

Stamski And McNary, Inc.

Engineering - Planning – Surveying

1000 Main Street; Acton, MA 01720 (978) 263-8585

www.stamskiandmcnary.com

Stormwater Management Report

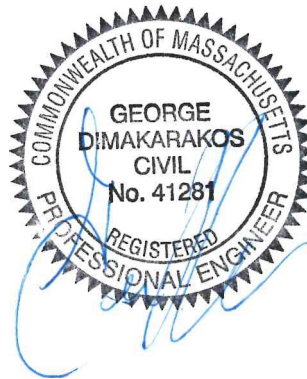
For

46 Pleasant Street

Map 041, Block 0007

Needham, MA 02492

October 9, 2025



Applicant: David Kantor
46 Pleasant Street
Needham, MA 02492

SM-6696

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Narrative

Narrative

The proposed project is for construction of a proposed addition. The proposed project is not subject to the Massachusetts Stormwater Standards; however, it is subject to review under the Town of Needham Stormwater Bylaw, Article 7.

The Natural Resource Conservation Service (N.R.C.S.) soil survey indicated the presence of Merrimac-Urban land Complex at the site, which is rated as Hydrologic Group A.

Pre-Development

The project site is 0.25 acres. ± residential lot located at 46 Pleasant Street in Needham. It currently contains a single-family dwelling and its appurtenances. The vegetation consists of mainly lawn. The areas contributing to Pre-Development runoff can be seen on the attached Pre-Development Drainage Map.

Subcatchment E-1 contains runoff from the existing dwelling, stone patio, detached garage, concrete paver walk, and driveway. The area is primarily covered by lawn. Currently, runoff from this subcatchment flows towards the rear of the property.

Post-Development

The proposed project is for the construction of a proposed addition. The overall drainage patterns of the site will not be altered. The areas contributing to post-development runoff are shown on the attached Post-Development Drainage Map.

Subcatchment P-1A includes the remaining area of Subcatchment E-1, excluding the roof area of the proposed addition and deck. The vegetation is mainly lawn and wooded areas. Runoff from this subcatchment continues to flow towards the rear of the property.

Subcatchment P-1B only contains the roof area of the proposed addition and deck. Runoff from this subcatchment will be captured in gutters and piped via downspouts to a proposed roof drain drywell, where it will be fully infiltrated.

Subcatchments P-1A and P-1B combine and compares to Subcatchment E-1. Runoff from this combined subcatchment will not exceed runoff rates and volumes flowing towards the rear of the property. Post-development runoff rates and volumes will match existing rates and volumes.

Compliance with MA DEP Stormwater Management Standards

Compliance with the Stormwater Management Standards is as follows:

Standard 1: No Untreated Discharges

No untreated discharges to wetlands are proposed. Any additional runoff will be infiltrated onsite.

Standard 2: Peak Rate Attenuation

The Post-Development peak discharge rates must not be increased from Pre-Development rates for the 1-inch, 2-year, 10-year, 25-year, and 100-year storm events. With the proposed stormwater management on the site, the peak runoff rates and volumes have been decreased. The peak runoff rates and volumes are summarized in the following table:

Discharge Summary Table

Total Runoff – Subcatchment 1

	2- Year Storm		10- Year Storm		25- Year Storm		100- Year Storm	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Peak Flow (cfs)	0.048	0.044	0.271	0.250	0.523	0.483	1.071	0.989
Total Volume (cf)	305	281	957	884	1,671	1,543	3,244	2,994

Standard 3: Recharge to Groundwater

This standard states that stormwater runoff volume to be recharged to groundwater should be determined using existing site (pre-development) soil conditions. The existing soil conditions, as obtained from the U.S. Natural Resource Conservation Service Middlesex County Soils Survey for Needham contain Hydrologic Group A soils where recharge areas are proposed.

Required Recharge Volume

This standard requires that a prescribed volume of water be infiltrated based on the hydrologic soil group and area of impervious cover. Therefore, 1 inch over the impervious area covering Hydrologic Group A was used to determine the required recharge volume. Detailed calculations have been provided in the Stormwater Management Report showing the required and provided recharge volumes.

Standard 4: Removal of 44% TSS (prior to infiltration)

This standard stipulates that when infiltration occurs in an area of soils with rapid infiltration rates, or for areas within a Zone II, 44% of TSS must be removed prior to discharge to the infiltration BMP.

Runoff from non-metal roofs may be discharged to a dry well without any pretreatment.

Standard 4: Removal of 80% TSS

This stormwater standard also requires the use of Best Management Practices (BMP's) which will remove a total of 80% Total Suspended Solids (TSS) from runoff. Runoff from non-metal roofs may be discharged to a dry well without any pretreatment. A roof drywell is proposed to treat the increase in impervious areas.

Standard 5: Land Uses with Higher Potential Pollutant Loads

This site will not contain land uses with higher potential pollutant loads.

Standard 6: Critical Areas

This site is not within a critical area.

Standard 7: Redevelopment

The proposed project is not a redevelopment.

Standard 8: Erosion/Sediment Control

Erosion and sediment controls are incorporated into the project design to prevent erosion, control sediment movement, and stabilize exposed and disturbed soils during construction. Temporary erosion and sedimentation controls during construction include minimizing areas of exposed soil, directing and controlling runoff, and rapidly stabilizing exposed areas. Soils left exposed for extended periods will be

mulched and seeded for temporary vegetative cover. Following construction, exposed areas will be permanently vegetated with appropriate ground cover. Erosion and sedimentation control measures will be maintained throughout all phases of construction. Inspections will be made regularly and after rainfalls exceeding 0.5 inches in a 24-hour period during construction. The contractor will be required to inspect erosion and sedimentation control measures at the end of each workday, when precipitation is forecasted, and after each rainfall. All measures will be inspected prior to each weekend. The contractor will replace and repair any malfunctioning or damaged control measures including vegetative stabilization. Long term erosion and sedimentation control will be realized using the Best Management Practices described previously. Areas where soils have been disturbed will be loamed and vegetated with lawn, trees, and shrubs.

Standard 9: Operation and Maintenance Plan

An Operation and Maintenance Plan is included in this report as well as shown on the plan.

Standard 10: Illicit Discharges to Drainage System

No known illicit discharges exist nor are any proposed.

Design Basis

1. The United States Department of Agriculture Natural Resource Conservation Service (N.R.C.S.) TR-55 methodology was used to determine offsite rates of runoff.
2. All stormwater management systems were designed using the then-current 24-hour rainfall data, adopted from the web tool “Extreme Precipitation in New York and New England” developed jointly by the Northeast Regional Climate Center (NRCC) at Cornell University and the Natural Resources Conservation Service (NRCS) (as of 2021, the following data shall be used: 2-year storm = 3.21-inches; 10-year storm = 4.84-inches, 25-year = 6.12-inches; and 100-year = 8.75-inches) per the Code of the Town of Needham Stormwater, Article 7.
3. The hydrologic calculations were performed using the computer program: “Hydrology Studio”.
4. The soil types of the site were taken from the N.R.C.S. Soil Survey Map for Needham.
5. Soil conditions and estimated seasonal high groundwater table were based on on-site soil evaluations.

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point														
Smoothing														
Yes														
State														
Location														
Latitude														
42.276 degrees North														
Longitude														
71.232 degrees West														
Elevation														
40 feet														
Date/Time														
Tue Sep 23 2025 14:53:20 GMT-0400 (Eastern Daylight Time)														

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10c
1yr	0.28	0.44	0.54	0.71	0.89	1.12	1yr	0.77	1.06	1.30	1.65	2.10	2.68	2.91	1yr	2.37	2.80	3.29	3.93	4.61
2yr	0.35	0.55	0.68	0.90	1.13	1.42	2yr	0.97	1.30	1.64	2.05	2.57	3.21	3.56	2yr	2.84	3.42	3.92	4.67	5.30
5yr	0.43	0.66	0.83	1.11	1.42	1.81	5yr	1.23	1.63	2.10	2.63	3.27	4.06	4.54	5yr	3.59	4.36	4.99	5.93	6.60
10yr	0.49	0.76	0.96	1.31	1.70	2.18	10yr	1.47	1.94	2.53	3.16	3.92	4.84	5.45	10yr	4.28	5.25	6.00	7.11	7.80
25yr	0.58	0.92	1.17	1.62	2.15	2.78	25yr	1.86	2.43	3.24	4.05	5.01	6.12	6.97	25yr	5.42	6.70	7.65	9.05	9.80
50yr	0.66	1.07	1.37	1.92	2.58	3.35	50yr	2.23	2.89	3.91	4.88	6.01	7.32	8.39	50yr	6.48	8.06	9.20	10.86	11.60
100yr	0.77	1.24	1.60	2.27	3.09	4.04	100yr	2.67	3.43	4.72	5.89	7.23	8.75	10.10	100yr	7.75	9.71	11.06	13.04	13.60
200yr	0.88	1.44	1.87	2.68	3.71	4.87	200yr	3.20	4.08	5.70	7.10	8.68	10.47	12.17	200yr	9.27	11.70	13.31	15.66	16.00
500yr	1.09	1.79	2.33	3.38	4.73	6.23	500yr	4.08	5.13	7.30	9.09	11.07	13.29	15.58	500yr	11.76	14.98	17.02	19.97	20.00

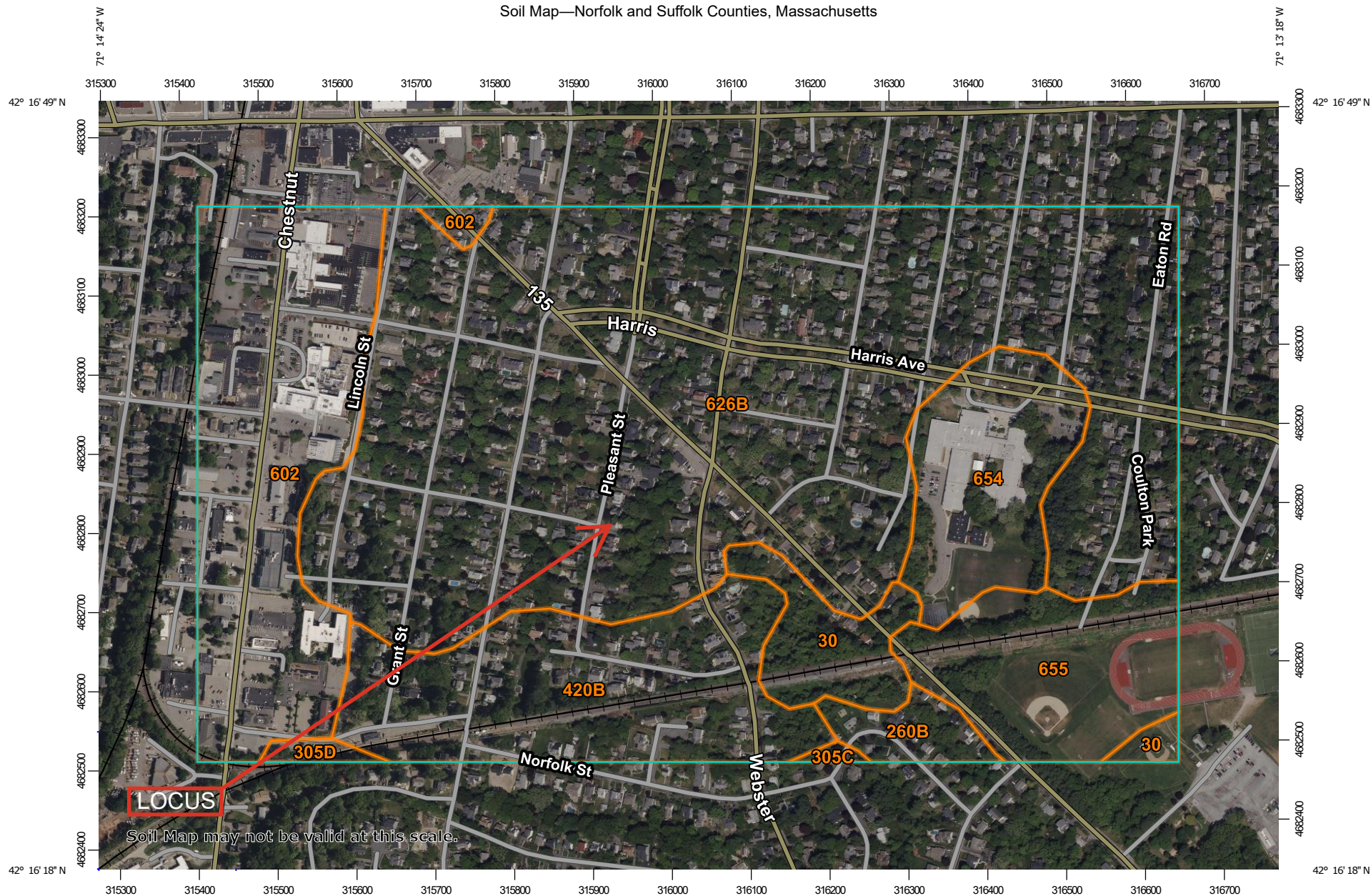
Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day
1yr	0.23	0.36	0.44	0.59	0.73	0.87	1yr	0.63	0.85	1.02	1.43	1.83	2.39	2.54	1yr	2.11	2.45	2.97	3.50	4.12
2yr	0.34	0.52	0.64	0.87	1.08	1.28	2yr	0.93	1.25	1.46	1.94	2.51	3.09	3.41	2yr	2.74	3.28	3.77	4.50	5.13
5yr	0.39	0.60	0.74	1.01	1.29	1.52	5yr	1.11	1.49	1.75	2.29	2.94	3.70	4.13	5yr	3.27	3.97	4.50	5.53	6.08
10yr	0.43	0.66	0.82	1.15	1.48	1.74	10yr	1.28	1.70	1.95	2.58	3.30	4.23	4.75	10yr	3.74	4.57	5.15	6.22	6.88
25yr	0.49	0.75	0.94	1.34	1.76	2.05	25yr	1.52	2.00	2.30	3.04	3.86	5.05	5.71	25yr	4.47	5.49	6.16	7.48	8.10
50yr	0.54	0.83	1.03	1.48	1.99	2.32	50yr	1.72	2.27	2.60	3.43	4.34	5.78	6.58	50yr	5.12	6.32	7.04	8.60	9.17
100yr	0.60	0.90	1.13	1.63	2.24	2.63	100yr	1.93	2.57	2.94	3.68	4.89	6.65	7.57	100yr	5.88	7.28	8.07	9.88	10.37
200yr	0.65	0.98	1.25	1.80	2.52	2.99	200yr	2.17	2.92	3.34	4.12	5.51	7.64	8.72	200yr	6.77	8.38	9.23	11.37	11.71
500yr	0.74	1.10	1.41	2.06	2.92	3.53	500yr	2.52	3.45	3.91	4.78	6.46	9.23	10.52	500yr	8.17	10.12	11.05	13.68	13.73

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day
1yr	0.32	0.49	0.60	0.81	1.00	1.19	1yr	0.86	1.17	1.36	1.82	2.33	2.97	3.18	1yr	2.63	3.06	3.58	4.31	5.00
2yr	0.37	0.58	0.71	0.96	1.19	1.39	2yr	1.03	1.36	1.60	2.10	2.72	3.35	3.73	2yr	2.96	3.58	4.10	4.85	5.50
5yr	0.47	0.73	0.90	1.24	1.58	1.83	5yr	1.36	1.79	2.09	2.70	3.44	4.43	5.00	5yr	3.92	4.81	5.46	6.37	7.00
10yr	0.57	0.88	1.10	1.52	1.88	2.28	10yr	1.71	2.22	2.62	3.28	4.14	5.40	6.27	10yr	4.86	6.02	6.81	8.12	8.60

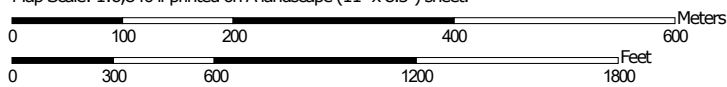
Soil Map—Norfolk and Suffolk Counties, Massachusetts



LOCUS

Soil Map may not be valid at this scale.

Map Scale: 1:6,840 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

9/22/2025
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 20, Aug 27, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 22, 2022—Jun 5, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
30	Raynham silt loam, 0 to 3 percent slopes	7.6	3.5%
260B	Sudbury fine sandy loam, 2 to 8 percent slopes	3.4	1.6%
305C	Paxton fine sandy loam, 8 to 15 percent slopes	0.4	0.2%
305D	Paxton fine sandy loam, 15 to 25 percent slopes	0.9	0.4%
420B	Canton fine sandy loam, 3 to 8 percent slopes	25.5	11.8%
602	Urban land, 0 to 15 percent slopes	33.0	15.2%
626B	Merrimac-Urban land complex, 0 to 8 percent slopes	116.7	53.9%
654	Udorthents, loamy	14.1	6.5%
655	Udorthents, wet substratum	15.2	7.0%
Totals for Area of Interest		216.7	100.0%

SUMMARY TABLE

SM-6696

Project:

46 Pleasant Street

By

MN

Date

10/7/25

Location:

Needham, MA

Checked

Date

EXISTING	AREA (S.F.)	AREA (AC.)	CN	TIME OF CONCENTRATION
E-1	11334	0.26	58	6.0
Total	11334	0.26		

PROPOSED	AREA (S.F.)	AREA (AC.)	CN	TIME OF CONCENTRATION
P-1A	10486	0.24	58	6.0
P-1B	848	0.02	98	6.0
Total	11334	0.26		

Hydrology Studio v 3.0.0.39

10-07-2025

[illegible]

Hydrology Studio v 3.0.0.39

10-07-2025

[illegible]

Hydrology Studio v 3.0.0.39

10-07-2025

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Hydrology Studio v 3.0.0.39

10-07-2025

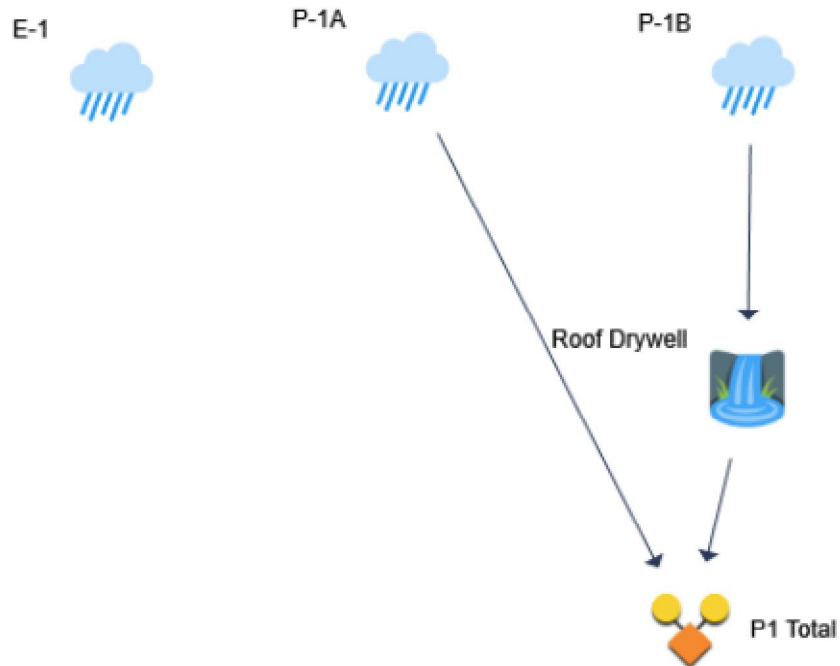
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Basin Model

Hydrology Studio v 3.0.0.38

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09-23-2025



Pre-Development Hydrology

Worksheet 2: Runoff curve number and runoff

SM-6696

Project:

46 Pleasant Street

By

MN

Date

9/30/25

Location:

Needham, MA

Checked

Date

Circle one:

Present

Developed

Subcatchment E-1

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition: percent impervious: unconnected/connected impervious area ratio)	Area	CN 1/			Area	Product of CN x Area
		S.F.	Table 2-Feb	Fig. 2-3	Fig. 2-4	Acres	
-	Impervious	3690	98			0.08	8.30
A	Open Space - Lawn (Good Condition)	7129	39			0.16	6.38
A	Woods - Good Condition	515	30			0.01	0.35
Totals =						0.26	15.04

1/ Use only one CN source per line.

CN (weighted) =

total product

total area

=

15.04

0.26

=

57.80

;

Use CN =

58

Project: 46 Pleasant StreetBy MNDate 9/30/2025Location: Needham, MAChecked Date

Circle one:

Present
Tc

Developed

Tt

through
subareaSubcatchment E-1Sheet flow (Applicable to Tc only)

Segment ID

1. Surface Description (table 3-1)

2. Mannings roughness coeff., n (table 3-1)

3. Flow length, L (total L <= 300 ft)

ft

4. Two-yr 24-hr rainfall, P2

in

5. Land Slope, s

ft/ft

6. $Tt = 0.007 (nL)^{0.8} / (P2^{0.5} s^{0.4})$

Compute Tt hr

Shallow concentrated Flow

Segment ID

7. Surface Description (paved or unpaved)

8. Flow Length, L

ft

9. Watercourse slope, s

ft/ft

10. Average Velocity, V (figure 3-1)

ft/s

11. $Tt = L / 3600V$

Compute Tt hr

Channel flow

Segment ID

12. Cross sectional flow area, a

sf

13. Wetted perimeter, pw

ft

14. Hydraulic radius, $r=a/wp$

Compute r ft

15. Channel Slope, s

ft/ft

16. Manning's roughness coeff., n

17. $V = 1.49 r^{2/3} s^{1/2} / n$

Compute V ft/s

18. Flow length, L

ft

19. $Tt = L / 3600V$

Compute Tt hr

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19)

hr

min

0.10

6.0

Hydrograph Report

Hydrology Studio v 3.0.0.38

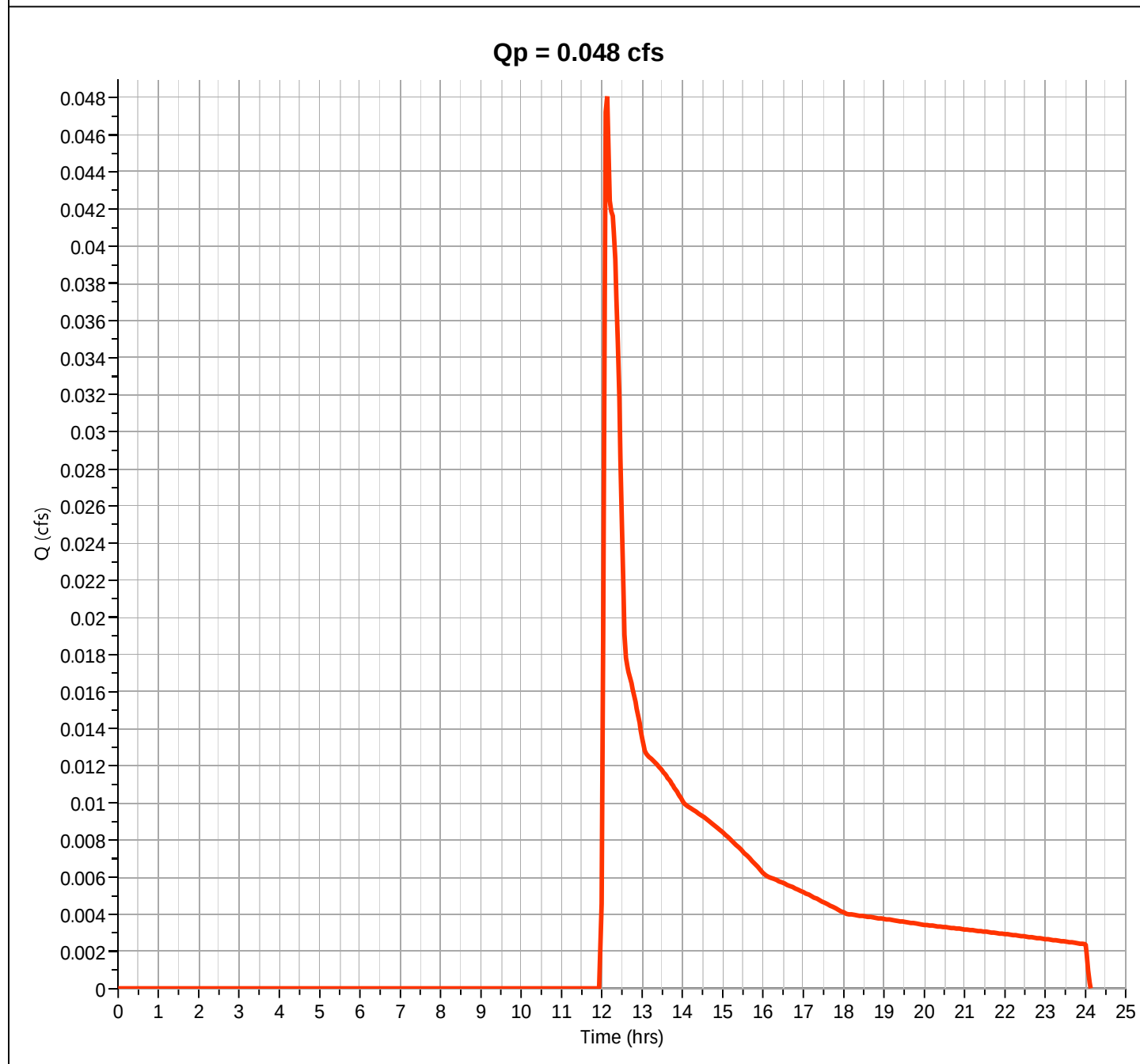
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10-01-2025

E-1

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.048 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 305 cuft
Drainage Area	= 0.26 ac	Curve Number	= 58.00
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.21 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

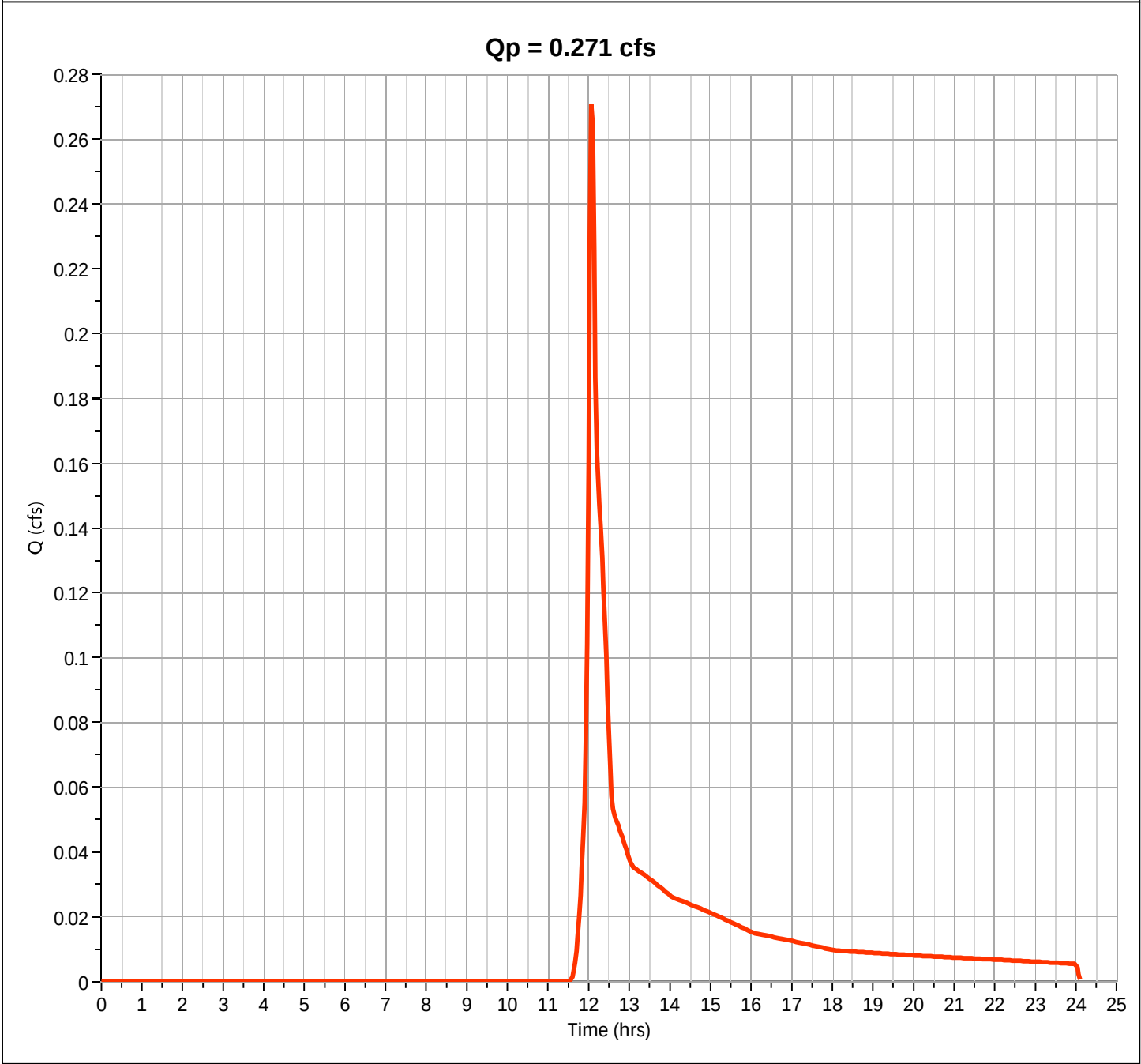
Hydrology Studio v 3.0.0.38

File: 6696.hys
10-01-2025

E-1

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.271 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 957 cuft
Drainage Area	= 0.26 ac	Curve Number	= 58.00
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.84 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Hydrology Studio v 3.0.0.38

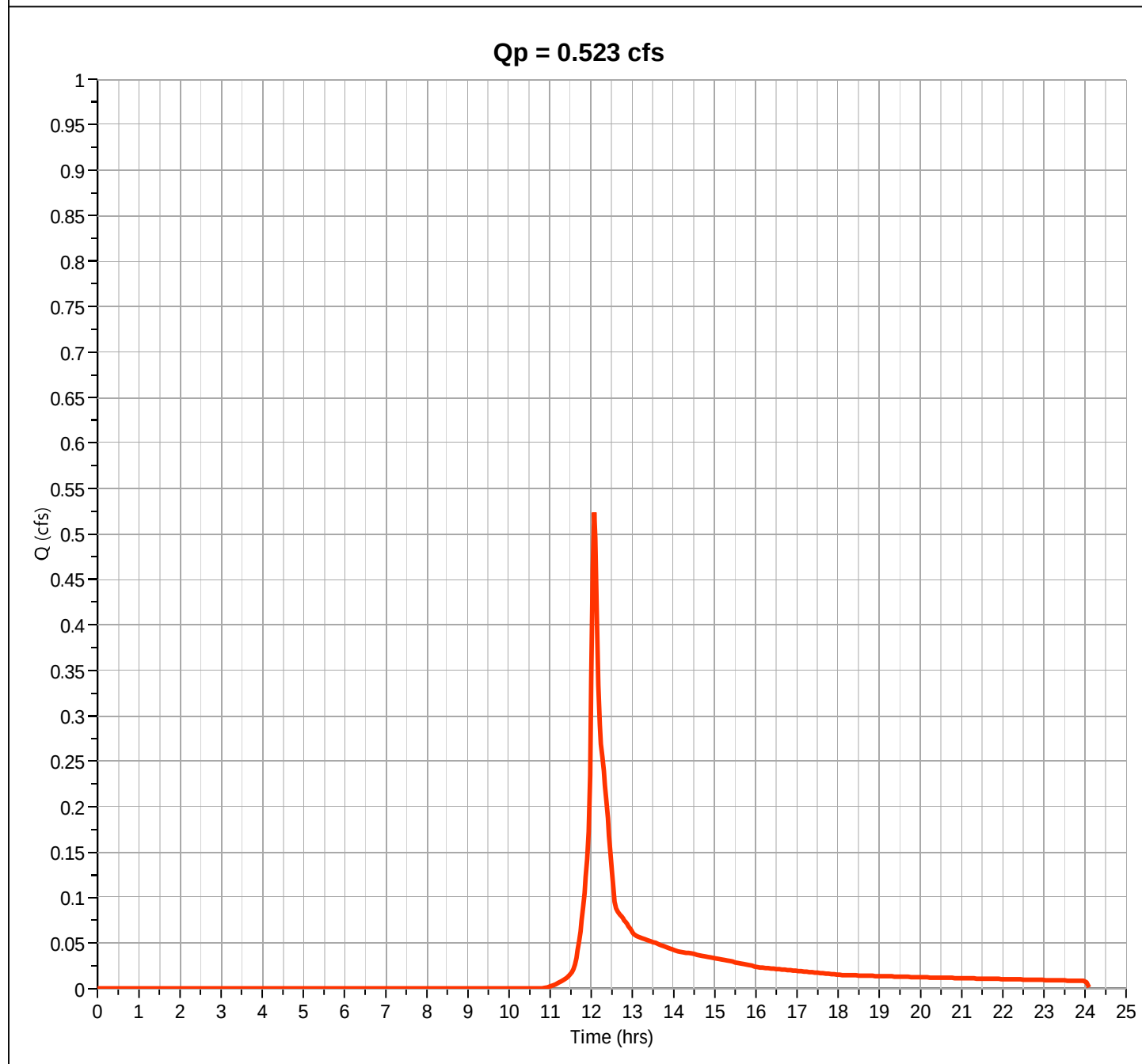
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10-01-2025

E-1

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.523 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 1,671 cuft
Drainage Area	= 0.26 ac	Curve Number	= 58.00
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.21 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Hydrology Studio v 3.0.0.38

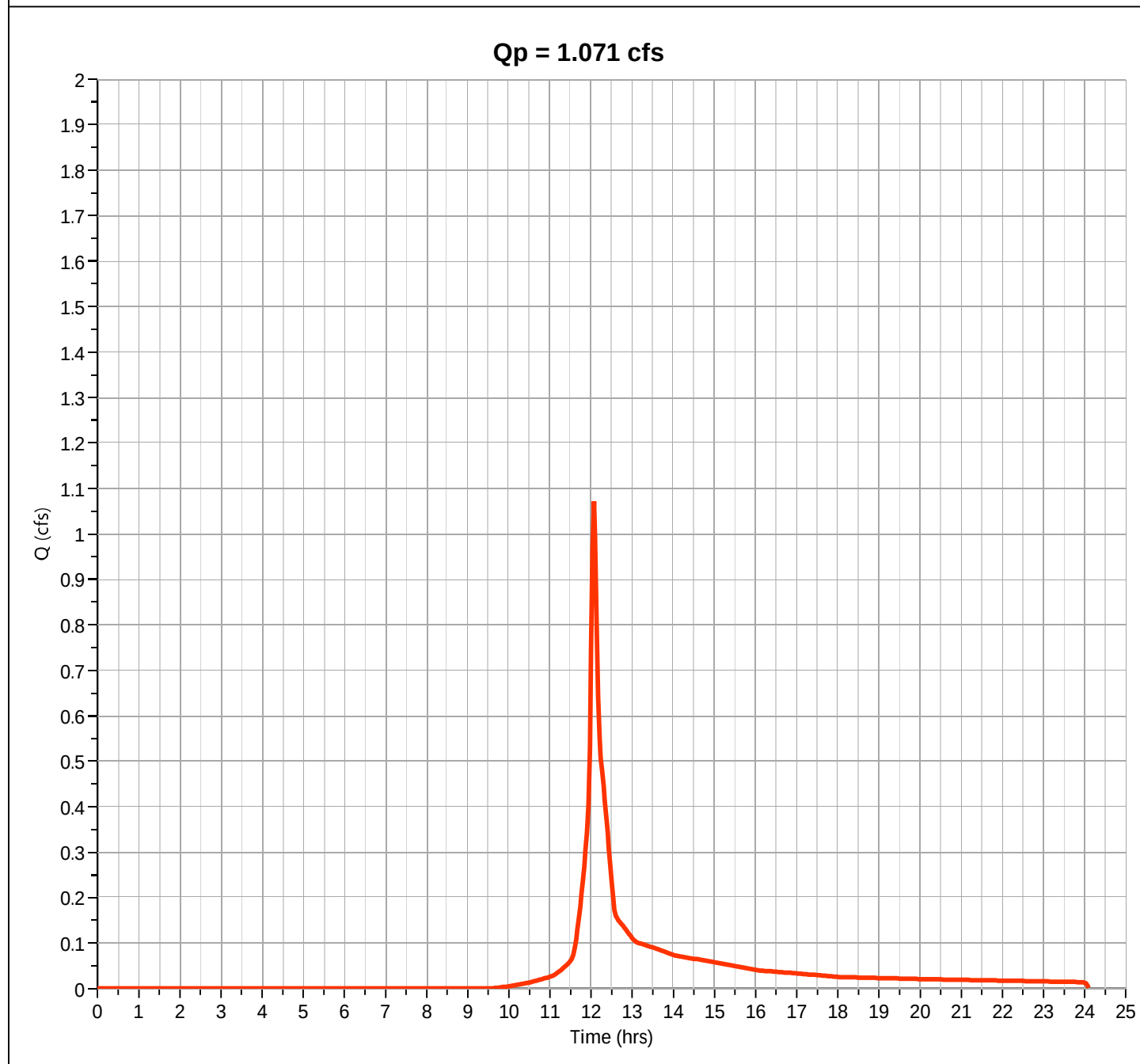
File: 6696.hys

10-01-2025

E-1

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.071 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 3,244 cuft
Drainage Area	= 0.26 ac	Curve Number	= 58.00
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 8.75 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Post-Development Hydrology

Worksheet 2: Runoff curve number and runoff

SM-6696

Project:

46 Pleasant Street

By

MN

Date

10/7/25

Location:

Needham, MA

Checked

Date

Circle one:

Present

Developed

Subcatchment P-1A

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition: percent impervious: unconnected/connected impervious area ratio)	Area S.F.	CN 1/			Area Acres	Product of CN x Area
			Table 2-Feb	Fig. 2-3	Fig. 2-4		
-	Impervious	3424	98			0.08	7.70
A	Open Space - Lawn (Good Condition)	6547	39			0.15	5.86
A	Woods - Good Condition	515	30			0.01	0.35
Totals =						0.24	13.92

1/ Use only one CN source per line.

CN (weighted) =

total product

total area

=

13.92

0.24

=

57.82

;

Use CN =

58

Project: 46 Pleasant StreetBy MNDate 9/30/2025Location: Needham, MA

Checked _____

Date _____

Circle one: Present ☒ DevelopedCircle one: Tc ☐ Tt ☐through
subareaSubcatchment P-1ASheet flow (Applicable to Tc only)

Segment ID

1. Surface Description (table 3-1)

2. Mannings roughness coeff., n (table 3-1)

3. Flow length, L (total L ≤ 300 ft)

ft

4. Two-yr 24-hr rainfall, P2

in

5. Land Slope, s

ft/ft

6. $T_t = 0.007 (nL)^{0.8} / (P_2^{0.5} s^{0.4})$

Compute Tt hr

Shallow concentrated Flow

Segment ID

7. Surface Description (paved or unpaved)

8. Flow Length, L

ft

9. Watercourse slope, s

ft/ft

10. Average Velocity, V (figure 3-1)

ft/s

11. $T_t = L / 3600V$

Compute Tt hr

Channel flow

Segment ID

12. Cross sectional flow area, a

sf

13. Wetted perimeter, pw

ft

14. Hydraulic radius, $r = a/pw$

Compute r ft

15. Channel Slope, s

ft/ft

16. Manning's roughness coeff., n

17. $V = 1.49 r^{2/3} s^{1/2} / n$

Compute V ft/s

18. Flow length, L

ft

19. $T_t = L / 3600V$

Compute Tt hr

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19)

hr

min

0.10

6.0

Hydrograph Report

Hydrology Studio v 3.0.0.39

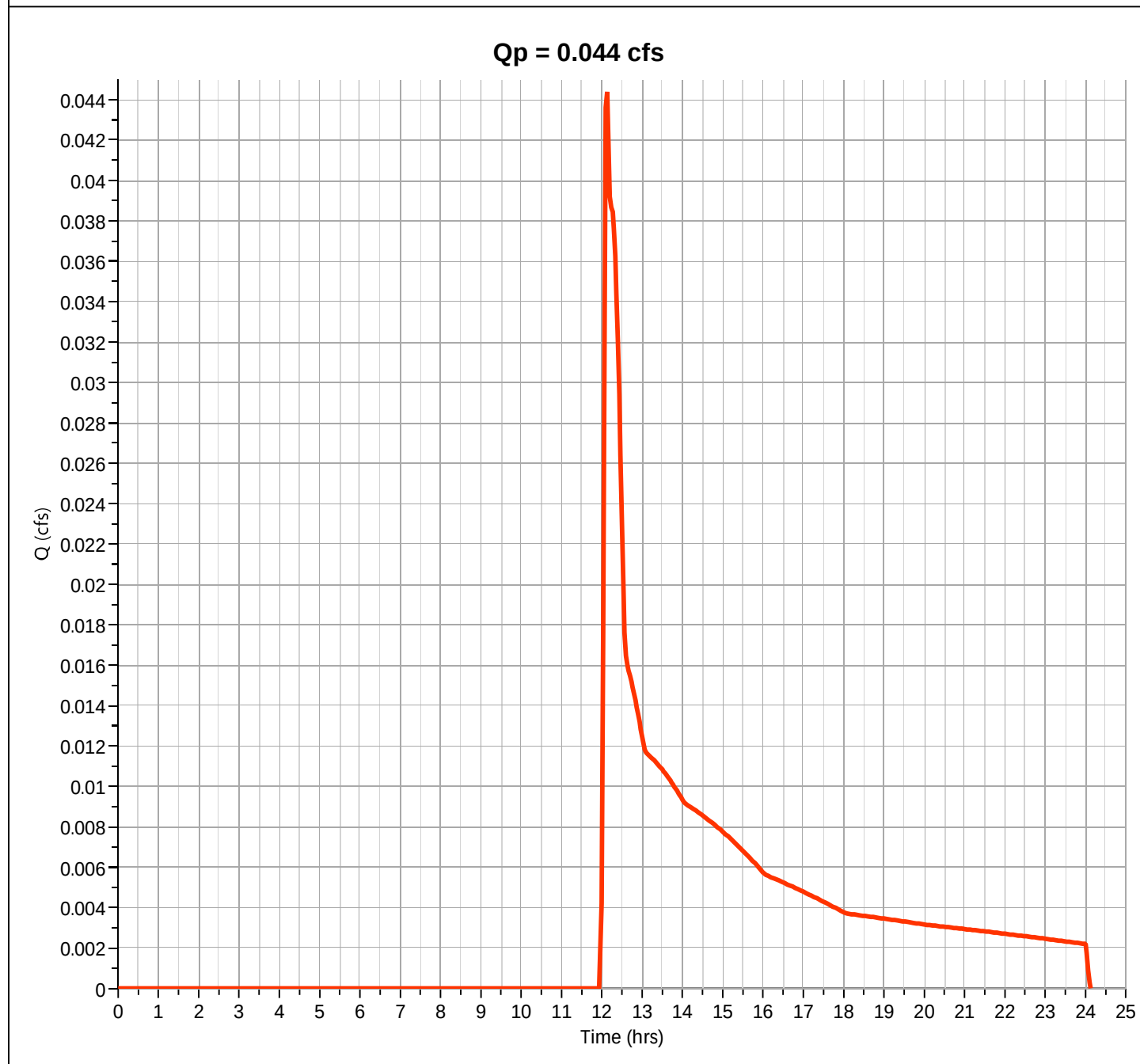
File: 6696.hys

10-07-2025

P-1A

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.044 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 281 cuft
Drainage Area	= 0.24 ac	Curve Number	= 58.00
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.21 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Hydrology Studio v 3.0.0.39

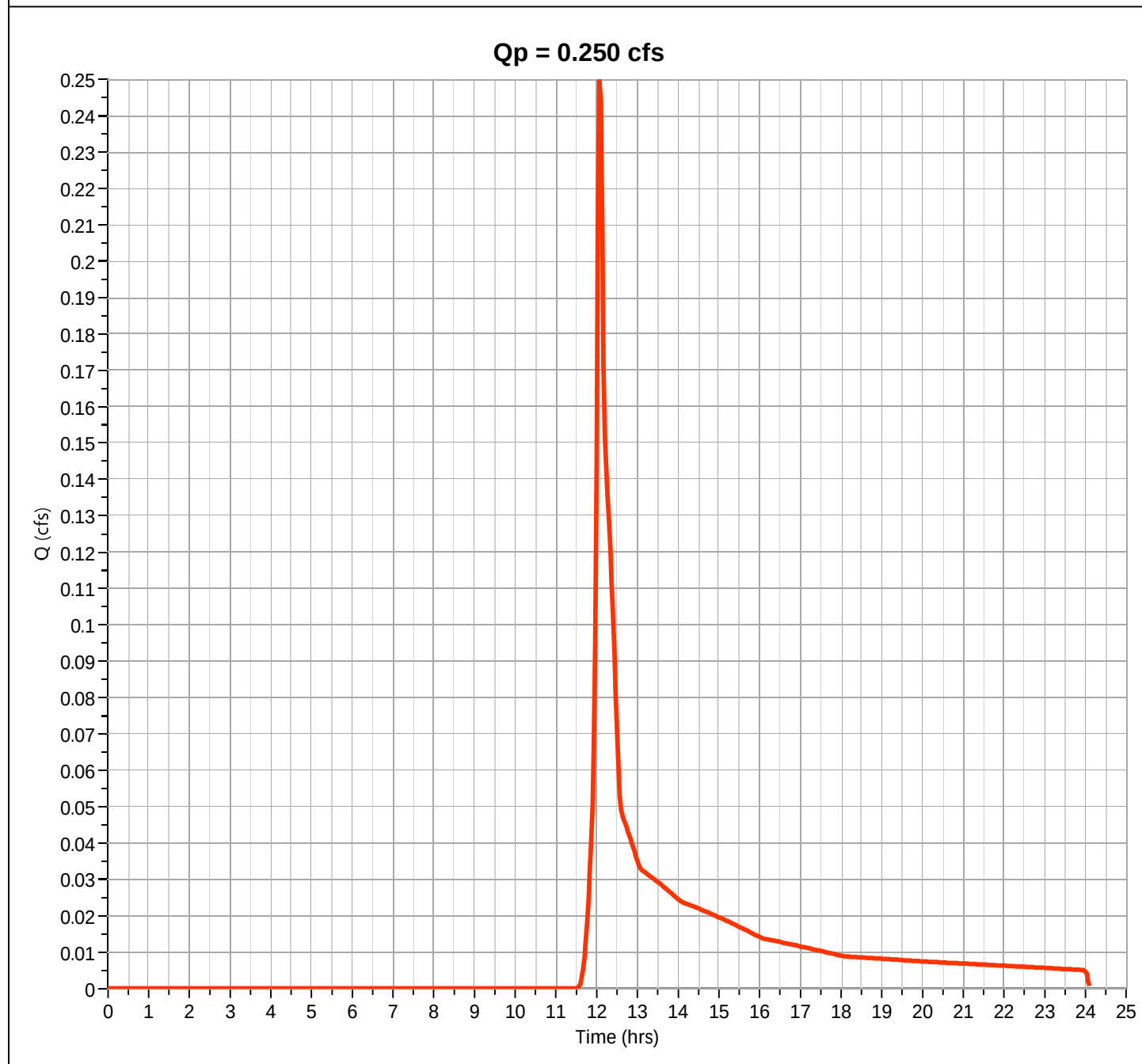
File: 6696.hys

10-07-2025

P-1A

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.250 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 884 cuft
Drainage Area	= 0.24 ac	Curve Number	= 58.00
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.84 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Hydrology Studio v 3.0.0.39

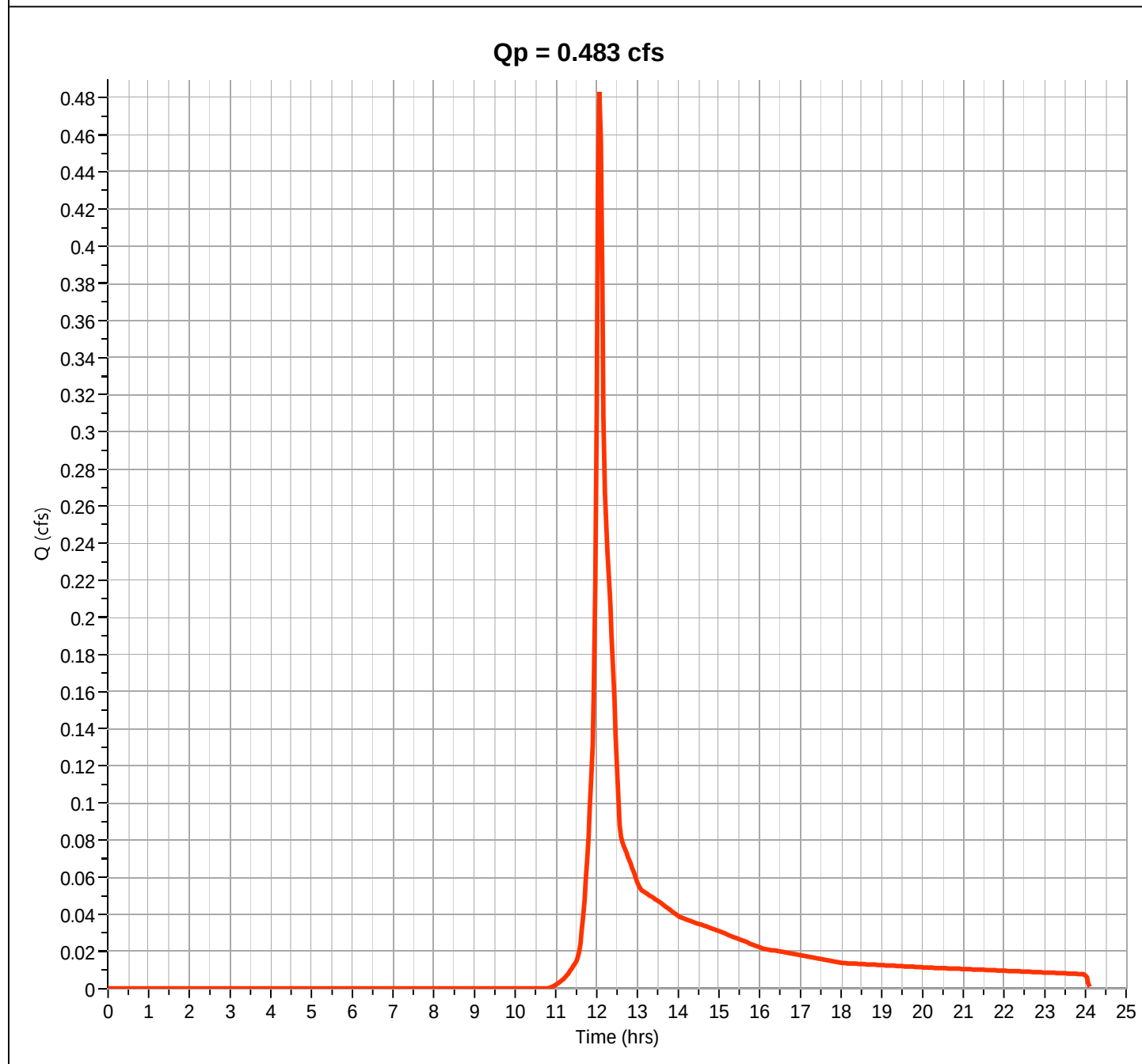
File: 6696.hys

10-07-2025

P-1A

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.483 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 1,543 cuft
Drainage Area	= 0.24 ac	Curve Number	= 58.00
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.21 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

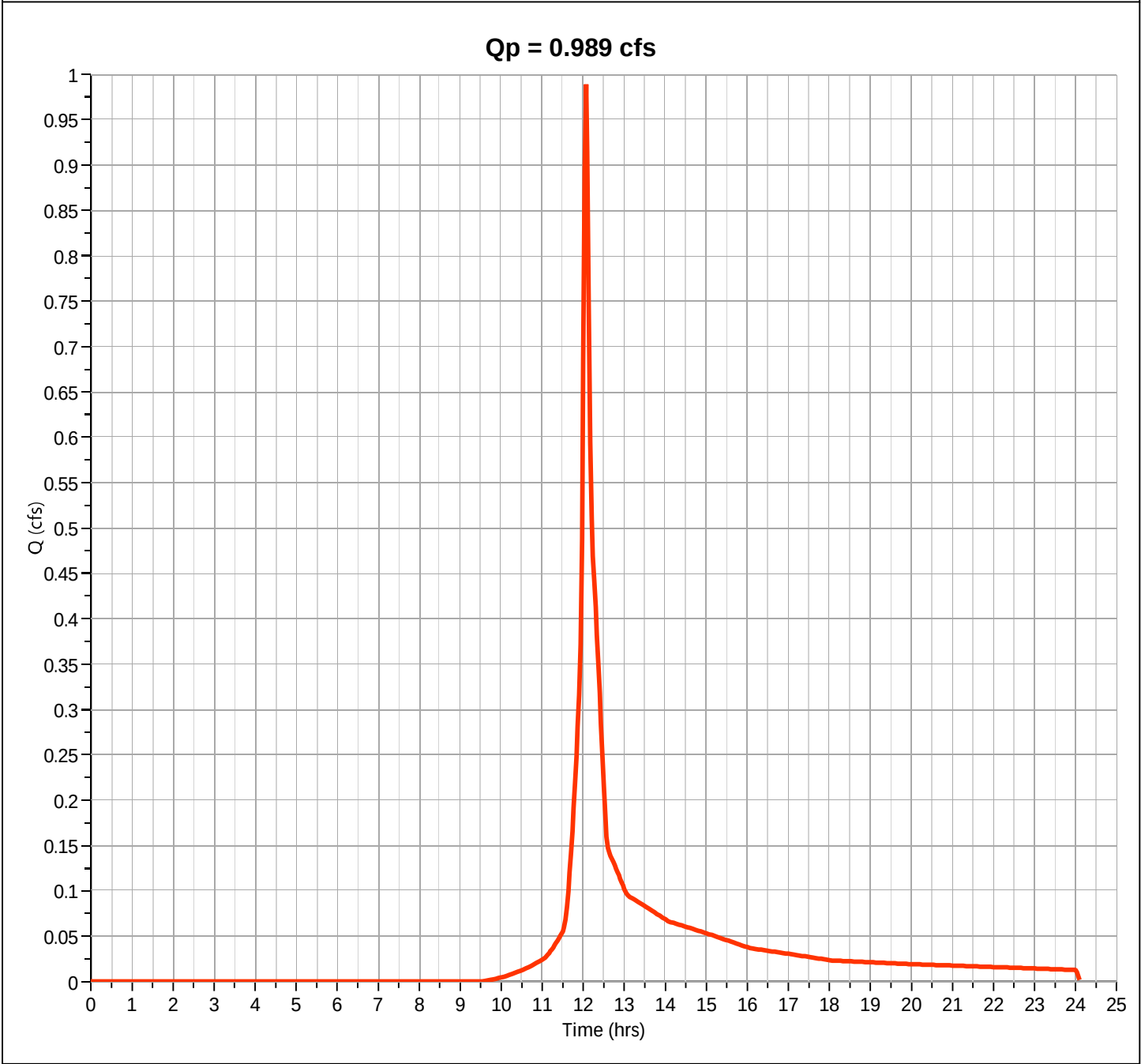
Hydrology Studio v 3.0.0.39

File: 6696.hys
10-07-2025

P-1A

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.989 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 2,994 cuft
Drainage Area	= 0.24 ac	Curve Number	= 58.00
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 8.75 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Worksheet 2: Runoff curve number and runoff

SM-6696

Project: 46 Pleasant StreetBy MNDate 10/7/25

Location: Needham, MAChecked Rev Date 6/6/2023

Circle one: Present DevelopedSubcatchment P-1B

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition: percent impervious: unconnected/connected impervious area ratio)	Area S.F.	CN 1/			Area Acres	Product of CN x Area
			Table 2-2	Fig. 2-3	Fig. 2-4		
-	Impervious	848	98			0.02	1.91
A	Open Space - Lawn Good Condition		39			0.00	0.00
A	Woods - Good Condition		30			0.00	0.00
Totals =						0.02	1.91

1/ Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}}$ = $\frac{1.91}{0.02}$ = 98.00 ; Use CN = 98

Hydrograph Report

Hydrology Studio v 3.0.0.39

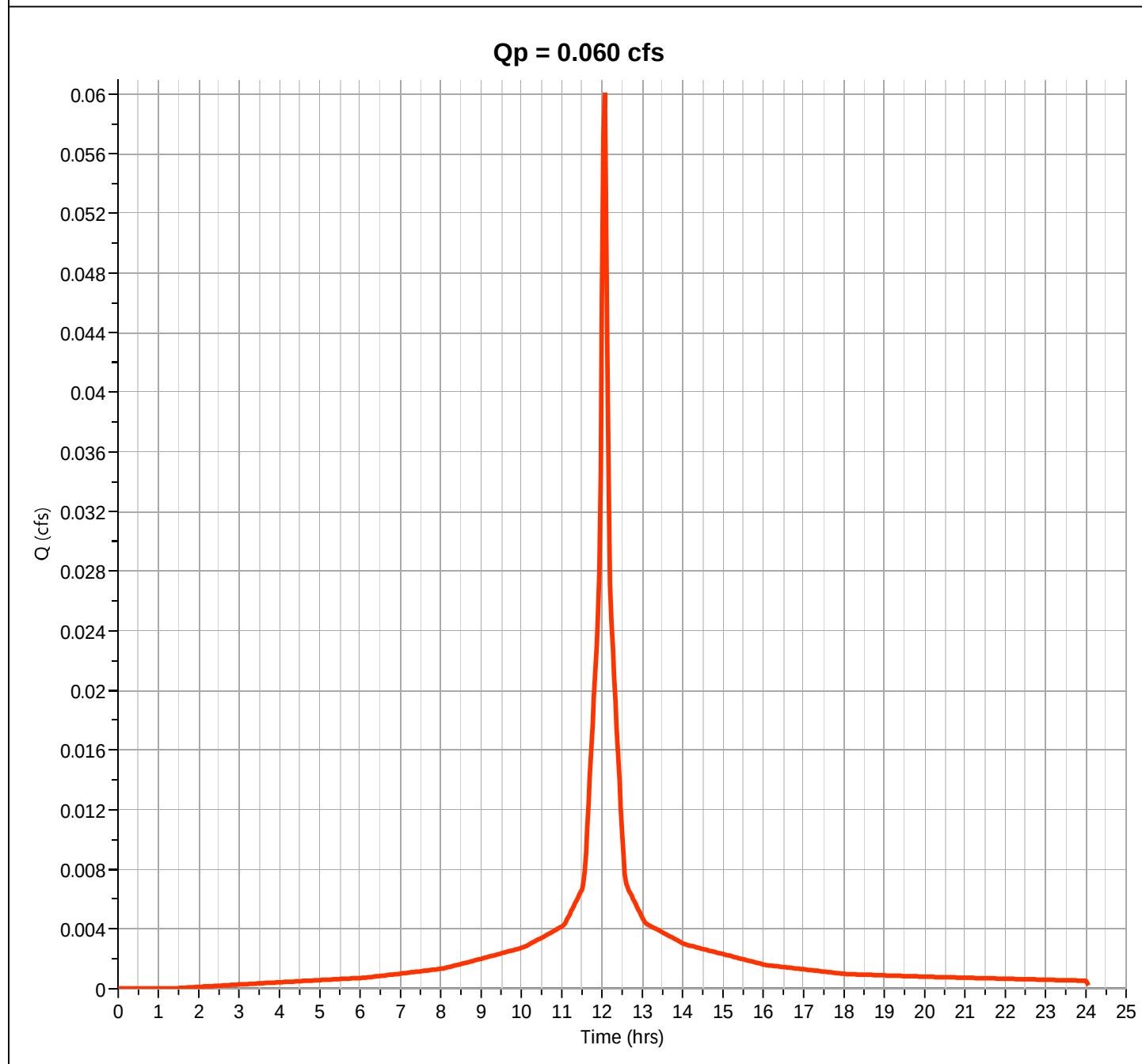
File: 6696.hys

10-07-2025

P-1B

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.060 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 203 cuft
Drainage Area	= 0.02 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.21 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Hydrology Studio v 3.0.0.39

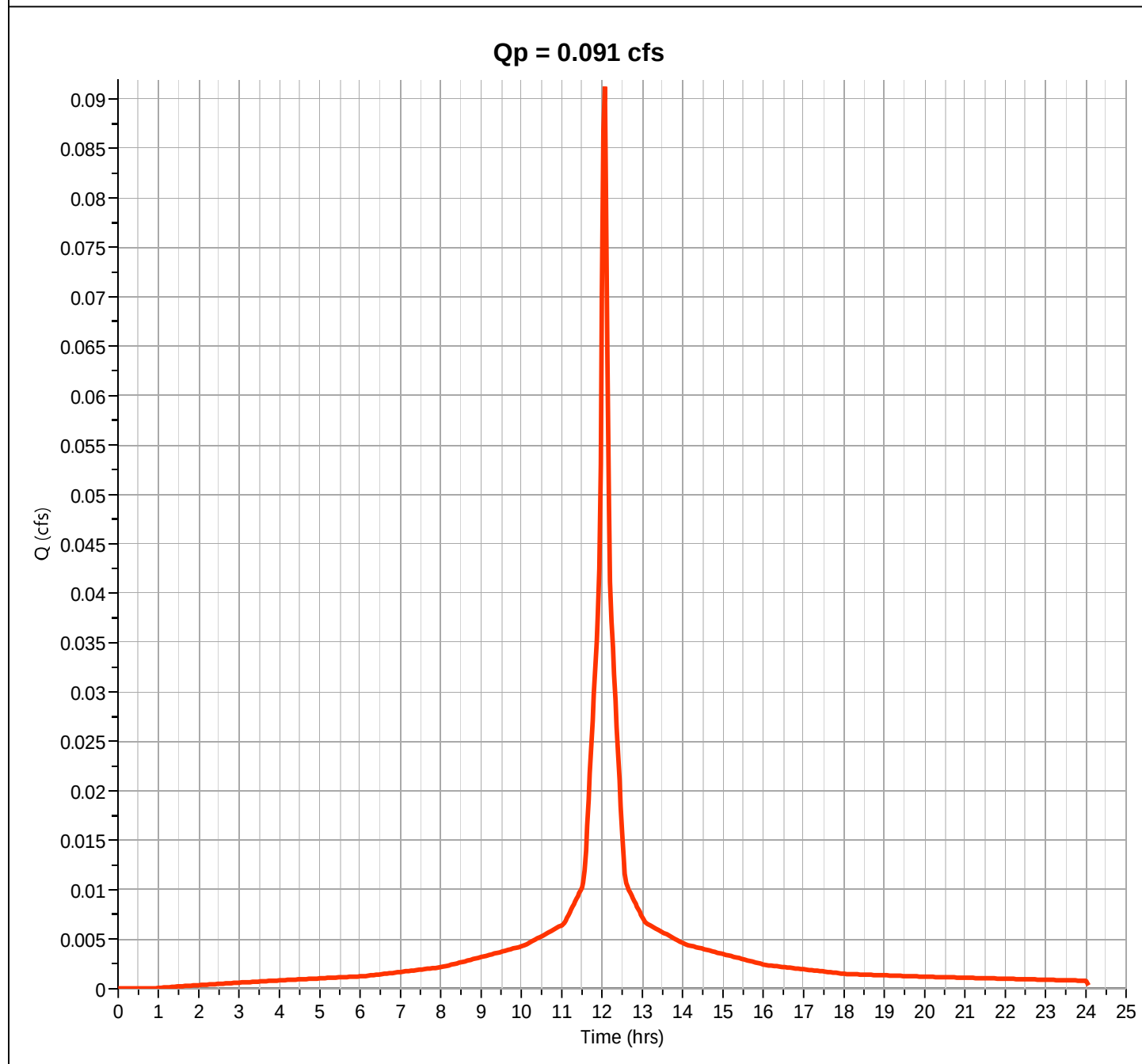
File: 6696.hys

10-07-2025

P-1B

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.091 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 313 cuft
Drainage Area	= 0.02 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.84 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Hydrology Studio v 3.0.0.39

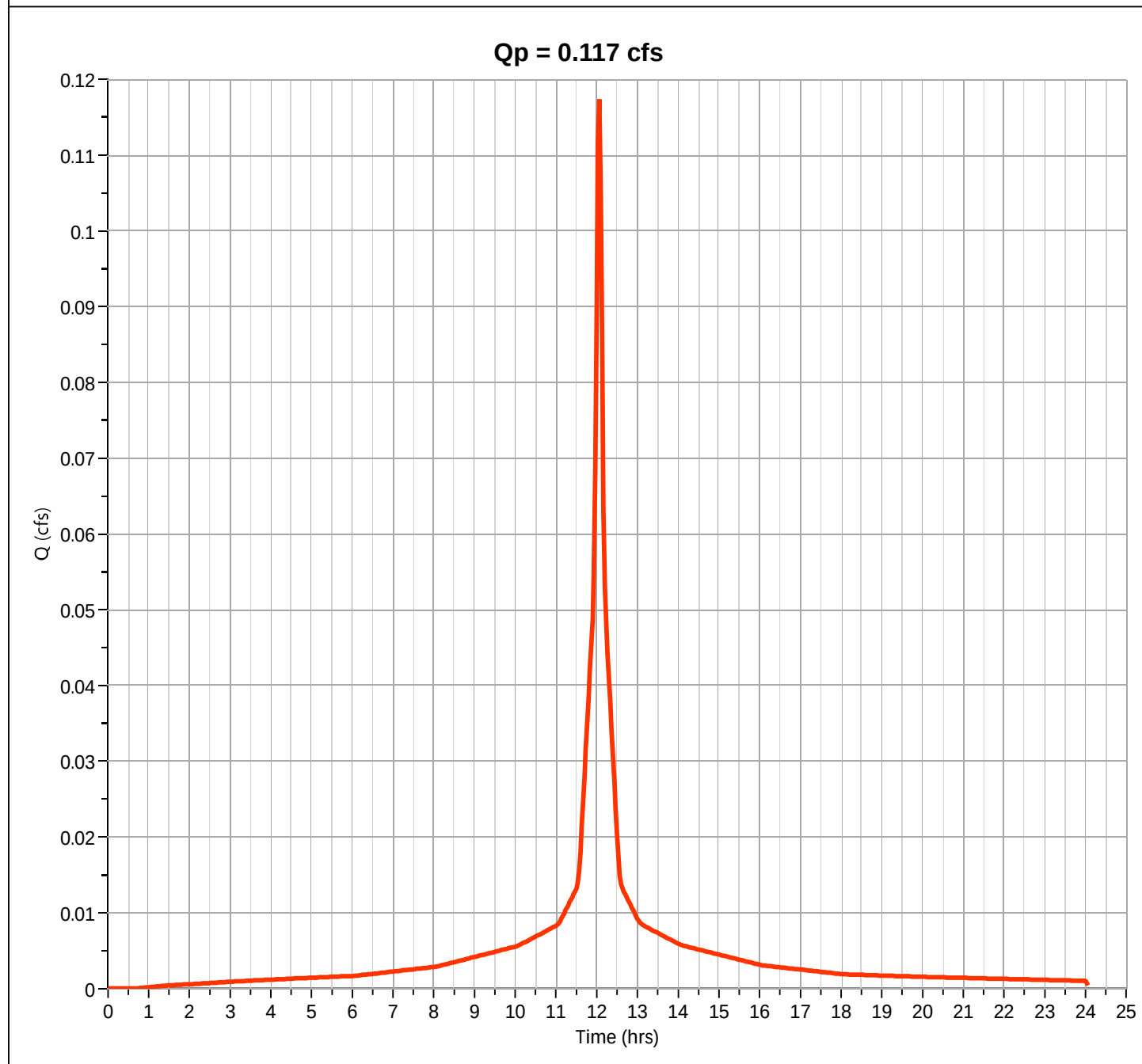
File: 6696.hys

10-07-2025

P-1B

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.117 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 406 cuft
Drainage Area	= 0.02 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.21 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Hydrology Studio v 3.0.0.39

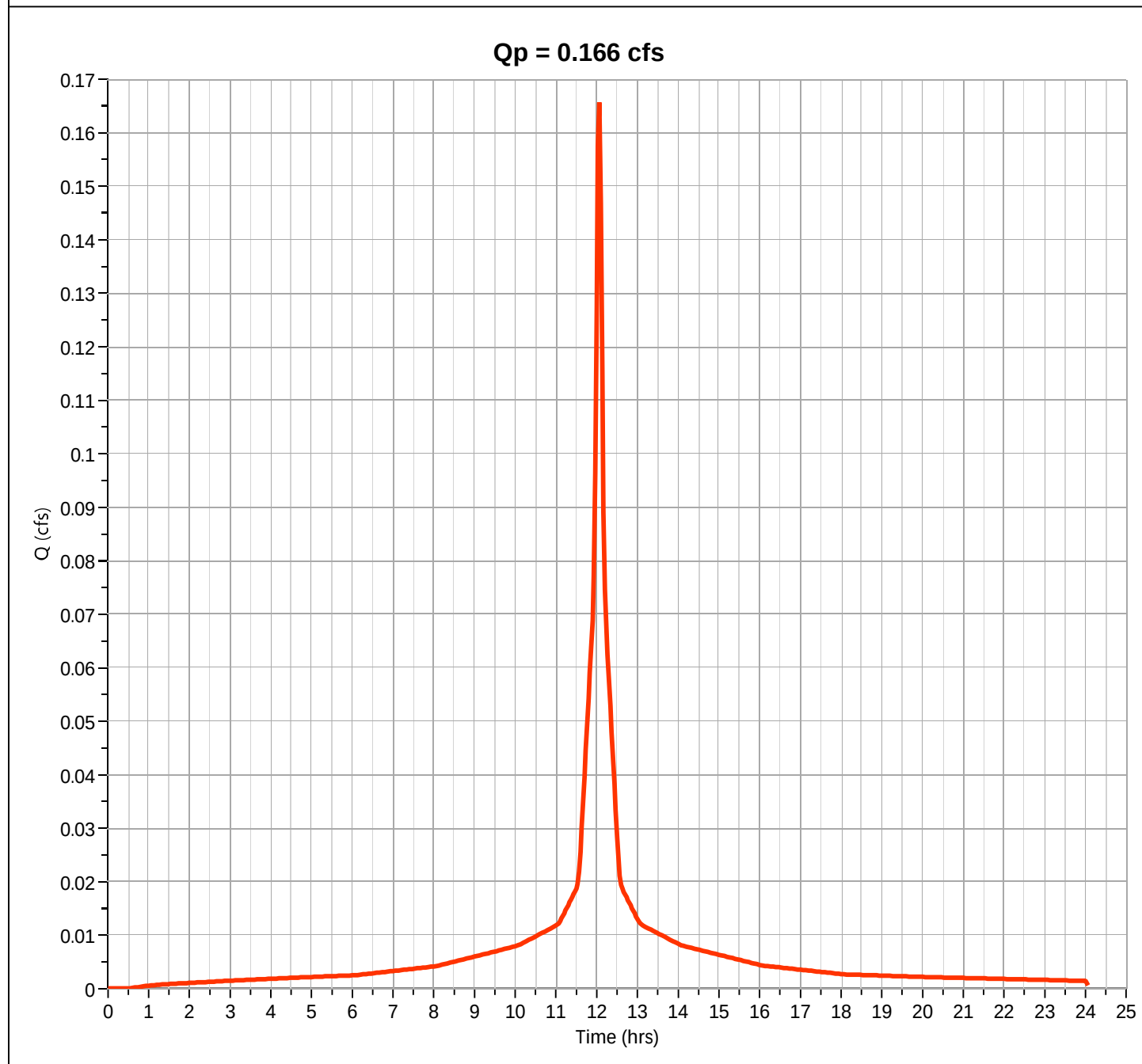
File: 6696.hys

10-07-2025

P-1B

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.166 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Runoff Volume	= 579 cuft
Drainage Area	= 0.02 ac	Curve Number	= 98.00
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 8.75 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Hydrology Studio v 3.0.0.39

File: 6696.hys

10-07-2025

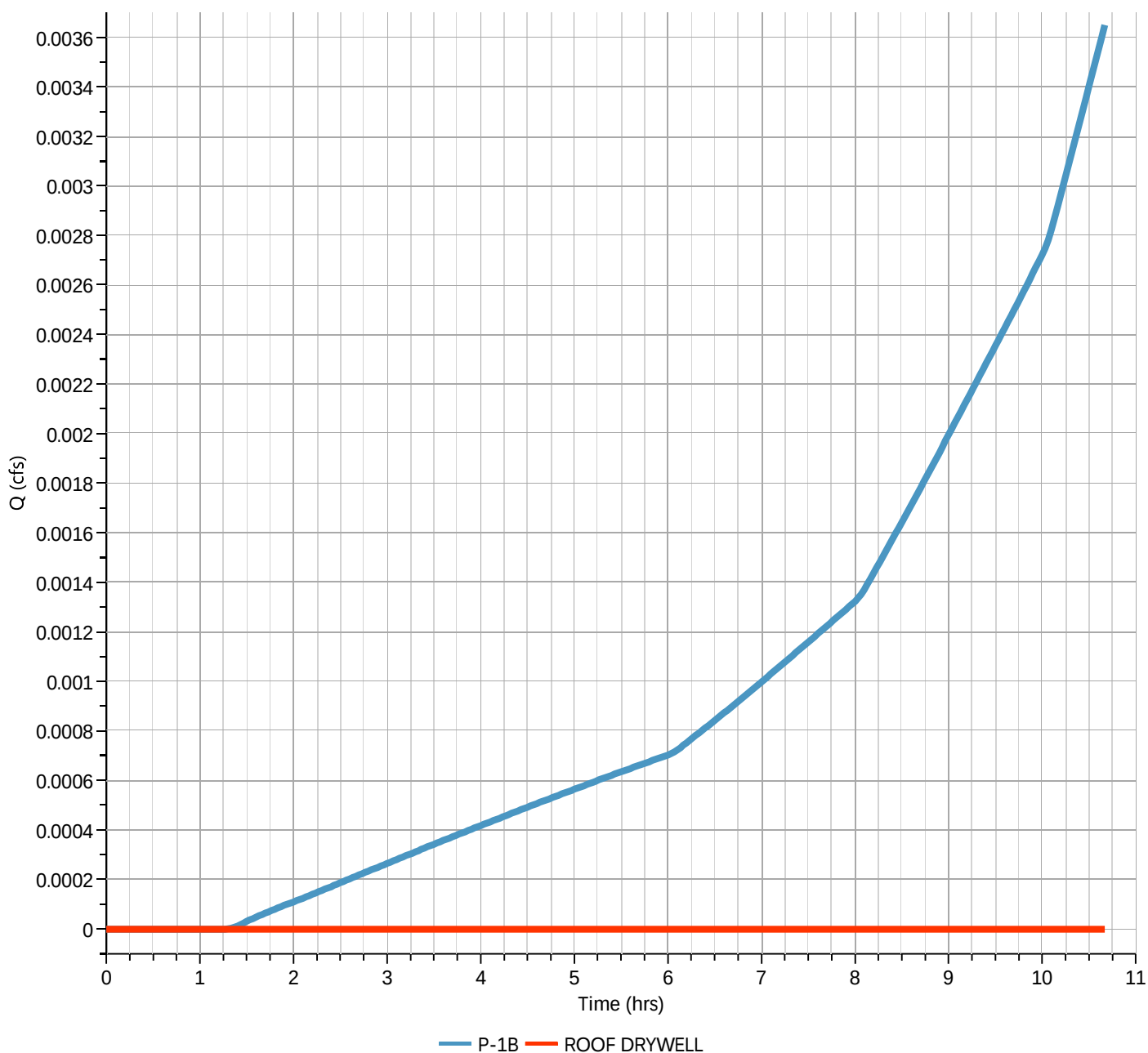
ROOF DRYWELL

Hyd. No. 5

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 10.63 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 4 - P-1B	Max. Elevation	= 141.23 ft
Pond Name	= Roof Drywell	Max. Storage	= 45.1 cuft

Pond Routing by Storage Indication Method

Qp = 0.000 cfs



Pond Report

File: 6696.hys

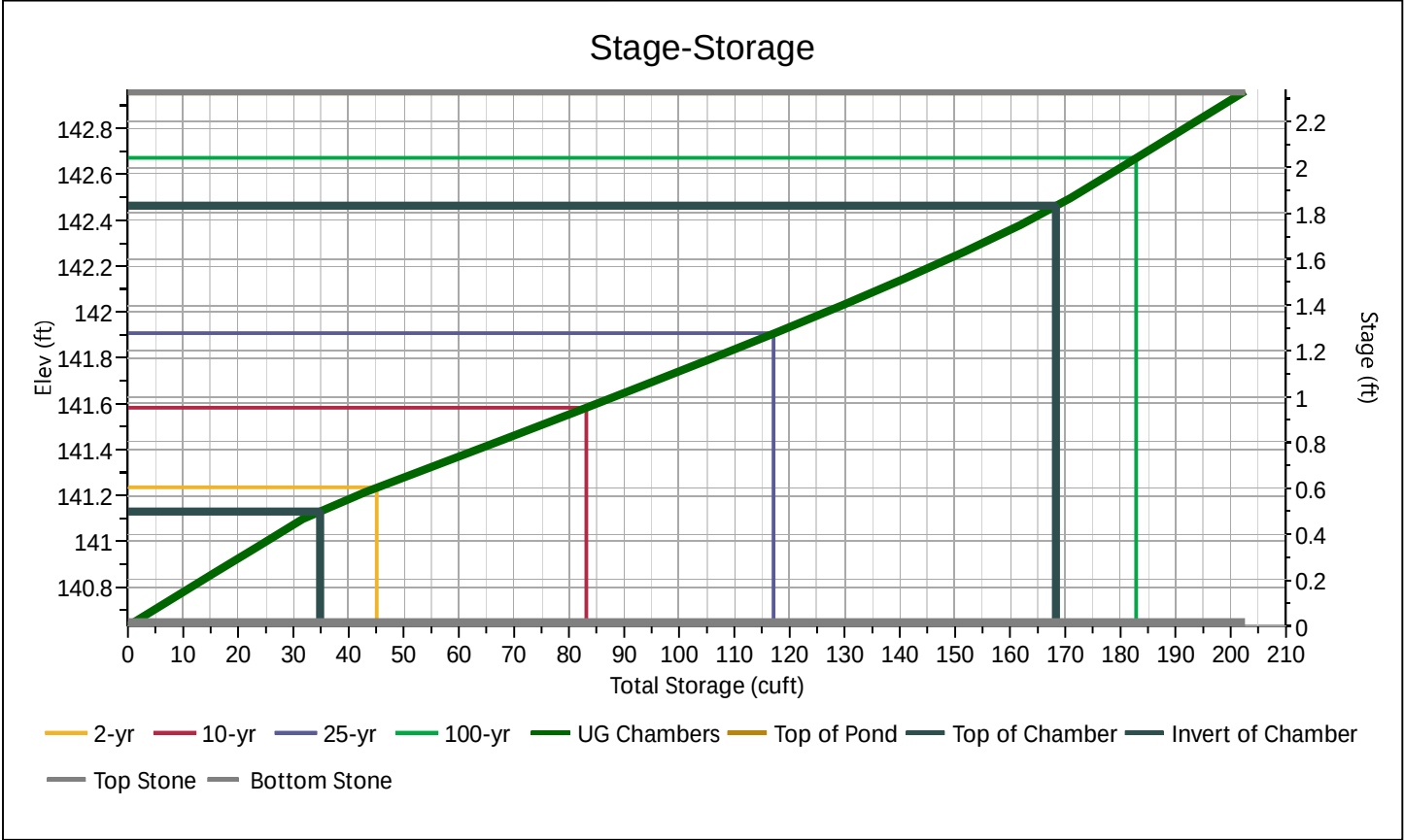
Hydrology Studio v 3.0.0.39

10-07-2025

Roof Drywell

Stage-Storage

StormTech® SC-310™ Chamber		Stage / Storage Table				
Description	Input	Stage (in)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
Chamber Height, in	16	0.0	140.63	170	0.000	0.000
Chamber Shape	Arch	1.4	140.75	170	7.93	7.93
Chamber Width, in	34	2.8	140.86	170	7.93	15.9
Installed Length, ft	7.12	4.2	140.98	170	7.93	23.8
No. Chambers	5	5.6	141.10	170	7.93	31.7
Bare Chamber Stor, cuft	73.5	7.0	141.21	170	11.2	42.9
No. Rows	2	8.4	141.33	170	12.8	55.7
Space Between Rows, in	6	9.8	141.45	170	12.7	68.5
Stone Above, in	6	11.2	141.56	170	12.6	81.1
Stone Below, in	6	12.6	141.68	170	12.5	93.6
Stone Sides, in	12	14.0	141.80	170	12.3	106
Stone Ends, in	12	15.4	141.91	170	12.0	118
Encasement Voids, %	40.00	16.8	142.03	170	11.7	130
Encasement Bottom Elevation, ft	140.63	18.2	142.15	170	11.3	141
		19.6	142.26	170	10.8	152
		21.0	142.38	170	10.1	162
		22.4	142.50	170	9.11	171
		23.8	142.61	170	7.93	179
		25.2	142.73	170	7.93	187
		26.6	142.85	170	7.93	195
		28.0	142.96	170	7.93	203

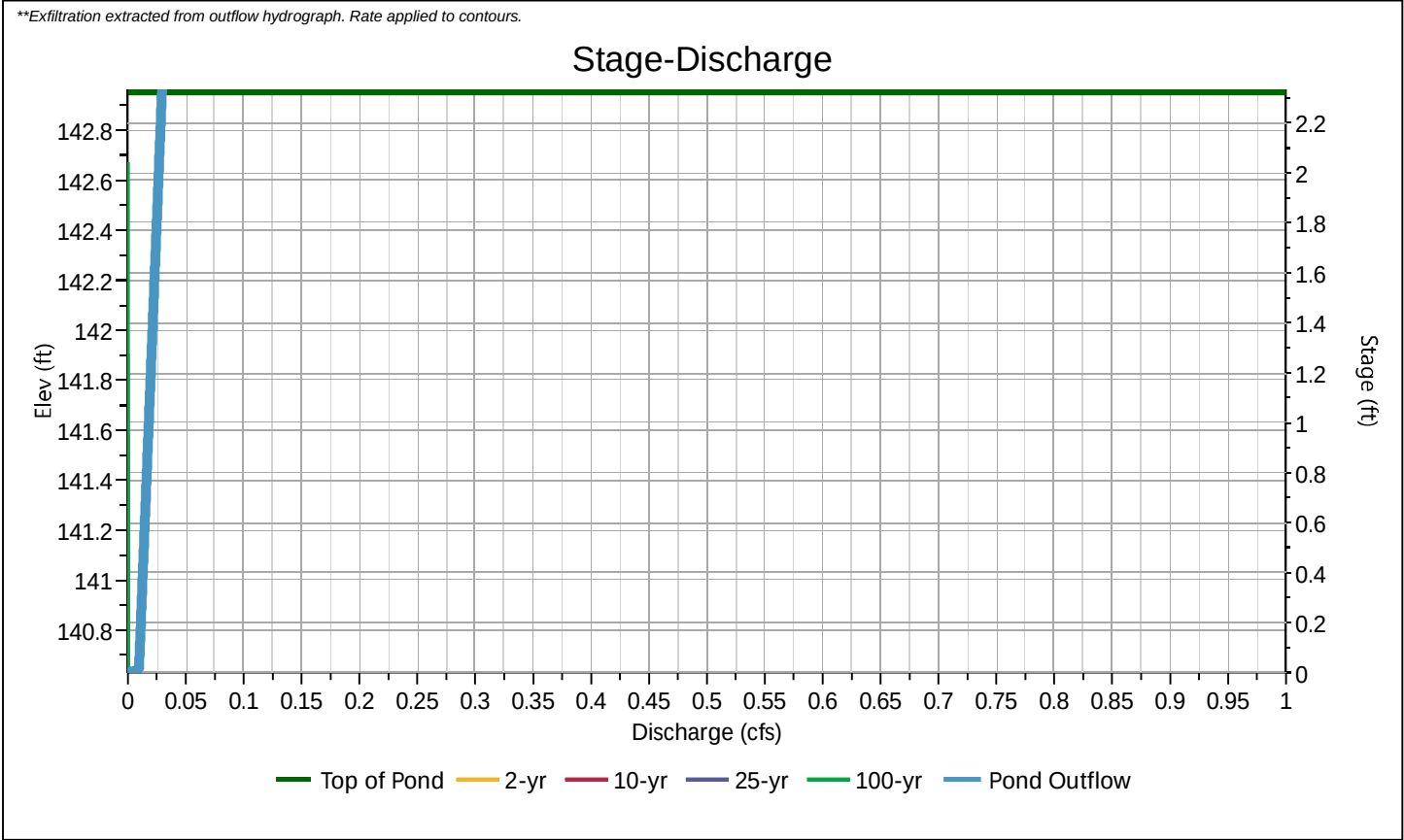


Roof Drywell

Stage-Discharge

Culvert / Orifices	Cir Culvert	Orifice			Perforated Riser
		1	2	3	
Rise, in					Hole Diameter, in
Span, in					No. holes
No. Barrels					Invert Elevation, ft
Invert Elevation, ft					Height, ft
Orifice Coefficient, Co					Orifice Coefficient, Co
Length, ft					
Barrel Slope, %					
N-Value, n					
Weirs	Riser	Weir			Ancillary
		1	2	3	
Shape / Type					Exfiltration, in/hr
Crest Elevation, ft					2.41**
Crest Length, ft					
Angle, deg					
Weir Coefficient, Cw					

**Exfiltration extracted from outflow hydrograph. Rate applied to contours.



Pond Report

File: 6696.hys

Hydrology Studio v 3.0.0.39

10-07-2025

Roof Drywell

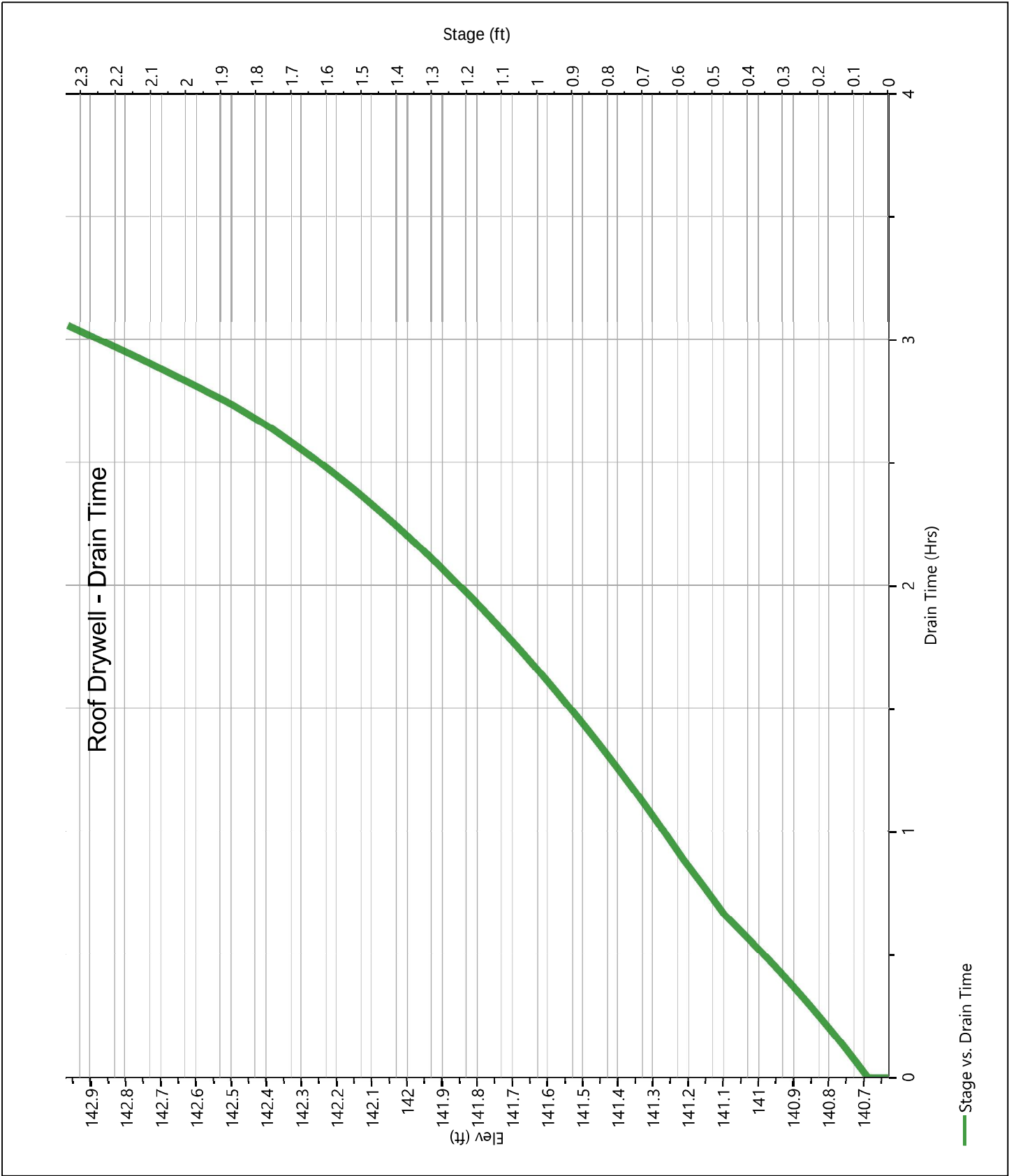
Stage-Storage-Discharge Summary

[illegible]

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Roof Drywell

Pond Drawdown



Hydrograph Report

Hydrology Studio v 3.0.0.39

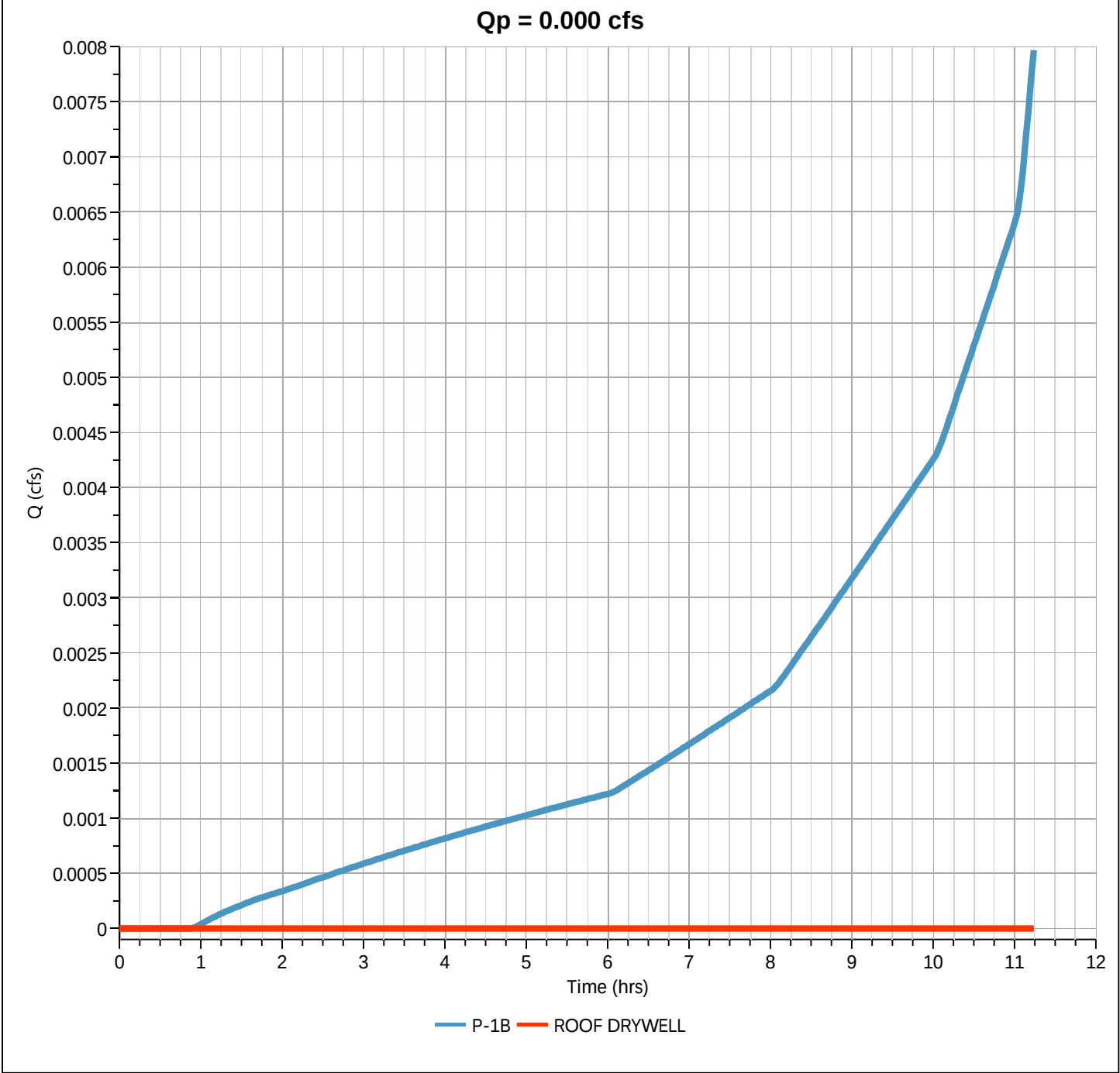
File: 6696.hys
10-07-2025

ROOF DRYWELL

Hyd. No. 5

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 10-yr	Time to Peak	= 11.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 4 - P-1B	Max. Elevation	= 141.58 ft
Pond Name	= Roof Drywell	Max. Storage	= 83.1 cuft

Pond Routing by Storage Indication Method



Hydrograph Report

Hydrology Studio v 3.0.0.39

File: 6696.hys
10-07-2025

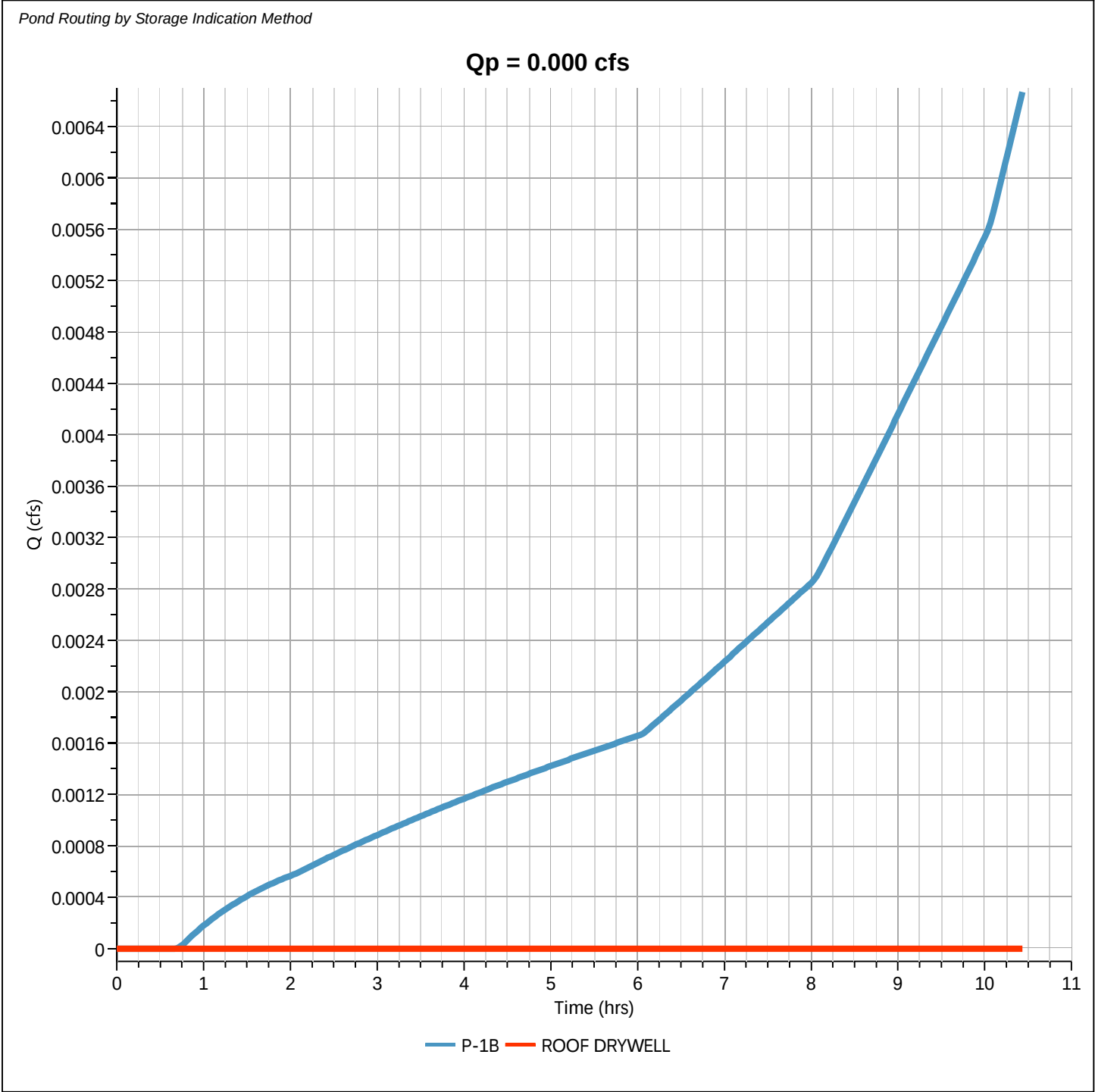
ROOF DRYWELL

Hyd. No. 5

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 25-yr	Time to Peak	= 10.40 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 4 - P-1B	Max. Elevation	= 141.91 ft
Pond Name	= Roof Drywell	Max. Storage	= 117 cuft

Pond Routing by Storage Indication Method

Qp = 0.000 cfs



Hydrograph Report

Hydrology Studio v 3.0.0.39

File: 6696.hys
10-07-2025

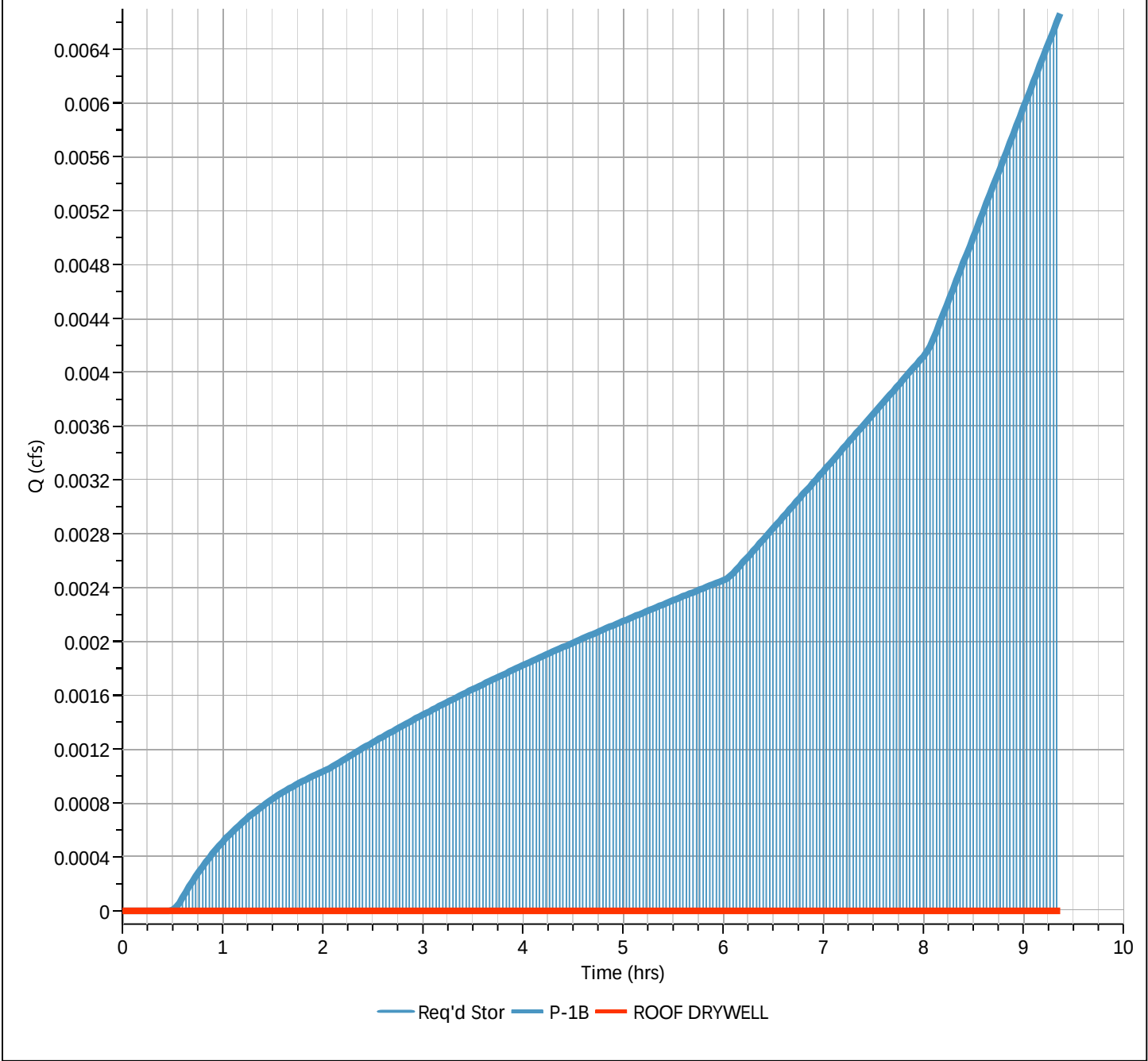
ROOF DRYWELL

Hyd. No. 5

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 100-yr	Time to Peak	= 9.33 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 4 - P-1B	Max. Elevation	= 142.67 ft
Pond Name	= Roof Drywell	Max. Storage	= 183 cuft

Pond Routing by Storage Indication Method

Qp = 0.000 cfs



Hydrograph Report

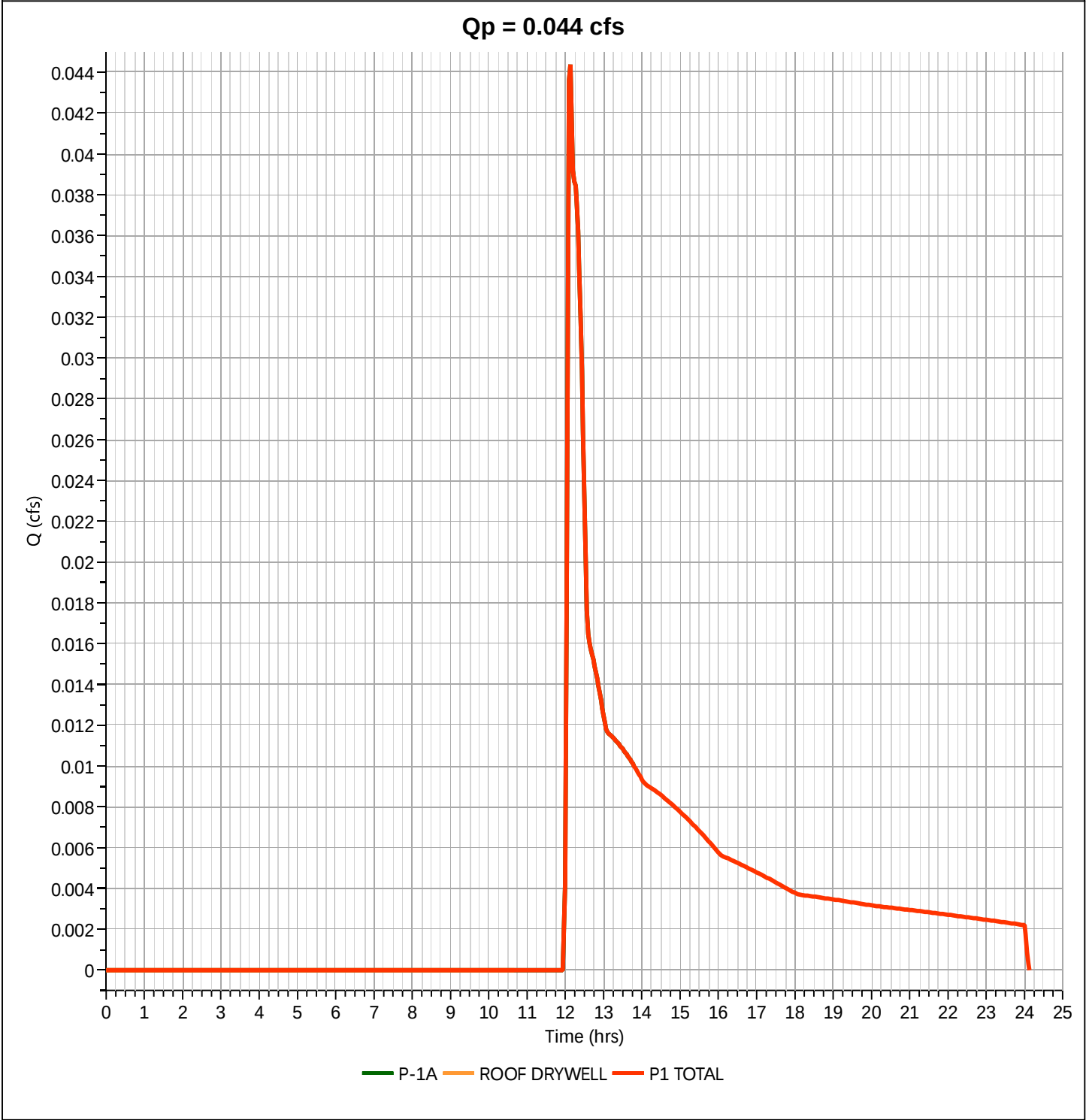
Hydrology Studio v 3.0.0.39

File: 6696.hys
10-07-2025

P1 TOTAL

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 0.044 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 281 cuft
Inflow Hydrographs	= 3	Total Contrib. Area	= 0.24 ac



Hydrograph Report

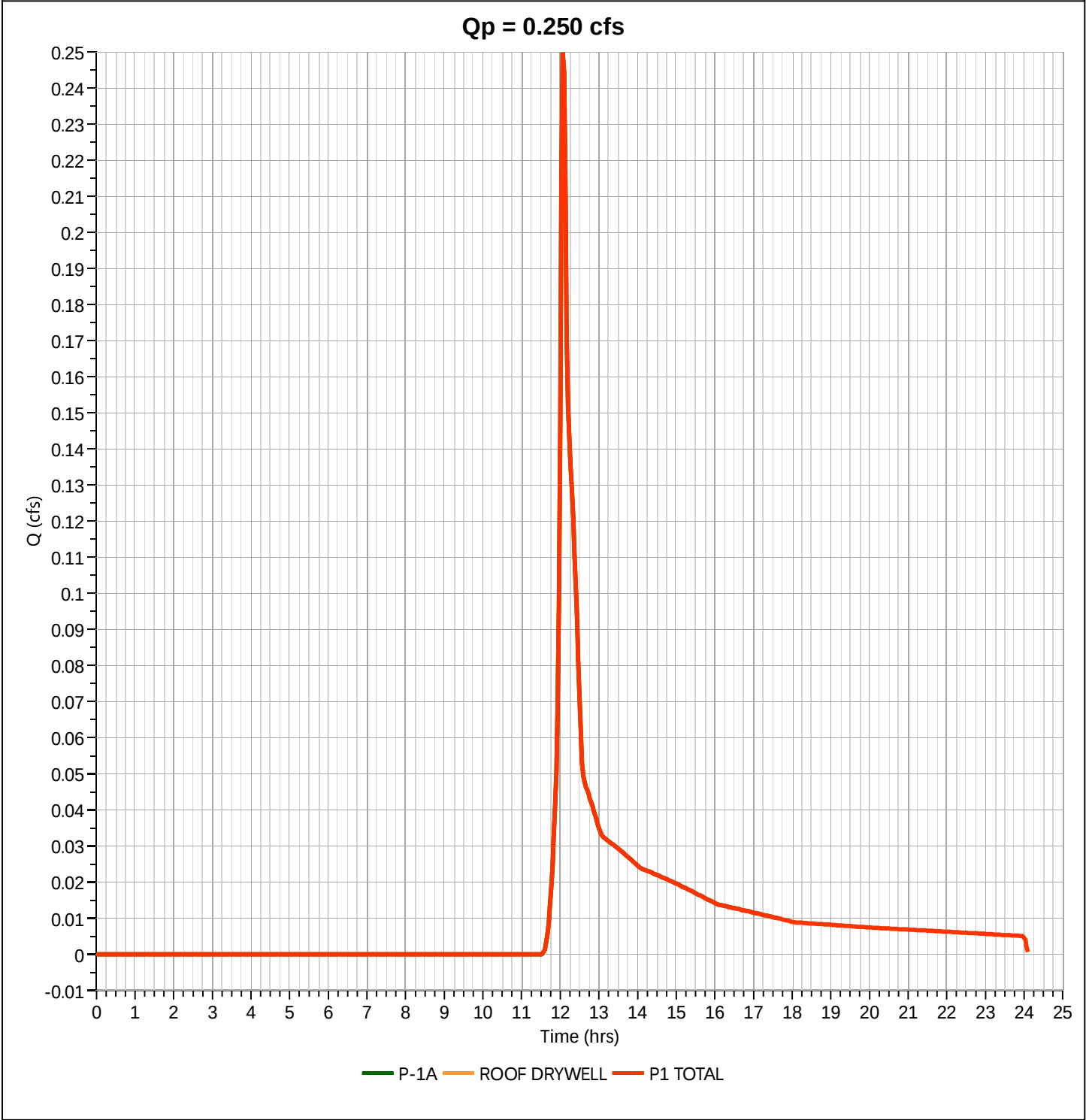
Hydrology Studio v 3.0.0.39

File: 6696.hys
10-07-2025

P1 TOTAL

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 0.250 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Hydrograph Volume	= 884 cuft
Inflow Hydrographs	= 3	Total Contrib. Area	= 0.24 ac



Hydrograph Report

Hydrology Studio v 3.0.0.39

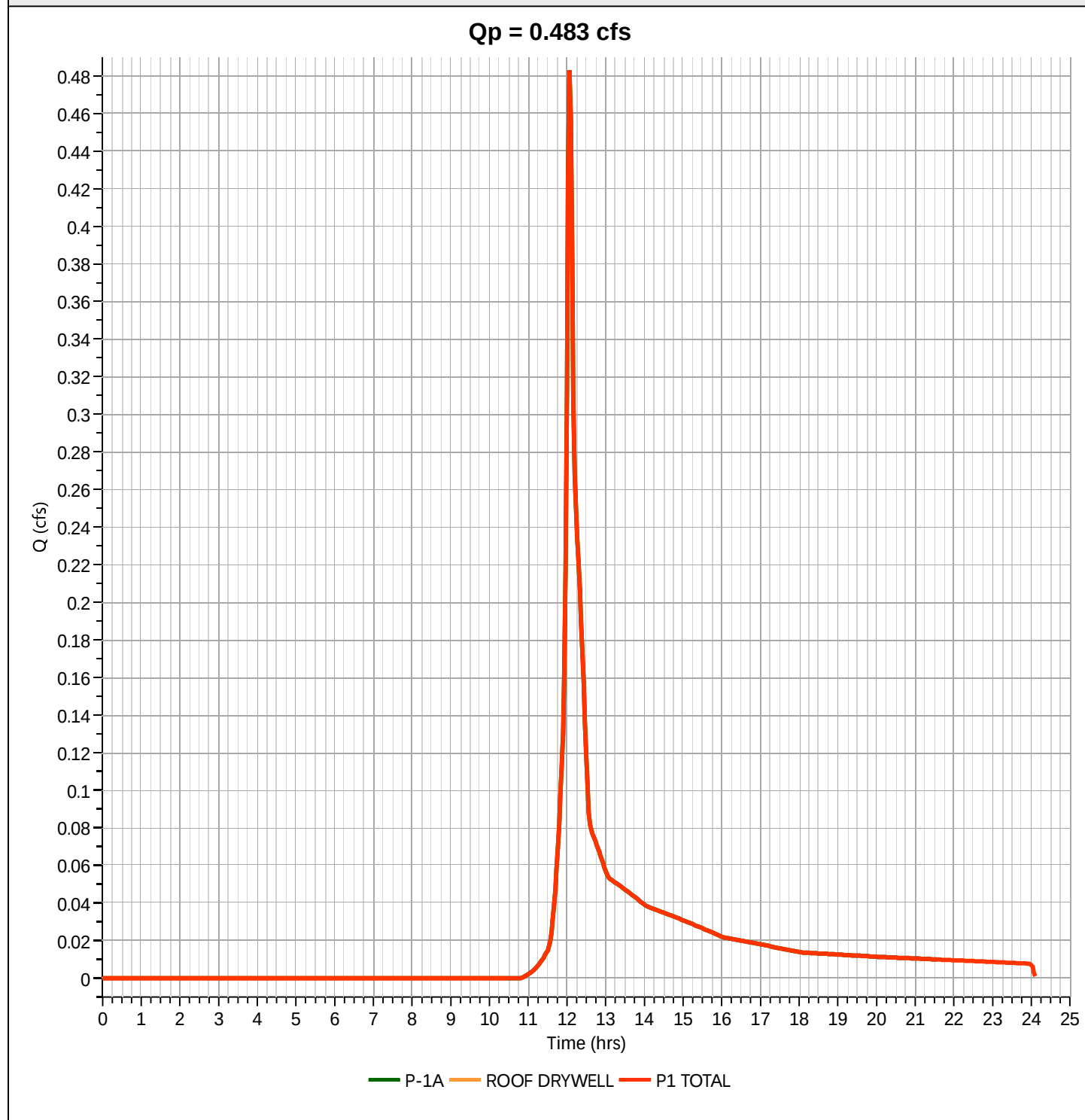
File: 6696.hys

10-07-2025

P1 TOTAL

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 0.483 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,543 cuft
Inflow Hydrographs	= 3	Total Contrib. Area	= 0.24 ac



Hydrograph Report

Hydrology Studio v 3.0.0.39

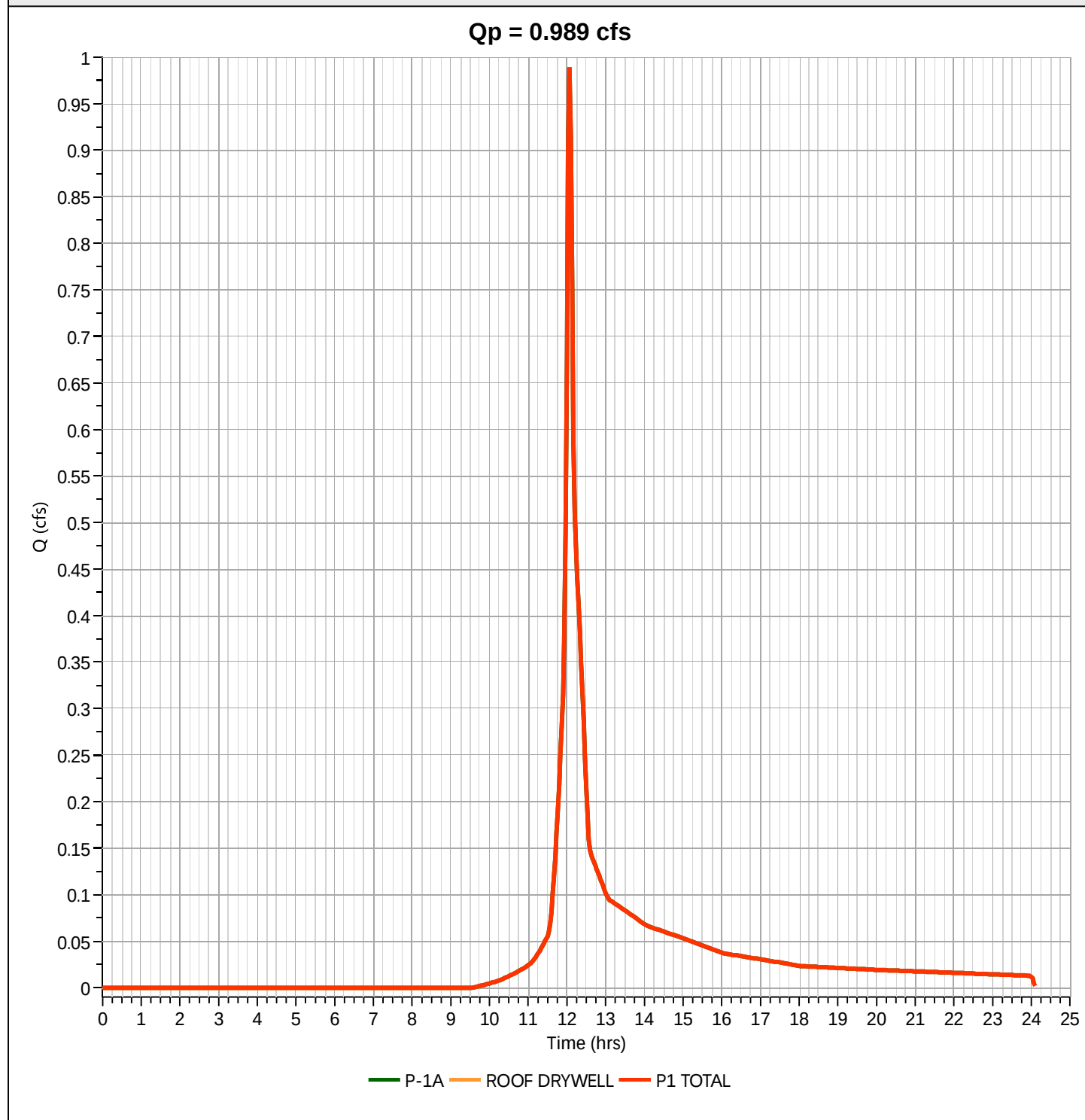
File: 6696.hys

10-07-2025

P1 TOTAL

Hyd. No. 6

Hydrograph Type	= Junction	Peak Flow	= 0.989 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.07 hrs
Time Interval	= 2 min	Hydrograph Volume	= 2,994 cuft
Inflow Hydrographs	= 3	Total Contrib. Area	= 0.24 ac



Recharge Volume Calculations

Recharge Volume Calculations

Job: SM-6696

Calculated by: MN
Date: 10/7/2025

Roof Drywell

Soils: Merrimac-Urban Land Complex
Hydrologic Group: A
Required Recharge Volume
1 inches of runoff x impervious area

Impervious area: 0.02 acres
848 s.f.

Required Recharge Volume (Rv)

$$Rv = 848 \text{ s.f.} \times \frac{1}{12} = 71 \text{ c.f.}$$

Simple Dynamic Method

$$A = Rv / (D + KT)$$

$$Rv = A(D + kT)$$

D (depth of infiltration facility): 2.33 ft
K (saturated hydraulic conductivity): 2.41 inches/hour
0.20 feet/hour
T (time): 2 hours
A= 167 s.f.
Voids= 0.40
Rv= 223 c.f.
Drywell Volume Provided: 203 c.f.

$$> 71 \text{ c.f.}$$

72 Hour Drawdown

Volume/(K x Bottom Area)= 6.05 Hours
6.05 < 72 hours O.K.

Water Quality Volume Calculations

Water Quality Volume Calculations

Job: SM-6696

Calculated by: MN
Date: 10/7/2025

Location: 46 Pleasant Street, Needham MA

Roof Drywell
Soils: Merrimac-Urban Land Complex
Hydrologic Group: A
Required First Flush Volume
0.5 inch of runoff x impervious area

Impervious area: 0.02 acres
848 s.f.

Required Water Quality Volume

V= 848 s.f. x 0.5 / 12 = 35 c.f.

Volume Provided 203 c.f. (storage below outlet)

203	c.f. >	35	c.f. O.K.
-----	--------	----	-----------

Groundwater Mounding Calculations

Groundwater Mounding Analysis

Project: 46 Pleasant Street
Location: Needham, MA

SM-6696
Date: 10/7/2025
By: MN

	Length of Application (ft)	Width of Application (ft)	Bottom Area (s.f.)	Required Recharge Volume (c.f.)	Application Rate (c.f./day/s.f.)	Duration of Application	Fillable Porosity	Hydraulic Conductivity (ft/day)	Bottom of Structure Elevation	Depth of Ledge (ft)	E.S.H.G.W	Initial Saturated Thickness Used (ft)	Mound Height
Roof Drywell	24.36	8.17	167.00	71	0.42	1 day	0.28	39	141.13	N/A	138.63	1	0.4

Application Rate = $\frac{\text{Required Recharge Volume}}{\text{Bottom Area}}$

Duration of Application = 1 day for analysis of 24-hour storm events

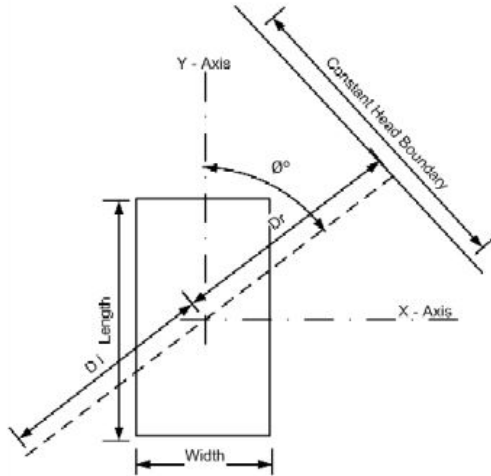
Fillable Porosity = Value based on soil classification; from attached table - average between fine sand (0.23) and silt (0.08) for average value of 0.16

Hydraulic Conductivity = Value taken from attached table - average between fine sand (16 ft/day) and silt (3 ft/day) for average value of 9.5 ft/day

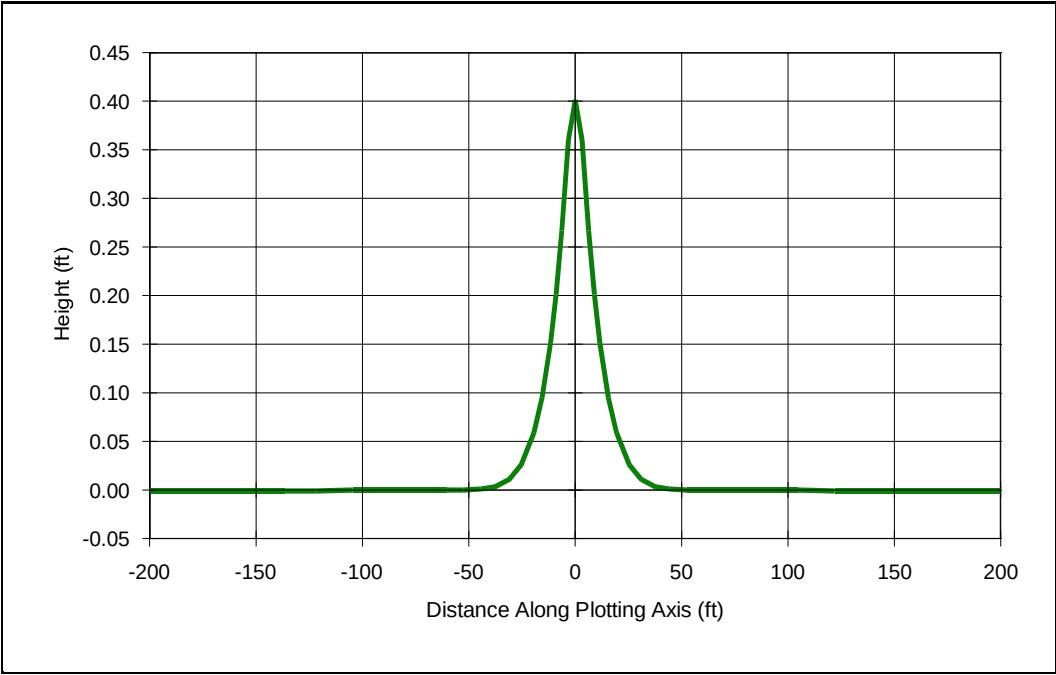
Initial Saturated Thickness = Depth from bedrock to estimated seasonal high groundwater (ESHW).

Distance to Constant Head Boundary (Di & Dr):
Bordering Vegetated Wetland off-site to the west used as constant head boundary

Angle from z-axis (ø):



Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



MODEL RESULTS

COMPANY: Stamski and McNary

PROJECT: SM-6696

ANALYST: Montgomery Nsamba

DATE: 10/7/2025 TIME: 4:11:50 PM

INPUT PARAMETERS

Application rate: 0.42 c.ft/day/sq. ft
Duration of application: 1 days
Fillable porosity: 0.28
Hydraulic conductivity: 39 ft/day
Initial saturated thickness: 1 ft
Length of application area: 24.36 ft
Width of application area: 8.17 ft
No constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area:
positive X: 4.1 ft
positive Y: 0 ft
Total volume applied: 83.58891 c.ft

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-200	0	-200	0
-168.2	0	-168	0
-136.4	0	-136	0
-104.6	0	-105	0
-79.6	0	-80	0
-60.2	0	-60	0
-44.4	0	-44	0
-31	0	-31	0.01
-19.4	0	-19	0.06
-11.6	0	-12	0.15
-6.3	0	-6	0.27
0	0	0	0.4
6.3	0	6	0.27
11.6	0	12	0.15
19.4	0	19	0.06
31	0	31	0.01
44.4	0	44	0
60.2	0	60	0
79.6	0	80	0
104.6	0	105	0
136.4	0	136	0
168.2	0	168	0
200	0	200	0

TSS Removal Worksheets

INSTRUCTIONS:

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

Non-automated: Mar. 4, 2008

Location: 46 Pleasant Street, Needham MA

**TSS Removal
Calculation Worksheet**

A BMP ¹	B TSS Removal Rate ¹	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Drywell	0.80	1.00	0.80	0.20

Total TSS Removal =

80%

Separate Form Needs to
be Completed for Each
Outlet or BMP Train

Project: SM-6696
Prepared By: MN
Date: 09/23/2025

*Equals remaining load from previous BMP (E)
which enters the BMP

Soil Evaluation



Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

A. Facility Information

David Kantor

Owner Name

46 Pleasant Street

Street Address

Needham

City

MA

State

Map/Lot #

02492

Zip Code

B. Site Information

1. (Check one) ☐ New Construction ☐ Upgrade

2. Soil Survey Web Soil Survey

Source

626B

Soil Map Unit

Memmac - Urban land complex

Soil Series

Outwash plains, terraces, eskers

Landform

N/A

Soil Limitations

Loamy glaciofluvial deposits

Soil Parent material

3. Surficial Geological Report Mass Mapper

Year Published/Source

Sand & gravel

Map Unit

Sand & gravel

Description of Geologic Map Unit:

4. Flood Rate Insurance Map Within a regulatory floodway? ☐ Yes ☒ No

5. Within a velocity zone? ☐ Yes ☒ No

6. Within a Mapped Wetland Area? ☐ Yes ☒ No

If yes, MassGIS Wetland Data Layer:

7. Current Water Resource Conditions (USGS):

09/18/25

Month/Day/Year

Range: ☐ Above Normal

Wetland Type

☐ Normal

☒ Below Normal

8. Other references reviewed:

(Zone II, IWPA, Zone A, EEA Data Portal, etc.)



Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: TP-1

Hole #

9/18/25

Date

Time

Cloudy

Weather

Latitude

Longitude

1. Land Use Backyard
(e.g., woodland, agricultural field, vacant lot, etc.)

Lawn
Vegetation

None
Surface Stones (e.g., cobbles, stones, boulders, etc.)

2-3%
Slope (%)

Description of Location: Behind patio in backyard

2. Soil Parent Material:

Landform

BS
Position on Landscape (SU, SH, BS, FS, TS, Plain)

3. Distances from: Open Water Body >100' feet

Drainage Way >100' feet

Wetlands >100' feet

Property Line >10' feet

Drinking Water Well >100' feet

Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil/Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☒ Yes ☐ No

If yes: 105" Depth to Weeping in Hole

105" Depth to Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-38	Fill				Cnc : Dpl:						
38-44	Ap	SL	10YR 3/2	-	Cnc : Dpl:	-	-	-	M	F	
44-50	Bw	LS	10YR 4/6	-	Cnc : Dpl:	-	-	-	M	F	
50-120	C	LS	2.5Y 5/4	68"	Cnc : Dpl:	2%	-	-	SG	Loose	
					Cnc : Dpl:						
					Cnc : Dpl:						

Additional Notes:



Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

F. Certification

I certify that I am currently approved by the Department of Environmental Protection pursuant to 310 CMR 15.017 to conduct soil evaluations and that the above analysis has been performed by me consistent with the required training, expertise and experience described in 310 CMR 15.017. I further certify that the results of my soil evaluation, as indicated in the attached Soil Evaluation Form, are accurate and in accordance with 310 CMR 15.100 through 15.107.

Daniel Carr
Signature of Soil Evaluator

9/18/05
Date

Daniel Carr / SE 13801
Typed or Printed Name of Soil Evaluator / License #

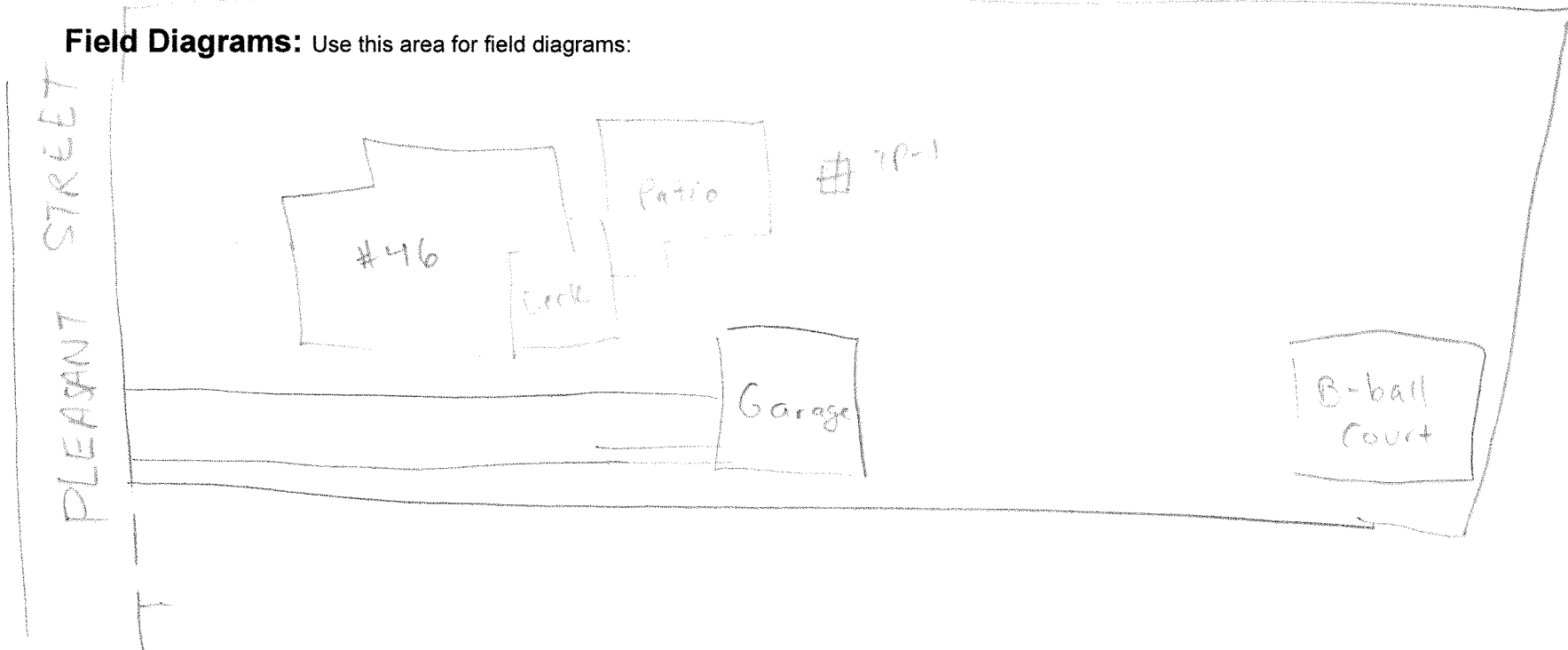
6/30/2007
Expiration Date of License

Not witnessed
Name of Approving Authority Witness

N/A
Approving Authority

Note: In accordance with 310 CMR 15.018(2) this form must be submitted to the approving authority within 60 days of the date of field testing, and to the designer and the property owner with Percolation Test Form 12.

Field Diagrams: Use this area for field diagrams:



Drainage Maps

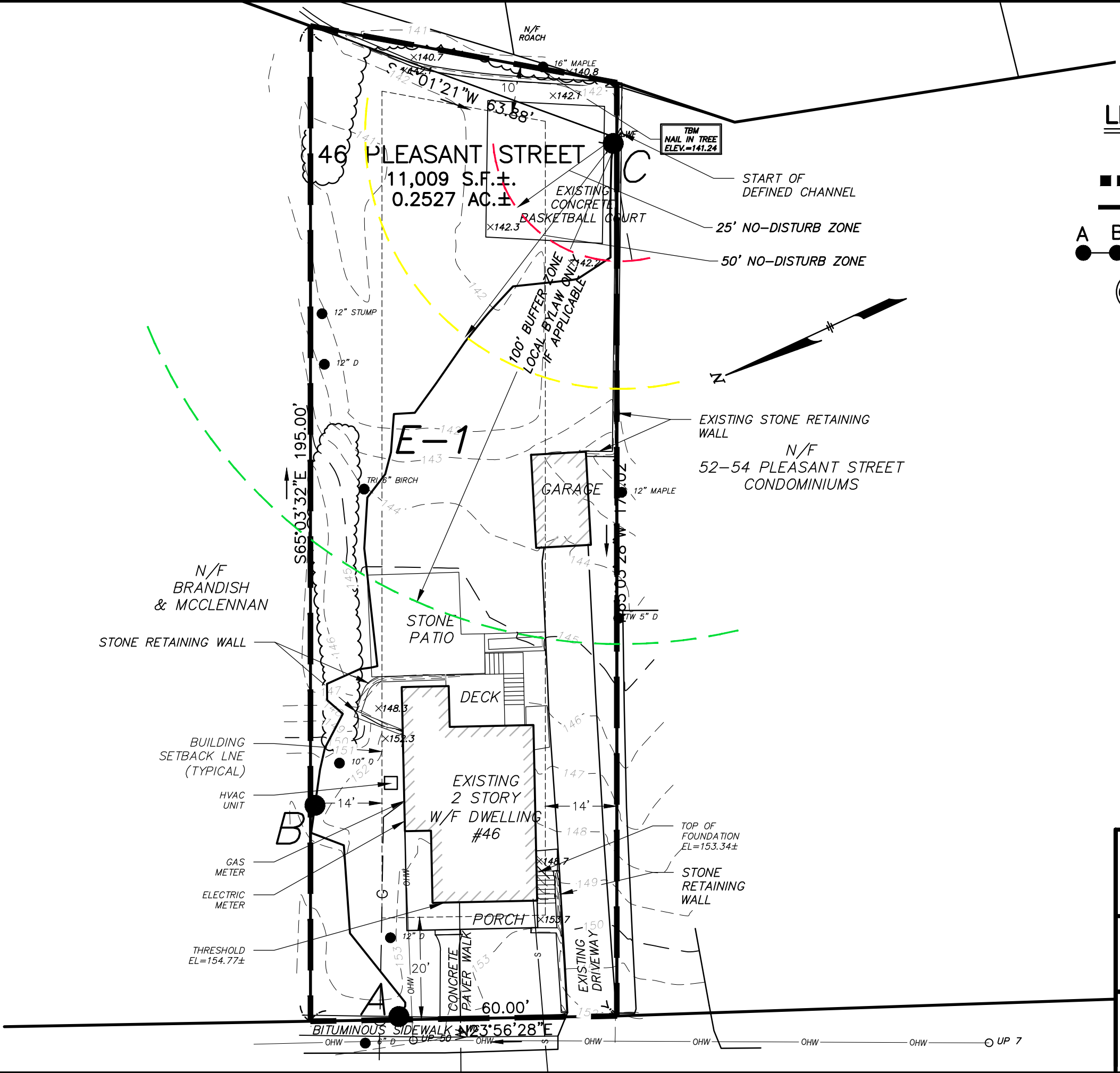
PLAN VIEW:

ZONING DISTRICT: SRB

SCALE: 1"=20'

LEGEND:

- SUBCATCHMENT BORDER
- SOIL DIVIDE
- TIME OF CONCENTRATION
- MERRIMAC-URBAN LAND COMPLEX
- HYDROLOGY SOIL GROUP A
- SUBCATCHMENT DESIGNATION



PRE-DEVELOPMENT DRAINAGE
FOR
46 PLEASANT STREET
IN
NEEDHAM, MA

GRADING AND DRAINAGE PLAN

FOR: KANTOR
SCALE: 1"=20' OCTOBER 7, 2025

STAMSKI AND McNARY, INC.
1000 MAIN STREET ACTON, MASS.
ENGINEERING - PLANNING - SURVEYING

0 10 20 40 60 80 FT

SM-6696 (6696.DRAINAGE.H.dwg)

ZONING DISTRICT: SRB
SCALE: 1"=20'

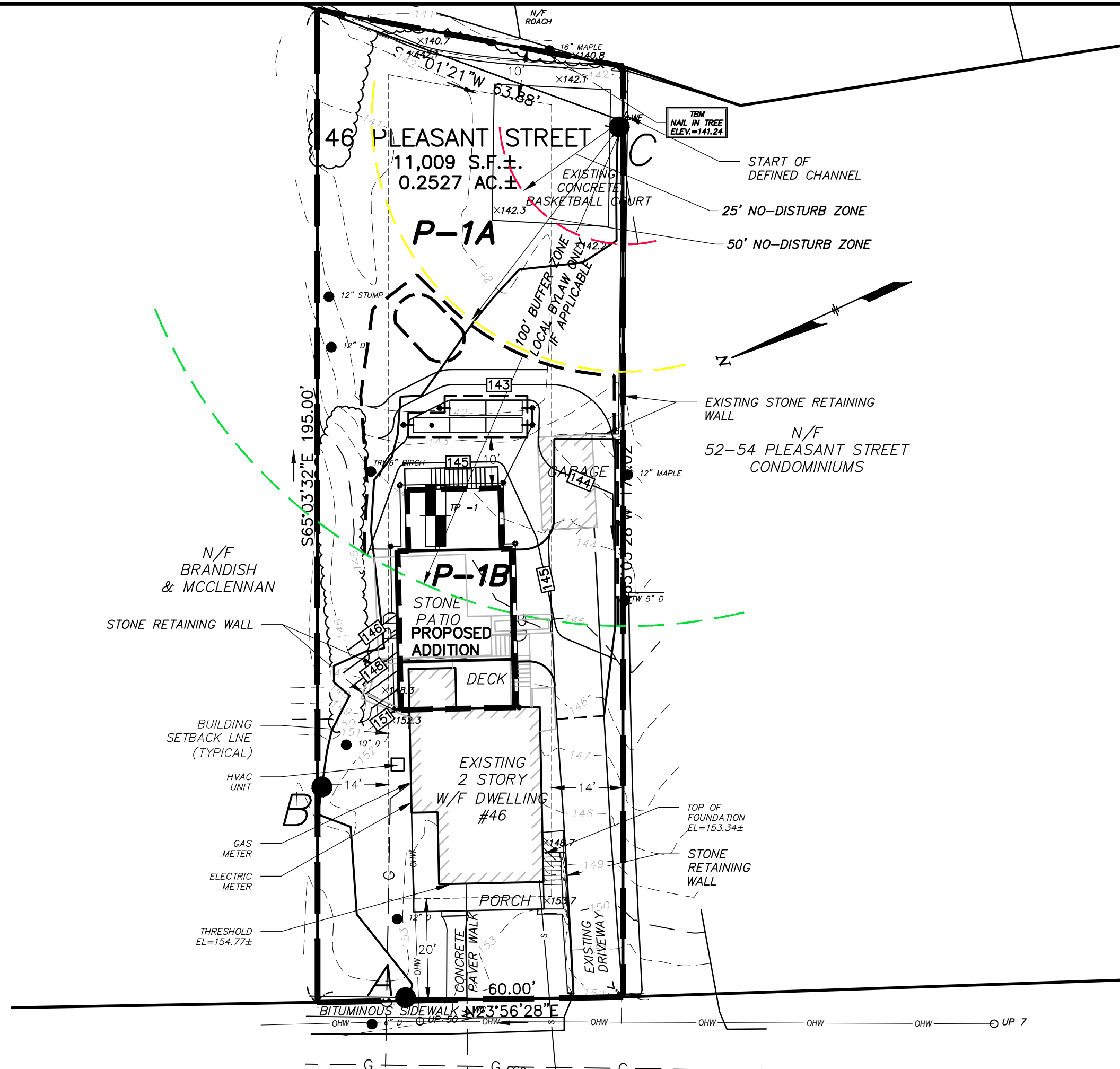
The diagram illustrates the components and designations of a subcatchment. It features a horizontal line representing the 'TIME OF CONCENTRATION' path, with three points labeled A, B, and C. Above this line, there are five black squares representing the 'SUBCATCHMENT BORDER' and two horizontal bars representing 'SOIL DIVIDE'. Below the line, a circle labeled '626B' is positioned under point B, with the letter 'A' below it, indicating the 'MERRIMAC—URBAN LAND COMPLEX HYDROLOGY SOIL GROUP A'. At the bottom, the text 'E-1' is followed by 'SUBCATCHMENT DESIGNATION'.

 SUBCATCHMENT BORDER
 SOIL DIVIDE
 A B C
 TIME OF CONCENTRATION
 MERRIMAC—URBAN LAND COMPLEX
 A HYDROLOGY SOIL GROUP A
 E-1 SUBCATCHMENT DESIGNATION

GRADING AND DRAINAGE PLAN
 FOR:
 SCALE: 1"=20' KANTOR
 OCTOBER 7, 2025

0 10 20 40 60 80 FT

SM-6696 (6696.DRAINAGE.I.dwg)



Stormwater Operation and Maintenance Manual

Stormwater Operation and Maintenance Manual

For

46 Pleasant Street
Needham, MA 02492

October 9, 2025

Table of Contents

Long Term Operation and Maintenance Plan

Operation and Maintenance Sample Inspection Log

Long Term Operation and Maintenance Plan

Schedule for Inspection and Maintenance:**Roof Drywell:**

Inspect the system after every major storm via the inspection port for the first few months to ensure proper stabilization and function. Thereafter, inspect and clean it at least twice per year. Water levels should be recorded over several days to check the structures' drainage. Also, mosquito controls may be necessary. Roof gutters shall be cleaned at least twice per year to ensure that flow to the subsurface chambers is not obstructed. Gutters and downspouts shall be inspected at least twice per year to ensure that there are no leaks or obstructions that impair the ability of these structures to effectively convey roof runoff. If damage of the gutters or downspouts is observed, they shall be repaired or replaced. If water is present in the system more than 72 hours after a rain event, the system is considered clogged and must be serviced, repaired, or replaced.

Records:

The Responsible Party shall maintain an inspection log of all elements of the storm water management plan. The Responsible Party shall maintain a maintenance log documenting the inspection and maintenance of the drainage structures under their control. A copy of the erosion control and storm water maintenance plan and inspection logs shall be kept onsite at all times.

Emergency Contacts:

In the event of a hazardous materials spill on the site the following parties shall be contacted:
Needham Fire Department: ph: (781) 444-0142

Budget: The estimated annual operation and maintenance budget is \$100.

Responsible Party:

This responsibility shall run in perpetuity such that any new property owner will assume responsibility for inspection and maintenance of the stormwater management system.

Name: _____

Signature: _____

Date: _____

Operation and Maintenance Sample Inspection Log

46 Pleasant Street, Needham MA
Operation and Maintenance Inspection Log

Year: _____

Inspection Items:
Roof Drywell

Frequency:
Twice per year

Roof Drywell:

Previous Inspection Date: _____
Inspection Date: _____
Inspector Name: _____
Comments:

Action Required: