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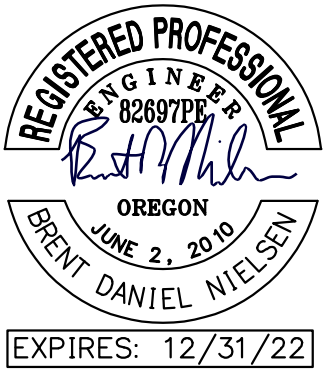
PRELIMINARY STORMWATER DRAINAGE REPORT



To
City of Tualatin

For
Lam Research Building G
Architectural Review

Dated
August 16, 2022

Project Number
2220087.00

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I. PROJECT INTRODUCTION

Lam Research is proposing to construct a new office building at their existing campus on SW Leveton Drive in Tualatin, Oregon. The new building will be located east of the existing Building C and south of Building B. In support of the expected additional employees on site, Lam also proposes new parking in the east and northwest portions of campus. The vicinity map and site plan below show the location and layout of the site relative to nearby geographic features.

Figure 1: Vicinity Map

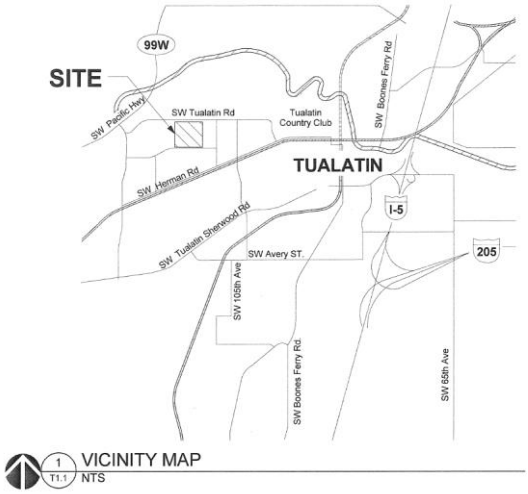
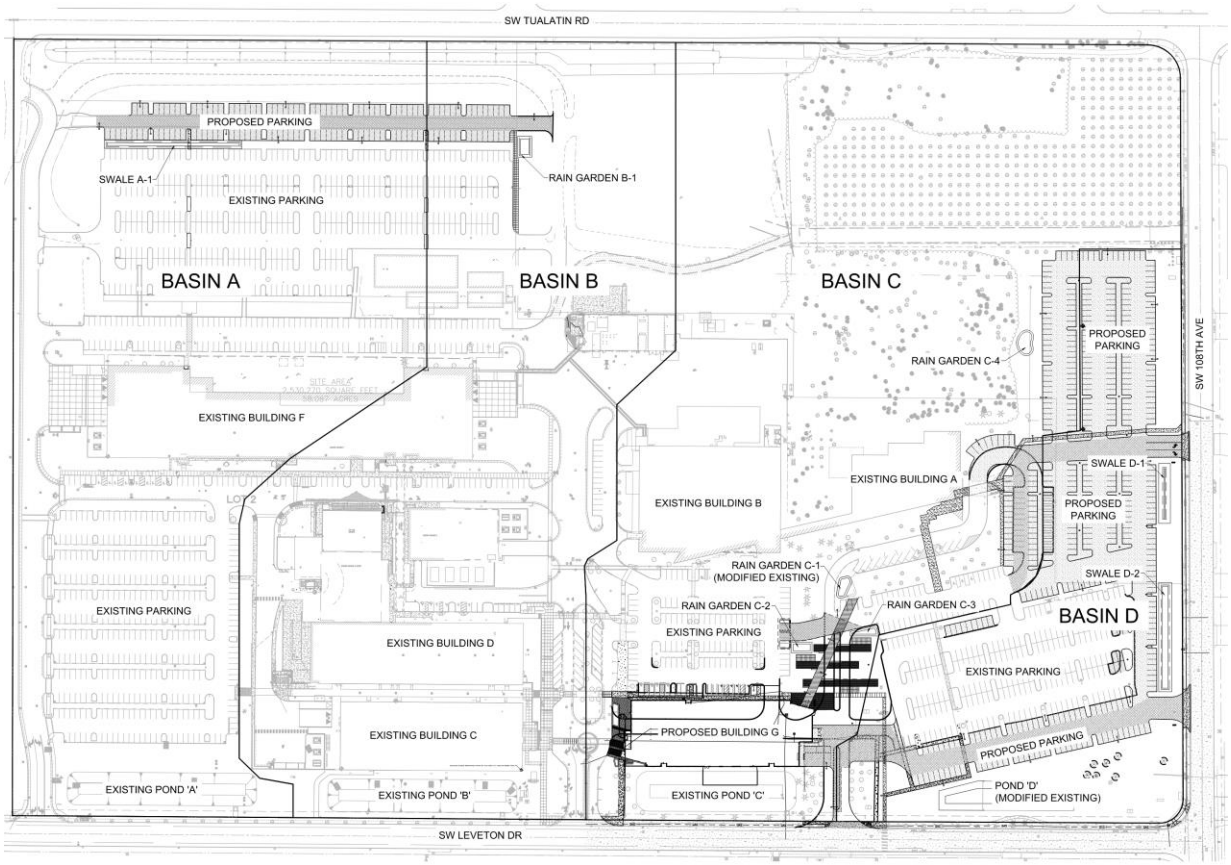


Figure 2: Overall Site Plan



Stormwater drainage and treatment will be provided in accordance with current Clean Water Services and City of Tualatin standards through a series of facilities across campus:

- NW Parking, west side: one (1) new vegetated swale
- NW Parking, east side: one (1) new vegetated rain garden
- NE Parking: one (1) new vegetated rain garden
- SE Parking: two (2) new vegetated swales
- Pedestrian plaza: two (2) new vegetated rain gardens and one (1) modified existing rain garden
- Three (3) existing extended dry basins to remain and one (1) extended dry basin to be expanded with additional detention storage

The following summarizes the design for the proposed stormwater management approach.

II. STORMWATER QUALITY TREATMENT

Water quality treatment at the new development on the Lam Campus will be provided through a collection of existing, modified, and new facilities. The following summarizes the facilities within each drainage basin on site:

Drainage Basin A

Proposed improvements within Basin A include new parking along the existing north drive aisle, located in areas that are currently surfaced with vegetation, gravel, and paving. Runoff from new paved areas will be captured in catch basins and routed to a swale at the west end of the new parking.

- New impervious area: 31,704 sf
- WQV: 951 cf
- WQF: 0.07 cfs
- Swale residence time: 19.1 minutes

Swale calculations are provided in Appendix B of this report.

Drainage Basin B

Proposed improvements within Basin B include new parking along the existing north drive aisle, located in areas that are currently surfaced with vegetation, gravel, and paving. Runoff from new paved areas will be captured in catch basins and routed to a rain garden at the east end of the new parking. Rain Garden B-1 is sized using the Simplified Method:

- New impervious area: 9,770 sf
- 6% minimum facility size: 586 sf
- Provided facility size: 816 sf

Rain Garden calculations are provided in Appendix B of this report.

Drainage Basin C

Proposed improvements within Basin C include new parking, re-paved parking, a pedestrian plaza, and the proposed Building G footprint. Runoff from the new impervious surfaces will be routed to existing and new storm treatment facilities.

Basin C Rain Gardens

Existing Rain Garden C-1 was designed circa 2016 to treat runoff from approximately 9,967 sf modified parking south of Building A, which resulted in a facility footprint of approximately 698 sf. The rain garden is proposed to be modified to accommodate a new pedestrian path, and will be reduced to approximately 385 sf, which would result in a treatment capacity of approximately 6,417 sf. This leaves approximately 3,550 sf of existing impervious area capacity to be restored in Basin C.

Proposed Rain Garden C-2 and C-3 will be added to treat runoff from the adjacent parking and plaza improvements, as well as handle treatment lost from the Rain Garden C-1 modification.

Proposed Rain Garden C-4 will be added to treat runoff from new parking northeast of Building A.

Each of the new Basin C rain gardens is sized per the Simplified Method guidelines, using a 6-percent sizing factor on the design impervious area.

TABLE 1: RAIN GARDEN SIZING SUMMARY			
	Design Impervious Area (sf)	Minimum Rain Garden Size per 6% Factor (sf)	Provided Rain Garden Size (sf)
Existing Rain Garden C-1	9,967	598	385
Rain Garden C-2	6,319	379	615
Rain Garden C-3	9,108	546	559
Rain Garden C-4	14,116	847	978
Total	39,510	2,370	2,537

As demonstrated above, the proposed rain garden sizing within Basin C provides treatment capacity within the basin to accommodate approximately 39,510 sf of impervious area and make up for the reduced capacity of Rain Garden C-1.

Existing Pond C

The existing Pond C extended dry basin was designed circa 2001 and was sized at the time to accommodate the planned build-out of the campus, which included up to approximately 12.55 acres of total impervious area within Basin C. The water quality design storm has not been changed from the 0.36 inches rainfall that was used in the 2001 calculations.

Current site review indicates the existing Basin C comprises approximately 7.45 acres of impervious area, resulting in approximately 5.10 acres of impervious area runoff capacity available in the existing Pond C.

The proposed improvements result in a total impervious area coverage of approximately 8.43 acres. Per Table 1 above, approximately 0.91 acres of impervious area runoff is handled in the new rain garden facilities in Basin C. Therefore, the added design impervious surface to Pond C is calculated as:

$$\Delta A = (8.43 - 0.91) - 7.45 = 0.07\ ac$$

Therefore, Pond C water quality treatment capacity has approximately 5.03 acres of available impervious area coverage on site after the proposed development is completed.

Drainage Basin D

Proposed improvements within Basin D include new parking to expand the existing southeast parking lot. Runoff from the new impervious surfaces will be routed to existing and new storm treatment facilities.

Basin D Swales

Proposed Swales D-1 and D-2 will be added to treat runoff from the adjacent parking lots along the east side of the Lam campus.

TABLE 2: SWALE TABLE SIZING SUMMARY		
Development Site	**Swale D-1**	**Swale D-2**
Design Impervious Area (sf)	36,094	49,985
Water Quality Volume (cf)	1,083	1,500
Water Quality Flow (cfs)	0.08	0.10
Residence Time (min)	9.27	9.16

Existing Pond D

The existing Pond D extended dry basin was designed circa 2016 and was constructed to handle runoff from the new southeast parking lot and adjacent paving area comprising approximately 66,647 sf of impervious area.

The proposed improvements will add approximately 39,695 sf resulting in a total impervious area flowing to Pond D of approximately 106,342 sf. The water quality volume for Pond D is calculated as:

$$WQV = A \cdot \frac{0.36\ in}{12\frac{ft}{in}} = 106342 \cdot \frac{0.36\ in}{12\frac{ft}{in}} = 3{,}190\ cf$$

The existing Pond D provides approximately 2,003 cf of storage, so the pond will be expanded to the west approximately 80 feet to provide additional water quality storage volume in the pond. The existing outlet structure location at the east end of the pond will remain.

III. STORMWATER QUANTITY MANAGEMENT

The proposed development at the Lam Research campus will add impervious surface to each of the four (4) drainage basins on site. Mitigation of increased peak flows will be provided through increased detention capacity in Pond D, which will be expanded toward the west.

Ponds A, B, and C, and D were designed in 2001 and 2017 under prior Clean Water Services regulations which required that runoff from the developed Lam Research site be mitigated through detention to match the pre-development peak rates for the 2-year through 25-year storm events.

Current standards require assessment of hydromodification risk based on the project site and development footprint. Per Clean Water Services standards, the proposed development falls into Category 2.

Figure 3: Project Site Hydromodification Map

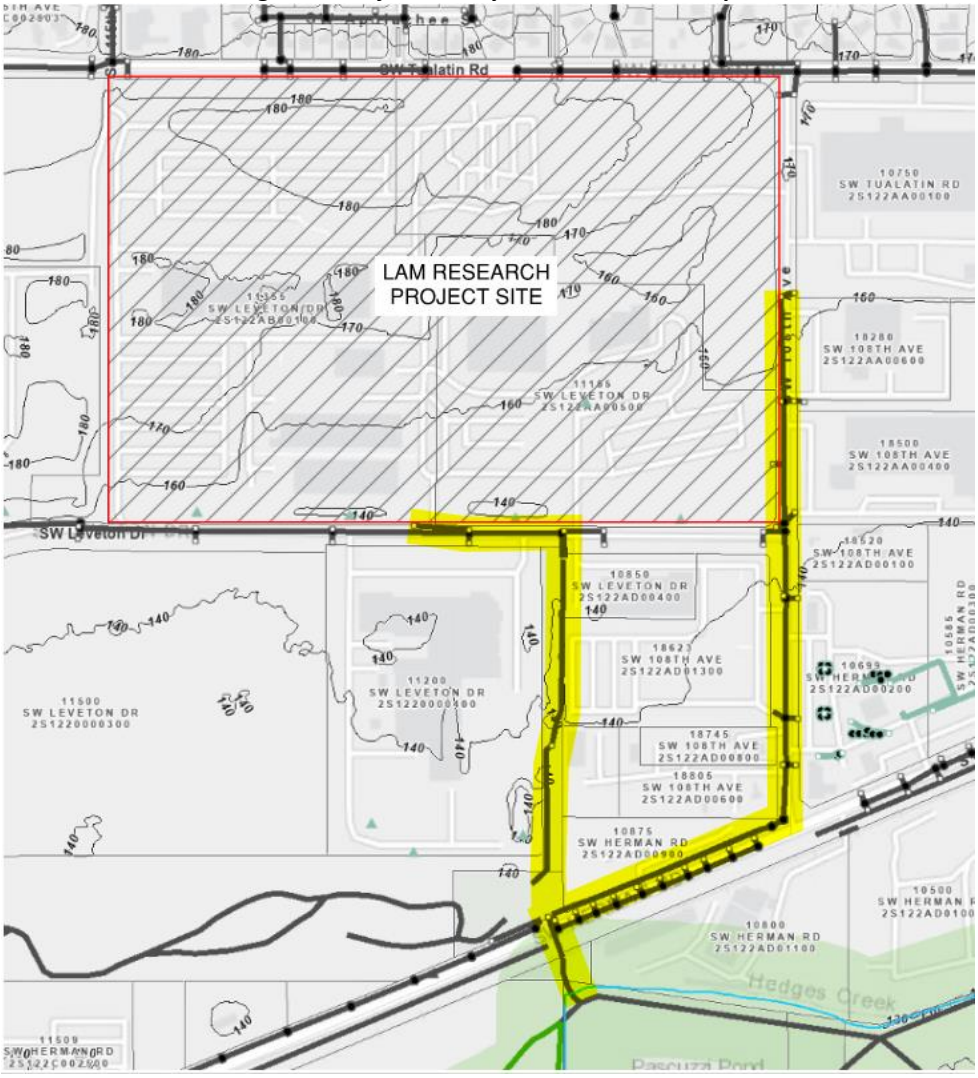


Figure 4: Hydromodification Risk Assessment

Development Class/ Risk Level	Small Project 1,000 – 12,000 SF	Medium Project >12,000 – 80,000 SF	Large Project > 80,000 SF
Expansion/High	Category 1	Category 3	Category 3
Expansion/ Moderate			
Expansion/ Low		Category 2	
Developed/ High		Category 3	
Developed/ Moderate		Category 2	Category 2
Developed/ Low			

Under current Clean Water Services Category 2 hydromodification standards, new development shall provide detention to reduce the 2-year storm developed peak flow to match one-half of the pre-developed 2-year storm peak runoff, and to match pre-development peak flows for larger storm events.

In order to calculate the required detention and mitigated release rate from the campus development under blended standards, we calculated the allowable peak flows from existing (pre-2019) development on campus and new (2022 proposed) development. Pre-development peak flows are calculated using on a curve number of 73. The following table summarizes the allowed peak flow from the site.

TABLE 3: PRE-DEVELOPMENT PEAK FLOWS			
Site Coverage	**Basin Area (ac)**	**2-year Storm Pre-Developed Maximum Allowed Flow (cfs)**	**25-year Storm Pre-Developed Maximum Allowed Flow (cfs)**
Pre-2019 Existing Campus	51.54	3.184	1.681
Proposed 2022 Development Area	6.47	0.200	13.39
Total Campus	58.01	3.384	15.07

Post-development runoff is calculated using curve numbers of 98 for impervious areas (building roofs, paving, gravel), 76 for existing landscape areas, and 74 for new landscape areas. The runoff from each drainage basin on site is calculated based on the proposed site coverage, and calculated for flow through the existing detention ponds.

TABLE 4: POST-DEVELOPMENT SITE COVERAGE SUMMARY					
	Basin A (ac)	Basin B (ac)	Basin C (ac)	Basin D (ac)	Total Site (ac)
Impervious	10.13	10.59	8.43	4.42	33.57
Existing Landscape	5.89	4.19	10.09	1.04	21.21
New Landscape	0	0	1.43	1.80	3.23
Total Area	16.02	14.78	19.95	7.26	58.01

The overall site flow is calculated as the combined flow from the four ponds, and the Pond D storage will be adjusted to reduce the post-development total flow to match the pre-development limits listed above. The following table summarizes the flow from each pond and the total site outflow.

TABLE 5: DETAINED RELEASE FLOW SUMMARY					
	Pond A (ac)	Pond B (ac)	Pond C (ac)	Pond D	Total Site (ac)
Post-Development Flow (cfs)	2-yr: 5.92 10-yr: 9.58 25-yr: 11.34	2-yr: 6.20 10-yr: 9.63 25-yr: 11.26	2-yr: 5.15 10-yr: 9.30 25-yr: 11.38	2-yr: 2.51 10-yr: 4.14 25-yr: 4.94	2-yr: 19.76 10-yr: 32.64 25-yr: 38.91
Detained Release Flow (cfs)	2-yr: 0.93 10-yr: 2.76 25-yr: 4.15	2-yr: 1.02 10-yr: 1.35 25-yr: 1.48	2-yr: 1.11 10-yr: 1.58 25-yr: 1.91	2-yr: 0.32 10-yr: 1.25 25-yr: 2.10	2-yr: 3.32 10-yr: 6.74 25-yr: 9.04

The existing Ponds A, B, and C will remain as-is, and Pond D will be expanded to provide additional detention storage. Approximately 20,600 cf of additional storage is required within Pond D, which is provided by extending the west edge of the pond approximately 80 feet. No modifications to the existing outlet structure or orifice are required. Detailed detention calculations are provided in Appendix C of this report.

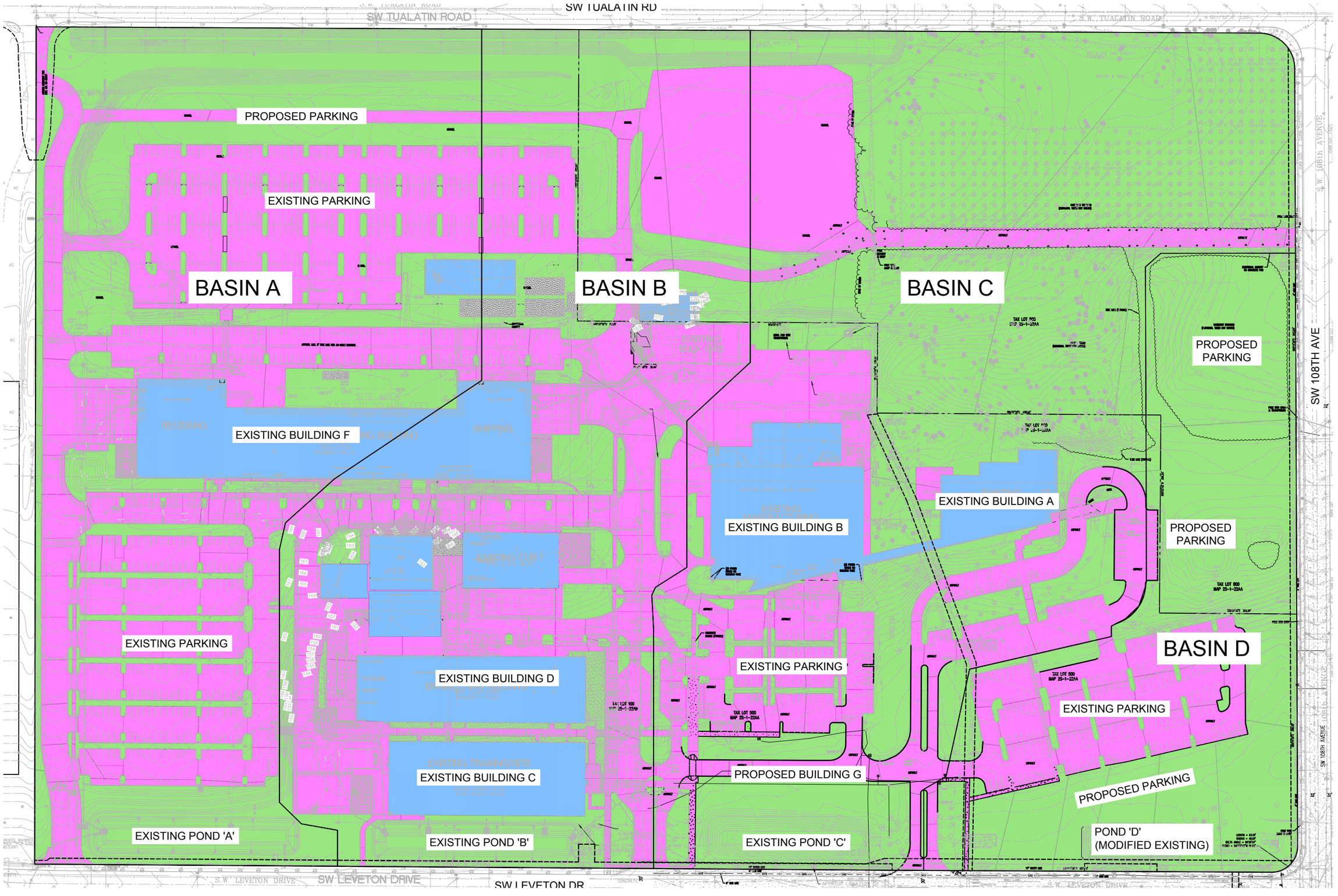
IV. CONCLUSION

The proposed building and parking expansion at Lam Research will increase the impervious area coverage on campus by approximately 4.27 ac. Stormwater runoff from the new impervious area will be treated for water quality through existing extended dry basins, new swales, and new rain gardens.

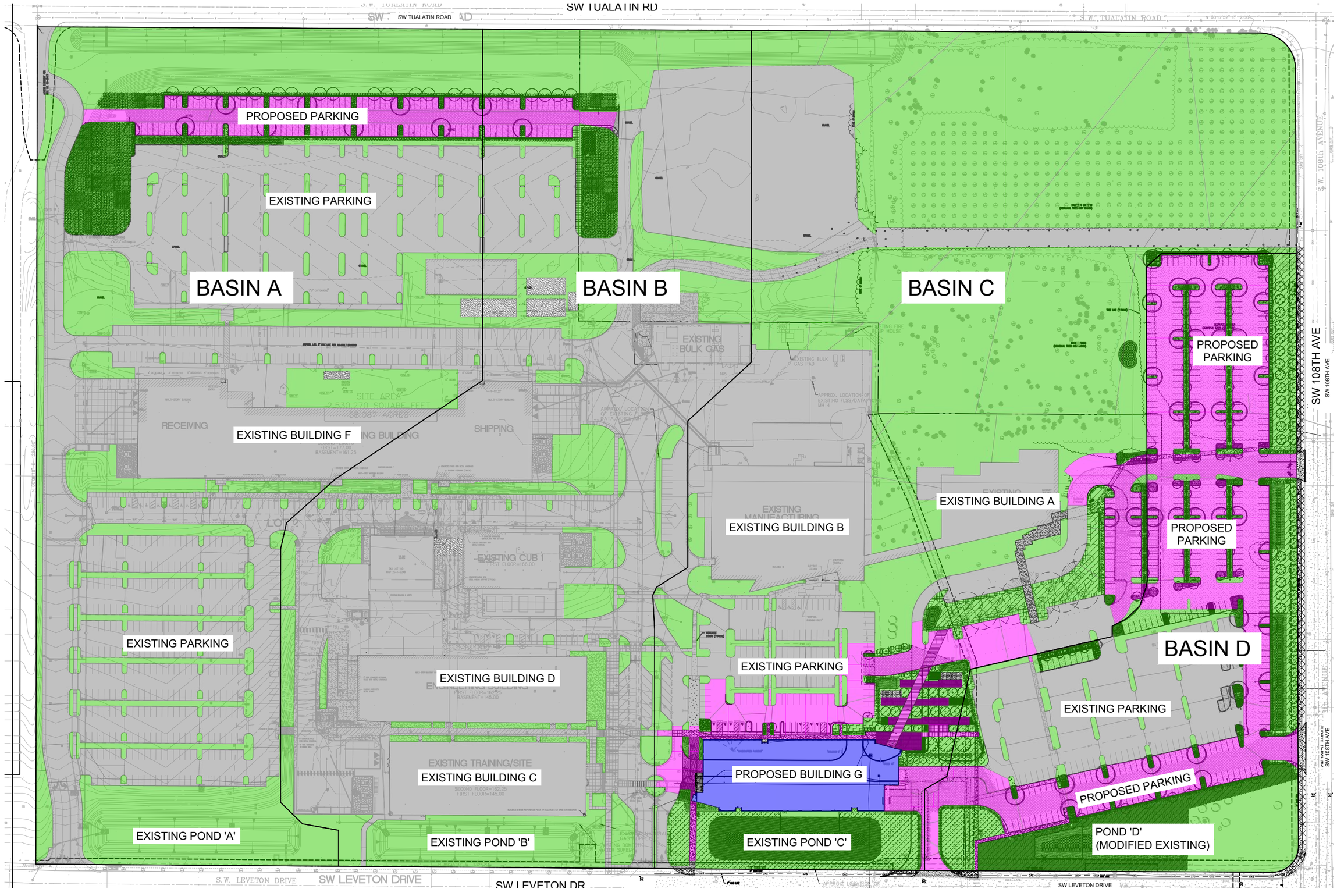
Detention will be provided to new Clean Water Services standards to meet hydromodification requirements for new impervious area. The existing detention ponds will be supplemented with expansion at Pond D to provide storage to meet new detention requirements.

APPENDIX A

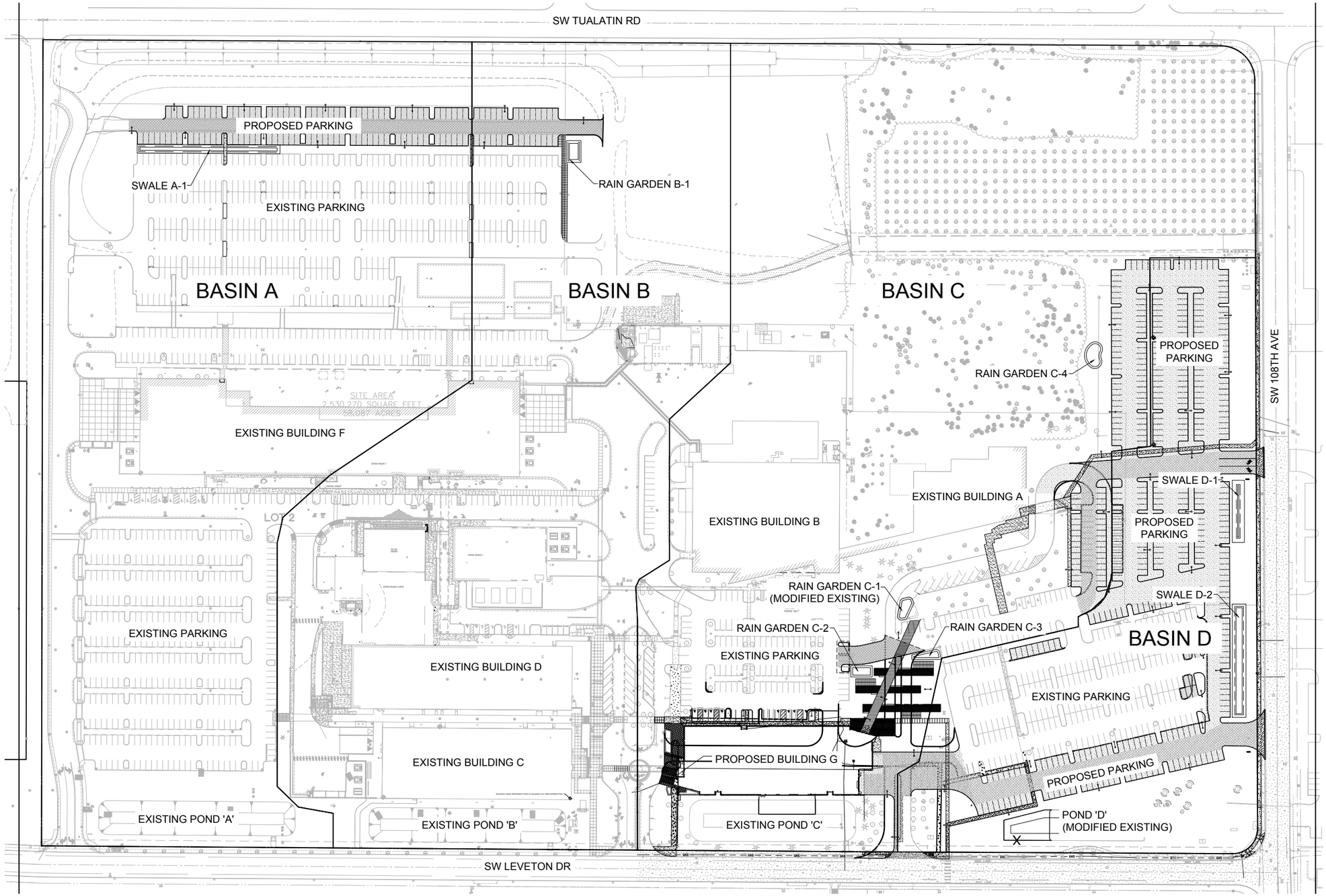
BASIN MAPS



EXISTING CONDITIONS BASIN MAP



PROPOSED CONDITIONS BASIN MAP



1 EX 1 OVERALL STORM BASIN MAP

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

STORM FACILITIES BASIN MAP

Schematic Design 8/2/2022

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NEW OFFICE BUILDING

REVISION SCHEDULE

Delta	Issued As	Issue Date

SHEET TITLE:
OVERALL STORM BASIN MAP

DRAWN BY: BDN

CHECKED BY: BDN

SHEET

EX 1

JOB NO. **2220087.00**

APPENDIX B

WATER QUALITY SIZING

Clean Water Services

Vegetated Swale Calculator

Per 2019 Clean Water Services Design & Construction Standards (D&CS)

Project Name:	**Lam Research - Swale A-1**	By:	SJS	Checked:	BDN
Project Number:	2220087.00	Date:	8/15/2022	Date:	8/16/2022

From WQF and WQV Calculator

Required Treatment Area (A):	A =	31,704	ft^2
Water Quality Volume (WQV):	WQV =	951	ft^3
Water Quality Flow (WQF):	WQF =	0.07	ft^3/s

User Entry Variables

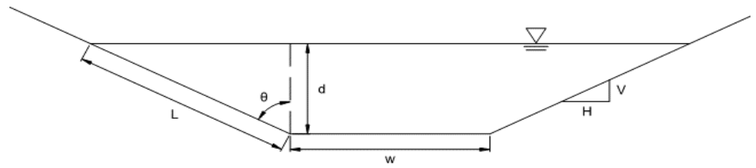
Slope	S =	0.016	ft/ft
Side Slopes	H =	4	
	V =	1	
Swale Length	L_s =	220	ft
Swale Bottom Width	w =	2.5	ft
Manning's N-Value	n =	0.24	

Calculations

Swale Cross-Sectional Area	A =	0.34	ft^2
	θ =	76	°
	L =	0.16	ft
Water Quality Depth	d =	0.133	ft
Velocity	v =	0.19	ft/s
Residence time	t =	19.12	min.
Manning's Equation	$AR^{2/3}$ =	0.084	
Manning's Equation	$AR^{2/3}$ =	0.085	

Equations

$$AR^{2/3} = \frac{Q * n}{1.49\sqrt{S}} \qquad A = (d * w) + d^2 tan\theta \qquad R = \frac{wd + Hd^2}{w + 2dH}$$



Vegetated Swale Design Criteria

Minimum Slope =	0.005		D&CS 4.09.4.c.4
Maximum Side Slopes =	4	:1	D&CS 4.09.4.c.8A
Minimum Swale Length =	100	feet	D&CS 4.09.4.c.3
Minimum Flat Bottom Width =	2	feet	D&CS 4.09.4.c.5
Manning's n-value =	0.24		D&CS 4.09.4.b.5
Minimum Freeboard =	1	foot	D&CS 4.09.4.b.4
Maximum Depth =	6	inches	D&CS 4.09.4.c.6
Maximum Velocity =	2	ft/s	D&CS 4.09.4.b.6
Minimum Residence Time =	9	minutes	D&CS 4.09.4.b.2

$$AR^{2/3} = \frac{Q * n}{1.49\sqrt{S}}$$

$$AR^{2/3} = dw + d^2 tan\theta \left[\frac{dw + d^2 tan\theta}{\left(w + 2\frac{d}{cos\theta}\right)^{2/3}}\right]$$

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Clean Water Services

Simplified LIDA Sizing
Per 2019 Clean Water Services Design & Construction Standards

Project Name:	**Lam Research - Rain Garden B-1**	By:	SJS	Checked:	BDN
Project Number:	2220087.00	Date:	8/15/2022	Date:	8/16/2022

User Entry Variables

Impervious Area	9,770	ft^2
Infiltration Rate	0.5	in/hr

From WQF and WQV Calculator

Required Treatment Area (A):	9,770	ft^2

Calculations

LIDA Facility Size (WQ ONLY)	586	ft^2
LIDA Facility Size (WQ + Hydromodification)	1,172	ft^2

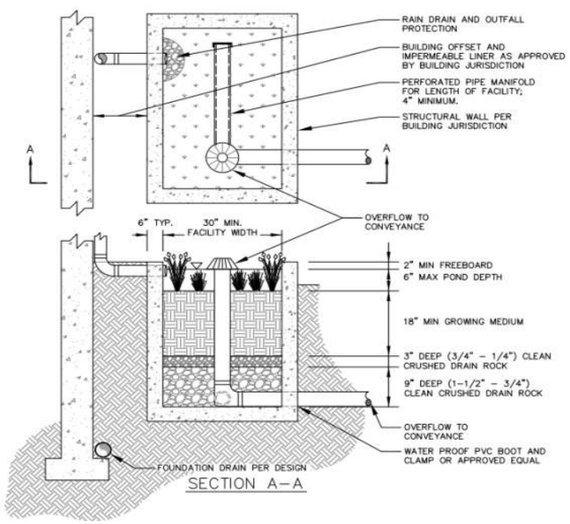
Notes/Design Criteria

Maximum Contributing Impervious Area 15,000 ft^2
Sizing factors assume a maximum infiltration rate of 2 in/hr
If infiltration rate exceeds 2 in/hr, the simplified method may be oversizing your facility

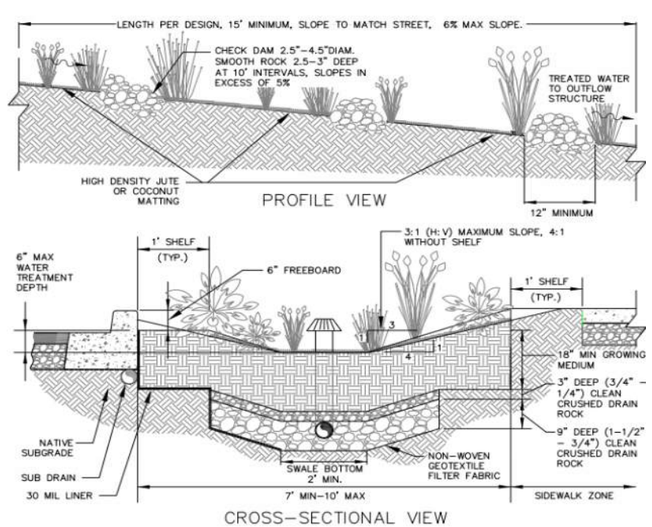
Sizing factor = 6% CWS Design & Construction Standards - Section 4.08.4b
Sizing factor = 12% CWS Design & Construction Standards - Section 4.08.4c

LIDA Facilities to be used with Simplified Sizing

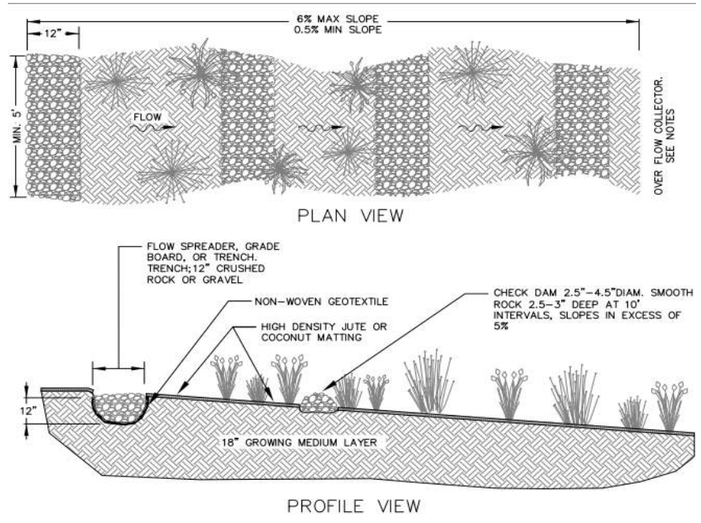
Flow-Through Planter
CWS LIDA Handbook Dwg No 794 (2016)



LIDA Swale
CWS LIDA Handbook Dwg No 795 (2016)



Vegetated Filter Strip
CWS LIDA Handbook Dwg No 796 (2016)



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Per 2019 Clean Water Services Design & Construction Standards

Project Name:	Lam Research - Rain Garden C-2	By:	SJS	Checked:	BDN
Project Number:	2220087.00	Date:	8/15/2022	Date:	8/16/2022

User Entry Variables

Impervious Area	6,319	ft^2
Infiltration Rate	0.5	in/hr

From WQF and WQV Calculator

Required Treatment Area (A): 6,319 ft^2

Calculations

LIDA Facility Size (WQ ONLY)	379	ft^2
LIDA Facility Size (WQ + Hydromodification)	758	ft^2

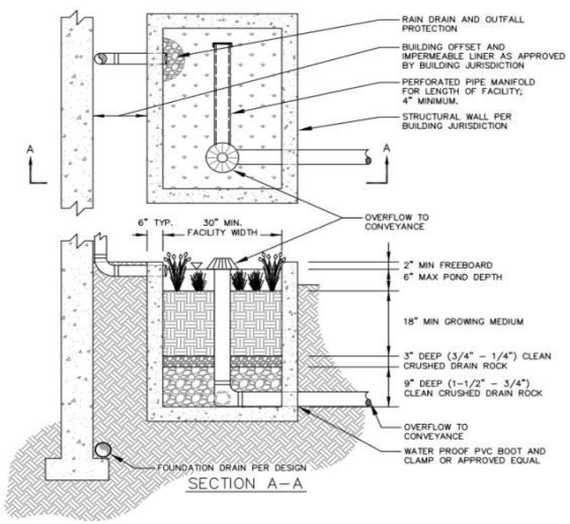
Notes/Design Criteria

Maximum Contributing Impervious Area 15,000 ft^2
Sizing factors assume a maximum infiltration rate of 2 in/hr
If infiltration rate exceeds 2 in/hr, the simplified method may be oversizing your facility

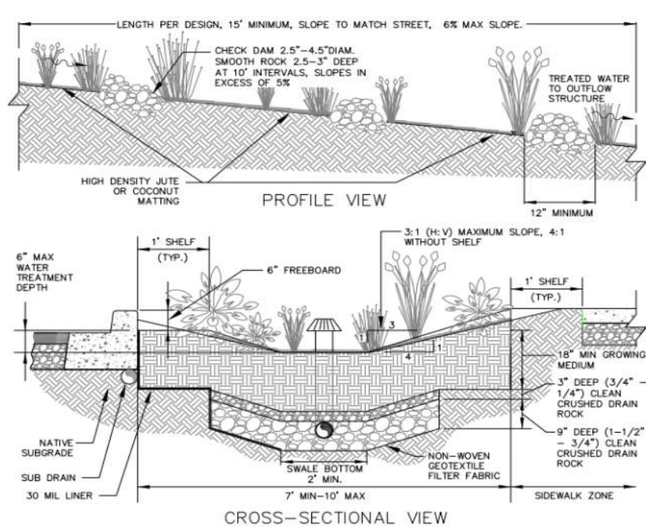
Sizing factor = 6% CWS Design & Construction Standards - Section 4.08.4b
Sizing factor = 12% CWS Design & Construction Standards - Section 4.08.4c

LIDA Facilities to be used with Simplified Sizing

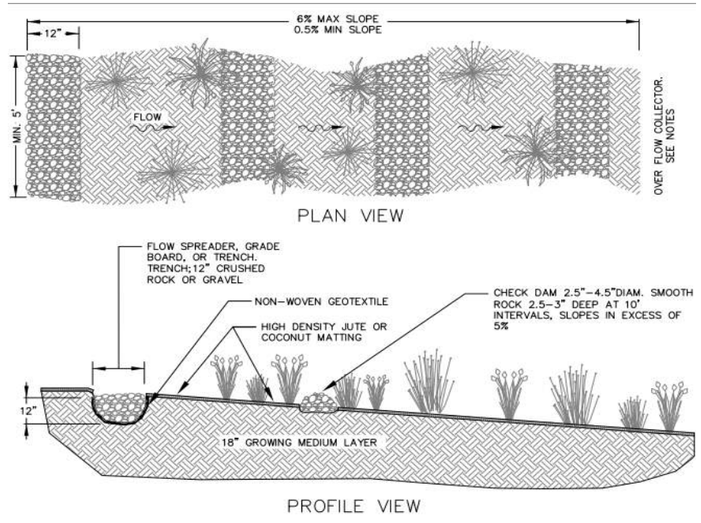
Flow-Through Planter
CWS LIDA Handbook Dwg No 794 (2016)



LIDA Swale
CWS LIDA Handbook Dwg No 795 (2016)



Vegetated Filter Strip
CWS LIDA Handbook Dwg No 796 (2016)



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Clean Water Services

Simplified LIDA Sizing
Per 2019 Clean Water Services Design & Construction Standards

Project Name:	**Lam Research - Rain Garden C-3**	By:	SJS	Checked:	BDN
Project Number:	2220087.00	Date:	8/15/2022	Date:	8/16/2022

User Entry Variables

Impervious Area	9,108	ft^2
Infiltration Rate	0.5	in/hr

From WQF and WQV Calculator

Required Treatment Area (A):	9,108	ft^2

Calculations

LIDA Facility Size (WQ ONLY)	546	ft^2
LIDA Facility Size (WQ + Hydromodification)	1,093	ft^2

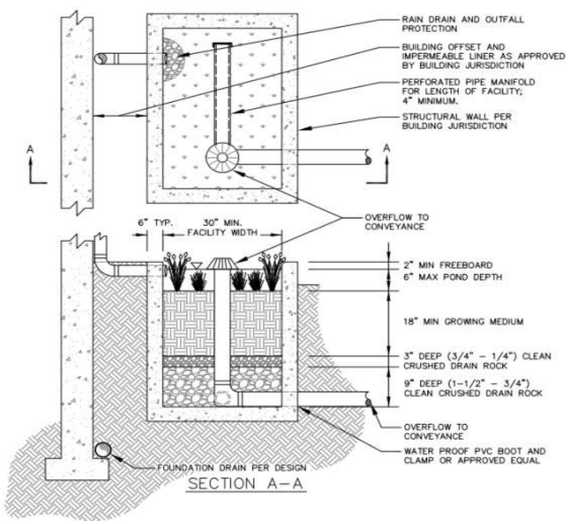
Notes/Design Criteria

Maximum Contributing Impervious Area 15,000 ft^2
Sizing factors assume a maximum infiltration rate of 2 in/hr
If infiltration rate exceeds 2 in/hr, the simplified method may be oversizing your facility

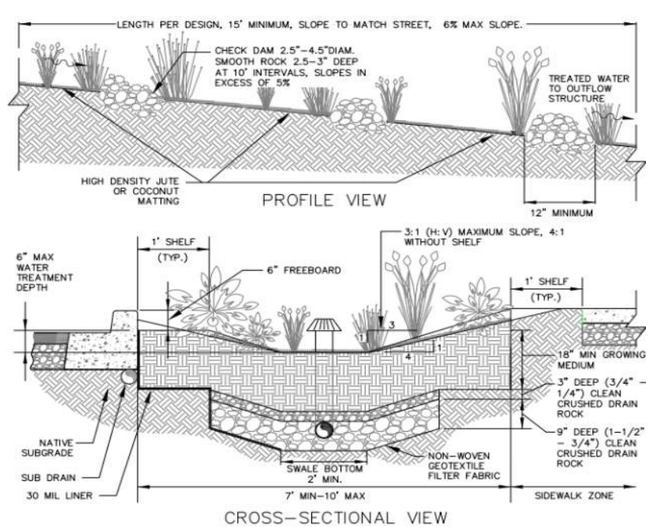
Sizing factor = 6% CWS Design & Construction Standards - Section 4.08.4b
Sizing factor = 12% CWS Design & Construction Standards - Section 4.08.4c

LIDA Facilities to be used with Simplified Sizing

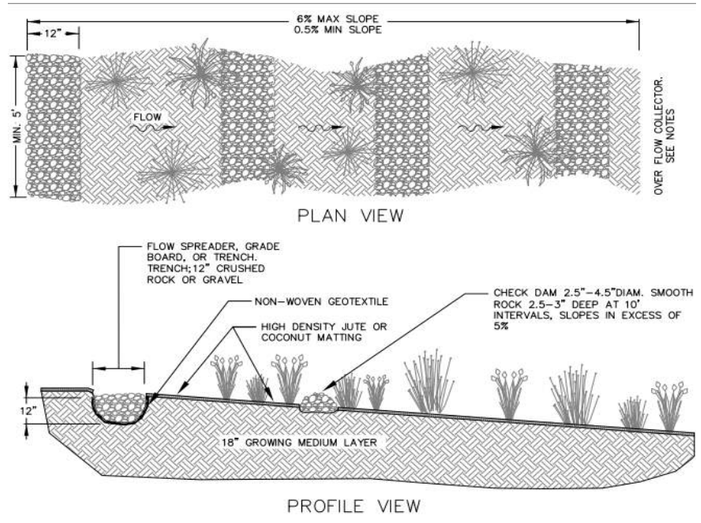
Flow-Through Planter
CWS LIDA Handbook Dwg No 794 (2016)



LIDA Swale
CWS LIDA Handbook Dwg No 795 (2016)



Vegetated Filter Strip
CWS LIDA Handbook Dwg No 796 (2016)



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Clean Water Services

Simplified LIDA Sizing
Per 2019 Clean Water Services Design & Construction Standards

Project Name:	Lam Research - Rain Garden C-4	By:	SJS	Checked:	BDN
Project Number:	2220087.00	Date:	8/15/2022	Date:	8/16/2022

User Entry Variables

Impervious Area	14,116	ft^2
Infiltration Rate	0.5	in/hr

From WQF and WQV Calculator

Required Treatment Area (A): 14,116 ft^2

Calculations

LIDA Facility Size (WQ ONLY)	847	ft^2
LIDA Facility Size (WQ + Hydromodification)	1,694	ft^2

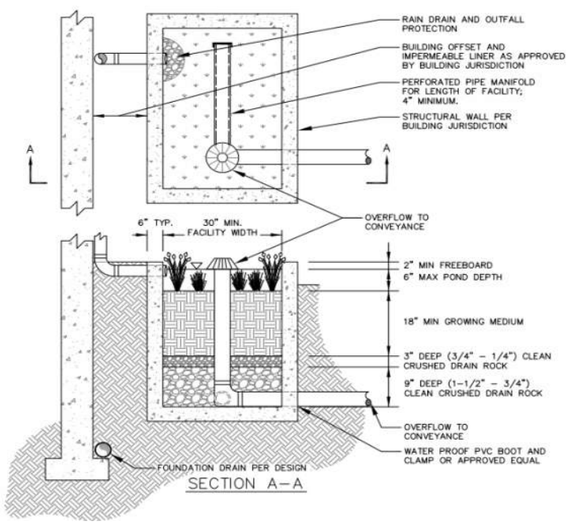
Notes/Design Criteria

Maximum Contributing Impervious Area 15,000 ft^2
Sizing factors assume a maximum infiltration rate of 2 in/hr
If infiltration rate exceeds 2 in/hr, the simplified method may be oversizing your facility

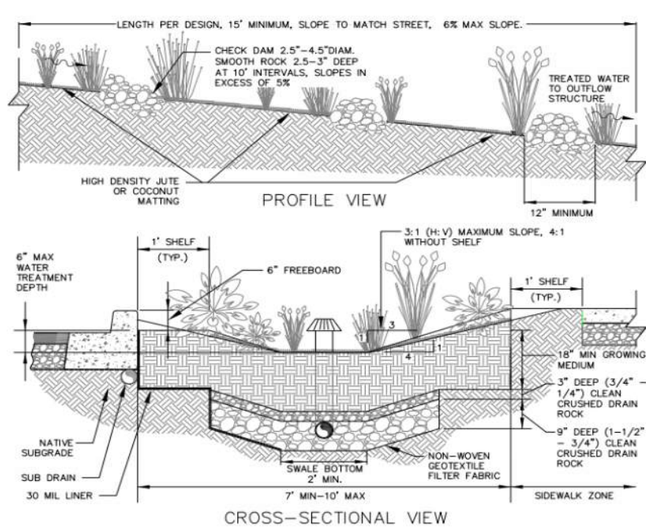
Sizing factor = 6% CWS Design & Construction Standards - Section 4.08.4b
Sizing factor = 12% CWS Design & Construction Standards - Section 4.08.4c

LIDA Facilities to be used with Simplified Sizing

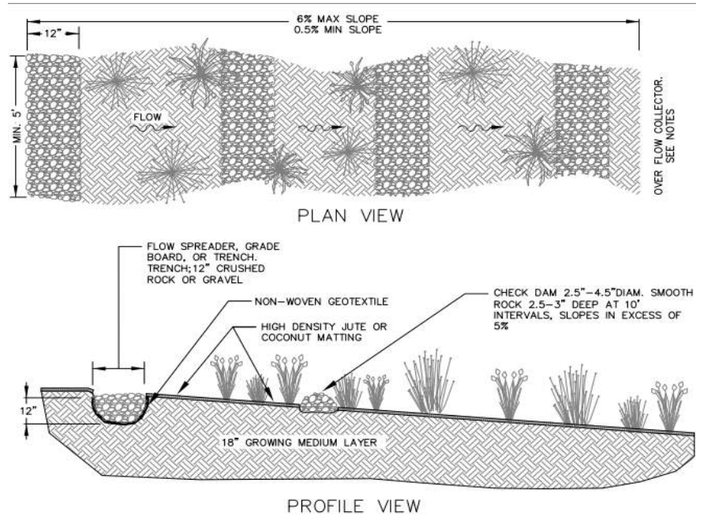
Flow-Through Planter
CWS LIDA Handbook Dwg No 794 (2016)



LIDA Swale
CWS LIDA Handbook Dwg No 795 (2016)



Vegetated Filter Strip
CWS LIDA Handbook Dwg No 796 (2016)



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Clean Water Services

Vegetated Swale Calculator

Per 2019 Clean Water Services Design & Construction Standards (D&CS)

Project Name:	**Lam Research - Swale D-1**	By:	SJS	Checked:	BDN
Project Number:	2220087.00	Date:	8/15/2022	Date:	8/16/2022

From WQF and WQV Calculator

Required Treatment Area (A):	A =	36,094	ft^2
Water Quality Volume (WQV):	WQV =	1,083	ft^3
Water Quality Flow (WQF):	WQF =	0.08	ft^3/s

User Entry Variables

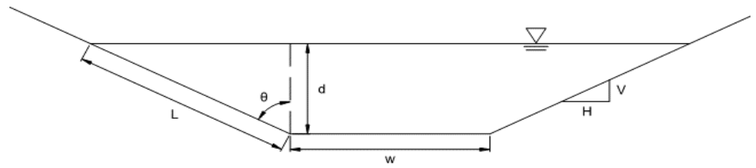
Slope	S =	0.045	ft/ft
Side Slopes	H =	4	
	V =	1	
Swale Length	L_s =	100	ft
Swale Bottom Width	w =	8	ft
Manning's N-Value	n =	0.24	

Calculations

Swale Cross-Sectional Area	A =	0.42	ft^2
	θ =	76	°
	L =	0.06	ft
Water Quality Depth	d =	0.052	ft
Velocity	v =	0.18	ft/s
Residence time	t =	9.27	min.
Manning's Equation	$AR^{2/3}$ =	0.057	
Manning's Equation	$AR^{2/3}$ =	0.058	

Equations

$$AR^{2/3} = \frac{Q * n}{1.49\sqrt{S}} \qquad A = (d * w) + d^2 tan\theta \qquad R = \frac{wd + Hd^2}{w + 2dH}$$



Vegetated Swale Design Criteria

Minimum Slope =	0.005		D&CS 4.09.4.c.4
Maximum Side Slopes =	4	:1	D&CS 4.09.4.c.8A
Minimum Swale Length =	100	feet	D&CS 4.09.4.c.3
Minimum Flat Bottom Width =	2	feet	D&CS 4.09.4.c.5
Manning's n-value =	0.24		D&CS 4.09.4.b.5
Minimum Freeboard =	1	foot	D&CS 4.09.4.b.4
Maximum Depth =	6	inches	D&CS 4.09.4.c.6
Maximum Velocity =	2	ft/s	D&CS 4.09.4.b.6
Minimum Residence Time =	9	minutes	D&CS 4.09.4.b.2

$$AR^{2/3} = \frac{Q * n}{1.49\sqrt{S}}$$

$$AR^{2/3} = dw + d^2 tan\theta \left[\frac{dw + d^2 tan\theta}{\left(w + 2\frac{d}{cos\theta}\right)^{2/3}}\right]$$

Clean Water Services

Vegetated Swale Calculator

Per 2019 Clean Water Services Design & Construction Standards (D&CS)

Project Name:	Lam Research - Swale D-2	By:	SJS	Checked:	BDN
Project Number:	2220087.00	Date:	8/15/2022	Date:	8/16/2022

From WQF and WQV Calculator

Required Treatment Area (A):	A =	49,985	ft^2
Water Quality Volume (WQV):	WQV =	1,500	ft^3
Water Quality Flow (WQF):	WQF =	0.10	ft^3/s

User Entry Variables

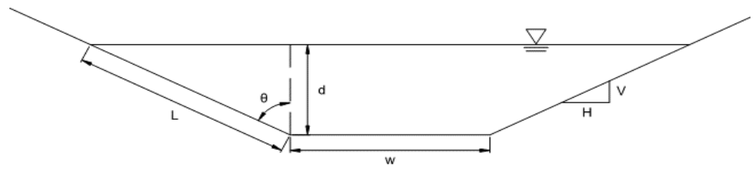
Slope	S =	0.04	ft/ft
Side Slopes	H =	4	
	V =	1	
Swale Length	L_s =	100	ft
Swale Bottom Width	w =	10	ft
Manning's N-Value	n =	0.24	

Calculations

Swale Cross-Sectional Area	A =	0.57	ft^2
	θ =	76	°
	L =	0.07	ft
Water Quality Depth	d =	0.057	ft
Velocity	v =	0.18	ft/s
Residence time	t =	9.16	min.
Manning's Equation	$AR^{2/3}$ =	0.084	
Manning's Equation	$AR^{2/3}$ =	0.084	

Equations

$$AR^{2/3} = \frac{Q * n}{1.49\sqrt{S}} \qquad A = (d * w) + d^2 tan\theta \qquad R = \frac{wd + Hd^2}{w + 2dH}$$



Vegetated Swale Design Criteria

Minimum Slope =	0.005		D&CS 4.09.4.c.4
Maximum Side Slopes =	4	:1	D&CS 4.09.4.c.8A
Minimum Swale Length =	100	feet	D&CS 4.09.4.c.3
Minimum Flat Bottom Width =	2	feet	D&CS 4.09.4.c.5
Manning's n-value =	0.24		D&CS 4.09.4.b.5
Minimum Freeboard =	1	foot	D&CS 4.09.4.b.4
Maximum Depth =	6	inches	D&CS 4.09.4.c.6
Maximum Velocity =	2	ft/s	D&CS 4.09.4.b.6
Minimum Residence Time =	9	minutes	D&CS 4.09.4.b.2

$$AR^{2/3} = \frac{Q * n}{1.49\sqrt{S}}$$

$$AR^{2/3} = dw + d^2 tan\theta \left[\frac{dw + d^2 tan\theta}{\left(w + 2\frac{d}{cos\theta}\right)^{2/3}}\right]$$

APPENDIX C

DETENTION CALCULATIONS

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)							Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	3.584	-------	7.964	10.91	15.07	-------	-------	Pre-Dev Overall Site
2	SCS Runoff	------	-------	0.400	-------	0.888	1.217	1.681	-------	-------	Pre-Dev New/Modified Site
3	SCS Runoff	------	-------	3.184	-------	7.075	9.694	13.39	-------	-------	Pre-Dev Undisturbed Site
5	SCS Runoff	------	-------	5.919	-------	8.215	9.576	11.34	-------	-------	Basin A - Dev
6	SCS Runoff	------	-------	6.196	-------	8.359	9.629	11.26	-------	-------	Basin B - Dev
7	SCS Runoff	------	-------	5.151	-------	7.719	9.296	11.38	-------	-------	Basin C - Dev
8	SCS Runoff	------	-------	2.509	-------	3.533	4.144	4.937	-------	-------	Basin D - Dev
10	Combine	5, 6, 7, 8,	-------	19.76	-------	27.83	32.64	38.91	-------	-------	Full Site - Developed
12	Reservoir	5	-------	0.933	-------	1.803	2.756	4.153	-------	-------	Pond A Outflow
13	Reservoir	6	-------	1.019	-------	1.236	1.350	1.482	-------	-------	Pond B Outflow
14	Reservoir	7	-------	1.107	-------	1.418	1.579	1.909	-------	-------	Pond C Outflow
15	Reservoir	8	-------	0.315	-------	0.755	1.253	2.099	-------	-------	Pond D Outflow
17	Combine	12, 13, 14, 15,	-------	3.320	-------	5.148	6.736	9.040	-------	-------	Total site outflow

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	3.584	2	498	119,526	------	------	------	Pre-Dev Overall Site
2	SCS Runoff	0.400	2	498	13,331	------	------	------	Pre-Dev New/Modified Site
3	SCS Runoff	3.184	2	498	106,195	------	------	------	Pre-Dev Undisturbed Site
5	SCS Runoff	5.919	2	480	86,804	------	------	------	Basin A - Dev
6	SCS Runoff	6.196	2	480	88,568	------	------	------	Basin B - Dev
7	SCS Runoff	5.151	2	482	83,209	------	------	------	Basin C - Dev
8	SCS Runoff	2.509	2	480	37,379	------	------	------	Basin D - Dev
10	Combine	19.76	2	480	295,959	5, 6, 7, 8,	------	------	Full Site - Developed
12	Reservoir	0.933	2	700	59,839	5	141.62	23,045	Pond A Outflow
13	Reservoir	1.019	2	674	62,077	6	138.65	23,468	Pond B Outflow
14	Reservoir	1.107	2	686	66,295	7	137.50	17,368	Pond C Outflow
15	Reservoir	0.315	2	816	14,110	8	137.04	15,366	Pond D Outflow
17	Combine	3.320	2	806	202,321	12, 13, 14, 15,	------	------	Total site outflow

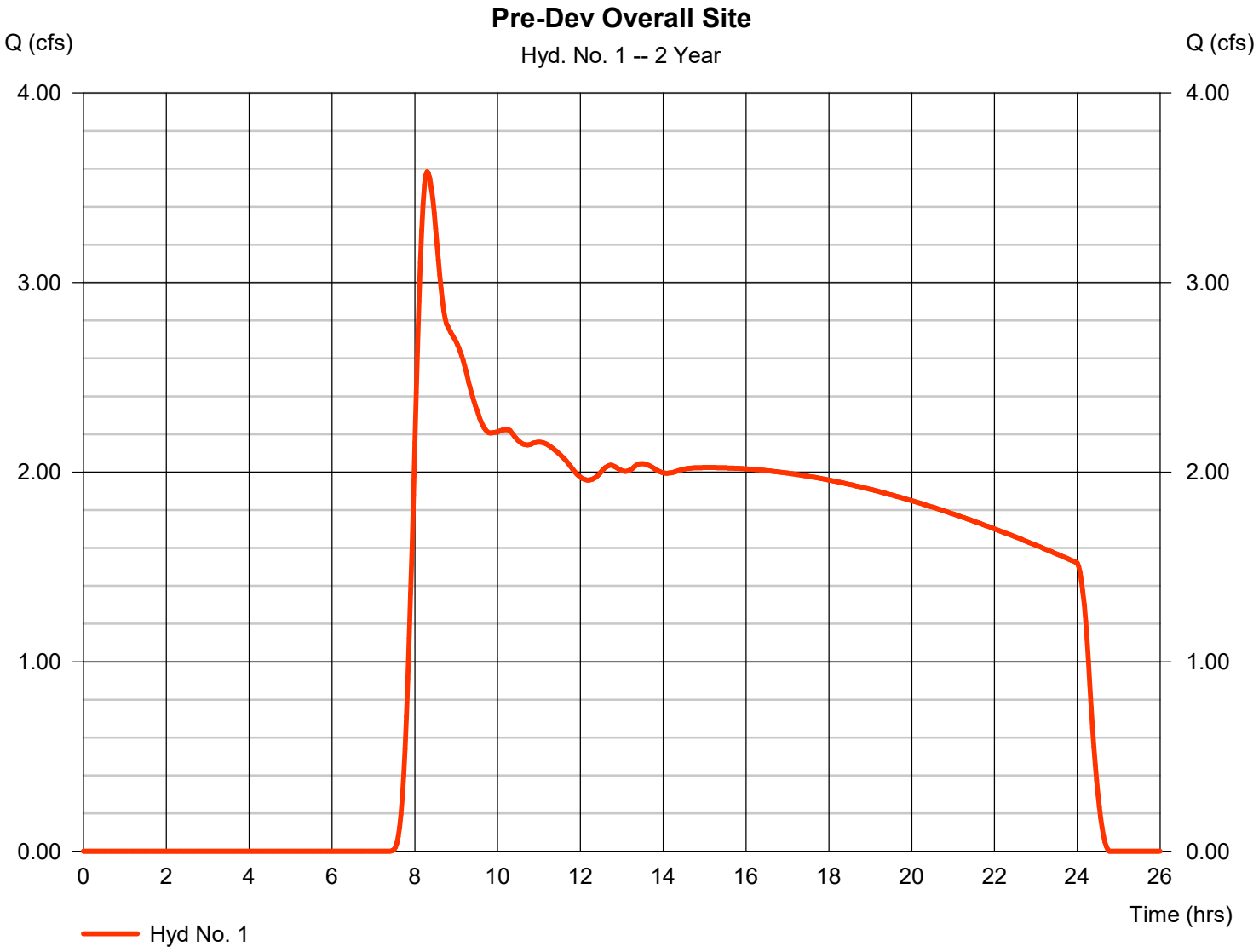
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 1

Pre-Dev Overall Site

Hydrograph type	= SCS Runoff	Peak discharge	= 3.584 cfs
Storm frequency	= 2 yrs	Time to peak	= 8.30 hrs
Time interval	= 2 min	Hyd. volume	= 119,526 cuft
Drainage area	= 58.010 ac	Curve number	= 73
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 30.00 min
Total precip.	= 2.50 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484



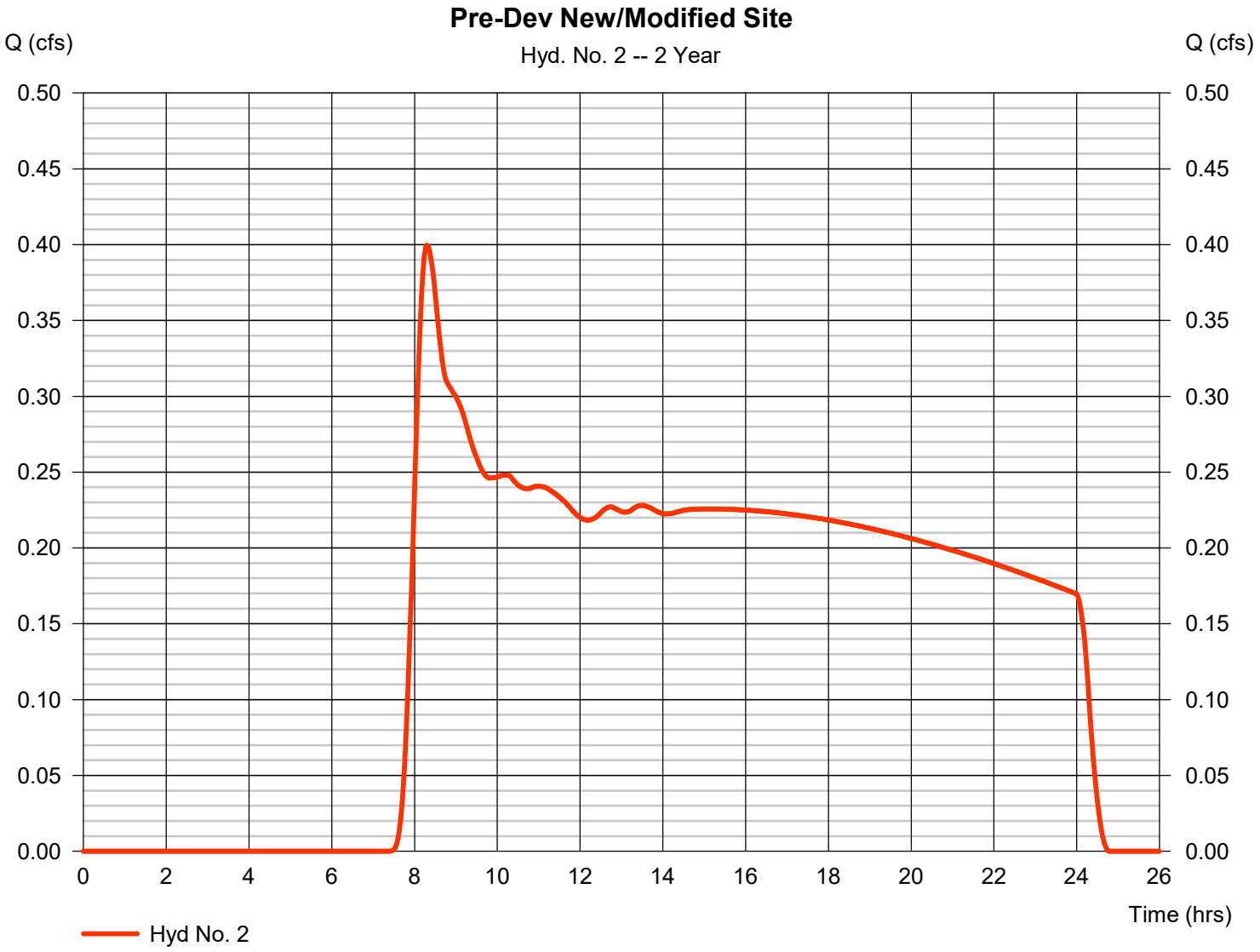
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 2

Pre-Dev New/Modified Site

Hydrograph type	= SCS Runoff	Peak discharge	= 0.400 cfs
Storm frequency	= 2 yrs	Time to peak	= 8.30 hrs
Time interval	= 2 min	Hyd. volume	= 13,331 cuft
Drainage area	= 6.470 ac	Curve number	= 73
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 30.00 min
Total precip.	= 2.50 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484



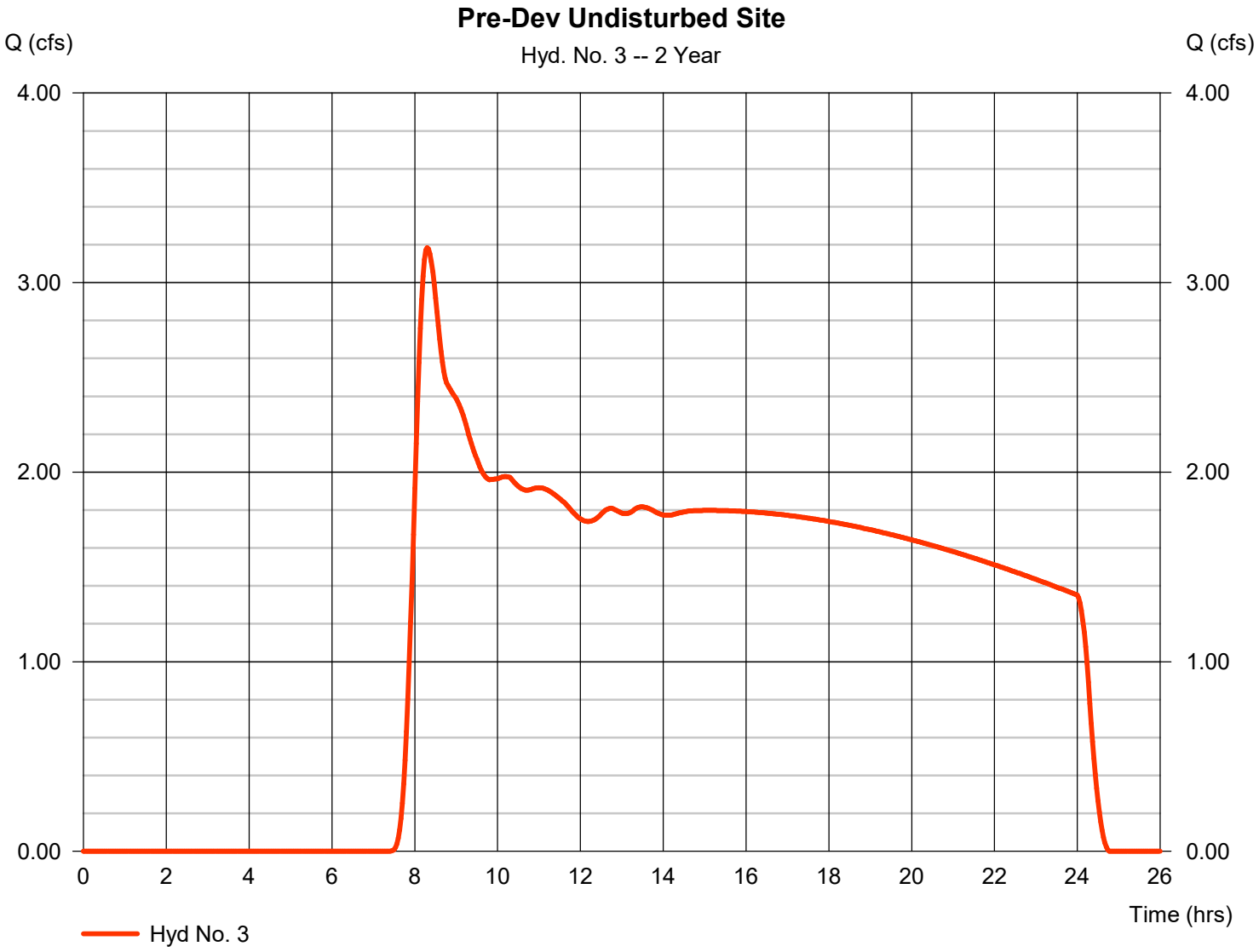
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 3

Pre-Dev Undisturbed Site

Hydrograph type	= SCS Runoff	Peak discharge	= 3.184 cfs
Storm frequency	= 2 yrs	Time to peak	= 8.30 hrs
Time interval	= 2 min	Hyd. volume	= 106,195 cuft
Drainage area	= 51.540 ac	Curve number	= 73
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 30.00 min
Total precip.	= 2.50 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

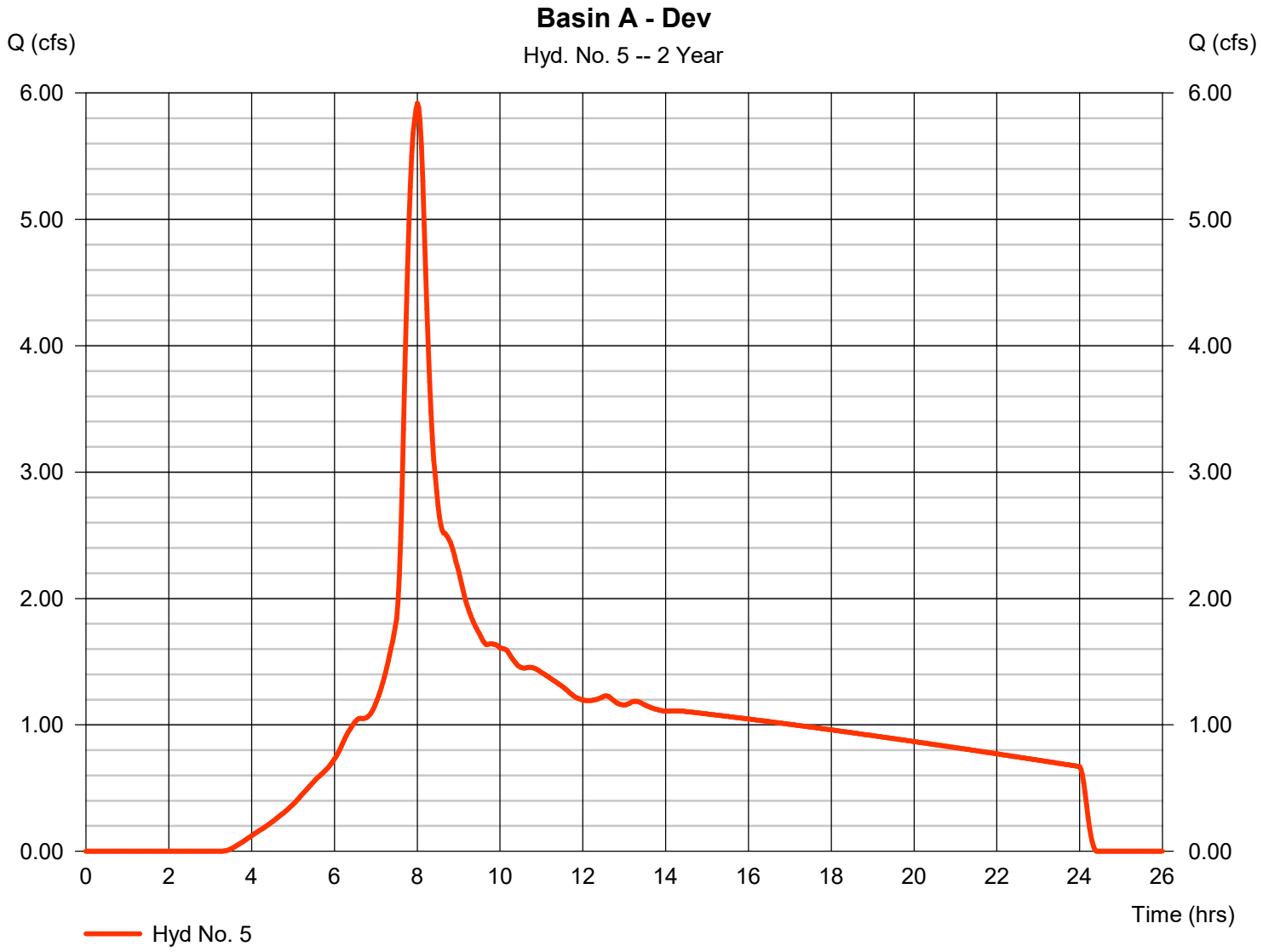
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 5

Basin A - Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 5.919 cfs
Storm frequency	= 2 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 86,804 cuft
Drainage area	= 16.020 ac	Curve number	= 90*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 15.00 min
Total precip.	= 2.50 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.250 x 98) + (8.150 x 98) + (5.890 x 76) + (0.730 x 98)] / 16.020



Hydrograph Report

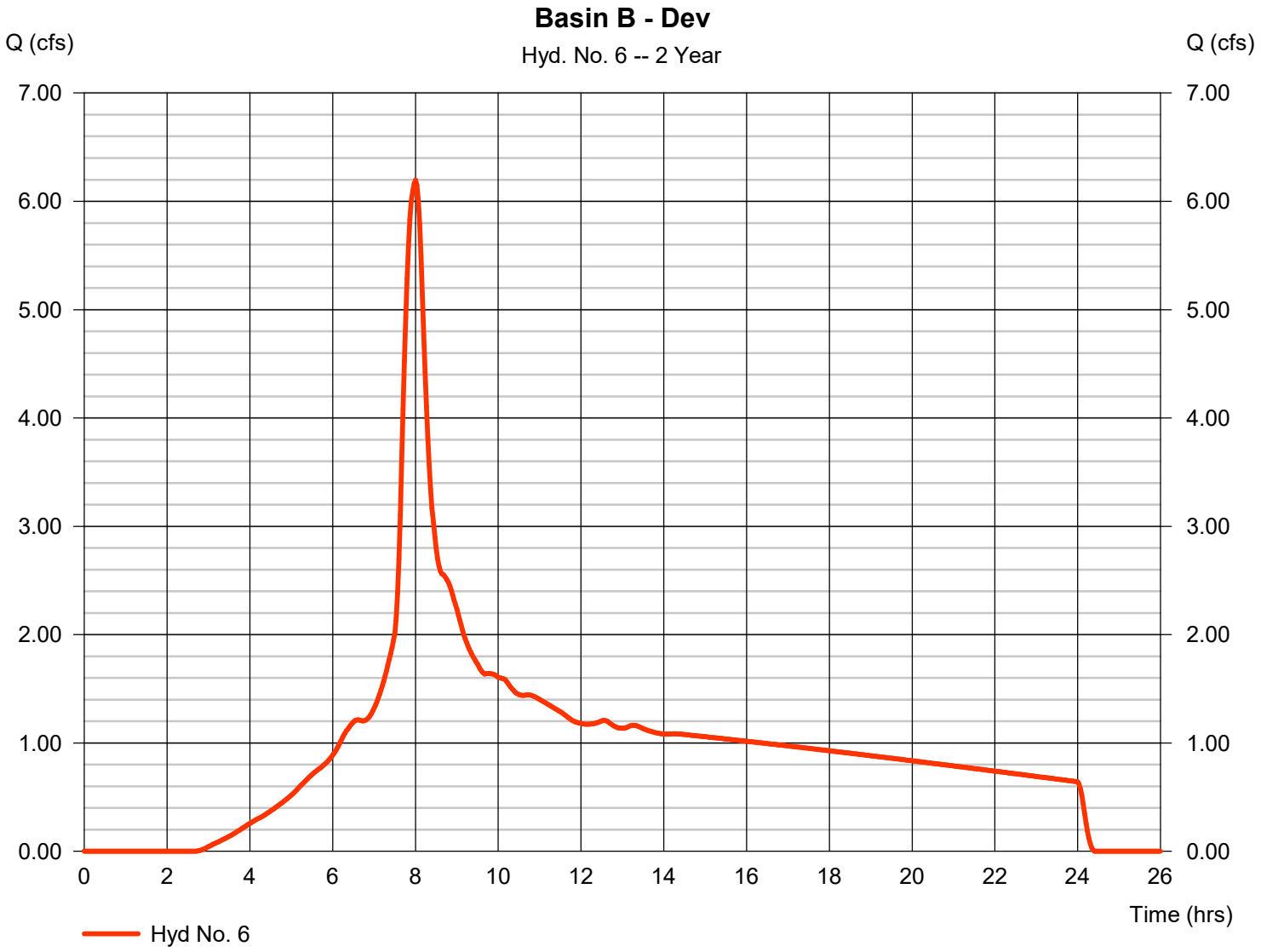
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 6

Basin B - Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 6.196 cfs
Storm frequency	= 2 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 88,568 cuft
Drainage area	= 14.780 ac	Curve number	= 92*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 15.00 min
Total precip.	= 2.50 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(3.350 x 98) + (7.020 x 98) + (4.190 x 76) + (0.220 x 98)] / 14.780



Hydrograph Report

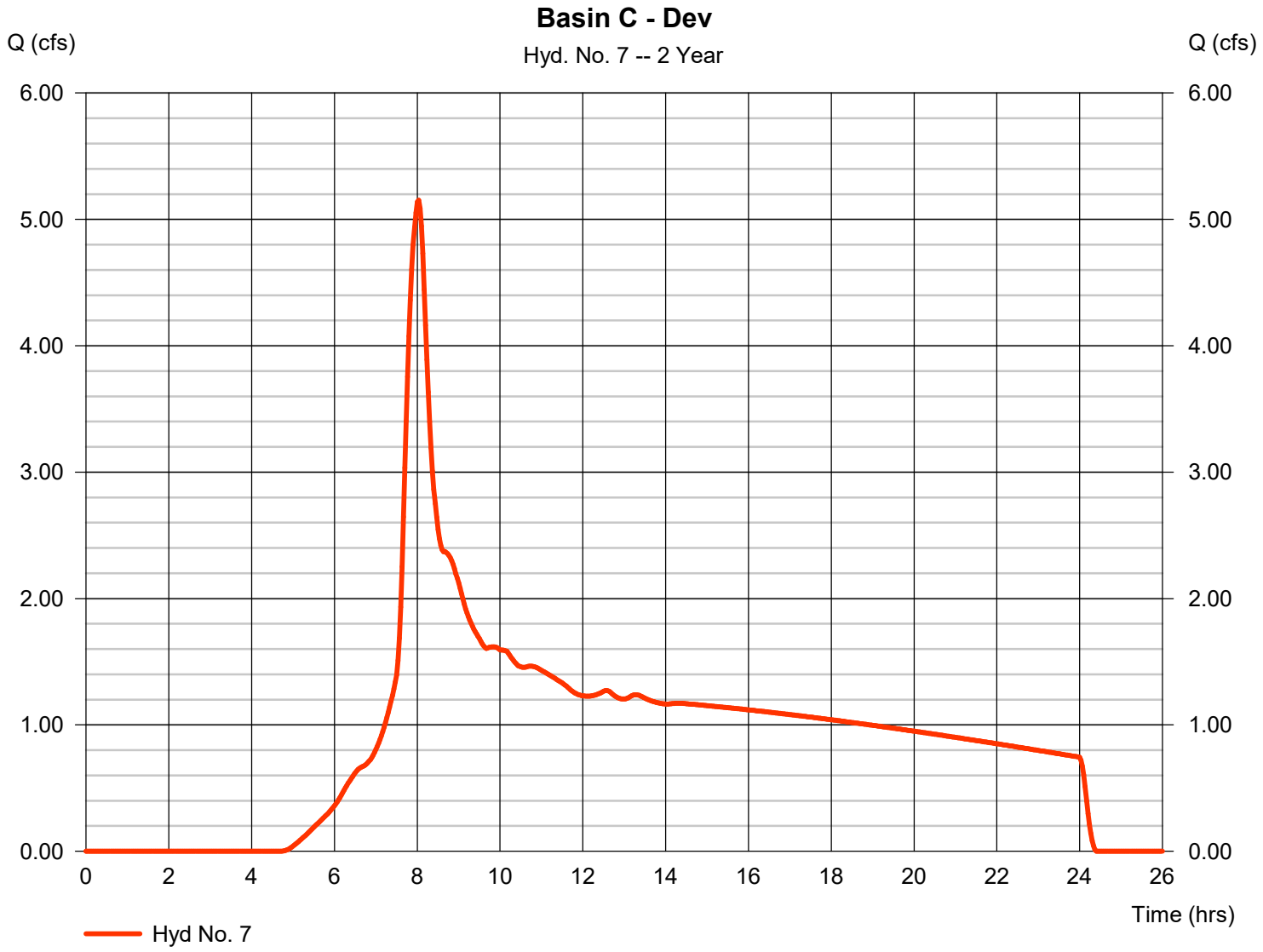
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 7

Basin C - Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 5.151 cfs
Storm frequency	= 2 yrs	Time to peak	= 8.03 hrs
Time interval	= 2 min	Hyd. volume	= 83,209 cuft
Drainage area	= 19.950 ac	Curve number	= 85*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 15.00 min
Total precip.	= 2.50 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(2.040 x 98) + (4.050 x 98) + (10.090 x 76) + (0.750 x 98) + (1.590 x 98) + (1.430 x 74)] / 19.950



Hydrograph Report

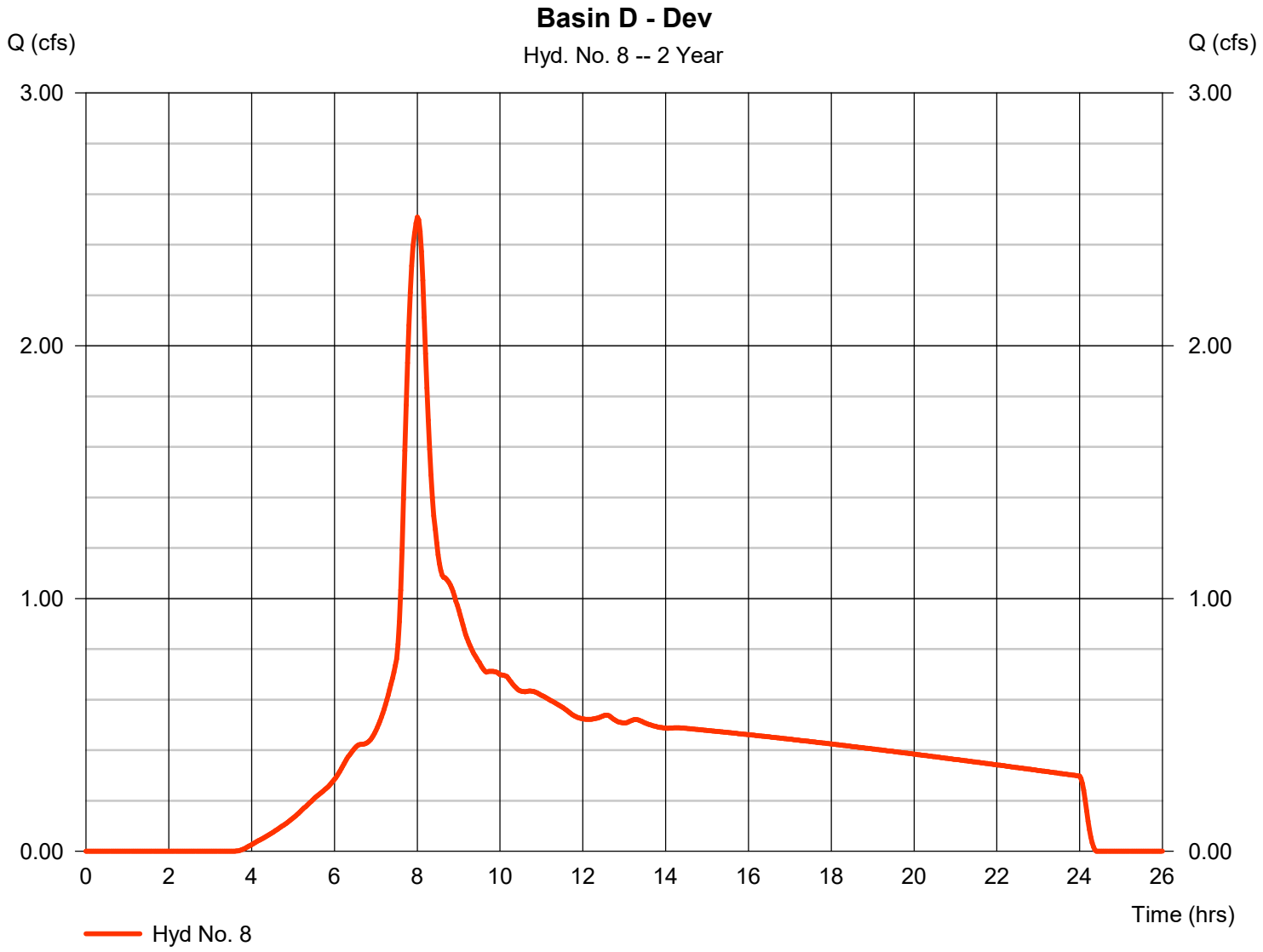
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 8

Basin D - Dev

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.509 cfs
Storm frequency	=	2 yrs	Time to peak	=	8.00 hrs
Time interval	=	2 min	Hyd. volume	=	37,379 cuft
Drainage area	=	7.260 ac	Curve number	=	89*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	15.00 min
Total precip.	=	2.50 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.240 x 98) + (1.040 x 76) + (3.180 x 98) + (1.800 x 74)] / 7.260



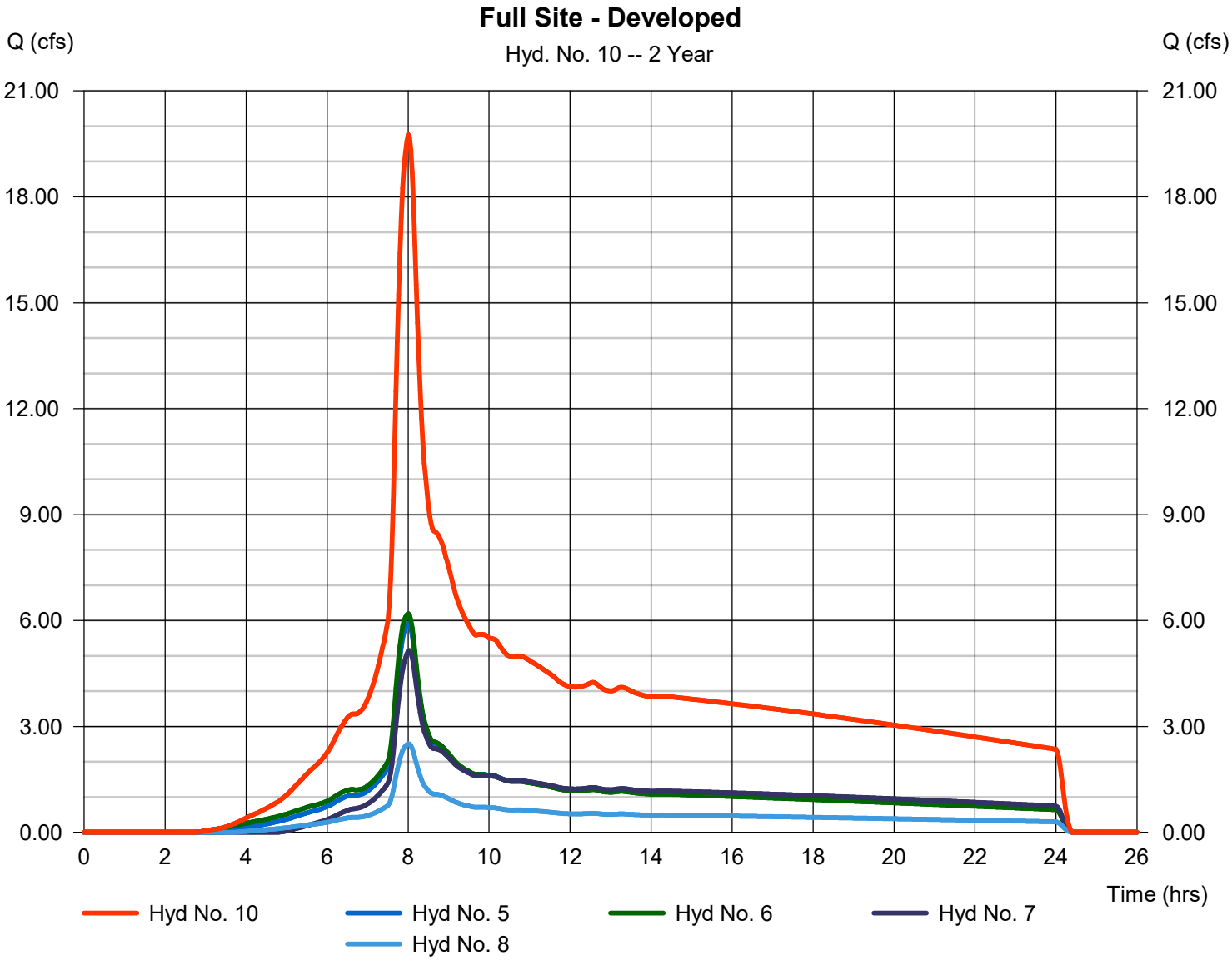
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 10

Full Site - Developed

Hydrograph type	= Combine	Peak discharge	= 19.76 cfs
Storm frequency	= 2 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 295,959 cuft
Inflow hyds.	= 5, 6, 7, 8	Contrib. drain. area	= 58.010 ac



Hydrograph Report

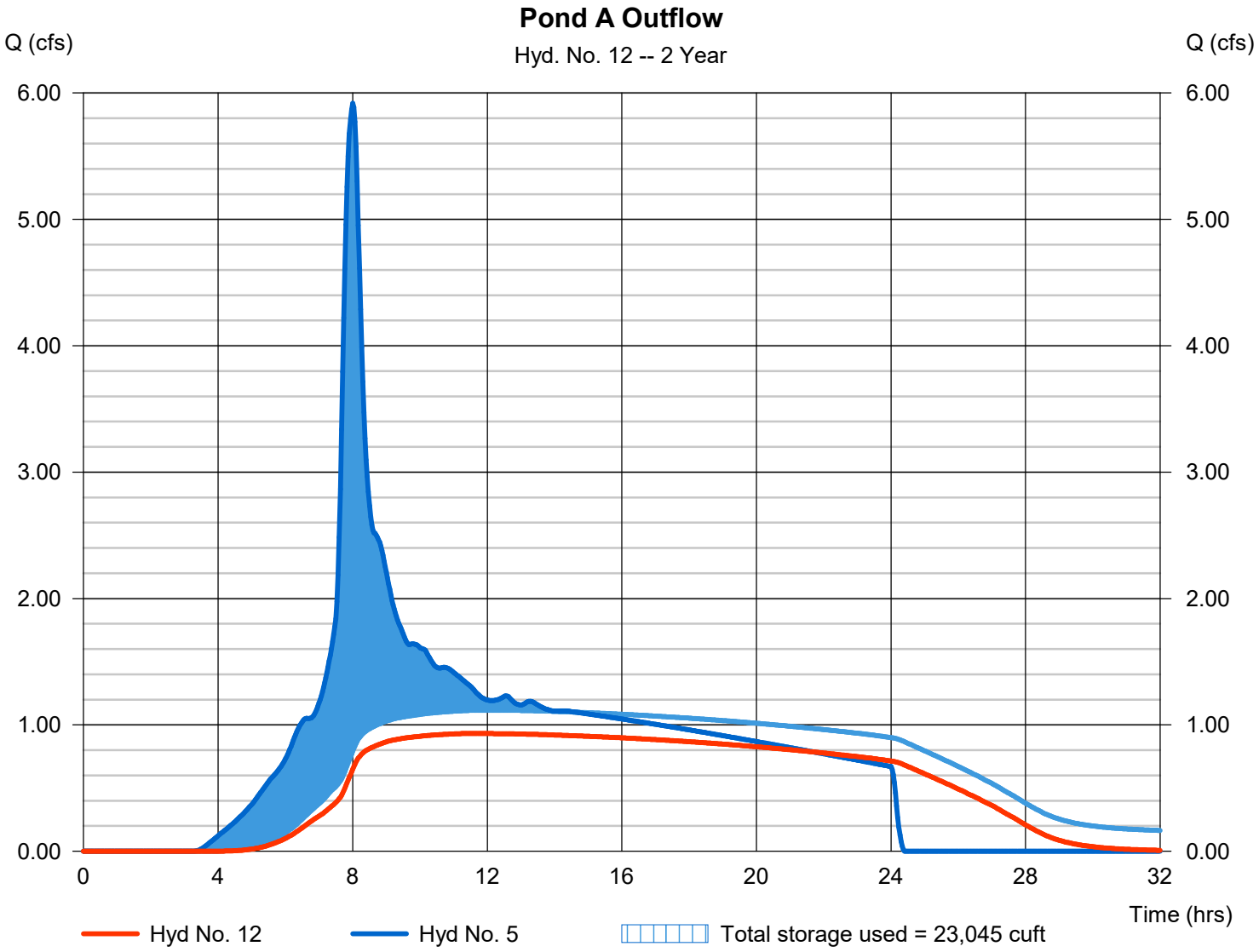
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 12

Pond A Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.933 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.67 hrs
Time interval	=	2 min	Hyd. volume	=	59,839 cuft
Inflow hyd. No.	=	5 - Basin A - Dev	Max. Elevation	=	141.62 ft
Reservoir name	=	Existing Pond A	Max. Storage	=	23,045 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Pond No. 1 - Existing Pond A

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 139.75 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	139.75	10,363	0	0
0.25	140.00	10,849	2,651	2,651
1.25	141.00	12,851	11,835	14,486
2.25	142.00	14,909	13,866	28,352
3.25	143.00	17,024	15,953	44,305

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 5.26	0.00	0.00	0.00
Span (in)	= 5.26	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 139.75	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

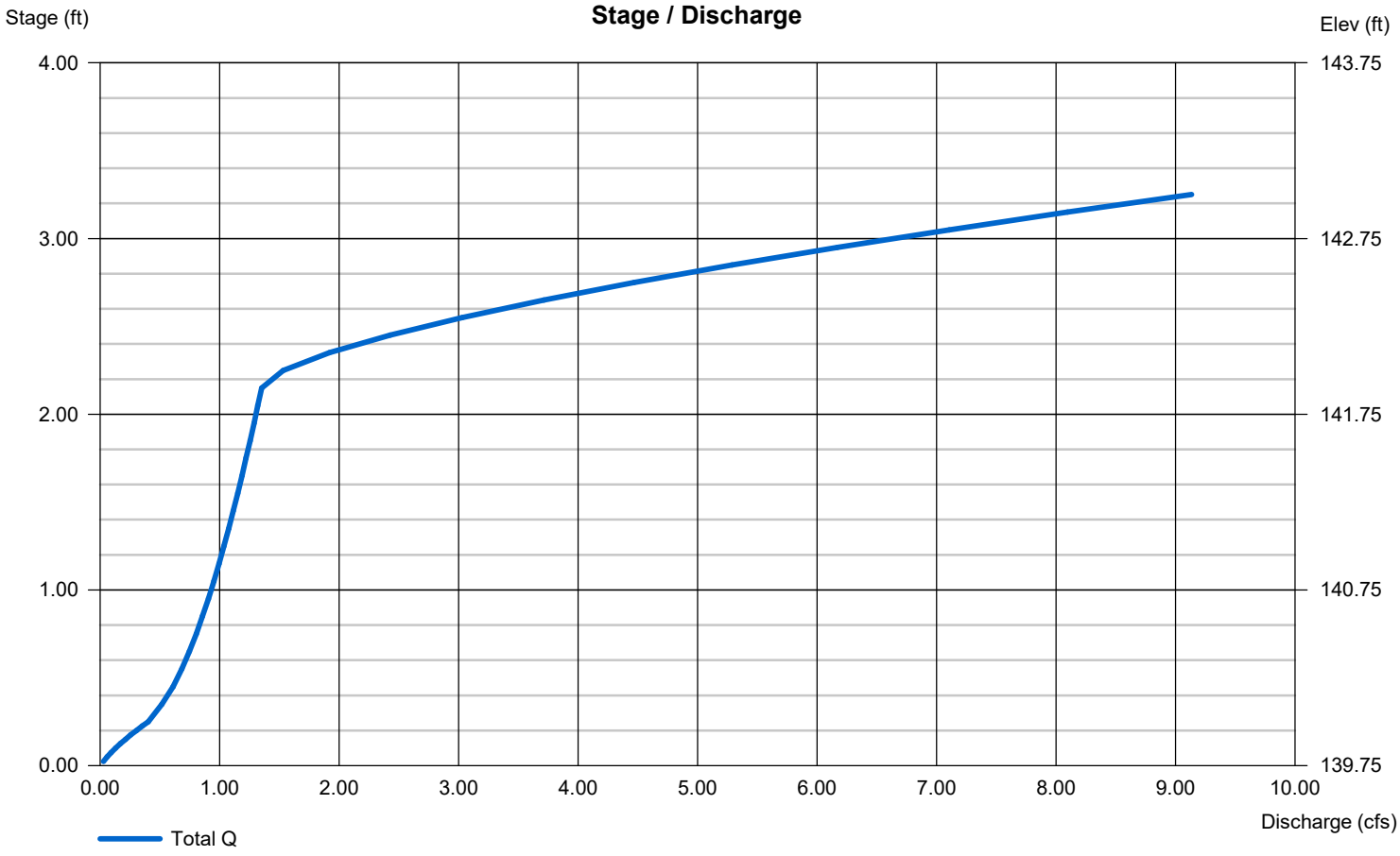
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	2.00	0.00	0.00
Crest El. (ft)	= 0.00	141.92	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	Rect	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 1.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Hydrograph Report

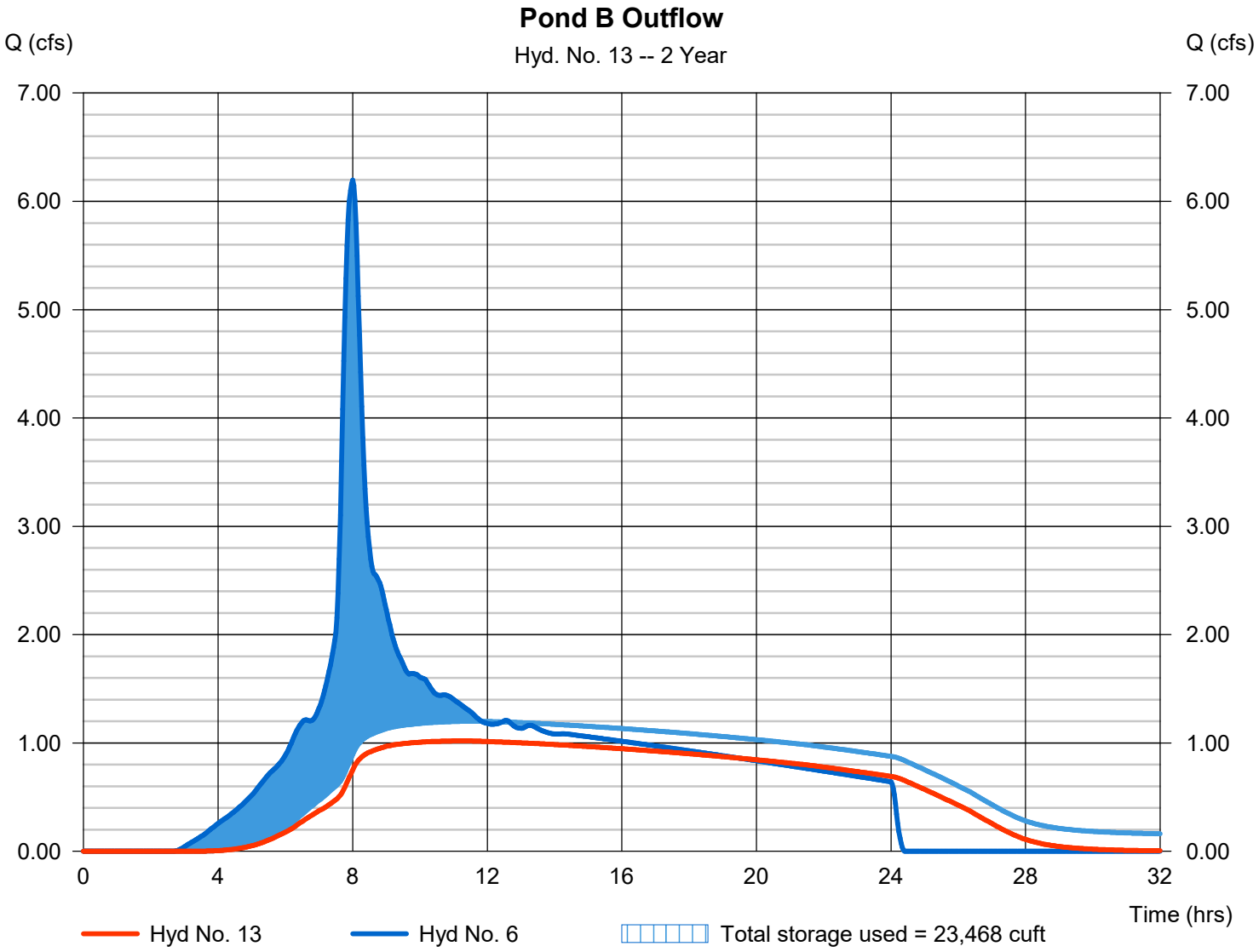
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 13

Pond B Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.019 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.23 hrs
Time interval	=	2 min	Hyd. volume	=	62,077 cuft
Inflow hyd. No.	=	6 - Basin B - Dev	Max. Elevation	=	138.65 ft
Reservoir name	=	Existing Pond B	Max. Storage	=	23,468 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Pond No. 2 - Existing Pond B

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 136.75 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	136.75	10,363	0	0
0.25	137.00	10,849	2,651	2,651
1.25	138.00	12,851	11,835	14,486
2.25	139.00	14,909	13,866	28,352
3.25	140.00	17,023	15,953	44,304
4.25	141.00	18,697	17,852	62,156

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 5.48	0.00	0.00	0.00
Span (in)	= 5.48	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 136.75	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

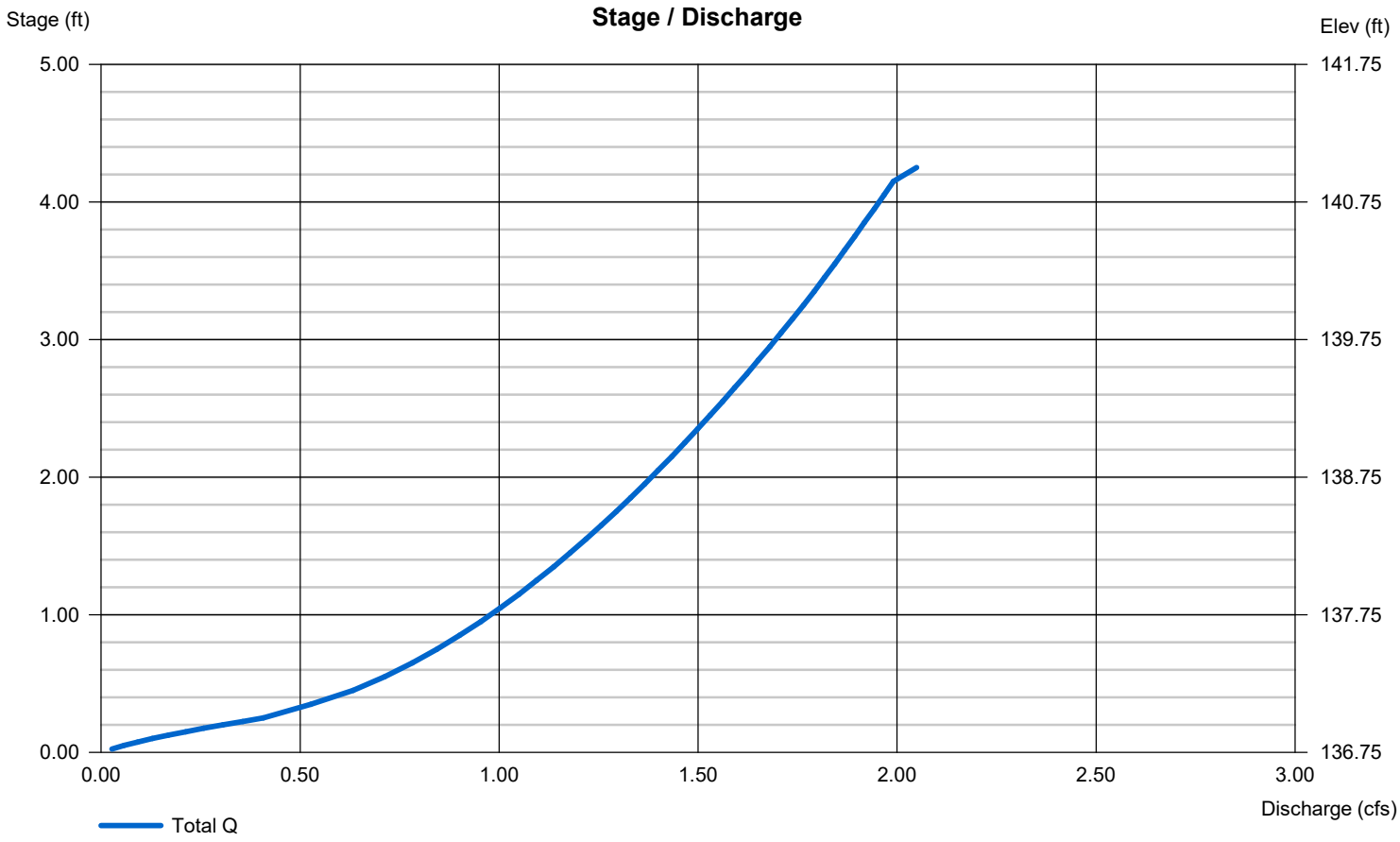
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	2.00	0.00	0.00
Crest El. (ft)	= 0.00	140.97	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	Rect	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 1.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Hydrograph Report

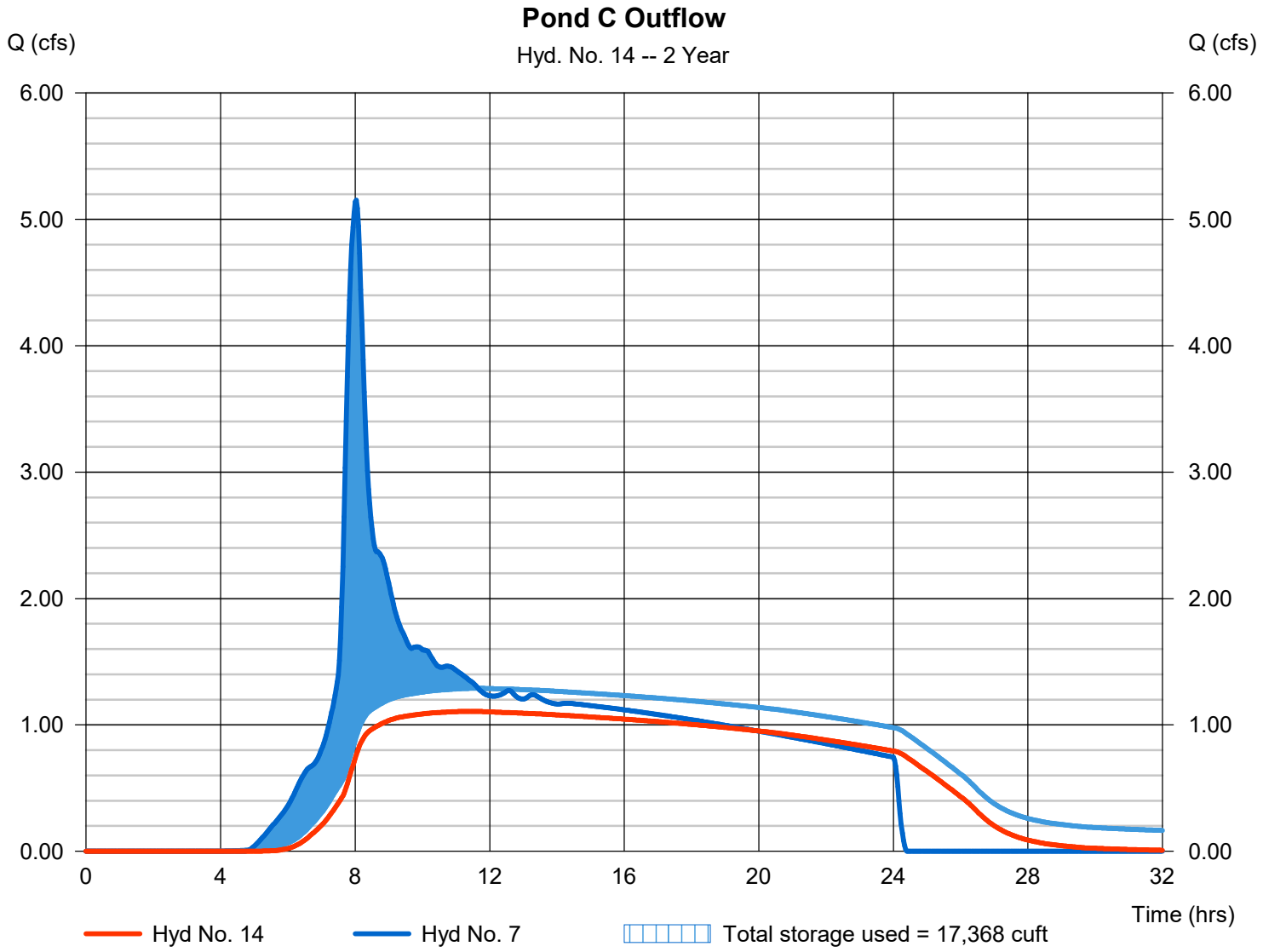
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 14

Pond C Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.107 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.43 hrs
Time interval	=	2 min	Hyd. volume	=	66,295 cuft
Inflow hyd. No.	=	7 - Basin C - Dev	Max. Elevation	=	137.50 ft
Reservoir name	=	Existing Pond C	Max. Storage	=	17,368 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Pond No. 3 - Existing Pond C

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 135.52 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	135.52	7,150	0	0
0.48	136.00	7,894	3,609	3,609
1.48	137.00	9,427	8,648	12,257
2.48	138.00	11,038	10,221	22,478
3.48	139.00	12,729	11,872	34,350
4.48	140.00	14,519	13,613	47,963
4.98	140.50	15,405	7,479	55,442

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 5.65	0.00	0.00	0.00
Span (in)	= 5.65	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 135.52	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

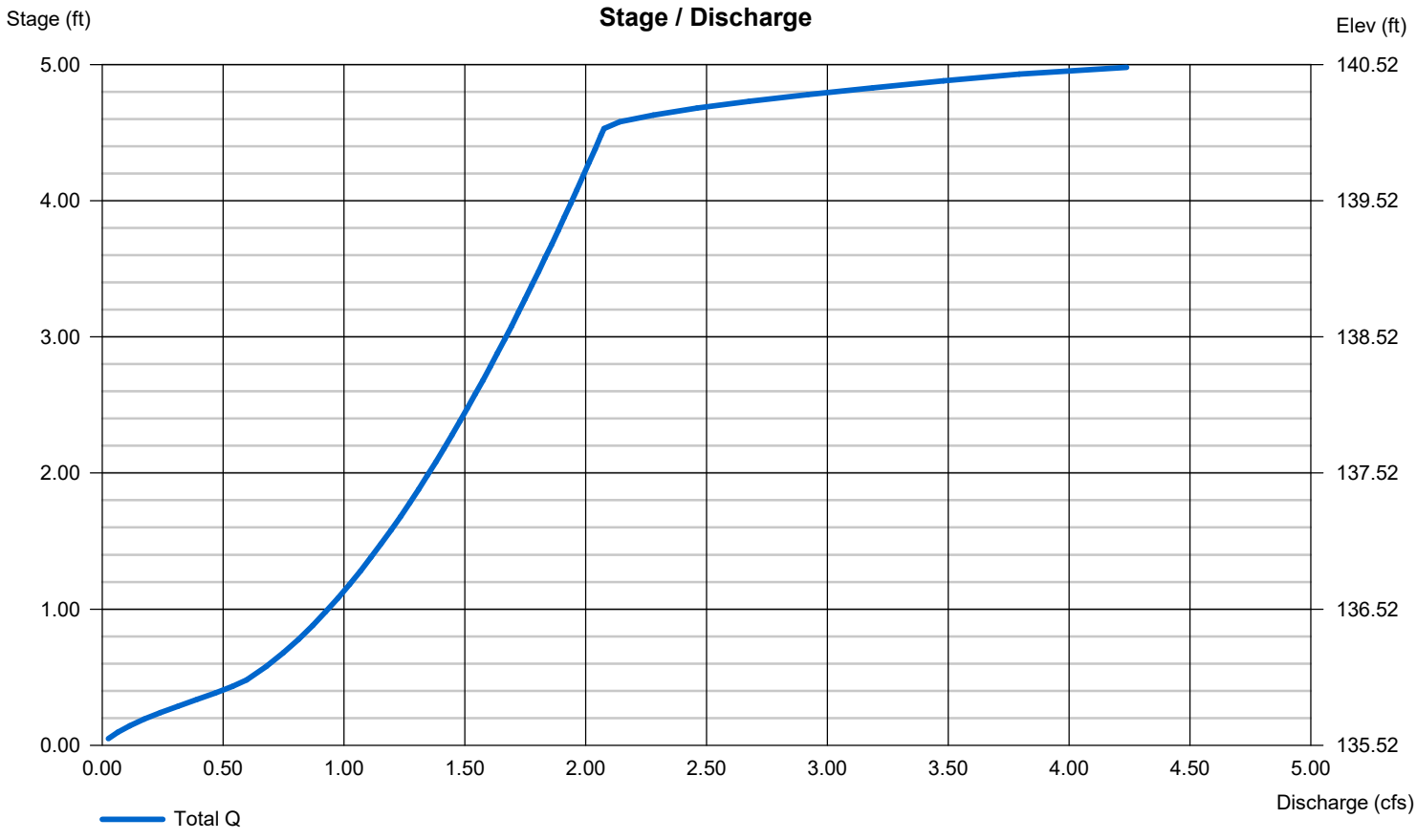
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	2.00	3.00	0.00
Crest El. (ft)	= 0.00	140.06	140.45	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	Rect	Rect	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 1.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Hydrograph Report

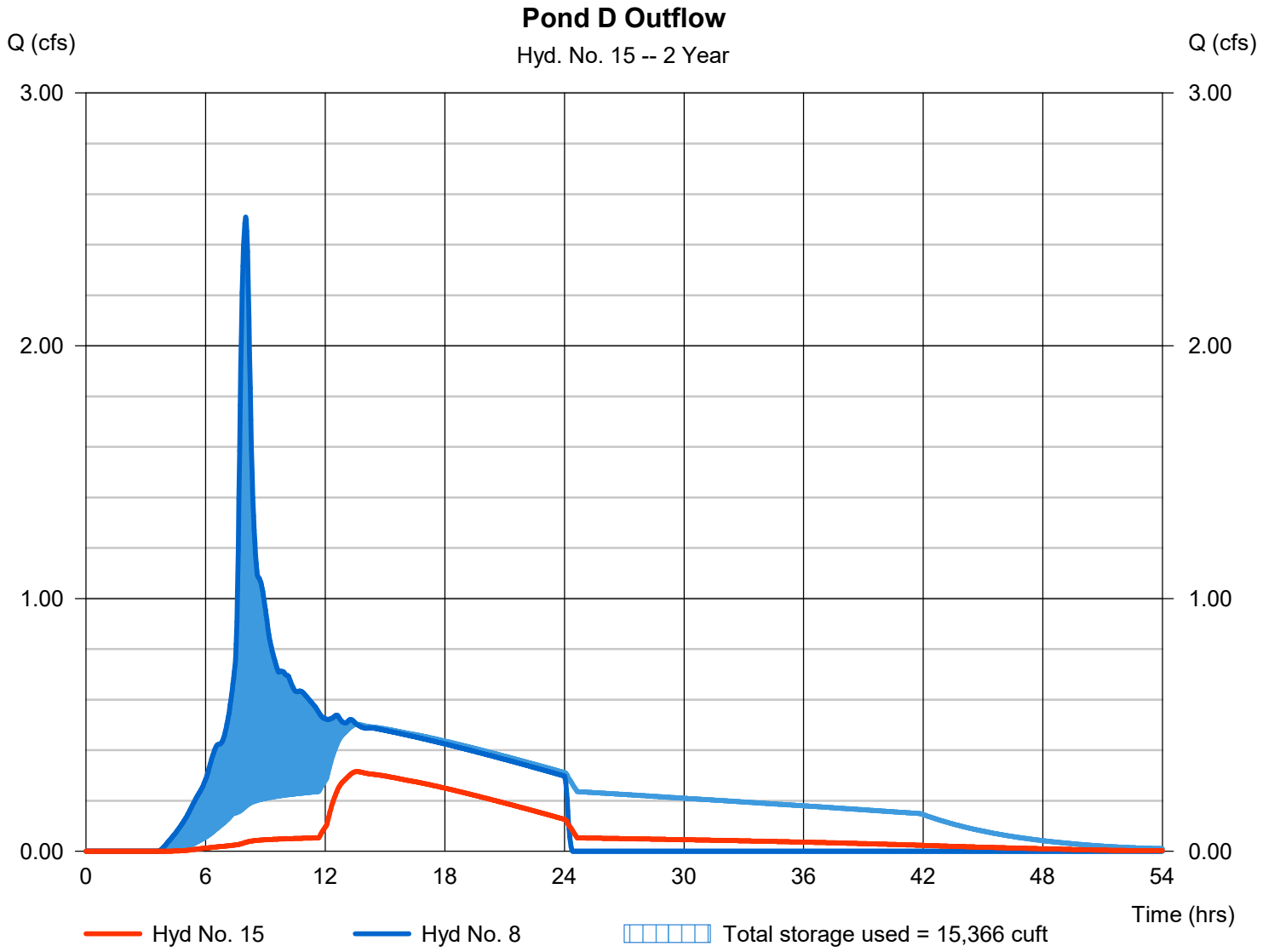
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 15

Pond D Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.315 cfs
Storm frequency	=	2 yrs	Time to peak	=	13.60 hrs
Time interval	=	2 min	Hyd. volume	=	14,110 cuft
Inflow hyd. No.	=	8 - Basin D - Dev	Max. Elevation	=	137.04 ft
Reservoir name	=	Modified Pond D	Max. Storage	=	15,366 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Pond No. 5 - Modified Pond D

Pond Data

Trapezoid -Bottom L x W = 190.0 x 25.0 ft, Side slope = 3.00:1, Bottom elev. = 134.63 ft, Depth = 5.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	134.63	4,750	0	0
0.50	135.13	5,404	2,538	2,538
1.00	135.63	6,076	2,869	5,407
1.50	136.13	6,766	3,210	8,617
2.00	136.63	7,474	3,559	12,176
2.50	137.13	8,200	3,918	16,094
3.00	137.63	8,944	4,285	20,379
3.50	138.13	9,706	4,662	25,041
4.00	138.63	10,486	5,047	30,088
4.50	139.13	11,284	5,442	35,530
5.00	139.63	12,100	5,845	41,375

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 1.16	0.00	0.00	0.00
Span (in)	= 1.16	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 134.63	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

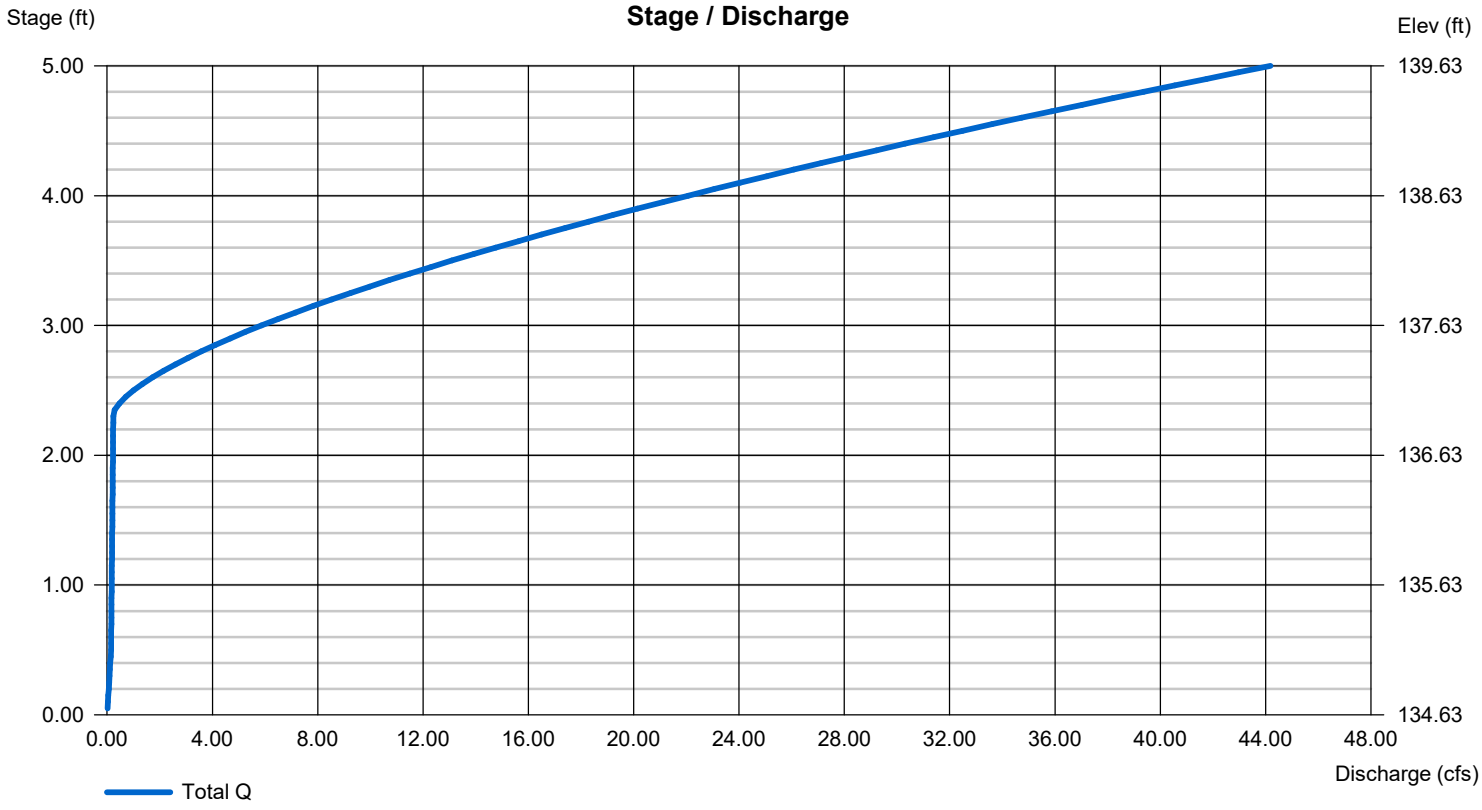
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	3.00	0.00	0.00
Crest El. (ft)	= 0.00	136.95	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	Rect	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 1.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



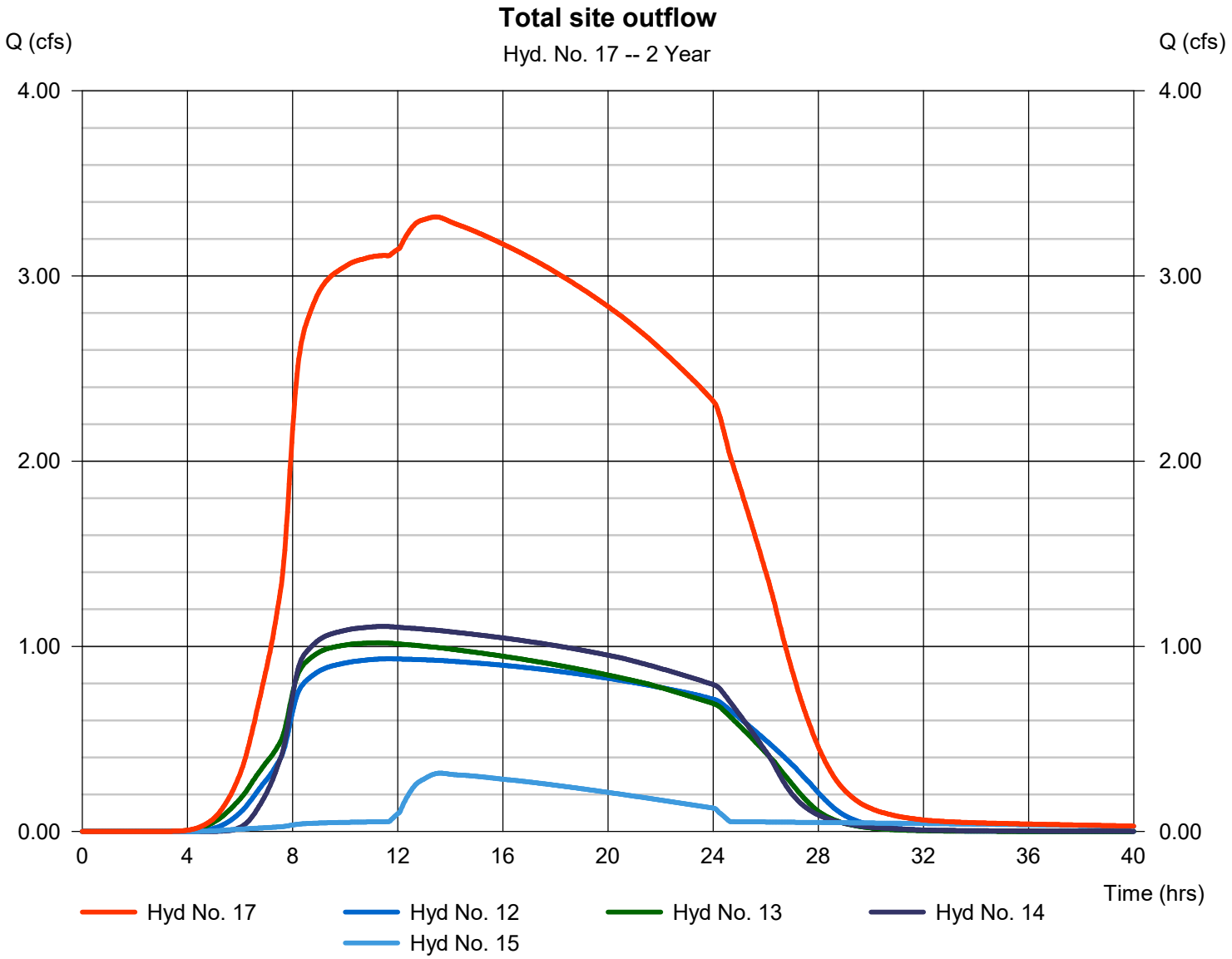
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 17

Total site outflow

Hydrograph type	= Combine	Peak discharge	= 3.320 cfs
Storm frequency	= 2 yrs	Time to peak	= 13.43 hrs
Time interval	= 2 min	Hyd. volume	= 202,321 cuft
Inflow hyds.	= 12, 13, 14, 15	Contrib. drain. area	= 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	10.91	2	492	241,352	------	------	------	Pre-Dev Overall Site
2	SCS Runoff	1.217	2	492	26,919	------	------	------	Pre-Dev New/Modified Site
3	SCS Runoff	9.694	2	492	214,434	------	------	------	Pre-Dev Undisturbed Site
5	SCS Runoff	9.576	2	480	136,145	------	------	------	Basin A - Dev
6	SCS Runoff	9.629	2	480	135,426	------	------	------	Basin B - Dev
7	SCS Runoff	9.296	2	480	139,303	------	------	------	Basin C - Dev
8	SCS Runoff	4.144	2	480	59,381	------	------	------	Basin D - Dev
10	Combine	32.64	2	480	470,255	5, 6, 7, 8,	------	------	Full Site - Developed
12	Reservoir	2.756	2	548	103,407	5	142.31	33,341	Pond A Outflow
13	Reservoir	1.350	2	714	99,737	6	139.91	42,836	Pond B Outflow
14	Reservoir	1.579	2	814	114,183	7	139.31	38,509	Pond C Outflow
15	Reservoir	1.253	2	544	35,019	8	137.19	16,630	Pond D Outflow
17	Combine	6.736	2	548	352,345	12, 13, 14, 15,	------	------	Total site outflow

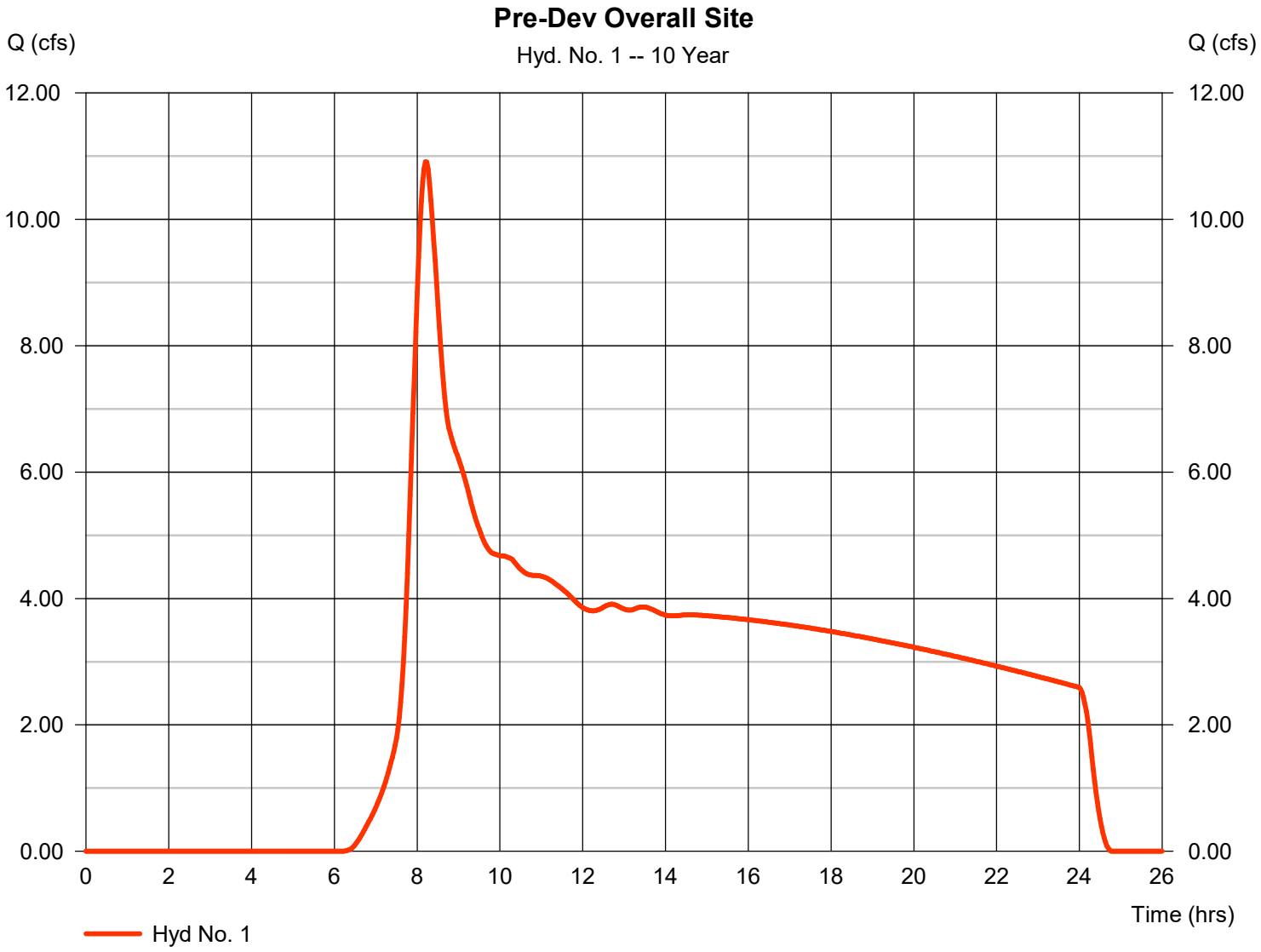
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 1

Pre-Dev Overall Site

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.91 cfs
Storm frequency	=	10 yrs	Time to peak	=	8.20 hrs
Time interval	=	2 min	Hyd. volume	=	241,352 cuft
Drainage area	=	58.010 ac	Curve number	=	73
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	30.00 min
Total precip.	=	3.45 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	484



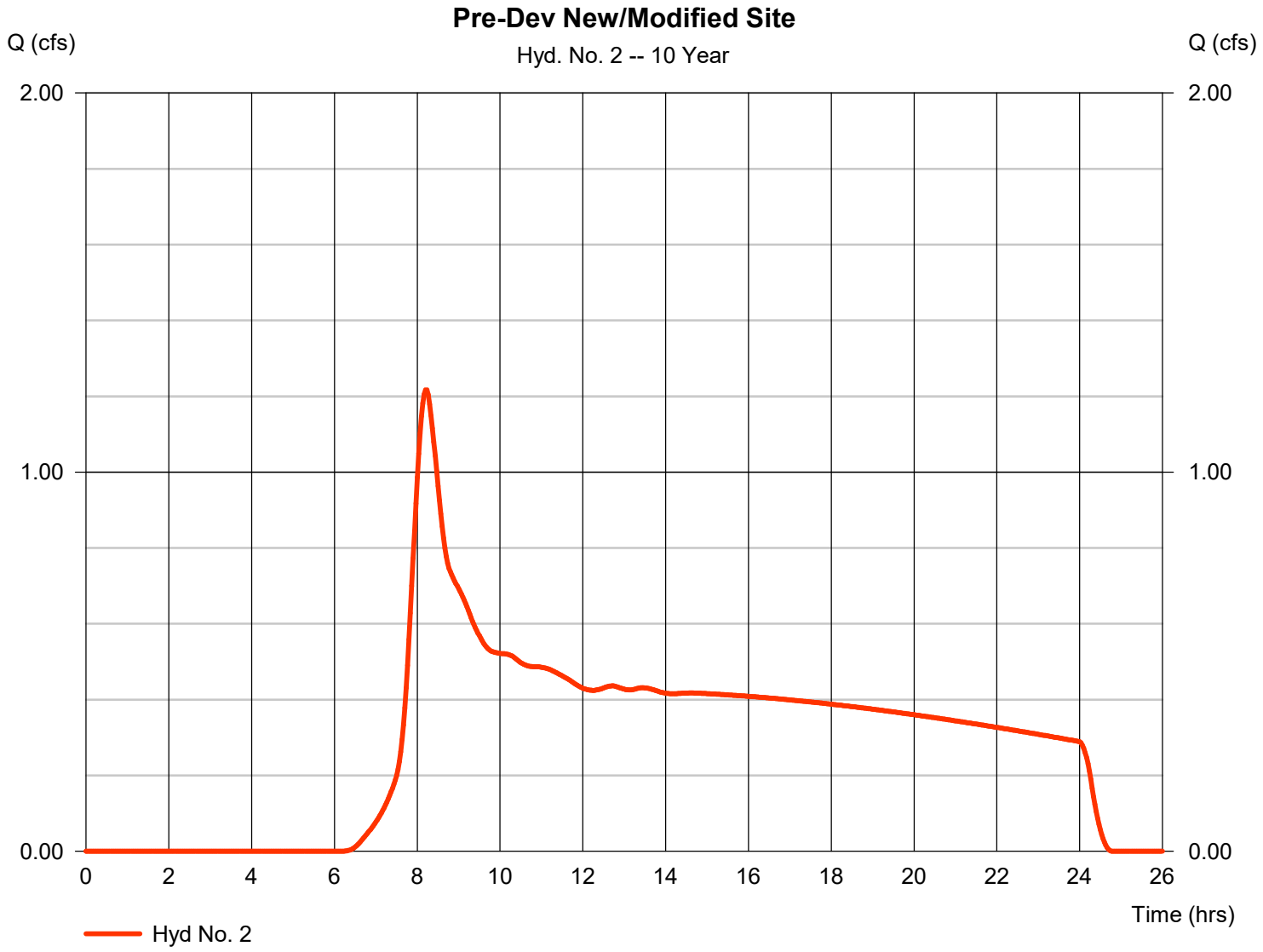
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 2

Pre-Dev New/Modified Site

Hydrograph type	= SCS Runoff	Peak discharge	= 1.217 cfs
Storm frequency	= 10 yrs	Time to peak	= 8.20 hrs
Time interval	= 2 min	Hyd. volume	= 26,919 cuft
Drainage area	= 6.470 ac	Curve number	= 73
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 30.00 min
Total precip.	= 3.45 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 3

Pre-Dev Undisturbed Site

Hydrograph type	= SCS Runoff	Peak discharge	= 9.694 cfs
Storm frequency	= 10 yrs	Time to peak	= 8.20 hrs
Time interval	= 2 min	Hyd. volume	= 214,434 cuft
Drainage area	= 51.540 ac	Curve number	= 73
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 30.00 min
Total precip.	= 3.45 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Report

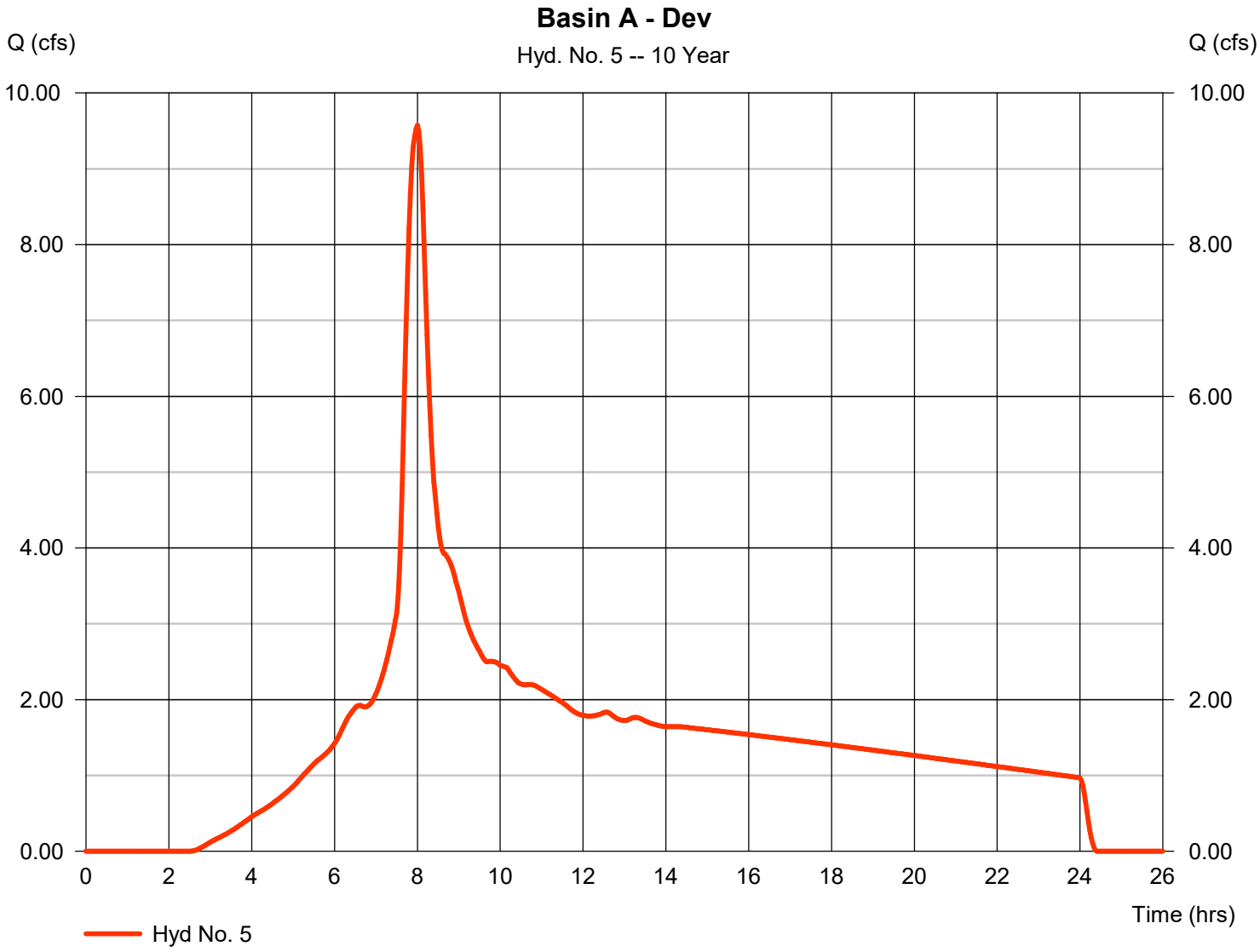
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 5

Basin A - Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 9.576 cfs
Storm frequency	= 10 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 136,145 cuft
Drainage area	= 16.020 ac	Curve number	= 90*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 15.00 min
Total precip.	= 3.45 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.250 x 98) + (8.150 x 98) + (5.890 x 76) + (0.730 x 98)] / 16.020



Hydrograph Report

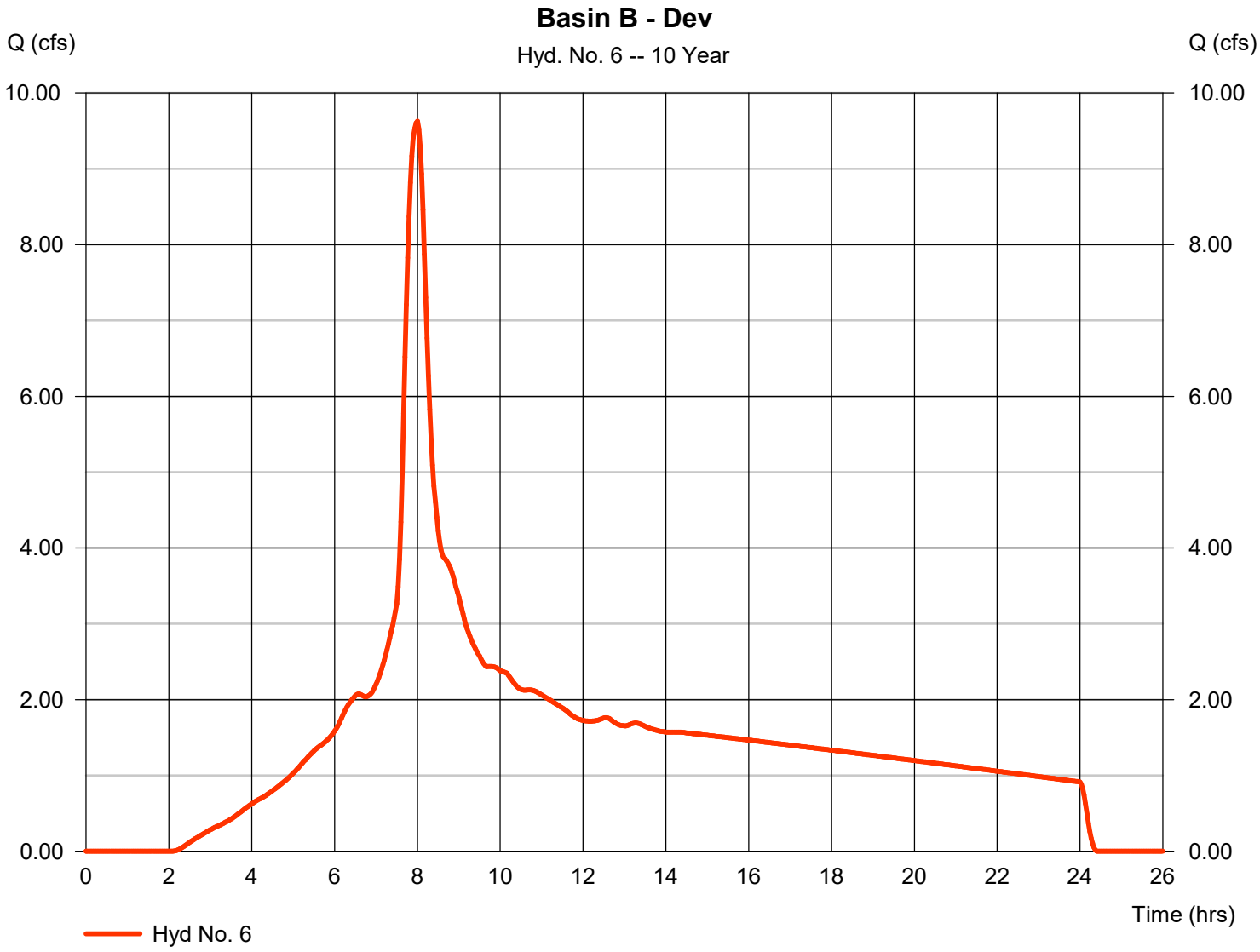
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 6

Basin B - Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 9.629 cfs
Storm frequency	= 10 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 135,426 cuft
Drainage area	= 14.780 ac	Curve number	= 92*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 15.00 min
Total precip.	= 3.45 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(3.350 x 98) + (7.020 x 98) + (4.190 x 76) + (0.220 x 98)] / 14.780



Hydrograph Report

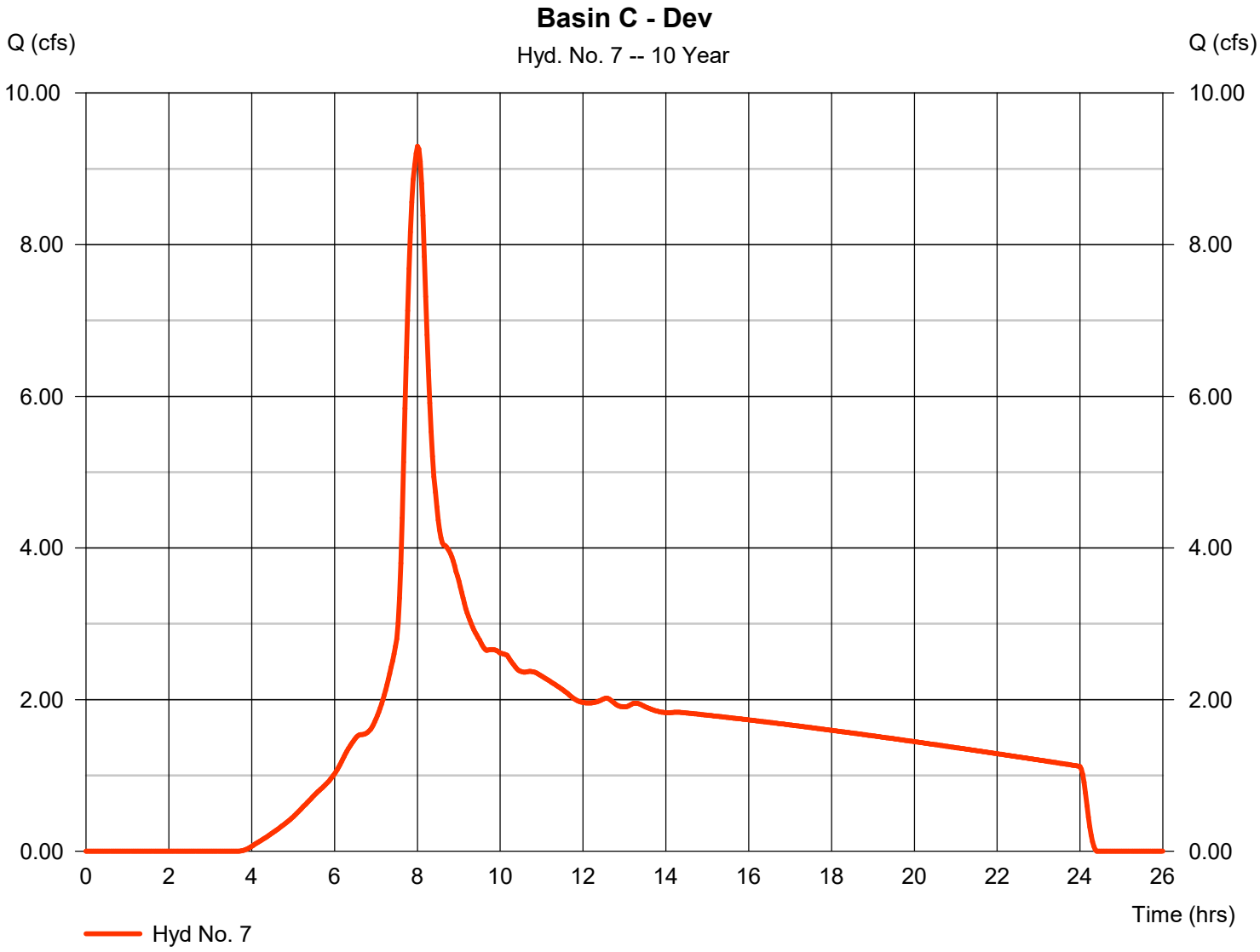
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 7

Basin C - Dev

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.296 cfs
Storm frequency	=	10 yrs	Time to peak	=	8.00 hrs
Time interval	=	2 min	Hyd. volume	=	139,303 cuft
Drainage area	=	19.950 ac	Curve number	=	85*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	15.00 min
Total precip.	=	3.45 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.040 x 98) + (4.050 x 98) + (10.090 x 76) + (0.750 x 98) + (1.590 x 98) + (1.430 x 74)] / 19.950



Hydrograph Report

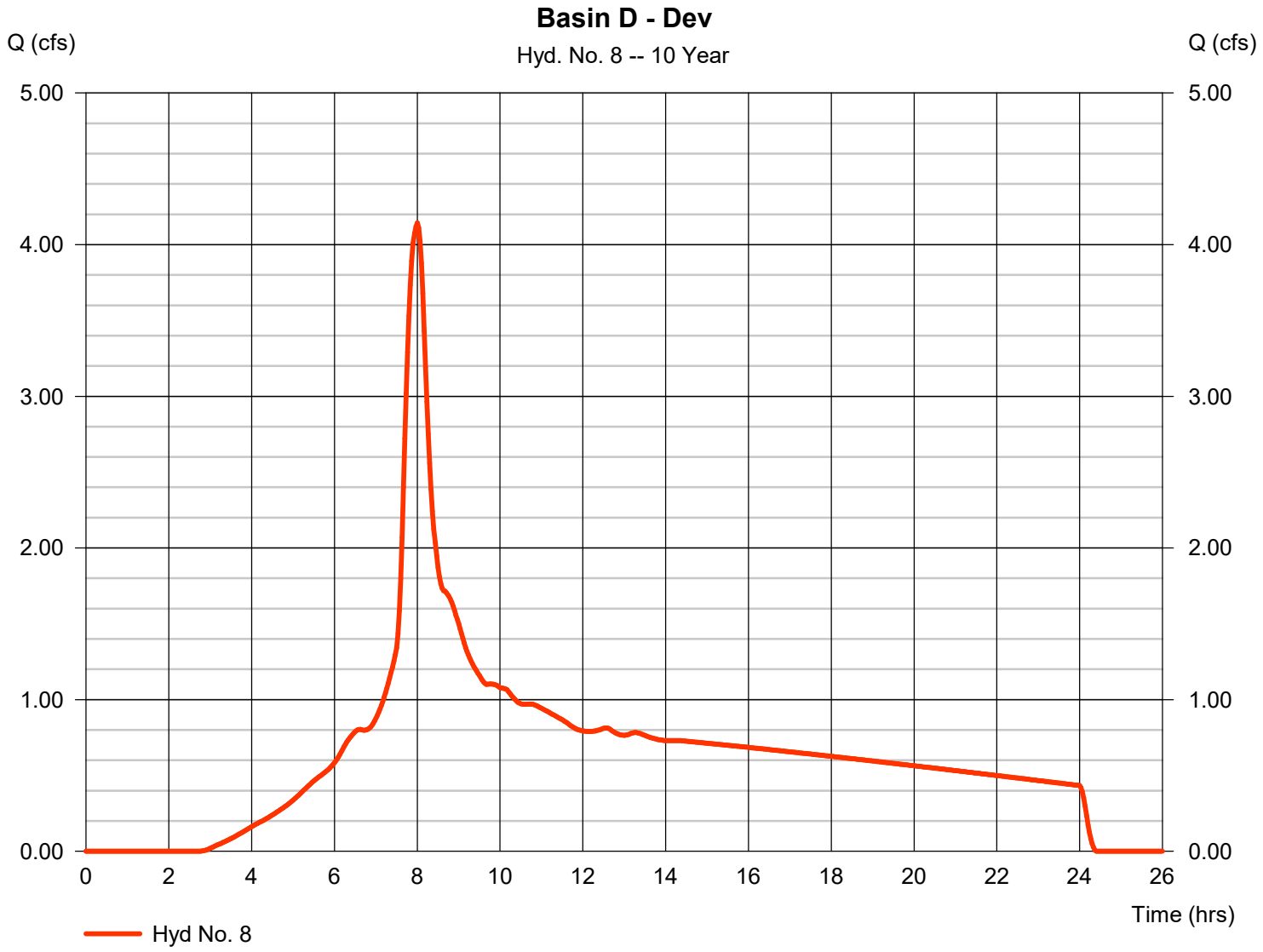
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 8

Basin D - Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 4.144 cfs
Storm frequency	= 10 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 59,381 cuft
Drainage area	= 7.260 ac	Curve number	= 89*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 15.00 min
Total precip.	= 3.45 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.240 x 98) + (1.040 x 76) + (3.180 x 98) + (1.800 x 74)] / 7.260



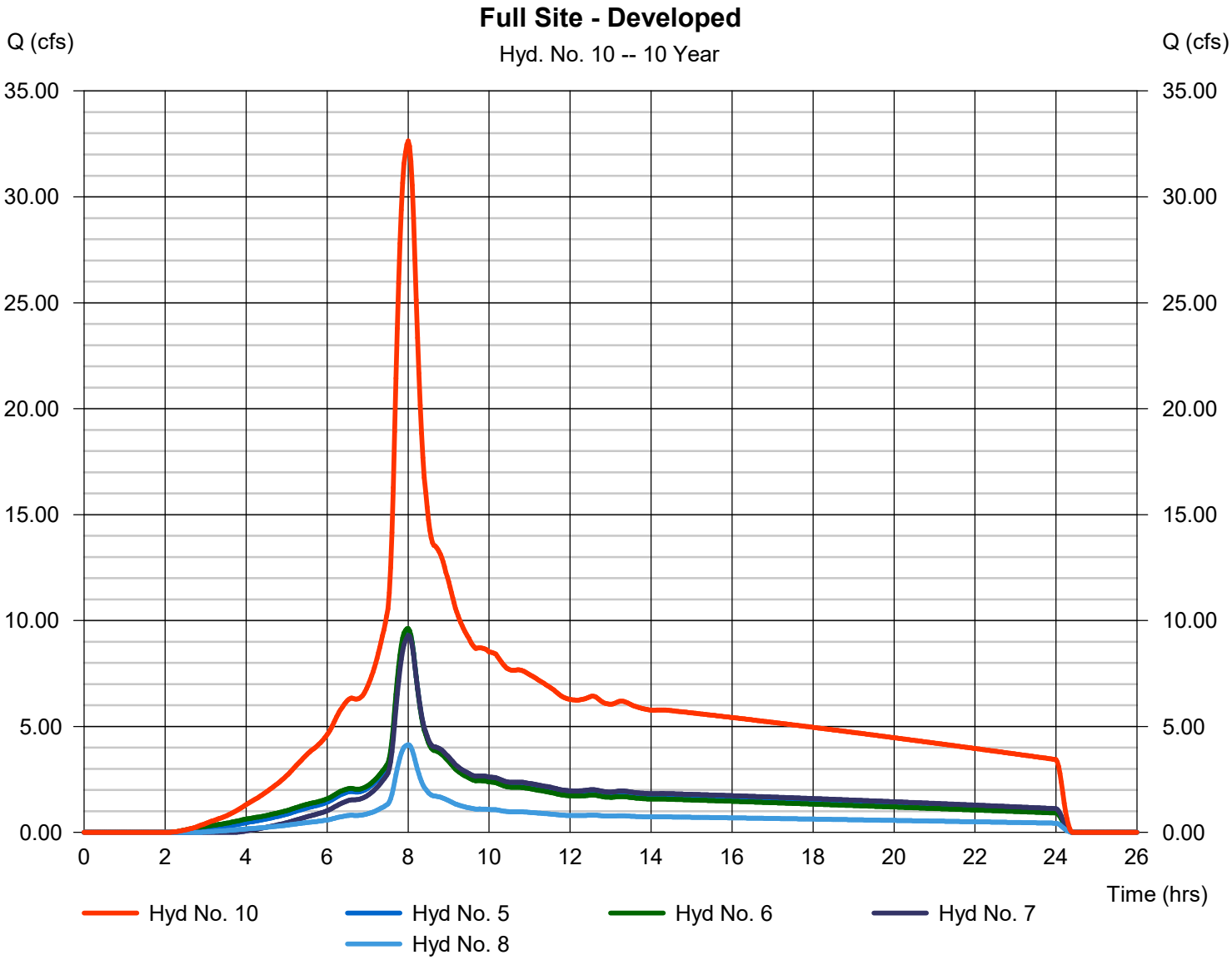
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 10

Full Site - Developed

Hydrograph type	= Combine	Peak discharge	= 32.64 cfs
Storm frequency	= 10 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 470,255 cuft
Inflow hyds.	= 5, 6, 7, 8	Contrib. drain. area	= 58.010 ac



Hydrograph Report

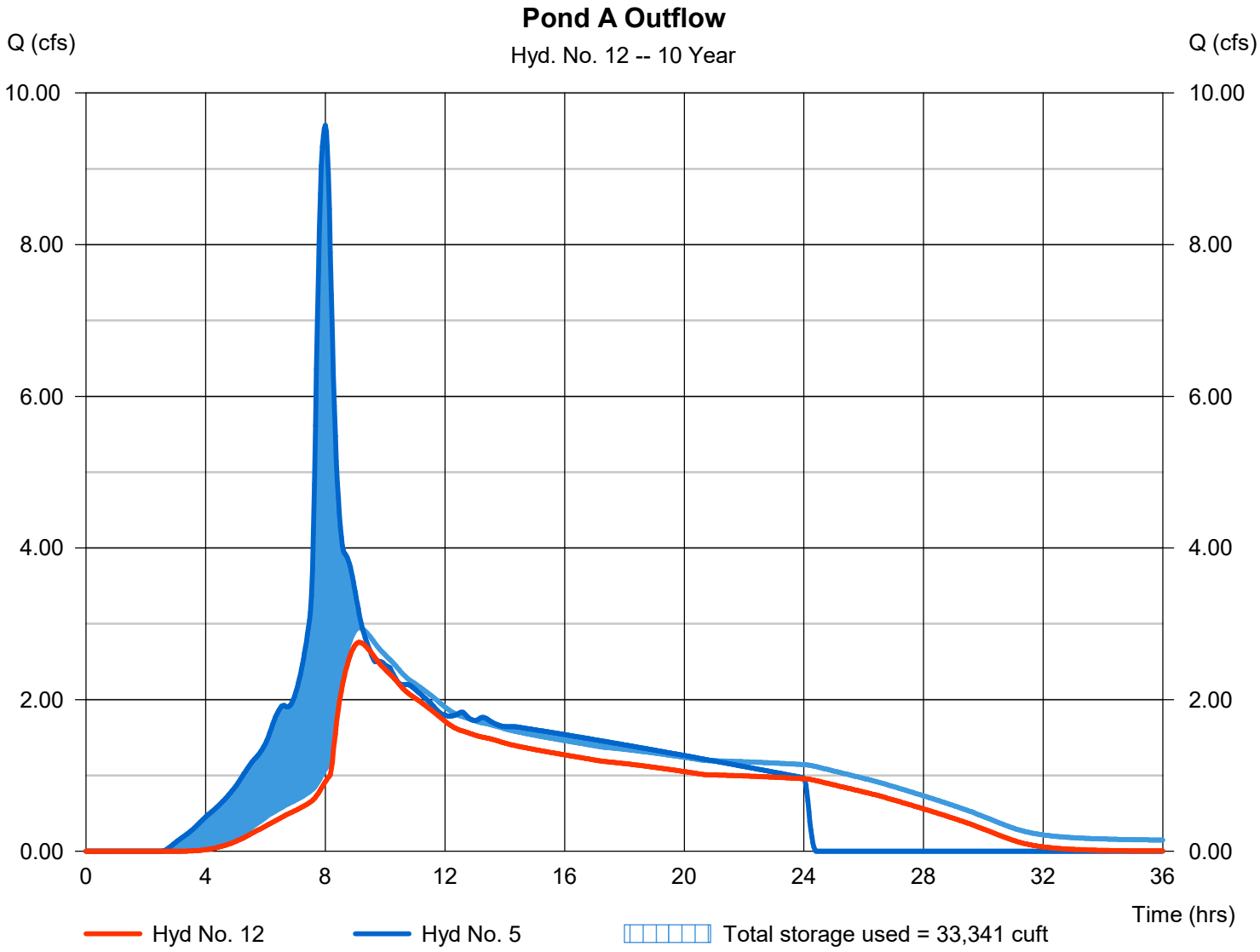
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 12

Pond A Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	2.756 cfs
Storm frequency	=	10 yrs	Time to peak	=	9.13 hrs
Time interval	=	2 min	Hyd. volume	=	103,407 cuft
Inflow hyd. No.	=	5 - Basin A - Dev	Max. Elevation	=	142.31 ft
Reservoir name	=	Existing Pond A	Max. Storage	=	33,341 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

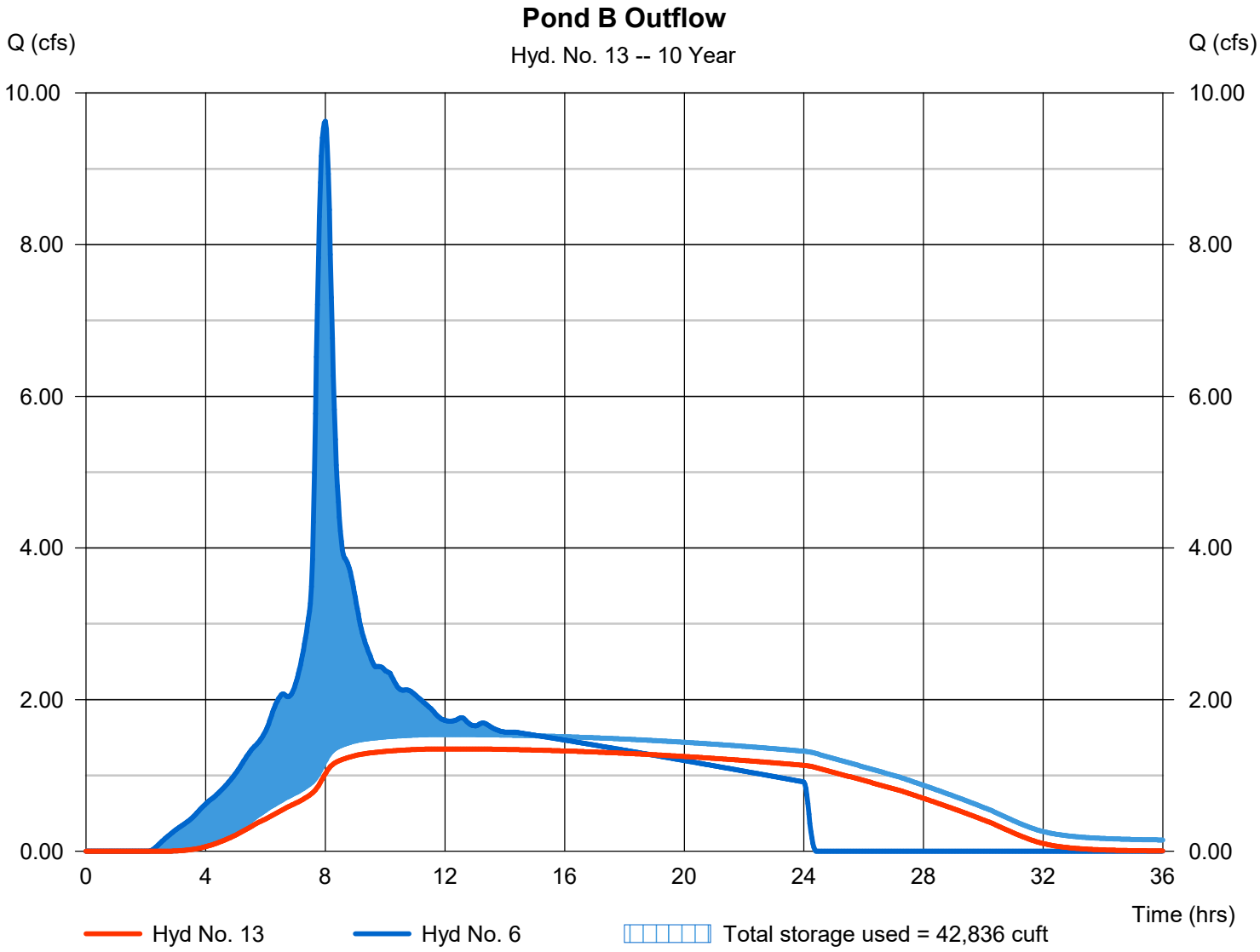
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 13

Pond B Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.350 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.90 hrs
Time interval	=	2 min	Hyd. volume	=	99,737 cuft
Inflow hyd. No.	=	6 - Basin B - Dev	Max. Elevation	=	139.91 ft
Reservoir name	=	Existing Pond B	Max. Storage	=	42,836 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

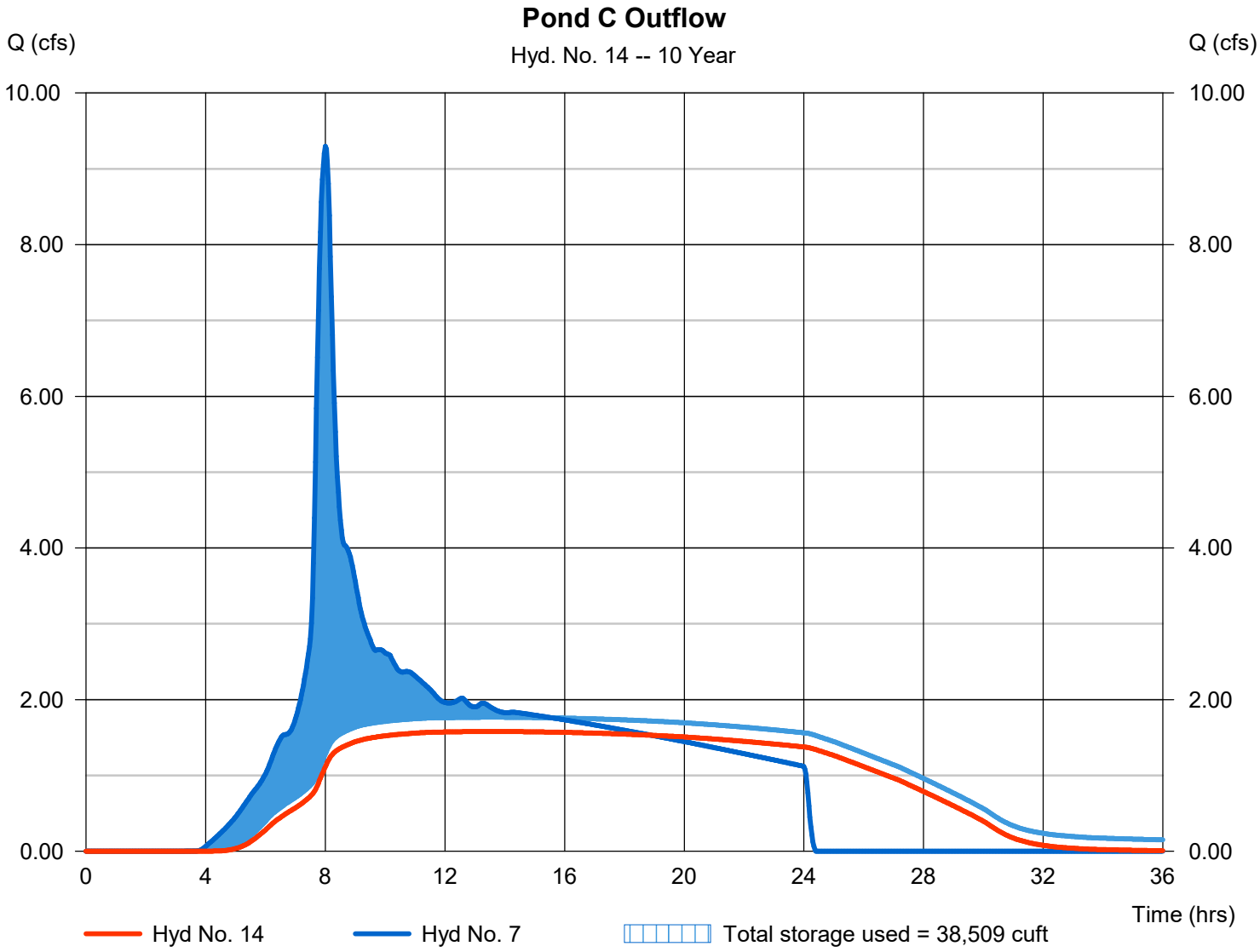
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 14

Pond C Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.579 cfs
Storm frequency	=	10 yrs	Time to peak	=	13.57 hrs
Time interval	=	2 min	Hyd. volume	=	114,183 cuft
Inflow hyd. No.	=	7 - Basin C - Dev	Max. Elevation	=	139.31 ft
Reservoir name	=	Existing Pond C	Max. Storage	=	38,509 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

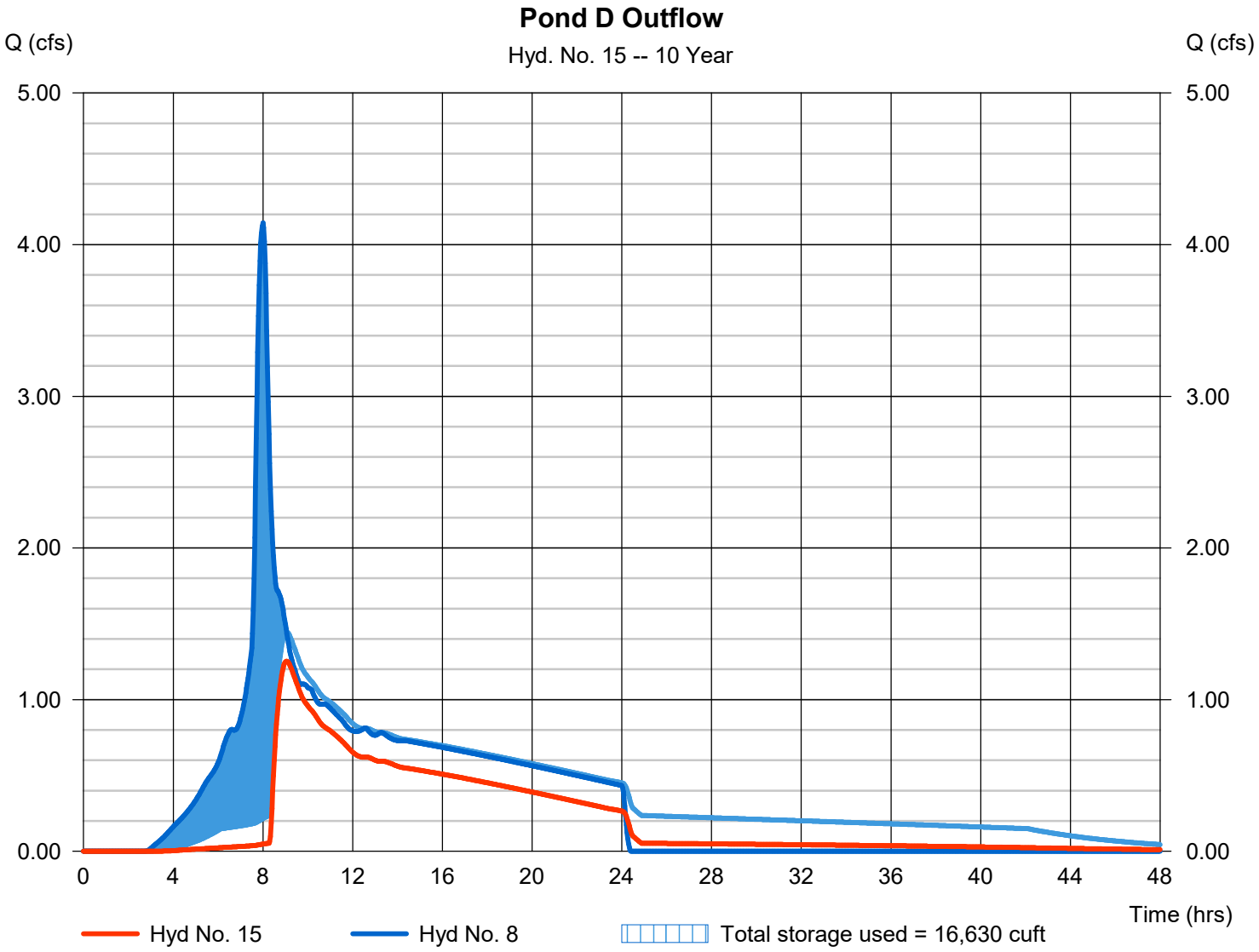
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 15

Pond D Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.253 cfs
Storm frequency	=	10 yrs	Time to peak	=	9.07 hrs
Time interval	=	2 min	Hyd. volume	=	35,019 cuft
Inflow hyd. No.	=	8 - Basin D - Dev	Max. Elevation	=	137.19 ft
Reservoir name	=	Modified Pond D	Max. Storage	=	16,630 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



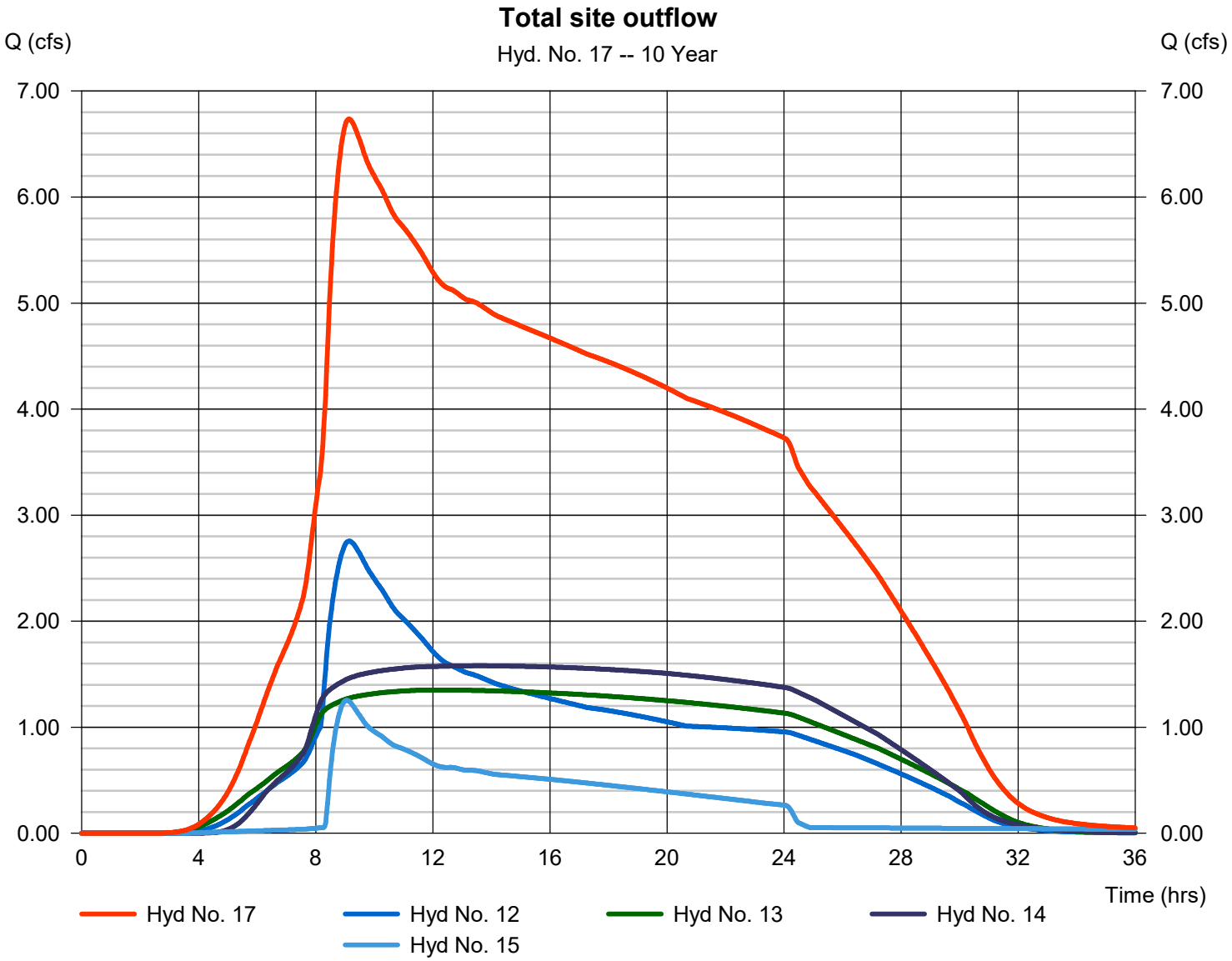
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 17

Total site outflow

Hydrograph type	= Combine	Peak discharge	= 6.736 cfs
Storm frequency	= 10 yrs	Time to peak	= 9.13 hrs
Time interval	= 2 min	Hyd. volume	= 352,345 cuft
Inflow hyds.	= 12, 13, 14, 15	Contrib. drain. area	= 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	15.07	2	492	306,623	------	------	------	Pre-Dev Overall Site
2	SCS Runoff	1.681	2	492	34,198	------	------	------	Pre-Dev New/Modified Site
3	SCS Runoff	13.39	2	492	272,424	------	------	------	Pre-Dev Undisturbed Site
5	SCS Runoff	11.34	2	480	160,144	------	------	------	Basin A - Dev
6	SCS Runoff	11.26	2	480	158,032	------	------	------	Basin B - Dev
7	SCS Runoff	11.38	2	480	167,245	------	------	------	Basin C - Dev
8	SCS Runoff	4.937	2	480	70,130	------	------	------	Basin D - Dev
10	Combine	38.91	2	480	555,550	5, 6, 7, 8,	------	------	Full Site - Developed
12	Reservoir	4.153	2	524	126,143	5	142.51	36,436	Pond A Outflow
13	Reservoir	1.482	2	808	117,852	6	140.51	53,417	Pond B Outflow
14	Reservoir	1.909	2	808	137,895	7	140.14	50,056	Pond C Outflow
15	Reservoir	2.099	2	508	45,410	8	137.30	17,521	Pond D Outflow
17	Combine	9.040	2	514	427,299	12, 13, 14, 15,	------	------	Total site outflow

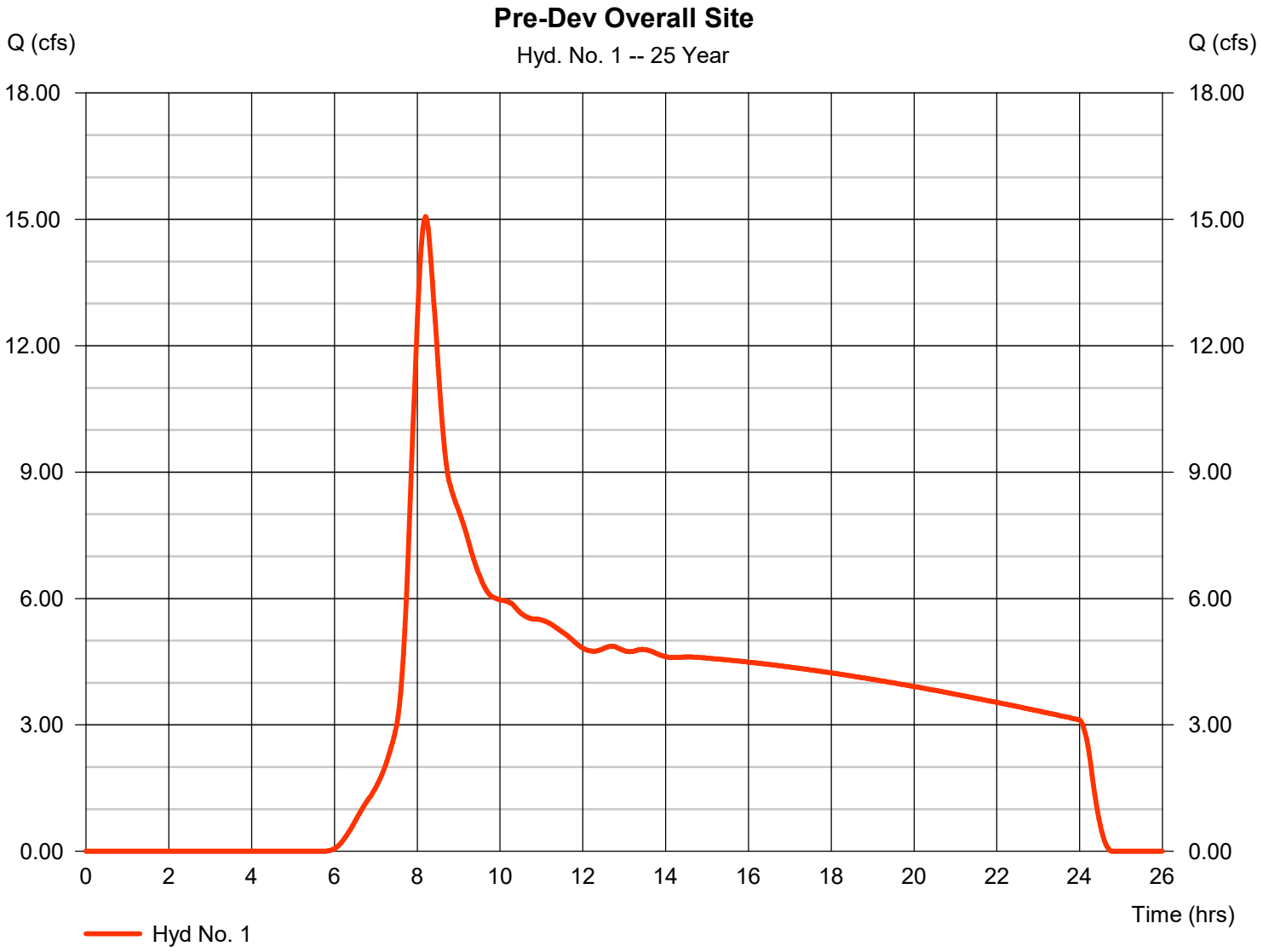
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 1

Pre-Dev Overall Site

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.07 cfs
Storm frequency	=	25 yrs	Time to peak	=	8.20 hrs
Time interval	=	2 min	Hyd. volume	=	306,623 cuft
Drainage area	=	58.010 ac	Curve number	=	73
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	30.00 min
Total precip.	=	3.90 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	484



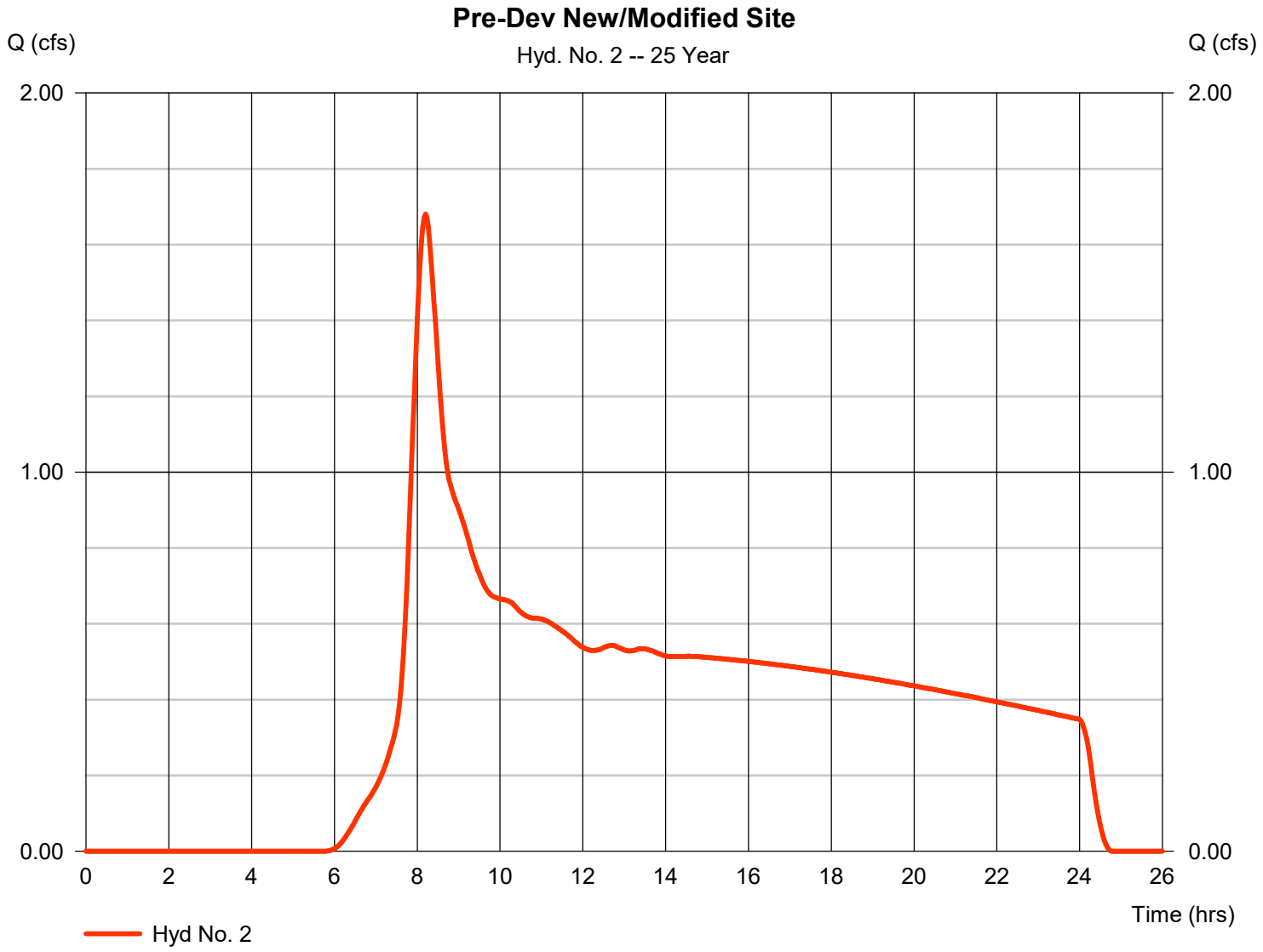
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 2

Pre-Dev New/Modified Site

Hydrograph type	= SCS Runoff	Peak discharge	= 1.681 cfs
Storm frequency	= 25 yrs	Time to peak	= 8.20 hrs
Time interval	= 2 min	Hyd. volume	= 34,198 cuft
Drainage area	= 6.470 ac	Curve number	= 73
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 30.00 min
Total precip.	= 3.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 3

Pre-Dev Undisturbed Site

Hydrograph type	= SCS Runoff	Peak discharge	= 13.39 cfs
Storm frequency	= 25 yrs	Time to peak	= 8.20 hrs
Time interval	= 2 min	Hyd. volume	= 272,424 cuft
Drainage area	= 51.540 ac	Curve number	= 73
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 30.00 min
Total precip.	= 3.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Report

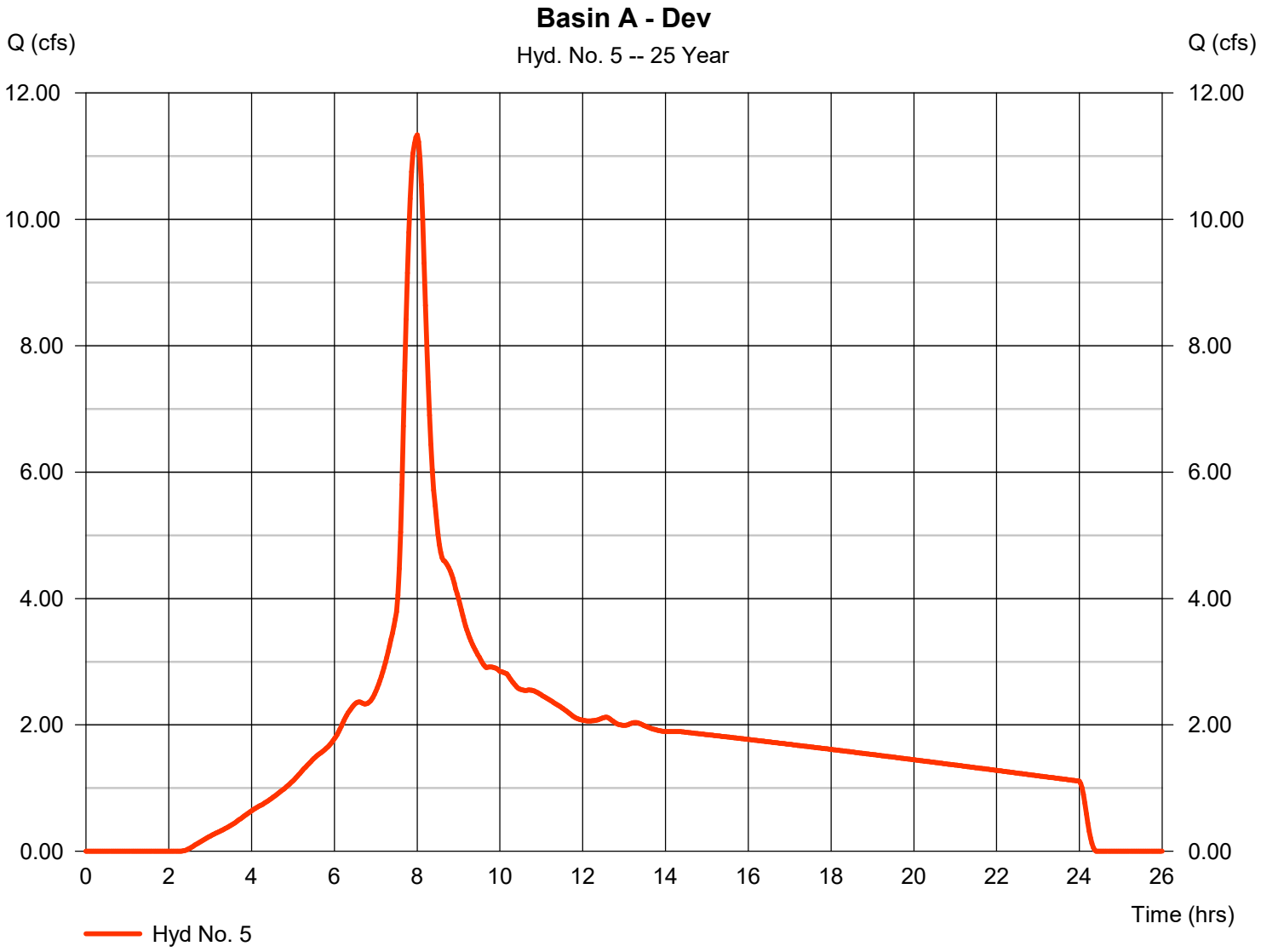
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 5

Basin A - Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 11.34 cfs
Storm frequency	= 25 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 160,144 cuft
Drainage area	= 16.020 ac	Curve number	= 90*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 15.00 min
Total precip.	= 3.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.250 x 98) + (8.150 x 98) + (5.890 x 76) + (0.730 x 98)] / 16.020



Hydrograph Report

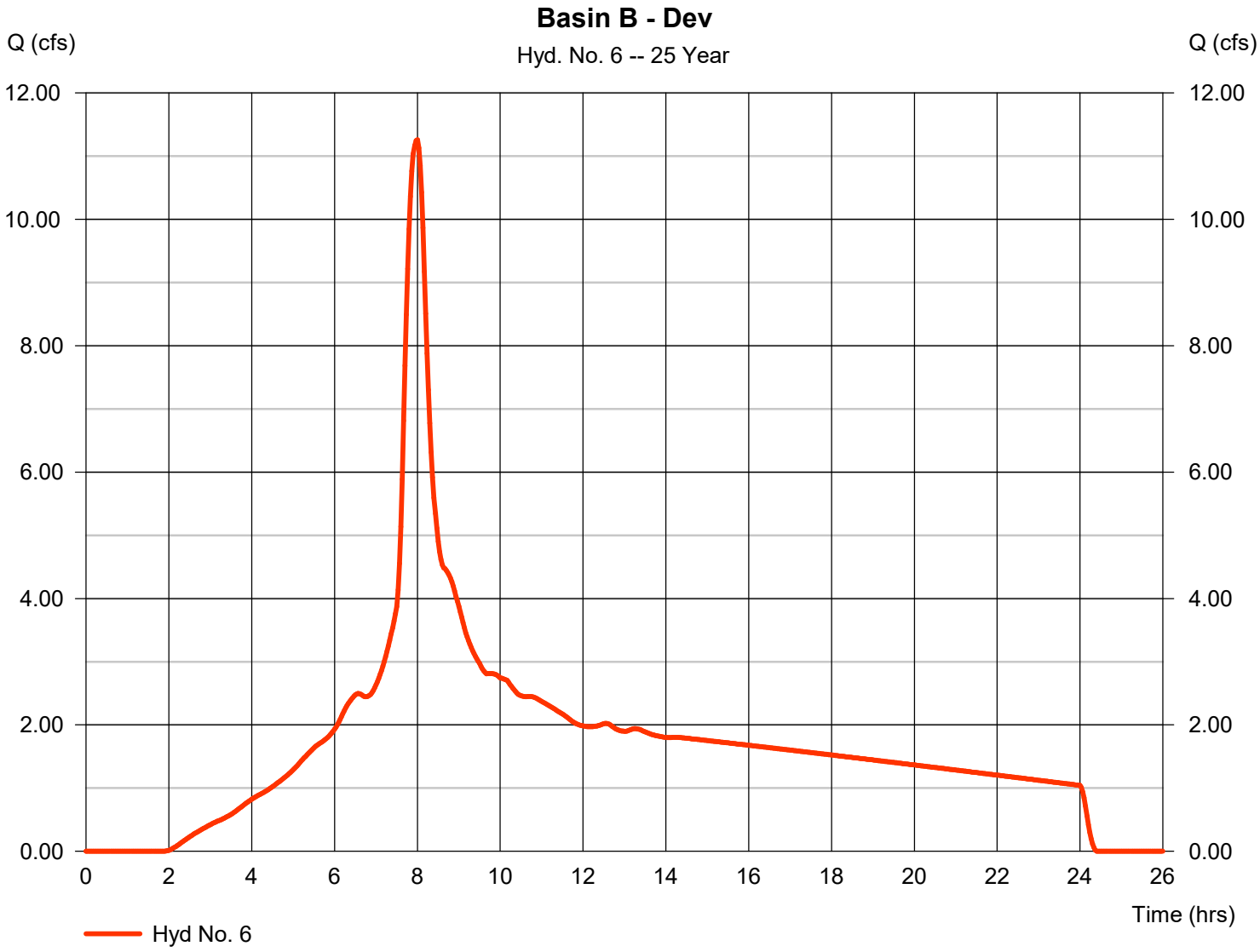
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 6

Basin B - Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 11.26 cfs
Storm frequency	= 25 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 158,032 cuft
Drainage area	= 14.780 ac	Curve number	= 92*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 15.00 min
Total precip.	= 3.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(3.350 x 98) + (7.020 x 98) + (4.190 x 76) + (0.220 x 98)] / 14.780



Hydrograph Report

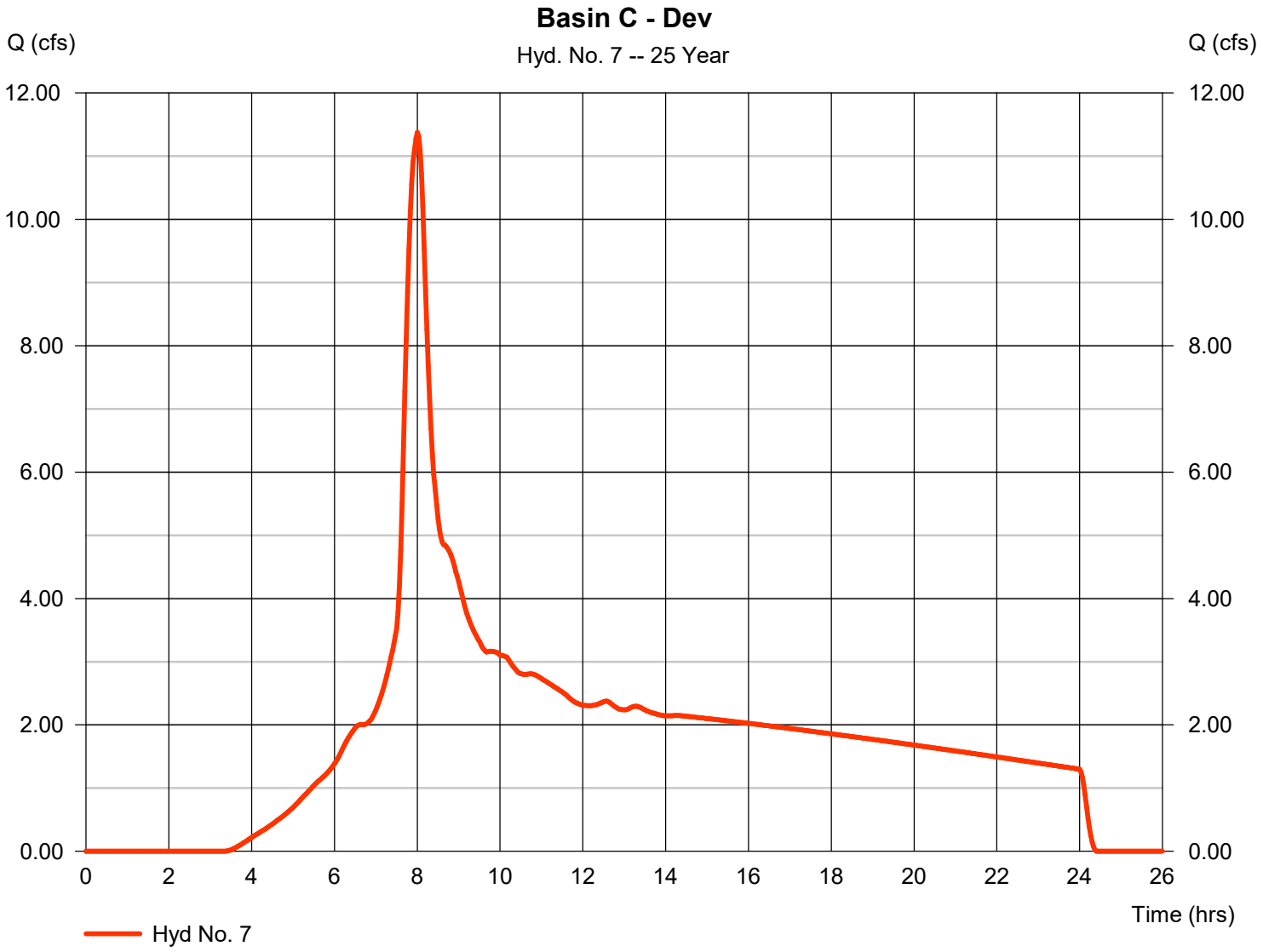
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 7

Basin C - Dev

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.38 cfs
Storm frequency	=	25 yrs	Time to peak	=	8.00 hrs
Time interval	=	2 min	Hyd. volume	=	167,245 cuft
Drainage area	=	19.950 ac	Curve number	=	85*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	15.00 min
Total precip.	=	3.90 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.040 x 98) + (4.050 x 98) + (10.090 x 76) + (0.750 x 98) + (1.590 x 98) + (1.430 x 74)] / 19.950



Hydrograph Report

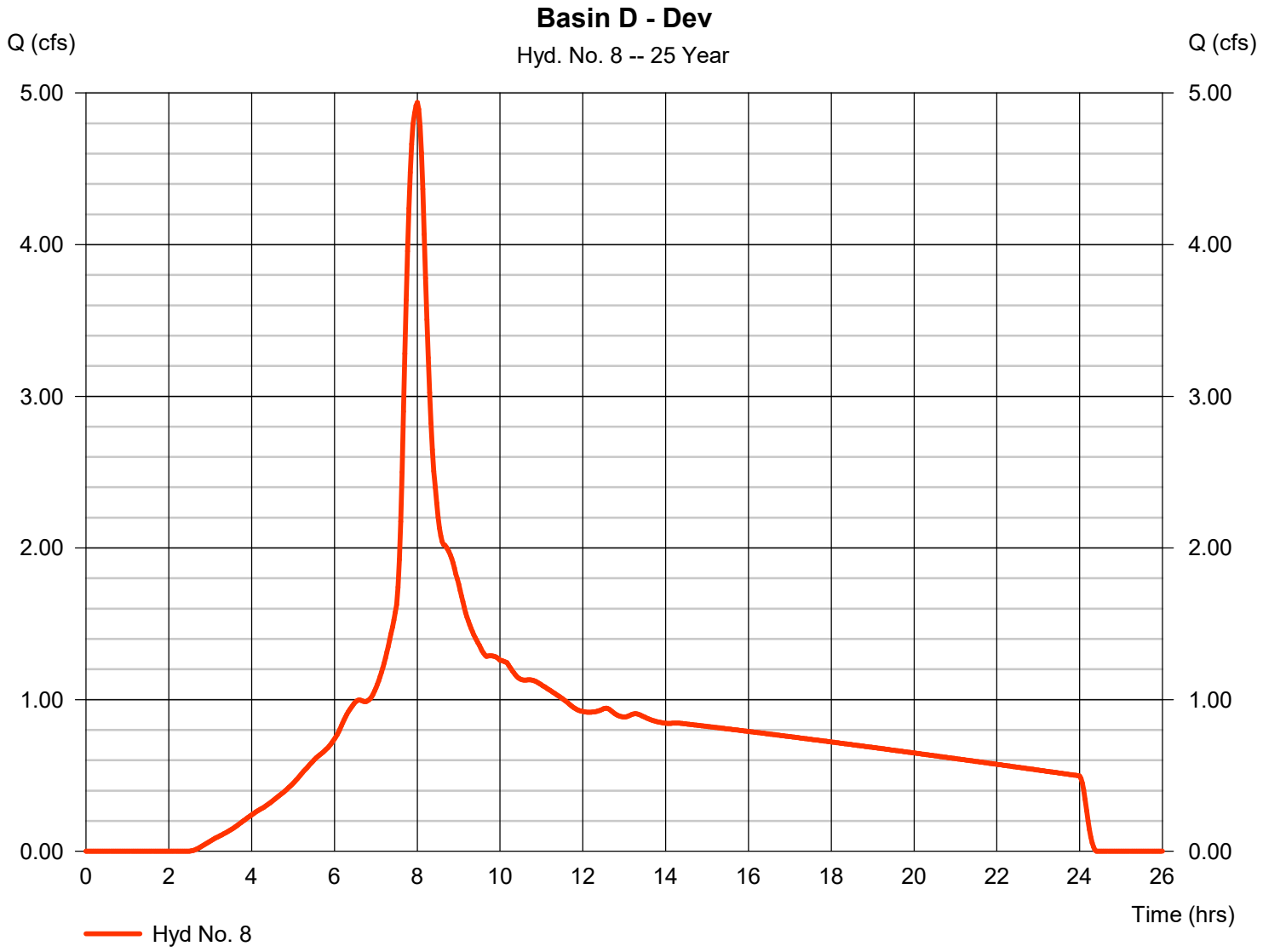
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 8

Basin D - Dev

Hydrograph type	= SCS Runoff	Peak discharge	= 4.937 cfs
Storm frequency	= 25 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 70,130 cuft
Drainage area	= 7.260 ac	Curve number	= 89*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 15.00 min
Total precip.	= 3.90 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.240 x 98) + (1.040 x 76) + (3.180 x 98) + (1.800 x 74)] / 7.260



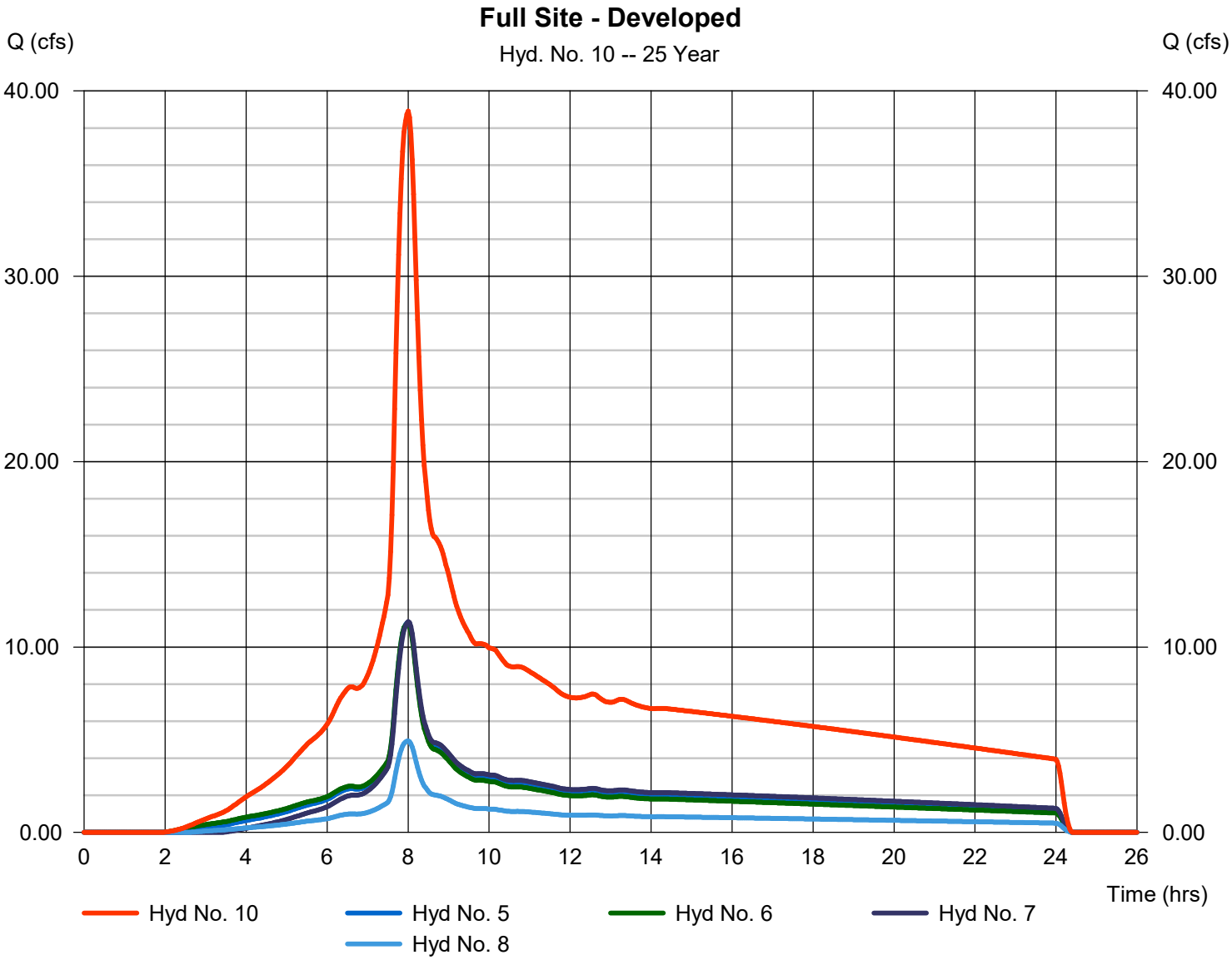
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 10

Full Site - Developed

Hydrograph type	= Combine	Peak discharge	= 38.91 cfs
Storm frequency	= 25 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 555,550 cuft
Inflow hyds.	= 5, 6, 7, 8	Contrib. drain. area	= 58.010 ac



Hydrograph Report

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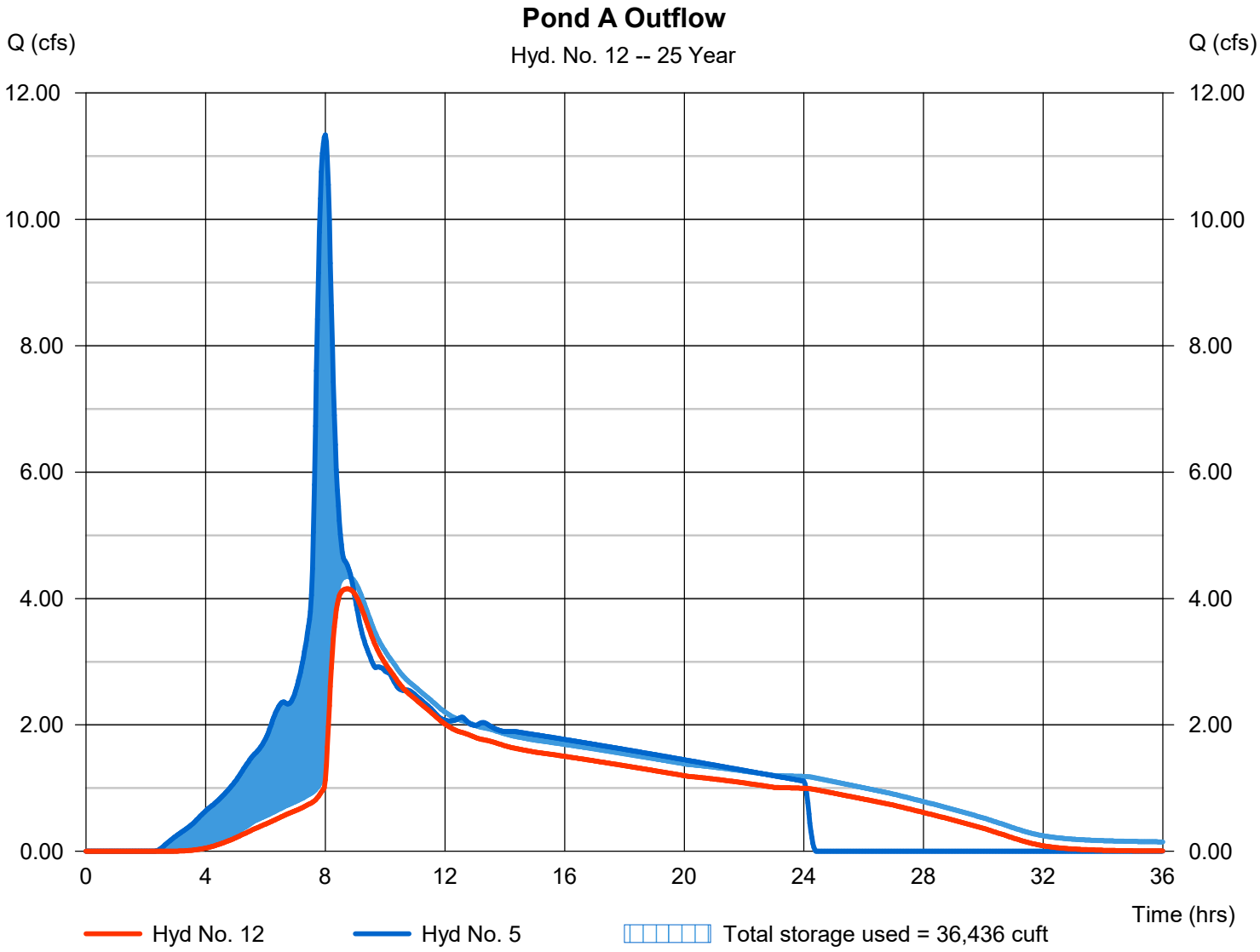
Hyd. No. 12

Pond A Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	4.153 cfs
Storm frequency	=	25 yrs	Time to peak	=	8.73 hrs
Time interval	=	2 min	Hyd. volume	=	126,143 cuft
Inflow hyd. No.	=	5 - Basin A - Dev	Max. Elevation	=	142.51 ft
Reservoir name	=	Existing Pond A	Max. Storage	=	36,436 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

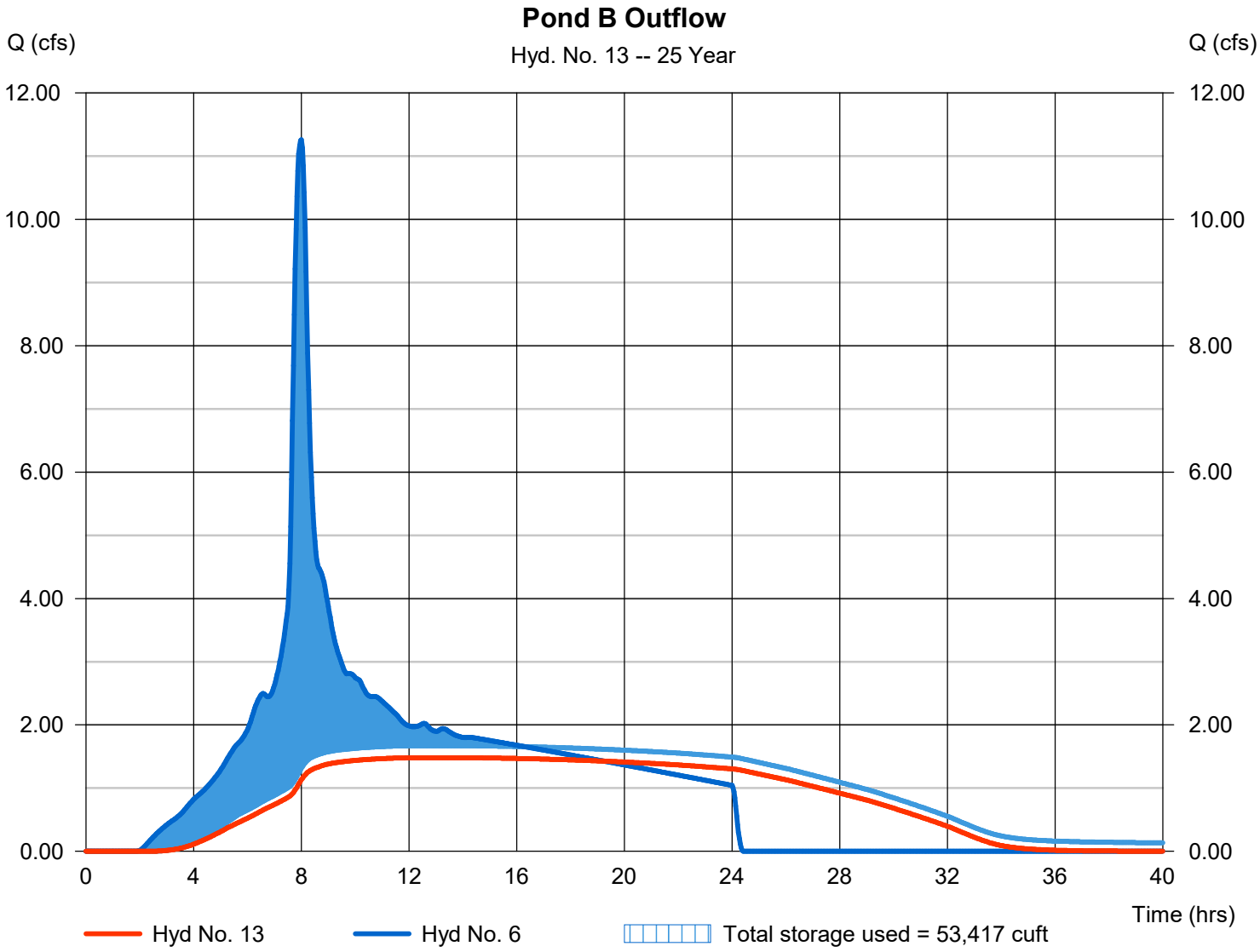
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 13

Pond B Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.482 cfs
Storm frequency	=	25 yrs	Time to peak	=	13.47 hrs
Time interval	=	2 min	Hyd. volume	=	117,852 cuft
Inflow hyd. No.	=	6 - Basin B - Dev	Max. Elevation	=	140.51 ft
Reservoir name	=	Existing Pond B	Max. Storage	=	53,417 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

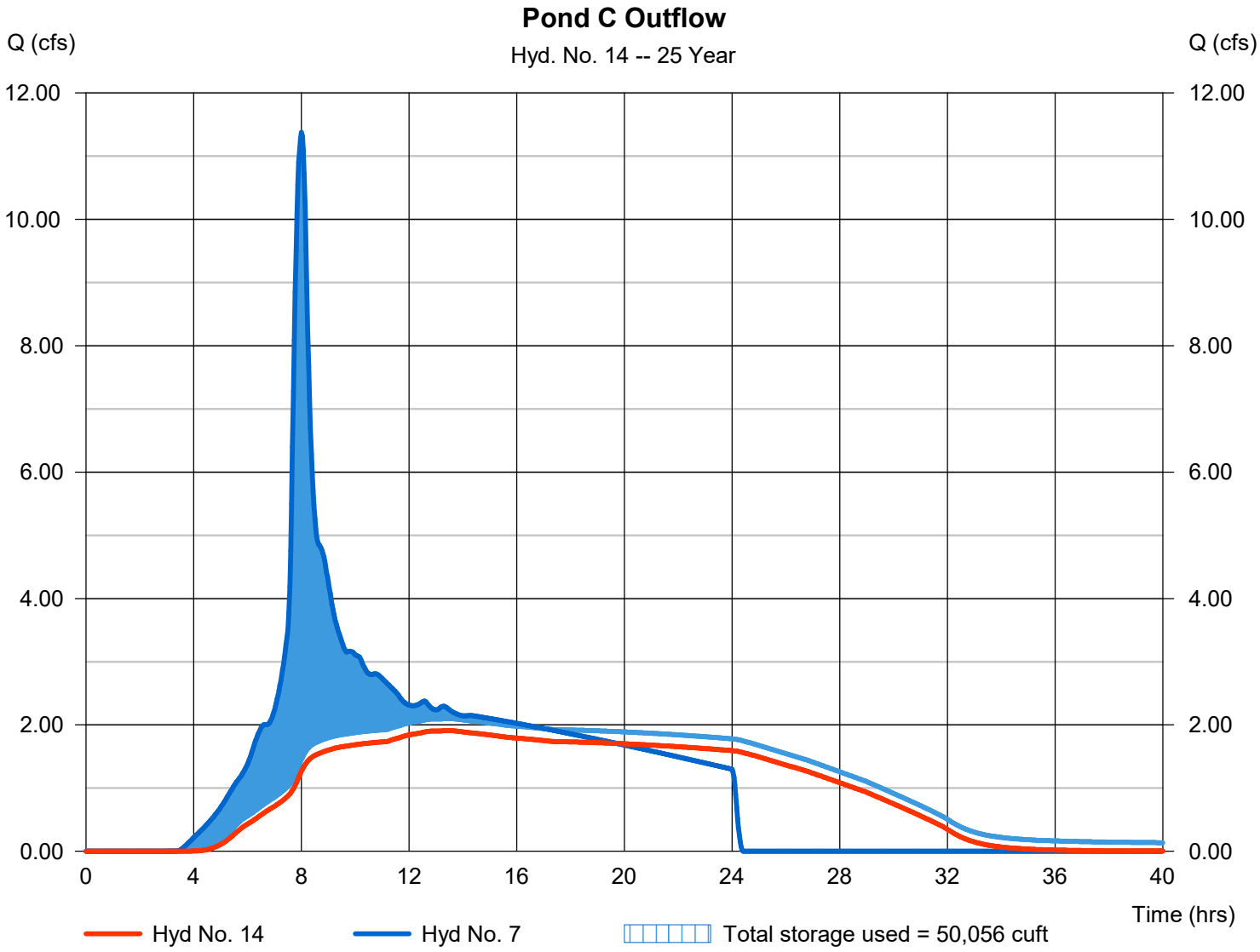
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 14

Pond C Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.909 cfs
Storm frequency	=	25 yrs	Time to peak	=	13.47 hrs
Time interval	=	2 min	Hyd. volume	=	137,895 cuft
Inflow hyd. No.	=	7 - Basin C - Dev	Max. Elevation	=	140.14 ft
Reservoir name	=	Existing Pond C	Max. Storage	=	50,056 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

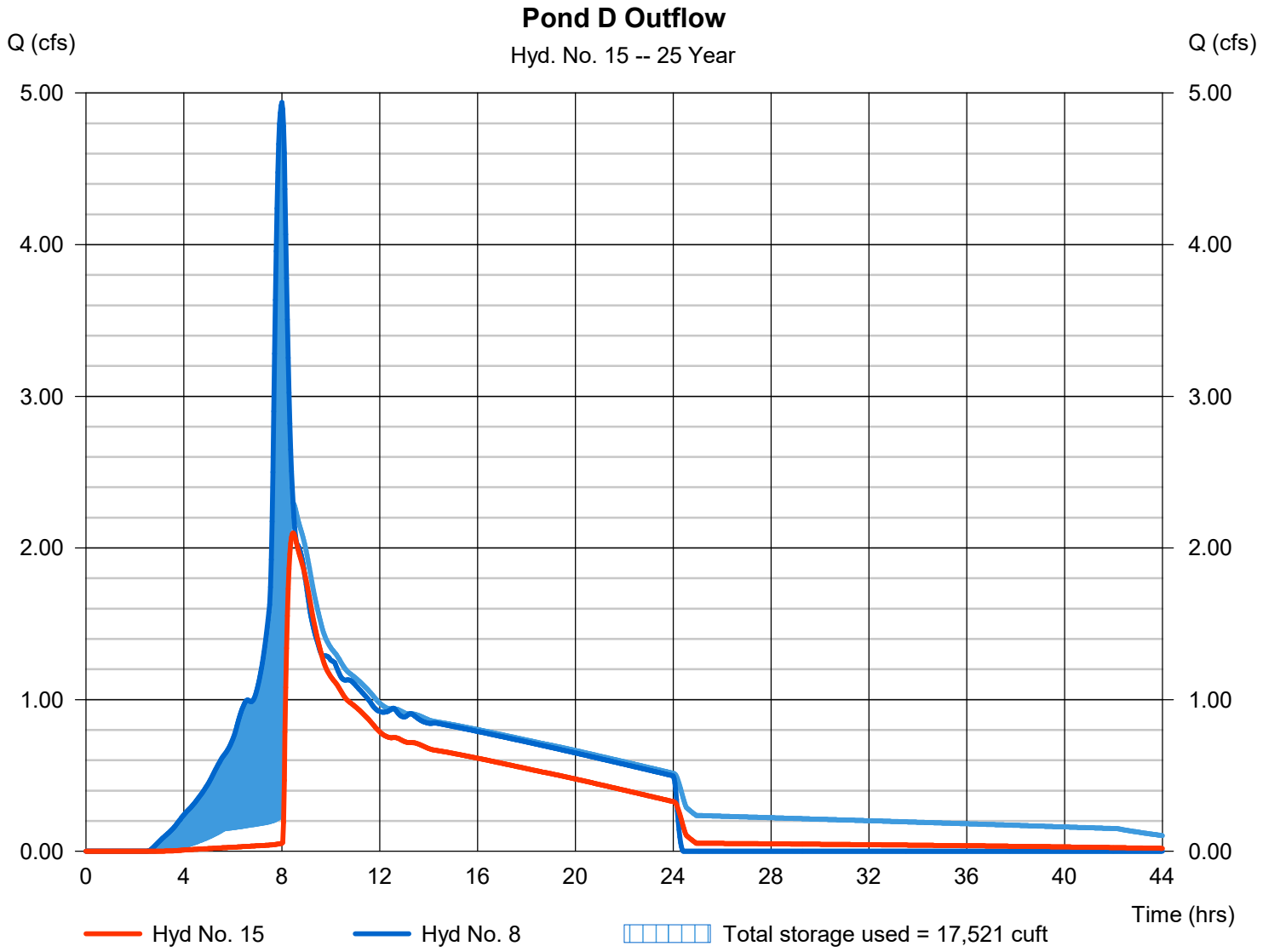
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 15

Pond D Outflow

Hydrograph type	= Reservoir	Peak discharge	= 2.099 cfs
Storm frequency	= 25 yrs	Time to peak	= 8.47 hrs
Time interval	= 2 min	Hyd. volume	= 45,410 cuft
Inflow hyd. No.	= 8 - Basin D - Dev	Max. Elevation	= 137.30 ft
Reservoir name	= Modified Pond D	Max. Storage	= 17,521 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



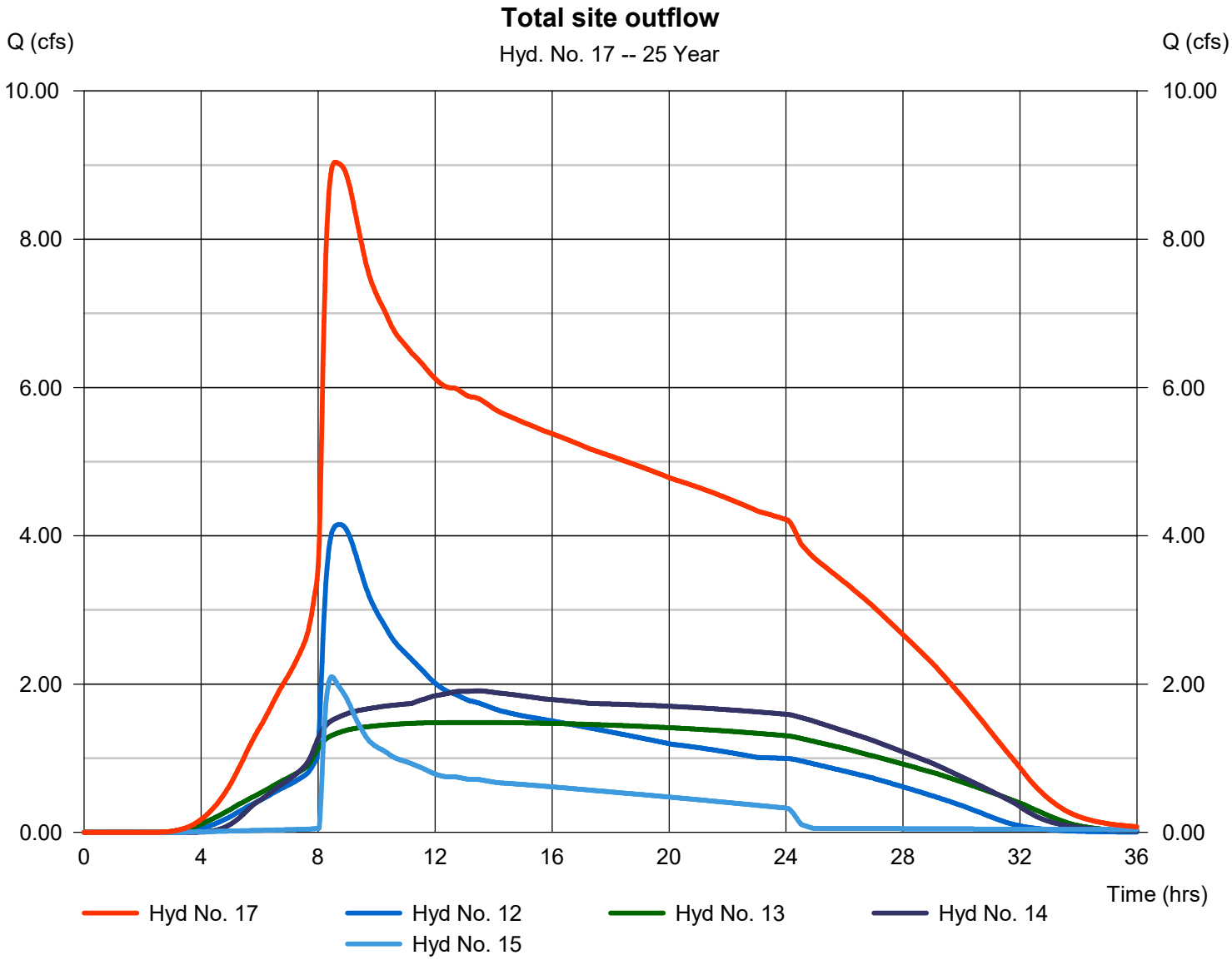
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Hyd. No. 17

Total site outflow

Hydrograph type	= Combine	Peak discharge	= 9.040 cfs
Storm frequency	= 25 yrs	Time to peak	= 8.57 hrs
Time interval	= 2 min	Hyd. volume	= 427,299 cuft
Inflow hyds.	= 12, 13, 14, 15	Contrib. drain. area	= 0.000 ac



Hydraflow Rainfall Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Tuesday, 08 / 16 / 2022

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	6.3201	2.1000	0.6144	--------
3	0.0000	0.0000	0.0000	--------
5	7.9532	1.6000	0.6153	--------
10	12.9652	3.7000	0.6766	--------
25	16.1446	4.6000	0.6900	--------
50	23.8777	6.0000	0.7457	--------
100	24.1258	5.6000	0.7114	--------

File name: CWS IDF curve.IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1.90	1.37	1.10	0.94	0.83	0.75	0.69	0.63	0.59	0.56	0.53	0.50
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	2.49	1.76	1.41	1.20	1.06	0.95	0.87	0.80	0.75	0.70	0.66	0.63
10	3.00	2.21	1.79	1.52	1.34	1.20	1.09	1.01	0.94	0.88	0.82	0.78
25	3.39	2.54	2.07	1.77	1.56	1.40	1.28	1.18	1.09	1.02	0.96	0.91
50	3.99	3.02	2.47	2.10	1.84	1.65	1.50	1.37	1.27	1.19	1.11	1.05
100	4.50	3.42	2.80	2.40	2.12	1.90	1.73	1.59	1.48	1.38	1.30	1.23

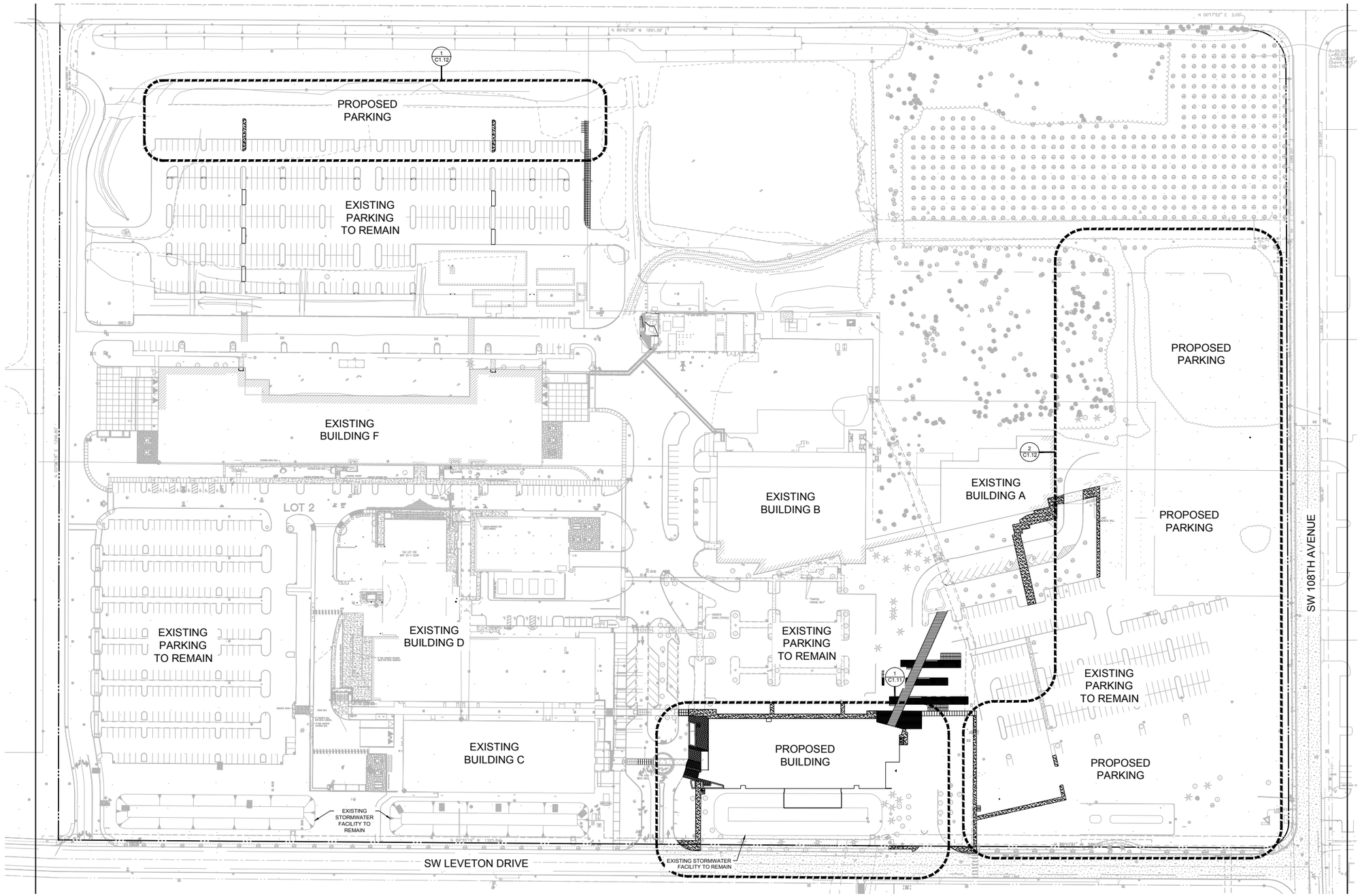
Tc = time in minutes. Values may exceed 60.

Reports & Calc Templates\Calc Templates\Stormwater\Hydraflow Stormwater Precipitation Data\CWS precipitation.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	0.00	2.50	0.00	3.10	3.45	3.90	4.20	4.50
SCS 6-Hr	0.00	1.05	0.00	1.25	1.55	1.70	1.80	1.90
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

APPENDIX D

PROPOSED SITE PLANS



1 C1.10 OVERALL SITE PLAN
1" = 60'-0"

60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

SITE DATA		
	EXISTING COVERAGE (AC)	PROPOSED COVERAGE (AC)
TOTAL PROPERTY AREA	58.01	58.01
BUILDING AREA	6.31	7.06
PAVED IMPERVIOUS AREA	22.91	24.55
TOTAL IMPERVIOUS AREA	29.22	31.61
LANDSCAPE AREA	28.79	26.40

PARKING DATA				
TYPE	EXISTING	PARKING REMOVED	ADDED PARKING	TOTAL SPACES
STANDARD PARKING	1336	33	578	1881
ACCESSIBLE PARKING	29	4	8	33
LOADING BERTHS	13	0	2	15
CARPOOL SPACES	12	2	2	12
COMPACT SPACES	0	0	0	0
TOTAL PARKING	1377	37	586	1926

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Delta	Issued As	Issue Date

SHEET TITLE:
OVERALL SITE PLAN

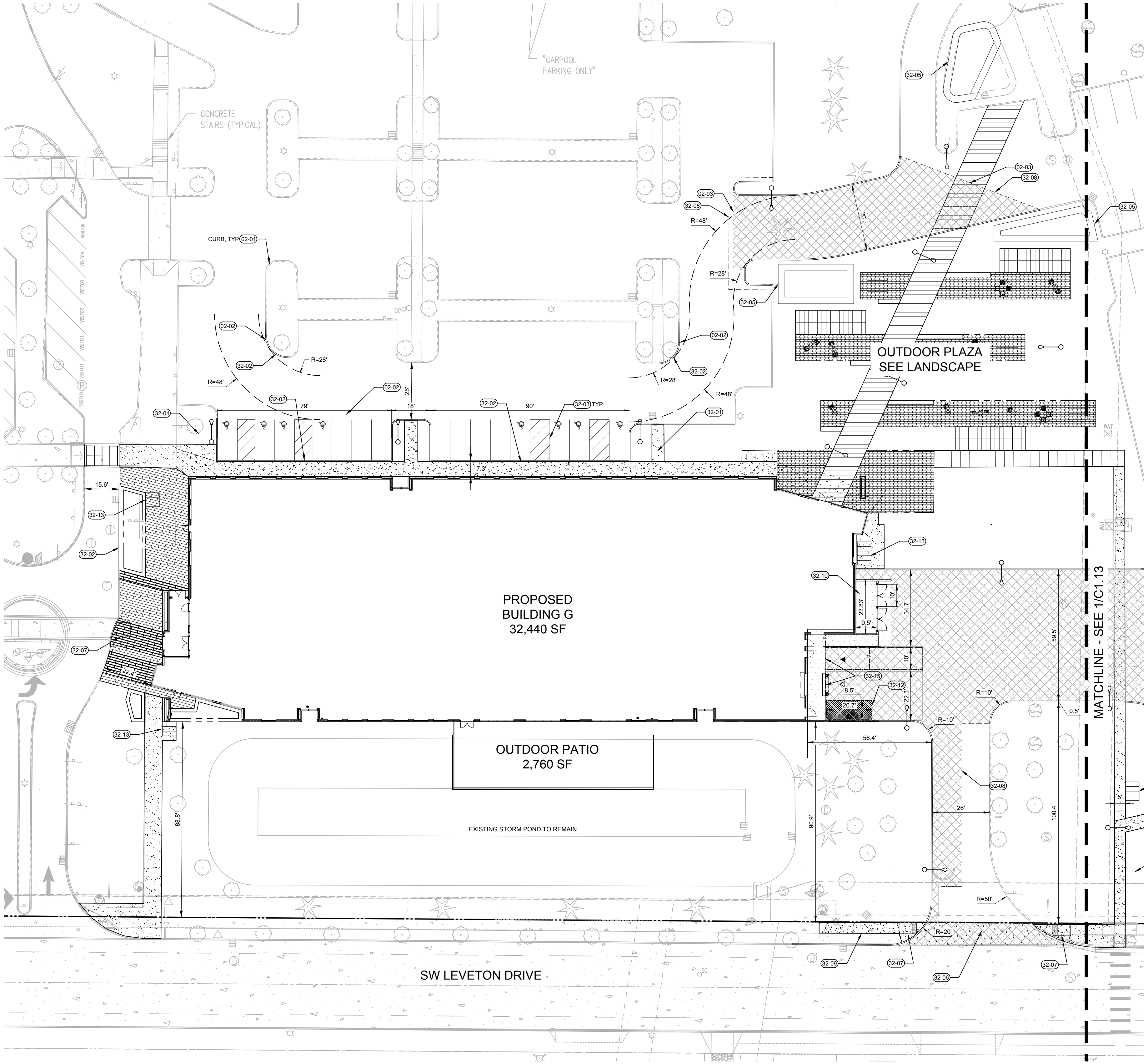
DRAWN BY: SJS

CHECKED BY: BDN

SHEET
C1.10

JOB NO. **2220087.00**

Schematic Design 8/2/2022

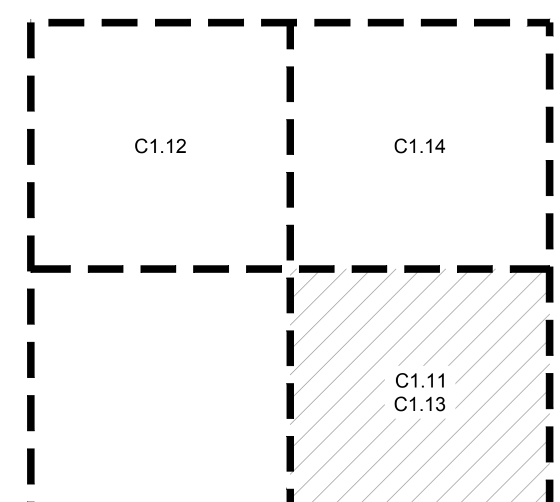


1 BUILDING G SITE PLAN
C1.11 1" = 20'-0"

(IN FEET)
1 inch = 20 ft.

KEYNOTES

02-01	PROTECT ITEM TO REMAIN (AS NOTED)
02-02	REMOVE ITEM (AS NOTED)
02-03	MATCH EXISTING PAVING
32-01	LANDSCAPE AREA PER LANDSCAPE PLANS
32-02	VERTICAL CURB
32-03	PARKING STALL STRIPING
32-04	NEW STORMWATER SWALE
32-05	NEW STORMWATER BASIN
32-06	NEW INDUSTRIAL DRIVEWAY
32-07	SIDEWALK CURB RAMP
32-08	SAWCUT AC PAVING
32-09	CONCRETE SIDEWALK
32-10	TRASH ENCLOSURE
32-11	WAYFINDING MONUMENT SIGN
32-12	TRASH COMPACTOR
32-13	LOCATION FOR BIKE PARKING
32-15	LOADING DOCK



KEY MAP
SCALE: NTS

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Delta	Issued As	Issue Date

SHEET TITLE:
BUILDING G SITE PLAN

DRAWN BY: SJS

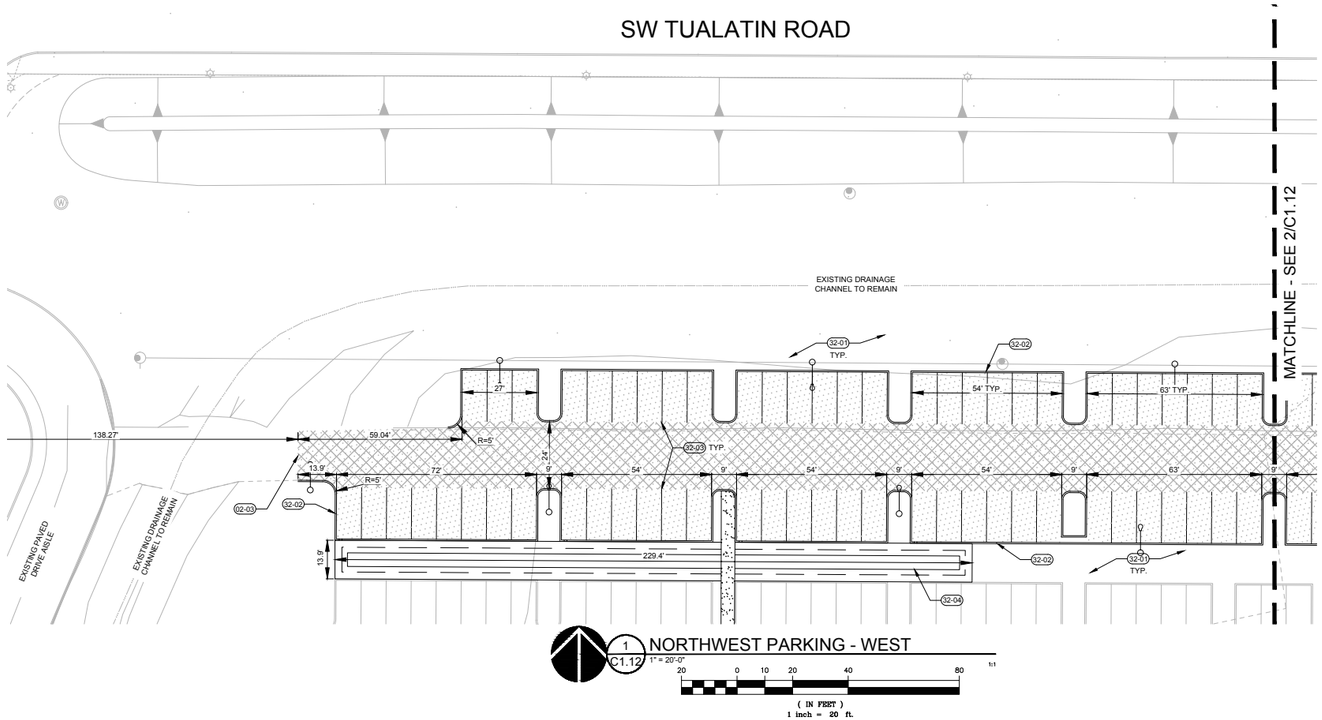
CHECKED BY: BDN

SHEET
C1.11

JOB NO. **2220087.00**

Schematic Design 8/2/2022

2220087000\DRAWINGS\CIVIL\087-C1.10-C1.12 SITE PLANS.DWG:C1.11 SJS 08/16/22 09:26 1:20



1 C1.12 NORTHWEST PARKING - WEST
1" = 20'-0"
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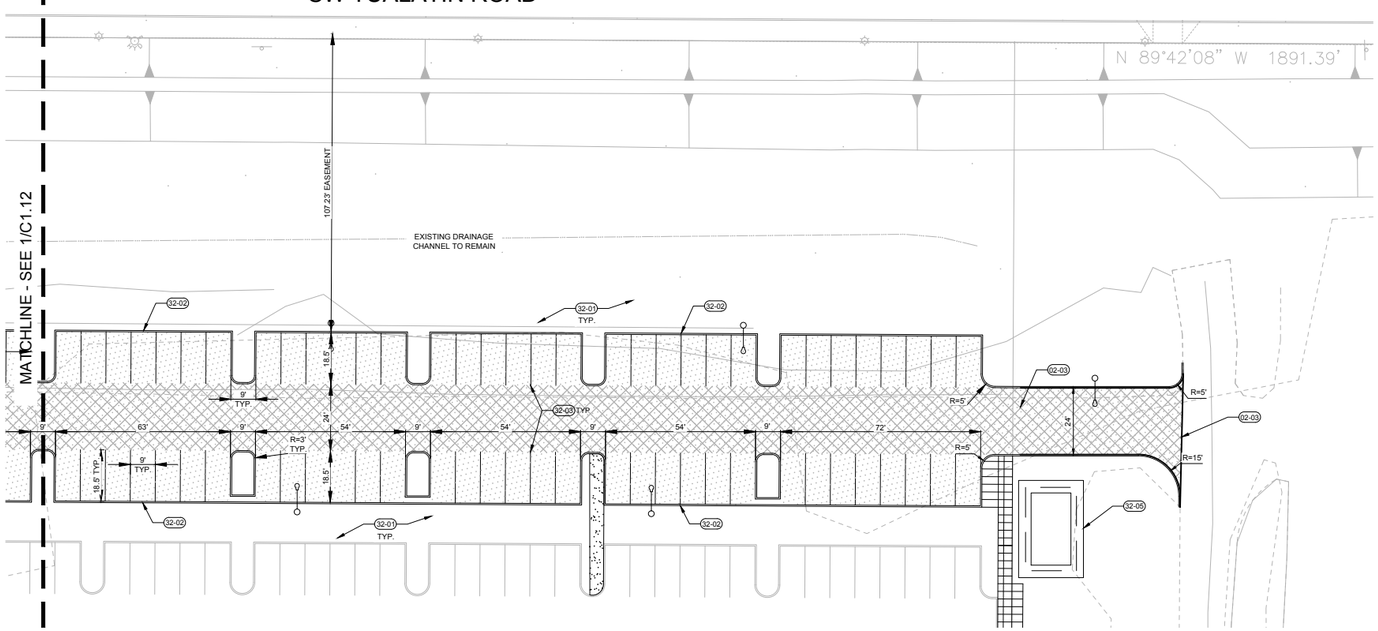
(IN FEET)
1 inch = 20 ft.



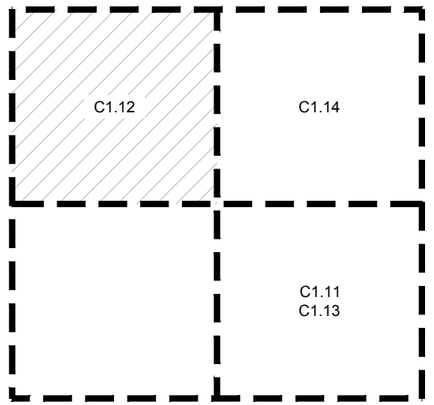
2 C1.12 NORTHWEST PARKING - EAST
1" = 20'-0"
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

KEYNOTES

02-01	PROTECT ITEM TO REMAIN (AS NOTED)
02-02	REMOVE ITEM (AS NOTED)
02-03	MATCH EXISTING PAVING
32-01	LANDSCAPE AREA PER LANDSCAPE PLANS
32-02	VERTICAL CURB
32-03	PARKING STALL STRIPING
32-04	NEW STORMWATER SWALE
32-05	NEW STORMWATER BASIN
32-06	NEW INDUSTRIAL DRIVEWAY
32-07	SIDEWALK CURB RAMP
32-08	SAWCUT AC PAVING
32-09	CONCRETE SIDEWALK

NOTES

1. SEE C0.01 FOR GENERAL CIVIL NOTES AND LEGEND



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REVISION SCHEDULE

Delta	Issued As	Issue Date

SHEET TITLE:
NORTHWEST PARKING EXPANSION SITE PLAN

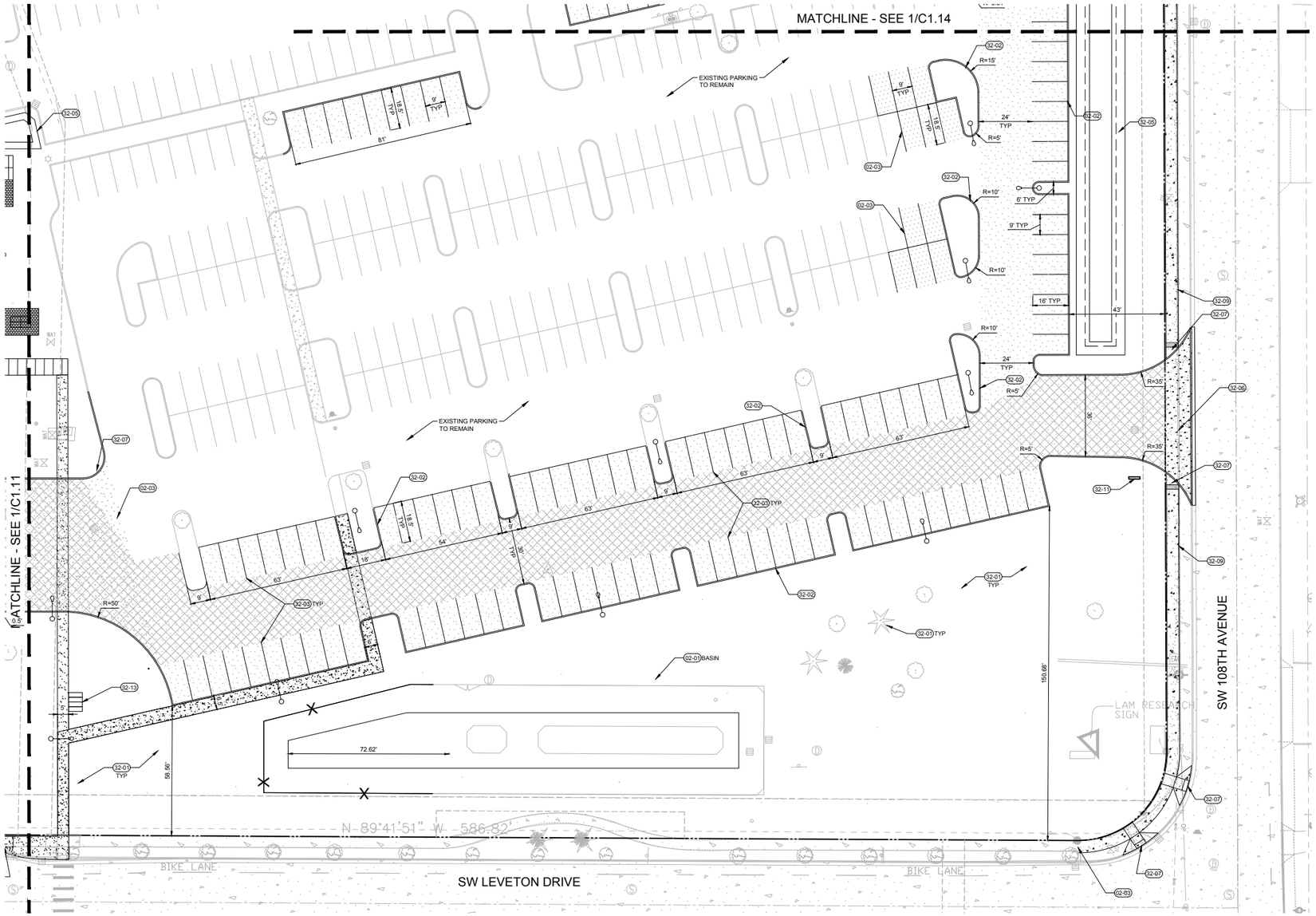
DRAWN BY: SJS

CHECKED BY: BDN

SHEET
C1.12

JOB NO. 2220087.00

Schematic Design 8/2/2022



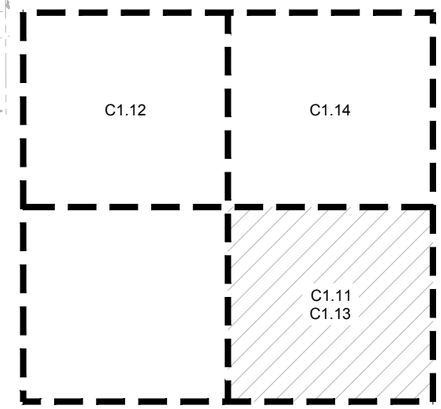
KEYNOTES

02-01	PROTECT ITEM TO REMAIN (AS NOTED)
02-02	REMOVE ITEM (AS NOTED)
02-03	MATCH EXISTING PAVING
32-01	LANDSCAPE AREA PER LANDSCAPE PLANS
32-02	VERTICAL CURB
32-03	PARKING STALL STRIPING
32-04	NEW STORMWATER SWALE
32-05	NEW STORMWATER BASIN
32-06	NEW INDUSTRIAL DRIVEWAY
32-07	SIDEWALK CURB RAMP
32-08	SAWCUT AC PAVING
32-09	CONCRETE SIDEWALK
32-11	WAYFINDING MONUMENT SIGN
32-13	LOCATION FOR BIKE PARKING

NOTES

1. SEE C0.01 FOR GENERAL CIVIL NOTES AND LEGEND

1 C1.13 EAST PARKING EXPANSION
1" = 20'-0"
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.



KEY MAP
SCALE: NTS

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SHEET TITLE:
EAST PARKING EXPANSION SITE PLAN

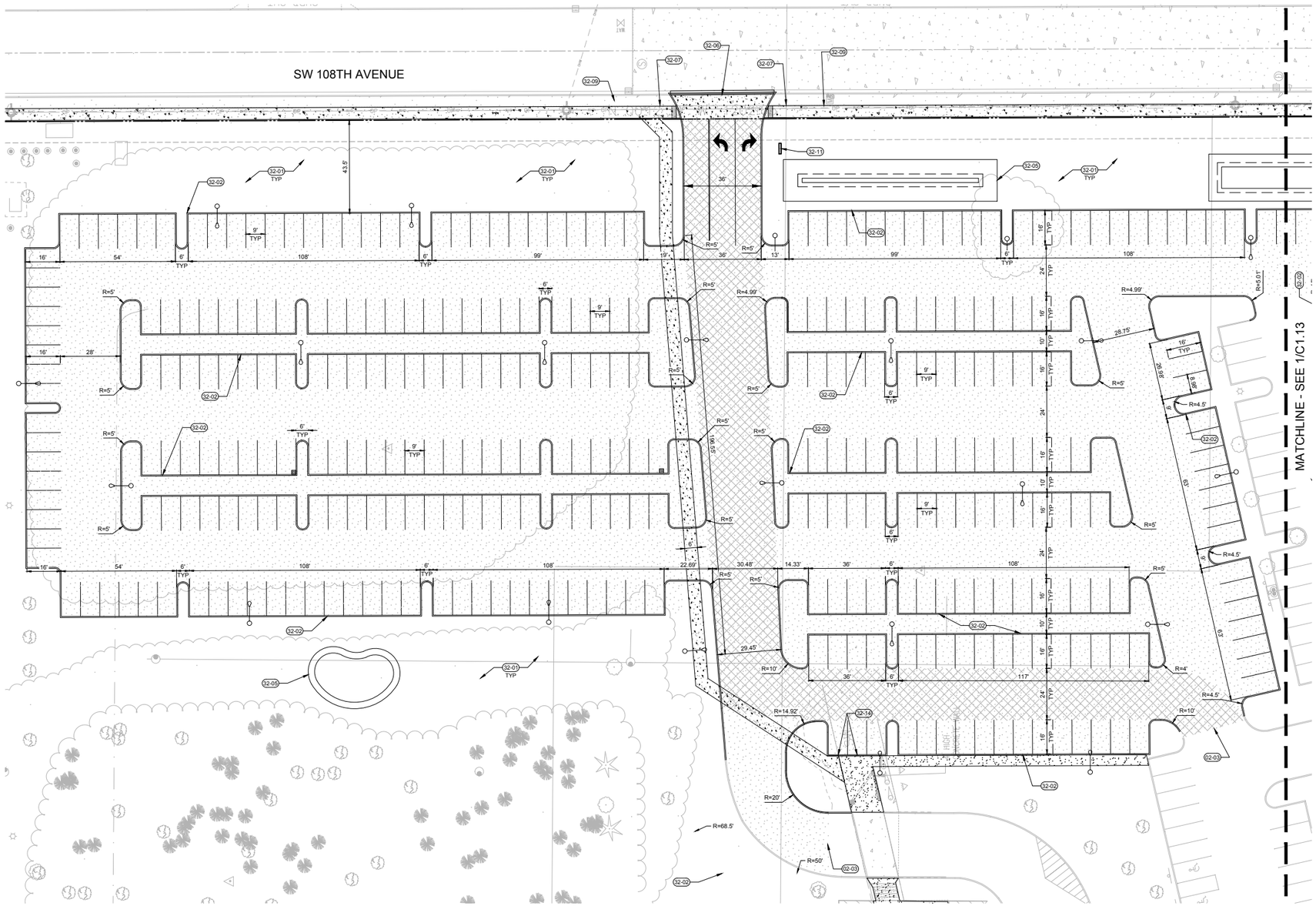
DRAWN BY: SJS

CHECKED BY: BDN

SHEET
C1.13

JOB NO. **2220087.00**

Schematic Design 8/2/2022



1 C1.14 EAST PARKING EXPANSION
1" = 20'-0"

1:1

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

KEYNOTES

02-01	PROTECT ITEM TO REMAIN (AS NOTED)
02-02	REMOVE ITEM (AS NOTED)
02-03	MATCH EXISTING PAVING
32-01	LANDSCAPE AREA PER LANDSCAPE PLANS
32-02	VERTICAL CURB
32-03	PARKING STALL STRIPING
32-04	NEW STORMWATER SWALE
32-05	NEW STORMWATER BASIN
32-06	NEW INDUSTRIAL DRIVEWAY
32-07	SIDEWALK CURB RAMP
32-08	SAWCUT AC PAVING
32-09	CONCRETE SIDEWALK
32-11	WAYFINDING MONUMENT SIGN
32-14	CARPOOL PARKING

NOTES

1. SEE C0.01 FOR GENERAL CIVIL NOTES AND LEGEND

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C1.12 | C1.14 | C1.11, C1.13

SHEET TITLE:
EAST PARKING EXPANSION SITE PLAN

DRAWN BY: SJS

CHECKED BY: BDN

SHEET
C1.14

KEY MAP
SCALE: NTS

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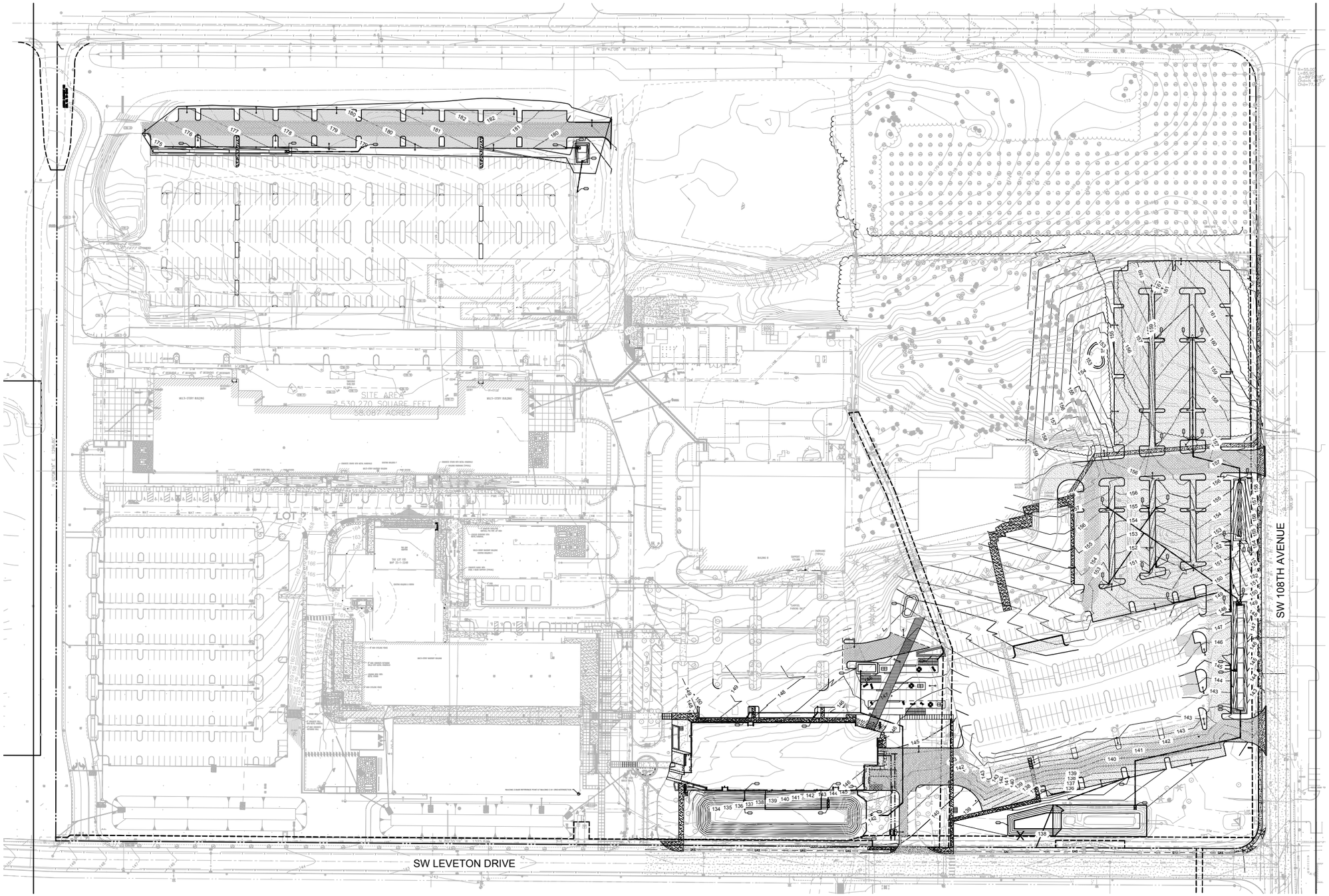

1 C1.30 OVERALL UTILITY PLAN
1" = 60'-0"
1:1

60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

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OVERALL UTILITY PLAN

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SHEET
C1.30

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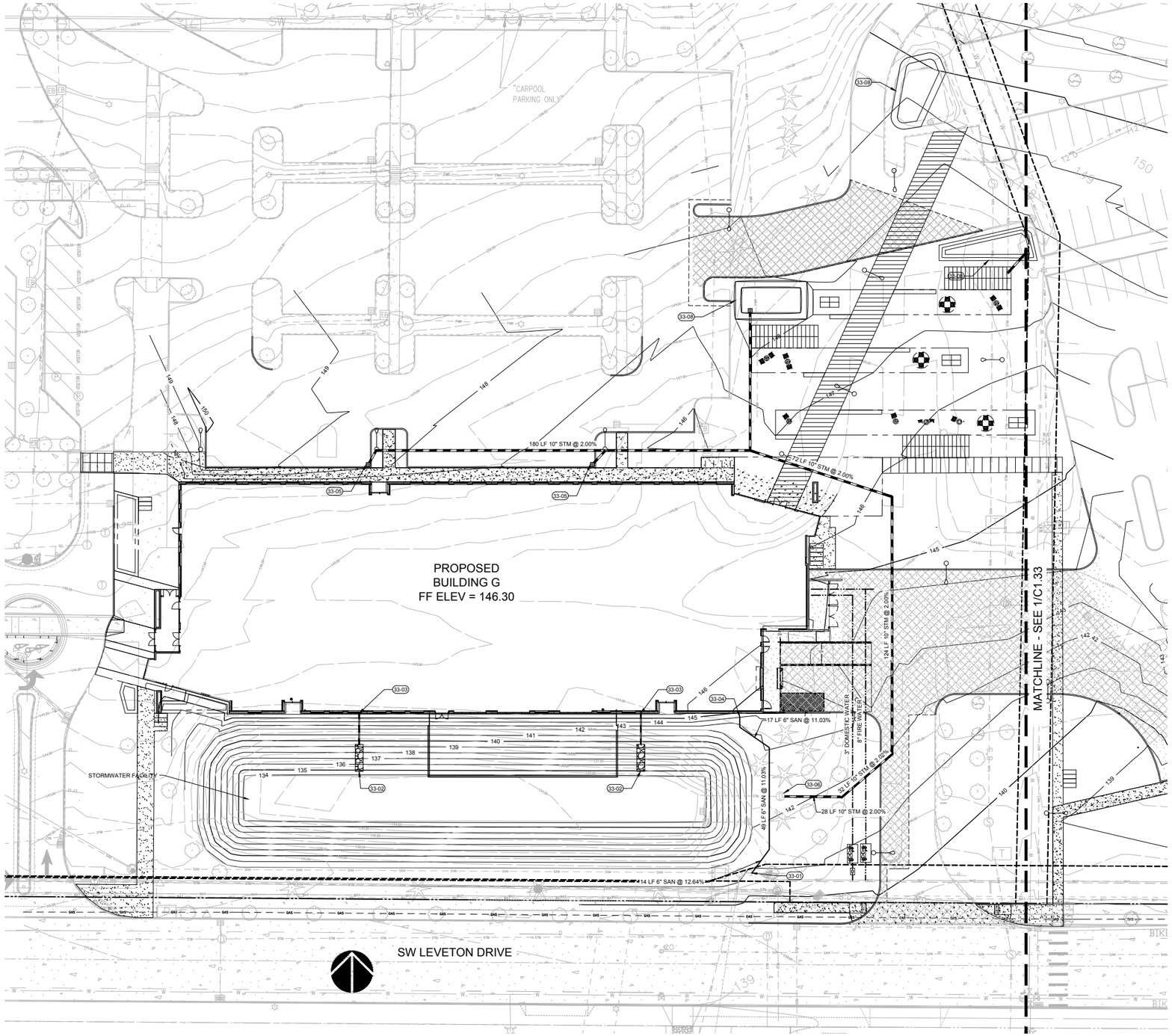

1 C1.31 BUILDING G UTILITY PLAN
1" = 20'-0"

20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

KEYNOTES

33-01	CONNECT SEWER TO EXISTING MANHOLE STUB
33-02	6" ROOF DRAIN OUTFALL WITH RIPRAP
33-03	ROOF DRAIN CONNECTION TO PLUMBING
33-04	CONNECT SEWER LATERAL TO PLUMBING
33-05	CATCH BASIN
33-06	CONNECT STORM TO EXISTING MANHOLE
33-08	STORMWATER BASIN
33-09	OVERFLOW OUTLET

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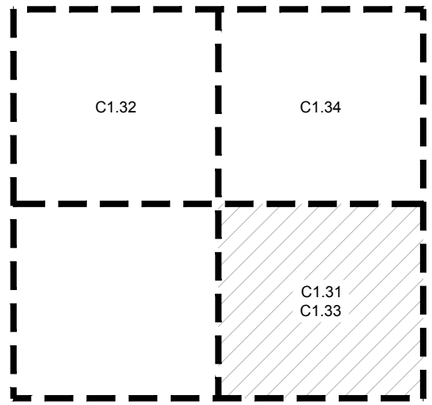
SHEET TITLE:
BUILDING G UTILITY PLAN



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C1.31

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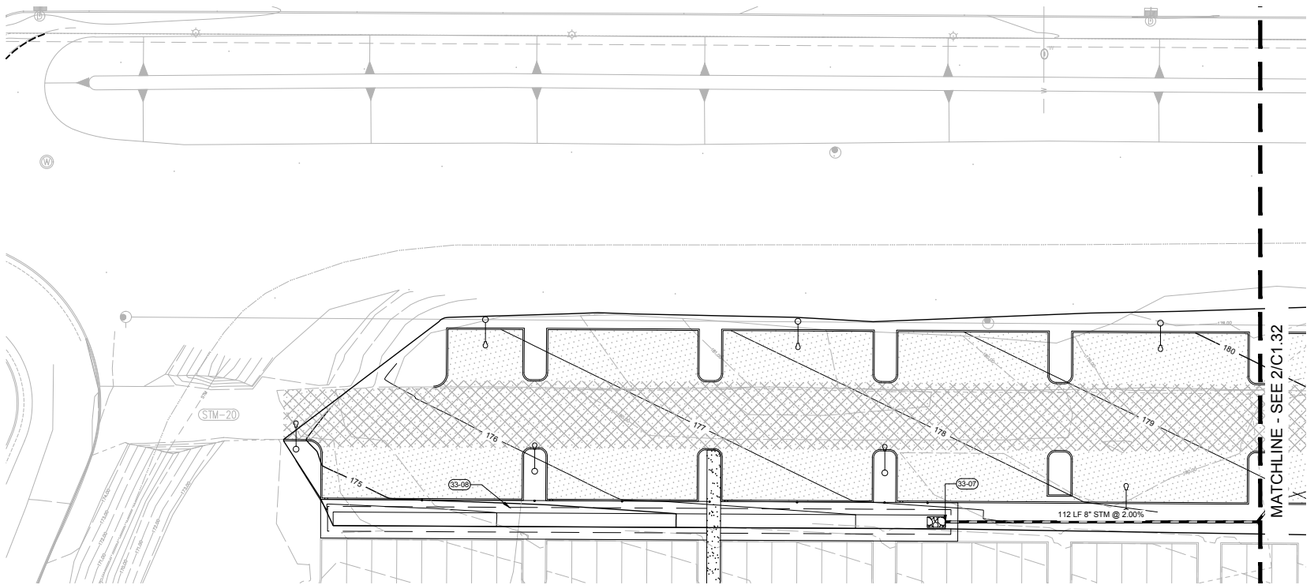
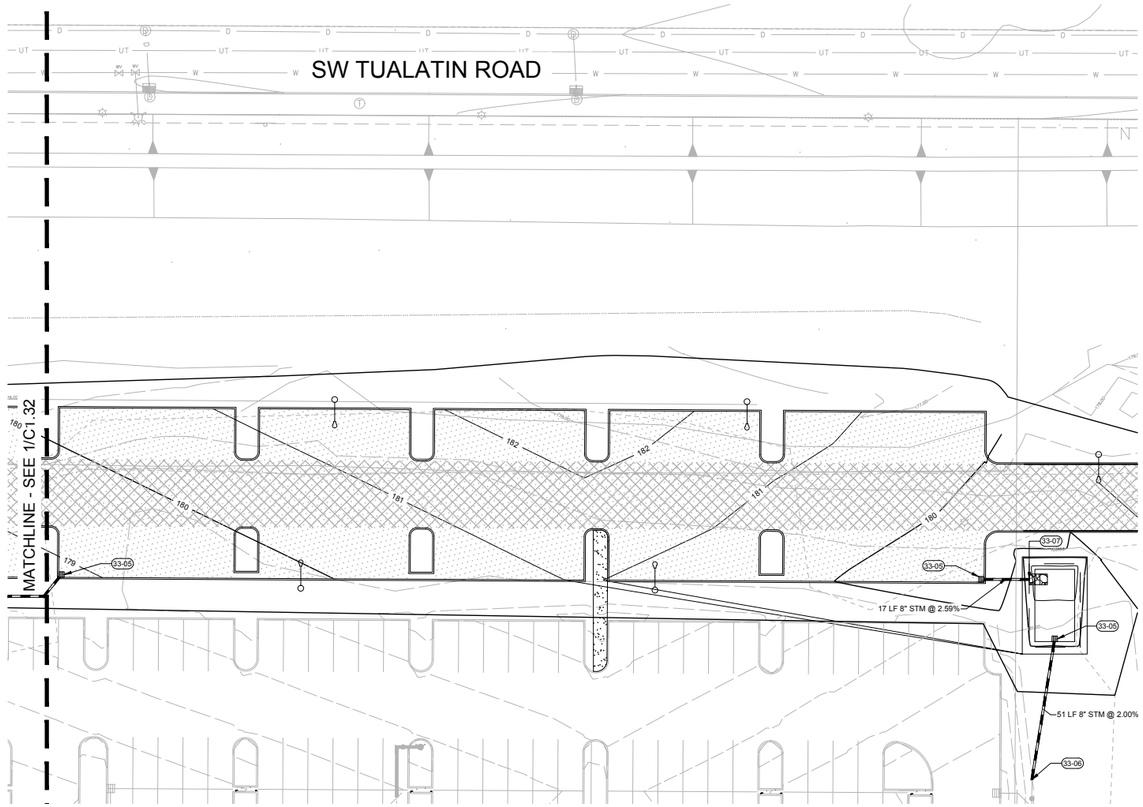


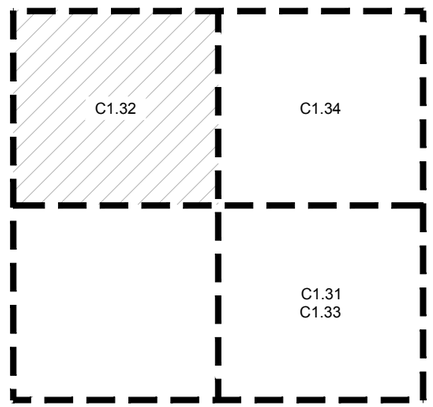
1 C1.32 NW PARKING EXPANSION UTILITY PLAN - WEST
1" = 20'-0"
20 0 10 20 40 80 1:1
(IN FEET)
1 inch = 20 ft.



2 C1.32 NW PARKING EXPANSION UTILITY PLAN - EAST
1" = 20'-0"
20 0 10 20 40 80 1:1
(IN FEET)
1 inch = 20 ft.

KEYNOTES

33-05	CATCH BASIN
33-06	CONNECT STORM TO EXISTING MANHOLE
33-07	PIPE OUTFALL WITH RIPRAP
33-08	STORMWATER BASIN
33-09	OVERFLOW OUTLET



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NORTHWEST PARKING EXPANSION UTILITY PLANS

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SHEET
C1.32

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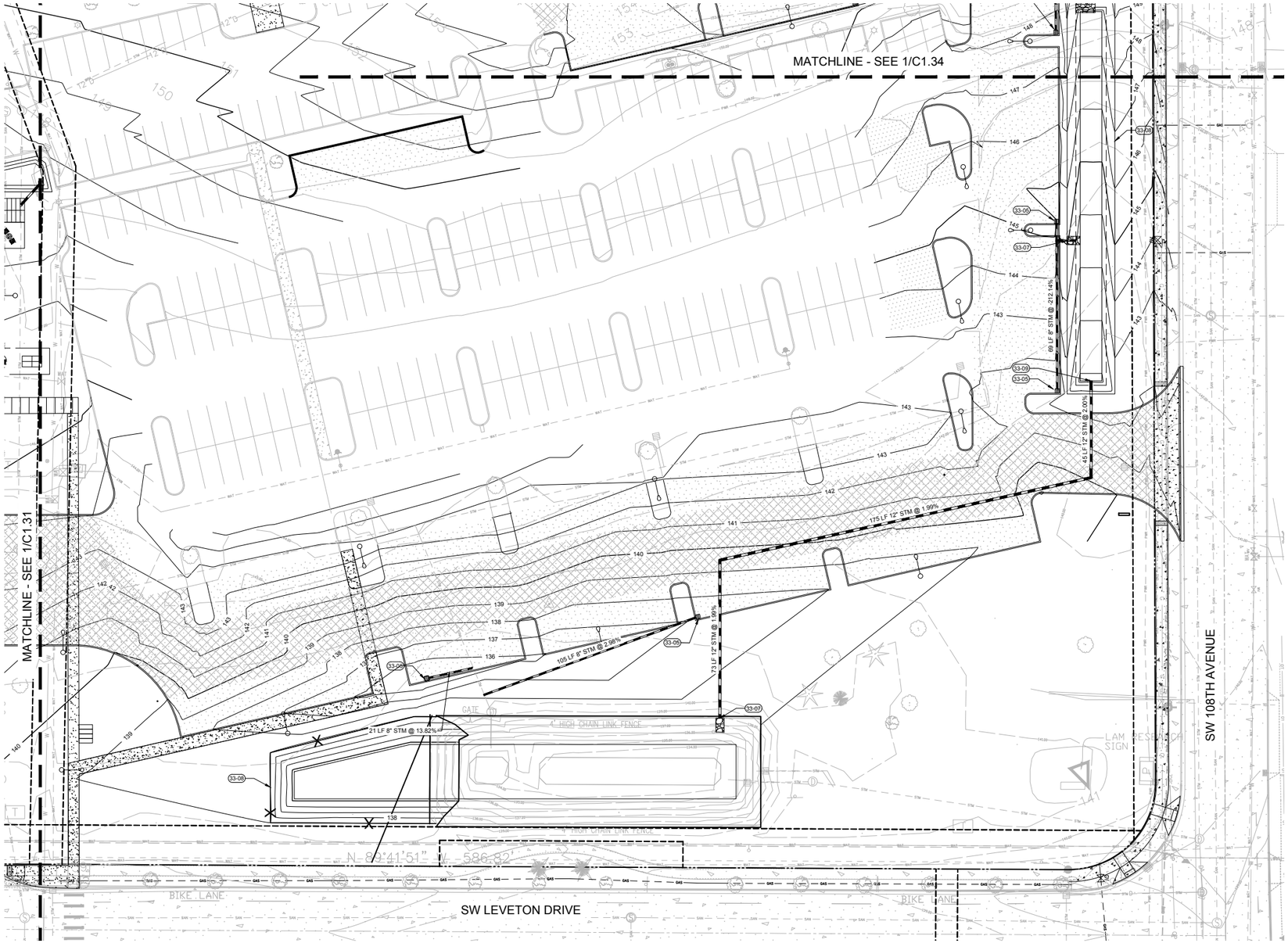

1 C1.33 EAST PARKING EXPANSION UTILITY PLAN
1" = 20'-0"

(IN FEET)
1 inch = 20 ft.

KEYNOTES

33-05	CATCH BASIN
33-07	PIPE OUTFALL WITH RIPRAP
33-08	STORMWATER BASIN
33-09	OVERFLOW OUTLET

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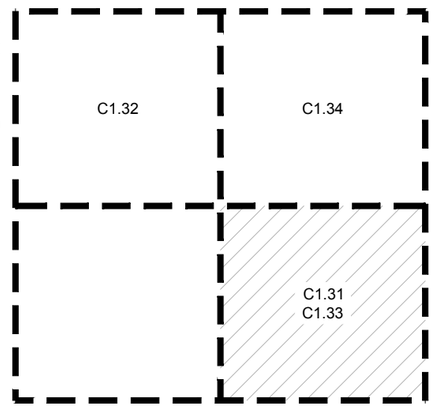

KEY MAP
SCALE: NTS

SHEET TITLE:
EAST PARKING EXPANSION UTILITY PLAN

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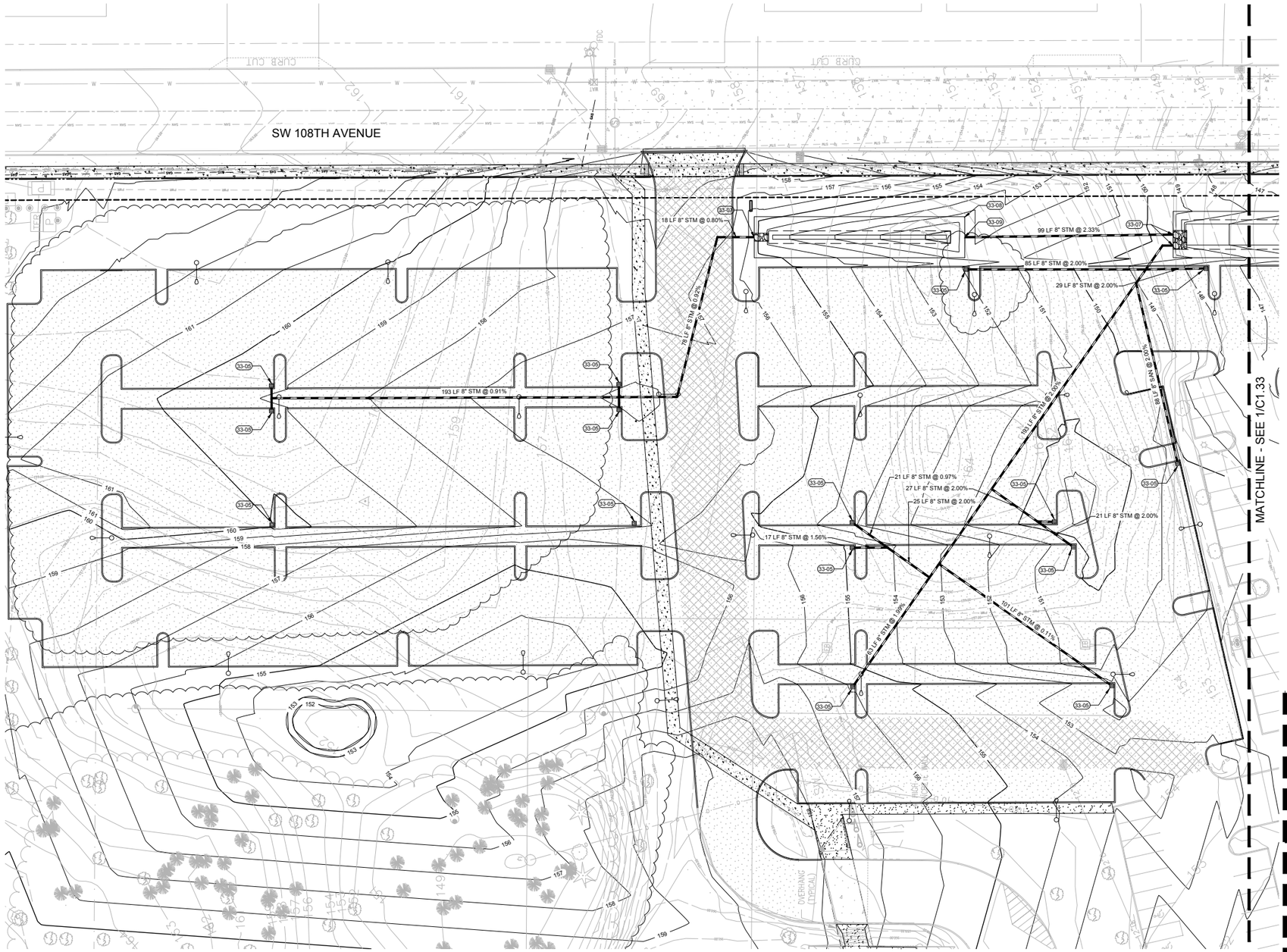

1 C1.34 EAST PARKING EXPANSION UTILITY PLAN
1" = 20'-0"

20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

KEYNOTES

33-05	CATCH BASIN
33-07	PIPE OUTFALL WITH RIPRAP
33-08	STORMWATER BASIN
33-09	OVERFLOW OUTLET

C1.32	C1.34
	C1.31 C1.33

KEY MAP
SCALE: NTS

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EAST PARKING EXPANSION UTILITY PLAN

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SHEET
C1.34

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Schematic Design 8/2/2022

APPENDIX E

2001 NOVELLUS STORM REPORT

Storm Calculations

Novellus

Tualatin, Oregon

Project Number:000321
Dated: 2/14/01
REVISED: 3/6/01

Description:

Novellus is located on the northwest corner of SW Leveton Drive and SW 108th Avenue. The site is comprised of approximately 58 acres. The site currently has two buildings remaining from the previous Oki site. The two buildings were purchased by Novellus along with the property.

Water quality will be provided for all of the site including the existing impervious areas. Water quality will be provided to meet USA requirements which are to treat the "summer" storm or the first 0.36" of rainfall falling in a four hour period. Dry detention ponds with a permanent pool will be the method employed to accomplish treatment. The ponds are sized for full build out of the Novellus Master Plan as submitted in the Industrial Master Plan with the City of Tualatin.

Detention will be provided to limit runoff from the site to match existing runoff for storms upto the 25yr event. Each pond will serve approximately 25% of the full built out site. The SCS based software program "WaterWorks" has been used to design the detention ponds.

All pipes have been designed to convey the 25yr storm using SCS methodology.

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A. Vicinity Map
B. Site Map
C. Areas with full 'build-out'
D. Water Quality Volumes required
E. Detention Summary
F. SCS Soils Map
G. SCS Soils Classification
H, SCS Curve Number
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J. Pond 'A' Detention Volume
K. Water Quality Orifice Sizing
L. Pond 'A' Pond Outlet
M. Pond 'A' computer detention calc's
N. Pond 'B' Total Volume
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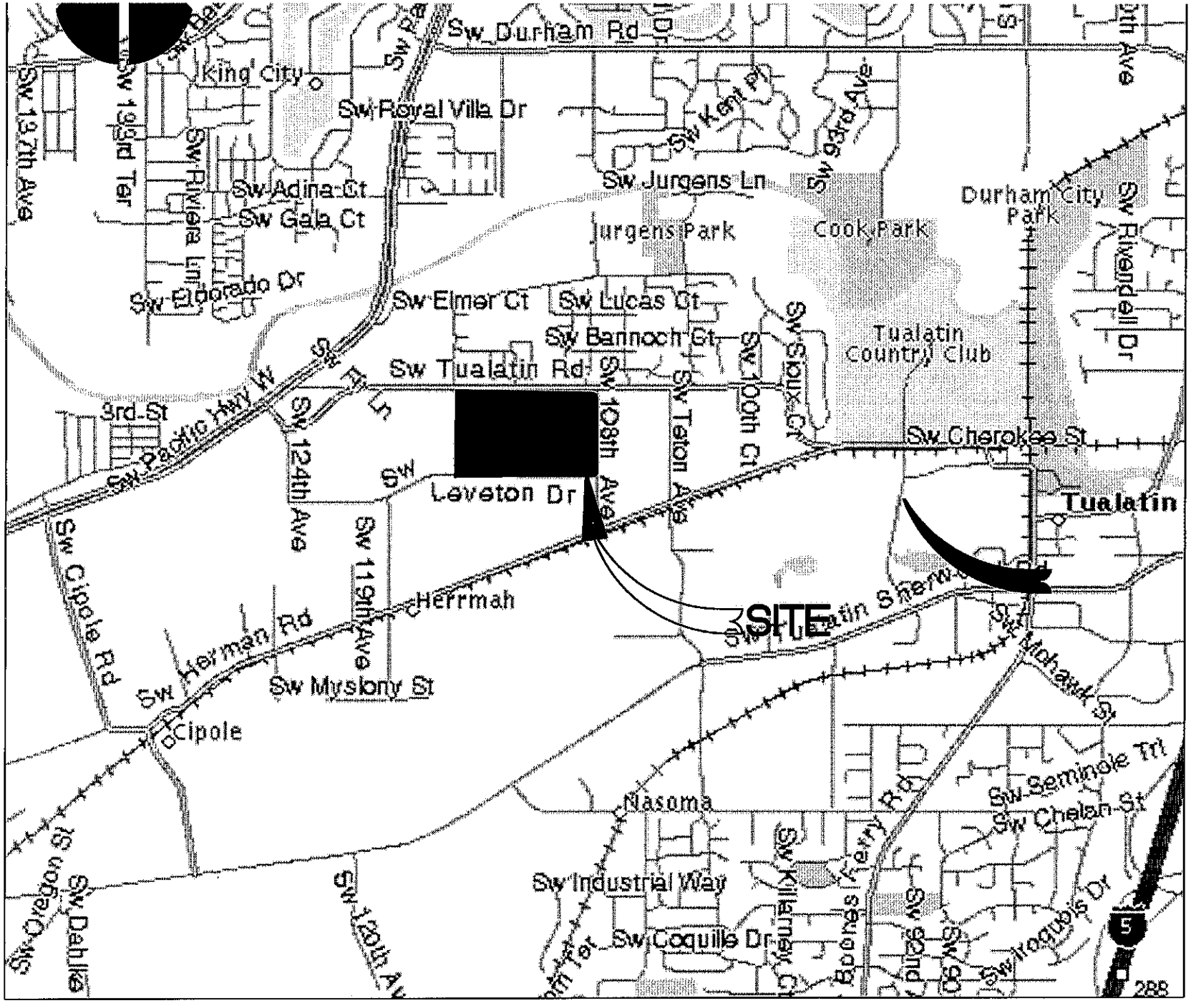
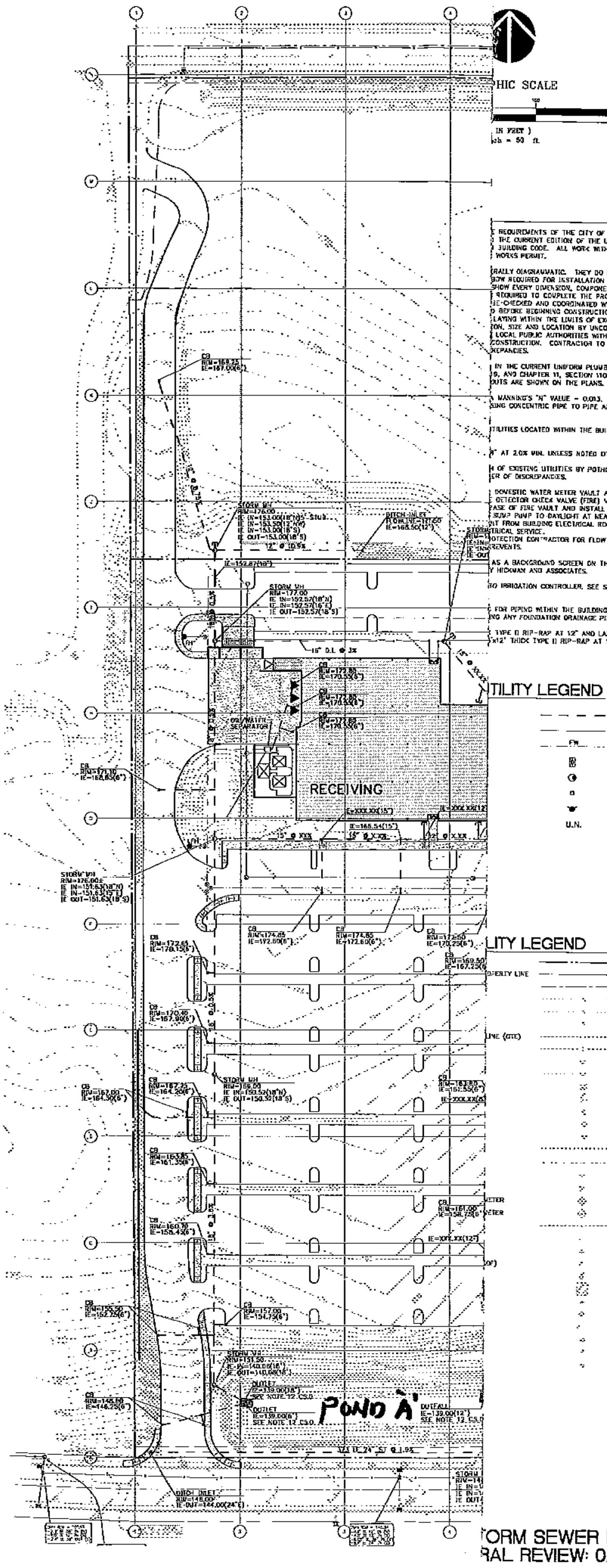
W. Pond 'C' computer detention calc's
X. Pipe sizing areas
Y. Computer volumes for pipe sizing
Z. Pipe sizing calc's

Attachment 'A' Drainage Map



`A' VICINITY MAP



E REQUIREMENTS OF THE CITY OF TUALATIN,
) THE CURRENT EDITION OF THE UNIFORM
BUILDING CODE. ALL WORK WITHIN THE
WORKS PERMIT.

RALLY DIAGRAMMATIC. THEY DO NOT
30W REQUIRED FOR INSTALLATION IN THE
SHOW EVERY DIMENSION, COMPONENT
REQUIRED TO COMPLETE THE PROJECT.
3E-CHECKED AND COORDINATED WITH
D BEFORE BEGINNING CONSTRUCTION.
LAYING WITHIN THE LIMITS OF EXCAVATION
ION, SIZE AND LOCATION BY UNCOVERING.
LOCAL PUBLIC AUTHORITIES WITH
CONSTRUCTION. CONTRACTOR TO NOTIFY
REPANCIES.

IN THE CURRENT UNIFORM PLUMBING CODE
9, AND CHAPTER 11, SECTION 1103.04.
OUTS ARE SHOWN ON THE PLANS.

A MANNING'S "N" VALUE = 0.013.
SING CONCENTRIC PIPE TO PIPE AND

TILITIES LOCATED WITHIN THE BUILDING AND

" AT 2.0% MIN. UNLESS NOTED OTHERWISE.

H OF EXISTING UTILITIES BY POTHOLING PRIOR
ER OF DISCREPANCIES.

DOMESTIC WATER METER VAULT AND BACKFLOW
DETECTOR CHECK VALVE (FIRE) VAULT.
ASE OF FIRE VAULT AND INSTALL 2" PVC DRAIN
SUMP PUMP TO DAYLIGHT AT NEAREST CURB.
IT FROM BUILDING ELECTRICAL ROOM TO
TRICAL SERVICE.
OTECTION CONTRACTOR FOR FLOW SENSOR
REVENTS.

AS A BACKGROUND SCREEN ON THIS SHEET IS
Y HICKMAN AND ASSOCIATES.

O IRRIGATION CONTROLLER. SEE SPECIFICATIONS

FOR PIPING WITHIN THE BUILDING AND UP TO
NG ANY FOUNDATION DRAINAGE PIPING.

TYPE II RIP-RAP AT 12" AND LARGER STORM
x12" THICK TYPE II RIP-RAP AT 10" AND

NOVELLUS

SWINERTON BUILDERS

Project
NOVELLUS TUALATIN FACILITY

Tualatin, Oregon

Architecture, Structural Engineer
Civil Engineer
Group Mackenzie
0690 SW Bancroft Street
Portland, Oregon 97201
Phone: (503)224-9560
FAX: (503)228-1285

Group Mackenzie Consultants

Landscape Architect
Greenworks PC
Phone: (503)222-5612
FAX: (503)222-2263

Safety & Health Consultant
Miller Safety
Phone: (503)243-1040
FAX: (503)243-1470

Design Builder
Westwood Swinerton
3030 SW Moody Avenue
Suite 250
Portland, Oregon 97201
Phone: (503)222-2000
FAX: (503)478-2600

Westwood Consultants

Mechanical Engineer
Southland Industries
Phone: (503)255-7118
FAX: (503)255-7955

Mechanical Consultant
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Phone: (503)224-5200
FAX: (503)224-8521

Electrical Engineer
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Glumac International
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FAX: (503)274-7674

REGISTERED PROFESSIONAL ENGINEER #19178
OREGON MAY 15, 1987
ROBERT L. FAENTRESS JR
EXPIRES: 12/31/01

REVISIONS:
REVISION EDITION / LAST REVISION THIS SHEET / REVISION EDITION CLOSING DATE

SHEET TITLE:
SITE STORM SEWER PLAN PHASE I

FIRST ISSUED:
LAST ISSUED:
DRAWN BY:
CHECKED BY:

SHEET C5.0

GROUP MACKENZIE JOB NO.
CONSULTANT JOB NO. 000321

TORM SEWER PLAN
RAL REVIEW: 02/01/01

'B'

'C' AREAS W/ FULL 'BUILD-OUT'

POND 'A'

TOTAL AREA	= 598,000 ϕ	= 13.72 Ac
PERVIOUS AREA (15%)	= 89,700 ϕ	= 2.06 Ac
IMPERVIOUS AREA (85%)	= 508,300 ϕ	= 11.66 Ac

POND 'B'

TOTAL AREA	= 598,600 ϕ	= 13.72 Ac
PERVIOUS AREA	= 89,700 ϕ	= 2.06 Ac
IMPERVIOUS	= 508,300 ϕ	= 11.66 Ac

POND 'C'

TOTAL AREA	= 643,500 ϕ	= 14.77 Ac
PERVIOUS AREA	= 96,525 ϕ	= 2.22 Ac
IMPERVIOUS AREA	= 546,975 ϕ	= 12.55 Ac

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Date _____
Job # _____
Sht. _____ of _____

'D' WQ VOLUMES REQUIRED

POND 'A'

$$VOL = 508,300\ ft^2 \times 0.36\ in \times \frac{1ft}{12\ in} = 15,250\ ft^3$$

POND 'B'

$$VOL = 508,300\ ft^2 \times 0.36\ in \times \frac{1ft}{12\ in} = 15,249\ ft^3$$

POND 'C'

$$VOL = 546,975\ ft^2 \times 0.36\ in \times \frac{1ft}{12\ in} = 16,409\ ft^3$$

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'E' DETENTION SUMMARY

POND 'A'

	EXIST. (cfs)	DEVELOP. (cfs)	RELEASE (cfs)	PEAK STAGE	
2 YR	1.36	5.52	1.36	140.80	
10 YR	2.90	7.93	1.58	141.99	
25 YR	5.52	9.08	1.59	142.00	

POND 'B'

	EXIST. (cfs)	DEVEL. (cfs)	RELEASE (cfs)	PEAK STAGE	
2 YR	1.36	5.73	1.36	138.97	
10 YR	2.90	8.23	1.67	140.91	
25 YR	3.71	9.42	1.78	140.97	

POND 'C'

	EXIST. (cfs)	DEVEL. (cfs)	RELEASE (cfs)	PEAK STAGE	
2 YR	1.46	6.14	1.46	137.70	
10 YR	3.12	8.82	1.76	138.98	
25 YR	3.99	10.10	1.98	140.66	

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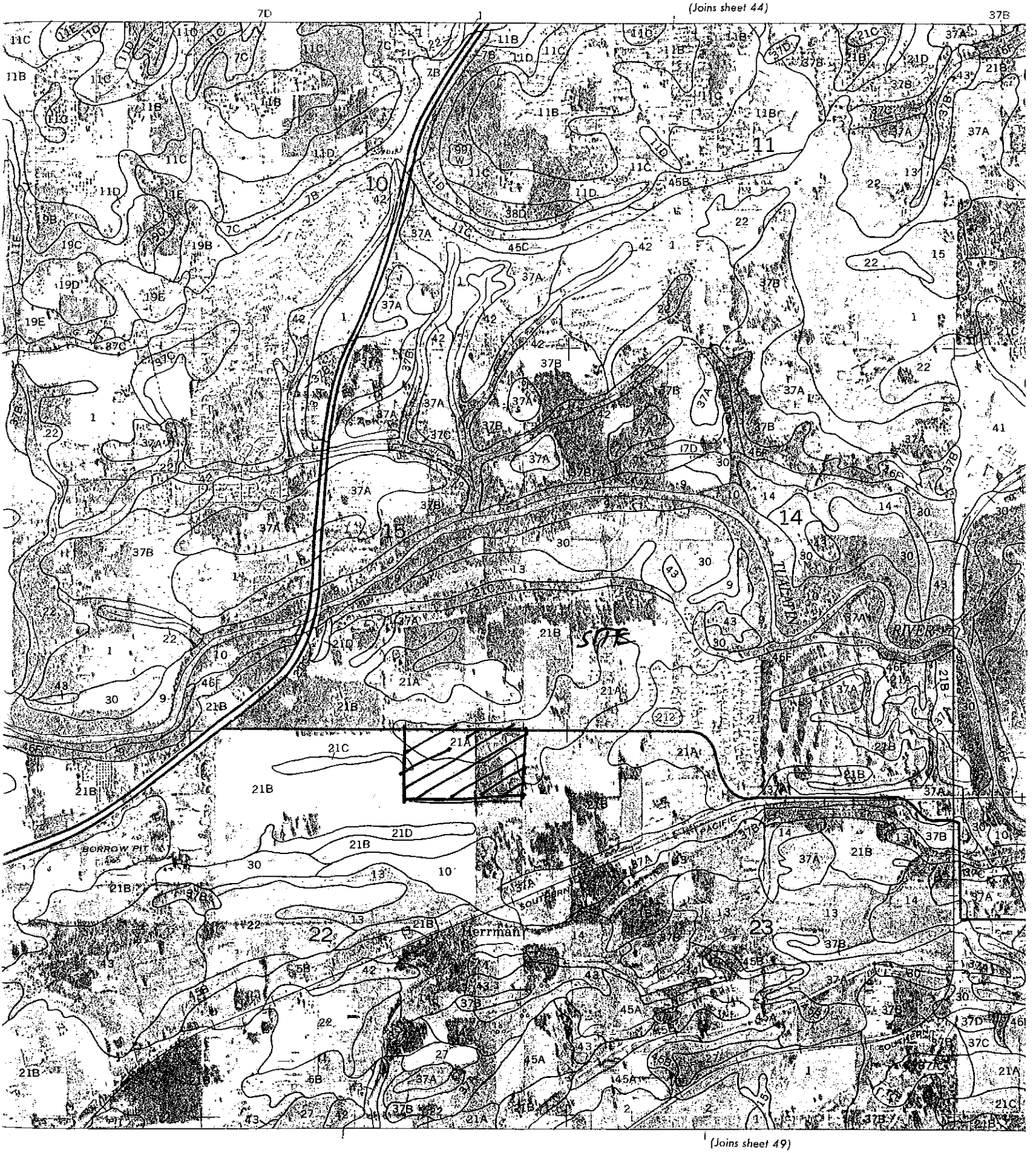

0 1 Mile

0 5000 Feet

ale 1:20000

'F' SOILS MAP

TABLE 13.—*Soil and*

[Absence of an entry indicates the feature is not a concern. See Glossary for descriptions of such

Soil name and map symbol	Hydrologic group	Flooding		
		Frequency	Duration	Months
Aloha: 1	C	None		
Amity: 2	C	None		
Astoria: 3E, 3F	B	None		
Briedwell: 4B, 5B, 5C, 5D	B	None		
Carlton: 6B, 6C	B	None		
Cascade: 7B, 7C, 7D, 7E, 7F	C	None		
Chehalem: 8C	C	None		
Chehalis: 9, 10	B	Common	Brief	Nov-Mar
Cornelius: [1] 11B, [1] 11C, [1] 11D, [1] 11E, [1] 11F:				
Cornelius part	C	None		
Kinton part	C	None		
Cornelius Variant: 12A, 12B, 12C	C	None		
Cove: 13, 14	D	Common	Brief	Dec-Apr
Dayton: 15	D	None		
Delena: 16C	D	None		
Goble: 17B, 17C, 17D, 17E, 18E, 18F	C	None		
Helvetia: 19B, 19C, 19D, 19E	C	None		
Hembre: 20E, 20F, 20G	B	None		
Hillsboro: 21A, 21B, 21C, 21D	B	None		
Huberly: 22	D	None		
Jory: 23B, 23C, 23D, 23E, 23F	C	None		
Kilchis: [1] 24G:				
Kilchis part	C	None		
Klickitat part	B	None		

"H" SCS CN #

Table III-1.3 SCS Western Washington Runoff Curve Numbers
(Published by SCS in 1982) Runoff curve numbers for selected agricultur. suburban and urban land use for Type 1A rainfall distribution, 24-hour storm duration.

LAND USE DESCRIPTION		CURVE NUMBERS BY HYDROLOGIC SOIL GROUP A	B	C	D
Cultivated land(1):	winter condition	86	91	94	95
Mountain open areas:	low growing brush & grasslands	74	82	89	92
Meadow or pasture:		65	78	85	89
Wood or forest land:	undisturbed	42	64	76	81
Wood or forest land:	young second growth or brush	55	72	81	86
Orchard:	with cover crop	81	88	92	94
Open spaces, lawns, parks, golf courses, cemeteries, landscaping.					
Good condition:	grass cover on ≥75% of the area	68	80	86	90
Fair condition:	grass cover on 50-75% of the area	77	85	90	92
Gravel roads & parking lots:		76	85	89	91
Dirt roads & parking lots:		72	82	87	89
Impervious surfaces, pavement, roofs etc.		98	98	98	98
Open water bodies:	lakes, wetlands, ponds etc.	100	100	100	100
Single family residential(2):					
Dwelling Unit/Gross Acre	%Impervious(3)				
1.0 DU/GA	15				
1.5 DU/GA	20				
2.0 DU/GA	25				
2.5 DU/GA	30				
3.0 DU/GA	34				
3.5 DU/GA	38				
4.0 DU/GA	42				
4.5 DU/GA	46				
5.0 DU/GA	48				
5.5 DU/GA	50				
6.0 DU/GA	52				
6.5 DU/GA	54				
7.0 DU/GA	56				
PUD's, condos, apartments, commercial businesses & industrial areas	%impervious must be computed				
		Separate curve number shall be selected for pervious & impervious portions of the site or basin			

(1) For a more detailed description of agricultural land use curve numbers refer to National Engineering Handbook, Sec. 4, Hydrology, Chapter 9, August 1972.
(2) Assumes roof and driveway runoff is directed into street/storm system.
(3) The remaining pervious areas (lawn) are considered to be in good condition for these curve numbers.

'I' - POND 'A' TOTAL VOLUME

ELEV. (FT)	AREA (SF)	VOL (EF)	Cumm. VOL (CF)	
138	7015			
139	8904	7960	7960	
140	10,849	9876	17,836	← WQ VOL @ 139.75
141	12,851	11,850	29,686	
142	14,909	13,880	43,566	
143	17,024	15,967	59,532	

WQ RELEASE RATE

$$\frac{15{,}250\ ft^3}{48\ HRS} \times \frac{1\ HR}{3600\ s} = 0.088\ CS$$

GROUP MACKENZIE
0690 SW Bancroft St/PO Box 69039 Portland, OR 97201-0039
Tel: 503.224.9560 Net: info@grpmack.com Fax: 503.228.1285

By _____
Date _____
Job # _____
Sht. _____ of _____

'J' - POND 'A' DETENTION VOLUME

ELEV (FT)	AREA (SF)	VOL (CF)	CUMM VOL (CF)
139.75	10,363		
140	10,849	2652	2652
141	12,851	11,850	14,501
142	14,909	13,880	28,382
143	17,024	15,967	41,348

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By _____
Date _____
Job # _____
Sht. _____ of _____

'K' - WQ ORIFICE 'A'

$Q = CA(2gh)^{1/2}$

$A = \dfrac{Q}{C(2gh)^{1/2}}$

$A = \dfrac{0.088}{0.62(2 \times 32.2 \times 2.10)^{1/2}}$

$A = 0.01224$

$d = \sqrt{\dfrac{4A}{\pi}} = 0.125' = \underline{1.50'' \ \phi}$

$Q = 0.088$

$C = 0.62$

$g = 32.2$

$h = 139.75 - 137.65 = 2.10'$

$A = \dfrac{\pi d^2}{4}$

$d = \sqrt{\dfrac{4A}{\pi}}$

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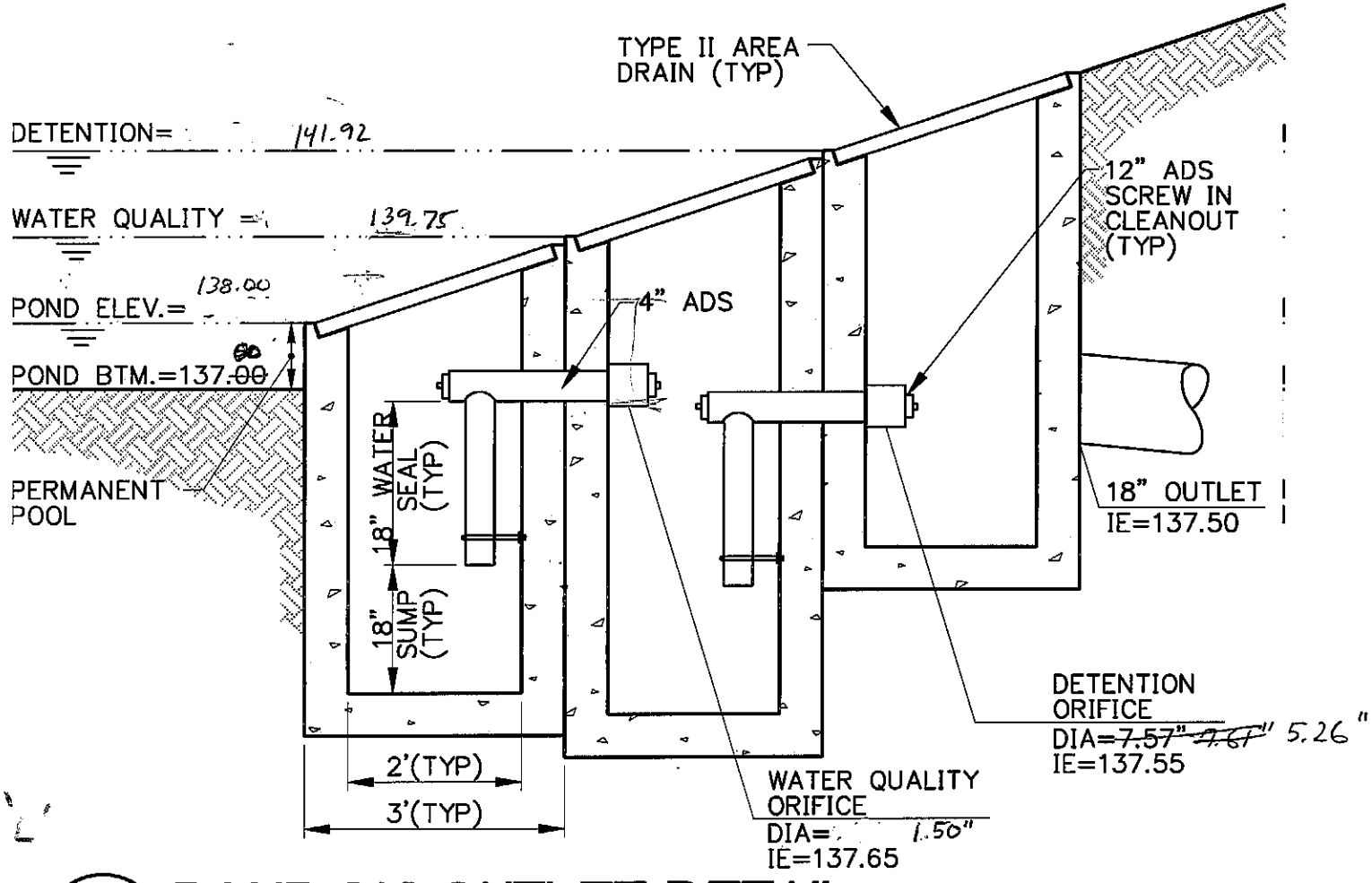
0690 SW Bancroft St/PO Box 69039 Portland, OR 97201-0039
Tel: 503.224.9560 Net: info@grpmack.com Fax: 503.228.1285

By _____
Date _____
Job # _____
Sht. _____ of _____



1 C8.1 POND "A" OUTLET DETAIL

N.T.S.
OUTFLOW DEVICE

SD150
DETINSET= 1:1

BASIN SUMMARY

BASIN ID: D10 NAME: DEVELOPED 10YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 13.72 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 3.45 inches AREA..: 2.06 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 17.67 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 11.66 Acres
CN....: 98.00
TcReach - Sheet L: 30.00 ns:0.2400 p2yr: 2.50 s:0.0200
TcReach - Sheet L: 150.00 ns:0.0110 p2yr: 2.50 s:0.0020
TcReach - Channel L:1700.00 kc:42.00 s:0.0100
PEAK RATE: 7.93 cfs VOL: 3.40 Ac-ft TIME: 480 min

BASIN ID: D2 NAME: DEVELOPED 2YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 13.72 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 2.50 inches AREA..: 2.06 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 17.67 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 11.66 Acres
CN....: 98.00
TcReach - Sheet L: 30.00 ns:0.2400 p2yr: 2.50 s:0.0200
TcReach - Sheet L: 150.00 ns:0.0110 p2yr: 2.50 s:0.0020
TcReach - Channel L:1700.00 kc:42.00 s:0.0100
PEAK RATE: 5.52 cfs VOL: 2.36 Ac-ft TIME: 480 min

BASIN ID: D25 NAME: DEVELOPED 25YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 13.72 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 3.90 inches AREA..: 2.06 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 17.67 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 11.66 Acres
CN....: 98.00
TcReach - Sheet L: 30.00 ns:0.2400 p2yr: 2.50 s:0.0200
TcReach - Sheet L: 150.00 ns:0.0110 p2yr: 2.50 s:0.0020
TcReach - Channel L:1700.00 kc:42.00 s:0.0100
PEAK RATE: 9.08 cfs VOL: 3.90 Ac-ft TIME: 480 min

BASIN SUMMARY

BASIN ID: E10 NAME: EXISTING 10YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 13.72 Acres
RAINFALL TYPE....: TYPE1A
PRECIPITATION....: 3.45 inches
TIME INTERVAL....: 10.00 min
TIME OF CONC.....: 38.83 min
ABSTRACTION COEFF: 0.20
BASEFLOWS: 0.00 cfs
PERVIOUS AREA
AREA..: 13.72 Acres
CN....: 80.00
IMPERVIOUS AREA
AREA..: 0.00 Acres
CN....: 98.00
TcReach - Sheet L: 300.00 ns:0.2400 p2yr: 2.50 s:0.0400
TcReach - Shallow L: 300.00 ks:10.00 s:0.0400
TcReach - Channel L:1400.00 kc:17.00 s:0.0400
PEAK RATE: 2.90 cfs VOL: 1.83 Ac-ft TIME: 490 min

BASIN ID: E2 NAME: EXISTING 2YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 13.72 Acres
RAINFALL TYPE....: TYPE1A
PRECIPITATION....: 2.50 inches
TIME INTERVAL....: 10.00 min
TIME OF CONC.....: 38.83 min
ABSTRACTION COEFF: 0.20
BASEFLOWS: 0.00 cfs
PERVIOUS AREA
AREA..: 13.72 Acres
CN....: 80.00
IMPERVIOUS AREA
AREA..: 0.00 Acres
CN....: 98.00
TcReach - Sheet L: 300.00 ns:0.2400 p2yr: 2.50 s:0.0400
TcReach - Shallow L: 300.00 ks:10.00 s:0.0400
TcReach - Channel L:1400.00 kc:17.00 s:0.0400
PEAK RATE: 1.36 cfs VOL: 1.02 Ac-ft TIME: 490 min

BASIN ID: E25 NAME: EXISTING 25YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 13.72 Acres
RAINFALL TYPE....: TYPE1A
PRECIPITATION....: 3.90 inches
TIME INTERVAL....: 10.00 min
TIME OF CONC.....: 38.83 min
ABSTRACTION COEFF: 0.20
BASEFLOWS: 0.00 cfs
PERVIOUS AREA
AREA..: 13.72 Acres
CN....: 80.00
IMPERVIOUS AREA
AREA..: 0.00 Acres
CN....: 98.00
TcReach - Sheet L: 300.00 ns:0.2400 p2yr: 2.50 s:0.0400
TcReach - Shallow L: 300.00 ks:10.00 s:0.0400
TcReach - Channel L:1400.00 kc:17.00 s:0.0400
PEAK RATE: 3.71 cfs VOL: 2.24 Ac-ft TIME: 490 min

HYDROGRAPH SUMMARY

HYD NUM	PEAK RUNOFF RATE cfs	TIME OF PEAK min.	VOLUME OF HYDRO cf\AcFt	Contrib Area Acres
1	1.356	490	44270 cf	13.72
2	2.902	490	79526 cf	13.72
3	3.714	490	97581 cf	13.72
5	5.522	480	102758 cf	13.72
6	7.929	480	148087 cf	13.72
7	9.079	480	169790 cf	13.72
10	1.355	700	102983 cf	13.72
11	1.584	630	35096 cf	13.72
12	1.570	530	27536 cf	13.72

ROUTING REPORT

STORAGE LIST ID No. A
Description:

MULTIPLE ORIFICE ID No. A
Description:
Outlet Elev: 137.55
Elev: 137.55 ft Orifice Diameter: 5.2617 in.

ROUTING CURVE

STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min
137.55	0.0000	0.0000	0.0000	139.10	3837	0.9354	13.725	140.70	24218	1.3334	82.059
137.60	0.0000	0.1680	0.1680	139.20	5022	0.9651	17.704	140.80	25606	1.3544	86.707
137.70	0.0000	0.2910	0.2910	139.30	6207	0.9939	21.683	140.90	26994	1.3751	91.355
137.80	0.0000	0.3757	0.3757	139.40	7392	1.0219	25.661	141.00	28382	1.3955	96.002
137.90	0.0000	0.4445	0.4445	139.50	8577	1.0491	29.637	141.10	29979	1.4156	101.34
138.00	0.0000	0.5040	0.5040	139.60	9761	1.0757	33.614	141.20	31575	1.4354	106.69
138.10	0.0000	0.5572	0.5572	139.70	10946	1.1016	37.589	141.30	33172	1.4549	112.03
138.20	0.0000	0.6057	0.6057	139.80	12131	1.1270	41.564	141.40	34768	1.4742	117.37
138.30	0.0000	0.6507	0.6507	139.90	13316	1.1517	45.539	141.50	36365	1.4932	122.71
138.40	0.0000	0.6927	0.6927	140.00	14501	1.1760	49.513	141.60	37962	1.5120	128.05
138.50	0.0000	0.7323	0.7323	140.10	15889	1.1997	54.163	141.70	39558	1.5305	133.39
138.60	0.0000	0.7699	0.7699	140.20	17277	1.2230	58.814	141.80	41155	1.5489	138.73
138.70	0.0000	0.8057	0.8057	140.30	18665	1.2459	63.464	141.90	42751	1.5670	144.07
138.80	530.40	0.8400	2.6080	140.40	20053	1.2684	68.113				
138.90	1591	0.8729	6.1769	140.50	21442	1.2904	72.762				
139.00	2652	0.9047	9.7447	140.60	22830	1.3121	77.411				

LEVEL POOL ROUTING TABLE

MATCH Q (cfs) : 1.36 INFLOW Q (cfs): 5.52
PEAK STAGE (ft): 140.80 PEAK OUTFLOW : 1.36
PEAK TIME: 700.00 min.
INFLOW HYD No. : 5 OUTFLOW HYD No.: 10

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.0000	0.0001	0.0000	0.0001	0.0000	0.0001	137.55	50.00
0.0001	0.0062	0.0000	0.0063	0.0001	0.0062	137.55	60.00
0.0062	0.0358	0.0000	0.0420	0.0062	0.0358	137.55	70.00
0.0358	0.0902	0.0000	0.1259	0.0358	0.0902	137.55	80.00
0.0902	0.1532	0.0000	0.2434	0.0902	0.1532	137.55	90.00
0.1532	0.2163	0.0000	0.3695	0.1532	0.2163	137.55	100.00
0.2163	0.2756	0.0000	0.4919	0.2163	0.2756	137.55	110.00
0.2756	0.3295	0.0000	0.6051	0.2756	0.3295	137.55	120.00
0.3295	0.3947	0.0000	0.7242	0.3295	0.3947	137.55	130.00
0.3947	0.4686	0.0000	0.8633	0.3947	0.4686	137.55	140.00
0.4686	0.5284	0.0000	0.9970	0.4686	0.5284	137.55	150.00
0.5284	0.5757	0.0000	1.1042	0.5284	0.5757	137.55	160.00
0.5757	0.6188	0.0000	1.1946	0.5757	0.6188	137.55	170.00
0.6188	0.6554	0.0000	1.2742	0.6188	0.6554	137.55	180.00
0.6554	0.6842	0.0000	1.3396	0.6554	0.6842	137.55	190.00
0.6842	0.7129	0.0000	1.3971	0.6842	0.7129	137.55	200.00
0.7129	0.7378	0.0000	1.4507	0.7129	0.7378	137.55	210.00
0.7378	0.7566	0.0000	1.4944	0.7378	0.7566	137.55	220.00
0.7566	0.7773	0.0000	1.5339	0.7566	0.7773	137.55	230.00
0.7773	0.7952	0.0000	1.5725	0.7773	0.7952	137.55	240.00
0.7952	0.8366	0.0000	1.6319	0.7952	0.8366	137.55	250.00
0.8366	0.8912	0.0304	1.7583	0.8063	0.9520	138.70	260.00
0.8912	0.9280	0.1435	1.9627	0.8085	1.1543	138.71	270.00
0.9280	0.9574	0.3419	2.2273	0.8123	1.4150	138.72	280.00
0.9574	0.9756	0.5977	2.5306	0.8173	1.7133	138.73	290.00
0.9756	0.9904	0.8904	2.8563	0.8230	2.0334	138.75	300.00
0.9904	1.1189	1.2043	3.3136	0.8291	2.4846	138.77	310.00
1.1189	1.3095	1.6469	4.0754	0.8376	3.2377	138.79	320.00
1.3095	1.4235	2.3919	5.1249	0.8458	4.2791	138.82	330.00
1.4235	1.4938	3.4237	6.3410	0.8554	5.4856	138.85	340.00
1.4938	1.5398	4.6191	7.6527	0.8666	6.7861	138.88	350.00
1.5398	1.5727	5.9077	9.0202	0.8784	8.1418	138.92	360.00
1.5727	1.5694	7.2514	10.393	0.8904	9.5031	138.96	370.00
1.5694	1.5448	8.6005	11.715	0.9025	10.812	138.99	380.00
1.5448	1.5328	9.8993	12.977	0.9129	12.064	139.03	390.00
1.5328	1.5311	11.141	14.205	0.9226	13.283	139.06	400.00
1.5311	1.5386	12.351	15.421	0.9320	14.489	139.09	410.00
1.5386	1.5435	13.548	16.630	0.9411	15.689	139.12	420.00
1.5435	1.9599	14.739	18.242	0.9500	17.292	139.15	430.00
1.9599	2.6167	16.330	20.907	0.9620	19.945	139.19	440.00
2.6167	3.0001	18.963	24.580	0.9813	23.599	139.26	450.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
3.0001	3.8181	22.591	29.410	1.0074	28.402	139.35	460.00
3.8181	4.8896	27.362	36.069	1.0407	35.029	139.47	470.00
4.8896	5.5224	33.944	44.356	1.0849	43.271	139.64	480.00
5.5224	5.0947	42.133	52.750	1.1376	51.613	139.84	490.00
5.0947	4.0608	50.426	59.582	1.1867	58.395	140.05	500.00
4.0608	3.4876	57.174	64.722	1.2209	63.501	140.19	510.00
3.4876	3.1022	62.255	68.845	1.2461	67.599	140.30	520.00
3.1022	2.8252	66.333	72.261	1.2659	70.995	140.39	530.00
2.8252	2.6735	69.713	75.211	1.2820	73.929	140.46	540.00
2.6735	2.4188	72.633	77.726	1.2959	76.430	140.53	550.00
2.4188	2.1056	75.122	79.647	1.3075	78.339	140.58	560.00
2.1056	1.9318	77.023	81.060	1.3164	79.744	140.62	570.00
1.9318	1.8402	78.421	82.193	1.3228	80.870	140.65	580.00
1.8402	1.7861	79.542	83.169	1.3280	81.841	140.67	590.00
1.7861	1.7572	80.508	84.052	1.3324	82.719	140.70	600.00
1.7572	1.7089	81.383	84.849	1.3364	83.512	140.71	610.00
1.7089	1.6498	82.172	85.531	1.3400	84.191	140.73	620.00
1.6498	1.6177	82.848	86.115	1.3431	84.772	140.75	630.00
1.6177	1.5965	83.427	86.641	1.3457	85.295	140.76	640.00
1.5965	1.5897	83.947	87.133	1.3481	85.785	140.77	650.00
1.5897	1.5869	84.435	87.612	1.3503	86.261	140.78	660.00
1.5869	1.5149	84.909	88.011	1.3524	86.658	140.79	670.00
1.5149	1.4041	85.304	88.223	1.3542	86.869	140.80	680.00
1.4041	1.3427	85.514	88.260	1.3552	86.905	140.80	690.00
1.3427	1.3131	85.550	88.206	1.3553	86.850	140.80	700.00
1.3131	1.2929	85.495	88.101	1.3551	86.746	140.80	710.00
1.2929	1.2822	85.392	87.967	1.3546	86.612	140.80	720.00
1.2822	1.2808	85.258	87.821	1.3540	86.467	140.80	730.00
1.2808	1.2764	85.114	87.671	1.3534	86.318	140.79	740.00
1.2764	1.2744	84.965	87.516	1.3527	86.163	140.79	750.00
1.2744	1.2780	84.811	87.364	1.3520	86.012	140.79	760.00
1.2780	1.2762	84.660	87.214	1.3513	85.863	140.79	770.00
1.2762	1.2757	84.513	87.065	1.3506	85.714	140.78	780.00
1.2757	1.2081	84.364	86.848	1.3499	85.498	140.78	790.00
1.2081	1.0987	84.149	86.456	1.3490	85.107	140.77	800.00
1.0987	1.0378	83.759	85.896	1.3472	84.549	140.77	810.00
1.0378	1.0040	83.204	85.246	1.3447	83.901	140.75	820.00
1.0040	0.9854	82.559	84.549	1.3418	83.207	140.74	830.00
0.9854	0.9752	81.868	83.829	1.3386	82.490	140.72	840.00
0.9752	1.0037	81.155	83.134	1.3354	81.798	140.71	850.00
1.0037	1.0582	80.466	82.528	1.3322	81.196	140.69	860.00
1.0582	1.0890	79.866	82.014	1.3295	80.684	140.68	870.00
1.0890	1.1022	79.357	81.548	1.3271	80.221	140.67	880.00
1.1022	1.1142	78.896	81.112	1.3250	79.787	140.66	890.00
1.1142	1.1212	78.464	80.700	1.3230	79.377	140.65	900.00
1.1212	1.1211	78.056	80.298	1.3211	78.977	140.64	910.00
1.1211	1.1257	77.658	79.904	1.3193	78.585	140.63	920.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
1.1257	1.1285	77.268	79.522	1.3175	78.204	140.63	930.00
1.1285	1.1261	76.889	79.143	1.3157	77.828	140.62	940.00
1.1261	1.1293	76.513	78.769	1.3140	77.455	140.61	950.00
1.1293	1.1314	76.143	78.403	1.3123	77.091	140.60	960.00
1.1314	1.0216	75.780	77.933	1.3106	76.623	140.59	970.00
1.0216	0.8577	75.314	77.194	1.3084	75.885	140.58	980.00
0.8577	0.7661	74.580	76.204	1.3050	74.899	140.57	990.00
0.7661	0.7108	73.599	75.076	1.3004	73.775	140.55	1000.00
0.7108	0.6842	72.480	73.875	1.2951	72.580	140.52	1010.00
0.6842	0.6695	71.290	72.644	1.2895	71.355	140.50	1020.00
0.6695	0.7299	70.071	71.470	1.2837	70.187	140.47	1030.00
0.7299	0.8367	68.908	70.475	1.2782	69.197	140.44	1040.00
0.8367	0.8966	67.923	69.657	1.2735	68.383	140.42	1050.00
0.8966	0.9303	67.113	68.940	1.2696	67.671	140.41	1060.00
0.9303	0.9493	66.404	68.284	1.2662	67.018	140.39	1070.00
0.9493	0.9601	65.755	67.664	1.2631	66.401	140.38	1080.00
0.9601	0.9319	65.141	67.033	1.2601	65.773	140.36	1090.00
0.9319	0.8776	64.516	66.325	1.2571	65.068	140.35	1100.00
0.8776	0.8474	63.815	65.540	1.2536	64.286	140.33	1110.00
0.8474	0.9641	63.036	64.848	1.2499	63.598	140.32	1120.00
0.9641	0.8960	62.351	64.211	1.2465	62.965	140.30	1130.00
0.8960	0.7289	61.721	63.346	1.2434	62.103	140.29	1140.00
0.7289	0.7691	60.863	62.361	1.2392	61.122	140.27	1150.00
0.7691	0.7874	59.888	61.444	1.2344	60.210	140.25	1160.00
0.7874	0.7977	58.980	60.565	1.2299	59.335	140.23	1170.00
0.7977	0.8079	58.110	59.715	1.2256	58.490	140.21	1180.00
0.8079	0.8094	57.268	58.885	1.2214	57.664	140.19	1190.00
0.8094	0.8104	56.447	58.067	1.2173	56.849	140.18	1200.00
0.8104	0.8153	55.636	57.262	1.2132	56.049	140.16	1210.00
0.8153	0.8139	54.839	56.469	1.2092	55.259	140.14	1220.00
0.8139	0.8132	54.054	55.681	1.2052	54.476	140.12	1230.00
0.8132	0.8173	53.275	54.905	1.2013	53.704	140.11	1240.00
0.8173	0.8153	52.507	54.139	1.1974	52.942	140.09	1250.00
0.8153	0.8143	51.748	53.378	1.1935	52.184	140.07	1260.00
0.8143	0.8182	50.995	52.627	1.1896	51.438	140.06	1270.00
0.8182	0.8162	50.252	51.886	1.1858	50.701	140.04	1280.00
0.8162	0.8152	49.519	51.150	1.1820	49.968	140.03	1290.00
0.8152	0.8190	48.790	50.424	1.1783	49.245	140.01	1300.00
0.8190	0.8169	48.071	49.707	1.1744	48.533	139.99	1310.00
0.8169	0.8159	47.363	48.995	1.1700	47.825	139.98	1320.00
0.8159	0.7808	46.660	48.256	1.1657	47.091	139.96	1330.00
0.7808	0.7266	45.930	47.437	1.1612	46.276	139.94	1340.00
0.7266	0.6963	45.119	46.542	1.1562	45.386	139.92	1350.00
0.6963	0.6752	44.235	45.607	1.1508	44.456	139.90	1360.00
0.6752	0.6677	43.311	44.654	1.1450	43.509	139.87	1370.00
0.6677	0.6637	42.370	43.701	1.1391	42.562	139.85	1380.00
0.6637	0.6571	41.429	42.750	1.1332	41.617	139.83	1390.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.6571	0.6578	40.489	41.804	1.1273	40.677	139.80	1400.00
0.6578	0.6583	39.556	40.872	1.1213	39.751	139.78	1410.00
0.6583	0.6543	38.635	39.948	1.1154	38.832	139.75	1420.00
0.6543	0.6565	37.723	39.034	1.1096	37.924	139.73	1430.00
0.6565	0.6577	36.820	38.135	1.1038	37.031	139.71	1440.00
0.6577	0.5109	35.933	37.101	1.0980	36.003	139.69	1450.00
0.5109	0.2855	34.912	35.709	1.0913	34.617	139.66	1460.00
0.2855	0.1596	33.535	33.980	1.0823	32.898	139.63	1470.00
0.1596	0.0892	31.827	32.076	1.0709	31.005	139.58	1480.00
0.0892	0.0499	29.947	30.086	1.0583	29.027	139.53	1490.00
0.0499	0.0279	27.982	28.060	1.0450	27.015	139.48	1500.00
0.0279	0.0156	25.984	26.027	1.0312	24.996	139.43	1510.00
0.0156	0.0087	23.979	24.003	1.0172	22.986	139.38	1520.00
0.0087	0.0049	21.983	21.997	1.0031	20.993	139.33	1530.00
0.0049	0.0027	20.005	20.012	0.9889	19.023	139.28	1540.00
0.0027	0.0015	18.049	18.053	0.9746	17.078	139.23	1550.00
0.0015	0.0008	16.118	16.120	0.9604	15.160	139.18	1560.00
0.0008	0.0005	14.214	14.215	0.9461	13.269	139.14	1570.00
0.0005	0.0003	12.337	12.338	0.9319	11.406	139.09	1580.00
0.0003	0.0001	10.489	10.489	0.9175	9.5714	139.04	1590.00
0.0001	0.0001	8.6683	8.6685	0.9032	7.7654	139.00	1600.00
0.0001	0.0000	6.8783	6.8784	0.8871	5.9913	138.94	1610.00
0.0000	0.0000	5.1201	5.1202	0.8712	4.2490	138.89	1620.00
0.0000	0.0000	3.3938	3.3939	0.8551	2.5387	138.85	1630.00
0.0000	0.0000	1.7001	1.7001	0.8387	0.8614	138.80	1640.00
0.0000	0.0000	0.0547	0.0547	0.8067	-0.7521	138.70	1650.00

ROUTING REPORT

STORAGE LIST ID No. A
Description:

MULTIPLE ORIFICE ID No. A
Description:
Outlet Elev: 137.55
Elev: 137.55 ft Orifice Diameter: 5.2617 in.

ROUTING CURVE

STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min
137.55	0.0000	0.0000	0.0000	139.10	3837	0.9354	13.725	140.70	24218	1.3334	82.059
137.60	0.0000	0.1680	0.1680	139.20	5022	0.9651	17.704	140.80	25606	1.3544	86.707
137.70	0.0000	0.2910	0.2910	139.30	6207	0.9939	21.683	140.90	26994	1.3751	91.355
137.80	0.0000	0.3757	0.3757	139.40	7392	1.0219	25.661	141.00	28382	1.3955	96.002
137.90	0.0000	0.4445	0.4445	139.50	8577	1.0491	29.637	141.10	29979	1.4156	101.34
138.00	0.0000	0.5040	0.5040	139.60	9761	1.0757	33.614	141.20	31575	1.4354	106.69
138.10	0.0000	0.5572	0.5572	139.70	10946	1.1016	37.589	141.30	33172	1.4549	112.03
138.20	0.0000	0.6057	0.6057	139.80	12131	1.1270	41.564	141.40	34768	1.4742	117.37
138.30	0.0000	0.6507	0.6507	139.90	13316	1.1517	45.539	141.50	36365	1.4932	122.71
138.40	0.0000	0.6927	0.6927	140.00	14501	1.1760	49.513	141.60	37962	1.5120	128.05
138.50	0.0000	0.7323	0.7323	140.10	15889	1.1997	54.163	141.70	39558	1.5305	133.39
138.60	0.0000	0.7699	0.7699	140.20	17277	1.2230	58.814	141.80	41155	1.5489	138.73
138.70	0.0000	0.8057	0.8057	140.30	18665	1.2459	63.464	141.90	42751	1.5670	144.07
138.80	530.40	0.8400	2.6080	140.40	20053	1.2684	68.113				
138.90	1591	0.8729	6.1769	140.50	21442	1.2904	72.762				
139.00	2652	0.9047	9.7447	140.60	22830	1.3121	77.411				

LEVEL POOL ROUTING TABLE

MATCH Q (cfs) : 2.90 INFLOW Q (cfs): 7.93
PEAK STAGE (ft): 141.99 PEAK OUTFLOW : 1.58
PEAK TIME: 630.00 min.
INFLOW HYD No. : 6 OUTFLOW HYD No.: 11

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.0000	0.0019	0.0000	0.0019	0.0000	0.0019	137.55	40.00
0.0019	0.0209	0.0000	0.0229	0.0019	0.0209	137.55	50.00
0.0209	0.0630	0.0000	0.0839	0.0209	0.0630	137.55	60.00
0.0630	0.1440	0.0000	0.2070	0.0630	0.1440	137.55	70.00
0.1440	0.2565	0.0000	0.4005	0.1440	0.2565	137.55	80.00
0.2565	0.3646	0.0000	0.6211	0.2565	0.3646	137.55	90.00
0.3646	0.4624	0.0000	0.8270	0.3646	0.4624	137.55	100.00
0.4624	0.5481	0.0000	1.0104	0.4624	0.5481	137.55	110.00
0.5481	0.6221	0.0000	1.1701	0.5481	0.6221	137.55	120.00
0.6221	0.7143	0.0000	1.3364	0.6221	0.7143	137.55	130.00
0.7143	0.8201	0.0000	1.5344	0.7143	0.8201	137.55	140.00
0.8201	0.9008	0.0142	1.7351	0.8060	0.9291	138.70	150.00
0.9008	0.9604	0.1211	1.9823	0.8080	1.1743	138.71	160.00
0.9604	1.0135	0.3615	2.3355	0.8127	1.5228	138.72	170.00
1.0135	1.0568	0.7035	2.7738	0.8193	1.9544	138.74	180.00
1.0568	1.0886	1.1269	3.2723	0.8275	2.4447	138.76	190.00
1.0886	1.1211	1.6078	3.8176	0.8369	2.9807	138.79	200.00
1.1211	1.1484	2.1373	4.4068	0.8434	3.5634	138.81	210.00
1.1484	1.1673	2.7146	5.0303	0.8488	4.1814	138.83	220.00
1.1673	1.1896	3.3269	5.6838	0.8545	4.8293	138.84	230.00
1.1896	1.2085	3.9688	6.3669	0.8605	5.5064	138.86	240.00
1.2085	1.2628	4.6396	7.1110	0.8667	6.2442	138.88	250.00
1.2628	1.3370	5.3707	7.9705	0.8735	7.0970	138.90	260.00
1.3370	1.3845	6.2159	8.9374	0.8811	8.0563	138.93	270.00
1.3845	1.4213	7.1667	9.9725	0.8897	9.0828	138.95	280.00
1.4213	1.4427	8.1840	11.048	0.8988	10.149	138.98	290.00
1.4427	1.4610	9.2414	12.145	0.9078	11.237	139.01	300.00
1.4610	1.6480	10.321	13.430	0.9162	12.514	139.04	310.00
1.6480	1.9273	11.588	15.163	0.9260	14.237	139.07	320.00
1.9273	2.0950	13.298	17.320	0.9392	16.381	139.11	330.00
2.0950	2.1991	15.426	19.720	0.9552	18.765	139.17	340.00
2.1991	2.2669	17.792	22.258	0.9728	21.285	139.23	350.00
2.2669	2.3136	20.294	24.875	0.9910	23.884	139.29	360.00
2.3136	2.3054	22.874	27.493	1.0094	26.484	139.36	370.00
2.3054	2.2653	25.456	30.027	1.0275	29.000	139.42	380.00
2.2653	2.2436	27.955	32.464	1.0448	31.419	139.48	390.00
2.2436	2.2370	30.358	34.838	1.0610	33.777	139.54	400.00
2.2370	2.2440	32.701	37.182	1.0768	36.105	139.60	410.00
2.2440	2.2474	35.013	39.504	1.0920	38.412	139.66	420.00
2.2474	2.8471	37.305	42.400	1.1069	41.293	139.72	430.00
2.8471	3.7928	40.168	46.808	1.1252	45.683	139.79	440.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
3.7928	4.3398	44.530	52.663	1.1526	51.510	139.90	450.00
4.3398	5.5086	50.324	60.172	1.1862	58.986	140.04	460.00
5.5086	7.0369	57.762	70.308	1.2239	69.084	140.20	470.00
7.0369	7.9294	67.811	82.777	1.2730	81.504	140.42	480.00
7.9294	7.3040	80.173	95.407	1.3309	94.076	140.69	490.00
7.3040	5.8151	92.689	105.81	1.3870	104.42	140.96	500.00
5.8151	4.9882	102.99	113.80	1.4270	112.37	141.16	510.00
4.9882	4.4319	110.91	120.33	1.4561	118.88	141.31	520.00
4.4319	4.0321	117.40	125.86	1.4795	124.38	141.43	530.00
4.0321	3.8122	122.88	130.73	1.4991	129.23	141.53	540.00
3.8122	3.4466	127.71	134.97	1.5161	133.46	141.62	550.00
3.4466	2.9985	131.92	138.37	1.5307	136.84	141.70	560.00
2.9985	2.7496	135.30	141.04	1.5424	139.50	141.76	570.00
2.7496	2.6178	137.95	143.32	1.5515	141.77	141.81	580.00
2.6178	2.5397	140.21	145.37	1.5592	143.81	141.86	590.00
2.5397	2.4974	142.24	147.28	1.5661	145.71	141.90	600.00
2.4974	2.4279	144.14	149.06	1.5725	147.49	141.93	610.00
2.4279	2.3430	145.91	150.68	1.5784	149.11	141.96	620.00
2.3430	2.2966	147.52	152.16	1.5839	150.58	141.99	630.00
2.2966	2.2658	150.58	155.14	0.0000	155.14	0.00	640.00
2.2658	2.2555	155.14	159.66	0.0000	159.66	0.00	650.00
2.2555	2.2507	159.66	164.17	0.0000	164.17	0.00	660.00
2.2507	2.1480	164.17	168.57	0.0000	168.57	0.00	670.00
2.1480	1.9905	168.57	172.70	0.0000	172.70	0.00	680.00
1.9905	1.9030	172.70	176.60	0.0000	176.60	0.00	690.00
1.9030	1.8606	176.60	180.36	0.0000	180.36	0.00	700.00
1.8606	1.8315	180.36	184.05	0.0000	184.05	0.00	710.00
1.8315	1.8159	184.05	187.70	0.0000	187.70	0.00	720.00
1.8159	1.8136	187.70	191.33	0.0000	191.33	0.00	730.00
1.8136	1.8069	191.33	194.95	0.0000	194.95	0.00	740.00
1.8069	1.8037	194.95	198.56	0.0000	198.56	0.00	750.00
1.8037	1.8084	198.56	202.17	0.0000	202.17	0.00	760.00
1.8084	1.8056	202.17	205.79	0.0000	205.79	0.00	770.00
1.8056	1.8045	205.79	209.40	0.0000	209.40	0.00	780.00
1.8045	1.7086	209.40	212.91	0.0000	212.91	0.00	790.00
1.7086	1.5536	212.91	216.17	0.0000	216.17	0.00	800.00
1.5536	1.4672	216.17	219.19	0.0000	219.19	0.00	810.00
1.4672	1.4192	219.19	222.08	0.0000	222.08	0.00	820.00
1.4192	1.3927	222.08	224.89	0.0000	224.89	0.00	830.00
1.3927	1.3781	224.89	227.66	0.0000	227.66	0.00	840.00
1.3781	1.4182	227.66	230.46	0.0000	230.46	0.00	850.00
1.4182	1.4949	230.46	233.37	0.0000	233.37	0.00	860.00
1.4949	1.5382	233.37	236.40	0.0000	236.40	0.00	870.00
1.5382	1.5567	236.40	239.50	0.0000	239.50	0.00	880.00
1.5567	1.5733	239.50	242.63	0.0000	242.63	0.00	890.00
1.5733	1.5830	242.63	245.79	0.0000	245.79	0.00	900.00
1.5830	1.5827	245.79	248.95	0.0000	248.95	0.00	910.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
1.5827	1.5888	248.95	252.12	0.0000	252.12	0.00	920.00
1.5888	1.5926	252.12	255.30	0.0000	255.30	0.00	930.00
1.5926	1.5890	255.30	258.49	0.0000	258.49	0.00	940.00
1.5890	1.5933	258.49	261.67	0.0000	261.67	0.00	950.00
1.5933	1.5960	261.67	264.86	0.0000	264.86	0.00	960.00
1.5960	1.4409	264.86	267.89	0.0000	267.89	0.00	970.00
1.4409	1.2096	267.89	270.55	0.0000	270.55	0.00	980.00
1.2096	1.0804	270.55	272.84	0.0000	272.84	0.00	990.00
1.0804	1.0023	272.84	274.92	0.0000	274.92	0.00	1000.00
1.0023	0.9647	274.92	276.88	0.0000	276.88	0.00	1010.00
0.9647	0.9438	276.88	278.79	0.0000	278.79	0.00	1020.00
0.9438	1.0289	278.79	280.77	0.0000	280.77	0.00	1030.00
1.0289	1.1794	280.77	282.97	0.0000	282.97	0.00	1040.00
1.1794	1.2636	282.97	285.42	0.0000	285.42	0.00	1050.00
1.2636	1.3110	285.42	287.99	0.0000	287.99	0.00	1060.00
1.3110	1.3376	287.99	290.64	0.0000	290.64	0.00	1070.00
1.3376	1.3527	290.64	293.33	0.0000	293.33	0.00	1080.00
1.3527	1.3129	293.33	296.00	0.0000	296.00	0.00	1090.00
1.3129	1.2363	296.00	298.55	0.0000	298.55	0.00	1100.00
1.2363	1.1936	298.55	300.98	0.0000	300.98	0.00	1110.00
1.1936	1.3577	300.98	303.53	0.0000	303.53	0.00	1120.00
1.3577	1.2617	303.53	306.15	0.0000	306.15	0.00	1130.00
1.2617	1.0264	306.15	308.43	0.0000	308.43	0.00	1140.00
1.0264	1.0829	308.43	310.54	0.0000	310.54	0.00	1150.00
1.0829	1.1085	310.54	312.74	0.0000	312.74	0.00	1160.00
1.1085	1.1230	312.74	314.97	0.0000	314.97	0.00	1170.00
1.1230	1.1372	314.97	317.23	0.0000	317.23	0.00	1180.00
1.1372	1.1392	317.23	319.50	0.0000	319.50	0.00	1190.00
1.1392	1.1405	319.50	321.78	0.0000	321.78	0.00	1200.00
1.1405	1.1474	321.78	324.07	0.0000	324.07	0.00	1210.00
1.1474	1.1453	324.07	326.36	0.0000	326.36	0.00	1220.00
1.1453	1.1442	326.36	328.65	0.0000	328.65	0.00	1230.00
1.1442	1.1498	328.65	330.95	0.0000	330.95	0.00	1240.00
1.1498	1.1470	330.95	333.24	0.0000	333.24	0.00	1250.00
1.1470	1.1455	333.24	335.54	0.0000	335.54	0.00	1260.00
1.1455	1.1509	335.54	337.83	0.0000	337.83	0.00	1270.00
1.1509	1.1479	337.83	340.13	0.0000	340.13	0.00	1280.00
1.1479	1.1464	340.13	342.43	0.0000	342.43	0.00	1290.00
1.1464	1.1517	342.43	344.72	0.0000	344.72	0.00	1300.00
1.1517	1.1487	344.72	347.02	0.0000	347.02	0.00	1310.00
1.1487	1.1472	347.02	349.32	0.0000	349.32	0.00	1320.00
1.1472	1.0977	349.32	351.57	0.0000	351.57	0.00	1330.00
1.0977	1.0214	351.57	353.68	0.0000	353.68	0.00	1340.00
1.0214	0.9789	353.68	355.69	0.0000	355.69	0.00	1350.00
0.9789	0.9491	355.69	357.61	0.0000	357.61	0.00	1360.00
0.9491	0.9386	357.61	359.50	0.0000	359.50	0.00	1370.00
0.9386	0.9327	359.50	361.37	0.0000	361.37	0.00	1380.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.9327	0.9235	361.37	363.23	0.0000	363.23	0.00	1390.00
0.9235	0.9245	363.23	365.08	0.0000	365.08	0.00	1400.00
0.9245	0.9251	365.08	366.93	0.0000	366.93	0.00	1410.00
0.9251	0.9194	366.93	368.77	0.0000	368.77	0.00	1420.00
0.9194	0.9224	368.77	370.61	0.0000	370.61	0.00	1430.00
0.9224	0.9241	370.61	372.46	0.0000	372.46	0.00	1440.00
0.9241	0.7177	372.46	374.10	0.0000	374.10	0.00	1450.00
0.7177	0.4011	374.10	375.22	0.0000	375.22	0.00	1460.00
0.4011	0.2242	375.22	375.84	0.0000	375.84	0.00	1470.00
0.2242	0.1253	375.84	376.19	0.0000	376.19	0.00	1480.00
0.1253	0.0700	376.19	376.39	0.0000	376.39	0.00	1490.00
0.0700	0.0391	376.39	376.50	0.0000	376.50	0.00	1500.00

ROUTING REPORT

STORAGE LIST ID No. A
Description:

MULTIPLE ORIFICE ID No. A
Description:
Outlet Elev: 137.55
Elev: 137.55 ft Orifice Diameter: 5.2617 in.

ROUTING CURVE

STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min
137.55	0.0000	0.0000	0.0000	139.10	3837	0.9354	13.725	140.70	24218	1.3334	82.059
137.60	0.0000	0.1680	0.1680	139.20	5022	0.9651	17.704	140.80	25606	1.3544	86.707
137.70	0.0000	0.2910	0.2910	139.30	6207	0.9939	21.683	140.90	26994	1.3751	91.355
137.80	0.0000	0.3757	0.3757	139.40	7392	1.0219	25.661	141.00	28382	1.3955	96.002
137.90	0.0000	0.4445	0.4445	139.50	8577	1.0491	29.637	141.10	29979	1.4156	101.34
138.00	0.0000	0.5040	0.5040	139.60	9761	1.0757	33.614	141.20	31575	1.4354	106.69
138.10	0.0000	0.5572	0.5572	139.70	10946	1.1016	37.589	141.30	33172	1.4549	112.03
138.20	0.0000	0.6057	0.6057	139.80	12131	1.1270	41.564	141.40	34768	1.4742	117.37
138.30	0.0000	0.6507	0.6507	139.90	13316	1.1517	45.539	141.50	36365	1.4932	122.71
138.40	0.0000	0.6927	0.6927	140.00	14501	1.1760	49.513	141.60	37962	1.5120	128.05
138.50	0.0000	0.7323	0.7323	140.10	15889	1.1997	54.163	141.70	39558	1.5305	133.39
138.60	0.0000	0.7699	0.7699	140.20	17277	1.2230	58.814	141.80	41155	1.5489	138.73
138.70	0.0000	0.8057	0.8057	140.30	18665	1.2459	63.464	141.90	42751	1.5670	144.07
138.80	530.40	0.8400	2.6080	140.40	20053	1.2684	68.113				
138.90	1591	0.8729	6.1769	140.50	21442	1.2904	72.762				
139.00	2652	0.9047	9.7447	140.60	22830	1.3121	77.411				

LEVEL POOL ROUTING TABLE

MATCH Q (cfs) : 3.71 INFLOW Q (cfs): 9.08
PEAK STAGE (ft): 141.92 PEAK OUTFLOW : 1.57
PEAK TIME: 530.00 min.
INFLOW HYD No. : 7 OUTFLOW HYD No.: 12

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.0000	0.0088	0.0000	0.0088	0.0000	0.0088	137.55	40.00
0.0088	0.0452	0.0000	0.0540	0.0088	0.0452	137.55	50.00
0.0452	0.1056	0.0000	0.1508	0.0452	0.1056	137.55	60.00
0.1056	0.2104	-0.0000	0.3160	0.1056	0.2104	137.55	70.00
0.2104	0.3506	0.0000	0.5611	0.2104	0.3506	137.55	80.00
0.3506	0.4795	0.0000	0.8301	0.3506	0.4795	137.55	90.00
0.4795	0.5923	0.0000	1.0718	0.4795	0.5923	137.55	100.00
0.5923	0.6890	0.0000	1.2813	0.5923	0.6890	137.55	110.00
0.6890	0.7709	0.0000	1.4598	0.6890	0.7709	137.55	120.00
0.7709	0.8746	0.0000	1.6455	0.7709	0.8746	137.55	130.00
0.8746	0.9944	0.0676	1.9367	0.8070	1.1297	138.70	140.00
0.9944	1.0837	0.3178	2.3959	0.8119	1.5841	138.72	150.00
1.0837	1.1479	0.7636	2.9952	0.8205	2.1747	138.74	160.00
1.1479	1.2047	1.3430	3.6956	0.8317	2.8638	138.78	170.00
1.2047	1.2502	2.0215	4.4763	0.8423	3.6340	138.81	180.00
1.2502	1.2826	2.7845	5.3172	0.8495	4.4678	138.83	190.00
1.2826	1.3162	3.6106	6.2093	0.8572	5.3522	138.85	200.00
1.3162	1.3440	4.4868	7.1470	0.8653	6.2817	138.88	210.00
1.3440	1.3624	5.4078	8.1142	0.8739	7.2404	138.90	220.00
1.3624	1.3851	6.3580	9.1054	0.8824	8.2230	138.93	230.00
1.3851	1.4041	7.3319	10.121	0.8912	9.2299	138.96	240.00
1.4041	1.4642	8.3298	11.198	0.9001	10.298	138.99	250.00
1.4642	1.5479	9.3890	12.401	0.9090	11.492	139.01	260.00
1.5479	1.6023	10.574	13.724	0.9182	12.806	139.04	270.00
1.6023	1.6463	11.878	15.126	0.9283	14.198	139.08	280.00
1.6463	1.6727	13.259	16.578	0.9389	15.639	139.11	290.00
1.6727	1.6944	14.690	18.057	0.9497	17.107	139.15	300.00
1.6944	1.9105	16.147	19.751	0.9606	18.791	139.18	310.00
1.9105	2.2325	17.818	21.961	0.9729	20.988	139.23	320.00
2.2325	2.4245	19.999	24.656	0.9889	23.667	139.28	330.00
2.4245	2.5427	22.659	27.626	1.0079	26.619	139.35	340.00
2.5427	2.6187	25.590	30.751	1.0285	29.723	139.42	350.00
2.6187	2.6704	28.673	33.962	1.0497	32.913	139.50	360.00
2.6704	2.6589	31.842	37.171	1.0710	36.100	139.58	370.00
2.6589	2.6109	35.008	40.278	1.0919	39.186	139.66	380.00
2.6109	2.5841	38.074	43.269	1.1118	42.157	139.74	390.00
2.5841	2.5751	41.027	46.186	1.1307	45.055	139.81	400.00
2.5751	2.5817	43.907	49.063	1.1487	47.915	139.89	410.00
2.5817	2.5844	46.748	51.914	1.1662	50.748	139.96	420.00
2.5844	3.2716	49.566	55.422	1.1823	54.240	140.03	430.00
3.2716	4.3554	53.039	60.667	1.2001	59.466	140.10	440.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE (ft)	TIME (min)
<---------- cfs min ---------->							
4.3554	4.9805	58.240	67.576	1.2262	66.350	140.21	450.00
4.9805	6.3168	65.090	76.387	1.2598	75.128	140.36	460.00
6.3168	8.0629	73.826	88.206	1.3014	86.904	140.55	470.00
8.0629	9.0790	85.549	102.69	1.3553	101.34	140.80	480.00
9.0790	8.3587	99.920	117.36	1.4155	115.94	141.10	490.00
8.3587	6.6523	114.47	129.48	1.4690	128.02	141.37	500.00
6.6523	5.7040	126.50	138.86	1.5119	137.35	141.60	510.00
5.7040	5.0661	135.80	146.57	1.5441	145.03	141.77	520.00
5.0661	4.6075	143.46	153.13	1.5702	151.56	141.92	530.00
4.6075	4.3549	151.56	160.53	0.0000	160.53	0.00	540.00
4.3549	3.9363	160.53	168.82	0.0000	168.82	0.00	550.00
3.9363	3.4238	168.82	176.18	0.0000	176.18	0.00	560.00
3.4238	3.1390	176.18	182.74	0.0000	182.74	0.00	570.00
3.1390	2.9880	182.74	188.87	0.0000	188.87	0.00	580.00
2.9880	2.8984	188.87	194.75	0.0000	194.75	0.00	590.00
2.8984	2.8497	194.75	200.50	0.0000	200.50	0.00	600.00
2.8497	2.7700	200.50	206.12	0.0000	206.12	0.00	610.00
2.7700	2.6728	206.12	211.56	0.0000	211.56	0.00	620.00
2.6728	2.6196	211.56	216.86	0.0000	216.86	0.00	630.00
2.6196	2.5842	216.86	222.06	0.0000	222.06	0.00	640.00
2.5842	2.5722	222.06	227.22	0.0000	227.22	0.00	650.00
2.5722	2.5664	227.22	232.35	0.0000	232.35	0.00	660.00
2.5664	2.4491	232.35	237.37	0.0000	237.37	0.00	670.00
2.4491	2.2693	237.37	242.09	0.0000	242.09	0.00	680.00
2.2693	2.1693	242.09	246.53	0.0000	246.53	0.00	690.00
2.1693	2.1209	246.53	250.82	0.0000	250.82	0.00	700.00
2.1209	2.0876	250.82	255.03	0.0000	255.03	0.00	710.00
2.0876	2.0695	255.03	259.18	0.0000	259.18	0.00	720.00
2.0695	2.0668	259.18	263.32	0.0000	263.32	0.00	730.00
2.0668	2.0590	263.32	267.45	0.0000	267.45	0.00	740.00
2.0590	2.0552	267.45	271.56	0.0000	271.56	0.00	750.00
2.0552	2.0604	271.56	275.68	0.0000	275.68	0.00	760.00
2.0604	2.0571	275.68	279.79	0.0000	279.79	0.00	770.00
2.0571	2.0557	279.79	283.91	0.0000	283.91	0.00	780.00
2.0557	1.9463	283.91	287.91	0.0000	287.91	0.00	790.00
1.9463	1.7696	287.91	291.62	0.0000	291.62	0.00	800.00
1.7696	1.6712	291.62	295.06	0.0000	295.06	0.00	810.00
1.6712	1.6164	295.06	298.35	0.0000	298.35	0.00	820.00
1.6164	1.5861	298.35	301.55	0.0000	301.55	0.00	830.00
1.5861	1.5694	301.55	304.71	0.0000	304.71	0.00	840.00
1.5694	1.6150	304.71	307.89	0.0000	307.89	0.00	850.00
1.6150	1.7023	307.89	311.21	0.0000	311.21	0.00	860.00
1.7023	1.7514	311.21	314.66	0.0000	314.66	0.00	870.00
1.7514	1.7724	314.66	318.19	0.0000	318.19	0.00	880.00
1.7724	1.7913	318.19	321.75	0.0000	321.75	0.00	890.00
1.7913	1.8022	321.75	325.35	0.0000	325.35	0.00	900.00
1.8022	1.8018	325.35	328.95	0.0000	328.95	0.00	910.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
1.8018	1.8087	328.95	332.56	0.0000	332.56	0.00	920.00
1.8087	1.8129	332.56	336.18	0.0000	336.18	0.00	930.00
1.8129	1.8087	336.18	339.80	0.0000	339.80	0.00	940.00
1.8087	1.8135	339.80	343.43	0.0000	343.43	0.00	950.00
1.8135	1.8165	343.43	347.06	0.0000	347.06	0.00	960.00
1.8165	1.6399	347.06	350.51	0.0000	350.51	0.00	970.00
1.6399	1.3766	350.51	353.53	0.0000	353.53	0.00	980.00
1.3766	1.2295	353.53	356.13	0.0000	356.13	0.00	990.00
1.2295	1.1406	356.13	358.50	0.0000	358.50	0.00	1000.00
1.1406	1.0978	358.50	360.74	0.0000	360.74	0.00	1010.00
1.0978	1.0740	360.74	362.91	0.0000	362.91	0.00	1020.00
1.0740	1.1708	362.91	365.16	0.0000	365.16	0.00	1030.00
1.1708	1.3419	365.16	367.67	0.0000	367.67	0.00	1040.00
1.3419	1.4378	367.67	370.45	0.0000	370.45	0.00	1050.00
1.4378	1.4915	370.45	373.38	0.0000	373.38	0.00	1060.00
1.4915	1.5218	373.38	376.39	0.0000	376.39	0.00	1070.00
1.5218	1.5389	376.39	379.46	0.0000	379.46	0.00	1080.00
1.5389	1.4935	379.46	382.49	0.0000	382.49	0.00	1090.00
1.4935	1.4064	382.49	385.39	0.0000	385.39	0.00	1100.00
1.4064	1.3578	385.39	388.15	0.0000	388.15	0.00	1110.00
1.3578	1.5444	388.15	391.05	0.0000	391.05	0.00	1120.00
1.5444	1.4352	391.05	394.03	0.0000	394.03	0.00	1130.00
1.4352	1.1675	394.03	396.64	0.0000	396.64	0.00	1140.00
1.1675	1.2317	396.64	399.04	0.0000	399.04	0.00	1150.00
1.2317	1.2608	399.04	401.53	0.0000	401.53	0.00	1160.00
1.2608	1.2772	401.53	404.07	0.0000	404.07	0.00	1170.00
1.2772	1.2934	404.07	406.64	0.0000	406.64	0.00	1180.00
1.2934	1.2956	406.64	409.23	0.0000	409.23	0.00	1190.00
1.2956	1.2970	409.23	411.82	0.0000	411.82	0.00	1200.00
1.2970	1.3048	411.82	414.42	0.0000	414.42	0.00	1210.00
1.3048	1.3024	414.42	417.03	0.0000	417.03	0.00	1220.00
1.3024	1.3012	417.03	419.63	0.0000	419.63	0.00	1230.00
1.3012	1.3075	419.63	422.24	0.0000	422.24	0.00	1240.00
1.3075	1.3042	422.24	424.85	0.0000	424.85	0.00	1250.00
1.3042	1.3025	424.85	427.46	0.0000	427.46	0.00	1260.00
1.3025	1.3086	427.46	430.07	0.0000	430.07	0.00	1270.00
1.3086	1.3052	430.07	432.68	0.0000	432.68	0.00	1280.00
1.3052	1.3034	432.68	435.29	0.0000	435.29	0.00	1290.00
1.3034	1.3094	435.29	437.90	0.0000	437.90	0.00	1300.00
1.3094	1.3060	437.90	440.52	0.0000	440.52	0.00	1310.00
1.3060	1.3042	440.52	443.13	0.0000	443.13	0.00	1320.00
1.3042	1.2479	443.13	445.68	0.0000	445.68	0.00	1330.00
1.2479	1.1612	445.68	448.09	0.0000	448.09	0.00	1340.00
1.1612	1.1128	448.09	450.37	0.0000	450.37	0.00	1350.00
1.1128	1.0789	450.37	452.56	0.0000	452.56	0.00	1360.00
1.0789	1.0669	452.56	454.70	0.0000	454.70	0.00	1370.00
1.0669	1.0603	454.70	456.83	0.0000	456.83	0.00	1380.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
1.0603	1.0497	456.83	458.94	0.0000	458.94	0.00	1390.00
1.0497	1.0508	458.94	461.04	0.0000	461.04	0.00	1400.00
1.0508	1.0515	461.04	463.14	0.0000	463.14	0.00	1410.00
1.0515	1.0450	463.14	465.24	0.0000	465.24	0.00	1420.00
1.0450	1.0484	465.24	467.33	0.0000	467.33	0.00	1430.00
1.0484	1.0503	467.33	469.43	0.0000	469.43	0.00	1440.00
1.0503	0.8158	469.43	471.30	0.0000	471.30	0.00	1450.00
0.8158	0.4559	471.30	472.57	0.0000	472.57	0.00	1460.00
0.4559	0.2548	472.57	473.28	0.0000	473.28	0.00	1470.00
0.2548	0.1424	473.28	473.68	0.0000	473.68	0.00	1480.00
0.1424	0.0796	473.68	473.90	0.0000	473.90	0.00	1490.00
0.0796	0.0445	473.90	474.02	0.0000	474.02	0.00	1500.00

'N' - POND 'B' TOTAL VOLUME

ELEV (FT)	AREA (SF)	VOL (CF)	CUMM VOL (CF)	
135	7015			
136	8904	7960	7960	
137	10,849	9877	17,836	← WQ VOL @ 136.75'
138	12,851	11,850	29,686	
139	14,909	15,966	45,652	
140	17,023	15,966	61,618	

WQ RELEASE RATE

$$\frac{15,249\ ft^3}{48\ HRS} \times \frac{1\ HR}{3600\ s} = 0.088\ cfs$$

GROUP MACKENZIE
0690 SW Bancroft St / PO Box 69039 Portland, OR 97201-0039
Tel: 503.224.9560 Net: info@grpmack.com Fax: 503.228.1285

By _____
Date _____
Job # _____
Sht. _____ of _____

'D' - POND 'B' DETENTION VOLUME

ELEV (FT)	AREA (SF)	VOL (CF)	CUMM. VOL. (CF)
136.75	10,363		
137	10,849	2652	2652
138	12,851	11,850	14,502
139	14,909	13,880	28,382
140	17,023	15,452	43,834

GROUP MACKENZIE
0690 SW Bancroft St/PO Box 69039 Portland, OR 97201-0039
Tel: 503.224.9560 Net: info@grpmack.com Fax: 503.228.1285

By _____
Date _____
Job # _____
Sht. _____ of _____

'P' WQ ORIFICE 'B'

$Q = CA(2gh)^{1/2}$

$A = \dfrac{Q}{C(2gh)^{1/2}}$

$A = \dfrac{0.088\ cfs}{0.62\left(2 \times 32.2 \times 0.5\right)^{1/2}}$

$A = 0.025\ \Phi$

$d = \sqrt{\dfrac{4A}{\pi}} = 0.178' = \underline{\underline{2.14''\ \phi}}$

$Q = 0.088\ cfs$

$C = 0.6$

$h = 136.75 - 136.25 = 0.5'$

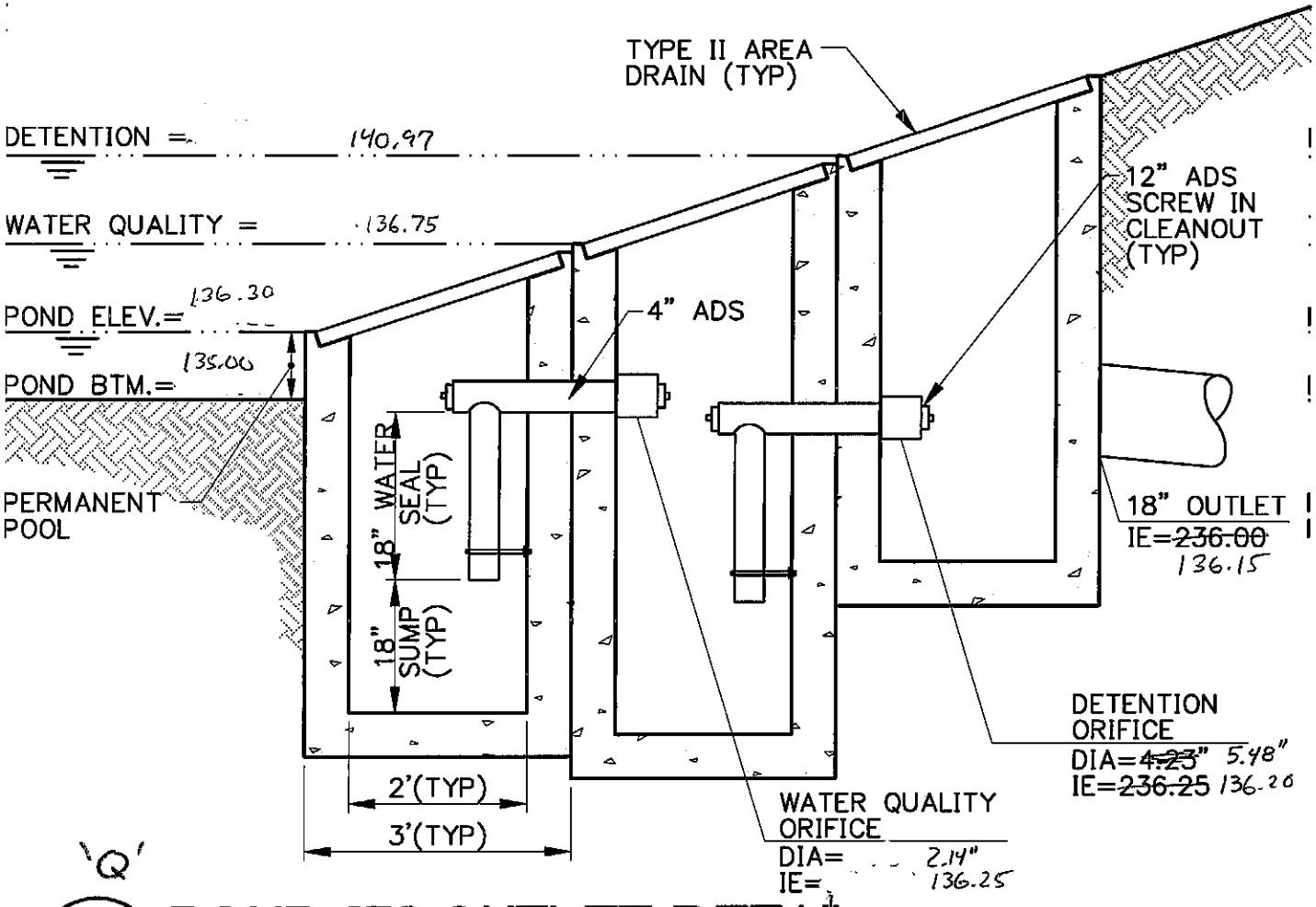
$g = 32.2$

$A = \dfrac{\pi d^2}{4}$

$d = \sqrt{\dfrac{4A}{\pi}}$

GROUP MACKENZIE
0690 SW Bancroft St/PO Box 69039 Portland, OR 97201-0039
Tel: 503.224.9560 Net: info@grpmack.com Fax: 503.228.1285

By _____
Date _____
Job # _____
Sht. _____ of _____



'Q'

2 C8.1 POND "B" OUTLET DETAIL

N.T.S.
OUTFLOW DEVICE

SD150
DETINSET= 1:1

BASIN SUMMARY

BASIN ID: D10 NAME: DEVELOPED 10YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 13.72 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 3.45 inches AREA..: 2.06 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 14.80 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 11.66 Acres
CN....: 98.00
TcReach - Sheet L: 30.00 ns:0.2400 p2yr: 2.50 s:0.0200
TcReach - Sheet L: 150.00 ns:0.0110 p2yr: 2.50 s:0.0200
TcReach - Channel L:1700.00 kc:42.00 s:0.0100
PEAK RATE: 8.23 cfs VOL: 3.40 Ac-ft TIME: 480 min

BASIN ID: D2 NAME: DEVELOPED 2YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 13.72 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 2.50 inches AREA..: 2.06 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 14.80 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 11.66 Acres
CN....: 98.00
TcReach - Sheet L: 30.00 ns:0.2400 p2yr: 2.50 s:0.0200
TcReach - Sheet L: 150.00 ns:0.0110 p2yr: 2.50 s:0.0200
TcReach - Channel L:1700.00 kc:42.00 s:0.0100
PEAK RATE: 5.73 cfs VOL: 2.36 Ac-ft TIME: 480 min

BASIN ID: D25 NAME: DEVELOPED 25YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 13.72 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 3.90 inches AREA..: 2.06 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 14.80 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 11.66 Acres
CN....: 98.00
TcReach - Sheet L: 30.00 ns:0.2400 p2yr: 2.50 s:0.0200
TcReach - Sheet L: 150.00 ns:0.0110 p2yr: 2.50 s:0.0200
TcReach - Channel L:1700.00 kc:42.00 s:0.0100
PEAK RATE: 9.42 cfs VOL: 3.90 Ac-ft TIME: 480 min

BASIN SUMMARY

BASIN ID: E10 NAME: EXISTING 10YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 13.72 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 3.45 inches AREA..: 13.72 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 38.83 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 0.00 Acres
CN....: 98.00
TcReach - Sheet L: 300.00 ns:0.2400 p2yr: 2.50 s:0.0400
TcReach - Shallow L: 300.00 ks:10.00 s:0.0400
TcReach - Channel L:1400.00 kc:17.00 s:0.0400
PEAK RATE: 2.90 cfs VOL: 1.83 Ac-ft TIME: 490 min

BASIN ID: E2 NAME: EXISTING 2YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 13.72 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 2.50 inches AREA..: 13.72 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 38.83 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 0.00 Acres
CN....: 98.00
TcReach - Sheet L: 300.00 ns:0.2400 p2yr: 2.50 s:0.0400
TcReach - Shallow L: 300.00 ks:10.00 s:0.0400
TcReach - Channel L:1400.00 kc:17.00 s:0.0400
PEAK RATE: 1.36 cfs VOL: 1.02 Ac-ft TIME: 490 min

BASIN ID: E25 NAME: EXISTING 25YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 13.72 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 3.90 inches AREA..: 13.72 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 38.83 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 0.00 Acres
CN....: 98.00
TcReach - Sheet L: 300.00 ns:0.2400 p2yr: 2.50 s:0.0400
TcReach - Shallow L: 300.00 ks:10.00 s:0.0400
TcReach - Channel L:1400.00 kc:17.00 s:0.0400
PEAK RATE: 3.71 cfs VOL: 2.24 Ac-ft TIME: 490 min

HYDROGRAPH SUMMARY

HYD NUM	PEAK RUNOFF RATE cfs	TIME OF PEAK min.	VOLUME OF HYDRO cf\AcFt	Contrib Area Acres
1	1.356	490	44270 cf	13.72
2	2.902	490	79526 cf	13.72
3	3.714	490	97581 cf	13.72
5	5.734	480	102758 cf	13.72
6	8.230	480	148087 cf	13.72
7	9.422	480	169790 cf	13.72
10	1.356	690	102847 cf	13.72
11	1.670	800	148142 cf	13.72
12	1.779	660	39111 cf	13.72

ROUTING REPORT

STORAGE LIST ID No. A
Description:

MULTIPLE ORIFICE ID No. A
Description:
Outlet Elev: 136.20
Elev: 136.20 ft Orifice Diameter: 5.4785 in.

ROUTING CURVE

STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min
136.20	0.0000	0.0000	0.0000	137.90	13317	1.0620	45.452	139.60	37653	1.5019	127.01
136.30	0.0000	0.2576	0.2576	138.00	14502	1.0928	49.433	139.70	39198	1.5238	132.19
136.40	0.0000	0.3643	0.3643	138.10	15890	1.1227	54.089	139.80	40744	1.5454	137.36
136.50	0.0000	0.4461	0.4461	138.20	17278	1.1519	58.745	139.90	42289	1.5667	142.53
136.60	0.0000	0.5151	0.5151	138.30	18666	1.1803	63.400	140.00	43834	1.5877	147.70
136.70	0.0000	0.5759	0.5759	138.40	20054	1.2081	68.055	140.10	45251	1.6085	152.44
136.80	530.40	0.6309	2.3989	138.50	21442	1.2352	72.709	140.20	46667	1.6290	157.19
136.90	1591	0.6815	5.9855	138.60	22830	1.2618	77.362	140.30	48084	1.6492	161.93
137.00	2652	0.7285	9.5685	138.70	24218	1.2878	82.014	140.40	49500	1.6692	166.67
137.10	3837	0.7727	13.563	138.80	25606	1.3133	86.667	140.50	50917	1.6890	171.41
137.20	5022	0.8145	17.554	138.90	26994	1.3384	91.318	140.60	52334	1.7085	176.15
137.30	6207	0.8542	21.544	139.00	28382	1.3629	95.970	140.70	53750	1.7278	180.90
137.40	7392	0.8922	25.532	139.10	29927	1.3870	101.14	140.80	55167	1.7469	185.64
137.50	8577	0.9287	29.519	139.20	31472	1.4107	106.32	140.90	56583	1.7658	190.38
137.60	9762	0.9637	33.504	139.30	33018	1.4341	111.49				
137.70	10947	0.9975	37.488	139.40	34563	1.4570	116.67				
137.80	12132	1.0303	41.470	139.50	36108	1.4796	121.84				

LEVEL POOL ROUTING TABLE

MATCH Q (cfs) : 1.36 INFLOW Q (cfs): 5.73
PEAK STAGE (ft): 138.97 PEAK OUTFLOW : 1.36
PEAK TIME: 690.00 min.
INFLOW HYD No. : 5 OUTFLOW HYD No.: 10

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.0000	0.0001	0.0000	0.0001	0.0000	0.0001	136.20	50.00
0.0001	0.0071	0.0000	0.0072	0.0001	0.0071	136.20	60.00
0.0071	0.0405	0.0000	0.0476	0.0071	0.0405	136.20	70.00
0.0405	0.1004	0.0000	0.1409	0.0405	0.1004	136.20	80.00
0.1004	0.1674	0.0000	0.2677	0.1004	0.1674	136.20	90.00
0.1674	0.2325	0.0000	0.3999	0.1674	0.2325	136.20	100.00
0.2325	0.2922	0.0000	0.5246	0.2325	0.2922	136.20	110.00
0.2922	0.3455	0.0000	0.6377	0.2922	0.3455	136.20	120.00
0.3455	0.4121	0.0000	0.7576	0.3455	0.4121	136.20	130.00
0.4121	0.4879	0.0000	0.8999	0.4121	0.4879	136.20	140.00
0.4879	0.5466	0.0000	1.0345	0.4879	0.5466	136.20	150.00
0.5466	0.5916	0.0000	1.1382	0.5466	0.5916	136.20	160.00
0.5916	0.6329	0.0152	1.2397	0.5764	0.6633	136.70	170.00
0.6329	0.6676	0.0847	1.3853	0.5786	0.8067	136.70	180.00
0.6676	0.6944	0.2238	1.5859	0.5829	1.0030	136.71	190.00
0.6944	0.7222	0.4142	1.8308	0.5888	1.2420	136.72	200.00
0.7222	0.7459	0.6460	2.1141	0.5960	1.5181	136.74	210.00
0.7459	0.7634	0.9137	2.4231	0.6043	1.8187	136.75	220.00
0.7634	0.7836	1.2053	2.7523	0.6134	2.1389	136.77	230.00
0.7836	0.8010	1.5159	3.1005	0.6231	2.4774	136.79	240.00
0.8010	0.8455	1.8454	3.4918	0.6320	2.8598	136.80	250.00
0.8455	0.9035	2.2224	3.9714	0.6374	3.3340	136.81	260.00
0.9035	0.9394	2.6899	4.5328	0.6441	3.8888	136.83	270.00
0.9394	0.9673	3.2369	5.1435	0.6519	4.4916	136.84	280.00
0.9673	0.9831	3.8312	5.7815	0.6604	5.1211	136.86	290.00
0.9831	0.9963	4.4519	6.4312	0.6693	5.7620	136.88	300.00
0.9963	1.1404	5.0837	7.2204	0.6783	6.5421	136.89	310.00
1.1404	1.3477	5.8533	8.3415	0.6888	7.6527	136.92	320.00
1.3477	1.4589	6.9494	9.7560	0.7033	9.0527	136.95	330.00
1.4589	1.5216	8.3309	11.311	0.7217	10.590	136.99	340.00
1.5216	1.5601	9.8499	12.932	0.7398	12.192	137.03	350.00
1.5601	1.5875	11.434	14.582	0.7575	13.824	137.07	360.00
1.5875	1.5763	13.049	16.213	0.7754	15.437	137.11	370.00
1.5763	1.5447	14.645	17.766	0.7923	16.974	137.15	380.00
1.5447	1.5310	16.165	19.241	0.8084	18.433	137.19	390.00
1.5310	1.5300	17.609	20.670	0.8232	19.847	137.22	400.00
1.5300	1.5391	19.010	22.079	0.8373	21.241	137.26	410.00
1.5391	1.5444	20.390	23.474	0.8512	22.623	137.29	420.00
1.5444	2.0207	21.758	25.323	0.8645	24.459	137.33	430.00
2.0207	2.7418	23.577	28.339	0.8820	27.457	137.37	440.00
2.7418	3.1175	26.547	32.407	0.9098	31.497	137.45	450.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
3.1175	3.9947	30.551	37.663	0.9461	36.717	137.55	460.00
3.9947	5.1321	35.726	44.853	0.9910	43.862	137.68	470.00
5.1321	5.7341	42.812	53.679	1.0493	52.629	137.86	480.00
5.7341	5.1376	51.516	62.388	1.1133	61.274	138.07	490.00
5.1376	3.9324	60.107	69.177	1.1673	68.010	138.25	500.00
3.9324	3.3411	66.802	74.075	1.2078	72.867	138.40	510.00
3.3411	2.9739	71.631	77.946	1.2361	76.710	138.50	520.00
2.9739	2.7215	75.452	81.147	1.2581	79.889	138.59	530.00
2.7215	2.6003	78.613	83.935	1.2759	82.659	138.65	540.00
2.6003	2.3457	81.368	86.314	1.2914	85.022	138.71	550.00
2.3457	2.0240	83.718	88.088	1.3043	86.783	138.76	560.00
2.0240	1.8663	85.469	89.360	1.3140	88.046	138.80	570.00
1.8663	1.7945	86.725	90.386	1.3207	89.065	138.83	580.00
1.7945	1.7557	87.739	91.289	1.3262	89.963	138.85	590.00
1.7557	1.7379	88.632	92.125	1.3311	90.794	138.87	600.00
1.7379	1.6924	89.459	92.889	1.3355	91.554	138.89	610.00
1.6924	1.6330	90.214	93.539	1.3396	92.200	138.91	620.00
1.6330	1.6047	90.857	94.095	1.3430	92.752	138.92	630.00
1.6047	1.5870	91.406	94.597	1.3459	93.251	138.93	640.00
1.5870	1.5841	91.903	95.074	1.3486	93.725	138.94	650.00
1.5841	1.5836	92.374	95.542	1.3511	94.191	138.95	660.00
1.5836	1.5029	92.838	95.924	1.3535	94.571	138.96	670.00
1.5029	1.3821	93.215	96.100	1.3555	94.744	138.97	680.00
1.3821	1.3230	93.388	96.093	1.3564	94.737	138.97	690.00
1.3230	1.2991	93.380	96.002	1.3564	94.646	138.97	700.00
1.2991	1.2830	93.290	95.872	1.3559	94.516	138.97	710.00
1.2830	1.2757	93.161	95.720	1.3552	94.364	138.97	720.00
1.2757	1.2775	93.010	95.563	1.3544	94.209	138.97	730.00
1.2775	1.2741	92.855	95.407	1.3536	94.053	138.96	740.00
1.2741	1.2730	92.700	95.247	1.3528	93.894	138.96	750.00
1.2730	1.2778	92.543	95.093	1.3520	93.741	138.96	760.00
1.2778	1.2759	92.390	94.944	1.3511	93.593	138.95	770.00
1.2759	1.2755	92.242	94.794	1.3504	93.443	138.95	780.00
1.2755	1.1982	92.094	94.567	1.3496	93.218	138.95	790.00
1.1982	1.0780	91.869	94.146	1.3484	92.797	138.94	800.00
1.0780	1.0187	91.451	93.548	1.3462	92.202	138.93	810.00
1.0187	0.9897	90.859	92.867	1.3430	91.524	138.92	820.00
0.9897	0.9756	90.185	92.150	1.3394	90.810	138.90	830.00
0.9756	0.9689	89.475	91.419	1.3356	90.083	138.89	840.00
0.9689	1.0047	88.752	90.725	1.3317	89.394	138.87	850.00
1.0047	1.0666	88.066	90.137	1.3280	88.809	138.86	860.00
1.0666	1.0976	87.484	89.648	1.3249	88.323	138.85	870.00
1.0976	1.1084	87.001	89.207	1.3222	87.885	138.84	880.00
1.1084	1.1190	86.565	88.792	1.3199	87.473	138.83	890.00
1.1190	1.1246	86.155	88.398	1.3177	87.081	138.82	900.00
1.1246	1.1228	85.765	88.013	1.3156	86.697	138.81	910.00
1.1228	1.1272	85.384	87.634	1.3135	86.320	138.80	920.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
1.1272	1.1296	85.009	87.265	1.3114	85.954	138.79	930.00
1.1296	1.1263	84.645	86.901	1.3094	85.591	138.78	940.00
1.1263	1.1299	84.284	86.540	1.3074	85.232	138.78	950.00
1.1299	1.1320	83.927	86.189	1.3055	84.883	138.77	960.00
1.1320	1.0060	83.580	85.718	1.3036	84.414	138.76	970.00
1.0060	0.8262	83.113	84.945	1.3010	83.644	138.75	980.00
0.8262	0.7373	82.348	83.911	1.2968	82.614	138.74	990.00
0.7373	0.6885	81.323	82.749	1.2911	81.458	138.71	1000.00
0.6885	0.6694	80.173	81.531	1.2847	80.247	138.69	1010.00
0.6694	0.6600	78.969	80.298	1.2779	79.020	138.66	1020.00
0.6600	0.7340	77.749	79.143	1.2711	77.872	138.64	1030.00
0.7340	0.8542	76.607	78.195	1.2647	76.931	138.61	1040.00
0.8542	0.9139	75.671	77.439	1.2593	76.180	138.59	1050.00
0.9139	0.9437	74.925	76.783	1.2551	75.527	138.57	1060.00
0.9437	0.9587	74.276	76.179	1.2513	74.927	138.56	1070.00
0.9587	0.9663	73.679	75.604	1.2479	74.356	138.55	1080.00
0.9663	0.9309	73.112	75.009	1.2446	73.764	138.54	1090.00
0.9309	0.8693	72.523	74.323	1.2413	73.082	138.52	1100.00
0.8693	0.8389	71.844	73.553	1.2374	72.315	138.51	1110.00
0.8389	0.9767	71.082	72.898	1.2329	71.665	138.49	1120.00
0.9767	0.8924	70.436	72.305	1.2292	71.076	138.48	1130.00
0.8924	0.7030	69.850	71.446	1.2257	70.220	138.46	1140.00
0.7030	0.7621	68.999	70.464	1.2207	69.243	138.45	1150.00
0.7621	0.7865	68.028	69.577	1.2150	68.362	138.43	1160.00
0.7865	0.7988	67.152	68.737	1.2099	67.528	138.41	1170.00
0.7988	0.8099	66.323	67.931	1.2049	66.726	138.39	1180.00
0.8099	0.8106	65.526	67.147	1.2002	65.947	138.37	1190.00
0.8106	0.8111	64.751	66.373	1.1955	65.177	138.35	1200.00
0.8111	0.8164	63.986	65.614	1.1909	64.423	138.34	1210.00
0.8164	0.8142	63.236	64.867	1.1864	63.681	138.32	1220.00
0.8142	0.8133	62.499	64.126	1.1820	62.944	138.31	1230.00
0.8133	0.8179	61.767	63.398	1.1775	62.220	138.29	1240.00
0.8179	0.8153	61.047	62.681	1.1731	61.507	138.27	1250.00
0.8153	0.8142	60.339	61.968	1.1687	60.799	138.26	1260.00
0.8142	0.8187	59.635	61.268	1.1644	60.104	138.24	1270.00
0.8187	0.8161	58.943	60.578	1.1602	59.418	138.23	1280.00
0.8161	0.8150	58.262	59.893	1.1560	58.737	138.21	1290.00
0.8150	0.8195	57.585	59.220	1.1518	58.068	138.20	1300.00
0.8195	0.8169	56.921	58.557	1.1476	57.409	138.19	1310.00
0.8169	0.8157	56.266	57.898	1.1435	56.755	138.17	1320.00
0.8157	0.7756	55.615	57.207	1.1394	56.067	138.16	1330.00
0.7756	0.7162	54.932	56.424	1.1351	55.289	138.14	1340.00
0.7162	0.6868	54.159	55.562	1.1302	54.431	138.13	1350.00
0.6868	0.6674	53.307	54.661	1.1248	53.536	138.11	1360.00
0.6674	0.6628	52.417	53.747	1.1191	52.628	138.09	1370.00
0.6628	0.6606	51.515	52.838	1.1133	51.725	138.07	1380.00
0.6606	0.6547	50.617	51.932	1.1075	50.825	138.05	1390.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.6547	0.6567	49.723	51.035	1.1017	49.933	138.03	1400.00
0.6567	0.6578	48.837	50.152	1.0960	49.056	138.01	1410.00
0.6578	0.6535	47.966	49.277	1.0898	48.187	137.99	1420.00
0.6535	0.6564	47.104	48.414	1.0831	47.331	137.97	1430.00
0.6564	0.6579	46.254	47.569	1.0765	46.492	137.95	1440.00
0.6579	0.4897	45.422	46.570	1.0700	45.500	137.93	1450.00
0.4897	0.2424	44.437	45.169	1.0623	44.107	137.90	1460.00
0.2424	0.1200	43.056	43.418	1.0513	42.367	137.87	1470.00
0.1200	0.0594	41.330	41.509	1.0374	40.472	137.82	1480.00
0.0594	0.0294	39.450	39.538	1.0221	38.516	137.77	1490.00
0.0294	0.0146	37.510	37.554	1.0060	36.548	137.73	1500.00
0.0146	0.0072	35.559	35.581	0.9896	34.591	137.68	1510.00
0.0072	0.0036	33.618	33.629	0.9730	32.656	137.63	1520.00
0.0036	0.0018	31.700	31.705	0.9563	30.749	137.58	1530.00
0.0018	0.0009	29.809	29.812	0.9395	28.872	137.53	1540.00
0.0009	0.0004	27.950	27.951	0.9228	27.028	137.48	1550.00
0.0004	0.0002	26.122	26.123	0.9059	25.217	137.44	1560.00
0.0002	0.0001	24.328	24.328	0.8892	23.439	137.39	1570.00
0.0001	0.0001	22.566	22.567	0.8723	21.694	137.35	1580.00
0.0001	0.0000	20.839	20.839	0.8557	19.983	137.30	1590.00
0.0000	0.0000	19.144	19.144	0.8387	18.306	137.26	1600.00
0.0000	0.0000	17.484	17.484	0.8220	16.662	137.22	1610.00
0.0000	0.0000	15.857	15.857	0.8051	15.051	137.18	1620.00
0.0000	0.0000	14.263	14.263	0.7883	13.475	137.14	1630.00
0.0000	0.0000	12.703	12.703	0.7717	11.931	137.10	1640.00
0.0000	0.0000	11.177	11.177	0.7546	10.422	137.06	1650.00
0.0000	0.0000	9.6842	9.6842	0.7380	8.9463	137.02	1660.00
0.0000	0.0000	8.2259	8.2259	0.7203	7.5056	136.98	1670.00
0.0000	0.0000	6.8042	6.8042	0.7014	6.1028	136.94	1680.00
0.0000	0.0000	5.4198	5.4198	0.6830	4.7368	136.90	1690.00
0.0000	0.0000	4.0729	4.0729	0.6639	3.4091	136.87	1700.00
0.0000	0.0000	2.7639	2.7639	0.6451	2.1188	136.83	1710.00
0.0000	0.0000	1.4963	1.4963	0.6225	0.8739	136.78	1720.00
0.0000	0.0000	0.2890	0.2890	0.5849	-0.2960	136.72	1730.00

ROUTING REPORT

STORAGE LIST ID No. A
Description:

MULTIPLE ORIFICE ID No. A
Description:
Outlet Elev: 136.20
Elev: 136.20 ft Orifice Diameter: 5.4785 in.

ROUTING CURVE

STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min
136.20	0.0000	0.0000	0.0000	137.90	13317	1.0620	45.452	139.60	37653	1.5019	127.01
136.30	0.0000	0.2576	0.2576	138.00	14502	1.0928	49.433	139.70	39198	1.5238	132.19
136.40	0.0000	0.3643	0.3643	138.10	15890	1.1227	54.089	139.80	40744	1.5454	137.36
136.50	0.0000	0.4461	0.4461	138.20	17278	1.1519	58.745	139.90	42289	1.5667	142.53
136.60	0.0000	0.5151	0.5151	138.30	18666	1.1803	63.400	140.00	43834	1.5877	147.70
136.70	0.0000	0.5759	0.5759	138.40	20054	1.2081	68.055	140.10	45251	1.6085	152.44
136.80	530.40	0.6309	2.3989	138.50	21442	1.2352	72.709	140.20	46667	1.6290	157.19
136.90	1591	0.6815	5.9855	138.60	22830	1.2618	77.362	140.30	48084	1.6492	161.93
137.00	2652	0.7285	9.5685	138.70	24218	1.2878	82.014	140.40	49500	1.6692	166.67
137.10	3837	0.7727	13.563	138.80	25606	1.3133	86.667	140.50	50917	1.6890	171.41
137.20	5022	0.8145	17.554	138.90	26994	1.3384	91.318	140.60	52334	1.7085	176.15
137.30	6207	0.8542	21.544	139.00	28382	1.3629	95.970	140.70	53750	1.7278	180.90
137.40	7392	0.8922	25.532	139.10	29927	1.3870	101.14	140.80	55167	1.7469	185.64
137.50	8577	0.9287	29.519	139.20	31472	1.4107	106.32	140.90	56583	1.7658	190.38
137.60	9762	0.9637	33.504	139.30	33018	1.4341	111.49				
137.70	10947	0.9975	37.488	139.40	34563	1.4570	116.67				
137.80	12132	1.0303	41.470	139.50	36108	1.4796	121.84				

LEVEL POOL ROUTING TABLE

MATCH Q (cfs) : 2.90 INFLOW Q (cfs): 8.23
PEAK STAGE (ft): 140.41 PEAK OUTFLOW : 1.67
PEAK TIME: 800.00 min.
INFLOW HYD No. : 6 OUTFLOW HYD No.: 11

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.0000	0.0022	0.0000	0.0022	0.0000	0.0022	136.20	40.00
0.0022	0.0238	0.0000	0.0260	0.0022	0.0238	136.20	50.00
0.0238	0.0705	0.0000	0.0944	0.0238	0.0705	136.20	60.00
0.0705	0.1595	0.0000	0.2300	0.0705	0.1595	136.20	70.00
0.1595	0.2804	0.0000	0.4399	0.1595	0.2804	136.20	80.00
0.2804	0.3921	0.0000	0.6725	0.2804	0.3921	136.20	90.00
0.3921	0.4901	0.0000	0.8823	0.3921	0.4901	136.20	100.00
0.4901	0.5742	0.0000	1.0643	0.4901	0.5742	136.20	110.00
0.5742	0.6457	0.0000	1.2199	0.5742	0.6457	136.20	120.00
0.6457	0.7394	0.0677	1.4528	0.5780	0.8747	136.70	130.00
0.7394	0.8479	0.2898	1.8770	0.5849	1.2921	136.72	140.00
0.8479	0.9262	0.6945	2.4686	0.5975	1.8711	136.74	150.00
0.9262	0.9816	1.2561	3.1639	0.6150	2.5489	136.77	160.00
0.9816	1.0317	1.9159	3.9292	0.6330	3.2962	136.80	170.00
1.0317	1.0721	2.6526	4.7564	0.6436	4.1128	136.83	180.00
1.0721	1.1008	3.4578	5.6306	0.6551	4.9755	136.85	190.00
1.1008	1.1318	4.3083	6.5409	0.6672	5.8737	136.87	200.00
1.1318	1.1577	5.1938	7.4834	0.6799	6.8035	136.90	210.00
1.1577	1.1746	6.1113	8.4436	0.6922	7.7514	136.92	220.00
1.1746	1.1964	7.0467	9.4178	0.7046	8.7131	136.95	230.00
1.1964	1.2146	7.9958	10.407	0.7173	9.6896	136.98	240.00
1.2146	1.2737	8.9598	11.448	0.7298	10.718	137.00	250.00
1.2737	1.3532	9.9771	12.604	0.7412	11.863	137.03	260.00
1.3532	1.3994	11.109	13.861	0.7539	13.108	137.06	270.00
1.3994	1.4340	12.340	15.173	0.7677	14.406	137.09	280.00
1.4340	1.4521	13.624	16.510	0.7815	15.729	137.12	290.00
1.4521	1.4683	14.933	17.854	0.7954	17.058	137.15	300.00
1.4683	1.6787	16.249	19.396	0.8093	18.587	137.19	310.00
1.6787	1.9830	17.762	21.423	0.8248	20.599	137.23	320.00
1.9830	2.1467	19.754	23.884	0.8448	23.039	137.28	330.00
2.1467	2.2398	22.170	26.557	0.8685	25.688	137.34	340.00
2.2398	2.2969	24.795	29.331	0.8937	28.438	137.40	350.00
2.2969	2.3352	27.519	32.151	0.9188	31.232	137.47	360.00
2.3352	2.3149	30.288	34.939	0.9437	33.995	137.54	370.00
2.3149	2.2642	33.027	37.606	0.9679	36.638	137.61	380.00
2.2642	2.2399	35.648	40.152	0.9903	39.162	137.68	390.00
2.2399	2.2342	38.150	42.624	1.0113	41.613	137.74	400.00
2.2342	2.2436	40.582	45.059	1.0314	44.028	137.80	410.00
2.2436	2.2477	42.977	47.469	1.0506	46.418	137.86	420.00
2.2477	2.9341	45.349	50.531	1.0694	49.461	137.92	430.00
2.9341	3.9727	48.368	55.275	1.0929	54.182	138.00	440.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
3.9727	4.5081	53.059	61.540	1.1233	60.416	138.10	450.00
4.5081	5.7611	59.254	69.523	1.1621	68.361	138.24	460.00
5.7611	7.3831	67.151	80.296	1.2099	79.086	138.41	470.00
7.3831	8.2300	77.814	93.427	1.2714	92.156	138.64	480.00
8.2300	7.3623	90.813	106.41	1.3428	105.06	138.92	490.00
7.3623	5.6284	103.66	116.65	1.4050	115.24	139.18	500.00
5.6284	4.7761	113.79	124.20	1.4507	122.75	139.37	510.00
4.7761	4.2464	121.26	130.29	1.4835	128.80	139.52	520.00
4.2464	3.8824	127.29	135.42	1.5094	133.91	139.63	530.00
3.8824	3.7062	132.38	139.97	1.5310	138.44	139.73	540.00
3.7062	3.3412	136.89	143.94	1.5498	142.39	139.82	550.00
3.3412	2.8814	140.82	147.04	1.5661	145.48	139.90	560.00
2.8814	2.6556	143.90	149.44	1.5787	147.86	139.96	570.00
2.6556	2.5522	146.27	151.48	1.5884	149.89	140.00	580.00
2.5522	2.4959	148.29	153.34	1.5973	151.74	140.05	590.00
2.4959	2.4696	150.14	155.10	1.6054	153.50	140.09	600.00
2.4696	2.4040	151.88	156.76	1.6130	155.14	140.12	610.00
2.4040	2.3189	153.52	158.25	1.6202	156.63	140.16	620.00
2.3189	2.2779	155.00	159.60	1.6266	157.97	140.19	630.00
2.2779	2.2521	156.34	160.87	1.6323	159.23	140.22	640.00
2.2521	2.2472	157.60	162.10	1.6377	160.46	140.24	650.00
2.2472	2.2459	158.82	163.31	1.6430	161.67	140.27	660.00
2.2459	2.1308	160.02	164.39	1.6481	162.75	140.29	670.00
2.1308	1.9591	161.09	165.18	1.6527	163.53	140.32	680.00
1.9591	1.8748	161.87	165.71	1.6560	164.05	140.33	690.00
1.8748	1.8405	162.39	166.11	1.6582	164.45	140.34	700.00
1.8405	1.8174	162.79	166.45	1.6599	164.79	140.35	710.00
1.8174	1.8066	163.13	166.75	1.6613	165.09	140.36	720.00
1.8066	1.8087	163.43	167.04	1.6626	165.38	140.37	730.00
1.8087	1.8035	163.72	167.33	1.6638	165.67	140.37	740.00
1.8035	1.8016	164.00	167.61	1.6650	165.94	140.38	750.00
1.8016	1.8080	164.28	167.88	1.6661	166.22	140.38	760.00
1.8080	1.8050	164.55	168.16	1.6673	166.50	140.39	770.00
1.8050	1.8040	164.83	168.44	1.6685	166.77	140.40	780.00
1.8040	1.6945	165.10	168.60	1.6696	166.93	140.40	790.00
1.6945	1.5242	165.26	168.48	1.6703	166.81	140.41	800.00
1.5242	1.4402	165.14	168.10	1.6698	166.43	140.40	810.00
1.4402	1.3989	164.76	167.60	1.6682	165.93	140.39	820.00
1.3989	1.3787	164.27	167.04	1.6661	165.38	140.38	830.00
1.3787	1.3691	163.72	166.46	1.6638	164.80	140.37	840.00
1.3691	1.4195	163.14	165.93	1.6613	164.27	140.36	850.00
1.4195	1.5067	162.61	165.53	1.6591	163.87	140.35	860.00
1.5067	1.5503	162.22	165.27	1.6574	163.62	140.34	870.00
1.5503	1.5653	161.96	165.07	1.6563	163.42	140.34	880.00
1.5653	1.5800	161.76	164.91	1.6555	163.25	140.33	890.00
1.5800	1.5877	161.60	164.77	1.6548	163.11	140.33	900.00
1.5877	1.5850	161.46	164.63	1.6542	162.97	140.32	910.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
1.5850	1.5909	161.32	164.50	1.6536	162.84	140.32	920.00
1.5909	1.5941	161.19	164.38	1.6531	162.72	140.32	930.00
1.5941	1.5892	161.07	164.25	1.6526	162.60	140.32	940.00
1.5892	1.5940	160.95	164.13	1.6521	162.48	140.31	950.00
1.5940	1.5968	160.83	164.02	1.6515	162.37	140.31	960.00
1.5968	1.4188	160.72	163.73	1.6511	162.08	140.31	970.00
1.4188	1.1652	160.43	163.01	1.6499	161.37	140.30	980.00
1.1652	1.0397	159.72	161.92	1.6468	160.28	140.29	990.00
1.0397	0.9708	158.63	160.64	1.6422	159.00	140.27	1000.00
0.9708	0.9437	157.37	159.28	1.6367	157.64	140.24	1010.00
0.9437	0.9304	156.01	157.89	1.6309	156.26	140.21	1020.00
0.9304	1.0346	154.63	156.60	1.6250	154.97	140.18	1030.00
1.0346	1.2040	153.35	155.59	1.6194	153.97	140.15	1040.00
1.2040	1.2880	152.36	154.85	1.6151	153.23	140.13	1050.00
1.2880	1.3299	151.62	154.24	1.6119	152.63	140.12	1060.00
1.3299	1.3508	151.02	153.70	1.6093	152.09	140.10	1070.00
1.3508	1.3614	150.48	153.19	1.6069	151.59	140.09	1080.00
1.3614	1.3114	149.98	152.66	1.6047	151.05	140.08	1090.00
1.3114	1.2245	149.45	151.98	1.6024	150.38	140.07	1100.00
1.2245	1.1816	148.78	151.19	1.5995	149.59	140.06	1110.00
1.1816	1.3755	147.99	150.55	1.5960	148.95	140.04	1120.00
1.3755	1.2567	147.36	149.99	1.5932	148.40	140.03	1130.00
1.2567	0.9899	146.81	149.06	1.5908	147.46	140.01	1140.00
0.9899	1.0730	145.88	147.94	1.5868	146.35	140.00	1150.00
1.0730	1.1073	144.77	146.95	1.5823	145.37	139.97	1160.00
1.1073	1.1245	143.79	146.02	1.5783	144.44	139.95	1170.00
1.1245	1.1400	142.87	145.13	1.5745	143.56	139.94	1180.00
1.1400	1.1409	141.99	144.27	1.5709	142.70	139.92	1190.00
1.1409	1.1415	141.13	143.41	1.5674	141.85	139.90	1200.00
1.1415	1.1489	140.28	142.57	1.5639	141.01	139.89	1210.00
1.1489	1.1457	139.45	141.74	1.5604	140.18	139.87	1220.00
1.1457	1.1443	138.63	140.92	1.5570	139.36	139.85	1230.00
1.1443	1.1507	137.81	140.10	1.5536	138.55	139.84	1240.00
1.1507	1.1470	137.00	139.29	1.5503	137.74	139.82	1250.00
1.1470	1.1453	136.20	138.49	1.5470	136.94	139.81	1260.00
1.1453	1.1516	135.40	137.70	1.5437	136.15	139.79	1270.00
1.1516	1.1479	134.61	136.91	1.5404	135.37	139.78	1280.00
1.1479	1.1461	133.83	136.13	1.5371	134.59	139.76	1290.00
1.1461	1.1524	133.06	135.36	1.5338	133.82	139.75	1300.00
1.1524	1.1486	132.29	134.59	1.5306	133.06	139.73	1310.00
1.1486	1.1469	131.53	133.83	1.5274	132.30	139.72	1320.00
1.1469	1.0904	130.78	133.01	1.5243	131.49	139.70	1330.00
1.0904	1.0068	129.97	132.07	1.5208	130.55	139.69	1340.00
1.0068	0.9654	129.03	131.00	1.5168	129.48	139.67	1350.00
0.9654	0.9381	127.97	129.88	1.5123	128.36	139.65	1360.00
0.9381	0.9316	126.86	128.73	1.5076	127.22	139.63	1370.00
0.9316	0.9285	125.72	127.58	1.5027	126.07	139.60	1380.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.9285	0.9200	124.57	126.42	1.4978	124.93	139.58	1390.00
0.9200	0.9229	123.43	125.28	1.4929	123.78	139.56	1400.00
0.9229	0.9244	122.29	124.14	1.4880	122.65	139.54	1410.00
0.9244	0.9182	121.17	123.01	1.4831	121.53	139.52	1420.00
0.9182	0.9222	120.05	121.89	1.4783	120.41	139.49	1430.00
0.9222	0.9243	118.94	120.79	1.4734	119.31	139.47	1440.00
0.9243	0.6880	117.85	119.46	1.4686	117.99	139.45	1450.00
0.6880	0.3406	116.53	117.55	1.4628	116.09	139.43	1460.00
0.3406	0.1686	114.64	115.15	1.4545	113.69	139.39	1470.00
0.1686	0.0835	112.25	112.50	1.4438	111.06	139.34	1480.00
0.0835	0.0413	109.62	109.75	1.4321	108.32	139.29	1490.00
0.0413	0.0205	106.90	106.96	1.4198	105.54	139.24	1500.00
0.0205	0.0101	104.13	104.16	1.4072	102.76	139.18	1510.00
0.0101	0.0050	101.36	101.38	1.3944	99.982	139.13	1520.00
0.0050	0.0025	98.601	98.608	1.3816	97.226	139.08	1530.00
0.0025	0.0012	95.858	95.861	1.3688	94.493	139.02	1540.00
0.0012	0.0006	93.137	93.139	1.3551	91.784	138.97	1550.00
0.0006	0.0003	90.443	90.444	1.3408	89.104	138.91	1560.00
0.0003	0.0001	87.777	87.778	1.3264	86.451	138.85	1570.00
0.0001	0.0001	85.139	85.139	1.3122	83.827	138.80	1580.00
0.0001	0.0000	82.529	82.529	1.2978	81.232	138.74	1590.00
0.0000	0.0000	79.948	79.948	1.2834	78.665	138.68	1600.00
0.0000	0.0000	77.396	77.396	1.2691	76.127	138.63	1610.00
0.0000	0.0000	74.872	74.872	1.2548	73.617	138.57	1620.00
0.0000	0.0000	72.377	72.377	1.2404	71.136	138.52	1630.00
0.0000	0.0000	69.910	69.910	1.2261	68.684	138.47	1640.00
0.0000	0.0000	67.472	67.472	1.2118	66.261	138.41	1650.00
0.0000	0.0000	65.063	65.063	1.1974	63.866	138.36	1660.00
0.0000	0.0000	62.683	62.683	1.1831	61.500	138.31	1670.00
0.0000	0.0000	60.331	60.331	1.1687	59.162	138.26	1680.00
0.0000	0.0000	58.008	58.008	1.1544	56.853	138.21	1690.00
0.0000	0.0000	55.713	55.713	1.1400	54.573	138.16	1700.00
0.0000	0.0000	53.448	53.448	1.1257	52.322	138.11	1710.00
0.0000	0.0000	51.211	51.211	1.1113	50.099	138.06	1720.00
0.0000	0.0000	49.002	49.002	1.0970	47.905	138.01	1730.00
0.0000	0.0000	46.824	46.824	1.0809	45.743	137.96	1740.00
0.0000	0.0000	44.679	44.679	1.0642	43.615	137.91	1750.00
0.0000	0.0000	42.567	42.567	1.0473	41.520	137.85	1760.00
0.0000	0.0000	40.489	40.489	1.0307	39.459	137.80	1770.00
0.0000	0.0000	38.445	38.445	1.0137	37.431	137.75	1780.00
0.0000	0.0000	36.434	36.434	0.9971	35.437	137.70	1790.00
0.0000	0.0000	34.457	34.457	0.9801	33.477	137.65	1800.00
0.0000	0.0000	32.513	32.513	0.9635	31.550	137.60	1810.00
0.0000	0.0000	30.603	30.603	0.9465	29.657	137.55	1820.00
0.0000	0.0000	28.727	28.727	0.9299	27.797	137.50	1830.00
0.0000	0.0000	26.884	26.884	0.9129	25.971	137.46	1840.00
0.0000	0.0000	25.075	25.075	0.8962	24.179	137.41	1850.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.0000	0.0000	23.299	23.299	0.8793	22.420	137.37	1860.00
0.0000	0.0000	21.557	21.557	0.8626	20.695	137.32	1870.00
0.0000	0.0000	19.849	19.849	0.8458	19.003	137.28	1880.00
0.0000	0.0000	18.174	18.174	0.8289	17.345	137.24	1890.00
0.0000	0.0000	16.533	16.533	0.8123	15.721	137.19	1900.00
0.0000	0.0000	14.926	14.926	0.7953	14.130	137.15	1910.00
0.0000	0.0000	13.352	13.352	0.7786	12.573	137.11	1920.00
0.0000	0.0000	11.811	11.811	0.7617	11.049	137.08	1930.00
0.0000	0.0000	10.305	10.305	0.7449	9.5597	137.04	1940.00
0.0000	0.0000	8.8313	8.8313	0.7284	8.1029	137.00	1950.00
0.0000	0.0000	7.3937	7.3937	0.7093	6.6844	136.96	1960.00
0.0000	0.0000	5.9938	5.9938	0.6906	5.3031	136.92	1970.00
0.0000	0.0000	4.6313	4.6313	0.6718	3.9595	136.88	1980.00
0.0000	0.0000	3.3066	3.3066	0.6529	2.6537	136.84	1990.00
0.0000	0.0000	2.0192	2.0192	0.6345	1.3847	136.81	2000.00
0.0000	0.0000	0.7843	0.7843	0.6003	0.1840	136.74	2010.00
0.0000	0.0000	0.0000	0.0000	0.1840	-0.1840	136.70	2020.00

ROUTING REPORT

STORAGE LIST ID No. A
Description:

MULTIPLE ORIFICE ID No. A
Description:
Outlet Elev: 136.20
Elev: 136.20 ft Orifice Diameter: 5.4785 in.

ROUTING CURVE

STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min
136.20	0.0000	0.0000	0.0000	137.90	13317	1.0620	45.452	139.60	37653	1.5019	127.01
136.30	0.0000	0.2576	0.2576	138.00	14502	1.0928	49.433	139.70	39198	1.5238	132.19
136.40	0.0000	0.3643	0.3643	138.10	15890	1.1227	54.089	139.80	40744	1.5454	137.36
136.50	0.0000	0.4461	0.4461	138.20	17278	1.1519	58.745	139.90	42289	1.5667	142.53
136.60	0.0000	0.5151	0.5151	138.30	18666	1.1803	63.400	140.00	43834	1.5877	147.70
136.70	0.0000	0.5759	0.5759	138.40	20054	1.2081	68.055	140.10	45251	1.6085	152.44
136.80	530.40	0.6309	2.3989	138.50	21442	1.2352	72.709	140.20	46667	1.6290	157.19
136.90	1591	0.6815	5.9855	138.60	22830	1.2618	77.362	140.30	48084	1.6492	161.93
137.00	2652	0.7285	9.5685	138.70	24218	1.2878	82.014	140.40	49500	1.6692	166.67
137.10	3837	0.7727	13.563	138.80	25606	1.3133	86.667	140.50	50917	1.6890	171.41
137.20	5022	0.8145	17.554	138.90	26994	1.3384	91.318	140.60	52334	1.7085	176.15
137.30	6207	0.8542	21.544	139.00	28382	1.3629	95.970	140.70	53750	1.7278	180.90
137.40	7392	0.8922	25.532	139.10	29927	1.3870	101.14	140.80	55167	1.7469	185.64
137.50	8577	0.9287	29.519	139.20	31472	1.4107	106.32	140.90	56583	1.7658	190.38
137.60	9762	0.9637	33.504	139.30	33018	1.4341	111.49				
137.70	10947	0.9975	37.488	139.40	34563	1.4570	116.67				
137.80	12132	1.0303	41.470	139.50	36108	1.4796	121.84				

LEVEL POOL ROUTING TABLE

MATCH Q (cfs) : 3.71 INFLOW Q (cfs): 9.42
PEAK STAGE (ft): 140.97 PEAK OUTFLOW : 1.78
PEAK TIME: 660.00 min.
INFLOW HYD No. : 7 OUTFLOW HYD No.: 12

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.0000	0.0101	0.0000	0.0101	0.0000	0.0101	136.20	40.00
0.0101	0.0511	0.0000	0.0612	0.0101	0.0511	136.20	50.00
0.0511	0.1172	0.0000	0.1684	0.0511	0.1172	136.20	60.00
0.1172	0.2314	0.0000	0.3486	0.1172	0.2314	136.20	70.00
0.2314	0.3813	0.0000	0.6127	0.2314	0.3813	136.20	80.00
0.3813	0.5133	0.0000	0.8946	0.3813	0.5133	136.20	90.00
0.5133	0.6254	0.0000	1.1387	0.5133	0.6254	136.20	100.00
0.6254	0.7193	0.0480	1.3927	0.5774	0.8152	136.70	110.00
0.7193	0.7978	0.2321	1.7492	0.5832	1.1660	136.71	120.00
0.7978	0.9030	0.5723	2.2730	0.5937	1.6793	136.73	130.00
0.9030	1.0258	1.0701	2.9989	0.6092	2.3897	136.76	140.00
1.0258	1.1121	1.7590	3.8970	0.6306	3.2663	136.80	150.00
1.1121	1.1713	2.6232	4.9067	0.6431	4.2635	136.82	160.00
1.1713	1.2245	3.6063	6.0021	0.6572	5.3449	136.85	170.00
1.2245	1.2665	4.6725	7.1635	0.6724	6.4911	136.88	180.00
1.2665	1.2954	5.8030	8.3649	0.6881	7.6768	136.91	190.00
1.2954	1.3274	6.9731	9.5958	0.7037	8.8922	136.95	200.00
1.3274	1.3536	8.1725	10.854	0.7196	10.134	136.98	210.00
1.3536	1.3698	9.3991	12.123	0.7348	11.388	137.01	220.00
1.3698	1.3920	10.639	13.401	0.7486	12.652	137.05	230.00
1.3920	1.4103	11.890	14.692	0.7626	13.929	137.08	240.00
1.4103	1.4760	13.153	16.039	0.7765	15.263	137.11	250.00
1.4760	1.5658	14.472	17.514	0.7905	16.723	137.14	260.00
1.5658	1.6191	15.918	19.102	0.8058	18.297	137.18	270.00
1.6191	1.6610	17.475	20.755	0.8219	19.933	137.22	280.00
1.6610	1.6838	19.095	22.440	0.8382	21.601	137.26	290.00
1.6838	1.7030	20.747	24.133	0.8548	23.279	137.30	300.00
1.7030	1.9460	22.408	26.057	0.8708	25.186	137.34	310.00
1.9460	2.2967	24.297	28.540	0.8889	27.651	137.39	320.00
2.2967	2.4840	26.739	31.520	0.9116	30.609	137.45	330.00
2.4840	2.5893	29.670	34.744	0.9383	33.805	137.53	340.00
2.5893	2.6528	32.839	38.081	0.9663	37.115	137.61	350.00
2.6528	2.6948	36.120	41.468	0.9944	40.474	137.69	360.00
2.6948	2.6693	39.452	44.816	1.0221	43.794	137.77	370.00
2.6693	2.6091	42.745	48.023	1.0488	46.974	137.86	380.00
2.6091	2.5794	45.901	51.089	1.0737	50.015	137.94	390.00
2.5794	2.5714	48.919	54.070	1.0965	52.973	138.01	400.00
2.5714	2.5808	51.858	57.010	1.1155	55.894	138.08	410.00
2.5808	2.5843	54.760	59.925	1.1340	58.791	138.14	420.00
2.5843	3.3711	57.639	63.595	1.1522	62.443	138.20	430.00
3.3711	4.5616	61.268	69.201	1.1745	68.026	138.28	440.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
4.5616	5.1730	66.818	76.553	1.2079	75.345	138.40	450.00
5.1730	6.6055	74.095	85.873	1.2503	84.623	138.56	460.00
6.6055	8.4586	83.321	98.385	1.3021	97.083	138.76	470.00
8.4586	9.4219	95.715	113.60	1.3681	112.23	139.02	480.00
9.4219	8.4243	110.79	128.64	1.4373	127.20	139.31	490.00
8.4243	6.4378	125.70	140.56	1.5026	139.06	139.60	500.00
6.4378	5.4605	137.50	149.40	1.5524	147.85	139.83	510.00
5.4605	4.8532	146.26	156.57	1.5884	154.99	140.00	520.00
4.8532	4.4357	153.37	162.66	1.6195	161.04	140.15	530.00
4.4357	4.2333	159.39	168.06	1.6454	166.41	140.28	540.00
4.2333	3.8155	164.75	172.79	1.6681	171.13	140.39	550.00
3.8155	3.2899	169.44	176.54	1.6878	174.86	140.49	560.00
3.2899	3.0315	173.15	179.47	1.7032	177.77	140.57	570.00
3.0315	2.9129	176.06	182.00	1.7151	180.29	140.63	580.00
2.9129	2.8482	178.56	184.32	1.7253	182.60	140.69	590.00
2.8482	2.8179	180.86	186.53	1.7347	184.79	140.74	600.00
2.8179	2.7427	183.05	188.61	1.7435	186.87	140.78	610.00
2.7427	2.6453	185.11	190.50	1.7518	188.75	140.83	620.00
2.6453	2.5983	186.99	192.23	1.7593	190.48	140.87	630.00
2.5983	2.5685	188.71	193.88	1.7662	192.11	140.90	640.00
2.5685	2.5626	190.34	195.47	1.7726	193.70	140.94	650.00
2.5626	2.5609	191.92	197.04	1.7789	195.26	140.97	660.00
2.5609	2.4294	195.26	200.25	0.0000	200.25	0.00	670.00
2.4294	2.2335	200.25	204.91	0.0000	204.91	0.00	680.00
2.2335	2.1372	204.91	209.29	0.0000	209.29	0.00	690.00
2.1372	2.0979	209.29	213.52	0.0000	213.52	0.00	700.00
2.0979	2.0714	213.52	217.69	0.0000	217.69	0.00	710.00
2.0714	2.0589	217.69	221.82	0.0000	221.82	0.00	720.00
2.0589	2.0611	221.82	225.94	0.0000	225.94	0.00	730.00
2.0611	2.0551	225.94	230.06	0.0000	230.06	0.00	740.00
2.0551	2.0527	230.06	234.16	0.0000	234.16	0.00	750.00
2.0527	2.0599	234.16	238.28	0.0000	238.28	0.00	760.00
2.0599	2.0563	238.28	242.39	0.0000	242.39	0.00	770.00
2.0563	2.0551	242.39	246.50	0.0000	246.50	0.00	780.00
2.0551	1.9302	246.50	250.49	0.0000	250.49	0.00	790.00
1.9302	1.7361	250.49	254.16	0.0000	254.16	0.00	800.00
1.7361	1.6403	254.16	257.53	0.0000	257.53	0.00	810.00
1.6403	1.5932	257.53	260.77	0.0000	260.77	0.00	820.00
1.5932	1.5702	260.77	263.93	0.0000	263.93	0.00	830.00
1.5702	1.5591	263.93	267.06	0.0000	267.06	0.00	840.00
1.5591	1.6165	267.06	270.23	0.0000	270.23	0.00	850.00
1.6165	1.7157	270.23	273.57	0.0000	273.57	0.00	860.00
1.7157	1.7652	273.57	277.05	0.0000	277.05	0.00	870.00
1.7652	1.7822	277.05	280.60	0.0000	280.60	0.00	880.00
1.7822	1.7989	280.60	284.18	0.0000	284.18	0.00	890.00
1.7989	1.8075	284.18	287.78	0.0000	287.78	0.00	900.00
1.8075	1.8043	287.78	291.39	0.0000	291.39	0.00	910.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
1.8043	1.8110	291.39	295.01	0.0000	295.01	0.00	920.00
1.8110	1.8146	295.01	298.64	0.0000	298.64	0.00	930.00
1.8146	1.8089	298.64	302.26	0.0000	302.26	0.00	940.00
1.8089	1.8143	302.26	305.88	0.0000	305.88	0.00	950.00
1.8143	1.8173	305.88	309.51	0.0000	309.51	0.00	960.00
1.8173	1.6148	309.51	312.95	0.0000	312.95	0.00	970.00
1.6148	1.3260	312.95	315.89	0.0000	315.89	0.00	980.00
1.3260	1.1832	315.89	318.40	0.0000	318.40	0.00	990.00
1.1832	1.1048	318.40	320.68	0.0000	320.68	0.00	1000.00
1.1048	1.0739	320.68	322.86	0.0000	322.86	0.00	1010.00
1.0739	1.0587	322.86	325.00	0.0000	325.00	0.00	1020.00
1.0587	1.1772	325.00	327.23	0.0000	327.23	0.00	1030.00
1.1772	1.3699	327.23	329.78	0.0000	329.78	0.00	1040.00
1.3699	1.4655	329.78	332.61	0.0000	332.61	0.00	1050.00
1.4655	1.5130	332.61	335.59	0.0000	335.59	0.00	1060.00
1.5130	1.5368	335.59	338.64	0.0000	338.64	0.00	1070.00
1.5368	1.5488	338.64	341.73	0.0000	341.73	0.00	1080.00
1.5488	1.4919	341.73	344.77	0.0000	344.77	0.00	1090.00
1.4919	1.3929	344.77	347.65	0.0000	347.65	0.00	1100.00
1.3929	1.3441	347.65	350.39	0.0000	350.39	0.00	1110.00
1.3441	1.5647	350.39	353.30	0.0000	353.30	0.00	1120.00
1.5647	1.4294	353.30	356.29	0.0000	356.29	0.00	1130.00
1.4294	1.1259	356.29	358.85	0.0000	358.85	0.00	1140.00
1.1259	1.2204	358.85	361.19	0.0000	361.19	0.00	1150.00
1.2204	1.2594	361.19	363.67	0.0000	363.67	0.00	1160.00
1.2594	1.2789	363.67	366.21	0.0000	366.21	0.00	1170.00
1.2789	1.2965	366.21	368.79	0.0000	368.79	0.00	1180.00
1.2965	1.2975	368.79	371.38	0.0000	371.38	0.00	1190.00
1.2975	1.2982	371.38	373.98	0.0000	373.98	0.00	1200.00
1.2982	1.3065	373.98	376.58	0.0000	376.58	0.00	1210.00
1.3065	1.3029	376.58	379.19	0.0000	379.19	0.00	1220.00
1.3029	1.3012	379.19	381.80	0.0000	381.80	0.00	1230.00
1.3012	1.3084	381.80	384.41	0.0000	384.41	0.00	1240.00
1.3084	1.3042	384.41	387.02	0.0000	387.02	0.00	1250.00
1.3042	1.3023	387.02	389.62	0.0000	389.62	0.00	1260.00
1.3023	1.3094	389.62	392.24	0.0000	392.24	0.00	1270.00
1.3094	1.3051	392.24	394.85	0.0000	394.85	0.00	1280.00
1.3051	1.3031	394.85	397.46	0.0000	397.46	0.00	1290.00
1.3031	1.3102	397.46	400.07	0.0000	400.07	0.00	1300.00
1.3102	1.3059	400.07	402.69	0.0000	402.69	0.00	1310.00
1.3059	1.3038	402.69	405.30	0.0000	405.30	0.00	1320.00
1.3038	1.2396	405.30	407.84	0.0000	407.84	0.00	1330.00
1.2396	1.1445	407.84	410.23	0.0000	410.23	0.00	1340.00
1.1445	1.0975	410.23	412.47	0.0000	412.47	0.00	1350.00
1.0975	1.0664	412.47	414.63	0.0000	414.63	0.00	1360.00
1.0664	1.0590	414.63	416.76	0.0000	416.76	0.00	1370.00
1.0590	1.0554	416.76	418.87	0.0000	418.87	0.00	1380.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
1.0554	1.0458	418.87	420.97	0.0000	420.97	0.00	1390.00
1.0458	1.0490	420.97	423.07	0.0000	423.07	0.00	1400.00
1.0490	1.0507	423.07	425.17	0.0000	425.17	0.00	1410.00
1.0507	1.0437	425.17	427.26	0.0000	427.26	0.00	1420.00
1.0437	1.0482	427.26	429.35	0.0000	429.35	0.00	1430.00
1.0482	1.0505	429.35	431.45	0.0000	431.45	0.00	1440.00
1.0505	0.7819	431.45	433.28	0.0000	433.28	0.00	1450.00
0.7819	0.3871	433.28	434.45	0.0000	434.45	0.00	1460.00
0.3871	0.1916	434.45	435.03	0.0000	435.03	0.00	1470.00
0.1916	0.0949	435.03	435.32	0.0000	435.32	0.00	1480.00
0.0949	0.0470	435.32	435.46	0.0000	435.46	0.00	1490.00
0.0470	0.0233	435.46	435.53	0.0000	435.53	0.00	1500.00

'S' - POND 'C' TOTAL VOLUME

ELEV (FT)	AREA (SF)	VOL (CF)	Cumm VOL (CF)	
133.5	6500			
134	7015	3379	3379	
135	8904	7960	11,339	
136	10,849	9697	21,036	← WQ VOL @ 135.52
137	14,909	12879	33,915	
138	17,023	15966	49881	
139	21,230	19,127	69,007	

WQ RELEASE RATE

$$\frac{16{,}409\ ft^3}{48\ HRS} \times \frac{1\ HR}{3600\ s} = 0.095\ cfs$$

GROUP MACKENZIE
0690 SW Bancroft St/PO Box 69039 Portland, OR 97201-0039
Tel: 503.224.9560 Net: info@grpmack.com Fax: 503.228.1285

By _____
Date _____
Job # _____
Sht. _____ of _____

'T' - POND 'C' DETENTION VOLUME

ELEV (FT)	AREA (SF)	VOL (CF)	CUMM. VOL (CF)
135.52	9,915		
136	10,849	4983	4983
137	14,909	12,879	17,862
138	17,023	15,966	33,828
139	21,230	19,127	52,955

GROUP MACKENZIE
0690 SW Bancroft St/PO Box 69039 Portland, OR 97201-0039
Tel: 503.224.9560 Net: info@grpmack.com Fax: 503.228.1285

By _____
Date _____
Job # _____
Sht. _____ of _____

'U' - WQ ORIFICE 'C'

$Q = CA(2gh)^{1/2}$

$A = \dfrac{Q}{C(2gh)^{1/2}}$

$A = \dfrac{0.095}{0.62(2 \times 32.2 \times 0.62)^{1/2}}$

$A = 0.024\ \text{ft}^2$

$Q = 0.095$ cfs

$C = 0.62$

$g = 32.2$

$h = 135.52' - 134.90' = 0.62'$

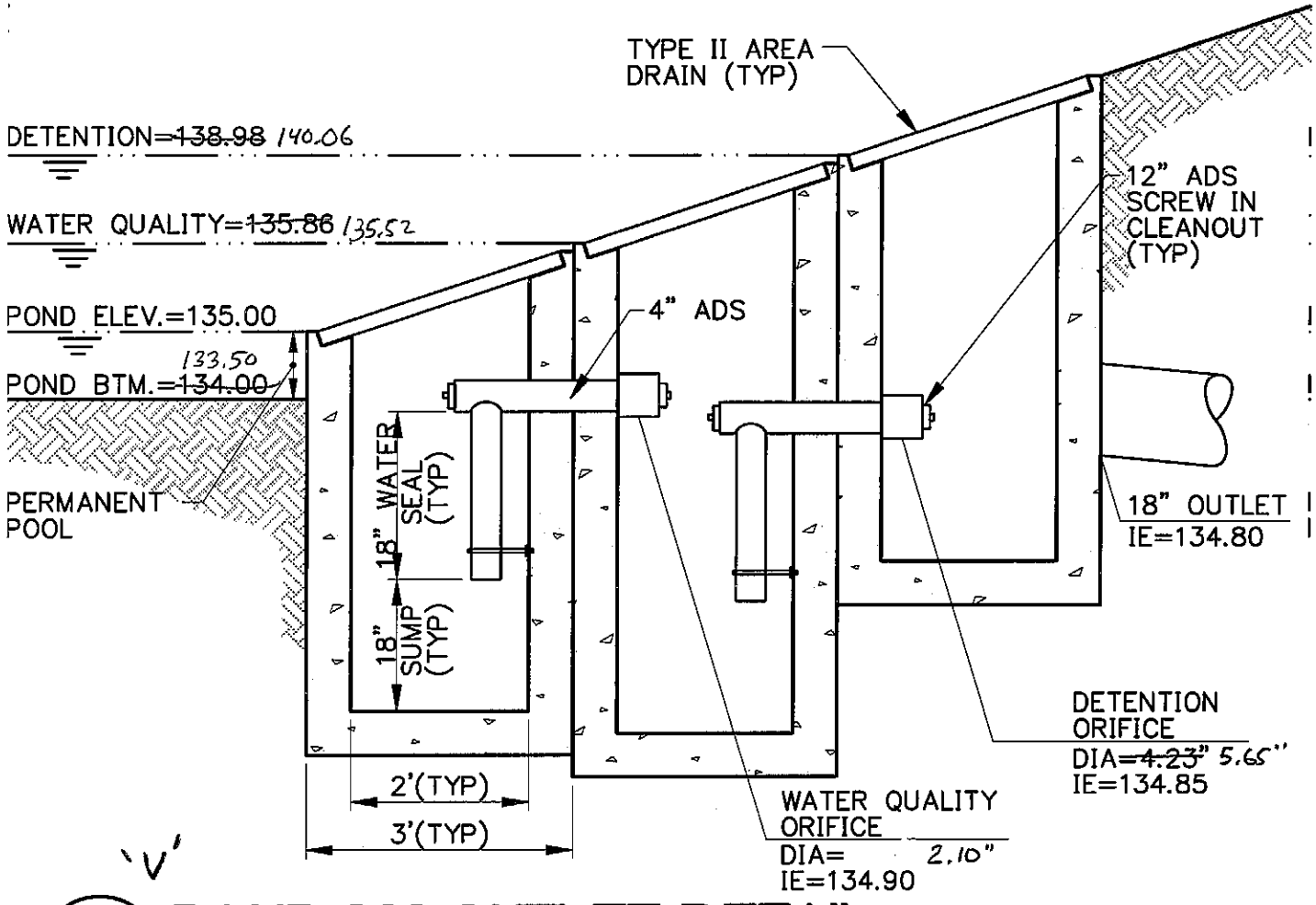
$A = \dfrac{\pi d^2}{4}$

$d = \sqrt{\dfrac{4A}{\pi}}$

$d = \sqrt{\dfrac{4A}{\pi}} \quad 0.178' = 2.10''\ \phi$

GROUP MACKENZIE
0690 SW Bancroft St/PO Box 69039 Portland, OR 97201-0039
Tel: 503.224.9560 Net: info@grpmack.com Fax: 503.228.1285

By _____
Date _____
Job # _____
Sht. _____ of _____



3 C8.1 POND "C" OUTLET DETAIL

N.T.S.
OUTFLOW DEVICE

SD150
DETINSET= 1:1

BASIN SUMMARY

BASIN ID: D10 NAME: DEVELOPED 10YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 14.77 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 3.45 inches AREA..: 2.32 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 14.80 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 12.45 Acres
CN....: 98.00
TcReach - Sheet L: 30.00 ns:0.2400 p2yr: 2.50 s:0.0200
TcReach - Sheet L: 150.00 ns:0.0110 p2yr: 2.50 s:0.0200
TcReach - Channel L:1700.00 kc:42.00 s:0.0100
PEAK RATE: 8.82 cfs VOL: 3.65 Ac-ft TIME: 480 min

BASIN ID: D2 NAME: DEVELOPED 2YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 14.77 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 2.50 inches AREA..: 2.32 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 14.80 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 12.45 Acres
CN....: 98.00
TcReach - Sheet L: 30.00 ns:0.2400 p2yr: 2.50 s:0.0200
TcReach - Sheet L: 150.00 ns:0.0110 p2yr: 2.50 s:0.0200
TcReach - Channel L:1700.00 kc:42.00 s:0.0100
PEAK RATE: 6.14 cfs VOL: 2.53 Ac-ft TIME: 480 min

BASIN ID: D25 NAME: DEVELOPED 25YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 14.77 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 3.90 inches AREA..: 2.32 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 14.80 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 12.45 Acres
CN....: 98.00
TcReach - Sheet L: 30.00 ns:0.2400 p2yr: 2.50 s:0.0200
TcReach - Sheet L: 150.00 ns:0.0110 p2yr: 2.50 s:0.0200
TcReach - Channel L:1700.00 kc:42.00 s:0.0100
PEAK RATE: 10.10 cfs VOL: 4.18 Ac-ft TIME: 480 min

BASIN SUMMARY

BASIN ID: E10 NAME: EXISTING 10YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 14.77 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 3.45 inches AREA..: 14.77 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 38.83 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 0.00 Acres
CN....: 98.00
TcReach - Sheet L: 300.00 ns:0.2400 p2yr: 2.50 s:0.0400
TcReach - Shallow L: 300.00 ks:10.00 s:0.0400
TcReach - Channel L:1400.00 kc:17.00 s:0.0400
PEAK RATE: 3.12 cfs VOL: 1.97 Ac-ft TIME: 490 min

BASIN ID: E2 NAME: EXISTING 2YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 14.77 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 2.50 inches AREA..: 14.77 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 38.83 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 0.00 Acres
CN....: 98.00
TcReach - Sheet L: 300.00 ns:0.2400 p2yr: 2.50 s:0.0400
TcReach - Shallow L: 300.00 ks:10.00 s:0.0400
TcReach - Channel L:1400.00 kc:17.00 s:0.0400
PEAK RATE: 1.46 cfs VOL: 1.09 Ac-ft TIME: 490 min

BASIN ID: E25 NAME: EXISTING 25YR STORM
SBUH METHODOLOGY
TOTAL AREA.....: 14.77 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERVIOUS AREA
PRECIPITATION....: 3.90 inches AREA..: 14.77 Acres
TIME INTERVAL....: 10.00 min CN....: 80.00
TIME OF CONC.....: 38.83 min IMPERVIOUS AREA
ABSTRACTION COEFF: 0.20 AREA..: 0.00 Acres
CN....: 98.00
TcReach - Sheet L: 300.00 ns:0.2400 p2yr: 2.50 s:0.0400
TcReach - Shallow L: 300.00 ks:10.00 s:0.0400
TcReach - Channel L:1400.00 kc:17.00 s:0.0400
PEAK RATE: 4.00 cfs VOL: 2.41 Ac-ft TIME: 490 min

NOVELLUS

HYDROGRAPH SUMMARY

HYD NUM	PEAK RUNOFF RATE cfs	TIME OF PEAK min.	VOLUME OF HYDRO cf\AcFt	Contrib Area Acres
1	1.460	490	47658 cf	14.77
2	3.124	490	85612 cf	14.77
3	3.999	490	105049 cf	14.77
5	6.139	480	110109 cf	14.77
6	8.822	480	158818 cf	14.77
7	10.104	480	182151 cf	14.77
10	1.460	690	110176 cf	14.77
11	1.760	800	158945 cf	14.77
12	1.976	800	182266 cf	14.77

ROUTING REPORT

STORAGE LIST ID No. A
Description:

MULTIPLE ORIFICE ID No. A
Description:
Outlet Elev: 134.85
Elev: 134.85 ft Orifice Diameter: 5.6484 in.

ROUTING CURVE

STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min
134.85	0.0000	0.0000	0.0000	136.90	16574	1.2396	56.487	139.00	52955	1.7638	178.28
134.90	0.0000	0.1936	0.1936	137.00	17862	1.2695	60.810	139.10	53960	1.7849	181.65
135.00	0.0000	0.3353	0.3353	137.10	19459	1.2987	66.161	139.20	54964	1.8058	185.02
135.10	0.0000	0.4329	0.4329	137.20	21055	1.3272	71.511	139.30	55969	1.8264	188.39
135.20	0.0000	0.5122	0.5122	137.30	22652	1.3552	76.861	139.40	56973	1.8468	191.76
135.30	0.0000	0.5808	0.5808	137.40	24248	1.3826	82.211	139.50	57978	1.8670	195.13
135.40	0.0000	0.6421	0.6421	137.50	25845	1.4094	87.559	139.60	58982	1.8870	198.49
135.50	0.0000	0.6980	0.6980	137.60	27442	1.4358	92.908	139.70	59987	1.9067	201.86
135.60	830.50	0.7498	3.5181	137.70	29038	1.4616	98.256	139.80	60991	1.9263	205.23
135.70	1869	0.7982	7.0270	137.80	30635	1.4871	103.60	139.90	61996	1.9456	208.60
135.80	2907	0.8439	10.533	137.90	32231	1.5121	108.95	140.00	63000	1.9648	211.96
135.90	3945	0.8872	14.037	138.00	33828	1.5366	114.30	140.10	64500	1.9838	216.98
136.00	4983	0.9285	17.538	138.10	35741	1.5608	120.70	140.20	66000	2.0026	222.00
136.10	6271	0.9680	21.871	138.20	37653	1.5847	127.10	140.30	67500	2.0212	227.02
136.20	7559	1.0060	26.202	138.30	39566	1.6082	133.50	140.40	69000	2.0397	232.04
136.30	8847	1.0426	30.532	138.40	41479	1.6313	139.89	140.50	70500	2.0580	237.06
136.40	10135	1.0779	34.860	138.50	43392	1.6541	146.29	140.60	72000	2.0761	242.08
136.50	11423	1.1121	39.187	138.60	45304	1.6766	152.69	140.70	73500	2.0941	247.09
136.60	12710	1.1453	43.513	138.70	47217	1.6988	159.09	140.80	75000	2.1119	252.11
136.70	13998	1.1776	47.839	138.80	49130	1.7207	165.49	140.90	76500	2.1296	257.13
136.80	15286	1.2090	52.163	138.90	51042	1.7424	171.88				

LEVEL POOL ROUTING TABLE

MATCH Q (cfs) : 1.46 INFLOW Q (cfs): 6.14
PEAK STAGE (ft): 137.70 PEAK OUTFLOW : 1.46
PEAK TIME: 690.00 min.
INFLOW HYD No. : 5 OUTFLOW HYD No.: 10

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.0000	0.0001	0.0000	0.0001	0.0000	0.0001	134.85	50.00
0.0001	0.0076	0.0000	0.0076	0.0001	0.0076	134.85	60.00
0.0076	0.0433	0.0000	0.0508	0.0076	0.0433	134.85	70.00
0.0433	0.1072	0.0000	0.1504	0.0433	0.1072	134.85	80.00
0.1072	0.1787	0.0000	0.2859	0.1072	0.1787	134.85	90.00
0.1787	0.2482	0.0000	0.4269	0.1787	0.2482	134.85	100.00
0.2482	0.3120	0.0000	0.5602	0.2482	0.3120	134.85	110.00
0.3120	0.3689	0.0000	0.6809	0.3120	0.3689	134.85	120.00
0.3689	0.4400	0.0000	0.8089	0.3689	0.4400	134.85	130.00
0.4400	0.5209	0.0000	0.9609	0.4400	0.5209	134.85	140.00
0.5209	0.5837	0.0000	1.1046	0.5209	0.5837	134.85	150.00
0.5837	0.6317	0.0000	1.2153	0.5837	0.6317	134.85	160.00
0.6317	0.6758	0.0000	1.3075	0.6317	0.6758	134.85	170.00
0.6758	0.7129	0.0000	1.3887	0.6758	0.7129	134.85	180.00
0.7129	0.7415	0.0146	1.4689	0.6983	0.7706	135.50	190.00
0.7415	0.7711	0.0713	1.5839	0.6994	0.8845	135.50	200.00
0.7711	0.7965	0.1830	1.7506	0.7015	1.0492	135.51	210.00
0.7965	0.8151	0.3447	1.9563	0.7045	1.2518	135.51	220.00
0.8151	0.8367	0.5436	2.1954	0.7082	1.4872	135.52	230.00
0.8367	0.8552	0.7747	2.4667	0.7125	1.7542	135.53	240.00
0.8552	0.9028	1.0367	2.7947	0.7174	2.0773	135.54	250.00
0.9028	0.9647	1.3540	3.2215	0.7234	2.4981	135.55	260.00
0.9647	1.0030	1.7670	3.7348	0.7311	3.0037	135.56	270.00
1.0030	1.0328	2.2633	4.2992	0.7404	3.5588	135.58	280.00
1.0328	1.0497	2.8084	4.8909	0.7504	4.1406	135.60	290.00
1.0497	1.0638	3.3822	5.4956	0.7584	4.7372	135.62	300.00
1.0638	1.2177	3.9706	6.2521	0.7666	5.4855	135.63	310.00
1.2177	1.4390	4.7085	7.3653	0.7770	6.5883	135.66	320.00
1.4390	1.5578	5.7961	8.7929	0.7922	8.0007	135.69	330.00
1.5578	1.6247	7.1898	10.372	0.8109	9.5614	135.73	340.00
1.6247	1.6659	8.7301	12.021	0.8312	11.189	135.77	350.00
1.6659	1.6953	10.337	13.699	0.8520	12.847	135.82	360.00
1.6953	1.6835	11.974	15.353	0.8725	14.481	135.87	370.00
1.6835	1.6500	13.588	16.922	0.8924	16.029	135.91	380.00
1.6500	1.6357	15.119	18.404	0.9107	17.494	135.96	390.00
1.6357	1.6349	16.566	19.836	0.9279	18.908	136.00	400.00
1.6349	1.6449	17.967	21.247	0.9410	20.306	136.03	410.00
1.6449	1.6508	19.352	22.648	0.9537	21.694	136.06	420.00
1.6508	2.1604	20.728	24.539	0.9664	23.573	136.10	430.00
2.1604	2.9320	22.590	27.682	0.9829	26.699	136.14	440.00
2.9320	3.3346	25.689	31.956	1.0102	30.946	136.21	450.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
3.3346	4.2741	29.900	37.508	1.0459	36.462	136.31	460.00
4.2741	5.4928	35.372	45.139	1.0906	44.048	136.44	470.00
5.4928	6.1390	42.899	54.530	1.1493	53.381	136.61	480.00
6.1390	5.5016	52.163	63.804	1.2177	62.586	136.83	490.00
5.5016	4.2117	61.307	71.021	1.2792	69.741	137.03	500.00
4.2117	3.5791	68.424	76.214	1.3178	74.897	137.17	510.00
3.5791	3.1862	73.552	80.317	1.3449	78.972	137.26	520.00
3.1862	2.9163	77.606	83.709	1.3660	82.343	137.34	530.00
2.9163	2.7867	80.959	86.662	1.3832	85.279	137.40	540.00
2.7867	2.5141	83.881	89.182	1.3980	87.784	137.46	550.00
2.5141	2.1695	86.373	91.057	1.4105	89.647	137.50	560.00
2.1695	2.0007	88.227	92.397	1.4197	90.977	137.54	570.00
2.0007	1.9238	89.551	93.476	1.4263	92.049	137.56	580.00
1.9238	1.8824	90.618	94.424	1.4315	92.993	137.58	590.00
1.8824	1.8634	91.556	95.302	1.4362	93.866	137.60	600.00
1.8634	1.8147	92.426	96.104	1.4404	94.663	137.62	610.00
1.8147	1.7511	93.219	96.785	1.4443	95.341	137.63	620.00
1.7511	1.7209	93.893	97.365	1.4475	95.918	137.65	630.00
1.7209	1.7020	94.467	97.890	1.4503	96.440	137.66	640.00
1.7020	1.6989	94.987	98.388	1.4529	96.935	137.67	650.00
1.6989	1.6985	95.480	98.877	1.4553	97.422	137.68	660.00
1.6985	1.6120	95.964	99.275	1.4576	97.817	137.68	670.00
1.6120	1.4825	96.358	99.452	1.4595	97.993	137.69	680.00
1.4825	1.4191	96.532	99.434	1.4604	97.974	137.70	690.00
1.4191	1.3936	96.513	99.326	1.4603	97.866	137.69	700.00
1.3936	1.3764	96.406	99.176	1.4598	97.716	137.69	710.00
1.3764	1.3686	96.257	99.002	1.4590	97.543	137.69	720.00
1.3686	1.3705	96.085	98.824	1.4582	97.366	137.69	730.00
1.3705	1.3669	95.908	98.646	1.4573	97.189	137.68	740.00
1.3669	1.3658	95.732	98.465	1.4565	97.008	137.68	750.00
1.3658	1.3710	95.553	98.289	1.4556	96.834	137.68	760.00
1.3710	1.3690	95.379	98.119	1.4548	96.664	137.67	770.00
1.3690	1.3686	95.210	97.948	1.4539	96.494	137.67	780.00
1.3686	1.2857	95.041	97.695	1.4531	96.242	137.67	790.00
1.2857	1.1567	94.790	97.233	1.4519	95.781	137.66	800.00
1.1567	1.0932	94.331	96.581	1.4497	95.131	137.65	810.00
1.0932	1.0620	93.685	95.840	1.4465	94.393	137.64	820.00
1.0620	1.0469	92.950	95.059	1.4430	93.616	137.63	830.00
1.0469	1.0398	92.177	94.264	1.4392	92.825	137.61	840.00
1.0398	1.0783	91.389	93.507	1.4354	92.072	137.60	850.00
1.0783	1.1447	90.640	92.863	1.4317	91.432	137.58	860.00
1.1447	1.1780	90.003	92.326	1.4285	90.897	137.57	870.00
1.1780	1.1896	89.472	91.839	1.4259	90.413	137.56	880.00
1.1896	1.2010	88.990	91.380	1.4235	89.957	137.55	890.00
1.2010	1.2070	88.536	90.944	1.4212	89.523	137.54	900.00
1.2070	1.2052	88.103	90.516	1.4191	89.097	137.54	910.00
1.2052	1.2099	87.680	90.095	1.4170	88.678	137.53	920.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE (ft)	TIME (min)
<---------- cfs min ---------->							
1.2099	1.2126	87.263	89.685	1.4149	88.270	137.52	930.00
1.2126	1.2090	86.857	89.279	1.4129	87.866	137.51	940.00
1.2090	1.2129	86.455	88.877	1.4109	87.466	137.51	950.00
1.2129	1.2152	86.057	88.485	1.4090	87.076	137.50	960.00
1.2152	1.0799	85.669	87.964	1.4070	86.557	137.49	970.00
1.0799	0.8869	85.153	87.120	1.4044	85.715	137.48	980.00
0.8869	0.7915	84.315	85.994	1.4002	84.593	137.47	990.00
0.7915	0.7392	83.199	84.730	1.3945	83.335	137.44	1000.00
0.7392	0.7186	81.947	83.405	1.3882	82.016	137.42	1010.00
0.7186	0.7085	80.635	82.062	1.3816	80.680	137.40	1020.00
0.7085	0.7880	79.306	80.802	1.3747	79.427	137.37	1030.00
0.7880	0.9171	78.059	79.764	1.3683	78.396	137.35	1040.00
0.9171	0.9812	77.033	78.931	1.3630	77.568	137.33	1050.00
0.9812	1.0132	76.209	78.203	1.3588	76.845	137.31	1060.00
1.0132	1.0293	75.489	77.532	1.3551	76.177	137.30	1070.00
1.0293	1.0375	74.825	76.892	1.3516	75.540	137.29	1080.00
1.0375	0.9995	74.192	76.229	1.3483	74.881	137.28	1090.00
0.9995	0.9333	73.536	75.469	1.3449	74.124	137.26	1100.00
0.9333	0.9008	72.783	74.617	1.3409	73.276	137.25	1110.00
0.9008	1.0488	71.940	73.889	1.3365	72.553	137.23	1120.00
1.0488	0.9582	71.220	73.227	1.3327	71.894	137.22	1130.00
0.9582	0.7548	70.565	72.278	1.3293	70.949	137.21	1140.00
0.7548	0.8183	69.625	71.198	1.3242	69.874	137.19	1150.00
0.8183	0.8446	68.555	70.218	1.3185	68.899	137.17	1160.00
0.8446	0.8577	67.586	69.288	1.3133	67.975	137.15	1170.00
0.8577	0.8697	66.667	68.394	1.3084	67.086	137.13	1180.00
0.8697	0.8705	65.782	67.522	1.3036	66.219	137.12	1190.00
0.8705	0.8710	64.920	66.661	1.2990	65.362	137.10	1200.00
0.8710	0.8767	64.068	65.816	1.2943	64.521	137.09	1210.00
0.8767	0.8744	63.231	64.983	1.2898	63.693	137.07	1220.00
0.8744	0.8734	62.408	64.155	1.2852	62.870	137.05	1230.00
0.8734	0.8783	61.589	63.341	1.2808	62.060	137.04	1240.00
0.8783	0.8756	60.784	62.538	1.2763	61.262	137.02	1250.00
0.8756	0.8744	59.990	61.740	1.2720	60.468	137.01	1260.00
0.8744	0.8793	59.200	60.954	1.2672	59.687	136.99	1270.00
0.8793	0.8765	58.425	60.181	1.2618	58.919	136.97	1280.00
0.8765	0.8753	57.663	59.415	1.2565	58.158	136.96	1290.00
0.8753	0.8801	56.907	58.662	1.2512	57.411	136.94	1300.00
0.8801	0.8773	56.165	57.923	1.2460	56.677	136.92	1310.00
0.8773	0.8761	55.436	57.189	1.2410	55.948	136.90	1320.00
0.8761	0.8330	54.712	56.421	1.2358	55.185	136.89	1330.00
0.8330	0.7692	53.955	55.557	1.2304	54.327	136.87	1340.00
0.7692	0.7377	53.102	54.609	1.2243	53.385	136.85	1350.00
0.7377	0.7168	52.167	53.622	1.2177	52.404	136.83	1360.00
0.7168	0.7119	51.193	52.622	1.2107	51.411	136.81	1370.00
0.7119	0.7096	50.208	51.629	1.2036	50.426	136.78	1380.00
0.7096	0.7032	49.229	50.642	1.1964	49.446	136.76	1390.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE (ft)	TIME (min)
<---------- cfs min ---------->							
0.7032	0.7054	48.256	49.665	1.1893	48.476	136.74	1400.00
0.7054	0.7066	47.293	48.705	1.1822	47.523	136.71	1410.00
0.7066	0.7019	46.348	47.756	1.1753	46.581	136.69	1420.00
0.7019	0.7050	45.413	46.820	1.1682	45.651	136.67	1430.00
0.7050	0.7066	44.490	45.902	1.1613	44.741	136.65	1440.00
0.7066	0.5260	43.586	44.819	1.1545	43.664	136.63	1450.00
0.5260	0.2604	42.518	43.304	1.1465	42.158	136.60	1460.00
0.2604	0.1289	41.023	41.412	1.1349	40.277	136.57	1470.00
0.1289	0.0638	39.157	39.349	1.1205	38.229	136.53	1480.00
0.0638	0.0316	37.124	37.220	1.1046	36.115	136.48	1490.00
0.0316	0.0156	35.027	35.074	1.0878	33.987	136.43	1500.00
0.0156	0.0077	32.916	32.939	1.0708	31.868	136.38	1510.00
0.0077	0.0038	30.815	30.826	1.0535	29.773	136.33	1520.00
0.0038	0.0019	28.737	28.743	1.0362	27.706	136.28	1530.00
0.0019	0.0009	26.688	26.691	1.0187	25.672	136.23	1540.00
0.0009	0.0005	24.671	24.672	1.0013	23.671	136.19	1550.00
0.0005	0.0002	22.687	22.688	0.9838	21.704	136.14	1560.00
0.0002	0.0001	20.737	20.738	0.9665	19.771	136.10	1570.00
0.0001	0.0001	18.822	18.823	0.9488	17.874	136.05	1580.00
0.0001	0.0000	16.942	16.942	0.9315	16.011	136.01	1590.00
0.0000	0.0000	15.100	15.100	0.9105	14.190	135.96	1600.00
0.0000	0.0000	13.301	13.301	0.8890	12.412	135.90	1610.00
0.0000	0.0000	11.545	11.545	0.8671	10.678	135.85	1620.00
0.0000	0.0000	9.8320	9.8320	0.8457	8.9864	135.80	1630.00
0.0000	0.0000	8.1626	8.1626	0.8237	7.3389	135.76	1640.00
0.0000	0.0000	6.5366	6.5366	0.8023	5.7343	135.71	1650.00
0.0000	0.0000	4.9539	4.9539	0.7804	4.1735	135.66	1660.00
0.0000	0.0000	3.4147	3.4147	0.7589	2.6558	135.62	1670.00
0.0000	0.0000	1.9219	1.9219	0.7340	1.1879	135.57	1680.00
0.0000	0.0000	0.4809	0.4809	0.7070	-0.2262	135.52	1690.00

ROUTING REPORT

STORAGE LIST ID No. A
Description:

MULTIPLE ORIFICE ID No. A
Description:
Outlet Elev: 134.85
Elev: 134.85 ft Orifice Diameter: 5.6484 in.

ROUTING CURVE

STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min
134.85	0.0000	0.0000	0.0000	136.90	16574	1.2396	56.487	139.00	52955	1.7638	178.28
134.90	0.0000	0.1936	0.1936	137.00	17862	1.2695	60.810	139.10	53960	1.7849	181.65
135.00	0.0000	0.3353	0.3353	137.10	19459	1.2987	66.161	139.20	54964	1.8058	185.02
135.10	0.0000	0.4329	0.4329	137.20	21055	1.3272	71.511	139.30	55969	1.8264	188.39
135.20	0.0000	0.5122	0.5122	137.30	22652	1.3552	76.861	139.40	56973	1.8468	191.76
135.30	0.0000	0.5808	0.5808	137.40	24248	1.3826	82.211	139.50	57978	1.8670	195.13
135.40	0.0000	0.6421	0.6421	137.50	25845	1.4094	87.559	139.60	58982	1.8870	198.49
135.50	0.0000	0.6980	0.6980	137.60	27442	1.4358	92.908	139.70	59987	1.9067	201.86
135.60	830.50	0.7498	3.5181	137.70	29038	1.4616	98.256	139.80	60991	1.9263	205.23
135.70	1869	0.7982	7.0270	137.80	30635	1.4871	103.60	139.90	61996	1.9456	208.60
135.80	2907	0.8439	10.533	137.90	32231	1.5121	108.95	140.00	63000	1.9648	211.96
135.90	3945	0.8872	14.037	138.00	33828	1.5366	114.30	140.10	64500	1.9838	216.98
136.00	4983	0.9285	17.538	138.10	35741	1.5608	120.70	140.20	66000	2.0026	222.00
136.10	6271	0.9680	21.871	138.20	37653	1.5847	127.10	140.30	67500	2.0212	227.02
136.20	7559	1.0060	26.202	138.30	39566	1.6082	133.50	140.40	69000	2.0397	232.04
136.30	8847	1.0426	30.532	138.40	41479	1.6313	139.89	140.50	70500	2.0580	237.06
136.40	10135	1.0779	34.860	138.50	43392	1.6541	146.29	140.60	72000	2.0761	242.08
136.50	11423	1.1121	39.187	138.60	45304	1.6766	152.69	140.70	73500	2.0941	247.09
136.60	12710	1.1453	43.513	138.70	47217	1.6988	159.09	140.80	75000	2.1119	252.11
136.70	13998	1.1776	47.839	138.80	49130	1.7207	165.49	140.90	76500	2.1296	257.13
136.80	15286	1.2090	52.163	138.90	51042	1.7424	171.88				

LEVEL POOL ROUTING TABLE

MATCH Q (cfs) : 3.12 INFLOW Q (cfs): 8.82
PEAK STAGE (ft): 138.98 PEAK OUTFLOW : 1.76
PEAK TIME: 800.00 min.
INFLOW HYD No. : 6 OUTFLOW HYD No.: 11

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.0000	0.0023	0.0000	0.0023	0.0000	0.0023	134.85	40.00
0.0023	0.0255	0.0000	0.0278	0.0023	0.0255	134.85	50.00
0.0255	0.0753	0.0000	0.1008	0.0255	0.0753	134.85	60.00
0.0753	0.1703	0.0000	0.2456	0.0753	0.1703	134.85	70.00
0.1703	0.2994	0.0000	0.4697	0.1703	0.2994	135.50	80.00
0.2994	0.4187	0.0000	0.7181	0.2994	0.4187	135.50	90.00
0.4187	0.5234	0.0000	0.9421	0.4187	0.5234	135.50	100.00
0.5234	0.6131	0.0000	1.1365	0.5234	0.6131	135.50	110.00
0.6131	0.6895	0.0000	1.3026	0.6131	0.6895	135.50	120.00
0.6895	0.7895	0.0000	1.4789	0.6895	0.7895	135.50	130.00
0.7895	0.9053	0.0898	1.7845	0.6997	1.0848	135.50	140.00
0.9053	0.9889	0.3797	2.2739	0.7051	1.5688	135.51	150.00
0.9889	1.0481	0.8548	2.8918	0.7140	2.1778	135.53	160.00
1.0481	1.1016	1.4526	3.6024	0.7252	2.8772	135.55	170.00
1.1016	1.1447	2.1391	4.3854	0.7380	3.6474	135.58	180.00
1.1447	1.1754	2.8958	5.2158	0.7516	4.4642	135.60	190.00
1.1754	1.2085	3.7014	6.0852	0.7629	5.3224	135.63	200.00
1.2085	1.2361	4.5477	6.9923	0.7747	6.2176	135.65	210.00
1.2361	1.2542	5.4306	7.9208	0.7871	7.1338	135.68	220.00
1.2542	1.2775	6.3342	8.8659	0.7996	8.0662	135.70	230.00
1.2775	1.2969	7.2545	9.8289	0.8118	9.0171	135.73	240.00
1.2969	1.3600	8.1930	10.850	0.8241	10.026	135.76	250.00
1.3600	1.4449	9.1885	11.993	0.8373	11.156	135.79	260.00
1.4449	1.4942	10.305	13.244	0.8516	12.392	135.82	270.00
1.4942	1.5311	11.525	14.551	0.8669	13.684	135.85	280.00
1.5311	1.5505	12.801	15.882	0.8828	15.000	135.89	290.00
1.5505	1.5680	14.101	17.220	0.8985	16.321	135.93	300.00
1.5680	1.7930	15.407	18.768	0.9141	17.854	135.97	310.00
1.7930	2.1184	16.922	20.834	0.9313	19.903	136.01	320.00
2.1184	2.2939	18.953	23.365	0.9500	22.415	136.05	330.00
2.2939	2.3939	21.442	26.130	0.9728	25.157	136.11	340.00
2.3939	2.4554	24.160	29.009	0.9968	28.013	136.18	350.00
2.4554	2.4969	26.991	31.944	1.0213	30.922	136.24	360.00
2.4969	2.4756	29.877	34.849	1.0458	33.803	136.31	370.00
2.4756	2.4218	32.734	37.631	1.0693	36.562	136.38	380.00
2.4218	2.3962	35.471	40.289	1.0914	39.197	136.44	390.00
2.3962	2.3906	38.085	42.872	1.1122	41.760	136.50	400.00
2.3906	2.4010	40.628	45.419	1.1319	44.288	136.56	410.00
2.4010	2.4058	43.136	47.943	1.1511	46.792	136.62	420.00
2.4058	3.1411	45.622	51.169	1.1698	49.999	136.68	430.00
3.1411	4.2539	48.806	56.201	1.1933	55.008	136.75	440.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
4.2539	4.8282	53.779	62.861	1.2292	61.631	136.87	450.00
4.8282	6.1720	60.357	71.358	1.2740	70.084	137.02	460.00
6.1720	7.9120	68.764	82.848	1.3196	81.528	137.17	470.00
7.9120	8.8222	80.149	96.884	1.3791	95.504	137.39	480.00
8.8222	7.8936	94.056	110.77	1.4483	109.32	137.65	490.00
7.8936	6.0356	107.81	121.74	1.5138	120.23	137.91	500.00
6.0356	5.1224	118.67	129.82	1.5591	128.27	138.09	510.00
5.1224	4.5550	126.68	136.35	1.5890	134.76	138.22	520.00
4.5550	4.1650	133.15	141.87	1.6127	140.26	138.32	530.00
4.1650	3.9765	138.63	146.77	1.6326	145.14	138.41	540.00
3.9765	3.5852	143.49	151.05	1.6500	149.40	138.48	550.00
3.5852	3.0921	147.73	154.41	1.6650	152.74	138.55	560.00
3.0921	2.8499	151.07	157.01	1.6768	155.33	138.60	570.00
2.8499	2.7391	153.65	159.24	1.6858	157.55	138.64	580.00
2.7391	2.6789	155.86	161.27	1.6935	159.58	138.68	590.00
2.6789	2.6508	157.88	163.21	1.7005	161.51	138.71	600.00
2.6508	2.5806	159.80	165.03	1.7071	163.33	138.74	610.00
2.5806	2.4893	161.61	166.68	1.7133	164.97	138.77	620.00
2.4893	2.4454	163.25	168.19	1.7190	166.47	138.79	630.00
2.4454	2.4178	164.74	169.61	1.7241	167.88	138.82	640.00
2.4178	2.4127	166.15	170.98	1.7289	169.25	138.84	650.00
2.4127	2.4114	167.52	172.35	1.7335	170.61	138.86	660.00
2.4114	2.2879	168.87	173.57	1.7381	171.83	138.88	670.00
2.2879	2.1036	170.09	174.48	1.7422	172.74	138.90	680.00
2.1036	2.0131	171.00	175.11	1.7453	173.37	138.91	690.00
2.0131	1.9763	171.62	175.61	1.7474	173.86	138.92	700.00
1.9763	1.9516	172.11	176.04	1.7490	174.29	138.93	710.00
1.9516	1.9400	172.54	176.43	1.7504	174.68	138.94	720.00
1.9400	1.9423	172.93	176.81	1.7518	175.06	138.94	730.00
1.9423	1.9368	173.31	177.19	1.7530	175.44	138.95	740.00
1.9368	1.9348	173.68	177.55	1.7543	175.80	138.96	750.00
1.9348	1.9418	174.04	177.92	1.7555	176.16	138.96	760.00
1.9418	1.9386	174.41	178.29	1.7567	176.53	138.97	770.00
1.9386	1.9376	174.77	178.65	1.7579	176.89	138.97	780.00
1.9376	1.8200	175.13	178.89	1.7591	177.13	138.98	790.00
1.8200	1.6371	175.37	178.83	1.7599	177.07	138.98	800.00
1.6371	1.5469	175.31	178.49	1.7597	176.73	138.98	810.00
1.5469	1.5026	174.97	178.02	1.7586	176.26	138.98	820.00
1.5026	1.4810	174.51	177.49	1.7570	175.73	138.97	830.00
1.4810	1.4706	173.98	176.93	1.7553	175.17	138.96	840.00
1.4706	1.5249	173.42	176.42	1.7534	174.66	138.95	850.00
1.5249	1.6185	172.91	176.06	1.7517	174.30	138.94	860.00
1.6185	1.6653	172.55	175.84	1.7505	174.09	138.94	870.00
1.6653	1.6815	172.34	175.68	1.7498	173.93	138.93	880.00
1.6815	1.6974	172.18	175.56	1.7492	173.81	138.93	890.00
1.6974	1.7056	172.07	175.47	1.7488	173.72	138.93	900.00
1.7056	1.7027	171.97	175.38	1.7485	173.63	138.93	910.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
1.7027	1.7091	171.88	175.29	1.7482	173.55	138.93	920.00
1.7091	1.7127	171.80	175.22	1.7480	173.47	138.93	930.00
1.7127	1.7074	171.72	175.14	1.7477	173.40	138.92	940.00
1.7074	1.7126	171.65	175.07	1.7475	173.32	138.92	950.00
1.7126	1.7156	171.57	175.00	1.7472	173.26	138.92	960.00
1.7156	1.5244	171.51	174.75	1.7470	173.00	138.92	970.00
1.5244	1.2519	171.26	174.03	1.7461	172.29	138.92	980.00
1.2519	1.1171	170.54	172.91	1.7437	171.17	138.91	990.00
1.1171	1.0431	169.43	171.59	1.7400	169.85	138.89	1000.00
1.0431	1.0140	168.11	170.17	1.7355	168.43	138.87	1010.00
1.0140	0.9997	166.70	168.72	1.7307	166.99	138.85	1020.00
0.9997	1.1117	165.26	167.37	1.7258	165.65	138.82	1030.00
1.1117	1.2937	163.92	166.33	1.7213	164.61	138.80	1040.00
1.2937	1.3840	162.89	165.57	1.7177	163.85	138.79	1050.00
1.3840	1.4290	162.14	164.95	1.7151	163.23	138.77	1060.00
1.4290	1.4515	161.52	164.40	1.7130	162.69	138.76	1070.00
1.4515	1.4629	160.98	163.89	1.7112	162.18	138.76	1080.00
1.4629	1.4092	160.47	163.34	1.7094	161.63	138.75	1090.00
1.4092	1.3158	159.93	162.65	1.7075	160.94	138.74	1100.00
1.3158	1.2697	159.24	161.82	1.7052	160.12	138.73	1110.00
1.2697	1.4782	158.42	161.16	1.7024	159.46	138.72	1120.00
1.4782	1.3504	157.76	160.59	1.7001	158.89	138.71	1130.00
1.3504	1.0637	157.19	159.61	1.6981	157.91	138.70	1140.00
1.0637	1.1531	156.21	158.43	1.6947	156.74	138.68	1150.00
1.1531	1.1900	155.04	157.39	1.6907	155.70	138.66	1160.00
1.1900	1.2084	154.01	156.41	1.6871	154.72	138.65	1170.00
1.2084	1.2252	153.04	155.47	1.6837	153.79	138.63	1180.00
1.2252	1.2261	152.11	154.56	1.6804	152.88	138.62	1190.00
1.2261	1.2268	151.20	153.65	1.6773	151.98	138.60	1200.00
1.2268	1.2347	150.30	152.76	1.6741	151.09	138.59	1210.00
1.2347	1.2313	149.42	151.88	1.6710	150.21	138.57	1220.00
1.2313	1.2298	148.55	151.01	1.6679	149.34	138.56	1230.00
1.2298	1.2367	147.67	150.14	1.6648	148.48	138.55	1240.00
1.2367	1.2328	146.81	149.28	1.6618	147.62	138.53	1250.00
1.2328	1.2310	145.96	148.43	1.6588	146.77	138.52	1260.00
1.2310	1.2377	145.11	147.58	1.6558	145.93	138.51	1270.00
1.2377	1.2337	144.27	146.74	1.6528	145.09	138.49	1280.00
1.2337	1.2319	143.44	145.91	1.6498	144.26	138.48	1290.00
1.2319	1.2386	142.61	145.08	1.6469	143.43	138.47	1300.00
1.2386	1.2346	141.79	144.26	1.6439	142.62	138.46	1310.00
1.2346	1.2327	140.98	143.45	1.6410	141.80	138.44	1320.00
1.2327	1.1720	140.17	142.57	1.6381	140.93	138.43	1330.00
1.1720	1.0821	139.30	141.55	1.6350	139.92	138.42	1340.00
1.0821	1.0377	138.29	140.41	1.6314	138.77	138.40	1350.00
1.0377	1.0083	137.15	139.19	1.6272	137.57	138.38	1360.00
1.0083	1.0014	135.94	137.95	1.6229	136.33	138.36	1370.00
1.0014	0.9980	134.71	136.71	1.6184	135.09	138.34	1380.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.9980	0.9889	133.48	135.46	1.6139	133.85	138.32	1390.00
0.9889	0.9920	132.24	134.22	1.6094	132.61	138.31	1400.00
0.9920	0.9936	131.01	132.99	1.6049	131.39	138.29	1410.00
0.9936	0.9870	129.79	131.77	1.6004	130.17	138.27	1420.00
0.9870	0.9913	128.57	130.55	1.5960	128.95	138.25	1430.00
0.9913	0.9935	127.36	129.35	1.5915	127.76	138.23	1440.00
0.9935	0.7395	126.17	127.90	1.5871	126.32	138.21	1450.00
0.7395	0.3661	124.73	125.84	1.5818	124.26	138.19	1460.00
0.3661	0.1812	122.68	123.23	1.5741	121.66	138.16	1470.00
0.1812	0.0897	120.09	120.36	1.5644	118.80	138.12	1480.00
0.0897	0.0444	117.24	117.38	1.5537	115.83	138.07	1490.00
0.0444	0.0220	114.28	114.35	1.5424	112.81	138.02	1500.00
0.0220	0.0109	111.28	111.31	1.5298	109.78	137.97	1510.00
0.0109	0.0054	108.26	108.28	1.5159	106.76	137.92	1520.00
0.0054	0.0027	105.26	105.27	1.5018	103.77	137.86	1530.00
0.0027	0.0013	102.28	102.29	1.4878	100.80	137.80	1540.00
0.0013	0.0007	99.324	99.326	1.4737	97.852	137.75	1550.00
0.0007	0.0003	96.392	96.393	1.4597	94.934	137.69	1560.00
0.0003	0.0002	93.488	93.488	1.4456	92.043	137.64	1570.00
0.0002	0.0001	90.611	90.612	1.4315	89.180	137.58	1580.00
0.0001	0.0000	87.763	87.763	1.4174	86.345	137.53	1590.00
0.0000	0.0000	84.942	84.942	1.4033	83.539	137.48	1600.00
0.0000	0.0000	82.150	82.150	1.3892	80.760	137.42	1610.00
0.0000	0.0000	79.385	79.385	1.3752	78.010	137.37	1620.00
0.0000	0.0000	76.649	76.649	1.3611	75.288	137.32	1630.00
0.0000	0.0000	73.941	73.941	1.3470	72.594	137.27	1640.00
0.0000	0.0000	71.261	71.261	1.3329	69.928	137.22	1650.00
0.0000	0.0000	68.609	68.609	1.3188	67.291	137.17	1660.00
0.0000	0.0000	65.986	65.986	1.3047	64.681	137.12	1670.00
0.0000	0.0000	63.390	63.390	1.2906	62.100	137.07	1680.00
0.0000	0.0000	60.823	60.823	1.2766	59.547	137.02	1690.00
0.0000	0.0000	58.286	58.286	1.2608	57.025	136.97	1700.00
0.0000	0.0000	55.782	55.782	1.2434	54.538	136.91	1710.00
0.0000	0.0000	53.313	53.313	1.2258	52.087	136.85	1720.00
0.0000	0.0000	50.878	50.878	1.2085	49.670	136.80	1730.00
0.0000	0.0000	48.479	48.479	1.1909	47.288	136.74	1740.00
0.0000	0.0000	46.114	46.114	1.1735	44.941	136.69	1750.00
0.0000	0.0000	43.785	43.785	1.1560	42.629	136.63	1760.00
0.0000	0.0000	41.490	41.490	1.1386	40.352	136.58	1770.00
0.0000	0.0000	39.231	39.231	1.1211	38.110	136.53	1780.00
0.0000	0.0000	37.006	37.006	1.1036	35.902	136.48	1790.00
0.0000	0.0000	34.816	34.816	1.0862	33.730	136.42	1800.00
0.0000	0.0000	32.661	32.661	1.0687	31.593	136.37	1810.00
0.0000	0.0000	30.541	30.541	1.0512	29.490	136.32	1820.00
0.0000	0.0000	28.456	28.456	1.0338	27.423	136.28	1830.00
0.0000	0.0000	26.406	26.406	1.0163	25.390	136.23	1840.00
0.0000	0.0000	24.391	24.391	0.9989	23.392	136.18	1850.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.0000	0.0000	22.411	22.411	0.9813	21.430	136.14	1860.00
0.0000	0.0000	20.466	20.466	0.9640	19.502	136.09	1870.00
0.0000	0.0000	18.555	18.555	0.9464	17.609	136.05	1880.00
0.0000	0.0000	16.680	16.680	0.9291	15.751	136.00	1890.00
0.0000	0.0000	14.843	14.843	0.9074	13.936	135.95	1900.00
0.0000	0.0000	13.050	13.050	0.8859	12.164	135.90	1910.00
0.0000	0.0000	11.300	11.300	0.8640	10.436	135.85	1920.00
0.0000	0.0000	9.5935	9.5935	0.8426	8.7509	135.80	1930.00
0.0000	0.0000	7.9302	7.9302	0.8207	7.1095	135.75	1940.00
0.0000	0.0000	6.3102	6.3102	0.7993	5.5109	135.70	1950.00
0.0000	0.0000	4.7336	4.7336	0.7773	3.9563	135.66	1960.00
0.0000	0.0000	3.2004	3.2004	0.7559	2.4446	135.61	1970.00
0.0000	0.0000	1.7145	1.7145	0.7301	0.9844	135.56	1980.00
0.0000	0.0000	0.2811	0.2811	0.7033	-0.4222	135.51	1990.00

ROUTING REPORT

STORAGE LIST ID No. A
Description:

MULTIPLE ORIFICE ID No. A
Description:
Outlet Elev: 134.85
Elev: 134.85 ft Orifice Diameter: 5.6484 in.

ROUTING CURVE

STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min	STAGE (ft)	STORAGE (cf)	OUTFLOW (cfs)	O+2S cfs-min
134.85	0.0000	0.0000	0.0000	136.90	16574	1.2396	56.487	139.00	52955	1.7638	178.28
134.90	0.0000	0.1936	0.1936	137.00	17862	1.2695	60.810	139.10	53960	1.7849	181.65
135.00	0.0000	0.3353	0.3353	137.10	19459	1.2987	66.161	139.20	54964	1.8058	185.02
135.10	0.0000	0.4329	0.4329	137.20	21055	1.3272	71.511	139.30	55969	1.8264	188.39
135.20	0.0000	0.5122	0.5122	137.30	22652	1.3552	76.861	139.40	56973	1.8468	191.76
135.30	0.0000	0.5808	0.5808	137.40	24248	1.3826	82.211	139.50	57978	1.8670	195.13
135.40	0.0000	0.6421	0.6421	137.50	25845	1.4094	87.559	139.60	58982	1.8870	198.49
135.50	0.0000	0.6980	0.6980	137.60	27442	1.4358	92.908	139.70	59987	1.9067	201.86
135.60	830.50	0.7498	3.5181	137.70	29038	1.4616	98.256	139.80	60991	1.9263	205.23
135.70	1869	0.7982	7.0270	137.80	30635	1.4871	103.60	139.90	61996	1.9456	208.60
135.80	2907	0.8439	10.533	137.90	32231	1.5121	108.95	140.00	63000	1.9648	211.96
135.90	3945	0.8872	14.037	138.00	33828	1.5366	114.30	140.10	64500	1.9838	216.98
136.00	4983	0.9285	17.538	138.10	35741	1.5608	120.70	140.20	66000	2.0026	222.00
136.10	6271	0.9680	21.871	138.20	37653	1.5847	127.10	140.30	67500	2.0212	227.02
136.20	7559	1.0060	26.202	138.30	39566	1.6082	133.50	140.40	69000	2.0397	232.04
136.30	8847	1.0426	30.532	138.40	41479	1.6313	139.89	140.50	70500	2.0580	237.06
136.40	10135	1.0779	34.860	138.50	43392	1.6541	146.29	140.60	72000	2.0761	242.08
136.50	11423	1.1121	39.187	138.60	45304	1.6766	152.69	140.70	73500	2.0941	247.09
136.60	12710	1.1453	43.513	138.70	47217	1.6988	159.09	140.80	75000	2.1119	252.11
136.70	13998	1.1776	47.839	138.80	49130	1.7207	165.49	140.90	76500	2.1296	257.13
136.80	15286	1.2090	52.163	138.90	51042	1.7424	171.88				

LEVEL POOL ROUTING TABLE

MATCH Q (cfs) : 4.00 INFLOW Q (cfs): 10.10
PEAK STAGE (ft): 140.06 PEAK OUTFLOW : 1.98
PEAK TIME: 800.00 min.
INFLOW HYD No. : 7 OUTFLOW HYD No.: 12

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.0000	0.0108	0.0000	0.0108	0.0000	0.0108	134.85	40.00
0.0108	0.0546	0.0000	0.0654	0.0108	0.0546	135.50	50.00
0.0546	0.1252	0.0000	0.1798	0.0546	0.1252	135.50	60.00
0.1252	0.2471	0.0000	0.3723	0.1252	0.2471	135.50	70.00
0.2471	0.4071	0.0000	0.6542	0.2471	0.4071	135.50	80.00
0.4071	0.5481	0.0000	0.9552	0.4071	0.5481	135.50	90.00
0.5481	0.6678	0.0000	1.2158	0.5481	0.6678	135.50	100.00
0.6678	0.7681	0.0000	1.4358	0.6678	0.7681	135.50	110.00
0.7681	0.8518	0.0687	1.6886	0.6993	0.9893	135.50	120.00
0.8518	0.9641	0.2859	2.1019	0.7034	1.3985	135.51	130.00
0.9641	1.0953	0.6876	2.7470	0.7109	2.0362	135.52	140.00
1.0953	1.1875	1.3136	3.5963	0.7226	2.8737	135.55	150.00
1.1875	1.2507	2.1358	4.5739	0.7380	3.8359	135.58	160.00
1.2507	1.3074	3.0818	5.6399	0.7542	4.8857	135.61	170.00
1.3074	1.3523	4.1170	6.7767	0.7687	6.0081	135.64	180.00
1.3523	1.3831	5.2239	7.9594	0.7842	7.1752	135.67	190.00
1.3831	1.4173	6.3750	9.1755	0.8002	8.3753	135.70	200.00
1.4173	1.4453	7.5595	10.422	0.8158	9.6063	135.74	210.00
1.4453	1.4626	8.7745	11.682	0.8318	10.851	135.77	220.00
1.4626	1.4863	10.003	12.952	0.8478	12.104	135.81	230.00
1.4863	1.5058	11.241	14.233	0.8633	13.370	135.84	240.00
1.5058	1.5760	12.491	15.572	0.8789	14.693	135.88	250.00
1.5760	1.6719	13.799	17.046	0.8949	16.152	135.92	260.00
1.6719	1.7289	15.239	18.640	0.9121	17.728	135.96	270.00
1.7289	1.7740	16.798	20.301	0.9302	19.371	136.00	280.00
1.7740	1.7986	18.425	21.998	0.9452	21.053	136.04	290.00
1.7986	1.8195	20.092	23.710	0.9605	22.750	136.08	300.00
1.8195	2.0796	21.774	25.673	0.9757	24.698	136.12	310.00
2.0796	2.4549	23.705	28.239	0.9928	27.246	136.17	320.00
2.4549	2.6557	26.232	31.342	1.0148	30.327	136.22	330.00
2.6557	2.7687	29.286	34.711	1.0408	33.670	136.30	340.00
2.7687	2.8373	32.602	38.208	1.0682	37.140	136.37	350.00
2.8373	2.8828	36.044	41.764	1.0959	40.668	136.45	360.00
2.8828	2.8561	39.544	45.283	1.1235	44.160	136.53	370.00
2.8561	2.7921	43.009	48.658	1.1502	47.507	136.61	380.00
2.7921	2.7608	46.332	51.885	1.1751	50.710	136.69	390.00
2.7608	2.7527	49.512	55.025	1.1985	53.827	136.77	400.00
2.7527	2.7632	52.606	58.122	1.2208	56.901	136.84	410.00
2.7632	2.7674	55.658	61.189	1.2425	59.947	136.91	420.00
2.7674	3.6107	58.683	65.061	1.2636	63.798	136.98	430.00
3.6107	4.8868	62.512	71.009	1.2858	69.723	137.06	440.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
4.8868	5.5430	68.406	78.835	1.3177	77.518	137.17	450.00
5.5430	7.0799	76.159	88.782	1.3586	87.424	137.31	460.00
7.0799	9.0687	86.015	102.16	1.4087	100.75	137.50	470.00
9.0687	10.104	99.281	118.45	1.4735	116.98	137.75	480.00
10.104	9.0361	115.43	134.57	1.5468	133.03	138.04	490.00
9.0361	6.9063	131.42	147.36	1.6064	145.76	138.29	500.00
6.9063	5.8589	144.10	156.87	1.6522	155.22	138.49	510.00
5.8589	5.2080	153.53	164.60	1.6854	162.91	138.64	520.00
5.2080	4.7606	161.20	171.17	1.7119	169.46	138.76	530.00
4.7606	4.5438	167.72	177.03	1.7342	175.29	138.86	540.00
4.5438	4.0957	173.54	182.18	1.7538	180.43	138.95	550.00
4.0957	3.5317	178.65	186.28	1.7772	184.50	139.06	560.00
3.5317	3.2545	182.70	189.48	1.8026	187.68	139.18	570.00
3.2545	3.1274	185.86	192.24	1.8221	190.42	139.28	580.00
3.1274	3.0582	188.58	194.77	1.8387	192.93	139.36	590.00
3.0582	3.0257	191.07	197.16	1.8538	195.30	139.43	600.00
3.0257	2.9452	193.43	199.41	1.8681	197.54	139.51	610.00
2.9452	2.8406	195.66	201.44	1.8813	199.56	139.57	620.00
2.8406	2.7903	197.67	203.30	1.8932	201.41	139.63	630.00
2.7903	2.7584	199.50	205.05	1.9041	203.15	139.69	640.00
2.7584	2.7522	201.23	206.74	1.9142	204.83	139.74	650.00
2.7522	2.7505	202.90	208.41	1.9240	206.48	139.79	660.00
2.7505	2.6094	204.55	209.91	1.9335	207.98	139.84	670.00
2.6094	2.3990	206.03	211.04	1.9421	209.10	139.88	680.00
2.3990	2.2956	207.15	211.85	1.9485	209.90	139.91	690.00
2.2956	2.2535	207.94	212.49	1.9530	210.54	139.94	700.00
2.2535	2.2251	208.58	213.06	1.9567	211.11	139.96	710.00
2.2251	2.2117	209.15	213.58	1.9599	211.62	139.97	720.00
2.2117	2.2142	209.66	214.09	1.9629	212.12	139.99	730.00
2.2142	2.2077	210.16	214.58	1.9654	212.61	140.00	740.00
2.2077	2.2052	210.65	215.06	1.9673	213.09	140.01	750.00
2.2052	2.2130	211.12	215.54	1.9691	213.57	140.02	760.00
2.2130	2.2092	211.60	216.02	1.9709	214.05	140.03	770.00
2.2092	2.2080	212.08	216.50	1.9727	214.52	140.04	780.00
2.2080	2.0738	212.55	216.83	1.9745	214.86	140.05	790.00
2.0738	1.8653	212.88	216.82	1.9758	214.84	140.06	800.00
1.8653	1.7624	212.87	216.50	1.9757	214.52	140.06	810.00
1.7624	1.7118	212.55	216.02	1.9745	214.05	140.05	820.00
1.7118	1.6871	212.07	215.47	1.9727	213.50	140.04	830.00
1.6871	1.6753	211.53	214.89	1.9706	212.92	140.03	840.00
1.6753	1.7370	210.95	214.36	1.9684	212.40	140.02	850.00
1.7370	1.8436	210.43	214.01	1.9664	212.04	140.01	860.00
1.8436	1.8968	210.08	213.82	1.9651	211.85	140.00	870.00
1.8968	1.9151	209.89	213.70	1.9642	211.74	140.00	880.00
1.9151	1.9331	209.77	213.62	1.9635	211.66	139.99	890.00
1.9331	1.9424	209.70	213.57	1.9631	211.61	139.99	900.00
1.9424	1.9390	209.65	213.53	1.9628	211.56	139.99	910.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
1.9390	1.9461	209.60	213.49	1.9625	211.52	139.99	920.00
1.9461	1.9501	209.56	213.46	1.9623	211.50	139.99	930.00
1.9501	1.9440	209.53	213.43	1.9621	211.46	139.99	940.00
1.9440	1.9498	209.50	213.40	1.9620	211.43	139.99	950.00
1.9498	1.9531	209.47	213.38	1.9618	211.41	139.98	960.00
1.9531	1.7354	209.45	213.14	1.9617	211.18	139.98	970.00
1.7354	1.4251	209.22	212.38	1.9603	210.42	139.98	980.00
1.4251	1.2717	208.46	211.16	1.9560	209.20	139.95	990.00
1.2717	1.1873	207.25	209.71	1.9491	207.76	139.92	1000.00
1.1873	1.1542	205.82	208.17	1.9409	206.22	139.88	1010.00
1.1542	1.1379	204.29	206.58	1.9320	204.65	139.83	1020.00
1.1379	1.2653	202.73	205.13	1.9229	203.21	139.78	1030.00
1.2653	1.4723	201.30	204.03	1.9146	202.12	139.74	1040.00
1.4723	1.5751	200.21	203.26	1.9082	201.35	139.71	1050.00
1.5751	1.6262	199.45	202.65	1.9037	200.74	139.68	1060.00
1.6262	1.6518	198.84	202.12	1.9002	200.22	139.67	1070.00
1.6518	1.6647	198.32	201.64	1.8971	199.74	139.65	1080.00
1.6647	1.6036	197.85	201.12	1.8943	199.22	139.64	1090.00
1.6036	1.4972	197.33	200.43	1.8912	198.54	139.62	1100.00
1.4972	1.4448	196.65	199.60	1.8873	197.71	139.60	1110.00
1.4448	1.6818	195.83	198.95	1.8823	197.07	139.58	1120.00
1.6818	1.5365	195.19	198.41	1.8785	196.53	139.56	1130.00
1.5365	1.2102	194.66	197.40	1.8753	195.53	139.54	1140.00
1.2102	1.3118	193.66	196.18	1.8694	194.31	139.51	1150.00
1.3118	1.3538	192.45	195.11	1.8621	193.25	139.48	1160.00
1.3538	1.3747	191.40	194.13	1.8558	192.27	139.44	1170.00
1.3747	1.3937	190.42	193.19	1.8499	191.34	139.42	1180.00
1.3937	1.3948	189.49	192.28	1.8443	190.44	139.39	1190.00
1.3948	1.3955	188.60	191.39	1.8388	189.55	139.36	1200.00
1.3955	1.4045	187.72	190.52	1.8335	188.68	139.33	1210.00
1.4045	1.4006	186.86	189.66	1.8282	187.83	139.31	1220.00
1.4006	1.3988	186.01	188.81	1.8230	186.99	139.28	1230.00
1.3988	1.4066	185.17	187.97	1.8178	186.16	139.26	1240.00
1.4066	1.4021	184.34	187.15	1.8127	185.34	139.23	1250.00
1.4021	1.4000	183.53	186.33	1.8077	184.53	139.21	1260.00
1.4000	1.4076	182.72	185.53	1.8027	183.73	139.19	1270.00
1.4076	1.4030	181.93	184.74	1.7978	182.94	139.16	1280.00
1.4030	1.4009	181.15	183.95	1.7929	182.16	139.14	1290.00
1.4009	1.4085	180.37	183.18	1.7881	181.39	139.12	1300.00
1.4085	1.4039	179.61	182.42	1.7833	180.64	139.09	1310.00
1.4039	1.4017	178.86	181.67	1.7786	179.89	139.07	1320.00
1.4017	1.3327	178.11	180.85	1.7739	179.07	139.05	1330.00
1.3327	1.2304	177.31	179.87	1.7688	178.10	139.02	1340.00
1.2304	1.1799	176.34	178.75	1.7632	176.98	139.00	1350.00
1.1799	1.1465	175.23	177.55	1.7594	175.79	138.98	1360.00
1.1465	1.1385	174.04	176.32	1.7555	174.57	138.96	1370.00
1.1385	1.1347	172.81	175.09	1.7514	173.34	138.94	1380.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
1.1347	1.1243	171.59	173.85	1.7473	172.10	138.92	1390.00
1.1243	1.1278	170.36	172.61	1.7431	170.87	138.90	1400.00
1.1278	1.1296	169.13	171.39	1.7390	169.65	138.88	1410.00
1.1296	1.1221	167.91	170.16	1.7348	168.43	138.87	1420.00
1.1221	1.1270	166.70	168.95	1.7307	167.22	138.85	1430.00
1.1270	1.1295	165.49	167.75	1.7266	166.02	138.83	1440.00
1.1295	0.8407	164.30	166.27	1.7226	164.54	138.81	1450.00
0.8407	0.4162	162.83	164.08	1.7175	162.37	138.79	1460.00
0.4162	0.2060	160.66	161.28	1.7101	159.57	138.75	1470.00
0.2060	0.1020	157.87	158.18	1.7005	156.48	138.71	1480.00
0.1020	0.0505	154.79	154.94	1.6898	153.25	138.66	1490.00
0.0505	0.0250	151.57	151.65	1.6786	149.97	138.61	1500.00
0.0250	0.0124	148.30	148.34	1.6670	146.67	138.56	1510.00
0.0124	0.0061	145.01	145.03	1.6554	143.38	138.51	1520.00
0.0061	0.0030	141.73	141.74	1.6437	140.10	138.45	1530.00
0.0030	0.0015	138.47	138.47	1.6320	136.84	138.40	1540.00
0.0015	0.0007	135.22	135.22	1.6203	133.60	138.35	1550.00
0.0007	0.0004	131.99	131.99	1.6085	130.39	138.30	1560.00
0.0004	0.0002	128.79	128.79	1.5967	127.19	138.25	1570.00
0.0002	0.0001	125.61	125.61	1.5850	124.02	138.20	1580.00
0.0001	0.0000	122.45	122.45	1.5732	120.88	138.15	1590.00
0.0000	0.0000	119.32	119.32	1.5615	117.75	138.10	1600.00
0.0000	0.0000	116.20	116.20	1.5497	114.65	138.05	1610.00
0.0000	0.0000	113.12	113.12	1.5380	111.58	138.01	1620.00
0.0000	0.0000	110.05	110.05	1.5241	108.53	137.95	1630.00
0.0000	0.0000	107.02	107.02	1.5101	105.51	137.89	1640.00
0.0000	0.0000	104.01	104.01	1.4960	102.52	137.84	1650.00
0.0000	0.0000	101.04	101.04	1.4819	99.554	137.78	1660.00
0.0000	0.0000	98.086	98.086	1.4678	96.619	137.72	1670.00
0.0000	0.0000	95.165	95.165	1.4537	93.711	137.67	1680.00
0.0000	0.0000	92.271	92.271	1.4397	90.832	137.62	1690.00
0.0000	0.0000	89.406	89.406	1.4255	87.981	137.56	1700.00
0.0000	0.0000	86.569	86.569	1.4115	85.158	137.51	1710.00
0.0000	0.0000	83.760	83.760	1.3974	82.363	137.46	1720.00
0.0000	0.0000	80.980	80.980	1.3833	79.596	137.40	1730.00
0.0000	0.0000	78.227	78.227	1.3692	76.858	137.35	1740.00
0.0000	0.0000	75.503	75.503	1.3552	74.148	137.30	1750.00
0.0000	0.0000	72.807	72.807	1.3410	71.466	137.25	1760.00
0.0000	0.0000	70.138	70.138	1.3270	68.811	137.20	1770.00
0.0000	0.0000	67.499	67.499	1.3128	66.186	137.15	1780.00
0.0000	0.0000	64.887	64.887	1.2988	63.588	137.10	1790.00
0.0000	0.0000	62.303	62.303	1.2847	61.019	137.05	1800.00
0.0000	0.0000	59.748	59.748	1.2707	58.477	137.00	1810.00
0.0000	0.0000	57.224	57.224	1.2534	55.971	136.95	1820.00
0.0000	0.0000	54.735	54.735	1.2360	53.499	136.89	1830.00
0.0000	0.0000	52.280	52.280	1.2185	51.062	136.83	1840.00
0.0000	0.0000	49.861	49.861	1.2010	48.660	136.77	1850.00

LEVEL POOL ROUTING TABLE

LEVEL POOL ROUTING TABLE

I1	I2	2S1	SUM	O1	O2+2S2	STAGE	TIME
<---------- cfs min ---------->						(ft)	(min)
0.0000	0.0000	47.476	47.476	1.1836	46.293	136.72	1860.00
0.0000	0.0000	45.126	45.126	1.1661	43.960	136.66	1870.00
0.0000	0.0000	42.812	42.812	1.1487	41.663	136.61	1880.00
0.0000	0.0000	40.532	40.532	1.1311	39.401	136.56	1890.00
0.0000	0.0000	38.287	38.287	1.1138	37.173	136.50	1900.00
0.0000	0.0000	36.077	36.077	1.0962	34.981	136.45	1910.00
0.0000	0.0000	33.902	33.902	1.0789	32.823	136.40	1920.00
0.0000	0.0000	31.762	31.762	1.0613	30.700	136.35	1930.00
0.0000	0.0000	29.656	29.656	1.0439	28.613	136.30	1940.00
0.0000	0.0000	27.586	27.586	1.0263	26.560	136.26	1950.00
0.0000	0.0000	25.551	25.551	1.0090	24.542	136.21	1960.00
0.0000	0.0000	23.550	23.550	0.9914	22.559	136.16	1970.00
0.0000	0.0000	21.585	21.585	0.9740	20.611	136.12	1980.00
0.0000	0.0000	19.654	19.654	0.9565	18.698	136.07	1990.00
0.0000	0.0000	17.759	17.759	0.9390	16.820	136.03	2000.00
0.0000	0.0000	15.900	15.900	0.9200	14.980	135.98	2010.00
0.0000	0.0000	14.082	14.082	0.8983	13.183	135.93	2020.00
0.0000	0.0000	12.307	12.307	0.8766	11.430	135.88	2030.00
0.0000	0.0000	10.575	10.575	0.8550	9.7201	135.83	2040.00
0.0000	0.0000	8.8868	8.8868	0.8333	8.0535	135.78	2050.00
0.0000	0.0000	7.2419	7.2419	0.8116	6.4303	135.73	2060.00
0.0000	0.0000	5.6403	5.6403	0.7900	4.8503	135.68	2070.00
0.0000	0.0000	4.0821	4.0821	0.7682	3.3139	135.64	2080.00
0.0000	0.0000	2.5678	2.5678	0.7461	1.8218	135.59	2090.00
0.0000	0.0000	1.1031	1.1031	0.7187	0.3845	135.54	2100.00
0.0000	0.0000	0.0000	0.0000	0.3845	-0.3845	135.50	2110.00

PIPES HAVE BEEN DESIGNED TO CONVEY THE 25 YR STORM FOR EXISTING AND FUTURE EXPANSION. FLOWS WERE GENERATED USING THE SCS BASED SOFTWARE PROGRAM "WATERWORKS"

GROUP MACKENZIE
0690 SW Bancroft St/PO Box 69039 Portland, OR 97201-0039
Tel: 503.224.9560 Net: info@grpmack.com Fax: 503.228.1285

By _____
Date _____
Job # _____
Sht. _____ of _____

AREAS FOR PIPE SIZING - 'X'

ID	AREA (AC)
CB	
#1	0.26
#2	0.07
#3	0.05
#4	0.05
#5	0.24
#6	0.09
#7	0.08
#8	0.08
#9	0.10
#10	0.12
#11	0.11
#12	0.11
#13	0.11
#14	0.20
#15	0.21
#16	0.21
#17	0.11
#18	0.11
#19	0.06
#20	0.06
#21	

ID	AREA (AC)
#21	0.26
#22	0.10
#23	0.25
#24	0.25
#25	0.15
#26	0.19
#27	0.14
#28	0.10
#29	0.16
#30	0.17
#31	0.13
#32	0.03
#33	0.03
#34	0.06
#35	0.21
#36	0.12
#37	0.17
#38	0.19
#38A	0.12
#39	0.15
#40	0.36
#41	0.15

ID	AREA (AC)
#42	0.21
#43	0.36
#44	0.07
#45	0.20
#46	0.25
#47	0.29
#48	0.26
#49	0.13
#50	0.18
#51	0.11
#52	0.18
#53	0.21
#54	0.12
#55	0.15
#56	0.03
#57	0.04
DITCH INLET	
#1	0.46
#2	1.0
#3	0.28

By _____

Date _____

Job # _____

Sht. _____ of _____

GROUP MACKENZIE
0690 SW Bancroft St/PO Box 69039 Portland, OR 97201-0039
Tel: 503.224.9560 Net: info@grpmack.com Fax: 503.228.1285

AREAS FOR PIPE SIZING

ID	AREA (Ac)
RD	
#1	0.06
#2	0.06
#3	0.06
#4	0.06
#5	0.06
#6	0.06
#7	0.06
#8	0.06
#9	0.06
#10	0.23
#11	0.22
#12	0.08
#13	0.08
#14	0.08
#15	0.20
#16	0.20
#17	0.15
#18	0.15
#19	0.28
#20	0.28
#21	0.28

ID	AREA (Ac)
#22	0.15
#23	0.15
#24	0.15
#25	0.15
#26	0.15
#27	0.15
FUTURE	
#1	3.40
#2	3.50
#3	0.35

By _____

Date _____

Job # _____

Sht. _____ of _____

GROUP MACKENZIE
0690 SW Bancroft St/PO Box 69039 Portland, OR 97201-0039
Tel: 503.224.9560 Net: info@grpmack.com Fax: 503.228.1285

PIPE SIZING

BASIN RESULT SUMMARY

BASIN	-----VOLUME----		-RATE-	----TIME-----		Hydrograph	Area
ID	---cf--	Ac-ft	--cfs-	-min-	hours	Methodology	Acres
CB1	3459	0.08	0.21	480	8.00	SBUH Method	0.26
CB10	1597	0.04	0.10	480	8.00	SBUH Method	0.12
CB11	1464	0.03	0.09	480	8.00	SBUH Method	0.11
CB12	1464	0.03	0.09	480	8.00	SBUH Method	0.11
CB13	1464	0.03	0.09	480	8.00	SBUH Method	0.11
CB14	2661	0.06	0.16	480	8.00	SBUH Method	0.20
CB15	2794	0.06	0.17	480	8.00	SBUH Method	0.21
CB16	2794	0.06	0.17	480	8.00	SBUH Method	0.21
CB17	1464	0.03	0.09	480	8.00	SBUH Method	0.11
CB18	1464	0.03	0.09	480	8.00	SBUH Method	0.11
CB19	798	0.02	0.05	480	8.00	SBUH Method	0.06
CB2	931	0.02	0.06	480	8.00	SBUH Method	0.07
CB20	798	0.02	0.05	480	8.00	SBUH Method	0.06
CB21	3459	0.08	0.21	480	8.00	SBUH Method	0.26
CB22	1331	0.03	0.08	480	8.00	SBUH Method	0.10
CB23	3326	0.08	0.20	480	8.00	SBUH Method	0.25
CB24	3326	0.08	0.20	480	8.00	SBUH Method	0.25
CB25	1996	0.05	0.12	480	8.00	SBUH Method	0.15
CB26	2528	0.06	0.15	480	8.00	SBUH Method	0.19
CB27	1863	0.04	0.11	480	8.00	SBUH Method	0.14
CB28	1331	0.03	0.08	480	8.00	SBUH Method	0.10
CB29	2129	0.05	0.13	480	8.00	SBUH Method	0.16
CB3	665	0.02	0.04	480	8.00	SBUH Method	0.05
CB30	2262	0.05	0.14	480	8.00	SBUH Method	0.17
CB31	1730	0.04	0.11	480	8.00	SBUH Method	0.13
CB32	399	0.01	0.02	480	8.00	SBUH Method	0.03
CB33	399	0.01	0.02	480	8.00	SBUH Method	0.03
CB34	798	0.02	0.05	480	8.00	SBUH Method	0.06
CB35	2794	0.06	0.17	480	8.00	SBUH Method	0.21
CB36	1597	0.04	0.10	480	8.00	SBUH Method	0.12
CB37	2262	0.05	0.14	480	8.00	SBUH Method	0.17
CB38	2528	0.06	0.15	480	8.00	SBUH Method	0.19
CB38A	1597	0.04	0.10	480	8.00	SBUH Method	0.12
CB39	1996	0.05	0.12	480	8.00	SBUH Method	0.15
CB4	665	0.02	0.04	480	8.00	SBUH Method	0.05
CB40	4790	0.11	0.29	480	8.00	SBUH Method	0.36
CB41	1996	0.05	0.12	480	8.00	SBUH Method	0.15
CB42	2794	0.06	0.17	480	8.00	SBUH Method	0.21
CB43	4790	0.11	0.29	480	8.00	SBUH Method	0.36
CB44	931	0.02	0.06	480	8.00	SBUH Method	0.07
CB45	2661	0.06	0.16	480	8.00	SBUH Method	0.20
CB46	3326	0.08	0.20	480	8.00	SBUH Method	0.25
CB47	3859	0.09	0.24	480	8.00	SBUH Method	0.29
CB48	3459	0.08	0.21	480	8.00	SBUH Method	0.26
CB49	1730	0.04	0.11	480	8.00	SBUH Method	0.13
CB5	3193	0.07	0.20	480	8.00	SBUH Method	0.24
CB50	2395	0.05	0.15	480	8.00	SBUH Method	0.18

PIPE SIZING

BASIN RESULT SUMMARY

BASIN ID	VOLUME cf	VOLUME Ac-ft	RATE cfs	TIME min	TIME hours	Hydrograph Methodology	Area Acres
CB51	1464	0.03	0.09	480	8.00	SBUH Method	0.11
CB52	2395	0.05	0.15	480	8.00	SBUH Method	0.18
CB53	2794	0.06	0.17	480	8.00	SBUH Method	0.21
CB54	1597	0.04	0.10	480	8.00	SBUH Method	0.12
CB55	1996	0.05	0.12	480	8.00	SBUH Method	0.15
CB56	399	0.01	0.02	480	8.00	SBUH Method	0.03
CB57	532	0.01	0.03	480	8.00	SBUH Method	0.04
CB6	1197	0.03	0.07	480	8.00	SBUH Method	0.09
CB7	1064	0.02	0.07	480	8.00	SBUH Method	0.08
CB8	1064	0.02	0.07	480	8.00	SBUH Method	0.08
CB9	1331	0.03	0.08	480	8.00	SBUH Method	0.10
DI1	6120	0.14	0.37	480	8.00	SBUH Method	0.46
DI3	3725	0.09	0.23	480	8.00	SBUH Method	0.28
FUT1	45238	1.04	2.77	480	8.00	SBUH Method	3.40
FUT2	46568	1.07	2.85	480	8.00	SBUH Method	3.50
FUT3	4657	0.11	0.29	480	8.00	SBUH Method	0.35
RD1	798	0.02	0.05	480	8.00	SBUH Method	0.06
RD10	3060	0.07	0.19	480	8.00	SBUH Method	0.23
RD11	2927	0.07	0.18	480	8.00	SBUH Method	0.22
RD12	1064	0.02	0.07	480	8.00	SBUH Method	0.08
RD13	1064	0.02	0.07	480	8.00	SBUH Method	0.08
RD14	1064	0.02	0.07	480	8.00	SBUH Method	0.08
RD15	2661	0.06	0.16	480	8.00	SBUH Method	0.20
RD16	2661	0.06	0.16	480	8.00	SBUH Method	0.20
RD17	1996	0.05	0.12	480	8.00	SBUH Method	0.15
RD18	1996	0.05	0.12	480	8.00	SBUH Method	0.15
RD19	3725	0.09	0.23	480	8.00	SBUH Method	0.28
RD2	798	0.02	0.05	480	8.00	SBUH Method	0.06
RD20	3725	0.09	0.23	480	8.00	SBUH Method	0.28
RD21	3725	0.09	0.23	480	8.00	SBUH Method	0.28
RD22	1996	0.05	0.12	480	8.00	SBUH Method	0.15
RD23	1996	0.05	0.12	480	8.00	SBUH Method	0.15
RD24	1996	0.05	0.12	480	8.00	SBUH Method	0.15
RD25	1996	0.05	0.12	480	8.00	SBUH Method	0.15
RD26	1996	0.05	0.12	480	8.00	SBUH Method	0.15
RD27	1996	0.05	0.12	480	8.00	SBUH Method	0.15
RD3	798	0.02	0.05	480	8.00	SBUH Method	0.06
RD4	798	0.02	0.05	480	8.00	SBUH Method	0.06
RD5	798	0.02	0.05	480	8.00	SBUH Method	0.06
RD6	798	0.02	0.05	480	8.00	SBUH Method	0.06
RD7	798	0.02	0.05	480	8.00	SBUH Method	0.06
RD8	798	0.02	0.05	480	8.00	SBUH Method	0.06
RD9	798	0.02	0.05	480	8.00	SBUH Method	0.06

'Z' - PIPE SIZING CALC'S

(1)

STORM SEWERS

SEWER LOCATION			TIME (Min.)		In./Hr.	AREA (Acres)					SEWER DESIGN				PROFILE		
By: ____ Date: ____ Ck'd ____ Date: ____ STREET	M.H. #	TO M.H. #	INCR. TIME	TOTAL TIME (To Upper End)	INTENSITY (I)	INCR. AREA	COEF OF RUNOFF (c)	INCR. EQUIV. (c·A)	~~TOTAL EQUIV. AREA~~ INCREM. Σ(c·A) cfs	RUNOFF (C.F.S.) ~~(I) × Σ(c·A)~~	SLOPE (%)	DIAMETER (IN.)	CAPACITY (C.F.S.)	VELOCITY (F.P.S.), n = 0.012	LENGTH (ft.)	GROUND ELEV. / INVERT ELEV. UPPER	LOWER
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
CB #1 (1)									0.21	0.21	4.16	6"	1.24				
DI #1 (2)									0.37	0.37	3.83	12"	7.55				
FUT #1 (3)									2.77	2.77	0.5	18"	8.04				
(1) + (2) + (3) = (4)										3.35	0.5	18"	8.04				
RD #1 (5)									0.05	0.05	10	6"	0.61				
RD #2 (6)									0.05	0.10	0.5	16"	1.68				
RD #3 (7)									0.05	0.15	0.5	12"	2.73				
RD #4 (8)									0.05	0.20	0.5	15"	4.95				
RD #5 (9)									0.05	0.25	0.5	15"	4.95				
RD #6 (10)									0.05	0.30	0.5	15"	4.95				
(11)								n=0.013		0.30	3.94	16"	15.23				
(4) + (11) = (12)										3.65	0.5	18"	8.04				
CB # 2, 3, 4 (13)									0.14	0.14	1.0	6"	0.61				

STORM SEWERS

By: _____
Date: _____
Ck'd _____
Date: _____

SEWER LOCATION			TIME (Min.)		In./Hr.	AREA (Acres)					SEWER DESIGN				PROFILE		
STREET	M.H. #	TO M.H. #	INCR. TIME	TOTAL TIME (To Upper End)	INTENSITY (I)	INCR. AREA	COEF. OF RUNOFF (c)	INCR. EQUIV. (c·A)	~~TOTAL EQUIV. AREA~~ INCREM. Sum (c·A) cfs	RUNOFF (C.F.S.) (I) W (c·A)	SLOPE (%)	DIAMETER (IN.)	CAPACITY (C.F.S.)	VELOCITY (F.P.S.), n=0.012	LENGTH (ft.)	GROUND ELEV. / INVERT ELEV. UPPER	GROUND ELEV. / INVERT ELEV. LOWER
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
										3.79	0.5	18"	8.04				
(13) + (13) = (14)									0.20	3.99	0.5	18"	8.04				
CB #5 (15)																	
									0.05	0.05	1.0	6"	0.61				
1 RD #7 (16)									0.05	0.10	0.5	10"	1.68				
RD #8 (17)									0.07	0.17	0.5	10"	1.68				
CB #6 (18)									0.05	0.22	0.5	12"	2.73				
RD #9 (19)									0.07	0.29	0.5	15"	4.95				
CB #7 (20)									0.07	0.36	0.5	15"	4.95				
CB #8 (21)									0.37	0.73	0.84	15"	4.95				
RD #10, 11 (22)																	
										4.72	0.5	18"	8.04				
(15) + (22) = (23)									0.08	4.80	0.5	18"	8.04				
CB #9 (24)									0.10	4.90	0.5	18"	8.04				
CB #10 (25)									0.27	5.17	7.05	18"	8.04				
CB # 11, 12, 13 (26)									0.16	5.33	7.05	18"	8.04				
CB #14 (27)									0.17	5.50	7.05	18"	8.04				
CB #15 (28)																	

STORM SEWERS

By: ____
Date: ____
Ck'd ____
Date: ____

SEWER LOCATION			TIME (Min.)		In./Hr.	AREA (Acres)					SEWER DESIGN				PROFILE		
STREET	M.H. #	TO M.H. #	INCR. TIME	TOTAL TIME (To Upper End)	INTENSITY (I)	INCR. AREA	COEF. OF RUNOFF (c)	INCR. EQUIV. (c·A)	~~TOTAL EQUIV. AREA~~ Increm. ~~Σ(c·A)~~ cA	RUNOFF (C.F.S.) (I) ~~Σ(c·A)~~	SLOPE (%)	DIAMETER (IN.)	CAPACITY (C.F.S.)	VELOCITY (F.P.S.), n = 0.012	LENGTH (ft.)	GROUND ELEV. / INVERT ELEV. UPPER	GROUND ELEV. / INVERT ELEV. LOWER
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
CB #16, 17, 18 (29)									0.35	5.85	7.05	18"	30				
CB #19, 20 (30)									0.10	0.10	1.0	6"	0.22				
CB #21 (31)									0.21	0.21	2.0	6"	0.86				
CB #22 (32)									0.08	0.29	3.46	8"	2.44				
CB #23 (33)									0.20	0.49	3.46	8"	2.44				
CB #24 (34)									0.20	0.69	4.63	10"	5.10				
CB #25 (35)									0.12	0.81	4.63	10"	5.10				
CB #26 (36)									0.10	0.91	2.5	12"	6.10				
CB #27 (37)									0.11	1.02	2.5	12"	6.10				
CB #28, 29 (38)									0.22	1.24	2.5	12"	6.10				
CB #30 (39)									0.14	0.14	6.13%	6"	1.51				
CB #31 (40)									0.11	0.25	11.6%	8"	4.46				
CB #32, 33 (41)									0.04	0.29	11.6%	8"	4.46				
CB #34 (42)									0.05	0.34	11.6%	8"	4.46				

STORM SEWERS

By: ____
Date: ____
Ck'd ____
Date: ____

SEWER LOCATION: Street	M.H. #	To M.H. #	TIME (Min.): Incr. Time	TIME (Min.): Total Time (To Upper End)	In./Hr.: Intensity (i)	AREA (Acres): Incr. Area	AREA (Acres): Coef. of Runoff (c)	AREA (Acres): Incr. Equiv. (c·A)	~~Total Equiv. Area~~ Increm. ~~Σ(c·A)~~ cf,	Runoff (C.F.S.) ~~(i)·Σ(c·A)~~	SEWER DESIGN: Slope (%)	SEWER DESIGN: Diameter (In.)	SEWER DESIGN: Capacity (C.F.S.)	SEWER DESIGN: Velocity (F.P.S.), n = 0.012	PROFILE: Length (ft.)	PROFILE: Ground Elev. / Invert Elev. Upper	PROFILE: Ground Elev. / Invert Elev. Lower
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
CB#35 RD#22 (42)									0.29	0.63	0.5	10"	1.68				
RD#23 (43)									0.12	0.75	0.5	12"	2.73				
RD#24 (44)									0.12	0.87	0.5	12"	2.73				
(44) + (42) = (45)										1.50	1.68	12"	5.0				
CB# 36, 37 (46)									0.24	0.24	0.5	8"	0.93				
OI #3 (47)									0.23	0.23	0.5	12"	2.73				
FUTURE #2 (48)									2.85	3.08	5.14	18"	25.8				
CB #38 (49)									0.15	3.23	5.14	18"	25.8				
CB #38A (50)									0.10	3.33	5.14	18"	25.8				
CB #39 (51)									0.09	3.42	2.76	18"	18.9				
CB #40, 41 (52)									0.41	3.83	1.50	18"	13.9				

STORM SEWERS

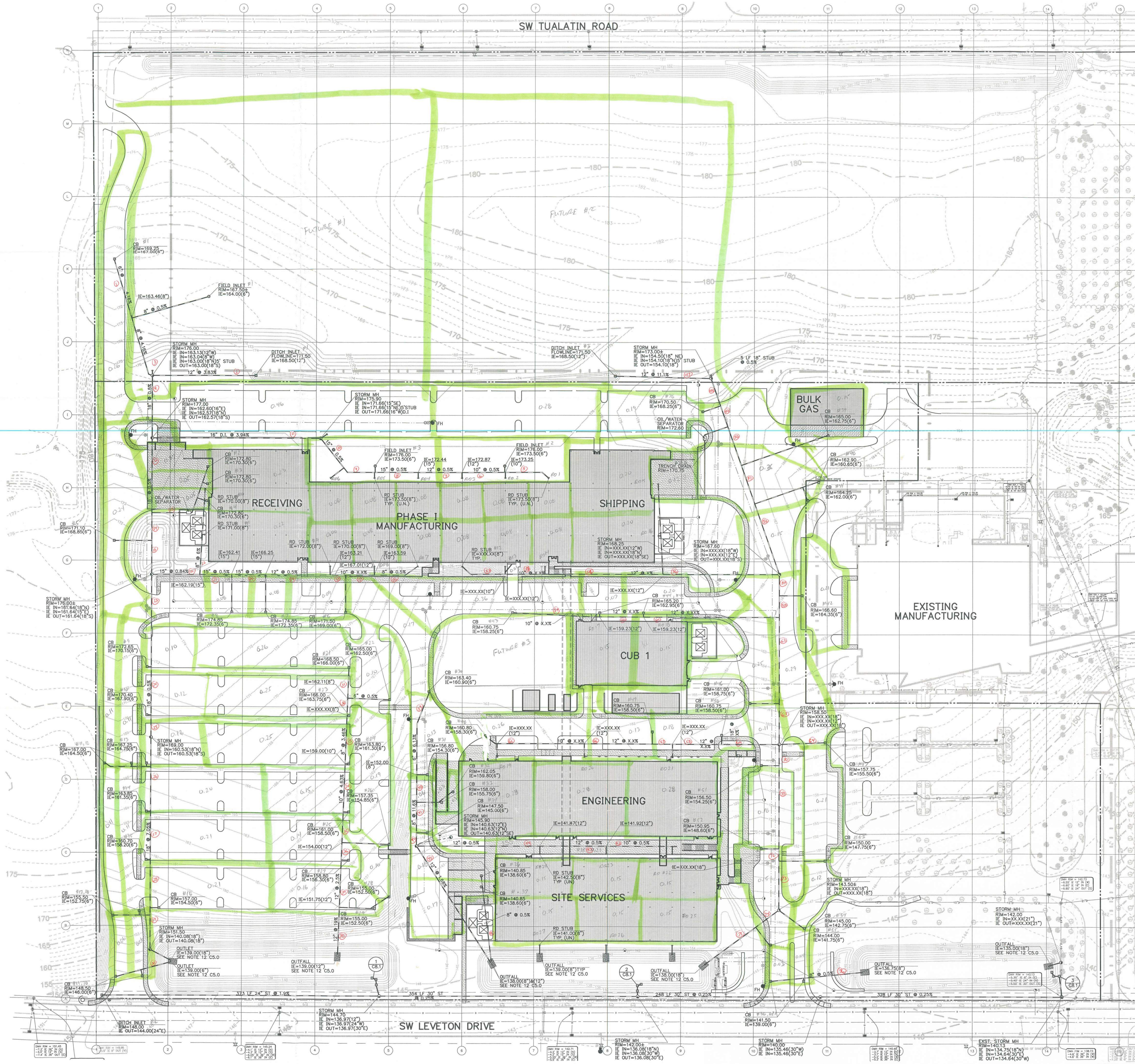
By: _____
Date: _____
Ck'd _____
Date: _____

SEWER LOCATION			TIME (Min)		In./Hr.	AREA (Acres)					SEWER DESIGN				PROFILE		
STREET	M.H. #	TO M.H. #	INCR. TIME	TOTAL TIME (To Upper End)	INTENSITY (I)	INCR. AREA	COEF. OF RUNOFF (c)	INCR. EQUIV. (c·A)	TOTAL EQUIV. AREA (Increm. Sum) cf	RUNOFF (C.F.S.) (I) W (c·A)	SLOPE (%)	DIAMETER (IN.)	CAPACITY (C.F.S.)	VELOCITY (F.P.S.), n = 0.012	LENGTH (Ft.)	GROUND ELEV. / INVERT ELEV. UPPER	GROUND ELEV. / INVERT ELEV. LOWER
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
RO #12 (53)									0.07	0.07	2.0	6"	0.86				
RO #13 (54)									0.07	0.21	0.5	12"	2.73				
RO #14 (55)									0.07	0.21	0.5	12"	2.73				
RO # 15,16 (56)									0.32	0.53	0.5	12"	2.73				
(52) + (56) = (57)										4.36	2.65	18"	18.53				
CB #42 (58)									0.17	4.53	2.65	18"	18.53				
CB #43 FAT #3 (59)									0.58	0.58	0.75	10"	2.06				
CB # 41, RO # 17 (60)									0.18	0.76	0.75	10"	2.06				
CB # 45, RO #18 (61)									0.28	1.04	0.49	12"	2.70				
(58) + (61) = (62)										5.57	2.65	12"	6.28				
CB #46 (63)									0.20	5.77	2.65	12"	6.28				
CB # 47 (64)									0.24	0.24	2%	6"	0.86				

STORM SEWERS

By: _____
Date: _____
Ck'd _____
Date: _____

SEWER LOCATION			TIME (Min.)		In./Hr.	AREA (Acres)					SEWER DESIGN				PROFILE		
STREET	M.H. #	TO M.H. #	INCR. TIME	TOTAL TIME (To Upper End)	INTENSITY (I)	INCR. AREA	COEF. OF RUNOFF (C)	INCR. EQUIV. (C·A)	TOTAL EQUIV. AREA INCREM. ~~C·A~~ CA	RUNOFF (C.F.S.) ~~(I) × (CA)~~	SLOPE (%)	DIAMETER (IN.)	CAPACITY (C.F.S.)	VELOCITY (F.P.S.), n=0.012	LENGTH (FT.)	GROUND ELEV. / INVERT ELEV. UPPER	GROUND ELEV. / INVERT ELEV. LOWER
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
CB #48 RD # 19 (65)									0.44	0.44	0.5	10"	1.68				
RD #20 (66)									0.23	0.67	0.5	10"	1.68				
CB #49 (67)									0.11	0.77	0.5	12"	2.72				
RD #21 (68)									6.23	1.00	3.93	12"	7.65				
CB #50 (69)									0.15	1.15	3.93	12"	7.65				
										7.16	5.45	18"	26.5				
(63) + (64) + (69) = (70)									6.09	7.25	5.45	18"	26.5				
CB #51 (71)									0.15	7.40	5.45	18"	26.5				
CB # 52 (72)									0.17	7.57	5.45	18"	26.5				
CB # 53 (73)									0.10	7.67	0.5	18"	8.04				
CB # 54 (74)									0.12	7.79	0.5	18"	8.04				
CB #55 (75)																	
CB #56, 57 (76)																	



GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

UTILITY NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF TUALATIN, THE UNIFIED SEWAGE AGENCY, AND THE CURRENT EDITION OF THE UNIFORM PLUMBING CODE AND THE UNIFORM BUILDING CODE. ALL WORK WITHIN THE PUBLIC R.O.W. REQUIRES A PUBLIC WORKS PERMIT.
2. THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. THEY DO NOT SHOW EVERY DIMENSION, COMPONENT PIECE, SECTION, JOINT OR FITTING REQUIRED TO COMPLETE THE PROJECT. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. EXISTING UNDERGROUND UTILITIES LAYING WITHIN THE LIMITS OF EXCAVATION SHALL BE VERIFIED AS TO CONDITION, SIZE AND LOCATION BY UNCOVERING, PROVIDING SUCH IS PERMITTED BY LOCAL PUBLIC AUTHORITIES WITH JURISDICTION, BEFORE BEGINNING CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER IF THERE ARE ANY DISCREPANCIES.
3. PROVIDE CLEANOUTS AS REQUIRED IN THE CURRENT UNIFORM PLUMBING CODE CHAPTER 7, SECTIONS 707 AND 719, AND CHAPTER 11, SECTION 1103.04. NOTE: NOT ALL REQUIRED CLEANOUTS ARE SHOWN ON THE PLANS.
4. ALL STORM PIPING IS SIZED FOR A MANNING'S "N" VALUE = 0.013. ALL STORM PIPING IS DESIGNED USING CONCENTRIC PIPE TO PIPE AND WYE FITTINGS.
5. SEE MECHANICAL DRAWINGS FOR UTILITIES LOCATED WITHIN THE BUILDING AND TO 5' OUTSIDE THE BUILDING.
6. ALL ROOF DRAIN LEADERS TO BE 8" AT 2.0% MIN. UNLESS NOTED OTHERWISE.
7. VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES BY POTHOLING PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF DISCREPANCIES.
8. PROVIDE 2" PVC DRAIN LINE FROM DOMESTIC WATER METER VAULT AND BACKFLOW PREVENTER VAULT TO THE DOUBLE DETECTOR CHECK VALVE (FIRE) VAULT. PROVIDE 1/3 HP SUMP PUMP AT BASE OF FIRE VAULT AND INSTALL 2" PVC DRAIN LINE WITH BACKFLOW VALVE FROM SUMP PUMP TO DAYLIGHT AT NEAREST CURB. FURNISH ¾ INCH DIAMETER CONDUIT FROM BUILDING ELECTRICAL ROOM TO FIRE VAULT FOR SUMP PUMP ELECTRICAL SERVICE. NOTE: COORDINATE WITH FIRE PROTECTION CONTRACTOR FOR FLOW SENSOR INSTALLATION AND CONDUIT REQUIREMENTS.
9. THE SURVEY INFORMATION SHOWN AS A BACKGROUND SCREEN ON THIS SHEET IS BASED ON A SURVEY PREPARED BY HICKMAN AND ASSOCIATES.
10. CONTRACTOR TO PROVIDE POWER TO IRRIGATION CONTROLLER. SEE SPECIFICATIONS AND LANDSCAPE PLANS.
11. SEE BUILDING PLUMBING DRAWINGS FOR PIPING WITHIN THE BUILDING AND UP TO 5' OUTSIDE THE BUILDING, INCLUDING ANY FOUNDATION DRAINAGE PIPING.
12. PROVIDE MINIMUM 12'x8'x12" THICK TYPE II RIP-RAP AT 12" AND LARGER STORM OUTFALLS. PROVIDE MINIMUM 8'x6'x12" THICK TYPE II RIP-RAP AT 10" AND SMALLER OUTFALLS.

PROPOSED UTILITY LEGEND

STORM SEWER LINE
SANITARY SEWER LINE
FIRE WATER LINE — FW
WATER METER
MANHOLE
CATCH BASIN/DITCH INLET
FIELD INLET
FIRE HYDRANT ASSEMBLY
UNLESS NOTED — U.N.

EXISTING UTILITY LEGEND

SITE BOUNDARY
ADJOINING OR INTERIOR PROPERTY LINE
RIGHT-OF-WAY CENTERLINE
WATER LINE
GAS LINE
SANITARY SEWER LINE
UNDERGROUND TELEPHONE LINE (GTE)
STORM DRAINAGE LINE
UNDERGROUND POWER LINE
OVERHEAD POWER LINE
FIRE HYDRANT
WATER VALVE
WATER METER
GAS VALVE
CATCH BASIN
CURB LINE
EDGE OF PAVEMENT
STREET SIGN
SANITARY SEWER MANHOLE
EVERGREEN TREE WITH DIAMETER
DECIDUOUS TREE WITH DIAMETER
CHAIN LINK FENCE LINE
LIGHT POLE
6" BOLLARD
ROOF DRAIN (SHOOT ON ROOF)
GAS METER
POWER TRANSFORMER
CAMERA TOWER
POWER POLE
GUY ANCHOR
SIDE INLET CATCH BASIN
MAIL BOX
STORM SEWER MANHOLE

NOVELLUS

SWINERTON BUILDERS

Project
NOVELLUS TUALATIN FACILITY

Tualatin, Oregon

Architecture, Structural Engineer
Civil Engineer
Group Mackenzie
0690 SW Bancroft Street
Portland, Oregon 97201
Phone: (503)224-9560
FAX: (503)228-1285

Group Mackenzie Consultants

Landscape Architect
Greenworks PC
Phone: (503)222-5612
FAX: (503)222-2283

Safety & Health Consultant
Miller Safety
Phone: (503)243-1040
FAX: (503)243-1470

Design Builder
Swinerton Builders
3030 SW Moody Avenue
Suite 250
Portland, Oregon 97201
Phone: (503)222-2000
FAX: (503)478-2500

Swinerton Consultants

Mechanical Engineer
Southland Industries
Phone: (503)255-7118
FAX: (503)255-7955

Mechanical Consultant
Kinetics
Phone: (503)224-5200
FAX: (503)224-8521

Electrical Engineer
Oregon Electric
Phone: (503)234-9900
FAX: (503)231-3587

Electrical Consultant
Glumac International
Phone: (503)227-5280
FAX: (503)274-7674

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1997
ROBERT L. FRENTRESS JR.
EXPIRES: 12/31/01

REVISIONS:

SHEET TITLE:
SITE STORM SEWER PLAN PHASE I

FIRST ISSUED:
LAST ISSUED:
DRAWN BY:
CHECKED BY:

SHEET C5.0

GROUP MACKENZIE JOB NO. 000366
CONSULTANT JOB NO.

UTILITY PERMIT REVIEW SUBMITTAL 2/14/01