STORMWATER MANAGEMENT REPORT

FOR

PEBBLEBROOK VISTA

LAND LOT 466 - 17TH DISTRICT – 2ND SECTION

COBB COUNTY, GEORGIA

CITY OF SMYRNA

PREPARED BY

PLANNING · ENGINEERING · LAND SURVEYING

PAUL LEE

CONSULTING ENGINEERING ASSOCIATES, INC.

44 DARBY'S CROSSING DRIVE, SUITE 200
HIRAM, GEORGIA 30141
Ph. (770) 435-2576

GEORGIA REGISTERED NO. 29600 PROFESSIONAL ENGINEER MARK G. LEE

4-11-19

April 10, 2019

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SITE ANALYSIS

SITE LOCATION

The site to be developed is located at 990 Pebblebrook Road, Mableton, Georgia and consists of 1.0245 acres located in Land Lot 466 of the 17th District, 2nd Section, Cobb County and within the city limits of Smyrna, Georgia as shown on a survey prepared for Brian Minnick dated 02/16/18, last revised 11/20/18 by J.A. Evans & Associates.

PRE DEVELOPMENT

The pre-developed terrain of the property is such that it is divided into three basins, Basin 1, Basin 2, Basin 3 (see Pre-Development Map). This report will provide an analysis of each basin to document that the post-development flow rates will be reduced by a minimum of 10% for each basin as required by the City of Smyrna. This report is based upon a proposed Rezoning Application to divide the property into three R-15 conditional lots and will provide water quality and detention for each lot on each of the three proposed lots. This report will be based upon a Grading Plan prepared by Paul Lee Consulting Engineering Associates, Inc., dated 4-8-19.

Basin 1 consists of a total drainage area of 0.004 Acres Onsite as shown on the Pre-Development map.

Basin 2 consists of a total drainage area of 1.022 Acres, with 0.116 acres offsite and 0.906 acres onsite as shown on the Pre-Development map.

Basin 3 consists of a total drainage are of 0.14 Acres, with 0.029 acres offsite and 0.114 acres onsite as shown on the Pre-Development map.

POST DEVELOPMENT

After development and based on the proposed Grading Plan shown on the Post-Development Map, Basin 1 will have a total of 0.001 acres remaining onsite with the redirection of 0.003 acres into Basin 2. All runoffs will be reduced to meet city requirements; therefore, no detention utilized for this basin.

After development and based on the proposed Grading Plan shown on the Post-Development Map, Basin 2 will be controlled by three individual detention facilities as directed by the City of Smyrna. Each lot will be analyzed and routed through a detention facility and the three routings will be combined to produce a total runoff at the study point for Basin 2. Flows are identified as those Bypassing the Pond, a total of

SITE ANALYSIS
(continued)

0.154 acres, (Lot 1 = 0.028 acres, Lot 2 = 0.059 acres, Lot 3 = 0.067 acres) and those Into Pond (Lot 1 = 0.317 acres, Lot 2 = 0.285 acres, and Lot 3 = 0.268 acres).

After development, Basin 3 will have a total of 0.0189 acres remaining onsite with the redirection of 0.0951 acres into Basin 2. All runoffs will be reduced to meet city requirements; therefore, no detention utilized for this basin.

DOWNSTREAM ANALYSIS

The subject parcel is located at the top of the overall drainage channel and is less than 10% of the basin at the first confluence of the downstream channel. Therefore, no 10% Downstream Study is required.

FLOODPLAIN

The property is not in an area having flood hazards as per Flood Insurance Rate Map (F.I.R.M) No 13067C0209 H dated 3/4/2013.

STORMWATER MANAGEMENT CRITERIA

All design is carried through a 100-year storm event. All hydrologic and hydraulic calculations are based on the latest standards and specifications of the NRCS method to analyze the pre and post development runoffs.

Rainfall intensity tables pertain to Atlanta; runoff coefficients and all other data used for calculations were obtained from the Georgia Storm Water Management Manual, Volume 2, and other related textbooks.

PRE-DEVELOPMENT

(See Pre-Development Map)

BASIN 1

DRAINAGE AREA: 0.004 Acres (all onsite)

RUNOFF CURVE NUMBER (CN): 55 (Soil Type "B", Gwinnett Clay Loam)

TIME OF CONCENTRATION, Tc = 5 minutes (minimum) (See TR-55 printout)

RUNOFFS (cfs) See Hydrograph Return Period Recap, Pre-development Basin 1

1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
0.001	0.002	0.005	.007	0.011	0.014	0.027

BASIN 2

DRAINAGE AREA: 1.022 Acres
(0.116 Acres, Offsite)
(0.906 Acres, Onsite)

RUNOFF CURVE NUMBER (CN): 55 (Soil Type "B", Gwinnett Clay Loam)

TIME OF CONCENTRATION, Tc = 6 minutes (See TR-55 printout)

RUNOFFS (cfs) See Hydrograph Return Period Recap, Pre-development Basin 2

1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
0.30	0.58	1.17	1.75	2.69	3.49	4.38

PRE-DEVELOPMENT
(continued)

BASIN 3

DRAINAGE AREA: 0.14 Acres
(0.029 Acres, Offsite)
(0.114 Acres, Onsite)

RUNOFF CURVE NUMBER (CN): 55 (Soil Type "B", Gwinnett Clay Loam)

TIME OF CONCENTRATION, Tc = 55 minutes (minimum) (See TR-55 printout)

RUNOFFS (cfs) See Hydrograph Return Period Recap, Pre-development Basin 3

1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
0.004	0.08	0.16	0.24	0.37	0.48	0.60

ALLOWABLE FLOW PER BASIN

10% Minimum Reduction of Pre-Development Runoff

BASIN 1

Runoff Flows (cfs)

	1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
Q pre 10%	0.001	0.002	0.005	0.006	0.010	0.013	0.015

BASIN 2

Runoff Flows (cfs)

	1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
Q pre 10%	0.27	0.52	1.05	1.58	2.42	3.14	3.94

BASIN 3

Runoff Flows (cfs)

	1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
Q pre 10%	0.04	0.07	0.14	0.22	0.33	0.43	0.54

POST DEVELOPMENT
(See Post Development Map)

BASIN 1

DRAINAGE AREA: 0.001 Acres (Remaining)
(0.003 Acres re-directed into Basin 2)

RUNOFF CURVE NUMBER (CN): 61 (Grass, good condition)

TIME OF CONCENTRATION, Tc = 5 minutes (minimum)

RUNOFFS (cfs) See Hydrograph Return Period Recap, Post Basin 1

1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
0.001	0.001	0.002	0.002	0.004	0.004	0.005

BASIN 1 - Summary

Runoff Flows (cfs)

	1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
Qpre 10% Reduction	0.001	0.002	0.005	0.006	0.010	0.013	0.015
Qpost	0.001	0.001	0.002	0.002	0.004	0.004	0.005
% of Reduction	0%	50%	60%	71%	64%	71%	71%

NO DETENTION REQUIRED.

POST DEVELOPMENT
(continued)

BASIN 2 – BYPASSING PONDS

DRAINAGE AREA: 0.154 Acres
(0.028 Acres – Lot 1)
(0.059 Acres – Lot 2)
(0.067 Acres – Lot 3)

RUNOFF CURVE NUMBER (CN): 61 (All grass, undisturbed)

TIME OF CONCENTRATION, Tc = 5 minutes (minimum) (See TR-55 printout)

RUNOFFS (cfs) See Hydrograph Return Period Recap, Post Bypass

1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
0.11	0.17	0.28	0.38	0.54	0.68	0.82

BASIN 2 – INTO POND, LOT 1

DRAINAGE AREA: 0.317 Acres
(0.214 Acres, Grass)
(0.103 Acres, House & Drives)

RUNOFF CURVE NUMBER (CN): 73

$$\frac{0.214(61) + (0.103)(98)}{0.317} = 73$$

TIME OF CONCENTRATION, Tc = 5 minutes (minimum) (See TR-55 printout)

RUNOFFS (cfs) See Hydrograph Return Period Recap, Post into Pond 1

1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
0.58	0.74	1.03	1.29	1.69	2.02	2.37

POST DEVELOPMENT
(continued)

BASIN 2 – INTO POND, LOT 2

DRAINAGE AREA: 0.285 Acres
(0.185 Acres, Grass)
(0.10 Acres, House & Drives)

RUNOFF CURVE NUMBER (CN): 74

$$\frac{0.10(98) + (0.185)(61)}{0.285} = 74$$

TIME OF CONCENTRATION, Tc = 5 minutes (minimum) (See TR-55 printout)

RUNOFFS (cfs) See Hydrograph Return Period Recap, Into Pond Lot 2

1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
0.55	0.70	0.96	1.20	1.57	1.86	2.18

BASIN 2 – INTO POND, LOT 3

DRAINAGE AREA: 0.268 Acres
(0.171 Acres, Grass)
(0.097 Acres, House & Drives)

RUNOFF CURVE NUMBER (CN): 74

$$\frac{0.097(98) + (0.171)(61)}{0.268} = 74$$

TIME OF CONCENTRATION, Tc = 5 minutes (minimum) (See TR-55 printout)

RUNOFFS (cfs) See Hydrograph Return Period Recap, Into Pond Lot 3

1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
0.52	0.66	0.91	1.13	1.47	1.75	2.05

POST DEVELOPMENT
(continued)

BASIN 3

DRAINAGE AREA: 0.0189 Acres Remaining (All onsite)
(0.0951 Acres re-directed into Basin 2)

RUNOFF CURVE NUMBER (CN): 61

TIME OF CONCENTRATION, Tc = 5 minutes (minimum) (See TR-55 printout)

RUNOFFS (cfs) See Hydrograph Return Period Recap, Post Basin 3

1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
0.01	0.02	0.03	0.05	0.07	0.08	0.10

BASIN 3 - Summary

Runoff Flows (cfs)

	1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
Qpre 10% Reduction	0.04	0.07	0.14	0.22	0.33	0.43	0.54
Qpost	0.01	0.02	0.03	0.05	0.07	0.08	0.10
% of Reduction	75%	75%	81%	79%	81%	83%	83%

NO DETENTION REQUIRED.

ALLOWABLE FLOW SUMMARY

BASIN 1

Runoff Flows (cfs)

	1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
Q pre 10% Reduction	0.001	0.002	0.005	0.006	0.010	0.013	0.015
Q post, Hydrograph Return Period Recap, Post Basin 1	0.001	0.001	0.002	0.002	0.004	0.004	0.005

Q post < Q pre 10%, therefore **NO DETENTION UTILIZED FOR BASIN 1.**

BASIN 2

Runoff Flows (cfs)

	1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
Q pre 10% Reduction	0.27	0.52	1.05	1.58	2.42	3.14	3.94
Q post-combined, Hydrograph 12	0.11	0.17	0.28	0.38	1.11	2.20	3.65

Q post < Q pre %, therefore **DETENTION IS SATISFIED BY USE OF THREE DETENTION FACILITIES.**

BASIN 3

Runoff Flows (cfs)

	1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
Q pre 10% Reduction	0.04	0.07	0.14	0.22	0.33	0.43	0.54
Q post-combined, Hydrograph Return Period Recap, Post Basin 3	0.01	0.02	0.03	0.05	0.07	0.08	0.10

Q post < Q pre 10%, therefore **NO DETENTION UTILIZED FOR BASIN 3.**

WATER QUALITY REQUIREMENTS & PROVISIONS

LOT 1

Total Area:	0.345 Acres (15,000 S.F.)
Total Impervious:	0.101 Acres (4,425 S.F.)
I (Impervious % of Site):	29.5%
Rv (weighted runoff):	0.05 + (29.5 x 0.009) = 0.316
A:	0.345 Acres
REQUIRED WQv =	$\frac{(1.2)(0.316)(0.345)}{12} = 0.010902$ Ac/ft
	(0.010902 Ac/FT)(43560 FT^2/Ac) = *474.89 c.f. required*
PROVIDED WQv =	985 S.F. x 40% Voids = 394 S.F.
	394 S.F. x 1.25 FT = *492.50 c.f. provided*
	492.50 > 474.89, Volume Satisfied

LOT 2

Total Area:	0.344 Acres (15,000 S.F.)
Total Impervious:	0.98 Acres (4,285 S.F.)
I (Impervious % of Site):	28.6%
Rv (weighted runoff):	0.05 + (28.6 x 0.009) = 0.307
A:	0.344 Acres
REQUIRED WQv =	$\frac{(1.2)(0.307)(0.344)}{12} = 0.0105608$ Ac/ft
	(0.0105608 Ac/FT)(43560 FT^2/Ac) = *460.03 c.f. required*
PROVIDED WQv =	700 S.F. x 40% Voids = 280 S.F.
	280 S.F. x 1.65 FT = *462.0 c.f. provided*
	462.0 > 460.03, Volume Satisfied

WATER QUALITY REQUIREMENTS & PROVISIONS
(continued)

LOT 3

Total Area:	0.336 Acres (14,620 S.F.)
Total Impervious:	0.97 Acres (4,245 S.F.)
I (Impervious % of Site):	29.0%
Rv (weighted runoff):	0.05 + (29 x 0.009) = 0.311
A:	0.336 Acres
REQUIRED WQv =	$\frac{(1.2)(0.311)(0.336)}{12}$ = 0.0104496 Ac/ft
	(0.0104496 Ac/FT)(43560 FT^2/Ac) = *455.18 c.f. required*
PROVIDED WQv =	700 S.F. x 40% Voids = 280 S.F.
	280 S.F. x 1.63 FT = *456.0 c.f. provided*

456.0 > 455.18, Volume Satisfied

WATER QUALITY DRAIN
ORIFICE CALCULATIONS
BASIN 1

ORIFICE SIZE (IN.)	3/8
ORIFICE AREA (S.F.)	0.00076699
POND HEIGHT (FT.)	1.25
POND VOLUME (C.F.)	495
Q FLOW (CFS)	0.0041
C.F. HOUR	14.76
HOURS TO DRAIN	**33.33**

WATER QUALITY DRAIN
ORIFICE CALCULATIONS
BASIN 2

ORIFICE SIZE (IN.)	3/8
ORIFICE AREA (S.F.)	0.00076699
POND HEIGHT (FT.)	1.65
POND VOLUME (C.F.)	462
Q FLOW (CFS)	0.0047
C.F. HOUR	16.92
HOURS TO DRAIN	**27.3**

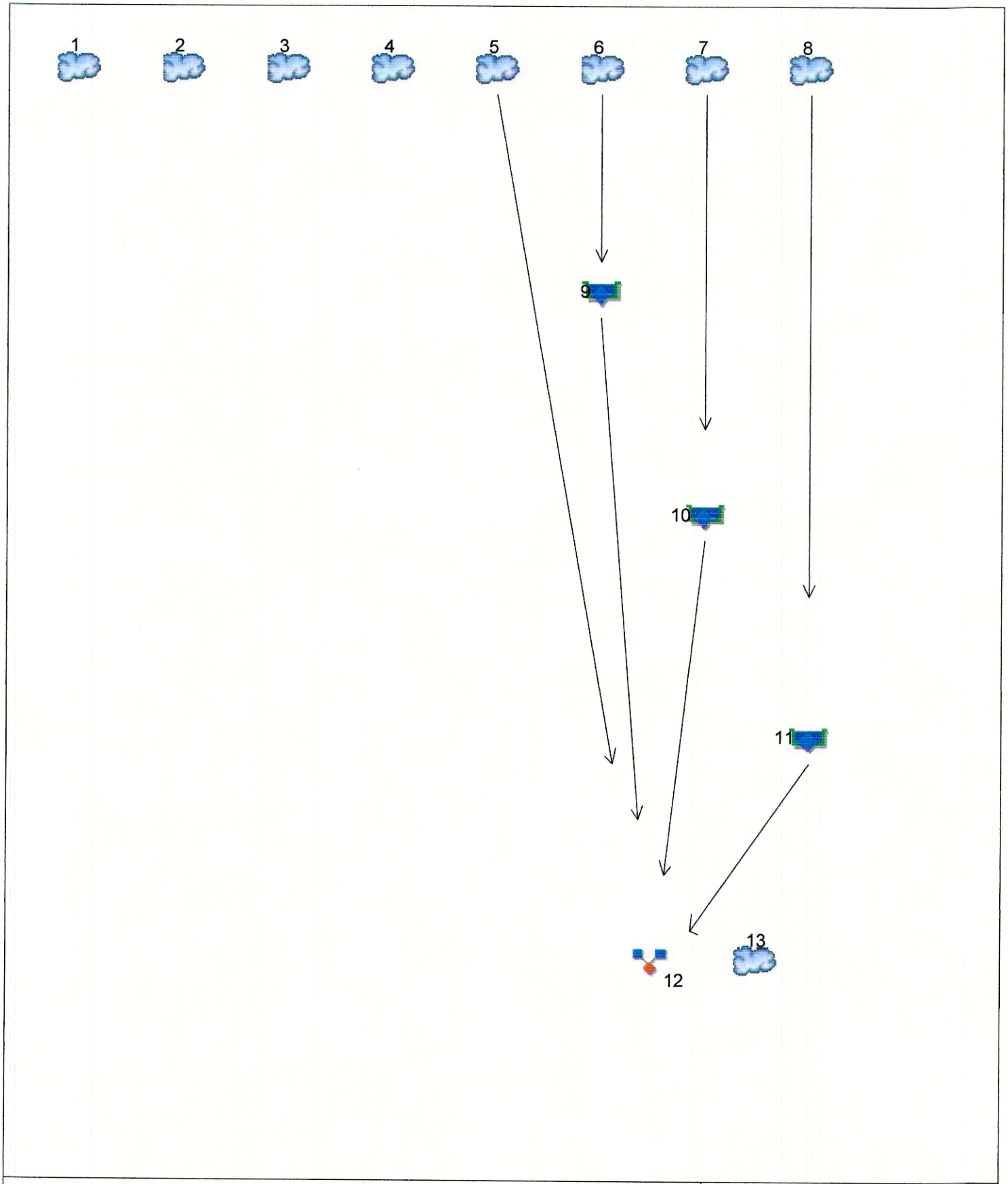
WATER QUALITY DRAIN
ORIFICE CALCULATIONS
BASIN 3

ORIFICE SIZE (IN.)	3/8
ORIFICE AREA (S.F.)	0.00076699
POND HEIGHT (FT.)	1.63
POND VOLUME (C.F.)	456
Q FLOW (CFS)	0.0047
C.F. HOUR	16.92
HOURS TO DRAIN	**26.95**

APPENDIX

Watershed Model Schematic

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12



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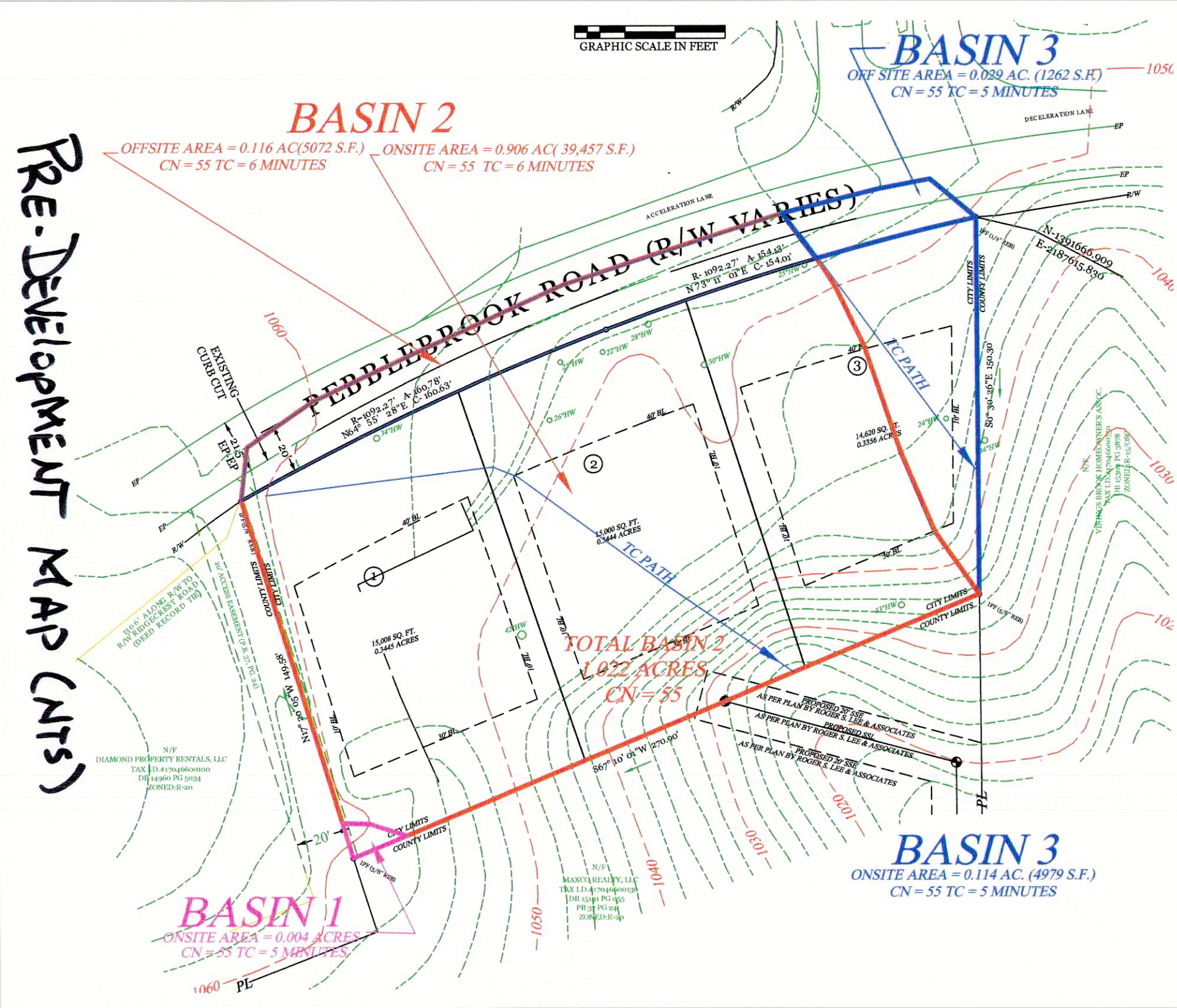
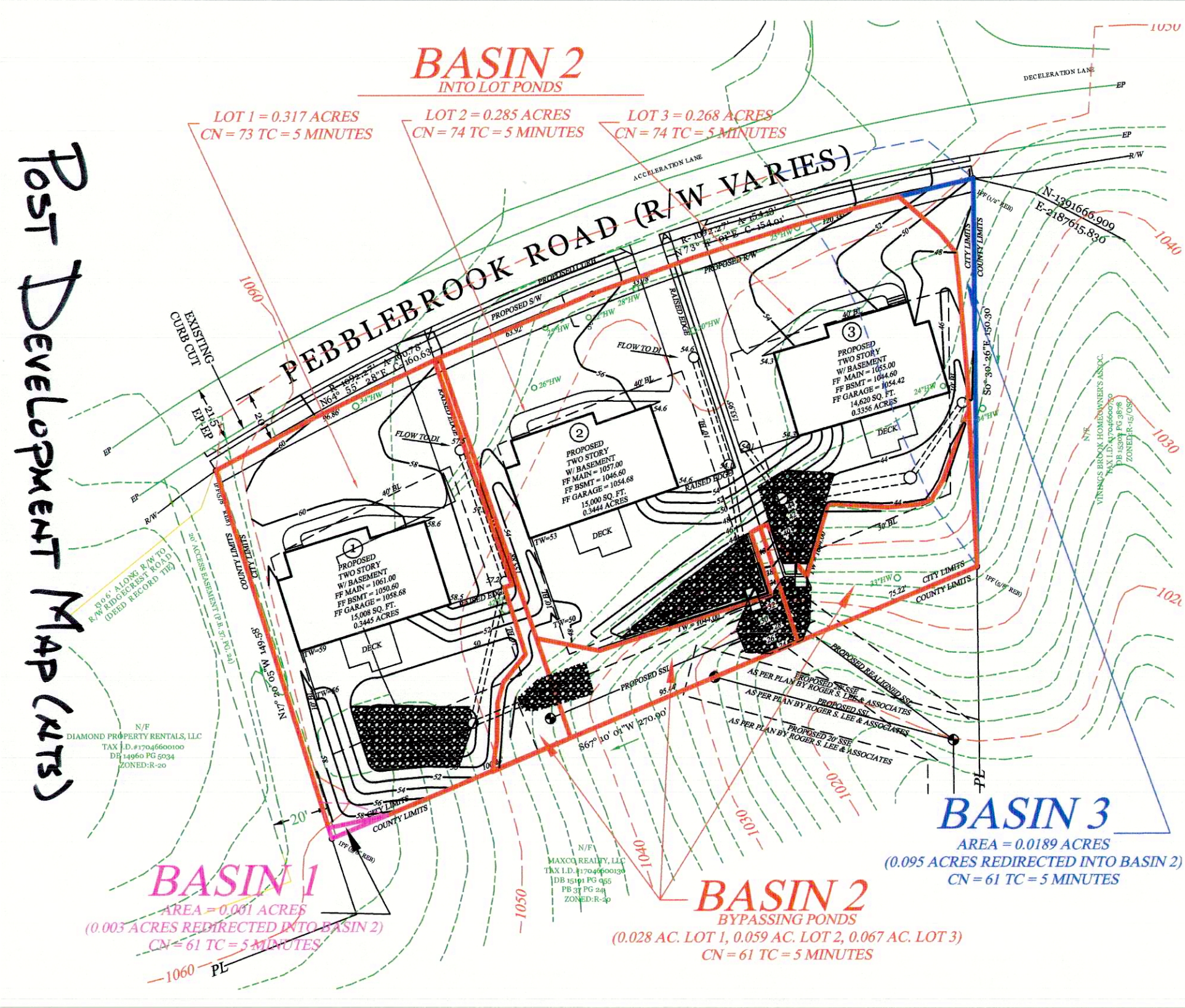
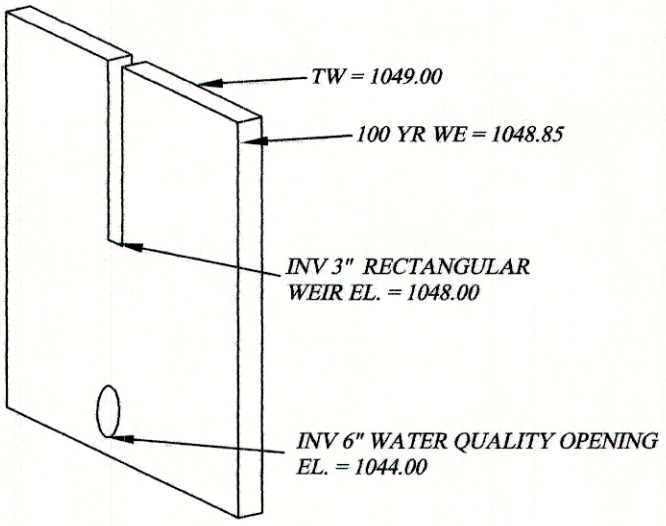
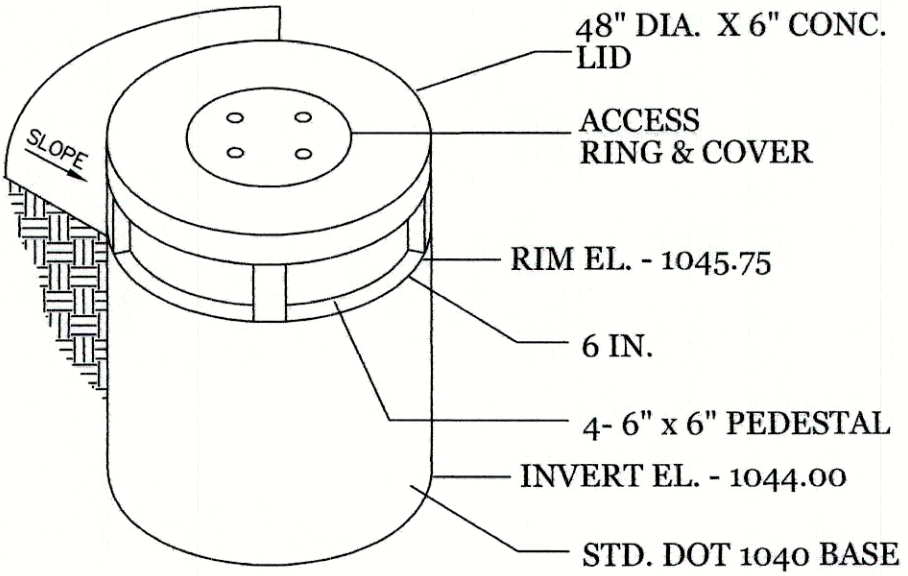
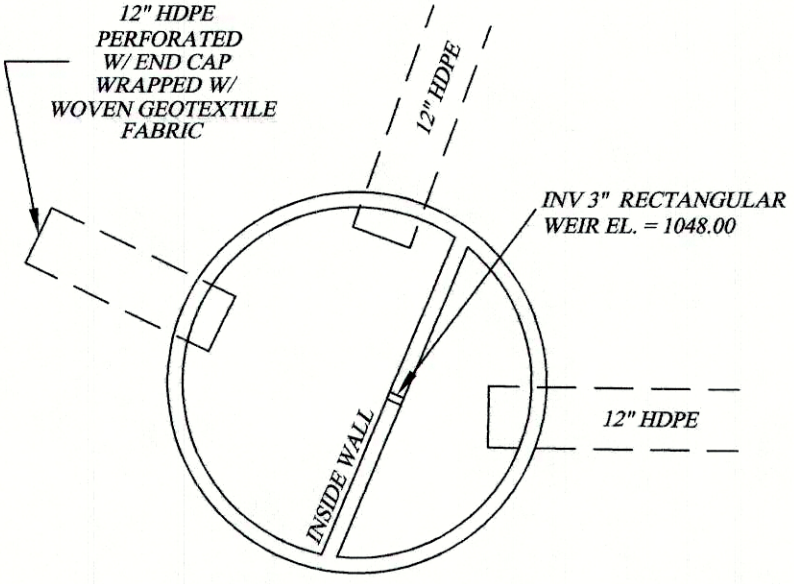

PRE-DEVELOPMENT MAP (NTS)
GRAPHIC SCALE IN FEET
BASIN 2
OFFSITE AREA = 0.116 AC(5072 S.F.)
CN = 55 TC = 6 MINUTES
ONSITE AREA = 0.906 AC(39,457 S.F.)
CN = 55 TC = 6 MINUTES
BASIN 3
OFF SITE AREA = 0.039 AC. (1262 S.F.)
CN = 55 TC = 5 MINUTES
PEBBLEBROOK ROAD (R/W VARIES)
ACCELERATION LANE
DECELERATION LANE
EXISTING CURB CUT
TOTAL BASIN 2
1.022 ACRES
CN = 55
TC PATH
15,000 SQ. FT.
0.3444 ACRES
15,008 SQ. FT.
0.3445 ACRES
14,620 SQ. FT.
0.3356 ACRES
PROPOSED 20' SSE
AS PER PLAN BY ROGER S. LEE & ASSOCIATES
CITY LIMITS
COUNTY LIMITS
BASIN 1
ONSITE AREA = 0.004 ACRES
CN = 55 TC = 5 MINUTES
BASIN 3
ONSITE AREA = 0.114 AC. (4979 S.F.)
CN = 55 TC = 5 MINUTES
N/F
DIAMOND PROPERTY RENTALS, LLC
TAX I.D.#17046600100
DB 14960 PG 5034
ZONED:R-20
N/F
MAXCO REALTY, LLC
TAX I.D.#17046600130
DB 15191 PG 955
PB 37 PG 241
ZONED:R-20
N-1391666.909
E-2187615.830


POST DEVELOPMENT MAP (NTS)
BASIN 2
INTO LOT PONDS
LOT 1 = 0.317 ACRES
CN = 73 TC = 5 MINUTES
LOT 2 = 0.285 ACRES
CN = 74 TC = 5 MINUTES
LOT 3 = 0.268 ACRES
CN = 74 TC = 5 MINUTES
PEBBLEBROOK ROAD (R/W VARIES)
DECELERATION LANE
ACCELERATION LANE
EXISTING CURB CUT
PROPOSED C/L
PROPOSED S/W
PROPOSED R/W
RAISED EDGE
FLOW TO DI
CITY LIMITS
COUNTY LIMITS
N-1391666.909
E-2187615.830
S0° 36' 26"E 450.30'
PROPOSED TWO STORY W/ BASEMENT FF MAIN = 1061.00 FF BSMT = 1050.60 FF GARAGE = 1058.68 15,008 SQ. FT. 0.3445 ACRES
PROPOSED TWO STORY W/ BASEMENT FF MAIN = 1057.00 FF BSMT = 1046.60 FF GARAGE = 1054.68 15,000 SQ. FT. 0.3444 ACRES
PROPOSED TWO STORY W/ BASEMENT FF MAIN = 1055.00 FF BSMT = 1044.60 FF GARAGE = 1054.42 14,620 SQ. FT. 0.3356 ACRES
DECK
PROPOSED SSL
PROPOSED REALIGNED SSL
PROPOSED SSE
AS PER PLAN BY ROGER S. LEE & ASSOCIATES
S67° 10' 01"W 270.90'
N/F DIAMOND PROPERTY RENTALS, LLC TAX I.D.#17046600100 DB 14960 PG 5034 ZONED:R-20
N/F MAXCO REALTY, LLC TAX I.D.#17046900130 DB 15101 PG 055 PB 37 PG 24 ZONED:R-20
N/F VINNINGS BROOK HOMEOWNER'S ASSOC. TAX I.D.#17046600750 DB 14303 PG 387 ZONED:R-15/ OSC
50' ACCESS EASEMENT (PB 37, PG. 24)
BASIN 1
AREA = 0.001 ACRES
(0.003 ACRES REDIRECTED INTO BASIN 2)
CN = 61 TC = 5 MINUTES
BASIN 2
BYPASSING PONDS
(0.028 AC. LOT 1, 0.059 AC. LOT 2, 0.067 AC. LOT 3)
CN = 61 TC = 5 MINUTES
BASIN 3
AREA = 0.0189 ACRES
(0.095 ACRES REDIRECTED INTO BASIN 2)
CN = 61 TC = 5 MINUTES



INSIDE WALL DETAIL

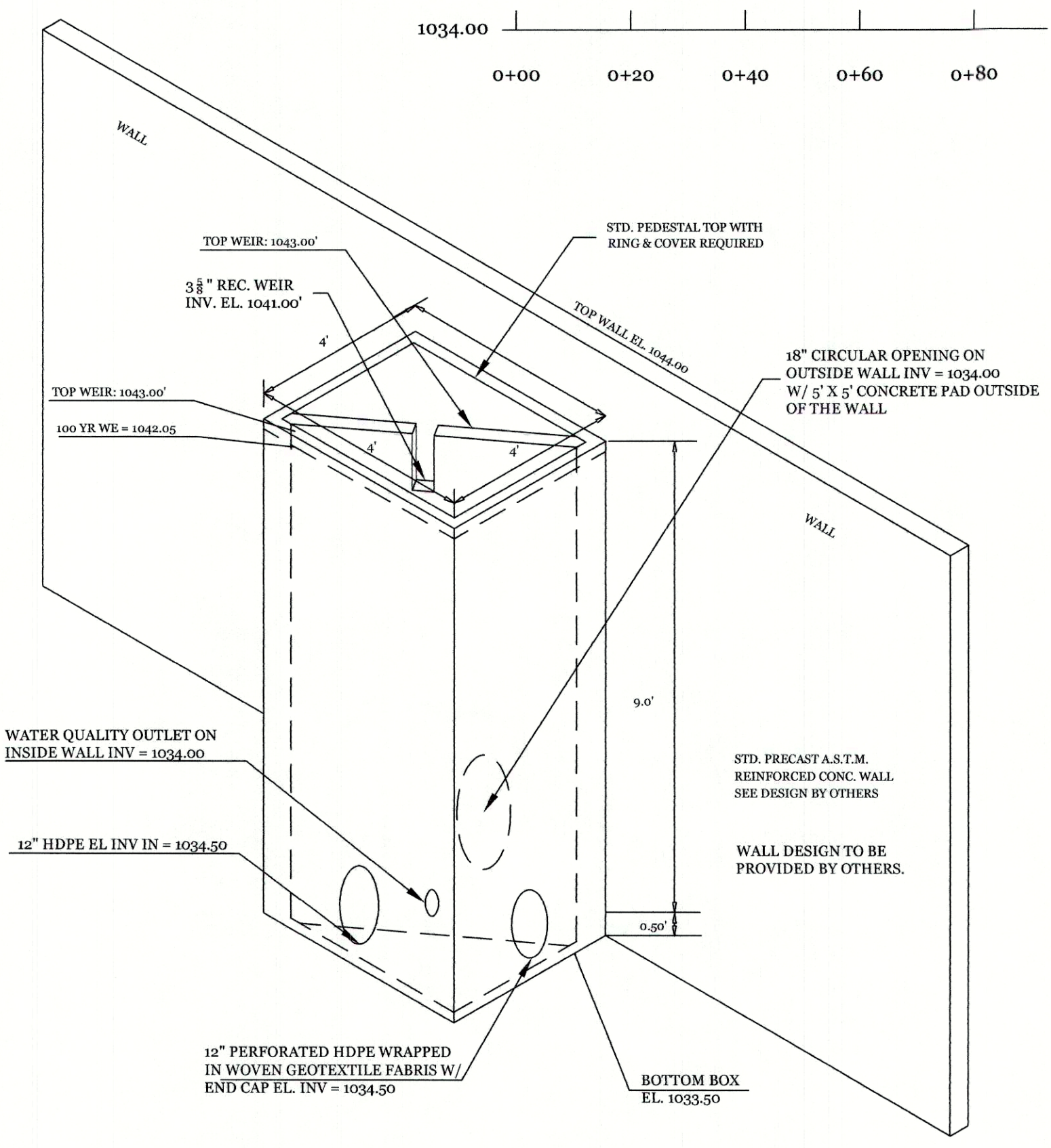




PLAN VIEW DETAIL

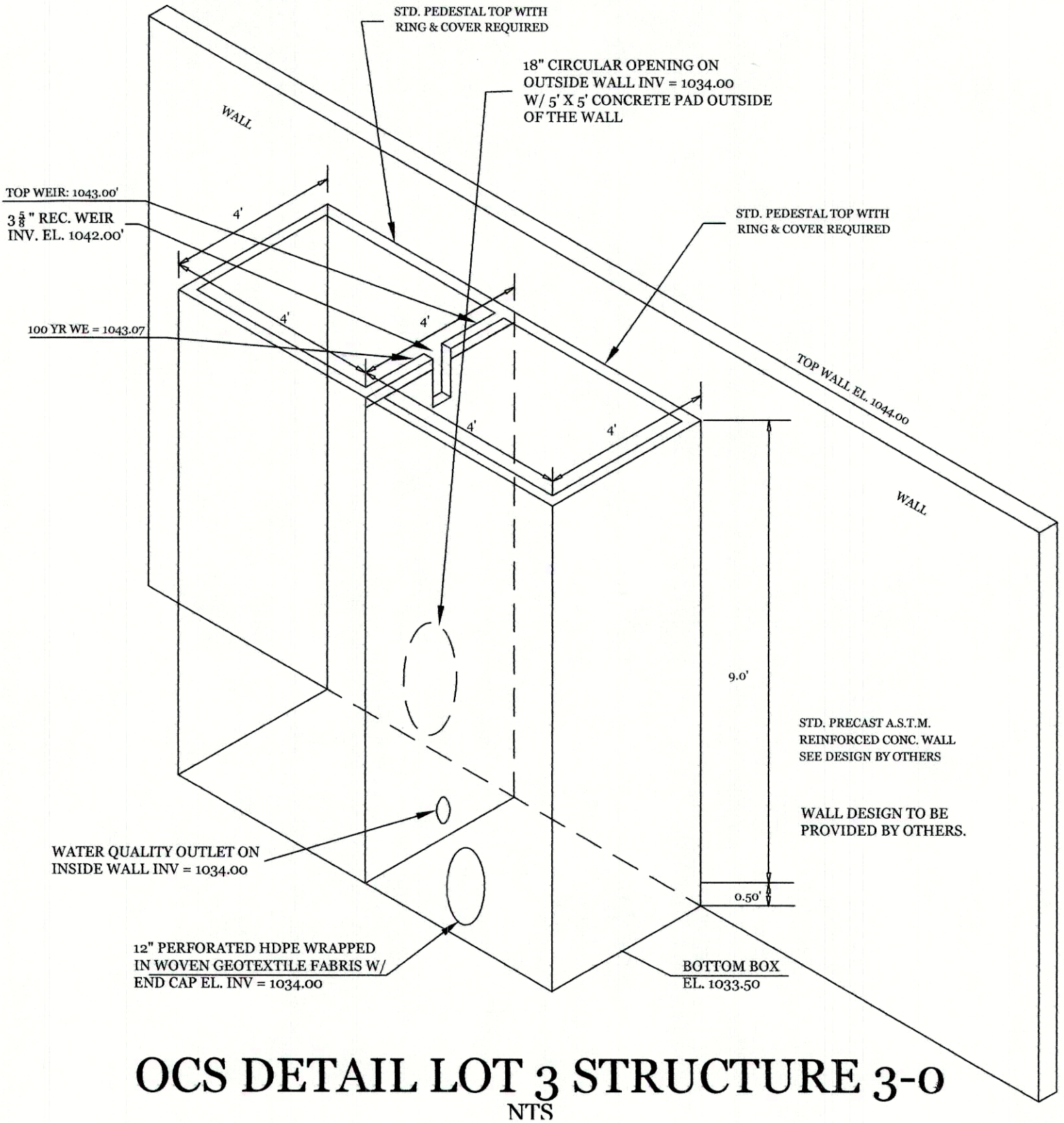
POND OUTLET LOT 1 STRUCTURE 1-2

NTS



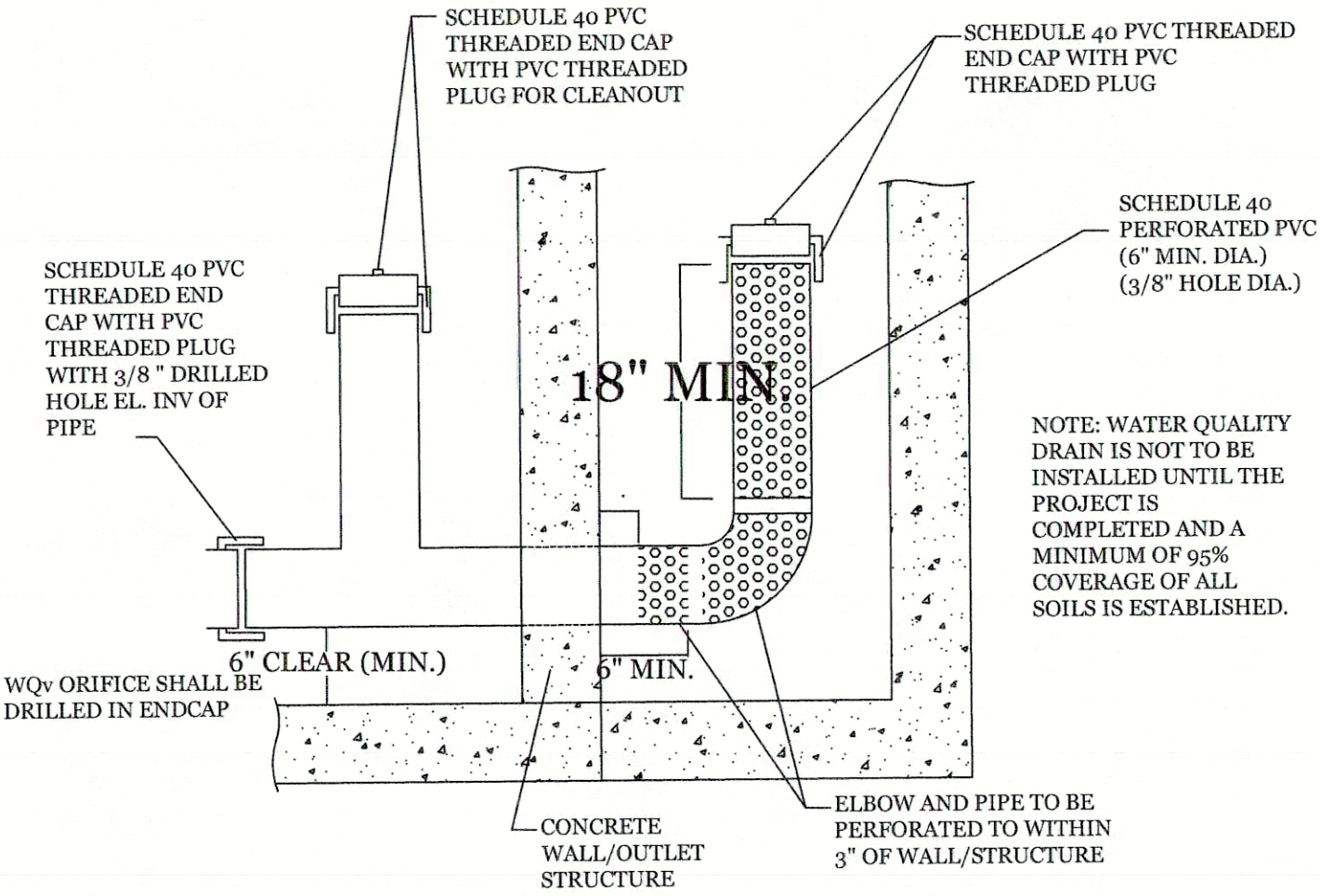
OCS DETAIL LOT 2 STRUCTURE 2-1

NTS



OCS DETAIL LOT 3 STRUCTURE 3-0

NTS



WATER QUALITY DETAIL

NOTES (TO APPLY TO ALL):

1) FILL GAP BETWEEN STRUCTURE AND PVC WITH MORTAR OR INSTALL A FERNCO ADAPTER

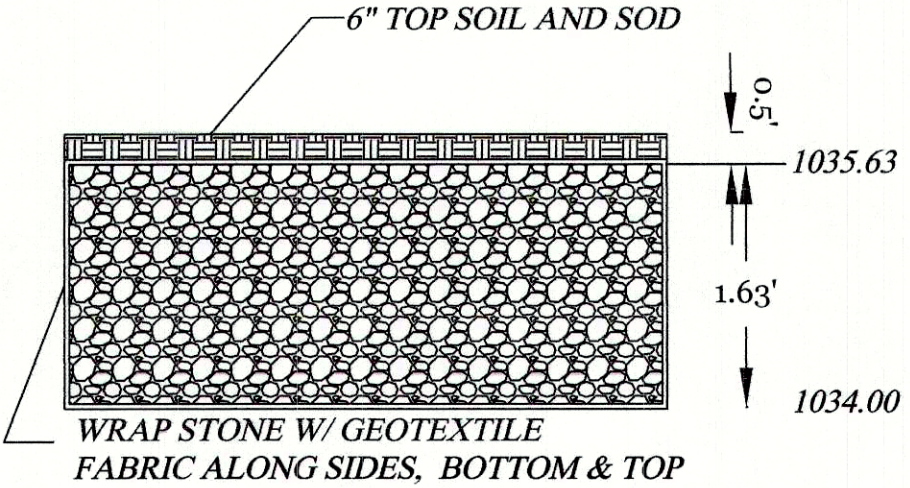
2) SIZE ORIFICE AS REQUIRED

3) FASTEN END CAP TO SYSTEM WITH PVC CEMENT

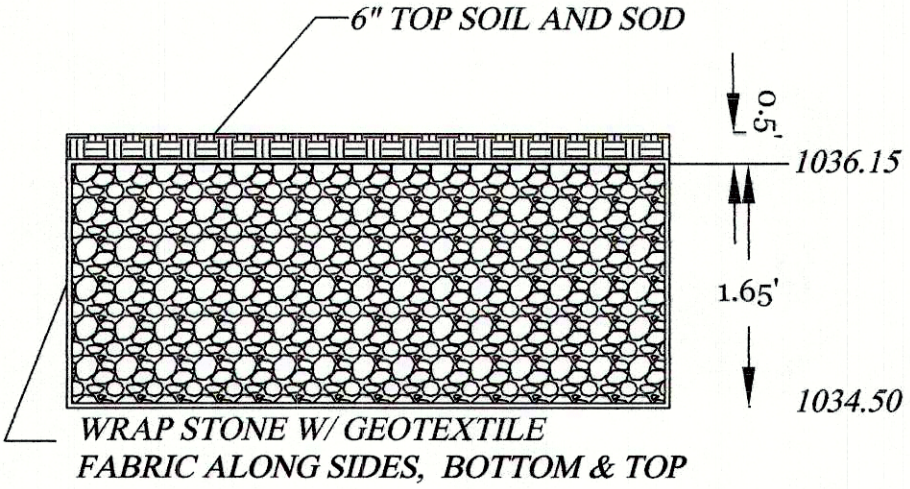
4) PIPE SIZE SHALL BE SPECIFIED PER TABLE BELOW. PIPE SIZES SHALL BE CONSISTENT FOR EACH END-CAP ASSEMBLY

OUTLET ORIFICE DIA.	PIPE SIZE
<3"	6"
3" TO <5"	8"
5" TO <11"	12"

5) VARIATIONS TO THIS DETAIL MAY BE ACCEPTABLE ON A CASE BY CASE BASIS. MODIFICATIONS SHALL BE SUBJECT TO REVIEW AND APPROVAL BY THE STORMWATER DEPARTMENT.



ENCASEMENT DETAIL LOT 3
NTS



ENCASEMENT DETAIL LOT 2
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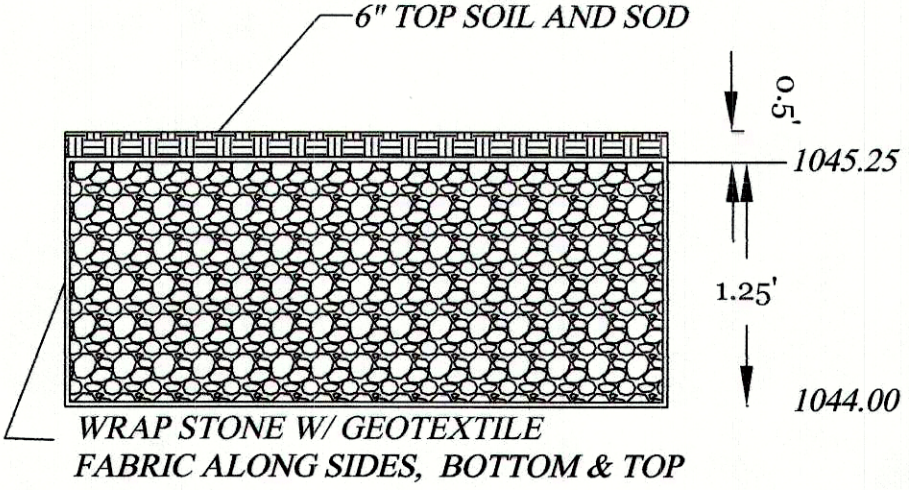


ENCASEMENT DETAIL LOT 1
NTS

Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Pond No. 1 - Lot 1 Pond

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1045.25 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1045.25	07	0	0
0.50	1045.75	07	3	3
0.75	1046.00	215	22	25
2.75	1048.00	800	953	978
4.75	1050.00	2,165	2,854	3,832

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	0.00	0.00	0.00
Span (in)	= 12.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 1044.50	0.00	0.00	0.00
Length (ft)	= 20.00	0.00	0.00	0.00
Slope (%)	= 1.00	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)	= 4.00	0.25	0.00	0.00
Crest El. (ft)	= 1049.00	1048.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	Yes	No	No

Exfil.(in/hr) = 0.000 (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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1045.25	0.00	---	---	---	0.00	0.00	---	---	---	---	0.000
0.50	3	1045.75	1.62 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
0.75	25	1046.00	1.62 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
2.75	978	1048.00	1.62 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
4.75	3,832	1050.00	7.44 ic	---	---	---	5.38 ic	2.07 s	---	---	---	---	7.442

Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Wednesday, 04 / 10 / 2019

Pond No. 2 - Lot 2 Pond

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1036.15 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1036.15	08	0	0
0.85	1037.00	08	7	7
1.85	1038.00	267	107	114
3.85	1040.00	430	690	804
5.85	1042.00	655	1,077	1,881
7.85	1044.00	932	1,579	3,460

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	0.00	0.00	0.00
Span (in)	= 18.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 1034.00	0.00	0.00	0.00
Length (ft)	= 1.00	0.00	0.00	0.00
Slope (%)	= 1.00	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)	= 4.00	0.30	0.00	0.00
Crest El. (ft)	= 1043.00	1041.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	Yes	No	No

Exfil.(in/hr) = 0.000 (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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1036.15	0.00	---	---	---	0.00	0.00	---	---	---	---	0.000
0.85	7	1037.00	9.35 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
1.85	114	1038.00	9.35 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
3.85	804	1040.00	9.35 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
5.85	1,881	1042.00	9.35 oc	---	---	---	0.00	1.00	---	---	---	---	0.999
7.85	3,460	1044.00	10.57 oc	---	---	---	5.38 ic	5.19	---	---	---	---	10.57

Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Wednesday, 04 / 10 / 2019

Pond No. 3 - Lot 3 open pond

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1035.63 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1035.63	17	0	0
4.00	1039.63	17	68	68
4.37	1040.00	73	15	83
6.37	1042.00	210	271	355
8.37	1044.00	1,235	1,303	1,657

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	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	= .000	.000	.000	n/a
Orifice Coeff.	= 0.00	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

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

Exfil.(in/hr) = 0.000 (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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1035.63	---	---	---	---	---	---	---	---	---	---	0.000
4.00	68	1039.63	---	---	---	---	---	---	---	---	---	---	0.000
4.37	83	1040.00	---	---	---	---	---	---	---	---	---	---	0.000
6.37	355	1042.00	---	---	---	---	---	---	---	---	---	---	0.000
8.37	1,657	1044.00	---	---	---	---	---	---	---	---	---	---	0.000

Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Wednesday, 04 / 10 / 2019

Pond No. 4 - 48 inch Pipe

Pond Data

UG Chambers -Invert elev. = 1035.63 ft, Rise x Span = 4.00 x 4.00 ft, Barrel Len = 45.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1035.63	n/a	0	0
0.40	1036.03	n/a	30	30
0.80	1036.43	n/a	51	81
1.20	1036.83	n/a	62	143
1.60	1037.23	n/a	69	211
2.00	1037.63	n/a	72	283
2.40	1038.03	n/a	72	354
2.80	1038.43	n/a	68	423
3.20	1038.83	n/a	62	485
3.60	1039.23	n/a	51	536
4.00	1039.63	n/a	29	566

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	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	= .000	.000	.000	n/a
Orifice Coeff.	= 0.00	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

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

Exfil.(in/hr) = 0.000 (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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1035.63	---	---	---	---	---	---	---	---	---	---	0.000
0.40	30	1036.03	---	---	---	---	---	---	---	---	---	---	0.000
0.80	81	1036.43	---	---	---	---	---	---	---	---	---	---	0.000
1.20	143	1036.83	---	---	---	---	---	---	---	---	---	---	0.000
1.60	211	1037.23	---	---	---	---	---	---	---	---	---	---	0.000
2.00	283	1037.63	---	---	---	---	---	---	---	---	---	---	0.000
2.40	354	1038.03	---	---	---	---	---	---	---	---	---	---	0.000
2.80	423	1038.43	---	---	---	---	---	---	---	---	---	---	0.000
3.20	485	1038.83	---	---	---	---	---	---	---	---	---	---	0.000
3.60	536	1039.23	---	---	---	---	---	---	---	---	---	---	0.000
4.00	566	1039.63	---	---	---	---	---	---	---	---	---	---	0.000

Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Wednesday, 04 / 10 / 2019

Pond No. 5 - Lot 3 Pond

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1035.63	n/a	0	0
0.40	1036.03	n/a	30	30
0.80	1036.43	n/a	51	81
1.20	1036.83	n/a	79	160
1.60	1037.23	n/a	69	229
2.00	1037.63	n/a	89	318
2.40	1038.03	n/a	72	390
2.80	1038.43	n/a	68	458
3.20	1038.83	n/a	79	537
3.60	1039.23	n/a	51	588
4.00	1039.63	n/a	46	634
4.37	1040.00	n/a	15	649
6.37	1042.00	n/a	271	920
8.37	1044.00	n/a	1,303	2,223

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	0.00	0.00	0.00
Span (in)	= 18.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 1034.00	0.00	0.00	0.00
Length (ft)	= 1.00	0.00	0.00	0.00
Slope (%)	= 1.00	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)	= 4.00	0.30	0.00	0.00
Crest El. (ft)	= 1043.00	1042.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	Yes	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1035.63	0.00	---	---	---	0.00	0.00	---	---	---	---	0.000
0.40	30	1036.03	4.31 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
0.80	81	1036.43	4.31 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
1.20	160	1036.83	4.31 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
1.60	229	1037.23	4.31 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
2.00	318	1037.63	4.31 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
2.40	390	1038.03	4.31 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
2.80	458	1038.43	4.31 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
3.20	537	1038.83	4.31 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
3.60	588	1039.23	4.31 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
4.00	634	1039.63	4.31 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
4.37	649	1040.00	4.31 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
6.37	920	1042.00	4.31 oc	---	---	---	0.00	0.00	---	---	---	---	0.000
8.37	2,223	1044.00	8.20 oc	---	---	---	5.38 ic	2.83	---	---	---	---	8.202

Hydrograph Report

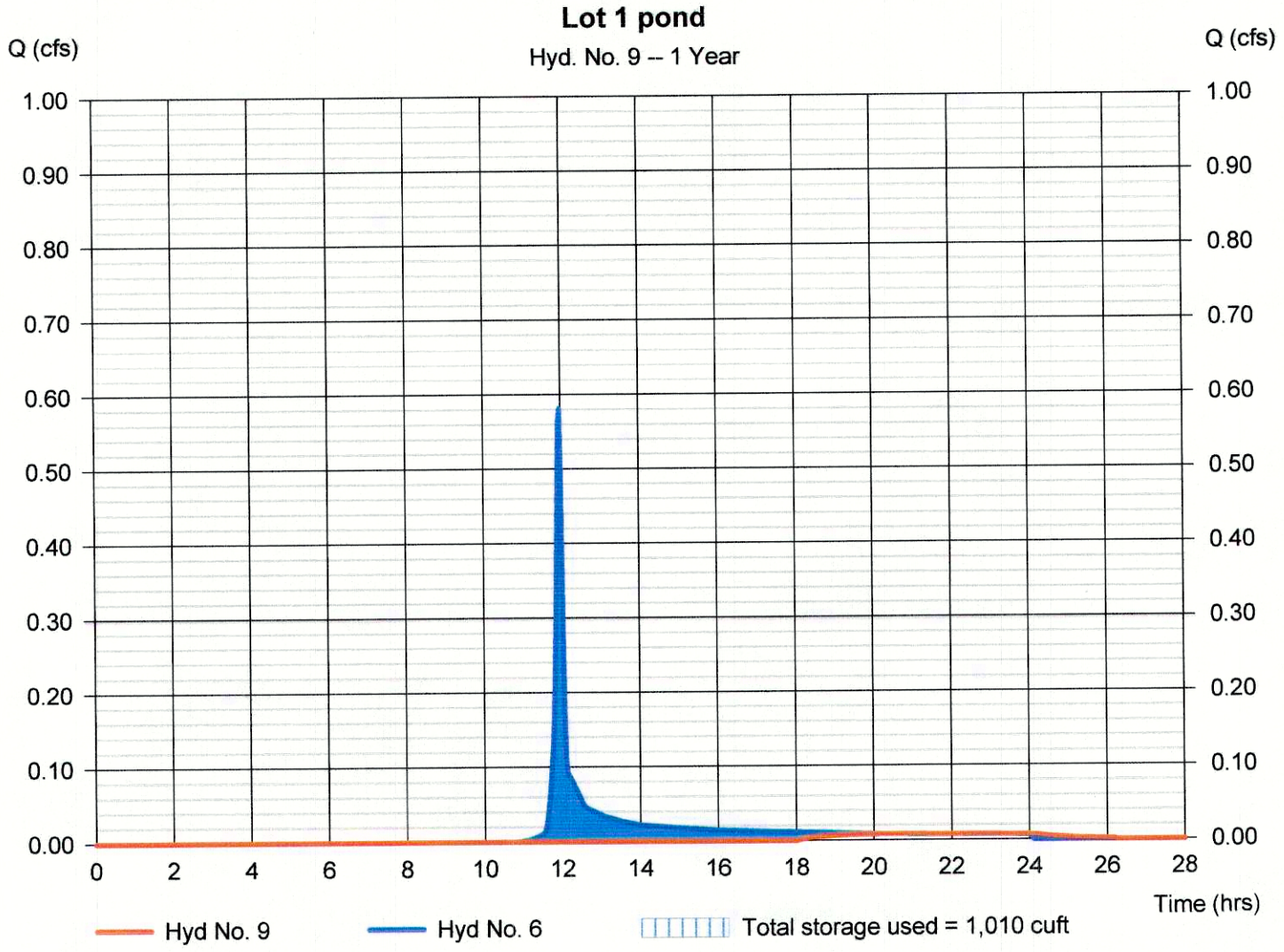
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 9

Lot 1 pond

Hydrograph type	= Reservoir	Peak discharge	= 0.008 cfs
Storm frequency	= 1 yrs	Time to peak	= 20.70 hrs
Time interval	= 2 min	Hyd. volume	= 183 cuft
Inflow hyd. No.	= 6 - Post into Pond Lot 1	Max. Elevation	= 1048.02 ft
Reservoir name	= Lot 1 Pond	Max. Storage	= 1,010 cuft

Storage Indication method used.



Hydrograph Report

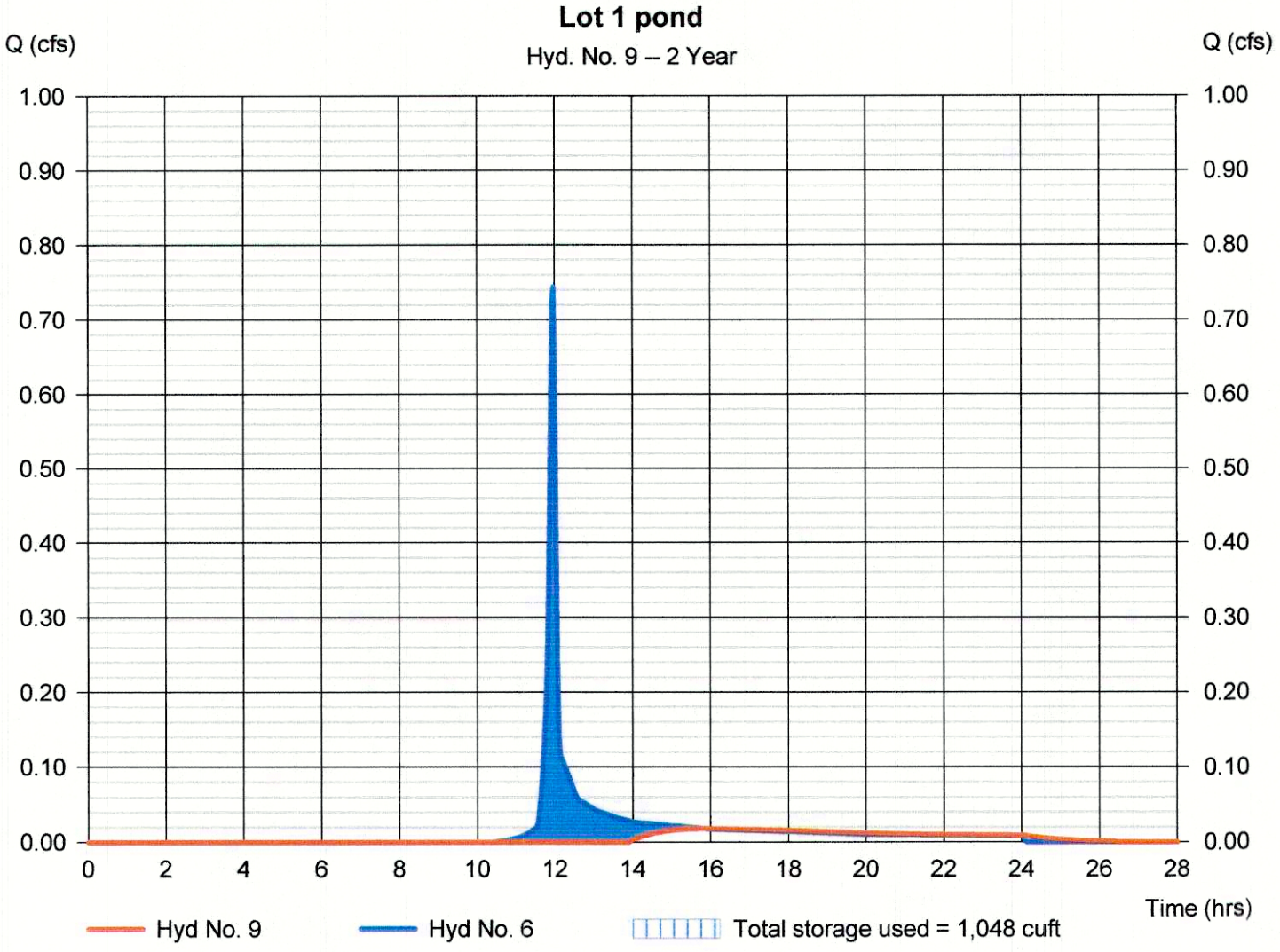
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 9

Lot 1 pond

Hydrograph type	= Reservoir	Peak discharge	= 0.018 cfs
Storm frequency	= 2 yrs	Time to peak	= 15.87 hrs
Time interval	= 2 min	Hyd. volume	= 505 cuft
Inflow hyd. No.	= 6 - Post into Pond Lot 1	Max. Elevation	= 1048.05 ft
Reservoir name	= Lot 1 Pond	Max. Storage	= 1,048 cuft

Storage Indication method used.



Hydrograph Report

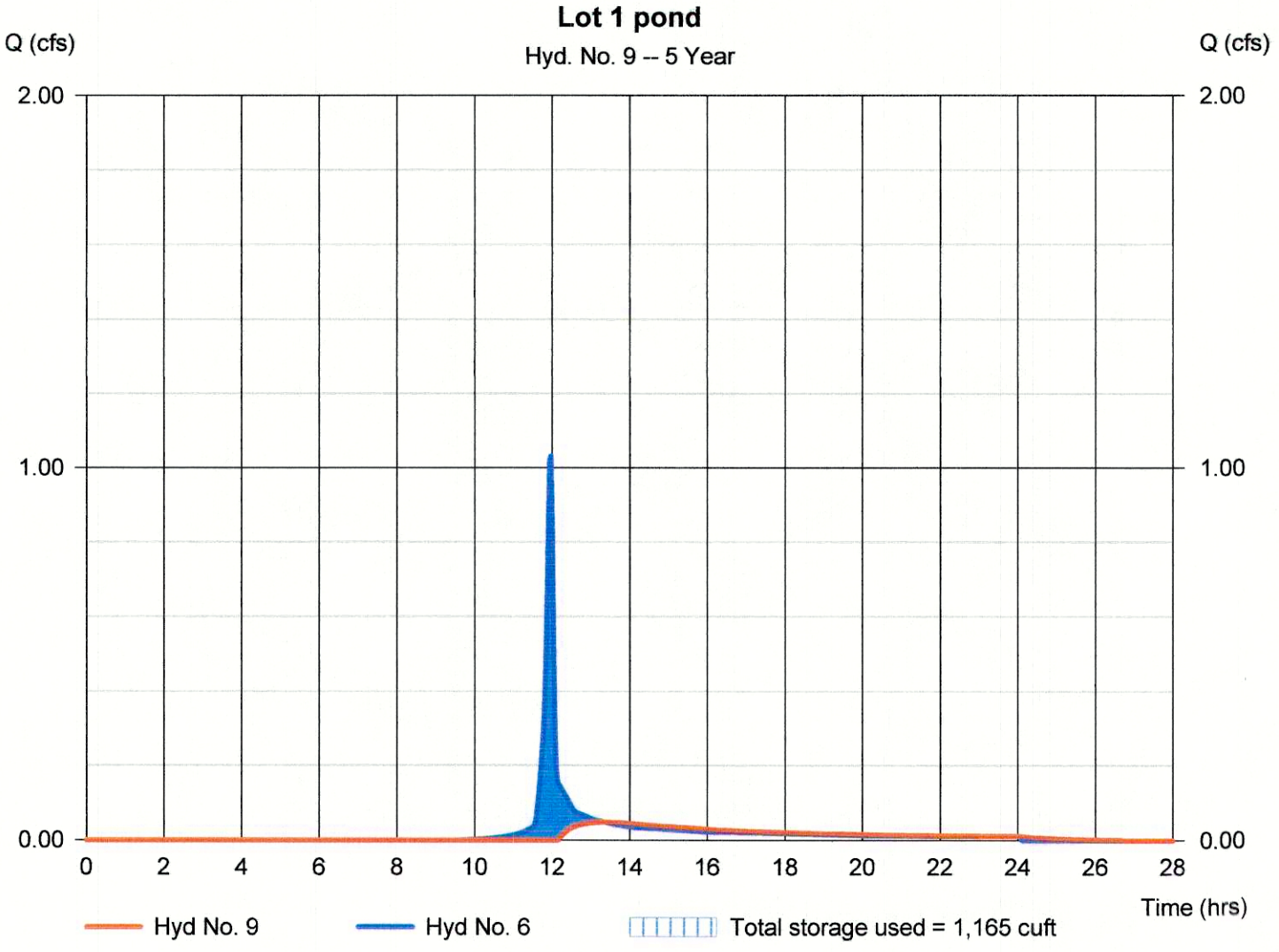
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 9

Lot 1 pond

Hydrograph type	= Reservoir	Peak discharge	= 0.049 cfs
Storm frequency	= 5 yrs	Time to peak	= 13.37 hrs
Time interval	= 2 min	Hyd. volume	= 1,087 cuft
Inflow hyd. No.	= 6 - Post into Pond Lot 1	Max. Elevation	= 1048.13 ft
Reservoir name	= Lot 1 Pond	Max. Storage	= 1,165 cuft

Storage Indication method used.



Hydrograph Report

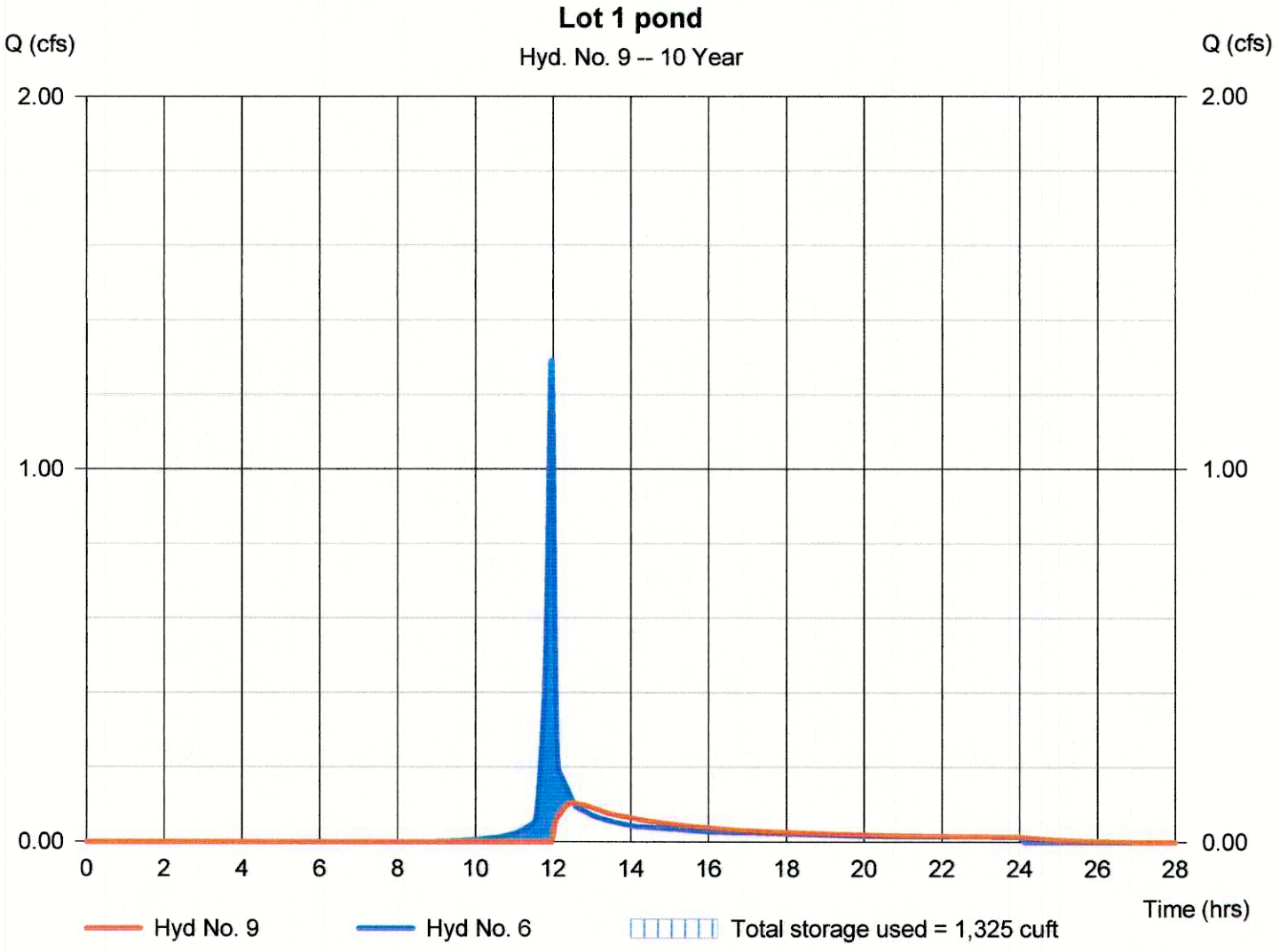
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 9

Lot 1 pond

Hydrograph type	= Reservoir	Peak discharge	= 0.104 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.53 hrs
Time interval	= 2 min	Hyd. volume	= 1,623 cuft
Inflow hyd. No.	= 6 - Post into Pond Lot 1	Max. Elevation	= 1048.24 ft
Reservoir name	= Lot 1 Pond	Max. Storage	= 1,325 cuft

Storage Indication method used.



Hydrograph Report

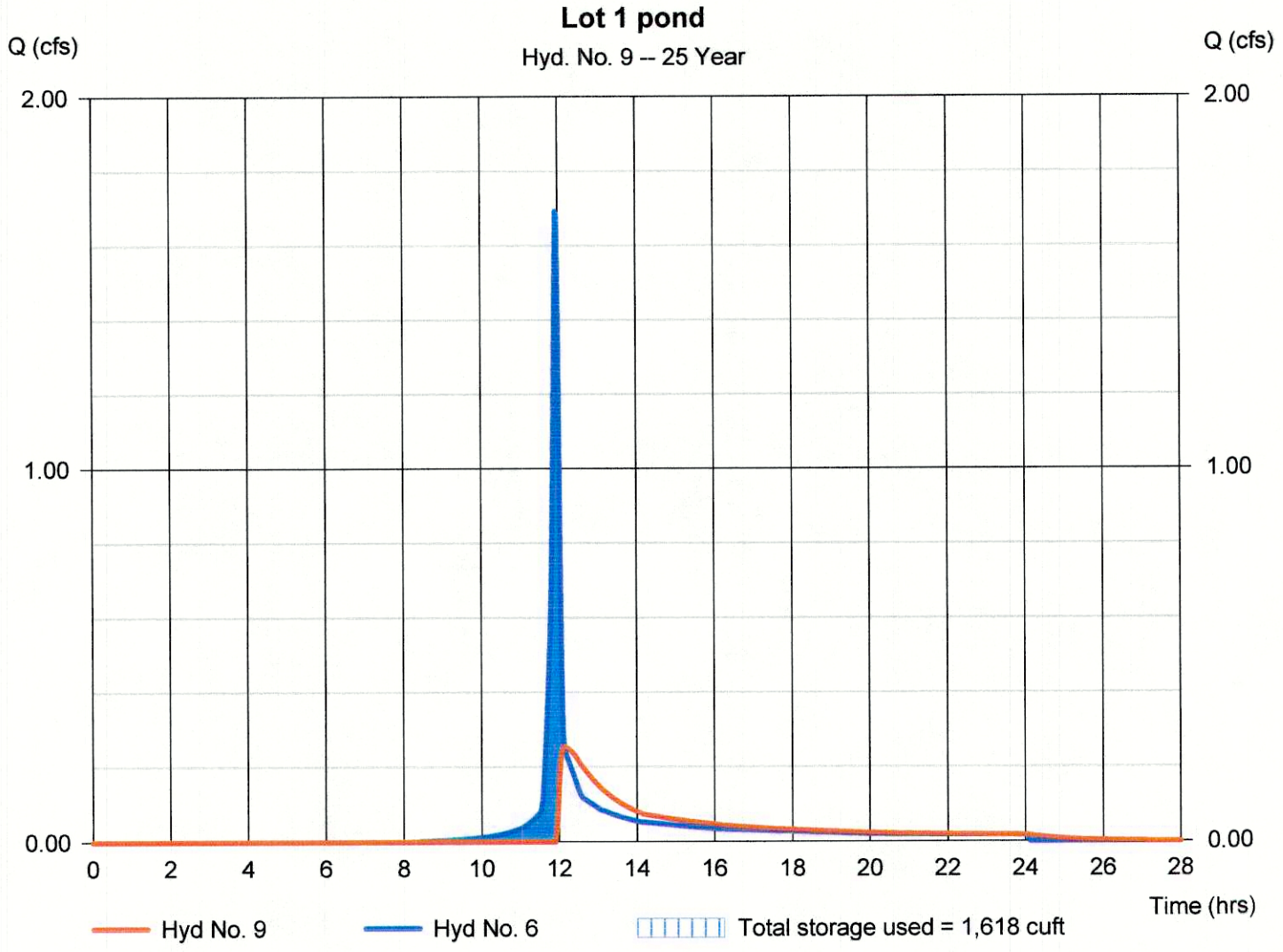
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 9

Lot 1 pond

Hydrograph type	= Reservoir	Peak discharge	= 0.253 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 2,440 cuft
Inflow hyd. No.	= 6 - Post into Pond Lot 1	Max. Elevation	= 1048.45 ft
Reservoir name	= Lot 1 Pond	Max. Storage	= 1,618 cuft

Storage Indication method used.



Hydrograph Report

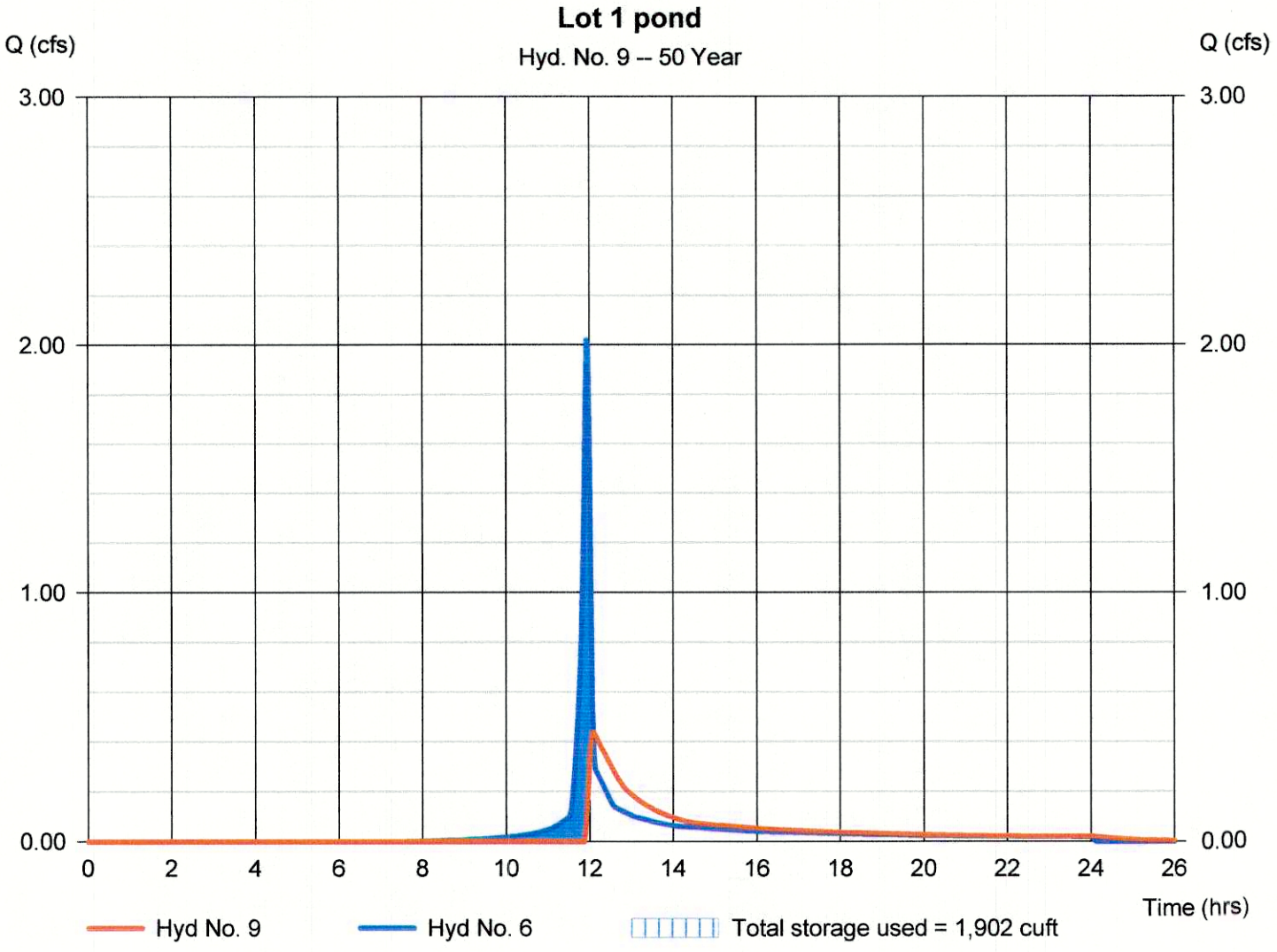
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 9

Lot 1 pond

Hydrograph type	= Reservoir	Peak discharge	= 0.436 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 3,115 cuft
Inflow hyd. No.	= 6 - Post into Pond Lot 1	Max. Elevation	= 1048.65 ft
Reservoir name	= Lot 1 Pond	Max. Storage	= 1,902 cuft

Storage Indication method used.



Hydrograph Report

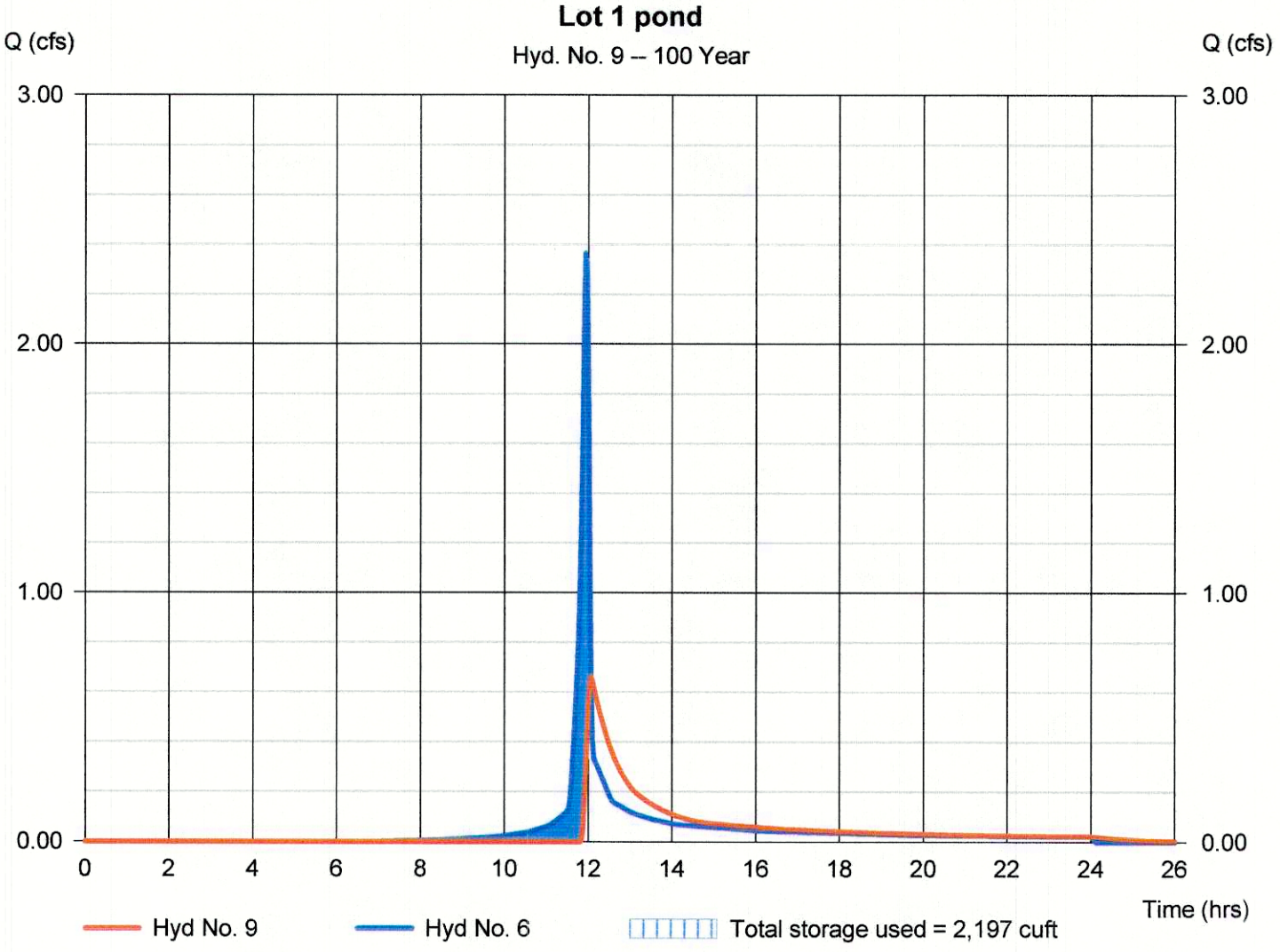
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 9

Lot 1 pond

Hydrograph type	= Reservoir	Peak discharge	= 0.660 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 3,836 cuft
Inflow hyd. No.	= 6 - Post into Pond Lot 1	Max. Elevation	= 1048.85 ft
Reservoir name	= Lot 1 Pond	Max. Storage	= 2,197 cuft

Storage Indication method used.



Hydrograph Report

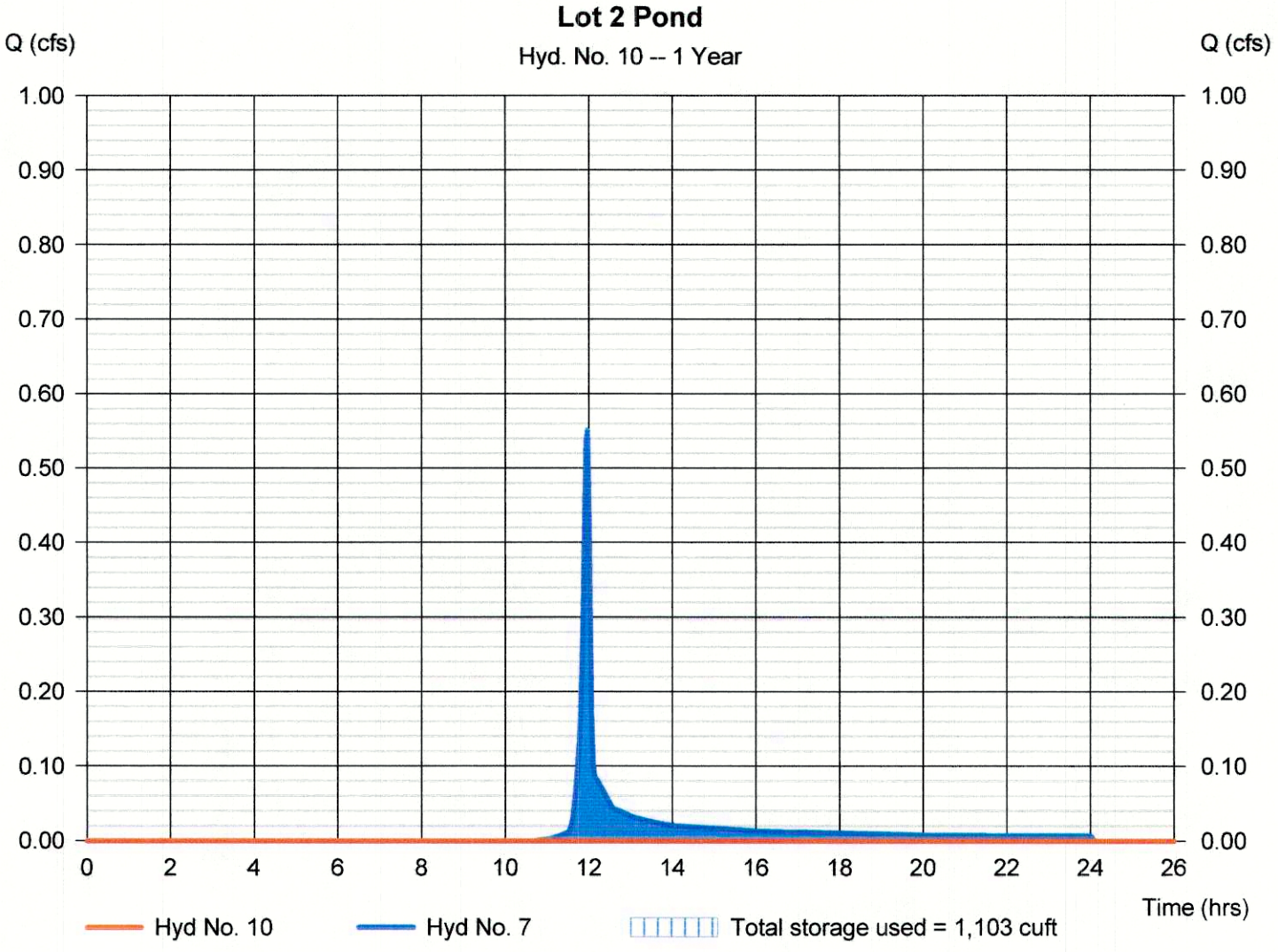
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 10

Lot 2 Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 7 - Into Pond Lot 2	Max. Elevation	= 1040.56 ft
Reservoir name	= Lot 2 Pond	Max. Storage	= 1,103 cuft

Storage Indication method used.



Hydrograph Report

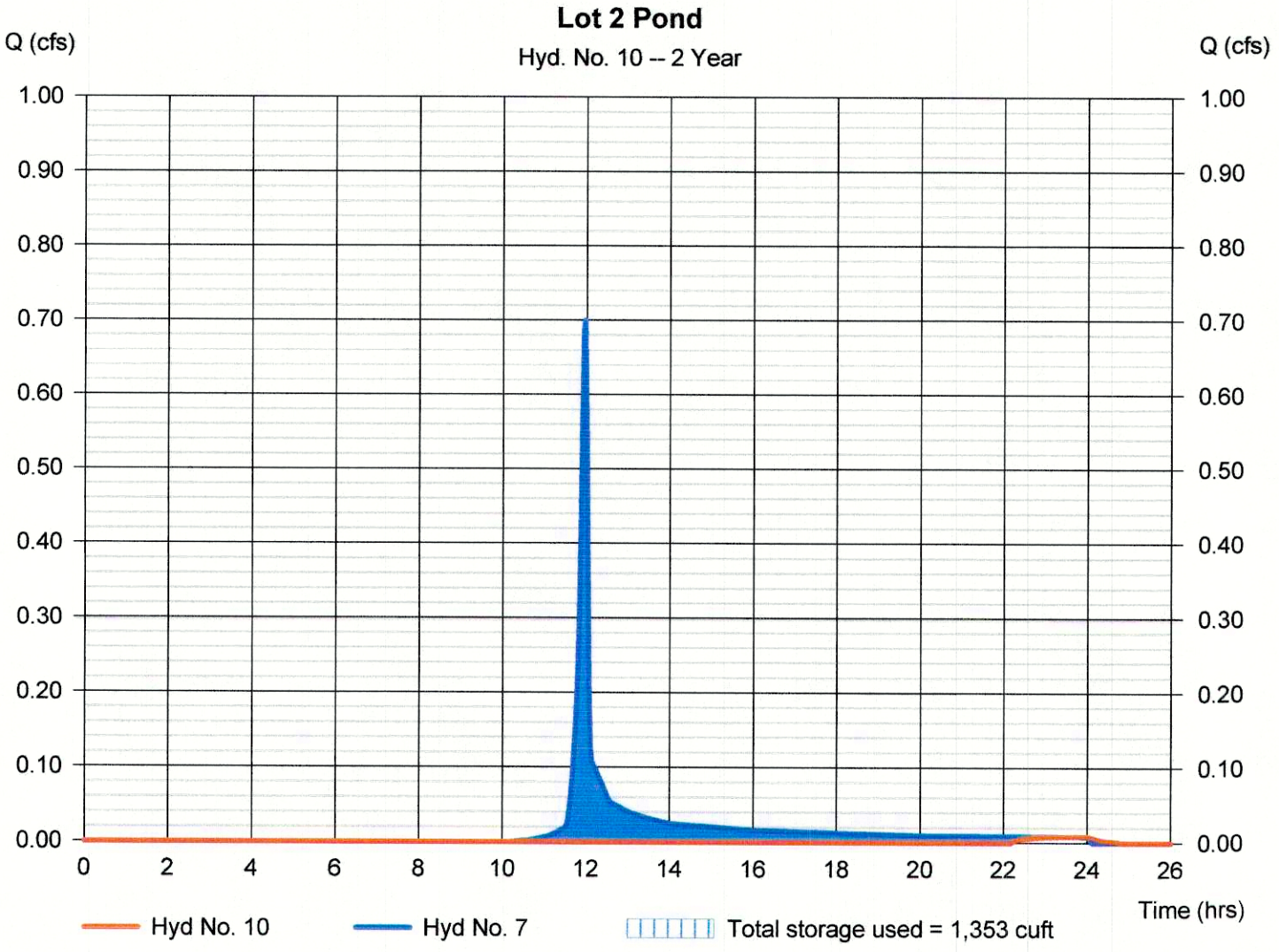
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 10

Lot 2 Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.008 cfs
Storm frequency	= 2 yrs	Time to peak	= 23.63 hrs
Time interval	= 2 min	Hyd. volume	= 56 cuft
Inflow hyd. No.	= 7 - Into Pond Lot 2	Max. Elevation	= 1041.02 ft
Reservoir name	= Lot 2 Pond	Max. Storage	= 1,353 cuft

Storage Indication method used.



Hydrograph Report

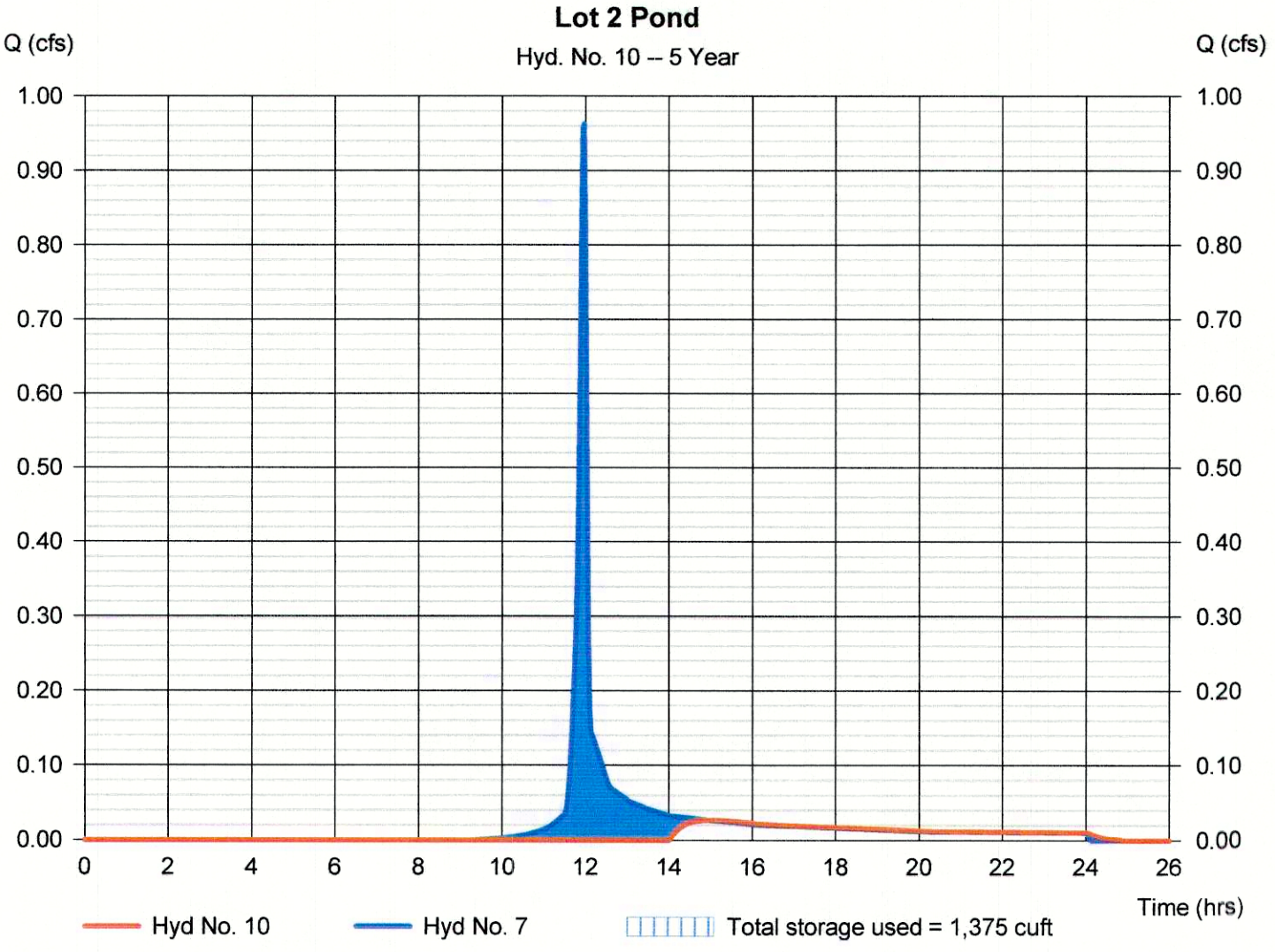
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 10

Lot 2 Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.027 cfs
Storm frequency	= 5 yrs	Time to peak	= 15.00 hrs
Time interval	= 2 min	Hyd. volume	= 591 cuft
Inflow hyd. No.	= 7 - Into Pond Lot 2	Max. Elevation	= 1041.06 ft
Reservoir name	= Lot 2 Pond	Max. Storage	= 1,375 cuft

Storage Indication method used.



Hydrograph Report

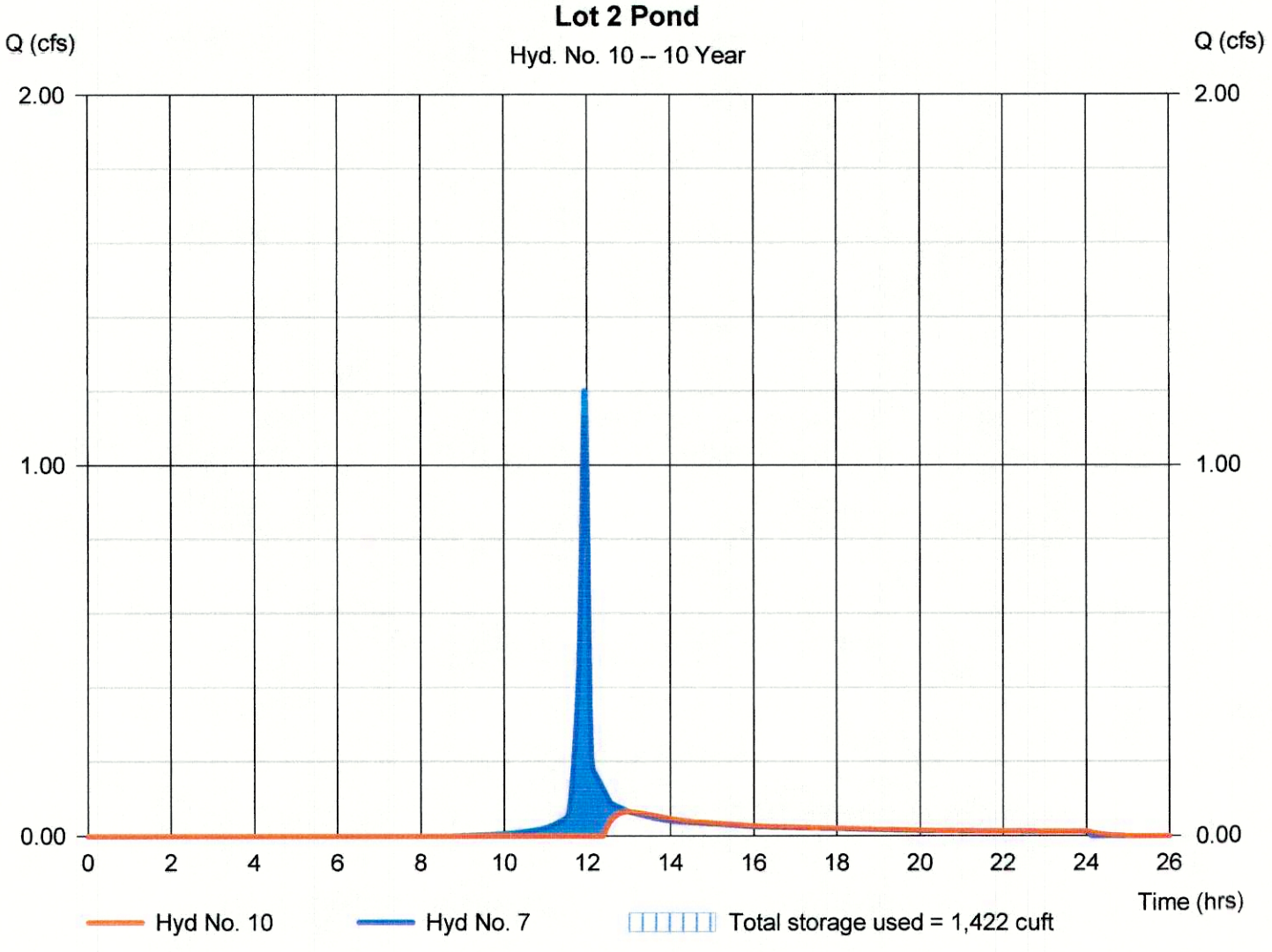
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 10

Lot 2 Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.065 cfs
Storm frequency	= 10 yrs	Time to peak	= 13.00 hrs
Time interval	= 2 min	Hyd. volume	= 1,081 cuft
Inflow hyd. No.	= 7 - Into Pond Lot 2	Max. Elevation	= 1041.15 ft
Reservoir name	= Lot 2 Pond	Max. Storage	= 1,422 cuft

Storage Indication method used.



Hydrograph Report

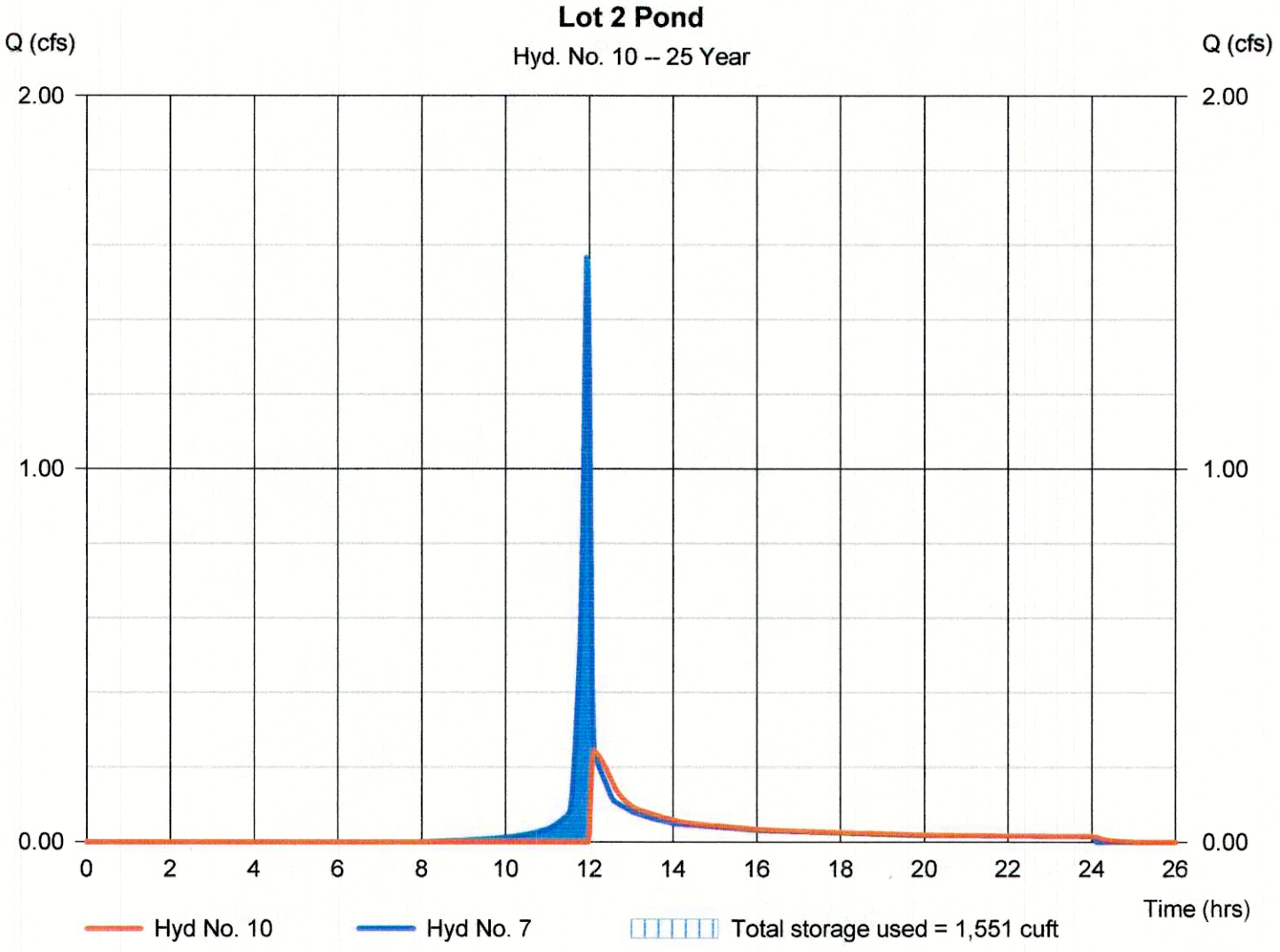
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 10

Lot 2 Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.242 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 1,827 cuft
Inflow hyd. No.	= 7 - Into Pond Lot 2	Max. Elevation	= 1041.39 ft
Reservoir name	= Lot 2 Pond	Max. Storage	= 1,551 cuft

Storage Indication method used.



Hydrograph Report

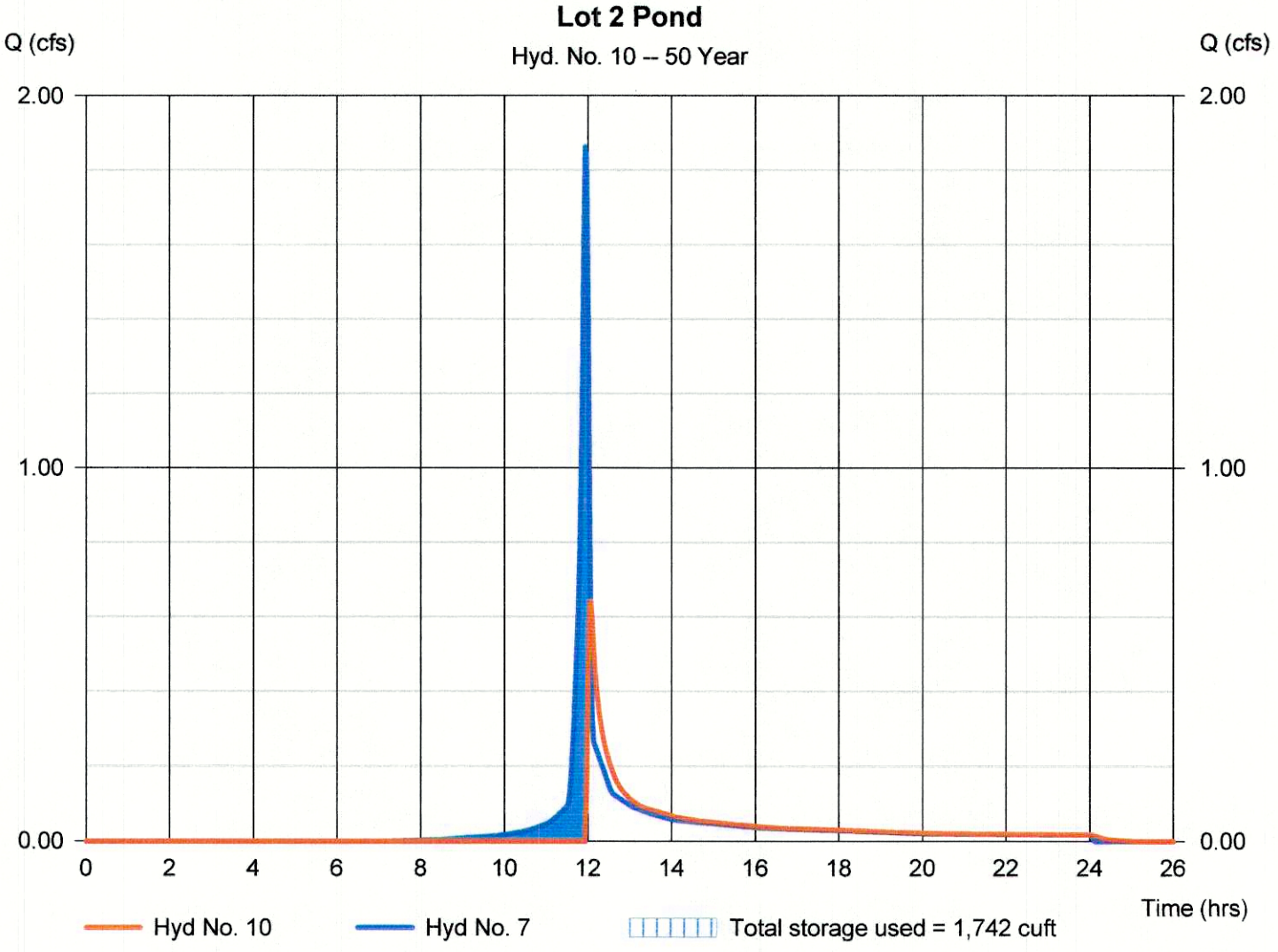
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 10

Lot 2 Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.642 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 2,441 cuft
Inflow hyd. No.	= 7 - Into Pond Lot 2	Max. Elevation	= 1041.76 ft
Reservoir name	= Lot 2 Pond	Max. Storage	= 1,742 cuft

Storage Indication method used.



Hydrograph Report

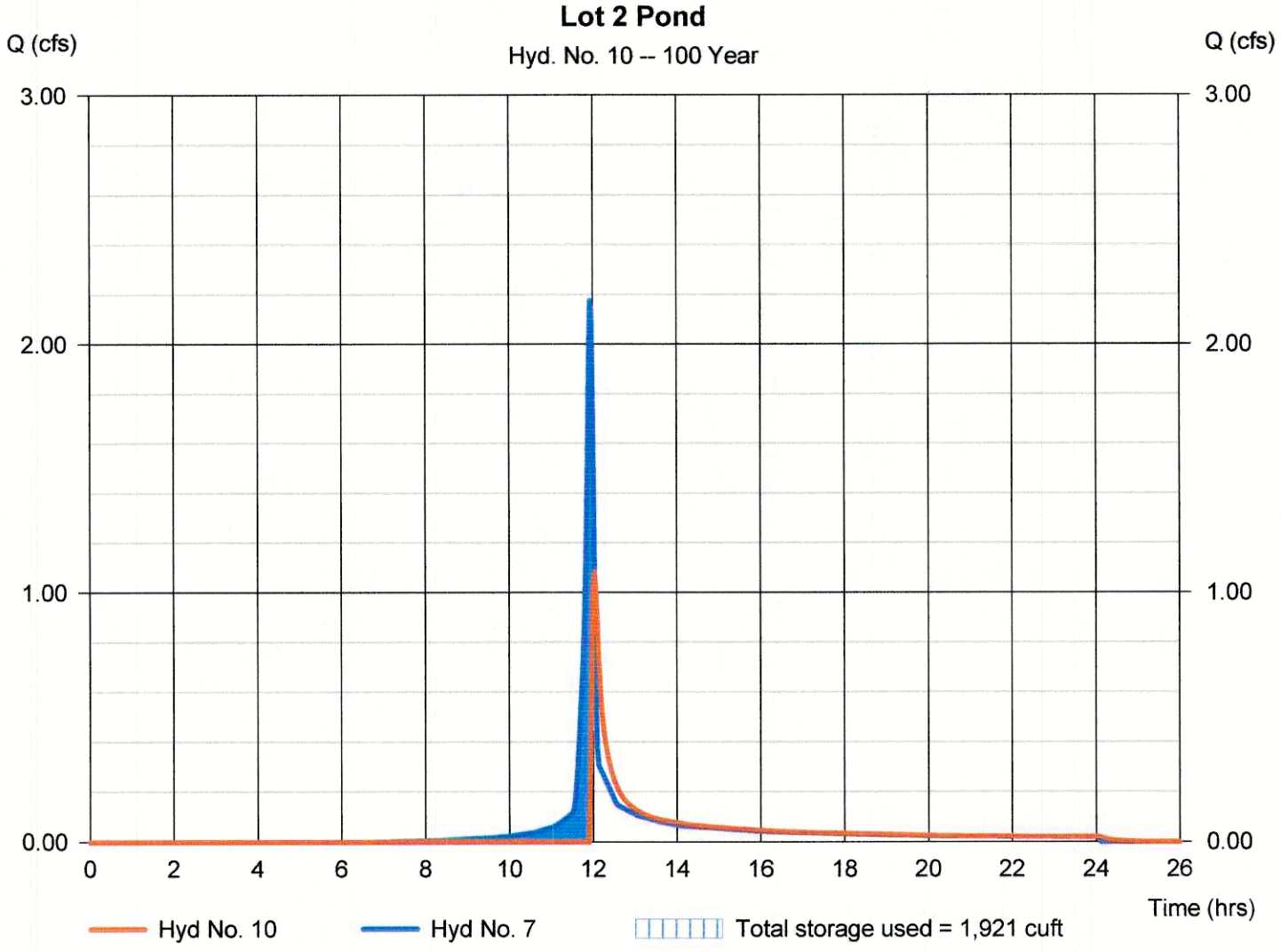
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 10

Lot 2 Pond

Hydrograph type	= Reservoir	Peak discharge	= 1.078 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 3,097 cuft
Inflow hyd. No.	= 7 - Into Pond Lot 2	Max. Elevation	= 1042.05 ft
Reservoir name	= Lot 2 Pond	Max. Storage	= 1,921 cuft

Storage Indication method used.



Hydrograph Report

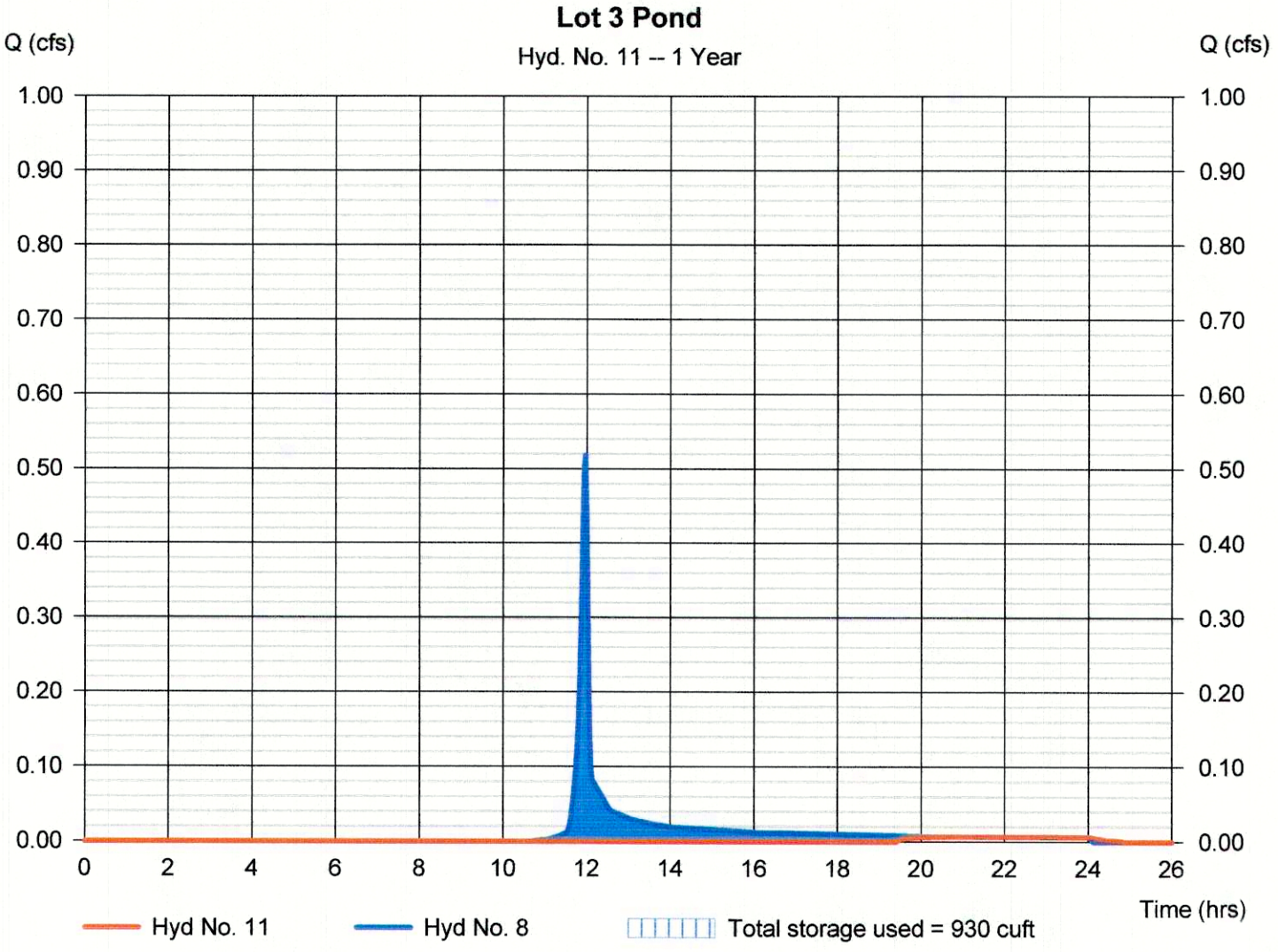
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 11

Lot 3 Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.007 cfs
Storm frequency	= 1 yrs	Time to peak	= 21.03 hrs
Time interval	= 2 min	Hyd. volume	= 116 cuft
Inflow hyd. No.	= 8 - Into Pond Lot 3	Max. Elevation	= 1042.02 ft
Reservoir name	= Lot 3 Pond	Max. Storage	= 930 cuft

Storage Indication method used.



Hydrograph Report

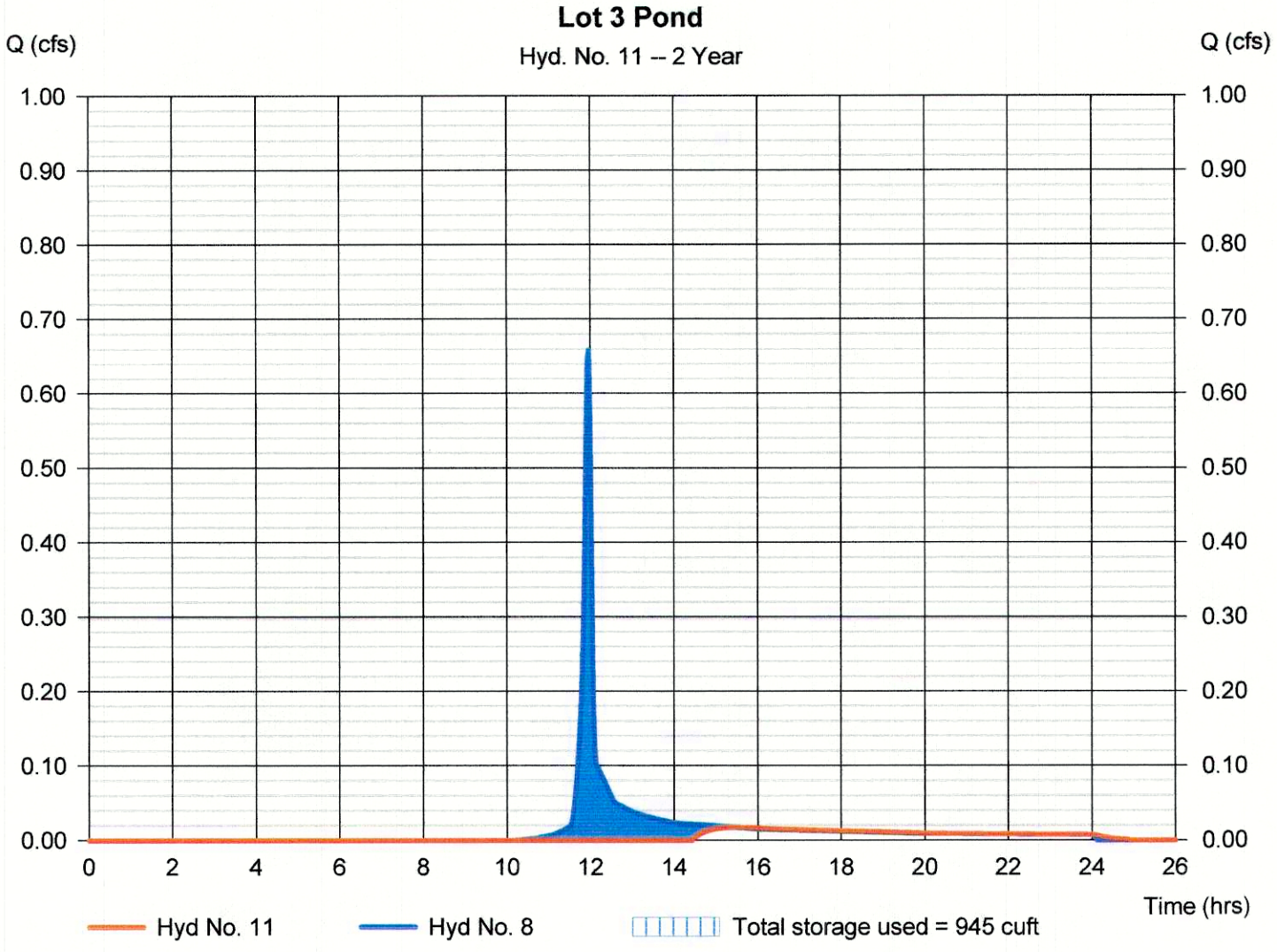
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 11

Lot 3 Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.017 cfs
Storm frequency	= 2 yrs	Time to peak	= 15.50 hrs
Time interval	= 2 min	Hyd. volume	= 395 cuft
Inflow hyd. No.	= 8 - Into Pond Lot 3	Max. Elevation	= 1042.04 ft
Reservoir name	= Lot 3 Pond	Max. Storage	= 945 cuft

Storage Indication method used.



Hydrograph Report

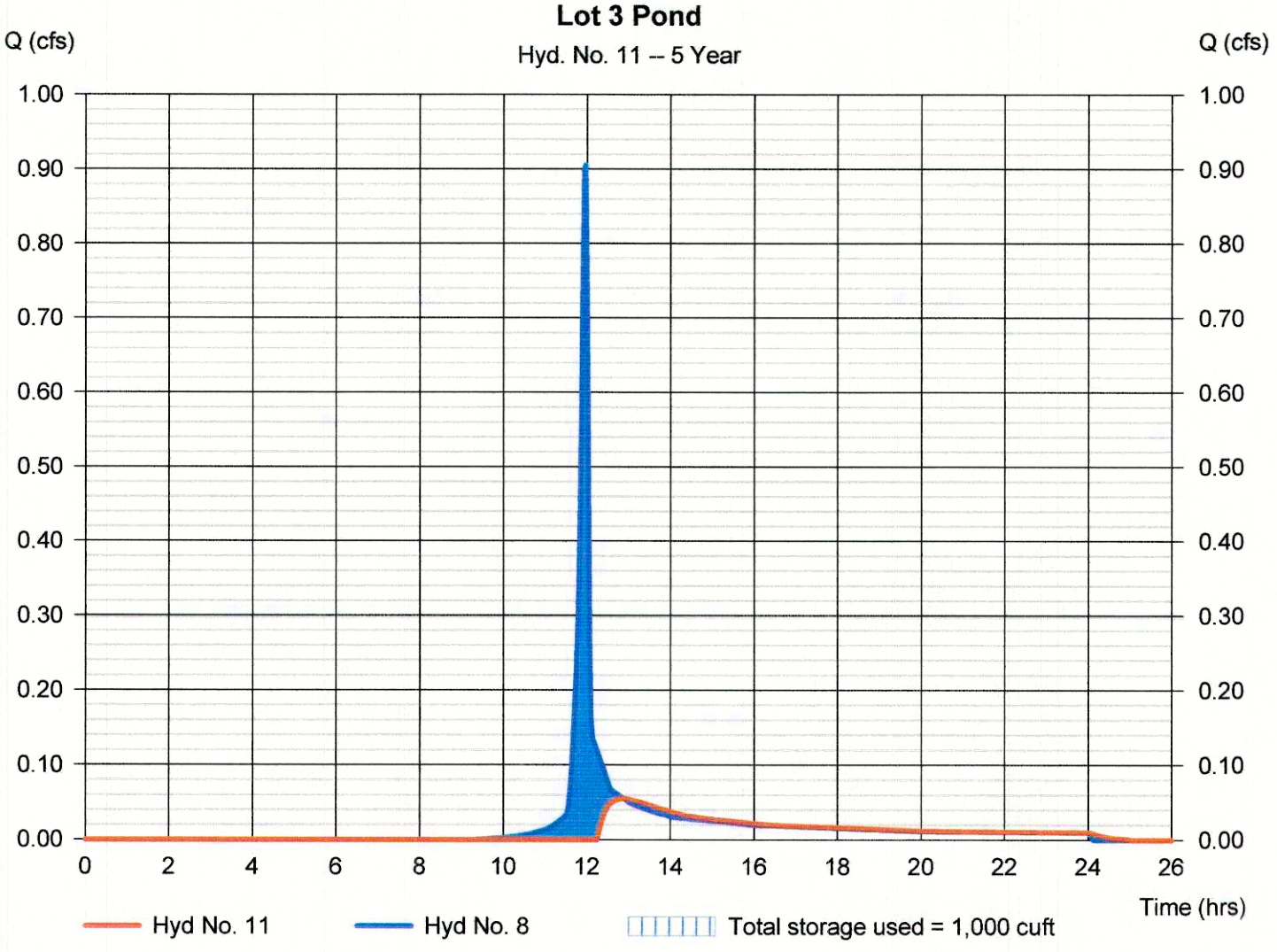
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 11

Lot 3 Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.055 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.90 hrs
Time interval	= 2 min	Hyd. volume	= 898 cuft
Inflow hyd. No.	= 8 - Into Pond Lot 3	Max. Elevation	= 1042.12 ft
Reservoir name	= Lot 3 Pond	Max. Storage	= 1,000 cuft

Storage Indication method used.



Hydrograph Report

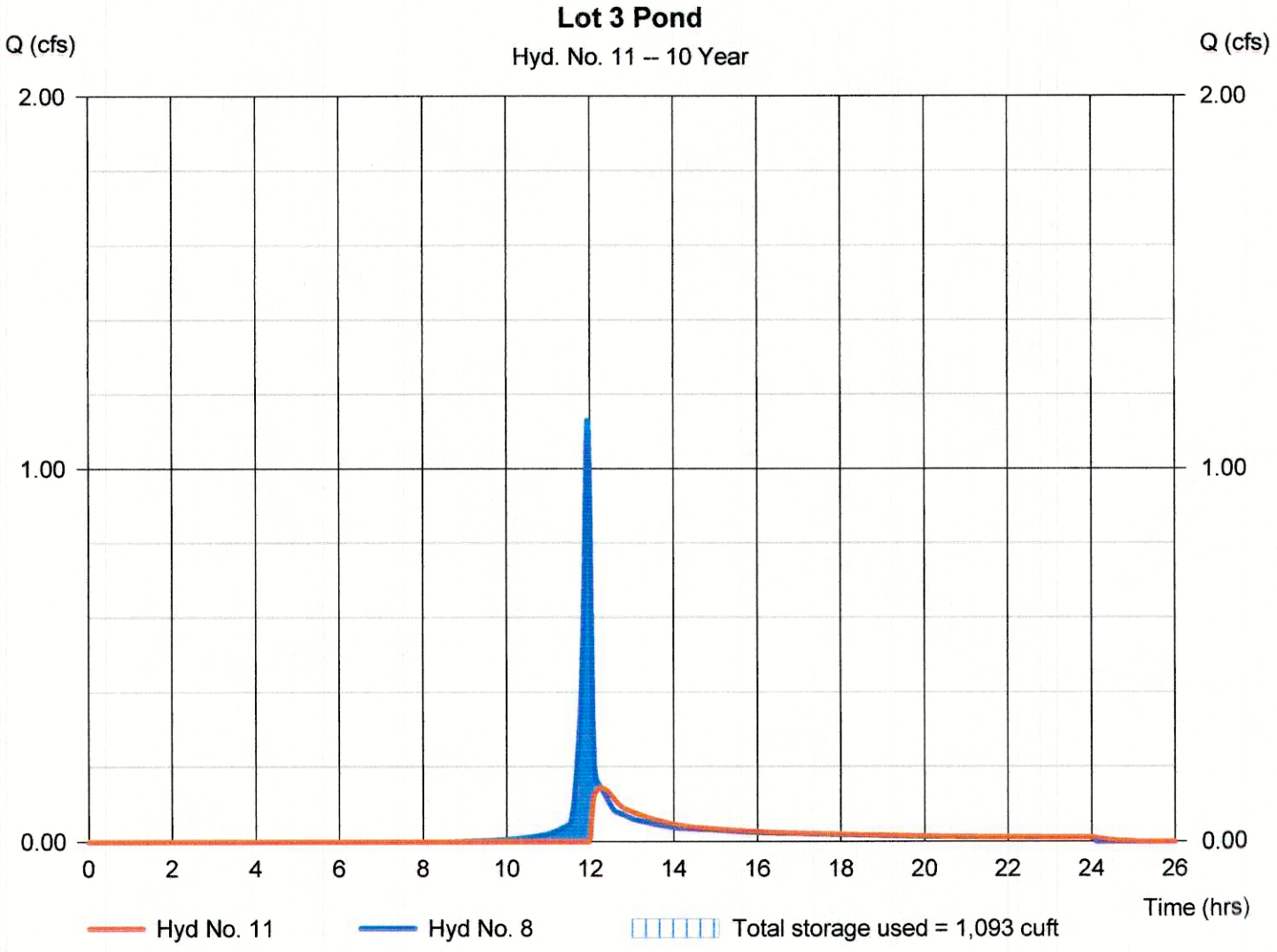
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 11

Lot 3 Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.142 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 1,359 cuft
Inflow hyd. No.	= 8 - Into Pond Lot 3	Max. Elevation	= 1042.27 ft
Reservoir name	= Lot 3 Pond	Max. Storage	= 1,093 cuft

Storage Indication method used.



Hydrograph Report

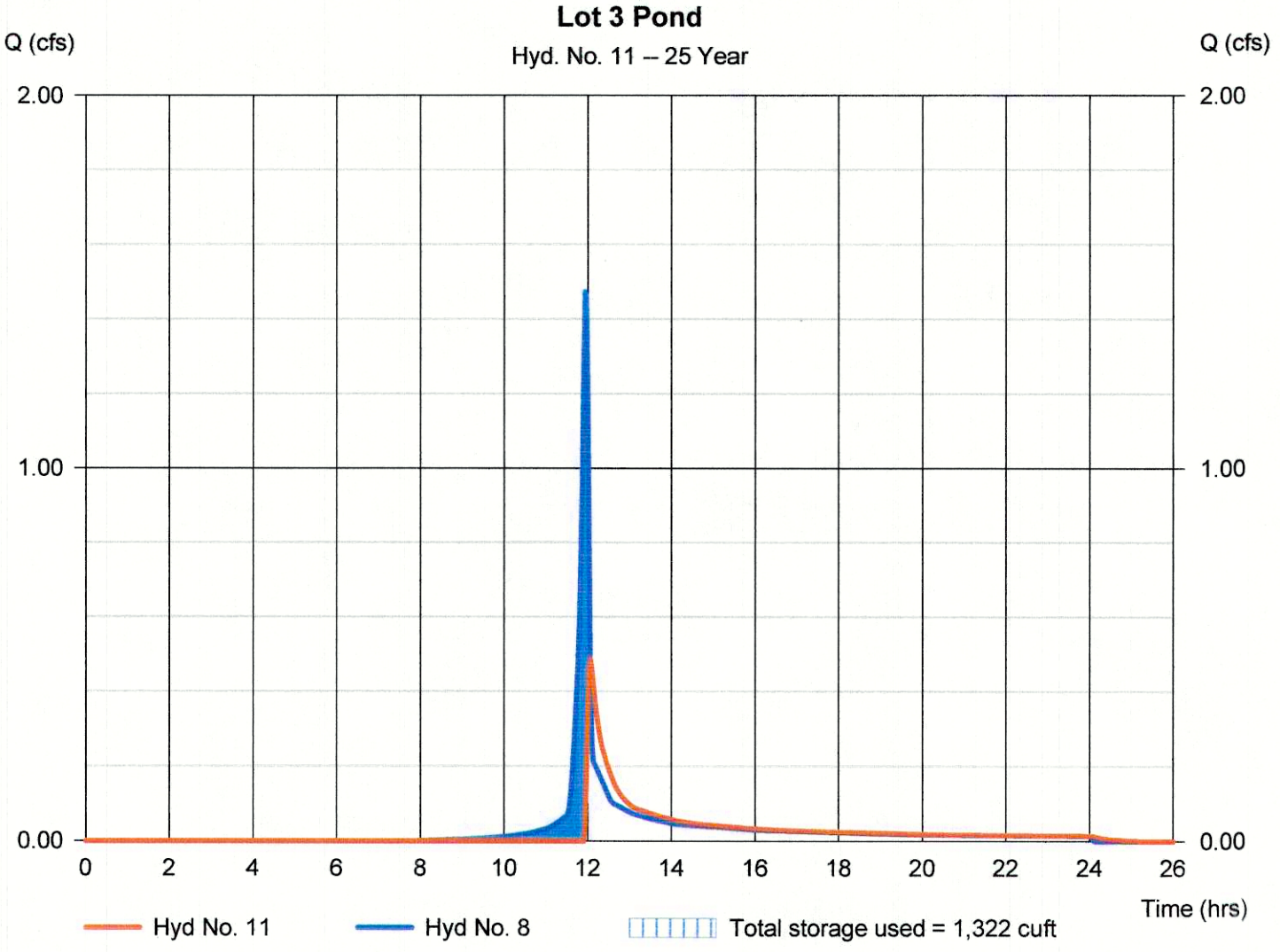
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 11

Lot 3 Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.486 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 2,060 cuft
Inflow hyd. No.	= 8 - Into Pond Lot 3	Max. Elevation	= 1042.62 ft
Reservoir name	= Lot 3 Pond	Max. Storage	= 1,322 cuft

Storage Indication method used.



Hydrograph Report

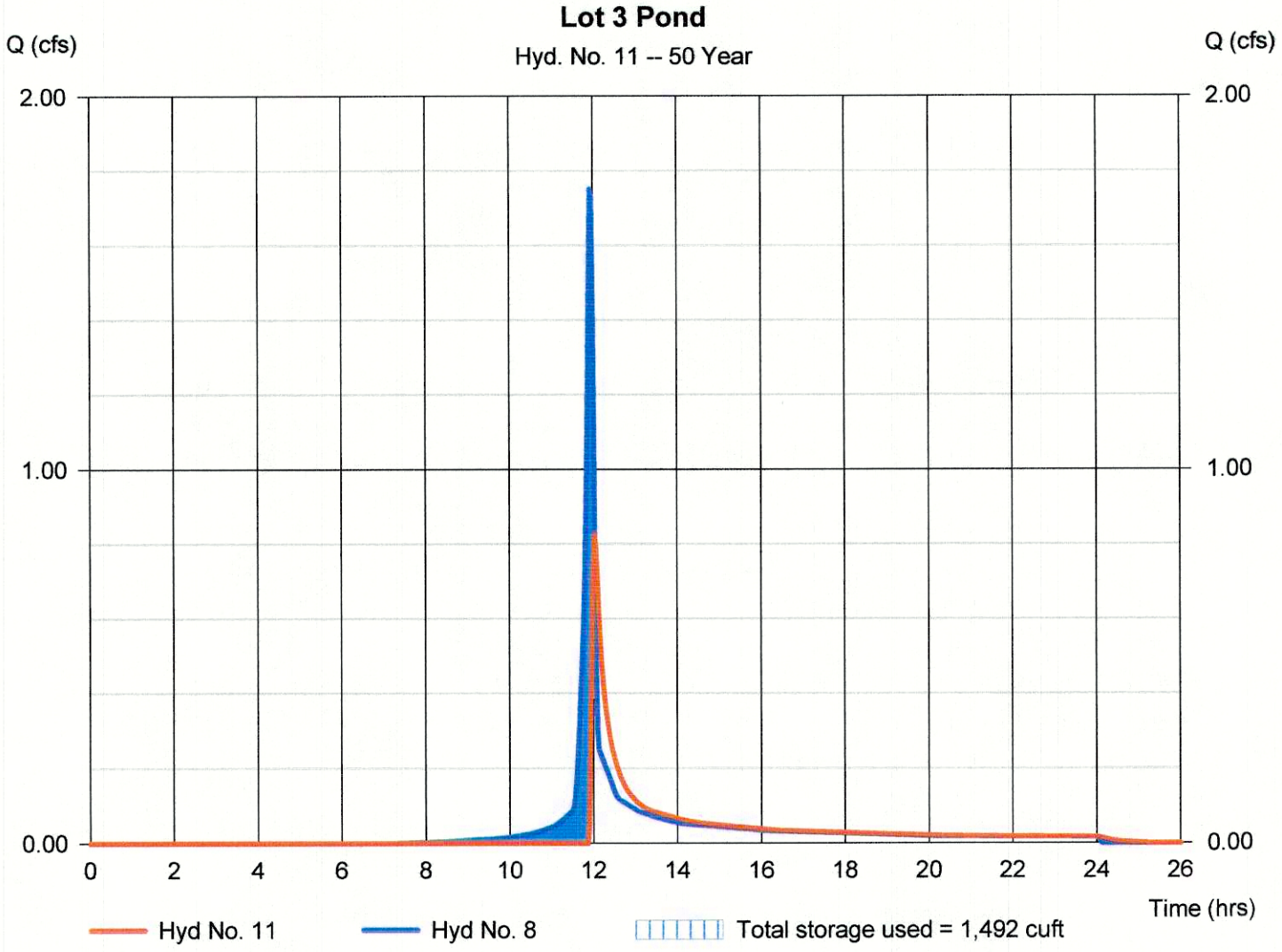
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 11

Lot 3 Pond

Hydrograph type	= Reservoir	Peak discharge	= 0.825 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 2,638 cuft
Inflow hyd. No.	= 8 - Into Pond Lot 3	Max. Elevation	= 1042.88 ft
Reservoir name	= Lot 3 Pond	Max. Storage	= 1,492 cuft

Storage Indication method used.



Hydrograph Report

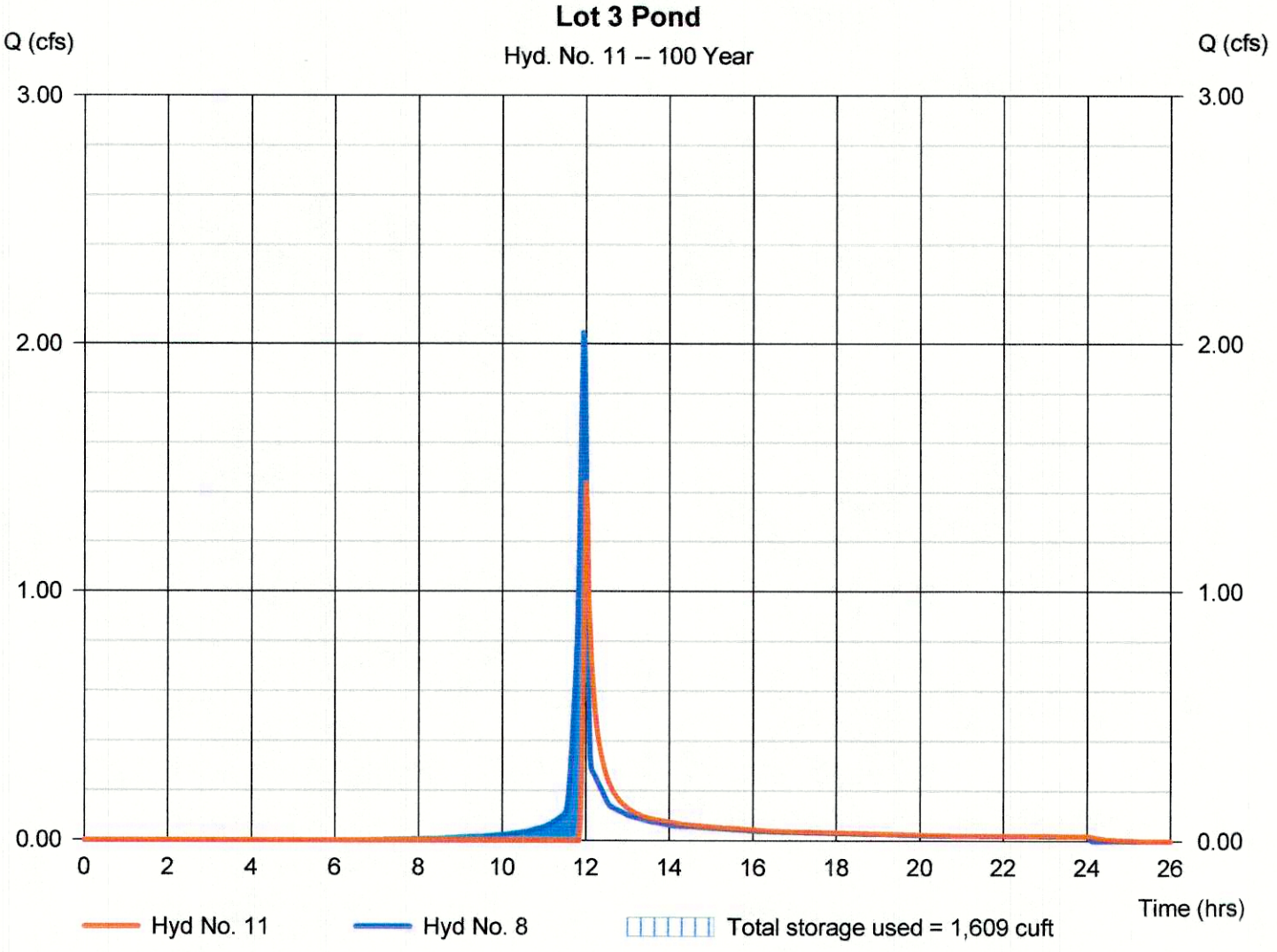
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 11

Lot 3 Pond

Hydrograph type	= Reservoir	Peak discharge	= 1.436 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 3,254 cuft
Inflow hyd. No.	= 8 - Into Pond Lot 3	Max. Elevation	= 1043.07 ft
Reservoir name	= Lot 3 Pond	Max. Storage	= 1,609 cuft

Storage Indication method used.



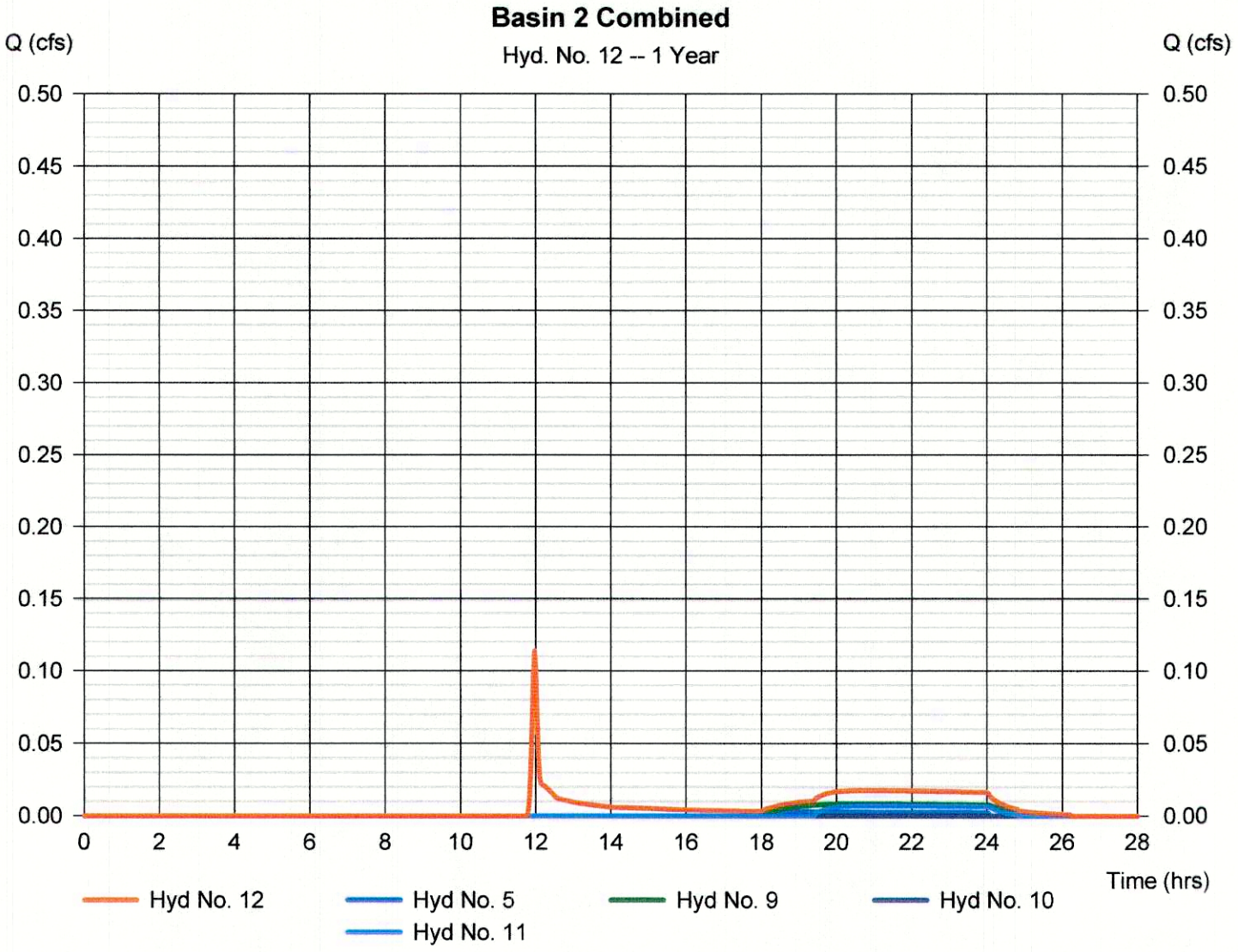
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 12

Basin 2 Combined

Hydrograph type	= Combine	Peak discharge	= 0.114 cfs
Storm frequency	= 1 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 565 cuft
Inflow hyds.	= 5, 9, 10, 11	Contrib. drain. area	= 0.154 ac



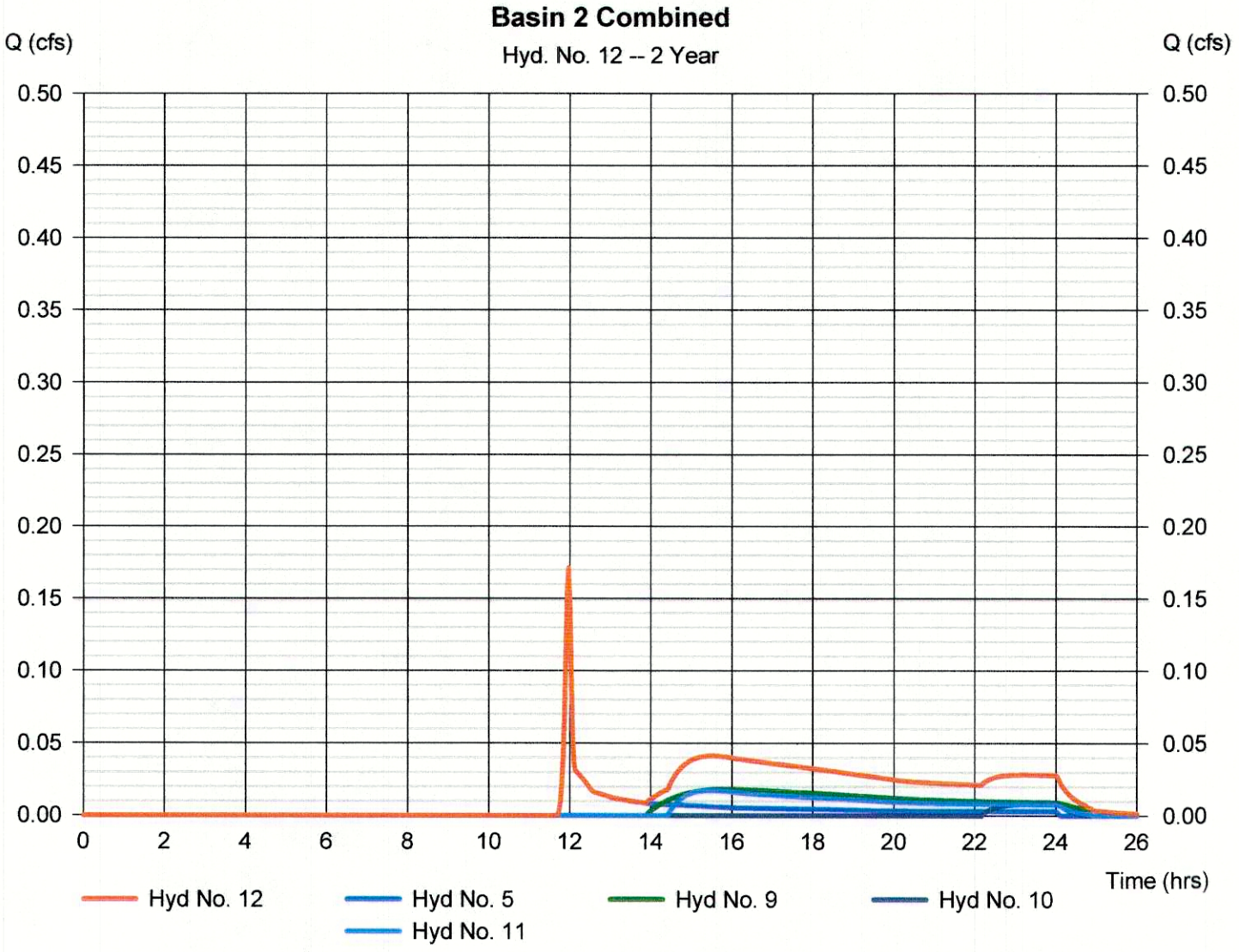
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 Thursday, 04 / 11 / 2019

Hyd. No. 12

Basin 2 Combined

Hydrograph type	= Combine	Peak discharge	= 0.171 cfs
Storm frequency	= 2 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 1,328 cuft
Inflow hyds.	= 5, 9, 10, 11	Contrib. drain. area	= 0.154 ac



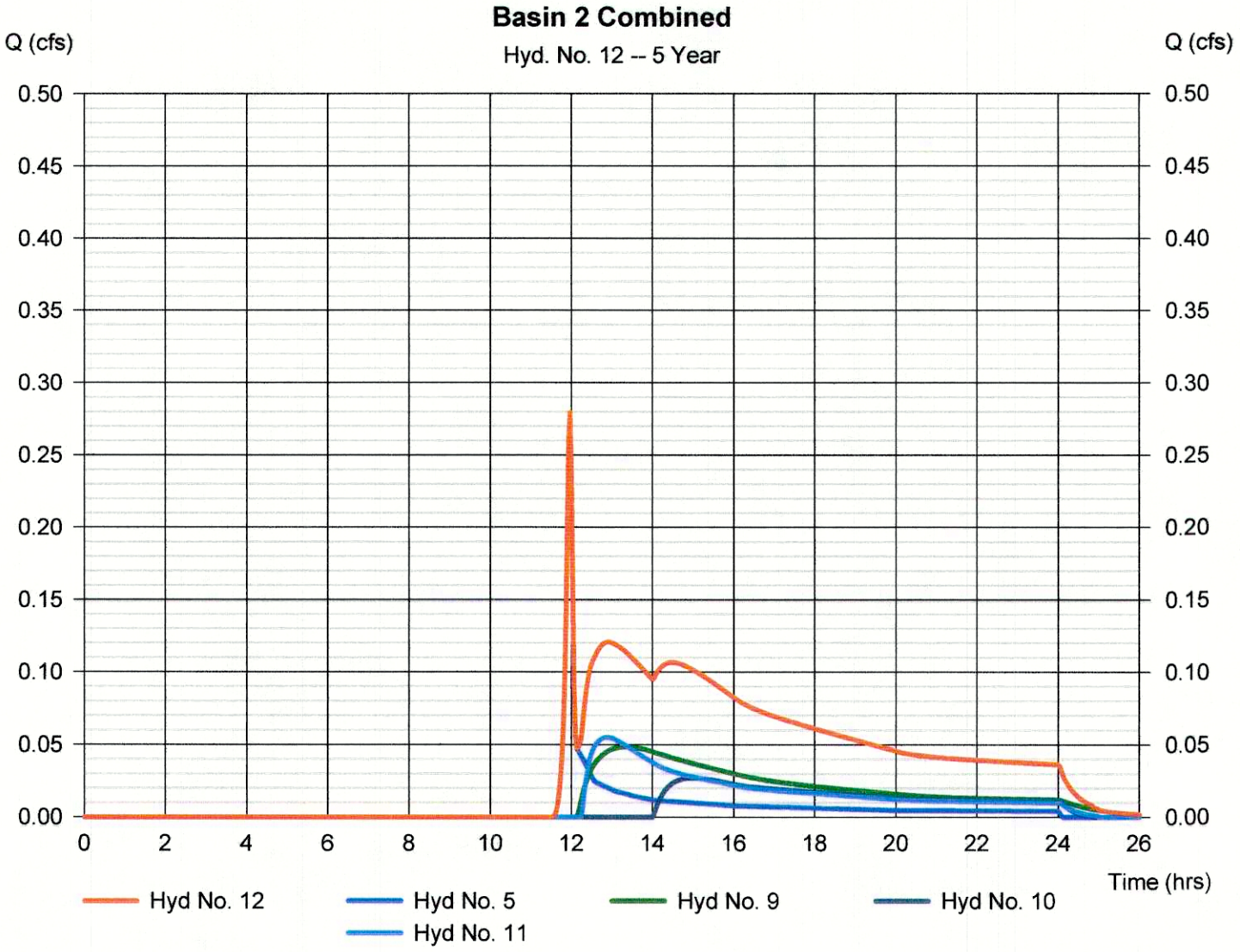
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 12

Basin 2 Combined

Hydrograph type	= Combine	Peak discharge	= 0.279 cfs
Storm frequency	= 5 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 3,151 cuft
Inflow hyds.	= 5, 9, 10, 11	Contrib. drain. area	= 0.154 ac



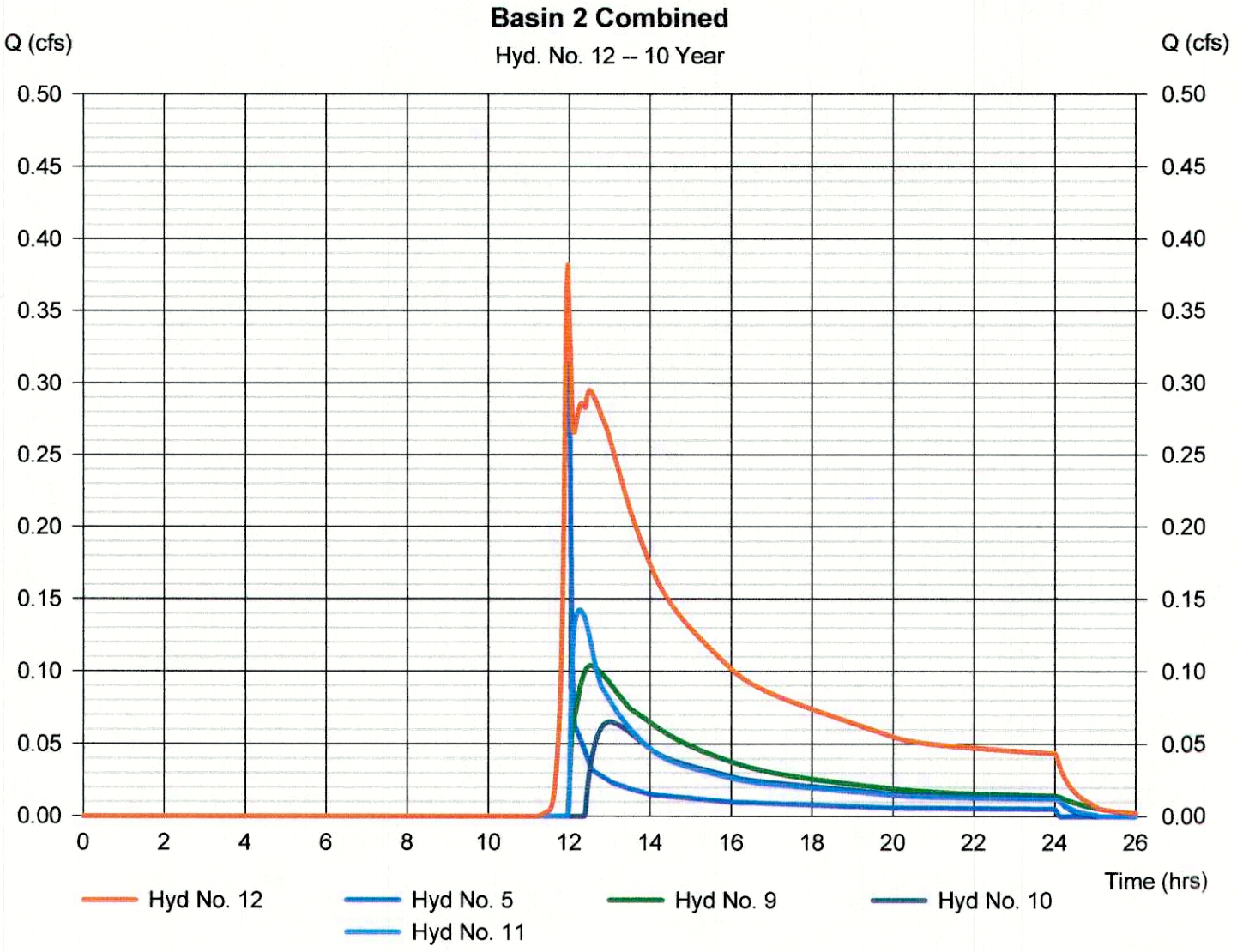
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 12

Basin 2 Combined

Hydrograph type	= Combine	Peak discharge	= 0.382 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 4,835 cuft
Inflow hyds.	= 5, 9, 10, 11	Contrib. drain. area	= 0.154 ac



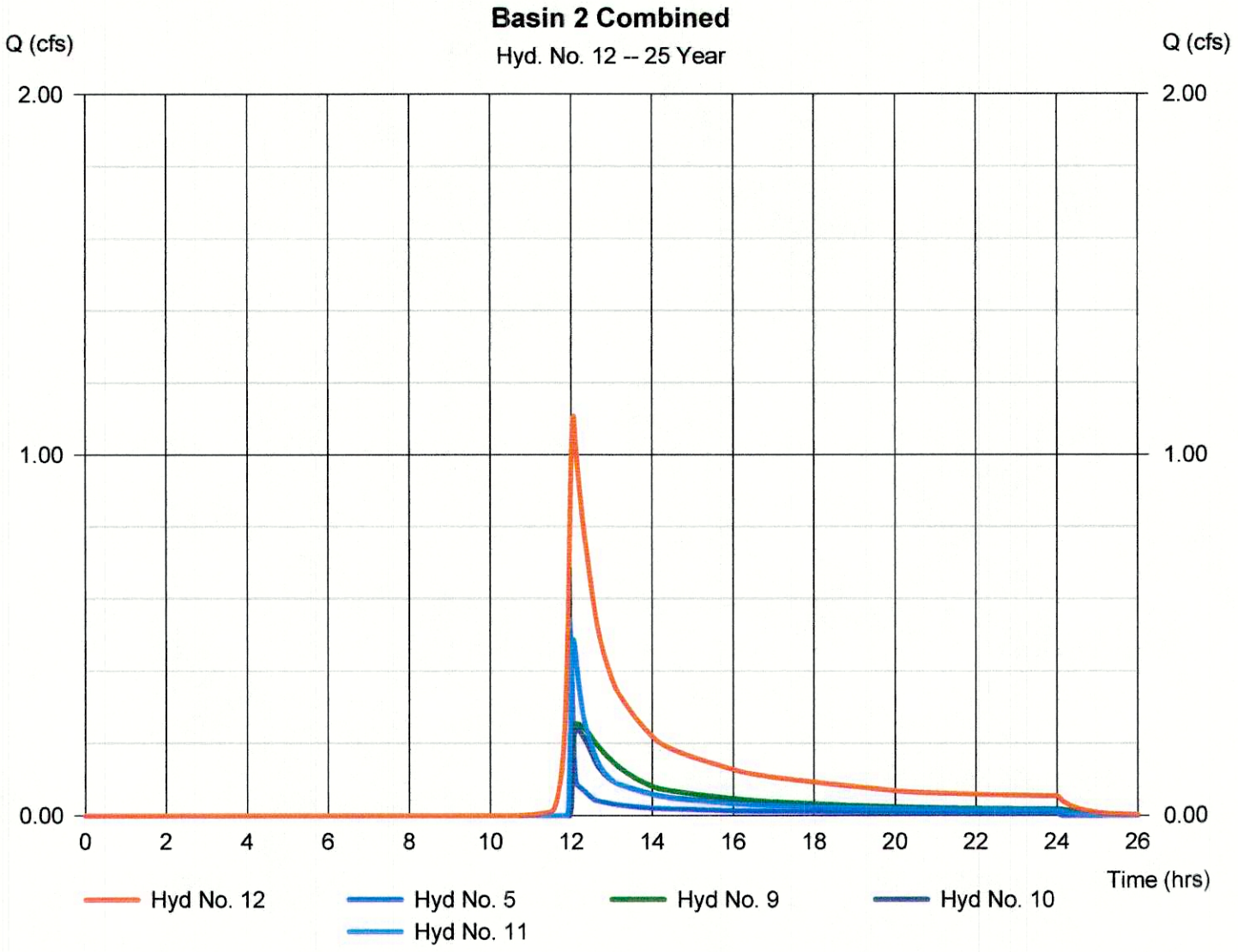
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 12

Basin 2 Combined

Hydrograph type	= Combine	Peak discharge	= 1.108 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 7,413 cuft
Inflow hyds.	= 5, 9, 10, 11	Contrib. drain. area	= 0.154 ac



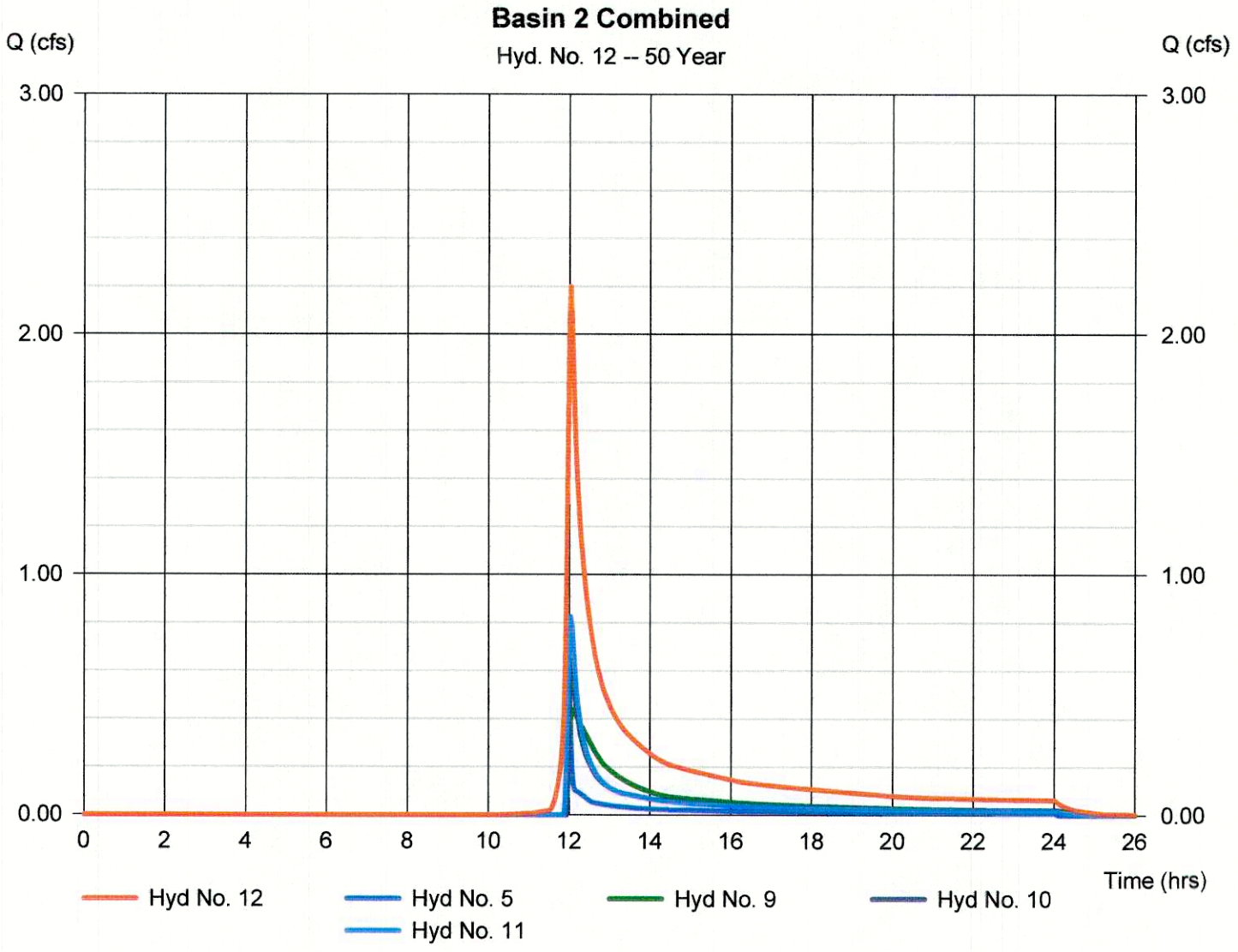
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 12

Basin 2 Combined

Hydrograph type	= Combine	Peak discharge	= 2.201 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 9,550 cuft
Inflow hyds.	= 5, 9, 10, 11	Contrib. drain. area	= 0.154 ac



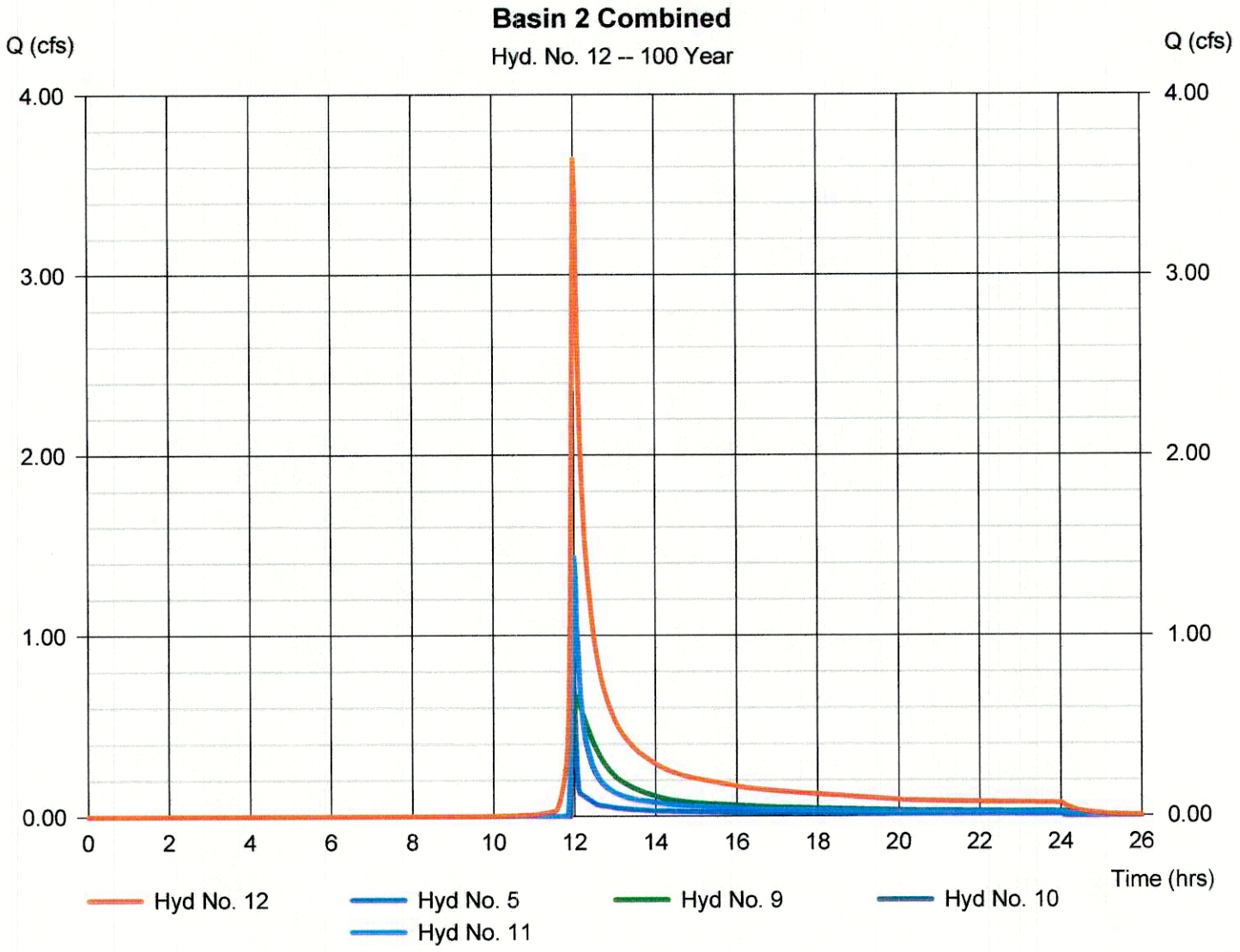
Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v12 — Thursday, 04 / 11 / 2019

Hyd. No. 12

Basin 2 Combined

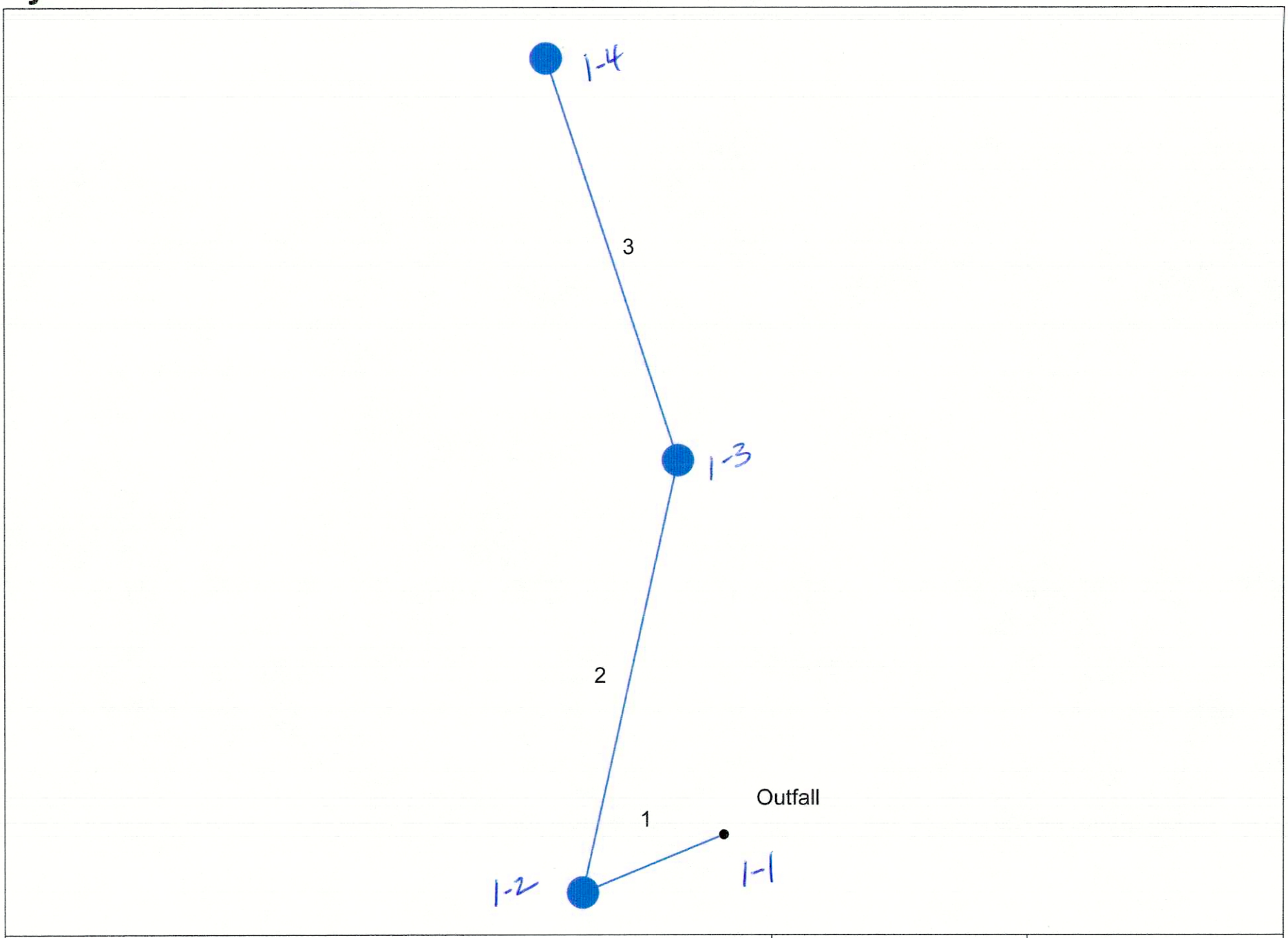
Hydrograph type	= Combine	Peak discharge	= 3.646 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 11,837 cuft
Inflow hyds.	= 5, 9, 10, 11	Contrib. drain. area	= 0.154 ac



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	------	0.001	0.002	-------	0.005	0.007	0.011	0.014	0.017	Pre-development Basin 1
2	SCS Runoff	------	0.297	0.579	-------	1.171	1.753	2.688	3.493	4.377	Pre-development Basin 2
3	SCS Runoff	------	0.041	0.079	-------	0.160	0.240	0.368	0.479	0.600	Pre-development Basin 3
4	SCS Runoff	------	0.001	0.001	-------	0.002	0.002	0.004	0.004	0.005	Post Basin 1
5	SCS Runoff	------	0.114	0.171	-------	0.279	0.382	0.543	0.678	0.824	Post Bypass
6	SCS Runoff	------	0.581	0.744	-------	1.032	1.292	1.692	2.020	2.366	Post into Pond Lot 1
7	SCS Runoff	------	0.551	0.700	-------	0.963	1.201	1.566	1.863	2.175	Into Pond Lot 2
8	SCS Runoff	------	0.518	0.658	-------	0.906	1.130	1.473	1.752	2.045	Into Pond Lot 3
9	Reservoir	6	0.008	0.018	-------	0.049	0.104	0.253	0.436	0.660	Lot 1 pond
10	Reservoir	7	0.000	0.008	-------	0.027	0.065	0.242	0.642	1.078	Lot 2 Pond
11	Reservoir	8	0.007	0.017	-------	0.055	0.142	0.486	0.825	1.436	Lot 3 Pond
12	Combine	5, 9, 10, 11	0.114	0.171	-------	0.279	0.382	1.108	2.201	3.646	Basin 2 Combined
13	SCS Runoff	------	0.014	0.021	-------	0.034	0.047	0.067	0.083	0.101	Post Basin 3

Hydraflow Storm Sewers Extension for Autodesk® AutoCAD® Civil 3D® Plan



Project File: 2019016-pipe 1.stm	Number of lines: 3	Date: 4/10/2019

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	20.000	0.08	0.24	0.60	0.05	0.14	5.0	7.2	10.4	1.41	1.93	1.79	12	1.00	1043.80	1044.00	1048.92	1049.03	1046.00	1050.00	1-1 to 1-2
2	1	56.281	0.06	0.16	0.80	0.05	0.09	5.0	6.5	10.8	0.95	2.36	1.21	12	1.49	1044.00	1044.84	1049.10	1049.24	1050.00	1057.20	1-2 to 1-3
3	2	53.838	0.10	0.10	0.40	0.04	0.04	5.0	5.0	11.8	0.47	2.88	2.64	12	2.23	1052.00	1053.20	1052.27	1053.49	1057.20	1057.50	1-3 to 1-4

Project File: 2019016-pipe 1.stm

Number of lines: 3

Run Date: 4/10/2019

NOTES:Intensity = 55.99 / (Inlet time + 5.10) ^ 0.67; Return period =Yrs. 100 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	1-2	0.57	0.00	0.57	0.00	Genr	0.0	0.00	0.00	0.00	0.00	Sag	10.00	0.010	0.010	0.000	0.30	30.00	0.30	30.00	0.0	Off
2	1-3	0.57	0.19	0.76	0.00	Grate	0.0	0.00	1.00	1.00	1.00	Sag	2.00	0.050	0.020	0.000	0.22	7.84	0.22	7.84	0.0	Off
3	1-4	0.47	0.00	0.28	0.19	Grate	0.0	0.00	0.00	1.00	1.00	0.010	2.00	0.050	0.020	0.013	0.14	3.97	0.10	2.04	0.0	2

Project File: 2019016-pipe 1.stm | Number of lines: 3 | Run Date: 4/10/2019

NOTES: Inlet N-Values = 0.016; Intensity = 55.99 / (Inlet time + 5.10) ^ 0.67; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Hydraulic Grade Line Computations

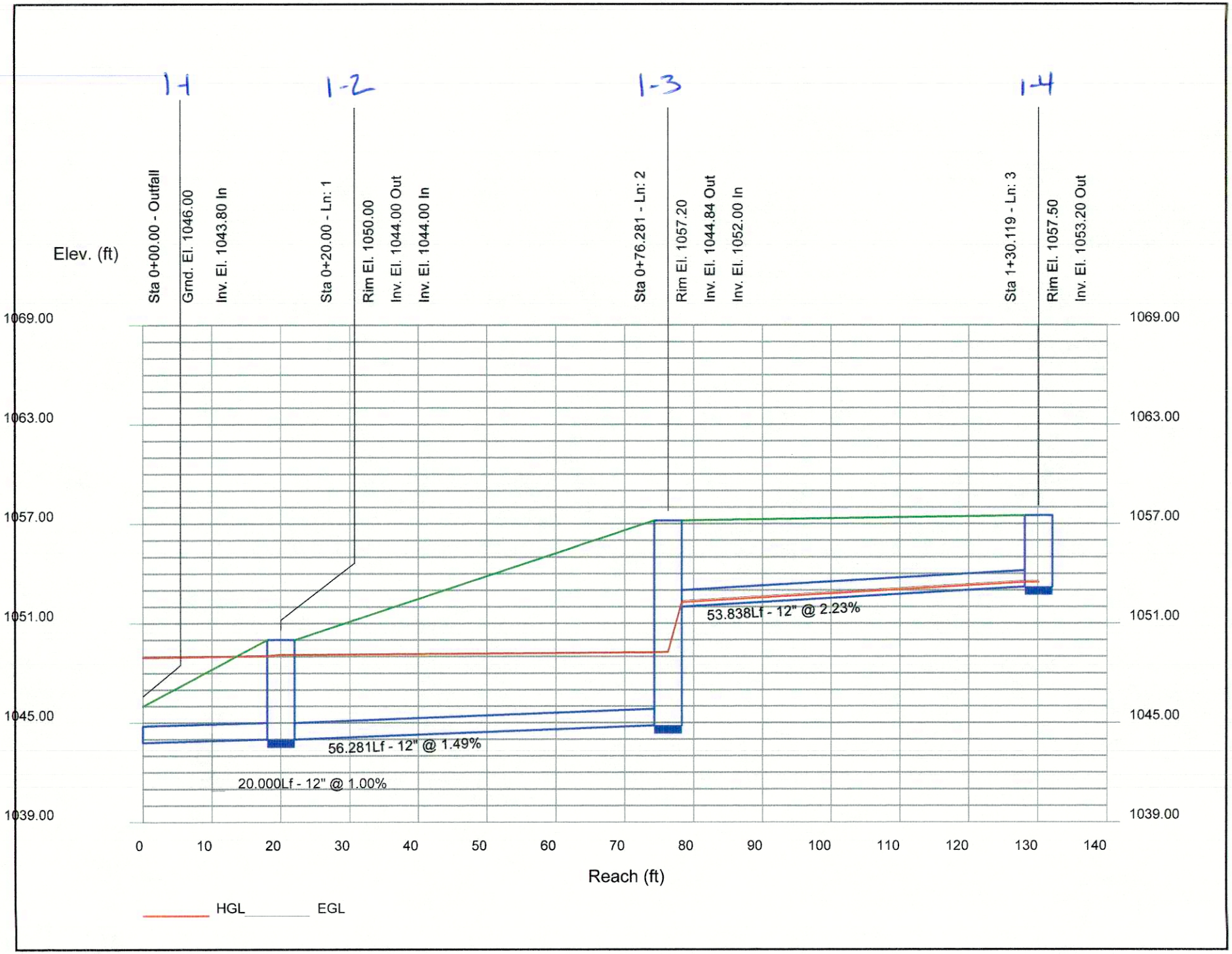
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)		Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)		
	(in)	(cfs)									(ft)											(K)	(ft)
1	12	1.41	1043.80	1048.92	1.00	0.79	1.79	0.05	1048.97	0.533	20.000	1044.00	1049.03	1.00	0.79	1.79	0.05	1049.08	0.533	0.533	0.107	1.50	0.07
2	12	0.95	1044.00	1049.10	1.00	0.79	1.21	0.02	1049.12	0.242	56.281	1044.80	1049.24	1.00	0.79	1.21	0.02	1049.26	0.242	0.242	0.136	0.87	0.02
3	12	0.47	1052.00	1052.27	0.27*	0.17	2.71	0.10	1052.38	0.000	53.838	1053.20	1053.49	0.28**	0.18	2.57	0.10	1053.59	0.000	0.000	n/a	1.00	0.10

Project File: 2019016-pipe 1.stm | Number of lines: 3 | Run Date: 4/10/2019

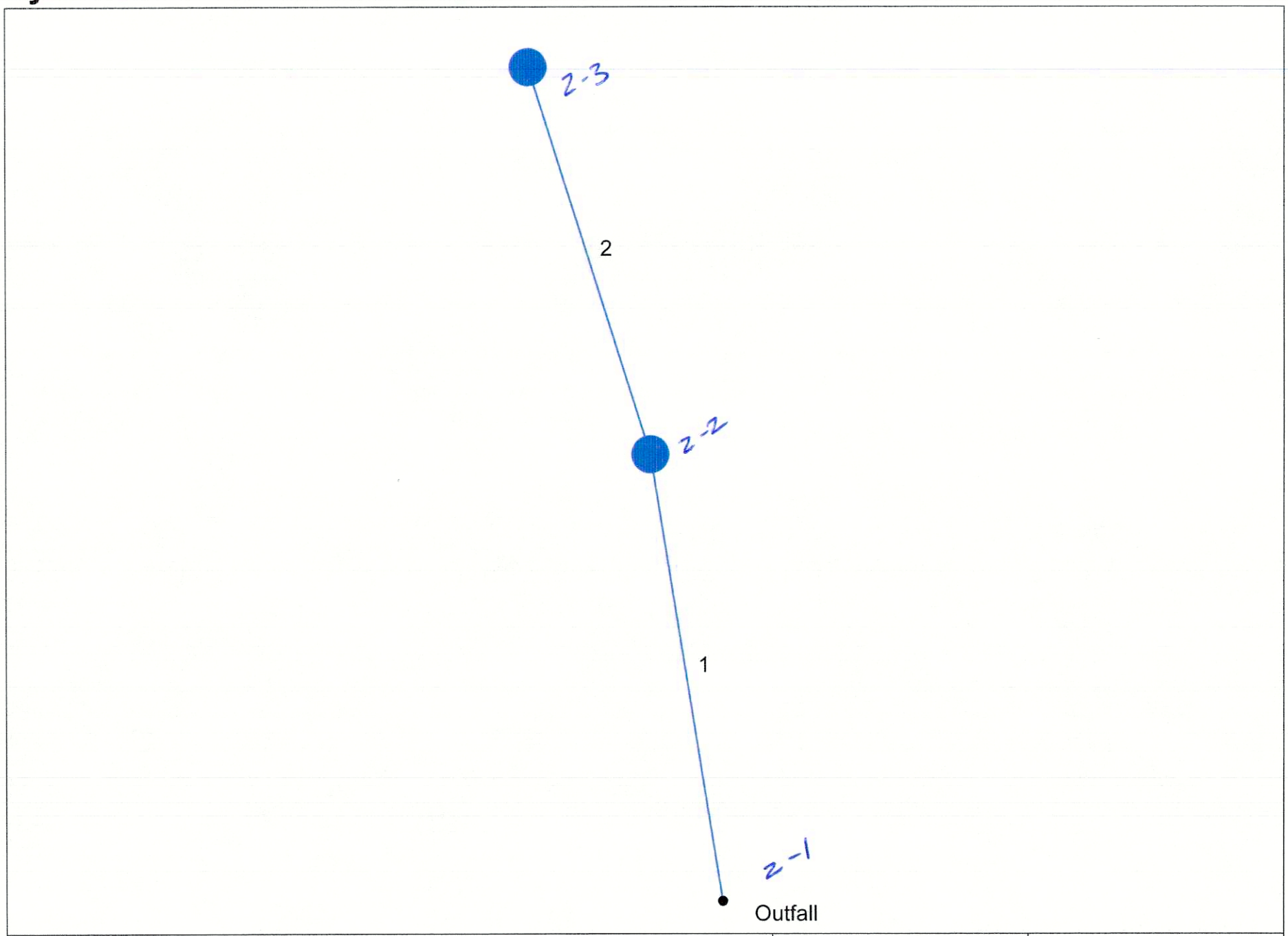
Notes: * Normal depth assumed; ** Critical depth. ; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: 2019016-pipe 1.stm



Hydraflow Storm Sewers Extension for Autodesk® AutoCAD® Civil 3D® Plan



Project File: 2019016-pipe 2.stm	Number of lines: 2	Date: 4/10/2019

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	38.539	0.05	0.15	0.80	0.04	0.09	5.0	6.0	11.1	1.00	8.53	2.24	12	19.57	1034.50	1044.00	1042.02	1044.42	1044.00	1054.10	2-1 to 2-2
2	1	43.641	0.10	0.10	0.50	0.05	0.05	5.0	5.0	11.8	0.59	3.58	3.05	12	3.44	1049.10	1050.60	1049.38	1050.92	1054.10	1054.60	2-2 to 2-3

Project File: 2019016-pipe 2.stm | Number of lines: 2 | Run Date: 4/10/2019

NOTES:Intensity = 55.99 / (Inlet time + 5.10) ^ 0.67; Return period =Yrs. 100 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	2-2	0.47	0.36	0.83	0.00	Grate	0.0	0.00	1.00	1.00	1.00	Sag	4.00	0.020	0.020	0.000	0.21	10.71	0.21	10.71	0.0	Off
2		0.59	0.00	0.23	0.36	Grate	0.0	0.00	0.00	1.00	1.00	0.020	4.00	0.020	0.020	0.013	0.10	4.81	0.08	3.99	0.0	1

Project File: 2019016-pipe 2.stm | Number of lines: 2 | Run Date: 4/10/2019

NOTES: Inlet N-Values = 0.016; Intensity = 55.99 / (Inlet time + 5.10) ^ 0.67; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Hydraulic Grade Line Computations

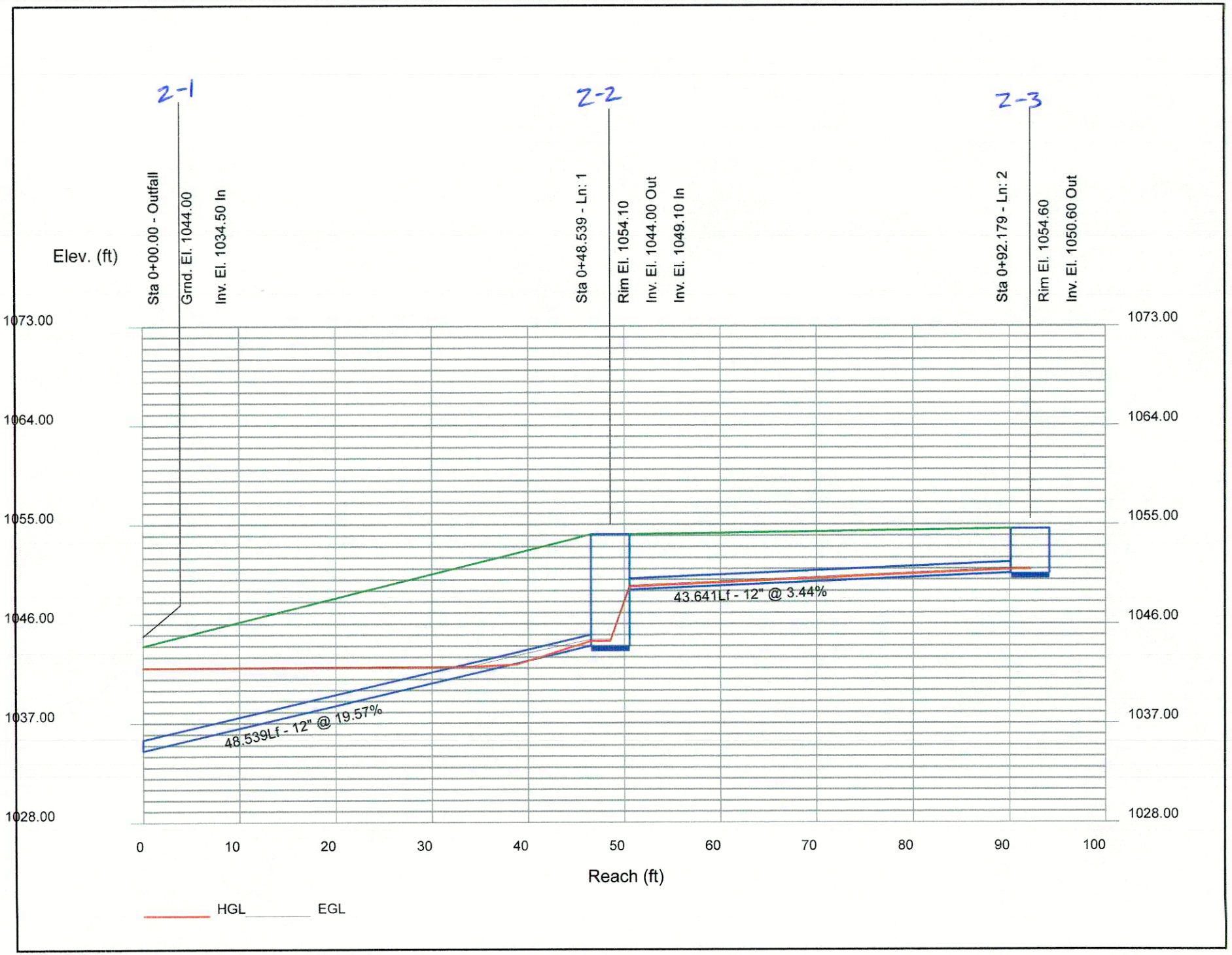
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
1	12	1.00	1034.50	1042.02	1.00	0.31	1.28	0.03	1042.05	0.270	48.539	1044.08	1044.42 j	0.42**	0.31	3.20	0.16	1044.58	1.988	1.129	n/a	0.50	n/a
2	12	0.59	1049.10	1049.38	0.28*	0.18	3.36	0.12	1049.49	0.000	43.641	1050.60	1050.92	0.32**	0.22	2.73	0.12	1051.04	0.000	0.000	n/a	1.00	0.12

Project File: 2019016-pipe 2.stm | Number of lines: 2 | Run Date: 4/10/2019

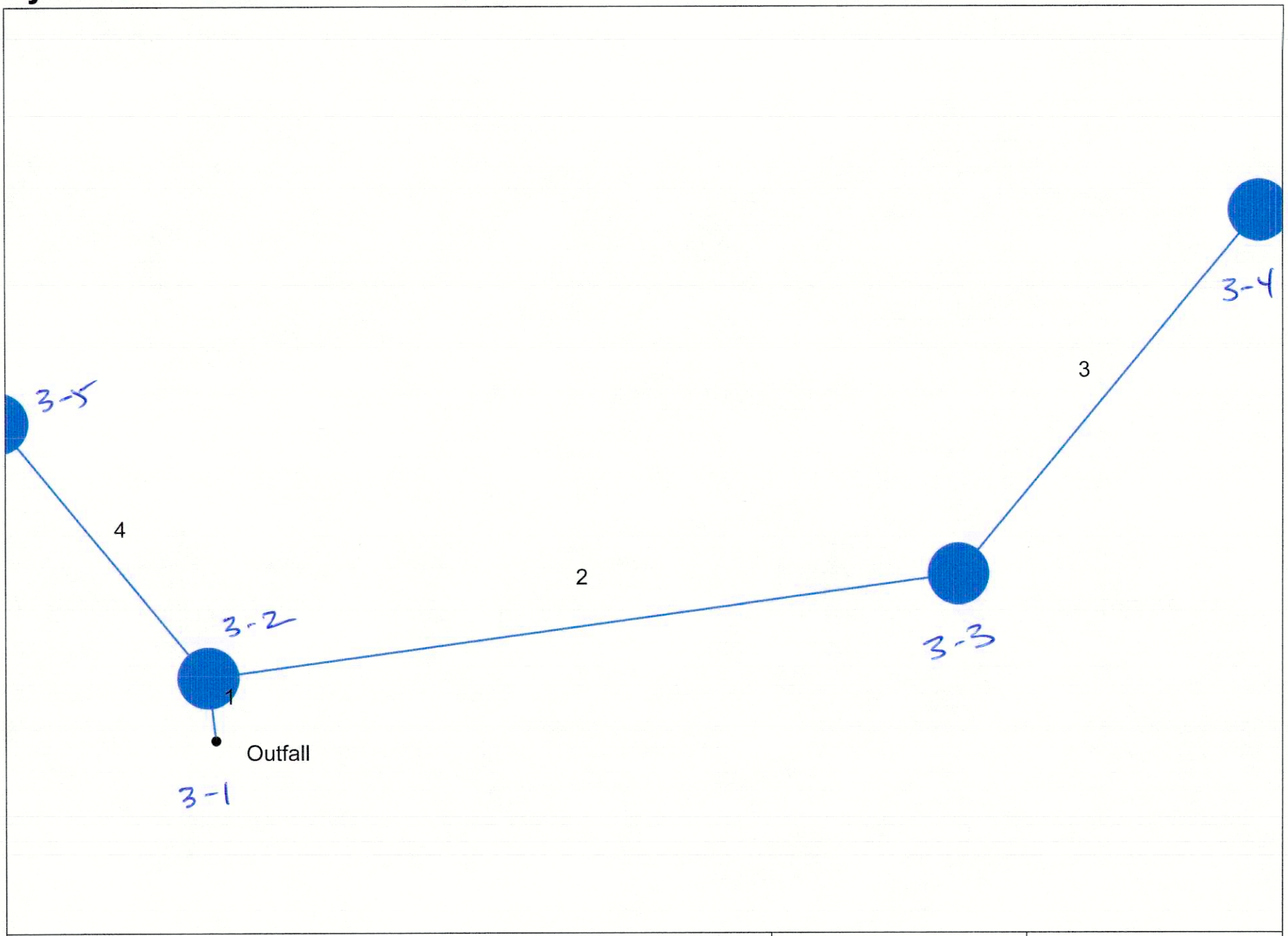
Notes: * Normal depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: New.stm



Hydraflow Storm Sewers Extension for Autodesk® AutoCAD® Civil 3D® Plan



Project File: 2019016-pipe 3.stm	Number of lines: 4	Date: 4/11/2019

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	5.000	0.00	0.25	0.00	0.00	0.13	0.0	15.4	7.3	0.98	0.00	1.25	12	0.00	1034.00	1034.00	1043.09	1043.10	1044.00	1047.00	3-1 to 3-
2	1	50.676	0.07	0.20	0.60	0.04	0.09	5.0	5.7	11.3	1.06	0.00	0.08	48	0.00	1035.63	1035.63	1043.13	1043.13	1047.00	1044.00	3-2 to 3-
3	2	35.228	0.13	0.13	0.40	0.05	0.05	5.0	5.0	11.8	0.62	3.48	0.78	12	3.25	1038.50	1039.65	1043.13	1043.16	1044.00	1044.50	3-3 to 3-
4	1	24.721	0.05	0.05	0.80	0.04	0.04	5.0	5.0	11.8	0.47	10.34	4.62	12	28.72	1043.00	1050.10	1043.15	1050.39	1047.00	1054.10	3-2 to 3-

Project File: 2019016-pipe 3.stm

Number of lines: 4

Run Date: 4/11/2019

NOTES:Intensity = 55.99 / (Inlet time + 5.10) ^ 0.67; Return period =Yrs. 100 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	3-2	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
2	3-3	0.50	0.00	0.50	0.00	Genr	0.0	0.00	0.00	0.00	0.00	Sag	10.00	0.050	0.020	0.000	0.30	6.00	0.30	6.00	0.0	Off
3	3-4	0.62	0.00	0.62	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.040	4.00	0.050	0.020	0.150	0.29	8.73	0.29	8.73	0.0	2
4	3-5	0.47	0.00	0.47	0.00	Grate	0.0	0.00	1.00	1.00	1.00	Sag	4.00	0.020	0.020	0.000	0.15	7.51	0.15	7.51	0.0	Off

Project File: 2019016-pipe 3.stm | Number of lines: 4 | Run Date: 4/11/2019

NOTES: Inlet N-Values = 0.016; Intensity = 55.99 / (Inlet time + 5.10) ^ 0.67; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Hydraulic Grade Line Computations

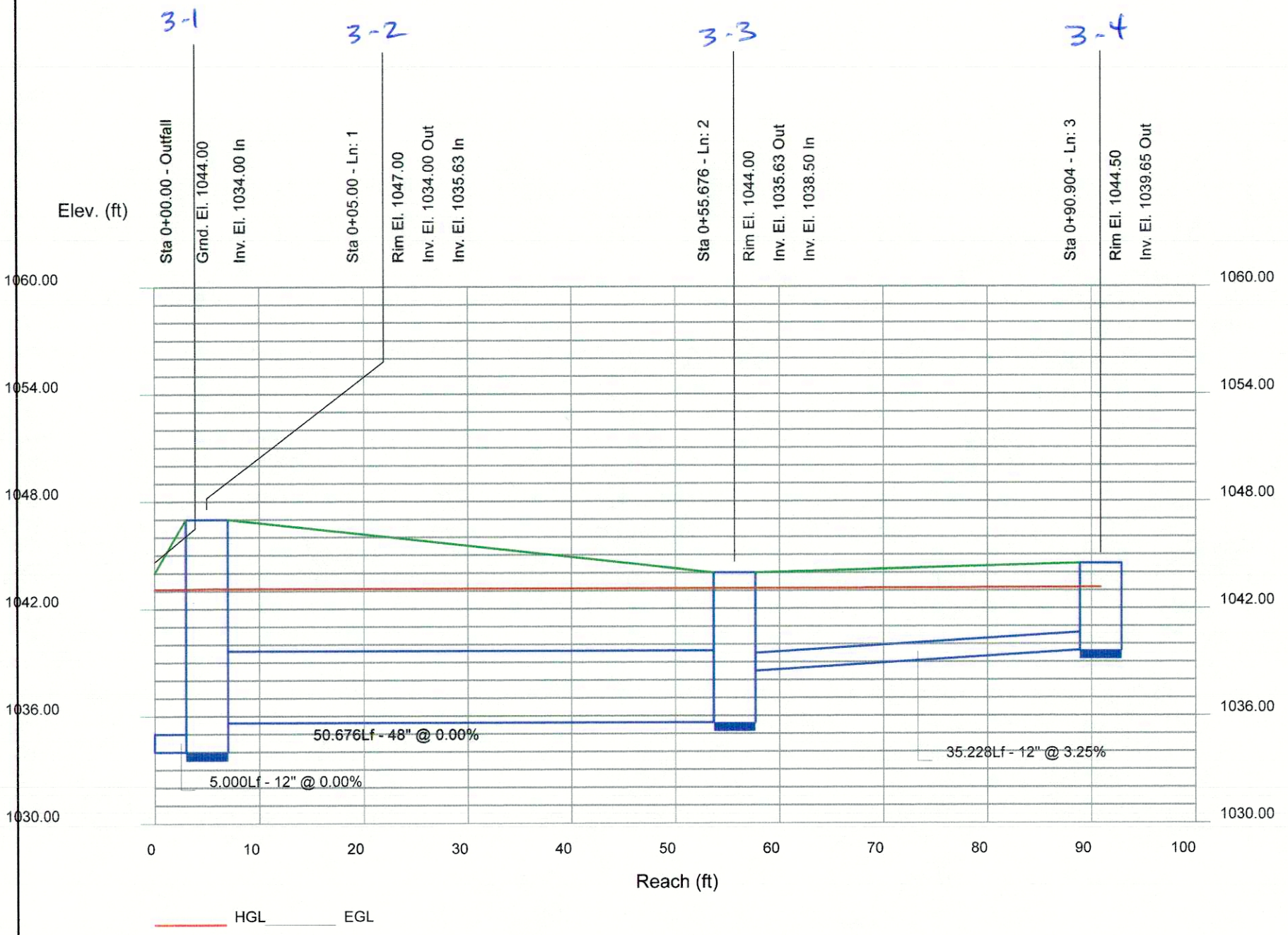
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)		Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)		
	(in)	(cfs)									(ft)											(K)	(ft)
1	12	0.98	1034.00	1043.09	1.00	0.79	1.25	0.02	1043.11	0.260	5.000	1034.00	1043.10	1.00	0.79	1.25	0.02	1043.13	0.260	0.260	0.013	1.00	0.02
2	48	1.06	1035.63	1043.13	4.00	12.56	0.08	0.00	1043.13	0.000	50.676	1035.63	1043.13	4.00	12.57	0.08	0.00	1043.13	0.000	0.000	0.000	1.14	0.00
3	12	0.62	1038.50	1043.13	1.00	0.79	0.78	0.01	1043.14	0.102	35.228	1039.66	1043.16	1.00	0.79	0.78	0.01	1043.17	0.102	0.102	0.036	1.00	0.01
4	12	0.47	1043.00	1043.15	0.15*	0.07	6.68	0.10	1043.25	0.000	24.721	1050.10	1050.39	0.28**	0.18	2.57	0.10	1050.49	0.000	0.000	n/a	1.00	0.10

Project File: 2019016-pipe 3.stm | Number of lines: 4 | Run Date: 4/11/2019

Notes: * Normal depth assumed; ** Critical depth. ; c = cir e = ellip b = box

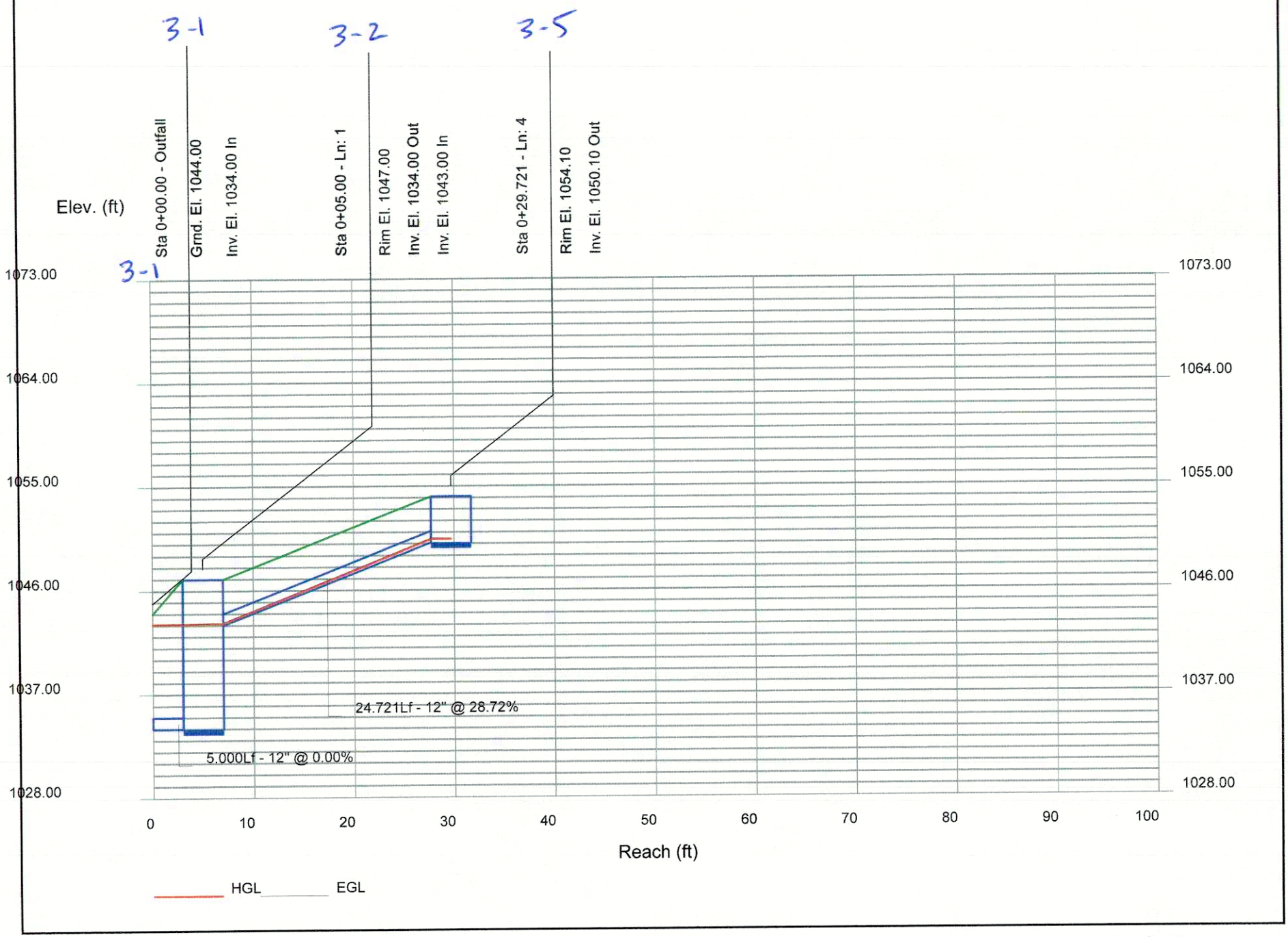
Storm Sewer Profile

Proj. file: 2019016-pipe 3.stm



Storm Sewer Profile

Proj. file: 2019016-pipe 3.stm



NOAA Atlas 14, Volume 9, Version 2
Location name: Mableton, Georgia, USA*
Latitude: 33.8249°, Longitude: -84.5259°
Elevation: 1023.34 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.401 (0.317-0.503)	0.461 (0.364-0.578)	0.563 (0.443-0.707)	0.651 (0.510-0.820)	0.779 (0.593-1.01)	0.881 (0.656-1.15)	0.989 (0.712-1.31)	1.10 (0.762-1.49)	1.26 (0.838-1.73)	1.38 (0.895-1.92)
10-min	0.588 (0.465-0.737)	0.675 (0.533-0.847)	0.824 (0.649-1.03)	0.953 (0.747-1.20)	1.14 (0.869-1.48)	1.29 (0.961-1.69)	1.45 (1.04-1.92)	1.61 (1.12-2.18)	1.84 (1.23-2.54)	2.02 (1.31-2.81)
15-min	0.717 (0.567-0.898)	0.823 (0.650-1.03)	1.00 (0.791-1.26)	1.16 (0.911-1.47)	1.39 (1.06-1.80)	1.57 (1.17-2.06)	1.77 (1.27-2.34)	1.97 (1.36-2.66)	2.24 (1.50-3.09)	2.46 (1.60-3.42)
30-min	1.03 (0.813-1.29)	1.18 (0.933-1.48)	1.44 (1.13-1.81)	1.67 (1.31-2.10)	1.99 (1.52-2.58)	2.25 (1.68-2.94)	2.53 (1.82-3.36)	2.81 (1.95-3.81)	3.21 (2.14-4.42)	3.52 (2.29-4.89)
60-min	1.33 (1.05-1.67)	1.52 (1.20-1.91)	1.86 (1.46-2.33)	2.15 (1.68-2.71)	2.58 (1.96-3.34)	2.92 (2.18-3.82)	3.29 (2.37-4.37)	3.67 (2.54-4.97)	4.21 (2.81-5.80)	4.63 (3.01-6.43)
2-hr	1.63 (1.31-2.02)	1.87 (1.49-2.32)	2.27 (1.81-2.82)	2.63 (2.09-3.28)	3.16 (2.44-4.06)	3.59 (2.71-4.64)	4.04 (2.96-5.32)	4.53 (3.18-6.07)	5.20 (3.52-7.10)	5.74 (3.78-7.88)
3-hr	1.83 (1.48-2.25)	2.09 (1.68-2.57)	2.53 (2.03-3.12)	2.92 (2.34-3.62)	3.51 (2.74-4.48)	3.99 (3.04-5.13)	4.50 (3.32-5.89)	5.05 (3.58-6.73)	5.82 (3.98-7.90)	6.44 (4.28-8.78)
6-hr	2.25 (1.84-2.74)	2.54 (2.07-3.09)	3.04 (2.48-3.71)	3.50 (2.83-4.28)	4.18 (3.30-5.27)	4.74 (3.66-6.03)	5.34 (4.00-6.91)	5.99 (4.31-7.89)	6.91 (4.79-9.27)	7.64 (5.16-10.3)
12-hr	2.80 (2.31-3.36)	3.12 (2.58-3.76)	3.70 (3.05-4.46)	4.22 (3.46-5.10)	4.99 (4.00-6.22)	5.63 (4.41-7.07)	6.31 (4.79-8.06)	7.04 (5.14-9.16)	8.07 (5.69-10.7)	8.90 (6.10-11.9)
24-hr	3.35 (2.81-3.98)	3.79 (3.17-4.50)	4.53 (3.78-5.39)	5.17 (4.29-6.17)	6.10 (4.93-7.47)	6.84 (5.42-8.46)	7.61 (5.85-9.57)	8.43 (6.23-10.8)	9.54 (6.81-12.5)	10.4 (7.25-13.7)
2-day	3.87 (3.28-4.53)	4.45 (3.77-5.22)	5.42 (4.58-6.37)	6.24 (5.25-7.35)	7.38 (6.03-8.90)	8.28 (6.63-10.1)	9.19 (7.14-11.4)	10.1 (7.59-12.8)	11.4 (8.24-14.7)	12.4 (8.74-16.1)
3-day	4.24 (3.63-4.93)	4.82 (4.12-5.62)	5.81 (4.95-6.78)	6.67 (5.65-7.80)	7.90 (6.53-9.49)	8.89 (7.19-10.8)	9.91 (7.78-12.2)	11.0 (8.32-13.8)	12.5 (9.12-16.0)	13.6 (9.73-17.6)
4-day	4.57 (3.93-5.29)	5.14 (4.42-5.95)	6.14 (5.26-7.12)	7.02 (5.98-8.17)	8.32 (6.93-9.98)	9.39 (7.66-11.3)	10.5 (8.32-12.9)	11.7 (8.95-14.7)	13.4 (9.89-17.1)	14.7 (10.6-18.9)
7-day	5.40 (4.70-6.19)	6.04 (5.24-6.92)	7.16 (6.20-8.23)	8.18 (7.05-9.43)	9.72 (8.21-11.6)	11.0 (9.09-13.2)	12.4 (9.92-15.1)	13.8 (10.7-17.2)	15.9 (11.9-20.2)	17.6 (12.8-22.4)
10-day	6.13 (5.36-6.98)	6.83 (5.97-7.78)	8.08 (7.05-9.22)	9.21 (7.99-10.5)	10.9 (9.29-12.9)	12.3 (10.3-14.7)	13.9 (11.2-16.8)	15.5 (12.1-19.1)	17.8 (13.4-22.4)	19.7 (14.5-24.9)
20-day	8.19 (7.27-9.21)	9.07 (8.03-10.2)	10.6 (9.35-11.9)	11.9 (10.5-13.5)	13.9 (12.0-16.1)	15.5 (13.1-18.2)	17.2 (14.1-20.5)	19.0 (15.0-23.1)	21.5 (16.5-26.7)	23.5 (17.6-29.4)
30-day	10.0 (8.98-11.2)	11.1 (9.89-12.4)	12.8 (11.4-14.3)	14.3 (12.7-16.0)	16.4 (14.2-18.9)	18.1 (15.4-21.0)	19.9 (16.4-23.5)	21.7 (17.3-26.1)	24.2 (18.7-29.7)	26.1 (19.7-32.4)
45-day	12.5 (11.3-13.9)	13.8 (12.5-15.3)	15.9 (14.3-17.7)	17.6 (15.8-19.6)	20.0 (17.3-22.6)	21.7 (18.6-24.9)	23.5 (19.5-27.4)	25.2 (20.3-30.0)	27.5 (21.4-33.4)	29.3 (22.3-36.0)
60-day	14.8 (13.4-16.3)	16.3 (14.8-18.0)	18.8 (17.0-20.7)	20.7 (18.6-22.9)	23.2 (20.2-26.0)	25.0 (21.5-28.4)	26.8 (22.3-30.9)	28.5 (23.0-33.5)	30.5 (23.9-36.7)	32.0 (24.6-39.1)

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

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

Please refer to NOAA Atlas 14 document for more information.

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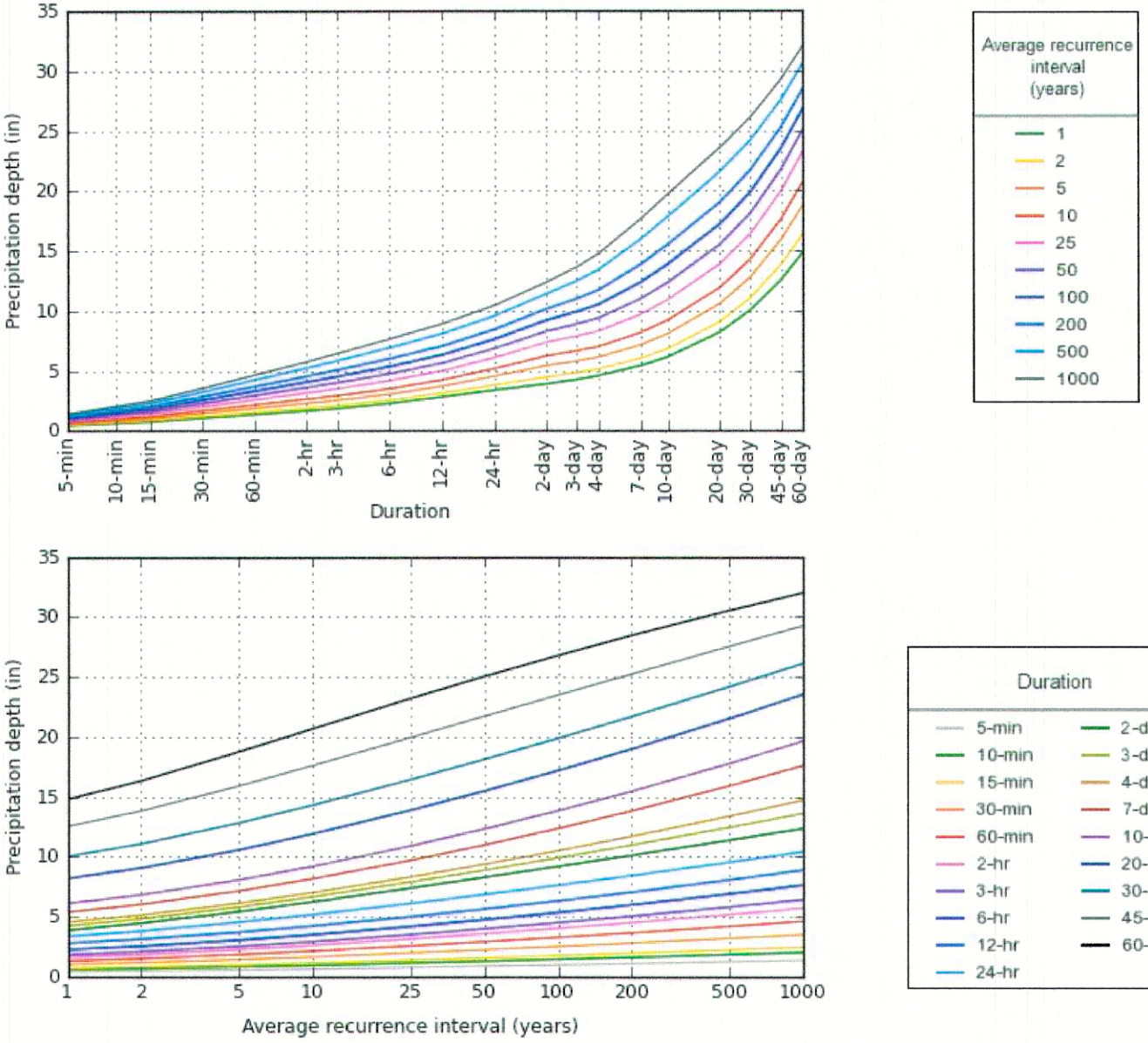
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 33.8249°, Longitude: -84.5259°



NOAA Atlas 14, Volume 9, Version 2

Created (GMT): Wed Apr 10 13:10:38 2019

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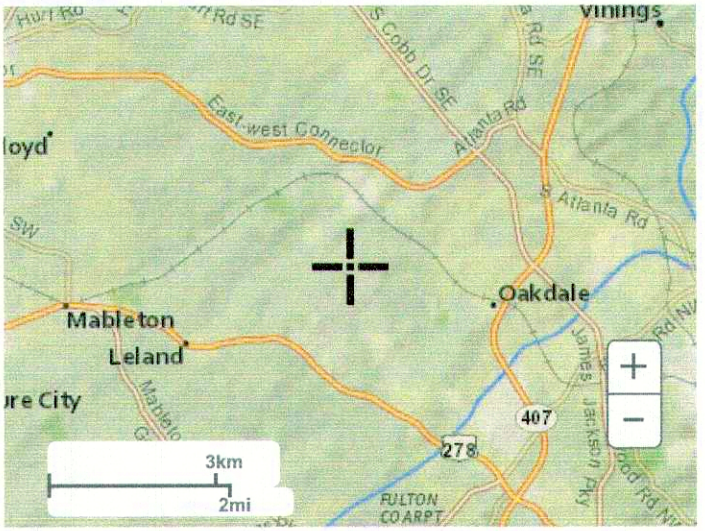
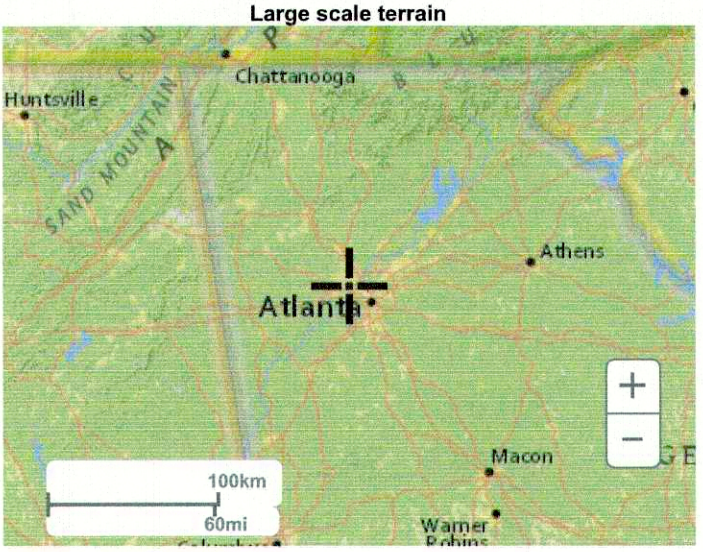
Maps & aerials

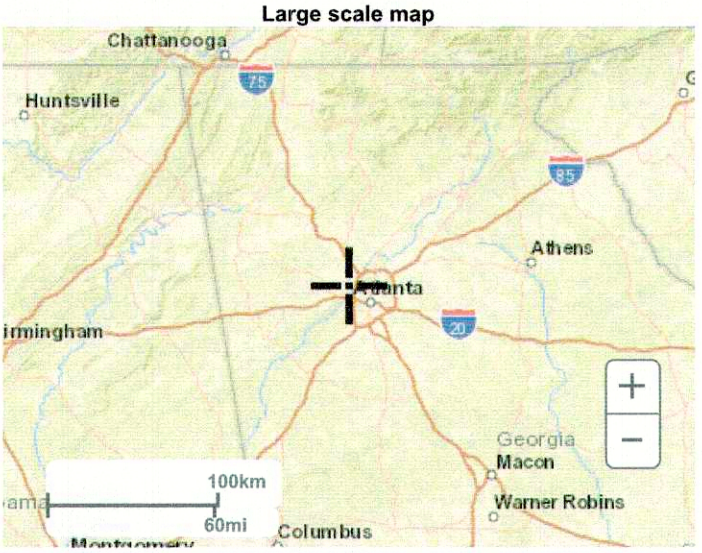
Small scale terrain



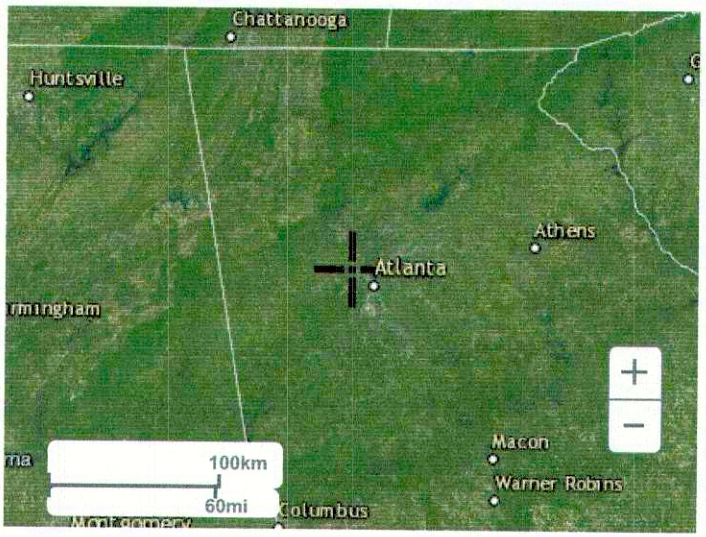
Large scale terrain



Large scale map



Large scale aerial



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

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