

DRAINAGE ANALYSIS

LOCATED AT
**58 TURKEY HILL ROAD SOUTH
WESTPORT, CONNECTICUT**

**PREPARED FOR
GLEN GATE**

September 10, 2025



Jim Kousidis, P.E.
CT License No. 26830

1. EXISTING CONDITIONS

This 80,926-sq. ft. residential property is currently developed with a single-family residence, attached garage and driveway, with recently installed subsurface drainage systems. Test pits at the site indicate highly pervious soils that are adequate to accept a subsurface storm drain system. The topography of the property slopes to the north and west, into the wetlands area on the property. According to the Web Soil Survey website (map and soil table attached) the soils in the subject area consist of Canton and Charlton fine sandy loams, 8 to 15 percent slopes, a well-drained soil with a Hydrologic Soil Group "B".

2. PROPOSED CONDITIONS

The owner is proposing to construct a residential addition to the existing garage, a new covered porch, altered driveway and new patios, with associated site improvements. The total proposed impervious surface is 8,200-sq.ft. Stormwater retention systems have recently been installed on site and will be expanded as needed to satisfy the Town of Westport's requirements of zero increase in runoff for a 24-hour, type III rainfall, 25-year storm event. The new roof area, the driveway drains and patio drains must be directed to the proposed retention systems.

3. DRAINAGE

Under existing conditions, the peak runoff from the site is 7.49 cfs for the 25-year storm. The Town's requirement for zero increase in runoff is satisfied by collecting the entire roof and the driveway drain inlets. The runoff from impervious surface area #1 generates a peak 25-year flow of 0.43 cfs. The runoff from impervious surface area #2 generates a peak 25-year flow of 0.34 cfs. The runoff from impervious surface area #3 generates a peak 25-year flow of 0.47 cfs. The overall post conditions runoff is 6.99 cfs. Subsurface drainage system #1 shall be expanded by 40 LF so that it consists of 120 LF of 12" high precast concrete galleries surrounded by 1 foot of clean crushed stone. Subsurface drainage system #2 shall be expanded by 16 LF so that it consists of 80 LF of 18" high precast concrete galleries surrounded by 1 foot of clean crushed stone. Subsurface drainage system #3 shall be expanded by 56 LF so that it consists of 112 LF of 18" high precast concrete galleries surrounded by 1 foot of clean crushed stone. In addition to the above, the drainage systems were checked for the capacity to hold the first flush from all the new impervious surfaces. The runoff volume from 1.3" of rainfall directed to the subsurface drainage systems is (8,807 sq. ft. x 1.3"/12"/ft. = 8 cu. ft.). The holding capacity of the three sets of concrete galleries is 1,421 cu.ft. which well exceeds the 1.3" minimum requirement of pure storage volume.

4. CONCLUSION

The proposed development will increase the amount of impervious area to this site, resulting in higher peak runoff rates. However, with the installation of the proposed stormwater retention systems, the original flow patterns will be maintained and there will be no increase in peak runoff for the 25-year storm event. In addition to controlling stormwater peak runoff, the proposed design incorporates stormwater treatment to control pollution and provide groundwater recharge capacity. The implementation of these techniques and the overall site design layout will result in a finished project that will minimize sediment and erosion impacts during construction and will have no adverse impacts to adjoining properties upon completion.

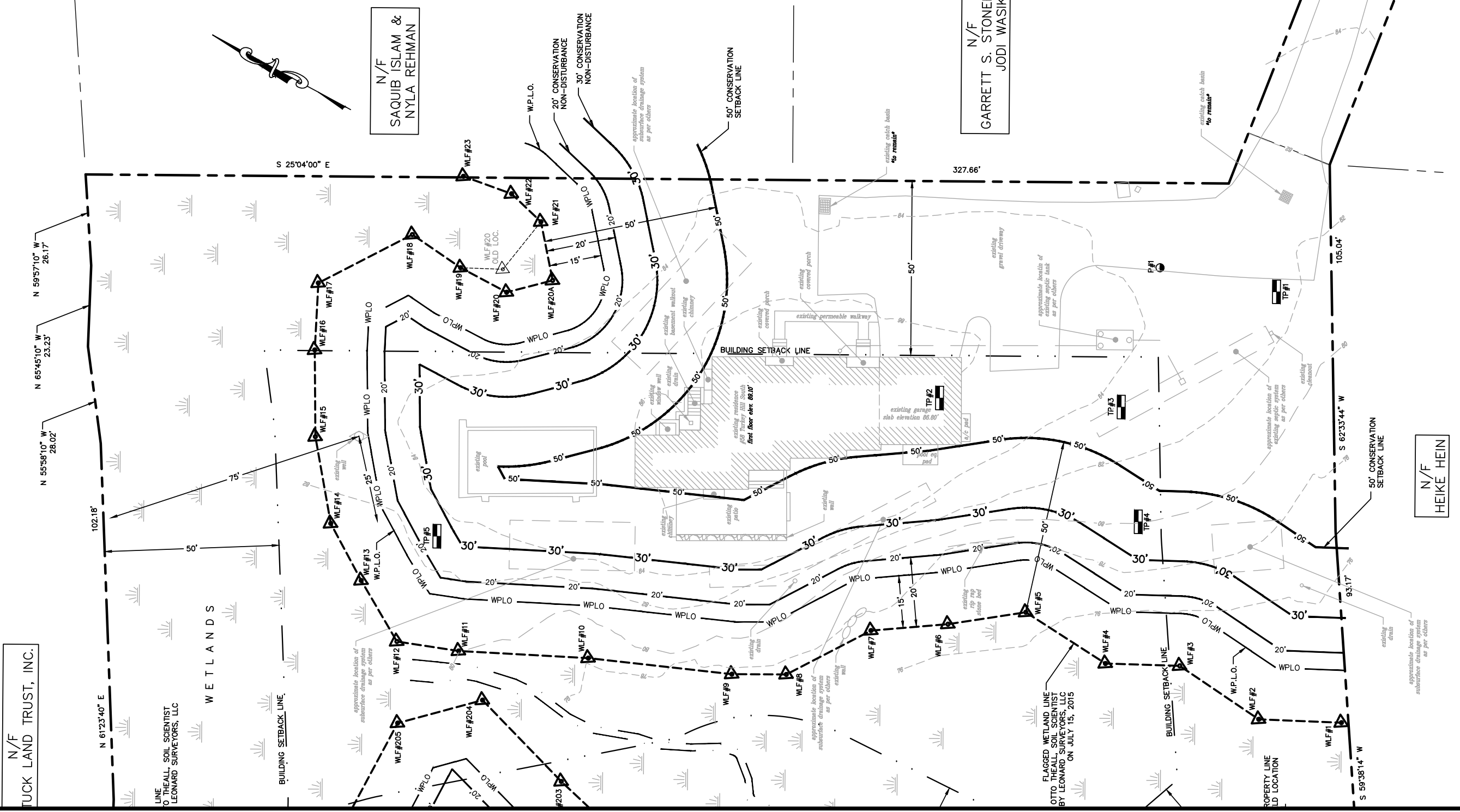
EXISTING DIRECTLY CONNECTED IMPERVIOUS AREA
EXHIBIT "C"
 58 TURKEY HILL ROAD SOUTH, WESTPORT, CT
 PREPARED FOR
GLEN GATE



KOUSIDIS ENGINEERING, LLC
 Land Development Consultants and Site Design
 1525 Black Rock Turnpike, Fairfield, CT 06825 P: 203-557-8943
 E: jim@kousidisengineering.com Web: www.kousidisengineering.com

NOTE: NO IMPERVIOUS AREA IS DIRECTED TO THE TOWN OF WESTPORT DRAINAGE SYSTEM UNDER EXISTING CONDITIONS.

SCALE:
 1" = 30'



N/F
TUCK LAND TRUST, INC.

LINE
 O THEALL, SOIL SCIENTIST
 LEONARD SURVEYORS, LLC

FLAGGED WETLAND LINE
 OTTO THEALL, SOIL SCIENTIST
 BY LEONARD SURVEYORS, LLC
 ON JULY 15, 2015

PROPERTY LINE
 LD LOCATION

PROPOSED DIRECTLY CONNECTED IMPERVIOUS AREA

EXHIBIT "D"

58 TURKEY HILL ROAD SOUTH, WESTPORT, CT

PREPARED FOR

GLEN GATE

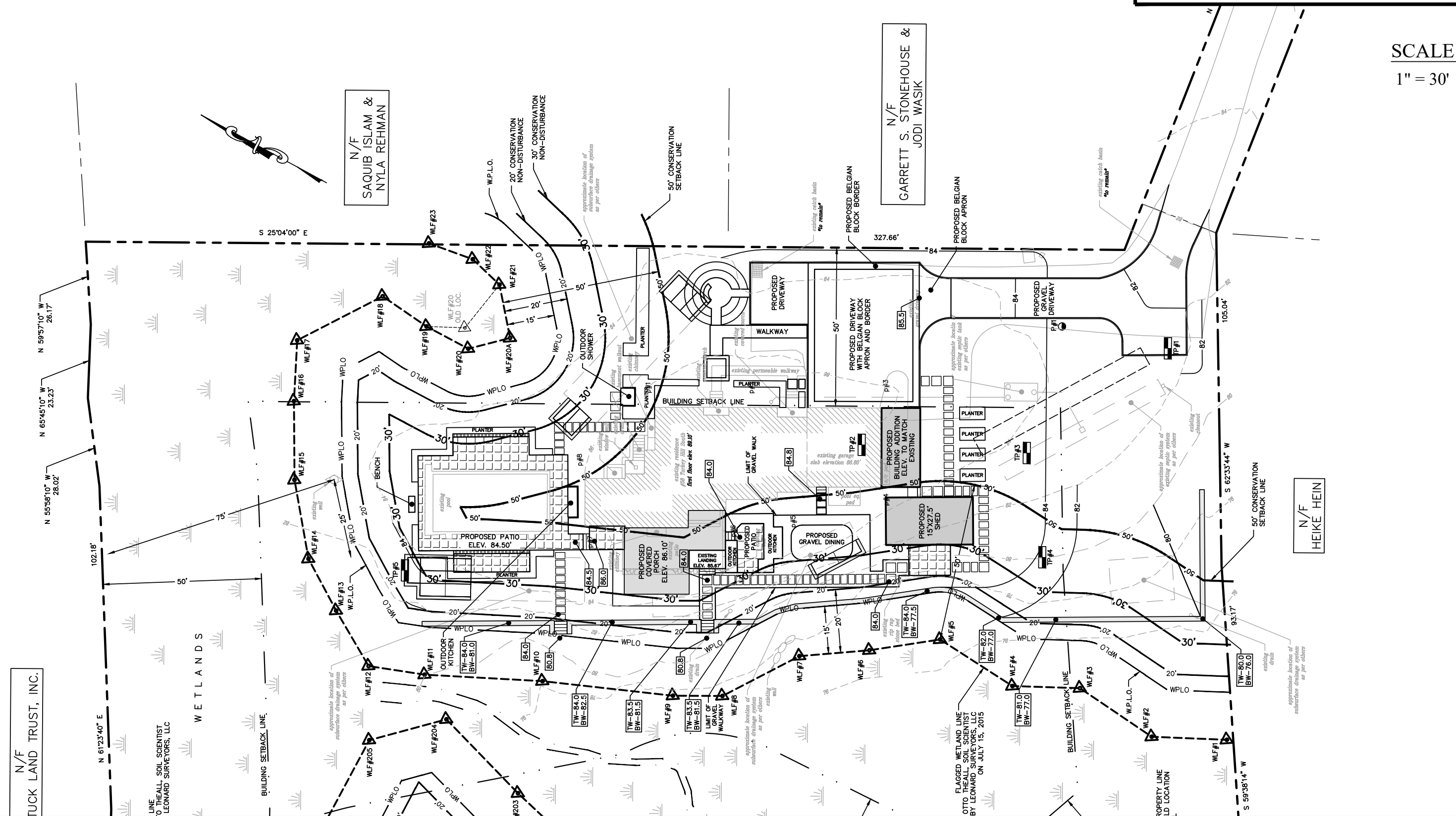


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SCALE:
1" = 30'



N/F SAQUIB ISLAM & NYLA REHMAN

N/F GARRETT S. STONEHOUSE & JODI WASIK

N/F HEIKE HEIN

N/F TUCK LAND TRUST, INC.

LINE O THEALL, SOIL SCIENTIST LEONARD SURVEYORS, LLC

FLAGGED WETLAND LINE OTTO THEALL, SOIL SCIENTIST BY LEONARD SURVEYORS, LLC ON JULY 15, 2015



Kousidis Engineering, LLC
 Land Development Consultants & Site Design

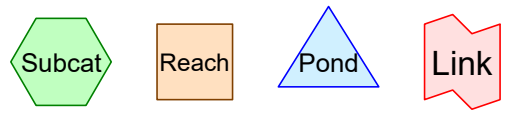
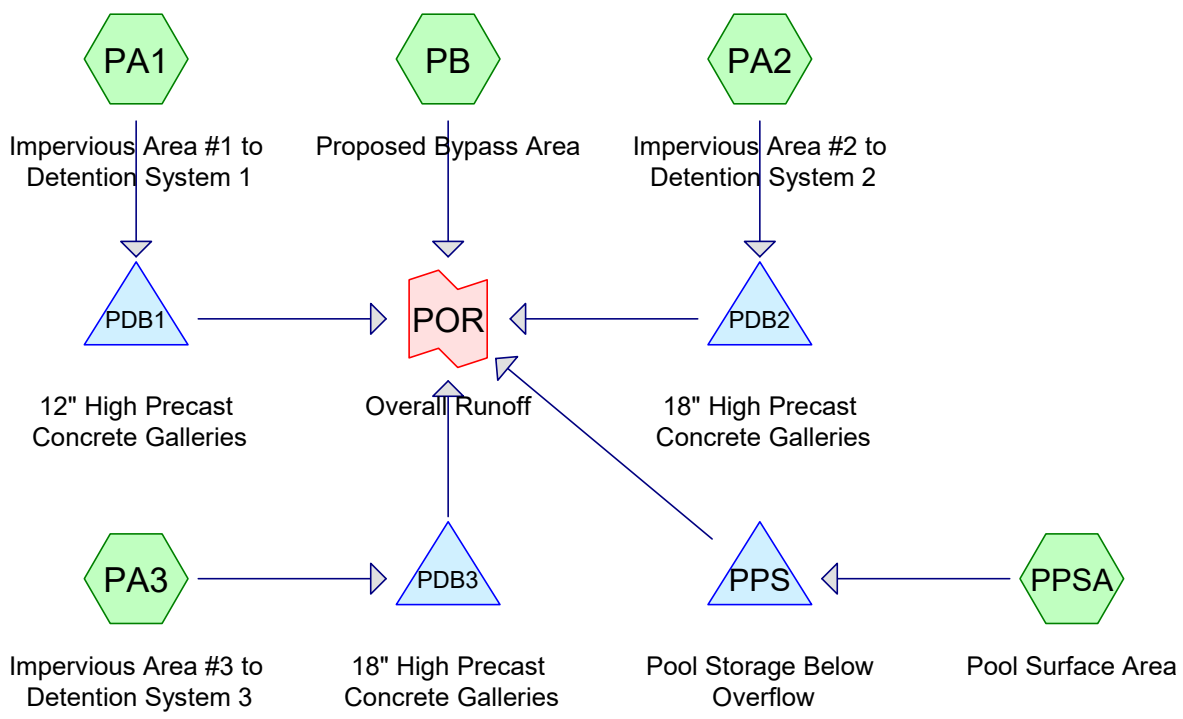
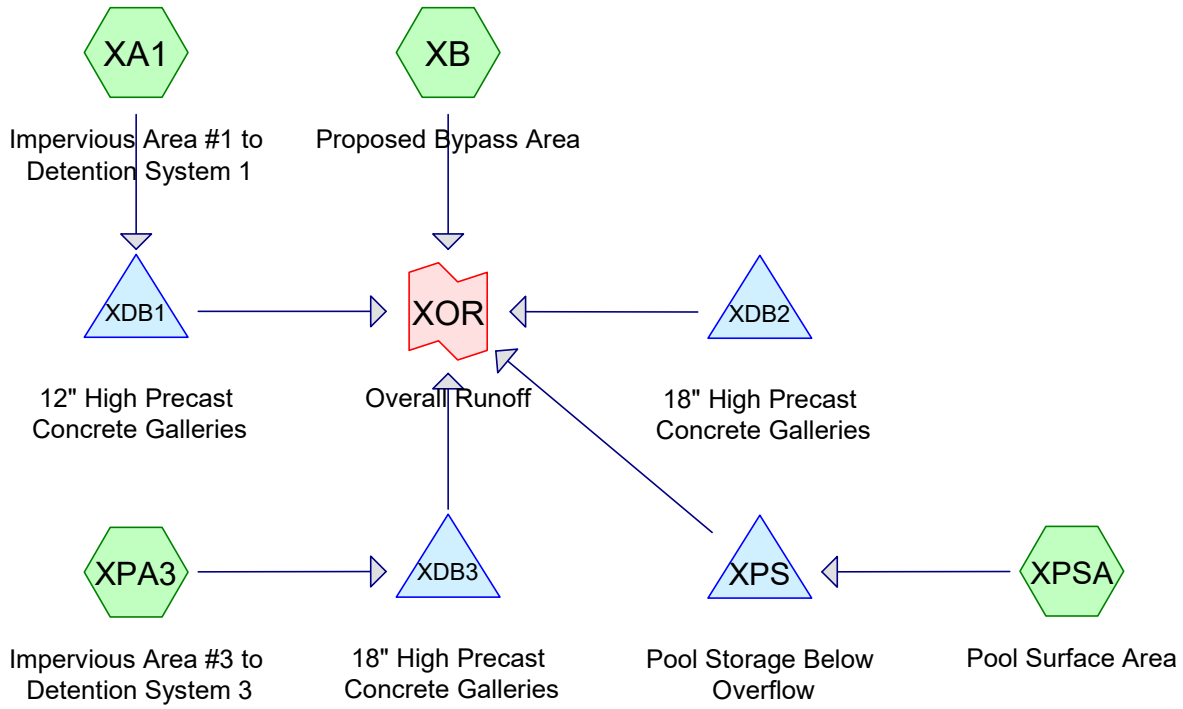
Date: 09/10/2025
 Revised: -

| MS4 Impervious Cover Tracking Worksheet | |
|--|----------------------|
| Address: | 58 Turkey Hill South |
| GIS ID #: | G07 / 036 / 000 |
| Lot Area: | 80,926 SF |

| Existing Conditions | | |
|----------------------------|--------------|-----------|
| Impervious Area | Disconnected | Connected |
| Item | Area (SF) | |
| Building | 2672 | 0 |
| Driveway | 4765 | 0 |
| Patio/Walks | 264 | 0 |
| Pool | 655 | 0 |
| Coping & Equip. Pad | 200 | 0 |
| (Miscellaneous) | 0 | 0 |
| Totals | 8556 | 0 |

| Proposed Conditions | | |
|----------------------------|--------------|-----------|
| Impervious Area | Disconnected | Connected |
| Item | Area (SF) | |
| Building | 4022 | 0 |
| Driveway | 3650 | 0 |
| Patio/Walks | 3114 | 0 |
| Pool | 655 | 0 |
| Coping & Equip. Pad | 200 | 0 |
| Proposed Gravel Path | 550 | 0 |
| Totals | 12191 | 0 |

| Connected Impervious Area Reduction | | |
|--|-----|----|
| Existing Connected Impervious | 0 | SF |
| Proposed Connected Impervious | 0 | SF |
| Reduction | 0 | SF |
| Percent Reduction | N/A | |



Routing Diagram for 58TurkeyHillSouth(09-08-25)_Exist&PropConditions
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58TurkeyHillSouth(09-08-25)_Exist&PropConditions

Type III 24-hr 25 yr Rainfall=6.40"

Prepared by Kousidis Engineering, LLC

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PA1: Impervious Area #1 to Runoff Area=3,060 sf 100.00% Impervious Runoff Depth>6.16"
 Tc=6.0 min CN=98 Runoff=0.43 cfs 1,570 cf

Subcatchment PA2: Impervious Area #2 to Runoff Area=2,425 sf 100.00% Impervious Runoff Depth>6.16"
 Tc=6.0 min CN=98 Runoff=0.34 cfs 1,244 cf

Subcatchment PA3: Impervious Area #3 to Runoff Area=3,322 sf 100.00% Impervious Runoff Depth>6.16"
 Tc=6.0 min CN=98 Runoff=0.47 cfs 1,705 cf

Subcatchment PB: Proposed Bypass Area Runoff Area=72,214 sf 3.02% Impervious Runoff Depth>3.72"
 Flow Length=180' Tc=6.6 min CN=76 Runoff=6.99 cfs 22,410 cf

Subcatchment PPSA: Pool Surface Area Runoff Area=648 sf 100.00% Impervious Runoff Depth>6.16"
 Tc=0.0 min CN=98 Runoff=0.11 cfs 333 cf

Subcatchment XA1: Impervious Area #1 to Runoff Area=550 sf 100.00% Impervious Runoff Depth>6.16"
 Tc=6.0 min CN=98 Runoff=0.08 cfs 282 cf

Subcatchment XB: Proposed Bypass Area Runoff Area=77,599 sf 0.60% Impervious Runoff Depth>3.52"
 Flow Length=97' Slope=0.1134 '/' Tc=4.7 min CN=74 Runoff=7.49 cfs 22,774 cf

Subcatchment XPA3: Impervious Area #3 Runoff Area=2,122 sf 100.00% Impervious Runoff Depth>6.16"
 Tc=6.0 min CN=98 Runoff=0.30 cfs 1,089 cf

Subcatchment XPSA: Pool Surface Area Runoff Area=655 sf 100.00% Impervious Runoff Depth>6.16"
 Tc=0.0 min CN=98 Runoff=0.11 cfs 336 cf

Pond PDB1: 12" High Precast Concrete Peak Elev=83.54' Storage=386 cf Inflow=0.43 cfs 1,570 cf
 Discarded=0.05 cfs 1,430 cf Primary=0.22 cfs 138 cf Outflow=0.27 cfs 1,569 cf

Pond PDB2: 18" High Precast Concrete Peak Elev=81.08' Storage=426 cf Inflow=0.34 cfs 1,244 cf
 Discarded=0.04 cfs 1,235 cf Primary=0.02 cfs 8 cf Outflow=0.07 cfs 1,243 cf

Pond PDB3: 18" High Precast Concrete Peak Elev=83.68' Storage=592 cf Inflow=0.47 cfs 1,705 cf
 Discarded=0.06 cfs 1,703 cf Primary=0.00 cfs 0 cf Outflow=0.06 cfs 1,703 cf

Pond PPS: Pool Storage Below Overflow Peak Elev=85.00' Storage=214 cf Inflow=0.11 cfs 333 cf
 Outflow=0.03 cfs 119 cf

Pond XDB1: 12" High Precast Concrete Galleries Peak Elev=82.65' Storage=51 cf Inflow=0.08 cfs 282 cf
 Discarded=0.02 cfs 282 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 282 cf

Pond XDB2: 18" High Precast Concrete Galleries Peak Elev=0.00' Storage=0 cf
 Discarded=0.00 cfs 0 cf Primary=0.00 cfs 0 cf

Pond XDB3: 18" High Precast Concrete Peak Elev=84.03' Storage=301 cf Inflow=0.30 cfs 1,089 cf
 Discarded=0.03 cfs 978 cf Primary=0.16 cfs 109 cf Outflow=0.19 cfs 1,088 cf

58TurkeyHillSouth(09-08-25)_Exist&PropConditions

Type III 24-hr 25 yr Rainfall=6.40"

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Pond XPS: Pool Storage Below Overflow

Peak Elev=84.50' Storage=217 cf Inflow=0.11 cfs 336 cf
Outflow=0.03 cfs 120 cf

Link POR: Overall Runoff

Inflow=6.99 cfs 22,676 cf
Primary=6.99 cfs 22,676 cf

Link XOR: Overall Runoff

Inflow=7.49 cfs 23,003 cf
Primary=7.49 cfs 23,003 cf

Summary for Subcatchment PA1: Impervious Area #1 to Detention System 1

Runoff = 0.43 cfs @ 12.09 hrs, Volume= 1,570 cf, Depth> 6.16"

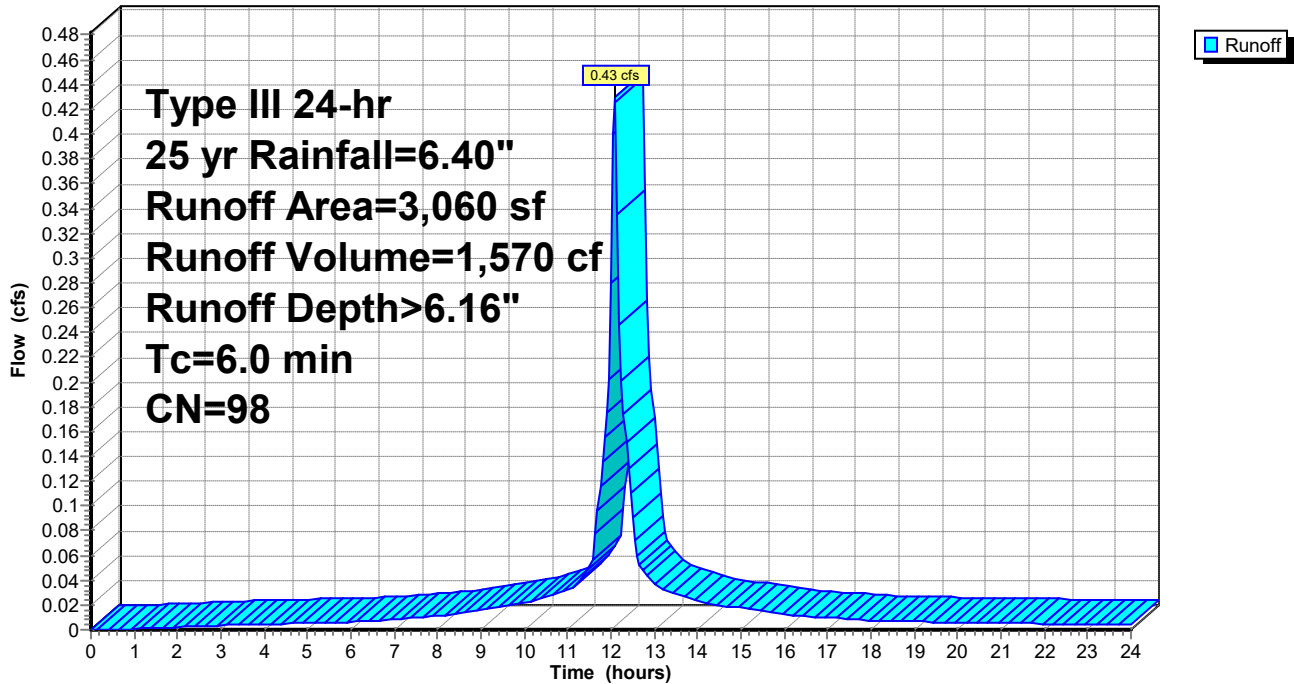
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 yr Rainfall=6.40"

| | Area (sf) | CN | Description |
|---|-----------|----|-------------------------|
| * | 550 | 98 | Building |
| * | 2,000 | 98 | Driveway |
| * | 510 | 98 | Pool Patio |
| | 3,060 | 98 | Weighted Average |
| | 3,060 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0 | | | | | Direct Entry, |

Subcatchment PA1: Impervious Area #1 to Detention System 1

Hydrograph



Summary for Subcatchment PA2: Impervious Area #2 to Detention System 2

Runoff = 0.34 cfs @ 12.09 hrs, Volume= 1,244 cf, Depth> 6.16"

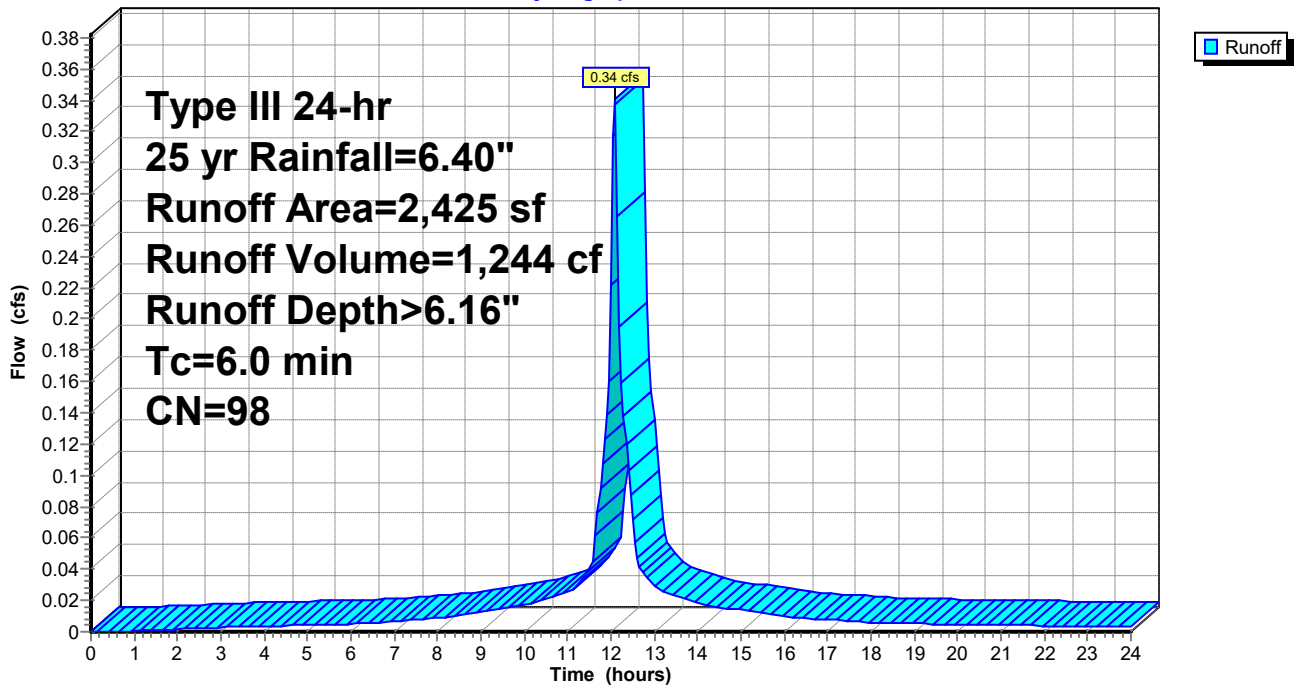
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 yr Rainfall=6.40"

| | Area (sf) | CN | Description |
|---|-----------|----|-------------------------|
| * | 1,650 | 98 | Driveway |
| * | 450 | 98 | Proposed Shed |
| * | 325 | 98 | Proposed Additions |
| | 2,425 | 98 | Weighted Average |
| | 2,425 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0 | | | | | Direct Entry, |

Subcatchment PA2: Impervious Area #2 to Detention System 2

Hydrograph



Summary for Subcatchment PA3: Impervious Area #3 to Detention System 3

Runoff = 0.47 cfs @ 12.09 hrs, Volume= 1,705 cf, Depth> 6.16"

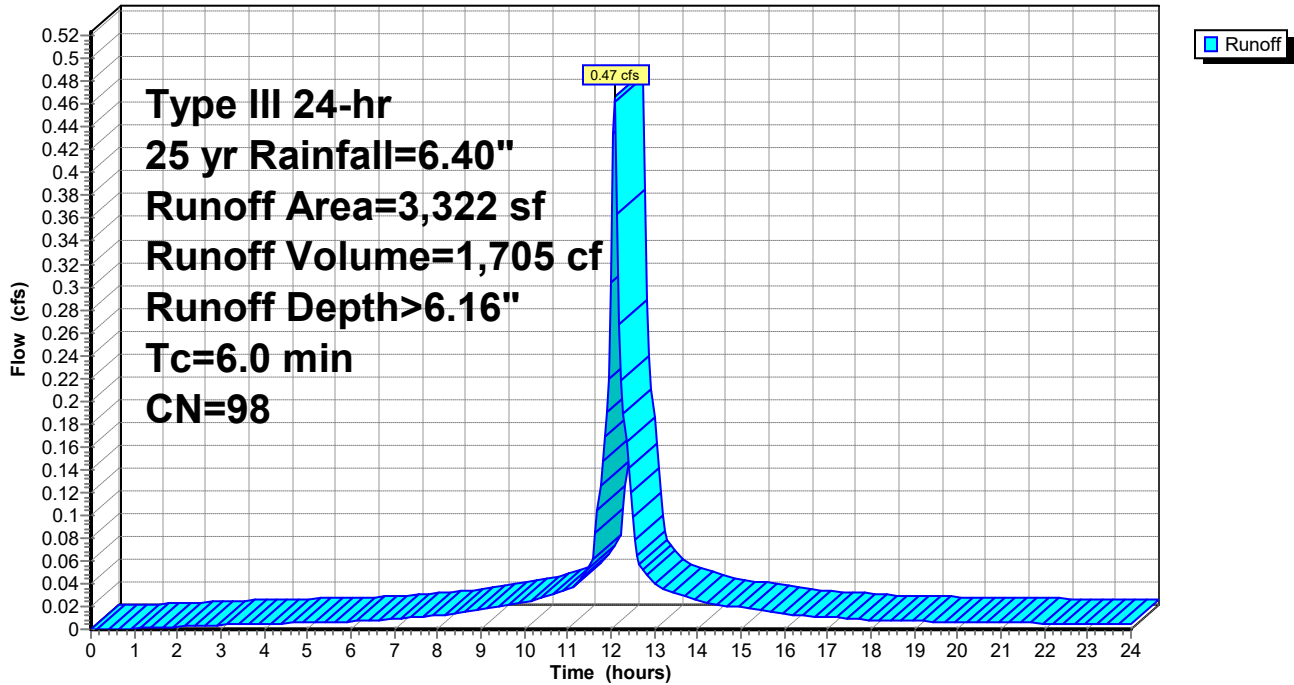
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 yr Rainfall=6.40"

| | Area (sf) | CN | Description |
|---|-----------|----|-------------------------|
| * | 2,122 | 98 | Building |
| * | 510 | 98 | Pool Patio |
| * | 575 | 98 | Proposed Additions |
| * | 115 | 98 | Proposed Patio |
| | 3,322 | 98 | Weighted Average |
| | 3,322 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0 | | | | | Direct Entry, |

Subcatchment PA3: Impervious Area #3 to Detention System 3

Hydrograph



Summary for Subcatchment PB: Proposed Bypass Area

Runoff = 6.99 cfs @ 12.10 hrs, Volume= 22,410 cf, Depth> 3.72"

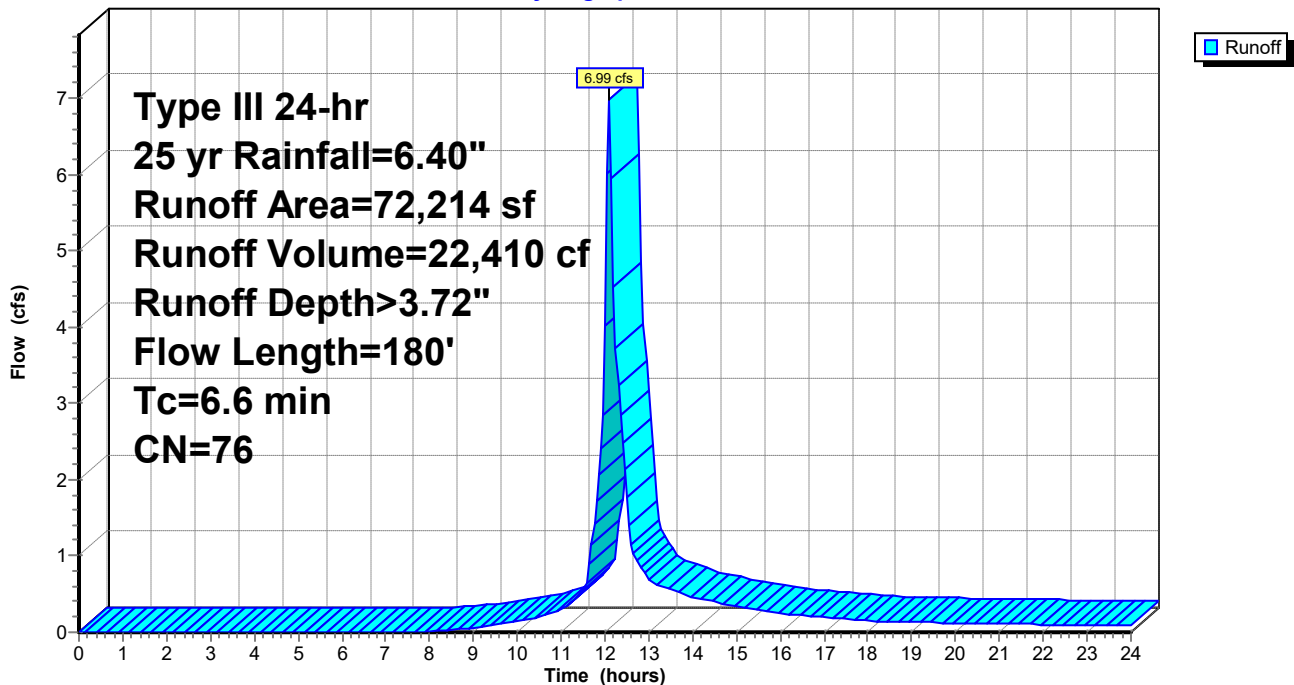
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=6.40"

| Area (sf) | CN | Description |
|-----------|----|--|
| * 550 | 89 | Gravel Path |
| * 264 | 98 | Existing Patio |
| * 1,715 | 98 | Proposed Patio |
| * 550 | 89 | Proposed Gravel Path |
| * 200 | 98 | Pool Coping/Equipment |
| * 35,731 | 89 | <50% Grass cover, Poor, HSG D (Wetlands) |
| 33,204 | 61 | >75% Grass cover, Good, HSG B |
| 72,214 | 76 | Weighted Average |
| 70,035 | | 96.98% Pervious Area |
| 2,179 | | 3.02% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---|
| 6.2 | 100 | 0.0600 | 0.27 | | Sheet Flow, Sheet Flow |
| | | | | | Grass: Short n= 0.150 P2= 3.30" |
| 0.4 | 80 | 0.0500 | 3.35 | | Shallow Concentrated Flow, Shallow Conc Flow |
| | | | | | Grassed Waterway Kv= 15.0 fps |
| 6.6 | 180 | Total | | | |

Subcatchment PB: Proposed Bypass Area

Hydrograph



Summary for Subcatchment PPSA: Pool Surface Area

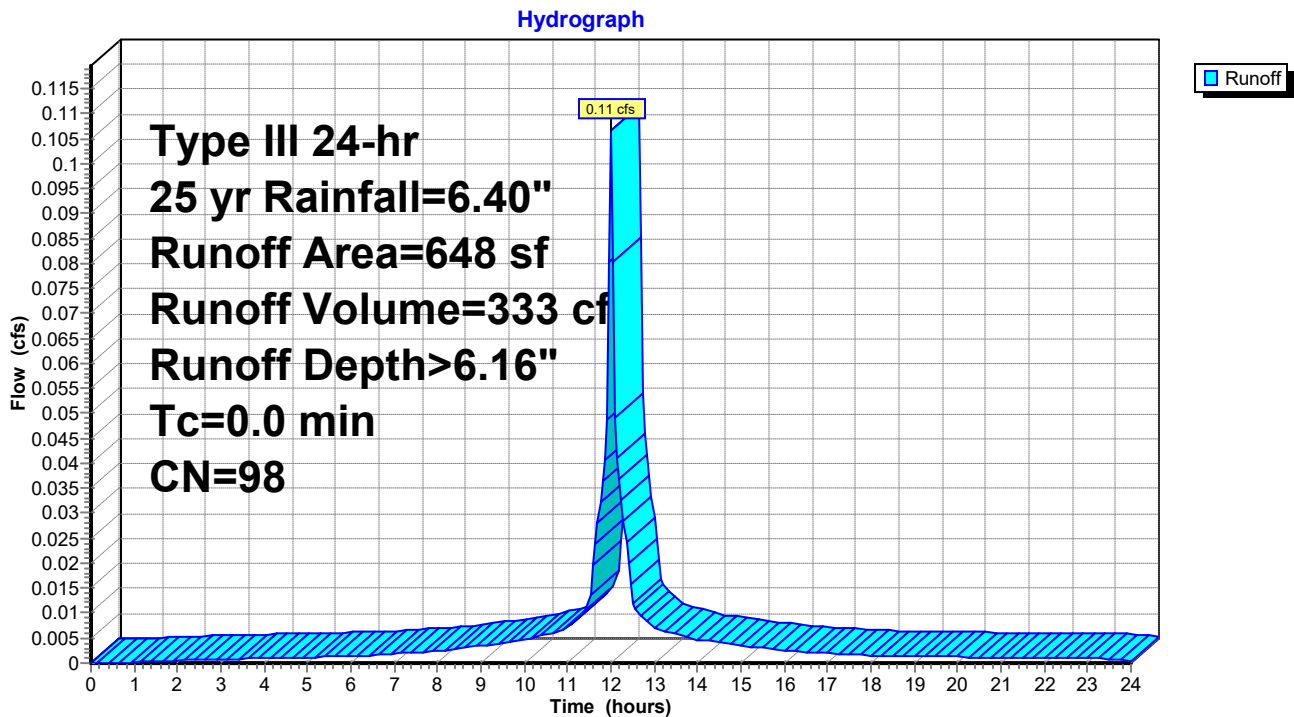
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.11 cfs @ 12.00 hrs, Volume= 333 cf, Depth> 6.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 yr Rainfall=6.40"

| | Area (sf) | CN | Description |
|---|-----------|----|-------------------------|
| * | 648 | 98 | Pool |
| | 648 | | 100.00% Impervious Area |

Subcatchment PPSA: Pool Surface Area



Summary for Subcatchment XA1: Impervious Area #1 to Detention System 1

Runoff = 0.08 cfs @ 12.09 hrs, Volume= 282 cf, Depth> 6.16"

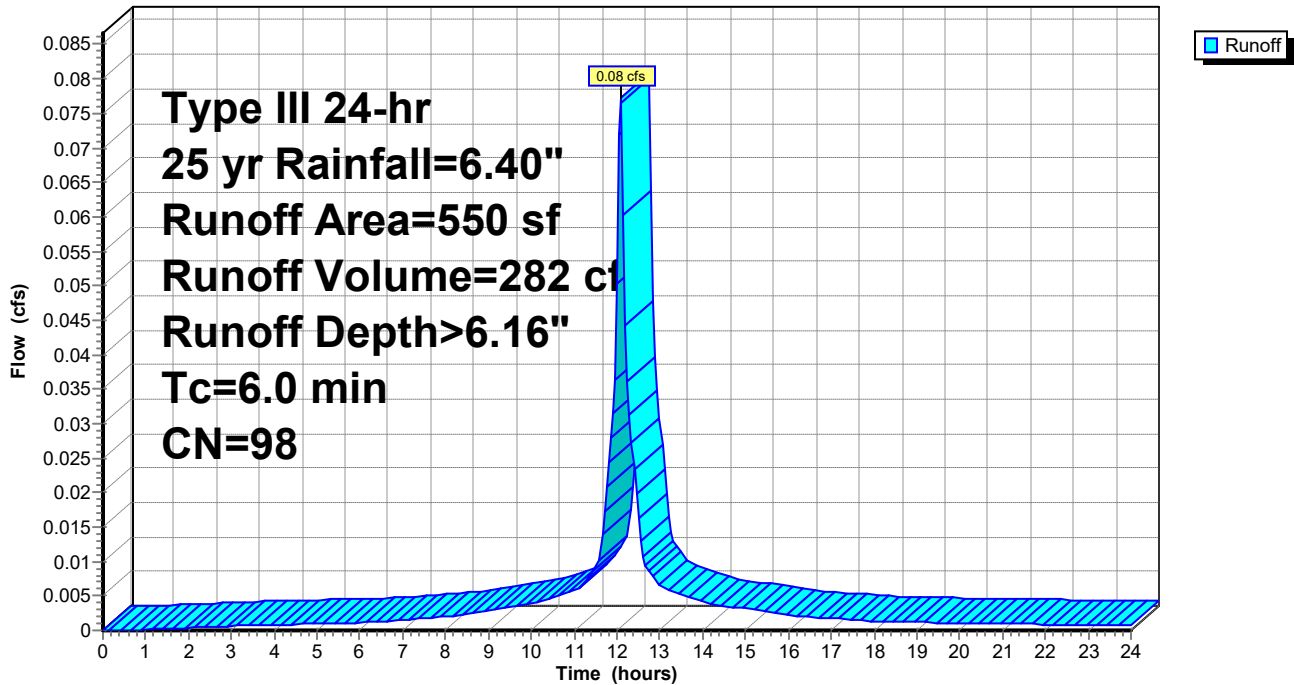
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 yr Rainfall=6.40"

| Area (sf) | CN | Description |
|-----------|----|-------------------------|
| * 550 | 98 | Building |
| 550 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0 | | | | | Direct Entry, |

Subcatchment XA1: Impervious Area #1 to Detention System 1

Hydrograph



Summary for Subcatchment XB: Proposed Bypass Area

[49] Hint: Tc<2dt may require smaller dt

Runoff = 7.49 cfs @ 12.07 hrs, Volume= 22,774 cf, Depth> 3.52"

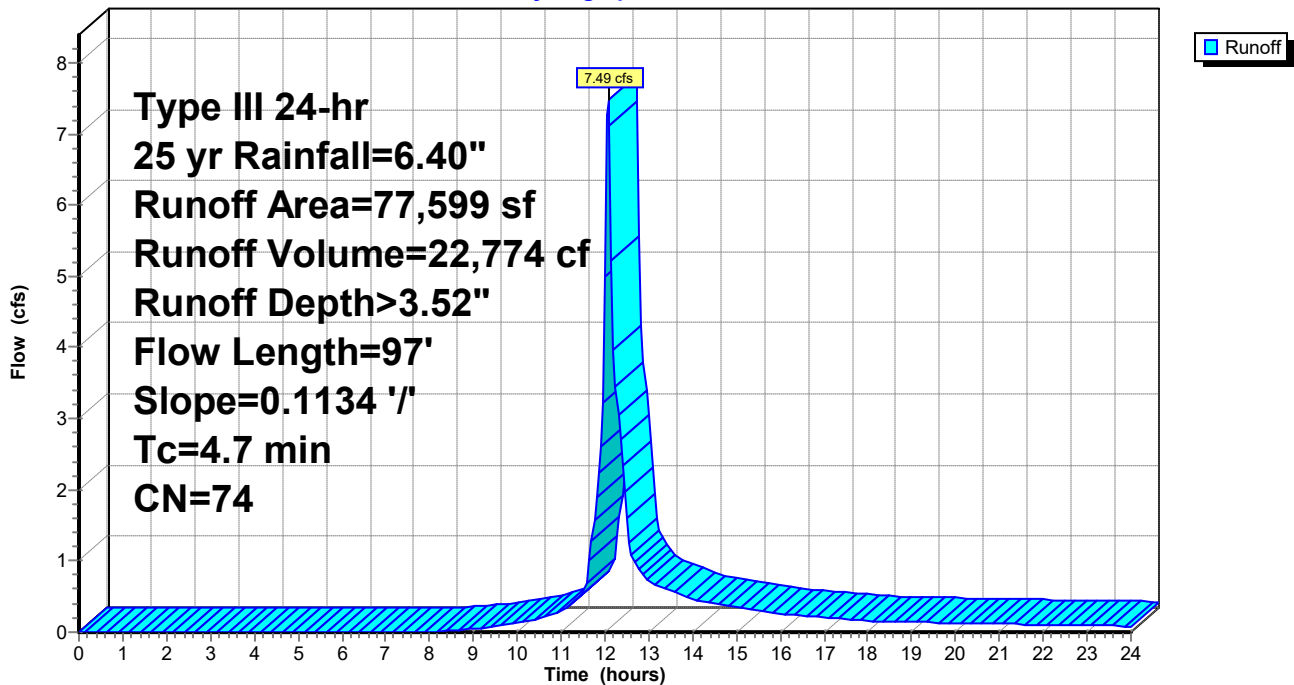
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 yr Rainfall=6.40"

| | Area (sf) | CN | Description |
|---|-----------|----|-------------------------------|
| * | 264 | 98 | Patio |
| * | 200 | 98 | Pool Coping/Equipment |
| | 35,731 | 89 | <50% Grass cover, Poor, HSG D |
| | 41,404 | 61 | >75% Grass cover, Good, HSG B |
| | 77,599 | 74 | Weighted Average |
| | 77,135 | | 99.40% Pervious Area |
| | 464 | | 0.60% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 4.7 | 97 | 0.1134 | 0.34 | | Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 3.30" |

Subcatchment XB: Proposed Bypass Area

Hydrograph



Summary for Subcatchment XPA3: Impervious Area #3 to Detention System 3

Runoff = 0.30 cfs @ 12.09 hrs, Volume= 1,089 cf, Depth> 6.16"

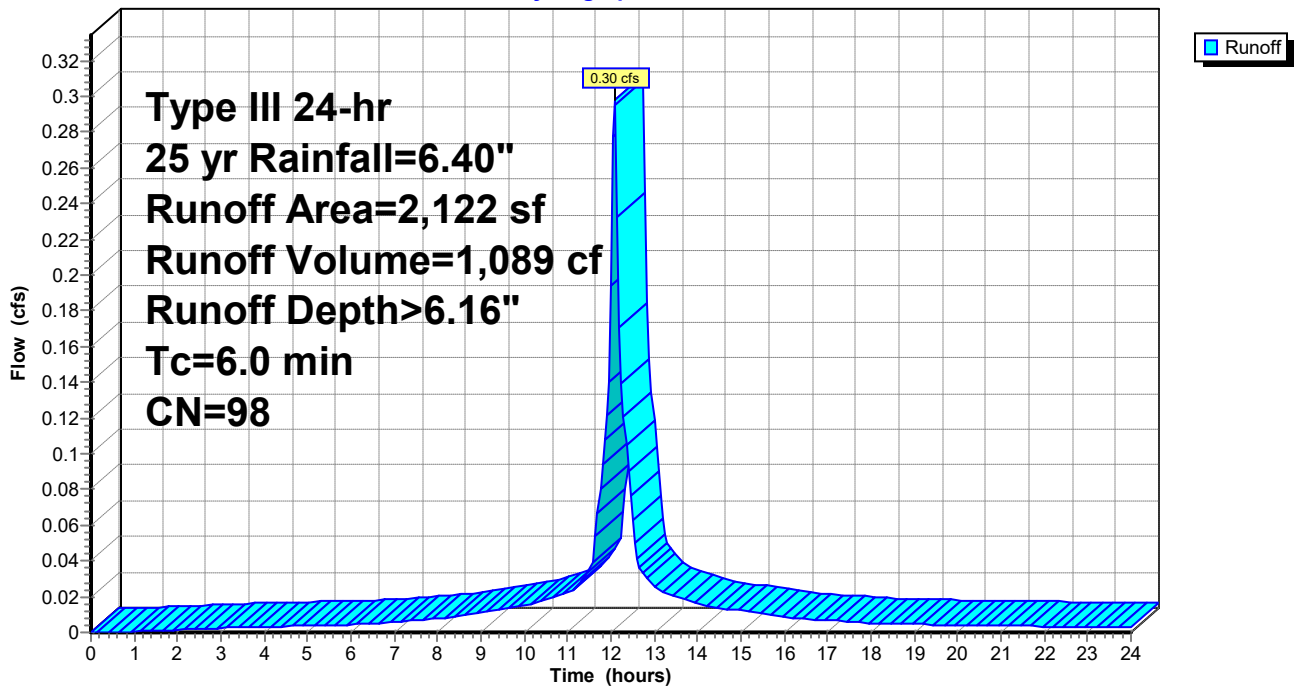
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 yr Rainfall=6.40"

| Area (sf) | CN | Description |
|-----------|----|-------------------------|
| * 2,122 | 98 | Building |
| 2,122 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 6.0 | | | | | Direct Entry, |

Subcatchment XPA3: Impervious Area #3 to Detention System 3

Hydrograph



Summary for Subcatchment XPSA: Pool Surface Area

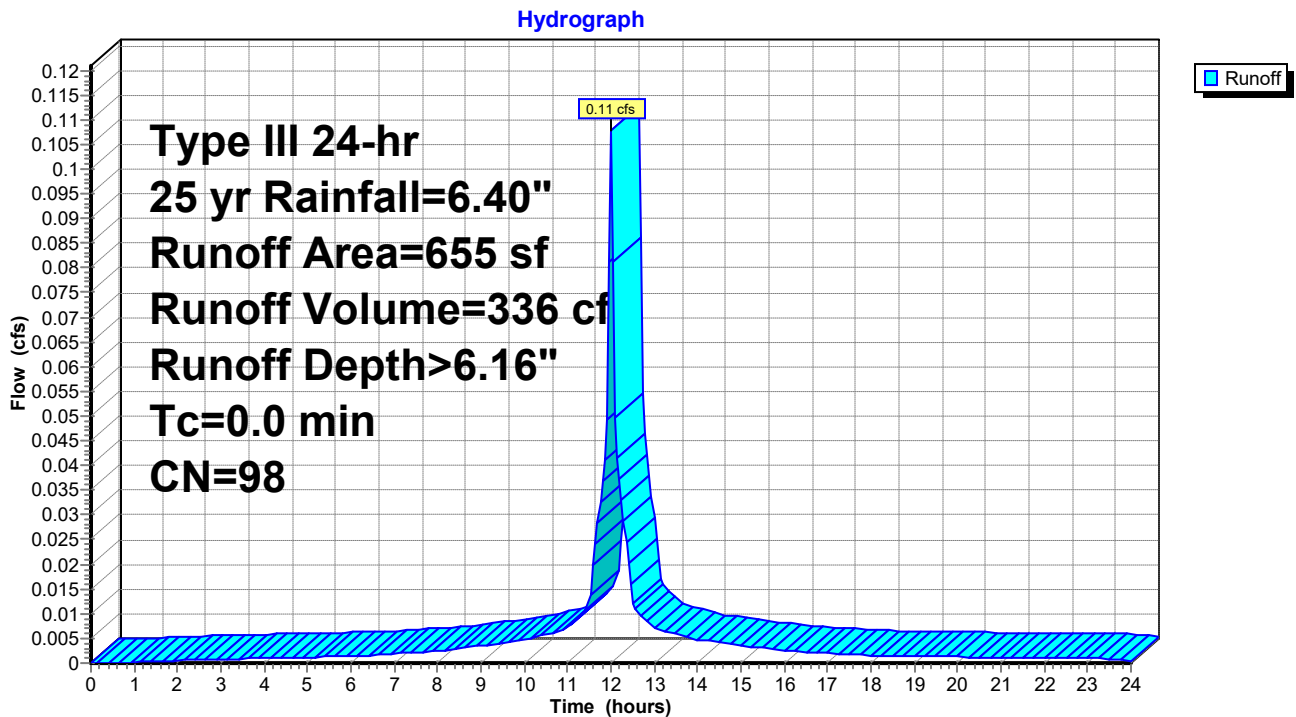
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.11 cfs @ 12.00 hrs, Volume= 336 cf, Depth> 6.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25 yr Rainfall=6.40"

| | Area (sf) | CN | Description |
|---|-----------|----|-------------------------|
| * | 655 | 98 | Pool |
| | 655 | | 100.00% Impervious Area |

Subcatchment XPSA: Pool Surface Area



Summary for Pond PDB1: 12" High Precast Concrete Galleries

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 3,060 sf, 100.00% Impervious, Inflow Depth > 6.16" for 25 yr event
 Inflow = 0.43 cfs @ 12.09 hrs, Volume= 1,570 cf
 Outflow = 0.27 cfs @ 12.21 hrs, Volume= 1,569 cf, Atten= 38%, Lag= 7.5 min
 Discarded = 0.05 cfs @ 12.20 hrs, Volume= 1,430 cf
 Primary = 0.22 cfs @ 12.21 hrs, Volume= 138 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 83.54' @ 12.20 hrs Surf.Area= 724 sf Storage= 386 cf

Plug-Flow detention time= 51.1 min calculated for 1,565 cf (100% of inflow)
 Center-of-Mass det. time= 50.2 min (794.0 - 743.8)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|---|
| #1 | 82.50' | 102 cf | 6.00'W x 8.00'L x 1.00'H Stone Bed x 15 720 cf Overall - 466 cf Embedded = 254 cf x 40.0% Voids |
| #2 | 82.50' | 280 cf | Concrete Galley 4x8x1 x 15 Inside #1 Inside= 42.0"W x 9.0"H => 2.49 sf x 7.50'L = 18.7 cf Outside= 48.0"W x 12.0"H => 3.88 sf x 8.00'L = 31.0 cf |
| #3 | 82.50' | 12 cf | 2.00'W x 2.00'L x 3.00'H Catch Basin Storage |
| | | 394 cf | Total Available Storage |

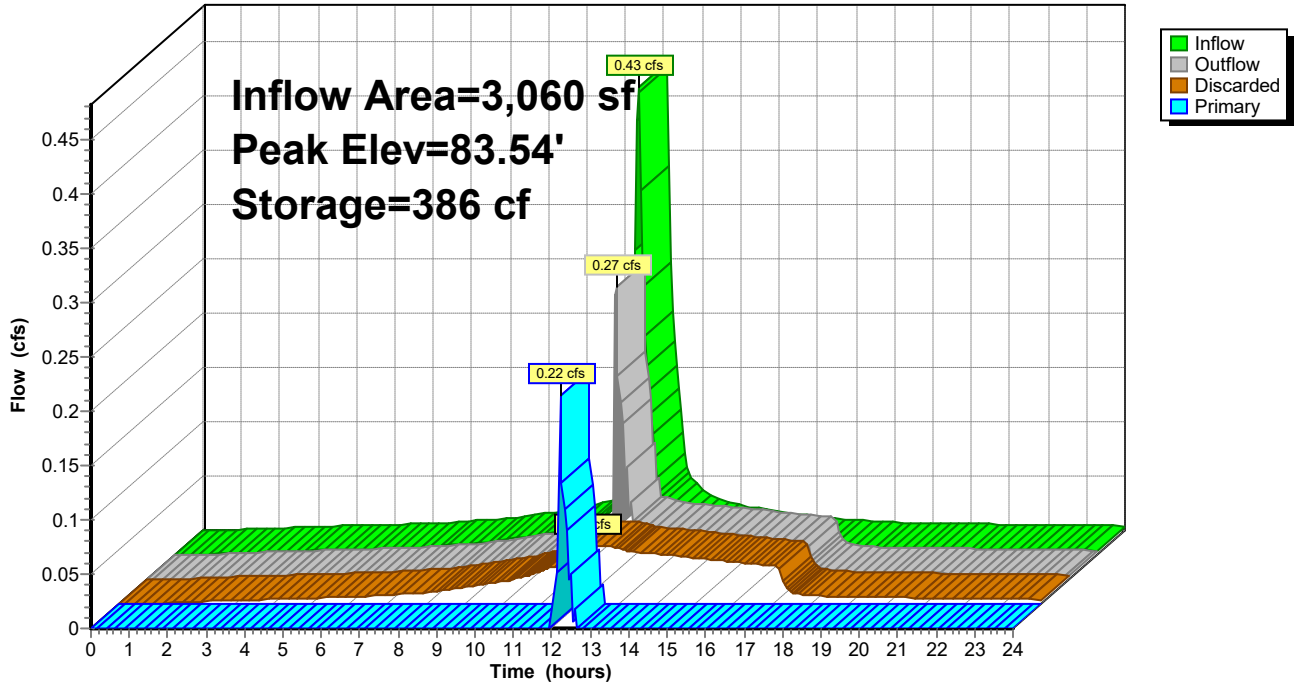
| Device | Routing | Invert | Outlet Devices |
|--------|-----------|--------|--|
| #1 | Discarded | 82.50' | 2.000 in/hr Exfiltration over Wetted area |
| #2 | Primary | 83.50' | 8.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

Discarded OutFlow Max=0.05 cfs @ 12.20 hrs HW=83.54' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.18 cfs @ 12.21 hrs HW=83.54' (Free Discharge)
 ↑2=Sharp-Crested Rectangular Weir (Weir Controls 0.18 cfs @ 0.62 fps)

Pond PDB1: 12" High Precast Concrete Galleries

Hydrograph



Stage-Area-Storage for Pond PDB1: 12" High Precast Concrete Galleries

| Elevation (feet) | Wetted (sq-ft) | Storage (cubic-feet) | Elevation (feet) | Wetted (sq-ft) | Storage (cubic-feet) |
|---------------------|-------------------|-------------------------|---------------------|-------------------|-------------------------|
| 82.50 | 724 | 0 | 85.10 | 1,165 | 392 |
| 82.55 | 745 | 25 | 85.15 | 1,165 | 392 |
| 82.60 | 767 | 49 | 85.20 | 1,166 | 393 |
| 82.65 | 788 | 74 | 85.25 | 1,166 | 393 |
| 82.70 | 810 | 98 | 85.30 | 1,166 | 393 |
| 82.75 | 831 | 123 | 85.35 | 1,167 | 393 |
| 82.80 | 852 | 147 | 85.40 | 1,167 | 393 |
| 82.85 | 874 | 172 | 85.45 | 1,168 | 394 |
| 82.90 | 895 | 197 | 85.50 | 1,168 | 394 |
| 82.95 | 917 | 221 | | | |
| 83.00 | 938 | 246 | | | |
| 83.05 | 959 | 270 | | | |
| 83.10 | 981 | 294 | | | |
| 83.15 | 1,002 | 316 | | | |
| 83.20 | 1,024 | 338 | | | |
| 83.25 | 1,045 | 359 | | | |
| 83.30 | 1,066 | 365 | | | |
| 83.35 | 1,088 | 370 | | | |
| 83.40 | 1,109 | 375 | | | |
| 83.45 | 1,131 | 381 | | | |
| 83.50 | 1,152 | 386 | | | |
| 83.55 | 1,152 | 386 | | | |
| 83.60 | 1,153 | 386 | | | |
| 83.65 | 1,153 | 386 | | | |
| 83.70 | 1,154 | 387 | | | |
| 83.75 | 1,154 | 387 | | | |
| 83.80 | 1,154 | 387 | | | |
| 83.85 | 1,155 | 387 | | | |
| 83.90 | 1,155 | 387 | | | |
| 83.95 | 1,156 | 388 | | | |
| 84.00 | 1,156 | 388 | | | |
| 84.05 | 1,156 | 388 | | | |
| 84.10 | 1,157 | 388 | | | |
| 84.15 | 1,157 | 388 | | | |
| 84.20 | 1,158 | 389 | | | |
| 84.25 | 1,158 | 389 | | | |
| 84.30 | 1,158 | 389 | | | |
| 84.35 | 1,159 | 389 | | | |
| 84.40 | 1,159 | 389 | | | |
| 84.45 | 1,160 | 390 | | | |
| 84.50 | 1,160 | 390 | | | |
| 84.55 | 1,160 | 390 | | | |
| 84.60 | 1,161 | 390 | | | |
| 84.65 | 1,161 | 390 | | | |
| 84.70 | 1,162 | 391 | | | |
| 84.75 | 1,162 | 391 | | | |
| 84.80 | 1,162 | 391 | | | |
| 84.85 | 1,163 | 391 | | | |
| 84.90 | 1,163 | 391 | | | |
| 84.95 | 1,164 | 392 | | | |
| 85.00 | 1,164 | 392 | | | |
| 85.05 | 1,164 | 392 | | | |

Summary for Pond PDB2: 18" High Precast Concrete Galleries

Inflow Area = 2,425 sf, 100.00% Impervious, Inflow Depth > 6.16" for 25 yr event
 Inflow = 0.34 cfs @ 12.09 hrs, Volume= 1,244 cf
 Outflow = 0.07 cfs @ 12.52 hrs, Volume= 1,243 cf, Atten= 80%, Lag= 26.2 min
 Discarded = 0.04 cfs @ 12.50 hrs, Volume= 1,235 cf
 Primary = 0.02 cfs @ 12.52 hrs, Volume= 8 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 81.08' @ 12.52 hrs Surf.Area= 484 sf Storage= 426 cf

Plug-Flow detention time= 84.5 min calculated for 1,240 cf (100% of inflow)
 Center-of-Mass det. time= 83.6 min (827.3 - 743.8)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|--|
| #1 | 79.00' | 96 cf | 6.00'W x 8.00'L x 1.50'H Stone Bed x 10 720 cf Overall - 480 cf Embedded = 240 cf x 40.0% Voids |
| #2 | 79.00' | 322 cf | Concrete Galley 4x8x1.5 x 10 Inside #1 Inside= 42.0"W x 15.0"H => 4.29 sf x 7.50'L = 32.2 cf Outside= 48.0"W x 18.0"H => 6.00 sf x 8.00'L = 48.0 cf |
| #3 | 79.00' | 12 cf | 2.00'W x 2.00'L x 3.00'H Catch Basin Storage |
| | | 430 cf | Total Available Storage |

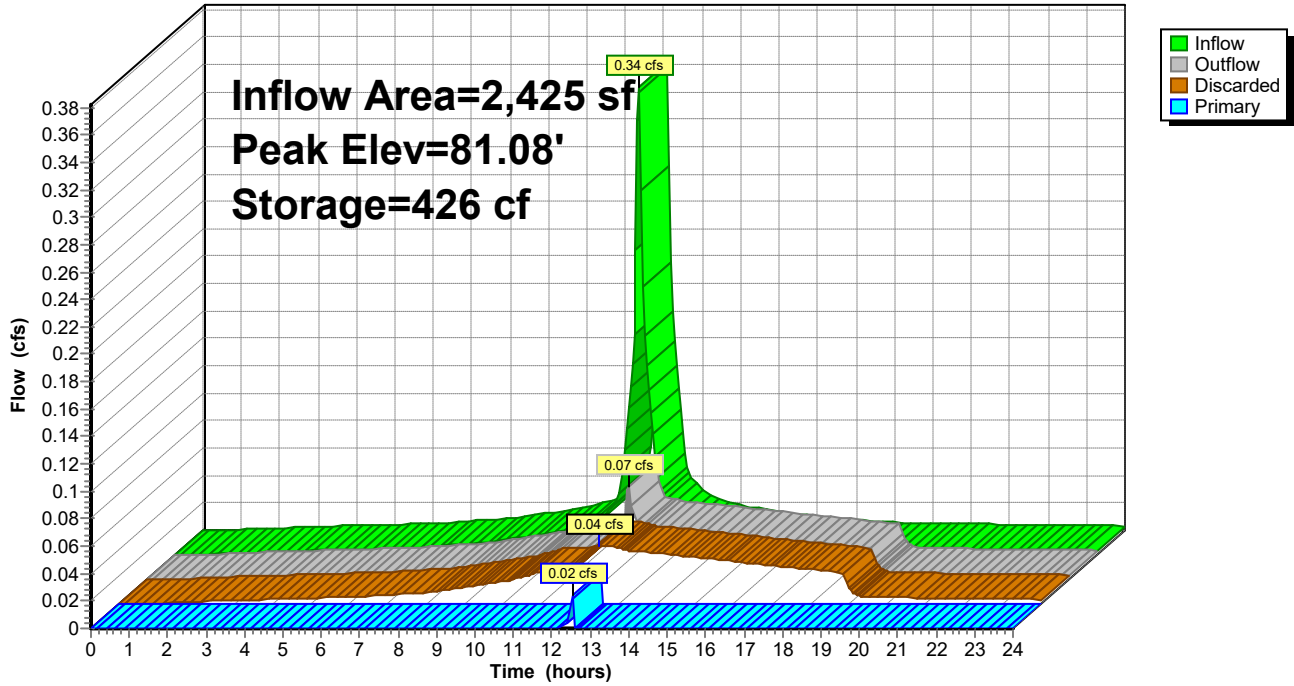
| Device | Routing | Invert | Outlet Devices |
|--------|-----------|--------|--|
| #1 | Discarded | 79.00' | 2.000 in/hr Exfiltration over Wetted area |
| #2 | Primary | 81.00' | 8.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

Discarded OutFlow Max=0.04 cfs @ 12.50 hrs HW=81.01' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.02 cfs @ 12.52 hrs HW=81.01' (Free Discharge)
 ↑2=Sharp-Crested Rectangular Weir (Weir Controls 0.02 cfs @ 0.30 fps)

Pond PDB2: 18" High Precast Concrete Galleries

Hydrograph



Stage-Area-Storage for Pond PDB2: 18" High Precast Concrete Galleries

| Elevation (feet) | Wetted (sq-ft) | Storage (cubic-feet) | Elevation (feet) | Wetted (sq-ft) | Storage (cubic-feet) |
|---------------------|-------------------|-------------------------|---------------------|-------------------|-------------------------|
| 79.00 | 484 | 0 | 81.60 | 925 | 428 |
| 79.05 | 498 | 17 | 81.65 | 925 | 428 |
| 79.10 | 513 | 33 | 81.70 | 926 | 429 |
| 79.15 | 527 | 50 | 81.75 | 926 | 429 |
| 79.20 | 542 | 66 | 81.80 | 926 | 429 |
| 79.25 | 556 | 83 | 81.85 | 927 | 429 |
| 79.30 | 570 | 99 | 81.90 | 927 | 429 |
| 79.35 | 585 | 116 | 81.95 | 928 | 430 |
| 79.40 | 599 | 132 | 82.00 | 928 | 430 |
| 79.45 | 614 | 149 | | | |
| 79.50 | 628 | 165 | | | |
| 79.55 | 642 | 182 | | | |
| 79.60 | 657 | 198 | | | |
| 79.65 | 671 | 215 | | | |
| 79.70 | 686 | 231 | | | |
| 79.75 | 700 | 248 | | | |
| 79.80 | 714 | 264 | | | |
| 79.85 | 729 | 281 | | | |
| 79.90 | 743 | 297 | | | |
| 79.95 | 758 | 314 | | | |
| 80.00 | 772 | 331 | | | |
| 80.05 | 786 | 347 | | | |
| 80.10 | 801 | 363 | | | |
| 80.15 | 815 | 378 | | | |
| 80.20 | 830 | 392 | | | |
| 80.25 | 844 | 407 | | | |
| 80.30 | 858 | 410 | | | |
| 80.35 | 873 | 414 | | | |
| 80.40 | 887 | 417 | | | |
| 80.45 | 902 | 420 | | | |
| 80.50 | 916 | 424 | | | |
| 80.55 | 916 | 424 | | | |
| 80.60 | 917 | 424 | | | |
| 80.65 | 917 | 424 | | | |
| 80.70 | 918 | 425 | | | |
| 80.75 | 918 | 425 | | | |
| 80.80 | 918 | 425 | | | |
| 80.85 | 919 | 425 | | | |
| 80.90 | 919 | 425 | | | |
| 80.95 | 920 | 426 | | | |
| 81.00 | 920 | 426 | | | |
| 81.05 | 920 | 426 | | | |
| 81.10 | 921 | 426 | | | |
| 81.15 | 921 | 426 | | | |
| 81.20 | 922 | 427 | | | |
| 81.25 | 922 | 427 | | | |
| 81.30 | 922 | 427 | | | |
| 81.35 | 923 | 427 | | | |
| 81.40 | 923 | 427 | | | |
| 81.45 | 924 | 428 | | | |
| 81.50 | 924 | 428 | | | |
| 81.55 | 924 | 428 | | | |

Summary for Pond PDB3: 18" High Precast Concrete Galleries

Inflow Area = 3,322 sf, 100.00% Impervious, Inflow Depth > 6.16" for 25 yr event
 Inflow = 0.47 cfs @ 12.09 hrs, Volume= 1,705 cf
 Outflow = 0.06 cfs @ 12.64 hrs, Volume= 1,703 cf, Atten= 87%, Lag= 33.3 min
 Discarded = 0.06 cfs @ 12.64 hrs, Volume= 1,703 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 83.68' @ 12.64 hrs Surf.Area= 676 sf Storage= 592 cf

Plug-Flow detention time= 84.6 min calculated for 1,703 cf (100% of inflow)
 Center-of-Mass det. time= 83.8 min (827.6 - 743.8)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|--|
| #1 | 82.00' | 134 cf | 6.00'W x 8.00'L x 1.50'H Stone Bed x 14 1,008 cf Overall - 672 cf Embedded = 336 cf x 40.0% Voids |
| #2 | 82.00' | 450 cf | Concrete Galley 4x8x1.5 x 14 Inside #1 Inside= 42.0"W x 15.0"H => 4.29 sf x 7.50'L = 32.2 cf Outside= 48.0"W x 18.0"H => 6.00 sf x 8.00'L = 48.0 cf |
| #3 | 82.00' | 12 cf | 2.00'W x 2.00'L x 3.00'H Catch Basin Storage |
| | | 597 cf | Total Available Storage |

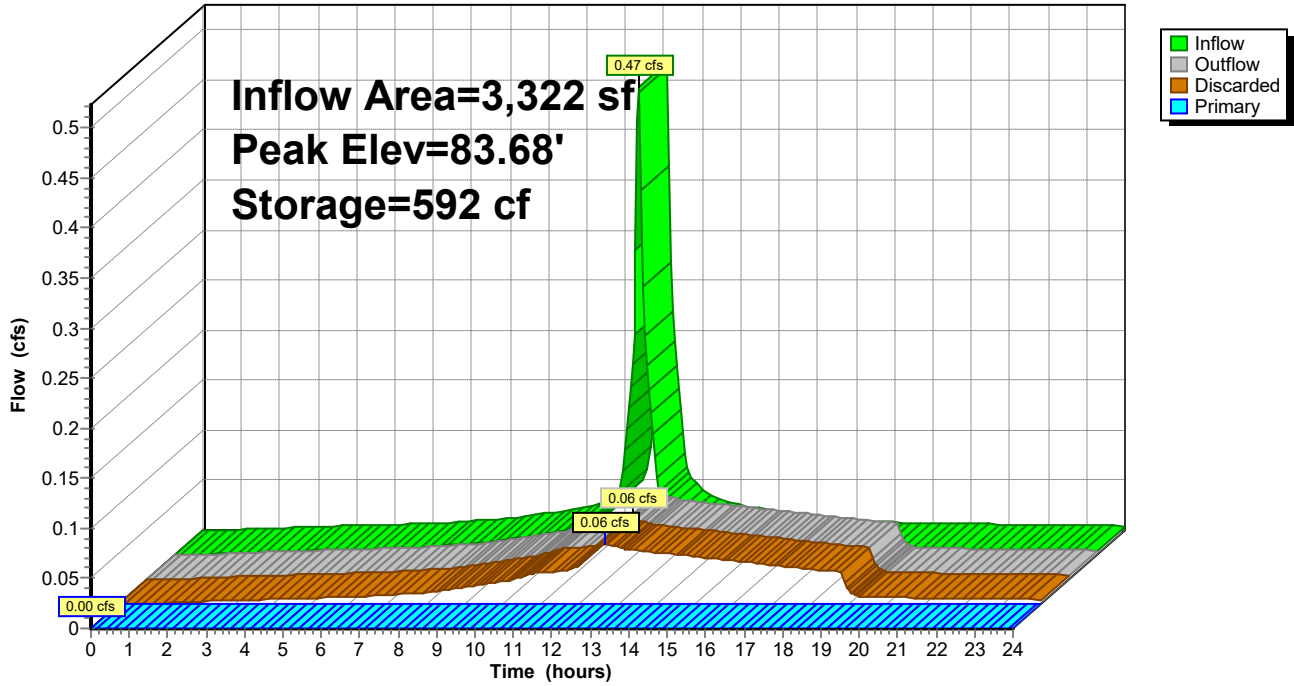
| Device | Routing | Invert | Outlet Devices |
|--------|-----------|--------|--|
| #1 | Discarded | 82.00' | 2.000 in/hr Exfiltration over Wetted area |
| #2 | Primary | 84.00' | 8.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

Discarded OutFlow Max=0.06 cfs @ 12.64 hrs HW=83.66' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=82.00' (Free Discharge)
 ↑2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond PDB3: 18" High Precast Concrete Galleries

Hydrograph



Stage-Area-Storage for Pond PDB3: 18" High Precast Concrete Galleries

| Elevation (feet) | Wetted (sq-ft) | Storage (cubic-feet) | Elevation (feet) | Wetted (sq-ft) | Storage (cubic-feet) |
|---------------------|-------------------|-------------------------|---------------------|-------------------|-------------------------|
| 82.00 | 676 | 0 | 84.60 | 1,285 | 595 |
| 82.05 | 696 | 23 | 84.65 | 1,285 | 595 |
| 82.10 | 716 | 46 | 84.70 | 1,286 | 596 |
| 82.15 | 736 | 69 | 84.75 | 1,286 | 596 |
| 82.20 | 756 | 92 | 84.80 | 1,286 | 596 |
| 82.25 | 776 | 115 | 84.85 | 1,287 | 596 |
| 82.30 | 796 | 138 | 84.90 | 1,287 | 596 |
| 82.35 | 816 | 161 | 84.95 | 1,288 | 597 |
| 82.40 | 836 | 184 | 85.00 | 1,288 | 597 |
| 82.45 | 856 | 207 | | | |
| 82.50 | 876 | 231 | | | |
| 82.55 | 896 | 254 | | | |
| 82.60 | 916 | 277 | | | |
| 82.65 | 936 | 300 | | | |
| 82.70 | 956 | 323 | | | |
| 82.75 | 976 | 346 | | | |
| 82.80 | 996 | 369 | | | |
| 82.85 | 1,016 | 392 | | | |
| 82.90 | 1,036 | 415 | | | |
| 82.95 | 1,056 | 438 | | | |
| 83.00 | 1,076 | 461 | | | |
| 83.05 | 1,096 | 484 | | | |
| 83.10 | 1,116 | 506 | | | |
| 83.15 | 1,136 | 527 | | | |
| 83.20 | 1,156 | 547 | | | |
| 83.25 | 1,176 | 567 | | | |
| 83.30 | 1,196 | 572 | | | |
| 83.35 | 1,216 | 577 | | | |
| 83.40 | 1,236 | 581 | | | |
| 83.45 | 1,256 | 586 | | | |
| 83.50 | 1,276 | 591 | | | |
| 83.55 | 1,276 | 591 | | | |
| 83.60 | 1,277 | 591 | | | |
| 83.65 | 1,277 | 591 | | | |
| 83.70 | 1,278 | 592 | | | |
| 83.75 | 1,278 | 592 | | | |
| 83.80 | 1,278 | 592 | | | |
| 83.85 | 1,279 | 592 | | | |
| 83.90 | 1,279 | 592 | | | |
| 83.95 | 1,280 | 593 | | | |
| 84.00 | 1,280 | 593 | | | |
| 84.05 | 1,280 | 593 | | | |
| 84.10 | 1,281 | 593 | | | |
| 84.15 | 1,281 | 593 | | | |
| 84.20 | 1,282 | 594 | | | |
| 84.25 | 1,282 | 594 | | | |
| 84.30 | 1,282 | 594 | | | |
| 84.35 | 1,283 | 594 | | | |
| 84.40 | 1,283 | 594 | | | |
| 84.45 | 1,284 | 595 | | | |
| 84.50 | 1,284 | 595 | | | |
| 84.55 | 1,284 | 595 | | | |

Summary for Pond PPS: Pool Storage Below Overflow

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=2)

Inflow Area = 648 sf, 100.00% Impervious, Inflow Depth > 6.16" for 25 yr event
 Inflow = 0.11 cfs @ 12.00 hrs, Volume= 333 cf
 Outflow = 0.03 cfs @ 12.35 hrs, Volume= 119 cf, Atten= 69%, Lag= 21.0 min
 Primary = 0.03 cfs @ 12.35 hrs, Volume= 119 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 85.00' @ 12.35 hrs Surf.Area= 648 sf Storage= 214 cf

Plug-Flow detention time= 364.2 min calculated for 119 cf (36% of inflow)
 Center-of-Mass det. time= 189.3 min (928.0 - 738.6)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|---|
| #1 | 84.67' | 648 cf | Pool Storage (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 84.67 | 648 | 0 | 0 |
| 85.67 | 648 | 648 | 648 |

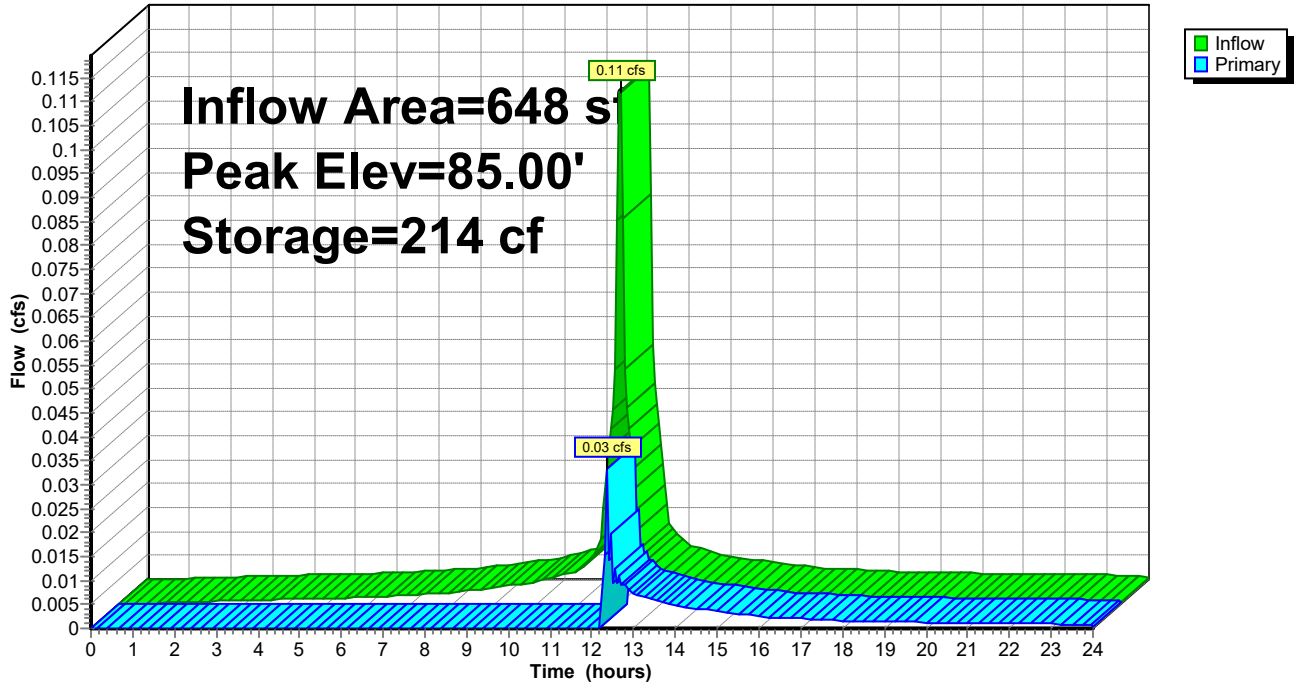
| Device | Routing | Invert | Outlet Devices |
|--------|---------|--------|--|
| #1 | Primary | 85.00' | 108.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

Primary OutFlow Max=0.01 cfs @ 12.35 hrs HW=85.00' (Free Discharge)

↑ **1=Sharp-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.10 fps)

Pond PPS: Pool Storage Below Overflow

Hydrograph



Stage-Area-Storage for Pond PPS: Pool Storage Below Overflow

| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) | Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 84.67 | 648 | 0 | 85.19 | 648 | 337 |
| 84.68 | 648 | 6 | 85.20 | 648 | 343 |
| 84.69 | 648 | 13 | 85.21 | 648 | 350 |
| 84.70 | 648 | 19 | 85.22 | 648 | 356 |
| 84.71 | 648 | 26 | 85.23 | 648 | 363 |
| 84.72 | 648 | 32 | 85.24 | 648 | 369 |
| 84.73 | 648 | 39 | 85.25 | 648 | 376 |
| 84.74 | 648 | 45 | 85.26 | 648 | 382 |
| 84.75 | 648 | 52 | 85.27 | 648 | 389 |
| 84.76 | 648 | 58 | 85.28 | 648 | 395 |
| 84.77 | 648 | 65 | 85.29 | 648 | 402 |
| 84.78 | 648 | 71 | 85.30 | 648 | 408 |
| 84.79 | 648 | 78 | 85.31 | 648 | 415 |
| 84.80 | 648 | 84 | 85.32 | 648 | 421 |
| 84.81 | 648 | 91 | 85.33 | 648 | 428 |
| 84.82 | 648 | 97 | 85.34 | 648 | 434 |
| 84.83 | 648 | 104 | 85.35 | 648 | 441 |
| 84.84 | 648 | 110 | 85.36 | 648 | 447 |
| 84.85 | 648 | 117 | 85.37 | 648 | 454 |
| 84.86 | 648 | 123 | 85.38 | 648 | 460 |
| 84.87 | 648 | 130 | 85.39 | 648 | 467 |
| 84.88 | 648 | 136 | 85.40 | 648 | 473 |
| 84.89 | 648 | 143 | 85.41 | 648 | 480 |
| 84.90 | 648 | 149 | 85.42 | 648 | 486 |
| 84.91 | 648 | 156 | 85.43 | 648 | 492 |
| 84.92 | 648 | 162 | 85.44 | 648 | 499 |
| 84.93 | 648 | 168 | 85.45 | 648 | 505 |
| 84.94 | 648 | 175 | 85.46 | 648 | 512 |
| 84.95 | 648 | 181 | 85.47 | 648 | 518 |
| 84.96 | 648 | 188 | 85.48 | 648 | 525 |
| 84.97 | 648 | 194 | 85.49 | 648 | 531 |
| 84.98 | 648 | 201 | 85.50 | 648 | 538 |
| 84.99 | 648 | 207 | 85.51 | 648 | 544 |
| 85.00 | 648 | 214 | 85.52 | 648 | 551 |
| 85.01 | 648 | 220 | 85.53 | 648 | 557 |
| 85.02 | 648 | 227 | 85.54 | 648 | 564 |
| 85.03 | 648 | 233 | 85.55 | 648 | 570 |
| 85.04 | 648 | 240 | 85.56 | 648 | 577 |
| 85.05 | 648 | 246 | 85.57 | 648 | 583 |
| 85.06 | 648 | 253 | 85.58 | 648 | 590 |
| 85.07 | 648 | 259 | 85.59 | 648 | 596 |
| 85.08 | 648 | 266 | 85.60 | 648 | 603 |
| 85.09 | 648 | 272 | 85.61 | 648 | 609 |
| 85.10 | 648 | 279 | 85.62 | 648 | 616 |
| 85.11 | 648 | 285 | 85.63 | 648 | 622 |
| 85.12 | 648 | 292 | 85.64 | 648 | 629 |
| 85.13 | 648 | 298 | 85.65 | 648 | 635 |
| 85.14 | 648 | 305 | 85.66 | 648 | 642 |
| 85.15 | 648 | 311 | 85.67 | 648 | 648 |
| 85.16 | 648 | 318 | | | |
| 85.17 | 648 | 324 | | | |
| 85.18 | 648 | 330 | | | |

Summary for Pond XDB1: 12" High Precast Concrete Galleries

Inflow Area = 550 sf, 100.00% Impervious, Inflow Depth > 6.16" for 25 yr event
 Inflow = 0.08 cfs @ 12.09 hrs, Volume= 282 cf
 Outflow = 0.02 cfs @ 12.39 hrs, Volume= 282 cf, Atten= 68%, Lag= 18.0 min
 Discarded = 0.02 cfs @ 12.39 hrs, Volume= 282 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 82.65' @ 12.39 hrs Surf.Area= 484 sf Storage= 51 cf

Plug-Flow detention time= 13.7 min calculated for 282 cf (100% of inflow)
 Center-of-Mass det. time= 12.9 min (756.7 - 743.8)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|---|
| #1 | 82.50' | 68 cf | 6.00'W x 8.00'L x 1.00'H Stone Bed x 10 480 cf Overall - 310 cf Embedded = 170 cf x 40.0% Voids |
| #2 | 82.50' | 187 cf | Concrete Galley 4x8x1 x 10 Inside #1 Inside= 42.0"W x 9.0"H => 2.49 sf x 7.50'L = 18.7 cf Outside= 48.0"W x 12.0"H => 3.88 sf x 8.00'L = 31.0 cf |
| #3 | 82.50' | 12 cf | 2.00'W x 2.00'L x 3.00'H Catch Basin Storage |
| | | 267 cf | Total Available Storage |

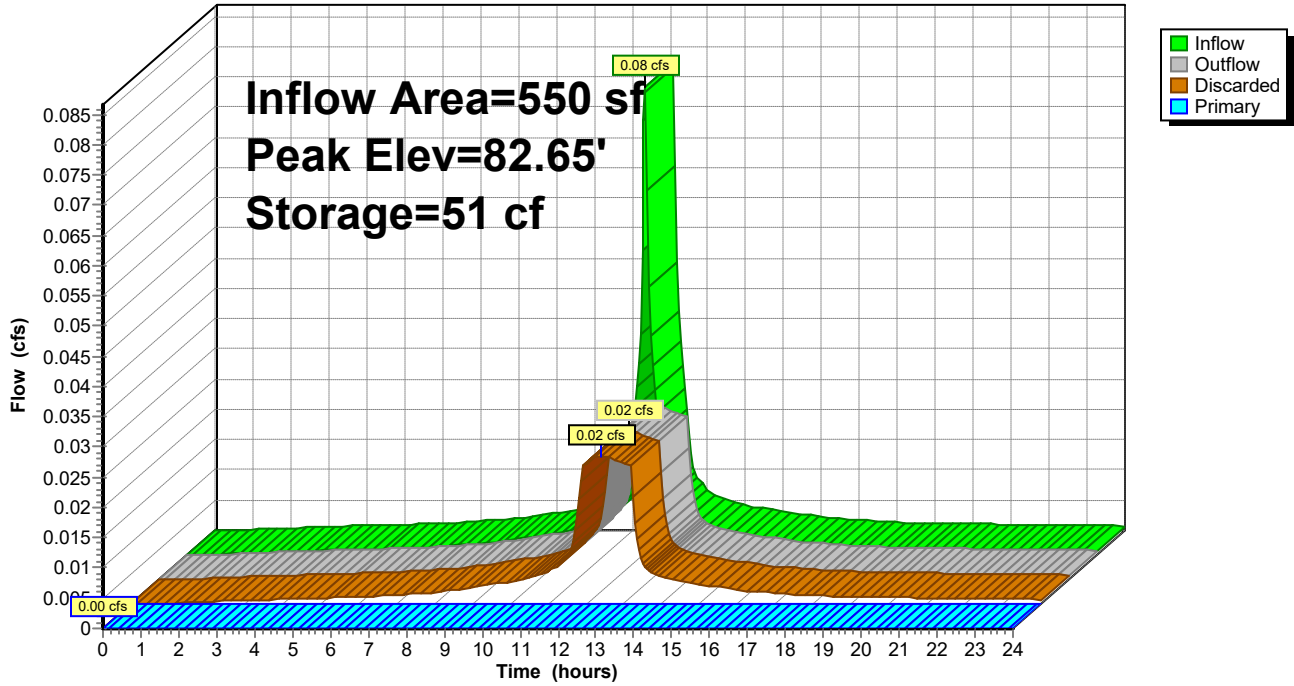
| Device | Routing | Invert | Outlet Devices |
|--------|-----------|--------|--|
| #1 | Discarded | 82.50' | 2.000 in/hr Exfiltration over Wetted area |
| #2 | Primary | 83.50' | 8.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

Discarded OutFlow Max=0.02 cfs @ 12.39 hrs HW=82.65' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=82.50' (Free Discharge)
 ↑2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond XDB1: 12" High Precast Concrete Galleries

Hydrograph



Stage-Area-Storage for Pond XDB1: 12" High Precast Concrete Galleries

| Elevation (feet) | Wetted (sq-ft) | Storage (cubic-feet) | Elevation (feet) | Wetted (sq-ft) | Storage (cubic-feet) |
|---------------------|-------------------|-------------------------|---------------------|-------------------|-------------------------|
| 82.50 | 484 | 0 | 85.10 | 785 | 265 |
| 82.55 | 498 | 16 | 85.15 | 785 | 265 |
| 82.60 | 513 | 33 | 85.20 | 786 | 265 |
| 82.65 | 527 | 49 | 85.25 | 786 | 266 |
| 82.70 | 542 | 66 | 85.30 | 786 | 266 |
| 82.75 | 556 | 82 | 85.35 | 787 | 266 |
| 82.80 | 570 | 99 | 85.40 | 787 | 266 |
| 82.85 | 585 | 115 | 85.45 | 788 | 266 |
| 82.90 | 599 | 132 | 85.50 | 788 | 267 |
| 82.95 | 614 | 148 | | | |
| 83.00 | 628 | 165 | | | |
| 83.05 | 642 | 181 | | | |
| 83.10 | 657 | 197 | | | |
| 83.15 | 671 | 212 | | | |
| 83.20 | 686 | 226 | | | |
| 83.25 | 700 | 241 | | | |
| 83.30 | 714 | 244 | | | |
| 83.35 | 729 | 248 | | | |
| 83.40 | 743 | 251 | | | |
| 83.45 | 758 | 255 | | | |
| 83.50 | 772 | 259 | | | |
| 83.55 | 772 | 259 | | | |
| 83.60 | 773 | 259 | | | |
| 83.65 | 773 | 259 | | | |
| 83.70 | 774 | 259 | | | |
| 83.75 | 774 | 260 | | | |
| 83.80 | 774 | 260 | | | |
| 83.85 | 775 | 260 | | | |
| 83.90 | 775 | 260 | | | |
| 83.95 | 776 | 260 | | | |
| 84.00 | 776 | 261 | | | |
| 84.05 | 776 | 261 | | | |
| 84.10 | 777 | 261 | | | |
| 84.15 | 777 | 261 | | | |
| 84.20 | 778 | 261 | | | |
| 84.25 | 778 | 262 | | | |
| 84.30 | 778 | 262 | | | |
| 84.35 | 779 | 262 | | | |
| 84.40 | 779 | 262 | | | |
| 84.45 | 780 | 262 | | | |
| 84.50 | 780 | 263 | | | |
| 84.55 | 780 | 263 | | | |
| 84.60 | 781 | 263 | | | |
| 84.65 | 781 | 263 | | | |
| 84.70 | 782 | 263 | | | |
| 84.75 | 782 | 264 | | | |
| 84.80 | 782 | 264 | | | |
| 84.85 | 783 | 264 | | | |
| 84.90 | 783 | 264 | | | |
| 84.95 | 784 | 264 | | | |
| 85.00 | 784 | 265 | | | |
| 85.05 | 784 | 265 | | | |

Summary for Pond XDB2: 18" High Precast Concrete Galleries

[43] Hint: Has no inflow (Outflow=Zero)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|---|
| #1 | 79.00' | 77 cf | 6.00'W x 8.00'L x 1.50'H Stone Bed x 8 576 cf Overall - 384 cf Embedded = 192 cf x 40.0% Voids |
| #2 | 79.00' | 257 cf | Concrete Galley 4x8x1.5 x 8 Inside #1 Inside= 42.0"W x 15.0"H => 4.29 sf x 7.50'L = 32.2 cf Outside= 48.0"W x 18.0"H => 6.00 sf x 8.00'L = 48.0 cf |
| #3 | 79.00' | 12 cf | 2.00'W x 2.00'L x 3.00'H Catch Basin Storage |
| | | 346 cf | Total Available Storage |

| Device | Routing | Invert | Outlet Devices |
|--------|-----------|--------|--|
| #1 | Discarded | 79.00' | 2.000 in/hr Exfiltration over Wetted area |
| #2 | Primary | 81.00' | 8.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)

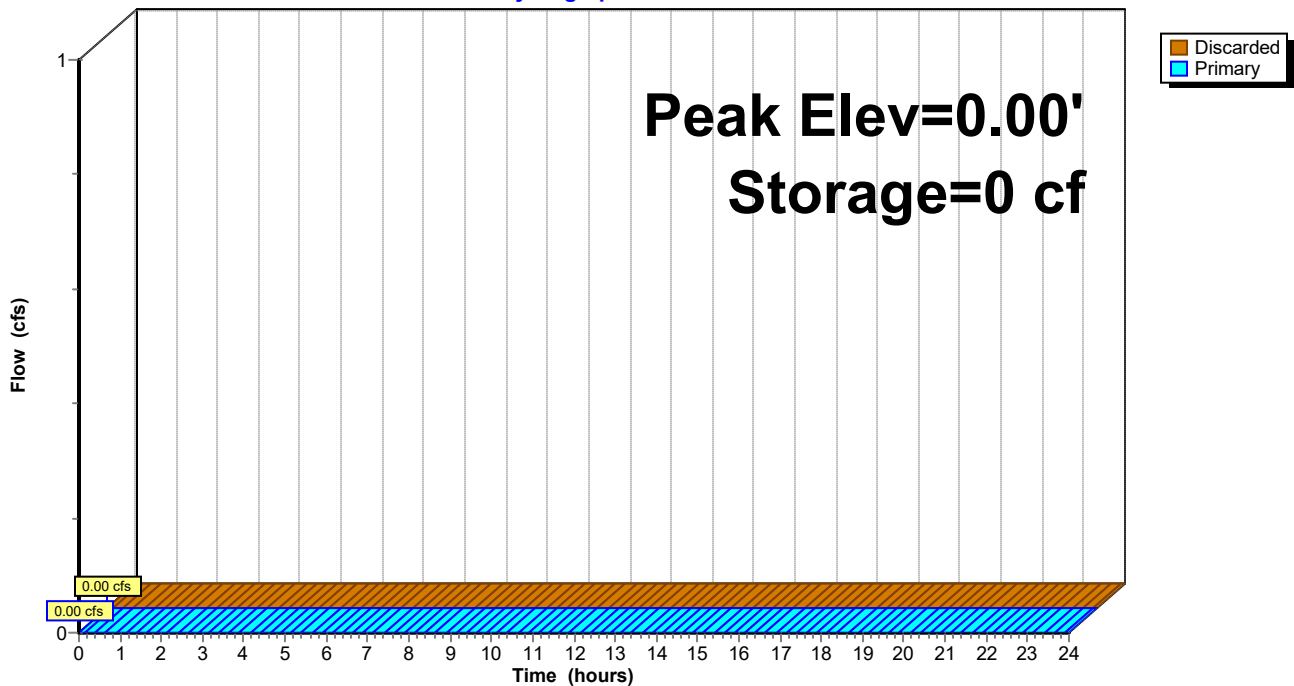
↑1=Exfiltration (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)

↑2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond XDB2: 18" High Precast Concrete Galleries

Hydrograph



Stage-Area-Storage for Pond XDB2: 18" High Precast Concrete Galleries

| Elevation (feet) | Wetted (sq-ft) | Storage (cubic-feet) | Elevation (feet) | Wetted (sq-ft) | Storage (cubic-feet) |
|---------------------|-------------------|-------------------------|---------------------|-------------------|-------------------------|
| 79.00 | 388 | 0 | 81.60 | 745 | 345 |
| 79.05 | 400 | 13 | 81.65 | 745 | 345 |
| 79.10 | 411 | 27 | 81.70 | 746 | 345 |
| 79.15 | 423 | 40 | 81.75 | 746 | 345 |
| 79.20 | 434 | 53 | 81.80 | 746 | 345 |
| 79.25 | 446 | 66 | 81.85 | 747 | 346 |
| 79.30 | 458 | 80 | 81.90 | 747 | 346 |
| 79.35 | 469 | 93 | 81.95 | 748 | 346 |
| 79.40 | 481 | 106 | 82.00 | 748 | 346 |
| 79.45 | 492 | 119 | | | |
| 79.50 | 504 | 133 | | | |
| 79.55 | 516 | 146 | | | |
| 79.60 | 527 | 159 | | | |
| 79.65 | 539 | 172 | | | |
| 79.70 | 550 | 186 | | | |
| 79.75 | 562 | 199 | | | |
| 79.80 | 574 | 212 | | | |
| 79.85 | 585 | 225 | | | |
| 79.90 | 597 | 239 | | | |
| 79.95 | 608 | 252 | | | |
| 80.00 | 620 | 265 | | | |
| 80.05 | 632 | 278 | | | |
| 80.10 | 643 | 291 | | | |
| 80.15 | 655 | 303 | | | |
| 80.20 | 666 | 315 | | | |
| 80.25 | 678 | 326 | | | |
| 80.30 | 690 | 329 | | | |
| 80.35 | 701 | 332 | | | |
| 80.40 | 713 | 335 | | | |
| 80.45 | 724 | 337 | | | |
| 80.50 | 736 | 340 | | | |
| 80.55 | 736 | 340 | | | |
| 80.60 | 737 | 341 | | | |
| 80.65 | 737 | 341 | | | |
| 80.70 | 738 | 341 | | | |
| 80.75 | 738 | 341 | | | |
| 80.80 | 738 | 341 | | | |
| 80.85 | 739 | 342 | | | |
| 80.90 | 739 | 342 | | | |
| 80.95 | 740 | 342 | | | |
| 81.00 | 740 | 342 | | | |
| 81.05 | 740 | 342 | | | |
| 81.10 | 741 | 343 | | | |
| 81.15 | 741 | 343 | | | |
| 81.20 | 742 | 343 | | | |
| 81.25 | 742 | 343 | | | |
| 81.30 | 742 | 343 | | | |
| 81.35 | 743 | 344 | | | |
| 81.40 | 743 | 344 | | | |
| 81.45 | 744 | 344 | | | |
| 81.50 | 744 | 344 | | | |
| 81.55 | 744 | 344 | | | |

Summary for Pond XDB3: 18" High Precast Concrete Galleries

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 2,122 sf, 100.00% Impervious, Inflow Depth > 6.16" for 25 yr event
 Inflow = 0.30 cfs @ 12.09 hrs, Volume= 1,089 cf
 Outflow = 0.19 cfs @ 12.21 hrs, Volume= 1,088 cf, Atten= 37%, Lag= 7.6 min
 Discarded = 0.03 cfs @ 12.20 hrs, Volume= 978 cf
 Primary = 0.16 cfs @ 12.21 hrs, Volume= 109 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 84.03' @ 12.20 hrs Surf.Area= 340 sf Storage= 301 cf

Plug-Flow detention time= 78.6 min calculated for 1,088 cf (100% of inflow)
 Center-of-Mass det. time= 77.8 min (821.6 - 743.8)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|---|
| #1 | 82.00' | 67 cf | 6.00'W x 8.00'L x 1.50'H Stone Bed x 7 504 cf Overall - 336 cf Embedded = 168 cf x 40.0% Voids |
| #2 | 82.00' | 225 cf | Concrete Galley 4x8x1.5 x 7 Inside #1 Inside= 42.0"W x 15.0"H => 4.29 sf x 7.50'L = 32.2 cf Outside= 48.0"W x 18.0"H => 6.00 sf x 8.00'L = 48.0 cf |
| #3 | 82.00' | 12 cf | 2.00'W x 2.00'L x 3.00'H Catch Basin Storage |
| | | 304 cf | Total Available Storage |

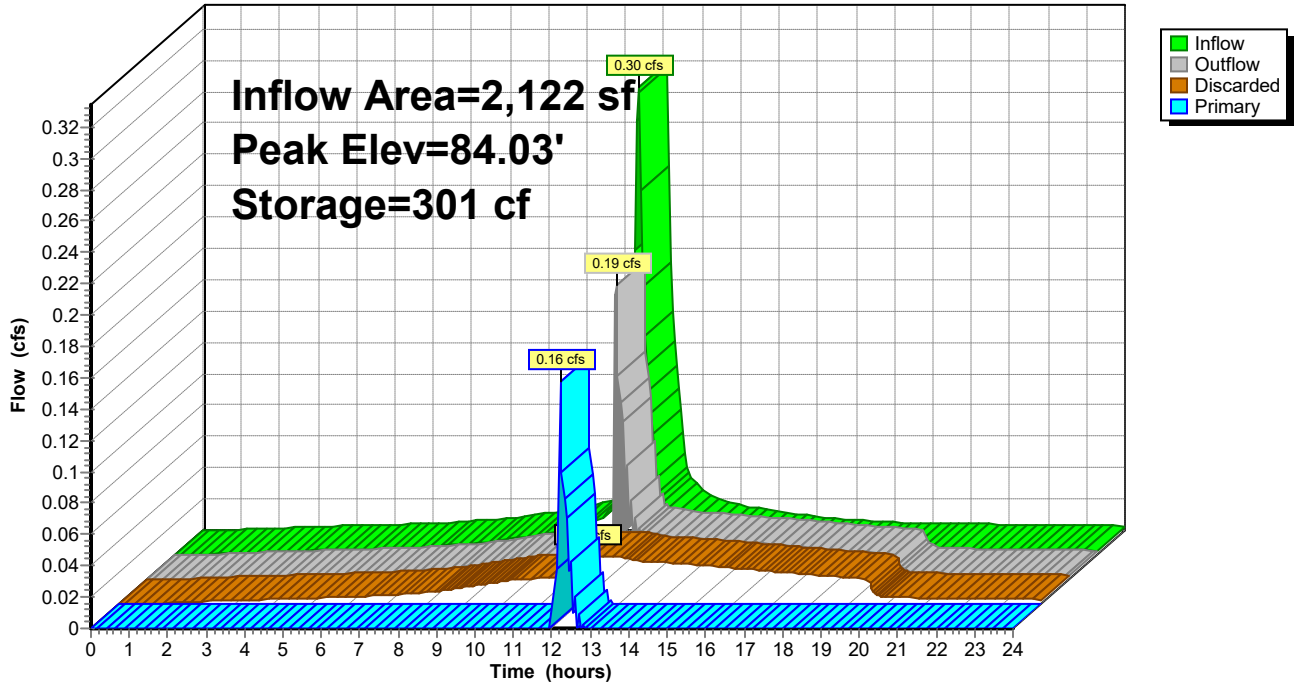
| Device | Routing | Invert | Outlet Devices |
|--------|-----------|--------|--|
| #1 | Discarded | 82.00' | 2.000 in/hr Exfiltration over Wetted area |
| #2 | Primary | 84.00' | 8.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

Discarded OutFlow Max=0.03 cfs @ 12.20 hrs HW=84.03' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.13 cfs @ 12.21 hrs HW=84.03' (Free Discharge)
 ↑2=Sharp-Crested Rectangular Weir (Weir Controls 0.13 cfs @ 0.55 fps)

Pond XDB3: 18" High Precast Concrete Galleries

Hydrograph



Stage-Area-Storage for Pond XDB3: 18" High Precast Concrete Galleries

| Elevation (feet) | Wetted (sq-ft) | Storage (cubic-feet) | Elevation (feet) | Wetted (sq-ft) | Storage (cubic-feet) |
|---------------------|-------------------|-------------------------|---------------------|-------------------|-------------------------|
| 82.00 | 340 | 0 | 84.60 | 655 | 303 |
| 82.05 | 350 | 12 | 84.65 | 655 | 303 |
| 82.10 | 360 | 23 | 84.70 | 656 | 303 |
| 82.15 | 371 | 35 | 84.75 | 656 | 303 |
| 82.20 | 381 | 47 | 84.80 | 656 | 304 |
| 82.25 | 391 | 58 | 84.85 | 657 | 304 |
| 82.30 | 401 | 70 | 84.90 | 657 | 304 |
| 82.35 | 411 | 81 | 84.95 | 658 | 304 |
| 82.40 | 422 | 93 | 85.00 | 658 | 304 |
| 82.45 | 432 | 105 | | | |
| 82.50 | 442 | 116 | | | |
| 82.55 | 452 | 128 | | | |
| 82.60 | 462 | 140 | | | |
| 82.65 | 473 | 151 | | | |
| 82.70 | 483 | 163 | | | |
| 82.75 | 493 | 174 | | | |
| 82.80 | 503 | 186 | | | |
| 82.85 | 513 | 198 | | | |
| 82.90 | 524 | 209 | | | |
| 82.95 | 534 | 221 | | | |
| 83.00 | 544 | 233 | | | |
| 83.05 | 554 | 244 | | | |
| 83.10 | 564 | 255 | | | |
| 83.15 | 575 | 266 | | | |
| 83.20 | 585 | 276 | | | |
| 83.25 | 595 | 286 | | | |
| 83.30 | 605 | 289 | | | |
| 83.35 | 615 | 291 | | | |
| 83.40 | 626 | 294 | | | |
| 83.45 | 636 | 296 | | | |
| 83.50 | 646 | 298 | | | |
| 83.55 | 646 | 299 | | | |
| 83.60 | 647 | 299 | | | |
| 83.65 | 647 | 299 | | | |
| 83.70 | 648 | 299 | | | |
| 83.75 | 648 | 299 | | | |
| 83.80 | 648 | 300 | | | |
| 83.85 | 649 | 300 | | | |
| 83.90 | 649 | 300 | | | |
| 83.95 | 650 | 300 | | | |
| 84.00 | 650 | 300 | | | |
| 84.05 | 650 | 301 | | | |
| 84.10 | 651 | 301 | | | |
| 84.15 | 651 | 301 | | | |
| 84.20 | 652 | 301 | | | |
| 84.25 | 652 | 301 | | | |
| 84.30 | 652 | 302 | | | |
| 84.35 | 653 | 302 | | | |
| 84.40 | 653 | 302 | | | |
| 84.45 | 654 | 302 | | | |
| 84.50 | 654 | 302 | | | |
| 84.55 | 654 | 303 | | | |

Summary for Pond XPS: Pool Storage Below Overflow

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=2)

Inflow Area = 655 sf, 100.00% Impervious, Inflow Depth > 6.16" for 25 yr event
 Inflow = 0.11 cfs @ 12.00 hrs, Volume= 336 cf
 Outflow = 0.03 cfs @ 12.35 hrs, Volume= 120 cf, Atten= 69%, Lag= 21.0 min
 Primary = 0.03 cfs @ 12.35 hrs, Volume= 120 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 84.50' @ 12.35 hrs Surf.Area= 655 sf Storage= 217 cf

Plug-Flow detention time= 363.5 min calculated for 120 cf (36% of inflow)
 Center-of-Mass det. time= 189.3 min (928.0 - 738.6)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|--------|---------------|---|
| #1 | 84.17' | 655 cf | Pool Storage (Prismatic) Listed below (Recalc) |

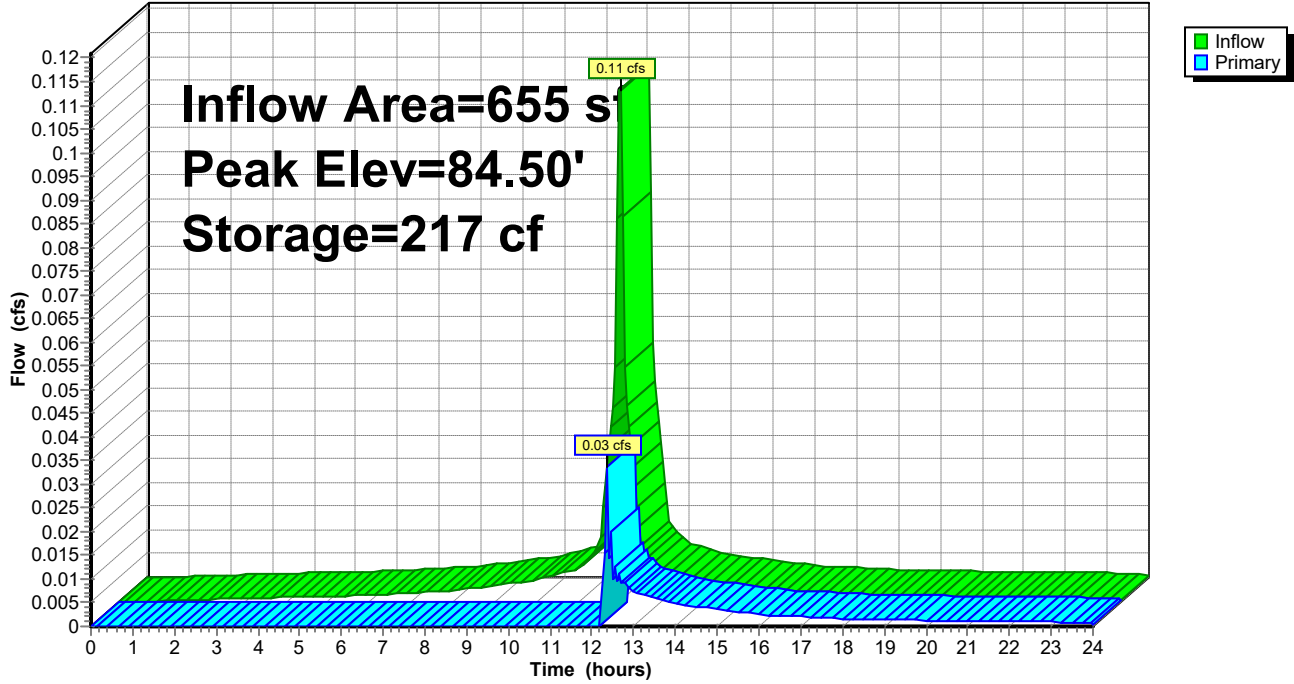
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 84.17 | 655 | 0 | 0 |
| 85.17 | 655 | 655 | 655 |

| Device | Routing | Invert | Outlet Devices |
|--------|---------|--------|--|
| #1 | Primary | 84.50' | 108.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

Primary OutFlow Max=0.01 cfs @ 12.35 hrs HW=84.50' (Free Discharge)
 ↑1=Sharp-Crested Rectangular Weir (Weir Controls 0.01 cfs @ 0.10 fps)

Pond XPS: Pool Storage Below Overflow

Hydrograph



Stage-Area-Storage for Pond XPS: Pool Storage Below Overflow

| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) | Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 84.17 | 655 | 0 | 84.69 | 655 | 341 |
| 84.18 | 655 | 7 | 84.70 | 655 | 347 |
| 84.19 | 655 | 13 | 84.71 | 655 | 354 |
| 84.20 | 655 | 20 | 84.72 | 655 | 360 |
| 84.21 | 655 | 26 | 84.73 | 655 | 367 |
| 84.22 | 655 | 33 | 84.74 | 655 | 373 |
| 84.23 | 655 | 39 | 84.75 | 655 | 380 |
| 84.24 | 655 | 46 | 84.76 | 655 | 386 |
| 84.25 | 655 | 52 | 84.77 | 655 | 393 |
| 84.26 | 655 | 59 | 84.78 | 655 | 400 |
| 84.27 | 655 | 65 | 84.79 | 655 | 406 |
| 84.28 | 655 | 72 | 84.80 | 655 | 413 |
| 84.29 | 655 | 79 | 84.81 | 655 | 419 |
| 84.30 | 655 | 85 | 84.82 | 655 | 426 |
| 84.31 | 655 | 92 | 84.83 | 655 | 432 |
| 84.32 | 655 | 98 | 84.84 | 655 | 439 |
| 84.33 | 655 | 105 | 84.85 | 655 | 445 |
| 84.34 | 655 | 111 | 84.86 | 655 | 452 |
| 84.35 | 655 | 118 | 84.87 | 655 | 459 |
| 84.36 | 655 | 124 | 84.88 | 655 | 465 |
| 84.37 | 655 | 131 | 84.89 | 655 | 472 |
| 84.38 | 655 | 138 | 84.90 | 655 | 478 |
| 84.39 | 655 | 144 | 84.91 | 655 | 485 |
| 84.40 | 655 | 151 | 84.92 | 655 | 491 |
| 84.41 | 655 | 157 | 84.93 | 655 | 498 |
| 84.42 | 655 | 164 | 84.94 | 655 | 504 |
| 84.43 | 655 | 170 | 84.95 | 655 | 511 |
| 84.44 | 655 | 177 | 84.96 | 655 | 517 |
| 84.45 | 655 | 183 | 84.97 | 655 | 524 |
| 84.46 | 655 | 190 | 84.98 | 655 | 531 |
| 84.47 | 655 | 196 | 84.99 | 655 | 537 |
| 84.48 | 655 | 203 | 85.00 | 655 | 544 |
| 84.49 | 655 | 210 | 85.01 | 655 | 550 |
| 84.50 | 655 | 216 | 85.02 | 655 | 557 |
| 84.51 | 655 | 223 | 85.03 | 655 | 563 |
| 84.52 | 655 | 229 | 85.04 | 655 | 570 |
| 84.53 | 655 | 236 | 85.05 | 655 | 576 |
| 84.54 | 655 | 242 | 85.06 | 655 | 583 |
| 84.55 | 655 | 249 | 85.07 | 655 | 590 |
| 84.56 | 655 | 255 | 85.08 | 655 | 596 |
| 84.57 | 655 | 262 | 85.09 | 655 | 603 |
| 84.58 | 655 | 269 | 85.10 | 655 | 609 |
| 84.59 | 655 | 275 | 85.11 | 655 | 616 |
| 84.60 | 655 | 282 | 85.12 | 655 | 622 |
| 84.61 | 655 | 288 | 85.13 | 655 | 629 |
| 84.62 | 655 | 295 | 85.14 | 655 | 635 |
| 84.63 | 655 | 301 | 85.15 | 655 | 642 |
| 84.64 | 655 | 308 | 85.16 | 655 | 648 |
| 84.65 | 655 | 314 | 85.17 | 655 | 655 |
| 84.66 | 655 | 321 | | | |
| 84.67 | 655 | 328 | | | |
| 84.68 | 655 | 334 | | | |

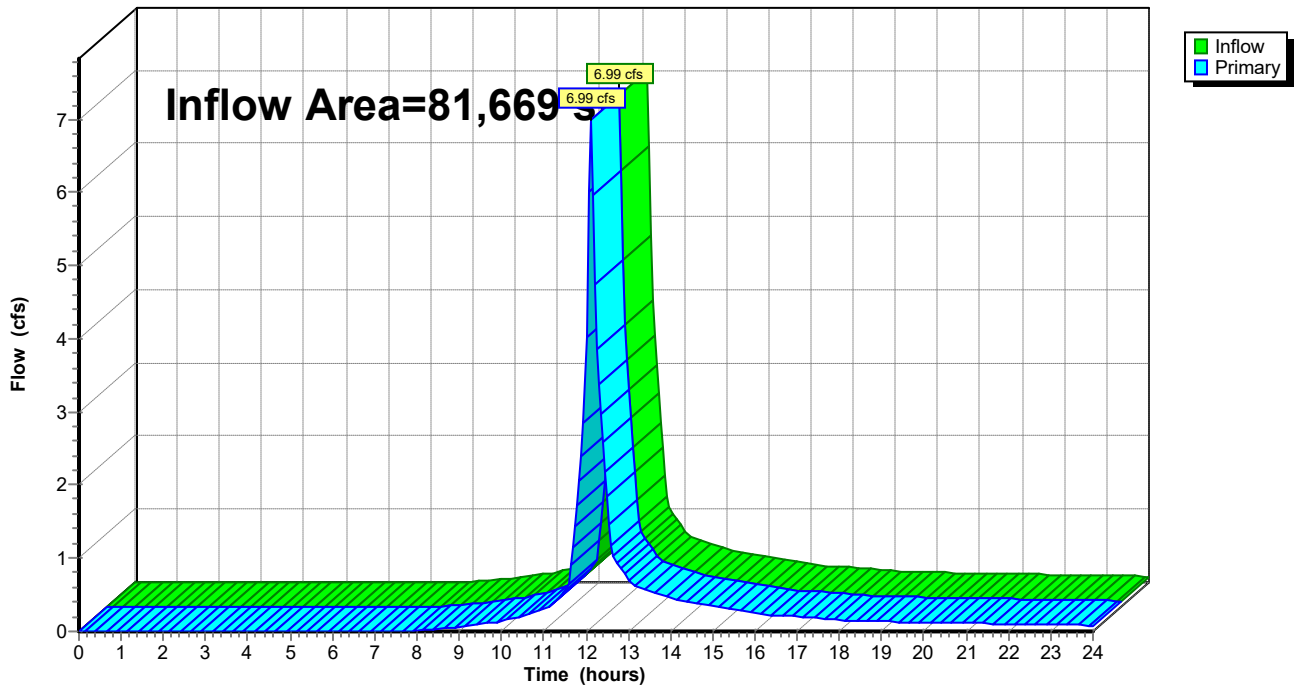
Summary for Link POR: Overall Runoff

Inflow Area = 81,669 sf, 14.25% Impervious, Inflow Depth > 3.33" for 25 yr event
Inflow = 6.99 cfs @ 12.10 hrs, Volume= 22,676 cf
Primary = 6.99 cfs @ 12.10 hrs, Volume= 22,676 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link POR: Overall Runoff

Hydrograph



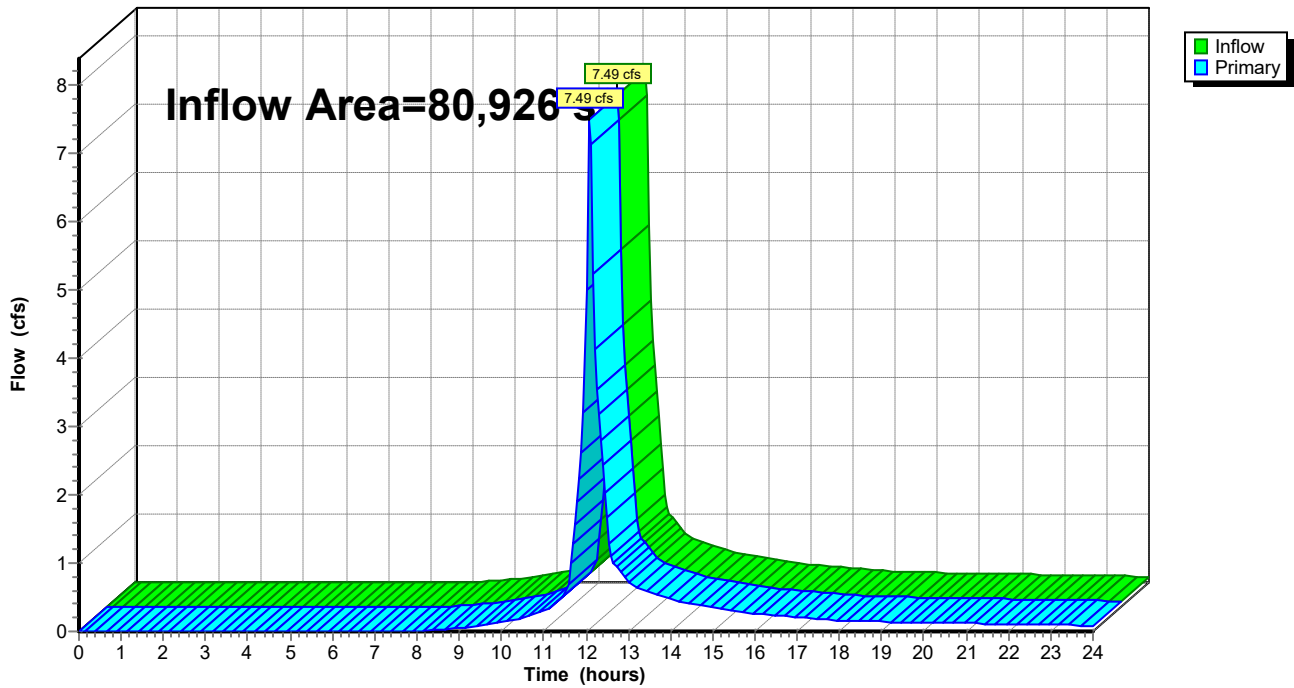
Summary for Link XOR: Overall Runoff

Inflow Area = 80,926 sf, 4.68% Impervious, Inflow Depth > 3.41" for 25 yr event
Inflow = 7.49 cfs @ 12.07 hrs, Volume= 23,003 cf
Primary = 7.49 cfs @ 12.07 hrs, Volume= 23,003 cf, Atten= 0%, Lag= 0.0 min

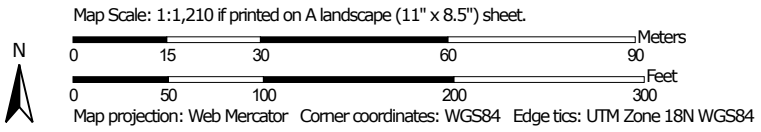
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link XOR: Overall Runoff

Hydrograph



Hydrologic Soil Group—State of Connecticut, Western Part
(58 Turkey Hill South, Westport)



Hydrologic Soil Group

| Map unit symbol | Map unit name | Rating | Acres in AOI | Percent of AOI |
|------------------------------------|--|--------|--------------|----------------|
| 50B | Sutton fine sandy loam, 3 to 8 percent slopes | B/D | 2.1 | 34.3% |
| 60B | Canton and Charlton fine sandy loams, 3 to 8 percent slopes | B | 0.1 | 1.5% |
| 60C | Canton and Charlton fine sandy loams, 8 to 15 percent slopes | B | 3.9 | 64.2% |
| Totals for Area of Interest | | | 6.1 | 100.0% |

Description

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 soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

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. Only the soils that in their natural condition are in group D are assigned to dual classes.