# STORM WATER DRAINAGE COMPOSITION REPORT

For

## Highland West Jr high Classroom Addition

Moore, OK

Submitted July 26, 2023
Revised September 25, 2023

I HEREBY CERTIFY THAT THIS REPORT FOR THE DRAINAGE DESIGN OF HIGHLAND WEST JR HIGH WAS PREPARED BY ME (OR UNDER MY DIRECT SUPERVISION) IN ACCORDANCE WITH THE PROVISIONS OF CITY OF MOORE STORMWATER DESIGN CRITERIA MANUAL FOR THE OWNERS THEREOF.


STATE OF OK # 24273
DATE 09.25.23
CA # 5864

Prepared by:

CEDAR CREEK
Engineering • Planning • Consulting

# STORM WATER DRAINAGE COMPOSITION REPORT

CEDAR CREEK
ENGINEERING • PLANNING • CONSULTING

**July 26, 2023**
**Revised September 25, 2023**

**Highland West Jr High Classroom addition**
**Moore, OK**
**Cedar Creek Project # 23069**

## PROJECT DESCRIPTION

The following is the Storm Water Drainage Composition Report for the construction of the proposed Highland West Jr high classroom addition in Moore, Oklahoma. The drainage area considered in this development, is approximately 1.176 acres. This design and report is only accounting for the offset of the proposed additional impervious area.

This report will act as an accounting of the pond release in comparison to its current state, showing the total flow leaving the site will not increase as part of the development of the subject areas.

## CURRENT SITE CONDITIONS

The existing subject area on site consists of 1.176 acres of currently developed school area. Of the 1.176 acres, approximately 0.384 acres is currently impervious. The remaining 0.792 acres is greater than 75% grass cover.

The runoff CN value for the site was taken as weighted developed area with Hydrologic Soil Group 'D'. With the Corresponding CN value of 80, the existing site releases stormwater according to the table below:

*EXISTING FLOW TABLE*

| | CN | Area (ac) | Tc (min) | Q100 (cfs) | Pond Elevation |
|---|---|---|---|---|---|
| Existing Site | 86 | 1.254 | 5 | 15.93 | --- |
| *Q100 FROM HYDROCAD CALCULATIONS<br>* TC used a min of 5 min. | | | | | |

# DEVELOPED CONDITIONS

The site will be developed to add additional classrooms and offices. The office addition increase in runoff will discharge at grade, and be considered bypass to the pond. The classroom addition will be collected entirely underground, and carried to a proposed detention pond at the SE corner of the site. The detention pond will discharge to an existing trickle channel that runs west to east, at the southern portion of the site.

Per the new construction and the new detention pond , the flows are presented below:

Rainfall depth-duration estimates taken from City of Moore SMC table 3.

*COMPARISON OF PEAK FLOWS*

| | Area (acres) | Tc (minutes) | Peak Flow (Q100) | Peak Pond Elevation |
|---|---|---|---|---|
| Proposed Classrooms (into pond) | 1.168 | 5 | 8.68 | 1242.23’ |
| Pr bypass | 0.086 | 5 | 1.17 | --- |
| Existing Site (from above) | 1.254 | --- | 15.93 | --- |
| Change in Flow | --- | --- | -6.44 cfs | --- |

The peak flow for the proposed development will be reduced to below the existing values via the proposed detention pond. The proposed outfall structure consists of a headwall with a 15.5” metal plate orifice, attached to a headwall discharging through an 18” culvert pipe. Per the attached HydroCAD report, the impact on the onsite storage is summarized below (optimized for maximum pond volume).

*DETENTION POND INFORMATION (100 year storm)*

| STRM | Volume required | Volume provided | % used | Q100 (cfs) (pond out) | Peak Elevation | Outfall Size and Type |
|---|---|---|---|---|---|---|
| 2 | 1,840 | 10,436 | 17 | 4.35 | 1240.86’ | 15.5” orifice |
| 5 | 2,340 | 10,436 | 22 | 5.39 | 1241.07’ | 15.5” orifice |
| 10 | 2,914 | 10,436 | 27 | 6.13 | 1241.28’ | 15.5” orifice |
| 50 | 4,911 | 10,436 | 47 | 7.92 | 1241.92’ | 15.5” orifice |
| 100 | 6,081 | 10,436 | 58 | 8.68 | 1242.23’ | 15.5” orifice |
| *FROM HYDROCAD CALCULATIONS | | | | | | |

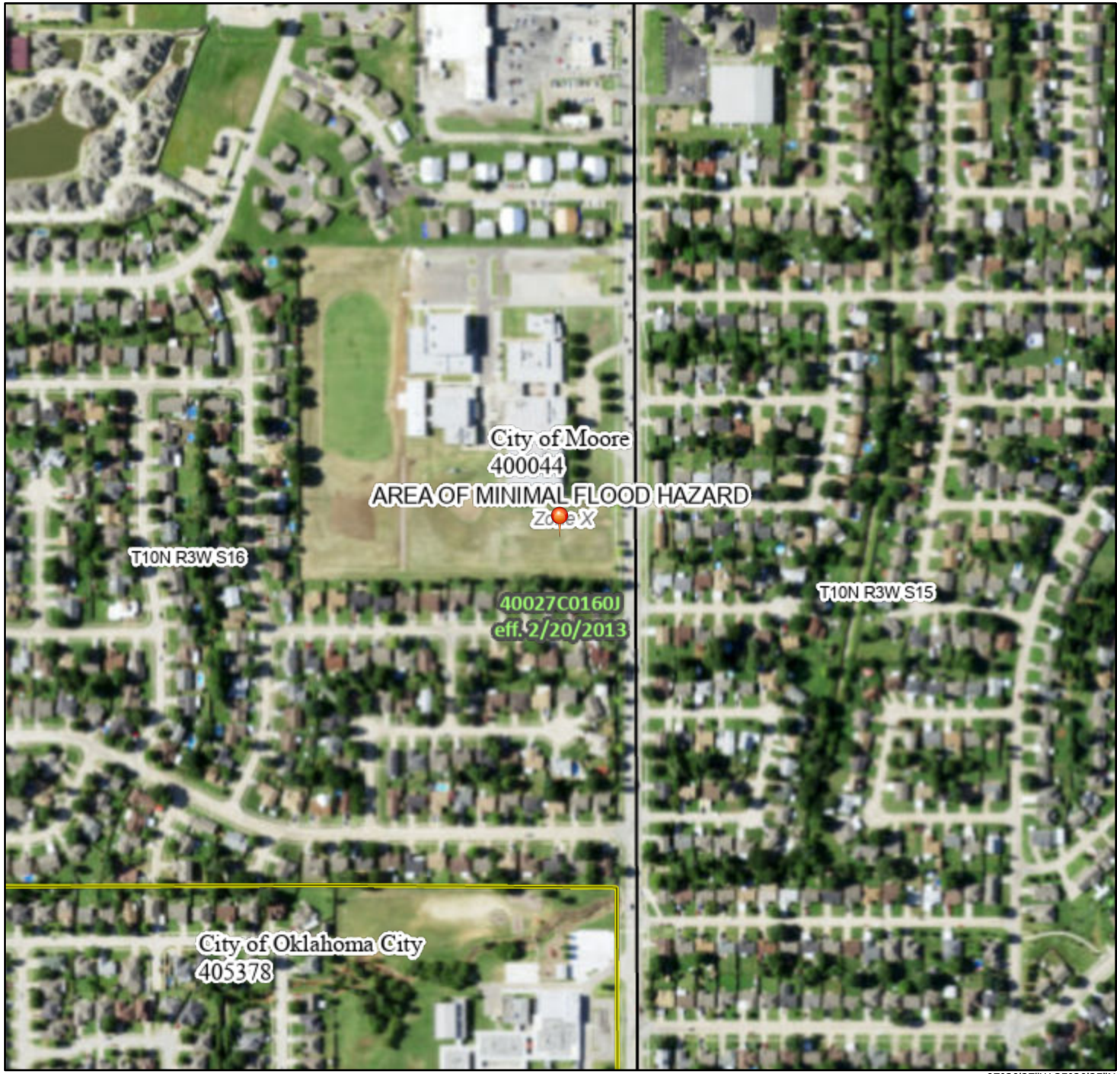
## ***Conclusions***

Based on the provided site data, the proposed adjustment to the drainage basins is not anticipated to have an adverse impact on capacity or competence of the downstream drainage facilities. Further, development of the site as proposed is in keeping with the intent of the approved design.

# National Flood Hazard Layer FIRMette

FEMA

97°31'5"W 35°20'54"N




97°30'27"W 35°20'25"N

Feet

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

1:6,000

*Basemap Imagery Source: USGS National Map 2023*

## Legend

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

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

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

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

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

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

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

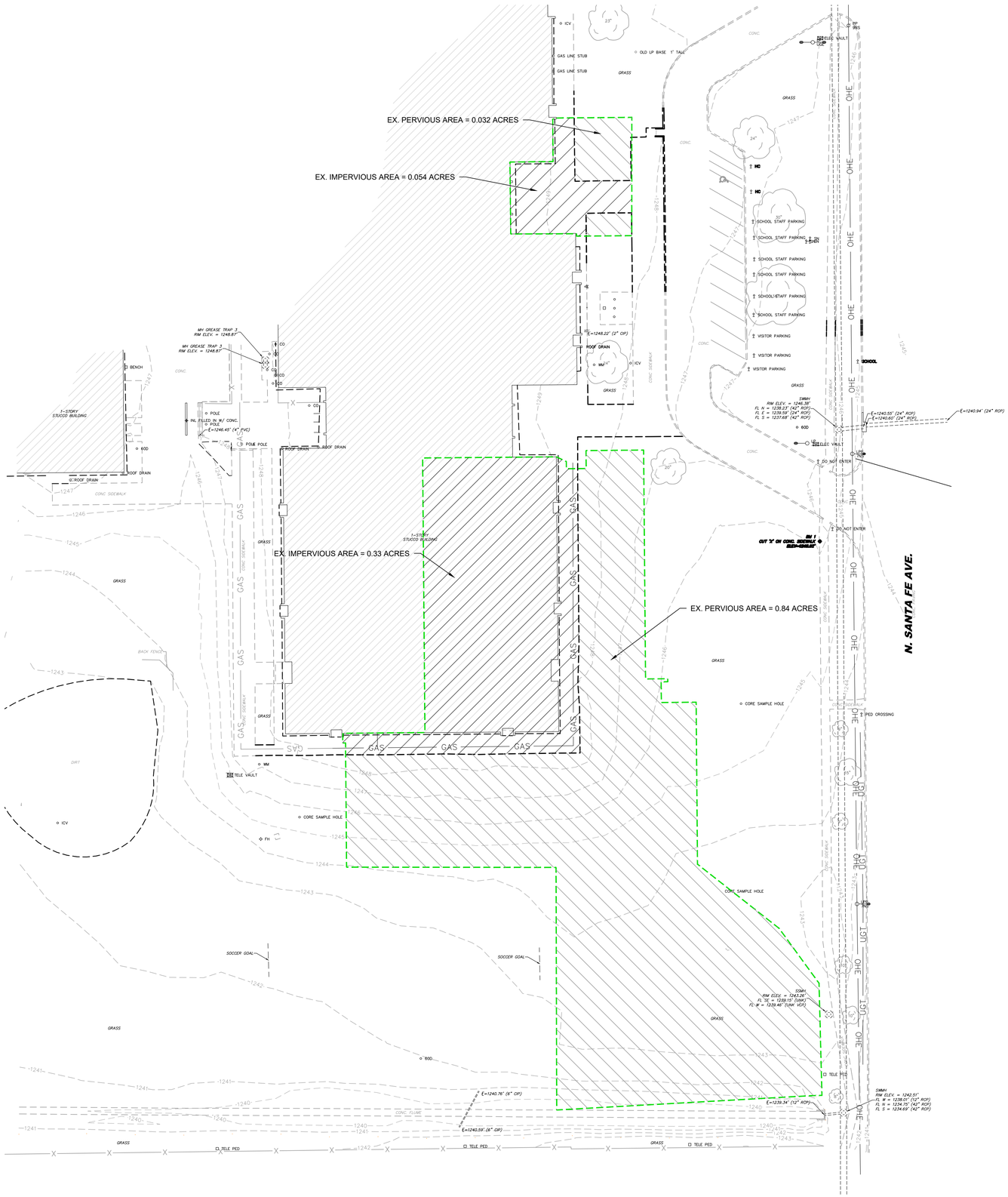
N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/25/2023 at 3:18 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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




## DRAINAGE LEGEND

- EXISTING PERVIOUS CN = 80
- EXISTING IMPERVIOUS CN = 98

N

SCALE IN FEET

0 30' 45' 60'

BEFORE YOU DIG 811 OKIE CALL OKIE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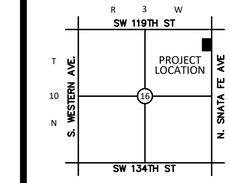
www.cedarcreekinc.com
OK CA 5864
EXP. 06/30/24


LOCATION MAP:




NOT TO SCALE

PROJECT:

# HIGHLAND WEST JR. HIGH

901 N. SANTA FE
MOORE, OK

| | |
|---|---|
| PROJECT NUMBER: | 23069 |
| DRAWING DATE: | 09.25.23 |
| ISSUE DATE: | 09.25.23 |

SEAL:

SUBMITTAL:

PERMIT SET

REVISIONS:

| MARK | DATE | DESCRIPTION |
|---|---|---|

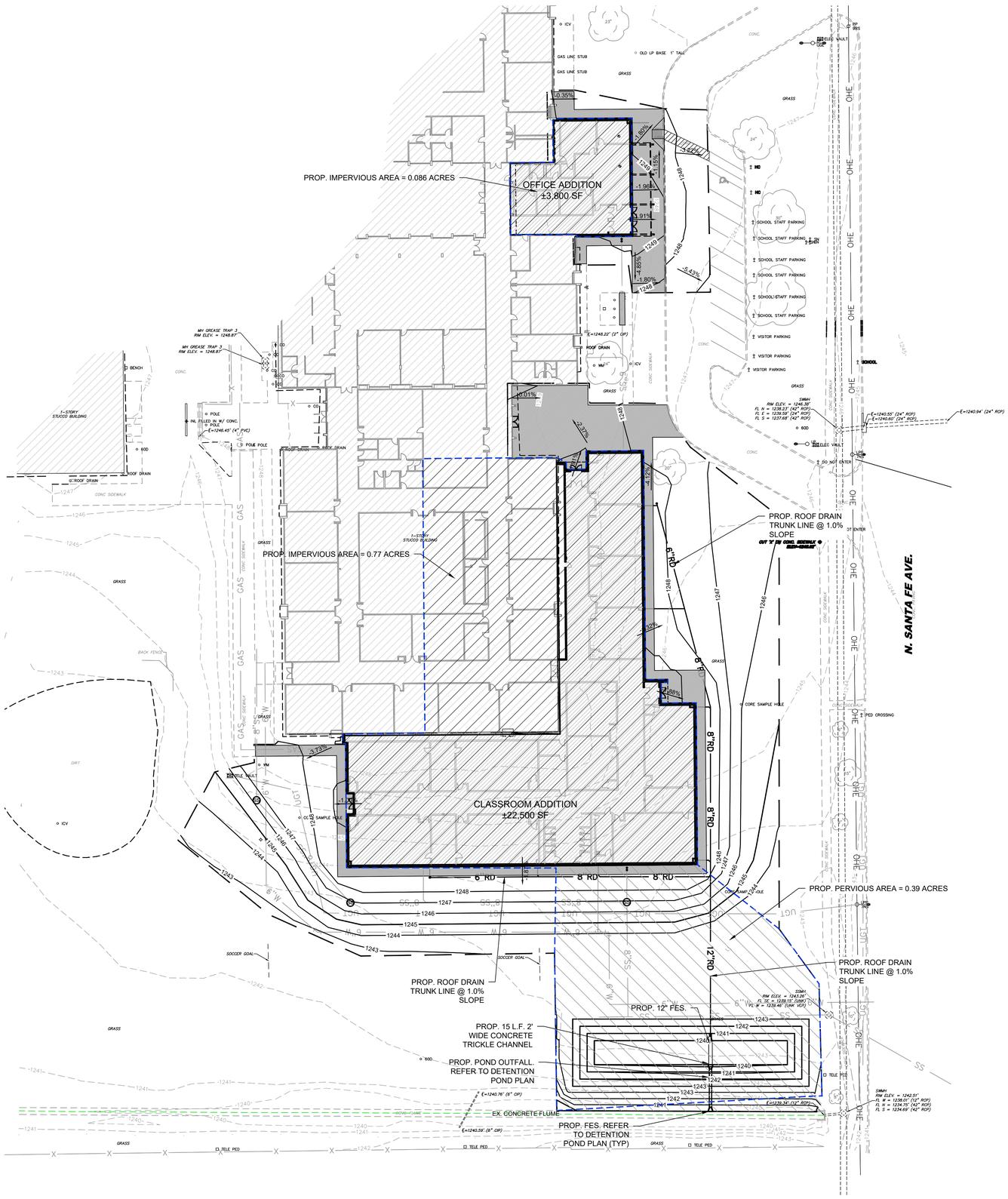


DRAWING TITLE:

# DRAINAGE - HISTORIC

SHEET:

# C3.01




## DRAINAGE LEGEND

- PROPOSED PERVIOUS CN = 80
- PROPOSED IMPERVIOUS CN = 98

SCALE IN FEET
0 30' 45' 60'

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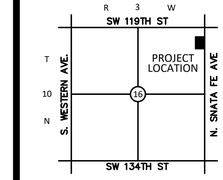
LOCATION MAP:

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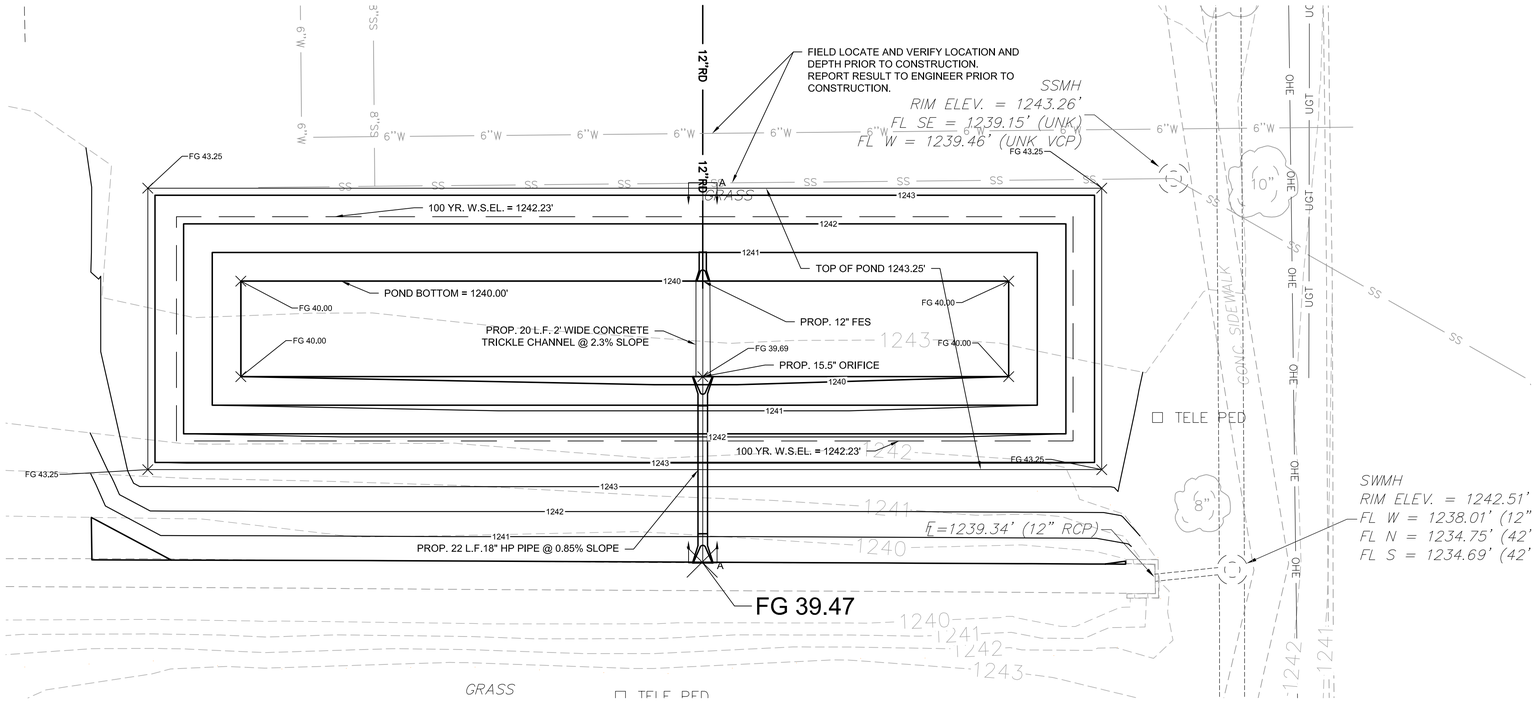
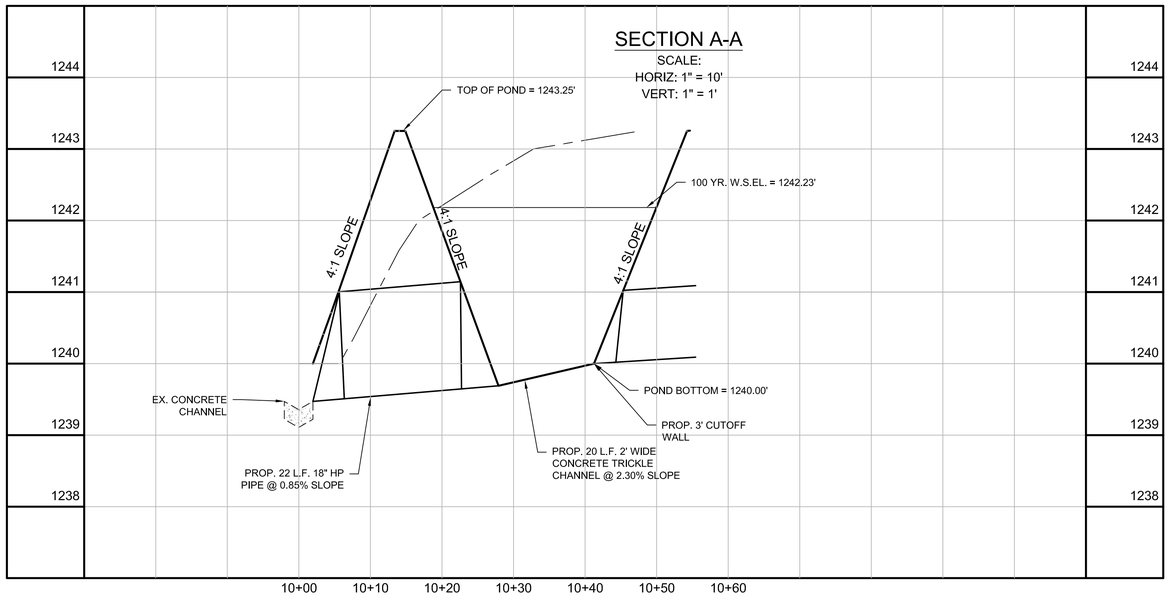
DRAWING TITLE:

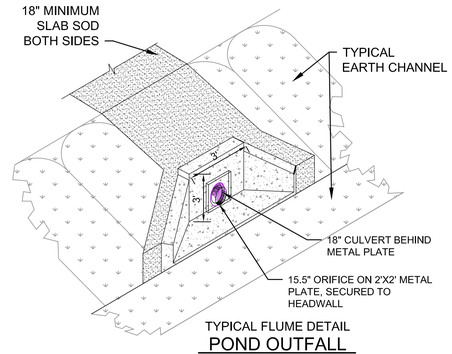
# DRAINAGE - DEVELOPED

SHEET:

# C3.02

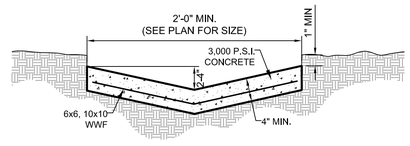



TYPICAL FLUME DETAIL

## POND OUTFALL




## TRICKLE CHANNEL DETAIL

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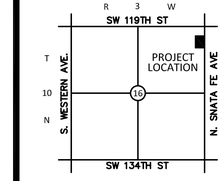
LOCATION MAP:




NOT TO SCALE

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SEAL:

SUBMITTAL:

PERMIT SET

REVISIONS:

| MARK | DATE | DESCRIPTION |
|---|---|---|

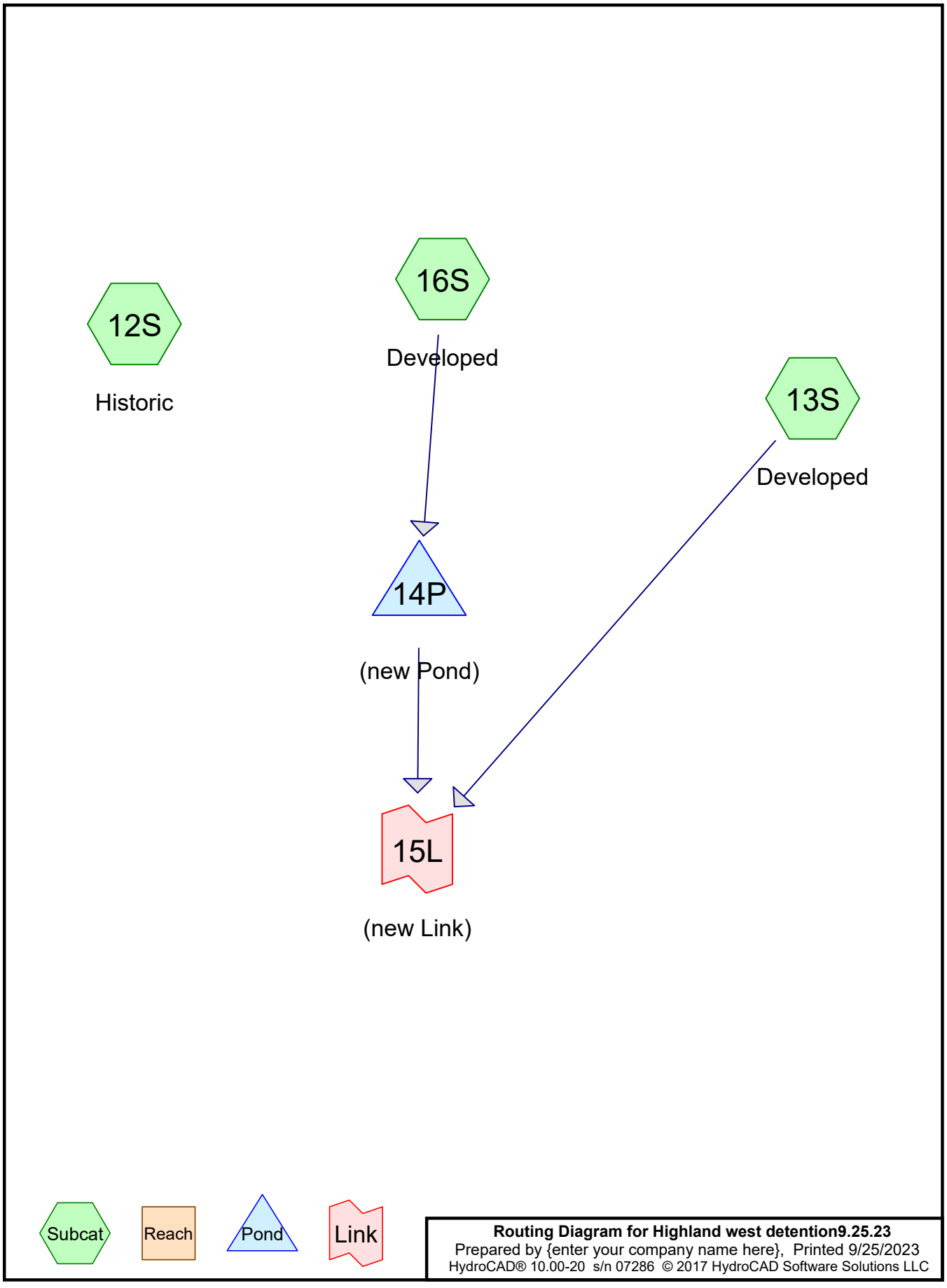


DRAWING TITLE:

# DETENTION POND PLAN

SHEET:

# C3.03




**Routing Diagram for Highland west detention9.25.23**
Prepared by {enter your company name here}, Printed 9/25/2023

## Summary for Subcatchment 12S: Historic

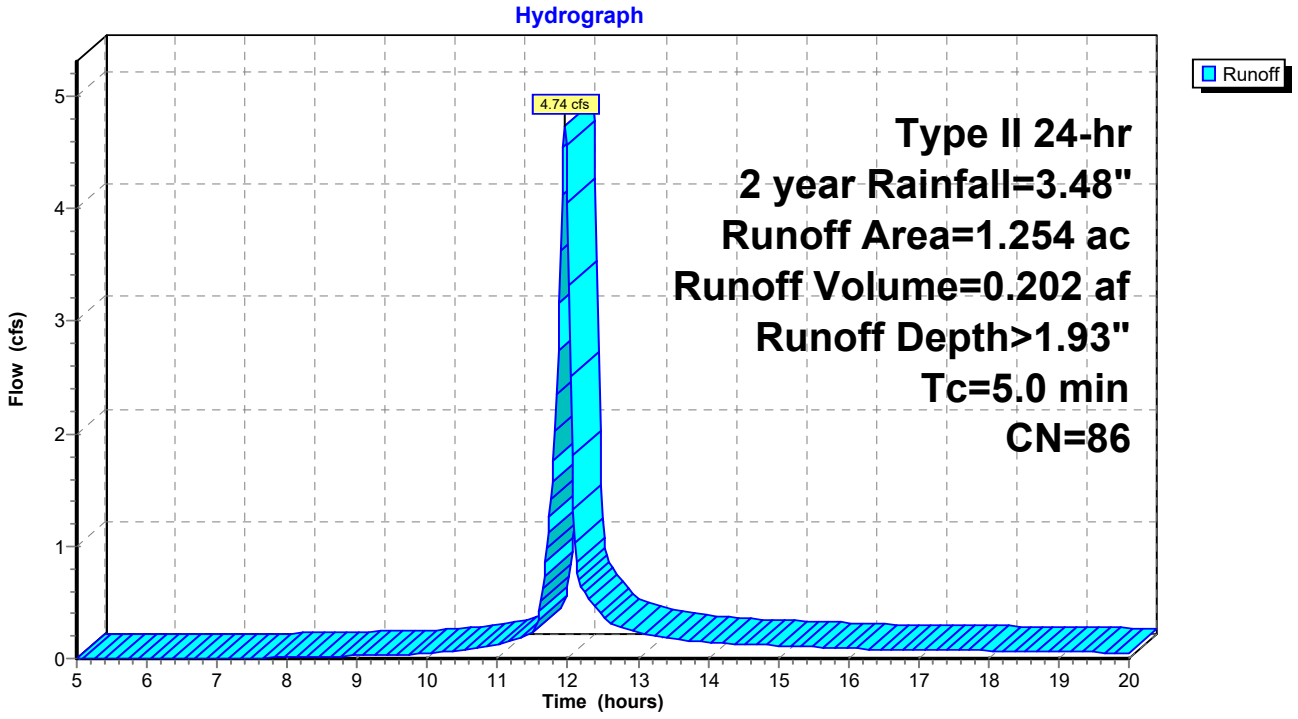
Runoff = 4.74 cfs @ 11.96 hrs, Volume= 0.202 af, Depth> 1.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 2 year Rainfall=3.48"

| Area (ac) | CN | Description |
|---|---|---|
| 0.384 | 98 | Paved parking, HSG D |
| 0.870 | 80 | >75% Grass cover, Good, HSG D |
| 1.254 | 86 | Weighted Average |
| 0.870 | | 69.38% Pervious Area |
| 0.384 | | 30.62% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 12S: Historic



## Hydrograph for Subcatchment 12S: Historic

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.22 | 0.00 | 0.00 |
| 5.20 | 0.23 | 0.00 | 0.00 |
| 5.40 | 0.24 | 0.00 | 0.00 |
| 5.60 | 0.25 | 0.00 | 0.00 |
| 5.80 | 0.27 | 0.00 | 0.00 |
| 6.00 | 0.28 | 0.00 | 0.00 |
| 6.20 | 0.29 | 0.00 | 0.00 |
| 6.40 | 0.30 | 0.00 | 0.00 |
| 6.60 | 0.32 | 0.00 | 0.00 |
| 6.80 | 0.33 | 0.00 | 0.00 |
| 7.00 | 0.34 | 0.00 | 0.00 |
| 7.20 | 0.36 | 0.00 | 0.00 |
| 7.40 | 0.37 | 0.00 | 0.00 |
| 7.60 | 0.39 | 0.00 | 0.01 |
| 7.80 | 0.40 | 0.00 | 0.01 |
| 8.00 | 0.42 | 0.00 | 0.01 |
| 8.20 | 0.43 | 0.01 | 0.01 |
| 8.40 | 0.45 | 0.01 | 0.01 |
| 8.60 | 0.47 | 0.01 | 0.02 |
| 8.80 | 0.49 | 0.02 | 0.02 |
| 9.00 | 0.51 | 0.02 | 0.03 |
| 9.20 | 0.53 | 0.02 | 0.03 |
| 9.40 | 0.56 | 0.03 | 0.03 |
| 9.60 | 0.58 | 0.03 | 0.03 |
| 9.80 | 0.60 | 0.04 | 0.04 |
| 10.00 | 0.63 | 0.05 | 0.05 |
| 10.20 | 0.66 | 0.06 | 0.06 |
| 10.40 | 0.69 | 0.07 | 0.07 |
| 10.60 | 0.73 | 0.08 | 0.08 |
| 10.80 | 0.77 | 0.10 | 0.10 |
| 11.00 | 0.82 | 0.11 | 0.12 |
| 11.20 | 0.87 | 0.14 | 0.16 |
| 11.40 | 0.94 | 0.17 | 0.21 |
| 11.60 | 1.07 | 0.23 | 0.42 |
| 11.80 | 1.50 | 0.49 | **1.77** |
| 12.00 | 2.31 | 1.09 | **4.05** |
| 12.20 | 2.43 | 1.19 | 0.63 |
| 12.40 | 2.52 | 1.26 | 0.46 |
| 12.60 | 2.59 | 1.32 | 0.32 |
| 12.80 | 2.64 | 1.36 | 0.27 |
| 13.00 | 2.69 | 1.40 | 0.24 |
| 13.20 | 2.73 | 1.43 | 0.21 |
| 13.40 | 2.76 | 1.46 | 0.19 |
| 13.60 | 2.80 | 1.49 | 0.17 |
| 13.80 | 2.83 | 1.51 | 0.16 |
| 14.00 | 2.85 | 1.54 | 0.14 |
| 14.20 | 2.88 | 1.56 | 0.13 |
| 14.40 | 2.90 | 1.58 | 0.13 |
| 14.60 | 2.93 | 1.60 | 0.12 |
| 14.80 | 2.95 | 1.62 | 0.12 |
| 15.00 | 2.97 | 1.64 | 0.11 |
| 15.20 | 2.99 | 1.65 | 0.11 |
| 15.40 | 3.01 | 1.67 | 0.10 |
| 15.60 | 3.03 | 1.69 | 0.10 |
| 15.80 | 3.05 | 1.70 | 0.09 |
| 16.00 | 3.06 | 1.72 | 0.09 |
| 16.20 | 3.08 | 1.73 | 0.09 |
| 16.40 | 3.09 | 1.74 | 0.08 |
| 16.60 | 3.11 | 1.76 | 0.08 |
| 16.80 | 3.12 | 1.77 | 0.08 |
| 17.00 | 3.14 | 1.78 | 0.08 |
| 17.20 | 3.15 | 1.79 | 0.08 |
| 17.40 | 3.17 | 1.81 | 0.08 |
| 17.60 | 3.18 | 1.82 | 0.07 |
| 17.80 | 3.19 | 1.83 | 0.07 |
| 18.00 | 3.21 | 1.84 | 0.07 |
| 18.20 | 3.22 | 1.85 | 0.07 |
| 18.40 | 3.23 | 1.86 | 0.07 |
| 18.60 | 3.24 | 1.87 | 0.06 |
| 18.80 | 3.25 | 1.88 | 0.06 |
| 19.00 | 3.26 | 1.89 | 0.06 |
| 19.20 | 3.27 | 1.90 | 0.06 |
| 19.40 | 3.28 | 1.91 | 0.06 |
| 19.60 | 3.29 | 1.92 | 0.05 |
| 19.80 | 3.30 | 1.93 | 0.05 |
| 20.00 | **3.31** | **1.93** | 0.05 |

## Summary for Subcatchment 13S: Developed

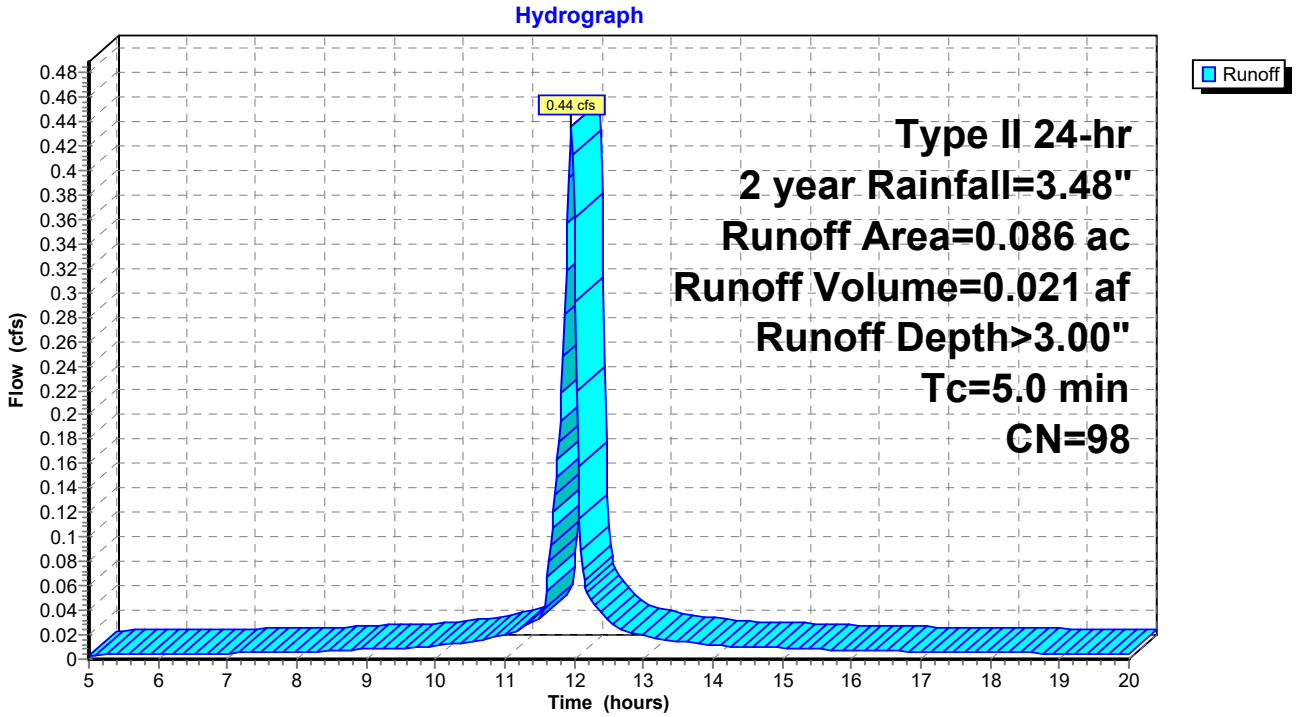
Runoff = 0.44 cfs @ 11.96 hrs, Volume= 0.021 af, Depth> 3.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 2 year Rainfall=3.48"

| Area (ac) | CN | Description |
|---|---|---|
| 0.086 | 98 | Paved parking, HSG D |
| 0.086 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 13S: Developed



## Hydrograph for Subcatchment 13S: Developed

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.22 | 0.08 | 0.00 |
| 5.20 | 0.23 | 0.09 | 0.00 |
| 5.40 | 0.24 | 0.10 | 0.00 |
| 5.60 | 0.25 | 0.11 | 0.00 |
| 5.80 | 0.27 | 0.12 | 0.00 |
| 6.00 | 0.28 | 0.13 | 0.00 |
| 6.20 | 0.29 | 0.14 | 0.00 |
| 6.40 | 0.30 | 0.15 | 0.00 |
| 6.60 | 0.32 | 0.16 | 0.00 |
| 6.80 | 0.33 | 0.17 | 0.00 |
| 7.00 | 0.34 | 0.18 | 0.01 |
| 7.20 | 0.36 | 0.19 | 0.01 |
| 7.40 | 0.37 | 0.21 | 0.01 |
| 7.60 | 0.39 | 0.22 | 0.01 |
| 7.80 | 0.40 | 0.23 | 0.01 |
| 8.00 | 0.42 | 0.24 | 0.01 |
| 8.20 | 0.43 | 0.26 | 0.01 |
| 8.40 | 0.45 | 0.27 | 0.01 |
| 8.60 | 0.47 | 0.29 | 0.01 |
| 8.80 | 0.49 | 0.31 | 0.01 |
| 9.00 | 0.51 | 0.33 | 0.01 |
| 9.20 | 0.53 | 0.35 | 0.01 |
| 9.40 | 0.56 | 0.37 | 0.01 |
| 9.60 | 0.58 | 0.39 | 0.01 |
| 9.80 | 0.60 | 0.41 | 0.01 |
| 10.00 | 0.63 | 0.44 | 0.01 |
| 10.20 | 0.66 | 0.47 | 0.01 |
| 10.40 | 0.69 | 0.50 | 0.01 |
| 10.60 | 0.73 | 0.53 | 0.02 |
| 10.80 | 0.77 | 0.57 | 0.02 |
| 11.00 | 0.82 | 0.62 | 0.02 |
| 11.20 | 0.87 | 0.67 | 0.02 |
| 11.40 | 0.94 | 0.74 | 0.03 |
| 11.60 | 1.07 | 0.86 | 0.06 |
| 11.80 | 1.50 | 1.28 | **0.20** |
| 12.00 | 2.31 | 2.08 | **0.36** |
| 12.20 | 2.43 | 2.20 | 0.05 |
| 12.40 | 2.52 | 2.29 | 0.04 |
| 12.60 | 2.59 | 2.36 | 0.03 |
| 12.80 | 2.64 | 2.41 | 0.02 |
| 13.00 | 2.69 | 2.46 | 0.02 |
| 13.20 | 2.73 | 2.50 | 0.02 |
| 13.40 | 2.76 | 2.53 | 0.02 |
| 13.60 | 2.80 | 2.57 | 0.01 |
| 13.80 | 2.83 | 2.60 | 0.01 |
| 14.00 | 2.85 | 2.62 | 0.01 |
| 14.20 | 2.88 | 2.65 | 0.01 |
| 14.40 | 2.90 | 2.67 | 0.01 |
| 14.60 | 2.93 | 2.70 | 0.01 |
| 14.80 | 2.95 | 2.72 | 0.01 |
| 15.00 | 2.97 | 2.74 | 0.01 |
| 15.20 | 2.99 | 2.76 | 0.01 |
| 15.40 | 3.01 | 2.78 | 0.01 |
| 15.60 | 3.03 | 2.80 | 0.01 |
| 15.80 | 3.05 | 2.81 | 0.01 |
| 16.00 | 3.06 | 2.83 | 0.01 |
| 16.20 | 3.08 | 2.85 | 0.01 |
| 16.40 | 3.09 | 2.86 | 0.01 |
| 16.60 | 3.11 | 2.88 | 0.01 |
| 16.80 | 3.12 | 2.89 | 0.01 |
| 17.00 | 3.14 | 2.91 | 0.01 |
| 17.20 | 3.15 | 2.92 | 0.01 |
| 17.40 | 3.17 | 2.93 | 0.01 |
| 17.60 | 3.18 | 2.95 | 0.01 |
| 17.80 | 3.19 | 2.96 | 0.01 |
| 18.00 | 3.21 | 2.97 | 0.01 |
| 18.20 | 3.22 | 2.98 | 0.01 |
| 18.40 | 3.23 | 3.00 | 0.01 |
| 18.60 | 3.24 | 3.01 | 0.01 |
| 18.80 | 3.25 | 3.02 | 0.00 |
| 19.00 | 3.26 | 3.03 | 0.00 |
| 19.20 | 3.27 | 3.04 | 0.00 |
| 19.40 | 3.28 | 3.05 | 0.00 |
| 19.60 | 3.29 | 3.06 | 0.00 |
| 19.80 | 3.30 | 3.07 | 0.00 |
| 20.00 | **3.31** | **3.08** | 0.00 |

## Summary for Subcatchment 16S: Developed

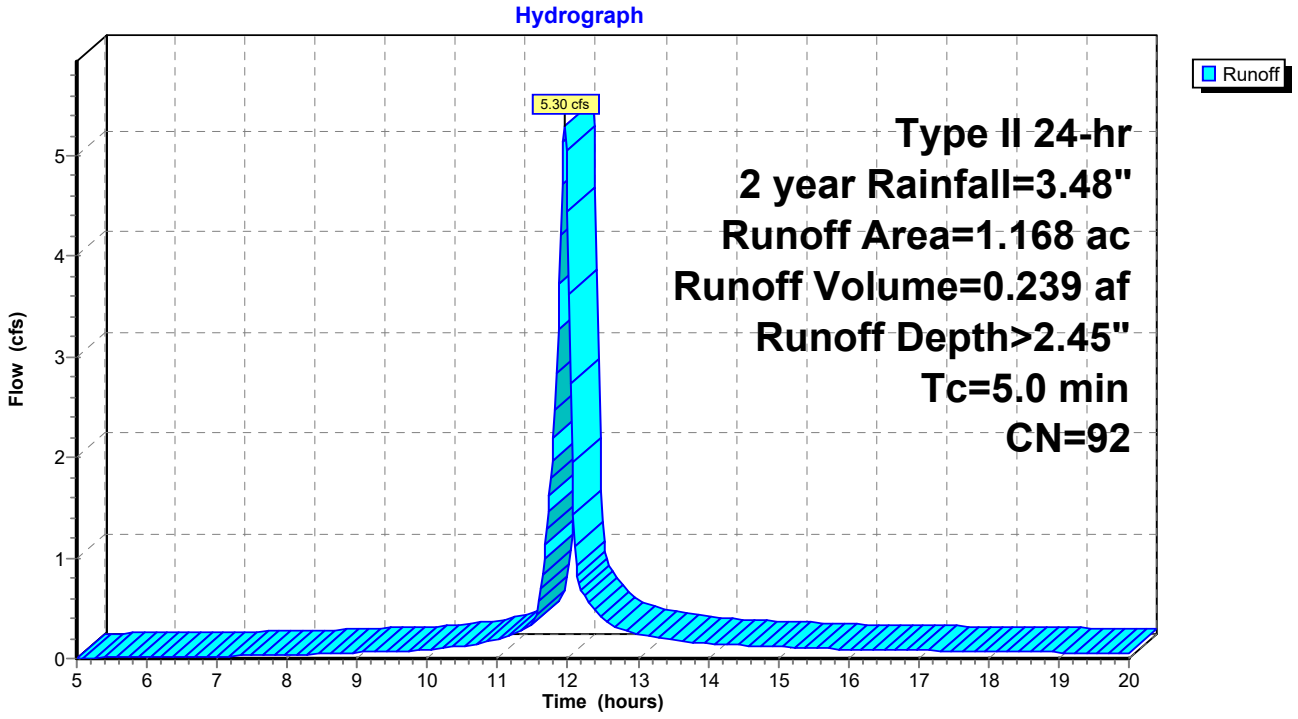
Runoff = 5.30 cfs @ 11.96 hrs, Volume= 0.239 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 2 year Rainfall=3.48"

| Area (ac) | CN | Description |
|---|---|---|
| 0.770 | 98 | Paved parking, HSG D |
| 0.398 | 80 | >75% Grass cover, Good, HSG D |
| 1.168 | 92 | Weighted Average |
| 0.398 | | 34.08% Pervious Area |
| 0.770 | | 65.92% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 16S: Developed



## Hydrograph for Subcatchment 16S: Developed

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.22 | 0.00 | 0.01 |
| 5.20 | 0.23 | 0.00 | 0.01 |
| 5.40 | 0.24 | 0.00 | 0.01 |
| 5.60 | 0.25 | 0.01 | 0.01 |
| 5.80 | 0.27 | 0.01 | 0.01 |
| 6.00 | 0.28 | 0.01 | 0.01 |
| 6.20 | 0.29 | 0.01 | 0.02 |
| 6.40 | 0.30 | 0.02 | 0.02 |
| 6.60 | 0.32 | 0.02 | 0.02 |
| 6.80 | 0.33 | 0.02 | 0.02 |
| 7.00 | 0.34 | 0.03 | 0.02 |
| 7.20 | 0.36 | 0.03 | 0.03 |
| 7.40 | 0.37 | 0.04 | 0.03 |
| 7.60 | 0.39 | 0.04 | 0.03 |
| 7.80 | 0.40 | 0.05 | 0.03 |
| 8.00 | 0.42 | 0.05 | 0.03 |
| 8.20 | 0.43 | 0.06 | 0.04 |
| 8.40 | 0.45 | 0.07 | 0.04 |
| 8.60 | 0.47 | 0.08 | 0.05 |
| 8.80 | 0.49 | 0.08 | 0.05 |
| 9.00 | 0.51 | 0.09 | 0.06 |
| 9.20 | 0.53 | 0.11 | 0.06 |
| 9.40 | 0.56 | 0.12 | 0.07 |
| 9.60 | 0.58 | 0.13 | 0.07 |
| 9.80 | 0.60 | 0.14 | 0.08 |
| 10.00 | 0.63 | 0.16 | 0.09 |
| 10.20 | 0.66 | 0.17 | 0.10 |
| 10.40 | 0.69 | 0.19 | 0.12 |
| 10.60 | 0.73 | 0.22 | 0.13 |
| 10.80 | 0.77 | 0.24 | 0.16 |
| 11.00 | 0.82 | 0.27 | 0.19 |
| 11.20 | 0.87 | 0.31 | 0.23 |
| 11.40 | 0.94 | 0.36 | 0.30 |
| 11.60 | 1.07 | 0.45 | 0.58 |
| 11.80 | 1.50 | 0.80 | **2.19** |
| 12.00 | 2.31 | 1.52 | **4.44** |
| 12.20 | 2.43 | 1.63 | 0.67 |
| 12.40 | 2.52 | 1.71 | 0.48 |
| 12.60 | 2.59 | 1.77 | 0.33 |
| 12.80 | 2.64 | 1.82 | 0.29 |
| 13.00 | 2.69 | 1.87 | 0.25 |
| 13.20 | 2.73 | 1.90 | 0.22 |
| 13.40 | 2.76 | 1.94 | 0.20 |
| 13.60 | 2.80 | 1.97 | 0.18 |
| 13.80 | 2.83 | 2.00 | 0.16 |
| 14.00 | 2.85 | 2.02 | 0.15 |
| 14.20 | 2.88 | 2.05 | 0.14 |
| 14.40 | 2.90 | 2.07 | 0.13 |
| 14.60 | 2.93 | 2.09 | 0.13 |
| 14.80 | 2.95 | 2.11 | 0.12 |
| 15.00 | 2.97 | 2.13 | 0.12 |
| 15.20 | 2.99 | 2.15 | 0.11 |
| 15.40 | 3.01 | 2.17 | 0.11 |
| 15.60 | 3.03 | 2.19 | 0.10 |
| 15.80 | 3.05 | 2.20 | 0.10 |
| 16.00 | 3.06 | 2.22 | 0.09 |
| 16.20 | 3.08 | 2.24 | 0.09 |
| 16.40 | 3.09 | 2.25 | 0.09 |
| 16.60 | 3.11 | 2.26 | 0.08 |
| 16.80 | 3.12 | 2.28 | 0.08 |
| 17.00 | 3.14 | 2.29 | 0.08 |
| 17.20 | 3.15 | 2.31 | 0.08 |
| 17.40 | 3.17 | 2.32 | 0.08 |
| 17.60 | 3.18 | 2.33 | 0.07 |
| 17.80 | 3.19 | 2.34 | 0.07 |
| 18.00 | 3.21 | 2.36 | 0.07 |
| 18.20 | 3.22 | 2.37 | 0.07 |
| 18.40 | 3.23 | 2.38 | 0.07 |
| 18.60 | 3.24 | 2.39 | 0.07 |
| 18.80 | 3.25 | 2.40 | 0.06 |
| 19.00 | 3.26 | 2.41 | 0.06 |
| 19.20 | 3.27 | 2.42 | 0.06 |
| 19.40 | 3.28 | 2.43 | 0.06 |
| 19.60 | 3.29 | 2.44 | 0.06 |
| 19.80 | 3.30 | 2.45 | 0.05 |
| 20.00 | **3.31** | **2.46** | 0.05 |

## Summary for Pond 14P: (new Pond)

Inflow Area = 1.168 ac, 65.92% Impervious, Inflow Depth > 2.45" for 2 year event
Inflow = 5.30 cfs @ 11.96 hrs, Volume= 0.239 af
Outflow = 4.35 cfs @ 12.00 hrs, Volume= 0.221 af, Atten= 18%, Lag= 2.7 min
Primary = 4.35 cfs @ 12.00 hrs, Volume= 0.221 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Peak Elev= 1,240.86' @ 12.00 hrs Surf.Area= 2,319 sf Storage= 1,840 cf

Plug-Flow detention time= 48.3 min calculated for 0.221 af (92% of inflow)
Center-of-Mass det. time= 21.1 min ( 777.2 - 756.0 )

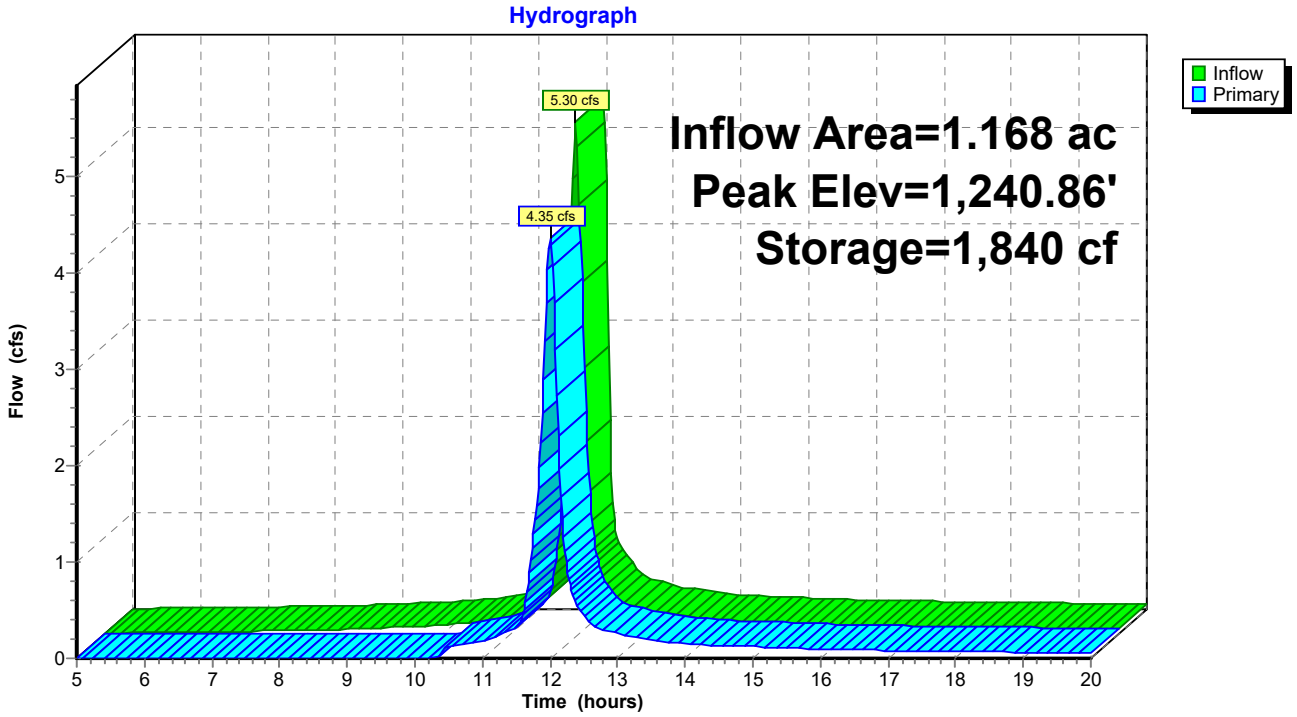
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 1,239.69' | 10,748 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 1,239.69 | 0 | 0 | 0 |
| 1,240.00 | 1,432 | 222 | 222 |
| 1,241.00 | 2,461 | 1,947 | 2,168 |
| 1,242.00 | 3,619 | 3,040 | 5,208 |
| 1,243.25 | 5,244 | 5,539 | 10,748 |

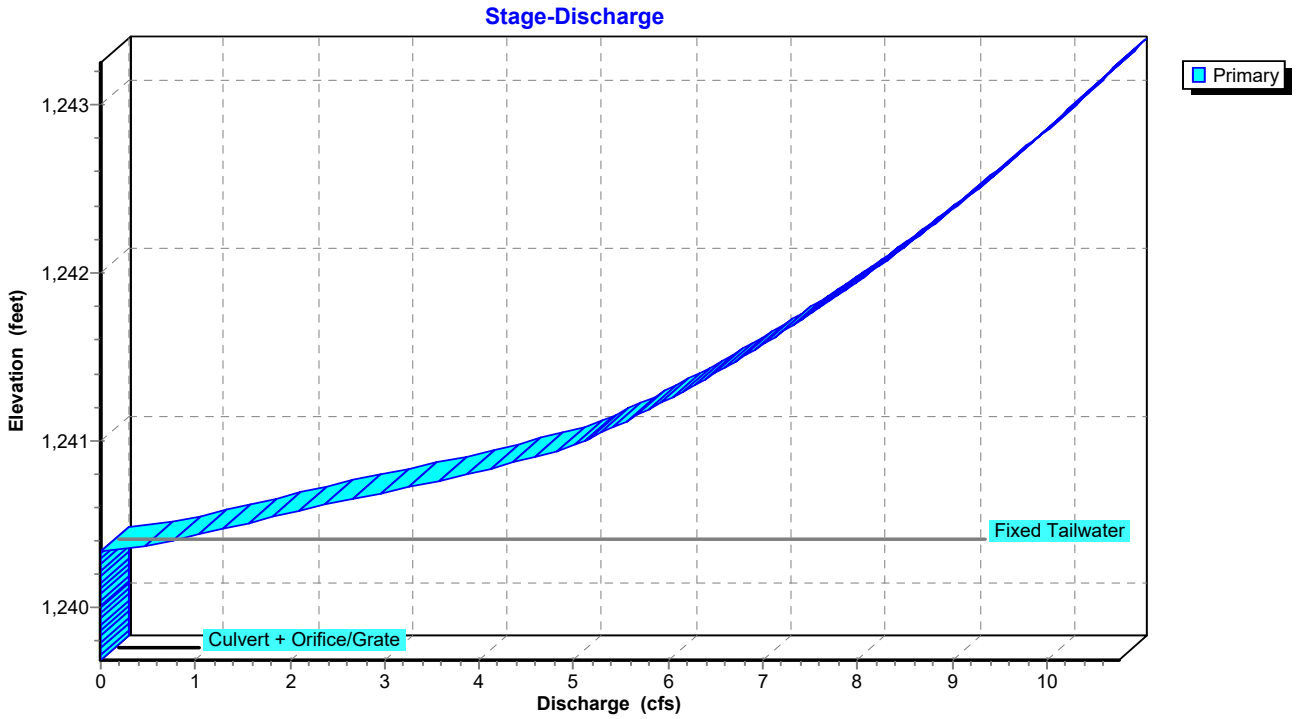
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 1,239.69' | **18.0" Round Culvert**<br>L= 26.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 1,239.69' / 1,239.47' S= 0.0085 '/' Cc= 0.900<br>n= 0.013, Flow Area= 1.77 sf |
| #2 | Device 1 | 1,239.69' | **15.5" Vert. Orifice/Grate** C= 0.600 |

**Primary OutFlow** Max=4.34 cfs @ 12.00 hrs HW=1,240.86' TW=1,240.34' (Fixed TW Elev= 1,240.34')
↑**1=Culvert** (Passes 4.34 cfs of 4.46 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 4.34 cfs @ 3.48 fps)

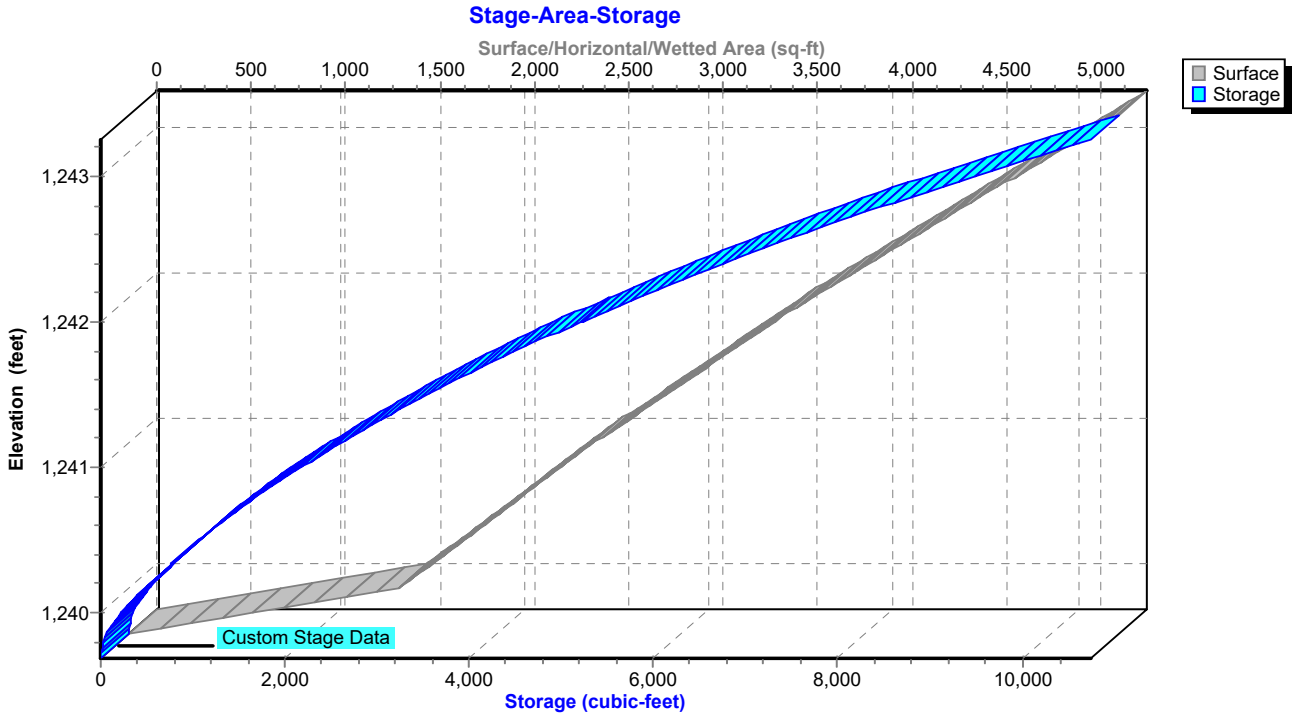
## Pond 14P: (new Pond)




## Pond 14P: (new Pond)



## Pond 14P: (new Pond)



## Hydrograph for Pond 14P: (new Pond)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|
| 5.00 | 0.01 | 0 | 1,239.69 | 0.00 |
| 5.40 | 0.01 | 11 | 1,239.76 | 0.00 |
| 5.80 | 0.01 | 26 | 1,239.80 | 0.00 |
| 6.20 | 0.02 | 47 | 1,239.83 | 0.00 |
| 6.60 | 0.02 | 73 | 1,239.87 | 0.00 |
| 7.00 | 0.02 | 104 | 1,239.90 | 0.00 |
| 7.40 | 0.03 | 142 | 1,239.94 | 0.00 |
| 7.80 | 0.03 | 185 | 1,239.97 | 0.00 |
| 8.20 | 0.04 | 235 | 1,240.01 | 0.00 |
| 8.60 | 0.05 | 297 | 1,240.05 | 0.00 |
| 9.00 | 0.06 | 376 | 1,240.10 | 0.00 |
| 9.40 | 0.07 | 468 | 1,240.16 | 0.00 |
| 9.80 | 0.08 | 571 | 1,240.23 | 0.00 |
| 10.20 | 0.10 | 701 | 1,240.30 | 0.00 |
| 10.60 | 0.13 | 782 | 1,240.35 | 0.13 |
| 11.00 | 0.19 | 787 | 1,240.35 | 0.18 |
| 11.40 | 0.30 | 798 | 1,240.36 | 0.29 |
| 11.80 | **2.19** | **1,091** | **1,240.51** | **1.59** |
| 12.20 | **0.67** | **1,005** | **1,240.47** | **1.26** |
| 12.60 | 0.33 | 804 | 1,240.36 | 0.35 |
| 13.00 | 0.25 | 794 | 1,240.35 | 0.25 |
| 13.40 | 0.20 | 789 | 1,240.35 | 0.20 |
| 13.80 | 0.16 | 785 | 1,240.35 | 0.17 |
| 14.20 | 0.14 | 783 | 1,240.35 | 0.14 |
| 14.60 | 0.13 | 782 | 1,240.35 | 0.13 |
| 15.00 | 0.12 | 780 | 1,240.35 | 0.12 |
| 15.40 | 0.11 | 779 | 1,240.35 | 0.11 |
| 15.80 | 0.10 | 778 | 1,240.35 | 0.10 |
| 16.20 | 0.09 | 777 | 1,240.35 | 0.09 |
| 16.60 | 0.08 | 777 | 1,240.34 | 0.08 |
| 17.00 | 0.08 | 777 | 1,240.34 | 0.08 |
| 17.40 | 0.08 | 776 | 1,240.34 | 0.08 |
| 17.80 | 0.07 | 776 | 1,240.34 | 0.07 |
| 18.20 | 0.07 | 775 | 1,240.34 | 0.07 |
| 18.60 | 0.07 | 775 | 1,240.34 | 0.07 |
| 19.00 | 0.06 | 775 | 1,240.34 | 0.06 |
| 19.40 | 0.06 | 774 | 1,240.34 | 0.06 |
| 19.80 | 0.05 | 774 | 1,240.34 | 0.05 |

## Stage-Discharge for Pond 14P: (new Pond)

| Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|---|---|---|
| 1,239.69 | 0.00 | 1,240.73 | 3.32 | 1,241.77 | 7.54 | 1,242.81 | 9.92 |
| 1,239.71 | 0.00 | 1,240.75 | 3.50 | 1,241.79 | 7.60 | 1,242.83 | 9.96 |
| 1,239.73 | 0.00 | 1,240.77 | 3.67 | 1,241.81 | 7.65 | 1,242.85 | 10.00 |
| 1,239.75 | 0.00 | 1,240.79 | 3.84 | 1,241.83 | 7.70 | 1,242.87 | 10.04 |
| 1,239.77 | 0.00 | 1,240.81 | 3.98 | 1,241.85 | 7.75 | 1,242.89 | 10.08 |
| 1,239.79 | 0.00 | 1,240.83 | 4.13 | 1,241.87 | 7.80 | 1,242.91 | 10.11 |
| 1,239.81 | 0.00 | 1,240.85 | 4.26 | 1,241.89 | 7.86 | 1,242.93 | 10.15 |
| 1,239.83 | 0.00 | 1,240.87 | 4.40 | 1,241.91 | 7.91 | 1,242.95 | 10.19 |
| 1,239.85 | 0.00 | 1,240.89 | 4.53 | 1,241.93 | 7.96 | 1,242.97 | 10.23 |
| 1,239.87 | 0.00 | 1,240.91 | 4.66 | 1,241.95 | 8.01 | 1,242.99 | 10.27 |
| 1,239.89 | 0.00 | 1,240.93 | 4.78 | 1,241.97 | 8.06 | 1,243.01 | 10.31 |
| 1,239.91 | 0.00 | 1,240.95 | 4.90 | 1,241.99 | 8.10 | 1,243.03 | 10.35 |
| 1,239.93 | 0.00 | 1,240.97 | 5.00 | 1,242.01 | 8.15 | 1,243.05 | 10.39 |
| 1,239.95 | 0.00 | 1,240.99 | 5.09 | 1,242.03 | 8.20 | 1,243.07 | 10.42 |
| 1,239.97 | 0.00 | 1,241.01 | 5.16 | 1,242.05 | 8.25 | 1,243.09 | 10.46 |
| 1,239.99 | 0.00 | 1,241.03 | 5.24 | 1,242.07 | 8.30 | 1,243.11 | 10.50 |
| 1,240.01 | 0.00 | 1,241.05 | 5.32 | 1,242.09 | 8.35 | 1,243.13 | 10.54 |
| 1,240.03 | 0.00 | 1,241.07 | 5.39 | 1,242.11 | 8.39 | 1,243.15 | 10.58 |
| 1,240.05 | 0.00 | 1,241.09 | 5.46 | 1,242.13 | 8.44 | 1,243.17 | 10.61 |
| 1,240.07 | 0.00 | 1,241.11 | 5.54 | 1,242.15 | 8.49 | 1,243.19 | 10.65 |
| 1,240.09 | 0.00 | 1,241.13 | 5.61 | 1,242.17 | 8.54 | 1,243.21 | 10.69 |
| 1,240.11 | 0.00 | 1,241.15 | 5.68 | 1,242.19 | 8.58 | 1,243.23 | 10.73 |
| 1,240.13 | 0.00 | 1,241.17 | 5.75 | 1,242.21 | 8.63 | 1,243.25 | **10.76** |
| 1,240.15 | 0.00 | 1,241.19 | 5.82 | 1,242.23 | 8.67 | | |
| 1,240.17 | 0.00 | 1,241.21 | 5.88 | 1,242.25 | 8.72 | | |
| 1,240.19 | 0.00 | 1,241.23 | 5.95 | 1,242.27 | 8.77 | | |
| 1,240.21 | 0.00 | 1,241.25 | 6.02 | 1,242.29 | 8.81 | | |
| 1,240.23 | 0.00 | 1,241.27 | 6.08 | 1,242.31 | 8.86 | | |
| 1,240.25 | 0.00 | 1,241.29 | 6.15 | 1,242.33 | 8.90 | | |
| 1,240.27 | 0.00 | 1,241.31 | 6.21 | 1,242.35 | 8.95 | | |
| 1,240.29 | 0.00 | 1,241.33 | 6.28 | 1,242.37 | 8.99 | | |
| 1,240.31 | 0.00 | 1,241.35 | 6.34 | 1,242.39 | 9.03 | | |
| 1,240.33 | 0.00 | 1,241.37 | 6.40 | 1,242.41 | 9.08 | | |
| 1,240.35 | 0.27 | 1,241.39 | 6.47 | 1,242.43 | 9.12 | | |
| 1,240.37 | 0.50 | 1,241.41 | 6.53 | 1,242.45 | 9.16 | | |
| 1,240.39 | 0.67 | 1,241.43 | 6.59 | 1,242.47 | 9.21 | | |
| 1,240.41 | 0.83 | 1,241.45 | 6.65 | 1,242.49 | 9.25 | | |
| 1,240.43 | 0.98 | 1,241.47 | 6.71 | 1,242.51 | 9.29 | | |
| 1,240.45 | 1.13 | 1,241.49 | 6.77 | 1,242.53 | 9.34 | | |
| 1,240.47 | 1.27 | 1,241.51 | 6.82 | 1,242.55 | 9.38 | | |
| 1,240.49 | 1.42 | 1,241.53 | 6.88 | 1,242.57 | 9.42 | | |
| 1,240.51 | 1.57 | 1,241.55 | 6.94 | 1,242.59 | 9.46 | | |
| 1,240.53 | 1.72 | 1,241.57 | 7.00 | 1,242.61 | 9.51 | | |
| 1,240.55 | 1.87 | 1,241.59 | 7.05 | 1,242.63 | 9.55 | | |
| 1,240.57 | 2.02 | 1,241.61 | 7.11 | 1,242.65 | 9.59 | | |
| 1,240.59 | 2.18 | 1,241.63 | 7.17 | 1,242.67 | 9.63 | | |
| 1,240.61 | 2.33 | 1,241.65 | 7.22 | 1,242.69 | 9.67 | | |
| 1,240.63 | 2.49 | 1,241.67 | 7.28 | 1,242.71 | 9.71 | | |
| 1,240.65 | 2.65 | 1,241.69 | 7.33 | 1,242.73 | 9.75 | | |
| 1,240.67 | 2.82 | 1,241.71 | 7.38 | 1,242.75 | 9.79 | | |
| 1,240.69 | 2.98 | 1,241.73 | 7.44 | 1,242.77 | 9.84 | | |
| 1,240.71 | 3.15 | 1,241.75 | 7.49 | 1,242.79 | 9.88 | | |

## Stage-Area-Storage for Pond 14P: (new Pond)

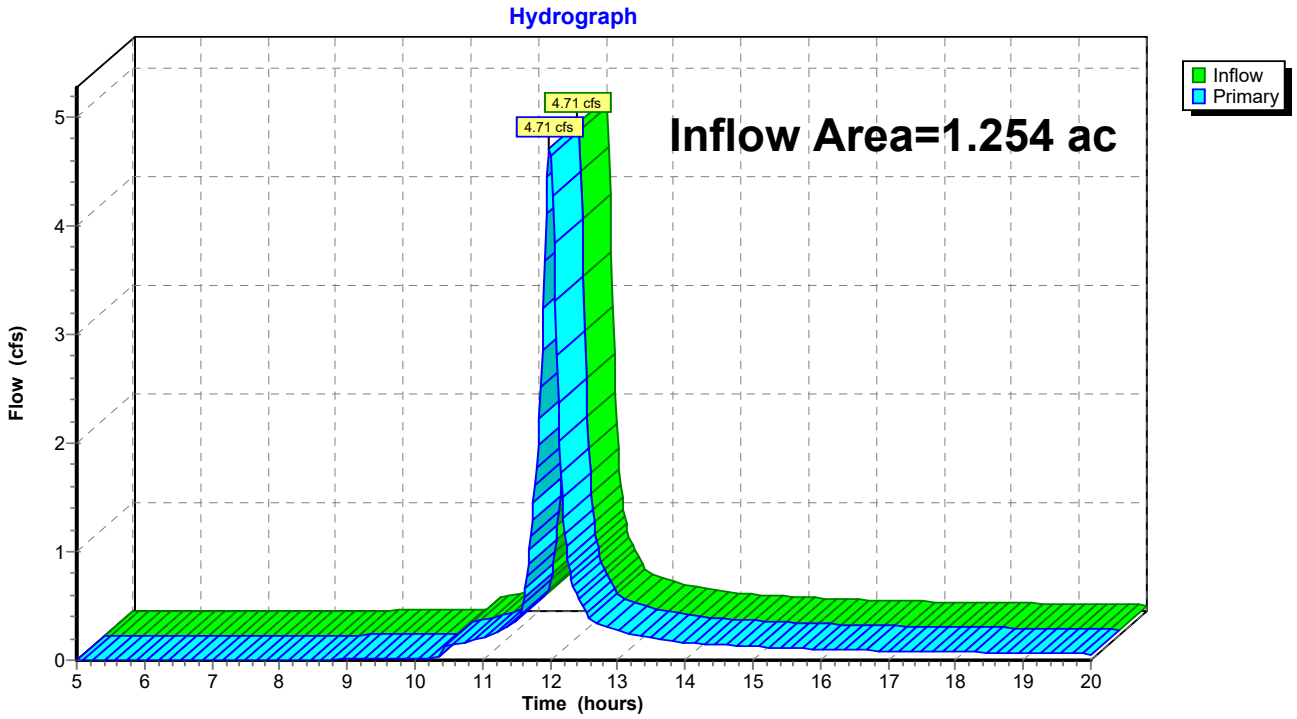
| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 1,239.69 | 0 | 0 |
| 1,239.74 | 231 | 6 |
| 1,239.79 | 462 | 23 |
| 1,239.84 | 693 | 52 |
| 1,239.89 | 924 | 92 |
| 1,239.94 | 1,155 | 144 |
| 1,239.99 | 1,386 | 208 |
| 1,240.04 | 1,473 | 280 |
| 1,240.09 | 1,525 | 355 |
| 1,240.14 | 1,576 | 433 |
| 1,240.19 | 1,628 | 513 |
| 1,240.24 | 1,679 | 595 |
| 1,240.29 | 1,730 | 681 |
| 1,240.34 | 1,782 | 768 |
| 1,240.39 | 1,833 | 859 |
| 1,240.44 | 1,885 | 952 |
| 1,240.49 | 1,936 | 1,047 |
| 1,240.54 | 1,988 | 1,145 |
| 1,240.59 | 2,039 | 1,246 |
| 1,240.64 | 2,091 | 1,349 |
| 1,240.69 | 2,142 | 1,455 |
| 1,240.74 | 2,193 | 1,563 |
| 1,240.79 | 2,245 | 1,674 |
| 1,240.84 | 2,296 | 1,788 |
| 1,240.89 | 2,348 | 1,904 |
| 1,240.94 | 2,399 | 2,023 |
| 1,240.99 | 2,451 | 2,144 |
| 1,241.04 | 2,507 | 2,268 |
| 1,241.09 | 2,565 | 2,395 |
| 1,241.14 | 2,623 | 2,524 |
| 1,241.19 | 2,681 | 2,657 |
| 1,241.24 | 2,739 | 2,792 |
| 1,241.29 | 2,797 | 2,931 |
| 1,241.34 | 2,855 | 3,072 |
| 1,241.39 | 2,913 | 3,216 |
| 1,241.44 | 2,971 | 3,363 |
| 1,241.49 | 3,028 | 3,513 |
| 1,241.54 | 3,086 | 3,666 |
| 1,241.59 | 3,144 | 3,822 |
| 1,241.64 | 3,202 | 3,981 |
| 1,241.69 | 3,260 | 4,142 |
| 1,241.74 | 3,318 | 4,307 |
| 1,241.79 | 3,376 | 4,474 |
| 1,241.84 | 3,434 | 4,644 |
| 1,241.89 | 3,492 | 4,817 |
| 1,241.94 | 3,550 | 4,993 |
| 1,241.99 | 3,607 | 5,172 |
| 1,242.04 | 3,671 | 5,354 |
| 1,242.09 | 3,736 | 5,539 |
| 1,242.14 | 3,801 | 5,728 |
| 1,242.19 | 3,866 | 5,920 |
| 1,242.24 | 3,931 | 6,114 |
| 1,242.29 | 3,996 | 6,313 |
| 1,242.34 | 4,061 | 6,514 |
| 1,242.39 | 4,126 | 6,719 |
| 1,242.44 | 4,191 | 6,927 |
| 1,242.49 | 4,256 | 7,138 |
| 1,242.54 | 4,321 | 7,352 |
| 1,242.59 | 4,386 | 7,570 |
| 1,242.64 | 4,451 | 7,791 |
| 1,242.69 | 4,516 | 8,015 |
| 1,242.74 | 4,581 | 8,242 |
| 1,242.79 | 4,646 | 8,473 |
| 1,242.84 | 4,711 | 8,707 |
| 1,242.89 | 4,776 | 8,944 |
| 1,242.94 | 4,841 | 9,185 |
| 1,242.99 | 4,906 | 9,428 |
| 1,243.04 | 4,971 | 9,675 |
| 1,243.09 | 5,036 | 9,925 |
| 1,243.14 | 5,101 | 10,179 |
| 1,243.19 | 5,166 | 10,436 |
| 1,243.24 | **5,231** | **10,695** |

## Summary for Link 15L: (new Link)

Inflow Area = 1.254 ac, 68.26% Impervious, Inflow Depth > 2.32" for 2 year event
Inflow = 4.71 cfs @ 12.00 hrs, Volume= 0.243 af
Primary = 4.71 cfs @ 12.00 hrs, Volume= 0.243 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs

## Link 15L: (new Link)



## Hydrograph for Link 15L: (new Link)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|
| 5.00 | 0.00 | **0.00** | 0.00 |
| 5.20 | 0.00 | 0.00 | 0.00 |
| 5.40 | 0.00 | 0.00 | 0.00 |
| 5.60 | 0.00 | 0.00 | 0.00 |
| 5.80 | 0.00 | 0.00 | 0.00 |
| 6.00 | 0.00 | 0.00 | 0.00 |
| 6.20 | 0.00 | 0.00 | 0.00 |
| 6.40 | 0.00 | 0.00 | 0.00 |
| 6.60 | 0.00 | 0.00 | 0.00 |
| 6.80 | 0.00 | 0.00 | 0.00 |
| 7.00 | 0.01 | 0.00 | 0.01 |
| 7.20 | 0.01 | 0.00 | 0.01 |
| 7.40 | 0.01 | 0.00 | 0.01 |
| 7.60 | 0.01 | 0.00 | 0.01 |
| 7.80 | 0.01 | 0.00 | 0.01 |
| 8.00 | 0.01 | 0.00 | 0.01 |
| 8.20 | 0.01 | 0.00 | 0.01 |
| 8.40 | 0.01 | 0.00 | 0.01 |
| 8.60 | 0.01 | 0.00 | 0.01 |
| 8.80 | 0.01 | 0.00 | 0.01 |
| 9.00 | 0.01 | 0.00 | 0.01 |
| 9.20 | 0.01 | 0.00 | 0.01 |
| 9.40 | 0.01 | 0.00 | 0.01 |
| 9.60 | 0.01 | 0.00 | 0.01 |
| 9.80 | 0.01 | 0.00 | 0.01 |
| 10.00 | 0.01 | 0.00 | 0.01 |
| 10.20 | 0.01 | 0.00 | 0.01 |
| 10.40 | 0.08 | 0.00 | 0.08 |
| 10.60 | 0.15 | 0.00 | 0.15 |
| 10.80 | 0.17 | 0.00 | 0.17 |
| 11.00 | 0.20 | 0.00 | 0.20 |
| 11.20 | 0.25 | 0.00 | 0.25 |
| 11.40 | 0.32 | 0.00 | 0.32 |
| 11.60 | 0.52 | 0.00 | 0.52 |
| 11.80 | 1.78 | 0.00 | 1.78 |
| 12.00 | **4.71** | 0.00 | **4.71** |
| 12.20 | 1.31 | 0.00 | 1.31 |
| 12.40 | 0.60 | 0.00 | 0.60 |
| 12.60 | 0.37 | 0.00 | 0.37 |
| 12.80 | 0.32 | 0.00 | 0.32 |
| 13.00 | 0.27 | 0.00 | 0.27 |
| 13.20 | 0.24 | 0.00 | 0.24 |
| 13.40 | 0.22 | 0.00 | 0.22 |
| 13.60 | 0.20 | 0.00 | 0.20 |
| 13.80 | 0.18 | 0.00 | 0.18 |
| 14.00 | 0.16 | 0.00 | 0.16 |
| 14.20 | 0.15 | 0.00 | 0.15 |
| 14.40 | 0.15 | 0.00 | 0.15 |
| 14.60 | 0.14 | 0.00 | 0.14 |
| 14.80 | 0.13 | 0.00 | 0.13 |
| 15.00 | 0.13 | 0.00 | 0.13 |
| 15.20 | 0.12 | 0.00 | 0.12 |
| 15.40 | 0.12 | 0.00 | 0.12 |
| 15.60 | 0.11 | 0.00 | 0.11 |
| 15.80 | 0.10 | 0.00 | 0.10 |
| 16.00 | 0.10 | 0.00 | 0.10 |
| 16.20 | 0.10 | 0.00 | 0.10 |
| 16.40 | 0.09 | 0.00 | 0.09 |
| 16.60 | 0.09 | 0.00 | 0.09 |
| 16.80 | 0.09 | 0.00 | 0.09 |
| 17.00 | 0.09 | 0.00 | 0.09 |
| 17.20 | 0.08 | 0.00 | 0.08 |
| 17.40 | 0.08 | 0.00 | 0.08 |
| 17.60 | 0.08 | 0.00 | 0.08 |
| 17.80 | 0.08 | 0.00 | 0.08 |
| 18.00 | 0.08 | 0.00 | 0.08 |
| 18.20 | 0.07 | 0.00 | 0.07 |
| 18.40 | 0.07 | 0.00 | 0.07 |
| 18.60 | 0.07 | 0.00 | 0.07 |
| 18.80 | 0.07 | 0.00 | 0.07 |
| 19.00 | 0.07 | 0.00 | 0.07 |
| 19.20 | 0.06 | 0.00 | 0.06 |
| 19.40 | 0.06 | 0.00 | 0.06 |
| 19.60 | 0.06 | 0.00 | 0.06 |
| 19.80 | 0.06 | 0.00 | 0.06 |
| 20.00 | 0.06 | 0.00 | 0.06 |

## Summary for Subcatchment 12S: Historic

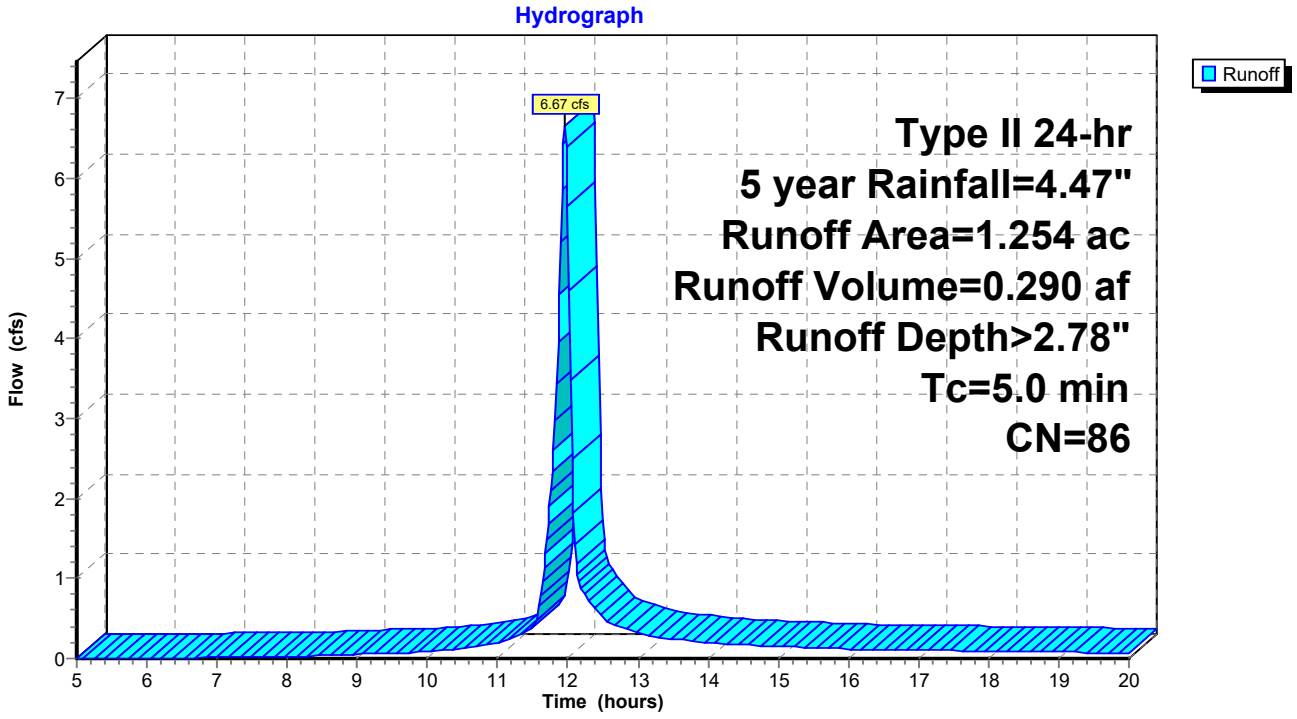
Runoff = 6.67 cfs @ 11.96 hrs, Volume= 0.290 af, Depth> 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 5 year Rainfall=4.47"

| Area (ac) | CN | Description |
|---|---|---|
| 0.384 | 98 | Paved parking, HSG D |
| 0.870 | 80 | >75% Grass cover, Good, HSG D |
| 1.254 | 86 | Weighted Average |
| 0.870 | | 69.38% Pervious Area |
| 0.384 | | 30.62% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 12S: Historic



## Hydrograph for Subcatchment 12S: Historic

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.28 | 0.00 | 0.00 |
| 5.20 | 0.30 | 0.00 | 0.00 |
| 5.40 | 0.31 | 0.00 | 0.00 |
| 5.60 | 0.33 | 0.00 | 0.00 |
| 5.80 | 0.34 | 0.00 | 0.00 |
| 6.00 | 0.36 | 0.00 | 0.00 |
| 6.20 | 0.37 | 0.00 | 0.01 |
| 6.40 | 0.39 | 0.00 | 0.01 |
| 6.60 | 0.41 | 0.00 | 0.01 |
| 6.80 | 0.42 | 0.01 | 0.01 |
| 7.00 | 0.44 | 0.01 | 0.01 |
| 7.20 | 0.46 | 0.01 | 0.02 |
| 7.40 | 0.48 | 0.01 | 0.02 |
| 7.60 | 0.50 | 0.02 | 0.02 |
| 7.80 | 0.52 | 0.02 | 0.02 |
| 8.00 | 0.54 | 0.02 | 0.03 |
| 8.20 | 0.56 | 0.03 | 0.03 |
| 8.40 | 0.58 | 0.03 | 0.03 |
| 8.60 | 0.60 | 0.04 | 0.04 |
| 8.80 | 0.63 | 0.05 | 0.05 |
| 9.00 | 0.66 | 0.06 | 0.05 |
| 9.20 | 0.69 | 0.07 | 0.06 |
| 9.40 | 0.71 | 0.07 | 0.06 |
| 9.60 | 0.74 | 0.09 | 0.07 |
| 9.80 | 0.77 | 0.10 | 0.08 |
| 10.00 | 0.81 | 0.11 | 0.09 |
| 10.20 | 0.85 | 0.13 | 0.10 |
| 10.40 | 0.89 | 0.14 | 0.12 |
| 10.60 | 0.94 | 0.17 | 0.14 |
| 10.80 | 0.99 | 0.19 | 0.17 |
| 11.00 | 1.05 | 0.22 | 0.20 |
| 11.20 | 1.12 | 0.26 | 0.26 |
| 11.40 | 1.21 | 0.31 | 0.33 |
| 11.60 | 1.37 | 0.41 | 0.65 |
| 11.80 | 1.93 | 0.79 | **2.61** |
| 12.00 | 2.96 | 1.63 | **5.64** |
| 12.20 | 3.12 | 1.77 | 0.86 |
| 12.40 | 3.24 | 1.87 | 0.63 |
| 12.60 | 3.32 | 1.94 | 0.43 |
| 12.80 | 3.39 | 2.00 | 0.37 |
| 13.00 | 3.45 | 2.05 | 0.32 |
| 13.20 | 3.50 | 2.10 | 0.29 |
| 13.40 | 3.55 | 2.14 | 0.26 |
| 13.60 | 3.59 | 2.18 | 0.23 |
| 13.80 | 3.63 | 2.21 | 0.21 |
| 14.00 | 3.67 | 2.25 | 0.19 |
| 14.20 | 3.70 | 2.27 | 0.18 |
| 14.40 | 3.73 | 2.30 | 0.18 |
| 14.60 | 3.76 | 2.33 | 0.17 |
| 14.80 | 3.79 | 2.35 | 0.16 |
| 15.00 | 3.82 | 2.38 | 0.16 |
| 15.20 | 3.84 | 2.40 | 0.15 |
| 15.40 | 3.87 | 2.43 | 0.14 |
| 15.60 | 3.89 | 2.45 | 0.13 |
| 15.80 | 3.91 | 2.47 | 0.13 |
| 16.00 | 3.93 | 2.49 | 0.12 |
| 16.20 | 3.95 | 2.50 | 0.12 |
| 16.40 | 3.97 | 2.52 | 0.11 |
| 16.60 | 3.99 | 2.54 | 0.11 |
| 16.80 | 4.01 | 2.56 | 0.11 |
| 17.00 | 4.03 | 2.57 | 0.11 |
| 17.20 | 4.05 | 2.59 | 0.10 |
| 17.40 | 4.07 | 2.61 | 0.10 |
| 17.60 | 4.08 | 2.62 | 0.10 |
| 17.80 | 4.10 | 2.64 | 0.10 |
| 18.00 | 4.12 | 2.65 | 0.09 |
| 18.20 | 4.13 | 2.67 | 0.09 |
| 18.40 | 4.15 | 2.68 | 0.09 |
| 18.60 | 4.16 | 2.69 | 0.09 |
| 18.80 | 4.18 | 2.71 | 0.08 |
| 19.00 | 4.19 | 2.72 | 0.08 |
| 19.20 | 4.21 | 2.73 | 0.08 |
| 19.40 | 4.22 | 2.75 | 0.08 |
| 19.60 | 4.23 | 2.76 | 0.07 |
| 19.80 | 4.24 | 2.77 | 0.07 |
| 20.00 | **4.26** | **2.78** | 0.07 |

## Summary for Subcatchment 13S: Developed

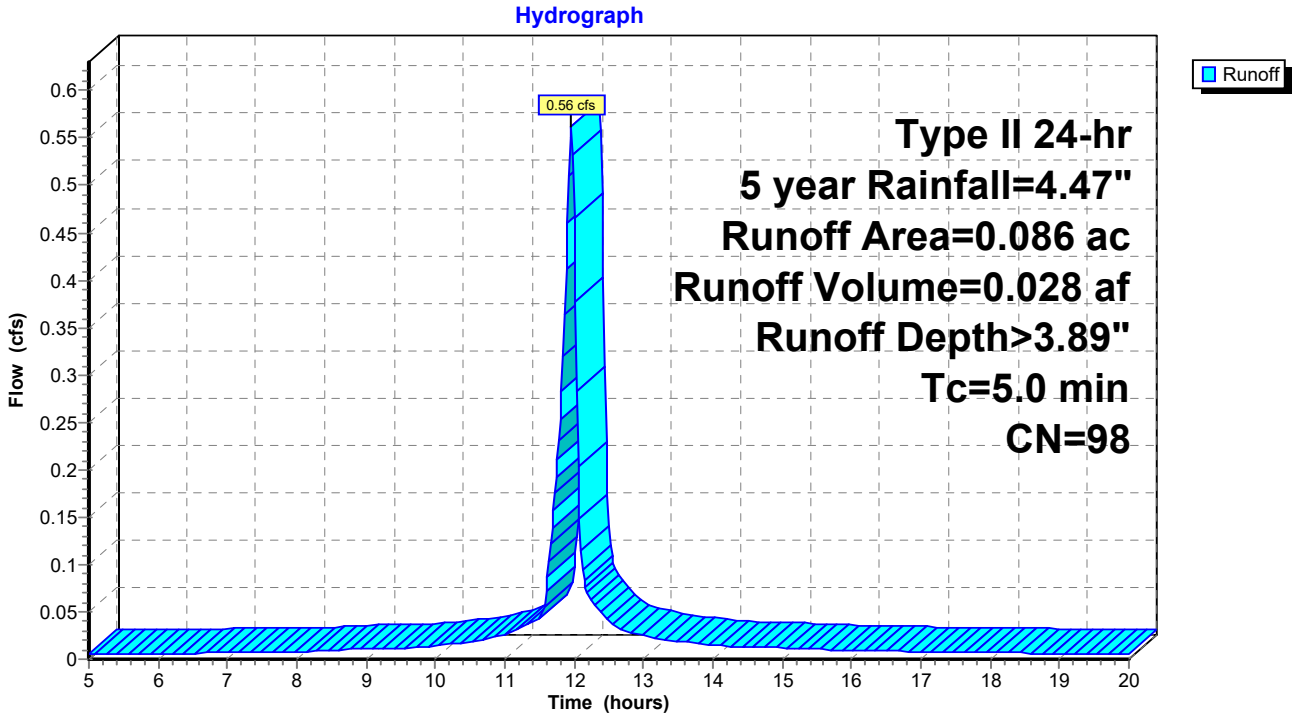
Runoff = 0.56 cfs @ 11.96 hrs, Volume= 0.028 af, Depth> 3.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 5 year Rainfall=4.47"

| Area (ac) | CN | Description |
|---|---|---|
| 0.086 | 98 | Paved parking, HSG D |
| 0.086 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 13S: Developed



## Hydrograph for Subcatchment 13S: Developed

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.28 | 0.13 | 0.00 |
| 5.20 | 0.30 | 0.14 | 0.01 |
| 5.40 | 0.31 | 0.15 | 0.01 |
| 5.60 | 0.33 | 0.17 | 0.01 |
| 5.80 | 0.34 | 0.18 | 0.01 |
| 6.00 | 0.36 | 0.19 | 0.01 |
| 6.20 | 0.37 | 0.21 | 0.01 |
| 6.40 | 0.39 | 0.22 | 0.01 |
| 6.60 | 0.41 | 0.24 | 0.01 |
| 6.80 | 0.42 | 0.25 | 0.01 |
| 7.00 | 0.44 | 0.27 | 0.01 |
| 7.20 | 0.46 | 0.28 | 0.01 |
| 7.40 | 0.48 | 0.30 | 0.01 |
| 7.60 | 0.50 | 0.32 | 0.01 |
| 7.80 | 0.52 | 0.33 | 0.01 |
| 8.00 | 0.54 | 0.35 | 0.01 |
| 8.20 | 0.56 | 0.37 | 0.01 |
| 8.40 | 0.58 | 0.39 | 0.01 |
| 8.60 | 0.60 | 0.41 | 0.01 |
| 8.80 | 0.63 | 0.44 | 0.01 |
| 9.00 | 0.66 | 0.46 | 0.01 |
| 9.20 | 0.69 | 0.49 | 0.01 |
| 9.40 | 0.71 | 0.52 | 0.01 |
| 9.60 | 0.74 | 0.54 | 0.01 |
| 9.80 | 0.77 | 0.57 | 0.01 |
| 10.00 | 0.81 | 0.61 | 0.01 |
| 10.20 | 0.85 | 0.64 | 0.02 |
| 10.40 | 0.89 | 0.68 | 0.02 |
| 10.60 | 0.94 | 0.73 | 0.02 |
| 10.80 | 0.99 | 0.78 | 0.02 |
| 11.00 | 1.05 | 0.84 | 0.03 |
| 11.20 | 1.12 | 0.91 | 0.03 |
| 11.40 | 1.21 | 1.00 | 0.04 |
| 11.60 | 1.37 | 1.15 | 0.07 |
| 11.80 | 1.93 | 1.70 | **0.25** |
| 12.00 | 2.96 | 2.73 | **0.46** |
| 12.20 | 3.12 | 2.89 | 0.07 |
| 12.40 | 3.24 | 3.01 | 0.05 |
| 12.60 | 3.32 | 3.09 | 0.03 |
| 12.80 | 3.39 | 3.16 | 0.03 |
| 13.00 | 3.45 | 3.22 | 0.03 |
| 13.20 | 3.50 | 3.27 | 0.02 |
| 13.40 | 3.55 | 3.32 | 0.02 |
| 13.60 | 3.59 | 3.36 | 0.02 |
| 13.80 | 3.63 | 3.40 | 0.02 |
| 14.00 | 3.67 | 3.43 | 0.01 |
| 14.20 | 3.70 | 3.46 | 0.01 |
| 14.40 | 3.73 | 3.49 | 0.01 |
| 14.60 | 3.76 | 3.52 | 0.01 |
| 14.80 | 3.79 | 3.55 | 0.01 |
| 15.00 | 3.82 | 3.58 | 0.01 |
| 15.20 | 3.84 | 3.61 | 0.01 |
| 15.40 | 3.87 | 3.63 | 0.01 |
| 15.60 | 3.89 | 3.66 | 0.01 |
| 15.80 | 3.91 | 3.68 | 0.01 |
| 16.00 | 3.93 | 3.70 | 0.01 |
| 16.20 | 3.95 | 3.72 | 0.01 |
| 16.40 | 3.97 | 3.74 | 0.01 |
| 16.60 | 3.99 | 3.76 | 0.01 |
| 16.80 | 4.01 | 3.78 | 0.01 |
| 17.00 | 4.03 | 3.80 | 0.01 |
| 17.20 | 4.05 | 3.81 | 0.01 |
| 17.40 | 4.07 | 3.83 | 0.01 |
| 17.60 | 4.08 | 3.85 | 0.01 |
| 17.80 | 4.10 | 3.87 | 0.01 |
| 18.00 | 4.12 | 3.88 | 0.01 |
| 18.20 | 4.13 | 3.90 | 0.01 |
| 18.40 | 4.15 | 3.91 | 0.01 |
| 18.60 | 4.16 | 3.93 | 0.01 |
| 18.80 | 4.18 | 3.94 | 0.01 |
| 19.00 | 4.19 | 3.96 | 0.01 |
| 19.20 | 4.21 | 3.97 | 0.01 |
| 19.40 | 4.22 | 3.98 | 0.01 |
| 19.60 | 4.23 | 4.00 | 0.01 |
| 19.80 | 4.24 | 4.01 | 0.01 |
| 20.00 | **4.26** | **4.02** | 0.01 |

## Summary for Subcatchment 16S: Developed

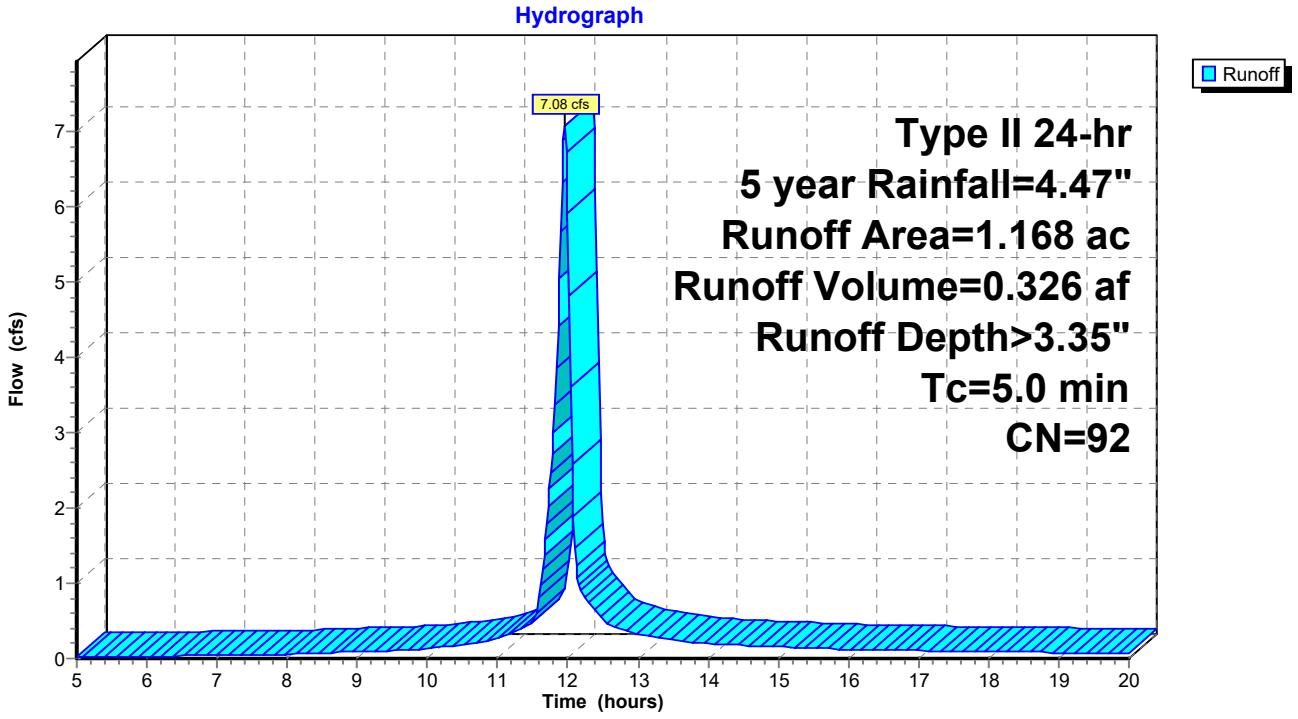
Runoff = 7.08 cfs @ 11.96 hrs, Volume= 0.326 af, Depth> 3.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 5 year Rainfall=4.47"

| Area (ac) | CN | Description |
|---|---|---|
| 0.770 | 98 | Paved parking, HSG D |
| 0.398 | 80 | >75% Grass cover, Good, HSG D |
| 1.168 | 92 | Weighted Average |
| 0.398 | | 34.08% Pervious Area |
| 0.770 | | 65.92% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 16S: Developed



## Hydrograph for Subcatchment 16S: Developed

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.28 | 0.01 | 0.02 |
| 5.20 | 0.30 | 0.02 | 0.02 |
| 5.40 | 0.31 | 0.02 | 0.02 |
| 5.60 | 0.33 | 0.02 | 0.02 |
| 5.80 | 0.34 | 0.03 | 0.03 |
| 6.00 | 0.36 | 0.03 | 0.03 |
| 6.20 | 0.37 | 0.04 | 0.03 |
| 6.40 | 0.39 | 0.04 | 0.03 |
| 6.60 | 0.41 | 0.05 | 0.04 |
| 6.80 | 0.42 | 0.06 | 0.04 |
| 7.00 | 0.44 | 0.06 | 0.04 |
| 7.20 | 0.46 | 0.07 | 0.05 |
| 7.40 | 0.48 | 0.08 | 0.05 |
| 7.60 | 0.50 | 0.09 | 0.05 |
| 7.80 | 0.52 | 0.10 | 0.05 |
| 8.00 | 0.54 | 0.11 | 0.06 |
| 8.20 | 0.56 | 0.12 | 0.06 |
| 8.40 | 0.58 | 0.13 | 0.07 |
| 8.60 | 0.60 | 0.14 | 0.08 |
| 8.80 | 0.63 | 0.16 | 0.09 |
| 9.00 | 0.66 | 0.17 | 0.10 |
| 9.20 | 0.69 | 0.19 | 0.10 |
| 9.40 | 0.71 | 0.21 | 0.10 |
| 9.60 | 0.74 | 0.23 | 0.11 |
| 9.80 | 0.77 | 0.25 | 0.12 |
| 10.00 | 0.81 | 0.27 | 0.13 |
| 10.20 | 0.85 | 0.29 | 0.15 |
| 10.40 | 0.89 | 0.32 | 0.17 |
| 10.60 | 0.94 | 0.36 | 0.20 |
| 10.80 | 0.99 | 0.39 | 0.23 |
| 11.00 | 1.05 | 0.44 | 0.27 |
| 11.20 | 1.12 | 0.50 | 0.34 |
| 11.40 | 1.21 | 0.57 | 0.43 |
| 11.60 | 1.37 | 0.69 | 0.81 |
| 11.80 | 1.93 | 1.17 | **3.00** |
| 12.00 | 2.96 | 2.13 | **5.91** |
| 12.20 | 3.12 | 2.28 | 0.88 |
| 12.40 | 3.24 | 2.39 | 0.64 |
| 12.60 | 3.32 | 2.47 | 0.44 |
| 12.80 | 3.39 | 2.53 | 0.38 |
| 13.00 | 3.45 | 2.59 | 0.33 |
| 13.20 | 3.50 | 2.64 | 0.29 |
| 13.40 | 3.55 | 2.68 | 0.26 |
| 13.60 | 3.59 | 2.72 | 0.24 |
| 13.80 | 3.63 | 2.76 | 0.21 |
| 14.00 | 3.67 | 2.80 | 0.19 |
| 14.20 | 3.70 | 2.83 | 0.18 |
| 14.40 | 3.73 | 2.86 | 0.18 |
| 14.60 | 3.76 | 2.89 | 0.17 |
| 14.80 | 3.79 | 2.91 | 0.16 |
| 15.00 | 3.82 | 2.94 | 0.15 |
| 15.20 | 3.84 | 2.96 | 0.15 |
| 15.40 | 3.87 | 2.99 | 0.14 |
| 15.60 | 3.89 | 3.01 | 0.13 |
| 15.80 | 3.91 | 3.03 | 0.13 |
| 16.00 | 3.93 | 3.05 | 0.12 |
| 16.20 | 3.95 | 3.07 | 0.12 |
| 16.40 | 3.97 | 3.09 | 0.11 |
| 16.60 | 3.99 | 3.11 | 0.11 |
| 16.80 | 4.01 | 3.13 | 0.11 |
| 17.00 | 4.03 | 3.15 | 0.11 |
| 17.20 | 4.05 | 3.16 | 0.10 |
| 17.40 | 4.07 | 3.18 | 0.10 |
| 17.60 | 4.08 | 3.20 | 0.10 |
| 17.80 | 4.10 | 3.21 | 0.10 |
| 18.00 | 4.12 | 3.23 | 0.09 |
| 18.20 | 4.13 | 3.25 | 0.09 |
| 18.40 | 4.15 | 3.26 | 0.09 |
| 18.60 | 4.16 | 3.28 | 0.09 |
| 18.80 | 4.18 | 3.29 | 0.08 |
| 19.00 | 4.19 | 3.30 | 0.08 |
| 19.20 | 4.21 | 3.32 | 0.08 |
| 19.40 | 4.22 | 3.33 | 0.07 |
| 19.60 | 4.23 | 3.34 | 0.07 |
| 19.80 | 4.24 | 3.35 | 0.07 |
| 20.00 | **4.26** | **3.36** | 0.07 |

## Summary for Pond 14P: (new Pond)

Inflow Area = 1.168 ac, 65.92% Impervious, Inflow Depth > 3.35" for 5 year event
Inflow = 7.08 cfs @ 11.96 hrs, Volume= 0.326 af
Outflow = 5.39 cfs @ 12.01 hrs, Volume= 0.308 af, Atten= 24%, Lag= 3.2 min
Primary = 5.39 cfs @ 12.01 hrs, Volume= 0.308 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Peak Elev= 1,241.07' @ 12.01 hrs Surf.Area= 2,541 sf Storage= 2,340 cf

Plug-Flow detention time= 40.4 min calculated for 0.308 af (95% of inflow)
Center-of-Mass det. time= 19.1 min ( 768.8 - 749.7 )

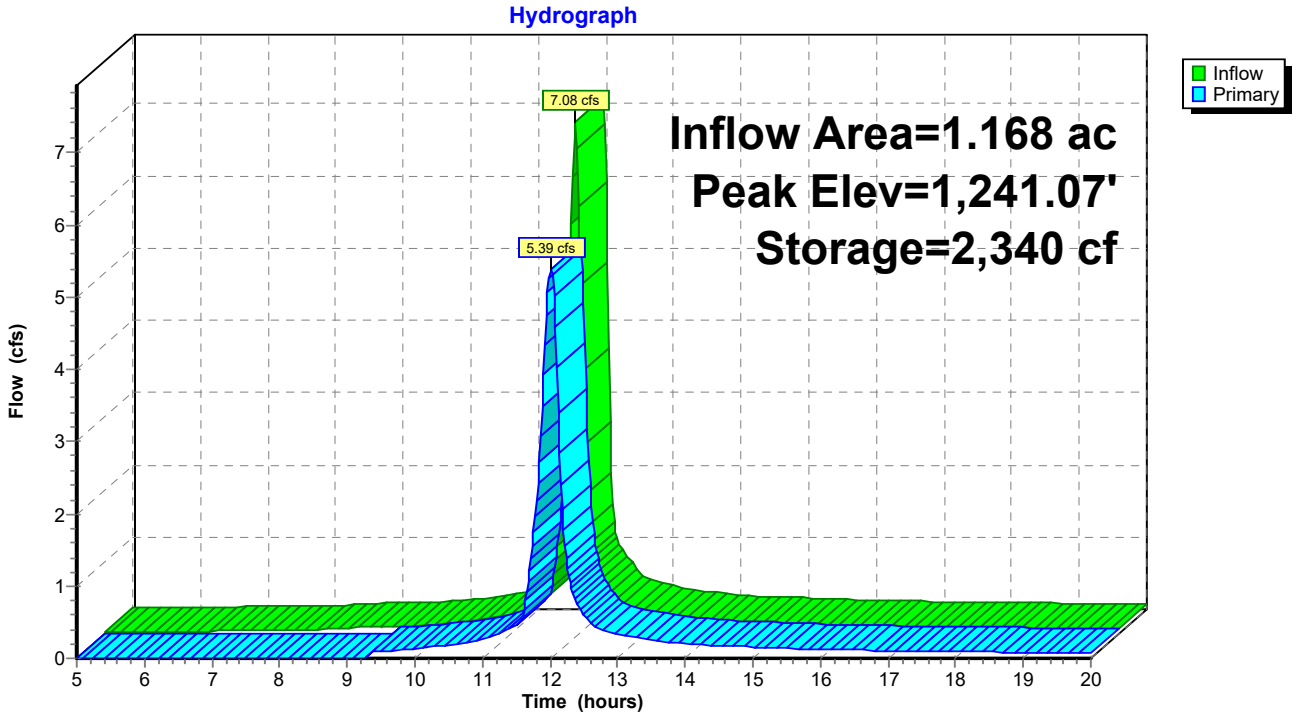
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 1,239.69' | 10,748 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 1,239.69 | 0 | 0 | 0 |
| 1,240.00 | 1,432 | 222 | 222 |
| 1,241.00 | 2,461 | 1,947 | 2,168 |
| 1,242.00 | 3,619 | 3,040 | 5,208 |
| 1,243.25 | 5,244 | 5,539 | 10,748 |

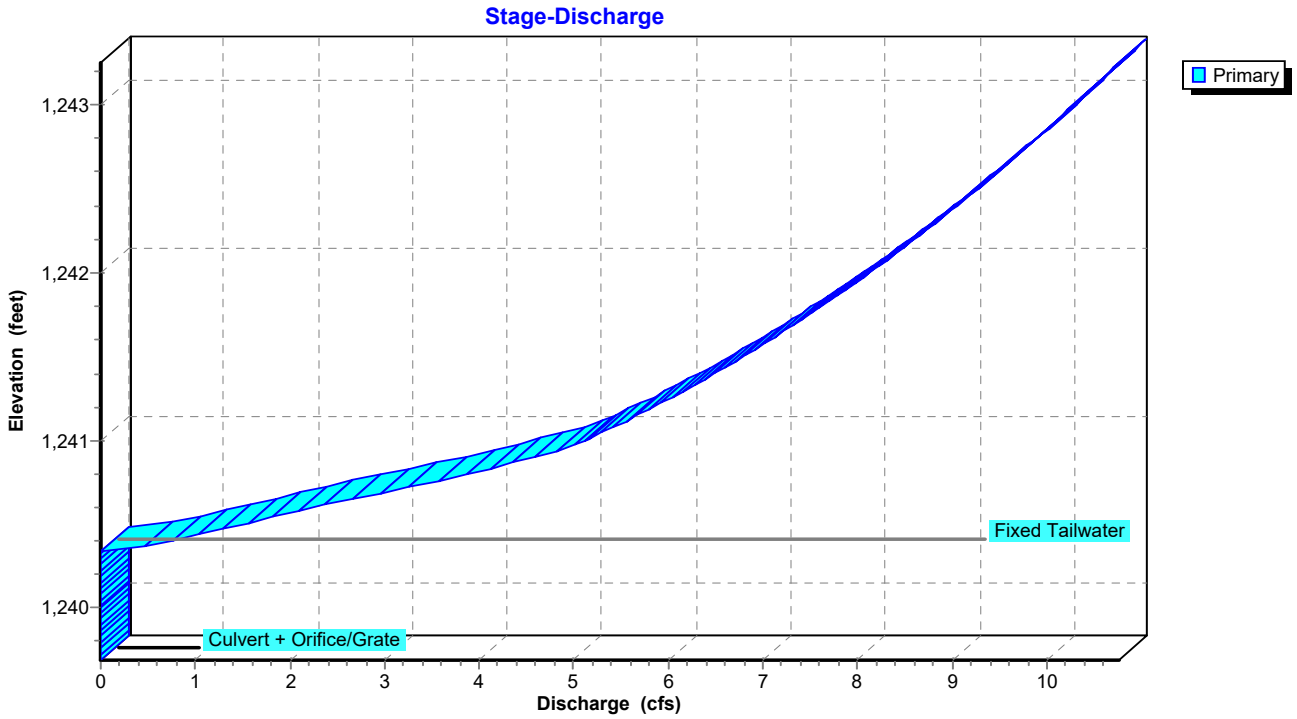
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 1,239.69' | **18.0" Round Culvert**<br>L= 26.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 1,239.69' / 1,239.47' S= 0.0085 '/' Cc= 0.900<br>n= 0.013, Flow Area= 1.77 sf |
| #2 | Device 1 | 1,239.69' | **15.5" Vert. Orifice/Grate** C= 0.600 |

**Primary OutFlow** Max=5.37 cfs @ 12.01 hrs HW=1,241.07' TW=1,240.34' (Fixed TW Elev= 1,240.34')
↑**1=Culvert** (Passes 5.37 cfs of 5.69 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 5.37 cfs @ 4.10 fps)

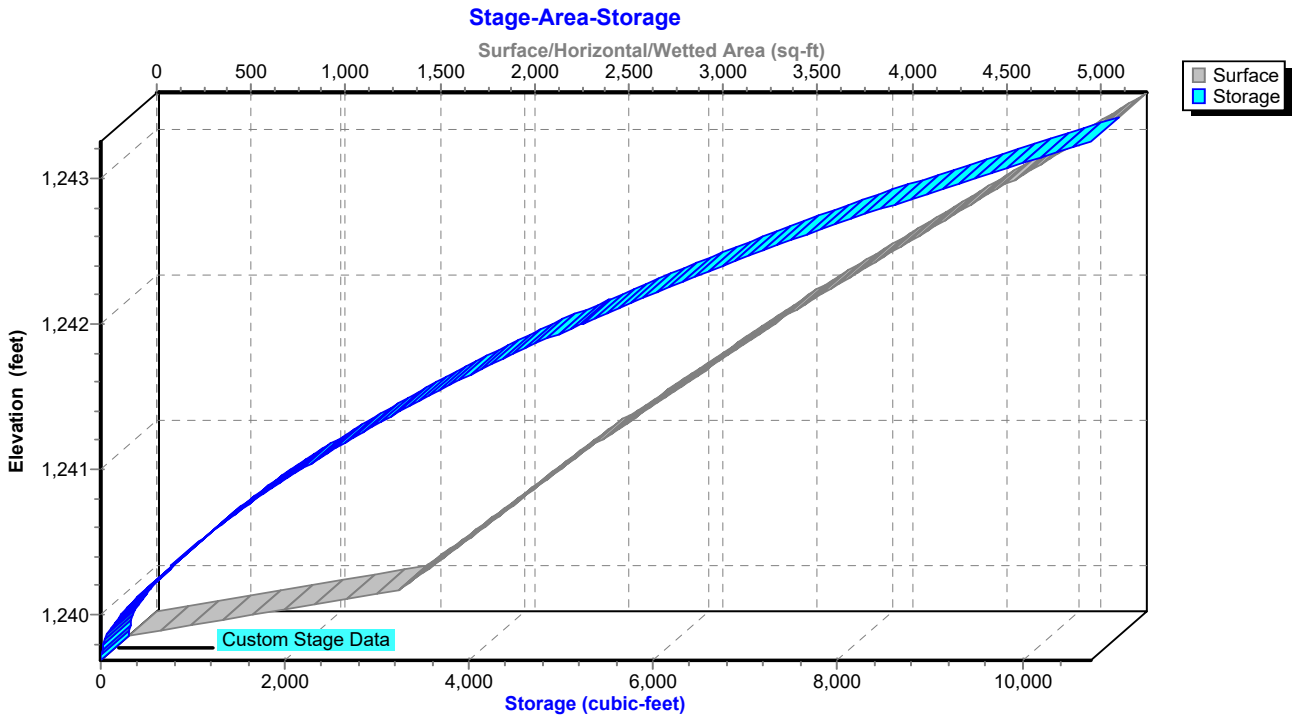
## Pond 14P: (new Pond)




## Pond 14P: (new Pond)



## Pond 14P: (new Pond)



## Hydrograph for Pond 14P: (new Pond)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|
| 5.00 | 0.02 | 1 | 1,239.70 | 0.00 |
| 5.40 | 0.02 | 28 | 1,239.80 | 0.00 |
| 5.80 | 0.03 | 63 | 1,239.85 | 0.00 |
| 6.20 | 0.03 | 105 | 1,239.90 | 0.00 |
| 6.60 | 0.04 | 154 | 1,239.95 | 0.00 |
| 7.00 | 0.04 | 212 | 1,239.99 | 0.00 |
| 7.40 | 0.05 | 277 | 1,240.04 | 0.00 |
| 7.80 | 0.05 | 351 | 1,240.09 | 0.00 |
| 8.20 | 0.06 | 434 | 1,240.14 | 0.00 |
| 8.60 | 0.08 | 535 | 1,240.20 | 0.00 |
| 9.00 | 0.10 | 660 | 1,240.28 | 0.00 |
| 9.40 | 0.10 | 779 | 1,240.35 | 0.10 |
| 9.80 | 0.12 | 780 | 1,240.35 | 0.12 |
| 10.20 | 0.15 | 784 | 1,240.35 | 0.15 |
| 10.60 | 0.20 | 788 | 1,240.35 | 0.19 |
| 11.00 | 0.27 | 795 | 1,240.36 | 0.26 |
| 11.40 | 0.43 | 811 | 1,240.36 | 0.41 |
| 11.80 | **3.00** | **1,246** | **1,240.59** | **2.18** |
| 12.20 | **0.88** | **1,140** | **1,240.54** | **1.77** |
| 12.60 | 0.44 | 821 | 1,240.37 | 0.49 |
| 13.00 | 0.33 | 803 | 1,240.36 | 0.33 |
| 13.40 | 0.26 | 796 | 1,240.36 | 0.27 |
| 13.80 | 0.21 | 791 | 1,240.35 | 0.22 |
| 14.20 | 0.18 | 787 | 1,240.35 | 0.18 |
| 14.60 | 0.17 | 786 | 1,240.35 | 0.17 |
| 15.00 | 0.15 | 784 | 1,240.35 | 0.16 |
| 15.40 | 0.14 | 783 | 1,240.35 | 0.14 |
| 15.80 | 0.13 | 781 | 1,240.35 | 0.13 |
| 16.20 | 0.12 | 780 | 1,240.35 | 0.12 |
| 16.60 | 0.11 | 780 | 1,240.35 | 0.11 |
| 17.00 | 0.11 | 779 | 1,240.35 | 0.11 |
| 17.40 | 0.10 | 779 | 1,240.35 | 0.10 |
| 17.80 | 0.10 | 778 | 1,240.35 | 0.10 |
| 18.20 | 0.09 | 778 | 1,240.35 | 0.09 |
| 18.60 | 0.09 | 777 | 1,240.34 | 0.09 |
| 19.00 | 0.08 | 777 | 1,240.34 | 0.08 |
| 19.40 | 0.07 | 776 | 1,240.34 | 0.08 |
| 19.80 | 0.07 | 776 | 1,240.34 | 0.07 |

## Stage-Discharge for Pond 14P: (new Pond)

| Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|---|---|---|
| 1,239.69 | 0.00 | 1,240.73 | 3.32 | 1,241.77 | 7.54 | 1,242.81 | 9.92 |
| 1,239.71 | 0.00 | 1,240.75 | 3.50 | 1,241.79 | 7.60 | 1,242.83 | 9.96 |
| 1,239.73 | 0.00 | 1,240.77 | 3.67 | 1,241.81 | 7.65 | 1,242.85 | 10.00 |
| 1,239.75 | 0.00 | 1,240.79 | 3.84 | 1,241.83 | 7.70 | 1,242.87 | 10.04 |
| 1,239.77 | 0.00 | 1,240.81 | 3.98 | 1,241.85 | 7.75 | 1,242.89 | 10.08 |
| 1,239.79 | 0.00 | 1,240.83 | 4.13 | 1,241.87 | 7.80 | 1,242.91 | 10.11 |
| 1,239.81 | 0.00 | 1,240.85 | 4.26 | 1,241.89 | 7.86 | 1,242.93 | 10.15 |
| 1,239.83 | 0.00 | 1,240.87 | 4.40 | 1,241.91 | 7.91 | 1,242.95 | 10.19 |
| 1,239.85 | 0.00 | 1,240.89 | 4.53 | 1,241.93 | 7.96 | 1,242.97 | 10.23 |
| 1,239.87 | 0.00 | 1,240.91 | 4.66 | 1,241.95 | 8.01 | 1,242.99 | 10.27 |
| 1,239.89 | 0.00 | 1,240.93 | 4.78 | 1,241.97 | 8.06 | 1,243.01 | 10.31 |
| 1,239.91 | 0.00 | 1,240.95 | 4.90 | 1,241.99 | 8.10 | 1,243.03 | 10.35 |
| 1,239.93 | 0.00 | 1,240.97 | 5.00 | 1,242.01 | 8.15 | 1,243.05 | 10.39 |
| 1,239.95 | 0.00 | 1,240.99 | 5.09 | 1,242.03 | 8.20 | 1,243.07 | 10.42 |
| 1,239.97 | 0.00 | 1,241.01 | 5.16 | 1,242.05 | 8.25 | 1,243.09 | 10.46 |
| 1,239.99 | 0.00 | 1,241.03 | 5.24 | 1,242.07 | 8.30 | 1,243.11 | 10.50 |
| 1,240.01 | 0.00 | 1,241.05 | 5.32 | 1,242.09 | 8.35 | 1,243.13 | 10.54 |
| 1,240.03 | 0.00 | 1,241.07 | 5.39 | 1,242.11 | 8.39 | 1,243.15 | 10.58 |
| 1,240.05 | 0.00 | 1,241.09 | 5.46 | 1,242.13 | 8.44 | 1,243.17 | 10.61 |
| 1,240.07 | 0.00 | 1,241.11 | 5.54 | 1,242.15 | 8.49 | 1,243.19 | 10.65 |
| 1,240.09 | 0.00 | 1,241.13 | 5.61 | 1,242.17 | 8.54 | 1,243.21 | 10.69 |
| 1,240.11 | 0.00 | 1,241.15 | 5.68 | 1,242.19 | 8.58 | 1,243.23 | 10.73 |
| 1,240.13 | 0.00 | 1,241.17 | 5.75 | 1,242.21 | 8.63 | 1,243.25 | **10.76** |
| 1,240.15 | 0.00 | 1,241.19 | 5.82 | 1,242.23 | 8.67 | | |
| 1,240.17 | 0.00 | 1,241.21 | 5.88 | 1,242.25 | 8.72 | | |
| 1,240.19 | 0.00 | 1,241.23 | 5.95 | 1,242.27 | 8.77 | | |
| 1,240.21 | 0.00 | 1,241.25 | 6.02 | 1,242.29 | 8.81 | | |
| 1,240.23 | 0.00 | 1,241.27 | 6.08 | 1,242.31 | 8.86 | | |
| 1,240.25 | 0.00 | 1,241.29 | 6.15 | 1,242.33 | 8.90 | | |
| 1,240.27 | 0.00 | 1,241.31 | 6.21 | 1,242.35 | 8.95 | | |
| 1,240.29 | 0.00 | 1,241.33 | 6.28 | 1,242.37 | 8.99 | | |
| 1,240.31 | 0.00 | 1,241.35 | 6.34 | 1,242.39 | 9.03 | | |
| 1,240.33 | 0.00 | 1,241.37 | 6.40 | 1,242.41 | 9.08 | | |
| 1,240.35 | 0.27 | 1,241.39 | 6.47 | 1,242.43 | 9.12 | | |
| 1,240.37 | 0.50 | 1,241.41 | 6.53 | 1,242.45 | 9.16 | | |
| 1,240.39 | 0.67 | 1,241.43 | 6.59 | 1,242.47 | 9.21 | | |
| 1,240.41 | 0.83 | 1,241.45 | 6.65 | 1,242.49 | 9.25 | | |
| 1,240.43 | 0.98 | 1,241.47 | 6.71 | 1,242.51 | 9.29 | | |
| 1,240.45 | 1.13 | 1,241.49 | 6.77 | 1,242.53 | 9.34 | | |
| 1,240.47 | 1.27 | 1,241.51 | 6.82 | 1,242.55 | 9.38 | | |
| 1,240.49 | 1.42 | 1,241.53 | 6.88 | 1,242.57 | 9.42 | | |
| 1,240.51 | 1.57 | 1,241.55 | 6.94 | 1,242.59 | 9.46 | | |
| 1,240.53 | 1.72 | 1,241.57 | 7.00 | 1,242.61 | 9.51 | | |
| 1,240.55 | 1.87 | 1,241.59 | 7.05 | 1,242.63 | 9.55 | | |
| 1,240.57 | 2.02 | 1,241.61 | 7.11 | 1,242.65 | 9.59 | | |
| 1,240.59 | 2.18 | 1,241.63 | 7.17 | 1,242.67 | 9.63 | | |
| 1,240.61 | 2.33 | 1,241.65 | 7.22 | 1,242.69 | 9.67 | | |
| 1,240.63 | 2.49 | 1,241.67 | 7.28 | 1,242.71 | 9.71 | | |
| 1,240.65 | 2.65 | 1,241.69 | 7.33 | 1,242.73 | 9.75 | | |
| 1,240.67 | 2.82 | 1,241.71 | 7.38 | 1,242.75 | 9.79 | | |
| 1,240.69 | 2.98 | 1,241.73 | 7.44 | 1,242.77 | 9.84 | | |
| 1,240.71 | 3.15 | 1,241.75 | 7.49 | 1,242.79 | 9.88 | | |

## Stage-Area-Storage for Pond 14P: (new Pond)

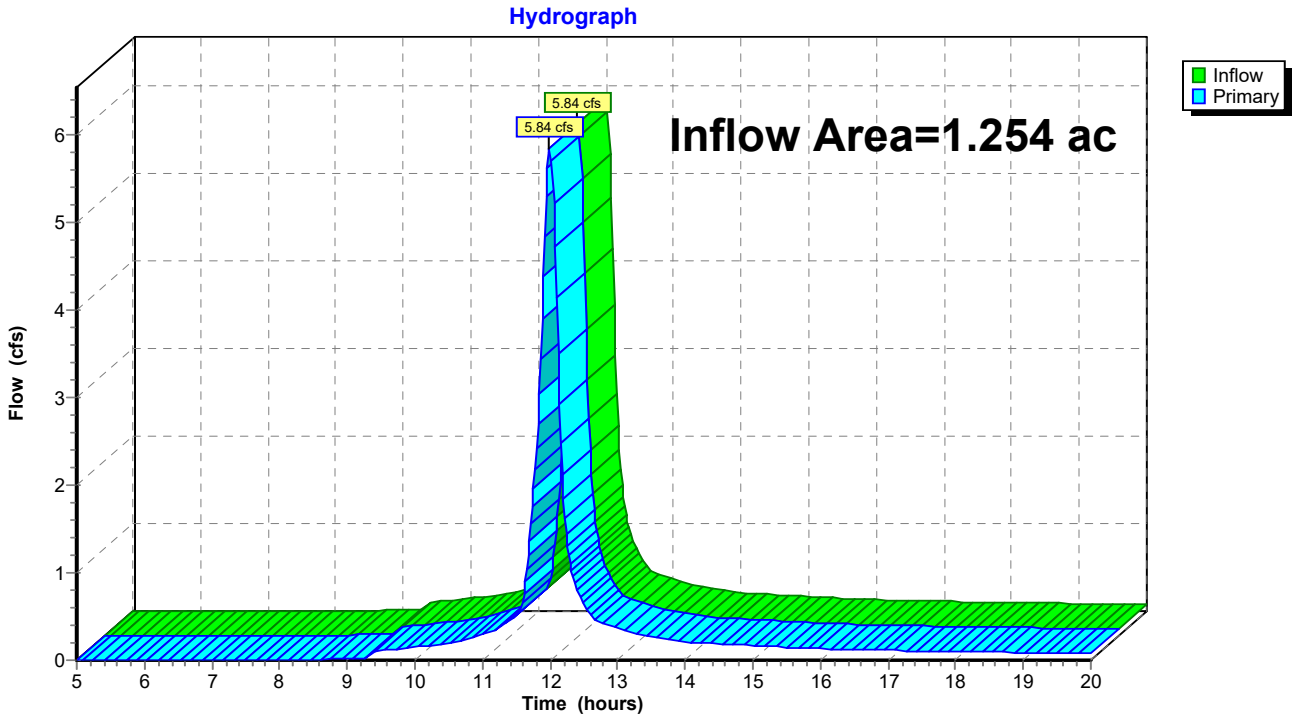
| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 1,239.69 | 0 | 0 |
| 1,239.74 | 231 | 6 |
| 1,239.79 | 462 | 23 |
| 1,239.84 | 693 | 52 |
| 1,239.89 | 924 | 92 |
| 1,239.94 | 1,155 | 144 |
| 1,239.99 | 1,386 | 208 |
| 1,240.04 | 1,473 | 280 |
| 1,240.09 | 1,525 | 355 |
| 1,240.14 | 1,576 | 433 |
| 1,240.19 | 1,628 | 513 |
| 1,240.24 | 1,679 | 595 |
| 1,240.29 | 1,730 | 681 |
| 1,240.34 | 1,782 | 768 |
| 1,240.39 | 1,833 | 859 |
| 1,240.44 | 1,885 | 952 |
| 1,240.49 | 1,936 | 1,047 |
| 1,240.54 | 1,988 | 1,145 |
| 1,240.59 | 2,039 | 1,246 |
| 1,240.64 | 2,091 | 1,349 |
| 1,240.69 | 2,142 | 1,455 |
| 1,240.74 | 2,193 | 1,563 |
| 1,240.79 | 2,245 | 1,674 |
| 1,240.84 | 2,296 | 1,788 |
| 1,240.89 | 2,348 | 1,904 |
| 1,240.94 | 2,399 | 2,023 |
| 1,240.99 | 2,451 | 2,144 |
| 1,241.04 | 2,507 | 2,268 |
| 1,241.09 | 2,565 | 2,395 |
| 1,241.14 | 2,623 | 2,524 |
| 1,241.19 | 2,681 | 2,657 |
| 1,241.24 | 2,739 | 2,792 |
| 1,241.29 | 2,797 | 2,931 |
| 1,241.34 | 2,855 | 3,072 |
| 1,241.39 | 2,913 | 3,216 |
| 1,241.44 | 2,971 | 3,363 |
| 1,241.49 | 3,028 | 3,513 |
| 1,241.54 | 3,086 | 3,666 |
| 1,241.59 | 3,144 | 3,822 |
| 1,241.64 | 3,202 | 3,981 |
| 1,241.69 | 3,260 | 4,142 |
| 1,241.74 | 3,318 | 4,307 |
| 1,241.79 | 3,376 | 4,474 |
| 1,241.84 | 3,434 | 4,644 |
| 1,241.89 | 3,492 | 4,817 |
| 1,241.94 | 3,550 | 4,993 |
| 1,241.99 | 3,607 | 5,172 |
| 1,242.04 | 3,671 | 5,354 |
| 1,242.09 | 3,736 | 5,539 |
| 1,242.14 | 3,801 | 5,728 |
| 1,242.19 | 3,866 | 5,920 |
| 1,242.24 | 3,931 | 6,114 |
| 1,242.29 | 3,996 | 6,313 |
| 1,242.34 | 4,061 | 6,514 |
| 1,242.39 | 4,126 | 6,719 |
| 1,242.44 | 4,191 | 6,927 |
| 1,242.49 | 4,256 | 7,138 |
| 1,242.54 | 4,321 | 7,352 |
| 1,242.59 | 4,386 | 7,570 |
| 1,242.64 | 4,451 | 7,791 |
| 1,242.69 | 4,516 | 8,015 |
| 1,242.74 | 4,581 | 8,242 |
| 1,242.79 | 4,646 | 8,473 |
| 1,242.84 | 4,711 | 8,707 |
| 1,242.89 | 4,776 | 8,944 |
| 1,242.94 | 4,841 | 9,185 |
| 1,242.99 | 4,906 | 9,428 |
| 1,243.04 | 4,971 | 9,675 |
| 1,243.09 | 5,036 | 9,925 |
| 1,243.14 | 5,101 | 10,179 |
| 1,243.19 | 5,166 | 10,436 |
| 1,243.24 | **5,231** | **10,695** |

## Summary for Link 15L: (new Link)

Inflow Area = 1.254 ac, 68.26% Impervious, Inflow Depth > 3.22" for 5 year event
Inflow = 5.84 cfs @ 12.00 hrs, Volume= 0.336 af
Primary = 5.84 cfs @ 12.00 hrs, Volume= 0.336 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs

## Link 15L: (new Link)



## Hydrograph for Link 15L: (new Link)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|
| 5.00 | 0.00 | **0.00** | 0.00 |
| 5.20 | 0.01 | 0.00 | 0.01 |
| 5.40 | 0.01 | 0.00 | 0.01 |
| 5.60 | 0.01 | 0.00 | 0.01 |
| 5.80 | 0.01 | 0.00 | 0.01 |
| 6.00 | 0.01 | 0.00 | 0.01 |
| 6.20 | 0.01 | 0.00 | 0.01 |
| 6.40 | 0.01 | 0.00 | 0.01 |
| 6.60 | 0.01 | 0.00 | 0.01 |
| 6.80 | 0.01 | 0.00 | 0.01 |
| 7.00 | 0.01 | 0.00 | 0.01 |
| 7.20 | 0.01 | 0.00 | 0.01 |
| 7.40 | 0.01 | 0.00 | 0.01 |
| 7.60 | 0.01 | 0.00 | 0.01 |
| 7.80 | 0.01 | 0.00 | 0.01 |
| 8.00 | 0.01 | 0.00 | 0.01 |
| 8.20 | 0.01 | 0.00 | 0.01 |
| 8.40 | 0.01 | 0.00 | 0.01 |
| 8.60 | 0.01 | 0.00 | 0.01 |
| 8.80 | 0.01 | 0.00 | 0.01 |
| 9.00 | 0.01 | 0.00 | 0.01 |
| 9.20 | 0.01 | 0.00 | 0.01 |
| 9.40 | 0.11 | 0.00 | 0.11 |
| 9.60 | 0.12 | 0.00 | 0.12 |
| 9.80 | 0.13 | 0.00 | 0.13 |
| 10.00 | 0.15 | 0.00 | 0.15 |
| 10.20 | 0.17 | 0.00 | 0.17 |
| 10.40 | 0.19 | 0.00 | 0.19 |
| 10.60 | 0.21 | 0.00 | 0.21 |
| 10.80 | 0.25 | 0.00 | 0.25 |
| 11.00 | 0.29 | 0.00 | 0.29 |
| 11.20 | 0.36 | 0.00 | 0.36 |
| 11.40 | 0.45 | 0.00 | 0.45 |
| 11.60 | 0.66 | 0.00 | 0.66 |
| 11.80 | 2.43 | 0.00 | 2.43 |
| 12.00 | **5.84** | 0.00 | **5.84** |
| 12.20 | 1.84 | 0.00 | 1.84 |
| 12.40 | 0.81 | 0.00 | 0.81 |
| 12.60 | 0.52 | 0.00 | 0.52 |
| 12.80 | 0.42 | 0.00 | 0.42 |
| 13.00 | 0.36 | 0.00 | 0.36 |
| 13.20 | 0.32 | 0.00 | 0.32 |
| 13.40 | 0.29 | 0.00 | 0.29 |
| 13.60 | 0.26 | 0.00 | 0.26 |
| 13.80 | 0.23 | 0.00 | 0.23 |
| 14.00 | 0.21 | 0.00 | 0.21 |
| 14.20 | 0.20 | 0.00 | 0.20 |
| 14.40 | 0.19 | 0.00 | 0.19 |
| 14.60 | 0.18 | 0.00 | 0.18 |
| 14.80 | 0.18 | 0.00 | 0.18 |
| 15.00 | 0.17 | 0.00 | 0.17 |
| 15.20 | 0.16 | 0.00 | 0.16 |
| 15.40 | 0.15 | 0.00 | 0.15 |
| 15.60 | 0.14 | 0.00 | 0.14 |
| 15.80 | 0.14 | 0.00 | 0.14 |
| 16.00 | 0.13 | 0.00 | 0.13 |
| 16.20 | 0.12 | 0.00 | 0.12 |
| 16.40 | 0.12 | 0.00 | 0.12 |
| 16.60 | 0.12 | 0.00 | 0.12 |
| 16.80 | 0.12 | 0.00 | 0.12 |
| 17.00 | 0.11 | 0.00 | 0.11 |
| 17.20 | 0.11 | 0.00 | 0.11 |
| 17.40 | 0.11 | 0.00 | 0.11 |
| 17.60 | 0.11 | 0.00 | 0.11 |
| 17.80 | 0.10 | 0.00 | 0.10 |
| 18.00 | 0.10 | 0.00 | 0.10 |
| 18.20 | 0.10 | 0.00 | 0.10 |
| 18.40 | 0.09 | 0.00 | 0.09 |
| 18.60 | 0.09 | 0.00 | 0.09 |
| 18.80 | 0.09 | 0.00 | 0.09 |
| 19.00 | 0.09 | 0.00 | 0.09 |
| 19.20 | 0.08 | 0.00 | 0.08 |
| 19.40 | 0.08 | 0.00 | 0.08 |
| 19.60 | 0.08 | 0.00 | 0.08 |
| 19.80 | 0.08 | 0.00 | 0.08 |
| 20.00 | 0.07 | 0.00 | 0.07 |

## Summary for Subcatchment 12S: Historic

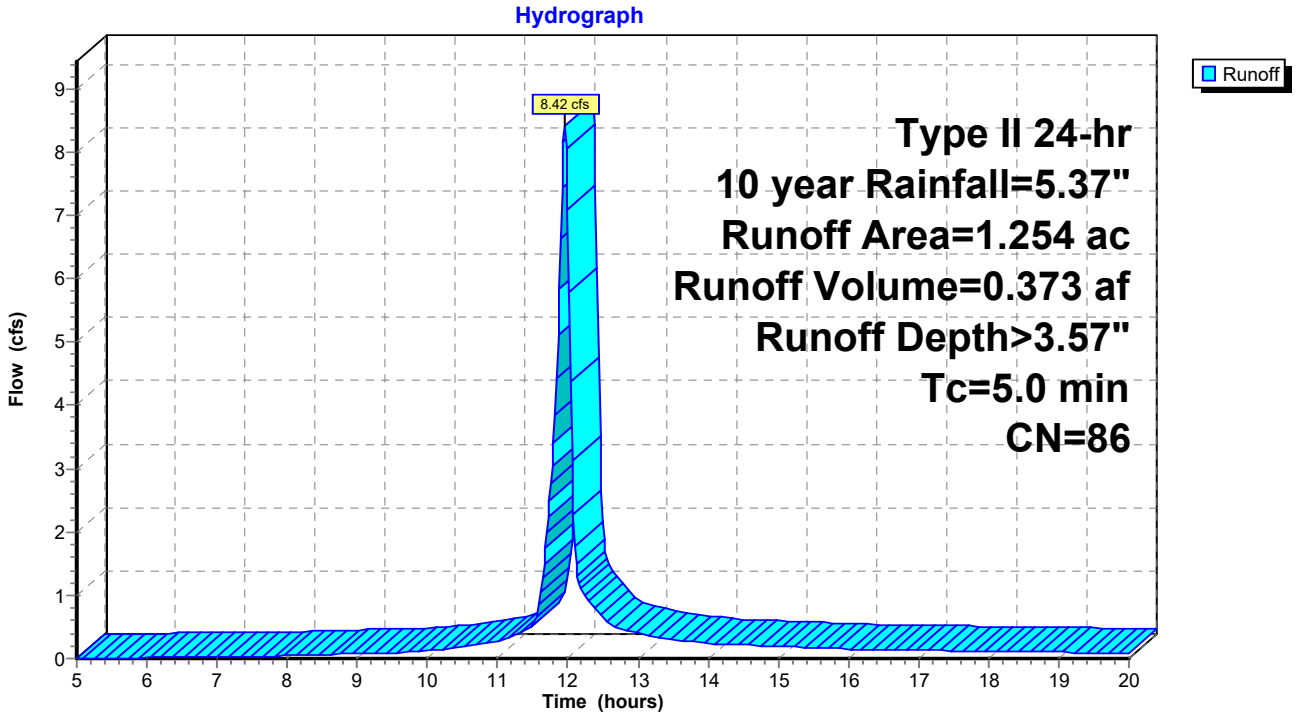
Runoff = 8.42 cfs @ 11.96 hrs, Volume= 0.373 af, Depth> 3.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 10 year Rainfall=5.37"

| Area (ac) | CN | Description |
|---|---|---|
| 0.384 | 98 | Paved parking, HSG D |
| 0.870 | 80 | >75% Grass cover, Good, HSG D |
| 1.254 | 86 | Weighted Average |
| 0.870 | | 69.38% Pervious Area |
| 0.384 | | 30.62% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 12S: Historic



## Hydrograph for Subcatchment 12S: Historic

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.34 | 0.00 | 0.00 |
| 5.20 | 0.36 | 0.00 | 0.00 |
| 5.40 | 0.37 | 0.00 | 0.01 |
| 5.60 | 0.39 | 0.00 | 0.01 |
| 5.80 | 0.41 | 0.00 | 0.01 |
| 6.00 | 0.43 | 0.01 | 0.01 |
| 6.20 | 0.45 | 0.01 | 0.02 |
| 6.40 | 0.47 | 0.01 | 0.02 |
| 6.60 | 0.49 | 0.02 | 0.02 |
| 6.80 | 0.51 | 0.02 | 0.02 |
| 7.00 | 0.53 | 0.02 | 0.03 |
| 7.20 | 0.55 | 0.03 | 0.03 |
| 7.40 | 0.58 | 0.03 | 0.03 |
| 7.60 | 0.60 | 0.04 | 0.04 |
| 7.80 | 0.62 | 0.05 | 0.04 |
| 8.00 | 0.64 | 0.05 | 0.04 |
| 8.20 | 0.67 | 0.06 | 0.05 |
| 8.40 | 0.70 | 0.07 | 0.06 |
| 8.60 | 0.72 | 0.08 | 0.06 |
| 8.80 | 0.76 | 0.09 | 0.07 |
| 9.00 | 0.79 | 0.10 | 0.08 |
| 9.20 | 0.82 | 0.12 | 0.09 |
| 9.40 | 0.86 | 0.13 | 0.09 |
| 9.60 | 0.89 | 0.15 | 0.10 |
| 9.80 | 0.93 | 0.16 | 0.11 |
| 10.00 | 0.97 | 0.18 | 0.13 |
| 10.20 | 1.02 | 0.21 | 0.15 |
| 10.40 | 1.07 | 0.23 | 0.17 |
| 10.60 | 1.12 | 0.26 | 0.20 |
| 10.80 | 1.19 | 0.30 | 0.23 |
| 11.00 | 1.26 | 0.34 | 0.28 |
| 11.20 | 1.35 | 0.40 | 0.35 |
| 11.40 | 1.46 | 0.46 | 0.45 |
| 11.60 | 1.65 | 0.59 | 0.87 |
| 11.80 | 2.31 | 1.09 | **3.39** |
| 12.00 | 3.56 | 2.15 | **7.09** |
| 12.20 | 3.75 | 2.32 | 1.07 |
| 12.40 | 3.89 | 2.45 | 0.78 |
| 12.60 | 3.99 | 2.54 | 0.53 |
| 12.80 | 4.07 | 2.61 | 0.46 |
| 13.00 | 4.15 | 2.68 | 0.40 |
| 13.20 | 4.21 | 2.74 | 0.36 |
| 13.40 | 4.26 | 2.79 | 0.32 |
| 13.60 | 4.32 | 2.83 | 0.29 |
| 13.80 | 4.36 | 2.88 | 0.26 |
| 14.00 | 4.40 | 2.91 | 0.24 |
| 14.20 | 4.44 | 2.95 | 0.23 |
| 14.40 | 4.48 | 2.98 | 0.22 |
| 14.60 | 4.52 | 3.02 | 0.21 |
| 14.80 | 4.55 | 3.05 | 0.20 |
| 15.00 | 4.58 | 3.08 | 0.19 |
| 15.20 | 4.61 | 3.11 | 0.18 |
| 15.40 | 4.64 | 3.14 | 0.17 |
| 15.60 | 4.67 | 3.16 | 0.17 |
| 15.80 | 4.70 | 3.19 | 0.16 |
| 16.00 | 4.73 | 3.21 | 0.15 |
| 16.20 | 4.75 | 3.23 | 0.14 |
| 16.40 | 4.77 | 3.26 | 0.14 |
| 16.60 | 4.80 | 3.28 | 0.14 |
| 16.80 | 4.82 | 3.30 | 0.13 |
| 17.00 | 4.84 | 3.32 | 0.13 |
| 17.20 | 4.86 | 3.34 | 0.13 |
| 17.40 | 4.89 | 3.36 | 0.12 |
| 17.60 | 4.91 | 3.38 | 0.12 |
| 17.80 | 4.93 | 3.40 | 0.12 |
| 18.00 | 4.95 | 3.42 | 0.12 |
| 18.20 | 4.96 | 3.43 | 0.11 |
| 18.40 | 4.98 | 3.45 | 0.11 |
| 18.60 | 5.00 | 3.47 | 0.11 |
| 18.80 | 5.02 | 3.48 | 0.10 |
| 19.00 | 5.04 | 3.50 | 0.10 |
| 19.20 | 5.05 | 3.52 | 0.10 |
| 19.40 | 5.07 | 3.53 | 0.09 |
| 19.60 | 5.08 | 3.54 | 0.09 |
| 19.80 | 5.10 | 3.56 | 0.09 |
| 20.00 | **5.11** | **3.57** | 0.08 |

## Summary for Subcatchment 13S: Developed

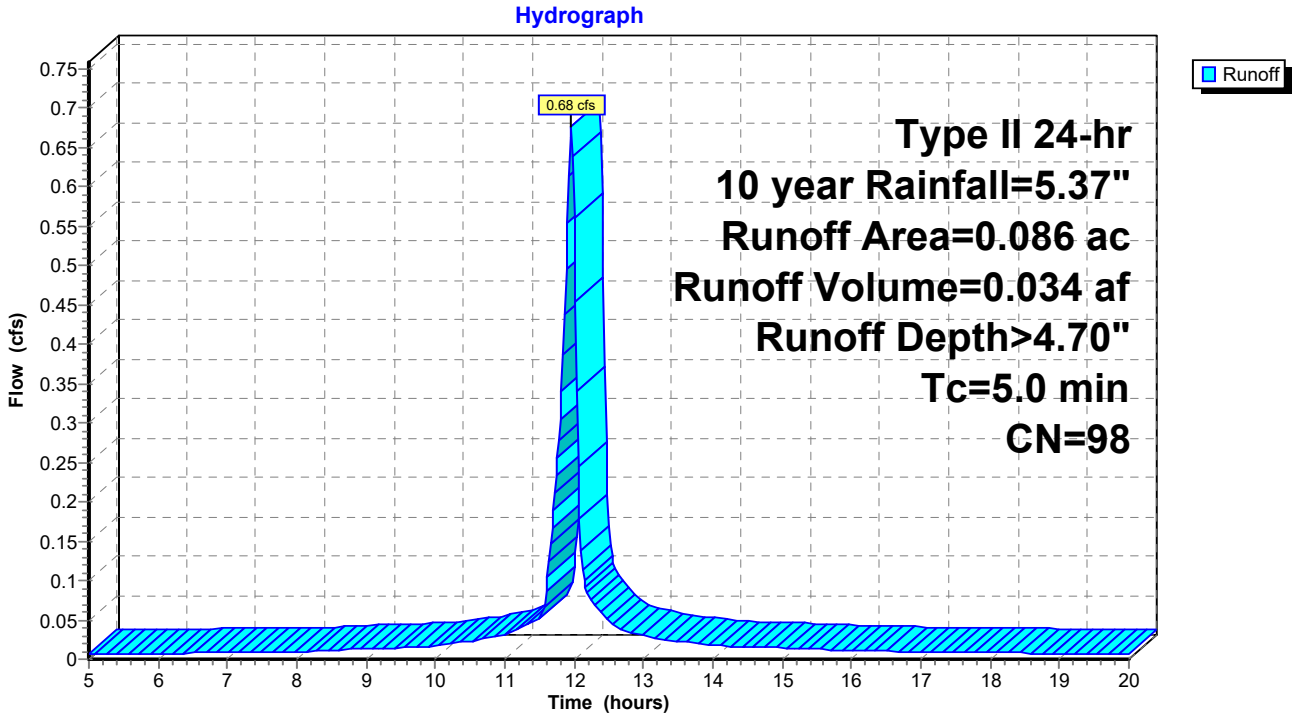
Runoff = 0.68 cfs @ 11.96 hrs, Volume= 0.034 af, Depth> 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 10 year Rainfall=5.37"

| Area (ac) | CN | Description |
|---|---|---|
| 0.086 | 98 | Paved parking, HSG D |
| 0.086 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 13S: Developed



## Hydrograph for Subcatchment 13S: Developed

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.34 | 0.18 | 0.01 |
| 5.20 | 0.36 | 0.19 | 0.01 |
| 5.40 | 0.37 | 0.21 | 0.01 |
| 5.60 | 0.39 | 0.22 | 0.01 |
| 5.80 | 0.41 | 0.24 | 0.01 |
| 6.00 | 0.43 | 0.25 | 0.01 |
| 6.20 | 0.45 | 0.27 | 0.01 |
| 6.40 | 0.47 | 0.29 | 0.01 |
| 6.60 | 0.49 | 0.31 | 0.01 |
| 6.80 | 0.51 | 0.33 | 0.01 |
| 7.00 | 0.53 | 0.35 | 0.01 |
| 7.20 | 0.55 | 0.37 | 0.01 |
| 7.40 | 0.58 | 0.39 | 0.01 |
| 7.60 | 0.60 | 0.41 | 0.01 |
| 7.80 | 0.62 | 0.43 | 0.01 |
| 8.00 | 0.64 | 0.45 | 0.01 |
| 8.20 | 0.67 | 0.47 | 0.01 |
| 8.40 | 0.70 | 0.50 | 0.01 |
| 8.60 | 0.72 | 0.53 | 0.01 |
| 8.80 | 0.76 | 0.56 | 0.01 |
| 9.00 | 0.79 | 0.59 | 0.01 |
| 9.20 | 0.82 | 0.62 | 0.01 |
| 9.40 | 0.86 | 0.65 | 0.01 |
| 9.60 | 0.89 | 0.69 | 0.01 |
| 9.80 | 0.93 | 0.72 | 0.02 |
| 10.00 | 0.97 | 0.76 | 0.02 |
| 10.20 | 1.02 | 0.81 | 0.02 |
| 10.40 | 1.07 | 0.86 | 0.02 |
| 10.60 | 1.12 | 0.91 | 0.02 |
| 10.80 | 1.19 | 0.97 | 0.03 |
| 11.00 | 1.26 | 1.05 | 0.03 |
| 11.20 | 1.35 | 1.13 | 0.04 |
| 11.40 | 1.46 | 1.24 | 0.05 |
| 11.60 | 1.65 | 1.43 | 0.09 |
| 11.80 | 2.31 | 2.09 | **0.30** |
| 12.00 | 3.56 | 3.33 | **0.56** |
| 12.20 | 3.75 | 3.52 | 0.08 |
| 12.40 | 3.89 | 3.66 | 0.06 |
| 12.60 | 3.99 | 3.76 | 0.04 |
| 12.80 | 4.07 | 3.84 | 0.04 |
| 13.00 | 4.15 | 3.91 | 0.03 |
| 13.20 | 4.21 | 3.97 | 0.03 |
| 13.40 | 4.26 | 4.03 | 0.02 |
| 13.60 | 4.32 | 4.08 | 0.02 |
| 13.80 | 4.36 | 4.13 | 0.02 |
| 14.00 | 4.40 | 4.17 | 0.02 |
| 14.20 | 4.44 | 4.21 | 0.02 |
| 14.40 | 4.48 | 4.24 | 0.02 |
| 14.60 | 4.52 | 4.28 | 0.02 |
| 14.80 | 4.55 | 4.31 | 0.01 |
| 15.00 | 4.58 | 4.35 | 0.01 |
| 15.20 | 4.61 | 4.38 | 0.01 |
| 15.40 | 4.64 | 4.41 | 0.01 |
| 15.60 | 4.67 | 4.44 | 0.01 |
| 15.80 | 4.70 | 4.46 | 0.01 |
| 16.00 | 4.73 | 4.49 | 0.01 |
| 16.20 | 4.75 | 4.51 | 0.01 |
| 16.40 | 4.77 | 4.54 | 0.01 |
| 16.60 | 4.80 | 4.56 | 0.01 |
| 16.80 | 4.82 | 4.58 | 0.01 |
| 17.00 | 4.84 | 4.61 | 0.01 |
| 17.20 | 4.86 | 4.63 | 0.01 |
| 17.40 | 4.89 | 4.65 | 0.01 |
| 17.60 | 4.91 | 4.67 | 0.01 |
| 17.80 | 4.93 | 4.69 | 0.01 |
| 18.00 | 4.95 | 4.71 | 0.01 |
| 18.20 | 4.96 | 4.73 | 0.01 |
| 18.40 | 4.98 | 4.75 | 0.01 |
| 18.60 | 5.00 | 4.76 | 0.01 |
| 18.80 | 5.02 | 4.78 | 0.01 |
| 19.00 | 5.04 | 4.80 | 0.01 |
| 19.20 | 5.05 | 4.82 | 0.01 |
| 19.40 | 5.07 | 4.83 | 0.01 |
| 19.60 | 5.08 | 4.85 | 0.01 |
| 19.80 | 5.10 | 4.86 | 0.01 |
| 20.00 | **5.11** | **4.88** | 0.01 |

## Summary for Subcatchment 16S: Developed

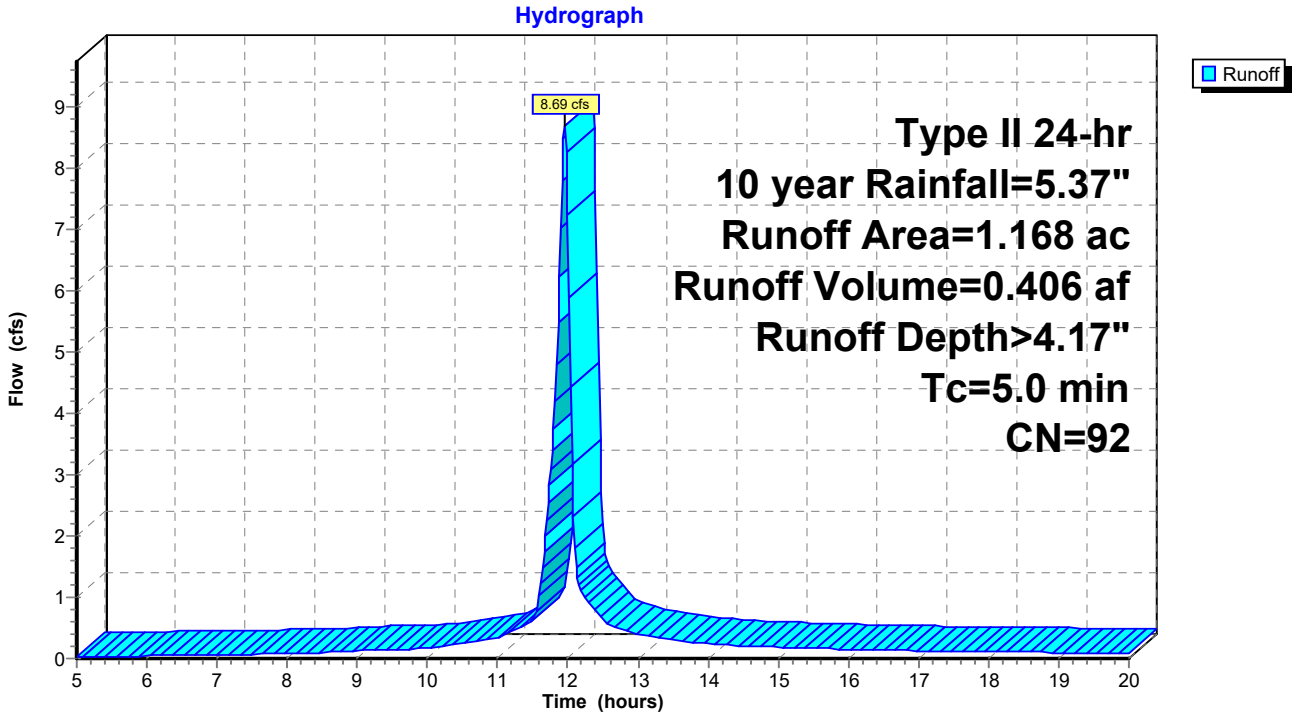
Runoff = 8.69 cfs @ 11.96 hrs, Volume= 0.406 af, Depth> 4.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 10 year Rainfall=5.37"

| Area (ac) | CN | Description |
|---|---|---|
| 0.770 | 98 | Paved parking, HSG D |
| 0.398 | 80 | >75% Grass cover, Good, HSG D |
| 1.168 | 92 | Weighted Average |
| 0.398 | | 34.08% Pervious Area |
| 0.770 | | 65.92% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 16S: Developed



## Hydrograph for Subcatchment 16S: Developed

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.34 | 0.03 | 0.03 |
| 5.20 | 0.36 | 0.03 | 0.03 |
| 5.40 | 0.37 | 0.04 | 0.03 |
| 5.60 | 0.39 | 0.04 | 0.04 |
| 5.80 | 0.41 | 0.05 | 0.04 |
| 6.00 | 0.43 | 0.06 | 0.04 |
| 6.20 | 0.45 | 0.07 | 0.05 |
| 6.40 | 0.47 | 0.07 | 0.05 |
| 6.60 | 0.49 | 0.08 | 0.05 |
| 6.80 | 0.51 | 0.09 | 0.06 |
| 7.00 | 0.53 | 0.10 | 0.06 |
| 7.20 | 0.55 | 0.12 | 0.07 |
| 7.40 | 0.58 | 0.13 | 0.07 |
| 7.60 | 0.60 | 0.14 | 0.07 |
| 7.80 | 0.62 | 0.15 | 0.08 |
| 8.00 | 0.64 | 0.17 | 0.08 |
| 8.20 | 0.67 | 0.18 | 0.09 |
| 8.40 | 0.70 | 0.20 | 0.10 |
| 8.60 | 0.72 | 0.21 | 0.11 |
| 8.80 | 0.76 | 0.23 | 0.12 |
| 9.00 | 0.79 | 0.26 | 0.13 |
| 9.20 | 0.82 | 0.28 | 0.13 |
| 9.40 | 0.86 | 0.30 | 0.14 |
| 9.60 | 0.89 | 0.33 | 0.14 |
| 9.80 | 0.93 | 0.35 | 0.16 |
| 10.00 | 0.97 | 0.38 | 0.18 |
| 10.20 | 1.02 | 0.42 | 0.20 |
| 10.40 | 1.07 | 0.45 | 0.23 |
| 10.60 | 1.12 | 0.50 | 0.26 |
| 10.80 | 1.19 | 0.55 | 0.30 |
| 11.00 | 1.26 | 0.60 | 0.35 |
| 11.20 | 1.35 | 0.68 | 0.43 |
| 11.40 | 1.46 | 0.77 | 0.54 |
| 11.60 | 1.65 | 0.93 | 1.02 |
| 11.80 | 2.31 | 1.52 | **3.74** |
| 12.00 | 3.56 | 2.69 | **7.23** |
| 12.20 | 3.75 | 2.88 | 1.07 |
| 12.40 | 3.89 | 3.02 | 0.78 |
| 12.60 | 3.99 | 3.11 | 0.53 |
| 12.80 | 4.07 | 3.19 | 0.46 |
| 13.00 | 4.15 | 3.26 | 0.40 |
| 13.20 | 4.21 | 3.32 | 0.35 |
| 13.40 | 4.26 | 3.37 | 0.32 |
| 13.60 | 4.32 | 3.42 | 0.29 |
| 13.80 | 4.36 | 3.47 | 0.26 |
| 14.00 | 4.40 | 3.51 | 0.24 |
| 14.20 | 4.44 | 3.55 | 0.22 |
| 14.40 | 4.48 | 3.58 | 0.21 |
| 14.60 | 4.52 | 3.62 | 0.20 |
| 14.80 | 4.55 | 3.65 | 0.20 |
| 15.00 | 4.58 | 3.68 | 0.19 |
| 15.20 | 4.61 | 3.71 | 0.18 |
| 15.40 | 4.64 | 3.74 | 0.17 |
| 15.60 | 4.67 | 3.77 | 0.16 |
| 15.80 | 4.70 | 3.80 | 0.15 |
| 16.00 | 4.73 | 3.82 | 0.15 |
| 16.20 | 4.75 | 3.85 | 0.14 |
| 16.40 | 4.77 | 3.87 | 0.14 |
| 16.60 | 4.80 | 3.89 | 0.13 |
| 16.80 | 4.82 | 3.91 | 0.13 |
| 17.00 | 4.84 | 3.94 | 0.13 |
| 17.20 | 4.86 | 3.96 | 0.12 |
| 17.40 | 4.89 | 3.98 | 0.12 |
| 17.60 | 4.91 | 4.00 | 0.12 |
| 17.80 | 4.93 | 4.02 | 0.12 |
| 18.00 | 4.95 | 4.04 | 0.11 |
| 18.20 | 4.96 | 4.05 | 0.11 |
| 18.40 | 4.98 | 4.07 | 0.11 |
| 18.60 | 5.00 | 4.09 | 0.10 |
| 18.80 | 5.02 | 4.11 | 0.10 |
| 19.00 | 5.04 | 4.12 | 0.10 |
| 19.20 | 5.05 | 4.14 | 0.09 |
| 19.40 | 5.07 | 4.16 | 0.09 |
| 19.60 | 5.08 | 4.17 | 0.09 |
| 19.80 | 5.10 | 4.19 | 0.08 |
| 20.00 | **5.11** | **4.20** | 0.08 |

## Summary for Pond 14P: (new Pond)

Inflow Area = 1.168 ac, 65.92% Impervious, Inflow Depth > 4.17" for 10 year event
Inflow = 8.69 cfs @ 11.96 hrs, Volume= 0.406 af
Outflow = 6.13 cfs @ 12.02 hrs, Volume= 0.388 af, Atten= 29%, Lag= 3.6 min
Primary = 6.13 cfs @ 12.02 hrs, Volume= 0.388 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Peak Elev= 1,241.28' @ 12.02 hrs Surf.Area= 2,790 sf Storage= 2,914 cf

Plug-Flow detention time= 35.2 min calculated for 0.388 af (96% of inflow)
Center-of-Mass det. time= 17.4 min ( 763.1 - 745.7 )

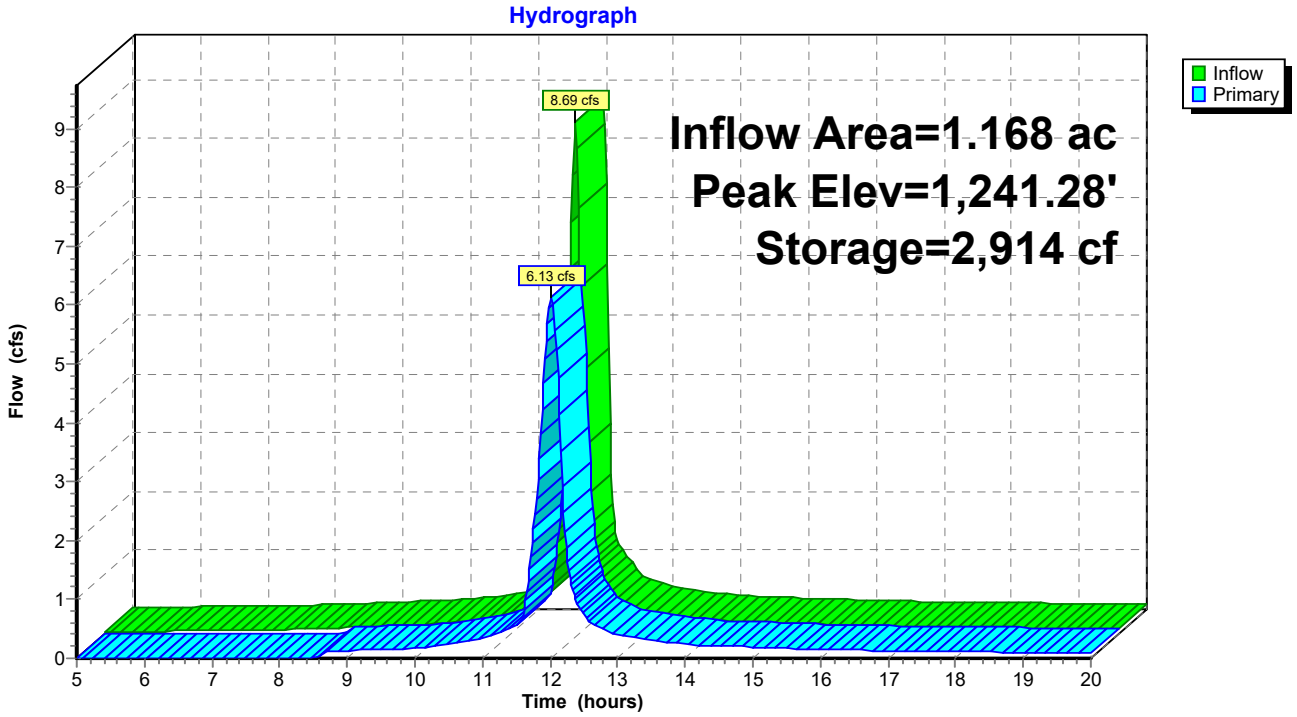
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 1,239.69' | 10,748 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 1,239.69 | 0 | 0 | 0 |
| 1,240.00 | 1,432 | 222 | 222 |
| 1,241.00 | 2,461 | 1,947 | 2,168 |
| 1,242.00 | 3,619 | 3,040 | 5,208 |
| 1,243.25 | 5,244 | 5,539 | 10,748 |

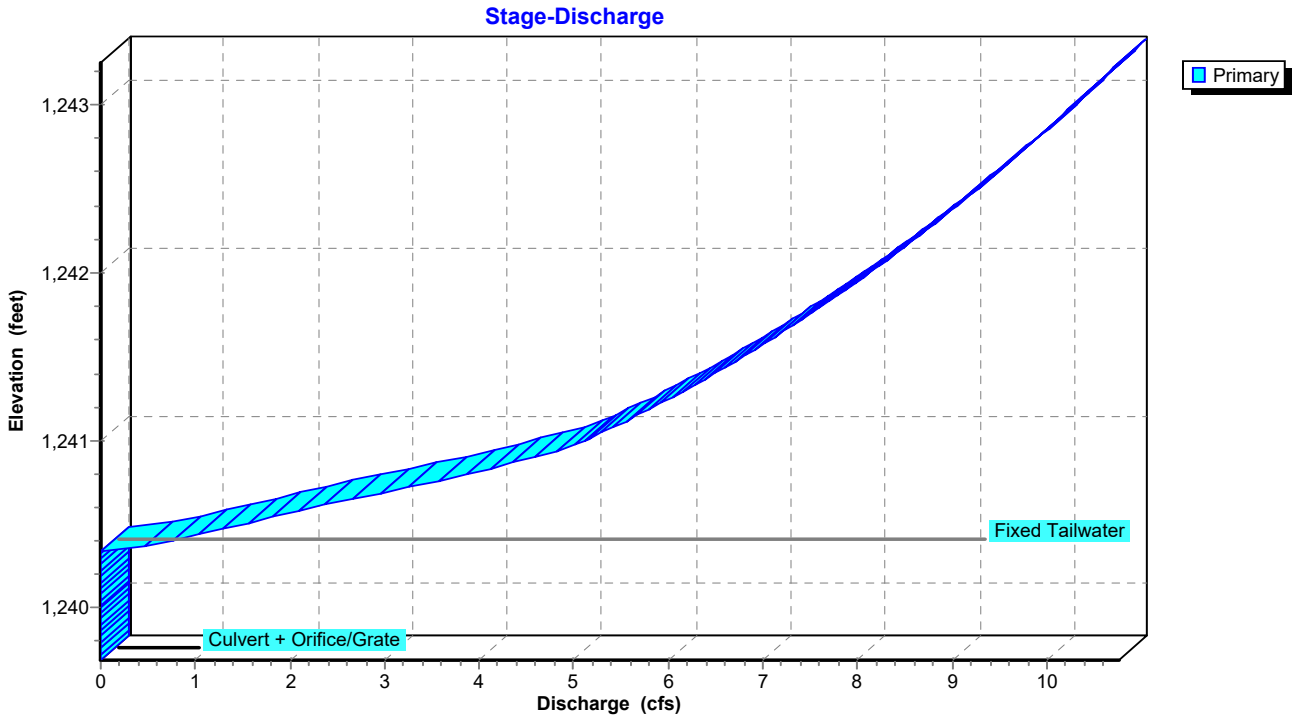
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 1,239.69' | **18.0" Round Culvert**<br>L= 26.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 1,239.69' / 1,239.47' S= 0.0085 '/' Cc= 0.900<br>n= 0.013, Flow Area= 1.77 sf |
| #2 | Device 1 | 1,239.69' | **15.5" Vert. Orifice/Grate** C= 0.600 |

**Primary OutFlow** Max=6.12 cfs @ 12.02 hrs HW=1,241.28' TW=1,240.34' (Fixed TW Elev= 1,240.34')
↑**1=Culvert** (Passes 6.12 cfs of 6.96 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 6.12 cfs @ 4.67 fps)

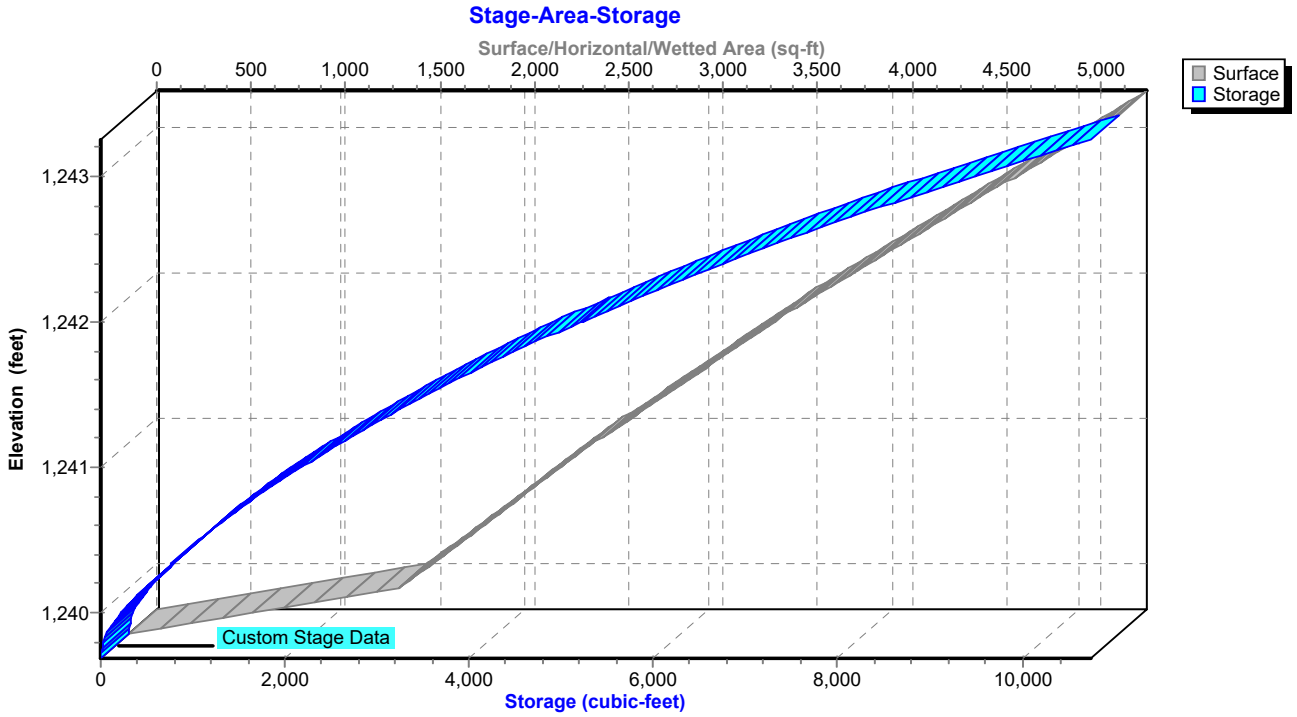
## Pond 14P: (new Pond)




## Pond 14P: (new Pond)



## Pond 14P: (new Pond)



## Hydrograph for Pond 14P: (new Pond)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|
| 5.00 | 0.03 | 1 | 1,239.70 | 0.00 |
| 5.40 | 0.03 | 46 | 1,239.83 | 0.00 |
| 5.80 | 0.04 | 101 | 1,239.90 | 0.00 |
| 6.20 | 0.05 | 165 | 1,239.96 | 0.00 |
| 6.60 | 0.05 | 239 | 1,240.01 | 0.00 |
| 7.00 | 0.06 | 323 | 1,240.07 | 0.00 |
| 7.40 | 0.07 | 417 | 1,240.13 | 0.00 |
| 7.80 | 0.08 | 521 | 1,240.19 | 0.00 |
| 8.20 | 0.09 | 636 | 1,240.26 | 0.00 |
| 8.60 | 0.11 | 773 | 1,240.34 | 0.04 |
| 9.00 | 0.13 | 781 | 1,240.35 | 0.13 |
| 9.40 | 0.14 | 782 | 1,240.35 | 0.14 |
| 9.80 | 0.16 | 784 | 1,240.35 | 0.16 |
| 10.20 | 0.20 | 788 | 1,240.35 | 0.20 |
| 10.60 | 0.26 | 794 | 1,240.35 | 0.25 |
| 11.00 | 0.35 | 803 | 1,240.36 | 0.34 |
| 11.40 | 0.54 | 826 | 1,240.37 | 0.51 |
| 11.80 | **3.74** | **1,387** | **1,240.66** | **2.72** |
| 12.20 | **1.07** | **1,325** | **1,240.63** | **2.48** |
| 12.60 | 0.53 | 844 | 1,240.38 | 0.60 |
| 13.00 | 0.40 | 810 | 1,240.36 | 0.41 |
| 13.40 | 0.32 | 801 | 1,240.36 | 0.32 |
| 13.80 | 0.26 | 795 | 1,240.36 | 0.26 |
| 14.20 | 0.22 | 791 | 1,240.35 | 0.22 |
| 14.60 | 0.20 | 789 | 1,240.35 | 0.21 |
| 15.00 | 0.19 | 788 | 1,240.35 | 0.19 |
| 15.40 | 0.17 | 786 | 1,240.35 | 0.17 |
| 15.80 | 0.15 | 784 | 1,240.35 | 0.15 |
| 16.20 | 0.14 | 783 | 1,240.35 | 0.14 |
| 16.60 | 0.13 | 782 | 1,240.35 | 0.13 |
| 17.00 | 0.13 | 781 | 1,240.35 | 0.13 |
| 17.40 | 0.12 | 781 | 1,240.35 | 0.12 |
| 17.80 | 0.12 | 780 | 1,240.35 | 0.12 |
| 18.20 | 0.11 | 780 | 1,240.35 | 0.11 |
| 18.60 | 0.10 | 779 | 1,240.35 | 0.10 |
| 19.00 | 0.10 | 778 | 1,240.35 | 0.10 |
| 19.40 | 0.09 | 778 | 1,240.35 | 0.09 |
| 19.80 | 0.08 | 777 | 1,240.34 | 0.09 |

## Stage-Discharge for Pond 14P: (new Pond)

| Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|---|---|---|
| 1,239.69 | 0.00 | 1,240.73 | 3.32 | 1,241.77 | 7.54 | 1,242.81 | 9.92 |
| 1,239.71 | 0.00 | 1,240.75 | 3.50 | 1,241.79 | 7.60 | 1,242.83 | 9.96 |
| 1,239.73 | 0.00 | 1,240.77 | 3.67 | 1,241.81 | 7.65 | 1,242.85 | 10.00 |
| 1,239.75 | 0.00 | 1,240.79 | 3.84 | 1,241.83 | 7.70 | 1,242.87 | 10.04 |
| 1,239.77 | 0.00 | 1,240.81 | 3.98 | 1,241.85 | 7.75 | 1,242.89 | 10.08 |
| 1,239.79 | 0.00 | 1,240.83 | 4.13 | 1,241.87 | 7.80 | 1,242.91 | 10.11 |
| 1,239.81 | 0.00 | 1,240.85 | 4.26 | 1,241.89 | 7.86 | 1,242.93 | 10.15 |
| 1,239.83 | 0.00 | 1,240.87 | 4.40 | 1,241.91 | 7.91 | 1,242.95 | 10.19 |
| 1,239.85 | 0.00 | 1,240.89 | 4.53 | 1,241.93 | 7.96 | 1,242.97 | 10.23 |
| 1,239.87 | 0.00 | 1,240.91 | 4.66 | 1,241.95 | 8.01 | 1,242.99 | 10.27 |
| 1,239.89 | 0.00 | 1,240.93 | 4.78 | 1,241.97 | 8.06 | 1,243.01 | 10.31 |
| 1,239.91 | 0.00 | 1,240.95 | 4.90 | 1,241.99 | 8.10 | 1,243.03 | 10.35 |
| 1,239.93 | 0.00 | 1,240.97 | 5.00 | 1,242.01 | 8.15 | 1,243.05 | 10.39 |
| 1,239.95 | 0.00 | 1,240.99 | 5.09 | 1,242.03 | 8.20 | 1,243.07 | 10.42 |
| 1,239.97 | 0.00 | 1,241.01 | 5.16 | 1,242.05 | 8.25 | 1,243.09 | 10.46 |
| 1,239.99 | 0.00 | 1,241.03 | 5.24 | 1,242.07 | 8.30 | 1,243.11 | 10.50 |
| 1,240.01 | 0.00 | 1,241.05 | 5.32 | 1,242.09 | 8.35 | 1,243.13 | 10.54 |
| 1,240.03 | 0.00 | 1,241.07 | 5.39 | 1,242.11 | 8.39 | 1,243.15 | 10.58 |
| 1,240.05 | 0.00 | 1,241.09 | 5.46 | 1,242.13 | 8.44 | 1,243.17 | 10.61 |
| 1,240.07 | 0.00 | 1,241.11 | 5.54 | 1,242.15 | 8.49 | 1,243.19 | 10.65 |
| 1,240.09 | 0.00 | 1,241.13 | 5.61 | 1,242.17 | 8.54 | 1,243.21 | 10.69 |
| 1,240.11 | 0.00 | 1,241.15 | 5.68 | 1,242.19 | 8.58 | 1,243.23 | 10.73 |
| 1,240.13 | 0.00 | 1,241.17 | 5.75 | 1,242.21 | 8.63 | 1,243.25 | **10.76** |
| 1,240.15 | 0.00 | 1,241.19 | 5.82 | 1,242.23 | 8.67 | | |
| 1,240.17 | 0.00 | 1,241.21 | 5.88 | 1,242.25 | 8.72 | | |
| 1,240.19 | 0.00 | 1,241.23 | 5.95 | 1,242.27 | 8.77 | | |
| 1,240.21 | 0.00 | 1,241.25 | 6.02 | 1,242.29 | 8.81 | | |
| 1,240.23 | 0.00 | 1,241.27 | 6.08 | 1,242.31 | 8.86 | | |
| 1,240.25 | 0.00 | 1,241.29 | 6.15 | 1,242.33 | 8.90 | | |
| 1,240.27 | 0.00 | 1,241.31 | 6.21 | 1,242.35 | 8.95 | | |
| 1,240.29 | 0.00 | 1,241.33 | 6.28 | 1,242.37 | 8.99 | | |
| 1,240.31 | 0.00 | 1,241.35 | 6.34 | 1,242.39 | 9.03 | | |
| 1,240.33 | 0.00 | 1,241.37 | 6.40 | 1,242.41 | 9.08 | | |
| 1,240.35 | 0.27 | 1,241.39 | 6.47 | 1,242.43 | 9.12 | | |
| 1,240.37 | 0.50 | 1,241.41 | 6.53 | 1,242.45 | 9.16 | | |
| 1,240.39 | 0.67 | 1,241.43 | 6.59 | 1,242.47 | 9.21 | | |
| 1,240.41 | 0.83 | 1,241.45 | 6.65 | 1,242.49 | 9.25 | | |
| 1,240.43 | 0.98 | 1,241.47 | 6.71 | 1,242.51 | 9.29 | | |
| 1,240.45 | 1.13 | 1,241.49 | 6.77 | 1,242.53 | 9.34 | | |
| 1,240.47 | 1.27 | 1,241.51 | 6.82 | 1,242.55 | 9.38 | | |
| 1,240.49 | 1.42 | 1,241.53 | 6.88 | 1,242.57 | 9.42 | | |
| 1,240.51 | 1.57 | 1,241.55 | 6.94 | 1,242.59 | 9.46 | | |
| 1,240.53 | 1.72 | 1,241.57 | 7.00 | 1,242.61 | 9.51 | | |
| 1,240.55 | 1.87 | 1,241.59 | 7.05 | 1,242.63 | 9.55 | | |
| 1,240.57 | 2.02 | 1,241.61 | 7.11 | 1,242.65 | 9.59 | | |
| 1,240.59 | 2.18 | 1,241.63 | 7.17 | 1,242.67 | 9.63 | | |
| 1,240.61 | 2.33 | 1,241.65 | 7.22 | 1,242.69 | 9.67 | | |
| 1,240.63 | 2.49 | 1,241.67 | 7.28 | 1,242.71 | 9.71 | | |
| 1,240.65 | 2.65 | 1,241.69 | 7.33 | 1,242.73 | 9.75 | | |
| 1,240.67 | 2.82 | 1,241.71 | 7.38 | 1,242.75 | 9.79 | | |
| 1,240.69 | 2.98 | 1,241.73 | 7.44 | 1,242.77 | 9.84 | | |
| 1,240.71 | 3.15 | 1,241.75 | 7.49 | 1,242.79 | 9.88 | | |

## Stage-Area-Storage for Pond 14P: (new Pond)

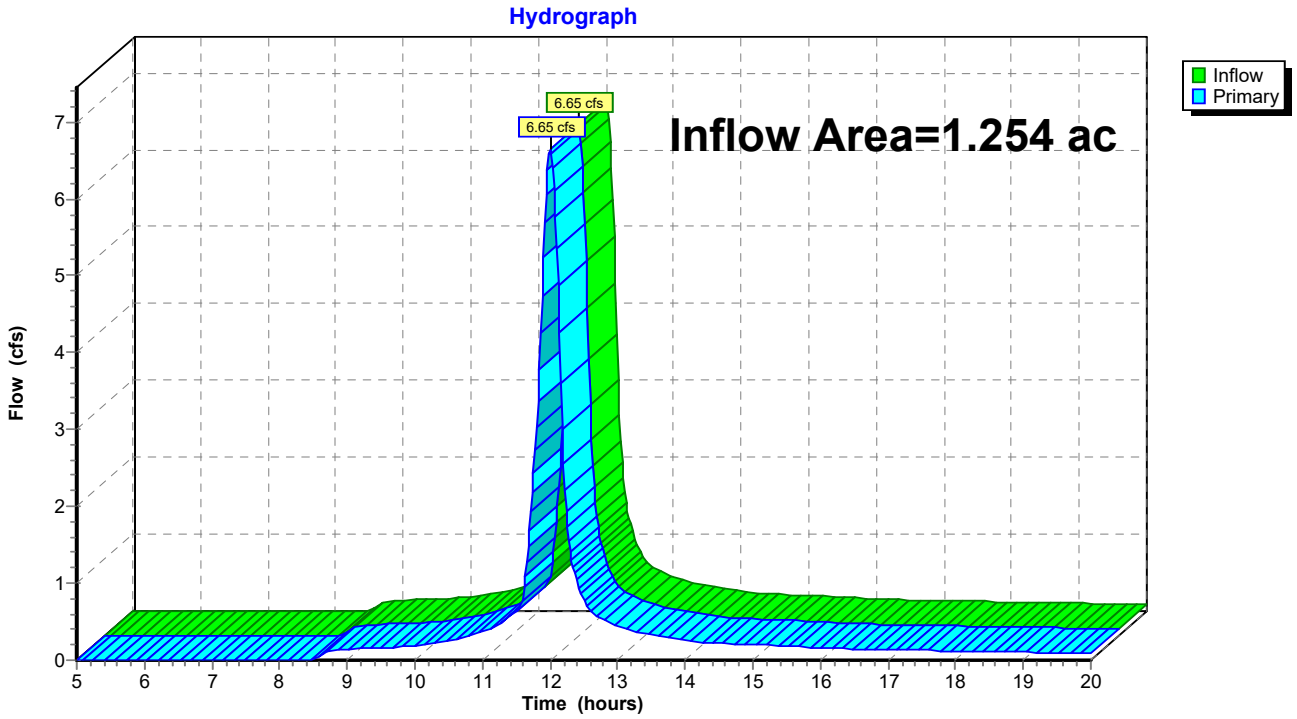
| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 1,239.69 | 0 | 0 |
| 1,239.74 | 231 | 6 |
| 1,239.79 | 462 | 23 |
| 1,239.84 | 693 | 52 |
| 1,239.89 | 924 | 92 |
| 1,239.94 | 1,155 | 144 |
| 1,239.99 | 1,386 | 208 |
| 1,240.04 | 1,473 | 280 |
| 1,240.09 | 1,525 | 355 |
| 1,240.14 | 1,576 | 433 |
| 1,240.19 | 1,628 | 513 |
| 1,240.24 | 1,679 | 595 |
| 1,240.29 | 1,730 | 681 |
| 1,240.34 | 1,782 | 768 |
| 1,240.39 | 1,833 | 859 |
| 1,240.44 | 1,885 | 952 |
| 1,240.49 | 1,936 | 1,047 |
| 1,240.54 | 1,988 | 1,145 |
| 1,240.59 | 2,039 | 1,246 |
| 1,240.64 | 2,091 | 1,349 |
| 1,240.69 | 2,142 | 1,455 |
| 1,240.74 | 2,193 | 1,563 |
| 1,240.79 | 2,245 | 1,674 |
| 1,240.84 | 2,296 | 1,788 |
| 1,240.89 | 2,348 | 1,904 |
| 1,240.94 | 2,399 | 2,023 |
| 1,240.99 | 2,451 | 2,144 |
| 1,241.04 | 2,507 | 2,268 |
| 1,241.09 | 2,565 | 2,395 |
| 1,241.14 | 2,623 | 2,524 |
| 1,241.19 | 2,681 | 2,657 |
| 1,241.24 | 2,739 | 2,792 |
| 1,241.29 | 2,797 | 2,931 |
| 1,241.34 | 2,855 | 3,072 |
| 1,241.39 | 2,913 | 3,216 |
| 1,241.44 | 2,971 | 3,363 |
| 1,241.49 | 3,028 | 3,513 |
| 1,241.54 | 3,086 | 3,666 |
| 1,241.59 | 3,144 | 3,822 |
| 1,241.64 | 3,202 | 3,981 |
| 1,241.69 | 3,260 | 4,142 |
| 1,241.74 | 3,318 | 4,307 |
| 1,241.79 | 3,376 | 4,474 |
| 1,241.84 | 3,434 | 4,644 |
| 1,241.89 | 3,492 | 4,817 |
| 1,241.94 | 3,550 | 4,993 |
| 1,241.99 | 3,607 | 5,172 |
| 1,242.04 | 3,671 | 5,354 |
| 1,242.09 | 3,736 | 5,539 |
| 1,242.14 | 3,801 | 5,728 |
| 1,242.19 | 3,866 | 5,920 |
| 1,242.24 | 3,931 | 6,114 |
| 1,242.29 | 3,996 | 6,313 |
| 1,242.34 | 4,061 | 6,514 |
| 1,242.39 | 4,126 | 6,719 |
| 1,242.44 | 4,191 | 6,927 |
| 1,242.49 | 4,256 | 7,138 |
| 1,242.54 | 4,321 | 7,352 |
| 1,242.59 | 4,386 | 7,570 |
| 1,242.64 | 4,451 | 7,791 |
| 1,242.69 | 4,516 | 8,015 |
| 1,242.74 | 4,581 | 8,242 |
| 1,242.79 | 4,646 | 8,473 |
| 1,242.84 | 4,711 | 8,707 |
| 1,242.89 | 4,776 | 8,944 |
| 1,242.94 | 4,841 | 9,185 |
| 1,242.99 | 4,906 | 9,428 |
| 1,243.04 | 4,971 | 9,675 |
| 1,243.09 | 5,036 | 9,925 |
| 1,243.14 | 5,101 | 10,179 |
| 1,243.19 | 5,166 | 10,436 |
| 1,243.24 | **5,231** | **10,695** |

## Summary for Link 15L: (new Link)

Inflow Area = 1.254 ac, 68.26% Impervious, Inflow Depth > 4.04" for 10 year event
Inflow = 6.65 cfs @ 12.00 hrs, Volume= 0.422 af
Primary = 6.65 cfs @ 12.00 hrs, Volume= 0.422 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs

## Link 15L: (new Link)



## Hydrograph for Link 15L: (new Link)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|
| 5.00 | 0.01 | **0.00** | 0.01 |
| 5.20 | 0.01 | 0.00 | 0.01 |
| 5.40 | 0.01 | 0.00 | 0.01 |
| 5.60 | 0.01 | 0.00 | 0.01 |
| 5.80 | 0.01 | 0.00 | 0.01 |
| 6.00 | 0.01 | 0.00 | 0.01 |
| 6.20 | 0.01 | 0.00 | 0.01 |
| 6.40 | 0.01 | 0.00 | 0.01 |
| 6.60 | 0.01 | 0.00 | 0.01 |
| 6.80 | 0.01 | 0.00 | 0.01 |
| 7.00 | 0.01 | 0.00 | 0.01 |
| 7.20 | 0.01 | 0.00 | 0.01 |
| 7.40 | 0.01 | 0.00 | 0.01 |
| 7.60 | 0.01 | 0.00 | 0.01 |
| 7.80 | 0.01 | 0.00 | 0.01 |
| 8.00 | 0.01 | 0.00 | 0.01 |
| 8.20 | 0.01 | 0.00 | 0.01 |
| 8.40 | 0.01 | 0.00 | 0.01 |
| 8.60 | 0.06 | 0.00 | 0.06 |
| 8.80 | 0.13 | 0.00 | 0.13 |
| 9.00 | 0.14 | 0.00 | 0.14 |
| 9.20 | 0.15 | 0.00 | 0.15 |
| 9.40 | 0.15 | 0.00 | 0.15 |
| 9.60 | 0.16 | 0.00 | 0.16 |
| 9.80 | 0.17 | 0.00 | 0.17 |
| 10.00 | 0.19 | 0.00 | 0.19 |
| 10.20 | 0.22 | 0.00 | 0.22 |
| 10.40 | 0.24 | 0.00 | 0.24 |
| 10.60 | 0.28 | 0.00 | 0.28 |
| 10.80 | 0.32 | 0.00 | 0.32 |
| 11.00 | 0.37 | 0.00 | 0.37 |
| 11.20 | 0.45 | 0.00 | 0.45 |
| 11.40 | 0.56 | 0.00 | 0.56 |
| 11.60 | 0.82 | 0.00 | 0.82 |
| 11.80 | 3.02 | 0.00 | 3.02 |
| 12.00 | **6.65** | 0.00 | **6.65** |
| 12.20 | 2.56 | 0.00 | 2.56 |
| 12.40 | 1.01 | 0.00 | 1.01 |
| 12.60 | 0.64 | 0.00 | 0.64 |
| 12.80 | 0.52 | 0.00 | 0.52 |
| 13.00 | 0.44 | 0.00 | 0.44 |
| 13.20 | 0.38 | 0.00 | 0.38 |
| 13.40 | 0.35 | 0.00 | 0.35 |
| 13.60 | 0.31 | 0.00 | 0.31 |
| 13.80 | 0.28 | 0.00 | 0.28 |
| 14.00 | 0.26 | 0.00 | 0.26 |
| 14.20 | 0.24 | 0.00 | 0.24 |
| 14.40 | 0.23 | 0.00 | 0.23 |
| 14.60 | 0.22 | 0.00 | 0.22 |
| 14.80 | 0.21 | 0.00 | 0.21 |
| 15.00 | 0.20 | 0.00 | 0.20 |
| 15.20 | 0.19 | 0.00 | 0.19 |
| 15.40 | 0.18 | 0.00 | 0.18 |
| 15.60 | 0.18 | 0.00 | 0.18 |
| 15.80 | 0.17 | 0.00 | 0.17 |
| 16.00 | 0.16 | 0.00 | 0.16 |
| 16.20 | 0.15 | 0.00 | 0.15 |
| 16.40 | 0.15 | 0.00 | 0.15 |
| 16.60 | 0.14 | 0.00 | 0.14 |
| 16.80 | 0.14 | 0.00 | 0.14 |
| 17.00 | 0.14 | 0.00 | 0.14 |
| 17.20 | 0.13 | 0.00 | 0.13 |
| 17.40 | 0.13 | 0.00 | 0.13 |
| 17.60 | 0.13 | 0.00 | 0.13 |
| 17.80 | 0.12 | 0.00 | 0.12 |
| 18.00 | 0.12 | 0.00 | 0.12 |
| 18.20 | 0.12 | 0.00 | 0.12 |
| 18.40 | 0.11 | 0.00 | 0.11 |
| 18.60 | 0.11 | 0.00 | 0.11 |
| 18.80 | 0.11 | 0.00 | 0.11 |
| 19.00 | 0.10 | 0.00 | 0.10 |
| 19.20 | 0.10 | 0.00 | 0.10 |
| 19.40 | 0.10 | 0.00 | 0.10 |
| 19.60 | 0.09 | 0.00 | 0.09 |
| 19.80 | 0.09 | 0.00 | 0.09 |
| 20.00 | 0.09 | 0.00 | 0.09 |

## Summary for Subcatchment 12S: Historic

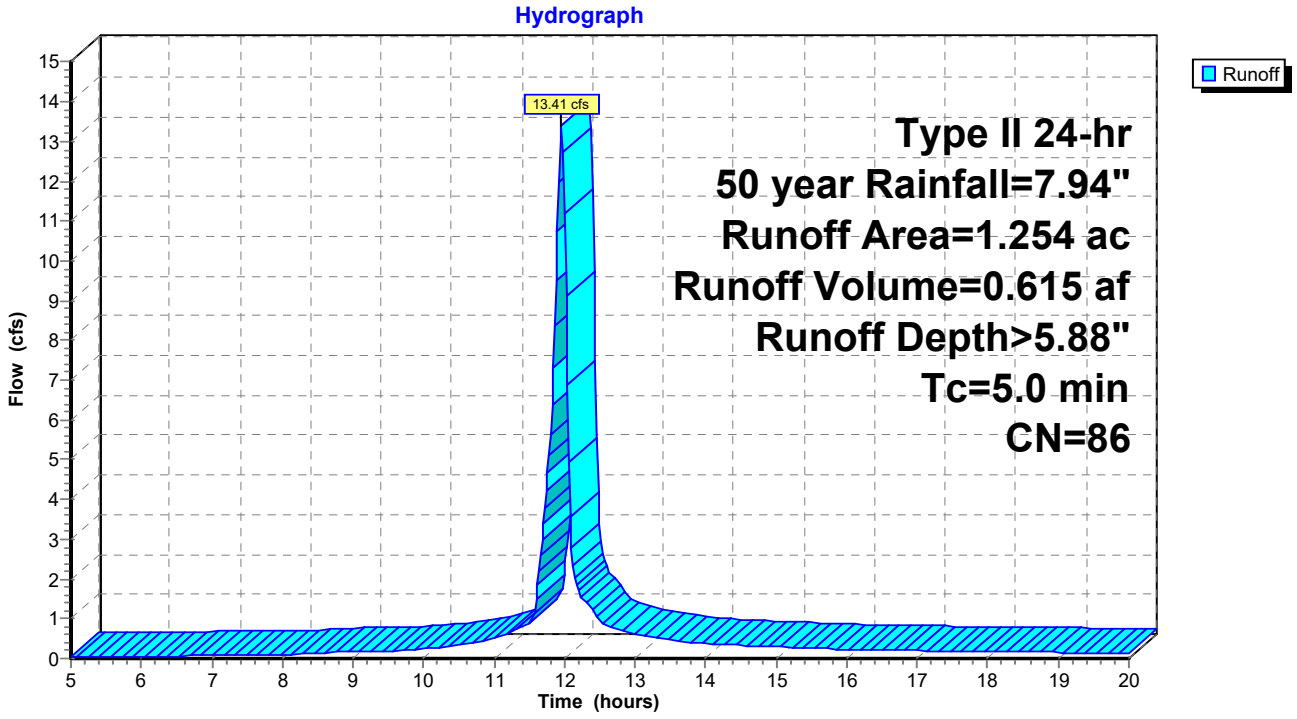
Runoff = 13.41 cfs @ 11.96 hrs, Volume= 0.615 af, Depth> 5.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 50 year Rainfall=7.94"

| Area (ac) | CN | Description |
|---|---|---|
| 0.384 | 98 | Paved parking, HSG D |
| 0.870 | 80 | >75% Grass cover, Good, HSG D |
| 1.254 | 86 | Weighted Average |
| 0.870 | | 69.38% Pervious Area |
| 0.384 | | 30.62% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 12S: Historic



## Hydrograph for Subcatchment 12S: Historic

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.50 | 0.02 | 0.03 |
| 5.20 | 0.53 | 0.02 | 0.03 |
| 5.40 | 0.55 | 0.03 | 0.04 |
| 5.60 | 0.58 | 0.03 | 0.04 |
| 5.80 | 0.61 | 0.04 | 0.05 |
| 6.00 | 0.64 | 0.05 | 0.05 |
| 6.20 | 0.66 | 0.06 | 0.06 |
| 6.40 | 0.69 | 0.07 | 0.06 |
| 6.60 | 0.72 | 0.08 | 0.07 |
| 6.80 | 0.75 | 0.09 | 0.07 |
| 7.00 | 0.79 | 0.10 | 0.08 |
| 7.20 | 0.82 | 0.11 | 0.08 |
| 7.40 | 0.85 | 0.13 | 0.09 |
| 7.60 | 0.88 | 0.14 | 0.09 |
| 7.80 | 0.92 | 0.16 | 0.10 |
| 8.00 | 0.95 | 0.17 | 0.10 |
| 8.20 | 0.99 | 0.19 | 0.11 |
| 8.40 | 1.03 | 0.21 | 0.13 |
| 8.60 | 1.07 | 0.23 | 0.14 |
| 8.80 | 1.12 | 0.26 | 0.16 |
| 9.00 | 1.17 | 0.29 | 0.18 |
| 9.20 | 1.22 | 0.32 | 0.19 |
| 9.40 | 1.27 | 0.35 | 0.19 |
| 9.60 | 1.32 | 0.38 | 0.20 |
| 9.80 | 1.38 | 0.41 | 0.22 |
| 10.00 | 1.44 | 0.45 | 0.25 |
| 10.20 | 1.50 | 0.50 | 0.28 |
| 10.40 | 1.58 | 0.55 | 0.32 |
| 10.60 | 1.66 | 0.60 | 0.37 |
| 10.80 | 1.76 | 0.67 | 0.43 |
| 11.00 | 1.87 | 0.75 | 0.50 |
| 11.20 | 2.00 | 0.85 | 0.63 |
| 11.40 | 2.16 | 0.97 | 0.80 |
| 11.60 | 2.44 | 1.19 | 1.52 |
| 11.80 | 3.42 | 2.03 | **5.66** |
| 12.00 | 5.26 | 3.71 | **11.20** |
| 12.20 | 5.55 | 3.98 | 1.67 |
| 12.40 | 5.76 | 4.18 | 1.21 |
| 12.60 | 5.90 | 4.32 | 0.83 |
| 12.80 | 6.02 | 4.43 | 0.72 |
| 13.00 | 6.13 | 4.53 | 0.62 |
| 13.20 | 6.22 | 4.62 | 0.55 |
| 13.40 | 6.31 | 4.70 | 0.50 |
| 13.60 | 6.38 | 4.77 | 0.45 |
| 13.80 | 6.45 | 4.84 | 0.41 |
| 14.00 | 6.51 | 4.90 | 0.37 |
| 14.20 | 6.57 | 4.95 | 0.35 |
| 14.40 | 6.62 | 5.00 | 0.33 |
| 14.60 | 6.68 | 5.06 | 0.32 |
| 14.80 | 6.73 | 5.10 | 0.31 |
| 15.00 | 6.78 | 5.15 | 0.29 |
| 15.20 | 6.82 | 5.20 | 0.28 |
| 15.40 | 6.87 | 5.24 | 0.27 |
| 15.60 | 6.91 | 5.28 | 0.25 |
| 15.80 | 6.95 | 5.32 | 0.24 |
| 16.00 | 6.99 | 5.35 | 0.23 |
| 16.20 | 7.02 | 5.39 | 0.22 |
| 16.40 | 7.06 | 5.42 | 0.21 |
| 16.60 | 7.09 | 5.46 | 0.21 |
| 16.80 | 7.13 | 5.49 | 0.20 |
| 17.00 | 7.16 | 5.52 | 0.20 |
| 17.20 | 7.19 | 5.55 | 0.20 |
| 17.40 | 7.22 | 5.58 | 0.19 |
| 17.60 | 7.25 | 5.61 | 0.19 |
| 17.80 | 7.28 | 5.64 | 0.18 |
| 18.00 | 7.31 | 5.67 | 0.18 |
| 18.20 | 7.34 | 5.69 | 0.17 |
| 18.40 | 7.37 | 5.72 | 0.17 |
| 18.60 | 7.39 | 5.75 | 0.16 |
| 18.80 | 7.42 | 5.77 | 0.16 |
| 19.00 | 7.45 | 5.80 | 0.15 |
| 19.20 | 7.47 | 5.82 | 0.15 |
| 19.40 | 7.49 | 5.84 | 0.14 |
| 19.60 | 7.52 | 5.86 | 0.14 |
| 19.80 | 7.54 | 5.88 | 0.13 |
| 20.00 | **7.56** | **5.90** | 0.13 |

## Summary for Subcatchment 13S: Developed

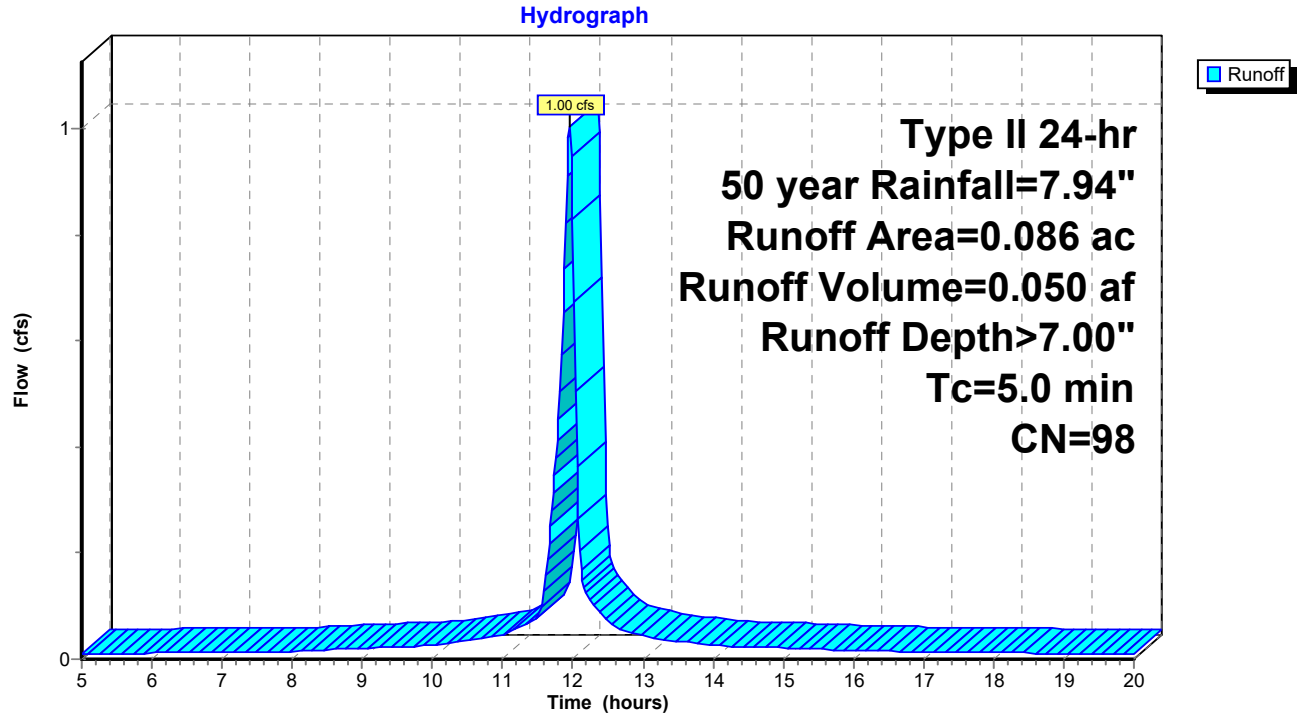
Runoff = 1.00 cfs @ 11.96 hrs, Volume= 0.050 af, Depth> 7.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 50 year Rainfall=7.94"

| Area (ac) | CN | Description |
|---|---|---|
| 0.086 | 98 | Paved parking, HSG D |
| 0.086 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 13S: Developed



## Hydrograph for Subcatchment 13S: Developed

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.50 | 0.32 | 0.01 |
| 5.20 | 0.53 | 0.34 | 0.01 |
| 5.40 | 0.55 | 0.37 | 0.01 |
| 5.60 | 0.58 | 0.39 | 0.01 |
| 5.80 | 0.61 | 0.42 | 0.01 |
| 6.00 | 0.64 | 0.44 | 0.01 |
| 6.20 | 0.66 | 0.47 | 0.01 |
| 6.40 | 0.69 | 0.50 | 0.01 |
| 6.60 | 0.72 | 0.53 | 0.01 |
| 6.80 | 0.75 | 0.56 | 0.01 |
| 7.00 | 0.79 | 0.59 | 0.01 |
| 7.20 | 0.82 | 0.62 | 0.01 |
| 7.40 | 0.85 | 0.65 | 0.01 |
| 7.60 | 0.88 | 0.68 | 0.01 |
| 7.80 | 0.92 | 0.71 | 0.01 |
| 8.00 | 0.95 | 0.75 | 0.01 |
| 8.20 | 0.99 | 0.78 | 0.02 |
| 8.40 | 1.03 | 0.82 | 0.02 |
| 8.60 | 1.07 | 0.86 | 0.02 |
| 8.80 | 1.12 | 0.91 | 0.02 |
| 9.00 | 1.17 | 0.95 | 0.02 |
| 9.20 | 1.22 | 1.00 | 0.02 |
| 9.40 | 1.27 | 1.05 | 0.02 |
| 9.60 | 1.32 | 1.10 | 0.02 |
| 9.80 | 1.38 | 1.16 | 0.02 |
| 10.00 | 1.44 | 1.22 | 0.03 |
| 10.20 | 1.50 | 1.28 | 0.03 |
| 10.40 | 1.58 | 1.36 | 0.03 |
| 10.60 | 1.66 | 1.44 | 0.04 |
| 10.80 | 1.76 | 1.53 | 0.04 |
| 11.00 | 1.87 | 1.64 | 0.05 |
| 11.20 | 2.00 | 1.77 | 0.06 |
| 11.40 | 2.16 | 1.93 | 0.07 |
| 11.60 | 2.44 | 2.21 | 0.13 |
| 11.80 | 3.42 | 3.19 | **0.45** |
| 12.00 | 5.26 | 5.03 | **0.83** |
| 12.20 | 5.55 | 5.31 | 0.12 |
| 12.40 | 5.76 | 5.52 | 0.09 |
| 12.60 | 5.90 | 5.66 | 0.06 |
| 12.80 | 6.02 | 5.79 | 0.05 |
| 13.00 | 6.13 | 5.89 | 0.04 |
| 13.20 | 6.22 | 5.98 | 0.04 |
| 13.40 | 6.31 | 6.07 | 0.04 |
| 13.60 | 6.38 | 6.14 | 0.03 |
| 13.80 | 6.45 | 6.21 | 0.03 |
| 14.00 | 6.51 | 6.27 | 0.03 |
| 14.20 | 6.57 | 6.33 | 0.02 |
| 14.40 | 6.62 | 6.39 | 0.02 |
| 14.60 | 6.68 | 6.44 | 0.02 |
| 14.80 | 6.73 | 6.49 | 0.02 |
| 15.00 | 6.78 | 6.54 | 0.02 |
| 15.20 | 6.82 | 6.58 | 0.02 |
| 15.40 | 6.87 | 6.63 | 0.02 |
| 15.60 | 6.91 | 6.67 | 0.02 |
| 15.80 | 6.95 | 6.71 | 0.02 |
| 16.00 | 6.99 | 6.75 | 0.02 |
| 16.20 | 7.02 | 6.78 | 0.02 |
| 16.40 | 7.06 | 6.82 | 0.02 |
| 16.60 | 7.09 | 6.85 | 0.01 |
| 16.80 | 7.13 | 6.89 | 0.01 |
| 17.00 | 7.16 | 6.92 | 0.01 |
| 17.20 | 7.19 | 6.95 | 0.01 |
| 17.40 | 7.22 | 6.98 | 0.01 |
| 17.60 | 7.25 | 7.01 | 0.01 |
| 17.80 | 7.28 | 7.04 | 0.01 |
| 18.00 | 7.31 | 7.07 | 0.01 |
| 18.20 | 7.34 | 7.10 | 0.01 |
| 18.40 | 7.37 | 7.13 | 0.01 |
| 18.60 | 7.39 | 7.16 | 0.01 |
| 18.80 | 7.42 | 7.18 | 0.01 |
| 19.00 | 7.45 | 7.21 | 0.01 |
| 19.20 | 7.47 | 7.23 | 0.01 |
| 19.40 | 7.49 | 7.25 | 0.01 |
| 19.60 | 7.52 | 7.28 | 0.01 |
| 19.80 | 7.54 | 7.30 | 0.01 |
| 20.00 | **7.56** | **7.32** | 0.01 |

## Summary for Subcatchment 16S: Developed

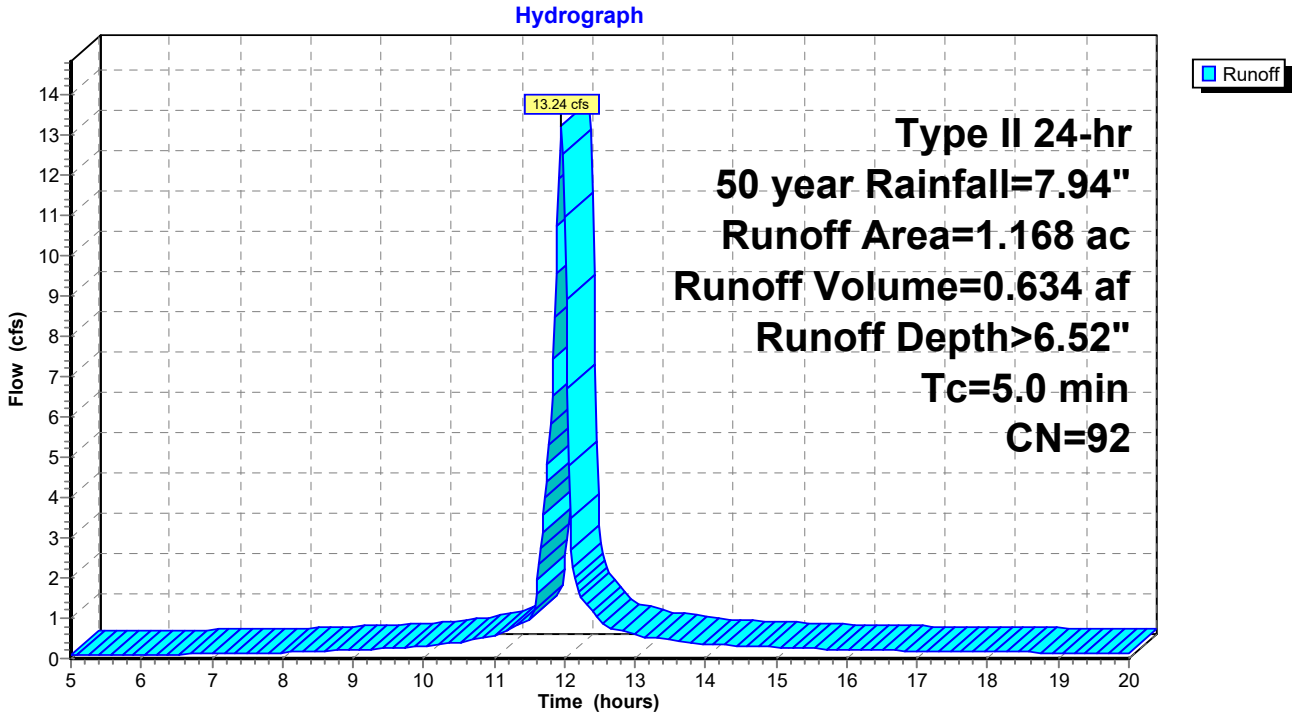
Runoff = 13.24 cfs @ 11.96 hrs, Volume= 0.634 af, Depth> 6.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 50 year Rainfall=7.94"

| Area (ac) | CN | Description |
|---|---|---|
| 0.770 | 98 | Paved parking, HSG D |
| 0.398 | 80 | >75% Grass cover, Good, HSG D |
| 1.168 | 92 | Weighted Average |
| 0.398 | | 34.08% Pervious Area |
| 0.770 | | 65.92% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 16S: Developed



## Hydrograph for Subcatchment 16S: Developed

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.50 | 0.09 | 0.07 |
| 5.20 | 0.53 | 0.10 | 0.07 |
| 5.40 | 0.55 | 0.11 | 0.08 |
| 5.60 | 0.58 | 0.13 | 0.08 |
| 5.80 | 0.61 | 0.14 | 0.09 |
| 6.00 | 0.64 | 0.16 | 0.09 |
| 6.20 | 0.66 | 0.18 | 0.10 |
| 6.40 | 0.69 | 0.19 | 0.10 |
| 6.60 | 0.72 | 0.21 | 0.11 |
| 6.80 | 0.75 | 0.23 | 0.12 |
| 7.00 | 0.79 | 0.25 | 0.12 |
| 7.20 | 0.82 | 0.27 | 0.13 |
| 7.40 | 0.85 | 0.30 | 0.13 |
| 7.60 | 0.88 | 0.32 | 0.14 |
| 7.80 | 0.92 | 0.34 | 0.14 |
| 8.00 | 0.95 | 0.37 | 0.15 |
| 8.20 | 0.99 | 0.39 | 0.16 |
| 8.40 | 1.03 | 0.42 | 0.17 |
| 8.60 | 1.07 | 0.46 | 0.19 |
| 8.80 | 1.12 | 0.49 | 0.21 |
| 9.00 | 1.17 | 0.53 | 0.23 |
| 9.20 | 1.22 | 0.57 | 0.24 |
| 9.40 | 1.27 | 0.61 | 0.24 |
| 9.60 | 1.32 | 0.65 | 0.25 |
| 9.80 | 1.38 | 0.70 | 0.27 |
| 10.00 | 1.44 | 0.75 | 0.30 |
| 10.20 | 1.50 | 0.80 | 0.34 |
| 10.40 | 1.58 | 0.87 | 0.38 |
| 10.60 | 1.66 | 0.94 | 0.43 |
| 10.80 | 1.76 | 1.02 | 0.50 |
| 11.00 | 1.87 | 1.12 | 0.57 |
| 11.20 | 2.00 | 1.23 | 0.70 |
| 11.40 | 2.16 | 1.38 | 0.87 |
| 11.60 | 2.44 | 1.63 | 1.63 |
| 11.80 | 3.42 | 2.56 | **5.82** |
| 12.00 | 5.26 | 4.35 | **10.98** |
| 12.20 | 5.55 | 4.62 | 1.62 |
| 12.40 | 5.76 | 4.83 | 1.17 |
| 12.60 | 5.90 | 4.97 | 0.80 |
| 12.80 | 6.02 | 5.09 | 0.69 |
| 13.00 | 6.13 | 5.20 | 0.60 |
| 13.20 | 6.22 | 5.29 | 0.53 |
| 13.40 | 6.31 | 5.37 | 0.48 |
| 13.60 | 6.38 | 5.44 | 0.43 |
| 13.80 | 6.45 | 5.51 | 0.39 |
| 14.00 | 6.51 | 5.57 | 0.36 |
| 14.20 | 6.57 | 5.63 | 0.33 |
| 14.40 | 6.62 | 5.68 | 0.32 |
| 14.60 | 6.68 | 5.74 | 0.31 |
| 14.80 | 6.73 | 5.79 | 0.29 |
| 15.00 | 6.78 | 5.83 | 0.28 |
| 15.20 | 6.82 | 5.88 | 0.27 |
| 15.40 | 6.87 | 5.92 | 0.26 |
| 15.60 | 6.91 | 5.97 | 0.24 |
| 15.80 | 6.95 | 6.00 | 0.23 |
| 16.00 | 6.99 | 6.04 | 0.22 |
| 16.20 | 7.02 | 6.08 | 0.21 |
| 16.40 | 7.06 | 6.11 | 0.20 |
| 16.60 | 7.09 | 6.15 | 0.20 |
| 16.80 | 7.13 | 6.18 | 0.20 |
| 17.00 | 7.16 | 6.21 | 0.19 |
| 17.20 | 7.19 | 6.24 | 0.19 |
| 17.40 | 7.22 | 6.28 | 0.18 |
| 17.60 | 7.25 | 6.31 | 0.18 |
| 17.80 | 7.28 | 6.34 | 0.17 |
| 18.00 | 7.31 | 6.36 | 0.17 |
| 18.20 | 7.34 | 6.39 | 0.16 |
| 18.40 | 7.37 | 6.42 | 0.16 |
| 18.60 | 7.39 | 6.44 | 0.15 |
| 18.80 | 7.42 | 6.47 | 0.15 |
| 19.00 | 7.45 | 6.50 | 0.15 |
| 19.20 | 7.47 | 6.52 | 0.14 |
| 19.40 | 7.49 | 6.54 | 0.14 |
| 19.60 | 7.52 | 6.56 | 0.13 |
| 19.80 | 7.54 | 6.59 | 0.13 |
| 20.00 | **7.56** | **6.61** | 0.12 |

## Summary for Pond 14P: (new Pond)

Inflow Area = 1.168 ac, 65.92% Impervious, Inflow Depth > 6.52" for 50 year event
Inflow = 13.24 cfs @ 11.96 hrs, Volume= 0.634 af
Outflow = 7.92 cfs @ 12.03 hrs, Volume= 0.616 af, Atten= 40%, Lag= 4.4 min
Primary = 7.92 cfs @ 12.03 hrs, Volume= 0.616 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Peak Elev= 1,241.92' @ 12.03 hrs Surf.Area= 3,523 sf Storage= 4,911 cf

Plug-Flow detention time= 26.3 min calculated for 0.615 af (97% of inflow)
Center-of-Mass det. time= 14.3 min ( 753.1 - 738.8 )

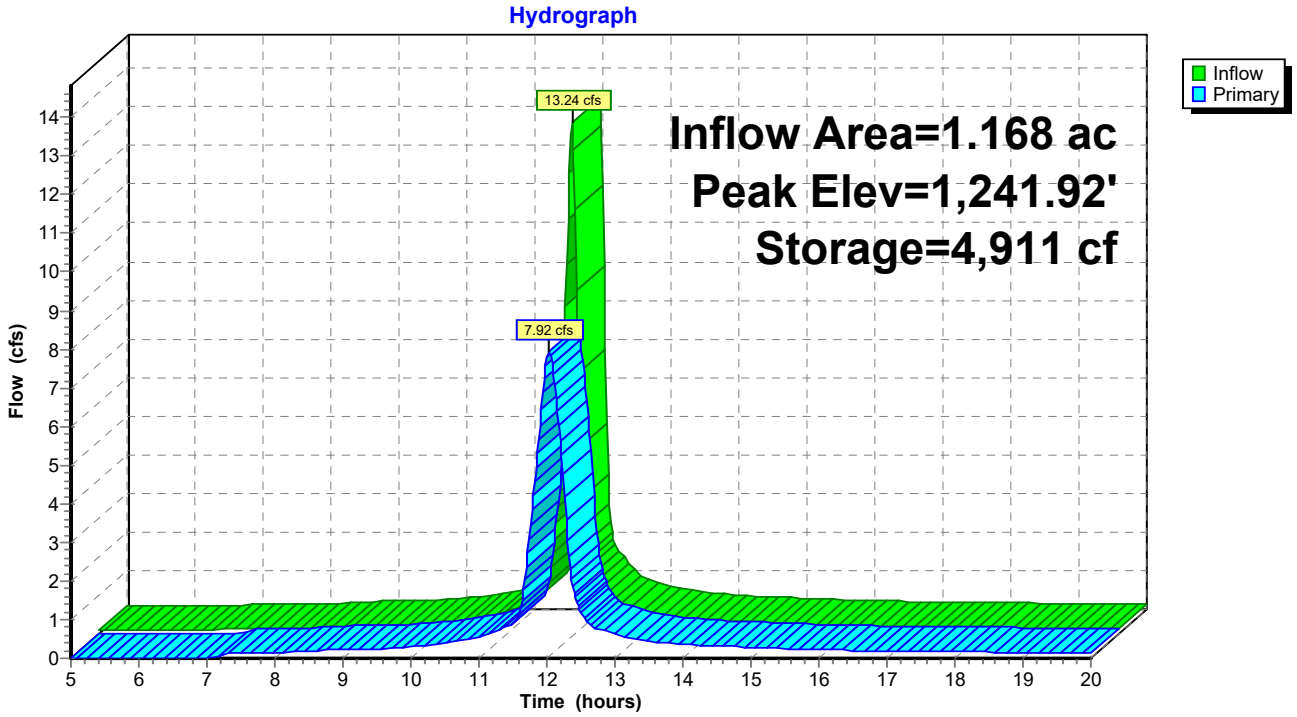
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 1,239.69' | 10,748 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 1,239.69 | 0 | 0 | 0 |
| 1,240.00 | 1,432 | 222 | 222 |
| 1,241.00 | 2,461 | 1,947 | 2,168 |
| 1,242.00 | 3,619 | 3,040 | 5,208 |
| 1,243.25 | 5,244 | 5,539 | 10,748 |

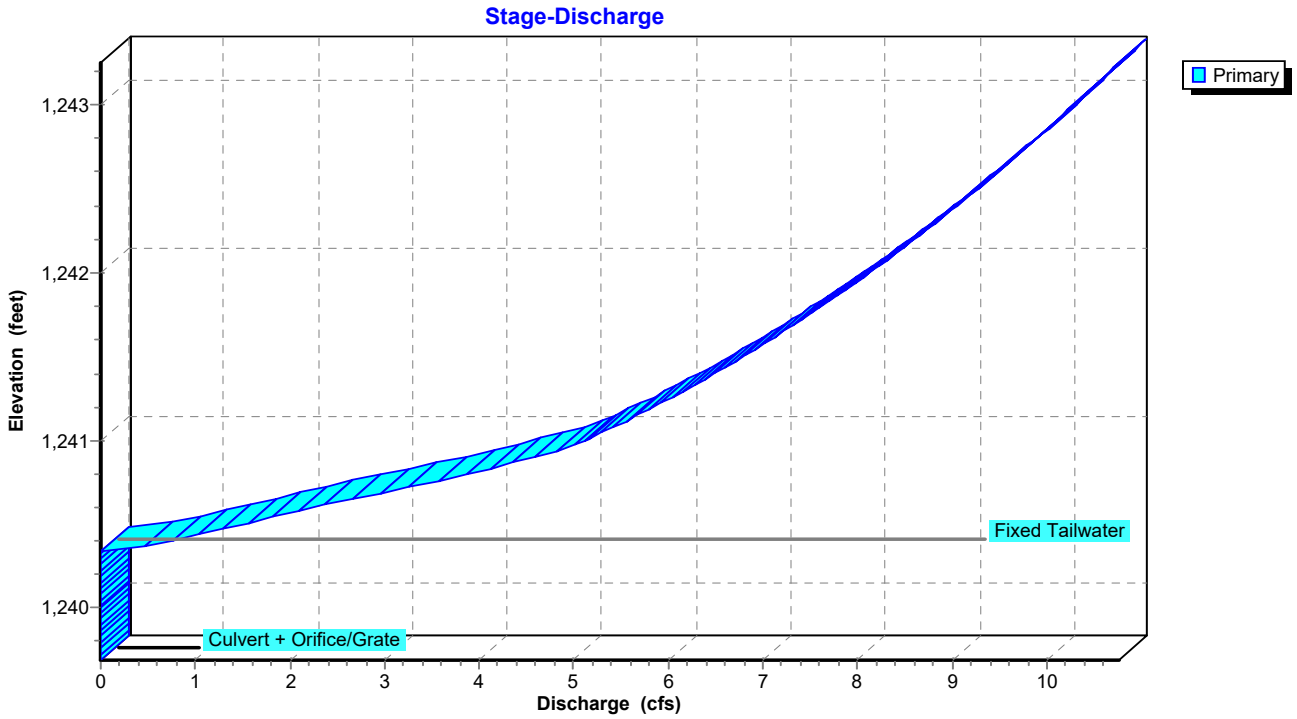
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 1,239.69' | **18.0" Round Culvert**<br>L= 26.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 1,239.69' / 1,239.47' S= 0.0085 '/' Cc= 0.900<br>n= 0.013, Flow Area= 1.77 sf |
| #2 | Device 1 | 1,239.69' | **15.5" Vert. Orifice/Grate** C= 0.600 |

**Primary OutFlow** Max=7.91 cfs @ 12.03 hrs HW=1,241.91' TW=1,240.34' (Fixed TW Elev= 1,240.34')
↑**1=Culvert** (Passes 7.91 cfs of 9.79 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 7.91 cfs @ 6.04 fps)

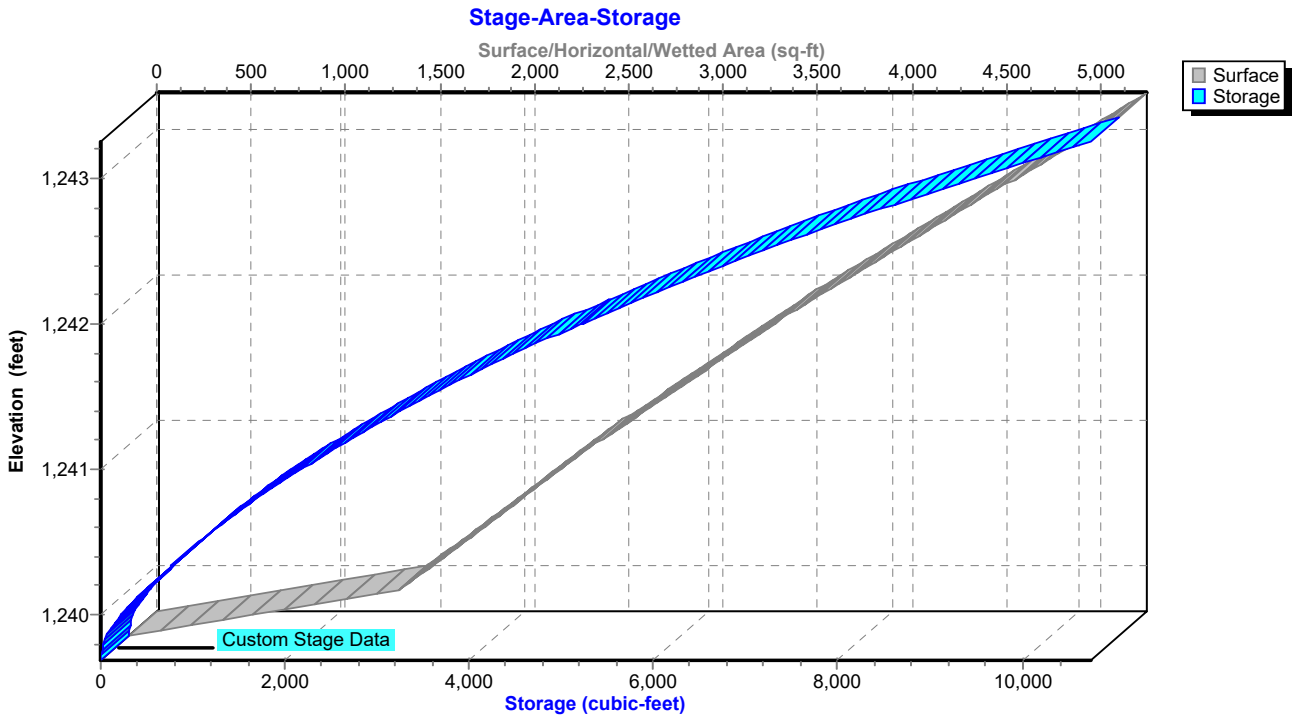
## Pond 14P: (new Pond)




## Pond 14P: (new Pond)



## Pond 14P: (new Pond)



## Hydrograph for Pond 14P: (new Pond)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|
| 5.00 | 0.07 | 2 | 1,239.72 | 0.00 |
| 5.40 | 0.08 | 109 | 1,239.91 | 0.00 |
| 5.80 | 0.09 | 230 | 1,240.01 | 0.00 |
| 6.20 | 0.10 | 366 | 1,240.10 | 0.00 |
| 6.60 | 0.11 | 517 | 1,240.19 | 0.00 |
| 7.00 | 0.12 | 683 | 1,240.29 | 0.00 |
| 7.40 | 0.13 | 782 | 1,240.35 | 0.13 |
| 7.80 | 0.14 | 783 | 1,240.35 | 0.14 |
| 8.20 | 0.16 | 784 | 1,240.35 | 0.16 |
| 8.60 | 0.19 | 788 | 1,240.35 | 0.19 |
| 9.00 | 0.23 | 791 | 1,240.35 | 0.22 |
| 9.40 | 0.24 | 793 | 1,240.35 | 0.24 |
| 9.80 | 0.27 | 796 | 1,240.36 | 0.27 |
| 10.20 | 0.34 | 802 | 1,240.36 | 0.33 |
| 10.60 | 0.43 | 811 | 1,240.36 | 0.42 |
| 11.00 | 0.57 | 834 | 1,240.38 | 0.55 |
| 11.40 | 0.87 | 892 | 1,240.41 | 0.81 |
| 11.80 | **5.82** | **1,788** | **1,240.84** | **4.19** |
| 12.20 | **1.62** | **2,524** | **1,241.14** | **5.64** |
| 12.60 | 0.80 | 922 | 1,240.42 | 0.94 |
| 13.00 | 0.60 | 851 | 1,240.39 | 0.63 |
| 13.40 | 0.48 | 822 | 1,240.37 | 0.49 |
| 13.80 | 0.39 | 809 | 1,240.36 | 0.40 |
| 14.20 | 0.33 | 803 | 1,240.36 | 0.34 |
| 14.60 | 0.31 | 800 | 1,240.36 | 0.31 |
| 15.00 | 0.28 | 797 | 1,240.36 | 0.28 |
| 15.40 | 0.26 | 795 | 1,240.35 | 0.26 |
| 15.80 | 0.23 | 792 | 1,240.35 | 0.23 |
| 16.20 | 0.21 | 790 | 1,240.35 | 0.21 |
| 16.60 | 0.20 | 789 | 1,240.35 | 0.20 |
| 17.00 | 0.19 | 788 | 1,240.35 | 0.19 |
| 17.40 | 0.18 | 787 | 1,240.35 | 0.18 |
| 17.80 | 0.17 | 786 | 1,240.35 | 0.17 |
| 18.20 | 0.16 | 785 | 1,240.35 | 0.16 |
| 18.60 | 0.15 | 784 | 1,240.35 | 0.15 |
| 19.00 | 0.15 | 783 | 1,240.35 | 0.15 |
| 19.40 | 0.14 | 782 | 1,240.35 | 0.14 |
| 19.80 | 0.13 | 781 | 1,240.35 | 0.13 |

## Stage-Discharge for Pond 14P: (new Pond)

| Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|---|---|---|
| 1,239.69 | 0.00 | 1,240.73 | 3.32 | 1,241.77 | 7.54 | 1,242.81 | 9.92 |
| 1,239.71 | 0.00 | 1,240.75 | 3.50 | 1,241.79 | 7.60 | 1,242.83 | 9.96 |
| 1,239.73 | 0.00 | 1,240.77 | 3.67 | 1,241.81 | 7.65 | 1,242.85 | 10.00 |
| 1,239.75 | 0.00 | 1,240.79 | 3.84 | 1,241.83 | 7.70 | 1,242.87 | 10.04 |
| 1,239.77 | 0.00 | 1,240.81 | 3.98 | 1,241.85 | 7.75 | 1,242.89 | 10.08 |
| 1,239.79 | 0.00 | 1,240.83 | 4.13 | 1,241.87 | 7.80 | 1,242.91 | 10.11 |
| 1,239.81 | 0.00 | 1,240.85 | 4.26 | 1,241.89 | 7.86 | 1,242.93 | 10.15 |
| 1,239.83 | 0.00 | 1,240.87 | 4.40 | 1,241.91 | 7.91 | 1,242.95 | 10.19 |
| 1,239.85 | 0.00 | 1,240.89 | 4.53 | 1,241.93 | 7.96 | 1,242.97 | 10.23 |
| 1,239.87 | 0.00 | 1,240.91 | 4.66 | 1,241.95 | 8.01 | 1,242.99 | 10.27 |
| 1,239.89 | 0.00 | 1,240.93 | 4.78 | 1,241.97 | 8.06 | 1,243.01 | 10.31 |
| 1,239.91 | 0.00 | 1,240.95 | 4.90 | 1,241.99 | 8.10 | 1,243.03 | 10.35 |
| 1,239.93 | 0.00 | 1,240.97 | 5.00 | 1,242.01 | 8.15 | 1,243.05 | 10.39 |
| 1,239.95 | 0.00 | 1,240.99 | 5.09 | 1,242.03 | 8.20 | 1,243.07 | 10.42 |
| 1,239.97 | 0.00 | 1,241.01 | 5.16 | 1,242.05 | 8.25 | 1,243.09 | 10.46 |
| 1,239.99 | 0.00 | 1,241.03 | 5.24 | 1,242.07 | 8.30 | 1,243.11 | 10.50 |
| 1,240.01 | 0.00 | 1,241.05 | 5.32 | 1,242.09 | 8.35 | 1,243.13 | 10.54 |
| 1,240.03 | 0.00 | 1,241.07 | 5.39 | 1,242.11 | 8.39 | 1,243.15 | 10.58 |
| 1,240.05 | 0.00 | 1,241.09 | 5.46 | 1,242.13 | 8.44 | 1,243.17 | 10.61 |
| 1,240.07 | 0.00 | 1,241.11 | 5.54 | 1,242.15 | 8.49 | 1,243.19 | 10.65 |
| 1,240.09 | 0.00 | 1,241.13 | 5.61 | 1,242.17 | 8.54 | 1,243.21 | 10.69 |
| 1,240.11 | 0.00 | 1,241.15 | 5.68 | 1,242.19 | 8.58 | 1,243.23 | 10.73 |
| 1,240.13 | 0.00 | 1,241.17 | 5.75 | 1,242.21 | 8.63 | 1,243.25 | **10.76** |
| 1,240.15 | 0.00 | 1,241.19 | 5.82 | 1,242.23 | 8.67 | | |
| 1,240.17 | 0.00 | 1,241.21 | 5.88 | 1,242.25 | 8.72 | | |
| 1,240.19 | 0.00 | 1,241.23 | 5.95 | 1,242.27 | 8.77 | | |
| 1,240.21 | 0.00 | 1,241.25 | 6.02 | 1,242.29 | 8.81 | | |
| 1,240.23 | 0.00 | 1,241.27 | 6.08 | 1,242.31 | 8.86 | | |
| 1,240.25 | 0.00 | 1,241.29 | 6.15 | 1,242.33 | 8.90 | | |
| 1,240.27 | 0.00 | 1,241.31 | 6.21 | 1,242.35 | 8.95 | | |
| 1,240.29 | 0.00 | 1,241.33 | 6.28 | 1,242.37 | 8.99 | | |
| 1,240.31 | 0.00 | 1,241.35 | 6.34 | 1,242.39 | 9.03 | | |
| 1,240.33 | 0.00 | 1,241.37 | 6.40 | 1,242.41 | 9.08 | | |
| 1,240.35 | 0.27 | 1,241.39 | 6.47 | 1,242.43 | 9.12 | | |
| 1,240.37 | 0.50 | 1,241.41 | 6.53 | 1,242.45 | 9.16 | | |
| 1,240.39 | 0.67 | 1,241.43 | 6.59 | 1,242.47 | 9.21 | | |
| 1,240.41 | 0.83 | 1,241.45 | 6.65 | 1,242.49 | 9.25 | | |
| 1,240.43 | 0.98 | 1,241.47 | 6.71 | 1,242.51 | 9.29 | | |
| 1,240.45 | 1.13 | 1,241.49 | 6.77 | 1,242.53 | 9.34 | | |
| 1,240.47 | 1.27 | 1,241.51 | 6.82 | 1,242.55 | 9.38 | | |
| 1,240.49 | 1.42 | 1,241.53 | 6.88 | 1,242.57 | 9.42 | | |
| 1,240.51 | 1.57 | 1,241.55 | 6.94 | 1,242.59 | 9.46 | | |
| 1,240.53 | 1.72 | 1,241.57 | 7.00 | 1,242.61 | 9.51 | | |
| 1,240.55 | 1.87 | 1,241.59 | 7.05 | 1,242.63 | 9.55 | | |
| 1,240.57 | 2.02 | 1,241.61 | 7.11 | 1,242.65 | 9.59 | | |
| 1,240.59 | 2.18 | 1,241.63 | 7.17 | 1,242.67 | 9.63 | | |
| 1,240.61 | 2.33 | 1,241.65 | 7.22 | 1,242.69 | 9.67 | | |
| 1,240.63 | 2.49 | 1,241.67 | 7.28 | 1,242.71 | 9.71 | | |
| 1,240.65 | 2.65 | 1,241.69 | 7.33 | 1,242.73 | 9.75 | | |
| 1,240.67 | 2.82 | 1,241.71 | 7.38 | 1,242.75 | 9.79 | | |
| 1,240.69 | 2.98 | 1,241.73 | 7.44 | 1,242.77 | 9.84 | | |
| 1,240.71 | 3.15 | 1,241.75 | 7.49 | 1,242.79 | 9.88 | | |

## Stage-Area-Storage for Pond 14P: (new Pond)

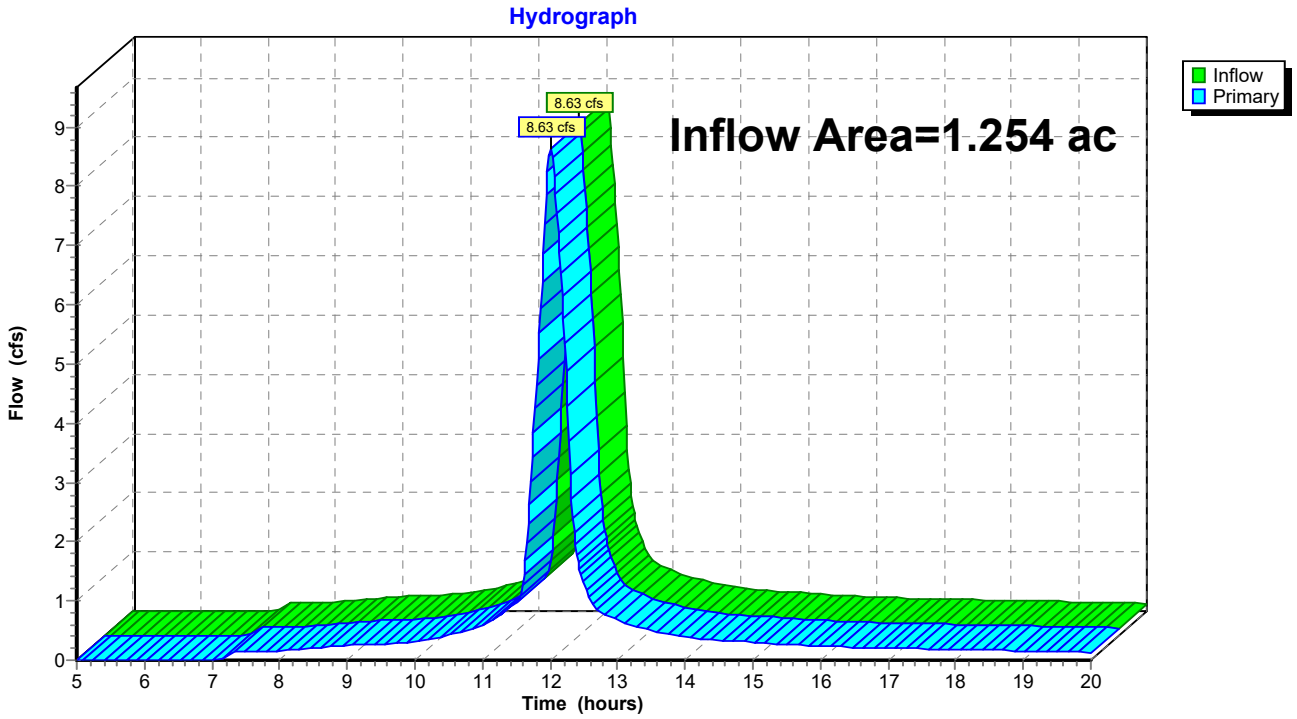
| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 1,239.69 | 0 | 0 |
| 1,239.74 | 231 | 6 |
| 1,239.79 | 462 | 23 |
| 1,239.84 | 693 | 52 |
| 1,239.89 | 924 | 92 |
| 1,239.94 | 1,155 | 144 |
| 1,239.99 | 1,386 | 208 |
| 1,240.04 | 1,473 | 280 |
| 1,240.09 | 1,525 | 355 |
| 1,240.14 | 1,576 | 433 |
| 1,240.19 | 1,628 | 513 |
| 1,240.24 | 1,679 | 595 |
| 1,240.29 | 1,730 | 681 |
| 1,240.34 | 1,782 | 768 |
| 1,240.39 | 1,833 | 859 |
| 1,240.44 | 1,885 | 952 |
| 1,240.49 | 1,936 | 1,047 |
| 1,240.54 | 1,988 | 1,145 |
| 1,240.59 | 2,039 | 1,246 |
| 1,240.64 | 2,091 | 1,349 |
| 1,240.69 | 2,142 | 1,455 |
| 1,240.74 | 2,193 | 1,563 |
| 1,240.79 | 2,245 | 1,674 |
| 1,240.84 | 2,296 | 1,788 |
| 1,240.89 | 2,348 | 1,904 |
| 1,240.94 | 2,399 | 2,023 |
| 1,240.99 | 2,451 | 2,144 |
| 1,241.04 | 2,507 | 2,268 |
| 1,241.09 | 2,565 | 2,395 |
| 1,241.14 | 2,623 | 2,524 |
| 1,241.19 | 2,681 | 2,657 |
| 1,241.24 | 2,739 | 2,792 |
| 1,241.29 | 2,797 | 2,931 |
| 1,241.34 | 2,855 | 3,072 |
| 1,241.39 | 2,913 | 3,216 |
| 1,241.44 | 2,971 | 3,363 |
| 1,241.49 | 3,028 | 3,513 |
| 1,241.54 | 3,086 | 3,666 |
| 1,241.59 | 3,144 | 3,822 |
| 1,241.64 | 3,202 | 3,981 |
| 1,241.69 | 3,260 | 4,142 |
| 1,241.74 | 3,318 | 4,307 |
| 1,241.79 | 3,376 | 4,474 |
| 1,241.84 | 3,434 | 4,644 |
| 1,241.89 | 3,492 | 4,817 |
| 1,241.94 | 3,550 | 4,993 |
| 1,241.99 | 3,607 | 5,172 |
| 1,242.04 | 3,671 | 5,354 |
| 1,242.09 | 3,736 | 5,539 |
| 1,242.14 | 3,801 | 5,728 |
| 1,242.19 | 3,866 | 5,920 |
| 1,242.24 | 3,931 | 6,114 |
| 1,242.29 | 3,996 | 6,313 |
| 1,242.34 | 4,061 | 6,514 |
| 1,242.39 | 4,126 | 6,719 |
| 1,242.44 | 4,191 | 6,927 |
| 1,242.49 | 4,256 | 7,138 |
| 1,242.54 | 4,321 | 7,352 |
| 1,242.59 | 4,386 | 7,570 |
| 1,242.64 | 4,451 | 7,791 |
| 1,242.69 | 4,516 | 8,015 |
| 1,242.74 | 4,581 | 8,242 |
| 1,242.79 | 4,646 | 8,473 |
| 1,242.84 | 4,711 | 8,707 |
| 1,242.89 | 4,776 | 8,944 |
| 1,242.94 | 4,841 | 9,185 |
| 1,242.99 | 4,906 | 9,428 |
| 1,243.04 | 4,971 | 9,675 |
| 1,243.09 | 5,036 | 9,925 |
| 1,243.14 | 5,101 | 10,179 |
| 1,243.19 | 5,166 | 10,436 |
| 1,243.24 | **5,231** | **10,695** |

## Summary for Link 15L: (new Link)

Inflow Area = 1.254 ac, 68.26% Impervious, Inflow Depth > 6.38" for 50 year event
Inflow = 8.63 cfs @ 12.00 hrs, Volume= 0.667 af
Primary = 8.63 cfs @ 12.00 hrs, Volume= 0.667 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs

## Link 15L: (new Link)



## Hydrograph for Link 15L: (new Link)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|
| 5.00 | 0.01 | **0.00** | 0.01 |
| 5.20 | 0.01 | 0.00 | 0.01 |
| 5.40 | 0.01 | 0.00 | 0.01 |
| 5.60 | 0.01 | 0.00 | 0.01 |
| 5.80 | 0.01 | 0.00 | 0.01 |
| 6.00 | 0.01 | 0.00 | 0.01 |
| 6.20 | 0.01 | 0.00 | 0.01 |
| 6.40 | 0.01 | 0.00 | 0.01 |
| 6.60 | 0.01 | 0.00 | 0.01 |
| 6.80 | 0.01 | 0.00 | 0.01 |
| 7.00 | 0.01 | 0.00 | 0.01 |
| 7.20 | 0.04 | 0.00 | 0.04 |
| 7.40 | 0.14 | 0.00 | 0.14 |
| 7.60 | 0.15 | 0.00 | 0.15 |
| 7.80 | 0.15 | 0.00 | 0.15 |
| 8.00 | 0.16 | 0.00 | 0.16 |
| 8.20 | 0.17 | 0.00 | 0.17 |
| 8.40 | 0.19 | 0.00 | 0.19 |
| 8.60 | 0.21 | 0.00 | 0.21 |
| 8.80 | 0.23 | 0.00 | 0.23 |
| 9.00 | 0.25 | 0.00 | 0.25 |
| 9.20 | 0.26 | 0.00 | 0.26 |
| 9.40 | 0.26 | 0.00 | 0.26 |
| 9.60 | 0.27 | 0.00 | 0.27 |
| 9.80 | 0.29 | 0.00 | 0.29 |
| 10.00 | 0.32 | 0.00 | 0.32 |
| 10.20 | 0.36 | 0.00 | 0.36 |
| 10.40 | 0.41 | 0.00 | 0.41 |
| 10.60 | 0.45 | 0.00 | 0.45 |
| 10.80 | 0.52 | 0.00 | 0.52 |
| 11.00 | 0.59 | 0.00 | 0.59 |
| 11.20 | 0.71 | 0.00 | 0.71 |
| 11.40 | 0.88 | 0.00 | 0.88 |
| 11.60 | 1.27 | 0.00 | 1.27 |
| 11.80 | 4.65 | 0.00 | 4.65 |
| 12.00 | **8.63** | 0.00 | **8.63** |
| 12.20 | 5.76 | 0.00 | 5.76 |
| 12.40 | 1.78 | 0.00 | 1.78 |
| 12.60 | 1.00 | 0.00 | 1.00 |
| 12.80 | 0.78 | 0.00 | 0.78 |
| 13.00 | 0.67 | 0.00 | 0.67 |
| 13.20 | 0.59 | 0.00 | 0.59 |
| 13.40 | 0.53 | 0.00 | 0.53 |
| 13.60 | 0.47 | 0.00 | 0.47 |
| 13.80 | 0.43 | 0.00 | 0.43 |
| 14.00 | 0.39 | 0.00 | 0.39 |
| 14.20 | 0.36 | 0.00 | 0.36 |
| 14.40 | 0.35 | 0.00 | 0.35 |
| 14.60 | 0.33 | 0.00 | 0.33 |
| 14.80 | 0.32 | 0.00 | 0.32 |
| 15.00 | 0.30 | 0.00 | 0.30 |
| 15.20 | 0.29 | 0.00 | 0.29 |
| 15.40 | 0.28 | 0.00 | 0.28 |
| 15.60 | 0.26 | 0.00 | 0.26 |
| 15.80 | 0.25 | 0.00 | 0.25 |
| 16.00 | 0.24 | 0.00 | 0.24 |
| 16.20 | 0.23 | 0.00 | 0.23 |
| 16.40 | 0.22 | 0.00 | 0.22 |
| 16.60 | 0.22 | 0.00 | 0.22 |
| 16.80 | 0.21 | 0.00 | 0.21 |
| 17.00 | 0.21 | 0.00 | 0.21 |
| 17.20 | 0.20 | 0.00 | 0.20 |
| 17.40 | 0.20 | 0.00 | 0.20 |
| 17.60 | 0.19 | 0.00 | 0.19 |
| 17.80 | 0.19 | 0.00 | 0.19 |
| 18.00 | 0.18 | 0.00 | 0.18 |
| 18.20 | 0.18 | 0.00 | 0.18 |
| 18.40 | 0.17 | 0.00 | 0.17 |
| 18.60 | 0.17 | 0.00 | 0.17 |
| 18.80 | 0.16 | 0.00 | 0.16 |
| 19.00 | 0.16 | 0.00 | 0.16 |
| 19.20 | 0.15 | 0.00 | 0.15 |
| 19.40 | 0.15 | 0.00 | 0.15 |
| 19.60 | 0.14 | 0.00 | 0.14 |
| 19.80 | 0.14 | 0.00 | 0.14 |
| 20.00 | 0.13 | 0.00 | 0.13 |

## Summary for Subcatchment 12S: Historic

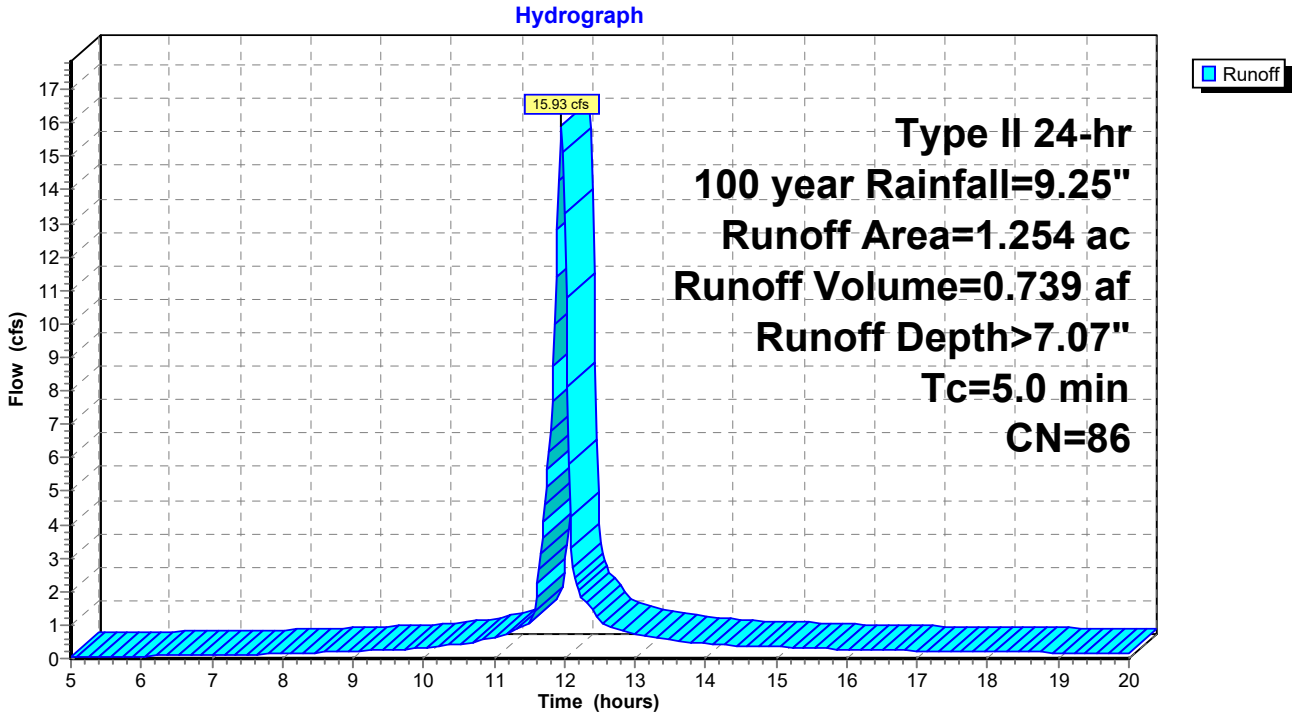
Runoff = 15.93 cfs @ 11.96 hrs, Volume= 0.739 af, Depth> 7.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 100 year Rainfall=9.25"

| Area (ac) | CN | Description |
|---|---|---|
| 0.384 | 98 | Paved parking, HSG D |
| 0.870 | 80 | >75% Grass cover, Good, HSG D |
| 1.254 | 86 | Weighted Average |
| 0.870 | | 69.38% Pervious Area |
| 0.384 | | 30.62% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 12S: Historic



## Hydrograph for Subcatchment 12S: Historic

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.58 | 0.04 | 0.05 |
| 5.20 | 0.61 | 0.04 | 0.05 |
| 5.40 | 0.64 | 0.05 | 0.06 |
| 5.60 | 0.67 | 0.06 | 0.06 |
| 5.80 | 0.71 | 0.07 | 0.07 |
| 6.00 | 0.74 | 0.08 | 0.07 |
| 6.20 | 0.77 | 0.10 | 0.08 |
| 6.40 | 0.81 | 0.11 | 0.09 |
| 6.60 | 0.84 | 0.12 | 0.09 |
| 6.80 | 0.88 | 0.14 | 0.10 |
| 7.00 | 0.92 | 0.16 | 0.11 |
| 7.20 | 0.95 | 0.17 | 0.11 |
| 7.40 | 0.99 | 0.19 | 0.12 |
| 7.60 | 1.03 | 0.21 | 0.12 |
| 7.80 | 1.07 | 0.23 | 0.13 |
| 8.00 | 1.11 | 0.26 | 0.14 |
| 8.20 | 1.15 | 0.28 | 0.15 |
| 8.40 | 1.20 | 0.30 | 0.17 |
| 8.60 | 1.25 | 0.33 | 0.19 |
| 8.80 | 1.30 | 0.37 | 0.21 |
| 9.00 | 1.36 | 0.40 | 0.23 |
| 9.20 | 1.42 | 0.44 | 0.24 |
| 9.40 | 1.48 | 0.48 | 0.24 |
| 9.60 | 1.54 | 0.52 | 0.25 |
| 9.80 | 1.60 | 0.56 | 0.28 |
| 10.00 | 1.67 | 0.61 | 0.32 |
| 10.20 | 1.75 | 0.67 | 0.36 |
| 10.40 | 1.84 | 0.73 | 0.41 |
| 10.60 | 1.94 | 0.80 | 0.46 |
| 10.80 | 2.05 | 0.89 | 0.54 |
| 11.00 | 2.17 | 0.98 | 0.62 |
| 11.20 | 2.32 | 1.10 | 0.78 |
| 11.40 | 2.51 | 1.25 | 0.98 |
| 11.60 | 2.84 | 1.52 | 1.85 |
| 11.80 | 3.98 | 2.53 | **6.81** |
| 12.00 | 6.13 | 4.54 | **13.27** |
| 12.20 | 6.46 | 4.85 | 1.97 |
| 12.40 | 6.71 | 5.09 | 1.43 |
| 12.60 | 6.88 | 5.25 | 0.98 |
| 12.80 | 7.02 | 5.38 | 0.85 |
| 13.00 | 7.14 | 5.50 | 0.73 |
| 13.20 | 7.25 | 5.61 | 0.65 |
| 13.40 | 7.35 | 5.70 | 0.59 |
| 13.60 | 7.43 | 5.78 | 0.53 |
| 13.80 | 7.51 | 5.86 | 0.48 |
| 14.00 | 7.58 | 5.93 | 0.44 |
| 14.20 | 7.65 | 5.99 | 0.41 |
| 14.40 | 7.72 | 6.06 | 0.39 |
| 14.60 | 7.78 | 6.12 | 0.38 |
| 14.80 | 7.84 | 6.17 | 0.36 |
| 15.00 | 7.89 | 6.23 | 0.35 |
| 15.20 | 7.95 | 6.28 | 0.33 |
| 15.40 | 8.00 | 6.33 | 0.31 |
| 15.60 | 8.05 | 6.38 | 0.30 |
| 15.80 | 8.10 | 6.42 | 0.28 |
| 16.00 | 8.14 | 6.47 | 0.27 |
| 16.20 | 8.18 | 6.51 | 0.26 |
| 16.40 | 8.22 | 6.55 | 0.25 |
| 16.60 | 8.26 | 6.59 | 0.25 |
| 16.80 | 8.30 | 6.63 | 0.24 |
| 17.00 | 8.34 | 6.66 | 0.24 |
| 17.20 | 8.38 | 6.70 | 0.23 |
| 17.40 | 8.42 | 6.73 | 0.22 |
| 17.60 | 8.45 | 6.77 | 0.22 |
| 17.80 | 8.49 | 6.80 | 0.21 |
| 18.00 | 8.52 | 6.84 | 0.21 |
| 18.20 | 8.55 | 6.87 | 0.20 |
| 18.40 | 8.58 | 6.90 | 0.20 |
| 18.60 | 8.61 | 6.93 | 0.19 |
| 18.80 | 8.65 | 6.96 | 0.18 |
| 19.00 | 8.67 | 6.99 | 0.18 |
| 19.20 | 8.70 | 7.01 | 0.17 |
| 19.40 | 8.73 | 7.04 | 0.17 |
| 19.60 | 8.76 | 7.07 | 0.16 |
| 19.80 | 8.78 | 7.09 | 0.16 |
| 20.00 | **8.81** | **7.11** | 0.15 |

## Summary for Subcatchment 13S: Developed

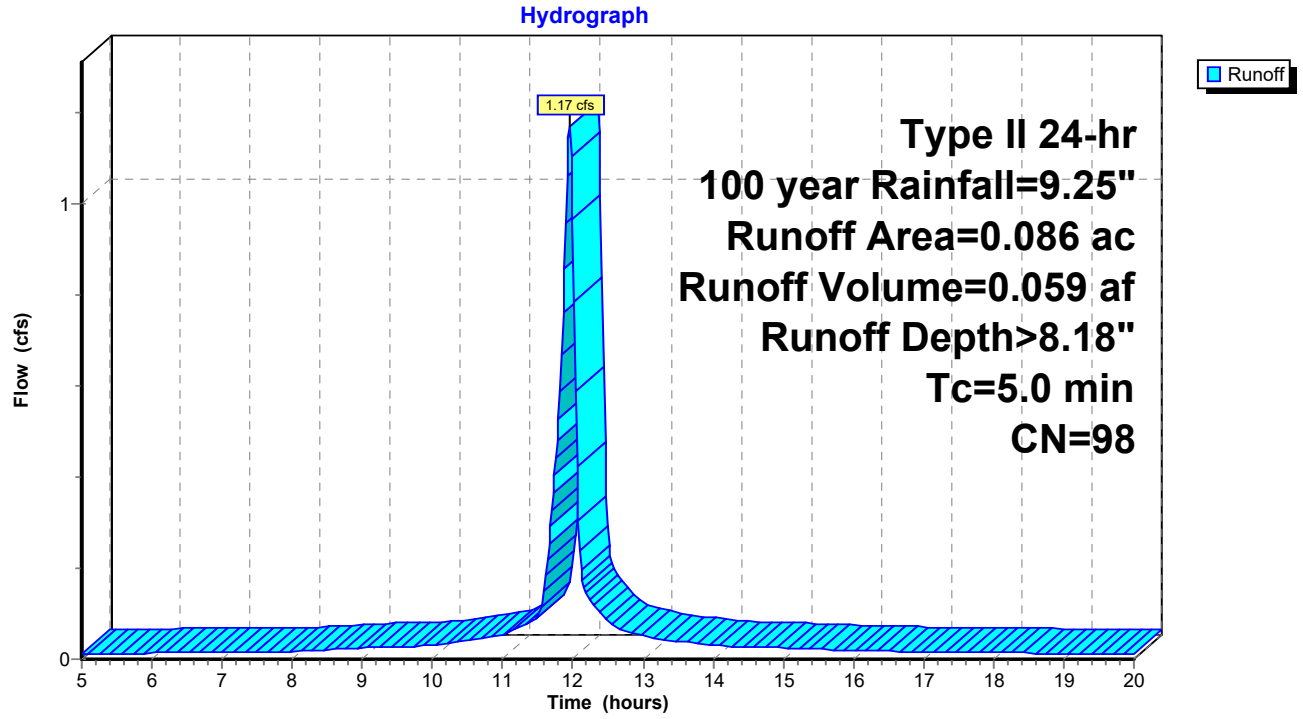
Runoff = 1.17 cfs @ 11.96 hrs, Volume= 0.059 af, Depth> 8.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 100 year Rainfall=9.25"

| Area (ac) | CN | Description |
|---|---|---|
| 0.086 | 98 | Paved parking, HSG D |
| 0.086 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 13S: Developed



## Hydrograph for Subcatchment 13S: Developed

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.58 | 0.39 | 0.01 |
| 5.20 | 0.61 | 0.42 | 0.01 |
| 5.40 | 0.64 | 0.45 | 0.01 |
| 5.60 | 0.67 | 0.48 | 0.01 |
| 5.80 | 0.71 | 0.51 | 0.01 |
| 6.00 | 0.74 | 0.54 | 0.01 |
| 6.20 | 0.77 | 0.57 | 0.01 |
| 6.40 | 0.81 | 0.61 | 0.01 |
| 6.60 | 0.84 | 0.64 | 0.01 |
| 6.80 | 0.88 | 0.67 | 0.01 |
| 7.00 | 0.92 | 0.71 | 0.02 |
| 7.20 | 0.95 | 0.75 | 0.02 |
| 7.40 | 0.99 | 0.78 | 0.02 |
| 7.60 | 1.03 | 0.82 | 0.02 |
| 7.80 | 1.07 | 0.86 | 0.02 |
| 8.00 | 1.11 | 0.90 | 0.02 |
| 8.20 | 1.15 | 0.94 | 0.02 |
| 8.40 | 1.20 | 0.98 | 0.02 |
| 8.60 | 1.25 | 1.03 | 0.02 |
| 8.80 | 1.30 | 1.09 | 0.02 |
| 9.00 | 1.36 | 1.14 | 0.02 |
| 9.20 | 1.42 | 1.20 | 0.03 |
| 9.40 | 1.48 | 1.26 | 0.03 |
| 9.60 | 1.54 | 1.32 | 0.03 |
| 9.80 | 1.60 | 1.38 | 0.03 |
| 10.00 | 1.67 | 1.45 | 0.03 |
| 10.20 | 1.75 | 1.53 | 0.03 |
| 10.40 | 1.84 | 1.62 | 0.04 |
| 10.60 | 1.94 | 1.71 | 0.04 |
| 10.80 | 2.05 | 1.82 | 0.05 |
| 11.00 | 2.17 | 1.95 | 0.05 |
| 11.20 | 2.32 | 2.10 | 0.07 |
| 11.40 | 2.51 | 2.28 | 0.08 |
| 11.60 | 2.84 | 2.61 | 0.15 |
| 11.80 | 3.98 | 3.75 | **0.53** |
| 12.00 | 6.13 | 5.89 | **0.97** |
| 12.20 | 6.46 | 6.22 | 0.14 |
| 12.40 | 6.71 | 6.47 | 0.10 |
| 12.60 | 6.88 | 6.64 | 0.07 |
| 12.80 | 7.02 | 6.78 | 0.06 |
| 13.00 | 7.14 | 6.90 | 0.05 |
| 13.20 | 7.25 | 7.01 | 0.05 |
| 13.40 | 7.35 | 7.11 | 0.04 |
| 13.60 | 7.43 | 7.19 | 0.04 |
| 13.80 | 7.51 | 7.27 | 0.03 |
| 14.00 | 7.58 | 7.35 | 0.03 |
| 14.20 | 7.65 | 7.41 | 0.03 |
| 14.40 | 7.72 | 7.48 | 0.03 |
| 14.60 | 7.78 | 7.54 | 0.03 |
| 14.80 | 7.84 | 7.60 | 0.03 |
| 15.00 | 7.89 | 7.66 | 0.02 |
| 15.20 | 7.95 | 7.71 | 0.02 |
| 15.40 | 8.00 | 7.76 | 0.02 |
| 15.60 | 8.05 | 7.81 | 0.02 |
| 15.80 | 8.10 | 7.86 | 0.02 |
| 16.00 | 8.14 | 7.90 | 0.02 |
| 16.20 | 8.18 | 7.94 | 0.02 |
| 16.40 | 8.22 | 7.98 | 0.02 |
| 16.60 | 8.26 | 8.02 | 0.02 |
| 16.80 | 8.30 | 8.06 | 0.02 |
| 17.00 | 8.34 | 8.10 | 0.02 |
| 17.20 | 8.38 | 8.14 | 0.02 |
| 17.40 | 8.42 | 8.18 | 0.02 |
| 17.60 | 8.45 | 8.21 | 0.02 |
| 17.80 | 8.49 | 8.25 | 0.01 |
| 18.00 | 8.52 | 8.28 | 0.01 |
| 18.20 | 8.55 | 8.31 | 0.01 |
| 18.40 | 8.58 | 8.34 | 0.01 |
| 18.60 | 8.61 | 8.37 | 0.01 |
| 18.80 | 8.65 | 8.40 | 0.01 |
| 19.00 | 8.67 | 8.43 | 0.01 |
| 19.20 | 8.70 | 8.46 | 0.01 |
| 19.40 | 8.73 | 8.49 | 0.01 |
| 19.60 | 8.76 | 8.52 | 0.01 |
| 19.80 | 8.78 | 8.54 | 0.01 |
| 20.00 | **8.81** | **8.57** | 0.01 |

## Summary for Subcatchment 16S: Developed

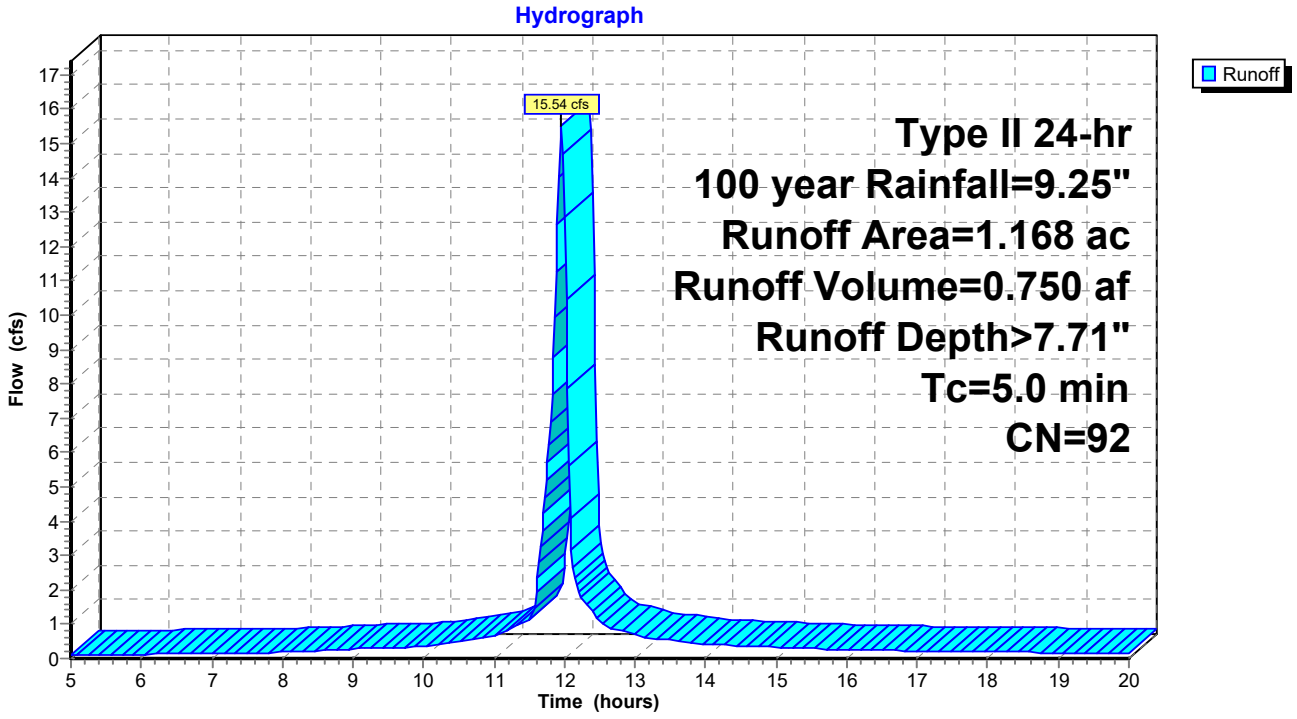
Runoff = 15.54 cfs @ 11.96 hrs, Volume= 0.750 af, Depth> 7.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Type II 24-hr 100 year Rainfall=9.25"

| Area (ac) | CN | Description |
|---|---|---|
| 0.770 | 98 | Paved parking, HSG D |
| 0.398 | 80 | >75% Grass cover, Good, HSG D |
| 1.168 | 92 | Weighted Average |
| 0.398 | | 34.08% Pervious Area |
| 0.770 | | 65.92% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Minimum** |

## Subcatchment 16S: Developed



## Hydrograph for Subcatchment 16S: Developed

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|---|---|---|---|
| 5.00 | 0.58 | 0.13 | 0.09 |
| 5.20 | 0.61 | 0.15 | 0.10 |
| 5.40 | 0.64 | 0.16 | 0.10 |
| 5.60 | 0.67 | 0.18 | 0.11 |
| 5.80 | 0.71 | 0.20 | 0.12 |
| 6.00 | 0.74 | 0.22 | 0.12 |
| 6.20 | 0.77 | 0.24 | 0.13 |
| 6.40 | 0.81 | 0.27 | 0.13 |
| 6.60 | 0.84 | 0.29 | 0.14 |
| 6.80 | 0.88 | 0.32 | 0.15 |
| 7.00 | 0.92 | 0.34 | 0.15 |
| 7.20 | 0.95 | 0.37 | 0.16 |
| 7.40 | 0.99 | 0.40 | 0.16 |
| 7.60 | 1.03 | 0.42 | 0.17 |
| 7.80 | 1.07 | 0.45 | 0.18 |
| 8.00 | 1.11 | 0.49 | 0.18 |
| 8.20 | 1.15 | 0.52 | 0.20 |
| 8.40 | 1.20 | 0.55 | 0.22 |
| 8.60 | 1.25 | 0.59 | 0.24 |
| 8.80 | 1.30 | 0.64 | 0.26 |
| 9.00 | 1.36 | 0.68 | 0.28 |
| 9.20 | 1.42 | 0.73 | 0.29 |
| 9.40 | 1.48 | 0.78 | 0.29 |
| 9.60 | 1.54 | 0.83 | 0.30 |
| 9.80 | 1.60 | 0.89 | 0.33 |
| 10.00 | 1.67 | 0.95 | 0.36 |
| 10.20 | 1.75 | 1.02 | 0.41 |
| 10.40 | 1.84 | 1.09 | 0.46 |
| 10.60 | 1.94 | 1.18 | 0.51 |
| 10.80 | 2.05 | 1.28 | 0.59 |
| 11.00 | 2.17 | 1.39 | 0.68 |
| 11.20 | 2.32 | 1.53 | 0.83 |
| 11.40 | 2.51 | 1.70 | 1.04 |
| 11.60 | 2.84 | 2.01 | 1.93 |
| 11.80 | 3.98 | 3.10 | **6.87** |
| 12.00 | 6.13 | 5.20 | **12.87** |
| 12.20 | 6.46 | 5.52 | 1.90 |
| 12.40 | 6.71 | 5.77 | 1.37 |
| 12.60 | 6.88 | 5.93 | 0.94 |
| 12.80 | 7.02 | 6.07 | 0.81 |
| 13.00 | 7.14 | 6.19 | 0.70 |
| 13.20 | 7.25 | 6.30 | 0.62 |
| 13.40 | 7.35 | 6.40 | 0.56 |
| 13.60 | 7.43 | 6.48 | 0.50 |
| 13.80 | 7.51 | 6.56 | 0.46 |
| 14.00 | 7.58 | 6.63 | 0.42 |
| 14.20 | 7.65 | 6.70 | 0.39 |
| 14.40 | 7.72 | 6.76 | 0.37 |
| 14.60 | 7.78 | 6.82 | 0.36 |
| 14.80 | 7.84 | 6.88 | 0.34 |
| 15.00 | 7.89 | 6.94 | 0.33 |
| 15.20 | 7.95 | 6.99 | 0.31 |
| 15.40 | 8.00 | 7.04 | 0.30 |
| 15.60 | 8.05 | 7.09 | 0.28 |
| 15.80 | 8.10 | 7.14 | 0.27 |
| 16.00 | 8.14 | 7.18 | 0.25 |
| 16.20 | 8.18 | 7.22 | 0.24 |
| 16.40 | 8.22 | 7.26 | 0.24 |
| 16.60 | 8.26 | 7.30 | 0.23 |
| 16.80 | 8.30 | 7.34 | 0.23 |
| 17.00 | 8.34 | 7.38 | 0.22 |
| 17.20 | 8.38 | 7.42 | 0.22 |
| 17.40 | 8.42 | 7.45 | 0.21 |
| 17.60 | 8.45 | 7.49 | 0.21 |
| 17.80 | 8.49 | 7.52 | 0.20 |
| 18.00 | 8.52 | 7.56 | 0.20 |
| 18.20 | 8.55 | 7.59 | 0.19 |
| 18.40 | 8.58 | 7.62 | 0.19 |
| 18.60 | 8.61 | 7.65 | 0.18 |
| 18.80 | 8.65 | 7.68 | 0.17 |
| 19.00 | 8.67 | 7.71 | 0.17 |
| 19.20 | 8.70 | 7.74 | 0.16 |
| 19.40 | 8.73 | 7.77 | 0.16 |
| 19.60 | 8.76 | 7.79 | 0.15 |
| 19.80 | 8.78 | 7.82 | 0.15 |
| 20.00 | **8.81** | **7.84** | 0.14 |

## Summary for Pond 14P: (new Pond)

Inflow Area = 1.168 ac, 65.92% Impervious, Inflow Depth > 7.71" for 100 year event
Inflow = 15.54 cfs @ 11.96 hrs, Volume= 0.750 af
Outflow = 8.68 cfs @ 12.03 hrs, Volume= 0.732 af, Atten= 44%, Lag= 4.7 min
Primary = 8.68 cfs @ 12.03 hrs, Volume= 0.732 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs
Peak Elev= 1,242.23' @ 12.03 hrs Surf.Area= 3,920 sf Storage= 6,081 cf

Plug-Flow detention time= 23.8 min calculated for 0.731 af (97% of inflow)
Center-of-Mass det. time= 13.4 min ( 750.1 - 736.7 )

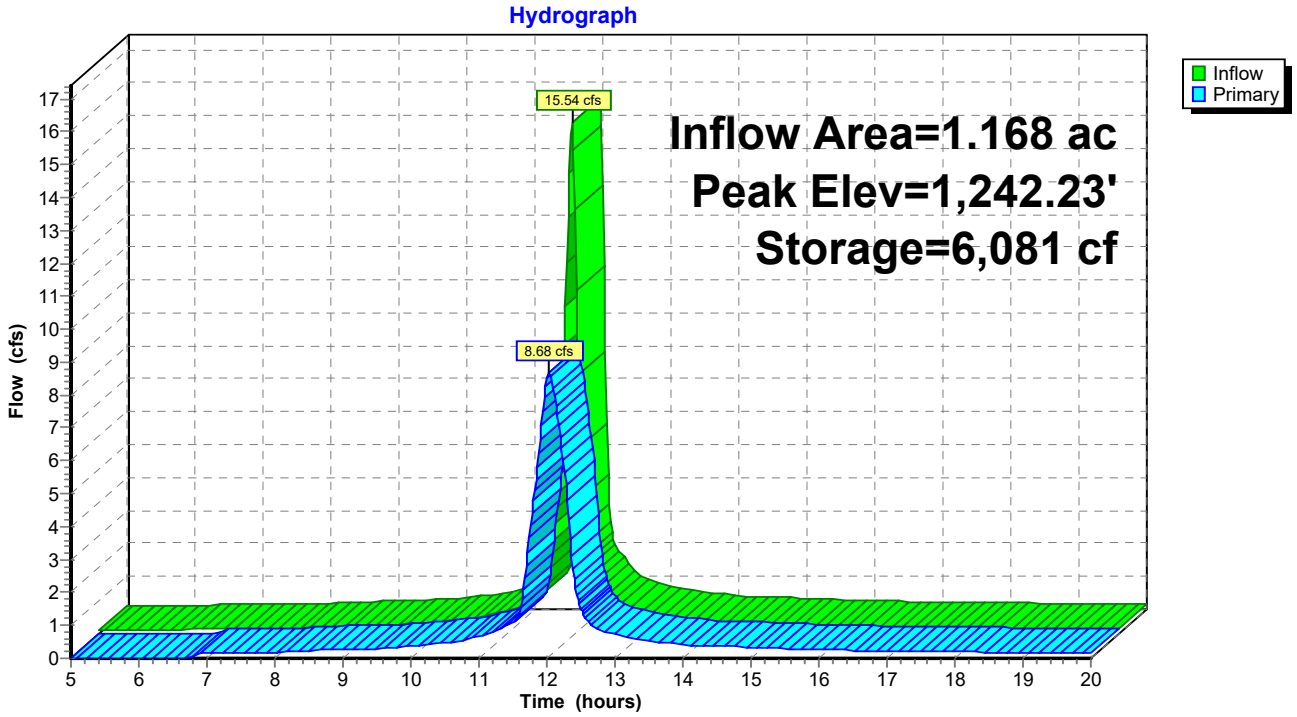
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 1,239.69' | 10,748 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 1,239.69 | 0 | 0 | 0 |
| 1,240.00 | 1,432 | 222 | 222 |
| 1,241.00 | 2,461 | 1,947 | 2,168 |
| 1,242.00 | 3,619 | 3,040 | 5,208 |
| 1,243.25 | 5,244 | 5,539 | 10,748 |

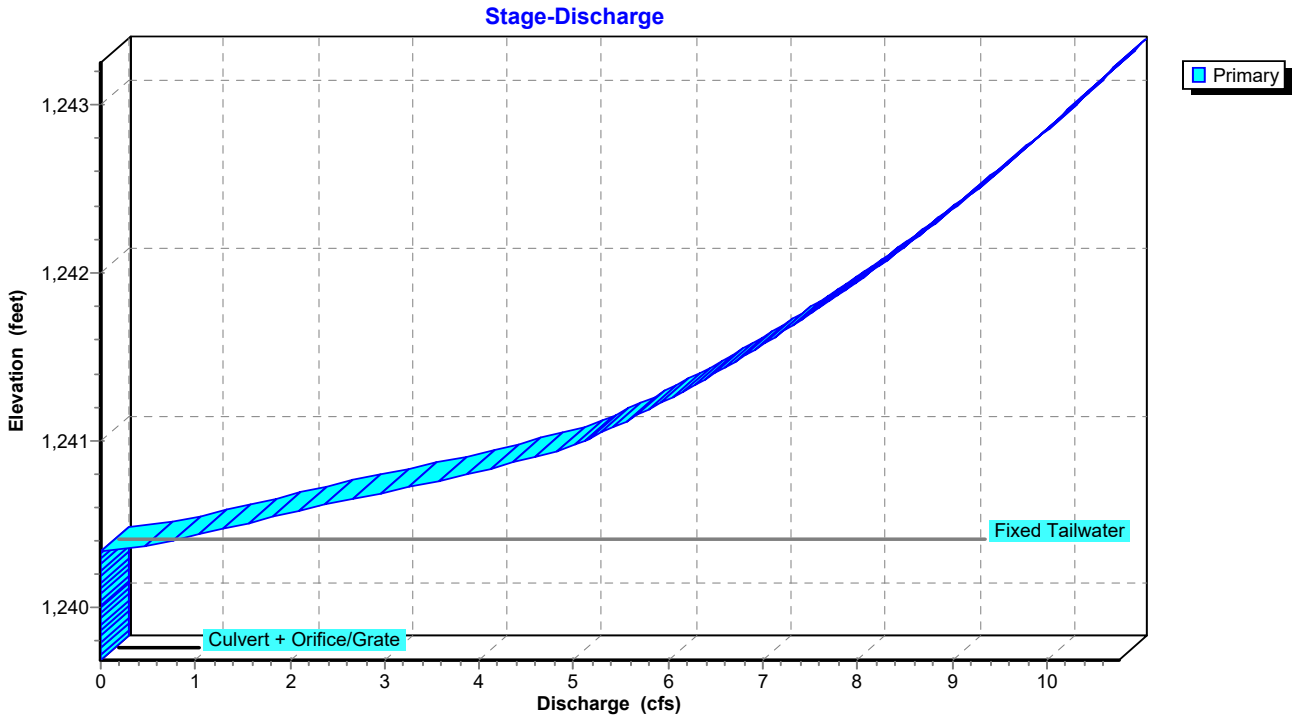
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 1,239.69' | **18.0" Round Culvert**<br>L= 26.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 1,239.69' / 1,239.47' S= 0.0085 '/' Cc= 0.900<br>n= 0.013, Flow Area= 1.77 sf |
| #2 | Device 1 | 1,239.69' | **15.5" Vert. Orifice/Grate** C= 0.600 |

**Primary OutFlow** Max=8.67 cfs @ 12.03 hrs HW=1,242.23' TW=1,240.34' (Fixed TW Elev= 1,240.34')
↑**1=Culvert** (Passes 8.67 cfs of 11.31 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 8.67 cfs @ 6.61 fps)

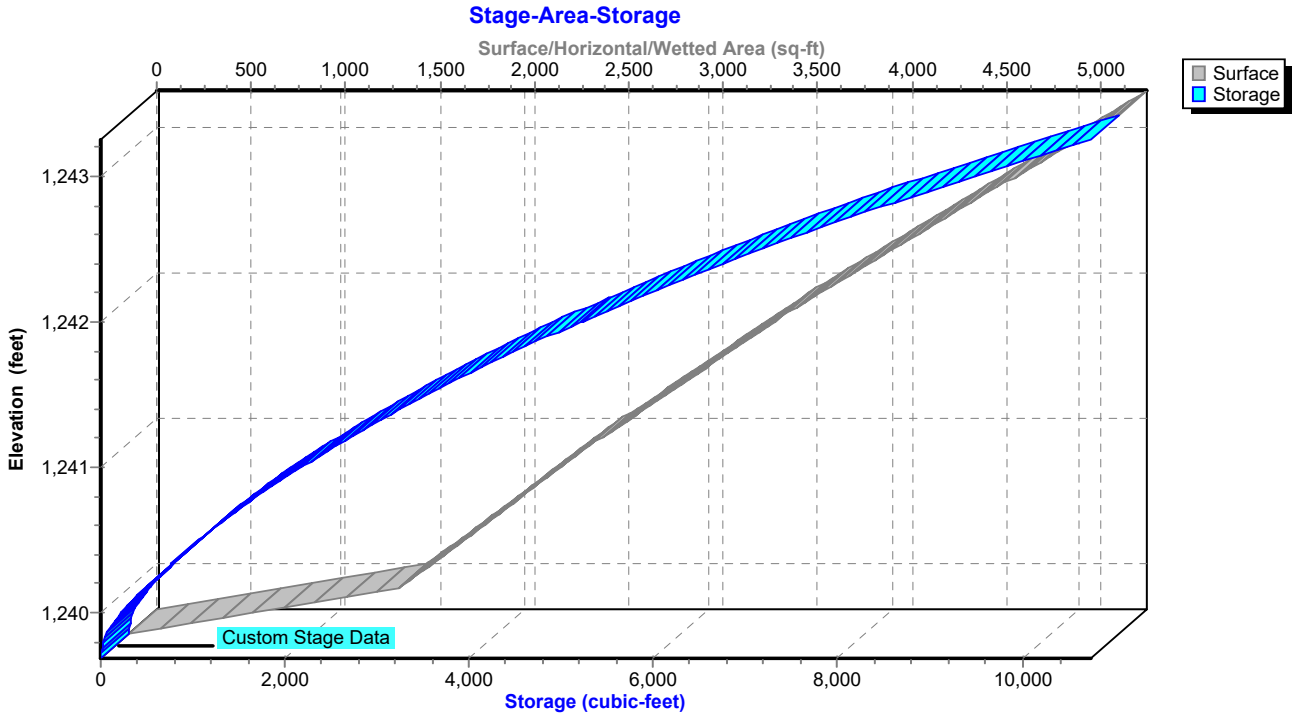
## Pond 14P: (new Pond)




## Pond 14P: (new Pond)



## Pond 14P: (new Pond)



## Hydrograph for Pond 14P: (new Pond)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|
| 5.00 | 0.09 | 3 | 1,239.73 | 0.00 |
| 5.40 | 0.10 | 144 | 1,239.94 | 0.00 |
| 5.80 | 0.12 | 301 | 1,240.05 | 0.00 |
| 6.20 | 0.13 | 477 | 1,240.17 | 0.00 |
| 6.60 | 0.14 | 670 | 1,240.28 | 0.00 |
| 7.00 | 0.15 | 784 | 1,240.35 | 0.15 |
| 7.40 | 0.16 | 785 | 1,240.35 | 0.16 |
| 7.80 | 0.18 | 786 | 1,240.35 | 0.18 |
| 8.20 | 0.20 | 788 | 1,240.35 | 0.19 |
| 8.60 | 0.24 | 792 | 1,240.35 | 0.23 |
| 9.00 | 0.28 | 796 | 1,240.36 | 0.27 |
| 9.40 | 0.29 | 798 | 1,240.36 | 0.29 |
| 9.80 | 0.33 | 802 | 1,240.36 | 0.33 |
| 10.20 | 0.41 | 809 | 1,240.36 | 0.40 |
| 10.60 | 0.51 | 823 | 1,240.37 | 0.50 |
| 11.00 | 0.68 | 857 | 1,240.39 | 0.65 |
| 11.40 | 1.04 | 930 | 1,240.43 | 0.97 |
| 11.80 | **6.87** | **2,008** | **1,240.93** | **4.80** |
| 12.20 | **1.90** | **3,468** | **1,241.48** | **6.72** |
| 12.60 | 0.94 | 970 | 1,240.45 | 1.12 |
| 13.00 | 0.70 | 874 | 1,240.40 | 0.74 |
| 13.40 | 0.56 | 840 | 1,240.38 | 0.58 |
| 13.80 | 0.46 | 817 | 1,240.37 | 0.47 |
| 14.20 | 0.39 | 808 | 1,240.36 | 0.39 |
| 14.60 | 0.36 | 805 | 1,240.36 | 0.36 |
| 15.00 | 0.33 | 802 | 1,240.36 | 0.33 |
| 15.40 | 0.30 | 799 | 1,240.36 | 0.30 |
| 15.80 | 0.27 | 796 | 1,240.36 | 0.27 |
| 16.20 | 0.24 | 793 | 1,240.35 | 0.25 |
| 16.60 | 0.23 | 792 | 1,240.35 | 0.23 |
| 17.00 | 0.22 | 791 | 1,240.35 | 0.22 |
| 17.40 | 0.21 | 790 | 1,240.35 | 0.21 |
| 17.80 | 0.20 | 789 | 1,240.35 | 0.20 |
| 18.20 | 0.19 | 788 | 1,240.35 | 0.19 |
| 18.60 | 0.18 | 787 | 1,240.35 | 0.18 |
| 19.00 | 0.17 | 786 | 1,240.35 | 0.17 |
| 19.40 | 0.16 | 785 | 1,240.35 | 0.16 |
| 19.80 | 0.15 | 784 | 1,240.35 | 0.15 |

## Stage-Discharge for Pond 14P: (new Pond)

| Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|---|---|---|---|
| 1,239.69 | 0.00 | 1,240.73 | 3.32 | 1,241.77 | 7.54 | 1,242.81 | 9.92 |
| 1,239.71 | 0.00 | 1,240.75 | 3.50 | 1,241.79 | 7.60 | 1,242.83 | 9.96 |
| 1,239.73 | 0.00 | 1,240.77 | 3.67 | 1,241.81 | 7.65 | 1,242.85 | 10.00 |
| 1,239.75 | 0.00 | 1,240.79 | 3.84 | 1,241.83 | 7.70 | 1,242.87 | 10.04 |
| 1,239.77 | 0.00 | 1,240.81 | 3.98 | 1,241.85 | 7.75 | 1,242.89 | 10.08 |
| 1,239.79 | 0.00 | 1,240.83 | 4.13 | 1,241.87 | 7.80 | 1,242.91 | 10.11 |
| 1,239.81 | 0.00 | 1,240.85 | 4.26 | 1,241.89 | 7.86 | 1,242.93 | 10.15 |
| 1,239.83 | 0.00 | 1,240.87 | 4.40 | 1,241.91 | 7.91 | 1,242.95 | 10.19 |
| 1,239.85 | 0.00 | 1,240.89 | 4.53 | 1,241.93 | 7.96 | 1,242.97 | 10.23 |
| 1,239.87 | 0.00 | 1,240.91 | 4.66 | 1,241.95 | 8.01 | 1,242.99 | 10.27 |
| 1,239.89 | 0.00 | 1,240.93 | 4.78 | 1,241.97 | 8.06 | 1,243.01 | 10.31 |
| 1,239.91 | 0.00 | 1,240.95 | 4.90 | 1,241.99 | 8.10 | 1,243.03 | 10.35 |
| 1,239.93 | 0.00 | 1,240.97 | 5.00 | 1,242.01 | 8.15 | 1,243.05 | 10.39 |
| 1,239.95 | 0.00 | 1,240.99 | 5.09 | 1,242.03 | 8.20 | 1,243.07 | 10.42 |
| 1,239.97 | 0.00 | 1,241.01 | 5.16 | 1,242.05 | 8.25 | 1,243.09 | 10.46 |
| 1,239.99 | 0.00 | 1,241.03 | 5.24 | 1,242.07 | 8.30 | 1,243.11 | 10.50 |
| 1,240.01 | 0.00 | 1,241.05 | 5.32 | 1,242.09 | 8.35 | 1,243.13 | 10.54 |
| 1,240.03 | 0.00 | 1,241.07 | 5.39 | 1,242.11 | 8.39 | 1,243.15 | 10.58 |
| 1,240.05 | 0.00 | 1,241.09 | 5.46 | 1,242.13 | 8.44 | 1,243.17 | 10.61 |
| 1,240.07 | 0.00 | 1,241.11 | 5.54 | 1,242.15 | 8.49 | 1,243.19 | 10.65 |
| 1,240.09 | 0.00 | 1,241.13 | 5.61 | 1,242.17 | 8.54 | 1,243.21 | 10.69 |
| 1,240.11 | 0.00 | 1,241.15 | 5.68 | 1,242.19 | 8.58 | 1,243.23 | 10.73 |
| 1,240.13 | 0.00 | 1,241.17 | 5.75 | 1,242.21 | 8.63 | 1,243.25 | **10.76** |
| 1,240.15 | 0.00 | 1,241.19 | 5.82 | 1,242.23 | 8.67 | | |
| 1,240.17 | 0.00 | 1,241.21 | 5.88 | 1,242.25 | 8.72 | | |
| 1,240.19 | 0.00 | 1,241.23 | 5.95 | 1,242.27 | 8.77 | | |
| 1,240.21 | 0.00 | 1,241.25 | 6.02 | 1,242.29 | 8.81 | | |
| 1,240.23 | 0.00 | 1,241.27 | 6.08 | 1,242.31 | 8.86 | | |
| 1,240.25 | 0.00 | 1,241.29 | 6.15 | 1,242.33 | 8.90 | | |
| 1,240.27 | 0.00 | 1,241.31 | 6.21 | 1,242.35 | 8.95 | | |
| 1,240.29 | 0.00 | 1,241.33 | 6.28 | 1,242.37 | 8.99 | | |
| 1,240.31 | 0.00 | 1,241.35 | 6.34 | 1,242.39 | 9.03 | | |
| 1,240.33 | 0.00 | 1,241.37 | 6.40 | 1,242.41 | 9.08 | | |
| 1,240.35 | 0.27 | 1,241.39 | 6.47 | 1,242.43 | 9.12 | | |
| 1,240.37 | 0.50 | 1,241.41 | 6.53 | 1,242.45 | 9.16 | | |
| 1,240.39 | 0.67 | 1,241.43 | 6.59 | 1,242.47 | 9.21 | | |
| 1,240.41 | 0.83 | 1,241.45 | 6.65 | 1,242.49 | 9.25 | | |
| 1,240.43 | 0.98 | 1,241.47 | 6.71 | 1,242.51 | 9.29 | | |
| 1,240.45 | 1.13 | 1,241.49 | 6.77 | 1,242.53 | 9.34 | | |
| 1,240.47 | 1.27 | 1,241.51 | 6.82 | 1,242.55 | 9.38 | | |
| 1,240.49 | 1.42 | 1,241.53 | 6.88 | 1,242.57 | 9.42 | | |
| 1,240.51 | 1.57 | 1,241.55 | 6.94 | 1,242.59 | 9.46 | | |
| 1,240.53 | 1.72 | 1,241.57 | 7.00 | 1,242.61 | 9.51 | | |
| 1,240.55 | 1.87 | 1,241.59 | 7.05 | 1,242.63 | 9.55 | | |
| 1,240.57 | 2.02 | 1,241.61 | 7.11 | 1,242.65 | 9.59 | | |
| 1,240.59 | 2.18 | 1,241.63 | 7.17 | 1,242.67 | 9.63 | | |
| 1,240.61 | 2.33 | 1,241.65 | 7.22 | 1,242.69 | 9.67 | | |
| 1,240.63 | 2.49 | 1,241.67 | 7.28 | 1,242.71 | 9.71 | | |
| 1,240.65 | 2.65 | 1,241.69 | 7.33 | 1,242.73 | 9.75 | | |
| 1,240.67 | 2.82 | 1,241.71 | 7.38 | 1,242.75 | 9.79 | | |
| 1,240.69 | 2.98 | 1,241.73 | 7.44 | 1,242.77 | 9.84 | | |
| 1,240.71 | 3.15 | 1,241.75 | 7.49 | 1,242.79 | 9.88 | | |

## Stage-Area-Storage for Pond 14P: (new Pond)

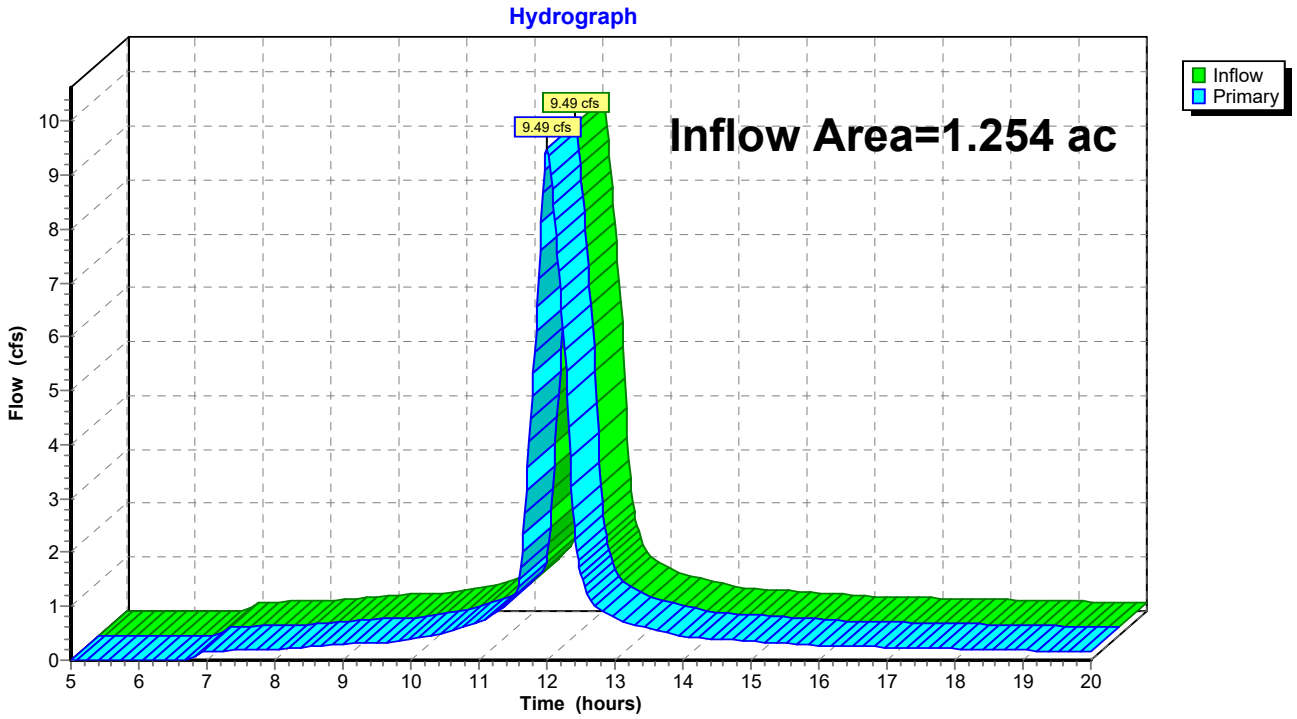
| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 1,239.69 | 0 | 0 |
| 1,239.74 | 231 | 6 |
| 1,239.79 | 462 | 23 |
| 1,239.84 | 693 | 52 |
| 1,239.89 | 924 | 92 |
| 1,239.94 | 1,155 | 144 |
| 1,239.99 | 1,386 | 208 |
| 1,240.04 | 1,473 | 280 |
| 1,240.09 | 1,525 | 355 |
| 1,240.14 | 1,576 | 433 |
| 1,240.19 | 1,628 | 513 |
| 1,240.24 | 1,679 | 595 |
| 1,240.29 | 1,730 | 681 |
| 1,240.34 | 1,782 | 768 |
| 1,240.39 | 1,833 | 859 |
| 1,240.44 | 1,885 | 952 |
| 1,240.49 | 1,936 | 1,047 |
| 1,240.54 | 1,988 | 1,145 |
| 1,240.59 | 2,039 | 1,246 |
| 1,240.64 | 2,091 | 1,349 |
| 1,240.69 | 2,142 | 1,455 |
| 1,240.74 | 2,193 | 1,563 |
| 1,240.79 | 2,245 | 1,674 |
| 1,240.84 | 2,296 | 1,788 |
| 1,240.89 | 2,348 | 1,904 |
| 1,240.94 | 2,399 | 2,023 |
| 1,240.99 | 2,451 | 2,144 |
| 1,241.04 | 2,507 | 2,268 |
| 1,241.09 | 2,565 | 2,395 |
| 1,241.14 | 2,623 | 2,524 |
| 1,241.19 | 2,681 | 2,657 |
| 1,241.24 | 2,739 | 2,792 |
| 1,241.29 | 2,797 | 2,931 |
| 1,241.34 | 2,855 | 3,072 |
| 1,241.39 | 2,913 | 3,216 |
| 1,241.44 | 2,971 | 3,363 |
| 1,241.49 | 3,028 | 3,513 |
| 1,241.54 | 3,086 | 3,666 |
| 1,241.59 | 3,144 | 3,822 |
| 1,241.64 | 3,202 | 3,981 |
| 1,241.69 | 3,260 | 4,142 |
| 1,241.74 | 3,318 | 4,307 |
| 1,241.79 | 3,376 | 4,474 |
| 1,241.84 | 3,434 | 4,644 |
| 1,241.89 | 3,492 | 4,817 |
| 1,241.94 | 3,550 | 4,993 |
| 1,241.99 | 3,607 | 5,172 |
| 1,242.04 | 3,671 | 5,354 |
| 1,242.09 | 3,736 | 5,539 |
| 1,242.14 | 3,801 | 5,728 |
| 1,242.19 | 3,866 | 5,920 |
| 1,242.24 | 3,931 | 6,114 |
| 1,242.29 | 3,996 | 6,313 |
| 1,242.34 | 4,061 | 6,514 |
| 1,242.39 | 4,126 | 6,719 |
| 1,242.44 | 4,191 | 6,927 |
| 1,242.49 | 4,256 | 7,138 |
| 1,242.54 | 4,321 | 7,352 |
| 1,242.59 | 4,386 | 7,570 |
| 1,242.64 | 4,451 | 7,791 |
| 1,242.69 | 4,516 | 8,015 |
| 1,242.74 | 4,581 | 8,242 |
| 1,242.79 | 4,646 | 8,473 |
| 1,242.84 | 4,711 | 8,707 |
| 1,242.89 | 4,776 | 8,944 |
| 1,242.94 | 4,841 | 9,185 |
| 1,242.99 | 4,906 | 9,428 |
| 1,243.04 | 4,971 | 9,675 |
| 1,243.09 | 5,036 | 9,925 |
| 1,243.14 | 5,101 | 10,179 |
| 1,243.19 | 5,166 | 10,436 |
| 1,243.24 | **5,231** | **10,695** |

## Summary for Link 15L: (new Link)

Inflow Area = 1.254 ac, 68.26% Impervious, Inflow Depth > 7.57" for 100 year event
Inflow = 9.49 cfs @ 12.00 hrs, Volume= 0.791 af
Primary = 9.49 cfs @ 12.00 hrs, Volume= 0.791 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.02 hrs

## Link 15L: (new Link)



## Hydrograph for Link 15L: (new Link)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|---|---|---|---|
| 5.00 | 0.01 | **0.00** | 0.01 |
| 5.20 | 0.01 | 0.00 | 0.01 |
| 5.40 | 0.01 | 0.00 | 0.01 |
| 5.60 | 0.01 | 0.00 | 0.01 |
| 5.80 | 0.01 | 0.00 | 0.01 |
| 6.00 | 0.01 | 0.00 | 0.01 |
| 6.20 | 0.01 | 0.00 | 0.01 |
| 6.40 | 0.01 | 0.00 | 0.01 |
| 6.60 | 0.01 | 0.00 | 0.01 |
| 6.80 | 0.05 | 0.00 | 0.05 |
| 7.00 | 0.17 | 0.00 | 0.17 |
| 7.20 | 0.17 | 0.00 | 0.17 |
| 7.40 | 0.18 | 0.00 | 0.18 |
| 7.60 | 0.19 | 0.00 | 0.19 |
| 7.80 | 0.19 | 0.00 | 0.19 |
| 8.00 | 0.20 | 0.00 | 0.20 |
| 8.20 | 0.21 | 0.00 | 0.21 |
| 8.40 | 0.23 | 0.00 | 0.23 |
| 8.60 | 0.25 | 0.00 | 0.25 |
| 8.80 | 0.28 | 0.00 | 0.28 |
| 9.00 | 0.30 | 0.00 | 0.30 |
| 9.20 | 0.31 | 0.00 | 0.31 |
| 9.40 | 0.32 | 0.00 | 0.32 |
| 9.60 | 0.32 | 0.00 | 0.32 |
| 9.80 | 0.35 | 0.00 | 0.35 |
| 10.00 | 0.39 | 0.00 | 0.39 |
| 10.20 | 0.43 | 0.00 | 0.43 |
| 10.40 | 0.49 | 0.00 | 0.49 |
| 10.60 | 0.54 | 0.00 | 0.54 |
| 10.80 | 0.62 | 0.00 | 0.62 |
| 11.00 | 0.71 | 0.00 | 0.71 |
| 11.20 | 0.85 | 0.00 | 0.85 |
| 11.40 | 1.05 | 0.00 | 1.05 |
| 11.60 | 1.51 | 0.00 | 1.51 |
| 11.80 | 5.33 | 0.00 | 5.33 |
| 12.00 | **9.49** | 0.00 | **9.49** |
| 12.20 | 6.86 | 0.00 | 6.86 |
| 12.40 | 2.48 | 0.00 | 2.48 |
| 12.60 | 1.19 | 0.00 | 1.19 |
| 12.80 | 0.92 | 0.00 | 0.92 |
| 13.00 | 0.79 | 0.00 | 0.79 |
| 13.20 | 0.69 | 0.00 | 0.69 |
| 13.40 | 0.62 | 0.00 | 0.62 |
| 13.60 | 0.56 | 0.00 | 0.56 |
| 13.80 | 0.51 | 0.00 | 0.51 |
| 14.00 | 0.45 | 0.00 | 0.45 |
| 14.20 | 0.42 | 0.00 | 0.42 |
| 14.40 | 0.40 | 0.00 | 0.40 |
| 14.60 | 0.39 | 0.00 | 0.39 |
| 14.80 | 0.37 | 0.00 | 0.37 |
| 15.00 | 0.36 | 0.00 | 0.36 |
| 15.20 | 0.34 | 0.00 | 0.34 |
| 15.40 | 0.32 | 0.00 | 0.32 |
| 15.60 | 0.31 | 0.00 | 0.31 |
| 15.80 | 0.29 | 0.00 | 0.29 |
| 16.00 | 0.27 | 0.00 | 0.27 |
| 16.20 | 0.26 | 0.00 | 0.26 |
| 16.40 | 0.26 | 0.00 | 0.26 |
| 16.60 | 0.25 | 0.00 | 0.25 |
| 16.80 | 0.25 | 0.00 | 0.25 |
| 17.00 | 0.24 | 0.00 | 0.24 |
| 17.20 | 0.23 | 0.00 | 0.23 |
| 17.40 | 0.23 | 0.00 | 0.23 |
| 17.60 | 0.22 | 0.00 | 0.22 |
| 17.80 | 0.22 | 0.00 | 0.22 |
| 18.00 | 0.21 | 0.00 | 0.21 |
| 18.20 | 0.21 | 0.00 | 0.21 |
| 18.40 | 0.20 | 0.00 | 0.20 |
| 18.60 | 0.19 | 0.00 | 0.19 |
| 18.80 | 0.19 | 0.00 | 0.19 |
| 19.00 | 0.18 | 0.00 | 0.18 |
| 19.20 | 0.18 | 0.00 | 0.18 |
| 19.40 | 0.17 | 0.00 | 0.17 |
| 19.60 | 0.17 | 0.00 | 0.17 |
| 19.80 | 0.16 | 0.00 | 0.16 |
| 20.00 | 0.15 | 0.00 | 0.15 |

# Hydrologic Soil Group and Surface Runoff

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

*Hydrologic soil groups* are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

*Surface runoff* refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

# Report—Hydrologic Soil Group and Surface Runoff

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

| Hydrologic Soil Group and Surface Runoff–Cleveland County, Oklahoma | | | |
|---|---|---|---|
| **Map symbol and soil name** | **Pct. of map unit** | **Surface Runoff** | **Hydrologic Soil Group** |
| | | | |

| Hydrologic Soil Group and Surface Runoff–Cleveland County, Oklahoma | | | |
|---|---|---|---|
| **Map symbol and soil name** | **Pct. of map unit** | **Surface Runoff** | **Hydrologic Soil Group** |
| 49—Kirkland-Urban land-Pawhuska complex, 0 to 3 percent slopes | | | |
| Kirkland | 41 | Very high | D |
| Urban land | 39 | Low | D |
| Pawhuska | 15 | Very high | D |

## Data Source Information

Soil Survey Area: Cleveland County, Oklahoma
Survey Area Data: Version 20, Sep 2, 2022