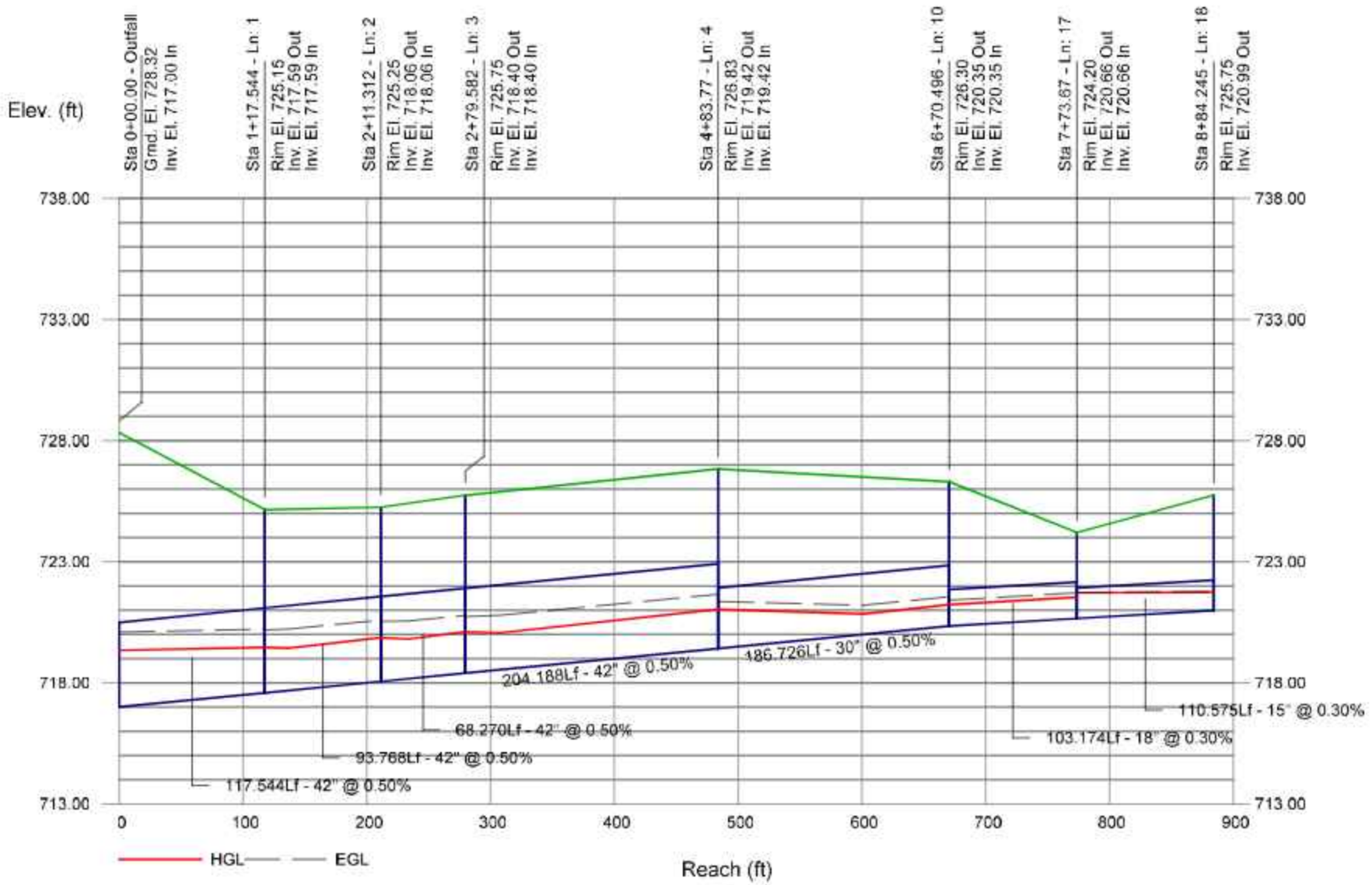
Reach 5



Storm Sewer Profile

Proj. file: HRHC South Lot.stm

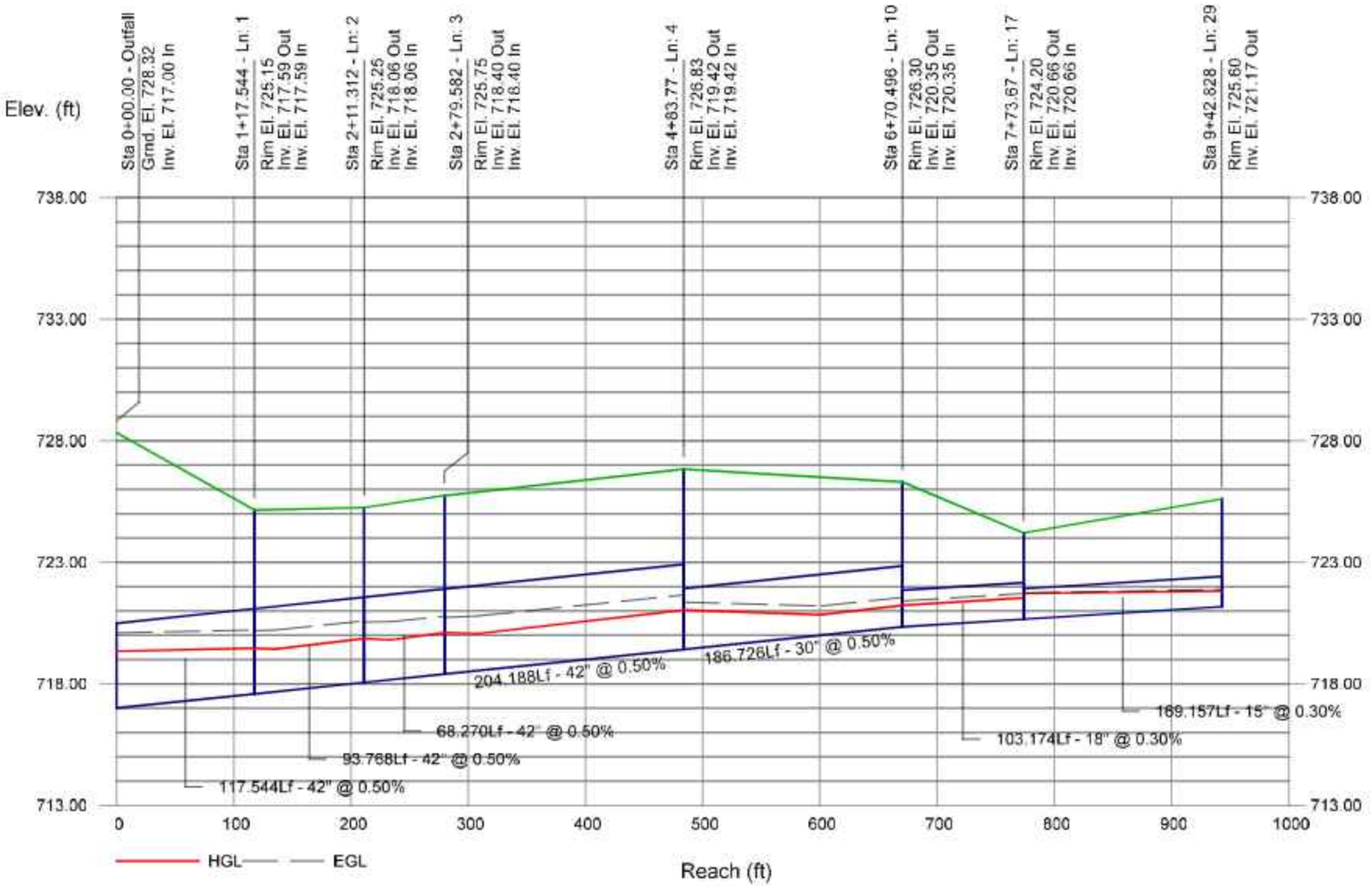
Reach 6



Storm Sewer Profile

Proj. file: HRHC South Lot.stm

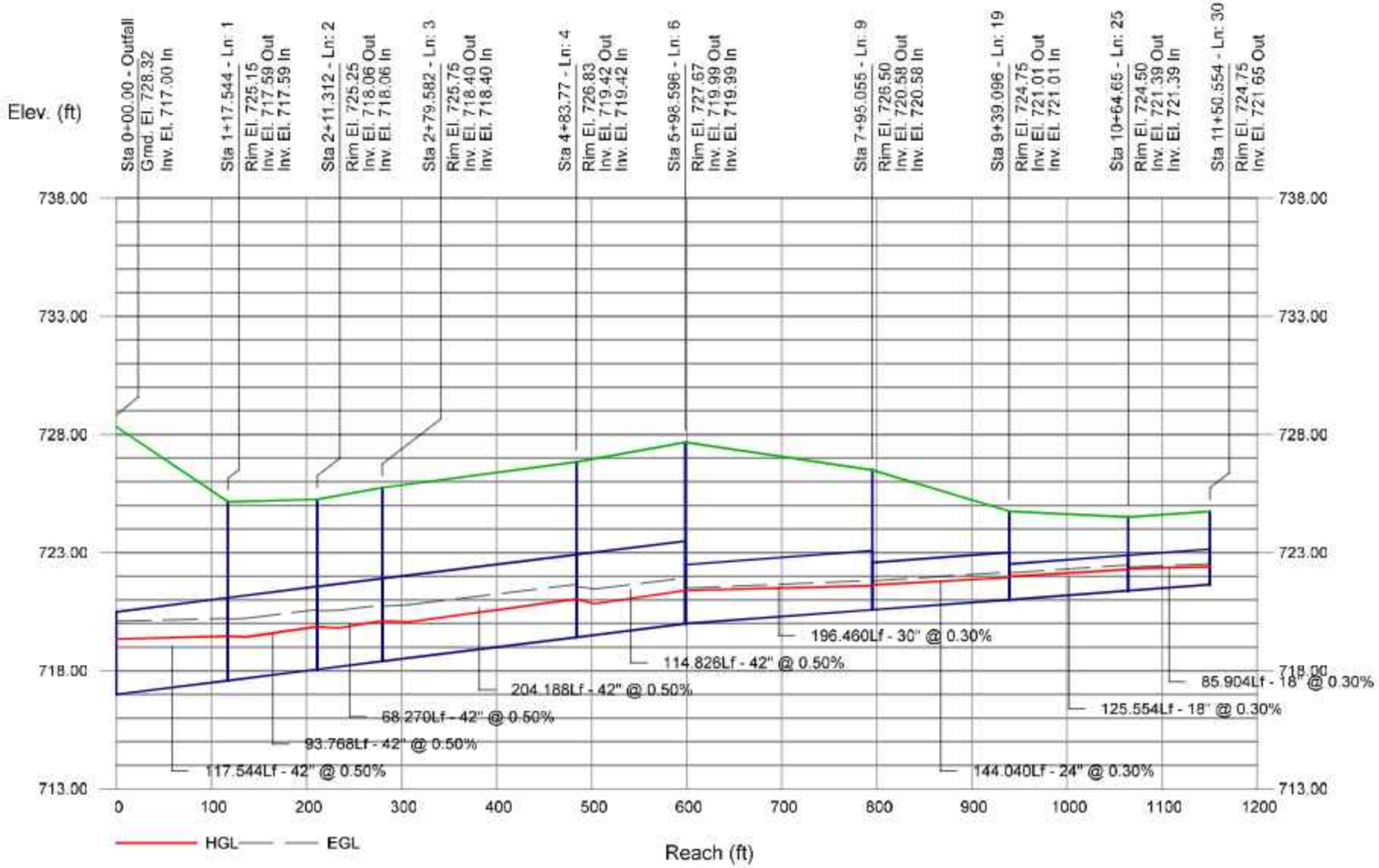
Reach 7



Storm Sewer Profile

Proj. file: HRHC South Lot.stm

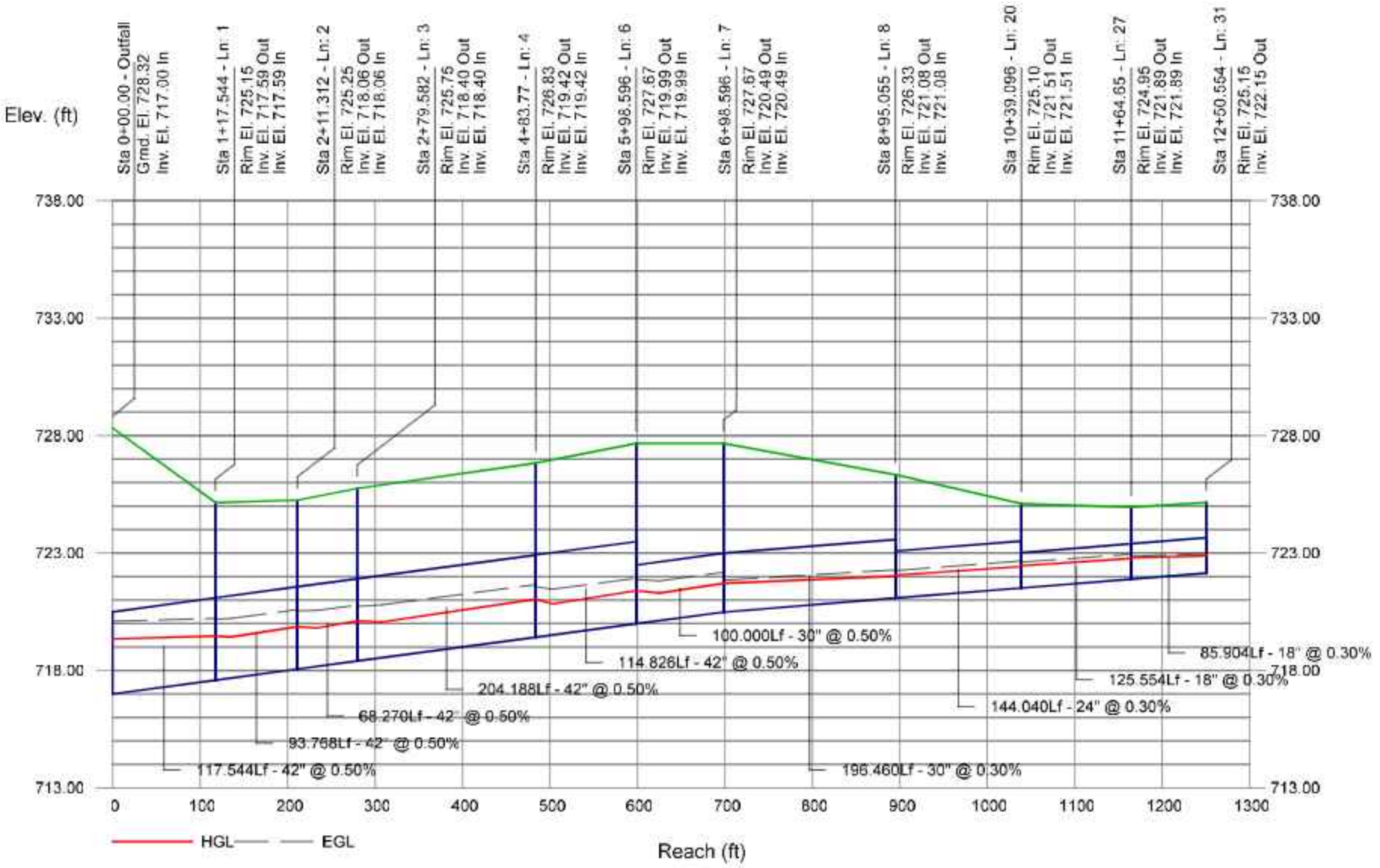
Reach 8



Storm Sewer Profile

Proj. file: HRHC South Lot.stm

Reach 9



Storm Sewer Profile

Proj. file: HRHC South Lot.stm

Reach 10

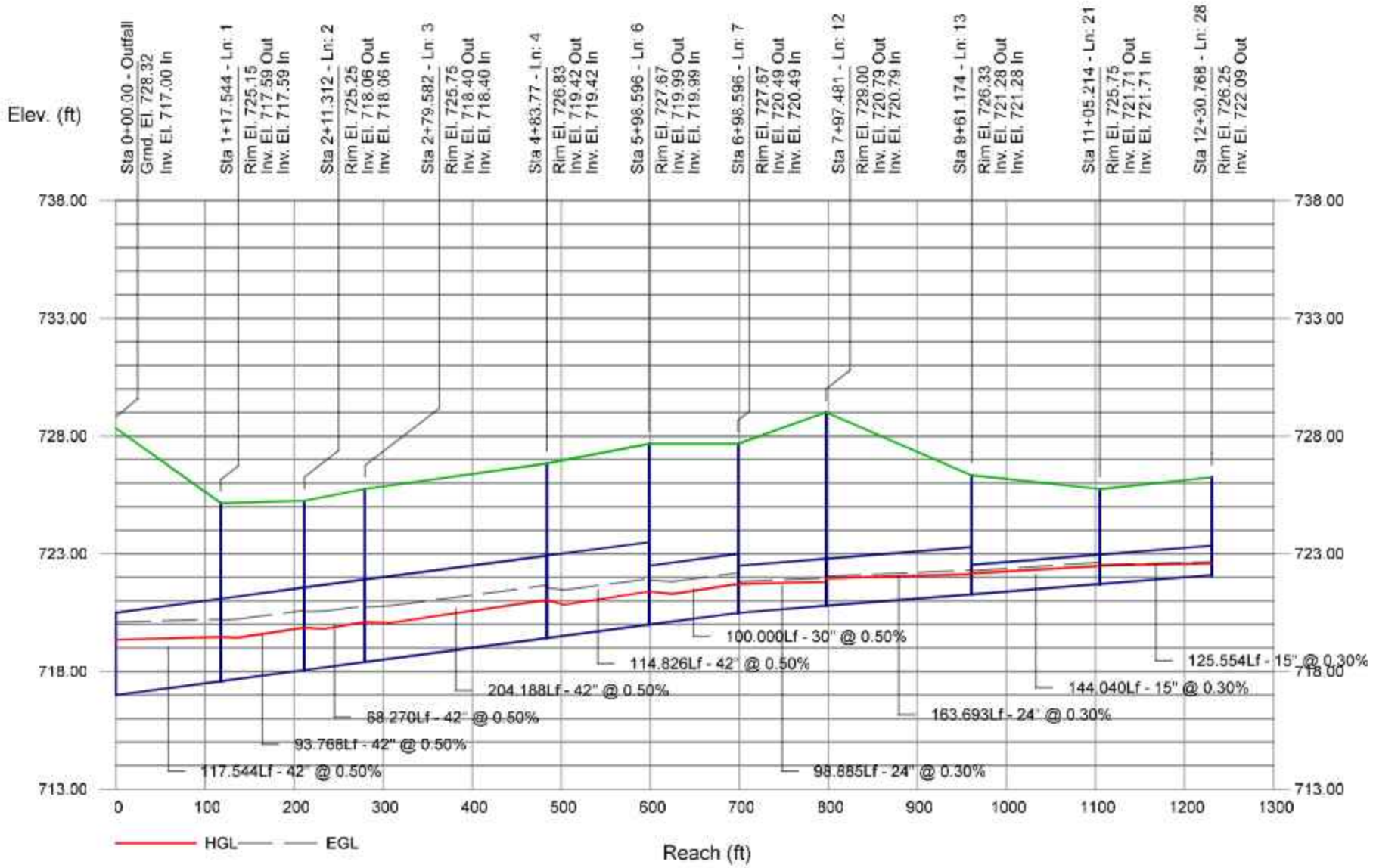


Figure 48 – Existing Public Storm Infrastrucutre Capcity

NE Discharge Capacity

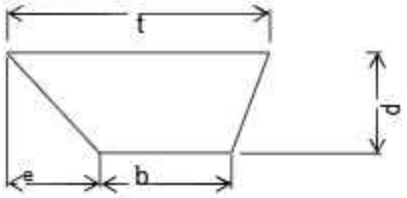
Kenosha Casino & Hotel 10.06.23

By: LMR

ERIKSSON ENGINEERING ASSOCIATES, LTD.

Swale Capacity

Swale Geometric Elements:



t = 25.00 feet

d = 1.00 feet

e = 5.00 feet

Z = e/d = 5.0

b = 15.00 feet

Cross Sectional Area:

$a = bd+Zd^2$ = 20.00 ft^2

Wetted Perimeter:

$p = b+2D*(Z^2+1)^{0.5}$

= 25.20 ft

Hydraulic Radius:

R = a/p = 0.79 ft

Swale Flow Capacity:

n = 0.035

s = 0.003

$Q = (1.49/n)*a*R^{2/3}*s^{1/2}$

= 39.98 cfs

Capacity Of Swale = 40.0 cfs

36" Pipe Capacity

V=(1.486/n)*(D/4)^(2/3)*S^0.5

Q=V*(3.141592/4)*D^2

n = 0.013

D = 3 ft

S = 0.01 ft/ft

V = 9.44 ft/sec

Q = 66.7 cfs

East Discharge Capacity

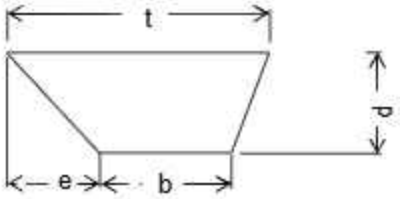
Kenosha Casino & Hotel 10.06.23

By: LMR

ERIKSSON ENGINEERING ASSOCIATES, LTD.

Swale Capacity

Swale Geometric Elements:



t = 15.00 feet

d = 5.00 feet

e = 2.50 feet

Z = e/d = 0.5

b = 10.00 feet

Cross Sectional Area:

$a = bd+Zd^2$ = 62.50 ft^2

Wetted Perimeter:

$p = b+2D*(Z^2+1)^{0.5}$

= 21.18 ft

Hydraulic Radius:

R = a/p = 2.95 ft

Swale Flow Capacity:

n = 0.035

s = 0.005

$Q = (1.49/n)*a*R^{2/3}*s^{1/2}$

= 387.06 cfs

Capacity Of Swale = 387.1 cfs

60" Pipe Capacity

V=(1.486/n)*(D/4)^(2/3)*S^0.5

Q=V*(3.141592/4)*D^2

n = 0.013

D = 5 ft

S = 0.01 ft/ft

V = 13.26 ft/sec

Q = 260.4 cfs

East Discharge Capacity

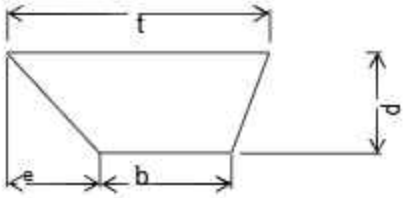
Kenosha Casino & Hotel 10.06.23

By: LMR

ERIKSSON ENGINEERING ASSOCIATES, LTD.

Swale Capacity

Swale Geometric Elements:



t = 65.00 feet

d = 1.00 feet

e = 10.00 feet

Z = e/d = 10.0

b = 45.00 feet

Cross Sectional Area:

$a = bd+Zd^2$ = 55.00 ft^2

Wetted Perimeter:

$p = b+2D*(Z^2+1)^{0.5}$

= 65.10 ft

Hydraulic Radius:

R = a/p = 0.84 ft

Swale Flow Capacity:

n = 0.035

s = 0.005

$Q = (1.49/n)*a*R^{2/3}*s^{1/2}$

= 147.96 cfs

Capacity Of Swale = 148.0 cfs

48" Pipe Capacity

V=(1.486/n)*(D/4)^(2/3)*S^0.5

Q=V*(3.141592/4)*D^2

n = 0.013

D = 4 ft

S = 0.01 ft/ft

V = 11.43 ft/sec

Q = 143.64 cfs

APPENDIX D – EARTHWORK CALCULATIONS

Figure 49 – Alternative A Earthwork Calculations

FILL ASSUMPTIONS

Hard Rock Casino
Option A - West Site (Parcels C and D)
TOB

09.06.23

ERIKSSON ENGINEERING ASSOCIATES, LTD.

Existing Topsoil

Design Element	Assumed Average Depth (ft)	Area (ft^2)	Volume (ft^2)	Volume (cy)
Topsoil	1.00	1,833,972	1,833,972	67,925
			Total Volume	**67,925**

Cut/Fill Analysis From Civil 3D From Subgrade To Finshed Surface

Cut Factor	Fill Factor	Area (ft^2)	Cut Volume (cy)	Fill Volume (cy)	Net Volume (cy)
1.15	1.00	1,833,972	18,159	140,632	122,473
			Total Volume	**(FILL)**	**122,473**

Imported Materials To Create Final Surface

Design Element	Assumed Average Depth (ft)	Area (ft^2)	Volume (ft^2)	Volume (cy)
Building	2.00	257,156	514,312	19,049
Pavement	1.33	1,071,592	1,428,789	52,918
Sidewalk	0.75	28,277	21,208	785
Pool/Patio	2.00	31,940	63,880	2,366
Underground Detention*			262,324	9,716
Sewer/Water Trenches	7.00	81,522	570,654	21,135
			Total Volume	**105,969**

*See ADS Details in Appendix

Topsoil Respread in Green Space

Rqr'd Fill To Balance Site (cy)	Green Space* (ft^2)	Topsoil Depth In Green Space (in)	Top Soil Fill Volume (cy)
16,504	428,380	7.50	9,916

*Total property area excluding building, paved surfaces, and wetland areas

Topsoil Haul Off

Existing Topsoil (cy)	Reused Topsoil (cy)	Remaining Topsoil (cy)
67,925	9,916	**58,009**

FILL ASSUMPTIONS

Hard Rock Casino
Option A - Northeast (Parcel A)
TOB

09.06.23

ERIKSSON ENGINEERING ASSOCIATES, LTD.

Existing Topsoil

Design Element	Assumed Average Depth (ft)	Area (ft^2)	Volume (ft^3)	Volume (cy)
Topsoil	1.00	234,985	234,985	8,703
			Total Volume	**8,703**

Cut/Fill Analysis From Civil 3D From Subgrade To Finshed Surface

Cut Factor	Fill Factor	Area (ft^2)	Cut Volume (cy)	Fill Volume (cy)	Net Volume (cy)
1.15	1.00	234,985	8,799	24,427	15,628
			Total Volume	**(FILL)**	**15,628**

Imported Materials To Create Final Surface

Design Element	Assumed Average Depth (ft)	Area (ft^2)	Volume (ft^3)	Volume (cy)
Pavement	1.33	96,992	129,323	4,790
			Total Volume	**4,790**

*See ADS Details In Appendix

Topsoil Respread in Green Space

Rqr'd Fill To Balance Site (cy)	Green Space* (ft^2)	Topsoil Depth In Green Space (In)	Top Soil Fill Volume (cy)
10,838	137,993	24.00	10,222

*Total property area excluding building, paved surfaces, and wetland areas

Topsoil Haul Off

Existing Topsoil (cy)	Reused Topsoil (cy)	Remaining Topsoil (cy)
8,703	10,222	**(1,519)**

FILL ASSUMPTIONS

Hard Rock Casino
Option A - Southeast (Parcel B)
TOB

09.06.23

ERIKSSON ENGINEERING ASSOCIATES, LTD.

Existing Topsoil

Design Element	Assumed Average Depth (ft)	Area (ft^2)	Volume (ft^3)	Volume (cy)
Topsoil	1.00	395,169	395,169	14,636
			Total Volume	**14,636**

Cut/Fill Analysis From Civil 3D From Subgrade To Finshed Surface

Cut Factor	Fill Factor	Area (ft^2)	Cut Volume (cy)	Fill Volume (cy)	Net Volume (cy)
1.15	1.00	395,169	344	43,698	43,354
			Total Volume	**(FILL)**	**43,354**

Imported Materials To Create Final Surface

Design Element	Assumed Average Depth (ft)	Area (ft^2)	Volume (ft^3)	Volume (cy)
Pavement	1 1/3	192,674	256,899	9,515
Sewer/Water Trenches	7.00	6,900	48,300	1,789
			Total Volume	**11,304**

*See ADS Details In Appendix

Topsoil Respread in Green Space

Rqr'd Fill To Balance Site (cy)	Green Space* (ft^2)	Topsoil Depth In Green Space (in)	Top Soil Fill Volume (cy)
32,050	202,495	49.00	30,624

*Total property area excluding building, paved surfaces, and wetland areas

Topsoil Haul Off

Existing Topsoil (cy)	Reused Topsoil (cy)	Remaining Topsoil (cy)
14,636	30,624	**(15,988)**

Total Option A Topsoil

West Lot (cy)	Northeast Lot (cy)	Southeast Lot (cy)	Total (cy)
58,009	(1,519)	**(15,988)**	**40,502**

Figure 50 – Alternative B Earthwork Calculations

FILL ASSUMPTIONS

Hard Rock Casino
Option B
LMR

9.14.2023

ERIKSSON ENGINEERING ASSOCIATES, LTD.

Existing Topsoil

Design Element	Assumed Average Depth (ft)	Area (ft^2)	Volume (ft^3)	Volume (cy)
Topsoil	1.00	1,833,971	1,833,971	67,925
			Total Volume	**67,925**

Cut/Fill Analysis From Civil 3D From Subgrade To Finshed Surface

Cut Factor	Fill Factor	Area (ft^2)	Cut Volume (cy)	Fill Volume (cy)	Net Volume (cy)
1.15	1.00	1,833,971	23,262	111,853	88,591
			Total Volume	**(FILL)**	**88,591**

Imported Materials To Create Final Surface

Design Element	Assumed Average Depth (ft)	Area (ft^2)	Volume (ft^3)	Volume (cy)
Building	2.00	156,460	312,920	11,590
Pavement	1.33	1,149,777	1,533,036	56,779
Sidewalk	0.75	14,915	11,186	414
Pool/Patio	2.00	31,940	63,880	2,366
Underground Detention*			262,324	9,716
Sewer/Water Trenches	7.00	35,500	248,500	9,204
			Total Volume	**90,068**

*See ADS Details in Appendix

Topsoil Respread in Green Space

Rqr'd Fill To Balance Site (cy)	Green Space* (ft^2)	Topsoil Depth in Green Space (in)	Top Soil Fill Volume (cy)
(1,477)	464,252	6.00	8,597

*Total property area excluding building, paved surfaces, and wetland areas

Topsoil Haul Off

Existing Topsoil (cy)	Reused Topsoil (cy)	Remaining Topsoil (cy)
67,925	8,597	**59,328**

Figure 51 – Alternative C Earthwork Calculations

FILL ASSUMPTIONS

Hard Rock Casino 09.08.23
Option C - West Site
DJN

ERIKSSON ENGINEERING ASSOCIATES, LTD.

Existing Topsoil

Design Element	Assumed Average Depth (ft)	Area (ft^2)	Volume (ft^3)	Volume (cy)
Topsoil	1.00	1,661,548	1,661,548	61,539
			Total Volume	**61,539**

Cut/Fill Analysis From Civil 3D From Subgrade To Finshed Surface

Cut Factor	Fill Factor	Area (ft^2)	Cut Volume (cy)	Fill Volume (cy)	Net Volume (cy)
1.15	1.00	1,661,548	54,932	169,204	114,272
			Total Volume	**(FILL)**	**114,272**

Imported Materials To Create Final Surface

Design Element	Assumed Average Depth (ft)	Area (ft^2)	Volume (ft^3)	Volume (cy)
Building	2.00	171,943	343,885	12,736
Pavement	1.33	852,436	1,136,582	42,096
Sidewalk	0.75	6,076	4,557	169
Pool/Patio	2.00	22,879	45,758	1,695
Sewer/Water Trenches	7.00	77,790	544,530	20,168
			Total Volume	**76,863**

Topsoil Respread in Green Space

Rqr'd Fill To Balance Site (cy)	Green Space* (ft^2)	Topsoil Depth in Green Space (in)	Top Soil Fill Volume (cy)
37,409	591,587	20.00	36,518

*Total property area excluding building, paved surfaces, and wetland areas

Topsoil Haul Off

Existing Topsoil (cy)	Reused Topsoil (cy)	Remaining Topsoil (cy)
61,539	36,518	**25,021**

APPENDIX E – ACCENDIUS CONSULTING ENGINEERS REPORT

Hard Rock Menominee – Water Usage Study

Anticipated Fire Water Supply Loads - Site

This water flow requirement is determined per NFPA 1.

NFPA 1 Table 18.4.5.2.1 uses the anticipated building construction type and building square footage to determine the Minimum Required Fire Flow and Flow Duration.

To determine the anticipated building construction type, the following information was provided by the architect, "As we are in the master planning phase, we anticipate the construction type will likely be Type I-B (2 hour protected) based on the current program. Type I-B construction is composed of non-combustible materials typically utilizing steel and concrete for the primary structure and metal studs for framing." The building types referenced above correlate to the International Building Code, and not to NPFA 220, therefore further interpretation is required. Use NFPA Construction Type II(222) based on the above statement, and this information about NFPA 220:

- Type I: Noncombustible (or limited-combustible) construction with a high level of fire resistance, typically concrete construction.
- Type II: Noncombustible (or limited-combustible) construction with a lower level of fire resistance than Type I, typically this is steel construction with or without fireproofing.
- Type III: Exterior walls and structural elements are noncombustible or limited-combustible materials, and interior structural elements, walls, arches, floors, and roofs are wood that is smaller than what is required for Type IV construction. This is usually called ordinary construction and an example of this is a mixed masonry/wood building.
- Type IV: Fire walls, exterior walls, and interior bearing walls are approved noncombustible or limited-combustible materials. Other interior structural elements, arches, floors, and roofs are solid or laminated wood or cross-laminated timber. There are certain dimensional requirements:
  - Columns – 8in (205mm) x 8in (205mm) if supporting floor, 6in (150mm) x 8in (205mm) if supporting roof
  - Beams – 6in (150mm) x 10in (255mm) if supporting floor, 4in x 6in (150mm) if supporting roof
  - Arches – Varies 8in (205mm) x 8in (205mm) to 4in (100mm) x 6in (150mm)
  - Floors – 3in (75mm) or 4in (100mm) thick
- Type V: Structural elements, walls, arches, floors, and roofs are wood or other approved material. Most residential construction is Type V.

1. First Digit (X00): Exterior bearing walls
2. Second Digit (0X0): Columns, beams, girders, trusses and arches, supporting bearing walls, columns or loads from more than one floor.
3. Third Digit (00X): Floor construction

Alternative A - "Full Gaming", is 283,737 SF. Alternative B - "Reduced Gaming", is 236,235 SF. Alternative C - "Non-Gaming" is 337,884 SF. Therefore, the largest building alternative is 337,884 SF.

The initial result of NFPA 1 Table 18.4.5.2.1 is that 6,000 GPM is required for a duration of 4 hours for the minimum fire flow. However, NFPA 1 Section 18.4.5.3.2 permits the reduction in fire flow by 75% since the building will be protected throughout with an approved automatic sprinkler system.

In conclusion, the worst-case minimum anticipated site fire water supply load at the hydrants will be 1,500 GPM at 20 psi for 4 hours.

Alternative A - "Full Gaming" = 1437.5 GPM at 20 psi for 4 hours.

Alternative B - "Reduced Gaming" = 1312.5 GPM at 20 psi for 4 hours.

Alternative C - "Non-Gaming" = 1,500 GPM at 20 psi for 4 hours.

Water Supply Loads Anticipated - Building

Fire water demand load will dictate building water requirements.

It is assumed that the hotel tower will exceed 75'-0" in height from the top accessible floor level of the tower to the first-floor level elevation, which is the level of emergency egress. This condition causes the project to be considered a "high-rise" which will trigger additional building requirements.

For high rise buildings, all fire suppression standpipe systems must be supplied with the appropriate flow and pressure by an automatic water supply. In this case, because standpipe systems require 100 psi pressure at the most remote (highest) standpipe hose connection, this will be accomplished using a fire pump. To determine the maximum fire flow at the interior, NFPA 14 is referenced:

The first standpipe riser must provide 250 GPM to each of the two upper-most hose connections on the first riser for a total of 500 GPM. A second standpipe riser must provide an additional 250 GPM to the most remote hose connection on that riser. A third standpipe riser must once again provide an additional 250 GPM to the most remote hose connection on that riser. The maximum standpipe flow requirement at the building interior will be limited to 1,000 GPM, even if there are additional standpipes present. Considering the anticipated domestic water supply needs, this 1,000 GPM flow for the fire suppression standpipes at the building interior will likely be the highest demand for building water supply. Domestic water flows will reduce to very little flow in the event of an emergency, and it is not anticipated that domestic water flows during normal operation will reach 1,000 GPM at any given time.

It will be important to supply the water to the building with enough pressure that the fire pump will not pull a suction on the main. If this happens then the municipality will get involved and likely need to issue boil orders to other parties connected to the water line. Given the initial flow test results, this will likely not be an issue. Lets aim for a minimum water pressure of 30 psi at the building.

The target budget water flow at the building entrance is 1,000 GPM at 30 psi.

Sanitary Loads Anticipated - Based on Plan Diagram Legend for Alternative 'A' Option

To estimate potential sanitary loads for the facility, consider the Alternative 'A' layout since it is the largest version proposed and it has the greatest number of amenities with higher levels of plumbing usage. Absent finalized floor plans, below are the initial assumptions of spaces and their sanitary loads:

7 – Public Restrooms – Four locations

Each location to have a multi-fixture restroom group for Men and Women

Assume each restroom grouping has 16 lavs (16 dfu), 8 urinals (16 dfu), 16 water closets (96 dfu), 6 floor drains (12 dfu), & janitor mop basin (3 dfu) = Approx 150 dfu per group x 4 groups = 600 dfu

8 – Bar – One location

Assume between sinks, warewashing, floor drains = Approx 50 dfu

9 – Hard Rock Café

Assume kitchen loads, couple small restrooms, misc fixtures = Approx 180 dfu

10 – Steakhouse

Assume kitchen loads, couple small restrooms, misc fixtures = Approx 180 dfu

11 – Coffee Shop

Assume kitchen loads, misc fixtures = Approx 60 dfu

12 – Restaurant

Assume kitchen loads, couple small restrooms, misc fixtures = Approx 180 dfu

13 – Market

Assume kitchen loads, misc fixtures = Approx 50 dfu

17 – Hotel Tower

Typ rooms - Assume one restroom (1 toilet, 2 Lavs, 1 tub), no kitchenettes – 83 Kings, 53 Double Queens

= 136 rooms x 7 dfu =Approx 1000 dfu

2 Bay Suites - Assume two restrooms (2 toilets, 4 Lavs, 2 tubs), 1 kitchen sink, dishwasher, clothes washer – 26 Suites

= 26 rooms x 22 dfu =Approx 575 dfu

3+ Bay Suites - Assume three restrooms (3 toilets, 6 Lavs, 3 tubs), 1 kitchen sink, dishwasher, clothes washer – 5 Suites

= 5 rooms x 29 dfu =Approx 150 dfu

Public Laundry – 8 washing machines, floor drains, laundry tub = Approx 50 dfu

18 – Spa

Assume resort-type spa (massage, hot rocks, mani/pedi, etc. – few spa tubs, misc sinks) = Approx 75 dfu

19 – Back-of-House

Assume Mechanical Rooms, Housekeeping, Main Laundry facilities, Loading Dock = Approx 125 dfu

21 – Outdoor Pool

Assume pool equipment room fixtures and cycle dump load = Approx 175 dfu

24 – RV Parking

Assuming sanitary hookups or receptors available, 20 RVs = Approx 50 dfu

Total Anticipated Sanitary Load for Facility = Approx 3,500 dfu

There is not a scientific way to correlate DFU to GPM due to the diversity of drainage types and unknown times that large drain loads will be active. A very conservative approach is to plan for an equal number of GPM as DFU. Therefore, for now, assume 3,500 GPM as an anticipated sanitary load for the entire facility.

Per SPS 382 (WI Plumbing Code) Table 382.30-3, 3,500 dfu requires a 10" sanitary building drain (pitched at 1/2" per foot) or a 12" sanitary building drain (pitched at minimum 1/16" per foot).

At this stage in the planning process, allow for a 12" sanitary building drain to the street to reduce pitch and facilitate connection to the existing inverts of the municipal sanitary piping infrastructure.

18.4.5.1.5* The reductions in 18.4.5.1.2, 18.4.5.1.3, and 18.4.5.1.4 shall not reduce the required fire flow to less than 500 gpm (1900 L/min).

18.4.5.2 One- and Two-Family Dwellings Exceeding 5000 ft² (464.5 m²).

18.4.5.2.1 Fire flow and flow duration for dwellings having a fire flow area in excess of 5000 ft² (464.5 m²) shall not be less than that specified in Table 18.4.5.2.1.

18.4.5.2.2 Required fire flow shall be reduced by 75 percent and the duration reduced to 1 hour where the one- and two-family dwelling is provided with an approved automatic sprinkler system.

18.4.5.2.3 A reduction in the required fire flow shall be permitted where a one- and two-family dwelling is separated from all lot lines in accordance with Table 18.4.5.1.4.

18.4.5.2.4 Required fire flow for one- and two-family dwellings protected by an approved automatic sprinkler system shall not exceed 2000 gpm (7571 L/min) for 1 hour.

18.4.5.2.5* The reductions in 18.4.5.2.2, and 18.4.5.2.3 shall not reduce the required fire flow to less than 500 gpm (1900 L/min) for 1 hour.

18.4.5.3 Buildings Other Than One- and Two-Family Dwellings.

18.4.5.3.1 The minimum fire flow and flow duration for buildings other than one- and two-family dwellings shall be as specified in Table 18.4.5.2.1.

18.4.5.3.2 Required fire flow shall be reduced by 75 percent when the building is protected throughout by an approved automatic sprinkler system. The resulting fire flow shall not be less than 1000 gpm (3785 L/min).

18.4.5.3.3 Required fire flow shall be reduced by 75 percent when the building is protected throughout by an approved automatic sprinkler system, which utilizes quick response sprinklers throughout. The resulting fire flow shall not be less than 600 gpm (2270 L/min).

18.4.5.3.4* Required fire flow for buildings protected by an approved automatic sprinkler system shall not exceed 2000 gpm (7571 L/min) for 2 hours.

18.4.5.3.5 Required fire flow for open parking structures that are not protected throughout by an approved automatic sprinkler system shall be reduced by 75 percent where all of the following conditions are met:

(1) The structure complies with the building code.
(2) The structure is of Type I or Type II construction.
(3) The structure is provided with a Class I standpipe system in accordance with NFPA 14. Class I standpipe systems of the manual dry type shall be permitted.
(4) The resulting fire flow is not less than 1000 gpm (3785 L/min).

18.4.5.4* Required Fire Flow and Automatic Sprinkler System Demand. For a building with an approved fire sprinkler system, the fire flow demand and the fire sprinkler system demand shall not be required to be added together. The water supply shall be capable of delivering the larger of the individual demands.

18.5 Fire Hydrants.

18.5.1 Fire Hydrant Locations and Distribution. Fire hydrants shall be provided in accordance with Section 18.5 for all new buildings, or buildings relocated into the jurisdiction unless otherwise permitted by 18.5.1.1 or 18.5.1.2.

18.5.1.1 Fire hydrants shall not be required where the water distribution system is not capable of providing a fire flow of greater than 500 gpm (1893 L/min) at a residual pressure of 20 psi (139.9 kPa).

18.5.1.2* Fire hydrants shall not be required where modification or extension of the water distribution system is deemed to be impractical by the AHJ.

18.5.1.3 The provisions of 18.5.1.1 and 18.5.1.2 shall not eliminate the fire flow requirements of Section 18.4.

18.5.1.4* The distances specified in Section 18.5 shall be measured along fire department access roads in accordance with 18.2.3.

18.5.1.5 Where fire department access roads are provided with median dividers incapable of being crossed by fire apparatus, or where fire department access roads have traffic counts of more than 30,000 vehicles per day, hydrants shall be placed on both sides of the fire department access road on an alternating basis, and the distances specified by Section 18.5 shall be measured independently of the hydrants on the opposite side of the fire department access road.

18.5.1.6 Fire hydrants shall be located not more than 12 ft (3.7 m) from the fire department access road.

18.5.2 Detached One- and Two-Family Dwellings. Fire hydrants shall be provided for detached one- and two-family dwellings in accordance with both of the following:

(1) The maximum distance to a fire hydrant from the closest point on the building shall not exceed 600 ft (183 m).
(2) The maximum distance between fire hydrants shall not exceed 800 ft (244 m).

18.5.3 Buildings Other than Detached One- and Two-Family Dwellings. Fire hydrants shall be provided for buildings other than detached one- and two-family dwellings in accordance with both of the following:

(1) The maximum distance to a fire hydrant from the closest point on the building shall not exceed 400 ft (122 m).
(2) The maximum distance between fire hydrants shall not exceed 500 ft (152 m).

18.5.4 Minimum Number of Fire Hydrants for Fire Flow.

18.5.4.1 The minimum number of fire hydrants needed to deliver the required fire flow for new buildings in accordance with Section 18.4 shall be determined in accordance with Section 18.5.4.

18.5.4.2 The aggregate fire flow capacity of all fire hydrants within 1000 ft (305 m) of the building, measured in accordance with 18.5.1.4 and 18.5.1.5, shall be not less than the required fire flow determined in accordance with Section 18.4.

18.5.4.3* The maximum fire flow capacity for which a fire hydrant shall be credited shall be as specified by Table 18.5.4.3. Capacities exceeding the values specified in Table 18.5.4.3 shall be permitted when local fire department operations have the ability to accommodate such values as determined by the fire department.

18.5.4.4 Fire hydrants required by 18.5.2 and 18.5.3 shall be included in the minimum number of fire hydrants for fire flow required by 18.5.4.

Table 18.4.5.2.1 Minimum Required Fire Flow and Flow Duration for Buildings

Fire Flow Area ft² (× 0.0929 for m²)					Fire Flow gpm† (× 3.785 for L/min)	Flow Duration (hours)
I(443), I(332), II(222)*	II(111), III(211)*	IV(2HH), V(111)*	II(000), III(200)*	V(000)*		
0–22,700	0–12,700	0–8200	0–5900	0–3600	1500	2
22,701–30,200	12,701–17,000	8201–10,900	5901–7900	3601–4800	1750	
30,201–38,700	17,001–21,800	10,901–12,900	7901–9800	4801–6200	2000	
38,701–48,300	21,801–24,200	12,901–17,400	9801–12,600	6201–7700	2250	
48,301–59,000	24,201–33,200	17,401–21,300	12,601–15,400	7701–9400	2500	
59,001–70,900	33,201–39,700	21,301–25,500	15,401–18,400	9401–11,300	2750	
70,901–83,700	39,701–47,100	25,501–30,100	18,401–21,800	11,301–13,400	3000	3
83,701–97,700	47,101–54,900	30,101–35,200	21,801–25,900	13,401–15,600	3250	
97,701–112,700	54,901–63,400	35,201–40,600	25,901–29,300	15,601–18,000	3500	
112,701–128,700	63,401–72,400	40,601–46,400	29,301–33,500	18,001–20,600	3750	
128,701–145,900	72,401–82,100	46,401–52,500	33,501–37,900	20,601–23,300	4000	4
145,901–164,200	82,101–92,400	52,501–59,100	37,901–42,700	23,301–26,300	4250	
164,201–183,400	92,401–103,100	59,101–66,000	42,701–47,700	26,301–29,300	4500	
183,401–203,700	103,101–114,600	66,001–73,300	47,701–53,000	29,301–32,600	4750	
203,701–225,200	114,601–126,700	73,301–81,100	53,001–58,600	32,601–36,000	5000	
225,201–247,700	126,701–139,400	81,101–89,200	58,601–65,400	36,001–39,600	5250	
247,701–271,200	139,401–152,600	89,201–97,700	65,401–70,600	39,601–43,400	5500	
271,201–295,900	152,601–166,500	97,701–106,500	70,601–77,000	43,401–47,400	5750	
Greater than 295,900	Greater than 166,500	106,501–115,800	77,001–83,700	47,401–51,500	6000	
		115,801–125,500	83,701–90,600	51,501–55,700	6250	
		125,501–135,500	90,601–97,900	55,701–60,200	6500	
		135,501–145,800	97,901–106,800	60,201–64,800	6750	
		145,801–156,700	106,801–113,200	64,801–69,600	7000	
		156,701–167,900	113,201–121,300	69,601–74,600	7250	
		167,901–179,400	121,301–129,600	74,601–79,800	7500	
		179,401–191,400	129,601–138,300	79,801–85,100	7750	
		Greater than 191,400	Greater than 138,300	Greater than 85,100	8000	

*Types of construction are based on NFPA 220.
†Measured at 20 psi (139.9 kPa).

Table 18.5.4.3 Maximum Fire Hydrant Fire Flow Capacity

Distance to Building[a]		Maximum Capacity[b]	
(ft)	(m)	(gpm)	(L/min)
≤ 250	≤ 76	1500	5678
> 250 and ≤ 500	> 76 and ≤ 152	1000	3785
> 500 and ≤ 1000	> 152 and ≤ 305	750	2839

[a]Measured in accordance with 18.5.1.4 and 18.5.1.5.
[b]Minimum 20 psi (139.9 kPa) residual pressure.

18.5.5 Testing and Maintenance.

18.5.5.1 Private water supply systems shall be tested and maintained in accordance with NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.*

18.5.5.2 Public water supply systems providing fire flow shall be tested and maintained in accordance with ANSI/AWWA G200, *Standard for Distribution Systems Operation and Management.*

18.5.6 Accessibility. Fire hydrants and connections to other approved water supplies shall be accessible to the fire department.

18.5.7 Clear Space Around Hydrants.

18.5.7.1 A 36 in. (914 mm) clear space shall be maintained around the circumference of fire hydrants except as otherwise required or approved.

18.5.7.2 A clear space of not less than 60 in. (1524 mm) shall be provided in front of each hydrant connection having a diameter greater than 2½ in. (64 mm).

18.5.8 Protection. Where required by the AHJ, fire hydrants subject to vehicular damage shall be protected unless located within a public right of way.

18.5.9 Hydrants Out of Service. Where water supplies or fire hydrants are out of service for maintenance or repairs, a visible indicator acceptable to the AHJ shall be used to indicate that the hydrant is out of service.

18.5.10 Marking of Hydrants.

18.5.10.1 Fire hydrants shall be marked with an approved reflector affixed to the roadway surface where required by the AHJ.

18.5.10.2 Fire hydrants shall be marked with an approved flag or other device affixed to or proximate to the fire hydrant where required by the AHJ.

18.5.10.3* Where required by the AHJ, fire hydrants shall be color coded or otherwise marked with an approved system indicating the available flow capacity.

Chapter 19 Combustible Waste and Refuse

19.1 General.

19.1.1 Permits. Permits, where required, shall comply with Section 1.12.

19.1.2 Persons owning or having control of any property shall not allow any combustible waste material to accumulate in any area or in any manner that creates a fire hazard to life or property.

19.1.3 Combustible waste or refuse shall be properly stored or disposed of to prevent unsafe conditions.

19.1.4 Fire extinguishing capabilities approved by the AHJ including, but not limited to, fire extinguishers, water supply and hose, and earth-moving equipment shall be provided at waste disposal sites.

19.1.5 Burning debris shall not be dumped at a waste disposal site except at a remote location on the site where fire extinguishment can be accomplished before compacting, covering, or other disposal activity is carried out. *(See Section 10.10 for additional guidance.)*

19.1.6 Electrical Wiring.

19.1.6.1 Electrical wiring and equipment in any combustible fiber storage room or building shall be installed in accordance with the requirements of Section 11.1 and *NFPA 70, National Electrical Code, for Class III hazardous locations.*

19.1.6.2 The AHJ shall be responsible for designating the areas that require hazardous location electrical classifications and shall classify the areas in accordance with the classification system set forth in NFPA 70.

19.1.7 No Smoking.

19.1.7.1 No smoking or open flame shall be permitted in any area where combustible fibers are handled or stored or within 50 ft (15 m) of any uncovered pile of such fibers.

19.1.7.2 "No Smoking" signs shall be posted.

19.1.8 Vehicles or Conveyances Used to Transport Combustible Waste or Refuse.

19.1.8.1 Vehicles or conveyances used to transport combustible waste or refuse over public thoroughfares shall have all cargo space covered and maintained tight enough to ensure against ignition from external fire sources and the scattering of burning and combustible debris that can come in contact with ignition sources.

19.1.8.2 Transporting burning waste or refuse shall be prohibited.

19.1.8.3 Trucks or automobiles, other than mechanical handling equipment and approved industrial trucks as listed in NFPA 505, *Fire Safety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Conversions, Maintenance, and Operations,* shall not enter any fiber storage room or building but shall be permitted to be used at loading platforms.

19.2 Combustible Waste and Refuse.

19.2.1 Rubbish Containers.

19.2.1.1 General. Rubbish containers kept outside of rooms or vaults shall not exceed 40.5 ft^3 (1.15 m^3) capacity.

19.2.1.1.1 Containers exceeding a capacity of 5½ ft^3 [40 gal (0.15 m^3)] shall be provided with lids.

19.2.1.1.2 Such containers and lids as described in 19.2.1.1.1 shall be constructed of noncombustible materials or nonmetallic materials complying with 19.2.1.2.

4 in. (100 mm) for systems hydraulically designed in accordance with 7.8.1.

7.6.3 Branch lines shall be sized based on the hydraulic criteria established in Section 7.8 and Section 7.10 but not sized smaller than 2½ in. (65 mm).

7.7 System Design and Sizing of Pipe for Delivery of System Demand.

7.7.1 Class I and Class III standpipe systems shall be designed so that the system demand can be supplied by each fire department connection, which is provided in accordance with Section 7.12.

7.7.2* Where an automatic or semiautomatic water supply is required for a Class I, II, or III standpipe system by Section 5.4, the standpipe system shall be designed so that the system demand can be independently supplied by the attached water supply and each fire department connection provided on the system.

7.7.3 Where a manual system is permitted by Section 5.4 and an attached water supply is provided to supply an automatic sprinkler system or to maintain water in a wet system, the attached water supply shall not be required to satisfy the standpipe system demand.

7.7.4 When the system demand to be supplied by the fire department at the fire department connection is being determined, the local fire department shall be consulted regarding the water supply available from a fire department pumper.

7.8* Minimum and Maximum Pressure Limits.

7.8.1 Minimum Design Pressure for Hydraulically Designed Systems. Hydraulically designed standpipe systems shall be designed to provide the waterflow rate required by Section 7.10 at a minimum residual pressure of 100 psi (6.9 bar) at the outlet of the hydraulically most remote 2½ in. (65 mm) hose connection and 65 psi (4.5 bar) at the outlet of the hydraulically most remote 1½ in. (40 mm) hose station.

7.8.1.1 The pressure loss in the hose valve shall be calculated using Table 8.3.1.3.

7.8.1.1.1 The valve manufacturer's most up-to-date friction loss data shall be used when published.

7.8.1.2* Manual standpipe systems shall be designed to provide 100 psi (6.9 bar) at the topmost outlet with the calculations terminating at the fire department connection.

7.9* Standpipe System Zones.

7.9.1 Except as permitted by 7.2.4, each standpipe system zone shall be provided with a separate pump or a separate discharge outlet from a multiple-stage, multiple-port fire pump.

7.9.1.1 The use of pumps arranged in series to meet the requirements of 7.9.1 shall be permitted.

7.9.1.2 Pumps that are arranged in series shall be permitted to be, but are not required to be, located on the same level.

7.9.2* Each zone above the low zone shall have two or more separate and direct supply pipes sized to automatically and independently supply the flow and pressure requirements of Sections 7.8 and 7.10.

7.9.2.1 Standpipes from the lower zone shall be permitted to be used to meet the requirements of 7.9.2.

7.9.3* For buildings with two or more zones in which any portion of the higher zones cannot be supplied by means of fire department pumpers through a fire department connection, an auxiliary means of supply in the form of high-level water storage with additional pumping equipment or other means acceptable to the AHJ shall be provided.

7.10 Flow Rates.

7.10.1 Class I and Class III Systems.

7.10.1.1* Flow Rate.

7.10.1.1.1 For Class I and Class III systems, the minimum flow rate for the hydraulically most remote standpipe shall be 500 gpm (1893 L/min), through the two most remote 2½ in. (65 mm) outlets, and the calculation procedure shall be in accordance with 7.10.1.2.

7.10.1.1.2* Where a horizontal standpipe on a Class I or Class III system supplies three or more hose connections on any floor, the minimum flow rate for the hydraulically most demanding horizontal standpipe shall be 750 gpm (2840 L/min), and the calculation procedure shall be in accordance with 7.10.1.2.2.

7.10.1.1.3 The minimum flow rate for additional standpipes shall be 250 gpm (946 L/min) per standpipe for buildings with floor areas that do not exceed 80,000 ft² (7432 m²) per floor.

7.10.1.1.3.1 For buildings that exceed 80,000 ft² (7432 m²) per floor, the minimum flow rate for additional standpipes shall be 500 gpm (1893 L/min) for the second standpipe and 250 gpm (946 L/min) for the third standpipe if the additional flow is required for an unsprinklered building.

7.10.1.1.4 Flow rates for combined systems shall be in accordance with 7.10.1.3.

7.10.1.1.5 The maximum flow rate shall be 1000 gpm (3785 L/min) for buildings that are sprinklered throughout, in accordance with NFPA 13, and 1250 gpm (4731 L/min) for buildings that are not sprinklered throughout, in accordance with NFPA 13.

7.10.1.1.6* Where lateral piping serves a single outlet, the minimum flow rate for the system shall be determined as if the outlet is being served from a separate standpipe.

7.10.1.2* Hydraulic Calculation Requirements.

7.10.1.2.1 Hydraulic calculations and pipe sizes for each standpipe shall be based on providing 250 gpm (946 L/min) at the two hydraulically most remote hose connections on the standpipe and at the topmost outlet of each of the other standpipes at the minimum residual pressure required by Section 7.8.

7.10.1.2.1.1* Where a standpipe system has risers that terminate at different floor levels, separate hydraulic calculations shall be performed for the standpipes that exist on each level.

7.10.1.2.1.2 In each case, flow shall be added only for standpipes that exist on the floor level of the calculations.

7.10.1.2.2 Where a horizontal standpipe on a Class I and Class III system supplies three or more hose connections on any floor, hydraulic calculations and pipe sizes for each standpipe shall be based on providing 250 gpm (946 L/min) at the

APPENDIX F – WASTEWATER TREATMENT PLANT CASE STUDIES

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT FACT SHEET
January 2021

Permittee Name: Buena Vista Rancheria of Me-Wuk Indians

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NPDES Permit No.: CA0049675

I. STATUS OF PERMIT

Buena Vista Rancheria of Me-Wuk Indians (the "permittee") has applied for the renewal of its National Pollutant Discharge Elimination System ("NPDES") permit to authorize the discharge of treated effluent from the Buena Vue Casino Wastewater Treatment Plant ("WWTP") located in Ione, Amador County, California. The Buena Vue Casino was previously known as Buena Vista Casino and is now known as Harrah's Northern California Casino. The permittee applied for a permit renewal on May 5, 2020.

The Buena Vista Rancheria of Me-Wuk Indians of California ("Tribe") is a federally recognized Indian tribe. As the Tribe does not have primary regulatory responsibility for administering the NPDES permitting program, EPA Region 9 is preparing the draft NPDES permit renewal and fact sheet pursuant to Section 402 of the Clean Water Act, which requires

point source dischargers to control the amount of pollutants that are discharged to waters of the United States. The draft permit incorporates both federal standards and applicable tribal water quality requirements.

The permittee is currently covered under NPDES Permit No. CA0049675, which became effective on November 2, 2015, through midnight November 1, 2020. This fact sheet is based on information provided by the discharger through its permit application, effluent discharge data, along with the applicable laws and regulations. Pursuant to 40 CFR § 122.21, the terms of the existing permit are administratively extended until the issuance of a new permit.

Pursuant to Section 402 of the Clean Water Act ("CWA"), the U.S. EPA is proposing issuance of the NPDES permit renewal to the permittee for the discharge of treated domestic wastewater to an effluent-dependent drainage ditch, ephemeral tributary of Jackson Creek, a tributary of Dry Creek, which is a tributary of the Mokelumne River, all waters of the United States.

Construction of the Buena Vue casino was completed in spring of 2019 and the WWTP commenced operation and discharge of treated effluent on April 29, 2019. This permittee is classified as a minor discharger.

II. SIGNIFICANT CHANGES TO PREVIOUS PERMIT

Permit Condition	Previous Permit (2015 – 2020)	Re-issued permit	Reason for change
DMR submittal	Hardcopy accepted	Switch to e-reporting	EPA e-reporting Rule
Biosolids report	Hardcopy accepted	Switch to e-reporting	EPA e-reporting Rule
Plant design capacity	0.10 million gallons per day (MGD) for Phase 1 plant. Capacity would be 0.20 MGD after Phase 2 expansion.	Phase 1 plant capacity is lowered to 0.08 MGD. Phase 2 is uncertain at this point as the plant is operating only at half capacity or less due to the pandemic.	Mass limits are recalculated using the revised plant capacity of 0.08 MGD.
Mass-based effluent limits	The previous permit contained average monthly effluent limit ("AMEL") calculated based on 0.10 MGD and an average weekly effluent limit ("AWEL") based on 0.20 MGD.	Revised AMEL and AWEL are based on 0.08 MGD.	Mass limits are adjusted based on revised lower design capacity.
Electrical conductivity ("EC") monitoring	The previous permit required effluent monitoring for EC.	EC monitoring is removed.	The permit retains monitoring for total dissolved solids ("TDS"), which is an indicator parameter for salinity. Monitoring results for TDS should be characteristic of other

			salinity parameters, including EC. Thus, EC monitoring is not needed.
Ammonia Impact Ratio ("AIR")	None	Compliance with the ammonia effluent limit will be determined using a ratio called AIR. The permit limit is set to a value of 1.0. The permittee also must continue to monitor and report ammonia effluent values in addition to the AIR value.	AIR provides more flexibility than a specific, fixed effluent concentration and is easier than a floating limit to determine and report compliance.
Temperature monitoring and reporting	None	Weekly effluent monitoring requirement for temperature has been added.	To ensure that the applicable narrative standards are not exceeded and to calculate temperature-specific ammonia criteria.
Hardness (as $CaCO_3$) monitoring	None	Annual monitoring requirement for hardness has been added.	To collect sufficient effluent hardness data in order to calculate hardness-dependent metals criteria.
Effluent limits and monitoring for Nitrate plus Nitrite, as a single parameter	The previous permit included an AMEL and monitoring for nitrate only.	AMEL and monitoring for nitrate have been removed and replaced with nitrate plus nitrite, as a single parameter. AWEL and monitoring for nitrate plus nitrite have been added.	To calculate compliance with the effluent limits established for nitrate plus nitrite, as a single parameter. These limits are proposed based on EPA's Human Health criteria and are consistent with the Primary Maximum Contaminant Level ("MCL") adopted by the California State Water Resources Control Board, Division of Drinking Water. AWEL was established in addition to AMEL for the POTW in accordance with 40 CFR § 122.45(d).
Total coliform effluent limits	The previous permit included an AMEL of 23 MPN/100 mL (most probable number per 100 mL)	The draft permit includes effluent limits for total coliform organisms of 2.2 MPN/100 mL, not to be exceeded more than once in a 30-day period; 23 MPN/100 mL as a 7-day median, and 240	Effluent limits for total coliform organisms in the draft permit were established in accordance with the disinfection standards in Chapter 3, Division 4, Title 22 of the California Code of Regulations.

		MPN/100 mL, at any time.	
Cyanide monitoring and effluent limit	The previous permit required cyanide monitoring as part of the priority pollutant scan during Years 1, 3 and 5.	Effluent limits and monitoring requirements for cyanide have been added.	Reasonable potential to exceed WQS.
Cadmium, Copper, Lead, Nickel, Zinc monitoring and effluent limits	The previous permit required monitoring for these metals as part of priority pollutant scan during Years 1, 3 and 5.	Effluent limits and monitoring requirements for these metals have been added.	Reasonable potential to exceed WQS.
Chronic WET testing requirements and triggers	The previous permit required the permittee to report results in Chronic Toxicity Units (TUc) and included triggers of any one test result greater than 1.6 TUc or any calculated monthly median value greater than 1.0 TUc.	The draft permit requires the permittee to report Pass "0" or Fail "1" of the Test of Significant Toxicity ("TST") null hypothesis (H_o) and the percent effect.	The requirements in the draft permit have been established in accordance with the TST statistical approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010).
Chronic WET test species	The previous permit required the permittee to conduct short-term tests with the water flea, *Ceriodaphnia dubia* (survival and reproduction test), fathead minnow, *Pimephales promelas* (larval survival and growth test) and the green alga, *Raphidocelis subcapitata* (growth test).	The draft permit requires the permittee to conduct static non-renewal toxicity tests with the water flea, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.0).	*Ceriodaphnia dubia* is typically more sensitive to chronic WET and the effluent limits for ammonia and chlorine in the permit are aimed at protecting fish species.
Best Management Practices ("BMPs")	None	The new permit incorporates standard BMPs language for small utilities.	Provision of 40 CFR § 122.44(k)(4)
Asset Management Program ("AMP")	None	The new permit incorporates standard asset management requirement for small utilities.	Provision of 40 CFR § 122.41(e)

III. GENERAL DESCRIPTION OF FACILITY

The Buena Vue Casino is located on the Tribe's Rancheria land which is a 67-acre parcel in Amador County approximately four miles south of Ione, 32 miles east of Sacramento, California. The 70,000-square-foot casino began operation in April 2019 and has approximately

24,000 square feet of gaming, with 950 slot machines, 20 table games, and a restaurant steakhouse and a three-tiered food court.

The WWTP serves the casino population of about 3,200 per day, receiving only domestic sewage with a design flow of 0.08 MGD. Wastewater generated from the casino includes sewage, restaurant washwaters, and miscellaneous wastewater from guest support services. The WWTP does not serve residential connections nor accept wastewater from any industrial facilities. According to the permit application, the annual average flow rates were 0.020 MGD in 2019, and 0.017 MGD in 2020. Maximum daily flow rates were 0.045 MGD in 2019 and 0.037 in 2020.

The casino WWTP is projected to be built in two phases. Phase 1 plant construction is completed in Spring 2019 and according to the permittee, the treatment plant is only operating at a fraction of what it was built for. Phase 2 plant expansion of up to 0.20 MGD flow capacity is still a proposal but not in the planning phase. And with impacts from the Covid-19 pandemic, the permittee is uncertain if Phase 2 will ever take place.

Phase 1:

Wastewater from the casino is treated through an immersed membrane bioreactor ("MBR") treatment system, a tertiary treatment system similar to an activated sludge treatment plant. The MBR is operated at a higher solids concentration than conventional activated sludge systems, which make it appropriate for treating high strength wastewater with varying flows that are typical of wastewaters produced by a casino operation.

For Phase 1, a Suez MBR package plant is being utilized and designed to operate with varying flows and loadings. The Suez MBR System is made from stainless steel tanks, incorporating an anoxic tank section, an aeration tank section, and a pair of membrane sections, all with their associated valving, piping, instrumentation and pumping capabilities, as well as fine screening. The system has its own Programable Logic Controller ("PLC") for controlling and monitoring the MBR process. In addition, there is a plant SCADA system for continuous monitoring of the entire system, along with alarm notification and callout capabilities.

Wastewater collection system at the casino has a passive grease interceptor for containing Fats Oil and Grease ("FOG"), located upstream of the influent pump station. Active grease interceptors are currently being investigated for use in the restaurant kitchen drains within the casino. The influent pump station has two submersible pumps to convey the wastewater across to the Suez MBR system for treatment.

The plant is designed with an additional steel-welded 250,000-gallon emergency storage tank in the event the flows are abnormally high, the aeration tank level is high and or the plant is temporarily shut down for maintenance activities. This stored influent is manually drained back to the plant drain pump station where a series of automated valves are operated to return the stored influent back into the Suez MBR process via the fine screens. There is a supplemental 10,000-gallon poly equalization tank for controlling regular influent flows into the MBR process.

The Suez MBR system is configured to run in a flow-through mode. The normal mode of operation is for the influent pump station to pump the raw wastewater directly into the poly EQ tank. There is a small submersible pump located in the EQ tank with valving to control an operator adjustable set flow into the MBR process. The operator also has the capability to bypass the EQ tank and pump directly into the MBR process, should it need to be done for maintenance activity of the EQ pumping system. When the EQ tank is being utilized, it pumps the raw wastewater directly into the fine screens for removal of any debris greater than 2mm. The screened influent flows by gravity into the Return Activated Sludge line ("RAS"), where the combined flow now enters the anoxic basin, then into the aeration basin and finally to the membrane section. In the anoxic section denitrification of the RAS nitrates takes place without an air source. Once the RAS and influent mixture has entered the aeration portion, a positive dissolved oxygen ("DO") is maintained to promote nitrification of the ammonia-laden waste stream. The air for this basin is supplied by process aeration blowers. At the end of the aeration basin, the denitrified waste stream now flows to the membrane train zone where the liquid solids separation takes places.

The membrane trains have hollow Ultra Filtration ("UF") fiber membrane cassettes located inside the tanks made of stainless steel. A slight vacuum is applied to the membranes via permeate pumps to pull clear effluent through the membranes. During this process, a constant source of coarse bubble scour air from the membrane blowers is applied at the bottom of the membrane cassettes to remove solids that might accumulate between and on the surface of the membranes. Thickened mixed liquor (RAS) from the membrane basins is recirculated at a rate of approximately 4:1, back to the anoxic basin and combined with the screened raw influent prior to entering the anoxic basin again. Final effluent will be disinfected through a pair of Trojan UV chambers in parallel prior to discharge. The effluent is not currently utilized for reclaim purposes at this time.

Solids removed from the fine screen and MBR sludge line will be sent to a screw press for dewatering and disposed at an off-site landfill.

Phase 2:

As stated earlier, Phase 2 of the construction is put on hold indefinitely. Discussions of the Phase 2 construction which were provided in the original permit application and in the 2015 permit fact sheet are being retained as follows.

For Phase 2, the casino anticipates adding a fully constructed plant to replace the MBR package plant. At the headworks, wastewater will be screened by a fine screen (2-mm) stainless steel bar screen with a conveyor/washer/compactor. The fine screening of large particulate matter is necessary to protect the membrane from large particles. Solids from the screen will go to a compactor and disposed at an off-site landfill. The headworks area will be covered to control odors.

The WWTP does not currently recycle nor reuse its treated effluent at the casino. For Phase 2, the casino anticipates that approximately 30% of treated effluent will be reused at the casino. Recycle uses include vegetated irrigation and non-potable uses in the casino such as toilet flushing. Final treated effluent designated for reuse will be chlorinated and sent to a

recycle water storage tank. The storage tank will contain baffle walls to double as the chlorine contact chamber.

If necessary, the WWTP has an offline 250,000-gallon tank that can serve as emergency storage, either for influent or treated effluent. The hours of emergency storage for Buena Vue WWTP are different for Phase 1 and Phase 2 as presented below.

Table 1. Hours of Emergency Storage for Buena Vista WWTP

Phase/conditions	Flow rates (gpd)	Time (hours)
Phase 1 weekday	50,000	120
Phase 1 average	100,000	60
Phase 2 weekend	160,000	37
Phase 2 capacity	200,000	30

Based on 250,000-gallon storage tank capacity

IV. DESCRIPTION OF RECEIVING WATER

The WWTP discharges treated effluent at Outfall 001 to a constructed vegetated swale located on the Rancheria. Outfall 001 is located at latitude 38° 16' 23" N, longitude 120° 54' 36" W in Amador County, California. Overflow from the swale flows into existing drainage that appears to be a partially constructed, partially natural channel becoming a drainage ditch and runs adjacent to the road, and, at the northwestern boundary of the property, adjacent to a 23.93-acre jurisdictional wetland area but separated by a small soil berm, and then drains under Coal Mine Road via a culvert where it continues to a drainage ditch tributary of Jackson Creek, which subsequently flows into Dry Creek and to the lower Mokelumne River.

An EPA inspection conducted in May 2019 noted in further details that the wetland was observed to drain into the culvert that flowed under Coal Mine Road. The culvert dropped approximately 5 feet from the elevation of the wetland. A berm separating the wetland area from a shallow drainage canal alongside the road drained into the culvert. Because it was raining at the time of the site visit, the wetland was observed to be overflowing the berm and draining into the culvert.

V. DESCRIPTION OF DISCHARGE

The WWTP provides tertiary treatment of wastewater and UV disinfection prior to discharge. The MBR system used at the facility incorporates the use of a membrane barrier for solids separation and produces high quality effluent, which allows for potential recycling and re-use.

A. Application Discharge Data

As part of the application for permit renewal, the permittee is required to provide data from an analysis of the facility's treated wastewater discharge. Upon completion of plant construction, the WWTP began operation and discharge of treated effluent in May of 2019 until

the March 2020 lockdown due to the Covid-19 pandemic. The casino is now open for business and the WWTP is back in operation. Discharge data is limited given the plant's brief existence.

The plant design capacity is adjusted to 0.08 MGD from the 0.10 MGD listed in the previous permit cycle. Therefore, the permittee did not complete Table B in Form 2A which is required for flows equal to or greater than 0.10 MGD.

Table 2. Effluent Data Reported in Form 2A

Pollutant Parameter	Units	Discharge Data		Number of Samples
		Maximum Daily Discharge	Average Daily Discharge	
Flow	MGD	0.08	0.02	240
Biochemical oxygen demand, 5-day (BOD_5)	mg/L	<30	<3.2	34
Total Suspended Solids (TSS)	mg/L	<30	<5	34
Ammonia (as N)	mg/L	N/A	N/A	N/A
pH	S.U.	6.5 – 8.5		N/A
Temperature	°C	18.1		51
Fecal coliform	MPN/100ml	<23	<1.89	33
Chlorine, total residual (TRC)	mg/L	N/A	N/A	N/A
Dissolved Oxygen	mg/L	N/A	N/A	N/A
Nitrate/Nitrite	mg/L	N/A	N/A	N/A
Total Kjeldahl Nitrogen (TKN)	mg/L	N/A	N/A	N/A
Oil & grease	mg/L	N/A	N/A	N/A
Phosphorus	mg/L	N/A	N/A	N/A
Total Dissolved Solids (TDS)	mg/L	N/A	N/A	N/A
Total Hardness (as $CaCO_3$)	mg/L	71	1	1
Arsenic, total recoverable	µg/L	1.0	0.33	1
Cadmium, total recoverable	µg/L	0.25	ND	1
Chromium, total recoverable	µg/L	2.0	1.1	1
Copper, total recoverable	µg/L	8.5	0.5	1
Lead, total recoverable	µg/L	0.5	ND	1
Nickel, total recoverable	µg/L	7.6	5.0	1
Zinc, total recoverable	µg/L	24	1.0	1
Cyanide	µg/L	5.0	ND	1

B. Recent Discharge Monitoring Report Data (2019-2020)

EPA reviewed DMR data for the period from May 2019 to June 2020. Table 3 provides a summary of effluent limitations and monitoring data based on this timeframe.

Table 3. Effluent Data for [Outfall 001] from May 2019 to June 2020

Parameters	Units	Permit Effluent Limitations			Effluent Data			
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly	Highest Average Weekly	Highest Maximum Daily	Monitoring Frequency
Flow Rate	MGD	Monitoring Only	--	Monitoring Only	0.031	--	0.044	Weekly
Ammonia (as N)	mg/L	1.72	--	3.45	**7.79**	--	**38**	Weekly
	lbs/day	1.43		5.75	1.2	--	**5.88**	
Biochemical Oxygen Demand 5-day (BOD_5)	mg/L	30	45	--	3.5	5.7	--	Weekly
	lbs/day	25 (1)	75 (2)	--	0.85	1.19	--	
	% Removal	>85 %			97%			
Total Suspended Solids (TSS)	mg/L	30	45	--	< 5	5	--	Weekly
	lbs/day	25 (1)	75 (2)	--	1.26	< 1.87	--	
	% Removal	>85 %			91%			
Electrical Conductivity	µmhos/cm	-- (3)	--	-- (3)	2250	--	3500	Weekly
Total Coliform Bacteria	MPN/ 100 ml	--	-- (3)	23	--	< 1.8	4.5	Weekly
Nitrate, as N	mg/L	10	--	--	7.3	--	--	Weekly
	lbs/day	8.3	--	--	1.11	--	--	
Oil & Grease	mg/L	10	--	15	< 5	--	< 5	Weekly
	lbs/day	8.3	--	25	< 2.75	--	< 7.45	
Settleable Solids	mL/L	0.1	--	0.2	< 0.1	--	< 0.1	Weekly
Total Dissolved Solids (TDS)	mg/L	-- (1)	--	-- (3)	1212	--	2200	Weekly
	lbs/day	-- (1)	--	-- (3)	222	--	410	
Chlorine, total residual (TRC)	mg/L	0.01	--	0.02	< 0.01	--	< 0.02	Weekly
pH	S.U>	6.5 to 8.5 (min-max)						Daily
Temperature	°C	--	--	23°C	--	--	N/A	Weekly
Turbidity	NTU	2	--	5	0.238	--	0.655	Weekly
Whole Effluent Toxicity, chronic	TUc	--(3)	--	--(3)	NA	--	NA	1st, 3rd, 5th years

(1) Average monthly mass limits were based on 0.1 MGD.
(2) Average weekly mass limits were based on 0.2 MGD.
(3) No effluent limits are set at this time but monitoring and reporting are required.

VI. DETERMINATION OF NUMERICAL EFFLUENT LIMITATIONS

EPA has developed effluent limitations and monitoring requirements in the permit based on an evaluation of the technology used to treat the pollutant (e.g., "technology-based effluent limits") and the water quality standards applicable to the receiving water (e.g., "water quality-based effluent limits"). EPA has established the most stringent of applicable technology-based or water quality-based standards in the draft permit, as described below.

A. Applicable Technology-Based Effluent Limitations

Publicly Owned Wastewater Treatment Systems (POTWs)

EPA developed technology-based treatment standards for municipal wastewater treatment plants in accordance with Section 301(b)(1)(B) of the Clean Water Act. The minimum

levels of effluent quality attainable by secondary treatment for BOD_5, TSS, and pH, as defined in 40 CFR § 133.102, are listed below. Mass limits are calculated based on the 0.08 MGD design capacity and are included for BOD_5 and TSS in the permit as required by 40 CFR § 122.45(f).

BOD_5 and TSS:

Concentration-based Limits
30-day average: 30 mg/L
7-day average: 45 mg/L
Minimum of 85% Removal Efficiency

Mass-based Limits
30-day average:

$$\frac{0.08\ MG}{day} \times \frac{30\ mg}{1} \times \frac{8.345\ lb/MG}{mg/l} = 20\ lbs\ per\ day$$

7-day average:

$$\frac{0.08\ MG}{day} \times \frac{45\ mg}{1} \times \frac{8.345\ lb/MG}{mg/l} = 30\ lbs\ per\ day$$

pH:

Instantaneous Measurement: 6.0 – 9.0 standard units (S.U.)

Priority Pollutant Scan:

The draft permit includes a monitoring requirement for the full list of priority pollutants as listed in 40 CFR Part 423, Appendix A during 1st, 3rd, 5th year of the permit cycle. No limit is set at this time.

Technology-based treatment requirements may be imposed on a case by case basis under Section 402(a)(1) of the Act, to the extent that EPA promulgated effluent limitations are inapplicable (i.e., the regulation allows the permit writer to consider the appropriate technology for the category or class of point sources and any unique factors relating to the applicant) (40 CFR § 125.3(c)(2)).

The minimum levels of effluent quality attainable by secondary treatment for Settleable Solids, as specified in the EPA Region IX Policy memo dated May 14, 1979, are listed below:

Settleable Solids
30-day average – 1 mL/L
Daily maximum – 2 mL/L

B. Water Quality-Based Effluent Limitations (WQBELs)

Water quality-based effluent limitations, or WQBELs, are required in NPDES permits when the permitting authority determines a discharge causes, has the reasonable

potential to cause, or contributes to an excursion above any water quality standard (40 CFR § 122.44(d)(1)).

When determining whether an effluent discharge causes, has the reasonable potential to cause, or contributes to an excursion above narrative or numeric criteria, the permitting authority shall use procedures that account for existing controls on point and non-point sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity) and where appropriate, the dilution of the effluent in the receiving water (40 CFR § 122.44(d)(1)(ii)).

EPA evaluated the reasonable potential to discharge toxic pollutants according to guidance provided in the *Technical Support Document for Water Quality-Based Toxics Control* (TSD) (Office of Water Enforcement and Permits, U.S. EPA, March 1991) and the *U.S. EPA NPDES Permit Writers Manual* (Office of Water, U.S. EPA, September 2010). These factors include:

1. Applicable standards, designated uses and impairments of receiving water
2. Dilution in the receiving water
3. Type of industry
4. History of compliance and toxic impacts
5. Existing data on toxic pollutants - Reasonable Potential Analysis

1. Applicable Standards, Designated Uses, and Impairments of Receiving Water

The Tribe does not have approved water quality standards for effluent discharges to waters located on the Buena Vista Rancheria. In situations where facilities are discharging into Tribal waters, and the Tribe does not have EPA-approved water quality standards, EPA may choose to apply adjacent or downstream standards to the water body for the purpose of developing permit limitations and conditions. Federal regulations at 40 CFR § 122.4(d) grants EPA the authority to protect all waters of all affected States. Moreover, where there are no approved Tribal water quality standards, EPA has the authority to impose conditions determined necessary to meet the requirements of Section 402(a)(1)(B) of the CWA. EPA has applied either federal water quality standards found in the California Toxics Rule ("CTR") in 40 CFR § 131.38, or the water quality standards found in the Central Valley Regional Water Quality Control Board's (Central Valley Water Board's) *Water Quality Control Plan for the Sacramento and San Joaquin River Basins, Fifth Edition, May 2018* ("Central Valley Basin Plan"), whichever is more protective of the receiving water beneficial uses.

The water quality standards found in the Central Valley Basin Plan (hereafter referred to as the "Basin Plan") are composed of use designations, numeric and/or narrative water quality criteria. The applicable water quality standards in the Basin Plan are those that apply to the Mokelumne River (via Dry Creek and Jackson Creek). There are no specifically identified beneficial uses for the tributaries of Dry Creek. Therefore, the beneficial uses designated for Jackson Creek are those that apply to the Mokelumne River from Camanche Reservoir to the Delta and are listed in Table 2-1 of the Basin Plan, as follows:

- **AGR** Agricultural Supply, including Irrigation and Stock Watering
- **REC-1** Water Contact Recreation
- **REC-2** Non-Contact Water Recreation
- **WARM** Warm Freshwater Habitat
- **COLD** Cold Freshwater Habitat
- **MIGR** Warm/Cold Migration of Aquatic Organisms
- **SPWN** Warm/Cold Spawning, Reproduction, and/or early Development
- **WILD** Wildlife Habitat

Additionally, the California State Water Resources Control Board Resolution 88-63, incorporated into the Basin Plan pursuant to Regional Board Resolution 89-056, requires that **MUN** Municipal and Domestic Supply use be applied to surface waterbodies that do not have beneficial uses listed in Table 2-1. Therefore, **MUN** also applies to tributaries to the Mokelumne River.

Applicable water quality standards establish water quality criteria for the protection of aquatic wildlife from acute and chronic exposure to certain metals that are hardness-dependent, with a "cap" of 400 mg/l. Based on limited hardness data for the discharge collected during the previous permit, the permit establishes water quality standards for hardness-dependent metals based on a hardness value of 220 mg/L.

Jackson Creek is not listed as impaired according to California's CWA Section 303(d) List of Water Quality Limited Segments. No TMDLs are applicable to permittee's discharge.

2. Dilution in the Receiving Water

Effluent discharge from the facility flows into a constructed swale and then to an effluent-dependent drainage ditch tributary to Jackson Creek, a tributary to Dry Creek and the lower Mokelumne River. The ephemeral tributary may have no natural flow during certain times of the year; therefore, no dilution of the effluent has been considered in the development of water quality-based effluent limits applicable to the discharge.

3. Type of Industry

Typical pollutants of concern in untreated and treated domestic wastewater include ammonia, nitrate, oxygen demand, pathogens, temperature, pH, oil and grease, and solids. Chlorine and turbidity may also be of concern due to treatment plant operations.

The WWTP will not serve any residential customers, and most flows originate from domestic wastewater at the casino. No industrial sources will discharge to the WWTP, although there will be a restaurant and food court in the casino. The permittee will be required to conduct full scans of priority pollutants in the 1st, 3rd and 5th year thereafter. Reasonable potential will be re-evaluated at this time and the permit may be re-opened to incorporate new water quality-based limits as necessary.

4. History of compliance and toxic impacts

Review of discharge data showed no effluent violations over the past year. The discharger did not provide any WET data so no chronic toxicity was evaluated. EPA visited the facility on July 16, 2019 and found no issues of non-compliance during the previous permit term.

5. Existing data on toxic pollutants - Reasonable Potential Analysis

The WWTP commenced operation and discharge in late April 2019 and was shut down in March 2020 due to the Covid19 pandemic. Therefore, discharge data was scant during the previous permit term.

For pollutants with effluent data available, EPA conducted a reasonable potential analysis based on statistical procedures outlined in EPA's TSD (EPA 1991). These statistical procedures calculate the projected maximum effluent concentration based on available monitoring data to account for effluent variability and a limited data set. EPA estimated the projected maximum effluent concentrations assuming a coefficient of variation (CV) of 0.6 and the 99% confidence interval of the 99th percentile based on an assumed lognormal distribution of daily effluent values (sections 3.3.2 and 5.5.2 of EPA's TSD). EPA calculated the projected maximum effluent concentration for each pollutant using the following equation:

Projected maximum concentration = C_e × *reasonable potential multiplier factor*

Where, "C_e" is the reported maximum effluent value and the multiplier factor is obtained from Table 3-1 of the TSD. (EPA 1991).

Table 4. Summary of Reasonable Potential Statistical Analysis Parameter

Pollutant Parameter [1]	Maximum Observed Concentration	*n*	RP Multiplier	Projected Maximum Effluent Concentration	Most Stringent Water Quality Criterion	Statistical Reasonable Potential?
Ammonia (as N)	38 mg/L	32	1.4	53 mg/L	[2]	Yes [3]
Arsenic, total recoverable	1.0 µg/L	1	13.2	13.2 µg/L	150 µg/L [4]	No
Cadmium, total recoverable	0.25 µg/L	1	13.2	3.3 µg/L	1.8 µg/L	Yes [3]
Chromium, total recoverable	2.0 µg/L	1	13.2	26 µg/L	-- [5]	No
Copper, total recoverable	8.5 µg/L	1	13.2	112 µg/L	18.3 µg/L [4]	Yes [3]
Lead, total recoverable	0.5 µg/L	1	13.2	6.6 µg/L	3.2 µg/L [4]	Yes [3]
Nickel, total recoverable	7.6 µg/L	1	13.2	100 µg/L	52 µg/L [4]	Yes [3]
Nitrate plus Nitrite (as N)	7.3 mg/L	32	1.4	10 mg/L	10 mg/L	Yes

Pollutant Parameter [1]	Maximum Observed Concentration	*n*	RP Multiplier	Projected Maximum Effluent Concentration	Most Stringent Water Quality Criterion	Statistical Reasonable Potential?
Total Dissolved Solids (TDS)	2200 mg/L	12	2.8	6160 mg/L	500 mg/L	Yes
Zinc, total recoverable	24 µg/L	1	13.2	316.8 µg/L	234 µg/L [4]	Yes [3]
Cyanide	5.0 µg/L	1	13.2	66 µg/L	5.2 µg/L	Yes [3]

Footnotes:

(1) For purposes of RP analysis, parameters measured as Non-Detect are considered to be zeroes. Only pollutants detected are included in this analysis.

(2) EPA's 1999 Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life recommends acute criteria for ammonia that are pH-dependent and chronic criteria for ammonia that are pH- and temperature dependent.

(3) See Section IV.C, below, for a discussion of the reasonable potential statistical analysis results and rationale for establishing numeric effluent limits and monitoring requirements in the permit.

(4) The applicable water quality criteria for hardness-dependent metals are based on a hardness value of 220 mg/L.

(5) EPA does not have criteria for total chromium (i.e. only chromium IV and chromium III).

C. Rationale for Effluent Limitations and Monitoring

EPA evaluated the typical pollutants expected to be in WWTP discharge effluent and selected the most stringent of applicable technology-based standards or water quality-based effluent limitations. Where effluent concentrations of toxic parameters are unknown or are not reasonably expected to be discharged in concentration that have the reasonable potential to cause or contribute to water quality standards, EPA has established monitoring requirements in the permit. This data will be re-evaluated and the permit re-opened to incorporate effluent limitations if necessary.

Flow:

No limits have been established for flow, but flow rates must be monitored and reported. Continuous monitoring is required for flow when discharging at Outfall 001.

BOD_5 and TSS:

The BOD_5 and TSS technology-based limits are described above, and the permit retains these limits. Under 40 CFR § 122.45(f), mass limits are required for BOD_5 and TSS. The mass-based limits included in the permit are calculated based on the 0.08 MGD design flow.

The WWTP does not currently recycle nor reuse its treated effluent at the casino. And plans involving Phase 2 expansion and water reuse are uncertain for the foreseeable future. Therefore, the permit does not include discharge requirements at a tertiary treatment level which would be consistent with the criteria in California's CCR, Title 22, Section 60304, et seq. for the use of recycled water.

Ammonia and Ammonia Impact Ratio ("AIR")

Treated and untreated domestic wastewater may contain levels of ammonia that are toxic to aquatic organisms. Ammonia is converted to nitrate during the biological nitrification process, and then nitrate is converted to nitrogen gas through the biological denitrification process. Due to the potential for ammonia to be present in sanitary wastewater at toxic levels and due to the conversion of ammonia to nitrate, effluent limitations are established using the AIR for all facilities.

EPA's 1999 Ambient Water Quality Criteria for the protection of freshwater aquatic life for total ammonia recommends acute (1-hour average; criteria maximum concentration or "CMC") standards based on pH and chronic (30-day average; criteria continuous concentration or "CCC") standards based on pH and temperature.

The AIR is calculated as the ratio of the ammonia value in the effluent to the applicable ammonia water quality standard. EPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life recommends acute and chronic criteria for ammonia that are pH and temperature dependent. Therefore, pH, temperature, and ammonia sampling must be taken concurrently. See Attachment E of the permit for a sample log to help calculate and record the AIR values and Attachment F for the applicable water quality standards.

The draft permit contains an AIR value of one (1.0) as the enforceable effluent limit. The permittee must also monitor and report ammonia effluent values in addition to the AIR value. AIR provides more flexibility than a specific, fixed effluent concentration and is protective of water quality standards since the value (1.0) is set at the water quality standard. If the reported value exceeds 1.0, then the effluent ammonia concentration (as N) exceeded the ammonia water quality criterion. With an AIR value exceeding 1.0, the permittee would be in violation of the permit.

Fecal Coliform:

Based on the nature of wastewater treatment plant effluent, there is a reasonable potential for total coliform bacteria to violate water quality standards. Based on REC-1 Beneficial Use, total coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed 200/100 ml, nor shall more than 10% of the total number of samples during any 30-day period exceed 400/100 ml - 10% of samples for 30-day period. Based on the Regional Board's Basin Plan, the discharge of municipal waste during October 1 through May 14 shall be of advanced treated wastewater in accordance with effluent limitations contained in NPDES permits for each affected discharger, and shall meet a median total coliform level of 2.2 MPN/100 mL in a 7-day average.

The effluent is designed to meet California's Title 22 disinfection standards for the re-use of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered. The effluent total coliform levels are evaluated in two ways: (a) may not exceed 2.2 MPN/100 ml as 7-day median or (b) may not exceed 23 MPN/100 ml in any 30-day period. The effluent limits and monitoring requirements are retained in the permit.

Nitrate and Nitrite:

Treated and untreated domestic wastewater may contain levels of ammonia that are toxic to aquatic organisms. Ammonia is converted to nitrate during biological nitrification process, and then nitrate is converted to nitrogen gas through biological denitrification process.

EPA's Ambient Water Quality Criteria for the Protection of Human Health for nitrate (only) is 10 mg/L for non-cancer effects. California has also adopted a Primary MCL of 10 mg/L for the sum of nitrate and nitrite (measured as N). Due to the potential for ammonia to be present in sanitary wastewater and due to the conversion of ammonia to nitrate, effluent limitations are established for nitrate plus nitrite (measured as N). In accordance with 40 CFR § 122.45(d), EPA has established average monthly and average weekly water quality-based effluent limits for discharges of nitrate plus nitrite from the facility. The effluent limits are retained in the permit.

Following Section 5.4 of EPA's TSD, which describes procedures for calculating water quality-based effluent limits for pollutants affecting human health, the average monthly water quality-based effluent limit for nitrate plus nitrite is set equal to the waste load allocation of 10 mg/L. For non-priority pollutants with Primary MCL's to protect human health (e.g., nitrate plus nitrite), the Central Valley Water Board calculates the average weekly water quality-based effluent limits using a statistical multiplier that is calculated by dividing the statistical multiplier established at the 98th percentile occurrence probability by the statistical multiplier established at the 95th percentile occurrence probability. In this procedure, EPA estimates that the CV of pollutants in the effluent is 0.6 and, based on Table 5-2 of the TSD, chooses the statistical multiplier of 2.68 established at the 98th percentile occurrence probability and the statistical multiplier of 1.55 established at the 95th percentile occurrence probability. The resulting statistical multiplier for calculating the average weekly water quality-based effluent limit is 1.73.

Using a waste load allocation of 10 mg/L for nitrate plus nitrite, the average monthly and average weekly water quality-based effluent limits are calculated as shown below:

30-day average = 10 mg/L
7-day average – 10 mg/L x 1.73 = 17 mg/L

Oil and Grease:

There is reasonable potential to impact the waterbody, and the effluent limits are retained in the permit. The effluent limits are EPA's interpretation of the narrative standard that all waters be free from oils, greases, waxes, or other materials that cause nuisance, result in a visible film or coating on the water surface.

Similar domestic wastewater treatment facilities have shown that a maximum daily limit of 15 mg/L and an average monthly limit of 10 mg/L can be easily achieved. Therefore, EPA is retaining the effluent limits for oil and grease based on best professional judgment ("BPJ"), since there are no applicable guidelines and performance standards for oil and grease, and the existing permit limit is consistent with other POTW limits.

pH:

The Basin Plan requires that a pH of 6.5-8.5 must be met at all times and that changes in normal ambient pH level not exceed 0.5 units. This is more stringent than technology-based requirements for pH; therefore, water quality-based effluent limits for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are retained in this permit for the protection of the Basin Plan objectives.

Temperature:

There are no numeric water quality standards for temperature, only narrative standards, which have been incorporated into the permit. Effluent monitoring requirements for temperature have been incorporated in the draft permit to ensure that the applicable narrative standards are not exceeded and to calculate temperature-specific ammonia criteria, as described above.

Total Dissolved Solids/Electrical Conductivity:

To protect the beneficial uses of water for agriculture uses, studies by the United Nations have recommended a goal of 700 umhos/cm. The California Department of Health Services has recommended a Secondary MCL for EC of 900 umhos/cm, with an upper level of 1600 umhos/cm and a short-term level of 2200 umhos/cm. When expressed as total dissolved solids, California has recommended a Secondary MCL of 500 mg/L, with an upper level of 1,000 mg/L, and a short-term level of 1,500 mg/L.

Secondary MCLs are drinking water standards contained in Title 22 of the California's CCR, which requires compliance with these standards on an annual average basis, when sampling at least quarterly. There is reasonable potential to impact the waterbody, and the effluent limits for total dissolved solids are retained in the permit. Total dissolved solids is an indicator parameter for salinity, and monitoring results for total dissolved solids should be characteristic of other salinity parameters, including electrical conductivity. Therefore, monitoring requirement for electrical conductivity is not being retained from the existing permit.

Total Residual Chlorine:

Chlorine will not be used to disinfect the facility's effluent intended for discharge, which is treated with UV disinfection. Chlorine will only be used to disinfect the effluent intended for discharge as a backup to the UV disinfection system. Although chlorine is not expected to be present in discharges to surface water, EPA believes there is a reasonable potential for chlorine residual to be present in some cases. Therefore, effluent limits and weekly monitoring requirements for total residual chlorine are retained in the permit to assess compliance during normal operations.

Cyanide:

To conduct a reasonable potential analysis, EPA compared the most stringent water quality standard to the projected maximum expected value for cyanide in the discharge in accordance with EPA's TSD. As shown in Table 4 above, there is reasonable potential for cyanide in the effluent to cause or contribute to an exceedance above the most stringent water quality criterion, i.e. freshwater chronic water quality standards for the protection of aquatic life from EPA's *National Recommended Water Quality Criteria* (USEPA, 2002b). Cyanide

monitoring has been included in the priority pollutant scans during the 1st, 3rd and 5th years of the permit cycle. However, because monitoring for cyanide was conducted by the permittee only once during the previous permit cycle, there was not sufficient data to calculate a representative geometric mean from multiple data points to evaluate compliance with the water quality standards. Therefore, the draft permit establishes an effluent limit and an annual monitoring requirement for cyanide.

Metals: Cadmium, Copper, Lead, Nickel, and Zinc

To conduct the reasonable potential analysis, EPA compared the most stringent, applicable water quality standard to the projected maximum expected value in the discharge in accordance with EPA's TSD. As shown in Table 4 above, there is reasonable potential for cadmium, copper, lead, nickel, and zinc in the effluent to cause or contribute to exceedances above the applicable water quality criteria.

For example, the California Toxics Rule includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. Using an effluent hardness reading of 220 mg/L and default dissolved-to-total metal translators, EPA calculated the Criterion Maximum Concentration ("CMC") and Criterion Continuous Concentration ("CCC") for copper as shown below:

$$CMC = e\{0.9422[\ln(220)] - 1.464\} \times 0.960 = 29.4\ \mu g/L$$

$$CCC = e\{0.8545[\ln(220)] - 1.465\} \times 0.960 = 18.3\ \mu g/L$$

Monitoring of cadmium, copper, lead, nickel, and zinc has been included in the thrice priority pollutant scans. However, because monitoring for cadmium, copper, lead, nickel, and zinc was conducted by the permittee only once during the previous permit cycle, there was not sufficient data to calculate representative geometric means from multiple data points to evaluate compliance with the applicable water quality standards. Therefore, the draft permit establishes effluent limits and annual monitoring requirements for cadmium, copper, lead, nickel, and zinc.

Hardness (as $CaCO_3$)

The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for metals. In order to have sufficient effluent hardness data to calculate hardness-dependent metals criteria, this draft permit includes a requirement for annual monitoring for hardness.

Whole Effluent Toxicity (WET):

The Basin Plan includes a narrative objective for toxicity that requires that "All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life." EPA's Technical Support Document for Water Quality-Based Toxics Control recommends a chronic toxicity monthly median limit of 1.0 TUc and a maximum daily limit of 1.6 TUc. EPA did not receive any WET testing results during the last 5-year permit term. To ensure compliance with the narrative objective for toxicity, this draft permit includes monitoring requirements for chronic WET. Testing for chronic WET must be completed in accordance with Part II, Section D of the permit.

D. Anti-Backsliding

Sections 402(o) and 303(d)(4) of the CWA and 40 CFR § 122.44(l) prohibit the renewal or reissuance of an NPDES permit that contains effluent limits and permit conditions less stringent than those established in the previous permit, except as provided in the statute and regulation.

The permit does not establish any effluent limits less stringent than those in the previous permit and does not allow backsliding.

The permit establishes more stringent mass-based technology-based effluent limitations for BOD_5, TSS, and oil and grease based on a revised plant capacity that is lower than that in the previous permit.

E. Antidegradation Policy

EPA's antidegradation policy at 40 CFR § 131.12 and California's anti-degradation policy specify existing water uses and the level of water quality necessary to protect these existing uses.

As described in this document, the permit contains effluent limits and monitoring requirements to ensure that all applicable water quality standards are met. The permit does not include a mixing zone, and therefore, all effluent limits will apply at the end of pipe without consideration of dilution in the receiving water. Furthermore, the waterbody is not listed as an impaired waterbody for BOD_5, TSS, coliform, temperature, total ammonia, turbidity, or oil and grease under section 303(d) of the CWA.

Since the permittee is expected to comply with all limits in the permit, the effluent should not have a negative, degrading effect, on the receiving waterbody. The draft permit includes a requirement for multiple priority pollutant scans over the permit term and re-opener provisions. While no limits are set at this time, the permittee is required to monitor for the full list of priority pollutants as listed at 40 CFR Part 423 Appendix A. The permittee needs to sample the discharge during the 1st, 3rd and 5th year of the permit term.

VII. NARRATIVE WATER QUALITY-BASED EFFLUENT LIMITS

The Central Valley Regional Water Quality Control Board's Basin Plan contains narrative water quality standards applicable to the downstream receiving water. Therefore, the permit incorporates applicable narrative water quality objectives contained in the Basin Plan.

The discharge must not cause the following in downstream waters:

1. The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mg/L, nor cause more than ten percent of the total samples taken during any 30-day period to exceed 400 MPN/100 mg/L.

2. Biostimulatory substances that promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

3. Aesthetically undesirable discoloration.

4. Concentrations of dissolved oxygen to fall below 7.0 mg/L. The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent of saturation.

5. Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.

6. Oils, greases, waxes, or other materials to accumulate in concentrations that cause nuisance, result in a visible film or coating on the water surface or on objects in the water, or otherwise adversely affect beneficial uses.

7. The ambient pH to fall below 6.5, exceed 8.5, or change by more than 0.5 units. A one-month averaging period may be applied when calculating the pH change of 0.5 units.

8. Radionuclides to be present in concentrations that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

9. Deposition of material that causes nuisance or adversely affects beneficial uses.

10. Taste- or odor-producing substances to impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.

11. The ambient temperature to increase more than 5°F.

12. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

13. The turbidity to increase as follows:

    a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.

    b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.

    c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.

    d. More than 10 percent where natural turbidity is greater than 100 NTUs.

When wastewater is treated to a tertiary level (including coagulation) or equivalent, a one-month averaging period may be used when determining compliance with Receiving Water Limitation E.13.a.

14. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.

VIII. MONITORING AND REPORTING REQUIREMENTS

The permit requires the permittee to conduct monitoring for all pollutants or parameters where effluent limits have been established, at the minimum frequency specified. Additionally, where effluent concentrations of toxic parameters are unknown or where data are insufficient to determine reasonable potential, monitoring may be required for pollutants or parameters where effluent limits have not been established.

A. Effluent Monitoring and Reporting

The permittee shall conduct effluent monitoring to evaluate compliance with the permit conditions. The permittee shall perform all monitoring, sampling and analyses in accordance with the methods described in the most recent edition of 40 CFR Part 136, unless otherwise specified in the permit. All monitoring data shall be reported on monthly DMR forms and submitted monthly as specified in the permit.

B. Priority Toxic Pollutants Scan

A priority toxic pollutants scan must be conducted during the first, third and fifth year of the five-year permit term to ensure that the discharge does not contain toxic pollutants in concentrations that may cause a violation of water quality standards. The permittee must perform all effluent sampling and analyses for the priority pollutants scan in accordance with the methods described in the most recent edition of 40 CFR Part 136, unless otherwise specified in the permit or by EPA. 40 CFR § 131.36 provides a complete list of Priority Toxic Pollutants.

C. Whole Effluent Toxicity (WET) Requirements

Aquatic life is a public resource protected in surface waters covered by the CWA. As evidence that CWA requirements protecting aquatic life from toxicity are met in surface waters receiving the NPDES discharge, samples are collected from the effluent and tested for toxicity in a laboratory using EPA's WET methods. These results are used to determine if the effluent causes toxicity to aquatic organisms. Toxicity testing is important because for scores of individual chemicals and compounds, chemical-specific environmentally protective levels for toxicity to aquatic life have not been developed or set as water quality standards. These chemicals and compounds can eventually make their way into NPDES effluents and their receiving surface waters. When this happens, toxicity tests of effluents can demonstrate toxicity due to present, but unknown, toxicants (including possible synergistic and additive effects), signaling a water quality problem for aquatic life.

EPA's WET methods are systematically-designed instructions for laboratory experiments that expose sensitive life stages of a test species (e.g., fish, invertebrate, algae) to both an NPDES effluent sample and a negative control sample. During the toxicity test, each exposed organism can show a difference in biological response. Undesirable biological responses include eggs not fertilized, early life stages that grow too slowly or abnormally, death, etc. At the end of a toxicity test, the different biological responses of the organisms in the effluent group and the organisms in the control group are summarized using common descriptive statistics (e.g., means, standard deviations, coefficients of variation). The effluent and control groups are then compared using an applicable inferential statistical approach (i.e., hypothesis testing or point estimate model) specified in the NPDES permit. The chosen statistical approach shall be compatible with both the experimental design of the EPA's WET method and the applicable toxicity water quality standard. Based on this statistical comparison, a toxicity test will demonstrate that the effluent is either toxic or not toxic. EPA's WET methods are specified under 40 CFR Part 136 and/or in applicable water quality standards.

The facility only began operation in May 2019 and did not perform WET testing so no chronic WET data is available to evaluate reasonable potential.

EPA recommends inferential statistical approaches that a permitting authority chooses from to set a protective level for toxicity in an NPDES discharge. The statistical approach chosen for this permit is based on bioequivalence hypothesis testing and is called the Test of Significant Toxicity ("TST") statistical approach. It is described in EPA's *National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document* (EPA 833-R-10-004, 2010; TST Technical Document) and Denton DL, Diamond J, and Zheng L. 2011.

Test of significant toxicity: A statistical application for assessing whether an effluent or site water is truly toxic. *Environ Toxicol Chem* 30:1117-1126. This statistical approach supports important choices made within a toxicity laboratory which favor quality data and EPA's intended levels for statistical power when true toxicity is statistically determined to be unacceptably high (≥ 25 PE, Percent (%) Effect), or acceptably low (< 10 PE). Example choices are practices supporting healthy test organisms, increasing the minimum recommended replication component of the WET method's experimental design (if needed), technician training, etc.

TST results do not often differ from other EPA-recommended statistical approaches using hypothesis testing (Diamond D, Denton D, Roberts J, Zheng L. 2013. Evaluation of the Test of Significant Toxicity for determining the toxicity of effluents and ambient water samples. *Environ Toxicol Chem* 32:1101-1108.) The TST maintains EPA's desired low false positive rate for WET methods—the probability of declaring toxicity when true toxicity is acceptably low ≤ 5% — when quality toxicity laboratories conduct toxicity tests (TST Technical Document); Fox JF, Denton DL, Diamond J, and Stuber R. 2019.

Comparison of false-positive rates of 2 hypothesis-test approaches in relation to laboratory toxicity test performance. *Environ Toxicol Chem* 38:511-523.) Note: The false positive rate is a long-run property for the toxicity laboratory conducting a WET method. A low false positive rate is indicted by a low long-run toxicity laboratory control coefficent of variation for the test species/WET method, using a minimum of 30 to 50 toxicity tests.

Following 40 CFR § 122.44(d)(1) and guidance for determining reasonable potential in chapter 3 of Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001, 1991), chapter 2 in EPA Regions 8, 9 and 10 Toxicity Training Tool (January 2010), and appendix E in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010), reasonable potential for chronic toxicity has been established. See, also, Toxicity Reduction and Toxicity Identification Evaluations for Effluents, Ambient Waters, and Other Aqueous Media (SETAC 2005). Based on the concentration levels of cyanide, cadmium, copper, lead, nickel, and zinc during the last priority pollutant scan, a chronic toxicity WQBEL (i.e., WET limit) is required for the permitted discharge. As a result, monitoring and reporting for compliance with median monthly and maximum daily effluent limits for the parameter of chronic toxicity are required, so that effluent toxicity can be assessed in relation to these WQBELs for the permitted discharge (see Part I, Table 1 in NPDES permit). See VI.C. for more information.

In accordance with 40 CFR § 122.44(d)(1)(ii), in setting the permit's levels for chronic toxicity and conditions for discharge, EPA is using a test species/chronic short-term WET method and a discharge Instream Waste Concentration ("IWC") representing conservative assumptions for effluent dilution necessary to protect receiving water quality. The IWC is a discharge-specific term based on the permit's authorized mixing zone or initial dilution. Generally, the dilution model result "S" from Visual Plumes/Cormix is used. S is the volumetric dilution factor, i.e. 1 volume effluent is diluted with S − 1 volumes surface water) = [(Ve + Va) / Ve]. Following the mass balance equation, if the dilution ratio D = Qs / Qe, then [(Qe + Qs) / Qe] = 1 + D = S.

For this discharge, S = 1 (i.e., no authorized dilution). The discharge-specific IWC = 1 to 1 dilution (1:1, 1/1) = 100% effluent. The IWC made by the toxicity laboratory is mixed as 1 part solute (i.e., effluent) to 0 parts dilutant (1: (1 − 1)) for a total of 1 part.

The TST's null hypothesis for chronic toxicity (H_o) is:

IWC mean response (% effluent) ≤ 0.75 × Control mean response

The TST's alternative hypothesis (H_a) is:

IWC mean response (% effluent) > 0.75 × Control mean response

For this permit, results obtained from a single chronic toxicity test are analyzed using the TST statistical approach, where the required chronic toxicity IWC for Discharge Outfall Number 001 is 100% effluent.

For NPDES samples for toxicity testing, the sample hold time begins when the 24-hour composite sampling period is completed (or the last grab sample in a series of grab samples is taken) and ends at the first time of sample use (initiation of toxicity test). 40 CFR § 136.3(e)

states that the WET method's 36-hour hold time cannot be exceeded unless a variance of up to 72-hours is authorized by EPA.

For this discharge, EPA has set a median monthly effluent limit and a maximum daily effluent limit (40 CFR § 122.45(d)) for chronic toxicity. These limits are set to restrict the discharge of toxic pollutants in toxic amounts and protect both applicable aquatic life water quality standards, including standards downstream of the discharge, and existing aquatic life designated uses in receiving waters (CWA §§ 101(a)(3), 301(b)(1)(C)). The median monthly WQBEL, of no more than 1 of a maximum of 3 chronic toxicity tests with unacceptably high toxicity declared by the TST statistical approach, ensures a high probability of declaring such discharges toxic. The maximum daily WQBEL, of 1 toxicity test rejecting the TST null hypothesis and an associated chronic biological endpoint PE < 50 (2x the TST's chronic toxicity Regulatory Management Decision (RMD) of 25 PE), ensures the restriction of highly toxic (chronic, acute) discharges. Both effluent limits take into account that, on occasion, quality toxicity laboratories conducting effluent toxicity tests can incorrectly declare a sample with acceptable toxicity "toxic" (≤ 5% of the time when the true toxicity of the discharge is < 10 PE).

Species sensitivity screening for chronic toxicity is not an automatic requirement in this permit. However, the permit retains a species sensitivity screening condition as an option for the authority to exercise, particularly when the quality of the permitted discharge has changed, or is expected to change, during the permit term.

IX. SPECIAL CONDITIONS

A. Reclaimed Water Limitations

The Rancheria may re-use wastewater for on-site irrigation and non-potable water uses such as toilet flushing. Therefore, the Tribe has agreed to follow the reclamation criteria established by the California Department of Health Services to protect public health and the environment. The California Department of Health Services ("DHS") has established statewide reclamation criteria in Chapter 3, Division 4, Title 22, California Code of Regulations ("CCR"), Section 60304, et seq. for the use of reclaimed water. These requirements implement the reclamation criteria in Title 22.

Although the Tribe is not required to comply with these State criteria, the Tribe has agreed to follow criteria for the re-use of its wastewater, and these terms are therefore included in the permit.

B. Development and Implementation of Best Management Practices ("BMPs")

Pursuant to 40 CFR § 122.44(k)(4), EPA may impose BMPs that are "reasonably necessary…to carry out the purposes of the Act."

1. The permittee shall develop and implement BMPs that are necessary to safeguard against erosion from the discharge and prevent adverse impacts to receiving waters.

2. The permittee shall ensure that the facilities or systems are operated by an operator that has training and/or certification equivalent to the requirements of the State of California for operating and maintaining such facilities or systems.

C. Biosolids Requirements

Standard requirements for the monitoring, reporting, recordkeeping, and handling of biosolids, in accordance with 40 CFR Part 503, are contained in the permit. If the permittee changes the management of its biosolids, the permittee must notify EPA of any changes.

D. Sanitary Sewer Overflows

The permit prohibits sanitary sewer overflows and requires the permittee to identify and describe all sanitary sewer overflows that occur over the permit term.

E. Asset Management Plan

40 CFR § 122.41(e) requires permittees to properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit. Asset management planning provides a framework for setting and operating quality assurance procedures and ensuring the permittee has sufficient financial and technical resources to continually maintain a targeted level of service. Asset management requirements have been established in the permit to ensure compliance with the provisions of 40 CFR § 122.41(e).

X. OTHER CONSIDERATIONS UNDER FEDERAL LAW

A. Consideration of Environmental Justice

EPA conducted a screening level evaluation of vulnerabilities in the community posed to local residents near the vicinity of the permitted facility using EPA's EJSCREEN tool. The purpose of the screening is to identify areas disproportionately burdened by pollutant loadings and to consider demographic characteristics of the population living in the vicinity of the discharge when drafting permit conditions. In July 2020, EPA conducted an EJSCREEN analysis of the community near the vicinity of the outfall. Of the 11 environmental indicators screened through EJSCREEN, the evaluation determined an elevated indicator score for ozone. As a result of the analysis, EPA is aware of the potential for cumulative burden of the permitted discharge on the impacted community and will issue this permit in consideration of permittee and consistent with the Clean Water Act, which is protective of all beneficial uses of the receiving water, including human health.

B. Impact to Threatened and Endangered Species

Section 7 of the Endangered Species Act of 1973 (16 U.S.C. § 1536) requires federal agencies to ensure that any action authorized, funded, or carried out by the federal agency does

not jeopardize the continued existence of a listed or candidate species, or result in the destruction or adverse modification of its habitat.

EPA completed an Information for Planning and Conservation ("IPaC") report via the US Fish and Wildlife Service website. This September 2020 report provides an up-to-date list of all proposed, candidate, threatened and endangered species that occur in area neighboring the permittee in Amador County and should be considered as part of an effect analysis for this permit. (See https://ecos.fws.gov/ipac/gettingStarted/map)

Along with the IPaC report, EPA also reviewed documents prepared for the Tribal Environmental Impact Report ("TEIR") entitled, *"Biological Resource Assessment for the 67-acre Buena Vista Rancheria Project"* (North Fork Associates, September 26, 2005) and *"Environmental Settling, Impacts, and Mitigation – Biological Resources"* (North Fork Associates, May 2007) to determine whether the discharge would affect any endangered species or habitat. From the IPaC report, EPA found that there are currently seven federally-listed threatened (T) or endangered (E) species that may occur in the vicinity of the unnamed tributary to Jackson Creek. The listed species are provided in Table 5 below.

Table 5. Listed species, designated under the U.S. Endangered Species Act

Type	Common Name	Scientific Name	Status	Critical Habitat
Amphibians	California Tiger Salamander	*Ambystoma californiense*	T	No
	California Red-Legged Frog	*Rana aurora draytonii*	T	No
Crustacean	Vernal Pool Fairy Shrimp	*Branchinecta lynchi*	T	No
Fish	Delta Smelt	*Hypomesus transpacificus*	T	No
Flowering Plants	Ione (incl. Irish Hill) Buckwheat	*Eriogonum apricum (*incl. *var. prostratum)*	E	No
	Ione Manzanita	*Arctostaphylos myrtifolia*	T	No
Insect	Valley Elderberry Longhorn Beetle	*Desmocerus californicus dimorphus*	T	No

The action area is defined as the wastewater treatment facility and discharge outfall, the constructed vegetated swale that flows into a ditch alongside Coal Mine Road then drains into a culvert that flows under the road where it continues as a drainage ditch into an unnamed tributary to Jackson Creek. The receiving water that comprises the action area is confined to the stretch from the outfall to where the unnamed tributary meets Jackson Creek, a tributary to Dry Creek and to the lower Mokelumne River. The action area does not include Jackson Creek, Dry Creek nor the lower Mokelumne River as discharge from the facility is limited and the unnamed tributary may have no natural flow during certain times of the year and does not reach Jackson Creek. The IPaC report confirms that the action area is outside of the critical habitats for these species.

Amphibians

The California tiger salamander and California red-legged frog are restricted to vernal pools and seasonal ponds, and the California tiger salamander is also found in constructed stock ponds. The receiving waters are limited to the receiving wash and downstream channels and do

not include vernal pools, seasonal ponds, or stock ponds. Additionally, the September 2005 *Biological Resource Assessment* concluded that neither of these species were observed during surveys and that the adjacent wetland areas are not likely to support breeding populations. The action area does not include the wetland and these species do not occur within the action area. Therefore, EPA has determined that the action will not affect the California Tiger salamander or the California red-legged frog.

Crustaceans

The May 2007 *Biological Resources* finds that vernal pools are present in and adjacent to the road right-of-way at the intersection of SR88 and Liberty Road. The vernal pools occur in swales and isolated depressions and provide habitat for many aquatic invertebrates and crustaceans. However, the receiving waters are limited to the receiving wash and downstream channels and do not include vernal pools and the vernal pool fairy shrimp is restricted to vernal pools which are themselves not connected to waterbodies leading to Jackson Creek. The discharge is confined to receiving water and does not flow through vernal pools. EPA has determined that the action will not affect the vernal pool fairy shrimp because these species do not occur within the action area.

Fish

Delta smelt occur only in upper Sacramento-San Joaquin estuary or adjacent to the lower reaches of the San Joaquin River. This species does not occur within the action area, and thus EPA has determined that the action will not affect the Delta smelt.

Flowering Plants

According to the May 2007 *Biological Resources*, Ione (incl. Irish Hill) Buckwheat and Ione Manzanita are known to occur on the Ione and Valley Springs Formations. The action area is outside of the formations and the action area does not contain suitable habitat for these species. EPA has determined that the action will not affect the Ione Buckwheat or Ione Manzanita because these species do not occur within the action area.

Insect

Elderberry shrubs, the host plant for Valley elderberry longhorn beetle do not occur in the action area. The absence of elderberry shrubs in the area precludes the presence of this species. EPA has determined that the action will not affect the Valley elderberry longhorn beetle because this species does not occur within the action area.

Conclusion

EPA concludes that the reissuance of this permit will have no effect on the Federally-listed endangered or threatened species or critical habitat, as discussed above. EPA drafted the permit to protect the beneficial uses of the receiving water, which include propagation and preservation of aquatic wildlife. The draft permit also contains provisions for monitoring conventional pollutants, toxic chemicals, and nonconventional pollutants in compliance with Federal and the State Water Quality Control Plan for the Sacramento and San Joaquin River Basins to ensure an appropriate level of quality of water is discharged by the facility.

EPA believes that a "No Effect" determination is appropriate for each species listed in Table 5, above. A copy of the draft fact sheet and permit will be forwarded to the Sacramento Field Office of the United States Fish and Wildlife Service for review and comment prior to and during the 30-day public review period. If, in the future, EPA obtains information or is provided information that indicates that there could be adverse impacts to federally listed species, EPA will contact the appropriate agency or agencies and initiate consultation, to ensure that such impacts are minimized or mitigated. In addition, re-opener clauses have been included should new information become available to indicate that the requirements of the permit need to be changed.

C. Impact to Coastal Zones

The Coastal Zone Management Act ("CZMA") requires that federal activities and licenses, including federally permitted activities, must be consistent with an approved state Coastal Management Plan (CZMA Sections 307(c)(1) through (3)). Section 307(c) of the CZMA and implementing regulations at 40 CFR Part 930 prohibit EPA from issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the proposed activity complies with the State (or Territory) Coastal Zone Management program, and the State (or Territory) or its designated agency concurs with the certification.

The draft permit does not affect land or water use in the coastal zone; therefore, CZMA does not apply to this permit.

D. Impact to Essential Fish Habitat

The 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act ("MSA") set forth new mandates for the National Marine Fisheries Service, regional fishery management councils and other federal agencies to identify and protect important marine and anadromous fish species and habitat. The MSA requires federal agencies to make a determination on Federal actions that may adversely impact Essential Fish Habitat ("EFH").

The permit contains technology-based effluent limits and numerical and narrative water quality-based effluent limits as necessary for the protection of applicable aquatic life uses. The permit does not directly discharge to areas of essential fish habitat (i.e., not in marine waters). Therefore, EPA has determined that essential fish habit does not apply to this permit.

E. Impact to National Historic Properties

Section 106 of the National Historic Preservation Act ("NHPA") requires federal agencies to consider the effect of their undertakings on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. Pursuant to the NHPA and 36 CFR §800.3(a)(1), EPA is making a determination that re-issuing this NPDES permit does not have the potential to affect any historic properties or cultural properties. As a result, Section 106 does not require EPA to undertake additional consulting on this permit reissuance.

The permit does not allow the disturbance of any historic properties. The permittee has previously conducted archeologic surveys to determine areas of historic interest and has established a boundary of construction that will not affect any historic areas. See "Archaeological Inventory of the Buena Vista Rancheria, Amador County, California", Project Number 1550-01, October 2005 prepared by Pacific Legacy, Inc.

XI. STANDARD CONDITIONS

A. Reopener Provisions

In accordance with 40 CFR Parts 122 and 124, the draft permit may be modified by EPA to include effluent limits, monitoring, or other conditions to implement new regulations, including EPA-approved Tribal water quality standards; to address new information indicating the presence of effluent toxicity or the reasonable potential for the discharge to cause or contribute to exceedances of water quality standards; or new permit conditions for species pursuant to ESA requirements.

B. Standard Provisions

The permit requires the permittee to comply with USEPA Region 9's *Standard Federal NPDES Permit Conditions* found at Attachment A.

XII. ADMINISTRATIVE INFORMATION

A. **Public Notice** (40 CFR § 124.10)

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a NPDES permit or other significant action with respect to an NPDES permit or application.

B. **Public Comment Period** (40 CFR § 124.10)

Notice of the draft permit was placed on EPA Region 9's website on November 4, 2020, for 30 days for interested parties to respond in writing to EPA. No comments were received during that time.

C. **Public Hearing** (40 CFR § 124.12(c))

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if EPA determines there is a significant amount of interest expressed during the 30-day public comment period or when it is necessary to clarify the issues involved in the permit decision. During the public comment time, EPA did not receive a request from an interested party to hold a public hearing.

D. Water Quality Certification Requirements (40 CFR § 124.53 and § 124.54)

EPA is the Clean Water Act (Act) Section 401 certifying authority for this permit, because the Buena Vista Rancheria of the Me-Wuk Indians of California has not received authorization to implement section 303(c) of the Act. As stated in the public notice for this permit, EPA asked for public comment on Section 401 certification requirements. No comments were received. EPA granted the Section 401 certification in January 2021.

Generally, the permit contains conditions and requirements for the facility discharges to meet water quality standards in the receiving waters. As discussed in part III. General Description of the Facility of the fact sheet, this WWTP provides tertiary treatment level using the membrane bioreactor system combined with UV disinfection to yield high quality effluent with very low levels of pollutants. The effluent limitations are set at levels such that the discharge will maintain water quality standards upon mixing with receiving waters. The term water quality standards include numeric and narrative water quality criteria as well as the beneficial uses of the ambient waterbody; e.g., recreational bathing, fishing, and supporting aquatic life.

XIII. CONTACT INFORMATION

Comments, submittals, and additional information relating to this proposal may be directed to Linh Tran, NPDES Permits Office at:

Email: Tran.Linh@epa.gov
Phone: (415) 972-3511

XIV. REFERENCES

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. Office of Water, EPA. EPA/505/2-90-001.

EPA. 1996. *Regions IX & X Guidance for Implementing Whole Effluent Toxicity Testing Programs*, Interim Final, May 31, 1996.

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EPA. 2013. *National Recommended Water Quality Criteria*. Office of Water, EPA. Aquatic Life Criteria Table. https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table#table

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EPA. 2019. July 16 inspection report prepared by Water Enforcement Section on July 31, 2019

USFWS 2020. IPaC report for Endangered and Threatened species list within Buena Vista Rancheria area of Amador County, California (dated September 2020)

USFWS 2020. List of threatened and endangered species that may occur in project location, and/or may be affected by project Buena Vue ESA Species List_ Sacramento Fish And Wildlife Office.pdf (provided by U.S. Fish and Wildlife Service dated September 2020)

Buena Vista Rancheria NPDES Permit Application: Form 1, Form 2A and Form 2S emailed on May 5, 2020; and supplemental information emailed on June 19, 2020. Updated operations narrative emailed on June 30, 2020. Clarification of sample collection after final treatment prior to outfall emailed on November 30, 2020.

"Environmental Settling, Impacts, and Mitigation – Biological Resources" (prepared by North Fork Associates, May 2007) emailed to EPA on July 29, 2020

Archaeological Inventory of the Buena Vista Rancheria, Amador County, California, Project Number 1550-01, October 2005, prepared by Pacific Legacy, Inc.

Final Tribal Environmental Impact Report, January 2007

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Convention Center Puts Wastewater to

Jennie Morton

Jan. 22, 2014

At over a million square feet and approximately 700,000 visitors annually, the Vancouver Convention Centre (VCC) is no stranger to waste management. With a membrane bioreactor treating 100% of collected sewage, water efficiency is a central tenet of this LEED Platinum facility.

Processing an average of 45,000 gallons a day (or 6,000 cubic feet), the 1,200-square-foot treatment plant is located in the Centre's West building, notes Mike Garcia, senior manager of VCC's facility operations and engineering. Black and greywater are collected at two lift stations on either side of the centre. Depending on the volume, waste is either pumped to the city sewer or an equalization tank adjacent to the treatment plant.

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vacuum induced on the filter and effluent is separated. Chlorine is injected into the effluent before going into a touch tank that removes any turbidity.

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The treated water then goes to two 10,000-gallon storage tanks. Pumps move the treated water back into the building for toilet flushing and irrigation needs, most notably on the centre's hallmark six-acre green roof.

The waste treatment plant is staffed by a full-time operator. Daily labs are drawn for water quality and samples are sent out twice a week for third-party testing. A consulting firm is responsible for collecting the reports and submitting them to the Ministry of Environment, a Canadian federal agency.

While the plant has experienced little downtime over the years, the biggest challenge has been adjusting to the centre's peak and slow times. To keep the bacteria levels consistent during the off season, dog food is used to act as supplemental sewage. It's an unusual maintenance request, but it keeps the system running smoothly regardless of restroom traffic.

While the membrane bioreactor offers significant water savings, it works in conjunction with several other efficiency features to maximize conservation. The building also uses low-flow toilets and faucets, grease interceptors, and a 72-zone drip irrigation system that has 15 moisture detectors for its living roof.

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A Platinum Solution for Sewage

A reverse osmosis plant also desalinates seawater, which supplements the MBR output during peak irrigation season. These strategies were fundamental to securing a number of LEED credits for the project.

While the investments were part of a bigger sustainability package, the savings are obvious – close to 74 million gallons of water reclaimed since 2008.

"There's a lot of interest in adopting this technology at other properties," says Garcia. "Out of all of the convention centre's green features, the sewage treatment plant is by far the most toured part of the building by industry colleagues."

About the Author
Jennie Morton

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