Site Plan Review Application submitted by Paul Larner for PIN #:7-0906-04-091 & 7-0906-04-063 (Mulberry Blvd Extension) for a Specific Development Site Plan to Extend Mulberry Blvd in a M-P-O (Master Plan Overlay) Zoning District.

Issue/Item: Site Plan Review Application submitted by Paul Larner for PIN #:7-0906-04-091 & 7-0906-04-063 (Mulberry Blvd Extension) for a Specific Development Site Plan to Extend Mulberry Blvd in a M-P-O (Master Plan Overlay) Zoning District.

Background: Currently Mulberry Blvd is a dead end road.

Facts and Findings: The Applicant is proposing to extend Mulberry Blvd for future development. This application is currently under technical review by City Engineers, T.R. Long Engineering, P.C.

Funding: N/A

Recommendation: The Planning Commission will hear this application on Monday, March 14, 2022 at 6:30 P.M. **UPDATE: THE PLANNING COMMISSION VOTED UNANIMOUSLY TO APPROVE THE APPLICATION.**

ATTACHMENTS:

- MULBERRY BLVD EXTENSION SPECIFIC SITE PLAN MAR 22 - Application (PDF)
- MULBERRY BLVD EXTENSION SPECIFIC SITE PLAN MAR 22 - Timeline (DOCX)
- MULBERRY BLVD EXTENSION SPECIFIC SITE PLAN MAR 22 - 1st Comment Letter TR Long 1.20.22 (PDF)
- MULBERRY BLVD EXTENSION SPECIFIC SITE PLAN MAR 22 - 1st Return Comment Letter Pittman 2.28.22 (PDF)
- Planning Commission Minutes March 14, 2022 DRAFT (PDF)

220003

RECEIVED
DEC 22 2021
BY: MBE

City of Port Wentworth
▪7224 Highway 21 ▪ Port Wentworth ▪ Georgia ▪ 31407 ▪ 912-999-2084

Site Plan Review Application

Site Plan Application is required for all new construction in a "P" or "MPO" zone as defined in the Zoning Ordinance of the City of Port Wentworth.

Site Plan Type (*Check One*): ☐ General / Concept ☒ Specific Development

Site Plan Address: 0 Mulberry Boulevard

PIN #(s): 70906 04091 & 70906 04063

Zoning: M-P-O Estimated Cost of Construction: $ 350,000

Type of Construction: Infrastructure

Applicant's Name: Mr. Paul Larner

Mailing Address: 3071 Slate Mills Road

Sperryville, VA 22740

Phone #: (540) 987-3164 Email: plarner2003@hotmail.com

Owner's Name (If Different form Applicant): ____

Mailing Address: ____

Phone #: ____ Email: ____

I hereby acknowledge that the above information is true and correct.

BEP Rice Hope LLC,
Paul F. Larner
Applicant's Signature

Dec 15, 2021
Date

____
Owner's Signature (If Different form Applicant)

____
Date

Please see page 2 for required submittal checklist

Updated 4/28/2020

City of Port Wentworth
▪7224 Highway 21 ▪ Port Wentworth ▪ Georgia ▪ 31407 ▪ 912-999-2084

Site Plan Review Application Submittal Checklist

Documentation below is required for a complete submittal.

- ☒ Signed and Completed Application
- ☒ 3 Full size sets of site plan civil drawings or concept plan (depending on type of site plan)
- ☒ 15 half size (11" X 17") sets of site plan civil drawings or concept plan (depending on type of site plan)
- ☐ 2 copies of hydrology reports (if applicable)
- ☒ Names, mailing address, and PIN number of all property owners within 250 feet of all property lines
- ☒ 1 8 ½" X 11" of site plan civil drawings or concept plan (depending on type of site plan)
- ☒ PDF of entire submittal (either flash drive or CD)
- ☒ Other Engineering details or reports may be required once submittal has been received
- ☒ Site plan review fee check
    - No Land Disturbance- $206.00 Site Plan Fee + $50.00 Admin Fee = Total $256.00
    - With Land Disturbance - $836.00 Site Plan Fee + $50.00 Admin Fee = Total $886.00

Additional Fee Statement: If engineer review cost to the City exceeds the site plan review fee that is paid at the time of initial application submittal, you may be required to pay additional review cost.

I have read and agree to the above additional fee statement

Pahl F.m

Applicant's Signature

12/15/2021

Date

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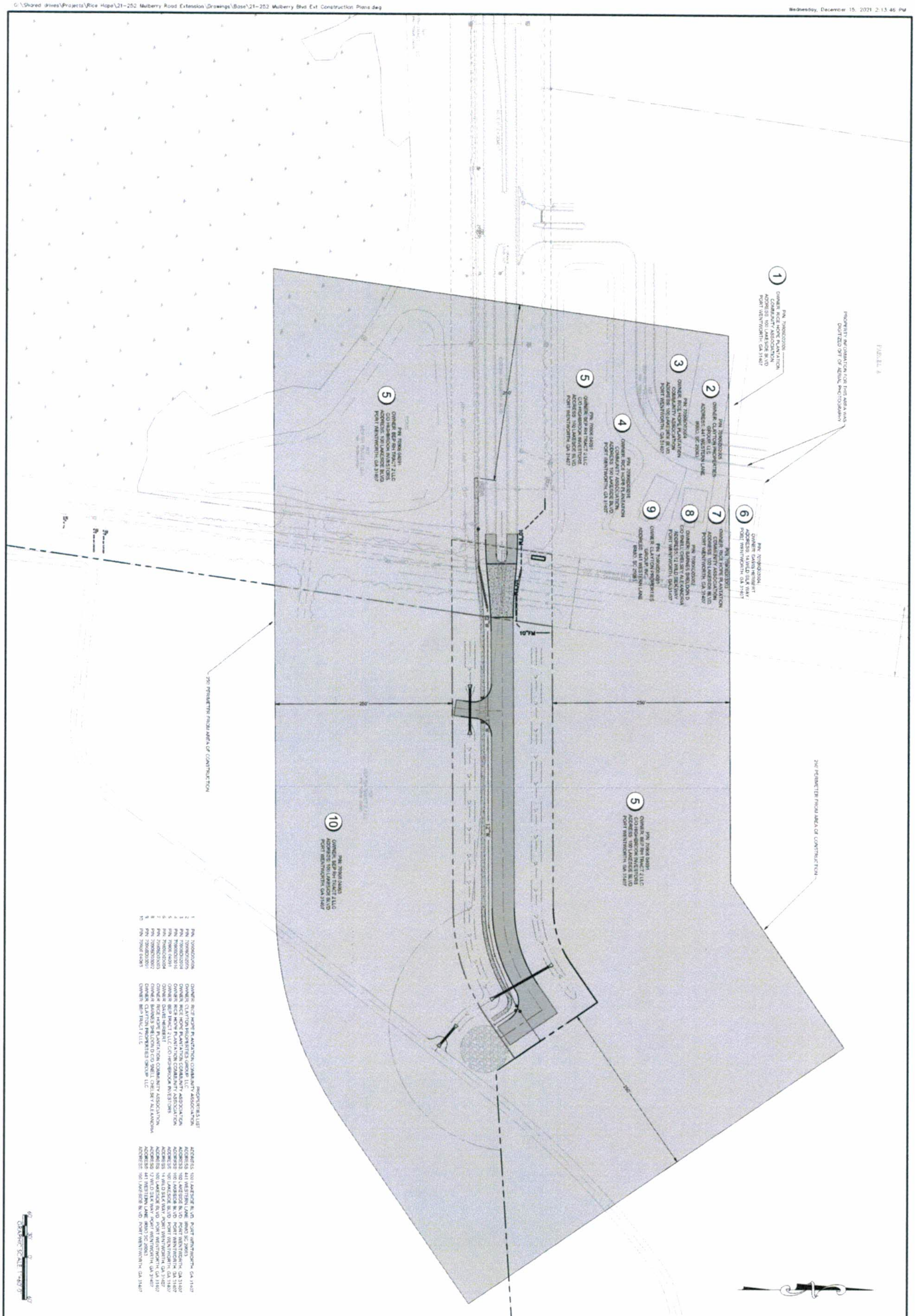
Wednesday, December 15, 2021 2:13:46 PM



Project No	21-252
Drawn By	MCS
Designed By	MCS
Checked By	RAP
Scale	1"=60'
Date	11/4/21

SHEET

EX1

ADJACENT PROPERTY OWNERS EXHIBIT

MULBERRY BOULEVARD EXTENSION

RICE HOPE

Prepared For

BEP RICE HOPE LLC

PITTMAN ENGINEERING

2591 Hwy 17S Suite 303
Richmond Hill, GA 31324
912-445-0578
www.PittmanEngineeringCo.com

REV	REVISIONS	BY	DATE

114 North Commerce Street
Hinesville, Georgia 31313
Office: (912) 368-5664
Fax: (912) 368-7206

TR LONG ENGINEERING, P.C.

308 Commercial Drive
Savannah, Georgia 31406
Office: (912) 335-1046
Fax: (912) 355-1642

March 16, 2022

Mr. Brian Harvey
City of Port Wentworth
7224 Georgia Highway 21
Port Wentworth, Georgia 31407

Re: Mulberry Boulevard Extension - Rice Hope Subdivision
Port Wentworth, Georgia

Dear Mr. Harvey,

T. R. Long Engineering, P.C. has reviewed the “Mulberry Boulevard Extension - Rice Hope Subdivision” prepared by Pittman Engineering Company dated December 21, 202, revised and transmitted to T. R. Long Engineering, P.C. on March 14, 2022. The proposed plans generally meet intent of the ordinances and guidelines governing construction in Port Wentworth.

Concurrence with the site plan by T. R. Long Engineering, P.C. and Port Wentworth does not relieve the owner/developer, designer, engineer and contractor nor their representatives from their individual or collective responsibilities to comply with provisions of Local, State, and Federal regulations and/or ordinances. T. R. Long Engineering, P.C. and Port Wentworth review the submitted documents for completeness and general compliance with codes, ordinances and/or standards. No design liability can be assumed or assigned to T. R. Long Engineering, P.C. or Port Wentworth. All design liability remains with the professional engineer who signed and sealed those documents. Additionally, concurrence with the submitted documents and their intent is not to be construed as a check of every item submitted and does not prevent Port Wentworth from requiring corrections and/or addressing of omissions in the submitted documents and/or construction.

Should you have any questions, comments, or need additional information please contact us.

Sincerely,

Trent R. Long

Trent R. Long, P.E.

Tuesday, March 1, 2022 9:22:37 AM

CONSTRUCTION PLANS
FOR
MULBERRY BOULEVARD EXTENSION

RICE HOPE SUBDIVISION

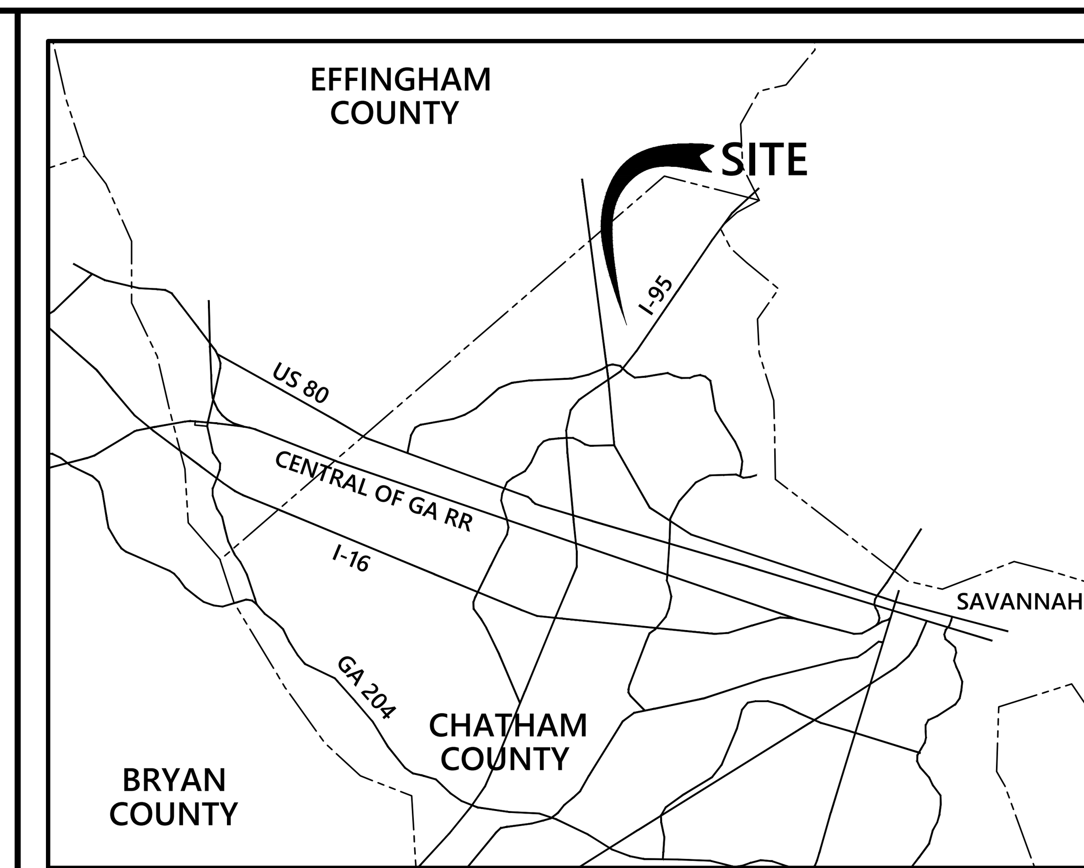
PORT WENTWORTH,
CHATHAM COUNTY,
GEORGIA

PREPARED FOR:
BEP RICE HOPE LLC

DECEMBER 21, 2021

JOB NUMBER: 21-252

PREPARED BY:
Pittman Engineering Co., LLC



VICINITY MAP

Sheet List Table

SHEET NUMBER	SHEET TITLE
C0	COVER SHEET
C0.1	GENERAL NOTES
C1.1	EXISTING CONDITIONS PLAN
C1.2	LAYOUT, SIGNAGE & STRIPING PLAN
C2.1	WATER & SEWER PLAN
C2.2	WATER & SEWER PROFILE
C2.3	ROAD PLAN AND PROFILE
C3.1	CONSTRUCTION DETAILS
C3.2	CONSTRUCTION DETAILS
C3.3	CONSTRUCTION DETAILS
C3.4	CONSTRUCTION DETAILS
EC1.1	ES&PC PLAN – INITIAL
EC2.1	ES&PC PLAN – INTERMEDIATE
EC3.1	ES&PC PLAN – FINAL
EC4.1	EROSION & SEDIMENT CONTROL NOTES
EC4.2	EROSION & SEDIMENT CONTROL NOTES
EC4.3	EROSION & SEDIMENT CONTROL NOTES
EC5.1	EROSION & SEDIMENT CONTROL DETAILS
EC5.2	EROSION & SEDIMENT CONTROL DETAILS
EC5.3	EROSION & SEDIMENT CONTROL DETAILS

REVISION LISTING

REV. NO.	REVISION	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 017550 RAYMOND A. PITTMAN

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

Know what's below.
Call before you dig.

PITTMAN ENGINEERING
2591 Hwy 17S Suite 303
Richmond Hill, GA 31324
912-445-0578
www.PittmanEngineeringCo.com

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Tuesday, March 1, 2022 9:22:41 AM

GENERAL NOTES:

OWNER/DEVELOPER:
SCOTT DECAIN
BEP RICE HOPE, LLC
4800 HAMPDEN LANE, SUITE 200
BETHESDA, MARYLAND 20814
(301) 915-0460
redmondconst@bellsouth.net

ENGINEER:
PITTMAN ENGINEERING CO., LLC
2591 HWY 17S SUITE 303
RICHMOND HILL, GA 31324
912-445-0578
www.PittmanEngineeringCo.com

SITE DATA:

ZONE:	PUD
TOTAL PROJECT ACREAGE:	2.66 AC.
DISTURBED AREA:	2.66 AC.
FLOOD MAP:	13051C0030G
FLOOD ZONE:	X

SURVEY INFORMATION:

THE TOPOGRAPHIC INFORMATION:
ALL ELEVATIONS BASED ON NAVD88

CONSTRUCTION NOTES & LEGEND

General Notes:
1. All elevations are based on NAVD88
2. Existing utility locations shown are generally schematic in nature and may not accurately reflect the size and location of each particular utility. Contractor shall field verify location of all existing utilities prior to beginning construction. All existing utilities may not be shown on these drawings. It is the contractor's responsibility to coordinate his operation with all utilities which may be in conflict with his work. The contractor must maintain and protect all utilities, or relocate utilities as needed.
3. Contractor is responsible for coordination with utility companies and adjustment of existing sanitary sewer cleanouts, manholes, water meters, storm inlets, manholes, and any other appurtenances to final grade as required.
4. Contractor is responsible for worksite safety. Occurrences at worksite shall be the complete responsibility of the contractor.
5. The contractor shall not begin construction until the proper permits have been issued.
6. The contractor shall be responsible for locating all existing utilities prior to beginning construction activities and for avoiding all conflicts with the same. Any damage to existing utilities shall be repaired at the contractor's expense.
7. The contractor shall completely clear and grub all areas within the limits of disturbance unless indicated otherwise.
8. All construction shall conform to the City of Port Wentworth Ordinances.
9. Contractor shall coordinate construction activities with local utility companies and adjacent property owners. Contractor shall be responsible for protection and any necessary repairs to existing utility lines.
10. Three days notice to city and local utility companies is required prior to each different construction activity.
11. Control of stormwater and groundwater throughout the construction period shall be the responsibility of the contractor. Existing drainage is not to be impeded during construction. All penalties, claims and fees imposed on owner as a result of damage caused by actions of the contractor, his employees or subcontractors shall be borne in full by the contractor. Storm drainage conveyance shall not be impeded and dewatering may be required for the contractor. These are considered "Means and Methods," and any and all cost associated with this activity shall be included in the respective pay category.
12. Contractor shall be responsible for repairs of damage to any existing infrastructure including but not limited to roads, sidewalk, curb & gutter, landscaping, structures, and all existing conditions.
13. All signs, mail boxes, shrubbery, fences, landscaping or existing structures interfering with construction shall be removed and replaced by the contractor at the contractor's expense.
14. Contractor shall be solely responsible for all construction means, methods, techniques, and procedures and shall at all times take all reasonable safety precautions for the safety of its employees on the project and shall comply with all applicable provisions of federal, state, and municipal safety laws and building construction codes.
15. Contractor shall comply to the fullest extent with the latest standards or OSHA directives or any other agency having jurisdiction for excavation and trenching procedures. The contractor shall provide support systems, sloping, benching and other means of protection. This shall include, but not be limited to, access and egress from all excavation and trenching. Contractor is responsible for his job site to be in complete compliance with all regulatory requirements.
16. All construction debris shall be removed from the site and disposed of in an approved waste disposal area. The contractor shall be responsible for disposal of all construction debris.
17. Contractor must provide proper traffic control devices for construction in accordance with "Manual of Uniform Traffic Control Devices" (latest edition).
18. Only new Reinforced Concrete Pipe Class III, shall be used in city road rights-of-ways or for drainage systems or if any storm runoff from adjoining properties drain through the proposed project.
19. Pipes up to thirty-six inches in diameter shall have flared end sections.
20. Pipes of dissimilar size shall be vertical aligned with their energy grade line or shall have crowns of the pipe converge at a manhole or other structure.
21. All pipe joints, in addition to the required rubber gaskets, shall be covered with approved geo-textile material of sufficient width to be secured to the pipe and completely encircle the joint with 50% overlap.
22. All pipe that crosses a road shall be imbedded in suitable material compacted to minimum 100% standard proctor. Suitable materials are GW, GP, GM, GC, SP, or SW soils as classified under the Unified System.
23. All stormwater inlets structures shall be of the standard design and shall have inverts built in bottoms.
24. Swales shall have a 5:1 side slopes or flatter.
25. All PVC pipe shall be stored out of the sunlight or appropriately covered with a UV resistant cover. All PVC pipe shall be properly supported so "sagging" of the pipe doesn't occur during storage. Any PVC pipe showing UV degradation or sagging shall be removed and replaced at the contractor's expense.

G:\Shared drives\Projects\Rice Hope\21-252 Mulberry Road Extension\Drawings\Base\21-252 Mulberry Blvd Ext Construction Plans.dwg

Staking Notes:
1. All dimensions are to the edge of pavement unless shown otherwise on the plans.
2. Layout for manholes, inlets, etc., is not shown on this plan.
3. The contractor shall verify existing benchmarks shown on the plans to establish vertical control on the site. The contractor shall be responsible for protecting these from unauthorized removal or replacement of benchmarks. When a permanent benchmark is located such that it must be removed to complete the project, the contractor shall establish such temporary benchmarks as he may require prior to removing the permanent benchmark. The contractor shall provide the location, identification and elevation of any temporary benchmark established to the owner and engineer.

Paving, Grading and Drainage Notes:
1. The contractor shall be responsible for locating all existing underground utilities prior to beginning construction activities and for avoiding all conflicts with the same. Any damage to existing utilities shall be repaired at the contractor's expense.
2. Contours shown on these plans are for general guidance and informational purposes. The contractor shall grade the site in accordance with spot elevations shown. In cases of conflict between spot elevations and contours the spot elevations will govern.
3. Load bearing and structural fills shall be approved suitable material as defined in the project specs, geotechnical report, Georgia Department of Transportation specifications and International Builder's Code. The most stringent requirement shall be adhered to. Waste material may be used for flushing of shoulder or construction of pedestrian or landscaped areas if they can be stabilized and will support plant growth and meet the required degree of compaction.
4. Contractor shall be responsible for ensuring proper drainage of any areas which are field adjusted during construction.
5. See details for requirements for control, construction and expansion joints in concrete sidewalks and curb and gutter.
6. Standard curb and gutter will be used where the drawings indicate that the gutter is to carry water. Pitched curb and gutter will be used where the drawings indicate the water will drain away from the gutter. Transitions between the two conditions shall be made as smoothly as possible.
7. Invert elevations shown on the plans are to the invert of the lowest pipe.
8. All storm drainage pipe shall be Class III Reinforced Concrete Pipe.

Signage and Striping Notes:
1. All traffic control measures shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices." The manual identification and dimensions are shown on staking sheets for each required sign. The orientation of each sign from an approaching driver's point of view is also shown. Sign and support post material and installation shall conform to the pertinent sections of the current edition of the Georgia Department of Transportation specifications (latest edition).
2. Street name markers are required at all intersections.

Water and Sewer Notes:
1. The contractor shall be responsible for locating all existing underground utilities prior to beginning construction activities and for avoiding all conflicts with the same. Any damage to existing utilities shall be repaired at the contractor's expense.
2. All water and sewer connections to existing active systems are to be coordinated with PORT WENTWORTH Engineering and Public Works Departments a minimum of 72 hours prior to construction activities. Any damage to existing County utilities shall be repaired immediately at the Contractor's expense.
3. All construction shall be in accordance with the City of Port Wentworth Ordinances.
4. All water main pipe shall be AWWA C-900 Pressure Rated Pipe, Pressure Class 150, with dimension ratio 18 or lower and blue. If Ductile Iron water mains are necessary, they shall be Pressure Class 350, with cement interior lining in accordance with the latest revision of ANSI A-21.4 (AWWA C-104) and asphaltic exterior coating. The water service laterals shall be Polyethylene PE 3408 SDR 9 conforming to all requirements of AWWA C-901 and ASTM D-2737 latest revisions.
5. All sanitary sewer pipe shall be PVC and geeen, ASTM D-3034, SDR-26.
6. Minimum slope of 4-inch sewer laterals shall be 1.0%.
7. All PVC Water Main shall be blue and all PVC Sewer shall be green.
8. Sewer pipe deflection shall not exceed 5.0%. Deflection shall be verified using a spherical or cylindrical mandrel with a diameter no less than 95% of the inside pipe diameter.
9. All manhole and inlet castings shall be American made. Manufacturer's specification sheets shall be submitted for review and approval.
10. Manhole frame heights outside of paved areas shall be a minimum of 0.2 feet above finished grade.
11. Pipe, fittings, valves, and other accessories shall, unless otherwise directed, be unloaded at the point of delivery and stored where they will be protected and will not be hazardous to traffic. They shall at all times be handled with care to avoid damage. The interior of all pipes, fittings and other accessories shall be kept free from dirt and foreign matter at all times.
12. All water main and water lateral thrust restraint shall be handled by use of joint restraint/mechanical joints equivalent to Ebaa Iron Megalug or push-on joint type restrained joints equivalent to "Lok-Ring", "TR Flex", or "Super Lock". Concrete thrust block shall not be allowed.
13. All water mains shall have a minimum cover of 3 feet and a maximum cover of 5 feet measured from finished grade. Where the water main crosses other utility lines, the water main shall be installed 18" (pipe to pipe) below the other utility lines (if required) to avoid conflicts and maintain cover.
14. Maintain a minimum horizontal separation of 10 feet between water, sewer, and drainage lines unless otherwise shown.
15. When pipe laying is not in progress, a mechanical joint plug or cap will be used to form a water tight seal at both ends of the line being installed.
16. The following procedure shall be followed during flushing of the lines prior to connection to the water system:
    a. Flush the water mains using a full size flush having a minimum velocity of 2.5 feet per second.
    b. Continue flushing for a minimum time period of thirty minutes or until water line is purged of foreign matter and water runs clear.
9. All water used for construction, if obtained from an unmetered line, must be metered through an approved fire hydrant meter with a backflow prevention device obtained from the municipality's water department.
10. Water distribution pipe shall have a #12 Gauge Solid Copper Tracing Wire installed along its length, including laterals up to the meter or backflow preventer.
11. All connections of the #12 Gauge Solid Copper Tracing Wire shall be made with 3m brand splice kits.
12. Mylar detectable warning tape shall be installed in sanitary sewer trenches or as required by city.
13. Gate Valves & Valve Boxes: Gate Valves shall be cast iron or ductile iron body, bronze mounted, double disc, or resilient wedge design, with non-rising stems conforming to AWWA C-500, C-509, or C-515. Valves shall have a working pressure of 200 psi, and be tested at 400 psi.
14. Hydrants shall be Mueller or approved equal with traffic yellow enamel finish and be equipped with a 4-1/2" outlet facing the street side with two 2-1/2" outlets on either side. Hydrants shall be restrained with mechanical joint fittings and rodded. Hydrant legs shall be ductile iron pressure class 350 pipe. Tracer wire shall be extended along hydrant legs, to hydrant isolation valves and up outside of valve box, and shall also extend up hydrant base terminating above grade.

Special Notes:
1. All earthworks for roadways shall be in accordance with Georgia Department of Transportation requirements.
2. The engineer shall make periodic site visits to observe construction of the project infrastructure and furnish an engineer's letter of completion with qualifiers at project close-out.
3. All sidewalks shall have no more than 2% cross slope, including driveway crossings.
4. All earthworks for lot areas and building pads shall be in conformance with the geotechnical report prepared for owner by others. The contractor shall request this report from the owner if it has not been furnished in the bid documents. Any recommendations contested by the contractor shall be submitted to the owner prior to commencing. Failing to notify the owner and resolving any conflicts, the contractor will be considered to have proceeded at their own risk and expense.
5. Contractor shall furnish as-built data for the water, sewer and storm lines which are to be stamped by a registered land surveyor registered in the state of Georgia. The survey shall be delivered in AutoCAD format and be in compliance with the city requirements.
6. The roads and drainage in this project are public and shall be owned and maintained by City of Port Wentworth.

LEGEND

LINE STYLES
- C — CENTER LINE
- DEMOLITION/ABANDONMENT
- CONSTRUCTION LIMITS
- C — PROPOSED OVERHEAD COMMUNICATION
- C — EXISTING OVERHEAD COMMUNICATION
- Cu — PROPOSED UNDERGROUND COMMUNICATION
- Cu — EXISTING UNDERGROUND COMMUNICATION
- E — PROPOSED OVERHEAD ELECTRICAL
- Eu — EXISTING OVERHEAD ELECTRICAL
- Eu — PROPOSED UNDERGROUND ELECTRICAL
- Eu — EXISTING UNDERGROUND ELECTRICAL
- FM — PROPOSED FORCE MAIN
- FM — EXISTING FORCE MAIN
- G — PROPOSED NATURAL GAS MAIN
- G — EXISTING NATURAL GAS MAIN
- NPW — PROPOSED NON-POTABLE WATER
- NPW — EXISTING NON-POTABLE WATER
- SS — PROPOSED SANITARY SEWER
- SS — EXISTING SANITARY SEWER
- W — PROPOSED WATER MAIN
- W — EXISTING WATER MAIN
- RIGHT OF WAY
- PROPERTY LINE
- FILL — LIMITS OF FILL
- X — WELDED WIRE FABRIC
- TREE LINE
- RAIL ROAD
- DRAINAGE CHANNEL
- SILT FENCE
- PROPOSED FENCE
- EXISTING FENCE
- GAURD RAIL
- BREAK LINE
- SB — STREAM BUFFER
- LIMITS OF 100 YEAR FLOOD PLANE
- SOIL — SOIL BOUNDARY
- 1000 — PROPOSED MAJOR CONTOUR
- 1000 — EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MINOR CONTOUR

PATTERNS
- POROUS
- BLOCK WALL
- BRICK WALL
- CONCRETE (PLAN)
- CONCRETE (SECTION)
- ASPHALT (PLAN)
- ASPHALT (SECTION)
- GRATING
- GROUT
- RIP-RAP
- GRAVEL
- SWAMP
- UNDISTURBED EARTH
- DISTURBED EARTH
- SAND
- ROCK

LEGEND
- CENTER LINE
- FIRE HYDRANT (TAG)
- WATER MANHOLE
- WATER METER
- SANITARY SEWER MANHOLE
- GREASE TRAP
- STORM DRAIN MANHOLE
- COMMUNICATION MANHOLE
- COMMUNICATION VAULT
- UTILITY POLE
- IN LINE VALVE
- HORIZONTAL CONTROL POINT
- GUY WIRE
- ELECTRICAL MANHOLE
- BM — BENCHMARK
- VALVE IN MANHOLE
- GRATE INLET

VEGETATION
- GENERIC TREE
- DECIDUOUS TREE
- CONIFEROUS TREE
- DECIDUOUS SHRUB
- CONIFEROUS SHRUB

REV.	REVISIONS	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

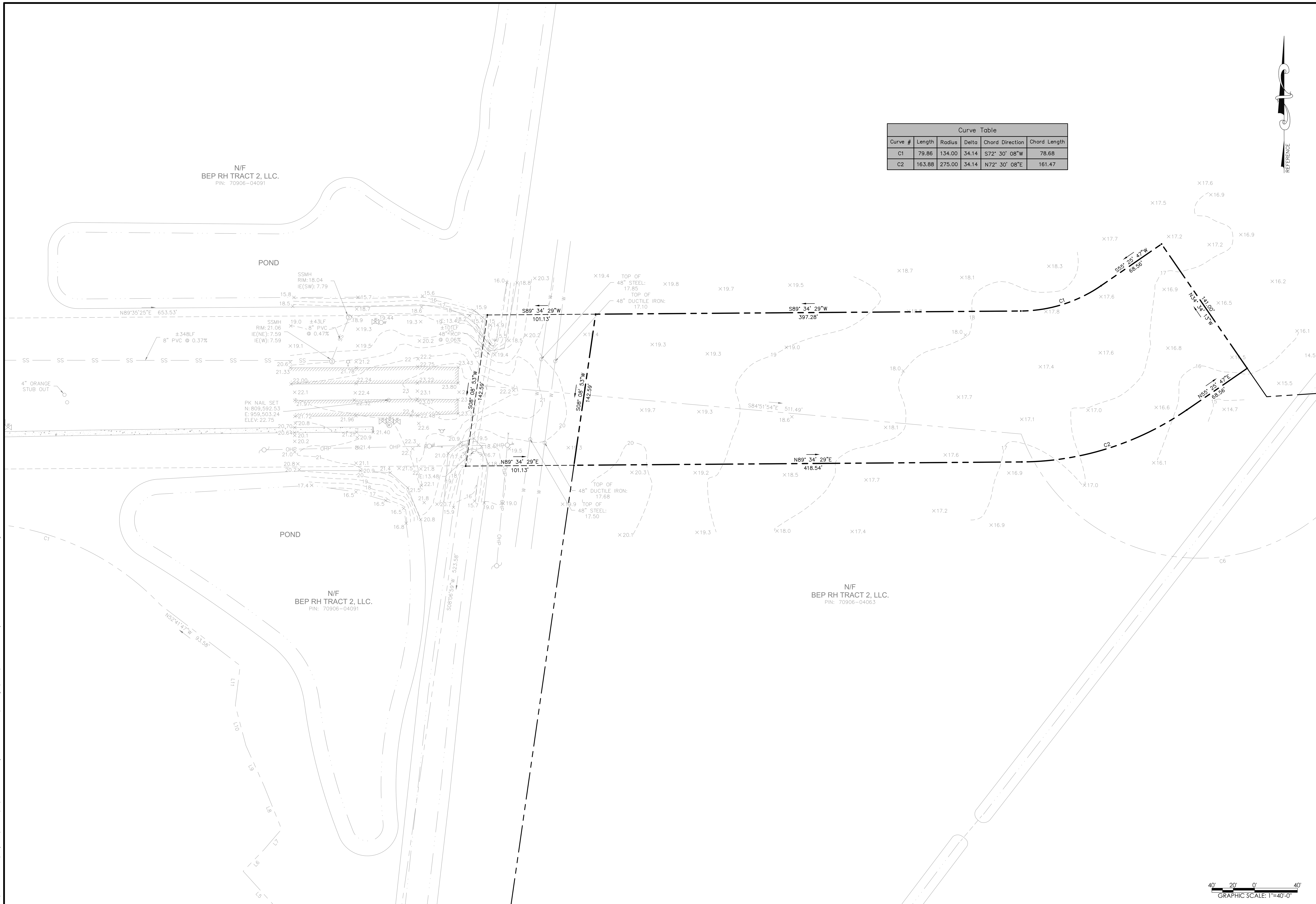
GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 017550 RAYMOND A. PITTMAN

PITTMAN ENGINEERING
2591 Hwy 17S Suite 303
Richmond Hill, GA 31324
912-445-0578
www.PittmanEngineeringCo.com

GENERAL NOTES
MULBERRY BOULEVARD EXTENSION
RICE HOPE
Prepared For
BEP RICE HOPE LLC

Project No.	21-252
Drawn By:	MCS
Designed By:	MCS
Checked By:	RAP
Scale:	1"=40'
Date:	12/21/21

SHEET
C0.1



Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	79.86	134.00	34.14	S72° 30' 08"W	78.68
C2	163.88	275.00	34.14	N72° 30' 08"E	161.47

REV.	REVISIONS	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 017550 RAYMOND A. PITTMAN

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Richmond Hill, GA 31324
912-445-0578
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EXISTING CONDITIONS PLAN
MULBERRY BOULEVARD EXTENSION
RICE HOPE
Prepared For
BEP RICE HOPE LLC

Project No. 21-252
Drawn By: MCS
Designed By: MCS
Checked By: RAP
Scale: 1"=40'
Date: 12/21/21

SHEET
C1.1

Tuesday, March 1, 2022 9:22:51 AM

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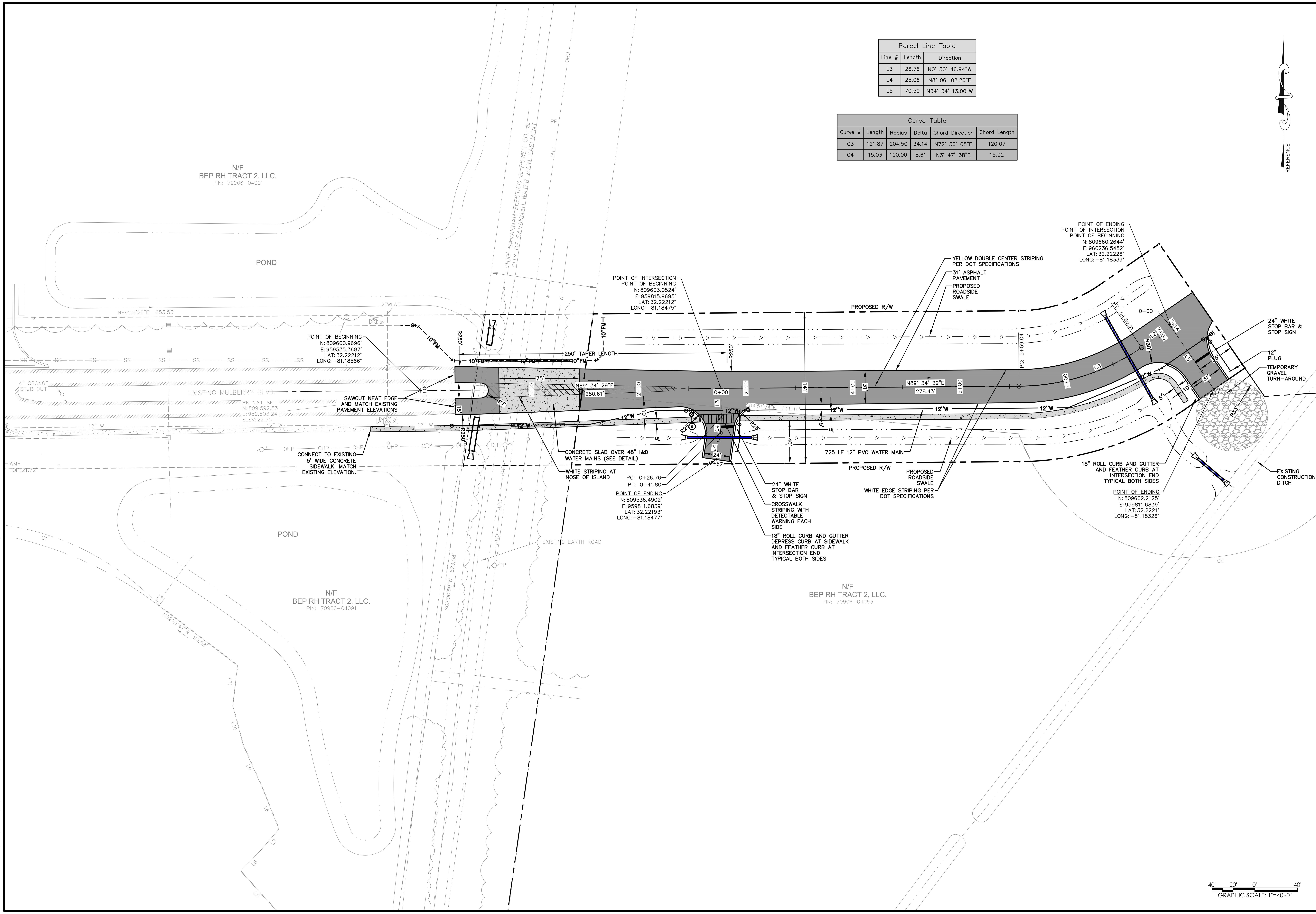

Parcel Line Table		
Line #	Length	Direction
L3	26.76	N0° 30' 46.94"W
L4	25.06	N8° 06' 02.20"E
L5	70.50	N34° 34' 13.00"W

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C3	121.87	204.50	34.14	N72° 30' 08"E	120.07
C4	15.03	100.00	8.61	N3° 47' 38"E	15.02

REV.	REVISIONS	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
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LAYOUT, SIGNAGE & STRIPING PLAN

MULBERRY BOULEVARD EXTENSION

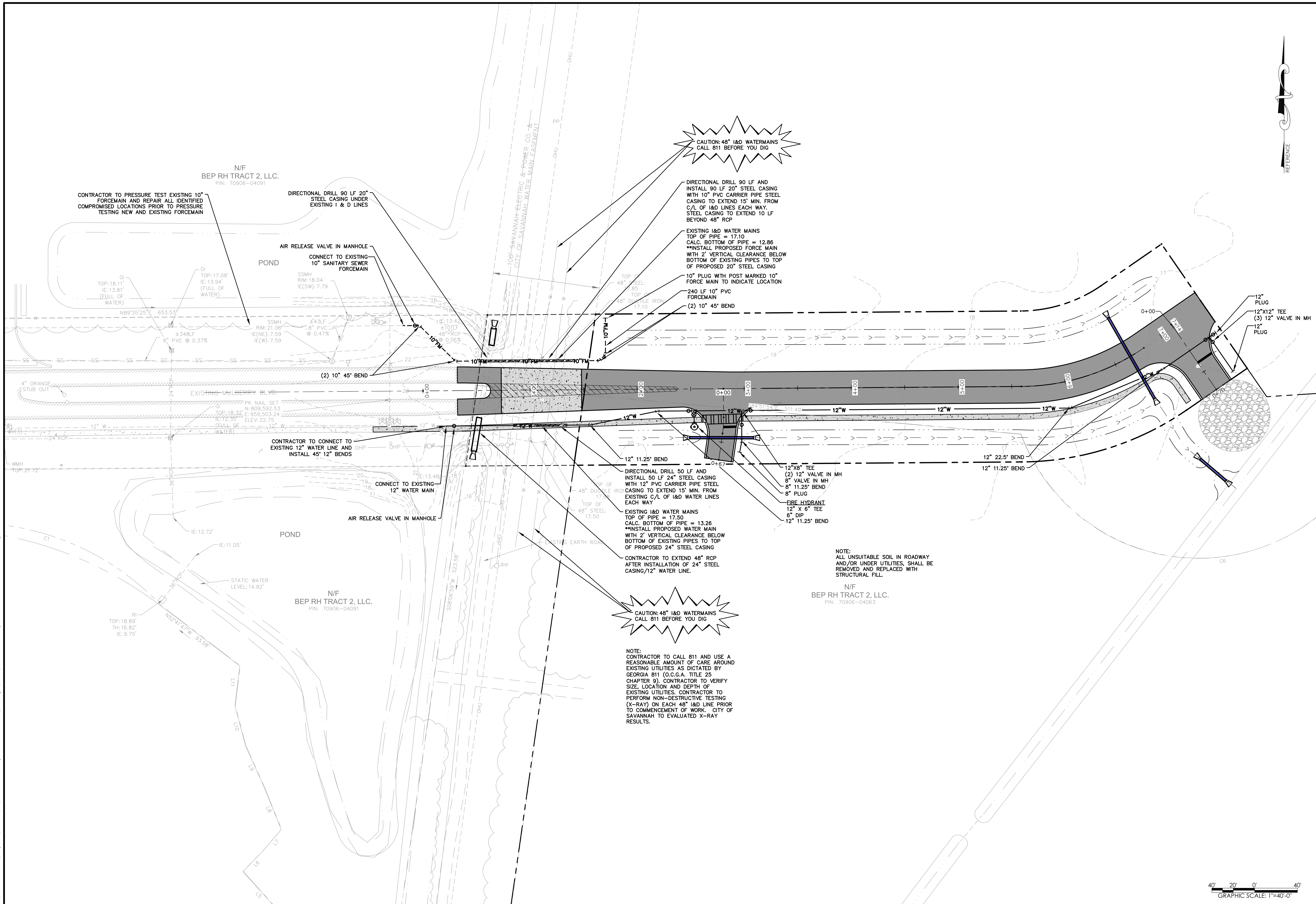
RICE HOPE

Prepared For
BEP RICE HOPE LLC

Project No. 21-252
Drawn By: MCS
Designed By: MCS
Checked By: RAP
Scale: 1"=40'
Date: 12/21/21

SHEET
C1.2

Tuesday, March 1, 2022 9:22:56 AM



REV.	REVISIONS	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 17550 RAYMOND A. PITTMAN

PITTMAN ENGINEERING
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Richmond Hill, GA 31324
912-445-0578
www.PittmanEngineeringCo.com

WATER & SEWER PLAN
MULBERRY BOULEVARD EXTENSION
RICE HOPE
Prepared For
BEP RICE HOPE LLC

Project No.	21-252
Drawn By:	MCS
Designed By:	MCS
Checked By:	RAP
Scale:	1"=40'
Date:	12/21/21

SHEET
C2.1

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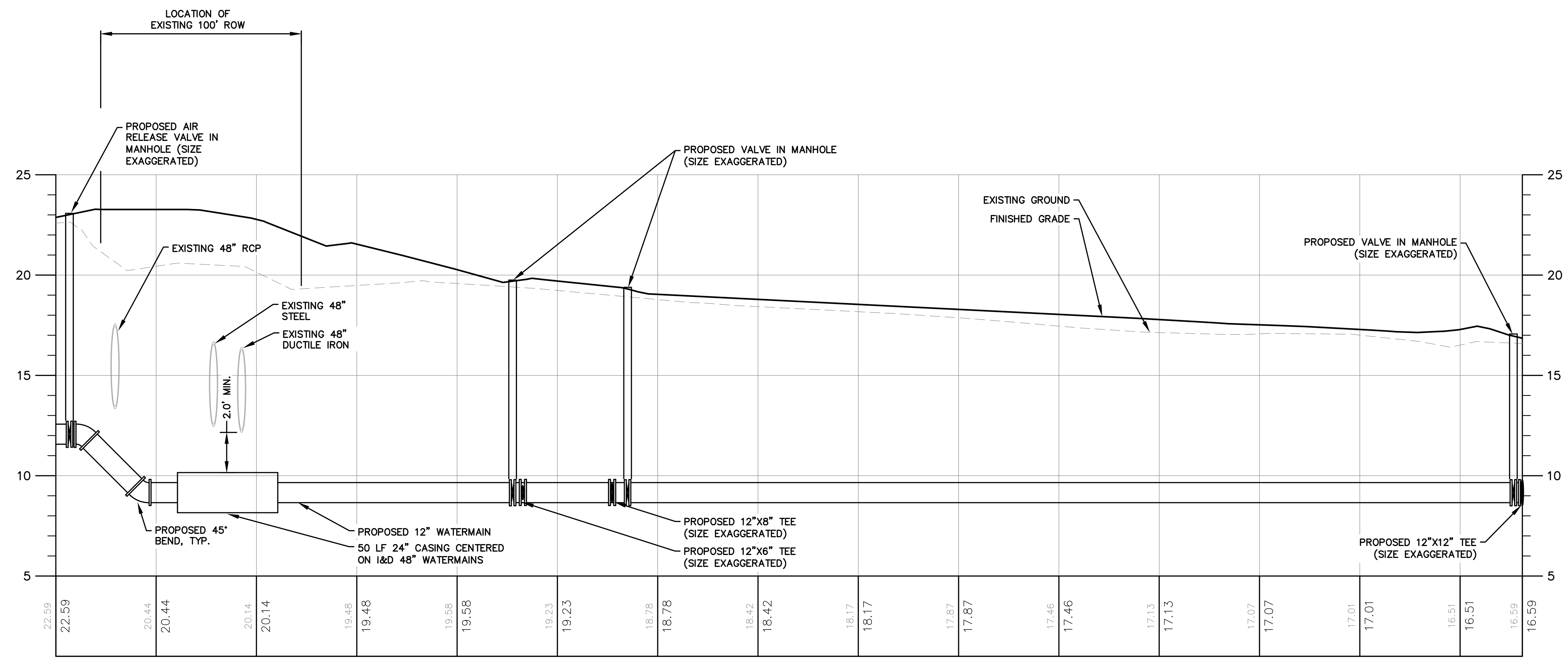
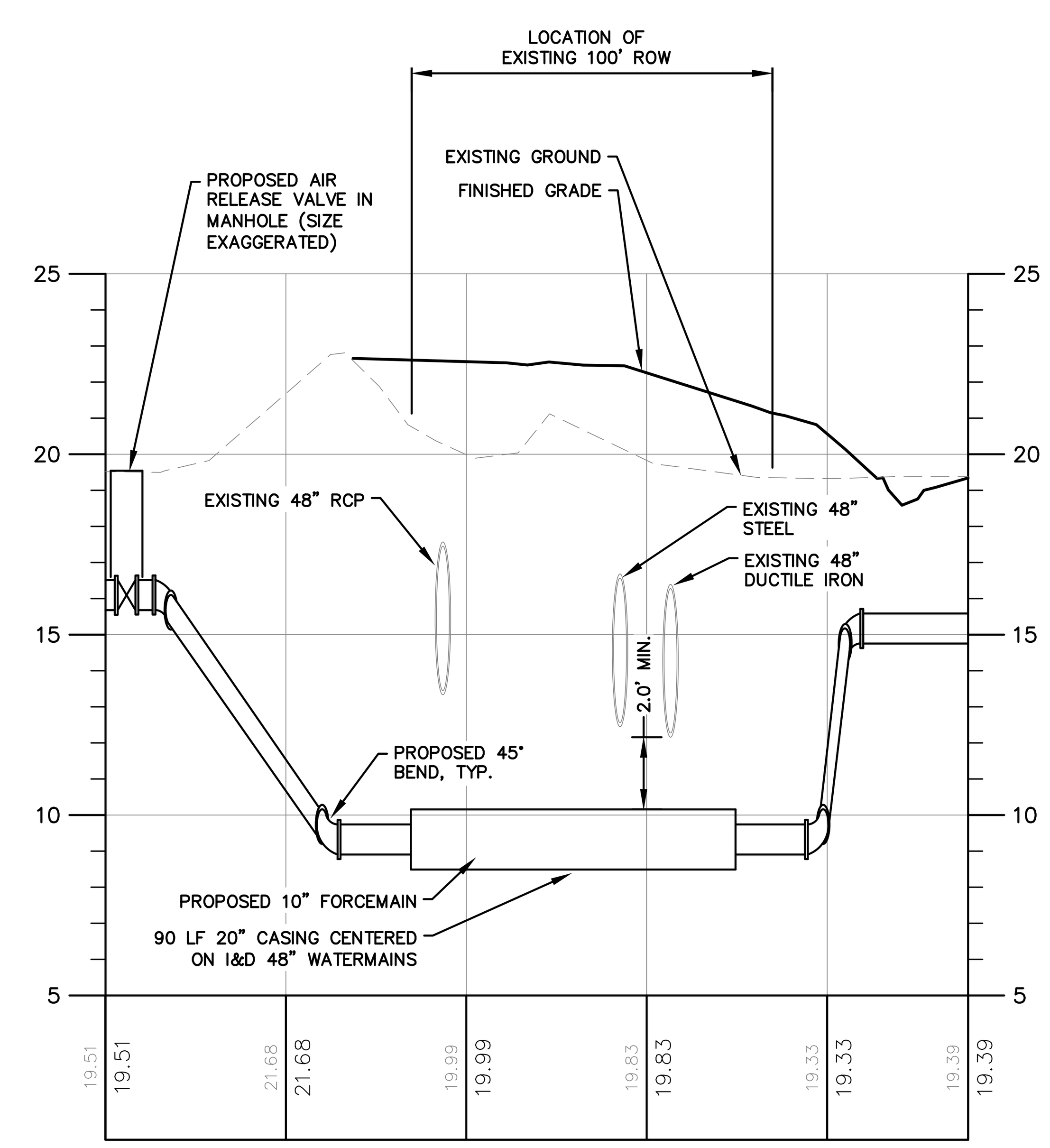
Tuesday, March 1, 2022 9:23:01 AM



WATERMAIN PROFILE
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'



FORCEMAIN PROFILE
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'

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RAY A. PITTMAN, P.E.
GSWCC LEVEL II
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WATER & SEWER PROFILE
MULBERRY BOULEVARD EXTENSION
RICE HOPE
Prepared For
BEP RICE HOPE LLC

Project No. 21-252
Drawn By: MCS
Designed By: MCS
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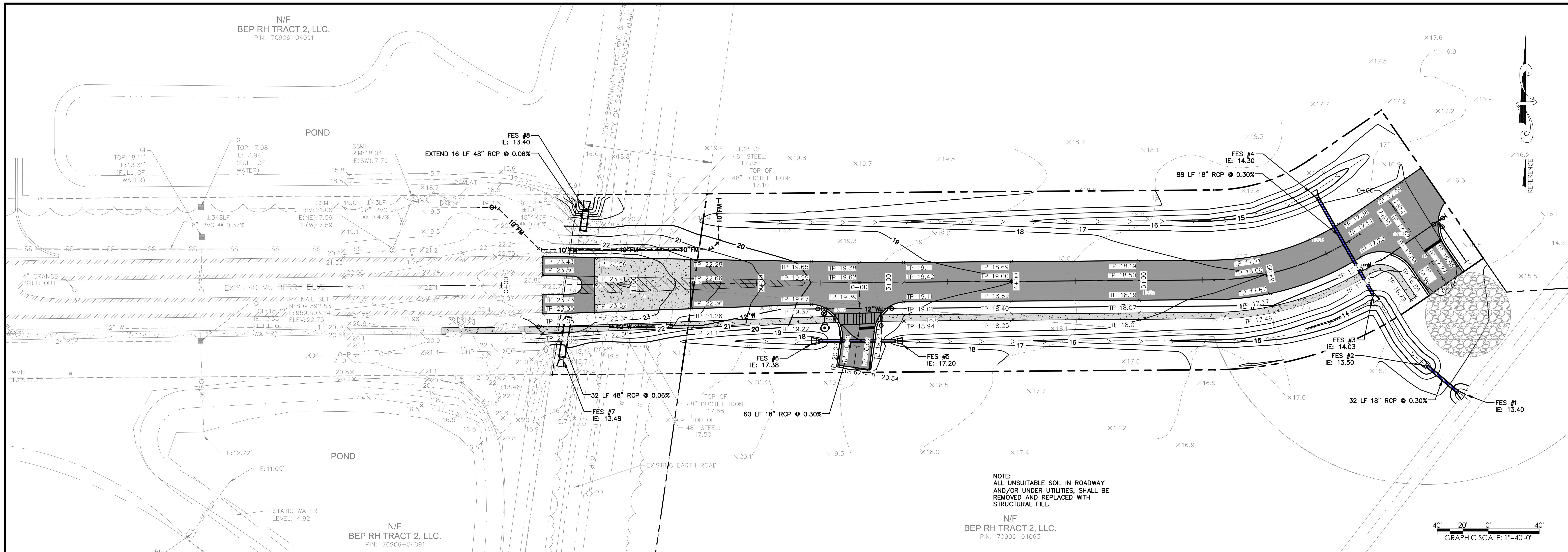
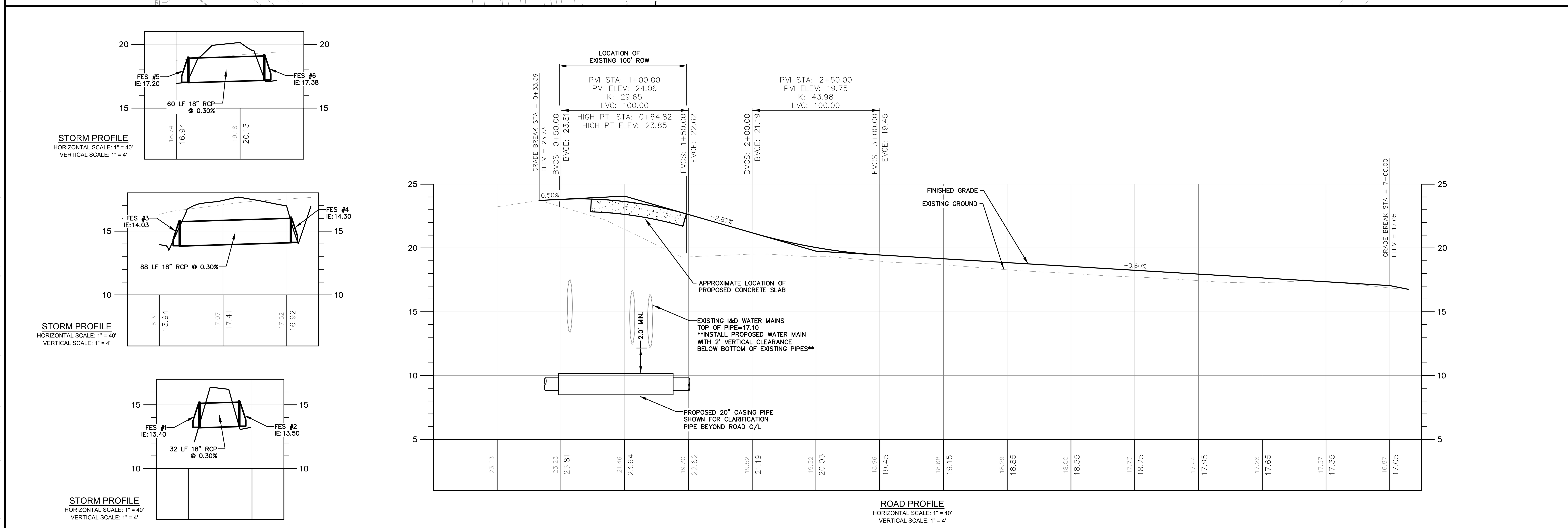
Scale: 1"=40'
Date: 12/21/21

SHEET
C2.2





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RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

GEORGIA REGISTERED No. PE017550 PROFESSIONAL ENGINEER RAYMOND A. PITTMAN

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ROAD PLAN AND PROFILE

MULBERRY BOULEVARD EXTENSION
RICE HOPE

Prepared For
BEP RICE HOPE LLC

Project No. 21-252
Drawn By: MCS
Designed By: MCS
Checked By: RAP
Scale: 1"=40'
Date: 12/21/21

SHEET
C2.3

Tuesday, March 1, 2022 9:23:14 AM

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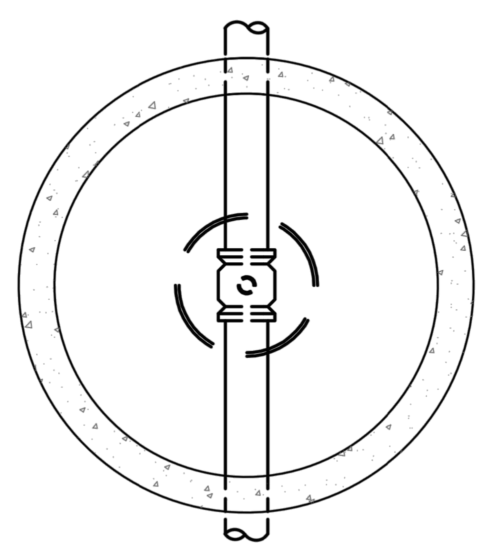
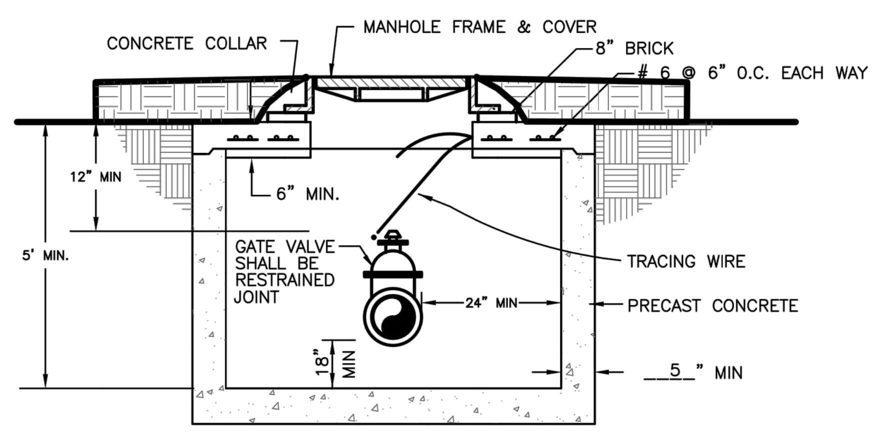
NOTES:

1. MANHOLE FRAME AND COVER SHALL BE NEENAH FOUNDRY CO, CATALOG NO. R-1668, TYPE C, LABELED "WATER".
2. THE BOTTOM OF THE MANHOLE FRAME SHALL NOT BE MORE THAN 12" ABOVE THE TOP OF THE MANHOLE STRUCTURE.
3. PRECAST CONCENTRIC CONE RISERS MAY BE USED WHERE REQUIRED FOR DEPTH.
4. THE MANHOLE FRAME AND COVER MUST BE CENTERED OVER THE VALVE.



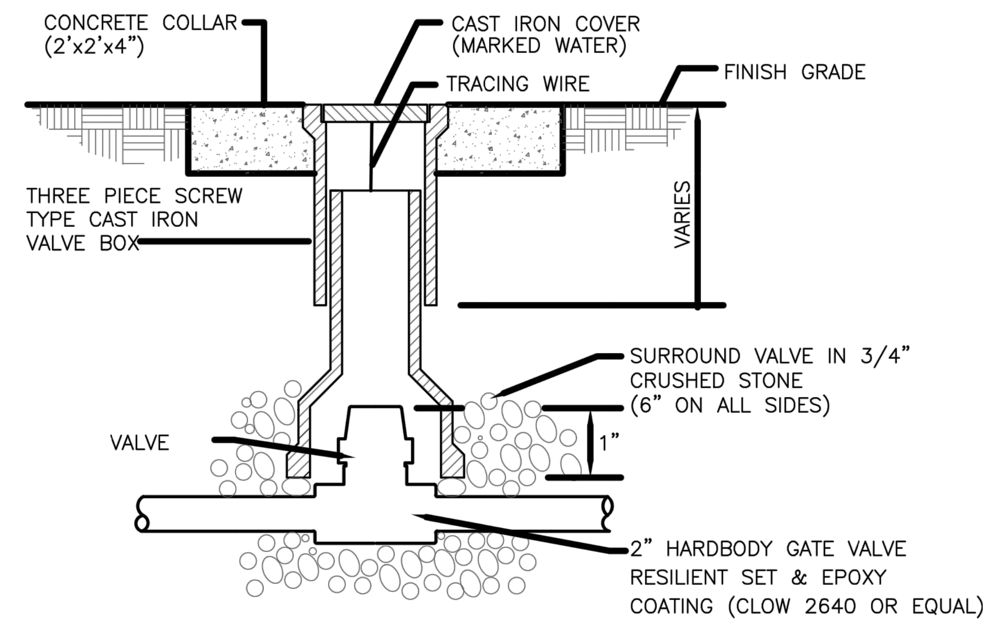
PLAN



VALVE MANHOLE FOR 8" & GREATER GATE VALVE

City of Port Wentworth
TECHNICAL DETAILS
W-14

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



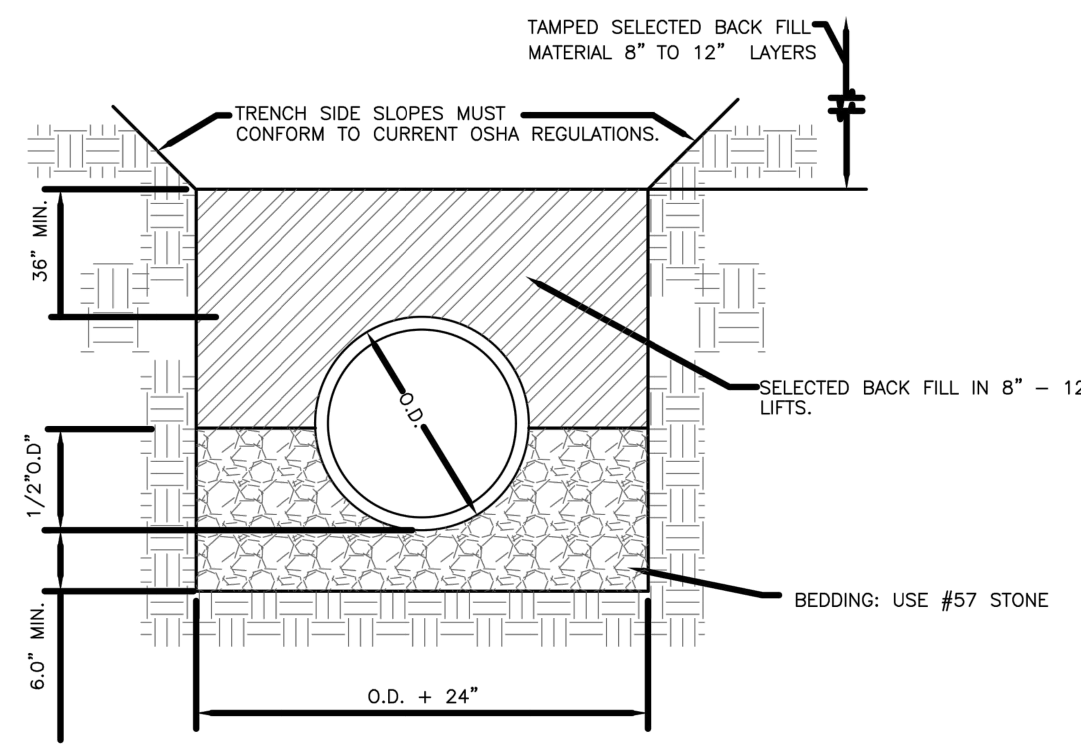
NOTE:

1. THIS DETAIL APPLIES TO VALVES.
2. IN UNPAVED AREAS, SET TOP OF CONC. COLLAR 1" ABOVE FINISHED GRADE. IN PAVED AREAS SET TOP OF BOX FLUSH W/ PAVEMENT. NO CONC. COLLAR REQUIRED.
3. VALVE BOX SHALL NOT REST ON THE VALVE

2" WATER VALVE

City of Port Wentworth
TECHNICAL DETAILS
W-18

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTES:
1. PAVEMENT CUT TO EXTEND 12" BEYOND EDGES OF TRENCH AS SHOWN.
2. MATCH EXISTING PAVEMENT TYPE AND THICKNESS.
3. ALL INSTALLATIONS IN PUBLIC ROADWAYS SHALL COMPLY WITH CONDITIONS OUTLINED ON APPLICABLE ENCROACHMENT PERMIT.

PIPE BEDDING

City of Port Wentworth
TECHNICAL DETAILS
S-8

PREPARED BY STEVENSON & PALMER ENGINEERING, INC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

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RAY A. PITTMAN, P.E.
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RICE HOPE
Prepared For
BEP RICE HOPE LLC

Project No. 21-252
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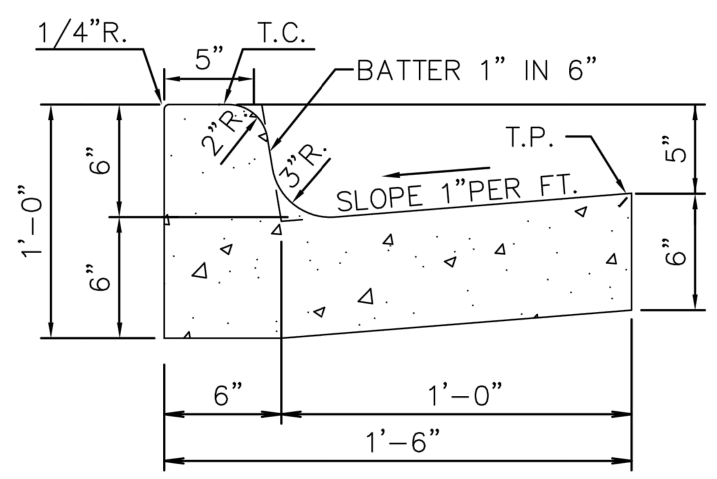
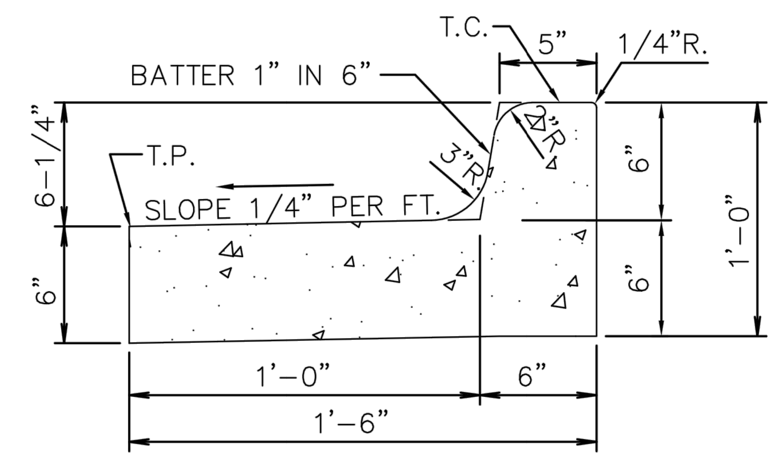
SHEET
C3.2



NORMAL GUTTER



PITCHED GUTTER

NOTE: COMPACT SUBGRADE TO 98% (ASTM D698-00ael)

18" CURB & GUTTER

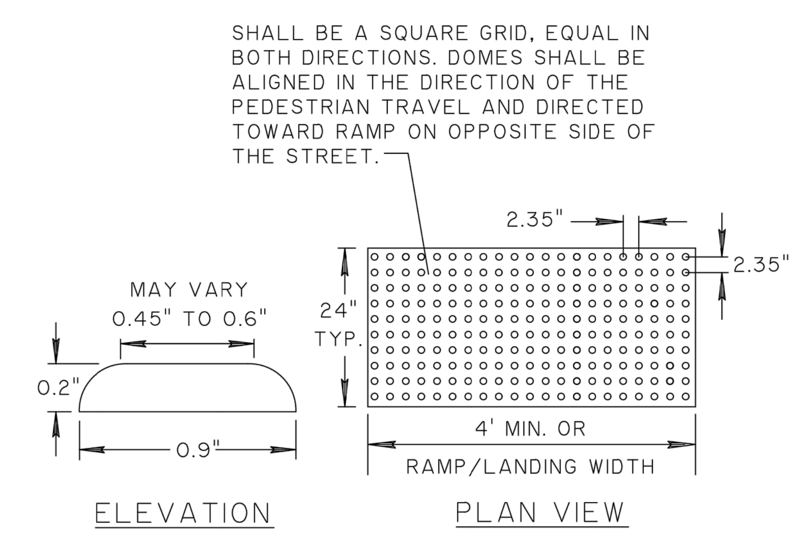
City of Port Wentworth

TECHNICAL DETAILS

P-3

PREPARED BY SAUSSY ENGINEERING, LLC.

SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTE:

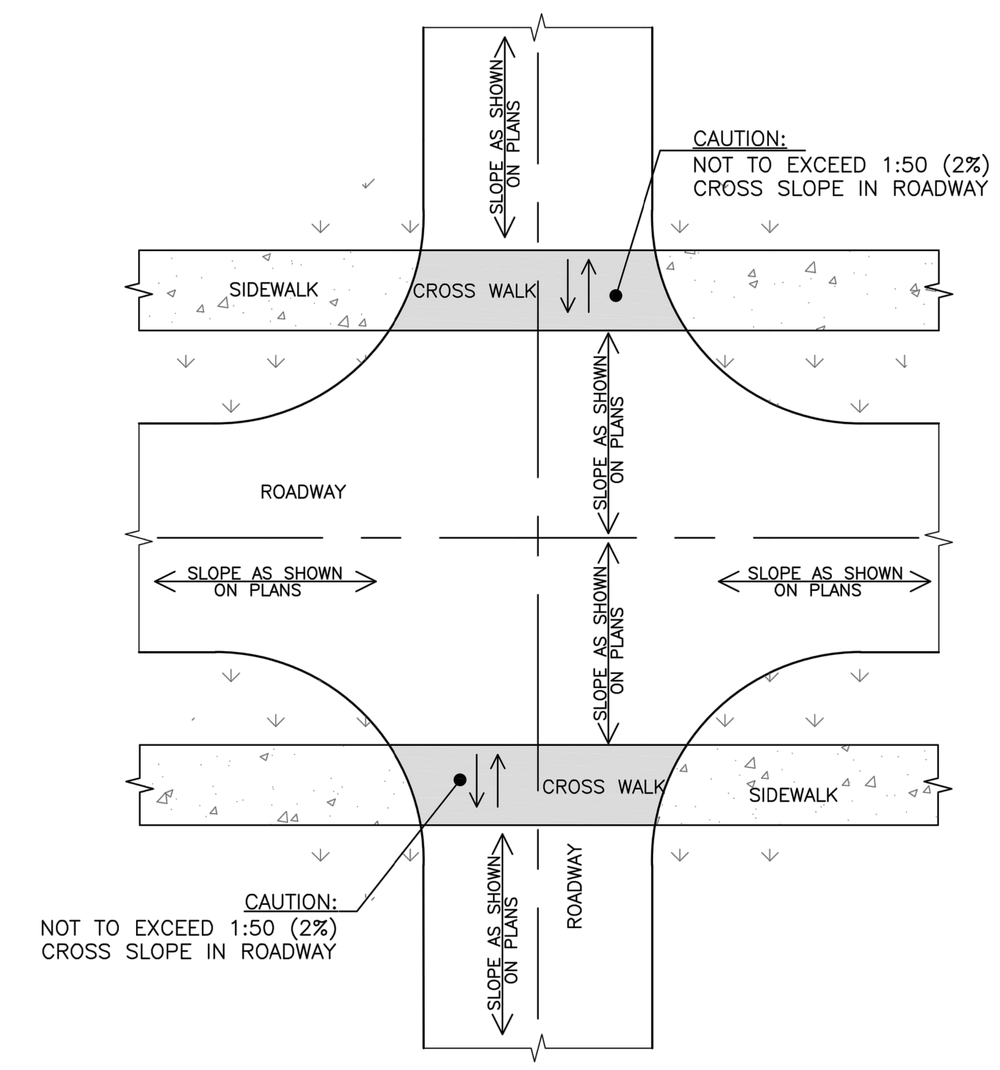
1. DETECTABLE WARNING SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 INCHES, A HEIGHT OF NOMINAL 0.2 INCHES AND A CENTER TO CENTER SPACING OF NOMINAL 2.35 INCHES AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES. IF THE SIDEWALK AND RAMP ARE CONSTRUCTED OF CONCRETE, THE WARNING AREA SHALL BE RED BRICK IN COLOR. IF THE SIDEWALK AND RAMP ARE CONSTRUCTED OF RED BRICK, THE WARNING AREA SHALL BE GRAY IN COLOR. THE COLOR USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.

2. BRICK PAVERS SHALL BE SET IN A WET MORTAR BED ON A 4" MIN. THICK CONCRETE FOUNDATION.

DETECTABLE WARNING DETAIL

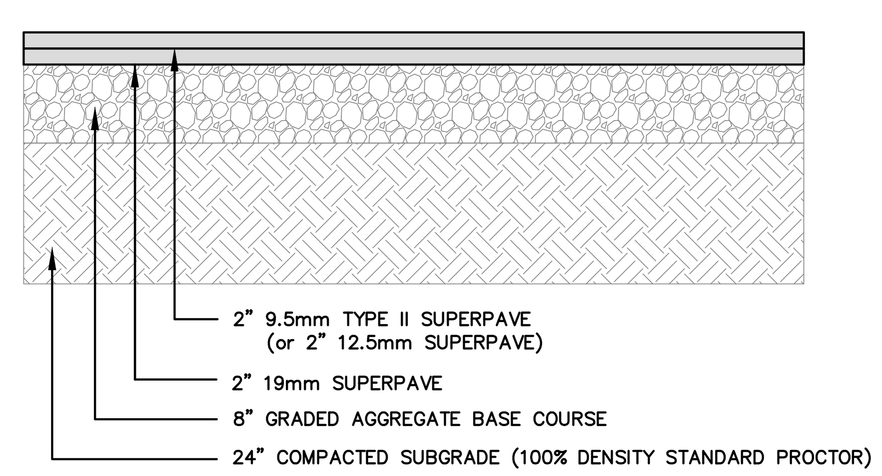
NOT TO SCALE

NOTE:
ALL SIDEWALKS TO MEET ADA STANDARDS



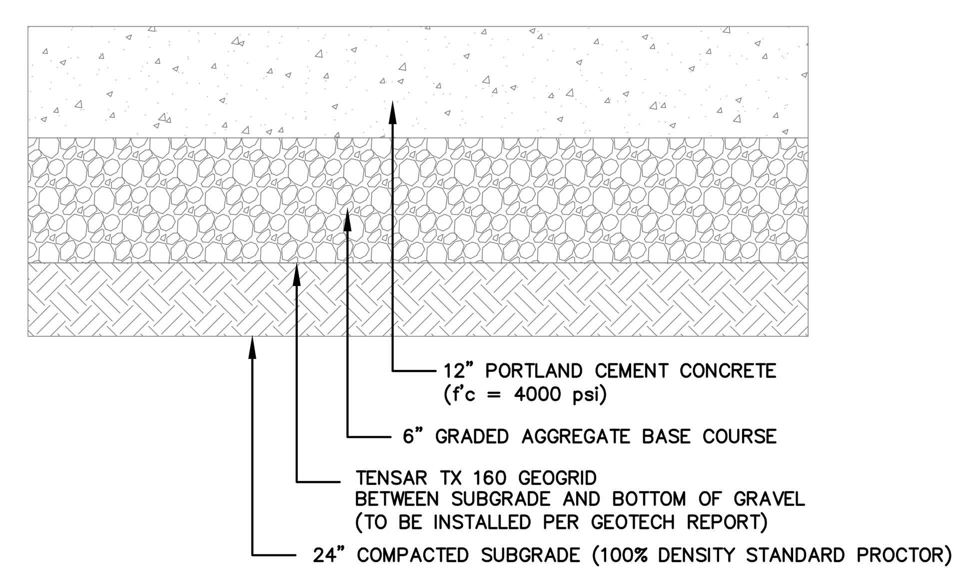
ROAD GRADING AT PEDESTRIAN CROSSING ON ACCESSIBLE ROUTE

NOT TO SCALE



ASPHALT PAVEMENT SECTION

NOT TO SCALE



CONCRETE PAVEMENT SECTION

NOT TO SCALE

CONCRETE PAVEMENT NOTES:

1. TRANSVERSE JOINTS MUST BE PLACED A MAXIMUM SPACING 15 FEET APART. LONGITUDINAL JOINTS MUST BE PLACED A MAXIMUM SPACING OF 14 FEET APART.
2. 1-1/2 INCH DIAMETER, 18 INCHES LONG, SMOOTH DOWEL BARS SHALL BE UTILIZED AT ALL TRANSVERSE JOINTS HAVING A SPACING OF 12 INCHES ON CENTER.
3. 5/8 INCH DIAMETER. 30 INCHES LONG, DEFORMED TIE BARS SHALL BE UTILIZED AT ALL LONGITUDINAL JOINTS HAVING A SPACING OF 18 INCHES ON CENTER.
4. INITIAL SAW CUTS AND JOINT CUTS TO ABIDE BY THEWIDTH AND DEPTHS PER GDOT STANDARD DETAILS FOR PORTLAND CEMENT CONCRETE PAVEMENT (SHEET C3.4).
5. ALL JOINTS TO BE FILLED WITH SILICONE SEALANT PER GDOT STANDARD DETAILS FOR PORTLAND CEMENT CONCRETE PAVEMENT (SHEET C3.4).
6. GEOGRID (TENSAR TX 160 OR EQUIVALENT) SHALL BE PLACED ON EXPOSED SUBGRADE PRIOR TO PLACEMENT OF BACKFILL/FILL SOIL. GEOGRID SHALL EXTEND A MINIMUM OF 20 FEET ON EITHER SIDE OF THE CENTERLINE OF THE PIPE CROSSING.
7. BACKFILL AND FILL ROADWAY AREA TO PLANNED FINISHED SUBGRADE ELEVATION WITH APPROVED, COARSE-GRAINED SOIL. ALL BACKFILL AND FILL SHALL CONSIST OF SANDY TYPE SOIL WITH A MAXIMUM OF 12% PASSING THE #200 SIEVE. ALL FILL SHALL BE PLACED IN MAXIMUM 8-INCH LOOSE LIFT THICKNESS WITH EACH LIFT COMPACTED BY STATIC ROLLING (NO VIBRATION) TO 98% ASTM D-698.
8. THE BOTTOM OF THE STRUCTURAL SLAB ELEVATION IS NOT RECOMMENDED TO RESIDE ANY CLOSER THAN 4 FEET FROM THE TOP OF THE UPPER PIPE.

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RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
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CONSTRUCTION DETAILS

MULBERRY BOULEVARD EXTENSION
RICE HOPE
Prepared For
BEP RICE HOPE LLC

Project No. 21-252
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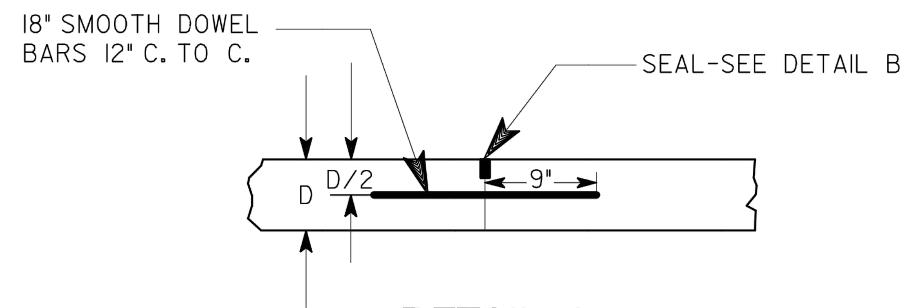
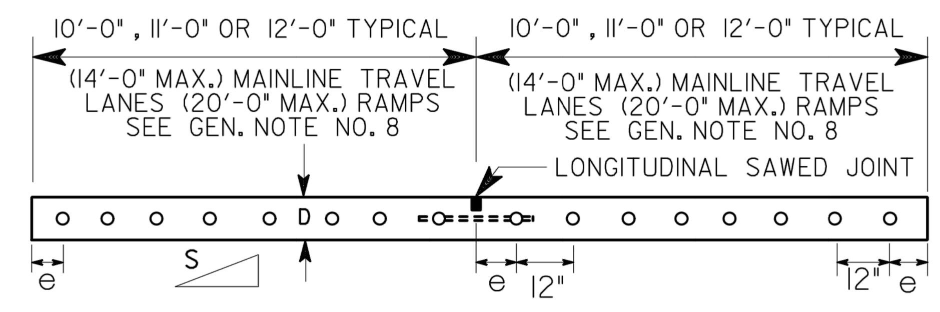
SHEET
C3.3



DETAIL A

TRANSVERSE CONSTRUCTION OR SAWED CONTRACTION JOINTS

FOR DETAILS OF SHOULDER SEE PLANS



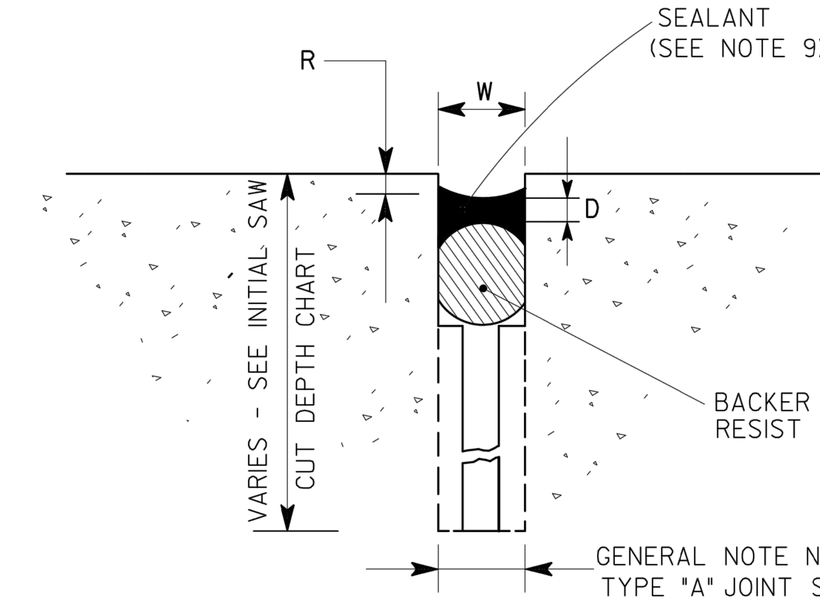
SEE PLANS FOR REQUIRED SLOPE

UNIFORM THICKNESS DOWELED PORTLAND CEMENT CONCRETE PAVING WITH CENTER JOINT AND TIE BARS AND 90° TRANSVERSE CONTRACTION JOINTS AT 15 FT. INTERVALS

e = 6" UNLESS SPECIFIED OTHERWISE

SECTION A-A

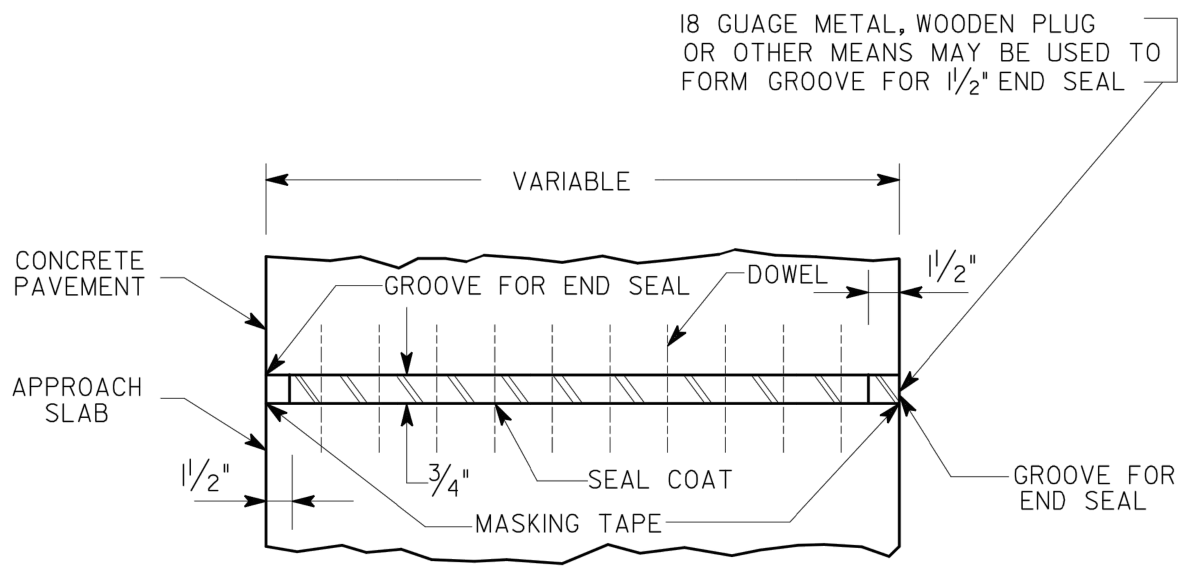
SECTION THROUGH TRANSVERSE JOINT



DETAIL B

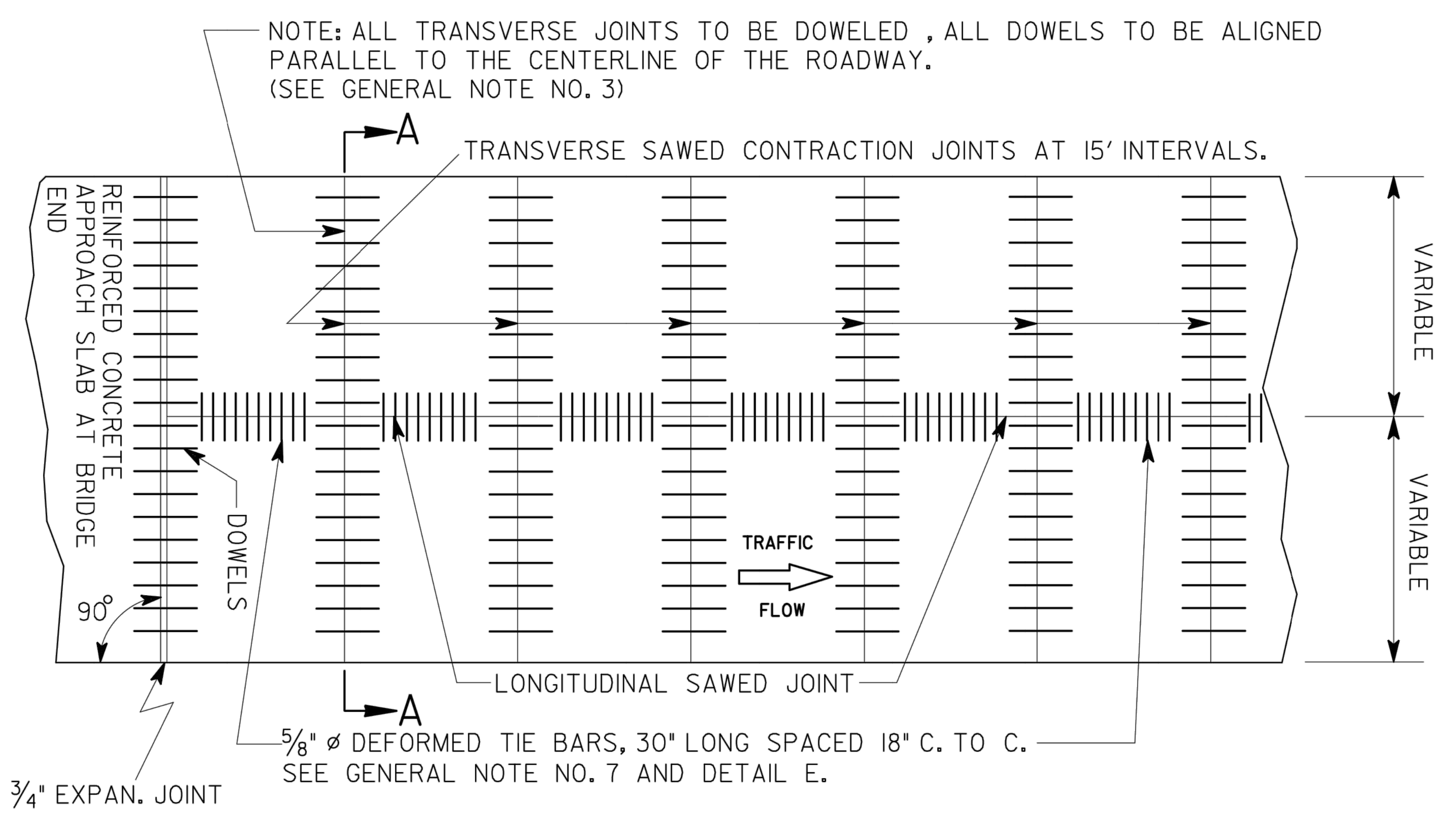
CONTRACTION OR CONSTRUCTION JOINT

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			



DETAIL C

PLAN OF TRANSVERSE EXPANSION JOINT BETWEEN PAVEMENT AND BRIDGE APPROACH SLAB



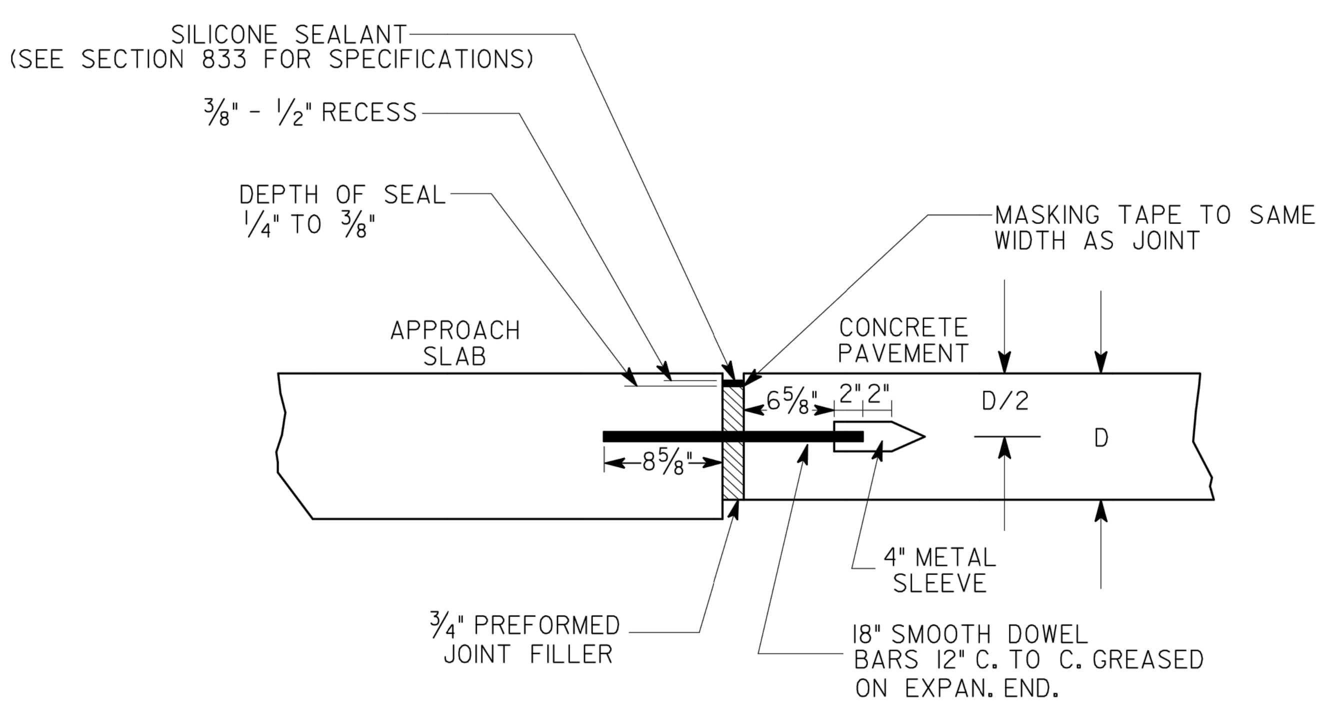
STANDARD JOINT LAYOUT

WHERE A NEW LANE WILL BE ADJOINING AN EXISTING P.C. CONCRETE PAVED LANE, THE SPACING FOR THE TRANSVERSE JOINTS IN THE NEW LANE WILL BE VARIED FROM THAT SHOWN ABOVE WHERE NECESSARY TO MATCH THE TRANSVERSE JOINTS IN THE EXISTING LANE. WHEN EXISTING PAVING JOINTS EXCEED 25 FEET IN LENGTH AN INTERMEDIATE TRANSVERSE JOINT WILL BE ESTABLISHED IN THE NEW LANE AT MID-SLAB.

JOINT SCHEDULE			
TYPE	W	D	R
TRANSVERSE JOINT	¼"	¼"-⅜"	⅜" TO ½"
℄ LONGITUDINAL SAWED JOINT	¼"	¼"-⅜"	⅜" TO ½"
JOINT FOR ADJOINING LANE FOR TYPE "A" JOINT	¼"	¼"-⅜"	⅜" TO ½"

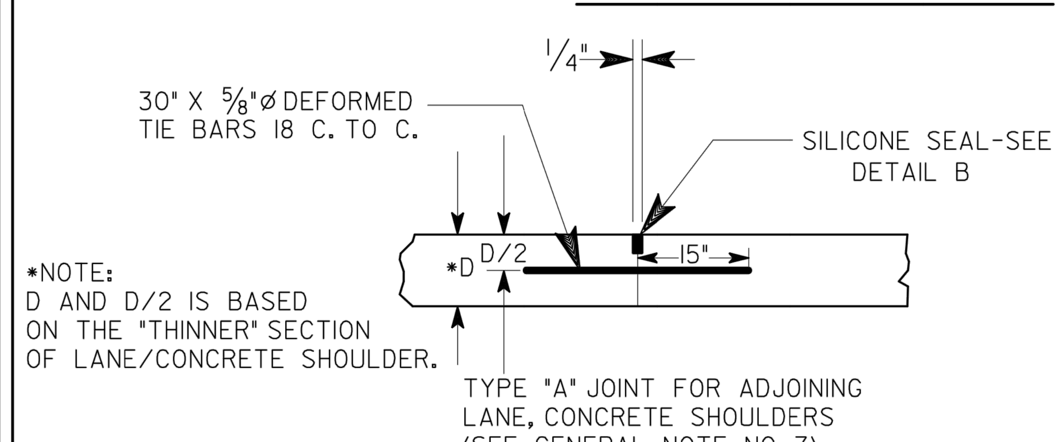
REQUIRED MINIMUM DEPTH OF INITIAL SAW CUT FOR LONGITUDINAL AND TRANSVERSE JOINTS. ALL INITIAL CUTS TO BE ⅛" IN WIDTH.

DEPTH OF PAVEMENT D	DEPTH OF CUT
6"	1¾"
6½"	1⅞"
7"	2"
7½"	2⅛"
8"	2¼"
8½"	2⅜"
9"	2½"
9½"	2⅝"
10"	2¾"
10½"	2⅞"
11"	3"
11½"	3⅛"
12"	3¼"



DETAIL D

EXPANSION JOINT



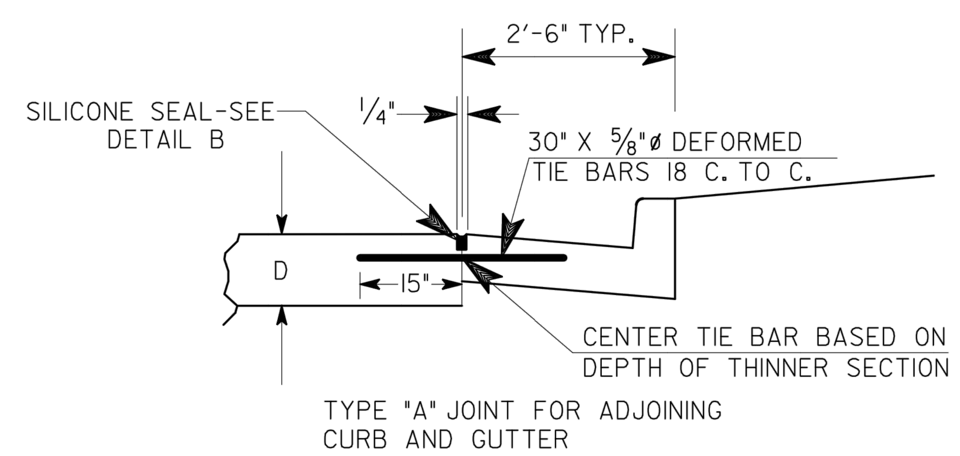
*NOTE: D AND D/2 IS BASED ON THE "THINNER" SECTION OF LANE/CONCRETE SHOULDER.

DETAIL E

ADJOINING LANES, CONCRETE SHOULDER, LONGITUDINAL SAWED OR FORMED JOINTS

REQUIRED DOWEL BAR DIAMETERS

PAVEMENT THICKNESS (D)	DOWEL BAR DIAMETERS
6"	1¼"
6½"	1¼"
7"	1¼"
7½"	1¼"
8"	1¼"
8½"	1¼"
9"	1¼"
9½"	1½"
10"	1½"
10½"	1½"
11"	1½"
11½"	1½"
12"	1½"



DETAIL F

ADJOINING CURB AND GUTTER

GENERAL NOTES:

1. THE LOCATION OF THE INITIAL SAW CUT MAY VARY BETWEEN THESE LINES.
2. CONTRACTION JOINT FOR CONCRETE SHOULDERS SHALL CONFORM WITH TRANSVERSE SAWED CONTRACTION JOINT IN MAINLINE PAVEMENT.
3. TRANSVERSE JOINTS SHALL BE PERPENDICULAR TO THE CENTER LINE OF THE LANE BEING PLACED, EXCEPT WHERE NEW LANES ARE PLACED AGAINST EXISTING LANES WITH SKEWED JOINTS. THE NEW JOINTS WILL MATCH THE SKEW OF THE EXISTING PAVEMENT.
4. JOINTS IN ACCELERATION AND DECELERATION LANES ARE TO COINCIDE WITH MAINLINE JOINTS, BUT MAY BE NORMAL TO ACCELERATION OR DECELERATION EDGE.
5. GA. STD. SPECIFICATIONS (SEC. 430) FOR TOLERANCE ON DOWELS.
6. CASES WHERE CONCRETE CURB AND GUTTER IS PLACED ADJACENT TO A CONCRETE ROADWAY SLAB, THE LONGITUDINAL JOINT SHALL BE SAWED AND SEALED OR FORMED AND SEALED AS A LONGITUDINAL JOINT AS SHOWN BY THE STANDARD.
7. NO TIE BAR SHALL BE LOCATED CLOSER THAN 18" TO A TRANSVERSE JOINT. WHERE NEW CONCRETE WILL BE ADJOINING EXISTING CONCRETE, DO NOT TIE NEW CONCRETE TO EXISTING CONCRETE.
8. SPACING BETWEEN LONGITUDINAL JOINTS SHALL NOT EXCEED 14'-0" FOR MAINLINE TRAVEL LANES. RAMP PAVEMENT SECTIONS OVER 14'-0" WIDE SHALL HAVE A LONGITUDINAL SAWED JOINT ALONG THE CENTERLINE AND THE SPACING BETWEEN LONGITUDINAL JOINTS SHALL NOT EXCEED 20'-0".
9. WHEN SELF LEVELING SILICONE SEALANT IS USED, TOOLING OF THE SEALANT TO OBTAIN A CONCAVE SURFACE IS NOT REQUIRED IF SEALENT MEETS DIMENSIONS OF DETAIL B.

BY	REVISION	DATE
HAC	ADD DIM'S PAV/DOWELTBL	1-18-18
	ADD DIM'S PAV/SAWCUT TBL	
	REV TYP(S) & ADD LABELS	
	REV DTL "F" TIE BAR LOC	
GLO	REV. DOWELS DIA. AND	1-25-07
	TRANSVERSE JTS. SPACING	
	AND REV. GEN. NOTE 8.	
RMC	REV. GEN. NOTE 3, 7 & 8.	8-9-02
	¼ TRANSVERSE JOINT	4-3-2000

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

STANDARD

JOINT DETAILS FOR PORTLAND CEMENT CONCRETE PAVING

NO SCALE

REV. & REDRAWN MAY, 1996

DES. ____
DRW. ____
TRA. ____
CHK. ____

(SUBMITTED) STATE ROAD & AIRPORT DESIGN ENGINEER

(APPROVED) CHIEF ENGINEER

NUMBER 5046H

REV.	REVISIONS	BY	DATE
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RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. PE027580 RAYMOND A. PITTMAN

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CONSTRUCTION DETAILS

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RICE HOPE

Prepared For

BEP RICE HOPE LLC

Project No. 21-252
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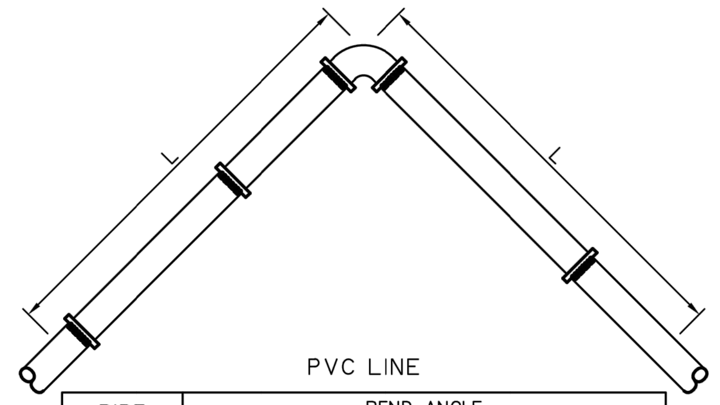
Scale: 1"=40'
Date: 12/21/21

SHEET

C3.4

STANDARD HORIZONTAL BEND RESTRAINT



PVC LINE

PIPE DIA.	BEND ANGLE 11 1/4°	22 1/2°	45°	90°
4	3	6	12	29
6	4	8	17	41
8	5	11	22	53
10	6	13	26	64
12	7	15	31	75

DUCTILE IRON LINE

PIPE DIA.	BEND ANGLE 11 1/4°	22 1/2°	45°	90°
4	2	4	8	20
6	3	6	12	28
8	4	7	15	36
10	4	9	18	43
12	5	10	21	51
16	6	13	27	65
20	8	16	33	79
24	9	18	38	92

MINIMUM RESTRAINED LENGTH (L)

NOTES:

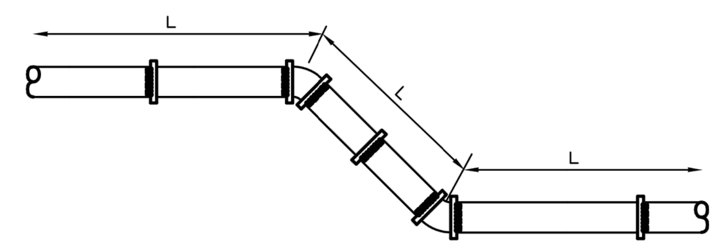
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LINES CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.

STANDARD HORIZONTAL BEND RESTRAINT

City of Port Wentworth — TECHNICAL DETAILS — W-27

PREPARED BY STEVENSON & PALMER ENGINEERING, INC. SCALE: N.T.S. DATED: FEBRUARY 2007

STANDARD VERTICAL BEND RESTRAINT



PVC LINE

PIPE DIA.	BEND ANGLE 11 1/4°	22 1/2°	45°	90°
4	5	10	22	52
6	7	15	30	74
8	9	19	40	96
10	11	23	48	115
12	13	27	56	136

DUCTILE IRON LINE

PIPE DIA.	BEND ANGLE 11 1/4°	22 1/2°	45°	90°
4	3	6	12	28
6	4	8	17	40
8	4	10	22	52
10	5	12	26	62
12	6	15	30	73
16	7	19	39	94
20	11	23	47	114
24	13	26	55	132

MINIMUM RESTRAINED LENGTH (L)

NOTES:

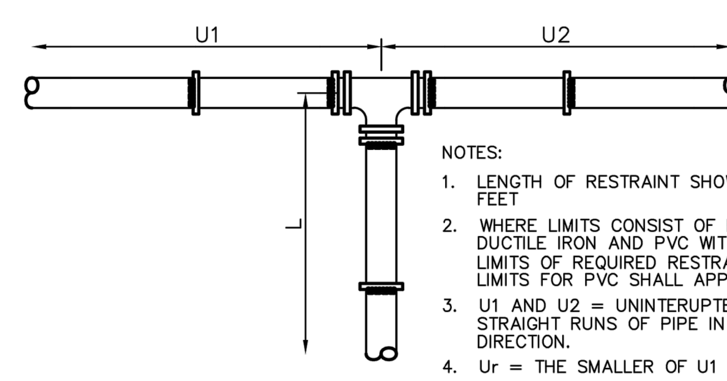
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LINES CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.

STANDARD VERTICAL BEND RESTRAINT

City of Port Wentworth — TECHNICAL DETAILS — W-28

PREPARED BY STEVENSON & PALMER ENGINEERING, INC. SCALE: N.T.S. DATED: FEBRUARY 2007

STANDARD TEE RESTRAINT (PVC LINE)



NOTES:

1. LENGTH OF RESTRAINT SHOWN IS IN FEET
2. WHERE LIMITS CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.
3. U1 AND U2 = UNINTERUPTED STRAIGHT RUNS OF PIPE IN EACH DIRECTION.
4. Ur = THE SMALLER OF U1 OR U2.
5. L = MINIMUM RESTRAINED LENGTH ALONG THE BRANCH
6. WHERE Ur IS LESS THAN 5', RESTRAIN TEE AS A 90° HORIZONTAL BEND.

TEE \ Ur	5"-10"	11"-20"	21"-35"	> 35'
4x4	43	28	4	*
6x4	38	17	*	*
6x6	64	49	25	*
8x4	34	6	*	*
8x6	61	42	10	*
8x8	87	72	48	12
10x4	29	*	*	*
10x6	58	34	*	*
10x8	84	66	35	*
10x10	106	91	67	31
12x4	24	*	*	*
12x6	54	26	*	*
12x8	82	60	23	*
12x10	104	86	57	13
12x12	126	112	87	51

MINIMUM RESTRAINED LENGTH (L)

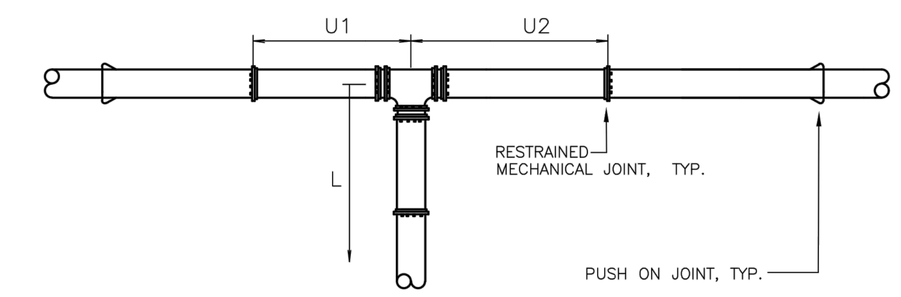
* RESTRAIN AT TEE ONLY

STANDARD TEE RESTRAINT (PVC LINE)

City of Port Wentworth — TECHNICAL DETAILS — W-29

PREPARED BY STEVENSON & PALMER ENGINEERING, INC. SCALE: N.T.S. DATED: FEBRUARY 2007

STANDARD TEE RESTRAINT (DUCTILE IRON PIPE)



NOTES:

1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LINES CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.
3. U1 AND U2 = UNINTERRUPTED STRAIGHT RUNS OF RESTRAINED JOINT PIPE IN EACH DIRECTION.
4. Ur = THE SMALLER OF U1 OR U2 (E.G., U1, IN THE ABOVE DIAGRAM)
5. L = MINIMUM RESTRAINED LENGTH ALONG THE BRANCH.
6. WHERE Ur IS LESS THAN 5', RESTRAIN TEE AS A 90°. HORIZONTAL BEND.

DUCTILE IRON LINE

TEE \ Ur	5'-10'	11'-20'	21'-35'	36'-50'	50'-75'	75'-100'
4X4	23	15	2	*	*	*
6X4	21	9	*	*	*	*
6X6	35	27	14	*	*	*
8X4	18	3	*	*	*	*
8X6	33	23	5	*	*	*
8X8	47	39	26	6	*	*
10X4	16	*	*	*	*	*
10X6	31	18	*	*	*	*
10X8	46	36	19	*	*	*
10X10	57	49	36	17	*	*
12X4	13	*	*	*	*	*
12X6	30	14	*	*	*	*
12X8	44	32	13	*	*	*
12X10	56	47	31	7	*	*
12X12	68	60	47	28	*	*
16X6	26	4	*	*	*	*
16X8	41	25	*	*	*	*

DUCTILE IRON LINE

TEE \ Ur	5'-10'	11'-20'	21'-35'	36'-50'	50'-75'	75'-100'
16X10	54	41	20	*	*	*
16X12	66	56	38	*	*	*
16X16	89	81	38	*	*	*
20X6	22	*	*	*	*	*
20X8	38	18	*	*	*	*
20X10	51	35	8	*	*	*
20X12	64	51	28	*	*	*
20X16	87	77	60	35	10	*
20X20	108	100	87	67	48	*
24X6	18	*	*	*	*	*
24X8	35	10	*	*	*	*
24X10	49	29	*	*	*	*
24X12	62	45	17	*	*	*
24X16	86	73	53	22	*	*
24X20	107	97	81	57	33	*
24X24	127	119	106	86	66	33

MINIMUM RESTRAINED LENGTH (L)

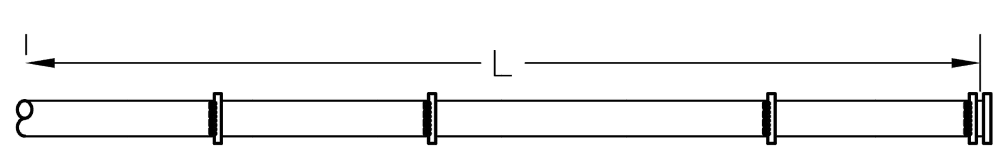
*RESTRAIN AT TEE ONLY.

STANDARD TEE RESTRAINT (DUCTILE IRON PIPE)

City of Port Wentworth — TECHNICAL DETAILS — W-30

PREPARED BY STEVENSON & PALMER ENGINEERING, INC. SCALE: N.T.S. DATED: FEBRUARY 2007

STANDARD DEAD END RESTRAINT



DUCTILE IRON LINE

PIPE DIA.	L
4	28
6	40
8	52
10	62
12	73
16	94
20	114
24	132

PVC LINE

PIPE DIA.	L
4	52
6	74
8	96
10	115
12	136

NOTES:

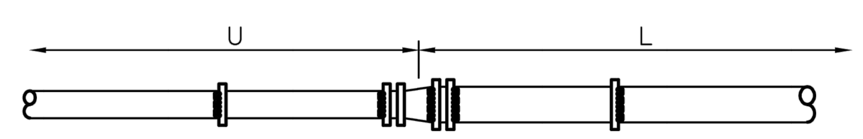
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LIMITS CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.
3. FOR LINE STUBS (SEE DETAIL W39). THE LENGTH OF RESTRAINT (L) SHALL BE FROM THE VALVE AND NOT THE CAP.

STANDARD DEAD END RESTRAINT

City of Port Wentworth — TECHNICAL DETAILS — W-31

PREPARED BY STEVENSON & PALMER ENGINEERING, INC. SCALE: N.T.S. DATED: FEBRUARY 2007

STANDARD REDUCER RESTRAINT



DUCTILE IRON LINE

REDUCER	U	L
6x4	30	21
8x4	72	38
8x6	29	22
10x4	123	51
10x6	63	38
10x8	26	21
12x4	186	64
12x6	106	53
12x8	59	39
12x10	26	21
16x6	214	79
16x8	141	68
16x10	91	56
16x12	54	40
20x10	174	84
20x12	123	71
20x16	51	40
24x12	207	97
24x16	113	72
24x20	48	39

PVC LINE

REDUCER	U	L
6x4	56	38
8x4	134	69
8x6	53	40
10x4	227	94
10x6	117	71
10x8	49	39
12x4	343	118
12x6	196	99
12x8	109	72
12x10	48	40

U = MINIMUM UNITERRUPTED STRAIGHT RUN OF PIPE ON SMALL SIDE OF REDUCER.

L = MINIMUM RESTRAINED LENGTH.

* WHERE MINIMUM "U" IS NOT MET, PIPE ON LARGE SIDE OF REDUCER SHALL BE RESTAINED FOR A MINIMUM OF "L" FEET.

NOTES:

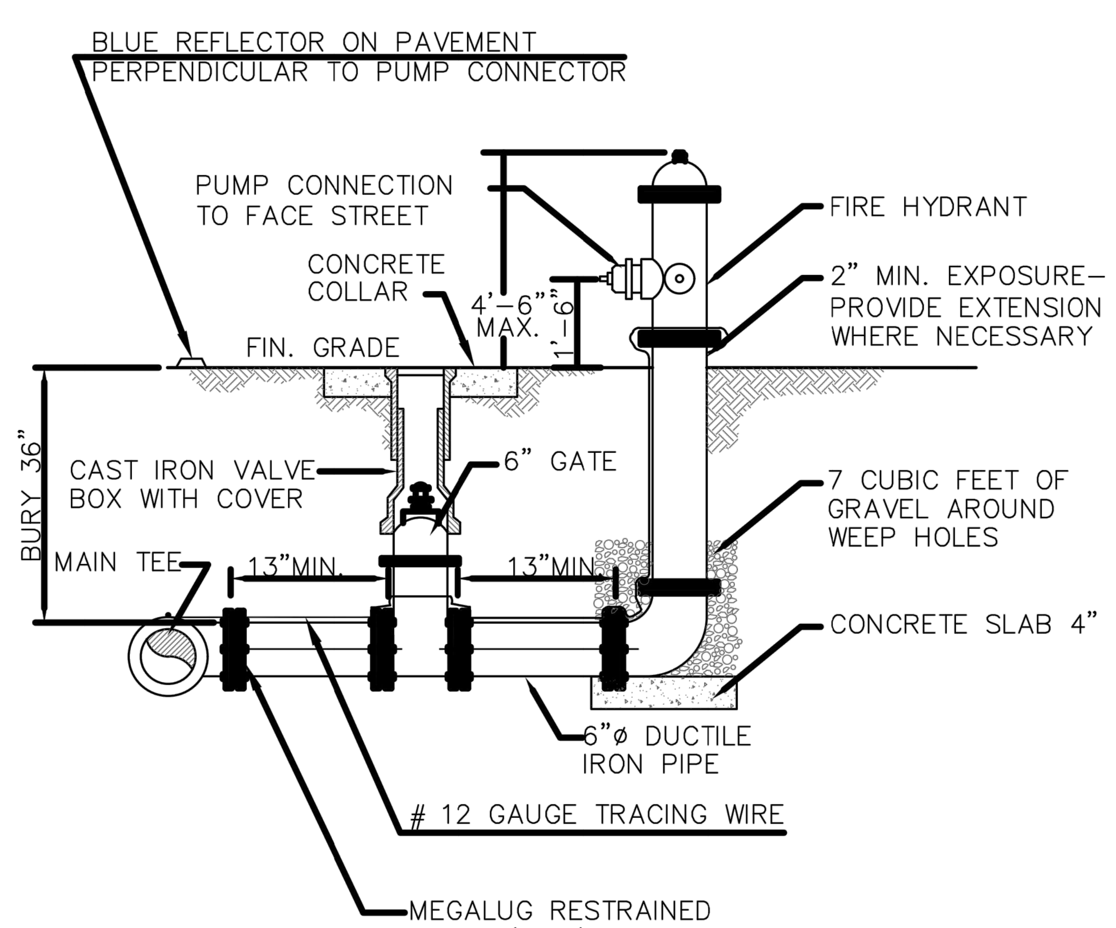
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LIMITS CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.

STANDARD REDUCER RESTRAINT

City of Port Wentworth — TECHNICAL DETAILS — W-32

PREPARED BY STEVENSON & PALMER ENGINEERING, INC. SCALE: N.T.S. DATED: FEBRUARY 2007

STANDARD FIRE HYDRANT



NOTE:

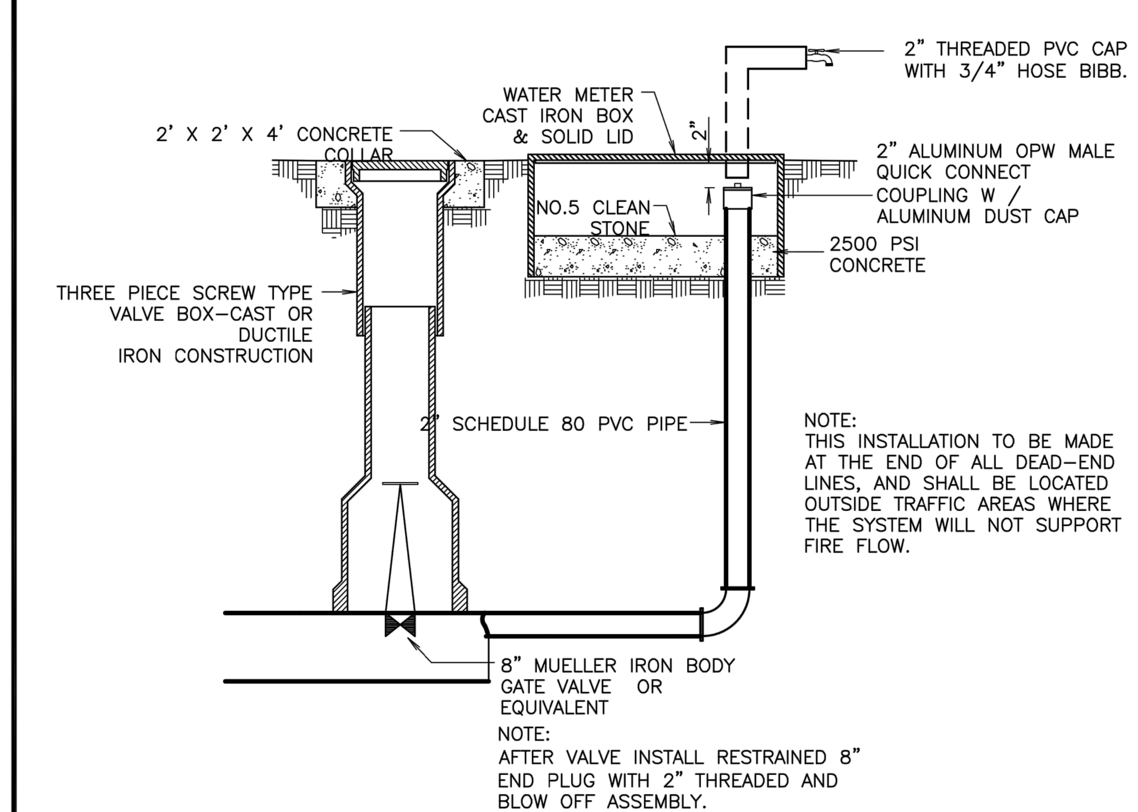
1. ALL JOINTS FROM MAIN TO HYDRANT SHALL BE RESTRAINED.
2. PROTECT BOLTS AND THREADS FROM CONCRETE.

STANDARD FIRE HYDRANT

City of Port Wentworth — TECHNICAL DETAILS — W-9

PREPARED BY STEVENSON & PALMER ENGINEERING, INC. SCALE: N.T.S. DATED: FEBRUARY 2007

FLUSH VALVE & RISER BLOW-OFF DETAIL



FLUSH VALVE & RISER BLOW-OFF DETAIL

NOT TO SCALE

REV.	REVISIONS	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. PE027580 RAYMOND A. PITTMAN

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2591 Hwy 17S Suite 303
Richmond Hill, GA 31324
912-445-0578
www.PittmanEngineeringCo.com

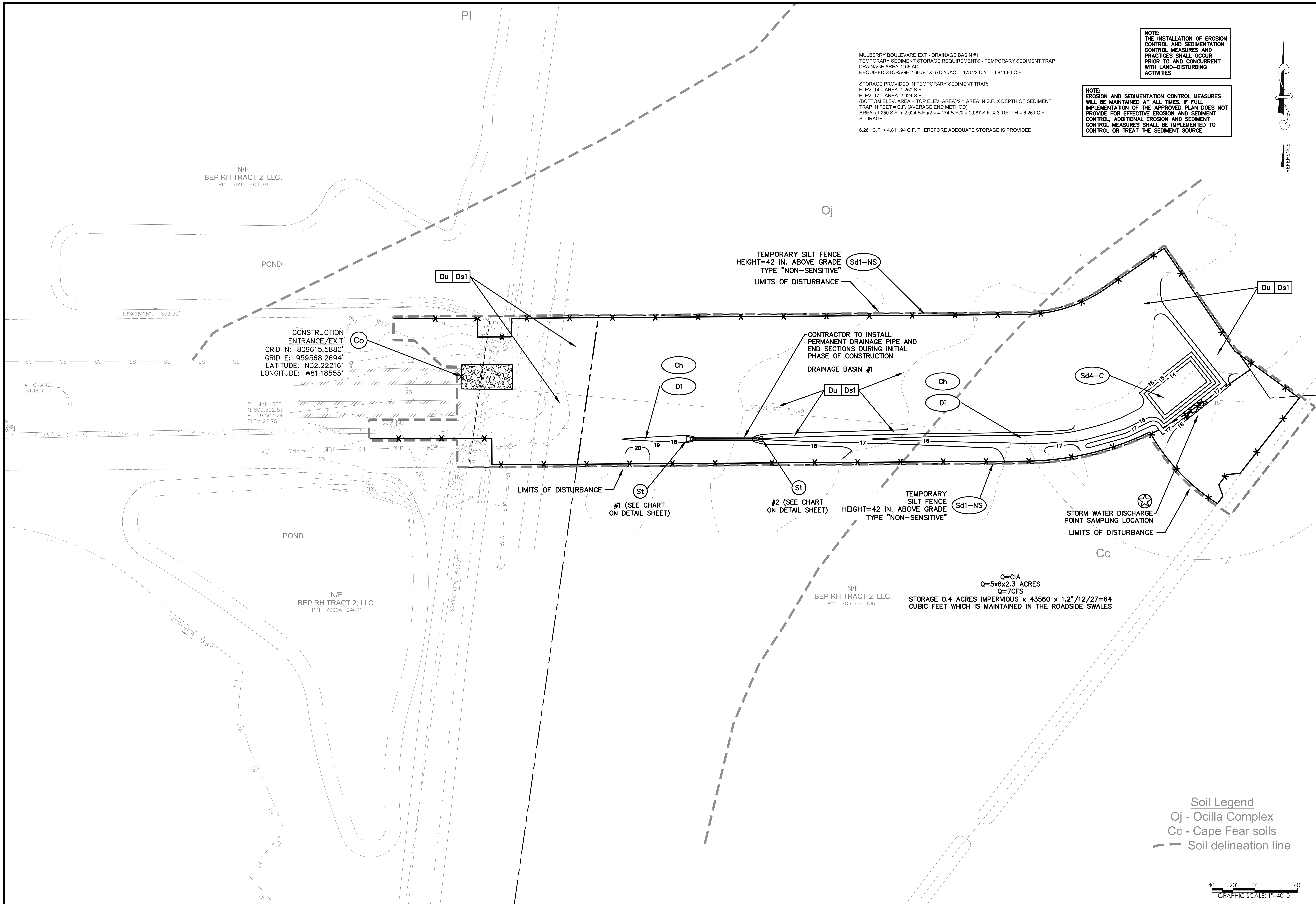
CONSTRUCTION DETAILS

MULBERRY BOULEVARD EXTENSION
RICE HOPE

Prepared For
BEP RICE HOPE LLC

Project No. 21-252
Drawn By: MCS
Designed By: MCS
Checked By: RAP
Scale: 1"=40'
Date: 12/21/21

SHEET
C3.1



MULBERRY BOULEVARD EXT - DRAINAGE BASIN #1
TEMPORARY SEDIMENT STORAGE REQUIREMENTS - TEMPORARY SEDIMENT TRAP
DRAINAGE AREA: 2.66 AC
REQUIRED STORAGE 2.66 AC X 67C.Y./AC. = 178.22 C.Y. = 4,811.94 C.F.

STORAGE PROVIDED IN TEMPORARY SEDIMENT TRAP:
ELEV. 14 = AREA: 1,250 S.F.
ELEV. 17 = AREA: 2,924 S.F.
(BOTTOM ELEV. AREA + TOP ELEV. AREA)/2 = AREA IN S.F. X DEPTH OF SEDIMENT TRAP IN FEET = C.F. (AVERAGE END METHOD)
AREA: (1,250 S.F. + 2,924 S.F.)/2 = 4,174 S.F./2 = 2,087 S.F. X 3' DEPTH = 6,261 C.F. STORAGE

6,261 C.F. > 4,811.94 C.F. THEREFORE ADEQUATE STORAGE IS PROVIDED

NOTE:
THE INSTALLATION OF EROSION CONTROL AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL OCCUR PRIOR TO AND CONCURRENT WITH LAND-DISTURBING ACTIVITIES

NOTE:
EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION AND SEDIMENT CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

REV.	REVISIONS	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
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CERTIFICATION #12469

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ES&PC PLAN - INITIAL
MULBERRY BOULEVARD EXTENSION
RICE HOPE
Prepared For
BEP RICE HOPE LLC

Project No. 21-252
Drawn By: MCS
Designed By: MCS
Checked By: RAP
Scale: 1"=40'
Date: 12/21/21

SHEET
EC1.1

Tuesday, March 1, 2022 9:23:36 AM
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MULBERRY BOULEVARD EXT - DRAINAGE BASIN #1
TEMPORARY SEDIMENT STORAGE REQUIREMENTS - SILT FENCING (Sd1-NS)
SINGLE ROW, 42" MINIMUM HEIGHT ABOVE GRADE
DRAINAGE AREA: 1.179 AC
REQUIRED STORAGE 1.18 AC X 67C.Y./AC. = 79.06 C.Y. = 2,134.62 C.F.

STORAGE PROVIDED AGAINST SILT FENCE
[$\frac{1}{2}$ (MAX. DIST. STORAGE FROM SILT FENCE) $\frac{2}{3}$ (HEIGHT OF SILT FENCE IN FT.)] X LINEAR FEET OF SILT FENCE
[$\frac{1}{2}$ (3.5)(1.5) X 840 L.F. (SENSITIVE) = 2.625 X 840 L.F. = 2,205 C.F.

2,205 C.F. > 2,134.62 C.F. THEREFORE ADEQUATE STORAGE IS PROVIDED

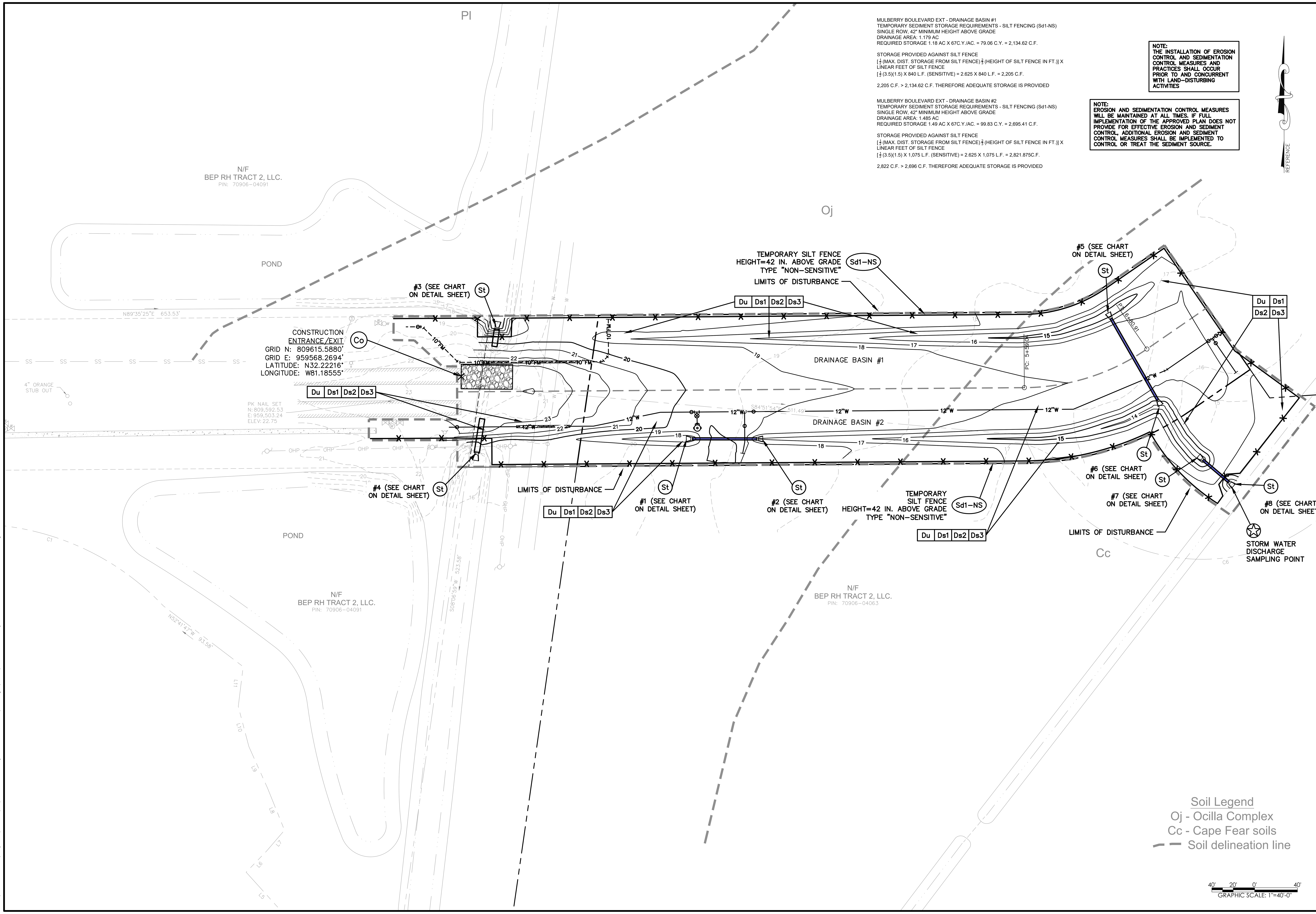
MULBERRY BOULEVARD EXT - DRAINAGE BASIN #2
TEMPORARY SEDIMENT STORAGE REQUIREMENTS - SILT FENCING (Sd1-NS)
SINGLE ROW, 42" MINIMUM HEIGHT ABOVE GRADE
DRAINAGE AREA: 1.485 AC
REQUIRED STORAGE 1.49 AC X 67C.Y./AC. = 99.83 C.Y. = 2,695.41 C.F.

STORAGE PROVIDED AGAINST SILT FENCE
[$\frac{1}{2}$ (MAX. DIST. STORAGE FROM SILT FENCE) $\frac{2}{3}$ (HEIGHT OF SILT FENCE IN FT.)] X LINEAR FEET OF SILT FENCE
[$\frac{1}{2}$ (3.5)(1.5) X 1,075 L.F. (SENSITIVE) = 2.625 X 1,075 L.F. = 2,821.875C.F.

2,822 C.F. > 2,696 C.F. THEREFORE ADEQUATE STORAGE IS PROVIDED

NOTE:
THE INSTALLATION OF EROSION CONTROL AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL OCCUR PRIOR TO AND CONCURRENT WITH LAND-DISTURBING ACTIVITIES

NOTE:
EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION AND SEDIMENT CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.



REV.	REVISIONS	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

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www.PittmanEngineeringCo.com

ES&PC PLAN - INTERMEDIATE
MULBERRY BOULEVARD EXTENSION
RICE HOPE
Prepared For
BEP RICE HOPE LLC

Project No. 21-252
Drawn By: MCS
Designed By: MCS
Checked By: RAP
Scale: 1"=40'
Date: 12/21/21

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EC2.1

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MULBERRY BOULEVARD EXT - DRAINAGE BASIN #1
TEMPORARY SEDIMENT STORAGE REQUIREMENTS - SILT FENCING (Sd1-NS)
SINGLE ROW, 42" MINIMUM HEIGHT ABOVE GRADE
DRAINAGE AREA: 1.179 AC
REQUIRED STORAGE 1.18 AC X 67C.Y./AC. = 79.06 C.Y. = 2,134.62 C.F.

STORAGE PROVIDED AGAINST SILT FENCE
[$\frac{1}{2}$ (MAX. DIST. STORAGE FROM SILT FENCE) $\frac{2}{3}$ (HEIGHT OF SILT FENCE IN FT.)] X LINEAR FEET OF SILT FENCE
[$\frac{1}{2}$ (3.5)(1.5) X 840 L.F. (SENSITIVE) = 2.625 X 840 L.F. = 2,205 C.F.

2,205 C.F. > 2,134.62 C.F. THEREFORE ADEQUATE STORAGE IS PROVIDED

MULBERRY BOULEVARD EXT - DRAINAGE BASIN #2
TEMPORARY SEDIMENT STORAGE REQUIREMENTS - SILT FENCING (Sd1-NS)
SINGLE ROW, 42" MINIMUM HEIGHT ABOVE GRADE
DRAINAGE AREA: 1.485 AC
REQUIRED STORAGE 1.49 AC X 67C.Y./AC. = 99.83 C.Y. = 2,695.41 C.F.

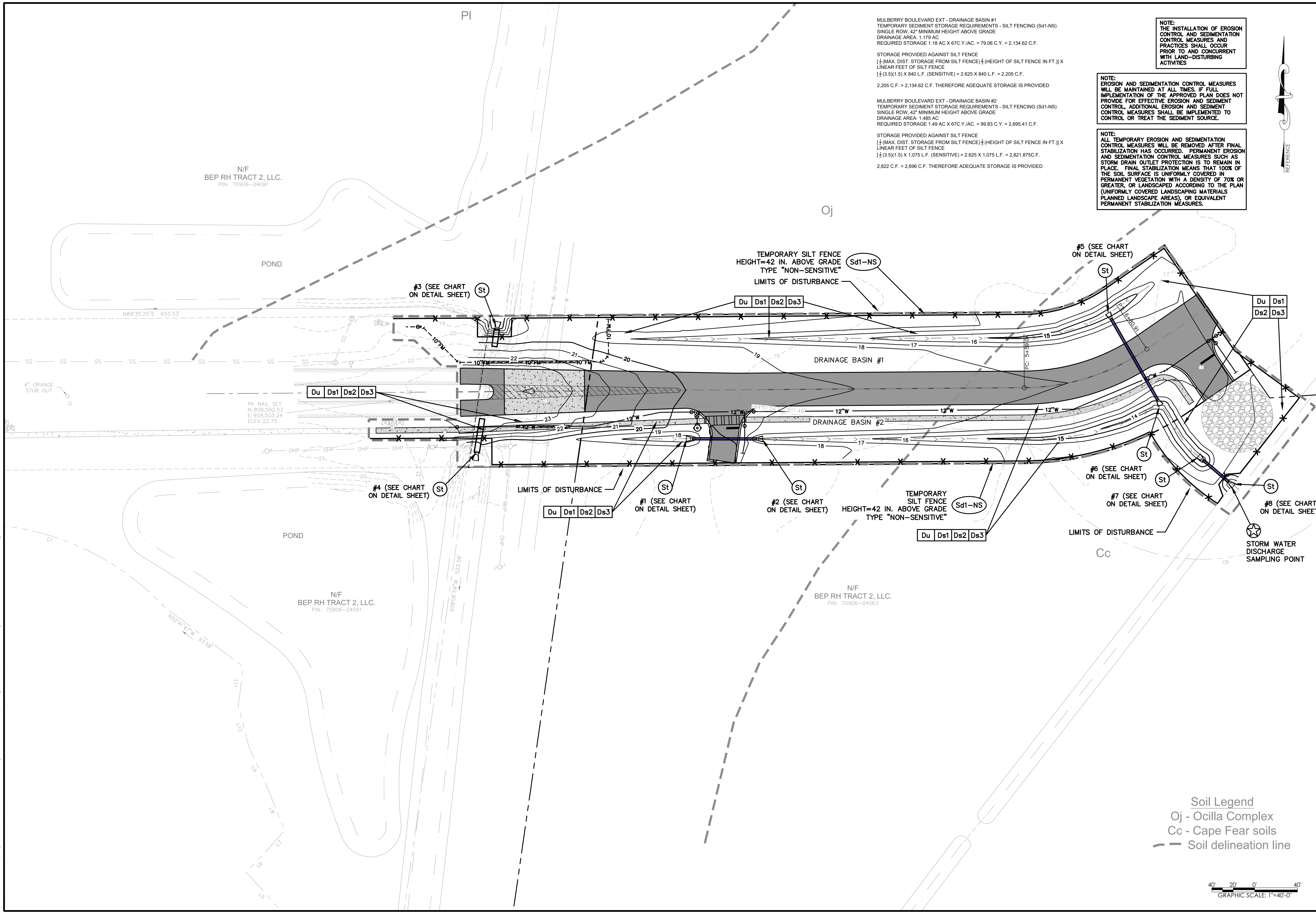
STORAGE PROVIDED AGAINST SILT FENCE
[$\frac{1}{2}$ (MAX. DIST. STORAGE FROM SILT FENCE) $\frac{2}{3}$ (HEIGHT OF SILT FENCE IN FT.)] X LINEAR FEET OF SILT FENCE
[$\frac{1}{2}$ (3.5)(1.5) X 1,075 L.F. (SENSITIVE) = 2.625 X 1,075 L.F. = 2,821.875C.F.

2,822 C.F. > 2,696 C.F. THEREFORE ADEQUATE STORAGE IS PROVIDED

NOTE:
THE INSTALLATION OF EROSION CONTROL AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL OCCUR PRIOR TO AND CONCURRENT WITH LAND-DISTURBING ACTIVITIES

NOTE:
EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION AND SEDIMENT CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

NOTE:
ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE REMOVED AFTER FINAL STABILIZATION HAS OCCURRED. PERMANENT EROSION AND SEDIMENTATION CONTROL MEASURES SUCH AS STORM DRAIN OUTLET PROTECTION IS TO REMAIN IN PLACE. FINAL STABILIZATION MEANS THAT 100% OF THE SOIL SURFACE IS UNIFORMLY COVERED IN PERMANENT VEGETATION WITH A DENSITY OF 70% OR GREATER, OR LANDSCAPED ACCORDING TO THE PLAN (UNIFORMLY COVERED LANDSCAPING MATERIALS PLANNED LANDSCAPE AREAS), OR EQUIVALENT PERMANENT STABILIZATION MEASURES.



REV.	REVISIONS	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

GEORGIA REGISTERED PROFESSIONAL ENGINEER RAYMOND A. PITTMAN No. 017550

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912-445-0578
www.PittmanEngineeringCo.com

ES&PC PLAN - FINAL

MULBERRY BOULEVARD EXTENSION
RICE HOPE
Prepared For
BEP RICE HOPE LLC

Project No. 21-252
Drawn By: MCS
Designed By: MCS
Checked By: RAP
Scale: 1"=40'
Date: 12/21/21

SHEET
EC3.1

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Tuesday, March 1, 2022 9:23:51 AM

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST
STAND ALONE DEVELOPMENT CONSTRUCTION PROJECTS

SWCD: COASTAL

Project Name: MULBERRY BOULEVARD EXTENSION   Address: PORT WENTWORTH, GEORGIA 31407

City/County: PORT WENTWORTH / CHATHAM COUNTY   Date on Plans: 12/21/2021

Provide name and email of the person filling out the checklist: Jason Bryant, jason@pittmanengineeringco.com

Plan Page #	Included Y/N	TO BE SHOWN ON ES&PC PLAN
EC4.1–EC4.3	YES	1. The applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the Commission as of January 1 of the year in which the land–disturbing activity was permitted.
EC1.1–EC5.3	YES	2. Level II certification number issued by the Commission, signature and seal of the certified design professional.
N/A	NO	3. Limit of disturbance shall be no greater than 50 acres at any one time without prior written authorization from the EPD District Office. If EPD approves the request to disturb 50 acres or more at any one time, the plan must include at least 4 of the BMPs listed in Appendix 1 of this checklist.*
EC4.1	YES	4. The name and phone number of the 24–hour local contact responsible for erosion, sedimentation and pollution controls. MR. SCOTT DECAIN 4800 HAMPDEN LANE, SUITE 200 BETHESDA, MARYLAND 20814 301–915–0460 EMAIL: SDECAIN@BALDEAGLEPARTNERS.COM
EC4.1	YES	5. Provide the name, address, email and phone number of the primary permittee. MR. SCOTT DECAIN 4800 HAMPDEN LANE, SUITE 200 BETHESDA, MARYLAND 20814 301–915–0460 EMAIL: SDECAIN@BALDEAGLEPARTNERS.COM
EC4.1	YES	6. Note total and disturbed acreage of the project or phase under construction. TOTAL ACREAGE: 2.66 AC. DISTURBED ACREAGE: 2.66 AC.
EC1.1–EC2.1	YES	7. Provide the GPS location of the construction exit for the site. Give the Latitude and Longitude in decimal degrees.
COVER–EC5.3	YES	8. Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the revisions.
EC4.1	YES	9. Description of the nature of construction activity. PROJECT INCLUDES CONSTRUCTING DRAINAGE, ROADWAYS AND GRADING TO SERVE THE PROPOSED COMMERCIAL DEVELOPMENT. THE EXISTING SITE IS A DEVELOPED SINGLE–FAMILY LOT.
COVER	YES	10. Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary.
EC4.1	YES	11. Identify the project receiving waters and describe all sensitive adjacent areas including streams, lakes, residential areas, wetlands, etc. which may be affected. RECEIVING WATERS = SAVANNAH RIVER
EC4.1	YES	12. Design professional's certification statement and signature that the site was visited prior to development of the ES&PC Plan as stated on Part IV page 19 of the permit. "I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY SUPERVISION." Raymond A Pittman RAYMOND A. PITTMAN, P.E. DATE GSWCC LEVEL II DESIGN PROFESSIONAL – CERTIFICATION #12469
EC4.1	YES	13. Design professional's certification statement and signature that the permittee's ES&PC Plan provides for an appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on Part IV page 19 of the permit.* "I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND–DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORMWATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR100001." Raymond A Pittman RAYMOND A. PITTMAN, P.E. DATE GSWCC LEVEL II DESIGN PROFESSIONAL – CERTIFICATION #12469
EC4.1	YES	14. Clearly note the statement that "The design professional who prepared the ES&PC Plan is to inspect the installation of the initial sediment storage requirements and perimeter control BMPs within 7 days after installation." in accordance with Part IV.A.5 page 25 of the permit.* THE PRIMARY PERMITTEE MUST RETAIN THE DESIGN PROFESSIONAL WHO PREPARED THE PLAN (EXCEPT WHEN THE PRIMARY PERMITTEE HAS REQUESTED IN WRITING AND EPD HAS AGREED TO AN ALTERNATE DESIGN PROFESSIONAL), TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPS WHICH THE DESIGN PROFESSIONAL DESIGNED WITHIN SEVEN (7) DAYS AFTER INSTALLATION. THE DESIGN PROFESSIONAL SHALL DETERMINE IF THESE BMPS HAVE BEEN INSTALLED AND ARE BEING MAINTAINED AS DESIGNED. THE DESIGN PROFESSIONAL SHALL REPORT THE RESULTS OF THE INSPECTION TO THE PRIMARY PERMITTEE WITHIN SEVEN (7) DAYS AND THE PERMITTEE MUST CORRECT ALL DEFICIENCIES WITHIN TWO (2) BUSINESS DAYS OF RECEIPT OF THE INSPECTION REPORT FROM THE DESIGN PROFESSIONAL (UNLESS WEATHER RELATED SITE CONDITIONS ARE SUCH THAT ADDITIONAL TIME IS REQUIRED).

Plan Page #	Included Y/N	TO BE SHOWN ON ES&PC PLAN
EC4.1	YES	14. Clearly note the statement that "The design professional who prepared the ES&PC Plan is to inspect the installation of the initial sediment storage requirements and perimeter control BMPs within 7 days after installation." in accordance with Part IV.A.5 page 25 of the permit.*

DESIGN PROFESSIONAL'S 7-DAY VISIT CERTIFICATION:

DATE OF INSPECTION: ______________________________

I CERTIFY THE SITE WAS IN COMPLIANCE WITH THE ES&PC PLAN ON THE DATE OF INSPECTION.

____

RAYMOND A. PITTMAN, P.E. DATE

GSWCC LEVEL II DESIGN PROFESSIONAL – CERTIFICATION #12469

INSPECTION REVEALED THE FOLLOWING DISCREPANCIES FROM THE ES&PC PLAN:

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THE PERMITTEE MUST CORRECT ALL DEFICIENCIES WITHIN TWO (2) BUSINESS DAYS OF RECEIPT OF THE INSPECTION REPORT FROM THE DESIGN PROFESSIONAL UNLESS WEATHER RELATED SITE CONDITIONS ARE SUCH THAT ADDITIONAL TIME IS REQUIRED.

Plan Page #	Included Y/N	TO BE SHOWN ON ES&PC PLAN
EC4.1	YES	15. Clearly note the statement that "Non–exempt activities shall not be conducted within the 25 or 50–foot undisturbed stream buffers as measured from the point of wrested vegetation or within 25–feet of the coastal marshland buffer as measured from the Jurisdictional Determination Line without first acquiring the necessary variances and permits." "NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS."
N/A	NO	16. Provide a description of any buffer encroachments and indicate whether a buffer variance is required. NO BUFFERS REQUIRED.
EC4.1	YES	17. Clearly note the statement that "Amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional."* "AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPS WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL."
EC4.1	YES	18. Clearly note the statement that "Waste materials shall not be discharged to waters of the State, except as authorized by a section 404 permit."* WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT. Waste Materials All waste materials will be collected and stored in a securely lidded metal dumpster. The dumpster will meet all solid waste management regulations. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied a minimum of once per week or more often if necessary and trash will be hauled as required by local regulations. No construction waste will be buried onsite. All personnel will be instructed on proper procedures for waste disposal. A notice stating these practices will be posted at the jobsite and the Contractor will be responsible for seeing that these procedures are followed.
EC4.1	YES	19. Clearly note statement that "The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities." "THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES."
EC4.1	YES	20. Clearly note statement that "Erosion control measures will be maintained at all times. If full implementation of the approved Plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source." "EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE."
EC4.1	YES	21. Clearly note the statement "Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding." "ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING."
N/A	NO	22. Any construction activity which discharges storm water into an Impaired Stream Segment, or within 1 linear mile upstream of and within the same watershed as, any portion of a Biota Impaired Stream Segment must comply with Part III. C. of the Permit. Include the completed Appendix 1 listing all the BMPs that will be used for those areas of the site which discharge to the Impaired Stream Segment.*
N/A	NO	23. If a TMDL Implementation Plan for sediment has been finalized for the Impaired Stream Segment (identified in item 22 above) at least six months prior to submittal of NOI, the ES&PC Plan must address any site–specific conditions or requirements included in the TMDL Implementation Plan.*

Plan Page #	Included Y/N	TO BE SHOWN ON ES&PC PLAN
EC2.1–EC3.1 EC5.1	YES	24. BMPs for concrete washdown of tools, concrete mixer chutes, hoppers and the rear of the vehicles. Washout of the drum at the construction site is prohibited.* CONCRETE WASHDOWN FOR TOOLS, CONCRETE MIXER CHUTES, HOPPERS AND REAR OF THE VEHICLES PLACED NEXT TO CONSTRUCTION EXIT. WASHOUT OF THE DRUM AT THE CONSTRUCTION SITE IS PROHIBITED.
EC4.1	YES	25. Provide BMPs for the remediation of all petroleum spills and leaks. Spill Cleanup and Control Practices • Local, State and manufacturer's recommended methods for spill cleanup will be clearly posted and procedures will be made available to site personnel. • Material and equipment necessary for spill cleanup will be kept in the material storage areas. Typical materials and equipment includes, but is not limited to, brooms, dustpans, mops, gloves, goggles, cat litter, sand, sawdust and properly labeled plastic and metal waste container. • Spill prevention practices and procedures will be reviewed after a spill and adjusted as necessary to prevent future spills. • All spills will be cleaned up immediately upon discovery. All spills will be reported as required by local, State, and Federal Regulations. • FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER). THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1–800–424–8802. • FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1–800–424–8802. • FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE SPILL WILL BE CLEANED UP AND LOCAL AGENCIES WILL BE CONTACTED AS REQUIRED. The contractor shall notify the licensed professional who prepared this plan if more than 1320 gallons of petroleum is stored onsite (this includes capacities of equipment) or if any one piece of equipment has a capacity greater than 660 gallons. The contractor will need a Spill Prevention Containment and Countermeasures Plan prepared by that licensed professional.
EC1.1–EC3.1 EC4.1–EC4.3 EC5.1–EC5.3	YES	26. Description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed.*

THE FOLLOWING PERMANENT MEASURES HAVE BEEN ESTABLISHED:

1. DRY DETENTION POND
2. RIP–RAP APRONS
3. DISTURBED AREA STABILIZATION WITH PERMANENT GRASSING

CONTROLS:

EROSION AND SEDIMENT CONTROLS:

- ALL PERIMETER SILT FENCES AND CONSTRUCTION EXITS SHALL BE IN PLACE PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- EXISTING VEGETATION SHALL BE LEFT IN PLACE UNTIL SUCH TIME THAT LAND DISTURBING ACTIVITIES ARE TO TAKE PLACE UPON THAT PORTION OF THE SITE. WHEN CONSTRUCTION ACTIVITIES HAVE CEASED IN AN AREA, THAT AREA SHALL BE STABILIZED WITHIN 14 DAYS. IF THE AREA IS NOT TO FINAL GRADE, THE AREA SHALL BE MULCHED. IF THE AREA IS TO FINAL GRADE AND WILL EVENTUALLY CONTAIN SITE IMPROVEMENTS SUCH AS STRUCTURES OR SIDEWALKS, IT SHALL BE TEMPORARY SEEDED. AREAS BROUGHT TO FINAL GRADE THAT WILL REMAIN PERVIOUS ARE TO BE PERMANENTLY SEEDED. ALLOWABLE EXCEPTIONS FROM THE NPDES GENERAL PERMIT NO. GAR 100001, ARE NOTED BELOW.
- "WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14th DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASES DUE TO SNOW COVER OR OTHER ADVERSE WEATHER CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE."
- "WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 21 DAYS FROM WHEN ACTIVITIES CEASED, (e.g. THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY CEASED IS LESS THAN 21 DAYS) THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE 14th DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY CEASED."
- PLEASE REFER TO ATTACHED SHEETS FOR THE LAND DISTURBANCE CONSTRUCTION SCHEDULE (SHEET EC4.1) AND TEMPORARY AND PERMANENT GRASSING SCHEDULE (SHEET EC5.1). THE STORMWATER WILL BE DISCHARGED FROM THE BASIN TO THE EXISTING STORMWATER SYSTEM AND THROUGH THE DOWNSTREAM DITCH SYSTEM AND EVENTUALLY TO THE SAVANNAH RIVER.

NON–STORMWATER DISCHARGE:

- ALL NON–STORMWATER DISCHARGES WILL BE ROUTED THROUGH ON–SITE BMP'S AND THE STORMWATER MANAGEMENT SYSTEM WHERE POSSIBLE. THESE DISCHARGES INCLUDE FLUSHING OF WATER AND FIRE LINES, IRRIGATION WATER, GROUND WATER, DEWATERING OF PITS OR DEPRESSIONS WITHIN THE CONSTRUCTION SITE AND RINSE–OFF WATER OF NON–MATERIALS.

OTHER CONTROLS:

- NO WASTE WILL BE DISPOSED INTO STORMWATER INLETS OR WATERS OF THE STATE.

WASTE MATERIALS:
ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER. THE DUMPSTER WILL MEET ALL SOLID WASTE MANAGEMENT REGULATIONS. THE DUMPSTER WILL BE EMPTIED A MINIMUM OF ONCE A WEEK OR MORE OFTEN IF NEEDED AND TRASH WILL BE HAULED AS REQUIRED BY LOCAL REGULATIONS. NO CONSTRUCTION WASTE WILL BE BURIED ON–SITE. ALL PERSONNEL WILL BE INSTRUCTED ON PROPER PROCEDURE FOR WASTE DISPOSAL. A NOTICE STATING THESE PRACTICES WILL BE POSTED AT THE JOBSITE AND THE CONTRACTOR WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.

HAZARDOUS WASTES
ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL, STATE, AND/OR FEDERAL REGULATIONS AND BY THE MANUFACTURER OF SUCH PRODUCTS. THE JOB SITE SUPERINTENDENT (WHO WILL ALSO BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED) WILL INSTRUCT SITE PERSONNEL IN THESE PRACTICES. MATERIAL SAFETY DATA SHEETS (MSDS's) FOR EACH SUBSTANCE WITH HAZARDOUS PROPERTIES THAT IS USED ON THE JOB SITE WILL BE OBTAINED AND USED FOR THE PROPER MANAGEMENT OF POTENTIAL WASTES THAT MAY RESULT FROM THESE PRODUCTS. AN MSDS WILL BE POSTED IN THE IMMEDIATE AREA WHERE SUCH PRODUCT IS STORED AND/OR USED AND ANOTHER COPY OF EACH MSDS WILL BE MAINTAINED IN THE ESPCP FILE AT THE JOB SITE CONSTRUCTION TRAILER OFFICE. EACH EMPLOYEE WHO MUST HANDLE A SUBSTANCE WITH HAZARDOUS PROPERTIES WILL BE INSTRUCTED ON THE USE OF MSDS AND THE SPECIFIC INFORMATION IN THE APPLICABLE MSDS FOR THE PRODUCT HE/SHE IS USING, PARTICULARLY REGARDING SPILL CONTROL TECHNIQUES.

THE CONTRACTOR WILL IMPLEMENT THE SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN FOUND WITHIN THE ESPCP AND WILL TRAIN ALL PERSONNEL IN THE PROPER CLEANUP AND HANDLING OF SPILLED MATERIALS. NO SPILLED HAZARDOUS MATERIAL OR HAZARDOUS WASTES WILL BE ALLOWED TO COME IN CONTACT WITH STORM WATER DISCHARGES. IF SUCH CONTACT OCCURS, THE STORM WATER DISCHARGE WILL BE CONTAINED ON SITE UNTIL APPROPRIATE MEASURES (IN COMPLIANCE WITH STATE AND FEDERAL REGULATIONS) ARE TAKEN TO DISPOSE OF SUCH CONTAMINATED STORM WATER. IT SHALL BE THE RESPONSIBILITY OF THE JOB SITE SUPERINTENDENT TO PROPERLY TRAIN ALL PERSONNEL IN THE USE OF THE SPCC PLAN.

SANITARY WASTES:
A MINIMUM OF ONE PORTABLE SANITARY UNIT WILL BE PROVIDED FOR EVERY 10 WORKERS ON THE SITE. ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONE TIME PER WEEK BY A LICENSED PORTABLE FACILITY PROVIDER IN COMPLETE COMPLIANCE WITH LOCAL AND STATE REGULATIONS. ALL SANITARY WASTE UNITS WILL BE LOCATED IN AN AREA WHERE THE LIKELIHOOD OF THE UNIT CONTRIBUTION TO STORM WATER DISCHARGE IS NEGLIGIBLE. ADDITIONAL CONTAINMENT BMP'S MUST BE IMPLEMENTED SUCH AS GRAVEL BAGS OR SPECIALTY DESIGNED PLASTIC SKID CONTAINERS AROUND THE BASES, TO PREVENT WASTE FROM CONTRIBUTING TO STORM WATER DISCHARGE. THE LOCATION OF SANITARY WASTE UNITS MUST BE IDENTIFIED IN THE EROSION CONTROL GRADING PLAN, BY THE CONTRACTOR ONCE THE LOCATIONS HAVE BEEN DETERMINED. SANITARY SEWER WILL BE PROVIDED BY BRYAN COUNTY AT THE COMPLETION OF THIS PROJECT.

OFF–SITE VEHICLE TRACKING:
A STABILIZED CONSTRUCTION EXIT HAS BEEN PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENT. SEE SHEETS EC1.1–EC3.1 FOR CONSTRUCTION EXIT LOCATIONS AND SHEET EC5.1 FOR DETAILS. THE PAVED STREET ADJACENT TO THE SITE EXIT WILL BE INSPECTED DAILY FOR TRACKING OF DIRT, MUD, OR ROCK. DUMP TRUCKS HAULING MATERIAL TO OR FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARPAULIN.

REV.	REVISIONS	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

GEORGIA REGISTERED No. 017550 PROFESSIONAL ENGINEER RAYMOND A. PITTMAN

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ES&PC NOTES

MULBERRY BOULEVARD EXTENSION
RICE HOPE
Prepared For
BEP RICE HOPE LLC

Project No. 21–252
Drawn By: MCS
Designed By: MCS
Checked By: RAP
Scale: N/A
Date: 12/21/21

SHEET
EC4.1

G:\Shared drives\Projects\Rice Hope\21–252 Mulberry Road Extension\Drawings\Base\21–252 Mulberry Blvd Ext Construction Plans.dwg

Tuesday, March 1, 2022 9:23:56 AM

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST
STAND ALONE DEVELOPMENT CONSTRUCTION PROJECTS

Plan Page # | Included Y/N | TO BE SHOWN ON ES&PC PLAN

INVENTORY FOR POLLUTION PREVENTION PLAN:
THE FOLLOWING MATERIALS ARE EXPECTED ON–SITE DURING CONSTRUCTION: CONCRETE PRODUCTS, ASPHALT, PETROLEUM BASED FUEL AND LUBRICANTS FOR EQUIPMENT, TAR, METAL BUILDING MATERIALS, LUMBER, SHEET ROCK, FLOOR COVERINGS, ELECTRICAL WIRE AND FIXTURES, PAINT/STAINS/FINISHING TREATMENTS, PAINT, PAINT SOLVENTS, ADDITIVES FOR SOIL STABILIZATION, CLEANING SOLVENTS, PESTICIDES, FERTILIZERS, HERBICIDES, CRUSHED STONE, AND METAL PIPES.

SPILL PREVENTION:
PRACTICES SUCH AS GOOD HOUSEKEEPING, PROPER HANDLING OF HAZARDOUS PRODUCTS AND PROPER SPILL CONTROL PRACTICES WILL BE FOLLOWED TO REDUCE THE RISKS OF SPILLS AND SPILLS FROM DISCHARGING INTO STORMWATER RUNOFF.

GOOD HOUSEKEEPING:
1. QUANTITIES OF PRODUCTS STORED ON–SITE WILL BE LIMITED TO THE AMOUNT NEEDED FOR THE JOB.
2. PRODUCTS AND MATERIALS WILL BE STORED IN A NEAT, ORDERLY MANNER IN APPROPRIATE CONTAINERS PROTECTED FROM RAINFALL, WHERE POSSIBLE.
3. PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH MANUFACTURER LABELS VISIBLE.
4. PRODUCTS MIXING, DISPOSAL AND DISPOSAL OF PRODUCT CONTAINERS WILL BE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
5. THE CONTRACTOR WILL INSPECT SUCH MATERIALS TO ENSURE PROPER USE, STORAGE, AND DISPOSAL.

MAINTENANCE & INSPECTION OF EROSION & SEDIMENT CONTROLS:

MAINTENANCE:

THE FOLLOWING BEST MANAGEMENT PRACTICE MAINTENANCE CRITERIA ARE TAKEN FROM THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA," LATEST EDITION.

CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOW OR MUD ONTO PUBLIC RIGHT–OF–WAY. THIS MAY REQUIRE PERIODIC DRESSING WITH 1.5–3.5 INCH STONE, AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANING OF ANY STRUCTURES TO TRAP SEDIMENT. ALL MATERIAL SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES OR SITE ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

RETROFIT STRUCTURES SHALL BE KEPT CLEAR OF TRASH AND DEBRIS. THIS WILL REQUIRE CONTINUOUS MONITORING AND MAINTENANCE, WHICH INCLUDES SEDIMENT REMOVAL WHEN ONE–THIRD OF THE SEDIMENT STORAGE CAPACITY HAS BEEN LOST.

SEDIMENT SHALL BE REMOVED FROM SILT FENCES ONCE IT HAS ACCUMULATED ONE–THIRD THE ORIGINAL HEIGHT OF THE BARRIER. FILTER FABRIC SHALL BE REPLACED WHENEVER IT HAS DETERIORATED TO SUCH AN EXTENT THAT THE EFFECTIVENESS OF THE FABRIC IS REDUCED (APPROXIMATELY SIX MONTHS).

SEDIMENT SHALL BE REMOVED FROM SEDIMENT TRAPS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE–HALF THE HEIGHT OF THE TRAP. SEDIMENT SHALL BE REMOVED FROM CURB INLET PROTECTION IMMEDIATELY. FOR EXCAVATED INLET SEDIMENT TRAPS, SEDIMENT SHALL BE REMOVED WHEN ONE–HALF OF THE SEDIMENT STORAGE CAPACITY HAS BEEN LOST TO SEDIMENT ACCUMULATION.

SEDIMENT SHALL NOT BE WASHED INTO THE INLET. IT SHALL BE REMOVED FROM THE SEDIMENT TRAP AND DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLET AGAIN.

WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, ALL MATERIALS AND ANY SEDIMENT SHALL BE REMOVED, AND EITHER SALVAGED OR DISPOSED OF PROPERLY. THE DISTURBED AREA SHALL BE BROUGHT TO PROPER GRADE, SMOOTHED AND COMPACTED.

APPROPRIATELY STABILIZE ALL DISTURBED AREAS AROUND THE INLET.

REPAIR ALL DAMAGES CAUSED TO TEMPORARY SEDIMENT BASINS BY SOIL EROSION OR CONSTRUCTION EQUIPMENT AT OR BEFORE THE END OF EACH WORKING DAY. SEDIMENT SHALL BE REMOVED FROM THE BASIN WHEN IT REACHES THE TOP OF THE RISER. SEDIMENT SHALL NOT ENTER ADJACENT STREAMS OR DRAINAGE WAYS DURING SEDIMENT REMOVAL OR DISPOSAL. THE SEDIMENT SHALL NOT BE DEPOSITED DOWNSTREAM FROM THE EMBANKMENT, ADJACENT TO A STREAM OR FLOODPLAIN.

INSPECT RIPRAP OUTLET STRUCTURES AFTER HEAVY RAINS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

ROUGHENED AREAS SHALL BE SEEDED AND MULCHED AS SOON AS POSSIBLE TO OBTAIN OPTIMUM SEED GERMINATION AND SEEDING GROWTH.

MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF DISTURBANCES. MULCH CAN BE USED AS A SINGULAR EROSION CONTROL DEVICE FOR UP TO 6 MONTHS, BUT IT SHALL BE APPLIED AT THE APPROPRIATE DEPTH (DEPENDING ON THE MATERIALS USED), ANCHORED, AND HAVE A CONTINUOUS 90% COVER. TEMPORARY VEGETATION MAY BE EMPLOYED INSTEAD OF MULCH IF THE AREA WILL REMAIN UNDISTURBED FOR LESS THAN 8 MONTHS. IF THE AREA WILL REMAIN UNDISTURBED FOR GREATER THAN 6 MONTHS, PERMANENT VEGETATIVE TECHNIQUES SHALL BE EMPLOYED.

PERMANENT VEGETATION SHALL BE APPLIED IMMEDIATELY TO ROUGH GRADED AREAS THAT WILL BE UNDISTURBED FOR LONGER THAN 6 MONTHS. THIS PRACTICE OF SODDING SHALL BE APPLIED IMMEDIATELY TO ALL AREAS AT FINAL GRADE. FINAL STABILIZATION MEANS THAT ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED, AND THAT FOR THE UNPAVED AREAS AND AREAS NOT COVERED IN PERMANENT STRUCTURES AT LEAST 70% OF THE SOIL SURFACE IS UNIFORMLY COVERED IN PERMANENT VEGETATION OR EQUIVALENT PERMANENT STABILIZATION MEASURES (SUCH AS THE USE OF RIPRAP, GABIONS, PERMANENT MULCHES OR GEOTEXTILES) HAVE BEEN EMPLOYED. PERMANENT VEGETATION SHALL CONSIST OF PLANTED TREES, SHRUBS, PERENNIAL VINES, A CROP OF PERENNIAL VEGETATION APPROPRIATE FOR THE REGION, SUCH THAT WITHIN THE GROWING SEASON, A 70% COVERAGE BY PERENNIAL VEGETATION SHALL BE ACHIEVED. FINAL STABILIZATION APPLIES TO EACH PHASE OF CONSTRUCTION UNTIL THIS STANDARD IS SATISFIED AND PERMANENT CONTROL MEASURES AND FACILITIES ARE OPERATIONAL. INTERIM STABILIZATION MEASURES AND TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL NOT BE REMOVED.

EC4.2 | YES | 27. DESCRIPTION OF PRACTICES TO PROVIDE COVER FOR BUILDING MATERIALS AND BUILDING PRODUCTS ON SITE.*

FOR BUILDING MATERIALS, BUILDING PRODUCTS, CONSTRUCTION WASTES, TRASH, LANDSCAPE MATERIALS, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS PRESENT ON THE SITE, PROVIDE COVER (E.G. PLASTIC SHEETING, TEMPORARY ROOFS) TO MINIMIZE THE EXPOSURE OF THESE PRODUCTS TO PRECIPITATION AND TO STORMWATER, OR A SIMILARLY EFFECTIVE MEANS DESIGNED TO MINIMIZE THE DISCHARGE OF POLLUTANTS FROM THESE AREAS. MINIMIZATION OF EXPOSURE IS NOT REQUIRED IN CASES WHERE EXPOSURE TO PRECIPITATION AND TO STORMWATER WILL NOT RESULT IN A DISCHARGE OF POLLUTANTS, OR WHERE EXPOSURE OF A SPECIFIC MATERIAL OR PRODUCT POSES LITTLE RISK TO STORMWATER CONTAMINATION (SUCH AS FINAL PRODUCTS AND MATERIALS INTENDED FOR OUTDOOR USE).

EC4.2 | YES | 28. Description of the practices that will be used to reduce the pollutants in storm water discharges.*

Product Specific Practices

Petroleum Based Products – Containers for products such as fuel, lubricants and tars will be inspected daily for leaks and spills. This includes on–site vehicle and machinery daily inspections and regular preventative maintenance of such equipment. Equipment maintenance areas will be located away from state water, natural drains and storm water drainage inlets. In addition, temporary fueling tanks shall have a secondary containment liner to prevent/minimize site contamination. Discharge of oils, fuels and lubricants is prohibited. Proper disposal methods will include collection in a suitable container and disposal as required by local and State regulations.

Paints/Finishes/Solvents – All products will be stored in tightly sealed original containers when not in use. Excess product will not be discharged to the storm water collection system. Excess product, materials used with these products and product containers will be disposed of according to manufacturer's specifications and recommendations.

Concrete Truck Washing – NO concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water onsite.

Fertilizer/Herbicides – These products will be applied at rates that do not exceed the manufacturer's specifications or above the guidelines set forth in the crop establishment or in the GSWCC Manual for Erosion and Sediment Control in Georgia. Any storage of these materials will be under roof in sealed containers.

Building Materials – No building or construction materials will be buried or disposed of onsite. All such materials will be disposed of using proper waste disposal procedures.

EC4.2 | YES | 29. Description and chart or timeline of the intended sequence of major activities which disturb soils for the major portions of the site (i.e., initial perimeter and sediment storage BMPs, clearing and grubbing activities, excavation activities, utility activities, temporary and final stabilization).

CONSIDERATIONS FOR CONSTRUCTION SCHEDULING

A SPECIFIED WORK SCHEDULE IS NEEDED TO COORDINATE THE TIMING OF LAND DISTURBING ACTIVITIES WITH THE INSTALLATION OF EROSION AND SEDIMENTATION CONTROL MEASURES.

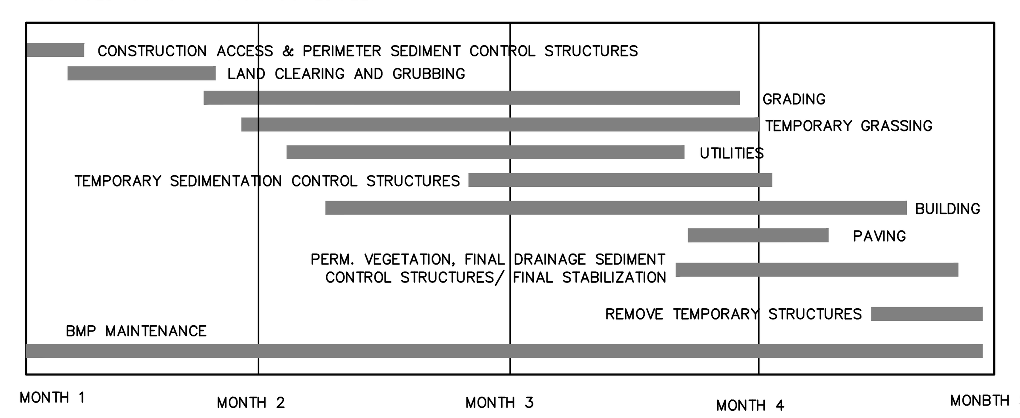
THE PURPOSE OF THE SCHEDULE IS TO REDUCE ON–SITE EROSION AND OFF–SITE SEDIMENTATION BY PERFORMING LAND DISTURBING ACTIVITIES AND INSTALLING EROSION AND SEDIMENTATION CONTROL PRACTICES IN ACCORDANCE WITH A PLANNED SCHEDULE.

IN PLANNING CONSTRUCTION WORK, IT MAY BE HELPFUL TO OUTLINE ALL LAND DISTURBING ACTIVITIES NECESSARY TO COMPLETE THE PROPOSED PROJECT. THEN LIST ALL PRACTICES NEEDED TO CONTROL EROSION AND SEDIMENTATION ON THE SITE. THESE TWO LISTS CAN THEN BE COMBINED IN LOGICAL ORDER TO PROVIDE A PRACTICAL AND EFFECTIVE CONSTRUCTION SEQUENCE SCHEDULE THAT BECOMES PART OF THE EROSION AND SEDIMENTATION CONTROL PLAN.

Plan Page # | Included Y/N | TO BE SHOWN ON ES&PC PLAN

CONSTRUCTION ACTIVITY	SCHEDULE CONSIDERATION
1. OBTAIN ALL PLAN APPROVALS AND OTHER APPLICABLE PERMITS.	
2. FLAG THE WORK LIMITS AND MARK THE TREES AND BUFFER AREAS FOR PROTECTION.	
3. HOLD PRE CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.	
4. CONSTRUCTION ACCESS – CONSTRUCTION ENTRANCE, CONSTRUCTION ROUTES, EQUIPMENT PARKING AREAS.	FIRST LAND DISTURBING ACTIVITY –– STABILIZE BARE AREAS IMMEDIATELY WITH GRAVEL AND TEMPORARY VEGETATION AS CONSTRUCTION TAKES PLACE.
5. SEDIMENT TRAPS AND BARRIERS – BASIN TRAPS, SEDIMENT FENCES, AND OUTLET PROTECTION.	INSTALL PRINCIPAL BASINS AFTER CONSTRUCTION SITE IS ACCESSED. INSTALL ADDITIONAL TRAPS AND BARRIERS AS NEEDED DURING GRADING.
6. RUNOFF CONTROL – DIVERSIONS, PERIMETER DIKES, WATER BARS, AND OUTLET PROTECTION.	INSTALL KEY PRACTICES AFTER PRINCIPAL SEDIMENT TRAPS AND BEFORE LAND GRADING. INSTALL ADDITIONAL RUNOFF–CONTROL MEASURES DURING GRADING.
7. RUNOFF CONVEYANCE SYSTEM– STABILIZE STREAM BANKS, STORM DRAINS, CHANNELS, INLET AND OUTLET PROTECTION, SLOPE DRAINS.	WHERE NECESSARY, STABILIZE STREAM BANKS AS EARLY AS POSSIBLE. INSTALL PRINCIPAL RUNOFF CONVEYANCE SYSTEM WITH RUNOFF– CONTROL MEASURES. INSTALL REMAINDER OF SYSTEM AFTER GRADING.
8. LAND CLEARING AND GRADING–SITE PREPARATION CUTTING, FILLING AND GRADING, SEDIMENTATION TRAPS, BARRIERS, DIVERSIONS, DRAINS, SURFACE ROUGHENING.	BEGIN MAJOR CLEARING AND GRADING AFTER PRINCIPAL SEDIMENT AND KEY RUNOFF–CONTROL MEASURES ARE INSTALLED. CLEAR BORROW AND DISPOSAL AREAS ONLY AS NEEDED. INSTALL ADDITIONAL CONTROL MEASURES AS GRADING PROGRESSES. MARK TREES AND BUFFER AREAS FOR PRESERVATION.
9. SURFACE STABILIZATION–TEMPORARY AND PERMANENT SEEDING, MULCHING, SODDING, RIPRAP.	APPLY TEMPORARY OR PERMANENT STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS WHERE WORK IS DELAYED OR COMPLETE.
10. UTILITIES, PAVING, BUILDING	INSTALL NECESSARY EROSION AND SEDIMENTATION CONTROL PRACTICES AS WORK TAKES PLACE.
11. LANDSCAPING AND FINAL STABILIZATION – TOPSOILING, TREES AND SHRUBS, PERMANENT SEEDING, MULCHING, SODDING RIPRAP.	LAST CONSTRUCTION PHASE––STABILIZE ALL OPEN AREAS, INCLUDING BORROW AND SPOIL AREAS. REMOVE AND STABILIZE ALL TEMPORARY CONTROL MEASURES.

PROPOSED CONSTRUCTION SCHEDULE:



EC4.2 | YES | 30. Provide complete requirements of inspections and record keeping by the primary permittee.*

INSPECTIONS

A. PERMITTEE REQUIREMENTS.

1. EACH DAY WHEN ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT A PRIMARY PERMITTEE'S SITE, CERTIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE SHALL INSPECT:
   (A) ALL AREAS AT THE PRIMARY PERMITTEE'S SITE WHERE PETROLEUM PRODUCTS ARE STORED, USED, OR HANDLED FOR SPILLS AND LEAKS FROM VEHICLES AND EQUIPMENT AND
   (B) ALL LOCATIONS AT THE PRIMARY PERMITTEE'S SITE WHERE VEHICLES ENTER OR EXIT THE SITE FOR EVIDENCE OF OFF–SITE SEDIMENT TRACKING. THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.
2. MEASURE AND RECORD RAINFALL WITHIN DISTURBED AREAS OF THE SITE THAT HAVE NOT MET FINAL STABILIZATION ONCE EVERY 24 HOURS EXCEPT ANY NON–WORKING SATURDAY, NON–WORKING SUNDAY AND NON–WORKING FEDERAL HOLIDAY. THE DATA COLLECTED FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY. MEASUREMENT OF RAINFALL MAY BE SUSPENDED IF ALL AREAS OF THE SITE HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION.
3. CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT THE FOLLOWING AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES RAINFALL OR GREATER (UNLESS SUCH STORM ENDS AFTER 5:00 PM ON ANY FRIDAY OR ON ANY NON–WORKING SATURDAY, NON–WORKING SUNDAY OR ANY NON–WORKING FEDERAL HOLIDAY IN WHICH CASE THE INSPECTION SHALL BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY AND/OR WORKING DAY, WHICHEVER OCCURS FIRST):
   (A) DISTURBED AREAS OF THE PRIMARY PERMITTEE'S CONSTRUCTION SITE;
   (B) AREAS USED BY THE PRIMARY PERMITTEE FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION; AND
   (C) STRUCTURAL CONTROL MEASURES, EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN APPLICABLE TO THE PRIMARY PERMITTEE'S SITE SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). FOR AREAS OF A SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION, THE PERMITTEE MUST COMPLY WITH PART IV.D.4.A.(4). THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.
4. CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT AT LEAST ONCE PER MONTH DURING THE TERM OF THIS PERMIT (I.E., UNTIL A NOTICE OF TERMINATION HAS BEEN SUBMITTED) THE AREAS OF THE SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION. THESE AREAS SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM AND THE RECEIVING WATER(S). EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S).
5. BASED ON THE RESULTS OF EACH INSPECTION, THE SITE DESCRIPTION AND THE POLLUTION PREVENTION AND CONTROL MEASURES IDENTIFIED IN THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, THE PLAN SHALL BE REVISED AS APPROPRIATE NOT LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION. IMPLEMENTATION OF SUCH CHANGES SHALL BE MADE AS SOON AS PRACTICAL BUT IN NO CASE LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION.
6. A REPORT OF EACH INSPECTION THAT INCLUDES THE NAME(S) OF CERTIFIED PERSONNEL MAKING EACH INSPECTION, THE DATE(S) OF EACH INSPECTION, CONSTRUCTION PHASE (I.E., INITIAL, INTERMEDIATE OR FINAL), MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, AND ACTIONS TAKEN IN ACCORDANCE WITH PART IV.D.4.A.(5). OF THE PERMIT SHALL BE MADE AND RETAINED AT THE SITE OR BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION UNTIL THE ENTIRE SITE OR THAT PORTION OF A CONSTRUCTION SITE THAT HAS BEEN PHASED HAS UNDERGONE FINAL STABILIZATION AND A NOTICE OF TERMINATION IS SUBMITTED TO EPD. SUCH REPORTS SHALL BE READILY AVAILABLE BY END OF THE SECOND BUSINESS DAY AND/OR WORKING DAY AND SHALL IDENTIFY ALL INCIDENTS OF BEST MANAGEMENT PRACTICES THAT HAVE NOT BEEN PROPERLY INSTALLED AND/OR MAINTAINED AS DESCRIBED IN THE PLAN. WHERE THE REPORT DOES NOT IDENTIFY ANY INCIDENTS, THE INSPECTION REPORT SHALL CONTAIN A CERTIFICATION THAT THE BEST MANAGEMENT PRACTICES ARE IN COMPLIANCE WITH THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G.2. OF THIS PERMIT.

Plan Page # | Included Y/N | TO BE SHOWN ON ES&PC PLAN

AN "EROSION & SEDIMENTATION INSPECTION AND MAINTENANCE REPORT" SHEET IS ATTACHED. SHOULD THE INSPECTION REVEAL ANY DEFICIENCIES, A COPY SHALL BE SENT TO:

MR. SCOTT DECAIN
4800 HAMPDEN LANE, SUITE 200
BETHESDA, MARYLAND 20814
301–915–0460
EMAIL: SDECAIN@BALDEAGLEPARTNERS.COM

ATTN.:
PITTMAN ENGINEERING CO., LLC
2591 HWY 17 SUITE 303
RICHMOND HILL, GA 31324
912–445–0578
JASON@PITTMANENGINEERINGCO.COM

EC4.2 | YES | 31. Provide complete requirements of sampling frequency and reporting of sampling results.*

STORM WATER SAMPLING:

SAMPLING FREQUENCY:

1. THE PRIMARY PERMITTEE MUST SAMPLE IN ACCORDANCE WITH THE PLAN AT LEAST ONCE FOR EACH RAINFALL EVENT DESCRIBED BELOW. FOR A QUALIFYING EVENT, THE PERMITTEE SHALL SAMPLE AT THE BEGINNING OF ANY STORMWATER DISCHARGE TO A MONITORED RECEIVING WATER AND/OR FROM A MONITORED OUTFALL LOCATION WITHIN IN FORTY–FIVE (45) MINUTES OR AS SOON AS POSSIBLE.
2. HOWEVER, WHERE MANUAL AND AUTOMATIC SAMPLING ARE IMPOSSIBLE (AS DEFINED IN THIS PERMIT), OR ARE BEYOND THE PERMITTEE'S CONTROL, THE PERMITTEE SHALL TAKE SAMPLES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN TWELVE (12) HOURS AFTER THE BEGINNING OF THE STORMWATER DISCHARGE.
3. SAMPLING BY THE PERMITTEE SHALL OCCUR FOR THE FOLLOWING QUALIFYING EVENTS:
   (A). FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORMWATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT AFTER ALL CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO COMPLETION OF MASS GRADING OPERATIONS, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION;
   (B). IN ADDITION TO (A) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORMWATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT EITHER 90 DAYS AFTER THE FIRST SAMPLING EVENT OR AFTER ALL MASS GRADING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO SUBMITTAL OF A NOT, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION, WHICHEVER COMES FIRST;
   (C). AT THE TIME OF SAMPLING PERFORMED PURSUANT TO (A) AND (B) ABOVE, IF BMPS IN ANY AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL ARE NOT PROPERLY DESIGNED, INSTALLED AND MAINTAINED, CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN TWO (2) BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FROM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS* UNTIL THE SELECTED TURBIDITY STANDARD IS ATTAINED, OR UNTIL POST–STORM EVENT INSPECTIONS DETERMINE THAT BMPS ARE PROPERLY DESIGNED, INSTALLED AND MAINTAINED;
   (D). WHERE SAMPLING PURSUANT TO (A), (B) OR (C) ABOVE IS REQUIRED BUT NOT POSSIBLE (OR NOT REQUIRED BECAUSE THERE WAS NO DISCHARGE), THE PERMITTEE, IN ACCORDANCE WITH PART IV.D.4.A.(6), MUST INCLUDE A WRITTEN JUSTIFICATION IN THE INSPECTION REPORT OF WHY SAMPLING WAS NOT PERFORMED. PROVIDING THIS JUSTIFICATION DOES NOT RELIEVE THE PERMITTEE OF ANY SUBSEQUENT SAMPLING OBLIGATIONS UNDER (A), (B) OR (C) ABOVE; AND
   (E). EXISTING CONSTRUCTION ACTIVITIES, I.E., THOSE THAT ARE OCCURRING ON OR BEFORE THE EFFECTIVE DATE OF THIS PERMIT, THAT HAVE MET THE SAMPLING REQUIRED BY (A) ABOVE SHALL SAMPLE IN ACCORDANCE WITH (B). THOSE EXISTING CONSTRUCTION ACTIVITIES THAT HAVE MET THE SAMPLING REQUIRED BY (B) ABOVE SHALL NOT BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING OTHER THAN AS REQUIRED BY (C) ABOVE.

* NOTE THAT THE PERMITTEE MAY CHOOSE TO MEET THE REQUIREMENTS OF (A) AND (B) ABOVE BY COLLECTING TURBIDITY SAMPLES FROM ANY RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR SAMPLING AT ANY TIME OF THE DAY OR WEEK.

REPORTING:

1. THE APPLICABLE PERMITTEES ARE REQUIRED TO SUBMIT THE SAMPLING RESULTS TO THE EPD AT THE ADDRESS SHOWN IN PART II.C. BY THE FIFTEENTH DAY OF THE MONTH FOLLOWING THE REPORTING PERIOD. REPORTING PERIODS ARE MONTHS DURING WHICH SAMPLES ARE TAKEN IN ACCORDANCE WITH THIS PERMIT. SAMPLING RESULTS SHALL BE IN A CLEARLY LEGIBLE FORMAT. UPON WRITTEN NOTIFICATION, EPD MAY REQUIRE THE APPLICABLE PERMITTEE TO SUBMIT THE SAMPLING RESULTS ON A MORE FREQUENT BASIS. SAMPLING AND ANALYSIS OF ANY STORMWATER DISCHARGE(S) OR THE RECEIVING WATER(S) BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED IN A SIMILAR MANNER TO THE EPD. THE SAMPLING REPORTS MUST BE SIGNED IN ACCORDANCE WITH PART V.G.2. SAMPLING REPORTS MUST BE SUBMITTED TO EPD USING THE ELECTRONIC SUBMITTAL SERVICE PROVIDED BY EPD. SAMPLING REPORTS MUST BE SUBMITTED TO EPD UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.
2. ALL SAMPLING REPORTS SHALL INCLUDE THE FOLLOWING INFORMATION:
   A. THE RAINFALL AMOUNT, DATE, EXACT PLACE AND TIME OF SAMPLING OR MEASUREMENTS;
   B. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE SAMPLING AND MEASUREMENTS;
   C. THE DATE(S) ANALYSES WERE PERFORMED;
   D. THE TIME(S) ANALYSES WERE INITIATED;
   E. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE ANALYSES;
   F. REFERENCES AND WRITTEN PROCEDURES, WHEN AVAILABLE, FOR THE ANALYTICAL TECHNIQUES OR METHODS USED;
   G. THE RESULTS OF SUCH ANALYSES, INCLUDING THE BENCH SHEETS, INSTRUMENT READOUTS, COMPUTER DISKS OR TAPES, ETC., USED TO DETERMINE THESE RESULTS;
   H. RESULTS WHICH EXCEED 1000 NTU SHALL BE REPORTED AS "EXCEEDS 1000 NTU;" AND
   I. CERTIFICATION STATEMENT THAT SAMPLING WAS CONDUCTED AS PER THE PLAN.
3. ALL WRITTEN CORRESPONDENCE REQUIRED BY THIS PERMIT SHALL BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO THE APPROPRIATE DISTRICT OFFICE OF THE EPD ACCORDING TO THE SCHEDULE IN APPENDIX A OF THIS PERMIT. THE PERMITTEE SHALL RETAIN A COPY OF THE PROOF OF SUBMITTAL AT THE CONSTRUCTION SITE OR THE PROOF OF SUBMITTAL SHALL BE READILY AVAILABLE AT A DESIGNATED LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.

GOVERNING AGENCY:
COASTAL DISTRICT – BRUNSWICK OFFICE
GEORGIA ENVIRONMENTAL PROTECTION DIVISION
400 COMMERCE CENTER DRIVE
BRUNSWICK, GA 31523–8251
(912) 264–7284

MR. SCOTT DECAIN
4800 HAMPDEN LANE, SUITE 200
BETHESDA, MARYLAND 20814
301–915–0460
EMAIL: SDECAIN@BALDEAGLEPARTNERS.COM

ATTN.:
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2591 HWY 17 SUITE 303
RICHMOND HILL, GA 31324
912–445–0578
JASON@PITTMANENGINEERINGCO.COM

EC4.2 | YES | 32. Provide complete details for retention of records as per Part IV.F. of the permit.*

RETENTION OF RECORDS:

1. THE PRIMARY PERMITTEE SHALL RETAIN THE FOLLOWING RECORDS AT THE CONSTRUCTION SITE (OR THE RECORDS SHALL BE READILY AVAILABLE AT THE DESIGNATED ALTERNATE LOCATION) FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOTICE OF TERMINATION IS SUBMITTED IN ACCORDANCE WITH PART VI.
   a. A COPY OF NOTICES OF INTENT SUBMITTED TO EPD.
   b. A COPY OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN REQUIRED BY THIS PERMIT.
   c. THE DESIGN PROFESSIONAL'S REPORT OF THE RESULTS OF THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5 OF THIS PERMIT.
   d. A COPY OF ALL MONITORING INFORMATION, RESULTS AND REPORTS REQUIRED BY THIS PERMIT.
   e. A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.(a) OF THIS PERMIT.
   f. A COPY OF VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART III.D.2 OF THIS PERMIT.
   g. DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE WITH PART IV.D.4.(a).(1)(c) OF THIS PERMIT.
2. COPIES OF ALL NOTICES OF INTENT, NOTICE OF TERMINATION, REPORTS, PLANS, MONITORING INFORMATION (INCLUDING ALL CALIBRATION AND MAINTENANCE RECORDS AND ALL ORIGINAL STRIP CHART RECORDINGS FOR CONTINUOUS MONITORING INSTRUMENTATION), EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT AND ALL OTHER RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED BY THE PERMITTEE WHO EITHER PRODUCED OR USED IT FOR A PERIOD OF AT LEAST 3 YEARS FROM THE DATE THAT THE NOTICE OF TERMINATION IS SUBMITTED IN ACCORDANCE WITH PART VI OF THIS PERMIT. THESE RECORDS MUST BE MAINTAINED AT THE PERMITTEE'S PRIMARY PLACE OF BUSINESS (OR AT A DESIGNATED ALTERNATIVE LOCATION) ONCE THE CONSTRUCTION ACTIVITY HAS CEASED AT THE PERMITTED SITE. THIS PERIOD MAY BE EXTENDED BY REQUEST BY THE EPD AT ANY TIME UPON WRITTEN REQUEST TO THE PERMITTEE.

REV.	REVISIONS	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

GEORGIA REGISTERED No. 017550 PROFESSIONAL ENGINEER RAYMOND A. PITTMAN

PITTMAN ENGINEERING
2591 Hwy 17S Suite 303
Richmond Hill, GA 31324
912-445-0578
www.PittmanEngineeringCo.com

ES&PC NOTES
MULBERRY BOULEVARD EXTENSION
RICE HOPE
Prepared For
BEP RICE HOPE LLC

Project No. 21–252
Drawn By: MCS
Designed By: MCS
Checked By: RAP
Scale: N/A
Date: 12/21/21

SHEET
EC4.2

G:\Shared drives\Projects\Rice Hope\21–252 Mulberry Road Extension\Drawings\Base\21–252 Mulberry Blvd Ext Construction Plans.dwg

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST
STAND ALONE DEVELOPMENT CONSTRUCTION PROJECTS

Plan Page #	Included Y/N	TO BE SHOWN ON ES&PC PLAN
EC4.3	YES	33. DESCRIPTION OF ANALYTICAL METHODS TO BE USED TO COLLECT AND ANALYZE THE SAMPLES FROM EACH LOCATION.*

a. SAMPLING REQUIREMENTS SHALL INCLUDE THE FOLLOWING:

(1). A USGS TOPOGRAPHIC MAP, A TOPOGRAPHIC MAP OR A DRAWING (REFERRED TO AS A TOPOGRAPHIC MAP) THAT IS A SCALE EQUAL TO OR MORE DETAILED THAN A 1:24000 MAP SHOWING THE LOCATION OF THE SITE OR THE STAND ALONE CONSTRUCTION; (A) THE LOCATION OF ALL PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES AS SHOWN ON A USGS TOPOGRAPHIC MAP, AND ALL OTHER PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES LOCATED DURING MANDATORY FIELD VERIFICATION, INTO WHICH THE STORMWATER IS DISCHARGED AND (B) THE RECEIVING WATER AND/OR OUTFALL SAMPLING LOCATIONS. WHEN THE PERMITTEE HAS CHOSEN TO USE A USGS TOPOGRAPHIC MAP AND THE RECEIVING WATER(S) IS NOT SHOWN ON THE USGS TOPOGRAPHIC MAP, THE LOCATION OF THE RECEIVING WATER(S) MUST BE HAND-DRAWN ON THE USGS TOPOGRAPHIC MAP FROM WHERE THE STORMWATER(S) ENTERS THE RECEIVING WATER(S) TO THE POINT WHERE THE RECEIVING WATER(S) COMBINES WITH THE FIRST BLUE LINE STREAM SHOWN ON THE USGS TOPOGRAPHIC MAP;
(2). A WRITTEN NARRATIVE OF SITE SPECIFIC ANALYTICAL METHODS USED TO COLLECT, HANDLE AND ANALYZE THE SAMPLES INCLUDING QUALITY CONTROL/QUALITY ASSURANCE PROCEDURES. THIS NARRATIVE MUST INCLUDE PRECISE SAMPLING METHODOLOGY FOR EACH SAMPLING LOCATION;
(3). WHEN THE PERMITTEE HAS DETERMINED THAT SOME OR ALL OUTFALLS WILL BE SAMPLED, A RATIONALE MUST BE INCLUDED ON THE PLAN FOR THE NTU LIMIT(S) SELECTED FROM APPENDIX B. THIS RATIONALE MUST INCLUDE THE SIZE OF THE CONSTRUCTION SITE, THE CALCULATION OF THE SIZE OF THE SURFACE WATER DRAINAGE AREA, AND THE TYPE OF RECEIVING WATER(S) (I.E., TROUT STREAM OR SUPPORTING WARM WATER FISHERIES); AND
(4). ANY ADDITIONAL INFORMATION EPD DETERMINES NECESSARY TO BE PART OF THE PLAN. EPD WILL PROVIDE WRITTEN NOTICE TO THE PERMITTEE OF THE INFORMATION NECESSARY AND THE TIME LINE FOR SUBMITTAL.

b. SAMPLE TYPE. ALL SAMPLING SHALL BE COLLECTED BY "GRAB SAMPLES" AND THE ANALYSIS OF THESE SAMPLES MUST BE CONDUCTED IN ACCORDANCE WITH METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40 CFR PART 136 (UNLESS OTHER TEST PROCEDURES HAVE BEEN APPROVED); THE GUIDANCE DOCUMENT TITLED "NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT, EPA 833-B-92-001" AND GUIDANCE DOCUMENTS THAT MAY BE PREPARED BY THE EPD.
(1). SAMPLE CONTAINERS SHOULD BE LABELED PRIOR TO COLLECTING THE SAMPLES.
(2). SAMPLES SHOULD BE WELL MIXED BEFORE TRANSFERRING TO A SECONDARY CONTAINER.
(3). LARGE MOUTH, WELL CLEANED AND RINSED GLASS OR PLASTIC JARS SHOULD BE USED FOR COLLECTING SAMPLES. THE JARS SHOULD BE CLEANED THOROUGHLY TO AVOID CONTAMINATION.
(4). MANUAL, AUTOMATIC OR RISING STAGE SAMPLING MAY BE UTILIZED. SAMPLES REQUIRED BY THIS PERMIT SHOULD BE ANALYZED IMMEDIATELY, BUT IN NO CASE LATER THAN 48 HOURS AFTER COLLECTION. HOWEVER, SAMPLES FROM AUTOMATIC SAMPLERS MUST BE COLLECTED NO LATER THAN THE NEXT BUSINESS DAY AFTER THEIR ACCUMULATION, UNLESS FLOW THROUGH AUTOMATED ANALYSIS IS UTILIZED. IF AUTOMATIC SAMPLING IS UTILIZED AND THE AUTOMATIC SAMPLER IS NOT ACTIVATED DURING THE QUALIFYING EVENT, THE PERMITTEE MUST UTILIZE MANUAL SAMPLING OR RISING STAGE SAMPLING DURING THE NEXT QUALIFYING EVENT. DILUTION OF SAMPLES IS NOT REQUIRED. SAMPLES MAY BE ANALYZED DIRECTLY WITH A PROPERLY CALIBRATED TURBIDIMETER. SAMPLES ARE NOT REQUIRED TO BE COOLED.
(5). SAMPLING AND ANALYSIS OF THE RECEIVING WATER(S) OR OUTFALLS BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED TO EPD AS SPECIFIED IN PART IV.E.

c. SAMPLING POINTS.
(1). FOR CONSTRUCTION ACTIVITIES THE PRIMARY PERMITTEE MUST SAMPLE ALL RECEIVING WATER(S), OR ALL OUTFALL(S), OR A COMBINATION OF RECEIVING WATER(S) AND OUTFALL(S). SAMPLES TAKEN FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY AND REPRESENTATIVE OF THE WATER QUALITY OF THE RECEIVING WATER(S) AND/OR THE STORMWATER OUTFALLS USING THE FOLLOWING MINIMUM GUIDELINES:
(A). THE UPSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN IMMEDIATELY UPSTREAM OF THE CONFLUENCE OF THE FIRST STORMWATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST UPSTREAM AT THE SITE) BUT DOWNSTREAM OF ANY OTHER STORMWATER DISCHARGES NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL UPSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE UPSTREAM TURBIDITY
(B). THE DOWNSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN DOWNSTREAM OF THE CONFLUENCE OF THE LAST STORMWATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST DOWNSTREAM AT THE SITE) BUT UPSTREAM OF ANY OTHER STORMWATER DISCHARGE NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL DOWNSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE DOWNSTREAM TURBIDITY VALUE.
(C). IDEALLY THE SAMPLES SHOULD BE TAKEN FROM THE HORIZONTAL AND VERTICAL CENTER OF THE RECEIVING WATER(S) OR THE STORMWATER OUTFALL CHANNEL(S).
(D). CARE SHOULD BE TAKEN TO AVOID STIRRING THE BOTTOM SEDIMENTS IN THE RECEIVING WATER(S) OR IN THE OUTFALL STORMWATER CHANNEL.
(E). THE SAMPLING CONTAINER SHOULD BE HELD SO THAT THE OPENING FACES UPSTREAM.
(F). THE SAMPLES SHOULD BE KEPT FREE FROM FLOATING DEBRIS.
(G). PERMITTEES DO NOT HAVE TO SAMPLE SHEET FLOW THAT FLOWS ONTO UNDISTURBED NATURAL AREAS OR AREAS STABILIZED BY THE PROJECT. FOR PURPOSES OF THIS SECTION, STABILIZED SHALL MEAN, FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES AND AREAS LOCATED OUTSIDE THE WASTE DISPOSAL LIMITS OF A LANDFILL CELL THAT HAS BEEN CERTIFIED BY EPD FOR WASTE DISPOSAL, 100% OF THE SOIL SURFACE IS UNIFORMLY COVERED IN PERMANENT VEGETATION WITH A DENSITY OF 70% OR GREATER, OR LANDSCAPED ACCORDING TO THE PLAN (UNIFORMLY COVERED WITH LANDSCAPING MATERIALS IN PLANNED LANDSCAPED AREAS), OR EQUIVALENT PERMANENT STABILIZATION MEASURES AS DEFINED IN THE MANUAL (EXCLUDING A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET CROP PERENNIALS APPROPRIATE FOR THE REGION).
(H). ALL SAMPLING PURSUANT TO THIS PERMIT MUST BE DONE IN SUCH A WAY (INCLUDING GENERALLY ACCEPTED SAMPLING METHODS, LOCATIONS, TIMING, AND FREQUENCY) AS TO ACCURATELY REFLECT WHETHER STORMWATER RUNOFF FROM THE CONSTRUCTION SITE IS IN COMPLIANCE WITH THE STANDARD SET FORTH IN PARTS III.D.3. OR III.D.4., WHICHEVER IS APPLICABLE.

Plan Page #	Included Y/N	TO BE SHOWN ON ES&PC PLAN
EC4.3	YES	34. Appendix B rationale for NTU values at all outfall sampling points where applicable.* FOR A SITE ACREAGE SIZE OF 2.66 AC. AND WATERS SUPPORTING WARM WATER FISHERIES DRAINAGE AREA LESS THAN 5 SQUARE MILES, THE NTU VALUE TO USE IN PART III.D.4. IS 75 NTU.

APPENDIX B
Nephelometric Turbidity Unit (NTU) Table
Warm Water (Supporting Warm Water Fisheries)

SITE SIZE (ACRES)	Surface Water Drainage Area (Square Miles) 0-4.99	5-9.99	10-24.99	25-49.99	50-99.99	100-249.99	250-499.99	500+
1.00-10	75	150	200	400	750	750	750	750
10.01-25	50	100	100	200	300	500	750	750
25.01-50	50	50	100	100	200	300	750	750
50.01-100	50	50	50	100	100	150	300	600
100.01+	50	50	50	50	50	100	200	100

Plan Page #	Included Y/N	TO BE SHOWN ON ES&PC PLAN
EC1.1, EC2.1 EC3.1	YES	35. Delineate all sampling locations if applicable, perennial and intermittent streams and other water bodies into which storm water is discharged. *
EC1.1-EC3.1	YES	36. A description of appropriate controls and measures that will be implemented at the construction site including: (1) Initial Sediment Storage Requirements and Perimeter Control BMPs, (2) Intermediate Grading and Drainage BMPs, and (3) Final BMPs. For construction sites where there will be no mass grading and the Initial Perimeter Control BMPs, Intermediate Grading and Drainage BMPs, and Final BMPs are the same, the plan may combine all of the BMPs into a single phase.* A temporary sediment trap will accommodate the 149 cy of Initial sediment storage. Silt fence will provide perimeter control. Intermediate grading and drainage BMPs include construction exit, temporary sediment trap, concrete wash down, storm outlet protection, dust control, mulching, temporary seeding and silt fence. Final phase BMPs include construction exit, concrete wash down, storm outlet protection, dust control and permanent vegetation stabilization. Each phase of the plan includes the appropriate controls and measures, including the initial sediment storage requirements, intermediate grading and drainage BMPs and Final BMPs. Refer to Sheets EC1.1, EC2.1 and EC3.1.
EC1.1-EC3.1	YES	37. Graphic scale and North arrow.
EC1.1-EC3.1	YES	38. Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following:

Map Scale	Ground Slope	Contour Intervals, ft.
1 inch = 100ft or larger scale	Flat 0 - 2% Rolling 2 - 8% Steep 8% +	0.5 or 1 1 or 2 2,5 or 10

Plan Page #	Included Y/N	TO BE SHOWN ON ES&PC PLAN
N/A	NO	39. Use of alternative BMPs whose performance has been documented to be equivalent to or superior to conventional BMPs as certified by a Design Professional (unless disapproved by EPD or the Georgia Soil and Water Conservation Commission). Please refer to the Alternative BMP Guidance Document found at www.gaswcc.org.
N/A	NO	40. Use of alternative BMP for application to the Equivalent BMP List. Please refer to Appendix A-2 of the Manual for Erosion & Sediment Control in Georgia 2016 Edition.*
EC1.1-EC3.1 EC4.3	NO	41. Delineation of the applicable 25-foot or 50-foot undisturbed buffers adjacent to State waters and any additional buffers required by the Local Issuing Authority. Clearly note and delineate all areas of impact. THERE ARE NOT ANY STATE WATERS LOCATED ON OR WITHIN 200' OF THIS PROJECT SITE. BUFFERS ARE NOT REQUIRED SINCE THERE IS NOT ANY WRESTED VEGETATION.
N/A	NO	42. Delineation of on-site wetlands and all State waters located on and within 200 feet of the project site. THERE ARE NOT ANY ON-SITE WETLANDS OR STATE WATERS LOCATED ON OR WITHIN 200' OF THIS PROJECT SITE.
EC4.3	NO	43. Delineation and acreage of contributing drainage basins on the project site. SEE SEPARATE HYDROLOGY REPORT.
EC4.3	NO	44. Provide hydrology study and maps of drainage basins for both the pre- and post-developed conditions.* SEE SEPARATE HYDROLOGY REPORT.
EC4.3	YES	45. An estimate of the Runoff Coefficient or Peak Discharge Flow of the site prior to and after construction activities are completed. RUNOFF CURVE NUMBER (SCS METHOD USED): PRE-DEVELOPMENT: CN=82 POST-DEVELOPMENT: CN=88
EC1.1-EC3.1	YES	46. Storm-Drain Pipe and Weir Velocities with appropriate Outlet Protection to accommodate discharges without erosion. Identify/Delineate all Storm Water Discharge Points.
EC1.1-EC3.1 EC4.3	YES	47. Soil series for the project site and their delineation.

SOILS LEGEND:

SYMBOL	NAME	RATING
Pn	POOLER FINE SNADY LOAM	B/D
Cc	CAPE FEAR	B/D

Plan Page #	Included Y/N	TO BE SHOWN ON ES&PC PLAN
EC1.1-EC3.1	YES	48. The Limits of Disturbance for each phase of construction.
EC1.1-EC3.1	YES	49. Provide a minimum of 67 Cubic Yards of sediment storage per acre drained using a Temporary Sediment Basin, Retrofitted Detention Pond, and/or Excavated Inlet Sediment Traps for each common drainage location. Sediment Storage Volume must be in place prior to and during all land disturbance activities until final stabilization of the site has been achieved. A written justification explaining the decision to use equivalent controls when a Sediment Basin is not attainable must be included in the plan for each common drainage location in which a Sediment Basin is not provided. A written justification as to why 67 Cubic Yards of storage is not attainable must also be given. Worksheets from the Manual must be included for structural BMPs and all calculations used by the Design Professional to obtain the required sediment storage when using equivalent controls. When discharging from sediment basins and impoundments, permittees are required to utilize Outlet Structures that withdraw water from the surface, unless infeasible. If Outlet Structures that withdraw water from the surface are not feasible, a written justification explaining this decision must be included in the plan.

67 CY SEDIMENT STORAGE PER DISTURBED ACRE REQUIREMENT

- TOTAL PROJECT ACREAGE = 2.66 AC.
- TOTAL DISTURBED ACREAGE = 2.66 AC.
- TOTAL REQUIRED SEDIMENT STORAGE: 2.66 AC. X 67 c.y./Ac. = 178.22 c.y.

THIS PROJECT WILL UTILIZE A TEMPORARY SEDIMENT TRAP AND SILT FENCE FOR THE SEDIMENT STORAGE REQUIREMENT. SEE SEDIMENT STORAGE CALCULATIONS ON SHEETS EC1.1-EC3.1

Plan Page #	Included Y/N	TO BE SHOWN ON ES&PC PLAN
EC1.1-EC3.1 EC5.1-EC5.3	YES	50. Location of Best Management Practices that are consistent with and no less stringent than the Manual for Erosion and Sediment Control in Georgia. Use uniform coding symbols from the Manual, Chapter 6, with legend.
EC5.1-EC5.3	YES	51. Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia.
EC4.3, EC5.1, EC5.2	YES	52. Provide Vegetative Plan, noting all temporary and permanent vegetative practices. Include species, planting dates and seeding, fertilizer, lime and mulching rates. Vegetative Plan shall be site specific for appropriate time of year that seeding will take place and for the appropriate geographic region of Georgia.

LIME RATES AND ANALYSIS

* AGRICULTURAL LIME SHALL BE APPLIED AT THE RATE OF ONE TO TWO TONS PER ACRE UNLESS SOIL TESTS INDICATE OTHERWISE. GRADED AREAS REQUIRE LIME APPLICATION. IF LIME IS APPLIED WITHIN SIX MONTHS OF PLANTING PERMANENT PERENNIAL VEGETATION, ADDITIONAL LIME IS NOT REQUIRED. AGRICULTURAL LIME SHALL BE WITHIN THE SPECIFICATIONS OF THE GEORGIA DEPARTMENT OF AGRICULTURE.

MULCHING (MULCHING IS REQUIRED FOR ALL PERMANENT VEGETATION APPLICATIONS). MULCH APPLIED TO SEEDED AREAS SHALL ACHIEVE 75% SOIL COVER. SELECT THE MULCHING MATERIAL FROM THE FOLLOWING AND APPLY AS INDICATED:

* DRY STRAW OR DRY HAY OF GOOD QUALITY AND FREE OF WEED SEEDS CAN BE USED. DRY STRAW SHALL BE APPLIED AT THE RATE OF TWO TONS PER ACRE. DRY HAY SHALL BE APPLIED AT THE RATE OF 2-1/2 TONS PER ACRE.
* WOOD CELLULOSE MULCH OR WOOD PULP FIBER SHALL BE USED WITH HYDRAULIC SEEDING. IT SHALL BE APPLIED AT A RATE OF 500 POUNDS PER ACRE. DRY STRAW OR DRY HAY SHALL BE APPLIED (AT THE RATE INDICATED BELOW) AFTER HYDRAULIC SEEDING.
* ONE THOUSAND POUNDS OF WOOD CELLULOSE OR WOOD PULP FIBER, WHICH INCLUDES TACKIFIER, SHALL BE USED WITH HYDRAULIC SEEDING ON SLOPES 4:1 OR STEEPER.
* SERICEA LESPEDEZA HAY CONTAINING MATURE SEED SHALL BE APPLIED AT A RATE OF 3 TONS PER ACRE.
* PINE STRAW OR PINE BARK SHALL BE APPLIED AT A THICKNESS OF 3 INCHES FOR BEDDING PURPOSES. OTHER SUITABLE MATERIALS IN SUFFICIENT QUANTITY MAY BE USED WHERE ORNAMENTALS OR OTHER GROUND COVERS ARE PLANTED. THIS IS NOT APPROPRIATE FOR SEEDED AREAS.
* WHEN USING TEMPORARY EROSION CONTROL BLANKETS OR BLACK SOD, MULCH IS NOT REQUIRED.

FERTILIZER REQUIREMENTS

TYPE OF SPECIES	YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE
1. COOL SEASON GRASSES	FIRST SECOND MAINTENANCE	6-12-12 6-12-12 10-10-10	1500lbs./ac. 1000lbs./ac. 400 lbs./ac.	50-100 lbs./ac. 1/2/ - 30
2. COOL SEASON GRASSES AND LEGUMES	FIRST SECOND MAINTENANCE	6-12-12 0-10-10 0-10-10	1500lbs./ac. 1000lbs./ac. 400 lbs./ac.	0-50 lbs./ac. 1/ - -
3. GROUND COVERS	FIRST SECOND MAINTENANCE	10-10-10 10-10-10 10-10-10	1300lbs./ac. 3/ 1300lbs./ac. 3/ 1100 lbs./ac.	- - -
4. PINE SEEDLINGS	FIRST	20-10-5	ONE 21-GRAM PELLET PER SEEDLING PLACED IN THE CLOSING HOLE	-
5. SHRUB LESPEDEZA	FIRST MAINTENANCE	0-10-10 0-10-10	700lbs./ac. 700lbs./ac. 4/	- -
6. TEMPORARY COVER CROPS SEEDED ALONE	FIRST	10-10-10	500lbs./ac.	30 lbs./ac. 5/
7. WARM SEASON GRASSES	FIRST SECOND MAINTENANCE	6-12-12 6-12-12 10-10-10	1500lbs./ac. 800lbs./ac. 400 lbs./ac.	50-100 lbs./ac. 2/6/ 50-100 lbs./ac. 2/ 30 lbs./ac.
8. WARM SEASON GRASSES AND LEGUMES	FIRST SECOND MAINTENANCE	6-12-12 0-10-10 0-10-10	1500lbs./ac. 1000lbs./ac. 400 lbs./ac.	50 lbs./ac. 6/

1/ APPLY IN SPRING FOLLOWING SEEDING.
2/ APPLY IN SPLIT APPLICATIONS WHEN HIGH RATES ARE USED.
3/ APPLY IN 3 SPLIT APPLICATIONS.
4/ APPLY WHEN PLANTS ARE PRUNED.
5/ APPLY TO GRASS SPECIES ONLY.
6/ APPLY WHEN PLANTS GROW TO A HEIGHT OF 2 TO 4 INCHES.

*IF USING THIS CHECKLIST FOR A PROJECT THAT IS LESS THAN 1 ACRE AND NOT PART OF A COMMON DEVELOPMENT BUT WITHIN 200 FT OF A PERENNIAL STREAM THE * CHECKLIST ITEMS WOULD BE N/A.

Effective January 1, 2021

REV.	REVISIONS	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

GEORGIA REGISTERED No. 017550 PROFESSIONAL ENGINEER RAYMOND A. PITTMAN

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ES&PC NOTES
MULBERRY BOULEVARD EXTENSION
RICE HOPE
Prepared For
BEP RICE HOPE LLC

Project No. 21-252
Drawn By: MCS
Designed By: MCS
Checked By: RAP
Scale: N/A
Date: 12/21/21

SHEET
EC4.3

GEORGIA
UNIFORM CODING SYSTEM
FOR SOIL EROSION AND SEDIMENT CONTROL PRACTICES
GEORGIA SOIL AND WATER CONSERVATION COMMISSION

STRUCTURAL PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Cd	CHECKDAM			A small temporary barrier or dam constructed across a swale, drainage ditch or area of concentrated flow.
Ch	CHANNEL STABILIZATION			Improving, constructing or stabilizing an open channel, existing stream, or ditch.
Co	CONSTRUCTION EXIT		Co (LABEL)	A crushed stone pad located at the construction site exit to provide a place for removing mud from tires thereby protecting public streets.
Cr	CONSTRUCTION ROAD STABILIZATION		Cr	A travelway constructed as part of a construction plan including access roads, subdivision roads, parking areas and other on-site vehicle transportation routes.
Dc	STREAM DIVERSION CHANNEL			A temporary channel constructed to convey flow around a construction site while a permanent structure is being constructed.
Di	DIVERSION			An earth channel or dike located above, below, or across a slope to divert runoff. This may be a temporary or permanent structure.
Dn1	TEMPORARY DOWNDRAIN STRUCTURE		Dn1 (LABEL)	A flexible conduit of heavy-duty fabric or other material designed to safely conduct surface runoff down a slope. This is temporary and inexpensive.
Dn2	PERMANENT DOWNDRAIN STRUCTURE		Dn2 (LABEL)	A paved chute, pipe, sectional conduit or similar material designed to safely conduct surface runoff down a slope.
Fr	FILTER RING			A temporary stone barrier constructed at storm drain inlets and pond outlets.
Ga	GABION			Rock filter baskets which are hand-placed into position forming soil stabilizing structures.
Gr	GRADE STABILIZATION STRUCTURE		Gr (LABEL)	Permanent structures installed to protect channels or waterways where otherwise the slope would be sufficient for the running water to form gullies.
Lv	LEVEL SPREADER			A structure to convert concentrated flow of water into less erosive sheet flow. This should be constructed only on undisturbed soils.
Rd	ROCK FILTER DAM			A permanent or temporary stone filter dam installed across small streams or drainageways.
Re	RETAINING WALL		Re (LABEL)	A wall installed to stabilize cut and fill slopes where maximum permissible slopes are not obtainable. Each situation will require special design.
Rt	RETRO FITTING		Rt (LABEL)	A device or structure placed in front of a permanent stormwater detention pond outlet structure to serve as a temporary sediment filter.
Sd1	SEDIMENT BARRIER		(INDICATE TYPE)	A barrier to prevent sediment from leaving the construction site. It may be sandbags, bales of straw or hay, brush, logs and poles, gravel, or a silt fence.
Sd2	INLET SEDIMENT TRAP			An impounding area created by excavating around a storm drain drop inlet. The excavated area will be filled and stabilized on completion of construction activities.
Sd3	TEMPORARY SEDIMENT BASIN		Sd3 (LABEL)	A basin created by excavation or a dam across a waterway. The surface water runoff is temporarily stored allowing the bulk of the sediment to drop out.
Sd4	TEMPORARY SEDIMENT TRAP			A small temporary pond that drains a disturbed area so that sediment can settle out. The principle feature distinguishing a temporary sediment trap from a temporary sediment basin is the lack of a pipe or riser.
Sk	FLOATING SURFACE SKIMMER		Sk (LABEL)	A buoyant device that releases/drains water from the surface of sediment ponds, traps, or basins at a controlled rate of flow.
Spb	SEEP BERM		Spb (LABEL)	Linear control device constructed as a diversion perpendicular to the direction of runoff to enhance dissipation and infiltration, while creating multiple sedimentation chambers with the employment of intermediate dikes.

STRUCTURAL PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Sr	TEMPORARY STREAM CROSSING		Sr (LABEL)	A temporary bridge or culvert-type structure protecting a stream or watercourse from damage by crossing construction equipment.
St	STORMDRAIN OUTLET PROTECTION		St	A paved or short section of riprap channel at the outlet of a storm drain system preventing erosion from the concentrated runoff.
Su	SURFACE ROUGHENING		Su	A rough soil surface with horizontal depressions on a contour or slopes left in a roughened condition after grading.
Tc	TURBIDITY CURTAIN		Tc	A floating or staked barrier installed within the water (it may also be referred to as a floating boom, silt barrier, or silt curtain).
Tp	TOPSOILING		Tp (SHOW STRIPING AND STORAGE AREAS)	The practice of stripping off the more fertile soil, storing it, then spreading it over the disturbed area after completion of construction activities.
Tr	TREE PROTECTION		(DENOTE TREE CENTERS)	To protect desirable trees from injury during construction activity.
Wt	VEGETATED WATERWAY OR STORMWATER CONVEYANCE CHANNEL			Paved or vegetative water outlets for diversions, terraces, berms, dikes or similar structures.

VEGETATIVE PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Bf	BUFFER ZONE		Bf (LABEL)	Strip of undisturbed original vegetation, enhanced or restored existing vegetation or the reestablishment of vegetation surrounding an area of disturbance or bordering streams.
Cs	COASTAL DUNE STABILIZATION (WITH VEGETATION)		Cs	Planting vegetation on dunes that are denuded artificially constructed, or re-nourished.
Ds1	DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)		Ds1	Establishing temporary protection for disturbed areas where seedlings may not have a suitable growing season to produce an erosion retarding cover.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMP SEEDING)		Ds2	Establishing a temporary vegetative cover with fast growing seedings on disturbed areas.
Ds3	DISTURBED AREA STABILIZATION (WITH PERM SEEDING)		Ds3	Establishing a permanent vegetative cover such as trees, shrubs, vines, grasses, or legumes on disturbed areas.
Ds4	DISTURBED AREA STABILIZATION (SODDING)		Ds4	A permanent vegetative cover using sods on highly erodable or critically eroded lands.
Du	DUST CONTROL ON DISTURBED AREAS		Du	Controlling surface and air movement of dust on construction site, roadways and similar sites.
Fl-Co	FLOCCULANTS AND COAGULANTS		Fl-Co	Substance formulated to assist in the solids/liquid separation of suspended particles in solution.
Sb	STREAMBANK STABILIZATION (USING PERM VEGETATION)		Sb	The use of readily available native plant materials to maintain and enhance streambanks, or to prevent, or restore and repair small streambank erosion problems.
Ss	SLOPE STABILIZATION		Ss	A protective covering used to prevent erosion and establish temporary or permanent vegetation on steep slopes, shore lines, or channels.
Tac	TACKIFIERS AND BINDERS		Tac	Substance used to anchor straw or hay mulch by causing the organic material to bind together.

GaSWCC (Amended – 2013)

DISTURBED AREA STABILIZATION (WITH MULCH ONLY) — Ds1

DEFINITION
Applying plant residues or other suitable materials not produced on the site to the soil surface.

PURPOSE
To reduce runoff and erosion; conserve moisture, prevent surface compaction or crusting; to control undersirable vegetation; to modify soil temperature; to increase biological activity in the soil.

SPECIFICATIONS
A. For temporary protection of critical areas without seeding.

This standard applies to graded or cleared areas which may be subjected to erosion for 6 months or less, where seedings may not have a suitable growing season to produce an erosion retardant cover, but which can be stabilized with a mulch cover.

Site Preparation
1. Grade, as needed and feasible, to permit the use of equipment for applying and anchoring mulch.
2. Install needed erosion control measures as required such as dikes, diversions, berms, terraces and sediment barriers.
3. As needed and feasible, loosen compact soil to a minimum depth of 3 inches.

Mulching Materials
1. Dry straw of hay - spread at a rate of 2 1/2 tons per acre.
2. Wood waste, chips, sawdust or bark-spread 2 to 3 inches deep (about 6 to 0 tons per acre).
3. Erosion control matting or netting, such as excelsior, jute, textile and plastic matting and netting - applied in accordance with manufactureres recommendations.
4. Cutback asphalt, slow curing - applied at 1200 gallons per acre (or 1/4 gallon per sq. yd.)
5. Polyethylene film - secured over banks or stockpiled soil material for temporary protection.

Applying and Anchoring Mulch
1. Apply straw or hay mulch uniformly by hand or mechanically. Anchor as appropriate and feasible. It may be pressed into the soil with a disk harrow with the disk set straight or with a special "packer disk". The disk may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disk should be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position.
Straw hay mulch spread with special blower-type equipment may be anchored with emulsified asphalt (Grade AE-5 or SS-1). The asphalt emulsion must be sprayed onto the mulch as it is ejected from the machine. Use 100 gallons of water per ton of mulch.
2. Spread wood waste uniformly on slopes that are 3:1 and flatter. No anchoring is needed.
3. Commercial matting and netting. Follow manufacturer's specification included with the material.
4. Apply asphalt so area has uniform appearance. (Note: Use in areas of pedestrian traffic could cause problems of "tracking in" or damage to shoes, clothing, etc.)

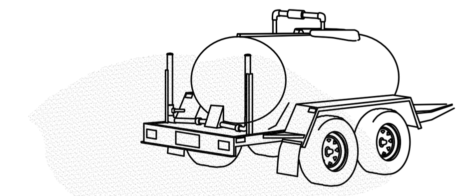
B. To conserve moisture and control weeds in nurseries, ornamental beds, around shrubs, and on bare areas on lawns.
Mulching Materials
Use one of the material given below and apply at thickness indicated.

Material	Depth
1. Grain straw or grass hay	6" to 10"
2. Pine Needles	4" to 6"
3. Wood waste (sawdust, bark, chips)	4" to 8"
4. Shredded residues (crop, leaves, etc.)	4" to 8"

5. Completely cover area with black polyethylene film and hold in place by placing soil on the outer edge.

When using organic mulches, apply 20-30 pounds of nitrogen in addition to the normal amount needed for plant growth to offset the tie up of N by decomposition of mulch.

DUST CONTROL ON DISTURBED AREAS — Du



DEFINITION
Controlling surface and air movement of dust on construction sites, roads, and demolition sites.

PURPOSE
- To prevent surface and air movement of dust from exposed soil surfaces.
- To reduce the presence of airborne substances that may be harmful or to human health, welfare, or safety, or to animals or plant life.

CONDITIONS
This practice is applicable to areas subject to surface and air movement of dust where on and off-site damage may occur without treatment.

METHOD AND MATERIALS
A. TEMPORARY METHODS

Mulches. See standard Ds1 - Disturbed Area Stabilization (With Mulching Only). Synthetic resins may be used instead of asphalt to bind mulch material. Refer to specification Tac - Tackifiers Resins should be used according to manufacturer's recommendations.

Vegetative Cover. See specifications Ds2 - Disturbed Area Stabilization (With Temporary Seeding).

Spray-on Adhesives. These are used on mineral soils (not effective on muck soils). Keep traffic off these areas. Refer to specification Tac - Tackifiers.

Tillage. This practice is designed to roughen and bring clods to the surface. It is an emergency measure that should be used before wind erosion starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.

Irrigation. This is generally done as an emergency treatment. Site is sprinkled with water until the surface is wet. Repeat as needed.

Barriers. Solid board fences, snow fences, burlap fences, crate walls, bales of hay and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 15 times their height are effective in controlling wind erosion.

Calcium Chloride. Apply at rate that will keep surface moist. May need retreatment.

B. PERMANENT METHODS

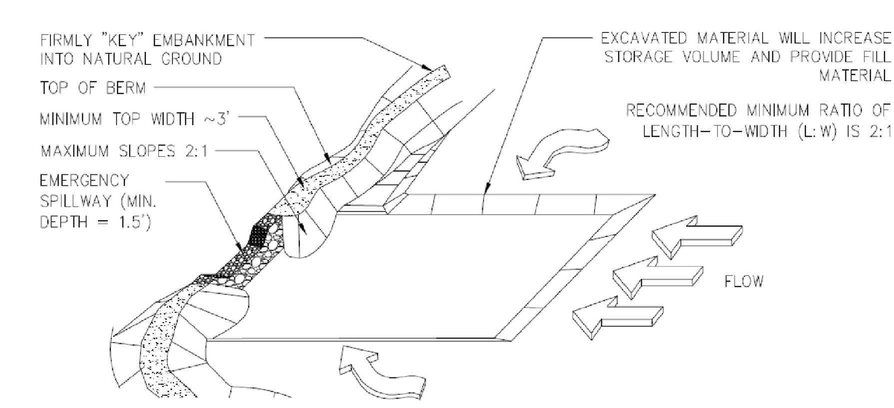
Permanent Vegetation. See specification Ds3 -Disturbed Areas Stabilization (With Permanent Vegetation). Existing trees and large shrubs may afford valuable protection if left in place.

Topsoilling. This entails covering the surface with less erosive soil material . See specification Tp - Topsoilling.

Stone. Cover surface with crushed stone or coarse gravel. See specification Cr - Construction Road Stabilization.

TEMPORARY SEDIMENT TRAP
COURTESY OF CITY OF KNOXVILLE BMP EROSION AND SEDIMENT

ROCK OUTLET



DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDINGS) — Ds2

PLANTS, PLANTING RATES, AND PLANTING DATES FOR TEMPORARY COVER OR COMPANION CORPS 1/

Species	Broadcast Rates 2/-PLS3/ Per Acre	Per 1000 sq. ft.	Resource Planting Dates by Resource Area: Area	Planting Dates (Solid lines indicate optimum dates dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
MILLET, PEARL (Pennesetum glaucum) alone	50 lbs.	1.1 lb.	M-L P C		88,000 Seed per pound. Quick dense cover. May reach 5 feet in height. Not recommended for mixtures.
RYEGRASS, ANNUAL (Lolium Temulentum) alone	40 lbs.	0.9 lb.	M-L P C		227,000 seed pound. Dense cover. Very competitive and is not to be used in mixtures.

1. Temporary cover crops are very competitive and will crowd perennials if seeded to heavily.
2. Reduce seeding rates by 50% when drilled.
3. PLS is an abbreviation for Pure Live Seed.
4. M-L represents the Mountain: Blue Ridge: and Ridges and Valleys MLRAs
P represents the Southern Piedmont MLRA
C represents Southern Coastal Plain: Sand Hills: Black Lands: and Atlantic Coast Flatwoods MLRAs

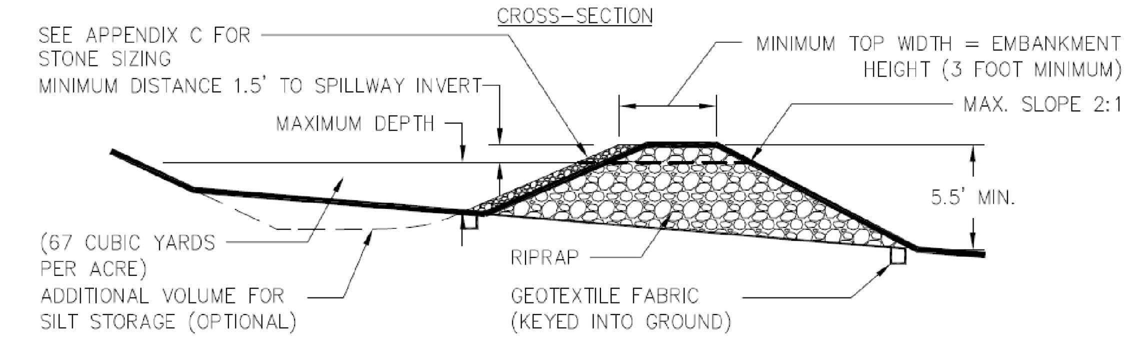
DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION) — Ds3

PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER

Species	Broadcast Rates 2/-PLS3/ Per Acre	Per 1000 sq. ft.	Resource Planting Dates by Resource Area: Area	Planting Dates (Solid lines indicate optimum dates dotted lines indicate permissible but marginal dates.) J F M A M J J A S O N D	Remarks
BERMUDA, COMMON (Cynodon dactylon) Hulled seed			P C		1,787,000 seed per pound. Quick cover. Low growing and sod forming. Full sun. Good for athletic fields.
alone	10 lbs.	0.2 lb.			
with other perennials	6 lbs.	0.1 lb.			
BERMUDA, COMMON (Cynodon dactylon)			P C		
Unhulled seed with temporary cover	10 lbs.	0.2 lb.			Plant with winter annuals.
with other perennials	6 lbs.	0.1 lb.			Plant with Tall fescue.
BERMUDA SPRIGS (Cynodon dactylon)			M-L		A cubic foot contains approximately 650 sprigs. A bushel contains 1.25 cubic feet or approximately 800 srigs.
Coastal, Common, Midland, or Tift 44	40 cu. ft. or sod pulgs 3'x 3'	0.9 cu. ft.	P		
Coastal, Common, or Tift 44			C		Same as above
Tift 78			C		Southern costal Plain only.
CENTIPEDE (Eremochloa ophiuroides)	Block sod only		P C		Drought tolerant. Full sun or partial shade. Effective adjacent to concrete and in concentrated flow areas. Irrigation is needed until fully established. Do not plant near pastures. Winterhardy as far north as Athens and Atlanta.
LOVEGRASS, WEEPING (Eragrostis curvula)			M-L P C		1,500,000 Seed per pound. May last for several years. Mix with Sericea lespedeza.
alone	4 lbs.	0.1 lb.			
in mixtures	2 lbs.	0.05 lb.			

1. Reduce seeding rates by 50% when drilled.
2. PLS is an abbreviation for Pure Live Seed. Refer to Section V.E. of these specification..
3. M-L represents the Mountain: Blue Ridge: and Ridges and Valleys MLRAs
P represents the Southern Piedmont MLRA; C represents Southern Coastal Plain: Sand Hills: Black Lands: and Atlantic Coast

CROSS-SECTION



PROFILE THROUGH EMBANKMENT

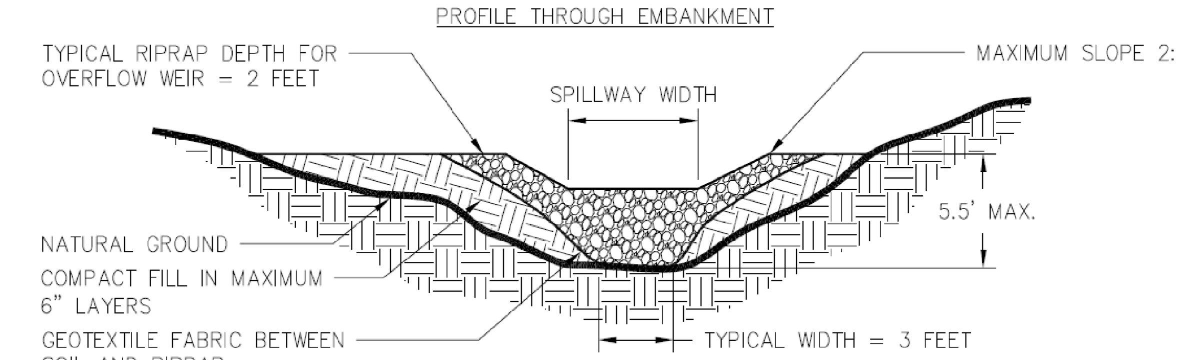


Figure 6-30.3

Sd4-C TEMPORARY SEDIMENT TRAP DETAILS
SCALE: N.T.S.

REV.	REVISIONS	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 017550 RAYMOND A. PITTMAN

PITTMAN ENGINEERING
2591 Hwy 17S Suite 303
Richmond Hill, GA 31324
912-445-0578
www.PittmanEngineeringCo.com

ES&PC DETAILS
MULBERRY BOULEVARD EXTENSION
RICE HOPE
Prepared For
BEP RICE HOPE LLC

Project No. 21–252
Drawn By: MCS
Designed By: MCS
Checked By: RAP
Scale: 1"=40'
Date: 12/21/21

SHEET
EC5.1

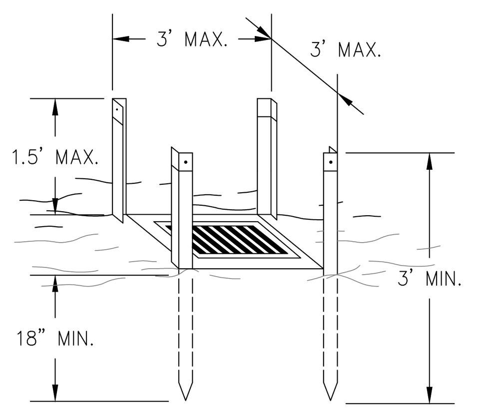
Tuesday, March 1, 2022 9:24:21 AM

G:\Shared drives\Projects\Rice Hope\21-252 Mulberry Road Extension\Drawings\Base\21-252 Mulberry Blvd Ext Construction Plans.dwg

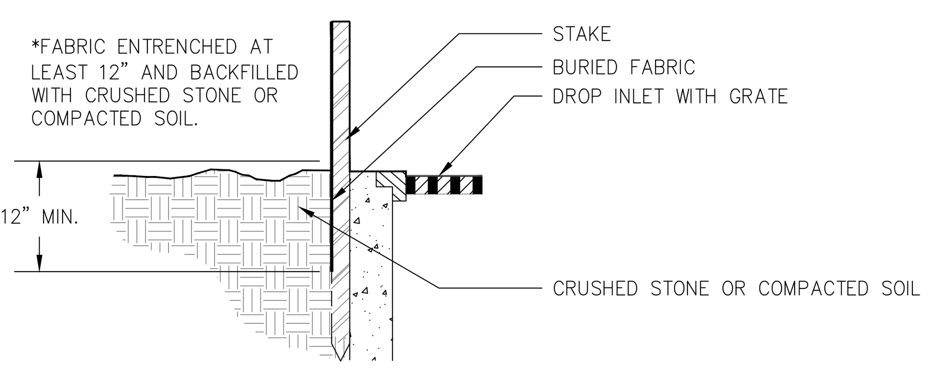
FABRIC AND SUPPORTING FRAME FOR INLET PROTECTION

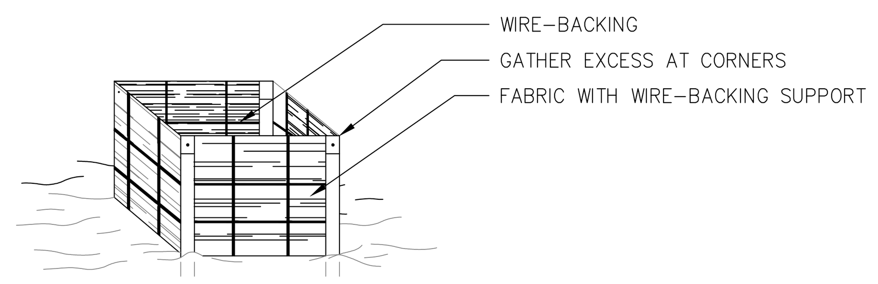
Sd2-F

STEEL FRAME AND SILT FENCE INSTALLATION



NOTES:
1. DESIGN IS FOR SLOPES NO GREATER THAN 5% (NOT DESIGNED FOR CONCENTRATED FLOWS).
2. THE STEEL POSTS SUPPORTING THE SILT FENCE MATERIAL SHOULD BE SPACED EVENLY AROUND THE PERIMETER OF THE INLET (MAXIMUM OF 3' APART).
3. THE STEEL POSTS SHOULD BE SECURELY DRIVEN AT LEAST 18" DEEP.
4. THE FABRIC SHOULD BE ENTRENCHED AT LEAST 12" AND THEN BACKFILLED WITH CRUSHED STONE OR COMPACTED SOIL.

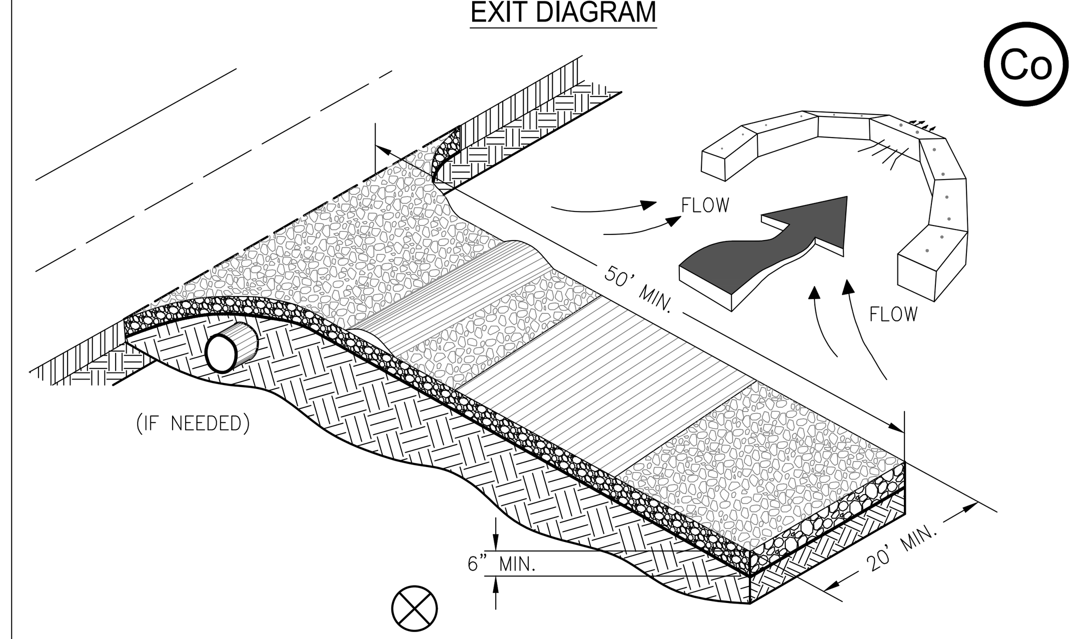




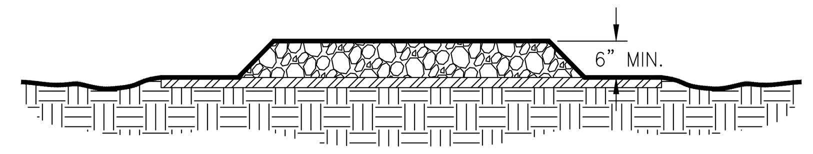
CRUSHED STONE CONSTRUCTION EXIT

Co

EXIT DIAGRAM



ENTRANCE ELEVATION

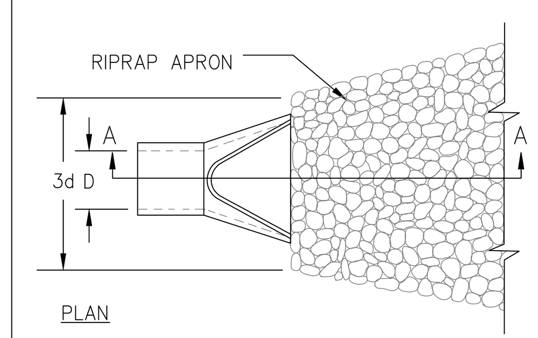


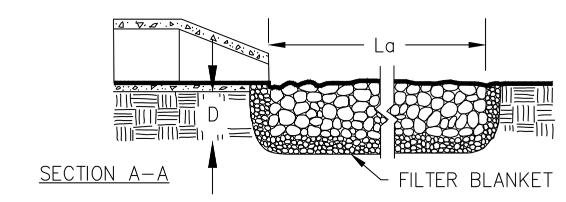
NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%..
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

RIPRAP OUTLET PROTECTION

St

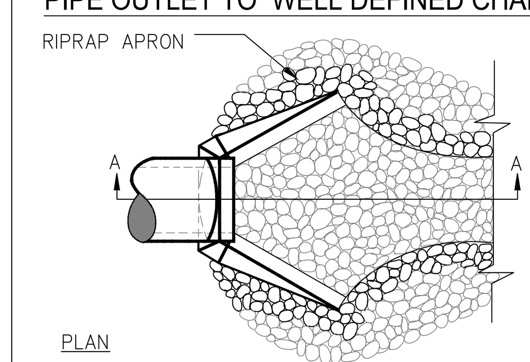
PIPE OUTLET TO FLAT AREA -- NO WELL DEFINED CHANNEL

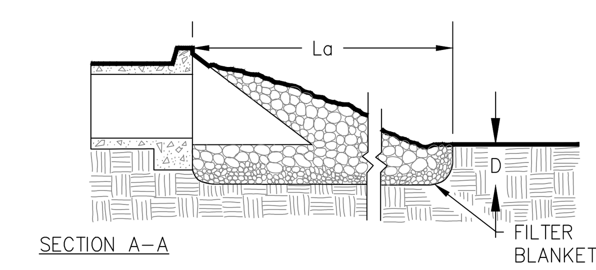




NOTES:
1. La IS THE LENGTH OF THE RIPRAP APRON.
2. D = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESSTHAN 6".
3. IN A WELL-DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK (WHICHEVER IS LESS).
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND THE SOIL FOUNDATION.

PIPE OUTLET TO WELL DEFINED CHANNEL





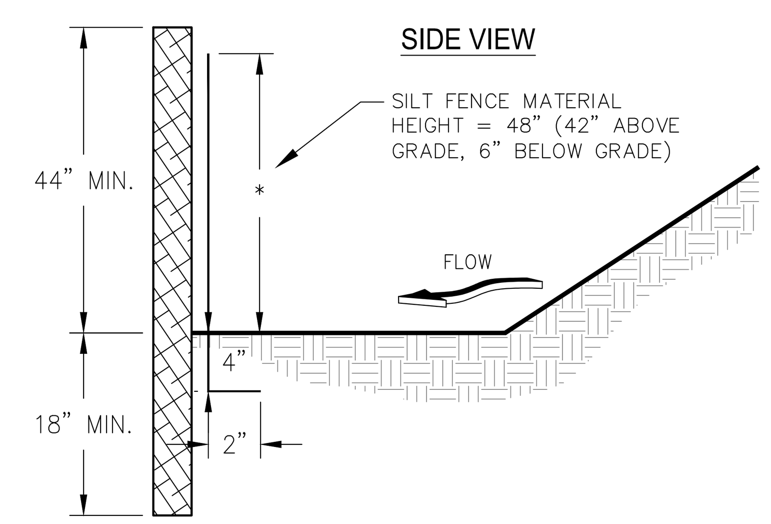
RIP-RAP APRON DESIGN

APRON	Do (in)	Vo (fps)	Q_{25}(cfs)	Tailwater	La(ft)	D_{50}(in)	W_1(ft)	W_2(ft)	D(in)
#1	15"	5.69	7	>0.5d	6	6	3.75	3.65	9
#2	15"	5.69	7	>0.5d	6	6	3.75	3.65	9
#3	48"	3.02	38	<0.5d	26	6	12	30	12
#4	48"	3.02	38	<0.5d	26	6	12	30	12
#5	15"	5.69	7	>0.5d	6	6	3.75	3.65	9
#6	15"	5.69	7	>0.5d	6	6	3.75	3.65	9
#5	15"	5.69	7	>0.5d	6	6	3.75	3.65	9
#6	15"	5.69	7	>0.5d	6	6	3.75	3.65	9

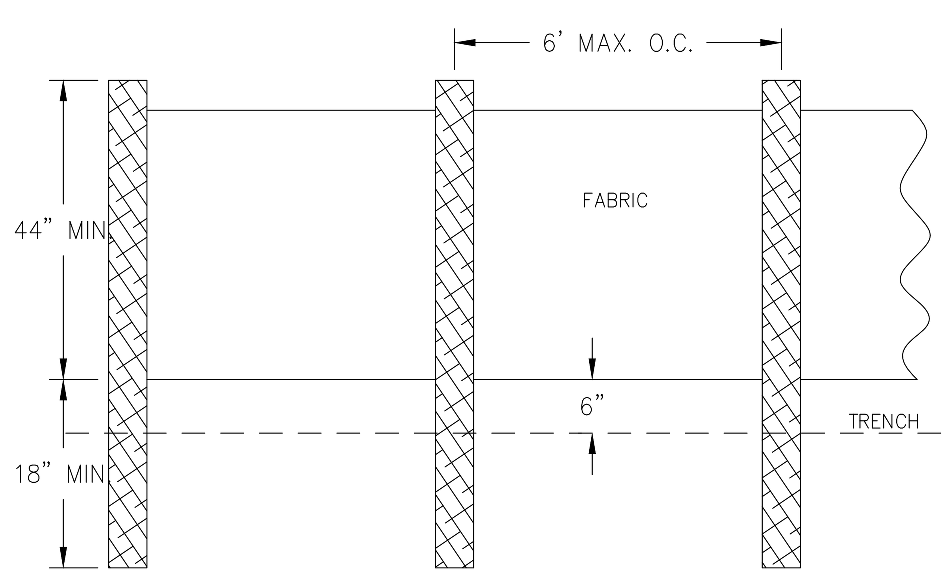
SILT FENCE - TYPE NON-SENSITIVE

Sd1-NS

SIDE VIEW



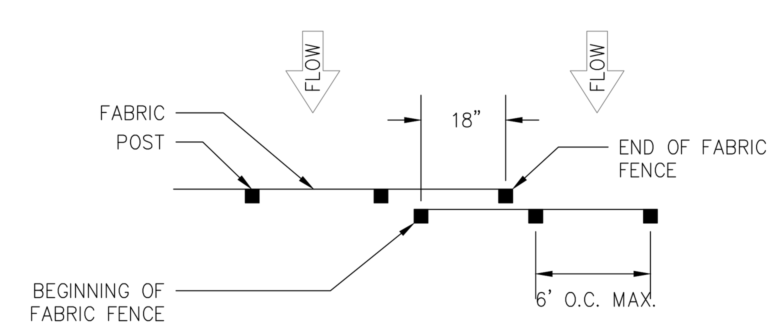
FRONT VIEW



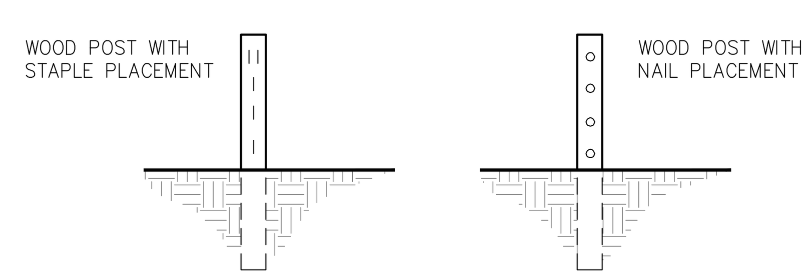
NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

FASTENERS FOR SILT FENCES

OVERLAP AT FABRIC ENDS



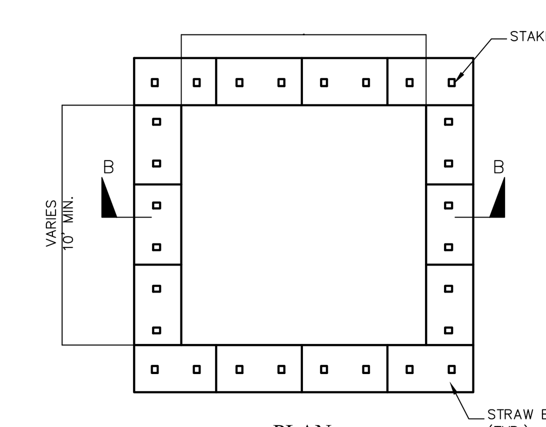
TOP VEIW - NOT TO SCALE



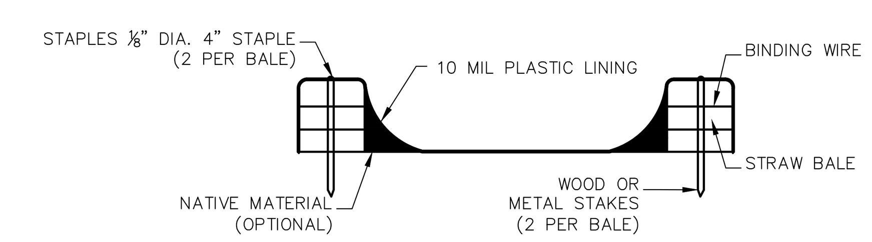
FRONT VIEWS - NOT TO SCALE

NOTES:
1. THE FABRIC AND WIRE SHOULD BE SECURELY FASTENED TO POSTS AND FABRIC ENDS MUST BE OVERLAPPED A MINIMUM OF 18" OR WRAPPED TOGETHER AROUND A POST TO PROVIDE A CONTINUOUS FABRIC BARRIER AROUND THE INLET.

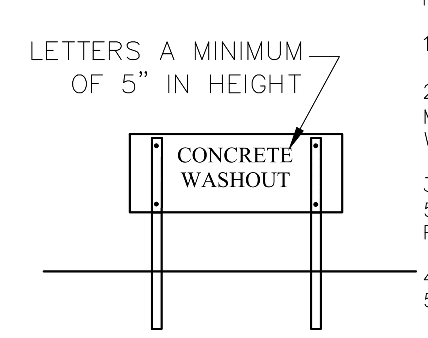
STRAW BALE BARRIER CONCRETE WASHOUT



PLAN
TYPE "ABOVE GRADE" WITH STRAW BALES



SECTION B-B



CONCRETE WASHOUT SIGN DETAIL

NOTES:

1. ACTUAL LAYOUT DETERMINED IN FIELD.

2. INSTALL CONCRETE WASHOUT SIGN (24"X24", MINIMUM) WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

3. TEMPORARY WASHOUT AREA MUST BE AT LEAST 50' FROM A STORM DRAIN, CREEK BANK OR PERIMETER CONTROL.

4. CLEAN OUT CONCRETE WASHOUT AREA WHEN 50% FULL.

5. THE KEY TO FUNCTIONAL CONCRETE WASHOUTS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR CLEAN OUT.

6. SILT FENCE SHALL BE INSTALLED AROUND PERIMETER OF CONCRETE WASHOUT AREA EXCEPT FOR THE SIDE UTILIZED FOR ACCESSING THE WASHOUT.

7. A ROCK CONSTRUCTION ENTRANCE MAY BE NECESSARY ALONG ONE SIDE OF THE WASHOUT TO PROVIDE VEHICLE ACCESS.

CONCRETE WASHOUT
STRAW BALES OR ABOVE GROUND

NOT TO SCALE

REV.	REVISIONS	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 017550 RAYMOND A. PITTMAN

PITTMAN ENGINEERING
2591 Hwy 17S Suite 303
Richmond Hill, GA 31324
912-445-0578
www.PittmanEngineeringCo.com

ES&PC DETAILS

MULBERRY BOULEVARD EXTENSION
RICE HOPE
Prepared For
BEP RICE HOPE LLC

Project No. 21-252
Drawn By: MCS
Designed By: MCS
Checked By: RAP
Scale: 1"=40'
Date: 12/21/21

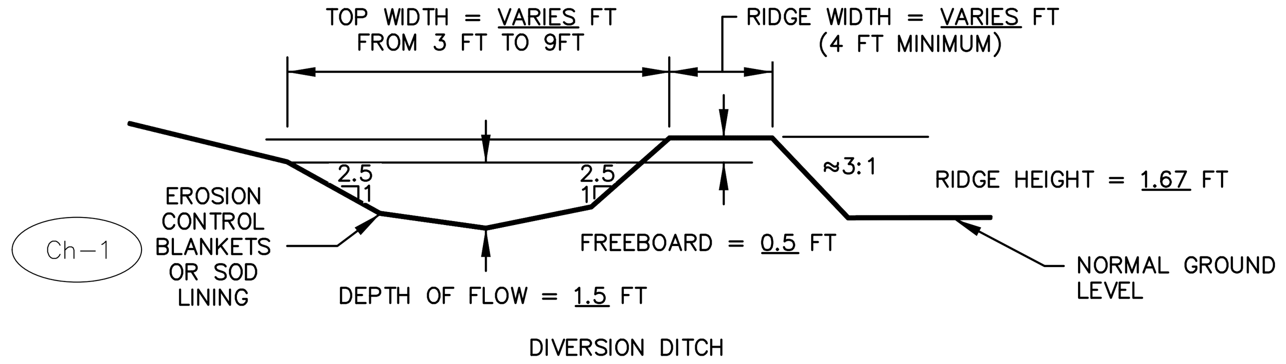
SHEET
EC5.2

Tuesday, March 1, 2022 9:24:25 AM

G:\Shared drives\Projects\Rice Hope\21-252 Mulberry Road Extension\Drawings\Base\21-252 Mulberry Blvd Ext Construction Plans.dwg

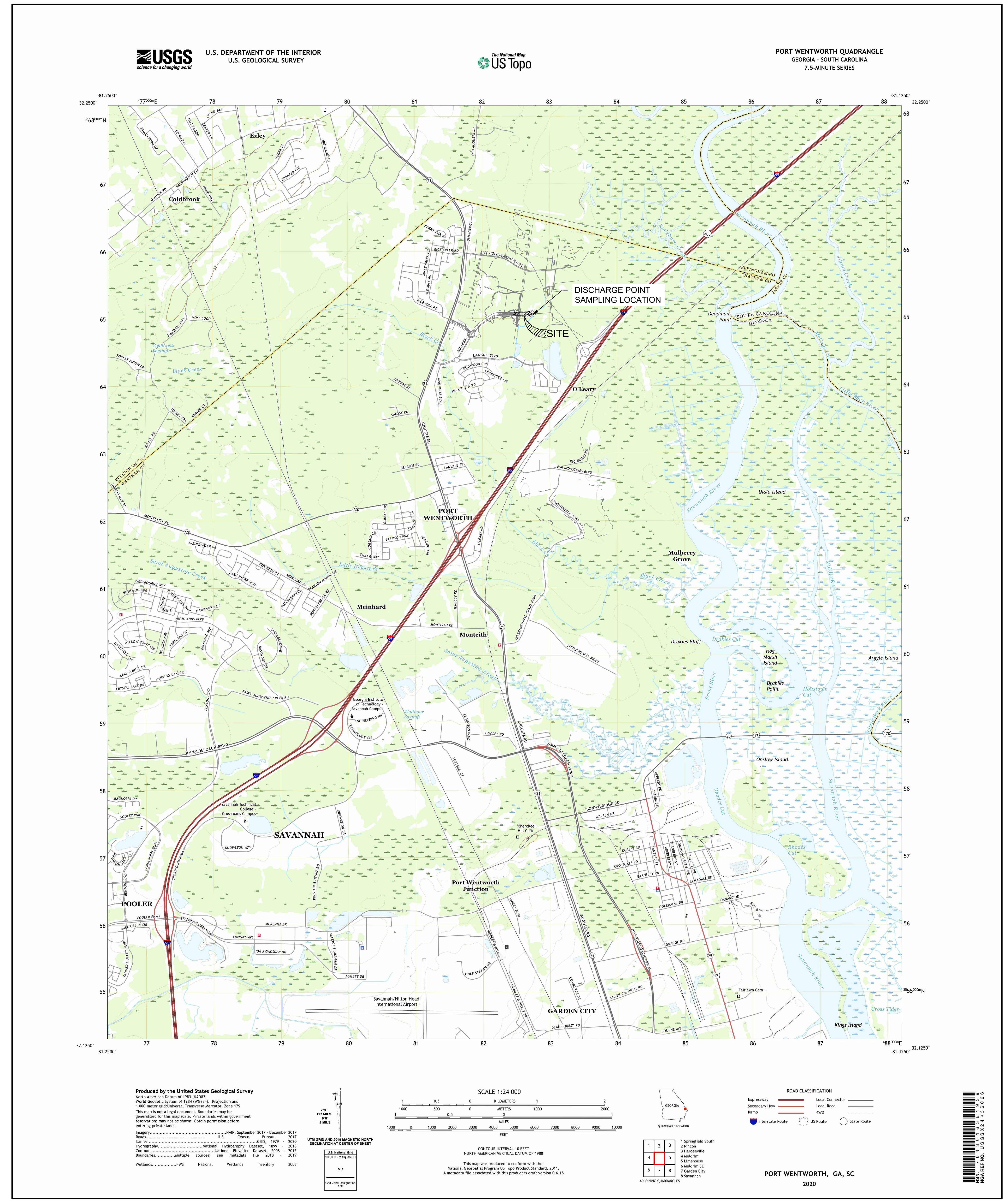
DETERMINE VELOCITY IN THE DIVERSION DITCH. USE A CONSERVATIVE APPROACH BY DETERMINING THE FLOW FOR THE LARGEST AREA DRAINED BY A SINGLE DIVERSION DITCH. USE THE FLOW AND THE MANNING'S FORMULA FOR TRAPEZOIDAL CHANNEL FLOW TO DETERMINE THE CHANNEL VELOCITY.
LARGEST AREA DRAINED BY A DIVERSION DITCH = 2.3 ACRES.

USE THE MANNING'S EQUATION TO DETERMINE THE CHANNEL VELOCITY BASED ON A 3' BOTTOM WIDTH, 2.5:1 (H:V) SIDE SLOPES, 0.025 MANNING'S COEFFECIENT, AND A 25 CFS FLOW RATE, THE DIVERSION DITCH VELOCITY = 4.5 FT/SEC
BASED ON THE 4.5 FT/SEC VELOCITY, USE CH1 FOR CHANNEL STABILIZATION.



DIVERSION DITCH

Di DIVERSION DITCH
SCALE: N.T.S.



REV.	REVISIONS	BY	DATE
1	REVISED PER CITY OF PORT WENTWORTH COMMENTS	JAF	2/10/22

RAY A. PITTMAN, P.E.
GSWCC LEVEL II
DESIGN PROFESSIONAL
CERTIFICATION #12469

GEORGIA REGISTERED PROFESSIONAL ENGINEER RAYMOND A. PITTMAN No. 027250

PITTMAN ENGINEERING
2591 Hwy 17S Suite 303
Richmond Hill, GA 31324
912-445-0578
www.PittmanEngineeringCo.com

ES&PC DETAILS
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Project No. 21-252
Drawn By: MCS
Designed By: MCS
Checked By: RAP
Scale: 1"=40'
Date: 12/21/21

SHEET
EC5.3

City Council
7224 GA Highway 21
Port Wentworth, GA 31407

SCHEDULED

Meeting: 03/24/22 07:00 PM
Department: Development Services
Category: Planning/Zoning Item
Prepared By: Melanie Ellis
Department Head: Brian Harvey

AGENDA ITEM (ID # 2625)

DOC ID: 2625

Subdivision Application submitted by Jessica Vick, Roberts Civil Engineering, LLC., on behalf of Landmark 24 Homes of Savannah, LLC., for PIN # 7-0906-01-031 (Miller Park Circle) located in a P-R-M (Planned Residential Multi-Family) Zoning District for a Preliminary Plat of a Major Subdivision (Rice Creek Tract C-2 Phase V) for the purpose of Single-Family Homes

Issue/Item: Subdivision Application submitted by Jessica Vick, Roberts Civil Engineering, LLC., on behalf of Landmark 24 Homes of Savannah, LLC., for PIN # 7-0906-01-031 (Miller Park Circle) located in a P-R-M (Planned Residential Multi-Family) Zoning District for a Preliminary Plat of a Major Subdivision (Rice Creek Tract C-2 Phase V) for the purpose of Single-Family Homes

Background: This is the Preliminary Plat Submittal for Phase V of the Rice Creek Subdivision. Rice Creek Tract C-2 Phase V includes thirty-two (32) single-family lots on approximately 5.86 acres.

Facts and Findings: The application appears to be complete. The Subdivision will be connected to City water and sanitary sewer utilities and will include the extension of Marsh Salt Lane and new road. This application has been reviewed and a concurrence letter issued by City engineers T.R. Long Engineering.

Funding: N/A

Recommendation: The Planning Commission will hear this application on Monday, March 14, 2022 at 6:30 P.M. **/ UPDATE: THE PLANNING COMMISSION VOTED UNANIMOUSLY TO APPROVE THIS APPLICATION.**

ATTACHMENTS:

- RICE CREEK TRACT C2 PH 5 PRELIMINARY PLAT MAR 22 - Application (PDF)
- RICE CREEK TRACT C2 PH 5 PRELIMINARY PLAT MAR 22 - ESPC Approval Letter 12.22.21 (PDF)
- RICE CREEK TRACT C2 PH 5 PRELIMINARY PLAT MAR 22 - Timeline (DOCX)
- RICE CREEK TRACT C2 PH 5 PRELIMINARY PLAT MAR 22 - 1st Comment Letter TR Long 1.21.22 (PDF)
- RICE CREEK TRACT C2 PH 5 PRELIMINARY PLAT MAR 22 - 1st Comment Letter Roberts 2.2.22 (PDF)
- RICE CREEK TRACT C2 PH 5 PRELIMINARY PLAT MAR 22 - Concurrence Letter TR Long 3.4.22 (PDF)
- RICE CREEK TRACT C2 PH 5 PRELIMINARY PLAT MAR 22 - Preliminary Plat 12.8.21 (PDF)
- Planning Commission Minutes March 14, 2022 DRAFT (PDF)

220000

SUBDIVISION APPLICATION FORM
FOR THE
CITY OF PORT WENTWORTH

RECEIVED
DEC 17 2021
BY: KS

Application Form Required

This application form is to accompany **all** subdivisions submitted for Port Wentworth Planning Commission review and is to be filled out in its **entirety**. Plats/subdivisions not accompanied by this application will not be accepted for processing. All subdivisions with their completed applications must be received by the City of Port Wentworth at least 20 business days prior to the Planning Commission meeting at which they are to be considered. Revisions to a subdivision under review by the Port Wentworth Planning Commission must be received 10 business days prior to the Port Wentworth Planning Commission at which each subdivision is scheduled to be heard.

Subdivision Name: Rice Creek Phase V -Tract C2

Location: 0 Miller Park Circle, Port Wentworth, GA 31407

Number of Lots: 32

Number of Acres: 5.86

PIN #: 70906 01031

Current Zoning: ~~PUD-M~~ P-R-M

Type of Subdivision: (Check applicable blanks from each column)

A.

_______ Sketch Plan
_______ Master Plan
___✓___ Preliminary Plat
_______ Final Plat
_______ Revision to a Recorded Plat

B.

___✓___ Major Subdivision
(4 or more lots or a new road)

_______ Minor Subdivision
(3 or less lots & no new road)

Purpose of Subdivision:

___✓___ Single-Family
_______ Multi-Family
_______ Retail
_______ Other Business
_______ Industrial
_______ Institutional
_______ Other
_______ Sign

Variances: (List all variances being requested)

None

Georgia DOT Review

In all applications in which property being subdivided lies along a State Highway or access is needed from a State Highway, all applicants are required to submit a plat to the Georgia Department of Transportation for review. The subdivision application will not be considered by the Port Wentworth Planning Commission until the Georgia Department of Transportation has commented on the subdivision. The comments must accompany the application.

Previous Submittal

Has this tract of land being proposed for subdividing been submitted to the Port Wentworth Planning Commission under a different subdivision name?

Yes ______ No ✓

If yes, what name? ______

Date Submitted: ______ PWPC File No: ______

Number of Required Prints

All submittals, regardless of type, shall include fifteen (15) prints. **Final Plats must include a copy of the plat scanned to a CD along with the fifteen (15) printed copies. Stamp must be in contrasting ink.**

Statements as to Covenants/Deed Restrictions: **(Check One)**

______ A copy of all existing deed restrictions or subdivision covenants applicable to this property are attached.

✓ There are no added restrictions or subdivision covenants on this property.

Contact Person (s): **(Type or Print Legibly)**

Engineer/Surveyor: Roberts Civil Engineering - Jessica Vick, P.E.

Address: 6001 Chatham Center Dr., Suite 255 Savannah, GA Zip Code: 31405

Phone #: 912-298-7006 Fax #: ______

Owner: Landmark 24 Homes of Savannah, LLC - Cole Chenowith

Address: 2702 Whatley Ave, Savannah, GA Zip Code: 31404

Phone #: 912-925-3440 Fax #: ______

Date of Submittal: 12-06-2021

Please list all property owners that are adjacent to the parcel to be subdivided including those across the public right-of-way:

Please see the attached list

Certifications

1. I hereby certify that this proposed subdivision/plan does not violate any covenants or deed restrictions currently in effect for the property being subdivided.

2. I hereby certify that all taxes applicable to this property have been paid and that there are no delinquent taxes outstanding.

3. I hereby certify that I am the owner of the property being proposed for subdivision.

4. I hereby certify that all the information pertained in this application is true and correct.

DocuSigned by:
Cole Chenoweth
134762830A304D3...
Signature of Owner

Comments: Place any pertinent comments you wish to make in the following space:

Submit this form along with the proposed subdivision and any accompanying information to:

CITY OF PORT WENTWORTH
7306 HIGHWAY 21, SUITE 301
PORT WENTWORTH, GEORGIA 31407

114 North Commerce Street
Hinesville, Georgia 31313
Office: (912) 368-5664
Fax: (912) 368-7206

TR LONG ENGINEERING, P.C.

308 Commercial Drive
Savannah, Georgia 31406
Office: (912) 335-1046
Fax: (912) 355-1642

March 4, 2022

Mr. Brian Harvey
City of Port Wentworth
7224 Georgia Highway 21
Port Wentworth, Georgia 31407

Re: Rice Creek Subdivision – Phase 5
Port Wentworth, Georgia

Dear Mr. Harvey,

T. R. Long Engineering, P.C. has reviewed the specific development plans entitled "Rice Creek Phase 5 Construction Plan," prepared by Roberts Civil Engineering dated January 31, 2022. along with supplemental information provided on February 2, 2022. The proposed plans and supplemental information generally meet intent of the ordinances and guidelines governing construction in Port Wentworth except for the following:

Concurrence with the site plan by T. R. Long Engineering, P.C. and Port Wentworth does not relieve the owner/developer, designer, engineer and contractor nor their representatives from their individual or collective responsibilities to comply with provisions of Local, State, and Federal regulations and/or ordinances. T. R. Long Engineering, P.C. and Port Wentworth review the submitted documents for completeness and general compliance with codes, ordinances and/or standards. No design liability can be assumed or assigned to T. R. Long Engineering, P.C., or Port Wentworth. All design liability remains with the professional engineer who signed and sealed those documents. Additionally, concurrence with the submitted documents and their intent is not to be construed as a check of every item submitted and does not prevent Port Wentworth from requiring corrections and/or addressing of omissions in the submitted documents and/or construction.

Should you have any questions, comments or need additional information please contact us.

Sincerely,

Trent R. Long

Trent R. Long, P.E.

EQUIPMENT USED: TOTAL STATION
ANGULAR ERROR = 9" PER POINT
ADJUSTED BY: COMPASS RULE
PLAT CLOSURE = 1/264,207
FIELD CLOSURE = 1/27,397

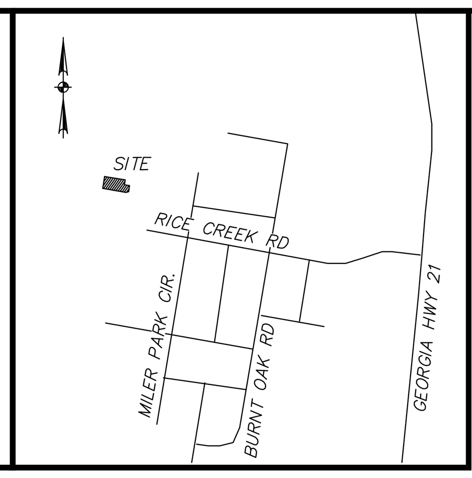
REFERENCES

1. P.R.B. 34-P PG 73
2. S.M.B. 40-S PG 68
3. P.R.B. 46-P PG 42
4. P.B. 50 PG 137
5. P.B. 51 PG 569
6. P.B. 53 PG 206

LEGEND

- IRF 1/2" IRON ROD FOUND
- XF X FOUND IN CONCRETE
- IRS 5/8" IRON ROD SET
- B.S.L. BUILDING SETBACK LINE
- CMS CONCRETE MONUMENT SET
- ADDRESS

THIS BLOCK IS RESERVED FOR THE CLERK OF SUPERIOR COURT



VICINITY MAP
NOT TO SCALE

NOW OR FORMERLY
RICE CREEK INVESTORS NO 7 LLC
7-0906-01-031
RICE CREEK RD
P.B. 371T PG 246

THE FOLLOWING GOVERNMENTAL BODIES HAVE APPROVED THIS PLAT FOR FILING:

APPROVED BY MAYOR AND CITY COUNCIL, PORT WENTWORTH

MAYOR ______ DATE ______

COUNCILMAN ______ DATE ______

COUNCILMAN ______ DATE ______

COUNCILMAN ______ DATE ______

COUNCILMAN ______ DATE ______

COUNCILMAN ______ DATE ______

COUNCILMAN ______ DATE ______

ALL STREETS, RIGHT-OF-WAY, EASEMENTS AND ANY SITES FOR PUBLIC USE AS NOTED ON THIS PLAT ARE HEREBY DEDICATED TO THE CITY OF PORT WENTWORTH FOR THE USE INTENDED. UCH DEDICATIONS ARE MORE SPECIFICALLY DESCRIBED IN THE DEED THAT ACCOMPANIES THIS PLAT.

OWNER OR ATTORNEY AS AGENT ______ DATE ______

SURVEYOR'S CERTIFICATION

AS REQUIRED BY SUBSECTION (d) OF O.C.G.A. SECTION 15-6-67, THIS PLAT HAS BEEN PREPARED BY A LAND SURVEYOR AND APPROVED BY ALL APPLICABLE LOCAL JURISDICTIONS FOR RECORDING AS EVIDENCED BY APPROVAL CERTIFICATES, SIGNATURES, STAMPS, OR STATEMENTS HEREON. SUCH APPROVALS OR AFFIRMATIONS SHOULD BE CONFIRMED WITH THE APPROPRIATE GOVERNMENTAL BODIES BY ANY PURCHASER OR USER OF THIS PLAT AS TO INTENDED USE OF ANY PARCEL. FURTHERMORE, THE UNDERSIGNED LAND SURVEYOR CERTIFIES THAT THIS PLAT COMPLIES WITH THE MINIMUM TECHNICAL STANDARDS FOR PROPERTY SURVEYS IN GEORGIA AS SET FORTH IN THE RULES AND REGULATIONS OF THE GEORGIA BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS AND AS SET FORTH IN O.C.G.A. SECTION 15-6-67.

JAMES CRAIG BREWER GA PLS# 3022 ______ DATE

GEORGIA REGISTERED No. 3022 PROFESSIONAL LAND SURVEYOR JAMES CRAIG BREWER

FOR REVIEW

SURVEYOR'S NOTES

1. ALL COORDINATES AND BEARINGS ARE BASED ON GEORGIA STATE PLANE COORDINATE SYSTEM, NAD 83, EAST ZONE.
2. ACCORDING TO THE FLOOD INSURANCE RATE MAP AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, THIS PROPERTY LIES IN ZONE X, NOT WITHIN A 100 YEAR FLOOD HAZARD AREA. SEE COMMUNITY PANEL NO. 13051C0030G, DATED 08/16/2018.
3. THIS PROPERTY IS SUBJECT TO ANY AND ALL EASEMENTS, COVENANTS, OR RESTRICTIONS EITHER RECORDED OR UNRECORDED.
4. THIS PROPERTY IS SERVED BY CITY OF PORT WENTWORTH WATER AND SEWER SYSTEMS.
5. THE PUBLIC RECORDS REFERENCED WERE USED FOR THE ESTABLISHMENT OF THE BOUNDARY OF THIS PROPERTY. THEY ARE NOT AND DO NOT CONSTITUTE A TITLE SEARCH.
6. THE PARENT TRACT TAX PARCEL NUMBERS OF THIS PROPERTY IS 7-0906-01-032 & 7-0906-01-032
7. THE CERTIFICATION, AS SHOWN HEREON, IS PURELY A STATEMENT OF PROFESSIONAL OPINION BASED ON KNOWLEDGE, INFORMATION AND BELIEF, AND BASED ON EXISTING FIELD EVIDENCE AND AVAILABLE DOCUMENTS. THE CERTIFICATION IS NOT AN EXPRESSED OR IMPLIED WARRANTY OR GUARANTEE.
8. THIS SUBDIVISION CONTAINS A TOTAL AREA OF 5.83 ACRES

   LOT AREA 4.45 ACRES
   RIGHT-OF-WAY AREA 1.38 ACRES

SURVEYOR'S SPECIAL NOTE

NO FIELD WORK HAS BEEN PERFORMED BY BREWER LAND SURVEYING FOR THIS PRELIMINARY PLAT. PROPOSED LOT LINES TAKEN FROM ENGINEERING PLANS BY ROBERTS CIVIL ENGINEERING. BREWER LAND SURVEYING WILL PERFORM FIELD SURVEY ON THIS SUBDIVISION PRIOR TO FINAL PLAT BEING SUBMITTED.

RICE CREEK ROAD 60' PUBLIC RIGHT OF WAY

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	20.00'	31.42'	28.28'	S54°39'48"W	90°00'00"
C2	20.00'	31.42'	28.28'	N35°20'12"W	90°00'00"
C3	20.00'	31.42'	28.28'	N54°39'48"E	90°00'00"
C4	20.00'	31.42'	28.28'	S35°20'12"E	90°00'00"

BREWER LAND SURVEYING
604 U.S. Highway 80 W
Pooler, GA 31322
info@brewersurvey.com
Phone (912) 856-2205
www.BrewerSurvey.com
LSF # 1095

A PRELIMINARY SUBDIVISION PLAT OF

RICE CREEK - TRACT C2 - PHASE V

8TH G.M. DISTRICT, CITY OF PORT WENTWORTH, CHATHAM COUNTY, GEORGIA

PREPARED FOR:

ROBERTS CIVIL ENGINEERING, INC.

PROJECT #:	210267
FIELD DATE:	05/10/2021
DRAWING DATE:	12/08/2021
LAST REVISED:	N/A
DRAWN BY:	SCH
SCALE:	1"=40'

SHEET: 1 OF 1

SITE CONSTRUCTION PLANS

Rice Creek Phase 5

PREPARED FOR:
Rice Creek Investors #7, LLC
2702 Whatley Ave, Ste. B-1
Savannah, GA 31404
912.925.3440

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK

01/31/22

ROBERTS
CIVIL ENGINEERING
WWW.ROBERTSCIVILENGINEERING.COM

301 SEA ISLAND ROAD, SUITE 10
ST. SIMONS ISLAND, GA 31522
912-638-9681

6001 CHATHAM CENTER DRIVE, SUITE 255
SAVANNAH, GA 31405
912-298-7006

14600 WHIRLWIND AVENUE, SUITE 119A
JACKSONVILLE, FL 32218
904-741-0099

4000 FABER PLACE DRIVE, SUITE 300
NORTH CHARLESTON, SC 29405
843-323-4224

811 Know what's below. Call before you dig.

VICINITY MAP NTS

Port Wentworth

Rice Creek Phase 5

OWNER	ENGINEER
Rice Creek Investors #7, LLC	ROBERTS CIVIL ENGINEERING
CONTACT	CONTACT
Cole Chenowith	Jessica Vick, P.E.
EMAIL	EMAIL
cchenowith@landmark24.com	jvick@robertscivilengineering.com
912.925.3440	912.977.5244

#	REVISIONS
1	2022-01-31: REVISIONS PER CITY OF PORT WENTWORTH
2	
3	
4	
5	

12/04/21: ORIGINAL ISSUE DATE

RCE PROJECT NUMBER: 21507

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4	DETAILED GRADING PLAN	01/31/22
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11	RECLAIMED WATER PLAN	01/31/22
D1-D4	CONSTRUCTION DETAILS	01/31/22

COVER

GENERAL NOTES

1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS.

2. ALL PERMITS NECESSARY FOR CONSTRUCTION SHALL BE OBTAINED BY CONTRACTOR.

3. ANY DEVIATIONS FROM THE PLANS ARE PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.

4. THE CONTRACTOR IS TO IMMEDIATELY CONTACT THE ENGINEER IF ANY UNFORESEEN COMPLICATIONS OR DISCREPANCIES OCCUR.

5. CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF ALL UTILITIES ON SITE WITH THE APPROPRIATE PROVIDER (e.g. POWER, PHONE, CABLE, ETC.)

6. THE ENGINEER SHALL NOT BE HELD RESPONSIBLE FOR THE PHYSICAL CONSTRUCTION OF THE SITE.

7. CONTRACTOR SHALL MAINTAIN A SAFE SITE AND MEET ALL APPROPRIATE REGULATIONS CONCERNING SAFETY.

8. SURVEY DATA PROVIDED BY:
BREWER LAND SURVEYING
604 U.S. HIGHWAY 80
POOLER, GA 31322
(912)856-2205

9. EXISTING SURVEY INFORMATION TO BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES IN FIELD OBSERVATIONS VERSUS SURVEY DATA.

10. CONTRACTOR TO LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION BY CALLING THE CALL BEFORE YOU DIG HOTLINE: 811.

11. ACCORDING TO FEMA FLOOD INSURANCE RATEMAPS 13051C0030G DATED 8/16/2018
THE SITE IS LOCATED IN ZONE X.

12. HORIZONTAL DATUM BASED ON GEORGIA STATE PLANE COORDINATE SYSTEM, EAST ZONE. NAD83. VERTICAL DATUM BASED ON NAVD 88.

ADA NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL CURRENT ADA REQUIREMENTS.

2. THE EXTERIOR ACCESSIBLE ROUTE SHALL HAVE A MINIMUM WIDTH OF 3 FEET. IF THE ACCESSIBLE ROUTE CLEAR WIDTH IS LESS THAN 5 FEET, THEN 5'X5' PASSING SPACES SHALL BE PROVIDED EVERY 200' OR LESS. INTERSECTING SIDEWALKS MEET THIS REQUIREMENT.

3. THE FINISHED SURFACE HEIGHT DIFFERENCE REQUIREMENTS SHALL MEET THE FOLLOWING:
0 - 1/4" NO REQUIREMENTS
1/4"- 1/2"BEVEL WITH 1:2 SLOPE
GREATER THAN 1/2" CONFORM TO RAMP REQUIREMENTS

4. RAMPS SHALL MEET THE FOLLOWING CONSTRAINTS:
MAX SLOPE 1:12
MAX RAMP RISE IS 30"
MAX RAMP LENGTH IS 30'
MAX CROSS SLOPE IS 2.00%

5. RAMP LANDINGS SHALL MEET THE FOLLOWING CONSTRAINTS:
A MINIMUM 5' LONG LEVEL LANDING AT LEAST AS WIDE AS THE RAMP SHALL BE PLACED AT THE TOP AND BOTTOM OF THE RAMP.
LANDING SHALL BE MINIMUM 5'X5' WHERE RAMP CHANGES DIRECTION.
LANDINGS SHALL NOT EXCEED A 2.00% SLOPE

6. HANDRAILS SHALL MEET THE FOLLOWING CONSTRAINTS:
IF RAMP RISE IS GREATER THAN 6", THEN HANDRAILS ARE REQUIRED ON BOTH SIDES OF RAMP.MINIMUM OF 12" LONG HANDRAIL EXTENSIONS SHALL BE PROVIDED AT THE TOP AND BOTTOM OF LANDINGS.

EARTHWORK AND PAVING

1. CONTRACTOR TO REMOVE ALL UNSUITABLE MATERIAL SUCH THAT THERE IS A MINIMUM 2' SEPARATION BETWEEN THE PLASTIC CLAY LAYER AND THE BOTTOM OF THE FOOTINGS, BOTTOM OF SLAB-ON-GRADE, AND BOTTOM OF PAVEMENT SECTIONS.

2. THE UPPER 12 INCHES OF SUBGRADE BELOW THE PAVEMENT AND BUILDINGS SHALL BE SCARIFIED AND RECOMPACTED TO 100% STANDARD PROCTOR MAX DRY WEIGHT DENSITY WITH A MOISTURE CONTENT WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT.

3. IN AREAS WHERE STRUCTURAL FILL IS REQUIRED, THE FILL SHALL BE PLACED IN LIFTS OF 6 INCHES AND COMPACTED TO 100% STANDARD PROCTOR MAX DRY WEIGHT DENSITY. STRUCTURAL FILL SHALL CONSIST OF GRANULAR SOIL CONTAINING LESS THAN 10% MATERIAL PASSING THE NO 200 SIEVE.

4. ALL FILLING AND EXCAVATION SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF ANY UTILITIES.

5. CONTRACTOR TO PROVIDE TEST RESULTS OF SUBGRADE AND BASE COURSE COMPACTION TO ENGINEER.

6. ALL UNSUITABLE SOIL IN ROADWAY AND/OR UNDER UTILITIES, SHALL BE REMOVED AND REPLACED WITH STRUCTURAL FILL.

GRADING & DRAINAGE NOTES:

1. STORM PIPES SHALL BE JOINED PER DOT SPECIFICATIONS.

2 ALL PIPE SHALL BE INSTALLED IN NEW CONDITION.

3. A RIGHT OF WAY WORK PERMIT MAY BE REQUIRED BEFORE ANY WORK CAN BE DONE IN THE RIGHT OF WAY.

4. ALL STORM DRAINAGE PIPING SHALL BE CONSTRUCTED PER DOT SPECS.

5. ALL STORM DRAINAGE PIPING JOINTS SHALL BE WRAPPED IN FILTER FABRIC.

6. CONTRACTOR TO REQUEST CONFIRMATION OF LATEST PLAN REVISION DATE FROM ENGINEER IN WRITING PRIOR TO ORDERING MATERIALS,

7. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO REVIEW AND APPROVE SHOP DRAWINGS PRIOR TO ORDERING MATERIALS.

8. CONTRACTOR SHALL USE APPROVED STRUCTURAL FILL WHERE THE RIGHT-OF-WAY CROSSES THE EXISTING DITCHES.

GENERAL WATER NOTES:

1. PVC PIPE SHALL BE BLUE IN COLOR. PIPE 4" TO 12" SHALL CONFORM
TO REQUIREMENTS OF AWWA C-900, DR 18 PRESSURE CASS 235 P.S.I. AND SHALL HAVE THE FOLLOWING MINIMUM WALL THICKNESS:

4"	0.267 INCHES
6"	0.383 INCHES
8"	0.503 INCHES
10"	0.617 INCHES
12"	0.733 INCHES

PIPE LESS THAN 4" IN DIAMETER SHALL CONFORM TO ASTM D-1784 AND
D-2241 (SDR 21). THE PIPE SHALL HAVE A MINIMUM PRESSURE RATING OF 200 P.S.I. THE PVC PIPE SHALL BEAR THE NATIONAL SANITATION FOUNDATION SEAL OF APPROVAL.

2. FITTING FOR PVC SHALL BE DUCTILE IRON IN ACCORDANCE WITH ANSI A-21.53 (AWWA C-153). FITTINGS SHALL BE CEMENT LINED IN ACCORDANCE WITH ANSI A-21,4 (AWWA C-104). FITTINGS LESS THAN 4" SHALL BE PVC WITH RING TITE RUBBER JOINTS CONFORMING TO ASTM D-3139.

3. ALL VALVES 8" OR GREATER SHALL BE INSTALLED IN A MANHOLE. SEE CITY OF PORT WENTWORTH DETAILS W14 AND W34 FOR SPECIFICATIONS. THERE SHALL BE NO MANHOLE STEPS IN ANY STRUCTURE AT FINAL INSPECTION.

4. MAINTAIN A TEN (10)FOOT HORIZONTAL SEPARATION BETWEEN ANY EXISTING OR PROPOSED WATER MAIN AND SANITARY SEWER, STORM SEWER, OR SEWER MANHOLE.

5. WHEN A 10 FOOT HORIZONTAL SEPARATION CANNOT BE MAINTAINED, THE WATER MAIN MAY BE LAID CLOSER TO THE SEWER PROVIDED THAT THE WATER MAIN IS LAID IN A SEPARATE TRENCH AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.

6. WATER CROSSING A SEWER SHALL BE AT LEAST 18" ABOVE THE TOP OF THE SEWER. A FULL LENGTH OF WATER PIPE SHALL BE USED AT THE CROSSING WITH THE ENDS OF THE WATER AS FAR AWAY FROM THE SEWER AS POSSIBLE.

7. VERIFY SIZE AND LOCATION OF WATER SERVICES PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS.

8. IF UTILITY CONFLICT IS ENCOUNTERED IN THE FIELD, SEE UTILITY CONFLICT DETAIL.

GENERAL SEWER NOTES:

1. PVC PIPE SHALL BE POLYVINYL CHLORIDE PLASTIC (PVC) AND SHALL MEET ALL REQUIREMENTS OF ASTM D 3034 SDR 26. DEPTHS LESS THAN 3 FEET SHALL BE DUCTILE IRON PIPE. ASTM D 2321 MUST BE FOLLOWED FOR THE INSTALLATION OF PVC PIPE. RUBBER RINGS SHOULD BE USED FOR CONTRACTION AND EXPANSION AT EACH JOINT. FITTINGS SHALL MEET THE SAME SPECIFICATION REQUIREMENTS AS THE PIPE. TESTS ON PVC PIPE SHALL BE DESIGNED TO PASS ALL TESTS AT 73° F. PIPE STANDARD LENGTHS SHALL BE 12.5 FEET (PLUS OR MINUS 1 INCH). PIPE SIZES AND DIMENSIONS SHALL BE AS SHOWN IN THE TABLE BELOW:

NOM SIZE	OUTSIDE DIA	MIN WALL THICKNESS
4"	4.215	0.162
6"	6.275	0.241
8"	8.400	0.323
10"	10.500	0.404
12"	12.500	0.481

2. JOINTS FOR PVC PIPE - SHALL BE INTEGRAL WALL BELL AND SPIGOT WITH A RUBBER RING GASKET. THE JOINTS SHALL CONFORM TO ASTM D 3212 AND THE GASKETS SHALL CONFORM TO ASTM F 477.

3. PRECAST CONCRETE MANHOLES- SHALL BE REINFORCED CONCRETE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 AND THE DETAILS SHOWN ON THE PLANS. THE JOINTS SHALL BE TONGUE AND GROOVE SEALED WITH FLEXIBLE GASKETS OR MASTIC SEALANT. GASKETS SHALL BE O-RING OR EQUIVALENT TO TYPE A OR B "TYLOX" CONFORMING TO ASTM C 443. MASTIC SHALL BE EQUIVALENT TO "RAM-NEK" WITH PRIMER. ALL CONTACT SURFACES OF THE MANHOLE JOINT SHALL HAVE THE PRIMER IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

4. FRAMES AND COVERS - SHALL BE THE EQUIVALENT OF NEENAH FOUNDRY CO. R-1668 TYPE "C" LID

5. MANHOLE STEPS - THERE SHALL BE NO MANHOLE STEPS AT FINAL INSPECTION.

6. PIPE CONNECTIONS - SHALL HAVE FLEXIBLE WATERTIGHT JOINTS AT THE POINT OF ENTRY OF ANY SEWER MAIN INTO THE MANHOLE. THE JOINT SHALL BE WEDGED RUBBER SHAPE EQUIVALENT TO "PRESS WEDGE II," OR A RUBBER SLEEVE EQUIVALENT TO "KOR-N-SEAL" OR 'LOCK JOINT."

7. #12 GAUGE SINGLE STRAND COPPER TRACING WIRE SHALL BE USED OVER ALL FORCE MAIN, SANITARY SEWER, AND SERVICE LATERAL LINES.

8. SEWER EXCAVATIONS SHALL BE TO THE DESIRED DEPTHS SHOWN ON THE PLANS WITH ADHERENCE TO THE OCCUPATIONAL AND SAFETY HEALTH ADMINISTRATION'S (OSHA) REGULATIONS. IN AREAS OF UNSUITABLE SOIL CONDITIONS, THE TRENCH MAY BE REQUIRE ADDITIONAL EXCAVATION AND BACKFILLED WITH SAND, GRAVEL, OR CONCRETE.

9. SEWER PIPES SHALL BE LAID UPGRADE WITH SPIGOTS POINTING DOWNGRADE. ASSEMBLY OF JOINTS SHALL COMPLY WITH MANUFACTURER'S RECOMMENDATIONS. SEAL OPEN ENDS OF PIPES IF INSTALLATION IS INTERRUPTED. MANHOLE CONNECTIONS SHOULD BE WATER TIGHT WITH THE USE OF FLEXIBLE WATER STOPS AND RESILIENT CONNECTORS.

10. MANHOLES SHALL HAVE A CHANNEL IN THE BOTTOM THAT IS SMOOTH AND ROUNDED. MANHOLE TOP ELEVATIONS SHALL BE GREATER THAN OR EQUAL TO THE FIFTY (50) YEAR FLOOD ELEVATION, UNLESS WATERTIGHT COVERS ARE PROVIDED. OUTSIDE OF PAVED AREAS, THE MANHOLE TOP ELEVATION SHALL BE 1" ABOVE THE GROUND SURFACE IN DEVELOPED AREAS AND 6" ABOVE THE GROUND SURFACE IN UNDEVELOPED AREAS UNLESS SHOWN OTHERWISE ON THE PLANS. MANHOLES IN PAVED AREAS SHALL BE BUILT AS DESIGNATED BY THE ENGINEER. NO LEAKS IN MANHOLES ARE ACCEPTABLE.

GENERAL STORM NOTES:

1. MANHOLE STEPS - THERE SHALL BE NO MANHOLE STEPS AT FINAL INSPECTION.

2. THE MINIMUM OPENING OF ALL CURB INLETS ALONG THE GUTTER LINE IS 3'-10".

3. ALL STRUCTURES AND INLETS SHALL HAVE A MINIMUM 6" CLEARANCE FROM THE INNER STRUCTURE WALLS TO THE OUTSIDE DIAMETER OF ALL INCOMING/OUTGOING PIPES.

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK

01/31/22

REVISIONS
2022-01-31: REVISIONS PER CITY OF PORT WENTWORTH

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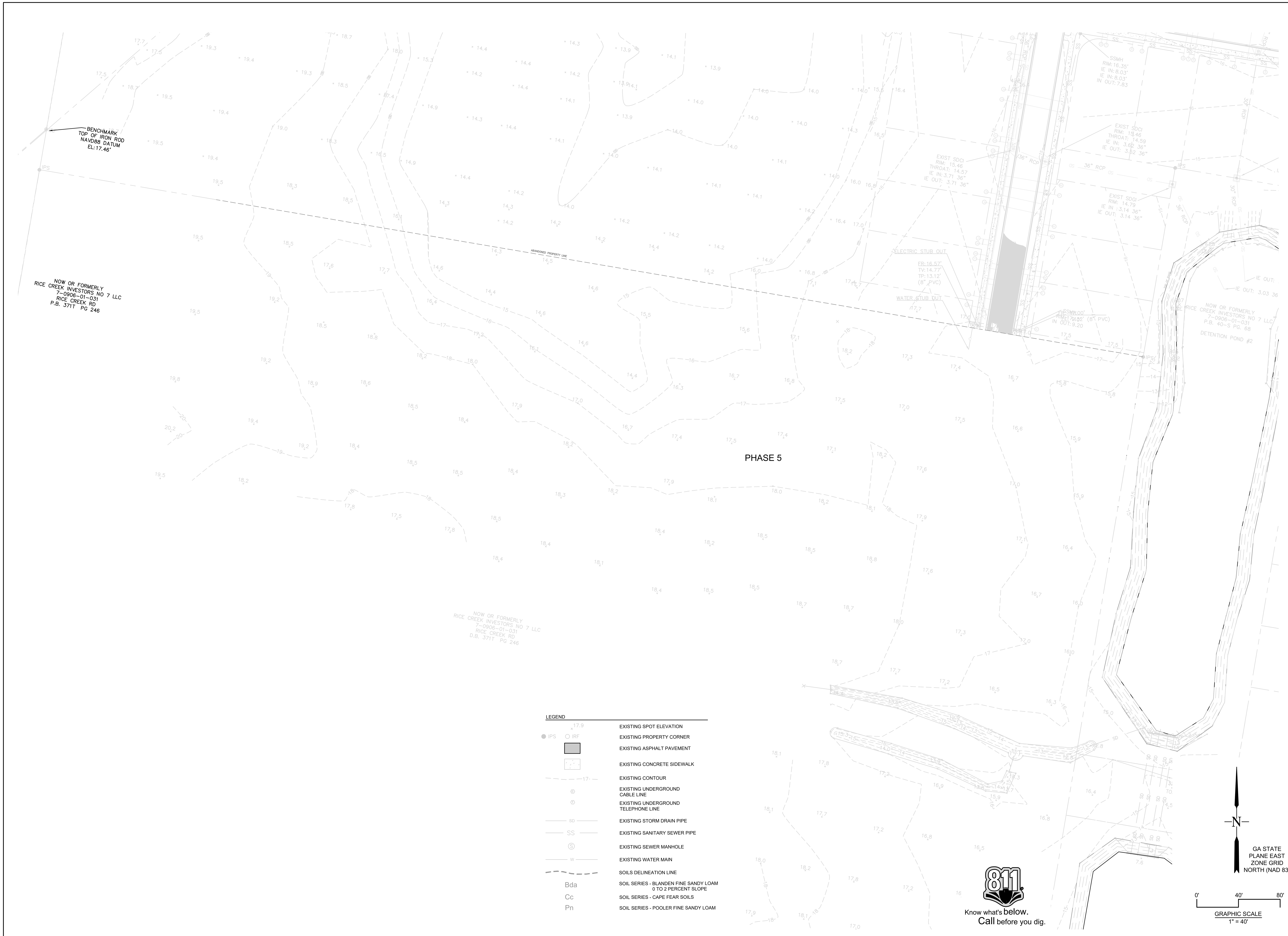
GENERAL NOTES

Rice Creek Phase 5
Port Wentworth
PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/04/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: NTS

1
SHEET:



LEGEND

17.9	EXISTING SPOT ELEVATION
IPS / IRF	EXISTING PROPERTY CORNER
	EXISTING ASPHALT PAVEMENT
	EXISTING CONCRETE SIDEWALK
17	EXISTING CONTOUR
	EXISTING UNDERGROUND CABLE LINE
	EXISTING UNDERGROUND TELEPHONE LINE
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
S	EXISTING SEWER MANHOLE
W	EXISTING WATER MAIN
	SOILS DELINEATION LINE
Bda	SOIL SERIES - BLANDEN FINE SANDY LOAM 0 TO 2 PERCENT SLOPE
Cc	SOIL SERIES - CAPE FEAR SOILS
Pn	SOIL SERIES - POOLER FINE SANDY LOAM

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK

01/31/22

REVISIONS

2022-01-31 REVISIONS PER CITY OF PORTWENTWORTH

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EXISTING CONDITIONS

Rice Creek Phase 5 Port Wentworth

PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/04/21

PROJECT NUMBER: 21507

DRAWN BY: JAF

CHECKED BY: JLV

SCALE: 1"=40' (FOR 24"X36" PLOT)

SHEET: 2

Line Table		
Line #	Length	Direction
L1	15.00	S9° 39' 48.29"W

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	31.42	20.00	90.00	N54° 39' 48"E	28.28
C2	31.36	20.00	89.84	S35° 27' 15"E	28.24
C3	31.34	20.00	89.79	S54° 46' 05"W	28.23
C4	31.42	20.00	90.00	N35° 20' 12"W	28.28

LEGEND

- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE SIDEWALK
- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE SIDEWALK

Know what's below. Call before you dig.

N

GA STATE
PLANE EAST
ZONE GRID
NORTH (NAD 83)

0' 40' 80'
GRAPHIC SCALE
1" = 40'

NOTE:
BUILDING SETBACKS ARE AS FOLLOWS:
FRONT SETBACK: 25'
SIDE SETBACK: 5'
REAR SETBACK: 25'

ON CORNER LOTS WHERE THERE IS ROAD FRONTAGE ON TWO SIDES, ONE FRONT YARD SETBACK WILL BE 20'

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK

01/31/22

REVISIONS
2022-01-31: REVISIONS PER CITY OF PORT WENTWORTH

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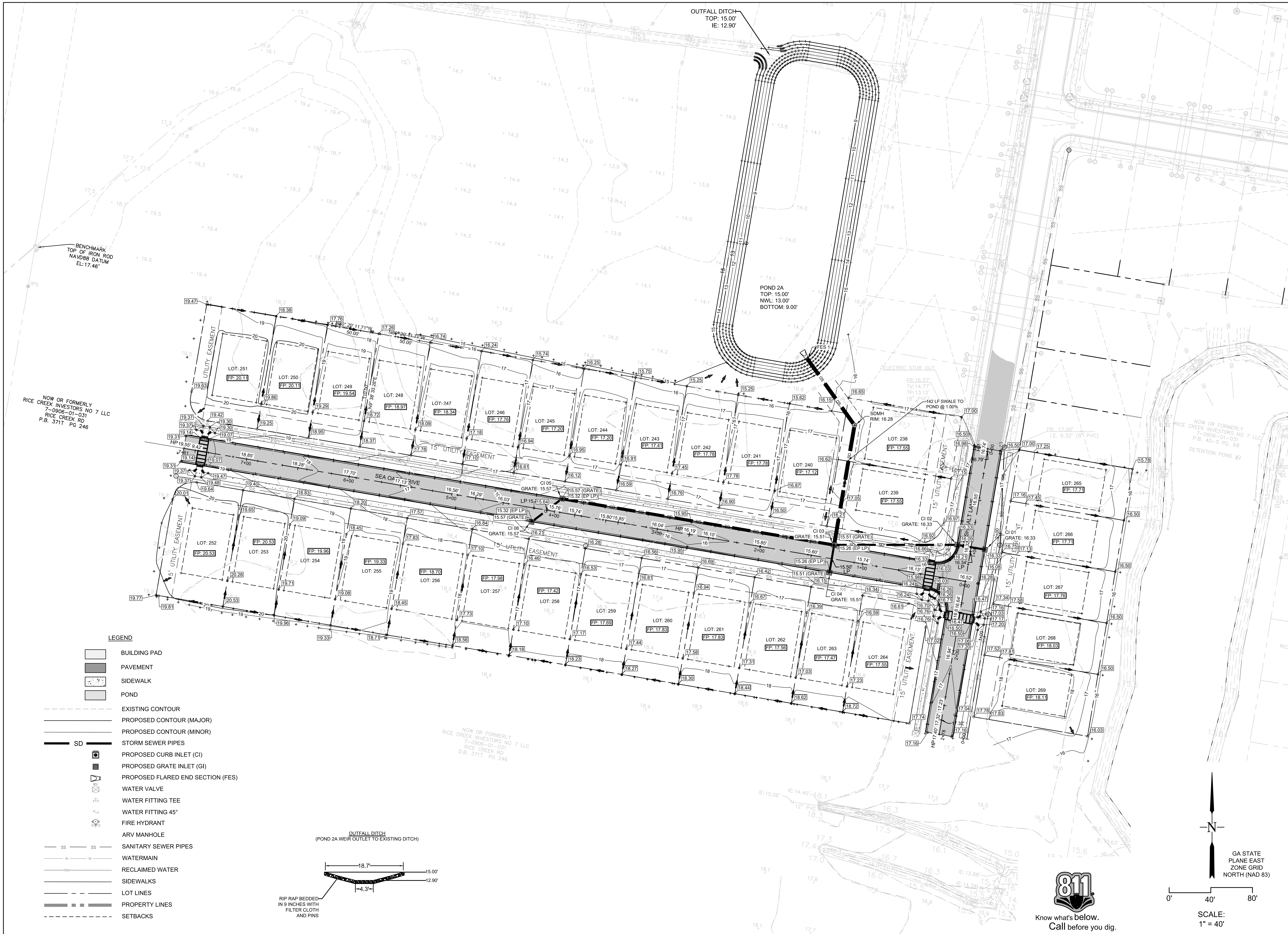
STAKING PLAN

Rice Creek Phase 5
Port Wentworth

PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/04/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: 1"=40' (FOR 24"X36" PLOT)

SHEET: 3



GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK

01/31/22

REVISIONS

2022-01-31: REVISIONS PER CITY OF PORT WENTWORTH

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DETAILED GRADING PLAN

Rice Creek Phase 5
Port Wentworth

PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/04/21

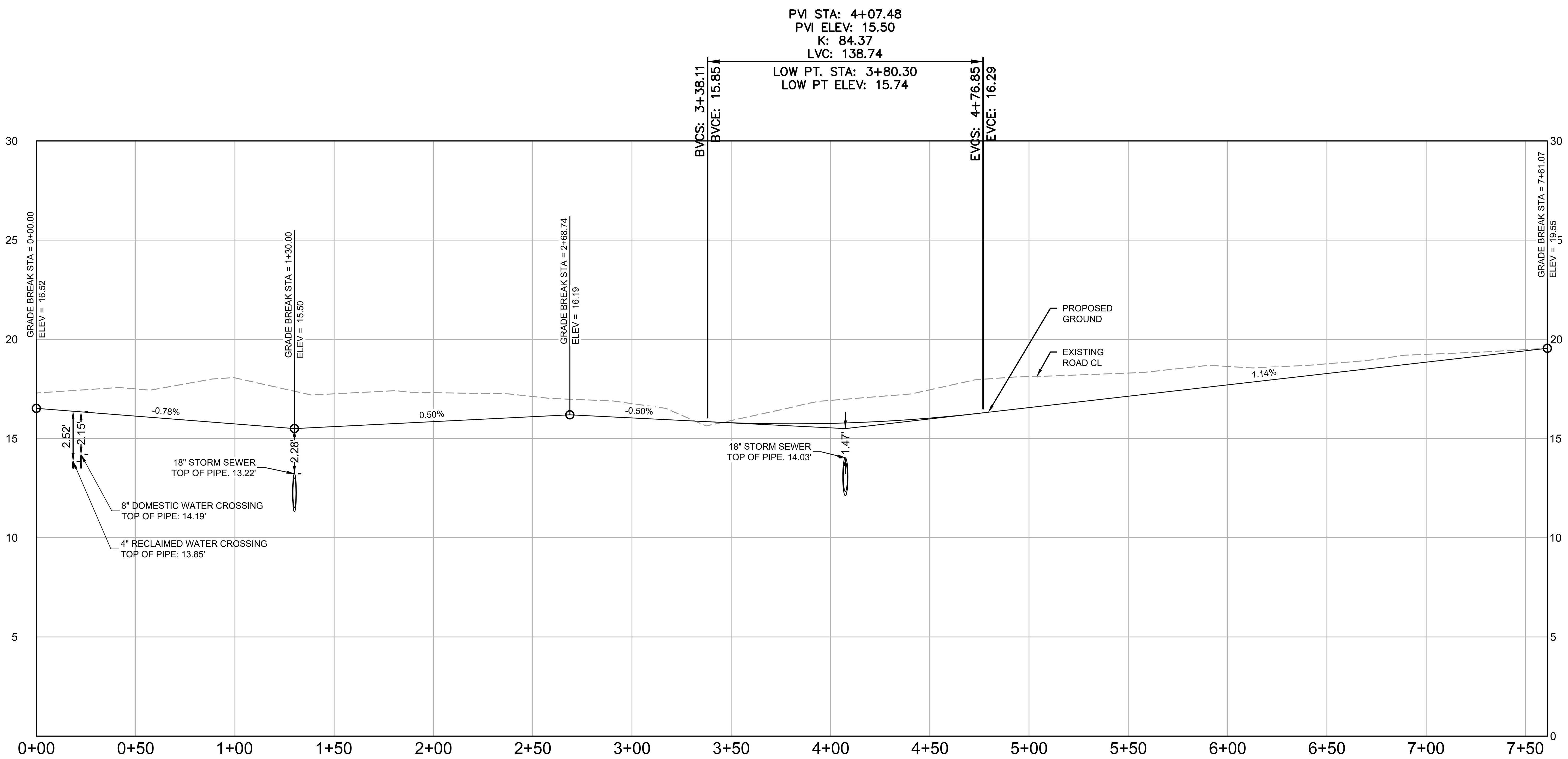
PROJECT NUMBER: 21507

DRAWN BY: JAF

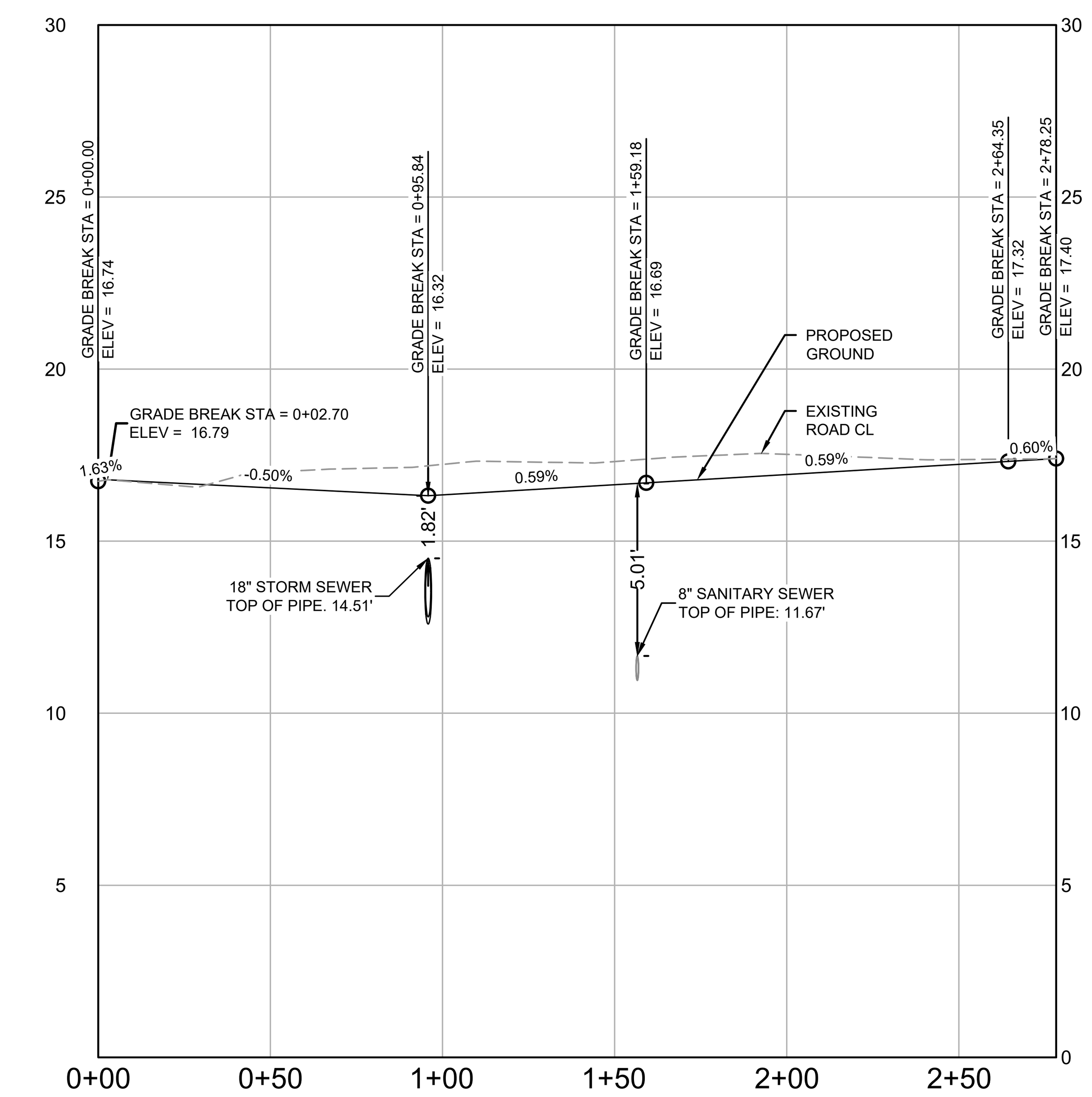
CHECKED BY: JLV

SCALE: 1"=40' (FOR 24"X36" PLOT)

SHEET: 4



SEA OATS DRIVE ROAD PROFILE
Vertical Scale: 1" = 4 FT
Horizontal Scale: 1" = 40 FT



MARSH SALT LN ROAD PROFILE
Vertical Scale: 1" = 4 FT
Horizontal Scale: 1" = 40 FT

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK
01/31/22

REVISIONS
2022-01-31: REVISIONS PER CITY OF PORT WENTWORTH

ROBERTS CIVIL ENGINEERING
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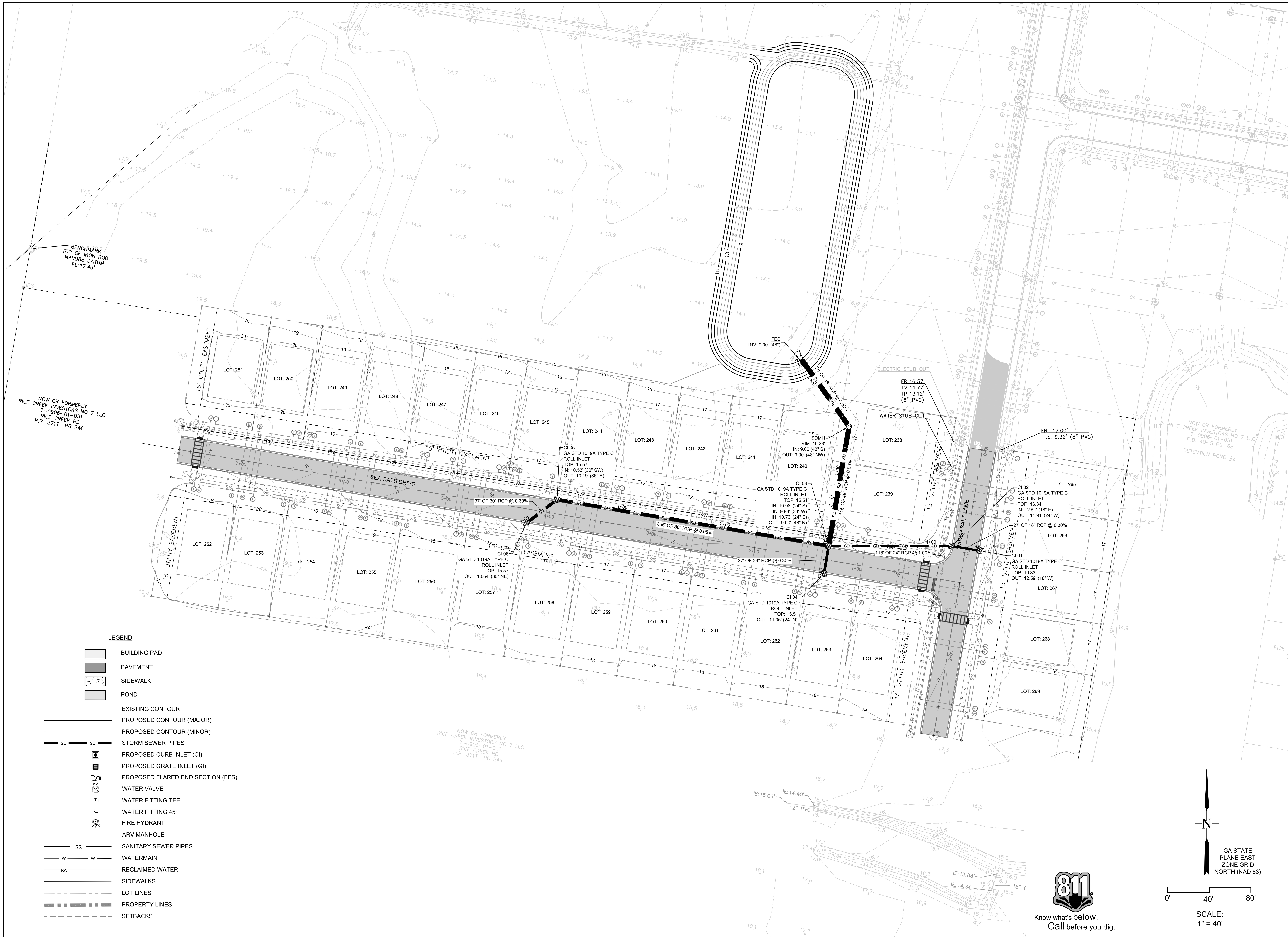
ROAD PROFILES

Rice Creek Phase 5
Port Wentworth
PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/04/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: AS SHOWN

5
SHEET:



GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK 01/31/22

REVISIONS

2022-01-26: REVISIONS PER CITY OF PORT WENTWORTH

ROBERTS CIVIL ENGINEERING

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DRAINAGE PLAN

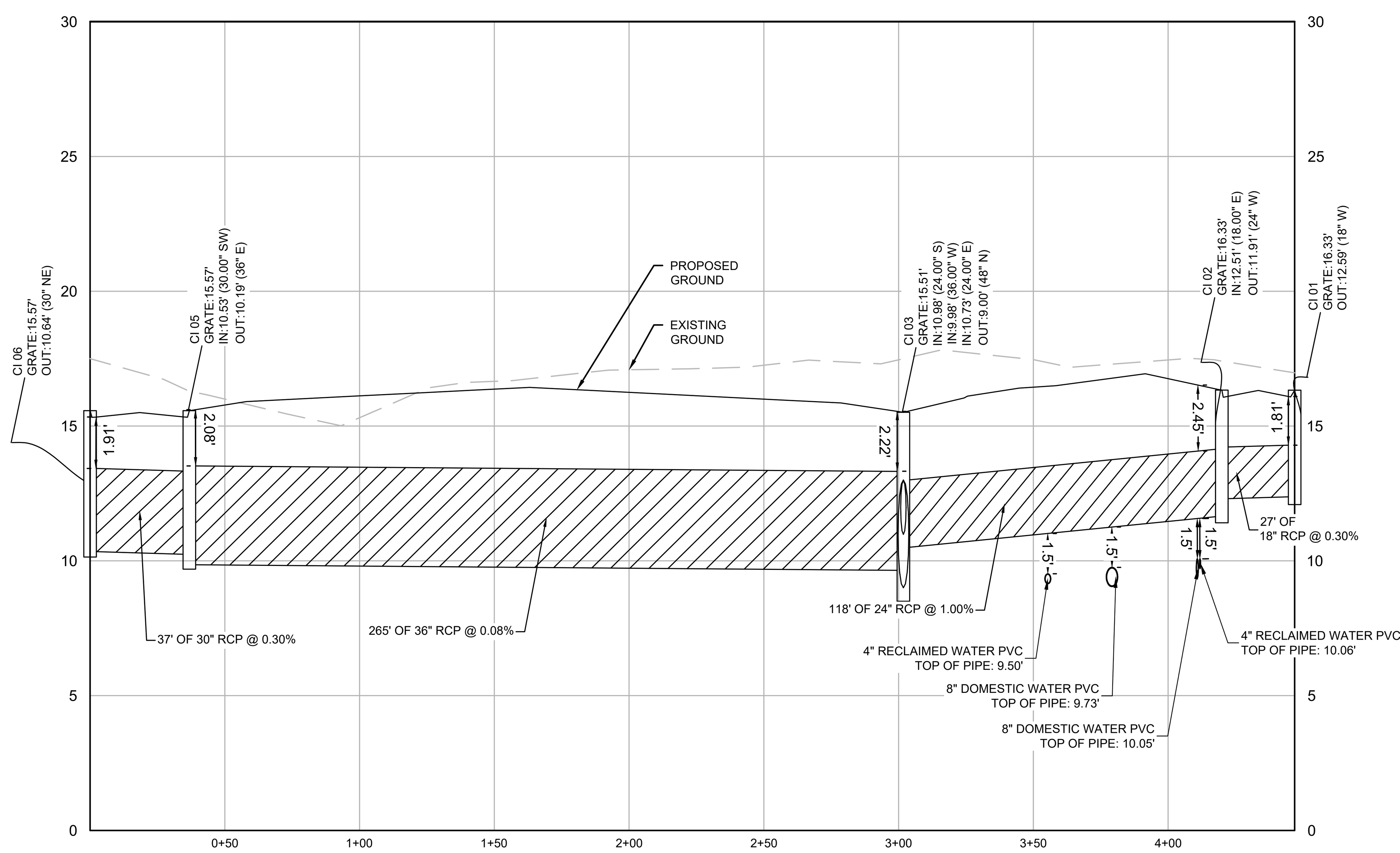
Rice Creek Phase 5
Port Wentworth

PREPARED FOR:
Rice Creek Investors #7, LLC

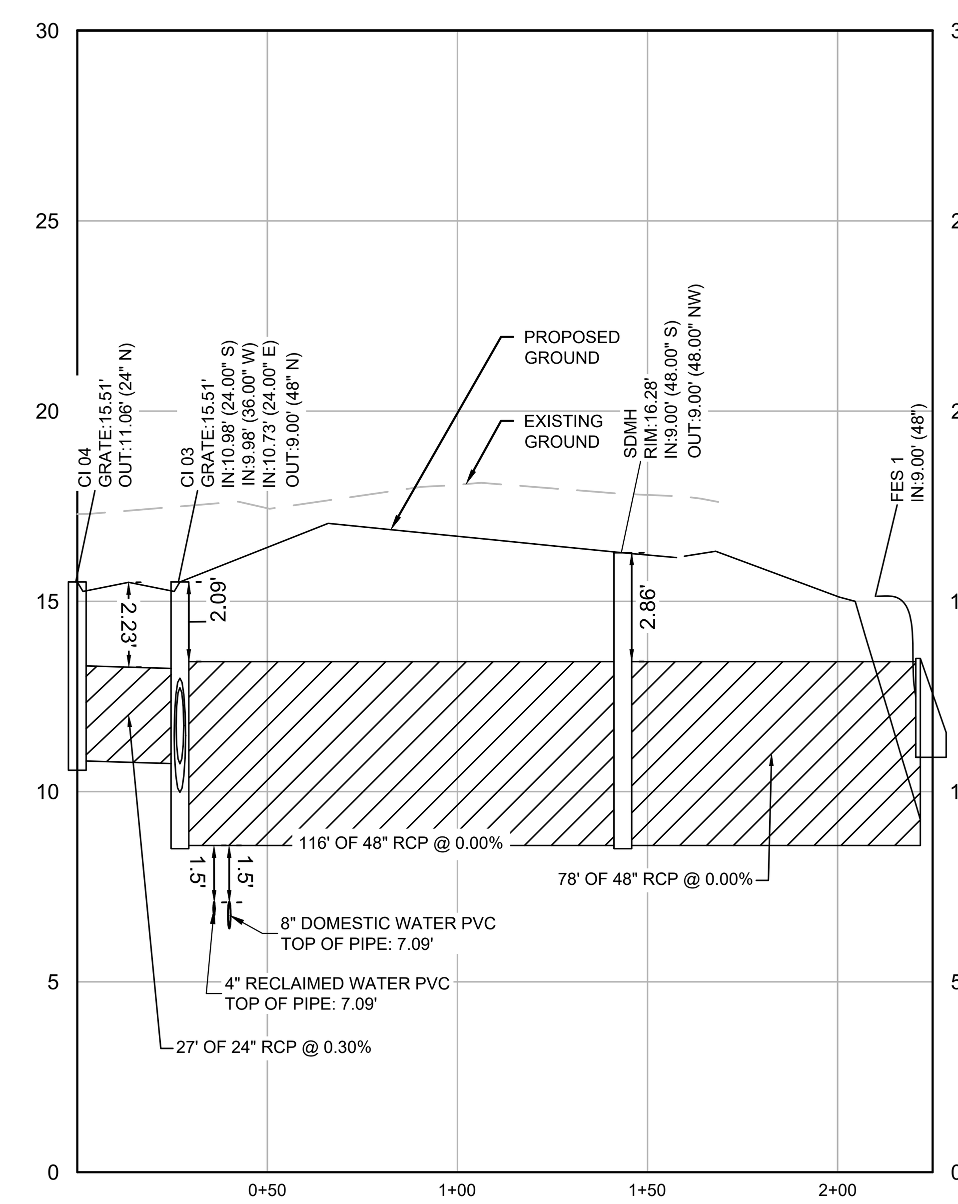
DATE: 12/04/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: 1":40" (FOR 24"x36" PLOT)

6

SHEET:



STORM 100
Vertical Scale: 1" = 4 FT
Horizontal Scale: 1" = 40 FT



STORM 200
Vertical Scale: 1" = 4 FT
Horizontal Scale: 1" = 40 FT

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 046602 JESSICA VICK
01/31/22

REVISIONS
2022-01-31: REVISIONS PER CITY OF PORT WENTWORTH

ROBERTS CIVIL ENGINEERING
ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON
WWW.ROBERTSCIVILENGINEERING.COM

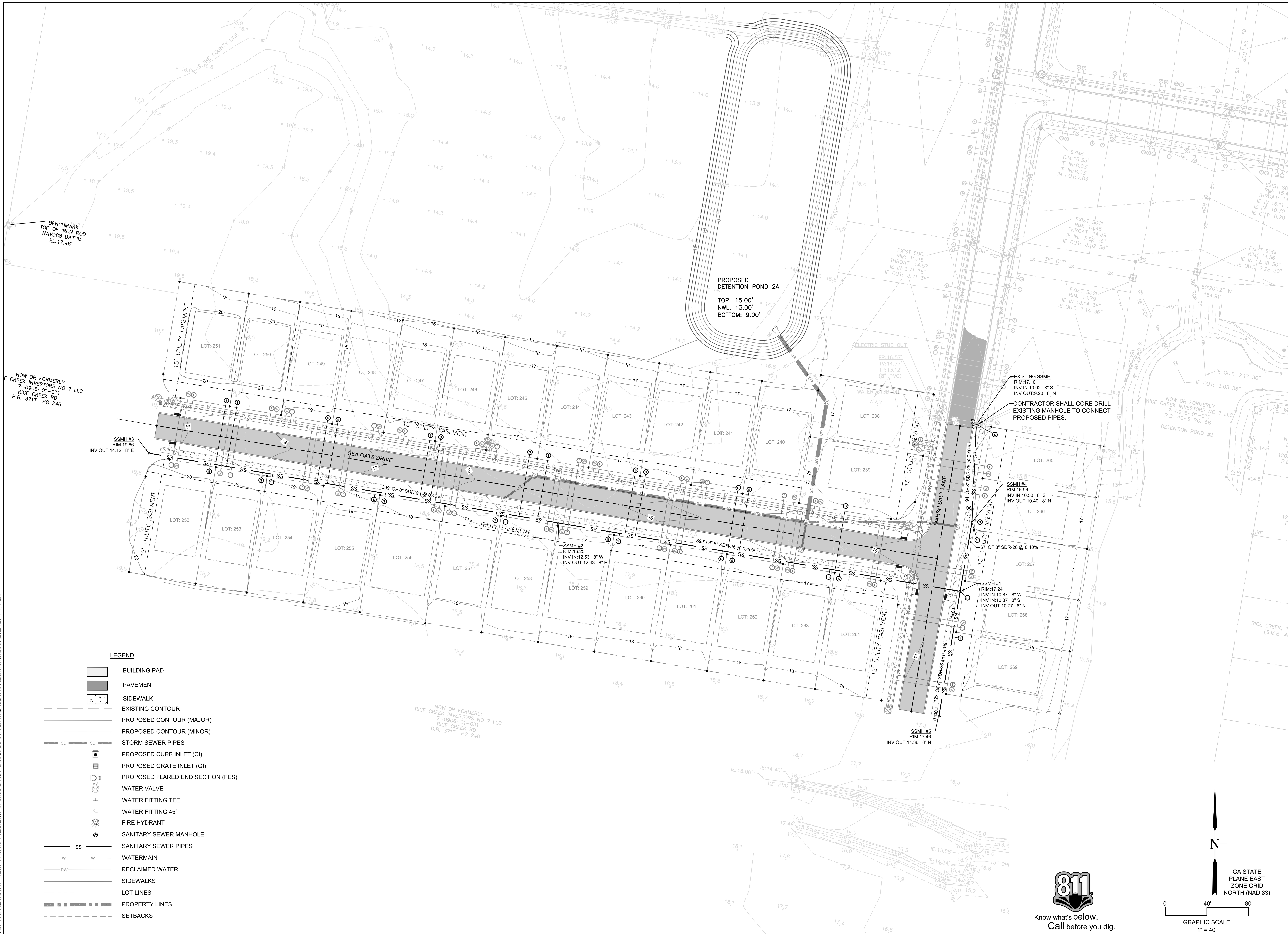
STORM PROFILES

Rice Creek Phase 5
Port Wentworth
PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/17/2021
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: AS SHOWN

SHEET:
7

c:\sd\roberts civil engineering\rce - data\rce civil projects sav\2021\21507-rice creek phase v\civil design\03-acad\civil plans\design dwgs\rc 5 storm drainage.dwg, plotted 2/1/2022 2:29 PM by mariah



GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK

01/31/22

REVISIONS

2022-01-26: REVISIONS PER CITY OF PORT WENTWORTH

ROBERTS CIVIL ENGINEERING

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SANITARY SEWER PLAN

Rice Creek Phase 5
Port Wentworth

PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/04/21

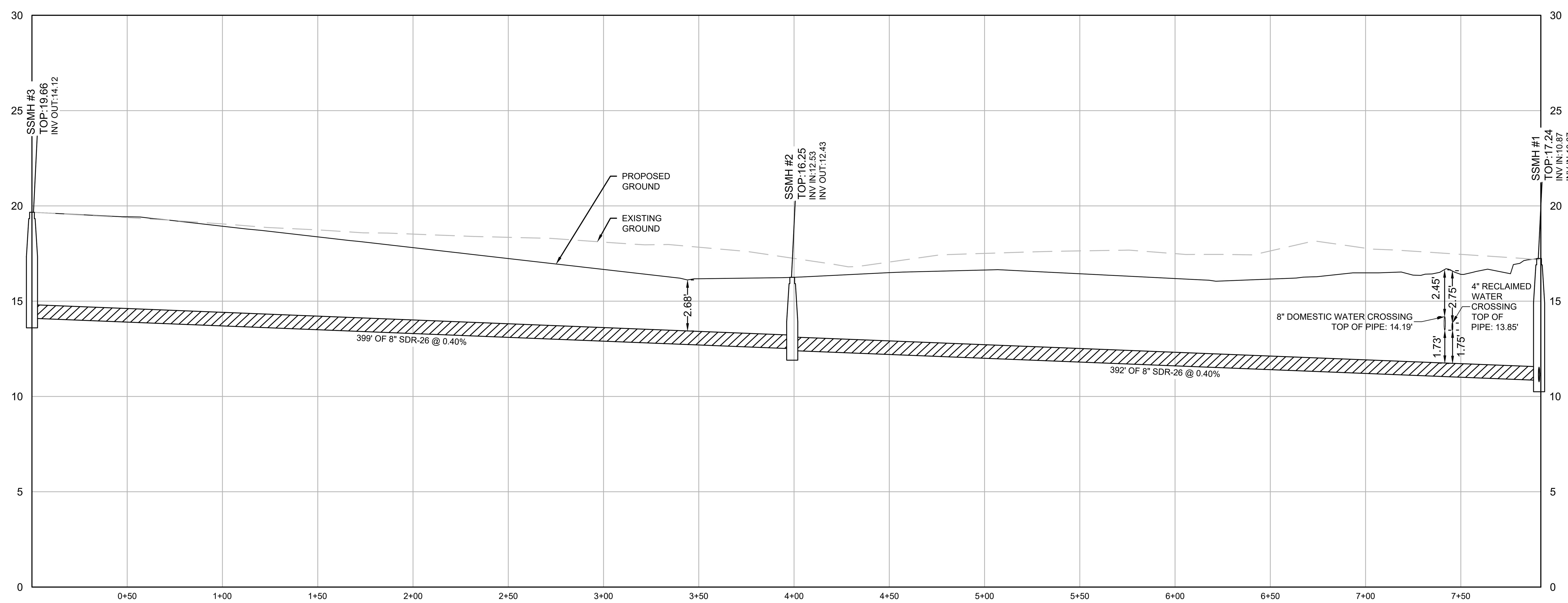
PROJECT NUMBER: 21507

DRAWN BY: JAF

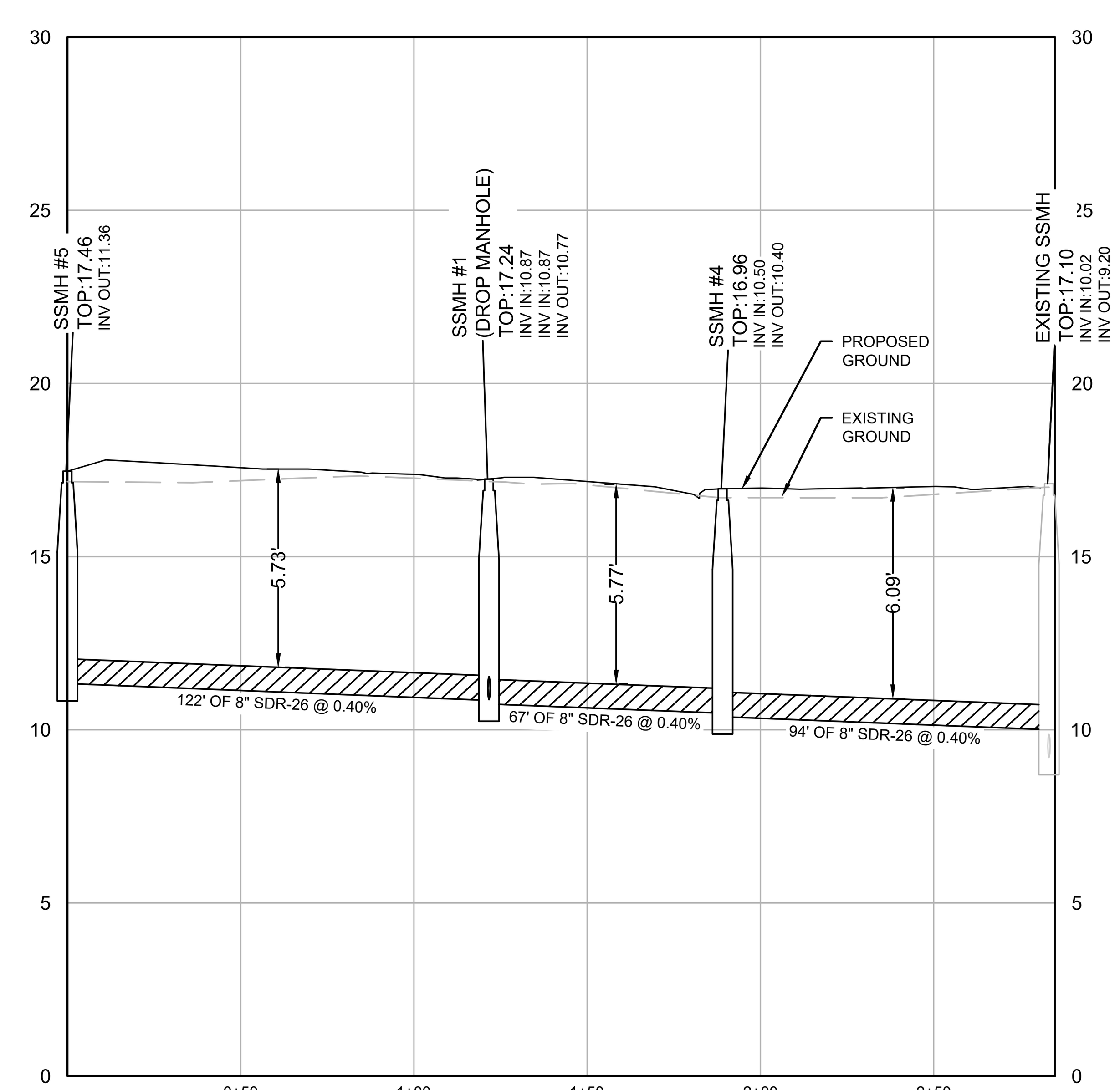
CHECKED BY: JLV

SCALE: 1":40" (FOR 24"x36" PLOT)

SHEET: 8



SEWER 100
Vertical Scale: 1" = 4 ft
Horizontal Scale: 1" = 40 ft



SEWER 200
Vertical Scale: 1" = 4 ft
Horizontal Scale: 1" = 40 ft

GEORGIA
REGISTERED
No. 046602
PROFESSIONAL
ENGINEER
JESSICA VICK
01/31/22

REVISIONS
2022-01-31: REVISIONS PER CITY OF PORT WENTWORTH

ROBERTS
CIVIL ENGINEERING
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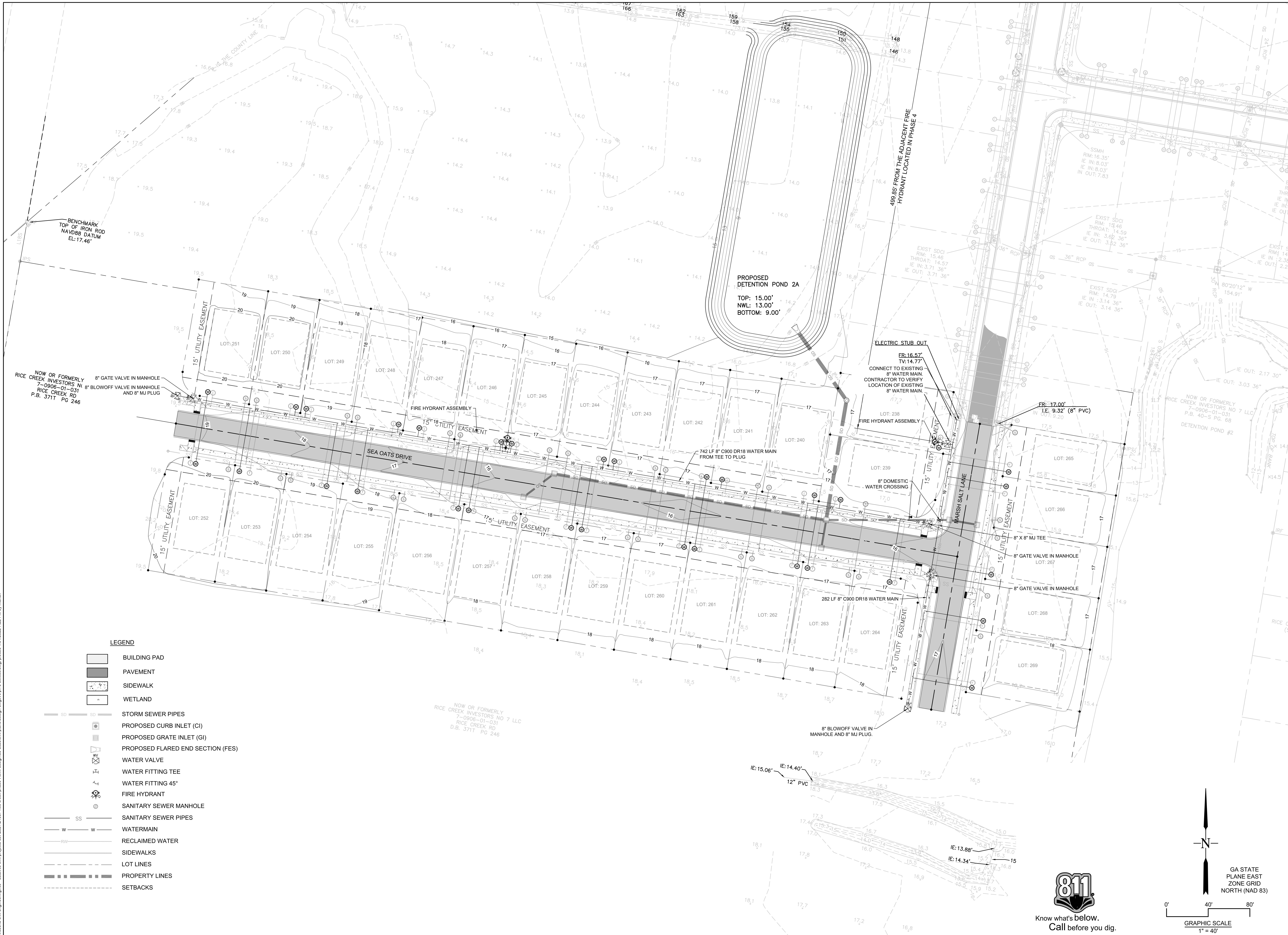
SEWER PROFILES

Rice Creek Phase 5
Port Wentworth
PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/04/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: 1":40" (FOR 24"X36" PLOT)

9

SHEET:



LEGEND

- BUILDING PAD
- PAVEMENT
- SIDEWALK
- WETLAND
- STORM SEWER PIPES
- PROPOSED CURB INLET (CI)
- PROPOSED GRATE INLET (GI)
- PROPOSED FLARED END SECTION (FES)
- WATER VALVE
- WATER FITTING TEE
- WATER FITTING 45°
- FIRE HYDRANT
- SANITARY SEWER MANHOLE
- SANITARY SEWER PIPES
- WATERMAIN
- RECLAIMED WATER
- SIDEWALKS
- LOT LINES
- PROPERTY LINES
- SETBACKS

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK

01/31/22

REVISIONS

2022-01-31: REVISIONS PER CITY OF PORT WENTWORTH

ROBERTS CIVIL ENGINEERING

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WATER PLAN

Rice Creek Phase 5 Port Wentworth

PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/04/21

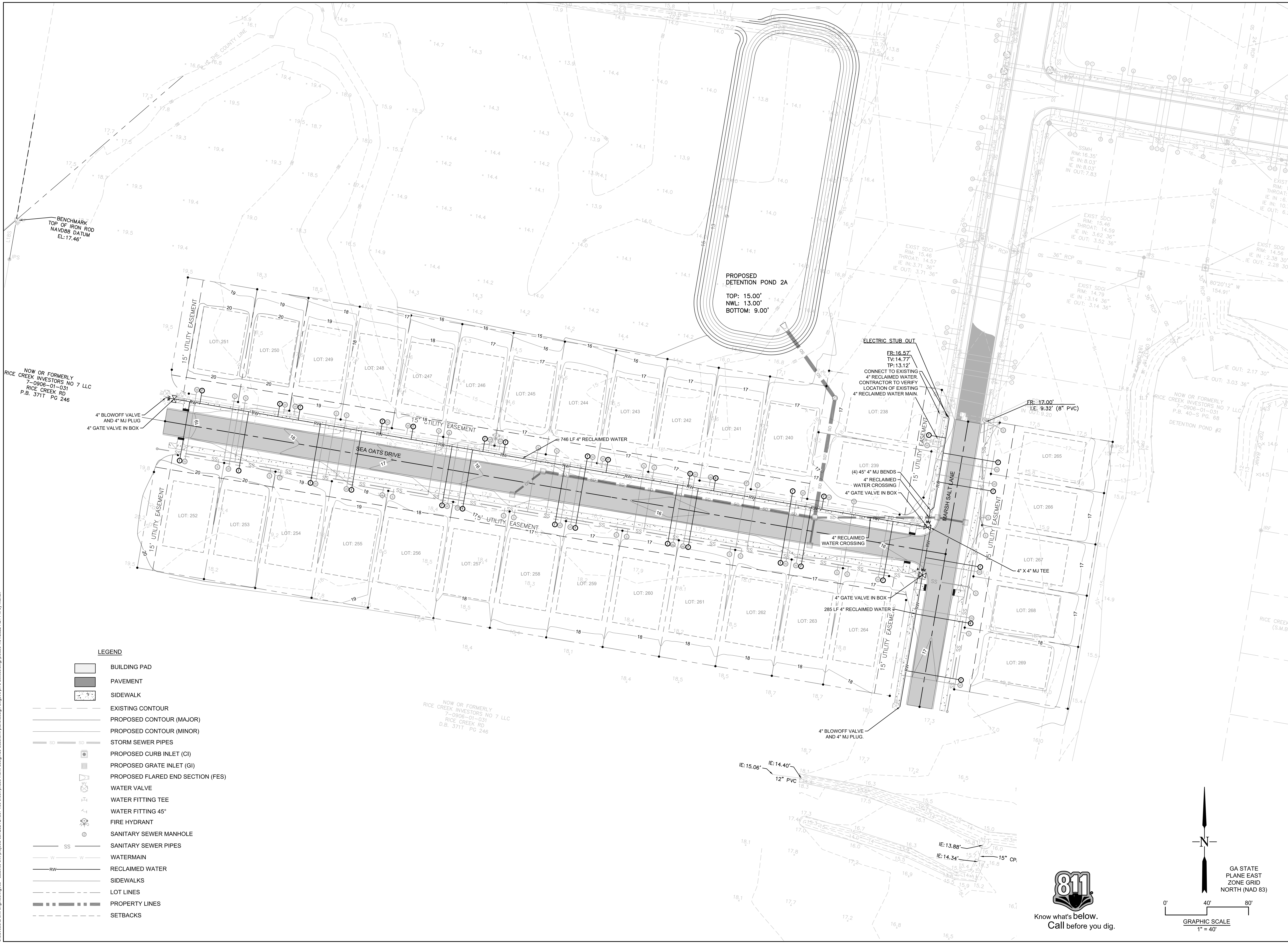
PROJECT NUMBER: 21507

DRAWN BY: JAF

CHECKED BY: JLV

SCALE: 1":40" (FOR 24"x36" PLOT)

SHEET: 10



GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK 01/31/22

REVISIONS
2022-01-31: REVISIONS PER CITY OF PORT WENTWORTH

ROBERTS CIVIL ENGINEERING
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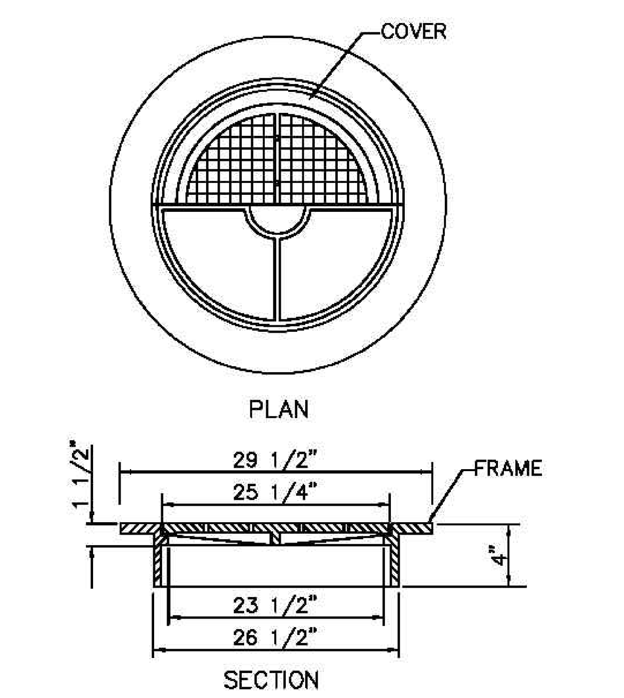
RECLAIMED WATER PLAN

Rice Creek Phase 5
Port Wentworth

PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/04/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: 1"=40' (FOR 24"x36" PLOT)

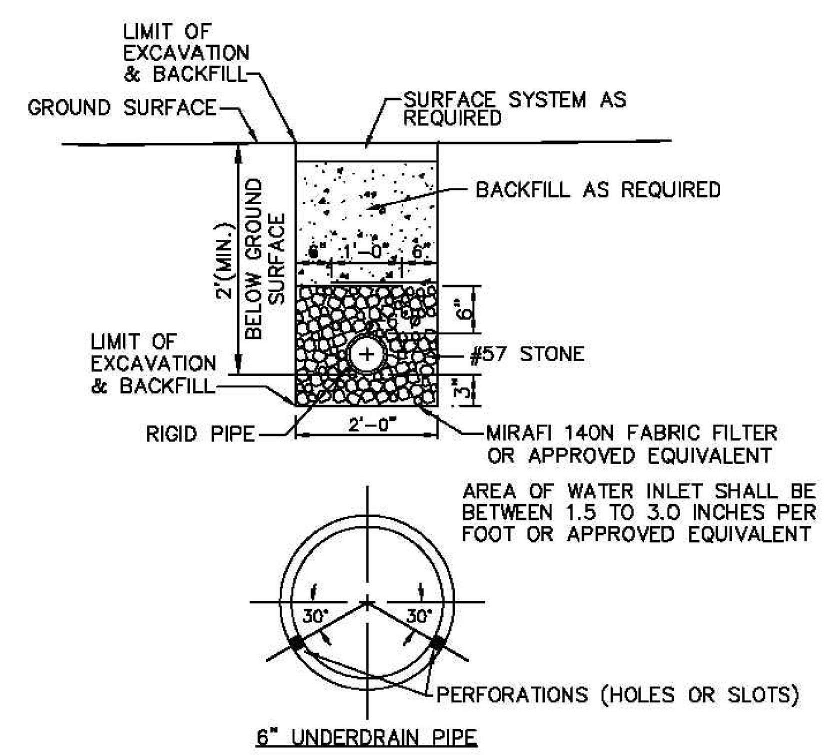
SHEET: 11



NOTES:
1. FRAME AND COVER TO BE NEENAH FOUNDRY COMPANY CATALOG NO. R-5900-F OR EQUIVALENT WEIGHT 205#.
2. COVER MUST HAVE FOUNDRY STAMP SHOWING THE UTILITY (DRAINAGE).

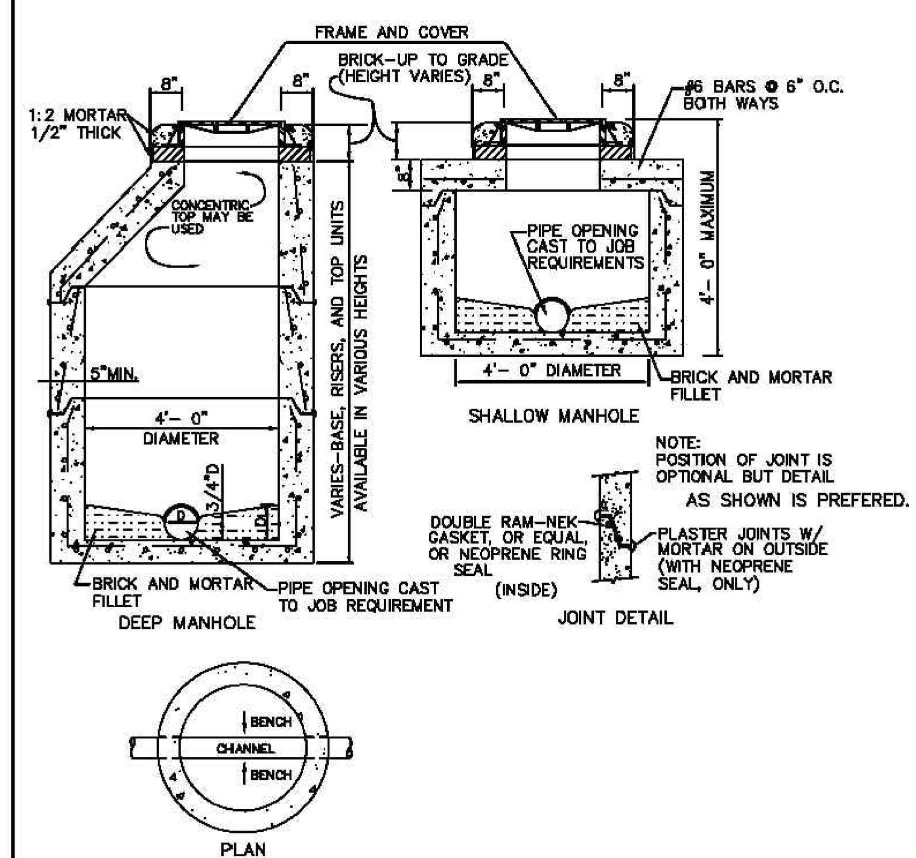
INLET FRAME & COVER

City of Port Wentworth
TECHNICAL DETAILS
SD-5
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



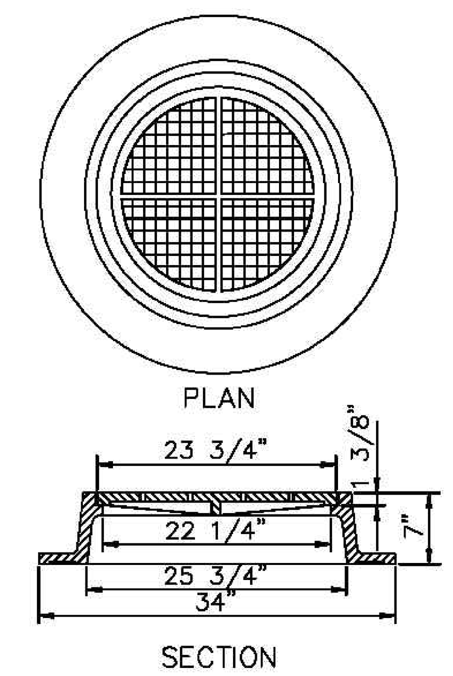
6" UNDERDRAIN PIPE

City of Port Wentworth
TECHNICAL DETAILS
SD-10
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



PRECAST STORM MANHOLE

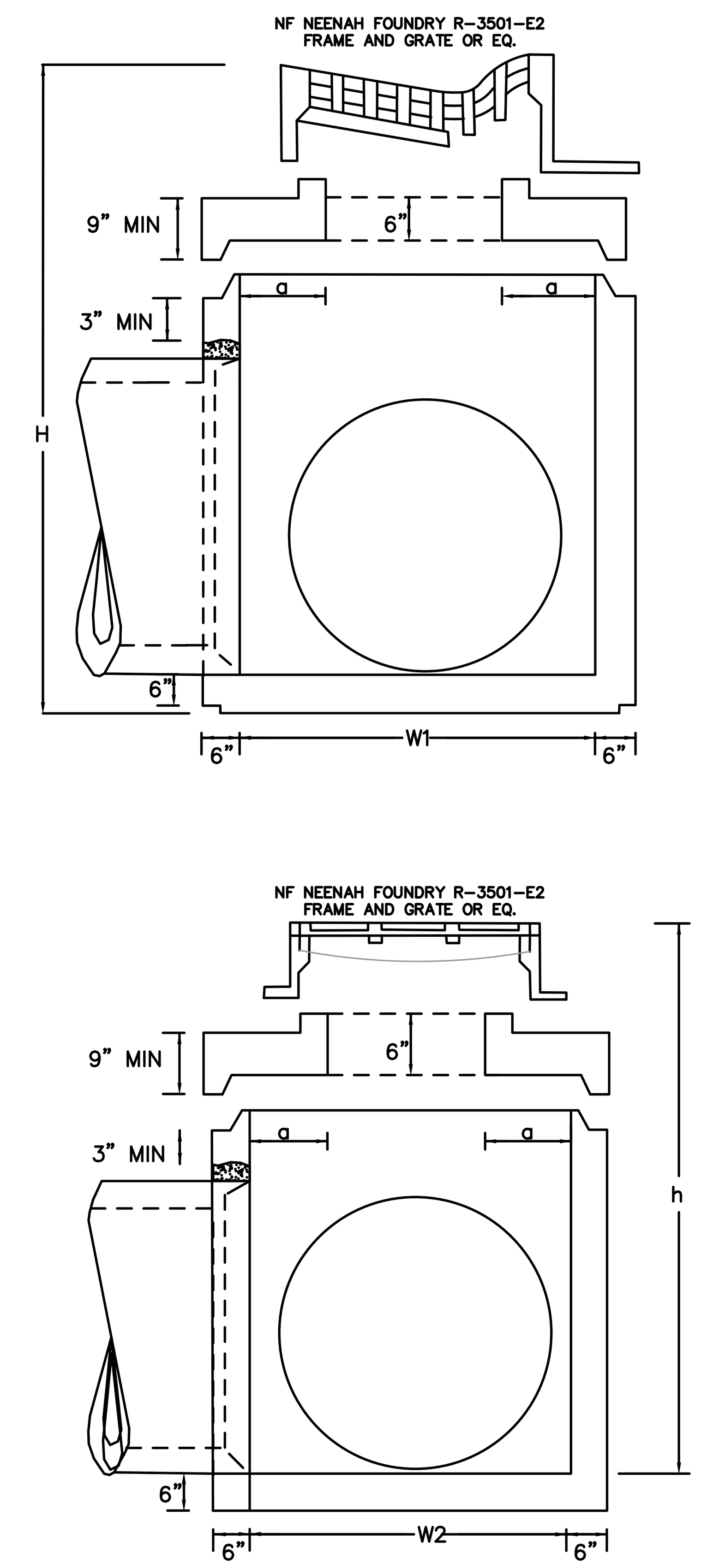
City of Port Wentworth
TECHNICAL DETAILS
SD-12
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTE:
MANHOLE RIM & COVER SIMILAR TO NEENAH FOUNDRY CO. R-1412-A4. TOTAL WEIGHT 310#. TYPE "C" LID TO HAVE MACHINED BEARING SURFACES. LID TO BE LETTERED "STORM".

STORM MANHOLE RING & COVER

City of Port Wentworth
TECHNICAL DETAILS
SD-14
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



SEE GEORGIA DEPARTMENT OF TRANSPORTATION STANDARD DETAIL 1019A FOR FURTHER INFORMATION

DIMENSIONS FOR VARIOUS PIPE SIZES				
PIPE SIZE	W1 or W2	a	Min h	Min H
15"	2'-0"		2'-7"	3'-3.5"
18"	2'-0"		2'-10"	3'-6.5"
24"	3'-0"	0'-6"	4'-3.5"	5'-0"
30"	3'-6"	0'-9"	4'-10.5"	5'-7"
36"	4'-0"	1'-0"	5'-5.5"	6'-2"
42"	4'-6"	1'-3"	6'-0.5"	6'-8"
48"	5'-0"	1'-6"	6'-7.5"	7'-3"
54"	5'-6"	1'-9"	7'-2.5"	7'-10"
60"	6'-0"	2'-0"	7'-9.5"	8'-5"

1 GA STD 1019A TYPE C ROLL INLET
NTS

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK
01/31/22

REVISIONS
2022-01-31: REVISIONS PER CITY OF PORT WENTWORTH

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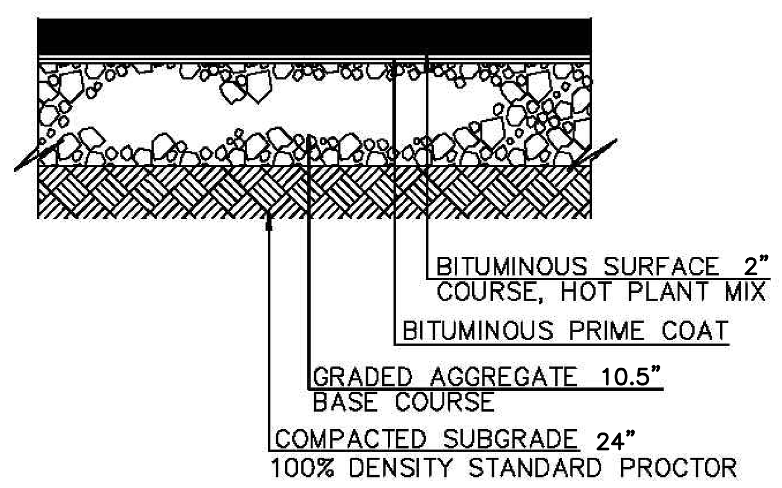
CONSTRUCTION DETAILS

Rice Creek Phase 5
Port Wentworth
PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/04/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: NTS

D1
SHEET:



TYPICAL BITUMINOUS PAVING SECTION

City of Port Wentworth
TECHNICAL DETAILS
P-1

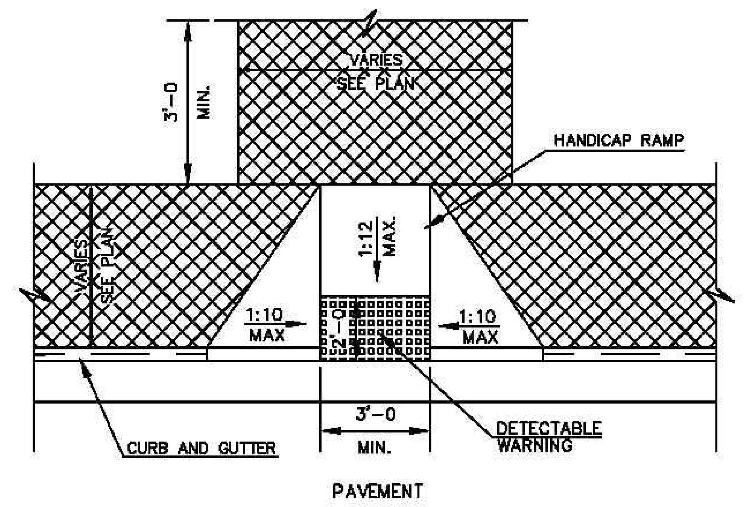
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

DETECTABLE WARNINGS ON WALKING SURFACE OF HANDICAP RAMP

DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 IN (23mm). A HEIGHT OF NOMINAL 0.2 IN (5mm) AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 IN (60mm) AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.

THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE INTEGRAL PART OF THE WALKING SURFACE. DETECTABLE WARNINGS USED ON SURFACES SHALL DIFFER FROM ADJOINING WALKING SURFACES IN RESILIENCY OR SOUND-ON-CANE

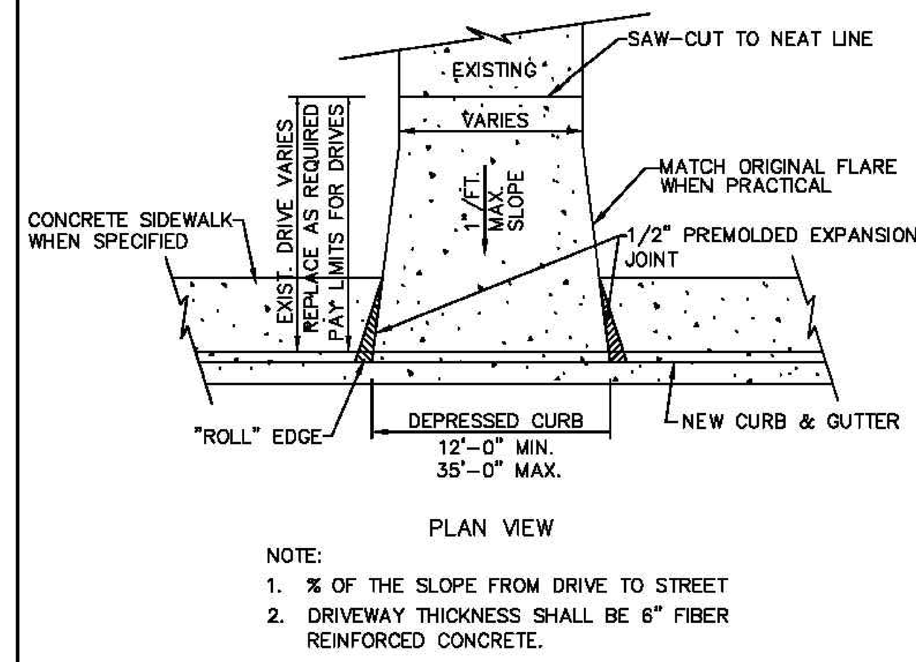
SURFACES SHALL MEET THE ADA ACCESSIBILITY GUIDELINES SECTION 4.29.2.



HANDICAP RAMP TYPE "A"

City of Port Wentworth
TECHNICAL DETAILS
P-4

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

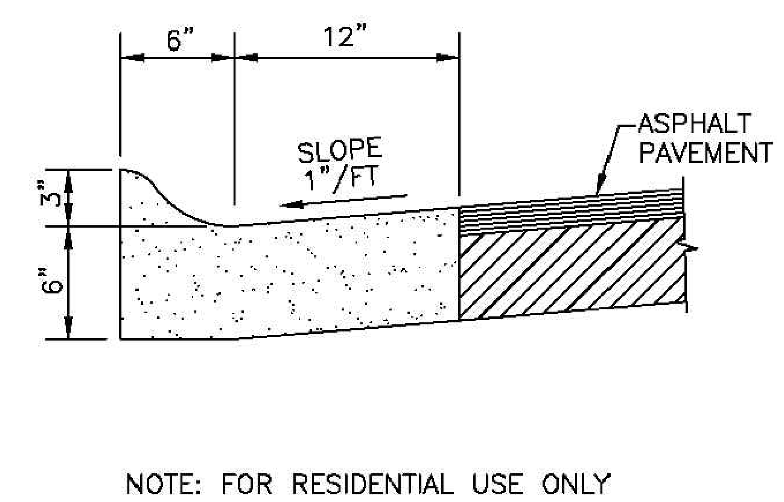


NOTE:
1. % OF THE SLOPE FROM DRIVE TO STREET
2. DRIVEWAY THICKNESS SHALL BE 6" FIBER REINFORCED CONCRETE.

DRIVEWAY

City of Port Wentworth
TECHNICAL DETAILS
P-8

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

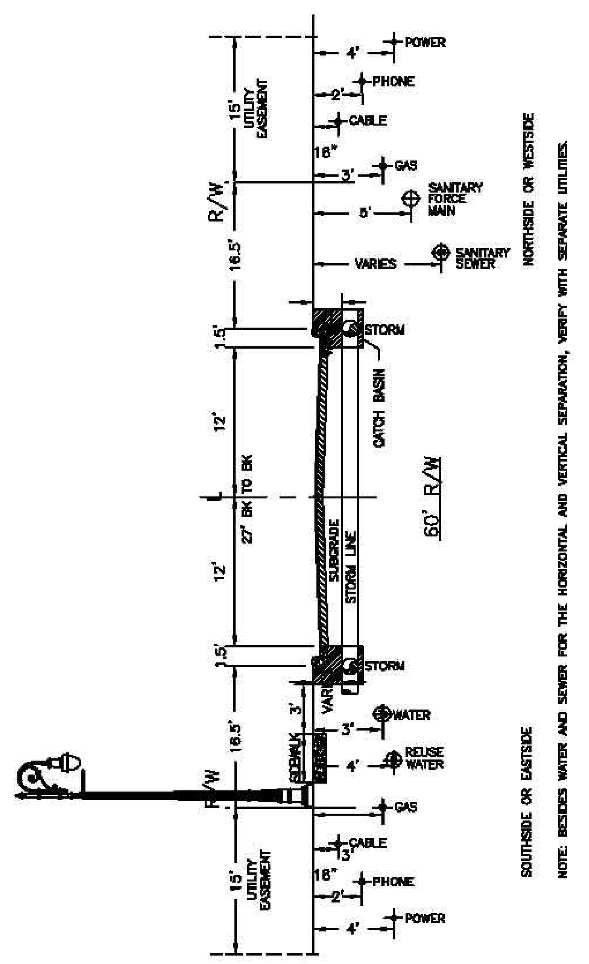


NOTE: FOR RESIDENTIAL USE ONLY

ROLL-OVER CURB

City of Port Wentworth
TECHNICAL DETAILS
P-11

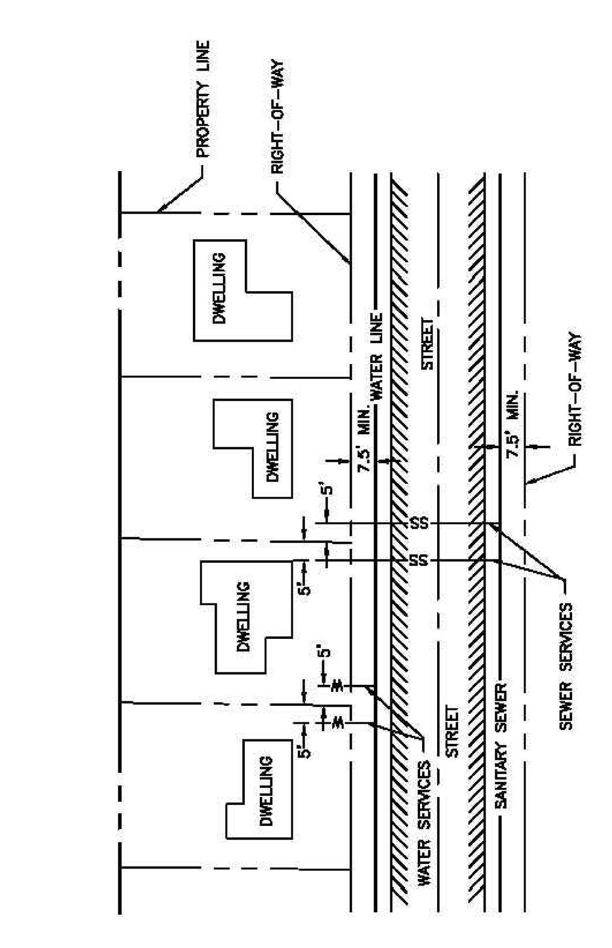
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



TYP. SECTION UNDERGROUND UTILITY INSTALLATION

City of Port Wentworth
TECHNICAL DETAILS
U-1

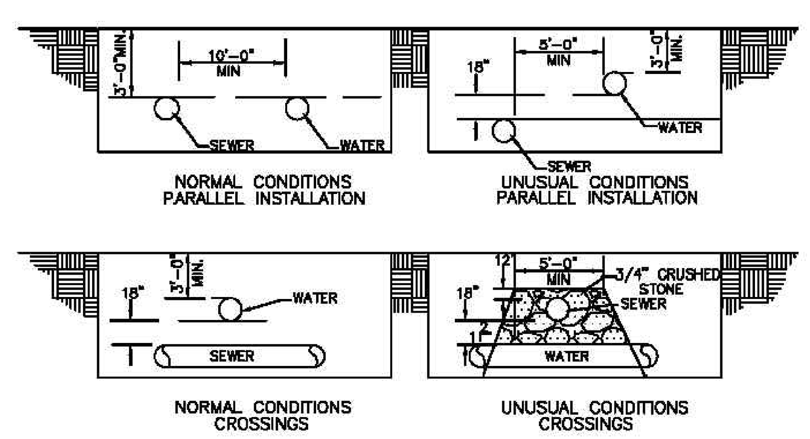
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



TYP. WATER & SEWER PLANNING

City of Port Wentworth
TECHNICAL DETAILS
U-2

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTES:

THE SEPARATION OF WATER MAINS AND SEWERS SHALL COMPLY WITH THE GEORGIA ENVIROMENTAL PROTECTION DIVISION MINIMUM STANDARDS FOR PUBLIC WATER SYSTEMS, WHICH ARE GENERALLY AS FOLLOWS:

A. PARALLEL INSTALLATION:

1. NORMAL CONDITIONS: THE INSIDE EDGE OF A WATER LINE SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM THE INSIDE EDGE OF ANY SANITARY SEWER, STORM SEWER OR SEWER MANHOLE.

2. UNUSUAL CONDITIONS: WHEN LOCAL CONDITIONS PREVENT A HORIZONTAL SEPARATION OF 10 FEET, AND WHEN APPROVED BY THE ENGINEER, THE INSIDE EDGE OF A WATER MAIN MAY BE LAID A MINIMUM OF 5 FEET FROM THE INSIDE EDGE OF A SEWER PROVIDED THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES HIGHER THAN THE TOP OF THE SEWER (SEE DETAIL), AND THE WATER MAIN IS LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF.

B. CROSSINGS:

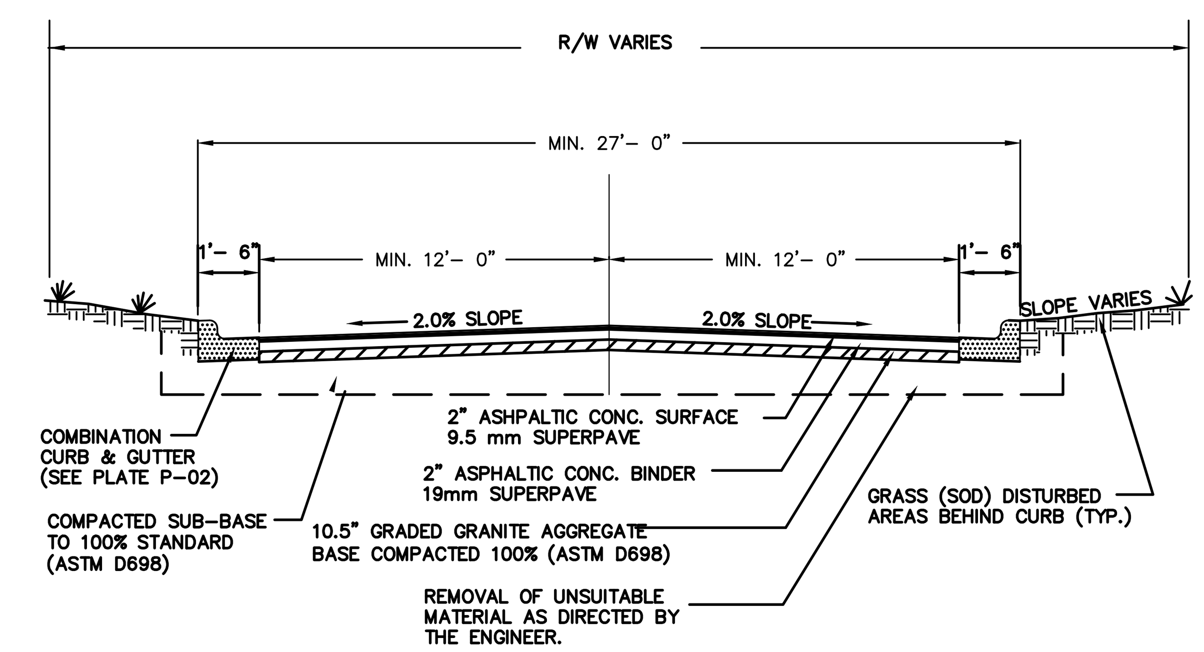
1. NORMAL CONDITIONS: WHENEVER POSSIBLE, THE BOTTOM OF THE WATER MAIN SHALL BE AT LEAST 18 INCHES HIGHER THAN THE TOP OF THE SEWER.

2. UNUSUAL CONDITIONS: IF A WATER MAIN MUST CROSS UNDER A SEWER, THE TOP OF THE WATER MAIN SHALL BE AT LEAST 18 INCHES LOWER THAN THE BOTTOM OF THE SEWER, THE WATER MAIN PIPE SHALL BE CENTERED AT THE CROSSING SO THAT THE JOINTS ARE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER, AND ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT EXCESSIVE DEFLECTION OF THE SEWER AT THE CROSSING. ADEQUATE STRUCTURAL SUPPORT SHALL INCLUDE BACKFILLING THE ENTIRE UTILITY CROSSING AREA WITH 3/4" CRUSHED STONE AS SHOWN IN THE DETAIL.

MINIMUM WATER & SEWER PIPE SEPARATION

City of Port Wentworth
TECHNICAL DETAILS
U-3

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE CITY OF PORT WENTWORTH'S GUIDELINES AND TECHNICAL SPECIFICATIONS.

2. ALL CORE HOLES SHOULD BE FILLED WITH HOT ASPHALT CONFORMING TO CITY SPECIFICATIONS OR 4,000PSI FIBER REINFORCED READY MIX CONCRETE PAINTED BLACK BY THE END OF THE NEXT WORK DAY. BEFORE FILLING, ENSURE THE HOLES ARE CLEAN AND DRY AND TACK THEM WITH AC-20 OR AC-30 ASPHALT CEMENT CONFORMING TO CITY SPECIFICATIONS. PROPERLY COMPACT THE ASPHALT CONCRETE USED FOR FILLING THE HOLE AND LEAVE IT FLUSH WITH THE PAVEMENT.

3. THE CITY RESERVES THE RIGHT TO REQUIRE UNDERDRAIN AND/OR FILTER FABRIC ON THE BASIS OF FIELD TESTING.

TYPICAL ROAD SECTION

NTS

NOTES:
1. ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCEWITH THE CITY OF PORT WENTWORTH'S LATEST CONSTRUCTION SPECIFICATIONS AND DETAILS. THE SYSTEM SHALL BE DESIGNED AND TESTED PER THE SPECIFICATIONS AND REQUIREMENTS MAINTAINED BY THE CITY ENGINEER.
2. AN APPROVED WATER SUPPLY FOR FIRE PROTECTION, EITHER TEMPORARY OR PERMANENT, SHALL BE MADE AVAILABLE AS SOON AS COMBUSTIBLE MATERIAL ARRIVES ON THE SITE.
3. ALL WATER USED FOR CONSTRUCTION SHALL BE METERED THROUGH AN APPROVED BACKFLOW-PREVENTION DEVICE AND FIRE HYDRANT METER OBTAINED FROM THE CONVEYANCE AND DISTRIBUTION DEPARTMENT.
4. ALL ABANDONED SANITARY SEWER LINES SHALL BE PLUGGED.
5. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE SEWER LINES ARE PLACED WITHIN THE EASEMENTS WITH A MINIMUM 7'-6" AVAILABLE FROM PIPE CENTERLINE TO EASEMENT LINE.
6. CONTACT THE UTILITIES PROTECTION CENTER (811 IN GEORGIA OR 1-800-282-7411) FOR LOCATION OF CITY SEWER LINES A MINIMUM OF SEVENTY-TWO (72) HOURS PRIOR TO DIGGING.
7. CONTRACTOR SHALL NOTIFY RESIDENTS A MINIMUM OF 24 HOURS IN ADVANCE OF ANY WORK THAT MAY IMPACT THEM, INCLUDING BUT NOT LIMITED TO: PARKING STALL IMPACT, LOSS OF SERVICE, DRIVEWAY CUTS, REMOVAL/RELOCATION OF FENCES AND MAIL BOXES, SIDEWALK IMPACTS, ETC.

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 046602 JESSICA VICK
01/31/22

REVISIONS
2022-01-31: REVISIONS PER CITY OF PORT WENTWORTH

ROBERTS CIVIL ENGINEERING
ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON
WWW.ROBERTSCIVILENGINEERING.COM

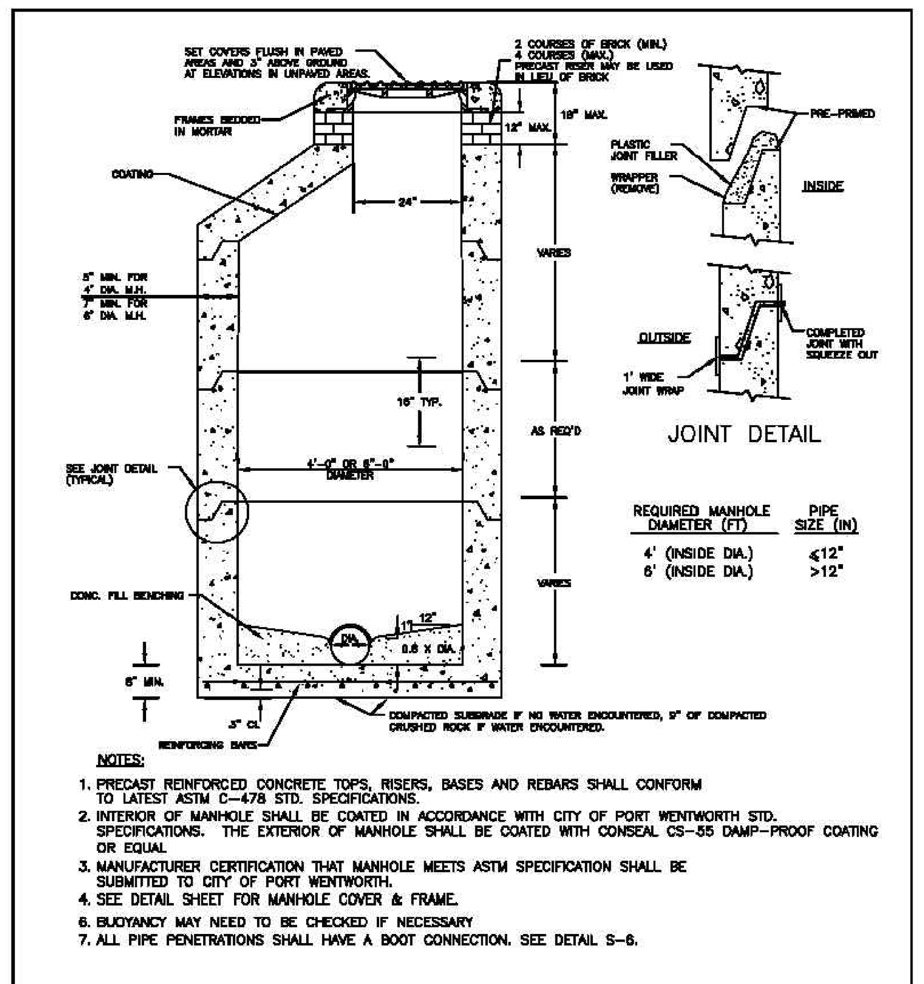
CONSTRUCTION DETAILS

Rice Creek Phase 5
Port Wentworth
PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/04/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: NTS

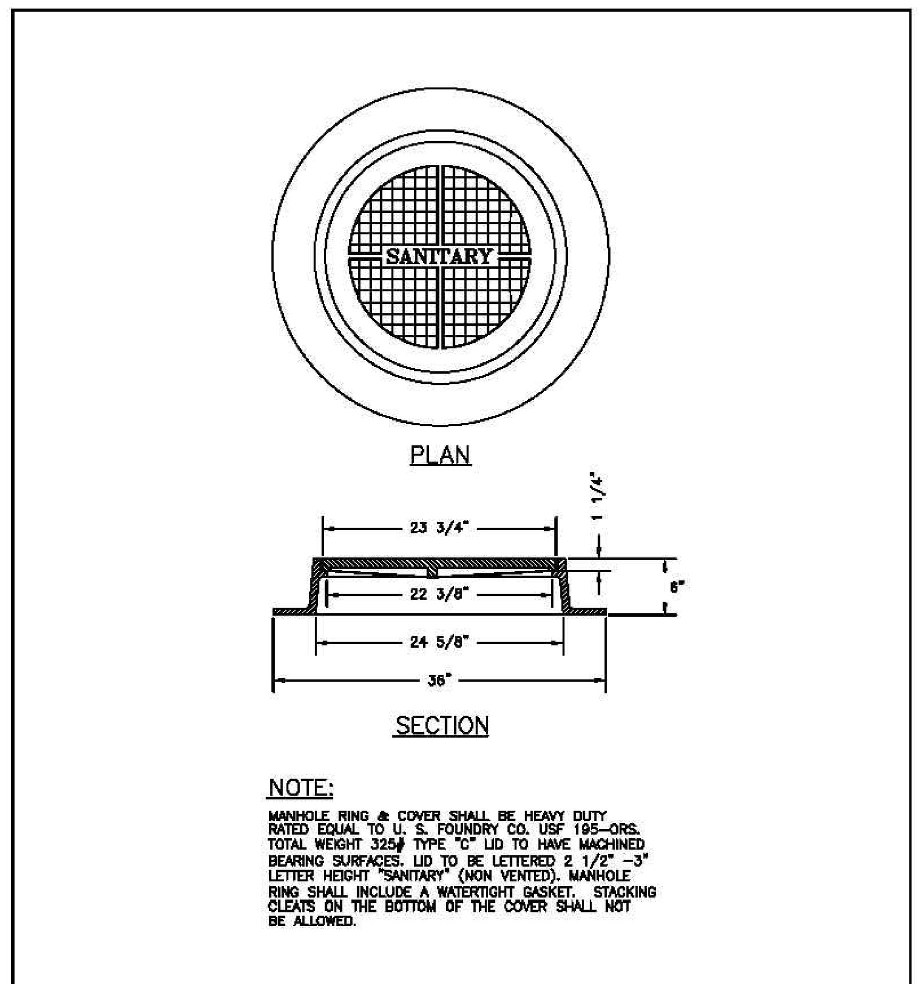
D2

SHEET:



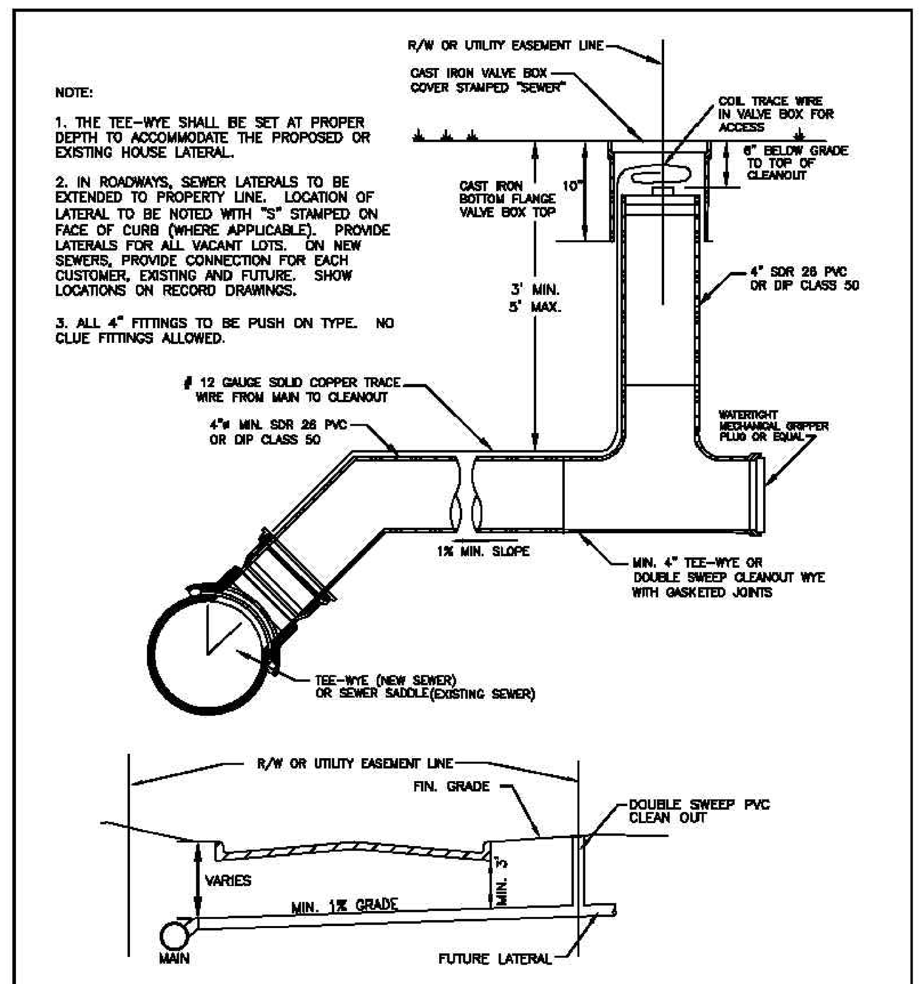
PRECAST CONCRETE MANHOLE

City of Port Wentworth
TECHNICAL DETAILS
S-1
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



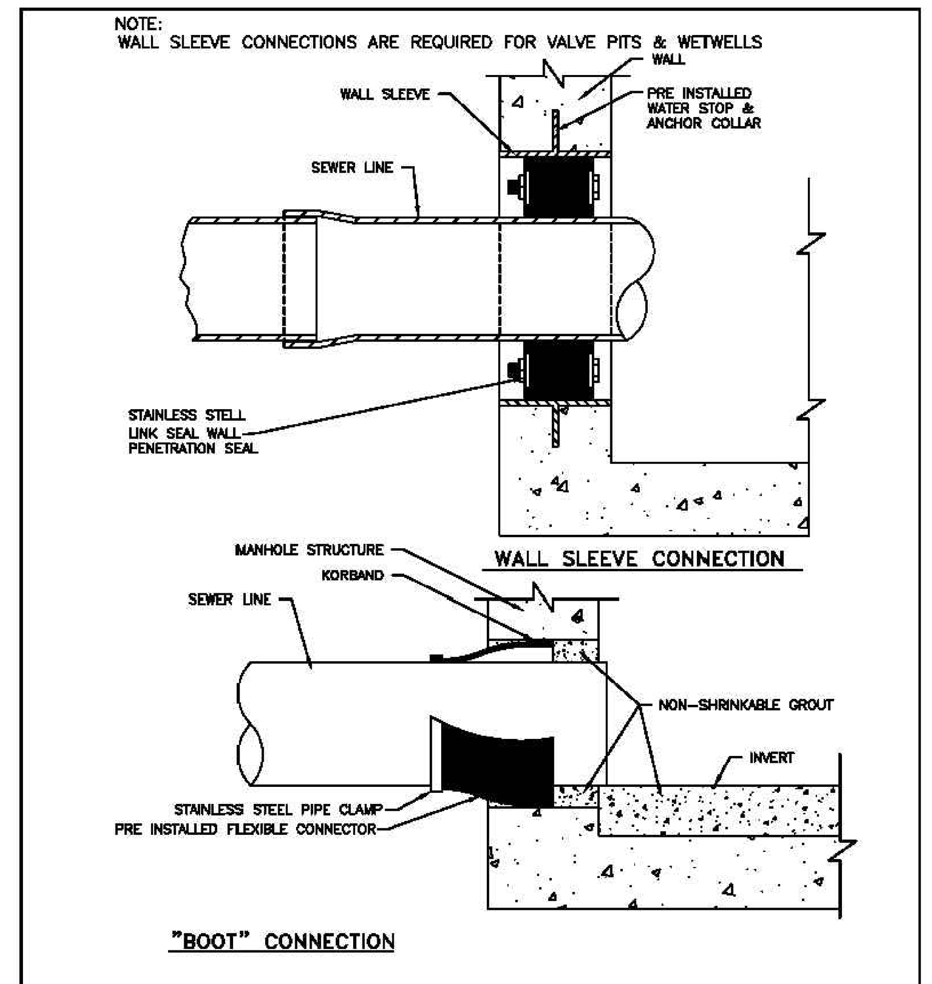
MANHOLE RING & COVER

City of Port Wentworth
TECHNICAL DETAILS
S-2
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



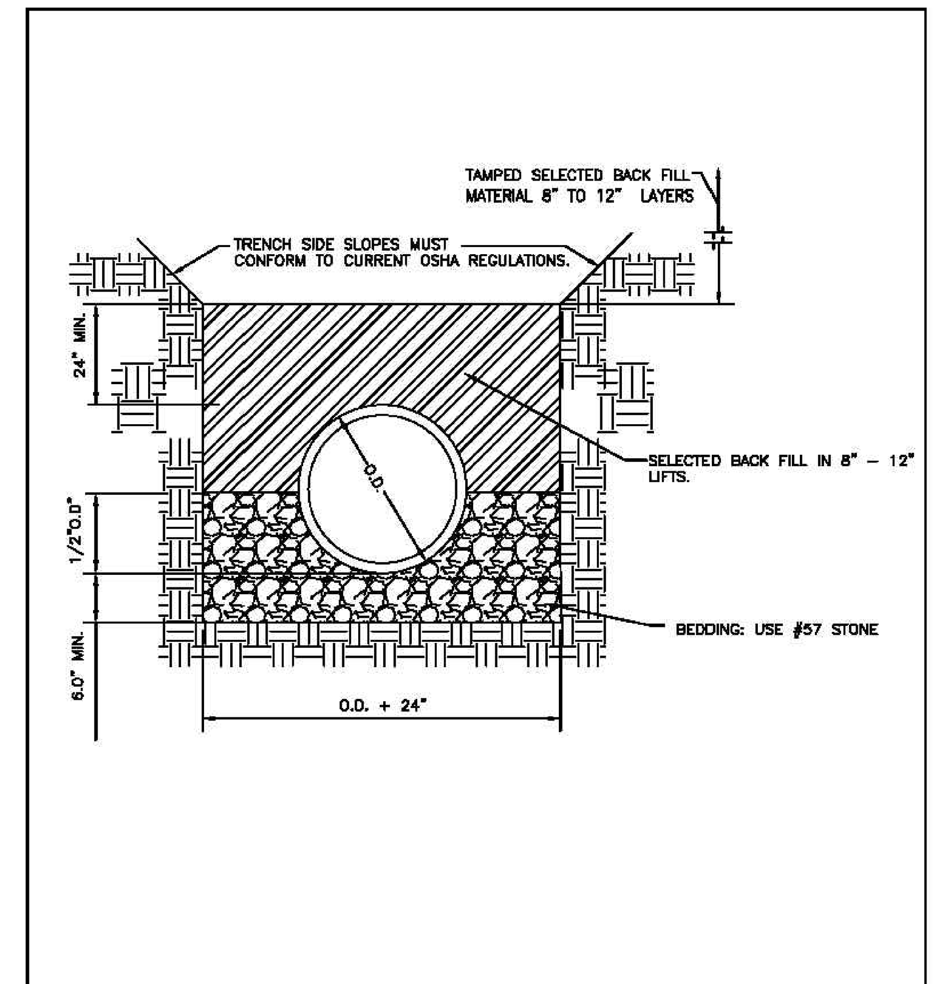
SANITARY SEWER SERVICE CONNECTION

City of Port Wentworth
TECHNICAL DETAILS
S-4
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



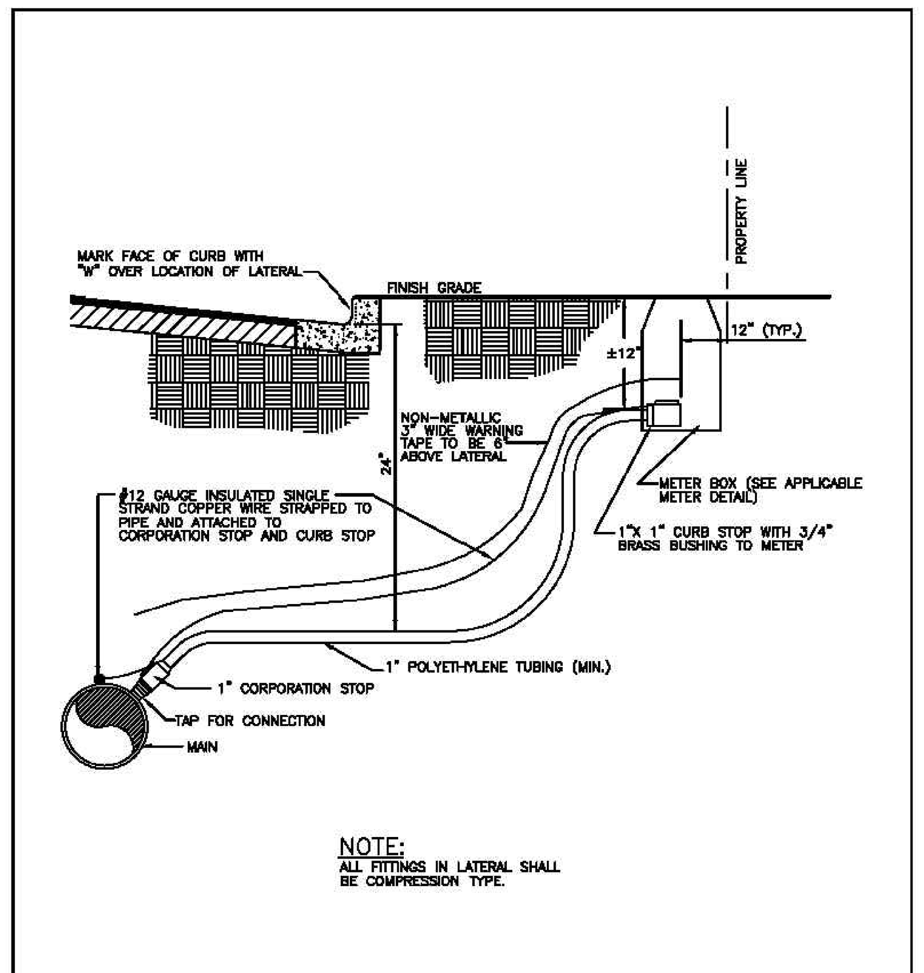
PRECAST STRUCTURE PIPE CONNECTION

City of Port Wentworth
TECHNICAL DETAILS
S-6
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



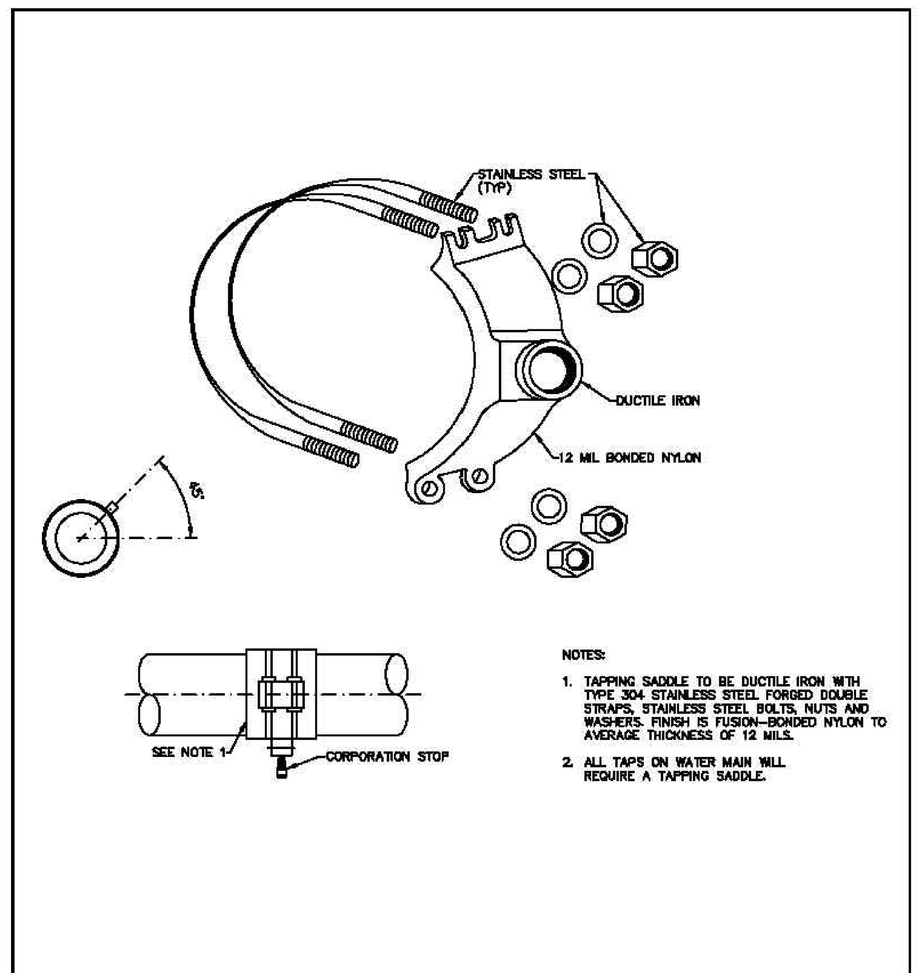
PIPE BEDDING

City of Port Wentworth
TECHNICAL DETAILS
S-8
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



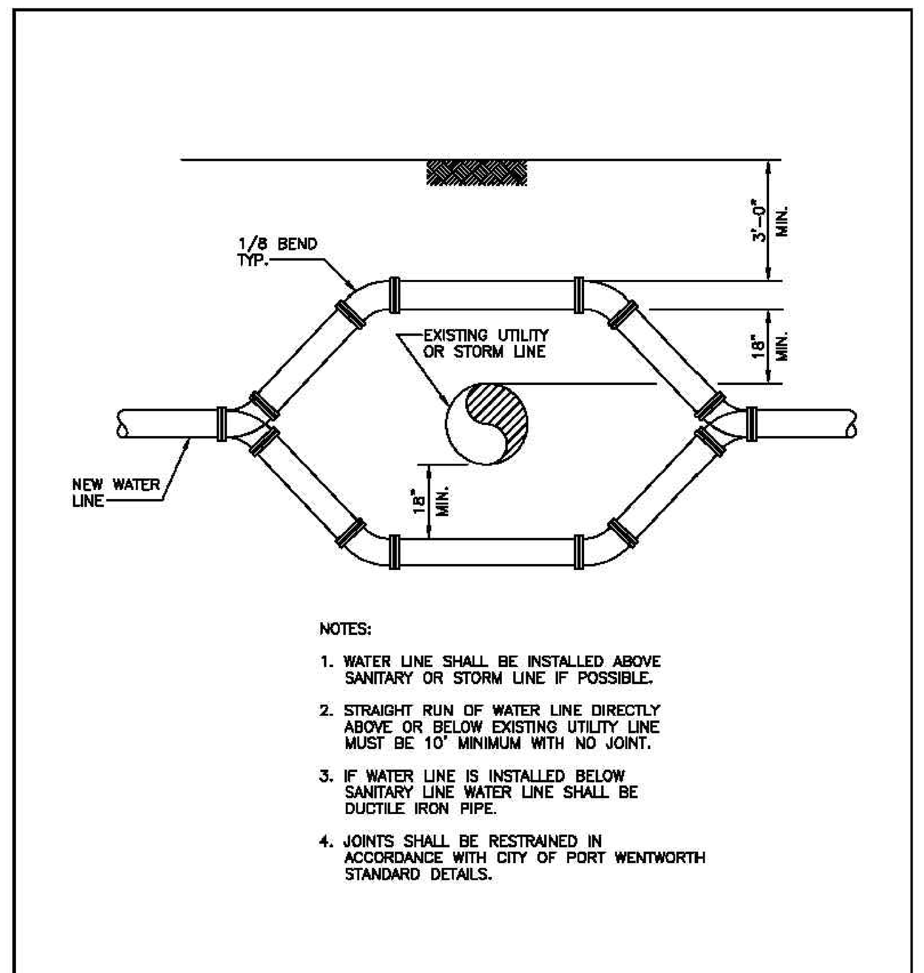
WATER SERVICE LATERAL

City of Port Wentworth
TECHNICAL DETAILS
W-1
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



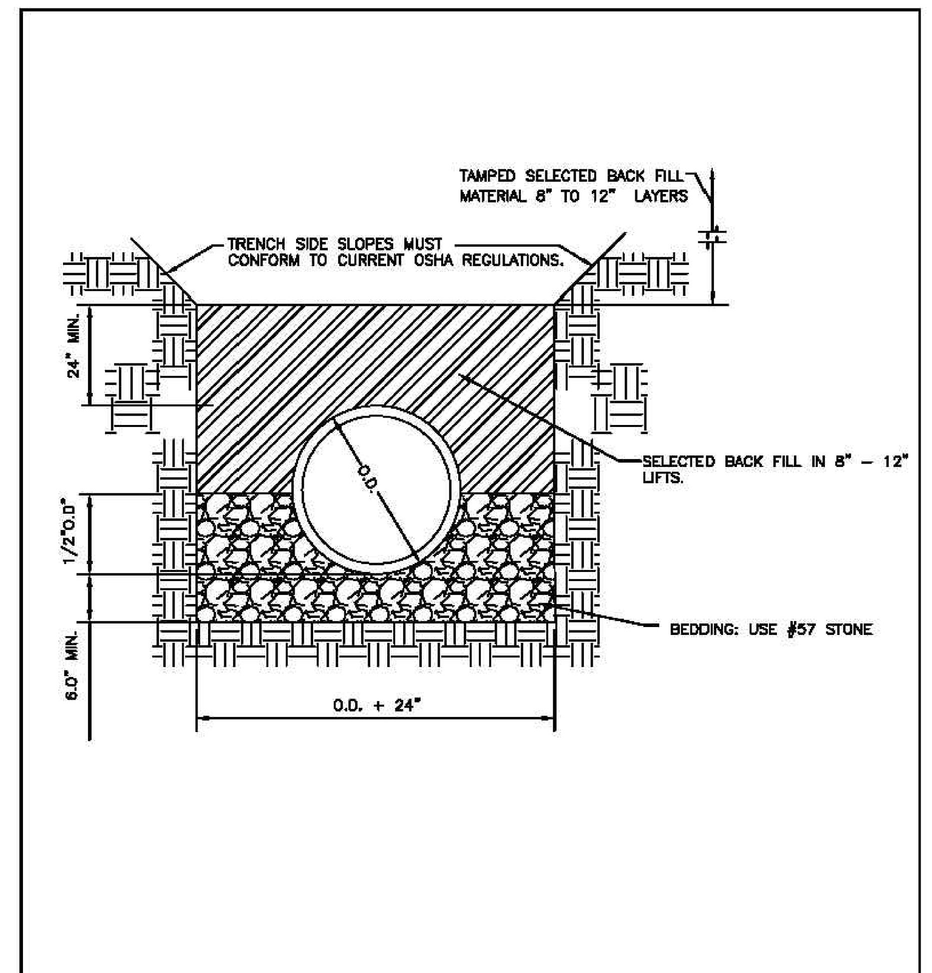
1" AND 2" TAPPING SADDLE

City of Port Wentworth
TECHNICAL DETAILS
W-2
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



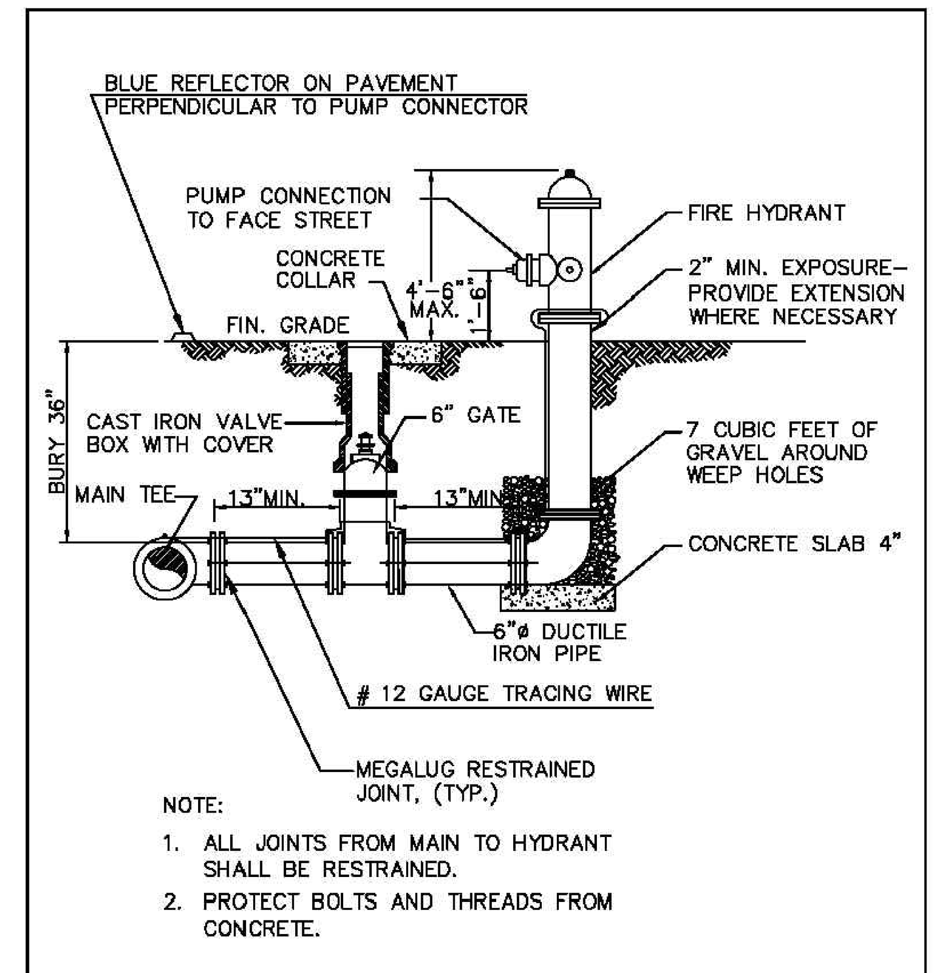
STANDARD UTILITY CROSSING

City of Port Wentworth
TECHNICAL DETAILS
W-6
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



PIPE BEDDING

City of Port Wentworth
TECHNICAL DETAILS
W-8
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



STANDARD FIRE HYDRANT

City of Port Wentworth
TECHNICAL DETAILS
W-9
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

01/31/22

REVISIONS

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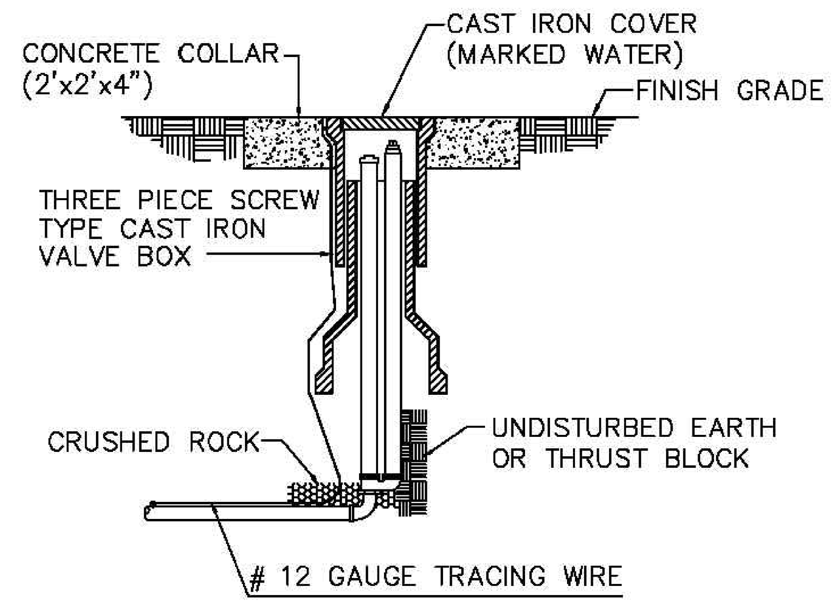
CIVIL ENGINEERING
ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON
WWW.ROBERTSCIVILENGINEERING.COM

CONSTRUCTION DETAILS

Rice Creek Phase 5
Port Wentworth
PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/04/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: NTS

D3
SHEET:

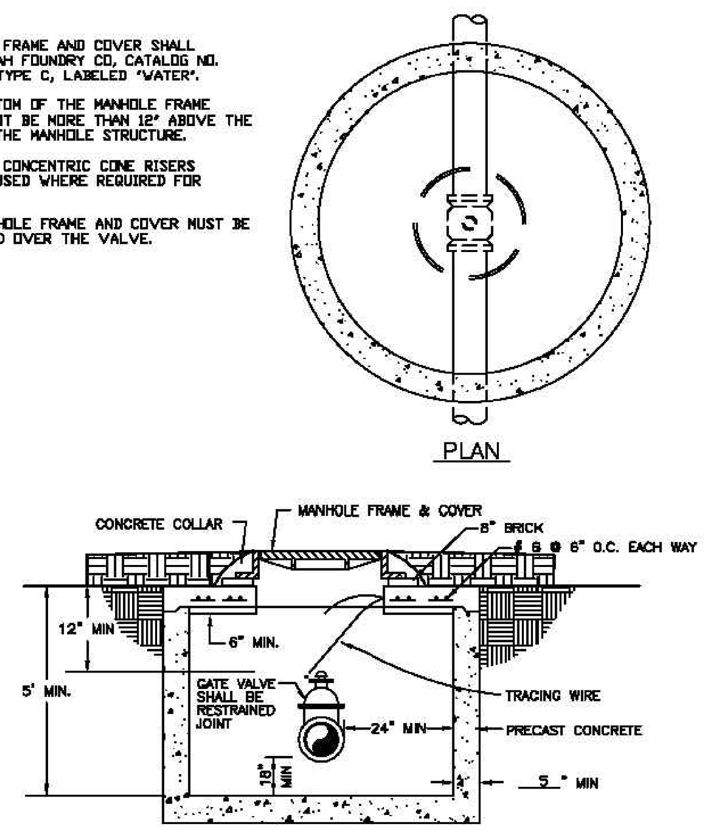


NOTE:
1. MAINGUARD #79 BLOW-OFF HYDRANT BY THE KUPFERLE FOUNDRY COMPANY. SEE MANUFACTURER'S SPECIFICATION FOR FURTHER DETAIL.

BLOW-OFF HYDRANT

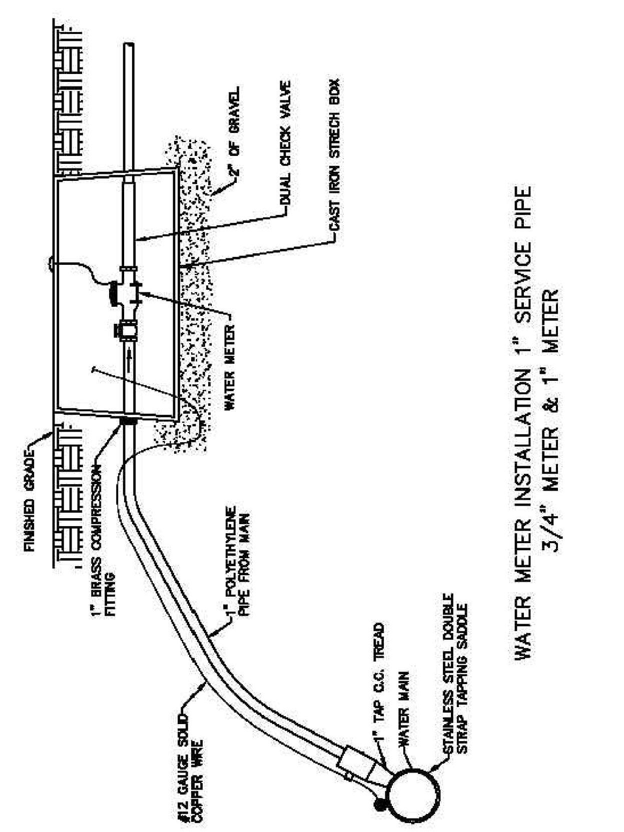
City of Port Wentworth
TECHNICAL DETAILS
W-10
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

NOTES:
1. MANHOLE FRAME AND COVER SHALL BE NEENAH FOUNDRY CO, CATALOG NO. R-1668, TYPE C, LABELED "WATER".
2. THE BOTTOM OF THE MANHOLE FRAME SHALL NOT BE MORE THAN 12" ABOVE THE TOP OF THE MANHOLE STRUCTURE.
3. PRECAST CONCENTRIC CONE RISERS MAY BE USED WHERE REQUIRED FOR DEPTH.
4. THE MANHOLE FRAME AND COVER MUST BE CENTERED OVER THE VALVE.



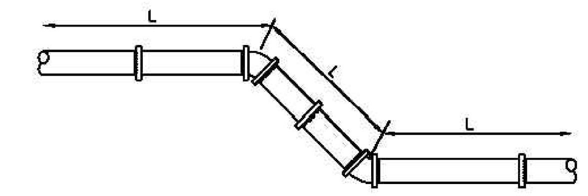
VALVE MANHOLE FOR 8" & GREATER GATE VALVE

City of Port Wentworth
TECHNICAL DETAILS
W-14
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



WATER METER

City of Port Wentworth
TECHNICAL DETAILS
W-17
ADDENDUM 01
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



PVC LINE

PIPE DIA.	BEND ANGLE			
	11 1/4°	22 1/2°	45°	90°
4	5	10	22	52
6	7	15	30	74
8	9	19	40	96
10	11	23	48	115
12	13	27	56	136

DUCTILE IRON LINE

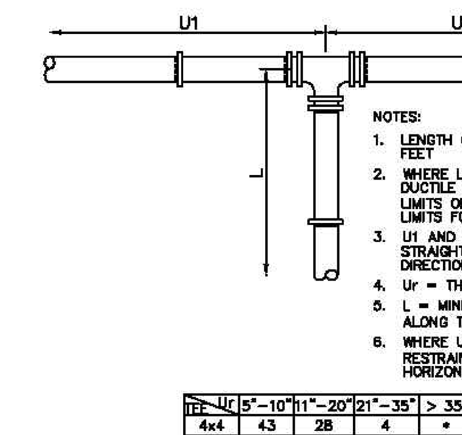
PIPE DIA.	BEND ANGLE			
	11 1/4°	22 1/2°	45°	90°
4	3	6	12	28
6	4	8	17	40
8	4	10	22	52
10	5	12	26	62
12	6	15	30	73
16	7	19	39	94
20	11	23	47	114
24	13	26	55	132

MINIMUM RESTRAINED LENGTH (L)

NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LINES CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.

STANDARD VERTICAL BEND RESTRAINT

City of Port Wentworth
TECHNICAL DETAILS
W-28
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



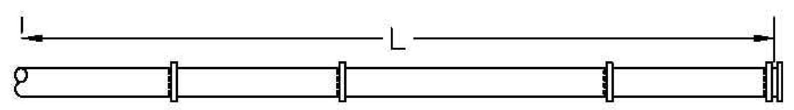
NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET
2. WHERE LIMITS CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.
3. U1 AND U2 = UNINTERUPTED STRAIGHT RUNS OF PIPE IN EACH DIRECTION.
4. Ur = THE SMALLER OF U1 OR U2.
5. L = MINIMUM RESTRAINED LENGTH ALONG THE BRANCH
6. WHERE Ur IS LESS THAN 5', RESTRAIN TEE AS A 90° HORIZONTAL BEND.

TEE \ Ur	5'-10'	11'-20'	21'-35'	> 35'
4x4	43	28	4	*
6x4	38	17	*	*
6x6	64	49	25	*
8x4	34	6	*	*
8x6	61	42	10	*
8x8	87	72	48	12
10x4	29	*	*	*
10x6	58	34	*	*
10x8	84	66	35	*
10x10	106	91	67	31
12x4	24	*	*	*
12x6	54	26	*	*
12x8	82	60	23	*
12x10	104	86	57	13
12x12	126	112	87	51

MINIMUM RESTRAINED LENGTH (L)
* RESTRAIN AT TEE ONLY

STANDARD TEE RESTRAINT (PVC LINE)

City of Port Wentworth
TECHNICAL DETAILS
W-29
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



DUCTILE IRON LINE

PIPE DIA.	L
4	26
6	40
8	52
10	62
12	73
16	94
20	114
24	132

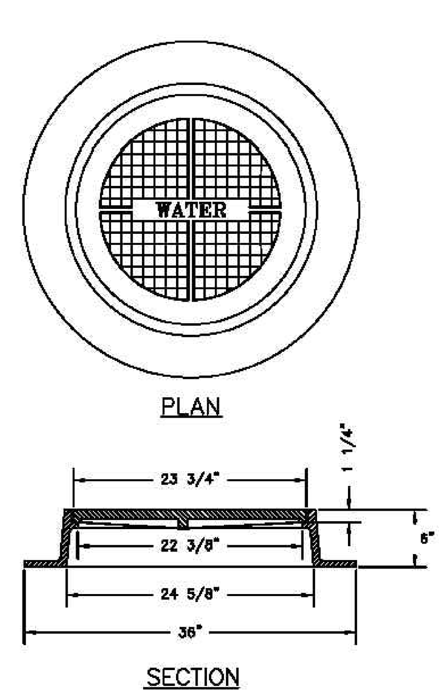
PVC LINE

PIPE DIA.	L
4	52
6	74
8	96
10	115
12	136

NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LIMITS CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.
3. FOR LINE STUBS (SEE DETAIL W39). THE LENGTH OF RESTRAINT (L) SHALL BE FROM THE VALVE AND NOT THE CAP.

STANDARD DEAD END RESTRAINT

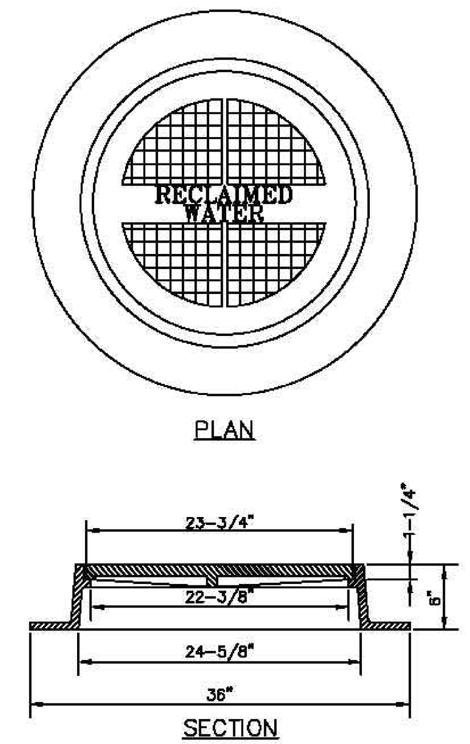
City of Port Wentworth
TECHNICAL DETAILS
W-31
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTE:
MANHOLE RING & COVER SHALL BE HEAVY DUTY RATED EQUAL TO U. S. FOUNDRY CO. USF 195-ORS. TOTAL WEIGHT 325# TYPE "C" LID TO HAVE MACHINED BEARING SURFACES. LID TO BE LETTERED 2 1/2" -3" LETTER HEIGHT "WATER" (NON VENTED). MANHOLE RING SHALL INCLUDE A WATERTIGHT GASKET. STACKING CLEATS ON THE BOTTOM OF THE COVER SHALL NOT BE ALLOWED.

MANHOLE RING & COVER

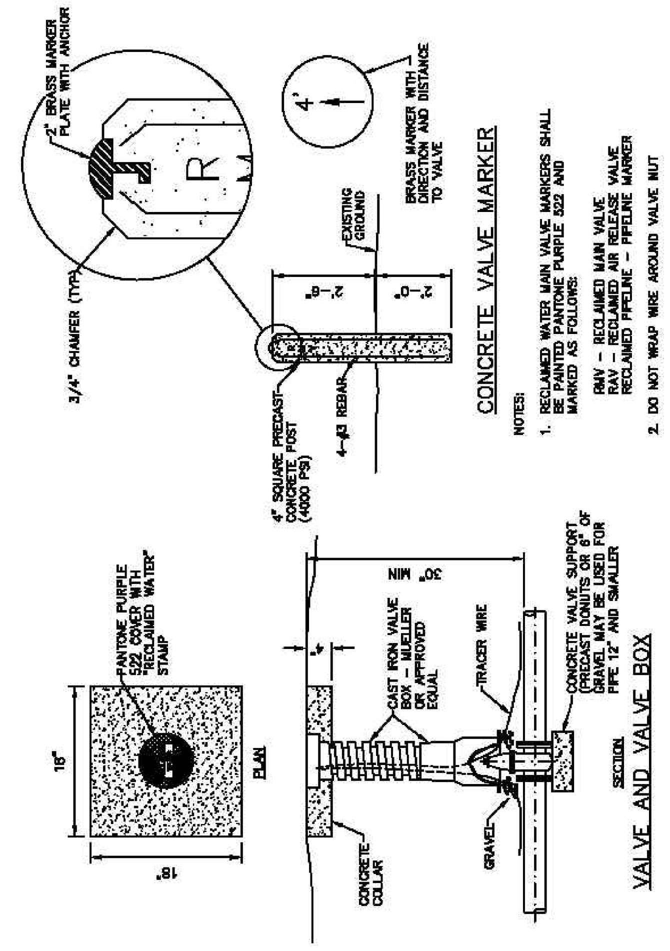
City of Port Wentworth
TECHNICAL DETAILS
W-34
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTE:
MANHOLE RIM & COVER EQUIVALENT TO U.S. FOUNDRY CO. USF 195-ORS. TOTAL WEIGHT 325#. TYPE "E" LID TO HAVE MACHINED BEARING SURFACES. LID TO BE LETTERED "RECLAIMED WATER" FOR RECLAIMED WATER ARV MANHOLES OR RECLAIMED WATER VALVE MANHOLES.

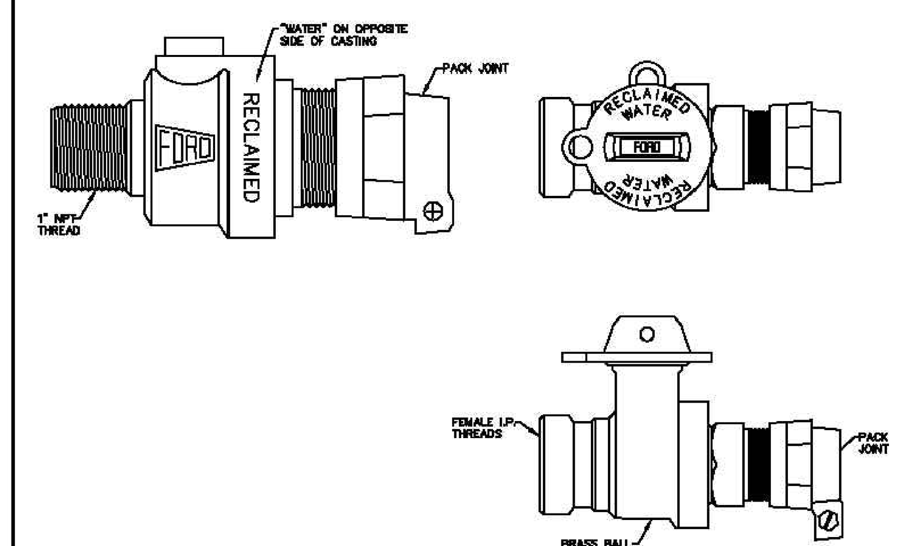
REUSE WATER MANHOLE RING & COVER

City of Port Wentworth
TECHNICAL DETAILS
RW-2
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



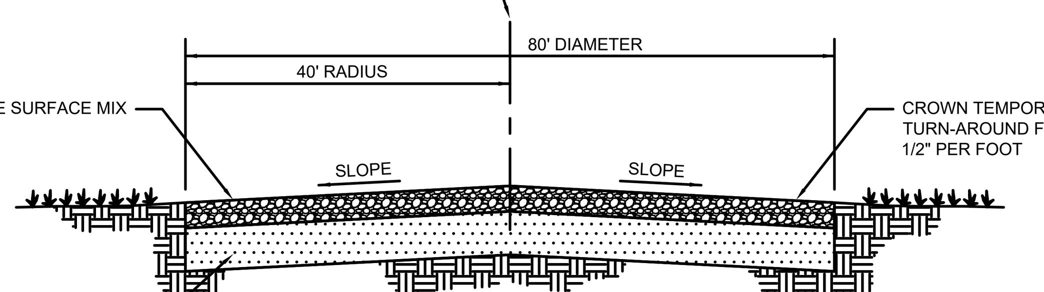
WATER VALVE 4" OR 6"

City of Port Wentworth
TECHNICAL DETAILS
RW-6
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

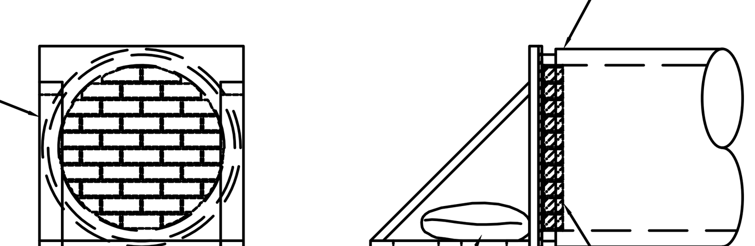


BRASS FITTINGS FOR WATER METER

City of Port Wentworth
TECHNICAL DETAILS
RW-14
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



TEMPORARY GRAVEL TURN-AROUND
NTS



TEMPORARY STORM PIPE BRICK AND MORTAR SEAL
NTS

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK
01/31/22

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CONSTRUCTION DETAILS

Rice Creek Phase 5
Port Wentworth
PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/04/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: NTS

D4
SHEET:

EROSION CONTROL PLANS

Rice Creek Phase 5

PREPARED FOR:
Rice Creek Investors #7, LLC
2702 Whatley Ave, Ste. B-1
Savannah, GA 31404
912.925.3440

GEORGIA REGISTERED PROFESSIONAL ENGINEER
No. 046602
PROFESSIONAL
JESSICA VICK

12/02/21
CERTIFIED DESIGN PROFESSIONAL:
Jessica Vick, P.E.
LEVEL II CERTIFICATION #: 0000062699

ROBERTS
CIVIL ENGINEERING
WWW.ROBERTSCIVILENGINEERING.COM

301 SEA ISLAND ROAD, SUITE 10
ST. SIMONS ISLAND, GA 31522
912-638-9681

6001 CHATHAM CENTER DRIVE, SUITE 255
SAVANNAH, GA 31405
912-298-7006

14600 WHIRLWIND AVENUE, SUITE 119A
JACKSONVILLE, FL 32218
904-741-0099

4000 FABER PLACE DRIVE, SUITE 300
NORTH CHARLESTON, SC 29405
843-323-4224

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VICINITY MAP NTS

Port Wentworth

Rice Creek Phase 5

OWNER	ENGINEER
Rice Creek Investors #7, LLC	ROBERTS CIVIL ENGINEERING
CONTACT	CONTACT
Cole Chenowith	Jessica Vick, P.E.
EMAIL	EMAIL
cchenowith@landmark24.com	jvick@robertscivilengineering.com
912.925.3440	912.977.5244

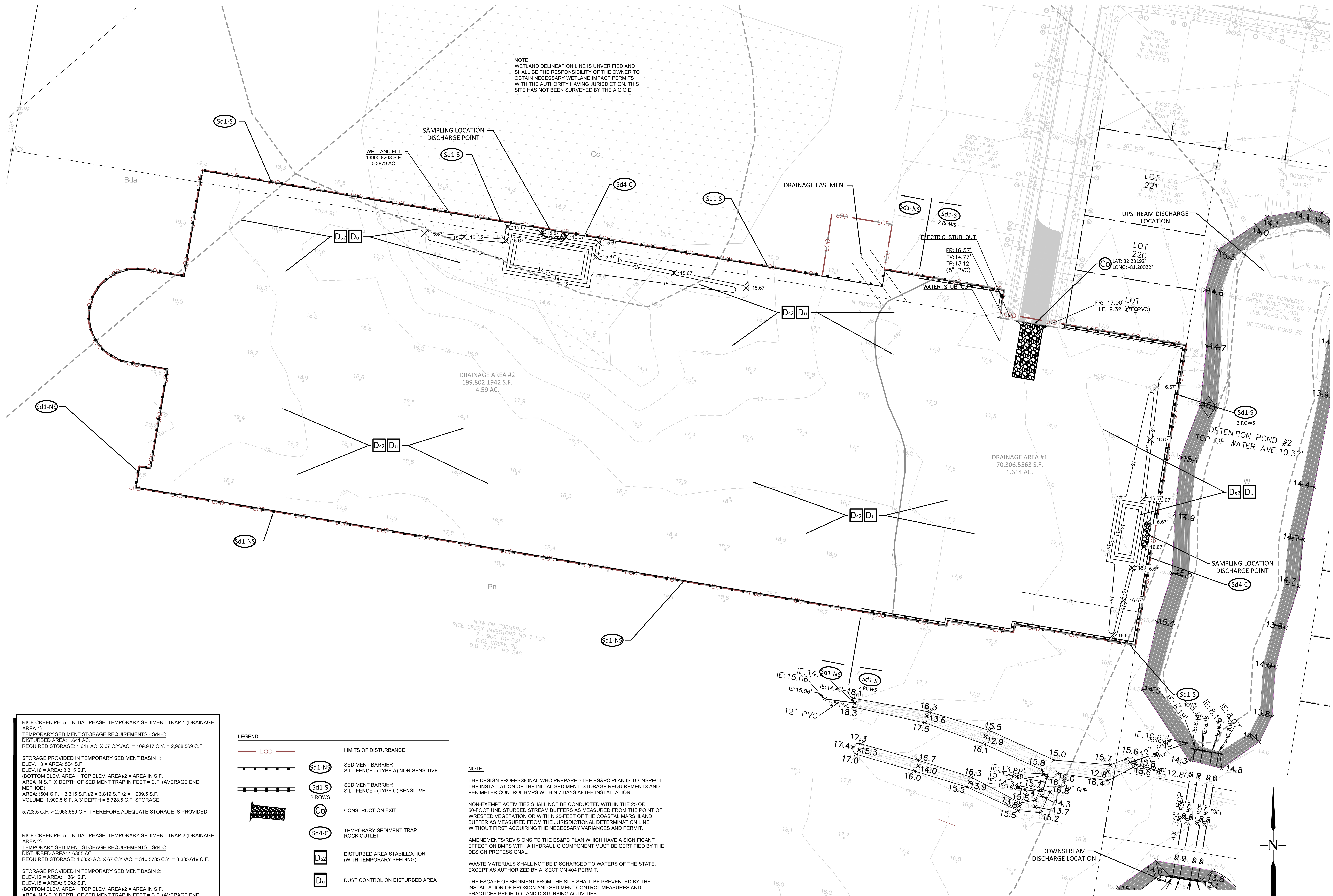
#	REVISIONS
1	
2	
3	
4	
5	

12/02/2021: ORIGINAL ISSUE DATE — RCE PROJECT NUMBER: 21507

CONTENTS

SHEET		DATE
0	COVER SHEET	12/02/21
1	INITIAL EROSION CONTROL PLAN	12/02/21
2	INTERMEDIATE EROSION CONTROL PLAN	12/02/21
3	FINAL EROSION CONTROL PLAN	12/02/21
4	EROSION CONTROL NOTES	12/02/21
5	EROSION CONTROL DETAILS	12/02/21
6	EROSION CONTROL DETAILS	12/02/21

COVER



RICE CREEK PH. 5 - INITIAL PHASE: TEMPORARY SEDIMENT TRAP 1 (DRAINAGE AREA 1)

TEMPORARY SEDIMENT STORAGE REQUIREMENTS - Sd4-C

DISTURBED AREA: 1.641 AC.

REQUIRED STORAGE: 1.641 AC. X 67 C.Y./AC. = 109.947 C.Y. = 2,968.569 C.F.

STORAGE PROVIDED IN TEMPORARY SEDIMENT BASIN 1:
ELEV. 13 = AREA: 504 S.F.
ELEV.16 = AREA: 3,315 S.F.
(BOTTOM ELEV. AREA + TOP ELEV. AREA)/2 = AREA IN S.F.
AREA IN S.F. X DEPTH OF SEDIMENT TRAP IN FEET = C.F. (AVERAGE END METHOD)
AREA: (504 S.F. + 3,315 S.F.)/2 = 3,819 S.F./2 = 1,909.5 S.F.
VOLUME: 1,909.5 S.F. X 3' DEPTH = 5,728.5 C.F. STORAGE

5,728.5 C.F. > 2,968.569 C.F. THEREFORE ADEQUATE STORAGE IS PROVIDED

RICE CREEK PH. 5 - INITIAL PHASE: TEMPORARY SEDIMENT TRAP 2 (DRAINAGE AREA 2)

TEMPORARY SEDIMENT STORAGE REQUIREMENTS - Sd4-C

DISTURBED AREA: 4.6355 AC.

REQUIRED STORAGE: 4.6355 AC. X 67 C.Y./AC. = 310.5785 C.Y. = 8,385.619 C.F.

STORAGE PROVIDED IN TEMPORARY SEDIMENT BASIN 2:
ELEV.12 = AREA: 1,364 S.F.
ELEV.15 = AREA: 5,092 S.F.
(BOTTOM ELEV. AREA + TOP ELEV. AREA)/2 = AREA IN S.F.
AREA IN S.F. X DEPTH OF SEDIMENT TRAP IN FEET = C.F. (AVERAGE END METHOD)
AREA: (1,364 S.F. + 5,092 S.F.)/2 = 6,456 S.F./2 = 3,228 S.F.
VOLUME: 3,228 S.F. X 3' DEPTH = 9,684 C.F. STORAGE

9,684 C.F. > 8,385.6195 C.F. THEREFORE ADEQUATE STORAGE IS PROVIDED

LEGEND:

LOD	LIMITS OF DISTURBANCE
Sd1-NS	SEDIMENT BARRIER SILT FENCE - (TYPE A) NON-SENSITIVE
Sd1-S 2 ROWS	SEDIMENT BARRIER SILT FENCE - (TYPE C) SENSITIVE
Co	CONSTRUCTION EXIT
Sd4-C	TEMPORARY SEDIMENT TRAP ROCK OUTLET
Ds2	DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)
Du	DUST CONTROL ON DISTURBED AREA
	SOILS DELINEATION LINE
Bda	SOIL SERIES - BLANDEN FINE SANDY LOAM 0 TO 2 PERCENT SLOPE
Cc	SOIL SERIES - CAPE FEAR SOILS
Pn	SOIL SERIES - POOLER FINE SANDY LOAM

NOTE:

THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPS WITHIN 7 DAYS AFTER INSTALLATION.

NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMIT.

AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPS WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

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GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK

12/02/21

CERTIFIED DESIGN PROFESSIONAL:
Jessica Vick, P.E.
LEVEL II CERTIFICATION #: 0000062699

REVISIONS

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ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON
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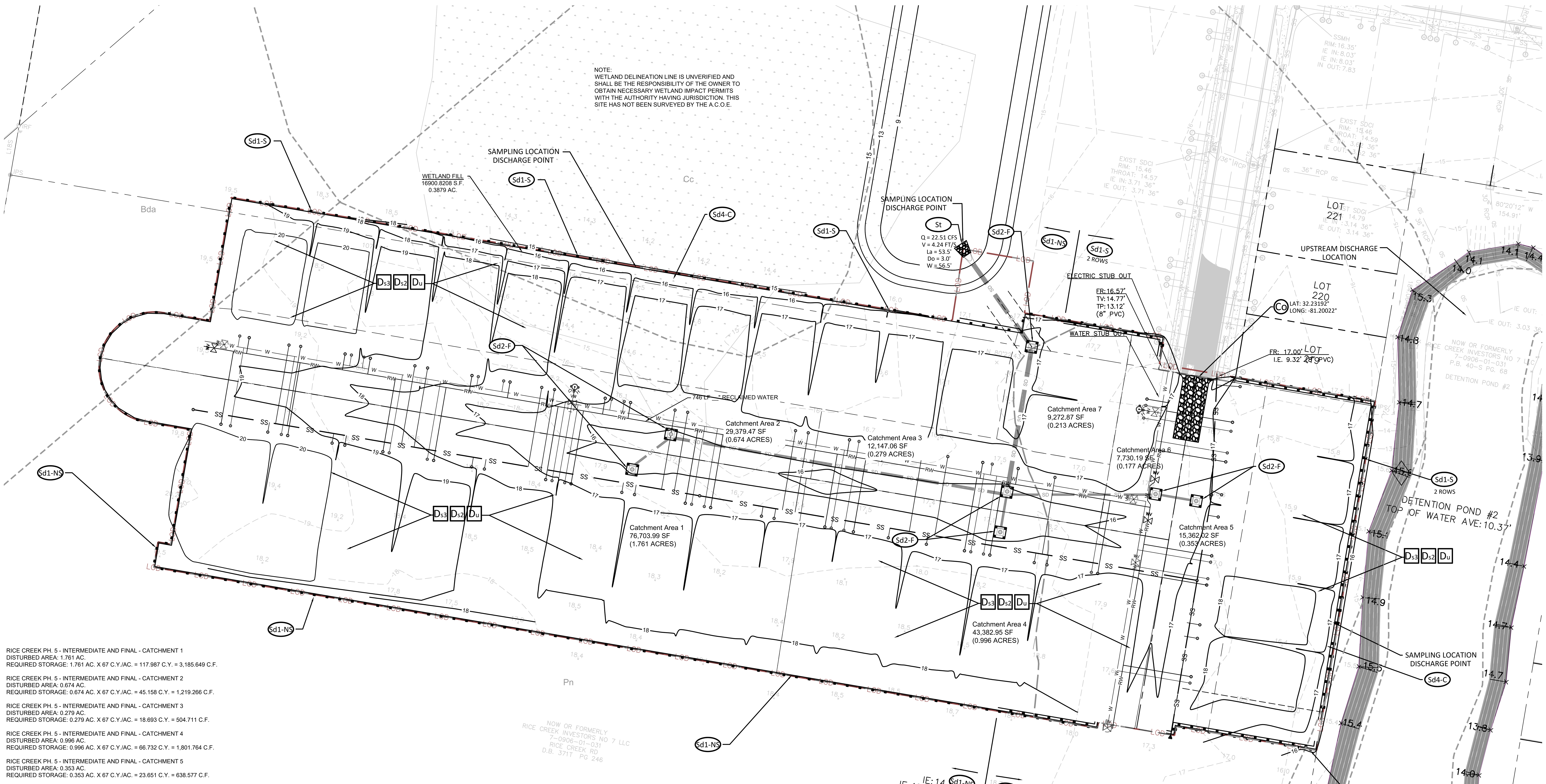
INITIAL EROSION CONTROL PLAN

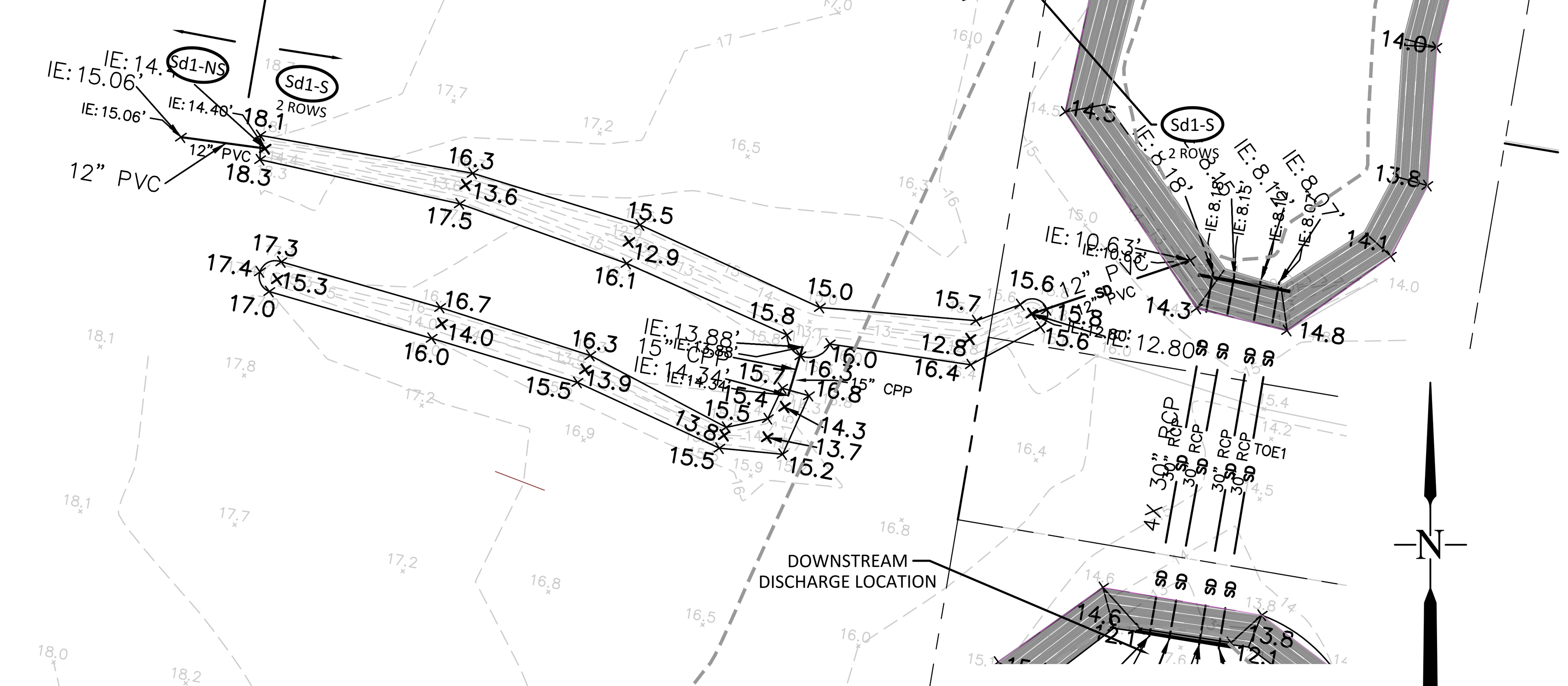
Rice Creek Phase 5
Port Wentworth

PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/02/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: 1":40'

SHEET: 1





RICE CREEK PH. 5 - INTERMEDIATE AND FINAL - CATCHMENT 1
DISTURBED AREA: 1.761 AC.
REQUIRED STORAGE: 1.761 AC. X 67 C.Y./AC. = 117.987 C.Y. = 3,185.649 C.F.

RICE CREEK PH. 5 - INTERMEDIATE AND FINAL - CATCHMENT 2
DISTURBED AREA: 0.674 AC.
REQUIRED STORAGE: 0.674 AC. X 67 C.Y./AC. = 45.158 C.Y. = 1,219.266 C.F.

RICE CREEK PH. 5 - INTERMEDIATE AND FINAL - CATCHMENT 3
DISTURBED AREA: 0.279 AC.
REQUIRED STORAGE: 0.279 AC. X 67 C.Y./AC. = 18.693 C.Y. = 504.711 C.F.

RICE CREEK PH. 5 - INTERMEDIATE AND FINAL - CATCHMENT 4
DISTURBED AREA: 0.996 AC.
REQUIRED STORAGE: 0.996 AC. X 67 C.Y./AC. = 66.732 C.Y. = 1,801.764 C.F.

RICE CREEK PH. 5 - INTERMEDIATE AND FINAL - CATCHMENT 5
DISTURBED AREA: 0.353 AC.
REQUIRED STORAGE: 0.353 AC. X 67 C.Y./AC. = 23.651 C.Y. = 638.577 C.F.

RICE CREEK PH. 5 - INTERMEDIATE AND FINAL - CATCHMENT 6
DISTURBED AREA: 0.177 AC.
REQUIRED STORAGE: 0.177 AC. X 67 C.Y./AC. = 11.859 C.Y. = 320.193 C.F.

RICE CREEK PH. 5 - INTERMEDIATE AND FINAL - CATCHMENT 7
DISTURBED AREA: 0.089 AC.
REQUIRED STORAGE: 0.089 AC. X 67 C.Y./AC. = 5.963 C.Y. = 161.001 C.F.

TOTAL REQUIRED STORAGE: 3,185.649 C.F. + 1,219.266 C.F. + 504.711 C.F. + 1,801.764 C.F. + 638.577 C.F. + 320.193 C.F. + 161.001 C.F. = 7,831.161 C.F.

STORAGE PROVIDED IN EXISTING POND:
ELEV. 14 (APPROX. TOP OF WATER) = AREA: 57,891.6093 S.F.
ELEV. 9 (AVERAGE BOTTOM DEPTH OF POND) = AREA: 44,295.8664 S.F.
(BOTTOM ELEV. AREA + TOP ELEV. AREA)/2 = AREA IN S.F.
AREA IN S.F. X DEPTH OF SEDIMENT TRAP IN FEET = C.F. (AVERAGE END METHOD)
AREA: (57,891.6093 S.F. + 44,295.8664 S.F.)/2 = 102,187.4757 S.F./2 = 51,093.7379 S.F.
VOLUME: 51,093.7379 S.F. X 4.0' DEPTH = 204,374.9516 C.F. STORAGE

204,374.9516 C.F. > 7,831.161 C.F. THEREFORE ADEQUATE STORAGE IS PROVIDED

RICE CREEK PH. 5 - INTERMEDIATE AND FINAL - EXISTING POND
DISTURBED AREA: 6.255 AC.
REQUIRED STORAGE: 6.255 AC. X 67 C.Y./AC. = 419.085 C.Y. = 11,315.295 C.F.

STORAGE PROVIDED IN EXISTING POND:
ELEV.14 (APPROX. TOP OF WATER) = AREA: 57,891.6093 S.F.
ELEV.9 (AVERAGE BOTTOM DEPTH OF POND) = AREA: 44,295.8664 S.F.
(BOTTOM ELEV. AREA + TOP ELEV. AREA)/2 = AREA IN S.F.
AREA IN S.F. X DEPTH OF SEDIMENT TRAP IN FEET = C.F. (AVERAGE END METHOD)
AREA: (57,891.6093 S.F. + 44,295.8664 S.F.)/2 = 102,187.4757 S.F./2 = 51,093.7379 S.F. VOLUME: 51,093.7379 S.F. X 4.0' DEPTH = 204,374.9516 C.F. STORAGE

204,374.9516 C.F. > 11,277.306 C.F. THEREFORE ADEQUATE STORAGE IS PROVIDED

LEGEND:

LOD		LIMITS OF DISTURBANCE
	Sd1-NS	SEDIMENT BARRIER SILT FENCE - (TYPE A) NON-SENSITIVE
	Sd1-S 2 ROWS	SEDIMENT BARRIER SILT FENCE - (TYPE C) SENSITIVE
	Co	CONSTRUCTION EXIT
	Sd4-C	TEMPORARY SEDIMENT TRAP ROCK OUTLET
	Sd-2F	INLET SEDIMENT TRAP - FILTER FABRIC W/ SUPPORTING FRAME
	St	STORM DRAIN OUTLET PROTECTION
	Ds2	DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)
	Ds3	DISTURBED AREA STABILIZATION (WITH PERMANENT SEEDING)
	Du	DUST CONTROL ON DISTURBED AREA
		0 TO 2 PERCENT SLOPE SOILS DELINEATION LINE
Bda		SOIL SERIES - BLANDEN FINE SANDY LOAM
Cc		SOIL SERIES - CAPE FEAR SOILS
Pn		SOIL SERIES - POOLER FINE SANDY LOAM

NOTE:

THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPS WITHIN 7 DAYS AFTER INSTALLATION.

NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMIT.

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WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

811 Know what's below. Call before you dig.

GRAPHIC SCALE
0' 40' 80'
1" = 40'

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 046602 JESSICA VICK

12/02/21
CERTIFIED DESIGN PROFESSIONAL:
Jessica Vick, P.E.
LEVEL II CERTIFICATION #: 0000062699

REVISIONS

ROBERTS CIVIL ENGINEERING
ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON
WWW.ROBERTSCIVILENGINEERING.COM

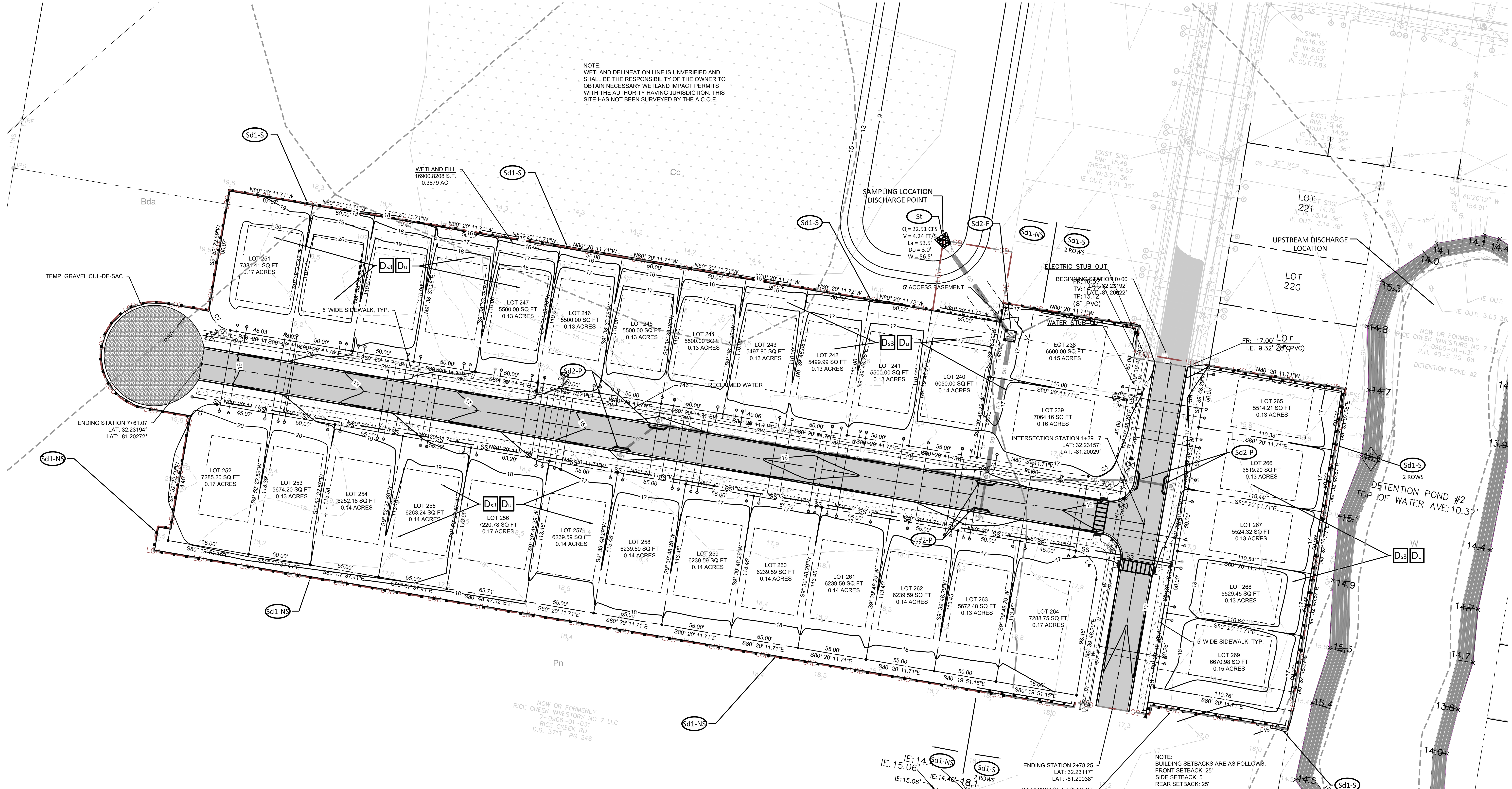
INTERMEDIATE EROSION CONTROL PLAN

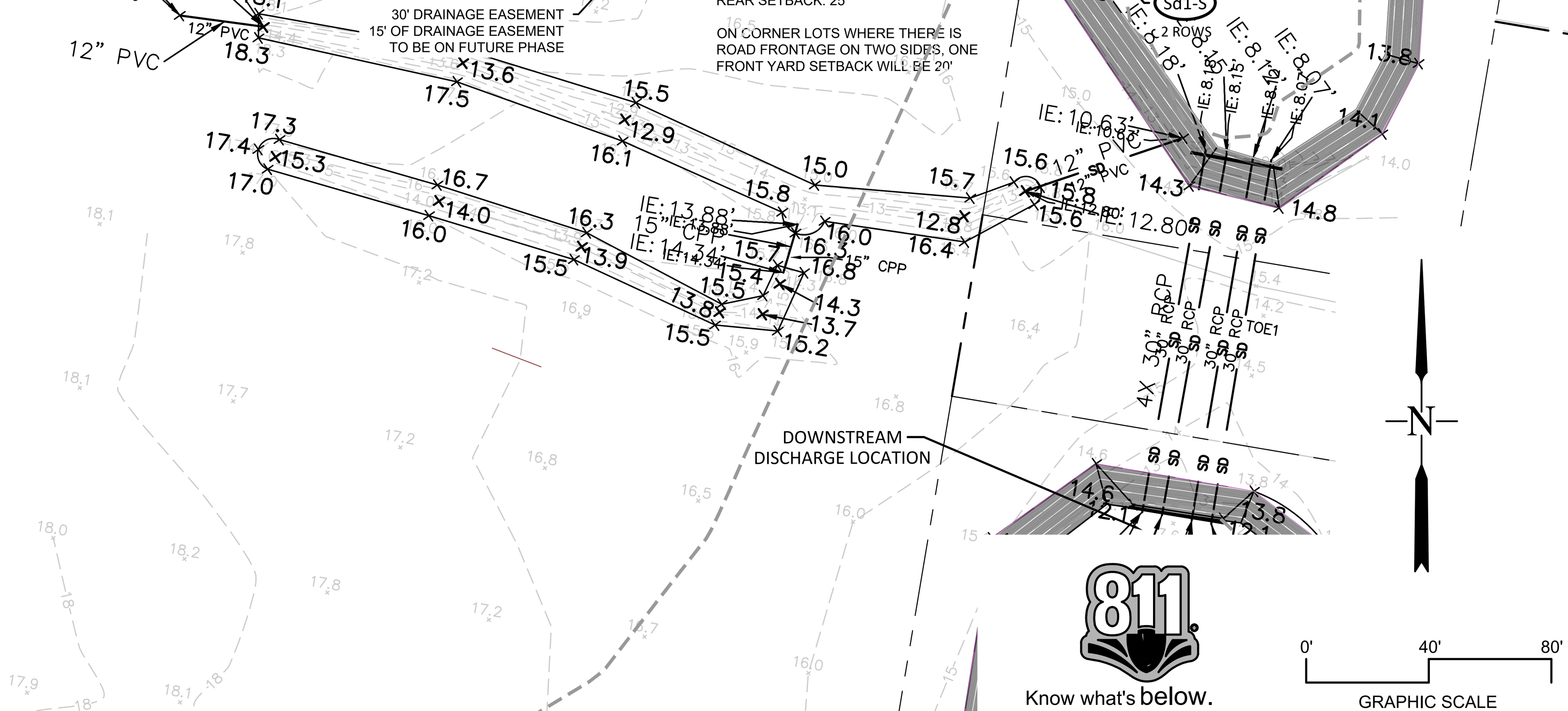
Rice Creek Phase 5
Port Wentworth

PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/02/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: 1":40'

2
SHEET:





LEGEND:

LOD		LIMITS OF DISTURBANCE
	Sd1-NS	SEDIMENT BARRIER SILT FENCE - (TYPE A) NON-SENSITIVE
	Sd1-S 2 ROWS	SEDIMENT BARRIER SILT FENCE - (TYPE C) SENSITIVE
	Sd-2P	INLET SEDIMENT TRAP - PIGS IN A BLANKET
	Sd-2F	INLET SEDIMENT TRAP - FILTER FABRIC W/ SUPPORTING FRAME
	St	STORM DRAIN OUTLET PROTECTION
	Ds3	DISTURBED AREA STABILIZATION (WITH PERMANENT SEEDING)
	Du	DUST CONTROL ON DISTURBED AREA
		SOILS DELINEATION LINE
Bda		SOIL SERIES - BLANDEN FINE SANDY LOAM 0 TO 2 PERCENT SLOPE
Cc		SOIL SERIES - CAPE FEAR SOILS
Pn		SOIL SERIES - POOLER FINE SANDY LOAM

CONSTRUCTION COMPLETION NOTES:

1. ONCE FINAL STABILIZATION HAS OCCURRED ALL BMPS MAY BE REMOVED. EXISTING AND PROPOSED OUTLET PROTECTION RIP-RAP TO REMAIN IN PLACE. FINAL STABILIZATION MEANS THAT 100% OF THE SOIL SURFACE IS UNIFORMLY COVERED IN PERMANENT VEGETATION WITH A DENSITY OF 70%, OR LANDSCAPED ACCORDINGLY TO THE PLAN (UNIFORMLY COVERED LANDSCAPED MATERIALS IN PLANNED LANDSCAPE AREAS), OR EQUIVALENT PERMANENT STABILIZATION MEASURES.

RICE CREEK PH. 5 - INTERMEDIATE AND FINAL - EXISTING POND
DISTURBED AREA: 6.255 AC.
REQUIRED STORAGE: 6.255 AC. X 67 C.Y./AC. = 419.085 C.Y. = 11,315.295 C.F.

STORAGE PROVIDED IN EXISTING POND:
ELEV.14 (APPROX. TOP OF WATER) = AREA: 57,891.6093 S.F.
ELEV.9 (AVERAGE BOTTOM DEPTH OF POND) = AREA: 44,295.8664 S.F.
(BOTTOM ELEV. AREA + TOP ELEV. AREA)/2 = AREA IN S.F.
AREA IN S.F. X DEPTH OF SEDIMENT TRAP IN FEET = C.F. (AVERAGE END METHOD)
AREA: (57,891.6093 S.F. + 44,295.8664 S.F.)/2 = 102,187.4757 S.F./2 = 51,093.7379 S.F. VOLUME: 51,093.7379 S.F. X 4.0' DEPTH = 204,374.9516 C.F. STORAGE

204,374.9516 C.F. > 11,277.306 C.F. THEREFORE ADEQUATE STORAGE IS PROVIDED

NOTE:

THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPS WITHIN 7 DAYS AFTER INSTALLATION.

NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMIT.

AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPS WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

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FINAL EROSION CONTROL PLAN

Rice Creek Phase 5
Port Wentworth

PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/02/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: 1"=40'

SHEET: 3

1. **The applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the Commission as of January 1 of the year in which the land-disturbing activity was permitted. Effective January 1, 2021.**
This checklist is for a Common Development.

2. **Level II certification number issued by the Commission, signature and seal of the certified design professional.**
Shown on each ES&PC plan sheets.

3. **Limits of disturbance shall be no greater than 50 acres at any one time without prior written authorization from the EPD District Office. If EPD approves the request to disturb 50 acres or more at any one time, the plan must include at least 4 of the BMPs listed in Appendix 1 of this checklist.***
NA, disturbed acreage is less that 50 acres

4. **The name and phone number of the 24-hour local contact responsible for erosion, sedimentation and pollution controls.**
Cole Chenowith (912)925-3440

5. **Provide the name, address, email address and phone number of primary permittee.**
Cole Chenowith
Landmark 24 Homes of Savannah, LLC
2702 Whatley Ave.
Savannah, GA 31404
cchenowith@landmark24.com
(912)925-3440

6. **Note total and disturbed acreage of the project or phase under construction.**
Total Project Acreage: 6.28 Acres
Disturbed Acreage: 6.28 Acres

7. **Provide the GPS location of the construction exit for the site. Give the Latitude and Longitude in decimal degrees.**
Latitude: 32.23192°, Longitude: -81.20022°

8. **Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the revisions.**
Shown on cover and plan sheets.

9. **Description of the nature of construction activity.**
The existing site is mostly cleared with a few under story brush and trees. Landmark 24 Homes of Savannah, LLC is proposing to continue building the next phase (Ph. 5) of Rice Creek Subdivision consisting of 32 lots, utilities and infrastructure to complete this phase. The storm drainage will be collected through a piping system and will discharge into an existing master planned drainage detention pond system. The existing master planned drainage detention pond system has an emergency overflow weir that outfalls to un-named ditches and un-named wetlands that flow to the Black Creek, which then outfalls to the Savannah River and ultimately to the Atlantic Ocean.

10. **Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary.**
Vicinity Map shown on Cover

11. **Identify the project receiving waters and describe all sensitive adjacent areas including streams, lakes, residential areas, wetlands, marshlands, etc. which may be affected.**
The master planned subdivision's storm drainage collects through a piping system and discharge into a connected multiple detention pond system. This detention pond system if ever full will overflow through an emergency overflow weir into un-named existing ditching system and un-named existing wetlands which then discharge into the Black Creek, which then discharges into the Savannah River and ultimately discharges into the Atlantic Ocean.

12. **Design professional's certification statement and signature that the site was visited prior to development of the ES&PC Plan as stated on page 15 of the permit.**
"I certify under penalty of law that this Plan was prepared after a site visit to the location described herein by myself or my authorized agent, under my supervision."

Jessica Vick
Certified By

0000058719
Certification #

13. **Design professional's certification statement and signature that the permittee's ES&PC Plan provides for an appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on page 15 of the permit.**

"I certify that the Permittee's Erosion, Sedimentation and Pollution Control Plan provides for an appropriate and comprehensive system of Best Management Practices required by the Georgia Water Quality Control Act and the document "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the Georgia Soil and Water Conservation Commission as of January 1 of the year in which land-disturbing activity was permitted, provides for the sampling of the receiving water(s) or the sampling of the storm water outfalls and that the designed system of best management practice and sampling methods is expected to meet the requirements contained in the General NPDES Permit No. GAR 100003."

Jessica Vick
Certified By

14. **Clearly note the statement that "The design professional who prepared the ES&PC Plan is to inspect the installation of the initial sediment storage requirements and perimeter control BMPs within 7 days after installation."***
Shown on Plan Sheet

15. **Clearly note the statement that "Non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed stream buffer as measured from the point of wrested vegetation or within 25-feet of the coastal marshland buffer as measured from the Jurisdictional Determination Line without first acquiring the necessary variances and permits."**
Shown on Plan Sheet

16. **Provide a description of any buffer encroachments and indicate whether a buffer variance is required.**
N/A

17. **Clearly note the statement that "Amendments/ revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional."*Any deviations from the ES&PC Plan which effect the hydraulic component of BMPs must be certified by the design professional.***
Shown on Plan Sheet

18. **Clearly note the statement that "Waste materials shall not be discharged to waters of the State, except as authorized by a section 404 permit."***
Shown on Plan Sheet

19. **Clearly note statement that "The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities."**
Shown on Plan Sheet

20. **Clearly note statement that "Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source."**
Shown on Plan Sheet

21. **Clearly note the statement "Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding."**
Shown on Plan Sheet

22. **Indication that the applicable portion of the primary permittees ES&PC Plan is to be provided to each secondary permittee prior to the secondary conducting any construction activity and that each secondary shall sign the Plan or portion of this Plan applicable to their site. List the names and addresses of all secondary permittees.***
N/A

23. **Any construction activity which discharges storm water into an Impaired Stream Segment, or within 1 linear mile upstream of and within the same watershed as, any portion of an Biota Impaired Stream Segment must comply with Part III. C. of the Permit. Include the completed Appendix 1 listing all the BMPs that will be used for those areas of the site which discharge to the Impaired Stream Segment.***
N/A

24. **If a TMDL Implementation Plan for sediment has been finalized for the Impaired Stream Segment (identified in item 22 above) at least six months prior to submittal of NOI, the ES&PC Plan must address any site-specific conditions or requirements included in the TMDL Implementation Plan.***
N/A

25. **BMPs for concrete washdown of tools, concrete mixer chutes, hoppers and the rear of the vehicles. Washout of the drum at the construction site is prohibited.**
Washout of the drum and washdown of tools, concrete mixer chutes, hoppers, and the rear of vehicles at the construction site is prohibited.

26. **Provide BMPs for the remediation of all petroleum spills and leaks.**
-Local, State, and manufacturer's recommended methods for spill cleanup will be clearly posted and procedures will be made available to personnel.
-Materials and equipment for spill cleanup shall be kept in the material storage area (i.e. brooms, mops, rags, goggles, gloves, cat litter, etc.)
-Spill prevention practices and procedures will be reviewed after a spill and adjusted as necessary to prevent future spills.
-All spills shall be cleaned up immediately upon discovery. All spills will be reported as required by Local, State, and Federal Regulations.
-For spills that impacts surface water (Leave a sheen on Surface water) requires the NRC (National Response Center) to be contacted within 24 hrs 800-424-8802.
-Spills greater than 25 gallons with no surface water impacts require the Georgia EPD to be contacted within 24 hrs.
-Spills less than 25 gallons with no surface water impacts require local authorities to be contacted as required.
-For spills of unknown amount, the National Center (NRC) will be contacted within 24 hours at 800-424-8802.
-The contractor shall notify the licensed professional who prepared this plan if more than 1320 gallons of petroleum is stored onsite (this includes capacities of equipment) or if any piece of equipment has a capacity greater than 660 gallons. The contractor will need a Spill Prevention Containment and Countermeasures Plan prepared by the licensed professional.

27. **Description of practices to provide cover for building materials and building products on site.***
Plastic sheeting will be used to cover building materials and building products on site

28. **Description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed.**
Permanent grassing will continue to reduce storm water pollutants after the completion of construction.

29. **Description of the practices that will be used to reduce the pollutants in storm water discharges.**
Product Specific Practices:
Petroleum Based Products - Containers for products such as fuels, lubricants and tars will be inspected daily for leaks and spills. This includes on-site vehicle and machinery daily inspections and regular preventative maintenance of such equipment. Equipment maintenance areas will be located away from state water, natural drains and storm water drainage inlets. In addition, temporary fueling tanks shall have a secondary containment liner to prevent/minimize site contamination. Discharge of oils, fuels and lubricants is prohibited. Proper disposal methods will include collection in a suitable container and disposal as required by local and State regulations.
Paints/Finishes/Solvents - All products will be stored in tightly sealed original containers when not in use. Excess product will not be discharged to the storm water collection system. Excess product, materials used with these products and product containers will be disposed of according to manufacturers specifications and recommendations.
Concrete Truck washing - No concrete trucks will be allowed to wash out or discharge surplus concrete of drum wash water onsite.
Fertilizer/ Herbicides - These products will be applied at rates that do not exceed the manufacturer's specifications or above the guidelines set forth in the crop establishment or in the GSWCC Manual for Erosion and Sediment Control in Georgia. Any storage of these materials will be under roof in sealed containers.
Building Materials - No building or construction materials will be buried or disposed of onsite. All such material will be disposed of in proper waste disposal procedures.

30. **Description and chart or timeline of the intended sequence of major activities which disturb soils for the major portions of the site (i.e., initial perimeter and sediment storage BMPs, clearing and grubbing activities, excavation activities, utility activities, temporary and final stabilization).***
Shown on detail sheet

31. **Provide requirements of inspections and record keeping by the primary permittee.**
a. Primary Permittee.
(1). Each day when any type of construction activity has taken place at a primary permittee's site, certified personnel provided by the primary permittee shall inspect: (a) all areas at the primary permittee's site where petroleum products are stored, used, or handled for spills and leaks from vehicles and equipment and (b) all locations at the primary permittee's site where vehicles enter or exit the site for evidence of off-site sediment tracking. These inspections must be conducted until a Notice of Termination is submitted.
(2). Measure and record rainfall within disturbed areas of the site that have not met final stabilization once every 24 hours except any non-working Saturday, non-working Sunday and non-working Federal holiday. The data collected for the purpose of compliance with this permit shall be representative of the monitored activity. Measurement of rainfall may be suspended if all areas of the site have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region.
(3). Certified personnel (provided by the primary permittee) shall inspect the following at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches rainfall or greater (unless such storm ends after 5:00 PM on any Friday or on any non-working Saturday, non-working Sunday or any non-working Federal holiday in which case the inspection shall be completed by the end of the next business day and/or working day, whichever occurs first): (a) disturbed areas of the primary permittee's construction site; (b) areas used by the primary permittee for storage of materials that are exposed to precipitation; and (c) structural control measures. Erosion and sediment control measures identified in the Plan applicable to the primary permittee's site shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). For areas of a site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region, the permittee must comply with Part IV.D.4.a.(4). These inspections must be conducted until a Notice of Termination is submitted.
(4). Certified personnel (provided by the primary permittee) shall inspect at least once per month during the term of this permit (i.e., until a Notice of Termination is submitted to EPD) the areas of the site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region. These areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system and the receiving water(s). Erosion and sediment control measures identified in the Plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s).
(5). Based on the results of each inspection, the site description and the pollution prevention and control measures identified in the Erosion, Sedimentation and Pollution Control Plan, the Plan shall be revised as appropriate not later than seven (7) calendar days following each inspection. Implementation of such changes shall be made as soon as practical but in no case later than seven (7) calendar days following each inspection. The primary permittee must amend the Plan in accordance with Part IV.D.4.b.(5). when a secondary permittee notifies the primary permittee of any Plan deficiencies.
(6). A report of each inspection that includes the name(s) of certified personnel making each inspection, the date(s) of each inspection, construction phase (i.e., initial, intermediate or final), major observations relating to the implementation of the Erosion, Sedimentation and Pollution Control Plan, and actions taken in accordance with Part IV.D.4.a.(5). of the permit shall be made and retained at the site or be readily available at a designated alternate location until the entire site or that portion of a construction site that has been phased has undergone final stabilization and a Notice of Termination is submitted to EPD. Such reports shall be readily available by end of the second business day and/or working day and shall identify all incidents of best management practices that have not been properly installed and/or maintained as described in the Plan. Where the report does not identify an incident, the inspection report shall contain a statement that the best management practices are in compliance with the Erosion, Sedimentation and Pollution Control Plan. The report shall be signed in accordance with Part of this permit.
b. Secondary Permittee.
(1). Each day when any type of construction activity has taken place at a secondary permittee's site, certified personnel provided by the secondary permittee shall inspect: (a) all areas used by the secondary permittee where petroleum products are stored, used, or handled for spills and leaks from vehicles and equipment; and (b) all locations at the secondary permittee site where that permittee's vehicles enter or exit the site for evidence of off-site sediment tracking. These inspections must be conducted until a Notice of Termination is submitted. This paragraph is not applicable to utility companies and utility contractors if they are secondary permittees.
(2). Certified personnel (provided by the utility companies and utility contractors if they are secondary permittees) shall inspect the following each day any type of construction activity has taken place at the construction site: (a) areas of the construction site disturbed by the utility companies and utility contractors that have not undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region; (b) areas used by the utility companies and utility contractors for storage of materials that are exposed to precipitation that have not undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region or established a crop of annual vegetation and a seeding of target perennials appropriate for the region; and (c) structural control measures. Erosion and sediment control measures identified in the Plan applicable to the utility companies and utility contractors' construction activities shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). This paragraph is not applicable to utility companies and utility contractors when they are secondary permittees performing service line installations or when conducting repairs on existing line installations.
(3). Certified personnel (provided by the secondary permittee) shall inspect the following at least once every seven calendar days and within 24 hours of the end of a storm that is 0.5 inches rainfall or greater (unless such storm ends after 5:00 PM on any Friday or on any non-working Saturday, non-working Sunday or any non-working Federal holiday in which case the inspection shall be completed by the end of the next business day and/or working day, whichever occurs first): (a) disturbed areas of the secondary permittee's construction site; (b) areas used by the secondary permittee for storage of materials that are exposed to precipitation; and (c) structural control measures. Erosion and sediment control measures identified in the Plan applicable to the secondary permittee's site shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). For areas of a site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region, the permittee must comply with Part IV.D.4.b.(4). These inspections must be conducted until a Notice of Termination is submitted. This paragraph is not applicable to utility companies and utility contractors if they are secondary permittees.
(4). Certified personnel (provided by the secondary permittee) shall inspect at least once per month during the term of this permit (i.e., until a Notice of Termination is submitted to EPD) the areas of their sites that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region. These areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system and the receiving water(s). Erosion and sediment control measures identified in the Plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). This paragraph is not applicable to utility companies and utility contractors if they are secondary permittees.
(5). Based on the results of each inspection, the secondary permittee must notify the primary permittee within 24-hours of any suspected BMP design deficiencies. The primary permittee must evaluate whether these deficiencies exist within 48-hours of such notice, and if these deficiencies are found to exist must amend the Plan in accordance with Part IV.C. of this permit to address those deficient BMPs within seven (7) days of being notified by the secondary permittee. When the Plan is amended, the primary permittee must notify and provide a copy of the amendment to all affected secondary permittee(s) within this seven (7) day period. The secondary permittees must implement any new Plan requirements affecting their site(s) within 48-hours of notification by the primary permittee.
(6). A report of each inspection that includes the name(s) of certified personnel making each inspection, the date(s) of each inspection, construction phase (i.e., initial, intermediate or final), major observations relating to the implementation of the Erosion, Sedimentation and Pollution Control Plan, and actions taken in accordance with Part IV.D.4.b.(5). of the permit shall be made and retained at the site or be readily available at a designated alternate location until the entire site has undergone final stabilization and a Notice of Termination is submitted to EPD. Such reports shall be readily available by the end of the second business day and /or working day and shall identify all incidents of best management practices that have not been properly installed and/or maintained as described in the Plan. Where the report does not identify any incidents, the inspection report shall contain a certification that the best management practices are in compliance with the Erosion, Sedimentation and Pollution Control Plan. The report shall be signed in accordance with Part V.G.2. of this permit. This paragraph is not applicable to utility companies and utility contractors if they are secondary permittees performing only service line installations or when conducting repairs on existing line installations.
c. Tertiary Permittee.
(1). Each day when any type of construction activity has taken place at a tertiary permittee's site, certified personnel provided by the tertiary permittee shall inspect: (a) all areas used by the tertiary permittee where petroleum products are stored, used, or handled for spills and leaks from vehicles and equipment; and (b) all locations at the tertiary permittee site where that permittee's vehicles enter or exit the site for evidence of off-site sediment tracking. These inspections must be conducted until a Notice of Termination is submitted. This paragraph is not applicable to utility companies and utility contractors performing only service line installations or when conducting repairs on existing line installations.
(2). Measure and record rainfall within disturbed areas of the site that have not met final stabilization once every 24 hours except any non-working Saturday, non-working Sunday and non-working Federal holiday. The data collected for the purpose of compliance with this permit shall be representative of the monitored activity. Measurement of rainfall may be suspended if all areas of the site have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region.
(3). Certified personnel (provided by the tertiary permittee) shall inspect at least the following once every seven calendar days and within 24 hours of the end of a storm that is 0.5 inches rainfall or greater (unless such storm ends after 5:00 PM on any Friday or on any non-working Saturday, non-working Sunday or any nonworking Federal holiday in which case the inspection shall be completed by the end of the next business day and/or working day, whichever occurs first): (a) disturbed areas of the tertiary permittee's construction site; (b) areas used by the tertiary permittee for storage of materials that are exposed to precipitation; and (c) structural control measures. Erosion and sediment control measures identified in the Plan applicable to the tertiary permittee's site shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). For areas of a site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region, the permittee must comply with Part IV.D.4.c.(4). These inspections must be conducted until a Notice of Termination is submitted. This paragraph is not applicable to utility companies and utility contractors performing only service line installations or when conducting repairs on existing line installations.
(4). Certified personnel (provided by the tertiary permittee) shall inspect at least once per month during the term of this permit (i.e., until a Notice of Termination is submitted to EPD) the areas of their sites that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region. These areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system and the receiving water(s). Erosion and sediment control measures identified in the Plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). This paragraph is not applicable to utility companies and utility contractors performing only service line installations or when conducting repairs on existing line installations.
(5). Based on the results of each inspection, the site description and the pollution prevention and control measures identified in the Erosion, Sedimentation and Pollution Control Plan, the Plan shall be revised as appropriate not later than seven (7) calendar days following each inspection. Implementation of such changes shall be made as soon as practical but in no case later than seven (7) calendar days following the inspection.
(6). A report of each inspection that includes the name(s) of certified personnel making each inspection, the date(s) of each inspection, construction phase (i.e., initial, intermediate or final), major observations relating to the implementation of the Erosion, Sedimentation and Pollution Control Plan, and actions taken in accordance with Part IV.D.4.c.(5) of the permit shall be made and retained at the site or be readily available at a designated alternate location until the entire site has undergone final stabilization and a Notice of Termination is submitted to EPD. Such reports shall be readily available by the end of the second business day and/or working day and shall identify all incidents of best management practices that have not been properly installed and/or maintained as described in the Plan. Where the report does not identify any incidents, the inspection report shall contain a certification that the best management practices are in compliance with the Erosion, Sedimentation and Pollution Control Plan. The report shall be signed in accordance with Part V.G.2. of this permit. This paragraph is not applicable to utility companies and utility contractors performing only service line installations or when conducting repairs on existing line installations.

NAME:
Company Phone:
Address
GSWCC Level 1A Certification No. ____________________

____
Signature

32. **Provide complete requirements of sampling frequency and reporting of sampling results.***
Sampling Frequency
(1). The primary permittee must sample in accordance with the plan at least once for each rainfall event described below. For a qualifying event, the permittee shall sample at the beginning of any stormwater discharge to a monitored receiving water and/or from a monitored outfall location within in forty-five (45) minutes or as soon as possible.
(2). However, where manual and automatic sampling are impossible (as defined in this permit), or are beyond the permittee's control, the permittee shall take samples as soon as possible, but in no case more than twelve (12) hours after the beginning of the stormwater discharge.
(3). Sampling by the permittee shall occur for the following qualifying events:
(a). For each area of the site that discharges to a receiving water or from an outfall, the first rain event that reaches or exceeds 0.5 inch with a stormwater discharge that occurs during normal business hours as defined in this permit after all clearing and grubbing operations have been completed, but prior to completion of mass grading operations, in the drainage area of the location selected as the sampling location;
(b). In addition to (a) above, for each area of the site that discharges to a receiving water or from an outfall, the first rain event that reaches or exceeds 0.5 inch with a stormwater discharge that occurs during normal business hours as defined in this permit either 90 days after the first sampling event or after all mass grading operations have been completed, but prior to submittal of a N.O.T, in the drainage area of the location selected as the sampling location, whichever comes first;
(c). At the time of sampling performed pursuant to (a) and (b) above, if BMP's in any area of the site that discharges to a receiving water or from an outfall are not properly designed, installed and maintained, corrective action shall be defined and implemented within two (2) business days, and turbidity samples shall be taken from discharges from that area of the site for each subsequent rain event that reaches or exceeds 0.5 inch during normal business hours* until the selected turbidity standard is attained, or until post-storm event inspections determine that BMP's are properly designed, installed and maintained;
(d). Where sampling pursuant to (a), (b) or (c) above is required but not possible (or not required because there was no discharge), the permittee, in accordance with Part IV.D.4.a.(6), must include a written justification in the inspection report of why sampling was not performed. Providing this justification does not relieve the permittee of any subsequent sampling obligations under (a), (b) or (c) above; and
(e). Existing construction activities, i.e., those that are occurring on or before the effective date of this permit, that have met the sampling required by (a) above shall sample in accordance with (b). Those existing construction activities that have met the sampling required by (b) above shall not be required to conduct additional sampling other than as required by (c) above.
*Note that the permittee may choose to meet the requirements of (a) and above by collecting turbidity samples from any rain event that reaches or exceeds 0.5 inch and allows for sampling at any time of the day or weeks.
E. Reporting.
1. The applicable permittees are required to submit the sampling results to the EPD at the address shown in Part II.C. by the fifteenth day of the month following the reporting period. Reporting periods are months during which samples are taken in accordance with this permit. Sampling results shall be in a clearly legible format. Upon written notification, EPD may require the applicable permittee to submit the sampling results on a more frequent basis. Sampling and analysis of any stormwater discharge(s) or the receiving water(s) beyond the minimum frequency stated in this permit must be reported in a similar manner to the EPD. The sampling reports must be signed in accordance with Part V.G.2. Sampling reports must be submitted to EPD using the electronic submittal service provided by EPD. Sampling reports must be submitted to EPD until such time as a NOT is submitted in accordance with Part VI.
2. All sampling reports shall include the following information:
a. The rainfall amount, date, exact place and time of sampling or measurements;
b. The name(s) of the certified personnel who performed the sampling and measurements;
c. The date(s) analyses were performed;
d. The time(s) analyses were initiated;
e. The name(s) of the certified personnel who performed the analyses;
f. References and written procedures, when available, for the analytical techniques or methods used;
g. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results;
h. Results which exceed 1000 NTU shall be reported as "exceeds 1000 NTU;" and
i. Certification statement that sampling was conducted as per the Plan.
3. All written correspondence required by this permit shall be submitted by return receipt certified mail (or similar service) to the appropriate District Office of the EPD according to the schedule in Appendix A of this permit. The applicable permittees shall retain a copy of the proof of submittal at the construction site or the proof of submittal shall be readily available at a designated location from commencement of construction until such time as a NOT is submitted in accordance with Part VI.

33. **Provide complete details for retention of records as per Part IV.F. of the permit.**
1.The primary permittee shall retain the following records at the construction site or the records shall be readily available at a designated alternate location from commencement of construction until such time as a NOT is submitted in accordance with Part VI:
a. A copy of all Notices of Intent submitted to EPD;
b. A copy of the Erosion, Sedimentation and Pollution Control Plan required by this permit;
c. The design professional's report of the results of the inspection conducted in accordance with Part IV.A.5 of this permit;
d. A copy of all sampling information, results, and reports required by this permit;
e. A copy of all inspection reports generated in accordance with Part IV.D.4.a. of this permit;
f. A copy of all violation summaries and violation summary reports generated in accordance with Part III.D.2. of this permit; and
g. Daily rainfall information collected in accordance with Part IV.D.4.a.(2). of this permit.
2. Copies of all Notices of Intent, Notices of Termination, inspection reports, sampling reports (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) or other reports requested by EPD, Erosion, Sedimentation and Pollution Control Plans, records of all data used to complete the Notice of Intent be covered by this permit and all other records required by this permit shall be retained by the permittee who either produced or used it for a period of at least three years from the date that the NOT is submitted in accordance with Part VI of this permit. These records must be maintained at the permittee's primary place of business or at a designated alternative location once the construction activity has ceased at the permitted site. This period may be extended by request of the EPD at any time upon written notification to the permittee.

33. **Provide complete details for retention of records as per Part IV.F. of the permit.**
1. The primary permittee shall retain the following records at the construction site or the records shall be readily available at a designated alternate location from commencement of construction until such time as a NOT is submitted in accordance with Part VI:
a. A copy of all Notices of Intent submitted to EPD:
b. A copy of the Erosion, Sedimentation and Pollution Control Plan required by this permit;
c. The design professional's report of the results of the inspection conducted in accordance with Part IV.A.5. of this permit;
d. A copy of all sampling information, results, and reports required by this permit;
e. A copy of all inspection reports generated in accordance with Part IV.D.4.a. of this permit;
f. A copy of all violation summaries and violation summary reports generated in accordance with Part III.D.2. of this permit; and
g. Daily rainfall information collected in accordance with Part IV.D.4.a.(2). of this permit.
2. Each secondary permittee shall retain the following records at the construction site or the records shall be readily available at a designated alternate location from commencement of construction until such time as a NOT is submitted in accordance with Part IV:
a. A copy of all Notices of Intent submitted to EPD;
b. A copy of the Erosion, Sedimentation and Pollution Control Plan required by this permit or the applicable portion of the Erosion, Sedimentation and Pollution Control Plan for their activities at the construction site required by this permit;
c. A copy of all inspection reports generated in accordance with Part IV.D.4.b. of this permit; and
d. A copy of all violation summaries and violation summary reports generated in accordance with Part III.D.2. of this permit.
3. Each tertiary permittee shall retain the following records at the construction site or the records shall be readily available at a designated alternate location from commencement of construction until such time as a NOT is submitted in accordance with Part VI:
a. A coy of all Notices of Intent submitted to EPD;
b. A copy of the Erosion, Sedimentation and Pollution Control Plan required by this permit;
c. The design professional's report of the results of the inspection conducted in accordance with Part IV.A.5. of this permit;
d. A copy of all sampling information, results, and reports required by this permit;
e. A copy of all inspection reports generated in accordance with Part IV.D.4.c. of this permit;
f. A copy of all violation summaries and violation summary reports generated in accordance with Part III.D.2. of this permit; and
g. Daily rainfall information collected in accordance with Part IV.D.4.c.(2). of this permit.
4. Copies of all Notices of Intent, Notices of Termination, inspection reports, sampling reports (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) or other reports requested by the EPD, Erosion, Sedimentation and Pollution Control Plans, records of all data used to complete the Notice of Intent to be covered by this permit and all other records required by this permit shall be retained by the permittee who either produced or used it for a period of at least three years from the date that the NOT is submitted in accordance with Part VI of this permit. These records must be maintained at the permittee's primary place of business once the construction activity has ceased at the permitted site. This period may be extended by request of the EPD at any time upon written notification to the permittee.

34. **Description of analytical methods to be used to collect and analyze the samples from each location.***
Sample Analysis - Storm water samples are to be analyzed in accordance with methodology and test procedures established by 40 CFR Part 136 and the guidance document titled "NPDES Storm Water Sampling Guidance Document. EPA 833-B-92-001." Stormwater is to be sampled for nephelometric turbidity units (NTU) at the outfall location. A discharge of storm water runoff from disturbed areas where best management practices have not been properly designed, installed, and maintained shall constitute a separate violation for each day on which such condition results in the turbidity of the discharge exceeding 75, the value that was selected from Appendix B in Permit No 100001. The NTU is based upon the disturbed acreage for the project site, the surface water drainage area, and receiving water which supports warm water fisheries.

35. **Appendix B rationale for NTU values at all outfall sampling points where applicable.***
Water supporting warm water fisheries: 0-4.99 Square Miles NTU Value = 75

36. **Delineate all sampling locations, perennial and intermittent streams and other water bodies into which storm water is discharged.***
Shown on plan sheets

37. **A description of appropriate controls and measures that will be implemented at the construction site including: (1) initial sediment storage requirements and perimeter control BMPs, (2) intermediate grading and drainage BMPs, and (3) final BMPs. For construction sites where there will be no mass grading and the initial perimeter control BMPs, intermediate grading and drainage BMPs, and final BMPs are the same, the plan may combine all of the BMPs into a single phase.***
The initial BMPs shall be the construction exit, silt fencing, and two temporary sediment traps with a rock outlet, temporary seeding and dust control.
Intermittent BMPs shall include a construction exit, silt fencing, filter fabric with supporting frame, stone outlet protection and temporary seeding and dust control.
The final BMPs shall include silt fencing, filter fabric with supporting frame, curb inlet protection - pigs in a blanket, stone outlet protection and permanent seeding and dust control.

38. **Plan addresses BMPs for all phases of common development including individual building lots and out-parcels, etc. regardless of who owns or operates the individual sites. Include a typical and any situational lots applicable.**
Shown on plan sheet.

39. **Graphic scale and north arrow.**
Shown on all plan sheet

40. **Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following:**
Existing and proposed contour lines are shown on the plan sheet.

Map Scale	*Ground Slope*	*Contour Intervals, ft.*
1 inch = 100ft or larger scale	Flat 0-2%	0.5 or 1
	Rolling 2-8%	1 or 2
	Steep 8% +	2, 5, or 10

41. **Use of alternative BMPs whose performance has been documented to be equivalent to or superior to conventional BMPs as certified by a Design Professional (unless disapproved by EPD or the Georgia Soil and Water Conservation Commission). Please refer to the Alternative BMP Guidance Document found at www.gaswcc.org.**
No alternative BMPs are proposed

42. **Use of alternative BMP for application to the Equivalent BMP List. Please refer to Appendix A-2 of the Manual for Erosion & Sediment Control in Georgia 2016 Edition.**
No alternative BMPs are proposed.

43. **Delineation of the applicable 25-foot or 50-foot undisturbed buffers adjacent to State waters and any additional buffers required by the Local Issuing Authority. Clearly note and delineate all areas of impact.**
N/A

44. **Delineation of on-site wetlands and all State waters located on and within 200 feet of the project site.**
Shown on plan sheets

45. **Delineation and acreage of contributing drainage basins on the project site**
Shown on plan sheets

46. **Provide hydrology study and maps of drainage basins for both the pre- and post-developed conditions.***
Pre-developed and post-developed drainage basins are shown on plan sheets

47. **An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are completed.***
Pre-developed Runoff Coefficient, C = 0.30 ; Post-developed Runoff Coefficient, C = 0.39
Pre-Development
Total Area: 6.26 ac; Impervious Area: 0.00 ac, C=0.95; Pervious Area: 6.28 ac, C=0.30
Composite C: [(0.00 ac*0.95)+(6.28 ac*0.30)]/6.28 ac = 0.30
Post-Development
Total Area: 6.28 ac; Impervious Area: 0.80 ac, C=0.95; Pervious Area: 5.37 ac, C=0.30; Gravel: 0.11 ac, C=0.50
Composite C: [(0.80 ac*0.95)+(5.37 ac*0.30)+(0.11 ac*0.5)]/6.28 ac = 0.39

48. **Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without erosion.Identify/Delineate all storm water discharge points.**
Shown on plan sheets

49. **Soil series for the project site and their delineation.**
Bda - Blanden fine sandy loam, 0 to 2 percent slopes
Cc - Cape Fear soils
Pn - Pooler Fine sandy loam

50. **The limits of disturbance for each phase of construction.**
Limits of disturbance for all phases shown on each sheet.

51. **Provide a minimum of 67 cubic yards of sediment storage per acre drained using a temporary sediment basin, retrofitted detention pond, and/or excavated inlet sediment traps for each common drainage location. Sediment storage volume must be in place prior to and during all land disturbance activities until final stabilization of the site has been achieved. A written justification explaining the decision to use equivalent controls when a sediment basin is not attainable must be included in the Plan for each common drainage location in which a sediment basin is not provided. A written justification as to why 67 cubic yards of storage is not attainable must also be given. Worksheets from the Manual must be included for structural BMPs and all calculations used by the design professional to obtain the required sediment storage when using equivalent controls. When discharging from sediment basins and impoundments, permittees are required to utilize outlet structures that withdraw water from the surface, unless infeasible. If outlet structures that withdraw water from the surface are not feasible, a written justification explaining this decision must be included in the Plan.**
Due to topography and location silt fence is preferred over sedimentation basins.
Shown on Plan sheets

52. **Location of Best Management Practices that are consistent with and no less stringent than the Manual for Erosion and Sediment Control in Georgia. Use uniform coding symbols from the Manual, Chapter 6, with legend.**
Shown on Plan sheets

53. **Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia.**
See Detail sheets

54. **Provide vegetative plan, noting all temporary and permanent vegetative practices. Include species, planting dates and seeding, fertilizer, lime and mulching rates. Vegetative plan shall be site specific for appropriate time of year that seeding will take place and for the appropriate geographic region of Georgia.**
See Detail sheets

GEORGIA
REGISTERED
No. 046602
PROFESSIONAL
ENGINEER
JESSICA VICK

12/02/21

CERTIFIED DESIGN PROFESSIONAL:
Jessica Vick, P.E.
LEVEL II CERTIFICATION #: 0000062699

REVISIONS

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CIVIL ENGINEERING
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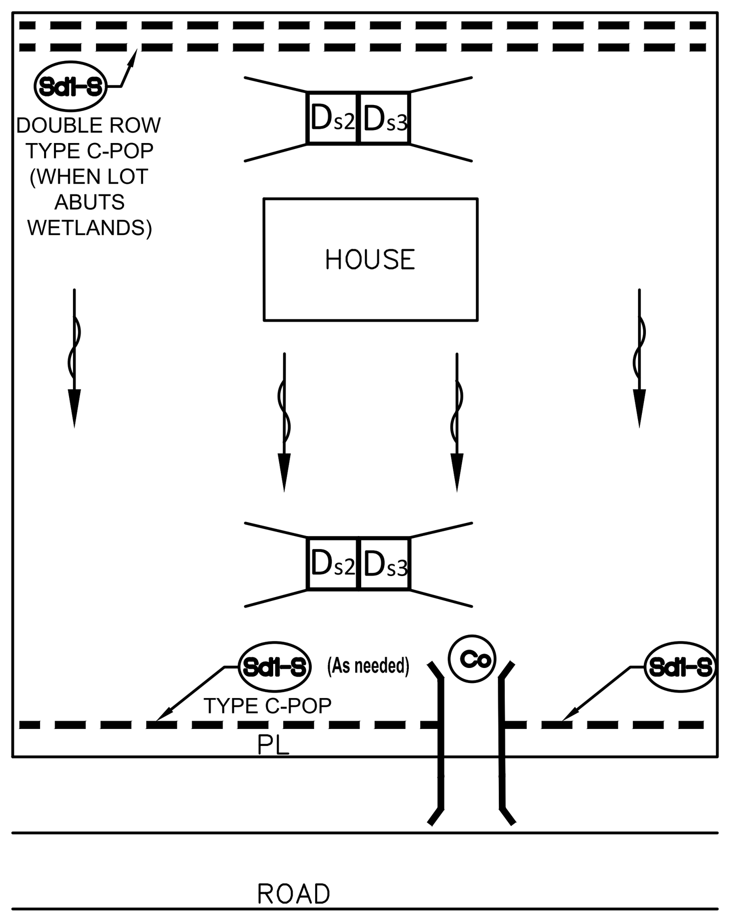
WWW.ROBERTSCIVILENGINEERING.COM

EROSION CONTROL NOTES

Rice Creek Phase 5
Port Wentworth
PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/02/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: NTS

SHEET:
4



TYPICAL LOT BMPs

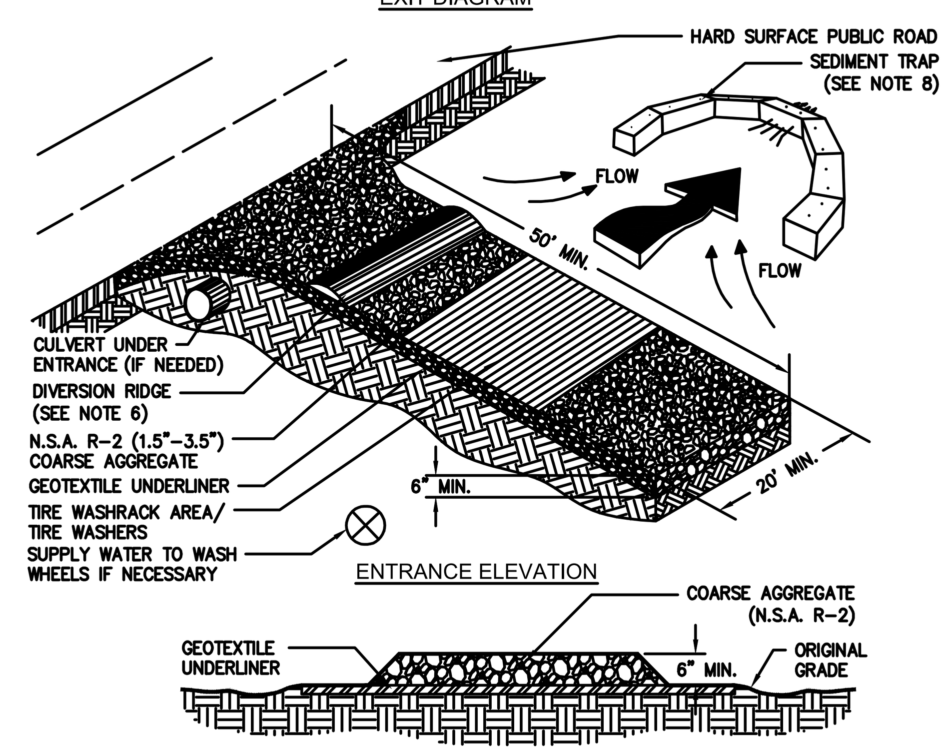
NTS

Co

MAINTENANCE
The exit shall be maintained in a condition that will prevent tracking or flow of mud onto public rights-of-way. This may require periodic top dressing with 1.5-3.5 inch stone, as conditions demand, and repair and/or cleanout of any structures to trap sediment. All materials spilled, dropped, washed, or tracked from vehicles or site onto roadways or into storm drains must be removed immediately.

CRUSHED STONE CONSTRUCTION EXIT

EXIT DIAGRAM



NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

Figure 6-14.1

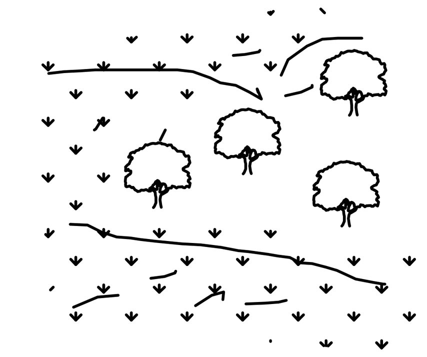
GSWCC 2016 Edition

6-90

Ds3

DISTURBED AREA STABILIZATION (WITH PERMANENT SEEDINGS)

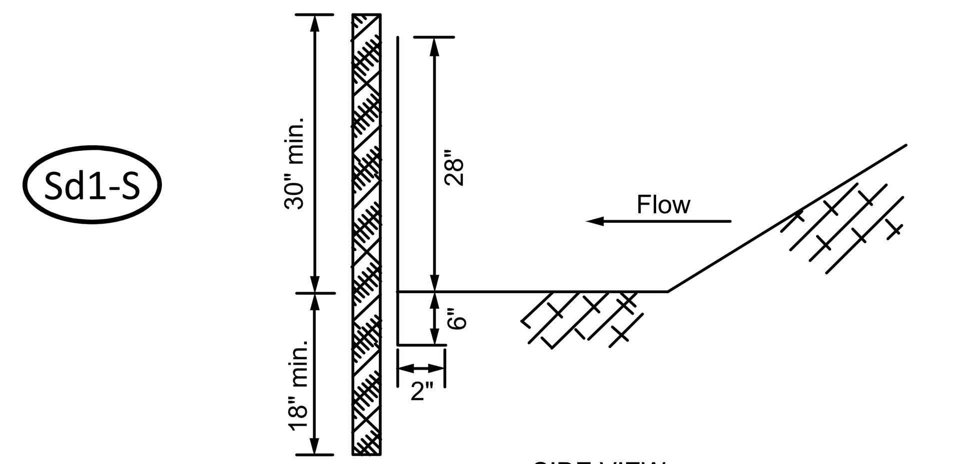
ESTABLISHING A PERMANENT VEGETATIVE COVER WITH FAST GROWING SEEDINGS.

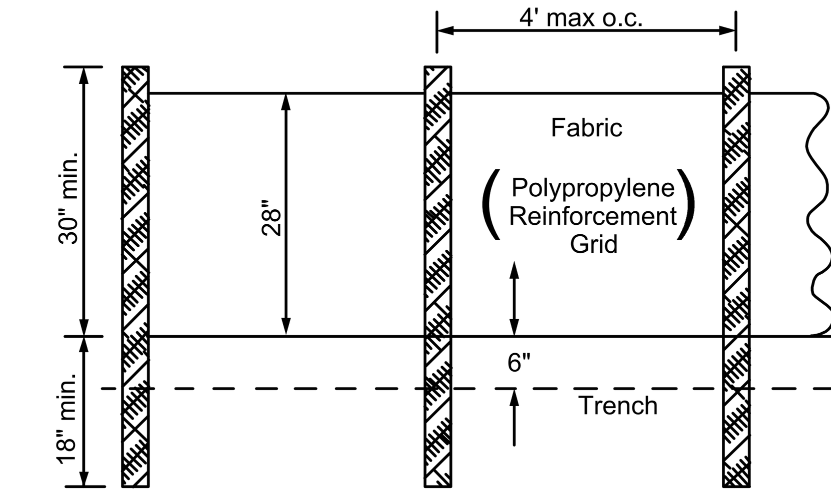


APPLICABLE ON HIGHLY ERODIBLE OR SEVERELY ERODED AREAS, SOMETIMES CALLED "CRITICAL AREAS" INCLUDING:

* *CUT OR FILL SLOPES*
* *EARTH SPILLWAYS*
* *BORROW AREAS*
* *CHANNEL BANKS*
* *BERMS*
* *ROADSIDES*
* *SPOIL AREAS*
* *GULLIED LANDS*

Sd1-S





NOTE:
Use 36" D.O.T. approved fabric.
Use wooden stakes.

SILT FENCE - TYPE C-POP

NTS

12/02/21
CERTIFIED DESIGN PROFESSIONAL:
Jessica Vick, P.E.
LEVEL II CERTIFICATION #: 0000062699

REVISIONS

ROBERTS
CIVIL ENGINEERING
ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON
WWW.ROBERTSCIVILENGINEERING.COM

DEFINITION

The establishment of temporary vegetative cover with fast growing seedings for seasonal protection on disturbed or denuded areas.

CONDITIONS

Temporary grassing, instead of mulch, can be applied to rough graded areas that will be exposed for less than six months. Temporary vegetative measures should be coordinated with permanent measures to assure economical and effective stabilization. Most types of temporary vegetation are ideal to use as companion crops until the permanent vegetation is established.

SEEDING RATES FOR TEMPORARY SEEDING

SPECIES	RATE Per 1,000 sq.ft.	RATE Per Acre *	PLANTING DATES **
Rye	3.9 pounds	3 bu.	9/1-3/1
Ryegrass	0.9 pound	40 lbs.	8/15-4/1
Annual Lespedeza	0.9 pound	40 lbs.	1/15-3/15
Weeping Lovegrass	0.1 pound	4 lbs.	2/15-6/15
Sudangrass	1.4 pounds	60 lbs.	3/1-8/1
Browntop Millet	0.9 pound	40 lbs.	4/1-7/15
Wheat	4.1 pounds	3 bu.	9/15-2/1

* Unusual site conditions may require heavier seeding rates
** Seeding dates may need to be altered to fit temperture variations and conditions.

Ds2 DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)

SPECIFICATIONS

Grading and Shaping

Excessive water run-off shall be reduced by properly designed and installed erosion control practices such as closed drains, ditches, dikes, diversions, sediment barriers and others.

No shaping or grading is required if slopes can be stabilized by hand-seeded vegetation or if hydraulic seeding equipment is to be used.

Seedbed Preparation

When a hydraulic seeder is used, seedbed preparation is not required. When using conventional or handseeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall.

When soil has been sealed by rainfall or consists of smooth cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

Lime and Fertilizer

Agricultural lime is required unless soil tests indicate otherwise. Apply agricultural lime at a rate of one ton per acre. Graded areas require lime application. Soils can be tested to determine if fertilizer is needed. On reasonably fertile soils or soil material, fertilizer is not required. For soils with very low fertility, 500 to 700 pounds of 10-10-10 fertilizer or the equivalent per acre (12-16 lbs./1,000 sq. ft.) shall be applied. Fertilizer should be applied before land preparation and incorporated with a disk, ripper or chisel.

Seeding

Select a grass or grass-legume mixture suitable to the area and season of the year. Seed shall be applied uniformly by hand, cyclone seeder, drill, cultipacker seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or cultipacker seeders should normally place seed one-quarter to one-half inch deep. Appropriate depth of planting is ten times the seed diameter. Soil should be "raked" lightly to cover seed with soil if seeded by hand.

Mulching

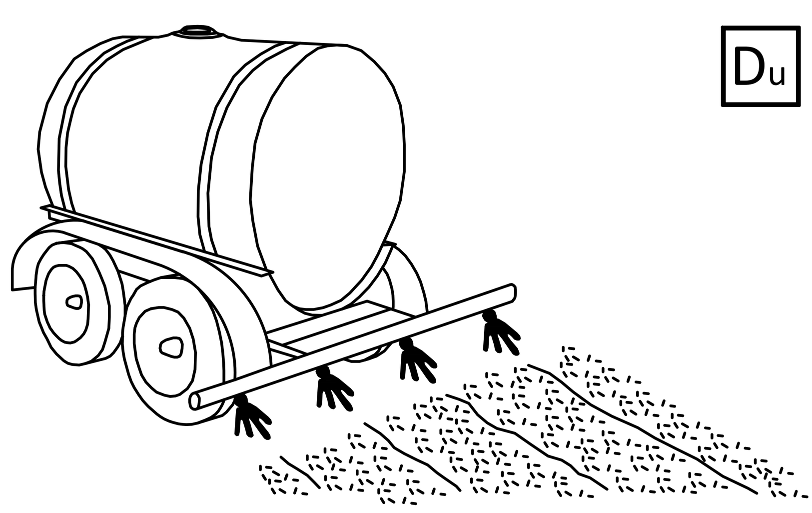
Temporary vegetation can, in most cases, be established without the use of mulch. Mulch without seeding should be considered for short term protection. Refer to Ds1 - Disturbed Area Stabilization (With Mulching Only).

Irrigation

During times of drought, water shall be applied at a rate not causing runoff and erosion. The soil shall be thoroughly wetted to a depth that will insure germination of the seed. Subsequent applications should be made when needed.

DUST CONTROL FOR ALL DISTURBED AREAS ALL PHASES

Du



CONTRACTOR SHALL EMPLOY THE FOLLOWING METHODS TO LIMIT THE SURFACE AND AIR MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES.

TEMPORARY METHODS:
- BARRIERS
- CALCIUM CHLORIDE
- IRRIGATION
- MULCHING
- SPRAY ON ADHESIVES
- TILLING

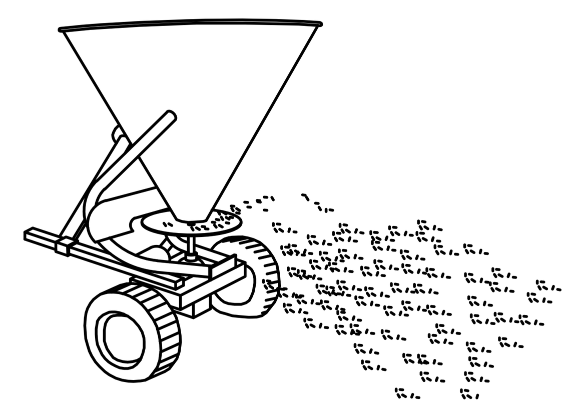
PERMANENANT METHODS:
- PERMANENT VEGETATION
- TOPSOIL
- STONE COVER

CHEMICALCONTROL

CHEMICAL ADHESIVE	WATER DILUTION	TYPE OF NOZZLE	APPLICATION RATE (GAL/AC)
ANIONIC ASPHALT EMULSION	7:1	SPRAY	1200
LATEX EMULSION	$12\frac{1}{2}$:1	FINE SPRAY	235
RESIN - IN - WATER EMULSION	4:1	FINE SPRAY	300

DUST CONTROL DETAIL

NTS



DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)

ESTABLISHING TEMPORARY VEGETATIVE COVER WITHQUICK GROWING GROUND COVER ON DISTURBED OR BARE LAND

Ds2

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH TEMPORARY SEEDING OR MULCH

SITE PREPARATION
- GRADING AND SHAPING
- SEEDBED PREPARATION
- APPLY LIME AND FERTILIZER
- PLANT SEEDING, AS SPECIFIED BY REGION AND SEASON
- APPLY MULCHING MATERIAL IF NEEDED
- IRRIGATE IF NEEDED WITHOUT CAUSING EROSION

* PLANTING DATES DEPEND ON SPECIES AND REGION (MOUNTAIN, PIEDMONT OR COASTAL)

SEEDING RATES FOR TEMPORARY SEEDINGS

SPECIES	RATE (^) PER 1,000 SQ FT	RATE (^) PER ACRE	MTS - L'STONE	PLANTING DATES COASTAL (#)
RYEGRASS	0.9 POUNDS	40-50 LBS	8/1 - 12/1	8/15 - 3/1
ANNUAL LESPEDEZA	0.9 POUNDS	40 LBS	3/1 - 4/1	2/1 - 3/1
WEEPING LOVEGRASS	0.1 POUNDS	4 - 6 LBS	3/15 - 8/1	2/15 - 8/15

* ALL SEEDING NUMBERS ARE ALONE FOR MIXTURE NUMBER SEE MANUAL FOR EROSION AND SEDIMENT TABLE 6-24.1 PAGES 6-134 - 6-136
^ UNUSUAL SITE CONDITIONS MAY REQUIRE HEAVIER SEEDING RATES.
\# SEEDING DATES MAY NEED TO BE ALTERED TO FIT TEMPERATURE VARIATIONS AND LOCAL CONDITIONS.

TEMPORARY SEEDING DETAIL

NTS

01-01-21 TO 07-01-22

ACTIVITY	MONTH 1	2	3	4	5	6
INSTALL AND MAINTAIN INITIAL BMP's (CONSTRUCTION EXIT, SILT FENCE, TEMPORARY GRASSING)						
CLEARING/CONSTRUCTION						
INSTALL AND MAINTAIN INTERMEDIATE BMP's (TEMPORARY GRASSING)						
INSTALL FINAL BMP's (PERMANENT GRASSING)						
REMOVAL OF TEMPORARY BMP'S						

CONSTRUCTION TIMELINE

DEFINITION

The planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization..

CONDITIONS

Permanent perennial vegetation is used to provide a protective cover for exposed areas including cuts, fills, dams, and other denuded areas.

SPECIFICATIONS

Grading and Shaping

Grading and shaping may not be required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks shall be sloped to enable plant establishment.

When conventional seeding and fertilizing are to be done, grade and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation.

oncentrations of water that will cause excessive soil erosion shall be diverted to a safe outlet. Diversions and other treatment practices shall conform with the appropriate standards and specifications.

Seedbed Preparation

Seedbed preparation may not be required where hydraulic seeding and fertilizing equipment is to be used. When conventional seeding is to be used, seedbed preparation will be done as follows:

Broadcast plantings

1. Tillage at a minimum, shall adequately loosen the soil to a depth of 4 to 6 inches; alleviate compaction; incorporate lime and fertilizer; smooth and firm the soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of straw or hay mulch if a disk is to be used.
2. Tillage may be done with any suitable equipment.
3. Tillage should be done on the contour where feasible.

Ds3 DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)

surface shall be pitted or trenched across the slope with appropriate hand tools to provide two places 6 to 8 inches apart in which seed may lodge and germinate. Hydraulic seeding may also be used.

Individual Plants

1. Where individual plants are to be set, the soil shall be prepared by excavating holes, opening furrows, or dibble planting.
2. For nursery stock plants, holes shall be large enough to accommodate roots without crowding.
3. Where pine seedlings are to be planted, subsoil under the row 36 inches deep on the contour four to six months prior to planting. Subsoiling should be done when the soil is dry, preferably in August or September.

Planting

Hydraulic Seeding

Mix the seed (innoculated if needed), fertilizer, and wood cellulose or wood pulp fiber mulch with water and apply in a slurry uniformly over the area to be treated. Apply within one hour after the mixture is made.

Conventional Seeding

Seeding will be done on a freshly prepared and firmed seedbed. For broadcast planting, use a cultipacker seeder, drill, rotary seeder, other mechanical seeder, or hand seeding to distribute the seed uniformly over the area to be treated. Cover the seed lightly with 1/8 to 1/4 inch of soil for small seed and 1/2 to 1 inch for large seed when using a cultipacker or other suitable equipment.

No-Till Seeding

No-till seeding is permissible into annual cover crops when planting is done following maturity of the cover crop or if the temporary cover stand is sparse enough to allow adequate growth of the permanent (perennial) species. No-till seeding shall be done with appropriate no-till seeding equipment. The seed must be uniformly distributed and planted at the proper depth.

Individual Plants

Shrubs, vines and sprigs may be planted with appropriate planters or hand tools. Pine trees shall be planted manually in the subsoil furrow. Each plant shall be set in a manner that will avoid crowding the roots. Nursery stock plants shall be planted at the same depth or slightly deeper than they grew at the nursery. The tips of vines and sprigs must be at or slightly above the ground surface. Where individual holes are dug, fertilizer shall be placed in the bottom of the hole, two inches of soil shall be added and the plant shall be set in the hole.

Mulching

Mulch is required for all permanent vegetation applications. Mulch applied to seeded areas shall achieve 75% soil cover. Select the mulching material from the following and apply as indicated:

1. Dry straw or dry hay of good quality and free of weed seeds can be used. Dry straw shall be applied at the rate of 2 tons per acre. Dry hay shall be applied at a rate of 2 1/2 tons per acre.
2. Wood cellulose mulch or wood pulp fiber shall be used with hydraulic seeding. It shall be applied at the rate of 500 pounds per acre. Drystraw or dry hay shall be applied (at the rate indicated above) after hydraulic seeding.
3. One thousand pounds of wood cellulose or wood pulp fiber, which includes a tackifier, shall be used with hydraulic seeding on slopes 3/4:1 or steeper.
4. Sericea lespedeza hay containing mature seed shall be applied at a rate of three tons per acre.
5. Pine straw or pine bark shall be applied at a thickness of 3 inches for bedding purposes. Other suitable materials in sufficient quantity may be used where ornamentals or other ground covers are planted. This is not appropriate for seeded areas.
6. When using temporary erosion control blankets or block sod, mulch is not required.
7. Bituminous treated roving may be applied on planted areas on slopes, in ditches or dry waterways to prevent erosion. Bituminous treated roving shall be applied within 24 hours after an area has been planted. Application rates and materials must meet Georgia Department of Transportation specifications.

Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They shall be evenly dispersed when agitated in water. The fibers shall contain a dye to allow visual metering and aid in uniform application during seeding.

Applying Mulch

Straw or hay mulch will be spread uniformly within 24 hours after seeding and/or planting. The mulch may be spread by blower-type spreading equipment, other spreading equipment or by hand. Mulch shall be applied to cover 75% of the soil surface.

Wood cellulose or wood fiber mulch shall be applied uniformly with hydraulic seeding equipment.

Anchoring Mulch

Anchor straw or hay mulch immediately after application by one of the following methods:
1. Emulsified asphalt can be (a) sprayed uniformly onto the mulch as it is ejected from the blower machine or (b) sprayed on the mulch immediately following mulch application when straw or hay is spread by methods other than special blower equipment.

The combination of asphalt emulsion and water shall consist of a homogeneous mixture satisfactory for spraying. The mixture shall consist of 100 gallons of grade SS-1h or CSS-1h emulsified asphalt and 100 gallons of water per ton of mulch.
Care shall be taken at all times to protect state waters, the public, adjacent property, pavements, curbs, sidewalks, and all other structures from asphalt discoloration.
2. Hay and straw mulch shall be pressed into the soil immediately after the mulch is spread. A special "packer disk" or disk harrow with the disks set straight may be used. The disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disks shall be dull enough to press the mulch into the ground without cutting it, leaving much of it in an erect position. Mulch shall not be plowed into the soil.
3. Synthetic tackifiers or binders approved by GDOT shall be applied in conjunction with or immediately after the mulch is spread. Synthetic tackifiers shall be mixed and applied according to manufacturer's specifications. Refer to Tb - Tackifiers and Binders.
4. Rye or wheat can be included with Fall and Winter plantings to stabilize the mulch. They shall be applied at a rate of one-quarter to one half bushel per acre.
5. Plastic mesh or netting with mesh no larger than one inch by one inch may be needed to anchor straw or hay mulch on unstable soils and concentrated flow areas. These materials shall be installed and anchored according to manufacturer's specifications.

Irrigation

Irrigation shall be applied at a rate that will not cause runoff.

SEEDING RATES FOR PERMANENT SEEDING

SPECIES	RATE Per 1,000 sq.ft.	RATE Per Acre *	PLANTING DATES **
BAHIA	1.4 POUNDS	60 LBS.	1/1-12/31
BERMUDA	0.2 POUND	10 LBS.	2/15-7/1
CENTIPEDE	BLOCK SOD ONLY	BLOCK SOD ONLY	4/1-7/1
LESPEDEZA	1.7 POUNDS	75 LBS.	1/1-12/31
WEEPING LOVE GRASS	0.1 POUND	4 LBS.	2/1-6/15
SWITCH GRASS	0.9 POUND	40 LBS.	3/15-6/1

* Unusual site conditions may require heavier seeding rates.
** Seeding dates may need to be altered to fit temperature variations and conditions.

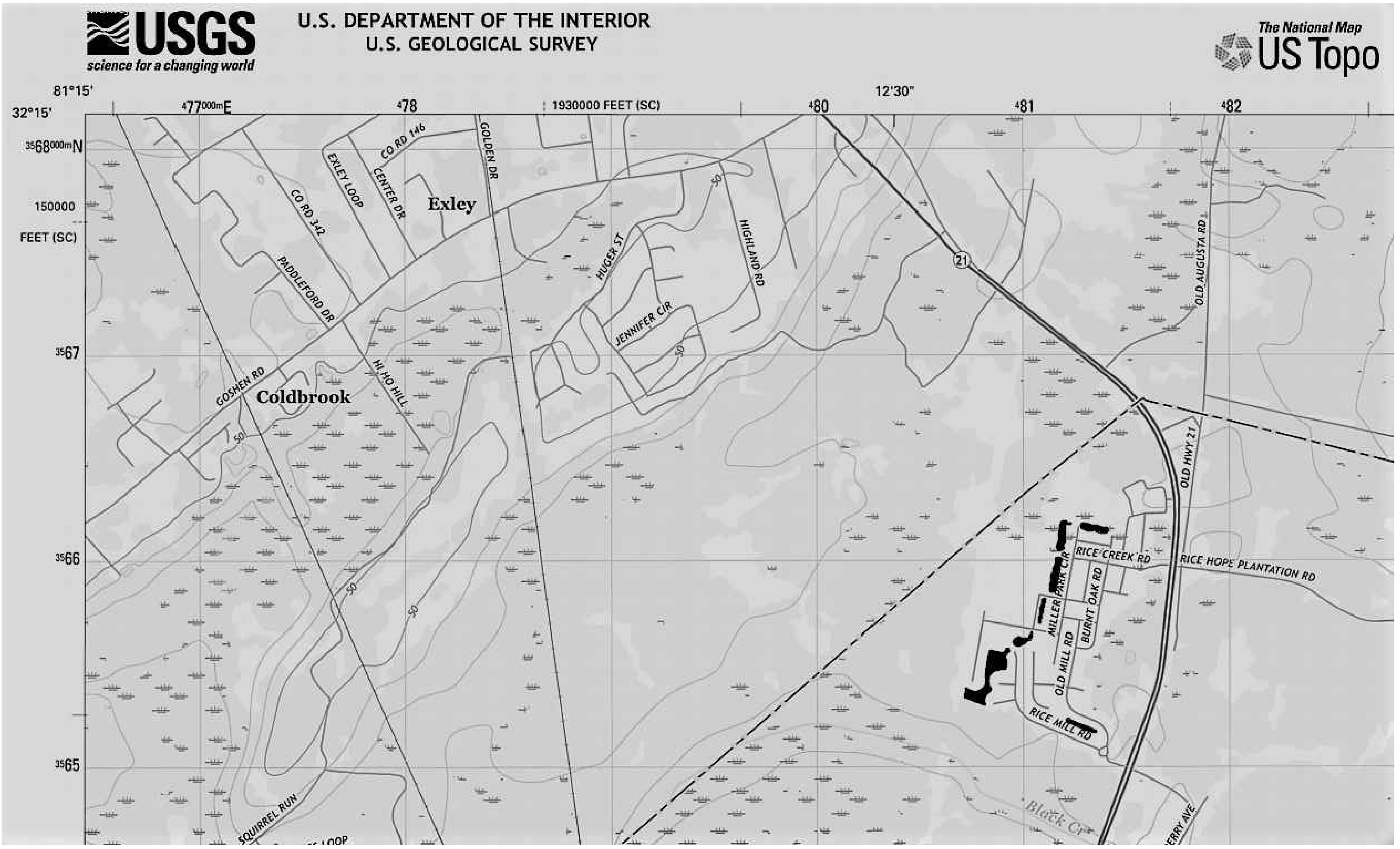
EROSION CONTROL DETAILS

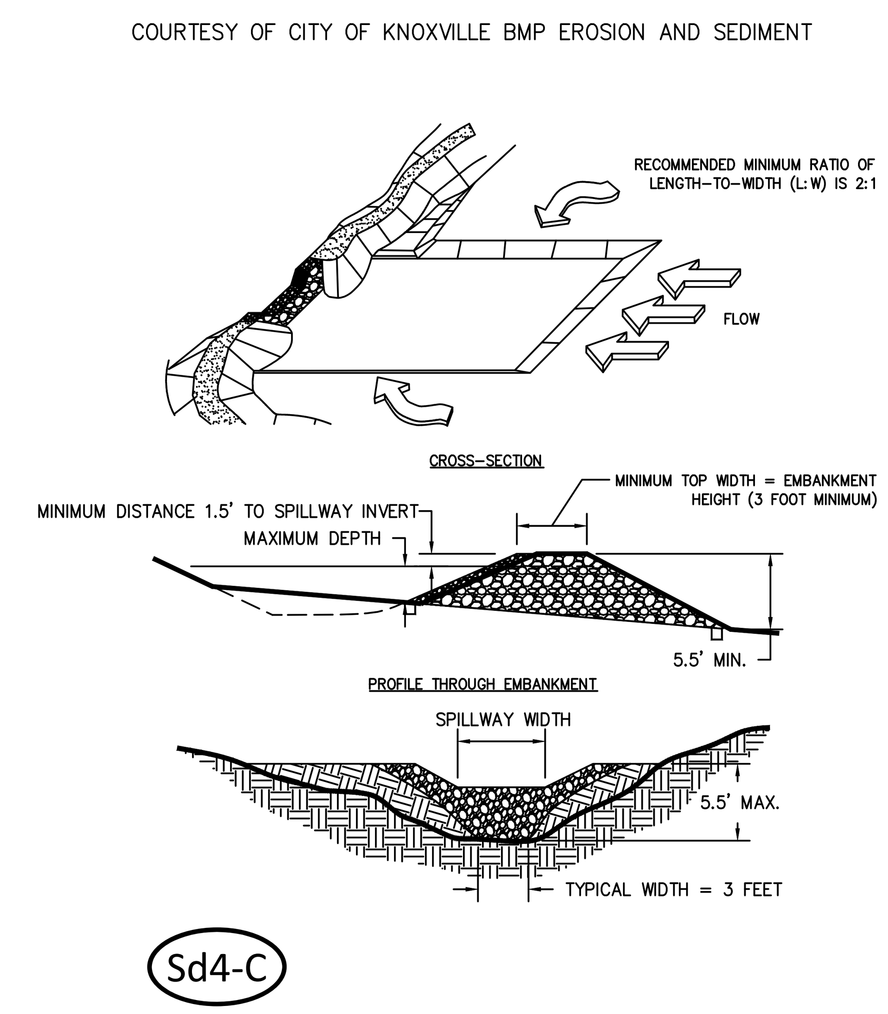
Rice Creek Phase 5
Port Wentworth
PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/02/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: NTS

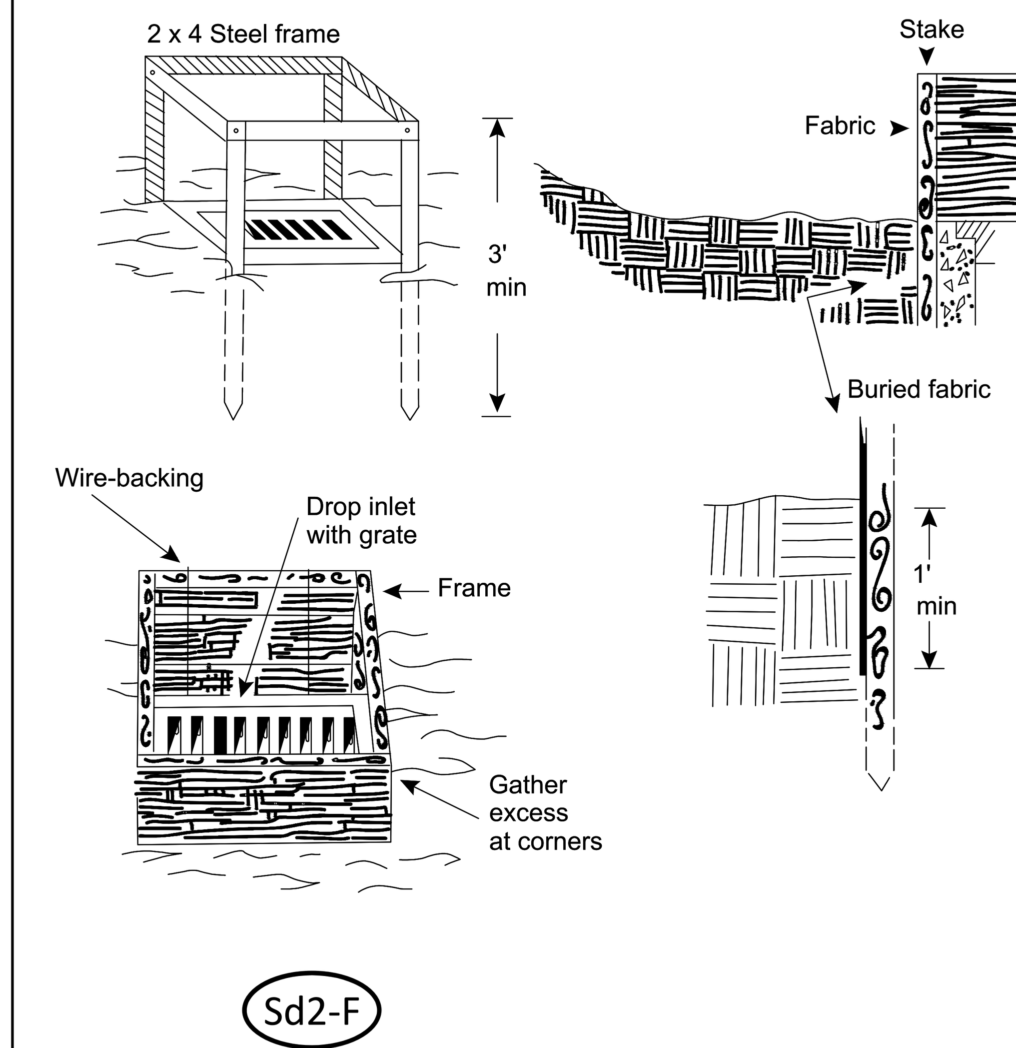
5

SHEET:





TEMPORARY SEDIMENT TRAP W/ ROCK OUTLET
NTS



INLET SEDIMENT TRAP FABRIC AND FRAME
NTS

12/02/21
CERTIFIED DESIGN PROFESSIONAL:
Jessica Vick, P.E.
LEVEL II CERTIFICATION #: 0000062699

REVISIONS

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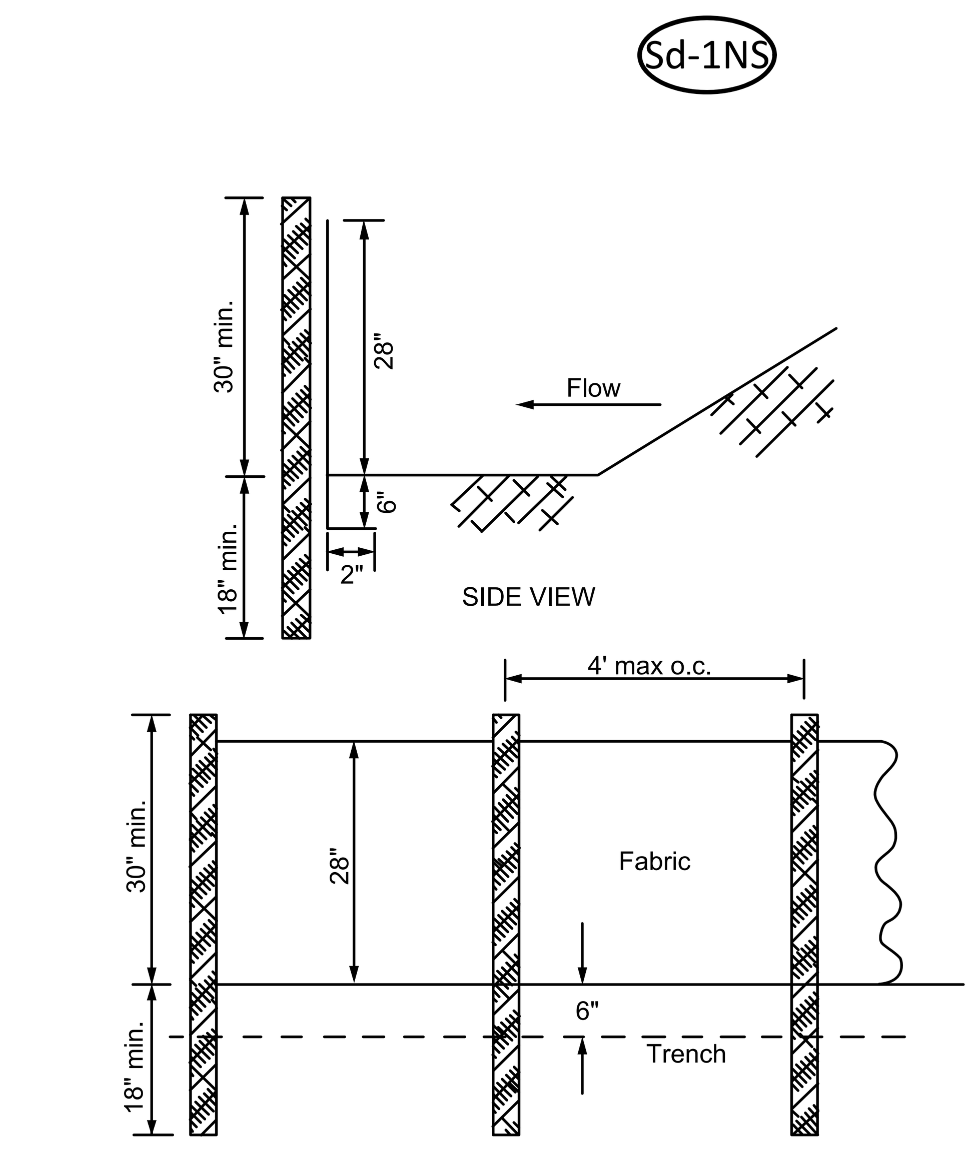
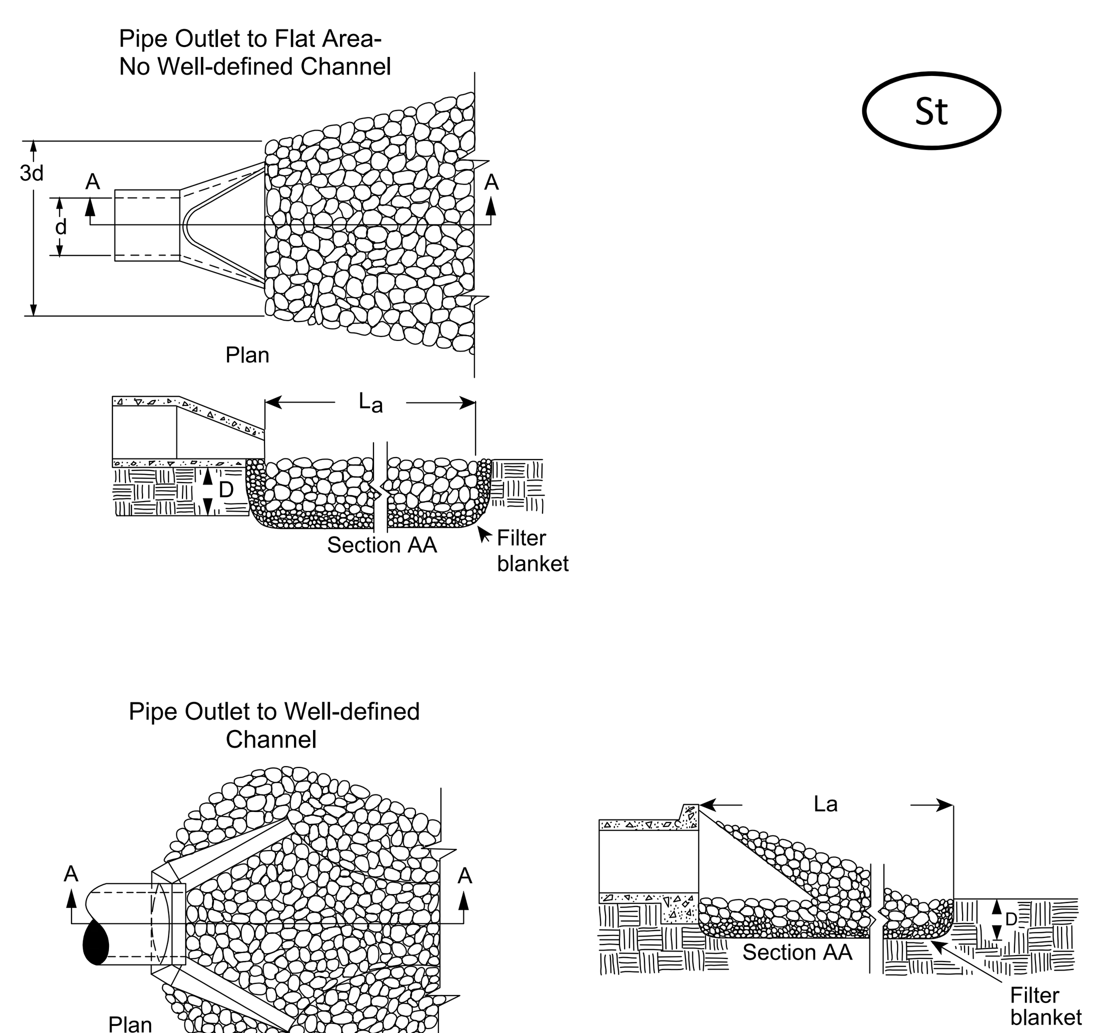


NOTE:
Use wooden stakes.

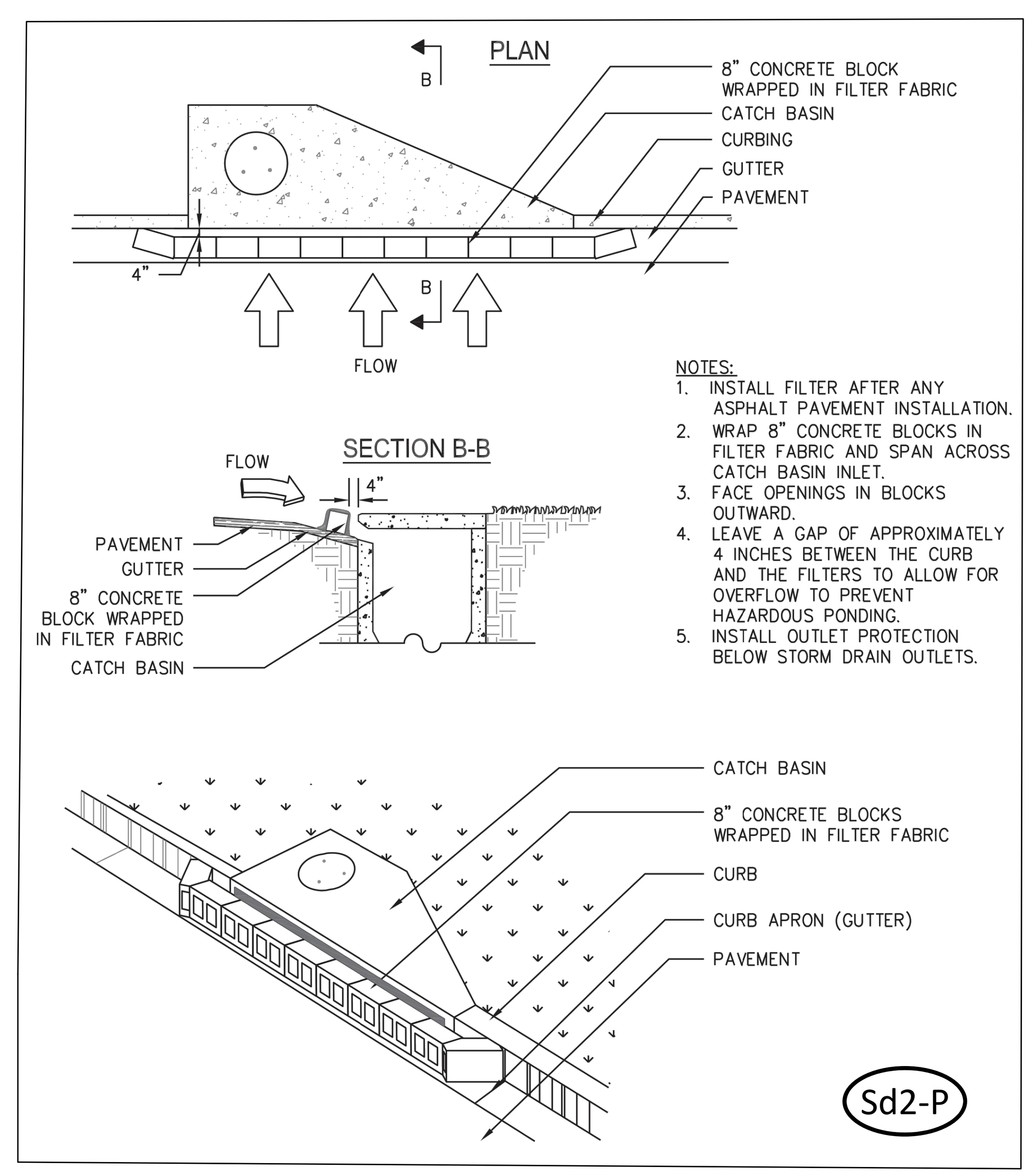
SILT FENCE - TYPE A - NON-SENSITIVE
NTS



Notes

1. La is the length of the riprap apron.
2. D = 1.5 times the maximum stone diameter but not less than 6".
3. In a well-defined channel extend the apron up the channel banks to an elevation of 6" above the maximum tailwater depth of to the top of the bank, whichever is less.
4. A filter blanket or filter fabric should be installed between the riprap and soil foundation.

STORM OUTFALL PROTECTION
NTS



NOTES:
1. INSTALL FILTER AFTER ANY ASPHALT PAVEMENT INSTALLATION.
2. WRAP 8" CONCRETE BLOCKS IN FILTER FABRIC AND SPAN ACROSS CATCH BASIN INLET.
3. FACE OPENINGS IN BLOCKS OUTWARD.
4. LEAVE A GAP OF APPROXIMATELY 4 INCHES BETWEEN THE CURB AND THE FILTERS TO ALLOW FOR OVERFLOW TO PREVENT HAZARDOUS PONDING.
5. INSTALL OUTLET PROTECTION BELOW STORM DRAIN OUTLETS.

CURB INLET PROTECTION
NTS

EROSION CONTROL DETAILS

Rice Creek Phase 5
Port Wentworth
PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 12/02/21
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: NTS

6
SHEET:

DRAINAGE REPORT

Rice Creek Master Plan
Port Wentworth, GA

Prepared for: Landmark 24, LLC

Revised Date 01/31/2022
Date 11/17/2021

Prepared by:

ROBERTS
CIVIL ENGINEERING

301 Sea Island Road, Suite 10, St. Simons Island, GA 31522   912-638-9681 Office   912-289-0339 Fax

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1.0 Introduction

The proposed Rice Creek Development is located adjacent to GA Highway 21, near the intersection of Rice Creek Road and GA Highway 21 in Brunswick, GA. The 168 acre site consists of a multi-phased existing and proposed single family residential home development. The proposed storm sewer drainage system serving this development, will discharge into an existing wetland system.

2.0 Proposed Hydrology versus Existing Hydrology

2.1 Existing System

The pre-development condition consists of (2) basins. Pre- Dev Basin #1 drains southwest, discharging into an un-named canal at OUTFALL #1. Pre-Dev Basin #2 drains northwest, discharging into an unnamed canal at OUTFALL #2 (see *Appendix A: Pre-Developed Hydrology Exhibit* for location of OUTFALLS).

Both wetland systems ultimately discharge into Black Creek, which then outfalls to the Savannah River and ultimately to the Atlantic Ocean.

2.2 Proposed System

The proposed storm sewer conveyance system collects stormwater runoff generated by this development, and discharges into an interconnected pond system. The multi-pond system is controlled by a series of pipes and outfall control structures.

Post-Dev Basin #1 sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #1. It then discharges via outfall control structure and a series of pipes to pond #2 (see *Appendix B: Post-Developed Hydrology Exhibit* for location of outfall). POND #1 makes up 7.6% of the total area of its basin, with 5’ of vertical storage.

Post-Dev Basin #2 sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #2. It then discharges via outfall control structure and a series of pipes to pond #3 (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #2 makes up 8.2% of the total area of its basin, with 5’ of vertical storage.

Post-Dev Basin #2A sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into an un-named canal northwest of the site (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #2A makes up 5.5% of the total area of its basin, with 2' of vertical storage.

Post-Dev Basin #3 sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #3. It then discharges via outfall control structure and a series of pipes to pond #4 (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #3 makes up 7.2% of the total area of its basin, with 5' of vertical storage.

Post-Dev Basin #3A sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #3A. It then discharges via outfall control structure and a series of pipes to pond #3 (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #3A makes up 7.2% of the total area of its basin, with 5' of vertical storage.

Post-Dev Basin #3B sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #3B. It then discharges via outfall control structure and a series of pipes to pond #3A (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #3B makes up 8.9% of the total area of its basin, with 5' of vertical storage.

Post-Dev Basin #4 sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #3. It then discharges via outfall control structure and a series of pipes to pond #5 (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #4 makes up 3.8% of the total area of its basin, with 5' of vertical storage.

Post-Dev Basin #5 sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #6. It then discharges via outfall control structure and a series of pipes to pond #4 (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #5 makes up 6.1% of the total area of its basin, with 5.5' of vertical storage.

Post-Dev Basin #6 sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #6. It then discharges into an un-named canal southwest of the site (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #6 makes up 15.4% of the total area of its basin, with 5.5' of vertical storage.

Both wetland systems ultimately discharge into Black Creek, which then outfalls to the Savannah River and ultimately to the Atlantic Ocean.

3.0 Design Variables & Discharge

3.1 1 Year Storm Table

OUTFALL #1	Pre-Developed Basin #1	Post-Developed Basin #1	Post-Developed Basin #2	Post-Developed Basin #3	Post-Developed Basin #3A	Post-Developed Basin #3B	Post-Developed Basin #4	Post-Developed Basin #5	Post-Developed Basin #6
Area (Acres)	121.08	17.79	16.26	23.30	8.80	7.41	22.26	21.23	35.51
Tc (min)	118.70	6.60	6.90	10.30	12.00	11.00	14.90	7.30	13.90
CN	72	83	84	82	84	84	83	82	85
Basin Discharge (CFS)	39.49	39.68	37.36	38.69	17.15	14.87	38.49	44.35	65.63
Pk Water Surface Elevation (ft)	N/A	11.51	11.49	11.49	11.63	11.66	11.37	10.70	10.65
Pond Discharge (CFS)	N/A	5.34	6.70	14.96	6.50	2.62	25.55	32.69	25..85
Total Outfall Discharge (CFS)	39.49	25.85							

OUTFALL #2	Pre-Developed Basin #2	Post-Developed Basin #2A
Area (Acres)	46.97	15.60
Tc (min)	83.90	6.90
CN	72	85
Basin Discharge (CFS)	19.54	70.02
Pk Water Surface Elevation (ft)	N/A	13.80
Pond Discharge (CFS)	N/A	19.54
Total Outfall Discharge (CFS)	19.54	19.54

3.2 2 Year Storm Table

OUTFALL #1	Pre-Developed Basin #1	Post-Developed Basin #1	Post-Developed Basin #2	Post-Developed Basin #3	Post-Developed Basin #3A	Post-Developed Basin #3B	Post-Developed Basin #4	Post-Developed Basin #5	Post-Developed Basin #6
Area (Acres)	121.08	17.79	16.26	23.30	8.80	7.41	22.26	21.23	35.51
Tc (min)	118.70	6.60	6.90	10.30	12.00	11.00	14.90	7.30	13.90
CN	72	83	84	82	84	84	83	82	85
Basin Discharge (CFS)	71.42	60.96	56.73	60.19	26.08	22.61	59.25	68.91	99.84
Pk Water Surface Elevation (ft)	N/A	12.15	12.14	12.13	12.26	12.29'	11.98	11.27	11.16
Pond Discharge (CFS)	N/A	9.40	13.17	28.89	10.09	4.49	47.65	58.69	51.36
Total Outfall Discharge (CFS)	71.42	51.36							

OUTFALL #2	Pre-Developed Basin #2	Post-Developed Basin #2A
Area (Acres)	46.97	15.60
Tc (min)	83.90	6.90
CN	72	85
Basin Discharge (CFS)	35.25	56.63
Pk Water Surface Elevation (ft)	N/A	14.09
Pond Discharge (CFS)	N/A	33.71
Total Outfall Discharge (CFS)	35.25	33.71

3.3 10 Year Storm Table

OUTFALL #1	Pre-Developed Basin #1	Post-Developed Basin #1	Post-Developed Basin #2	Post-Developed Basin #3	Post-Developed Basin #3A	Post-Developed Basin #3B	Post-Developed Basin #4	Post-Developed Basin #5	Post-Developed Basin #6
Area (Acres)	121.08	17.79	16.26	23.30	8.80	7.41	22.26	21.23	35.51
Tc (min)	118.70	6.60	6.90	10.30	12.00	11.00	14.90	7.30	13.90
CN	72	83	84	82	84	84	83	82	85
Basin Discharge (CFS)	128.48	95.67	88.17	95.53	40.57	35.18	93.21	109.23	155.48
Pk Water Surface Elevation (ft)	N/A	13.14	13.12	13.09	13.25	13.28	12.92	12.22	12.01
Pond Discharge (CFS)	N/A	16.48	23.36	50.37	16.64	7.11	82.08	105.43	95.34
Total Outfall Discharge (CFS)	128.48	95.34							

OUTFALL #2	Pre-Developed Basin #2	Post-Developed Basin #2A
Area (Acres)	46.97	15.60
Tc (min)	83.90	6.90
CN	72	85
Basin Discharge (CFS)	63.19	87.18
Pk Water Surface Elevation (ft)	N/A	14.47
Pond Discharge (CFS)	N/A	58.75
Total Outfall Discharge (CFS)	63.19	58.75

3.4 25 Year Storm Table

OUTFALL #1	Pre-Developed Basin #1	Post-Developed Basin #1	Post-Developed Basin #2	Post-Developed Basin #3	Post-Developed Basin #3A	Post-Developed Basin #3B	Post-Developed Basin #4	Post-Developed Basin #5	Post-Developed Basin #6
Area (Acres)	121.08	17.79	16.26	23.30	8.80	7.41	22.26	21.23	35.51
Tc (min)	118.70	6.60	6.90	10.30	12.00	11.00	14.90	7.30	13.90
CN	72	83	84	82	84	84	83	82	85
Basin Discharge (CFS)	166.10	117.42	107.82	117.75	49.64	43.04	114.50	134.58	190.27
Pk Water Surface Elevation (ft)	N/A	13.73	13.71	13.67	13.89	13.94	13.51	12.84	12.51
Pond Discharge (CFS)	N/A	20.12	28.18	59.84	18.59	8.05	98.77	132.02	119.29
Total Outfall Discharge (CFS)	166.10	119.29							

OUTFALL #2	Pre-Developed Basin #2	Post-Developed Basin #2A
Area (Acres)	46.97	15.60
Tc (min)	83.90	6.90
CN	72	85
Basin Discharge (CFS)	81.57	106.22
Pk Water Surface Elevation (ft)	N/A	14.68
Pond Discharge (CFS)	N/A	75.09
Total Outfall Discharge (CFS)	81.57	75.09

3.5 50 Year Storm Table

OUTFALL #1	Pre-Developed Basin #1	Post-Developed Basin #1	Post-Developed Basin #2	Post-Developed Basin #3	Post-Developed Basin #3A	Post-Developed Basin #3B	Post-Developed Basin #4	Post-Developed Basin #5	Post-Developed Basin #6
Area (Acres)	121.08	17.79	16.26	23.30	8.80	7.41	22.26	21.23	35.51
Tc (min)	118.70	6.60	6.90	10.30	12.00	11.00	14.90	7.30	13.90
CN	72	83	84	82	84	84	83	82	85
Basin Discharge (CFS)	196.80	134.78	123.49	135.51	56.87	49.32	131.50	154.83	218.02
Pk Water Surface Elevation (ft)	N/A	14.20	14.18	14.17	14.41	14.46	14.00	13.29	12.86
Pond Discharge (CFS)	N/A	22.40	32.21	66.76	19.74	8.77	106.43	147.50	138.00
Total Outfall Discharge (CFS)	196.80	138.00							

OUTFALL #2	Pre-Developed Basin #2	Post-Developed Basin #2A
Area (Acres)	46.97	15.60
Tc (min)	83.90	6.90
CN	72	85
Basin Discharge (CFS)	96.54	121.40
Pk Water Surface Elevation (ft)	N/A	14.83
Pond Discharge (CFS)	N/A	88.37
Total Outfall Discharge (CFS)	96.54	88.37

3.6 100 Year Storm Table

OUTFALL #1	Pre-Developed Basin #1	Post-Developed Basin #1	Post-Developed Basin #2	Post-Developed Basin #3	Post-Developed Basin #3A	Post-Developed Basin #3B	Post-Developed Basin #4	Post-Developed Basin #5	Post-Developed Basin #6
Area (Acres)	121.08	17.79	16.26	23.30	8.80	7.41	22.26	21.23	35.51
Tc (min)	118.70	6.60	6.90	10.30	12.00	11.00	14.90	7.30	13.90
CN	72	83	84	82	84	84	83	82	85
Basin Discharge (CFS)	227.84	152.08	139.11	153.22	64.08	55.57	148.45	175.03	245.65
Pk Water Surface Elevation (ft)	N/A	14.68	14.65	14.70	14.94	14.99	14.51	13.70	13.19
Pond Discharge (CFS)	N/A	24.07	35.93	72.34	20.87	9.45	107.29	157.92	153.86
Total Outfall Discharge (CFS)	227.84	153.86							

OUTFALL #2	Pre-Developed Basin #2	Post-Developed Basin #2A
Area (Acres)	46.97	15.60
Tc (min)	83.90	6.90
CN	72	85
Basin Discharge (CFS)	111.67	136.52
Pk Water Surface Elevation (ft)	N/A	14.97
Pond Discharge (CFS)	N/A	100.90
Total Outfall Discharge (CFS)	111.67	100.90

4.0 Purpose of Analysis

The purpose of the analysis was to ensure the proposed storm sewer system could safely convey the 100 year storm event to the detention pond during and after development. Prior to the installation of the storm pipe system, diversion ditches will be installed to convey the stormwater runoff, during the initial phase of construction.

The underground storm sewer system was modeled in HydroCAD using the SCS method to determine the hydraulic grade for the 25 year storm event. *See Appendix C and Appendix D for the Storm Sewer Exhibits for phases V and IV*.

5.0 Water Quantity & Quality

It was determined that the hydraulic grade line for the proposed storm sewer system was below the flooding elevation for each inlet for the 100-year storm event, and all ditches maintain the required minimum freeboard.

The water quality aspect will be handled by the on-site detention ponds

6.0 Summary

The proposed project consists of single family residential lots on the 168 acre site off GA HWY 21, Port Wentworth, GA. An analysis was performed to determine that the storm piping system will handle a 25 year storm so that staging does not exceed the inlet elevations. Water quality will be satisfied through use of the on-site detention ponds.

Appendix A: Pre-Developed Hydrology Exhibit

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REVISIONS

1st Comment Letter TR Long 1.21.22

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PRE DEVELOPMENT EXHIBIT

RICE CREEK
MASTER DRAINAGE PLAN
PREPARED FOR:
LANDMARK 24

DATE: 01.31.2022
PROJECT NUMBER: 21509
DRAWN BY: JLV
CHECKED BY: JLV
SCALE: 1":150' (FOR 24"X36" PLOT)

A

APPENDIX

Appendix B: Post-Developed Hydrology Exhibit

NOT RELEASED FOR CONSTRUCTION

REVISIONS

1st Comment Letter TR Long 1.21.22

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POST DEVELOPMENT EXHIBIT

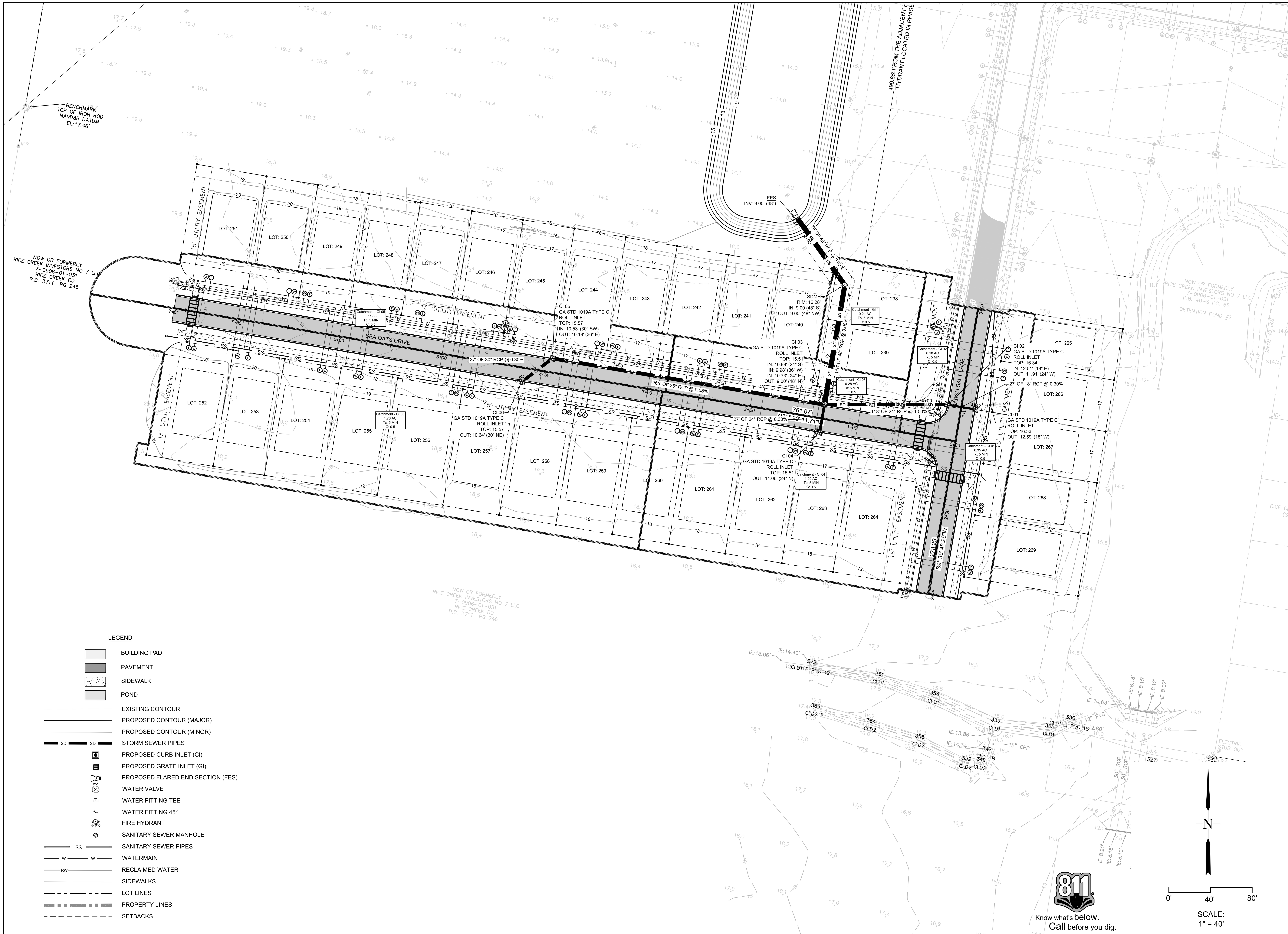
RICE CREEK
MASTER DRAINAGE PLAN
PREPARED FOR:
LANDMARK 24

DATE: 01.31.2022
PROJECT NUMBER: 21509
DRAWN BY: JLV
CHECKED BY: JLV
SCALE: 1":150' (FOR 24"X36" PLOT)

B

APPENDIX

Appendix C: PH V Storm Sewer Exhibit



LEGEND

- BUILDING PAD
- PAVEMENT
- SIDEWALK
- POND
- EXISTING CONTOUR
- PROPOSED CONTOUR (MAJOR)
- PROPOSED CONTOUR (MINOR)
- STORM SEWER PIPES
- PROPOSED CURB INLET (CI)
- PROPOSED GRATE INLET (GI)
- PROPOSED FLARED END SECTION (FES)
- WATER VALVE
- WATER FITTING TEE
- WATER FITTING 45°
- FIRE HYDRANT
- SANITARY SEWER MANHOLE
- SANITARY SEWER PIPES
- WATERMAIN
- RECLAIMED WATER
- SIDEWALKS
- LOT LINES
- PROPERTY LINES
- SETBACKS

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK
01/31/22

REVISIONS
1st Comment Letter TR Long 1.21.22

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STORM SEWER EXHIBIT

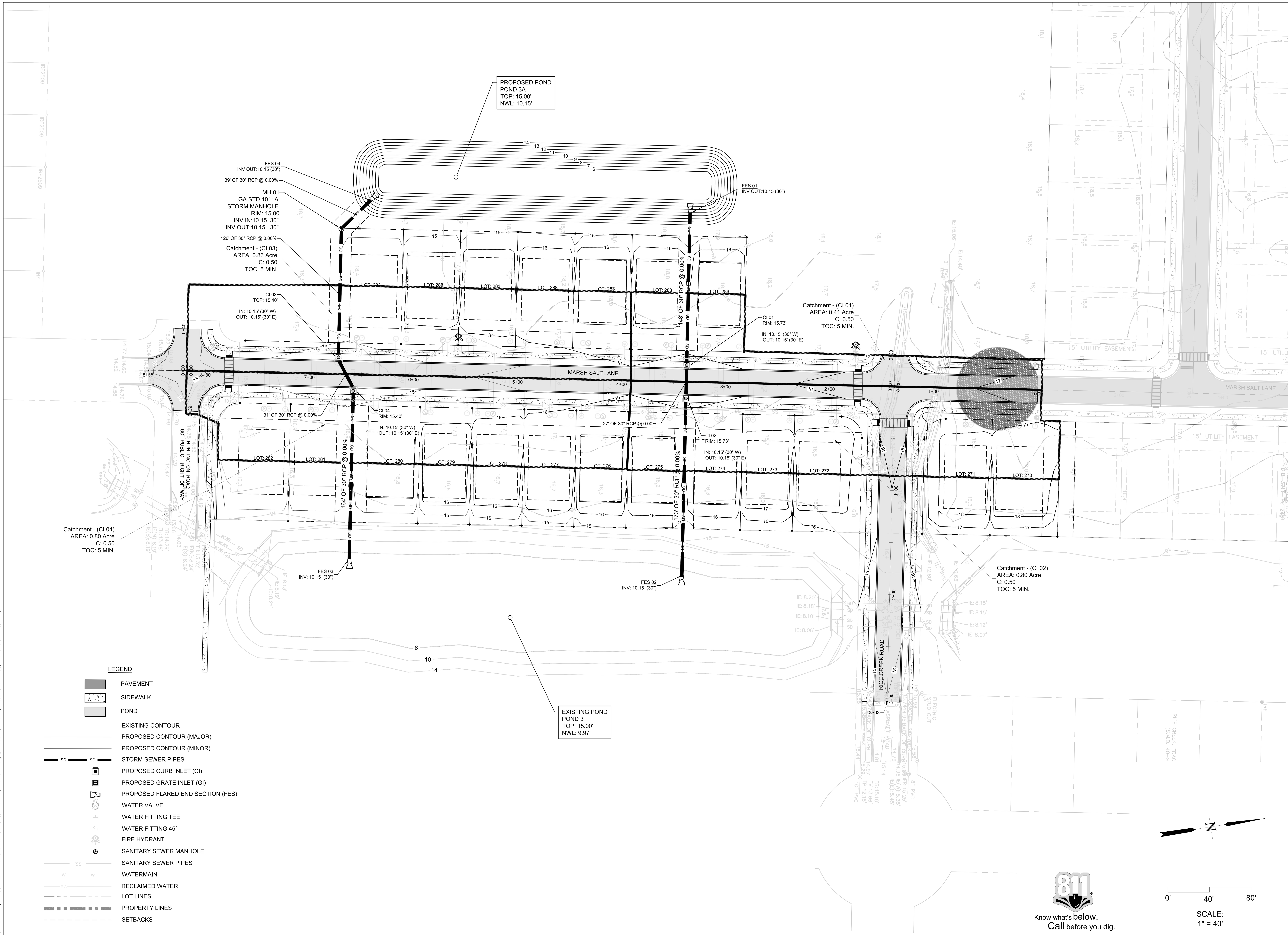
Rice Creek Phase 5
Port Wentworth

PREPARED FOR:
Rice Creek Investors #7, LLC

DATE: 01.31.2022
PROJECT NUMBER: 21507
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: 1"=40" (FOR 24"x36" PLOT)

SHEET: 6

Appendix D: PH VI Storm Sewer Exhibit



No. 046602
PROFESSIONAL
01/25/22

REVISIONS
1st Comment Letter TR Long 1.21.22

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STORM SEWER EXHIBIT

Rice Creek Phase 6
Port Wentworth

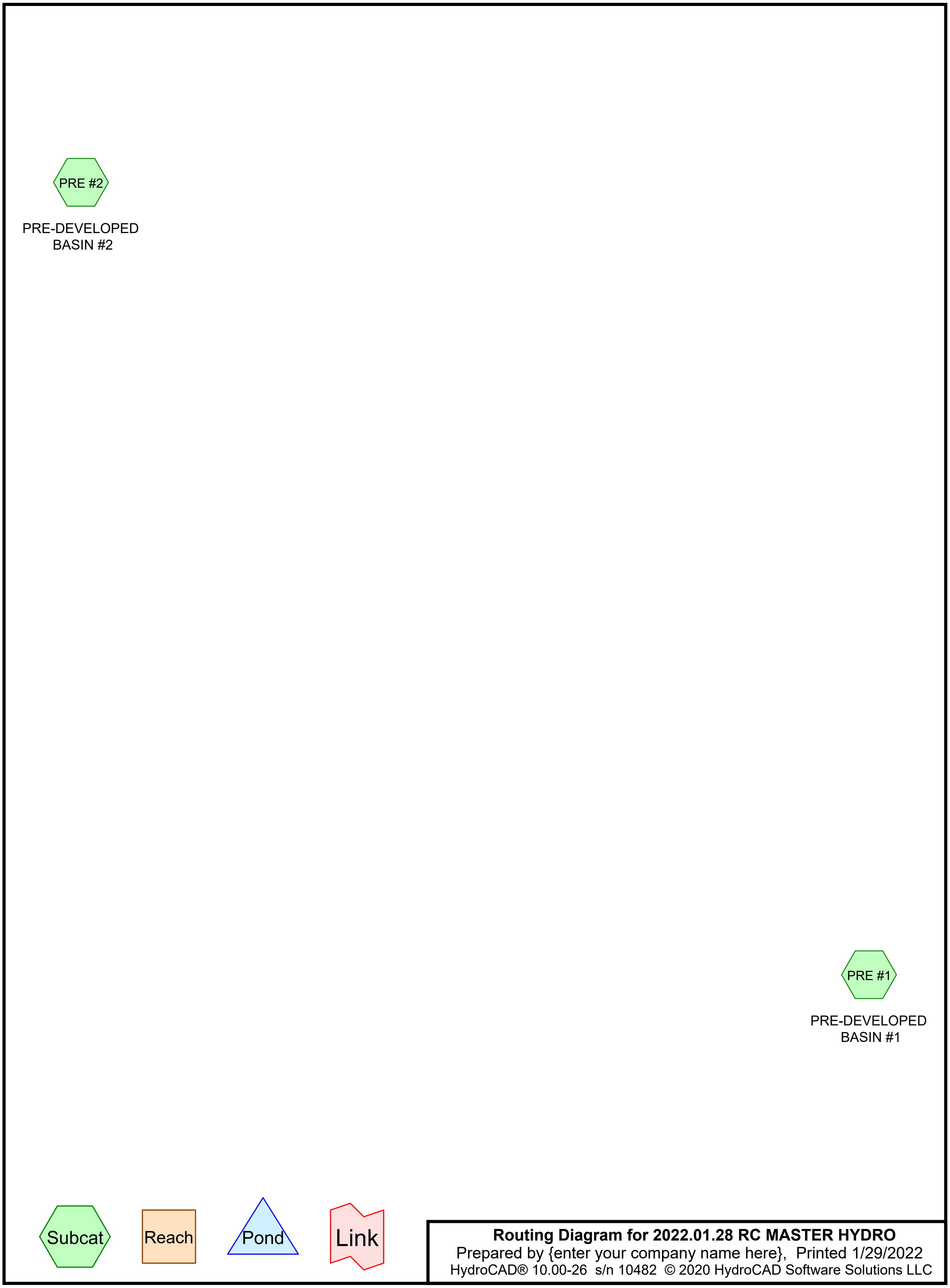
PREPARED FOR:
Landmark 24, LLC

DATE: 01.31.2022
PROJECT NUMBER: 21508
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: 1":40' (FOR 24"X36" PLOT)

STORM

SHEET:

Appendix E: Pre-Development HydroCAD Output



Routing Diagram for 2022.01.28 RC MASTER HYDRO
Prepared by {enter your company name here}, Printed 1/29/2022
HydroCAD® 10.00-26 s/n 10482 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment PRE #1: PRE-DEVELOPED BASIN #1

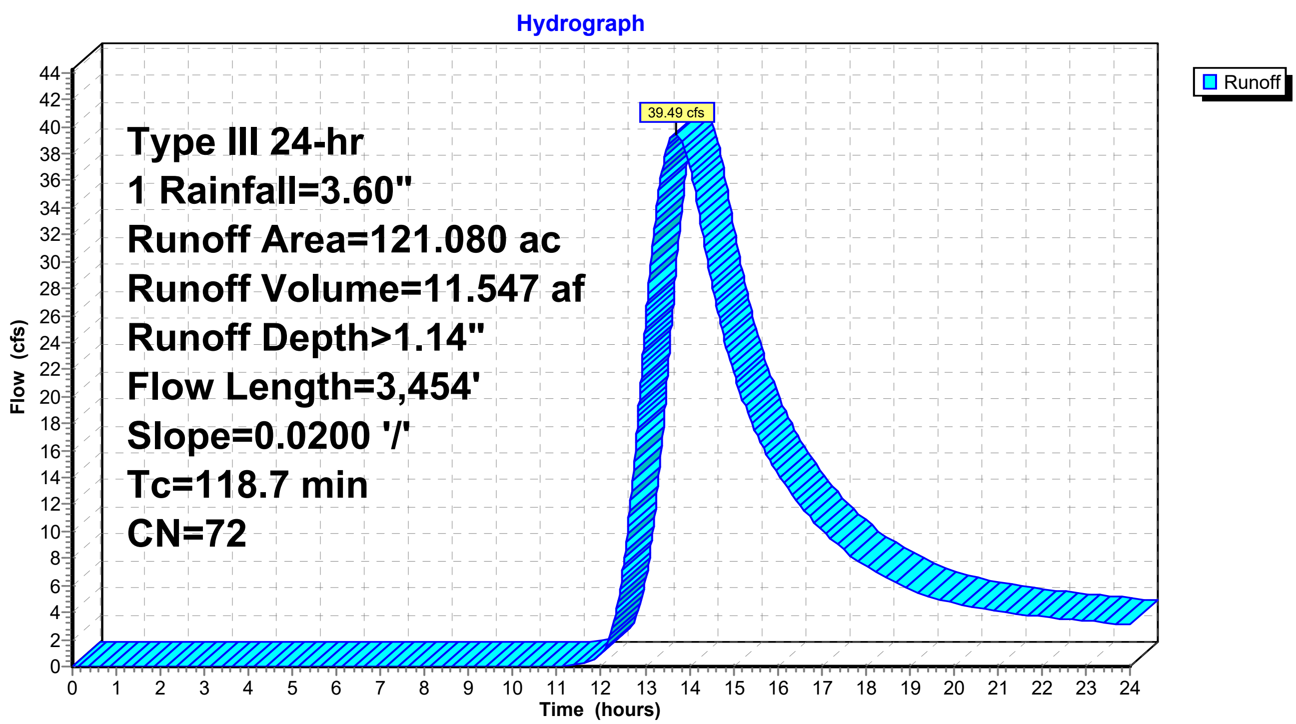
Runoff = 39.49 cfs @ 13.71 hrs, Volume= 11.547 af, Depth> 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	121.080	72	Woods, Good, HSG C
	121.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.4	300	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
74.3	3,154	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
118.7	3,454	Total			

Subcatchment PRE #1: PRE-DEVELOPED BASIN #1



Summary for Subcatchment PRE #2: PRE-DEVELOPED BASIN #2

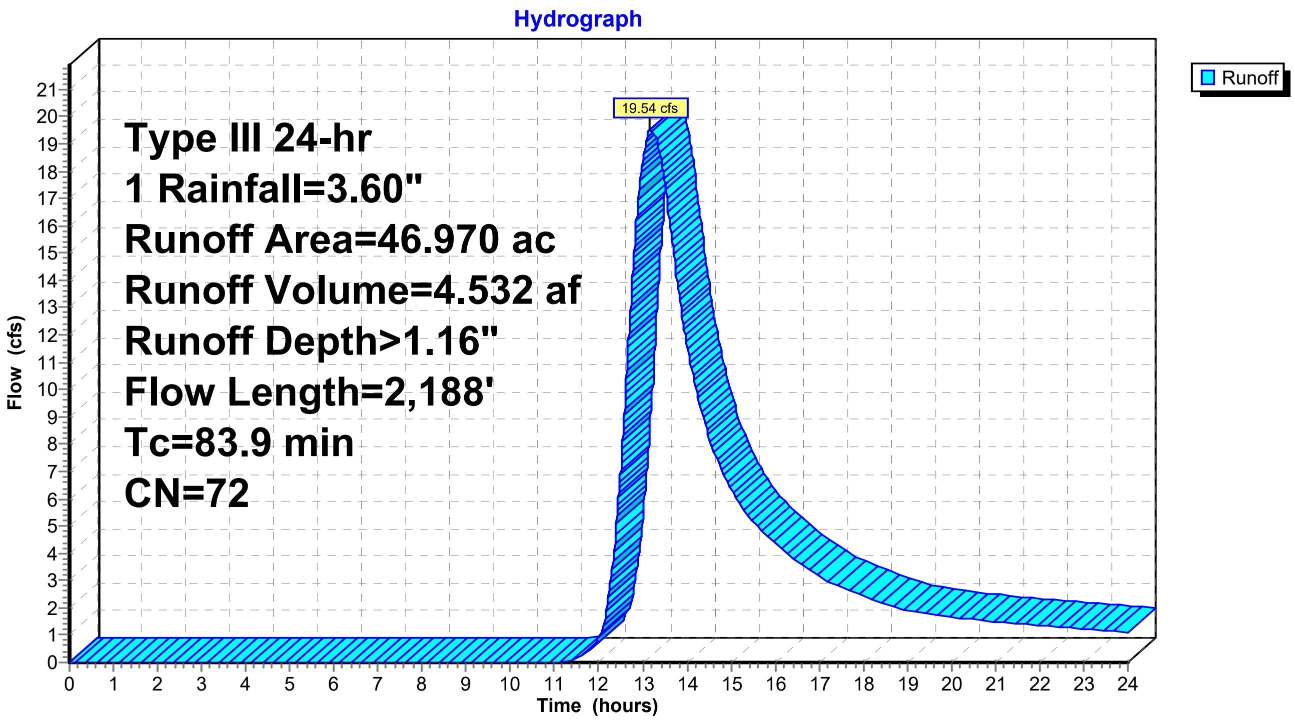
Runoff = 19.54 cfs @ 13.15 hrs, Volume= 4.532 af, Depth> 1.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	46.970	72	Woods, Good, HSG C
	46.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0	297	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
39.9	1,891	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
83.9	2,188	Total			

Subcatchment PRE #2: PRE-DEVELOPED BASIN #2



Summary for Subcatchment PRE #1: PRE-DEVELOPED BASIN #1

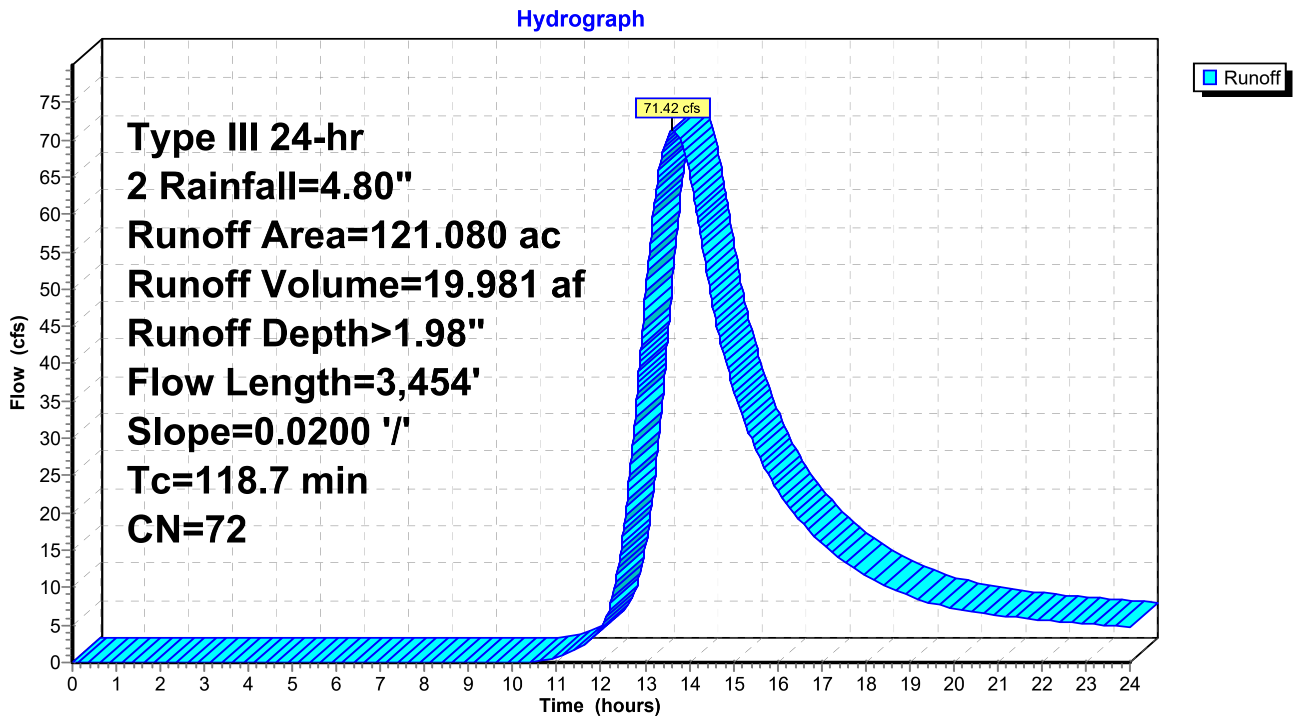
Runoff = 71.42 cfs @ 13.59 hrs, Volume= 19.981 af, Depth> 1.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	121.080	72	Woods, Good, HSG C
	121.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.4	300	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
74.3	3,154	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
118.7	3,454	Total			

Subcatchment PRE #1: PRE-DEVELOPED BASIN #1



Summary for Subcatchment PRE #2: PRE-DEVELOPED BASIN #2

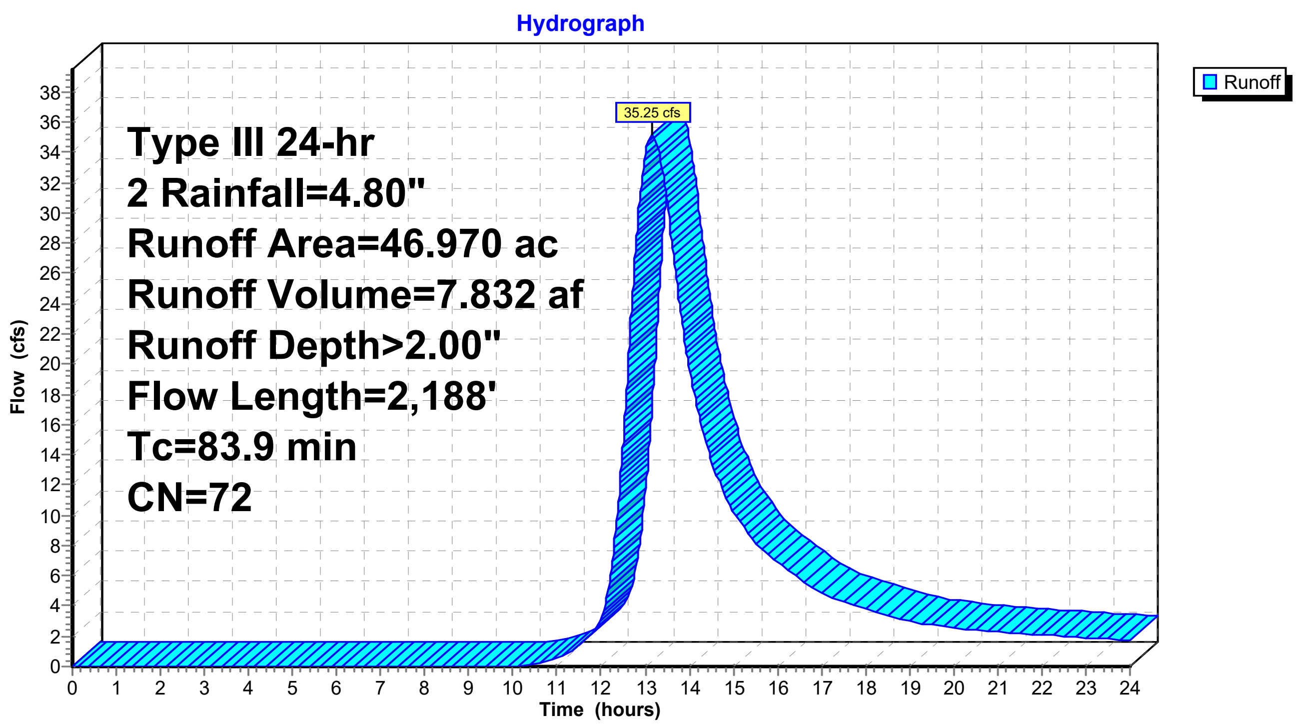
Runoff = 35.25 cfs @ 13.15 hrs, Volume= 7.832 af, Depth> 2.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	46.970	72	Woods, Good, HSG C
	46.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0	297	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
39.9	1,891	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
83.9	2,188	Total			

Subcatchment PRE #2: PRE-DEVELOPED BASIN #2



Summary for Subcatchment PRE #1: PRE-DEVELOPED BASIN #1

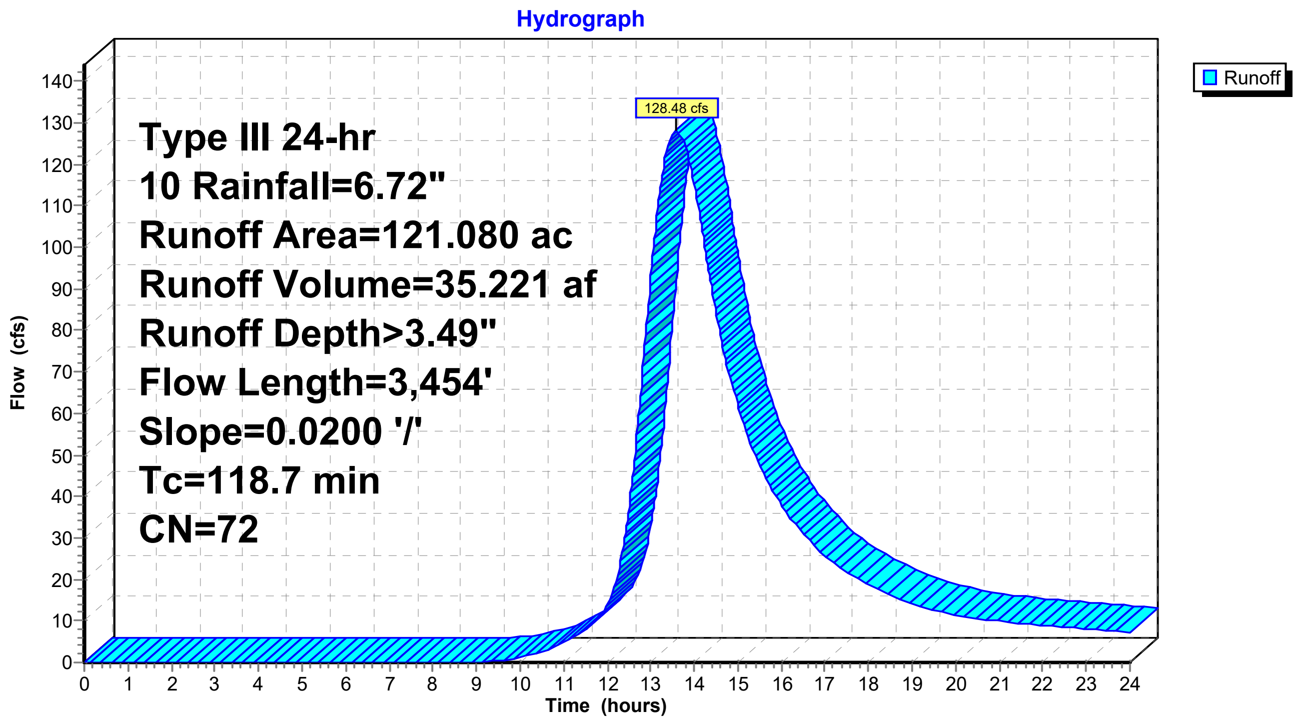
Runoff = 128.48 cfs @ 13.58 hrs, Volume= 35.221 af, Depth> 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	121.080	72	Woods, Good, HSG C
	121.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.4	300	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
74.3	3,154	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
118.7	3,454	Total			

Subcatchment PRE #1: PRE-DEVELOPED BASIN #1



Summary for Subcatchment PRE #2: PRE-DEVELOPED BASIN #2

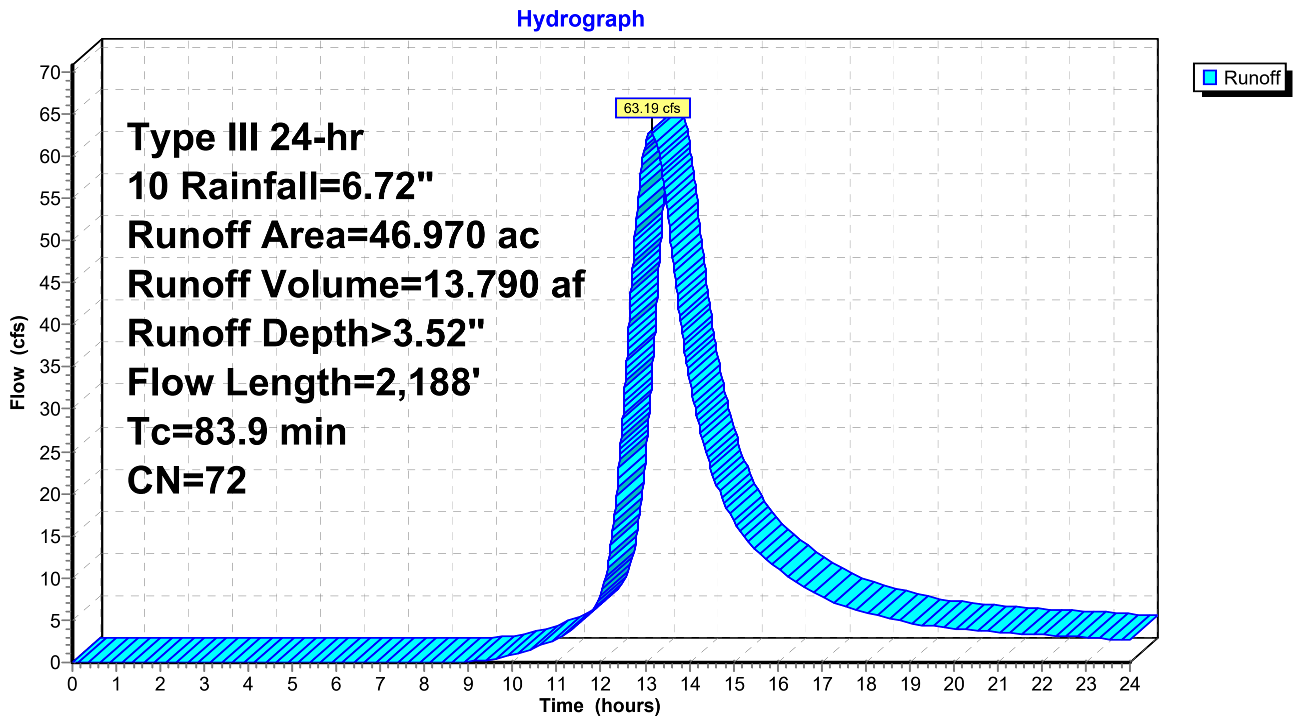
Runoff = 63.19 cfs @ 13.14 hrs, Volume= 13.790 af, Depth> 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	46.970	72	Woods, Good, HSG C
	46.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0	297	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
39.9	1,891	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
83.9	2,188	Total			

Subcatchment PRE #2: PRE-DEVELOPED BASIN #2



Summary for Subcatchment PRE #1: PRE-DEVELOPED BASIN #1

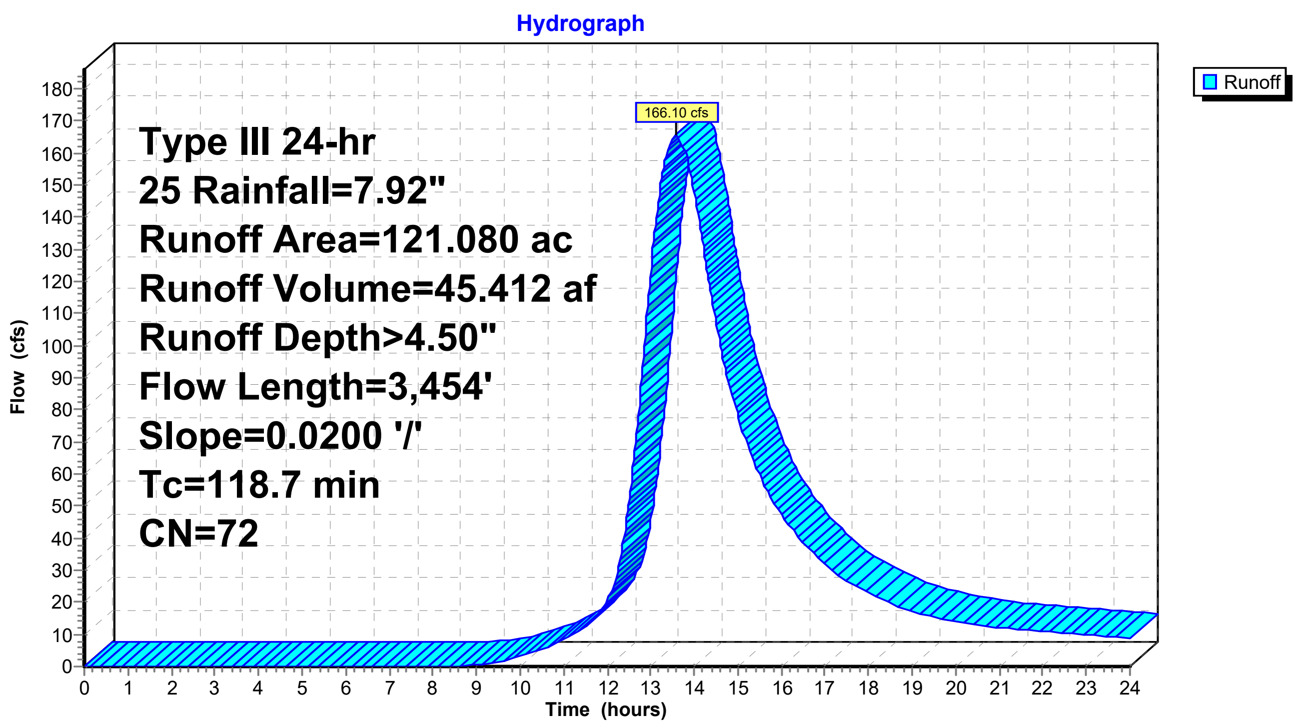
Runoff = 166.10 cfs @ 13.58 hrs, Volume= 45.412 af, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	121.080	72	Woods, Good, HSG C
	121.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.4	300	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
74.3	3,154	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
118.7	3,454	Total			

Subcatchment PRE #1: PRE-DEVELOPED BASIN #1



Summary for Subcatchment PRE #2: PRE-DEVELOPED BASIN #2

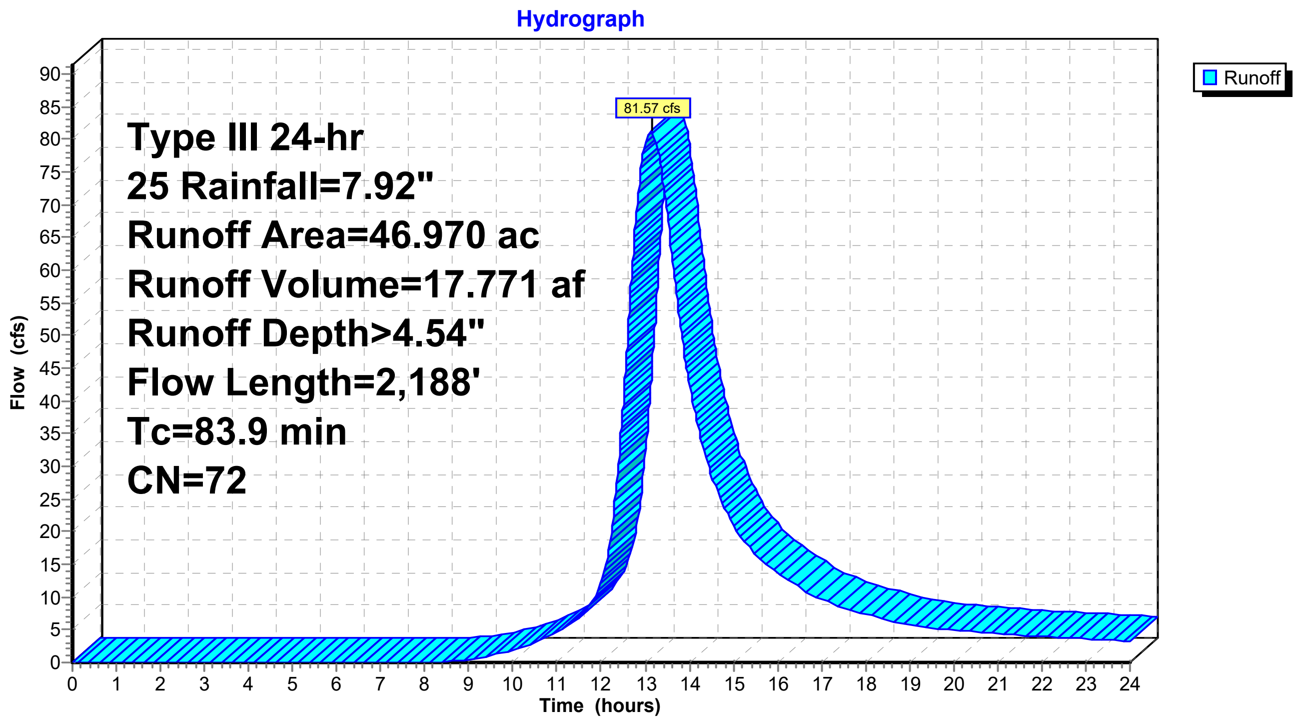
Runoff = 81.57 cfs @ 13.14 hrs, Volume= 17.771 af, Depth> 4.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	46.970	72	Woods, Good, HSG C
	46.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0	297	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
39.9	1,891	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
83.9	2,188	Total			

Subcatchment PRE #2: PRE-DEVELOPED BASIN #2



Summary for Subcatchment PRE #1: PRE-DEVELOPED BASIN #1

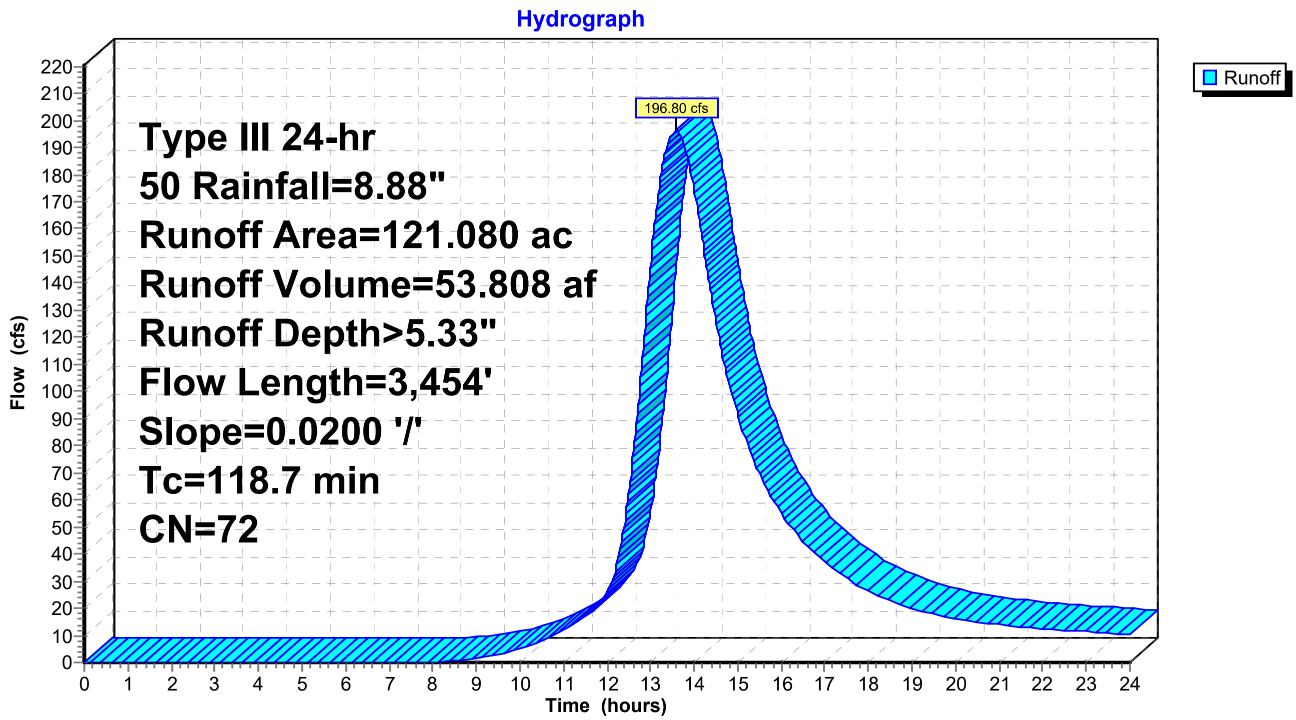
Runoff = 196.80 cfs @ 13.58 hrs, Volume= 53.808 af, Depth> 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	121.080	72	Woods, Good, HSG C
	121.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.4	300	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
74.3	3,154	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
118.7	3,454	Total			

Subcatchment PRE #1: PRE-DEVELOPED BASIN #1



Summary for Subcatchment PRE #2: PRE-DEVELOPED BASIN #2

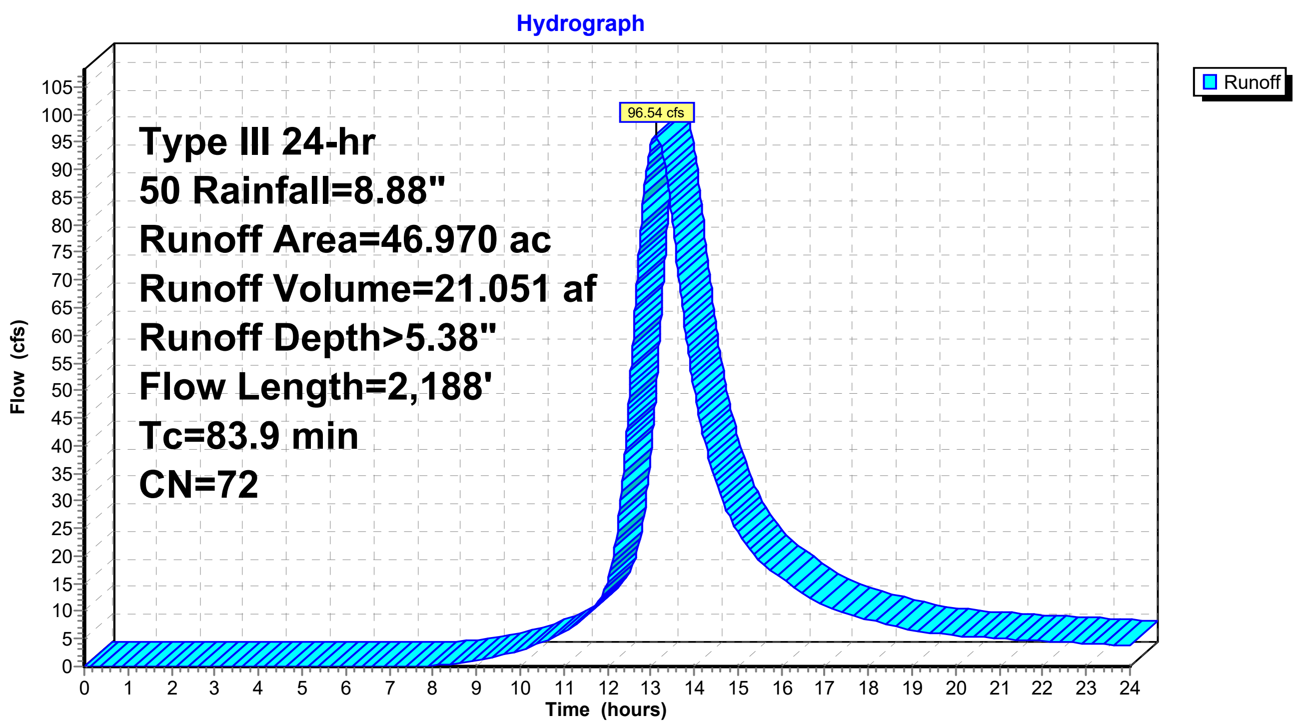
Runoff = 96.54 cfs @ 13.14 hrs, Volume= 21.051 af, Depth> 5.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	46.970	72	Woods, Good, HSG C
	46.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0	297	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
39.9	1,891	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
83.9	2,188	Total			

Subcatchment PRE #2: PRE-DEVELOPED BASIN #2



Summary for Subcatchment PRE #1: PRE-DEVELOPED BASIN #1

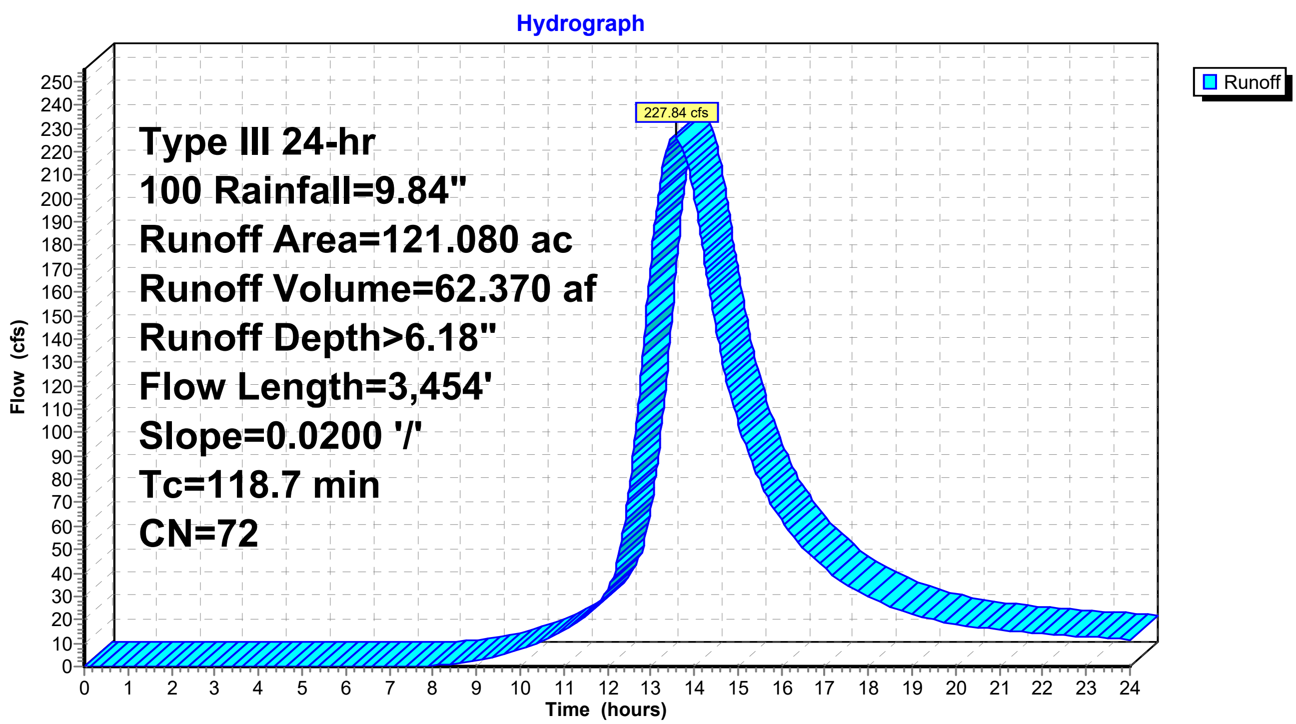
Runoff = 227.84 cfs @ 13.58 hrs, Volume= 62.370 af, Depth> 6.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	121.080	72	Woods, Good, HSG C
	121.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.4	300	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
74.3	3,154	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
118.7	3,454	Total			

Subcatchment PRE #1: PRE-DEVELOPED BASIN #1



Summary for Subcatchment PRE #2: PRE-DEVELOPED BASIN #2

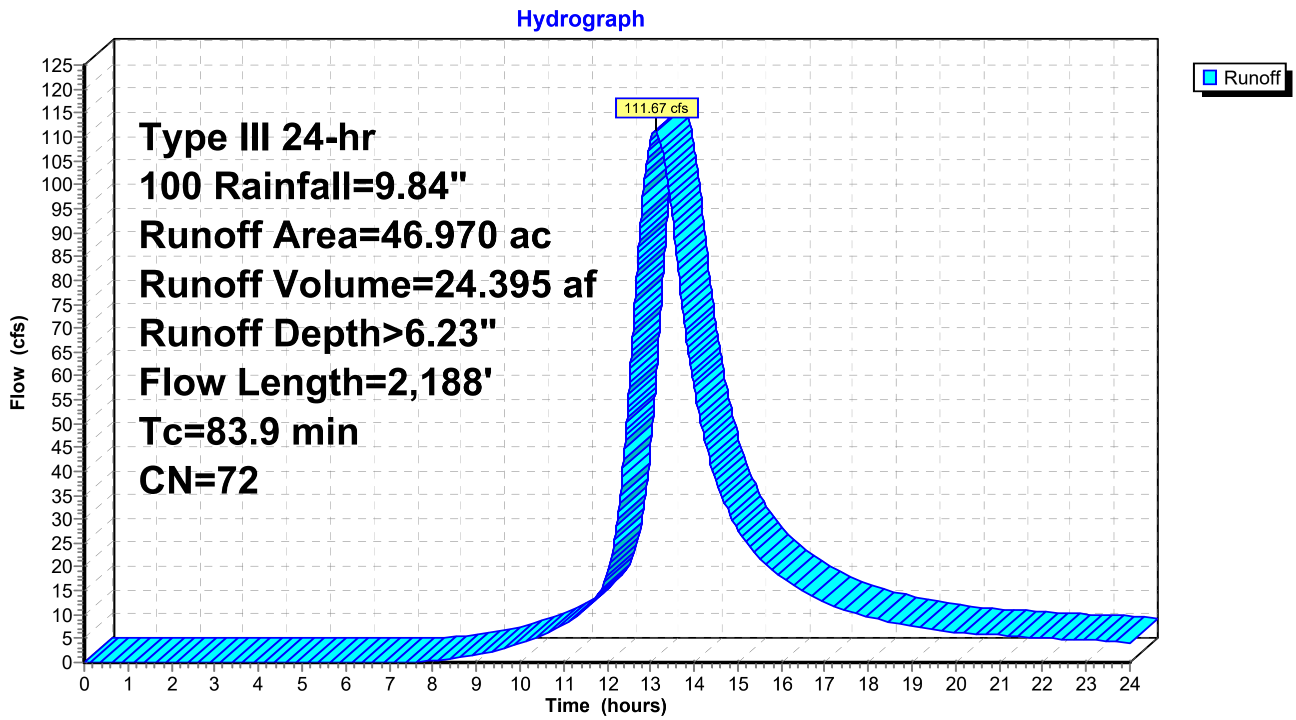
Runoff = 111.67 cfs @ 13.14 hrs, Volume= 24.395 af, Depth> 6.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

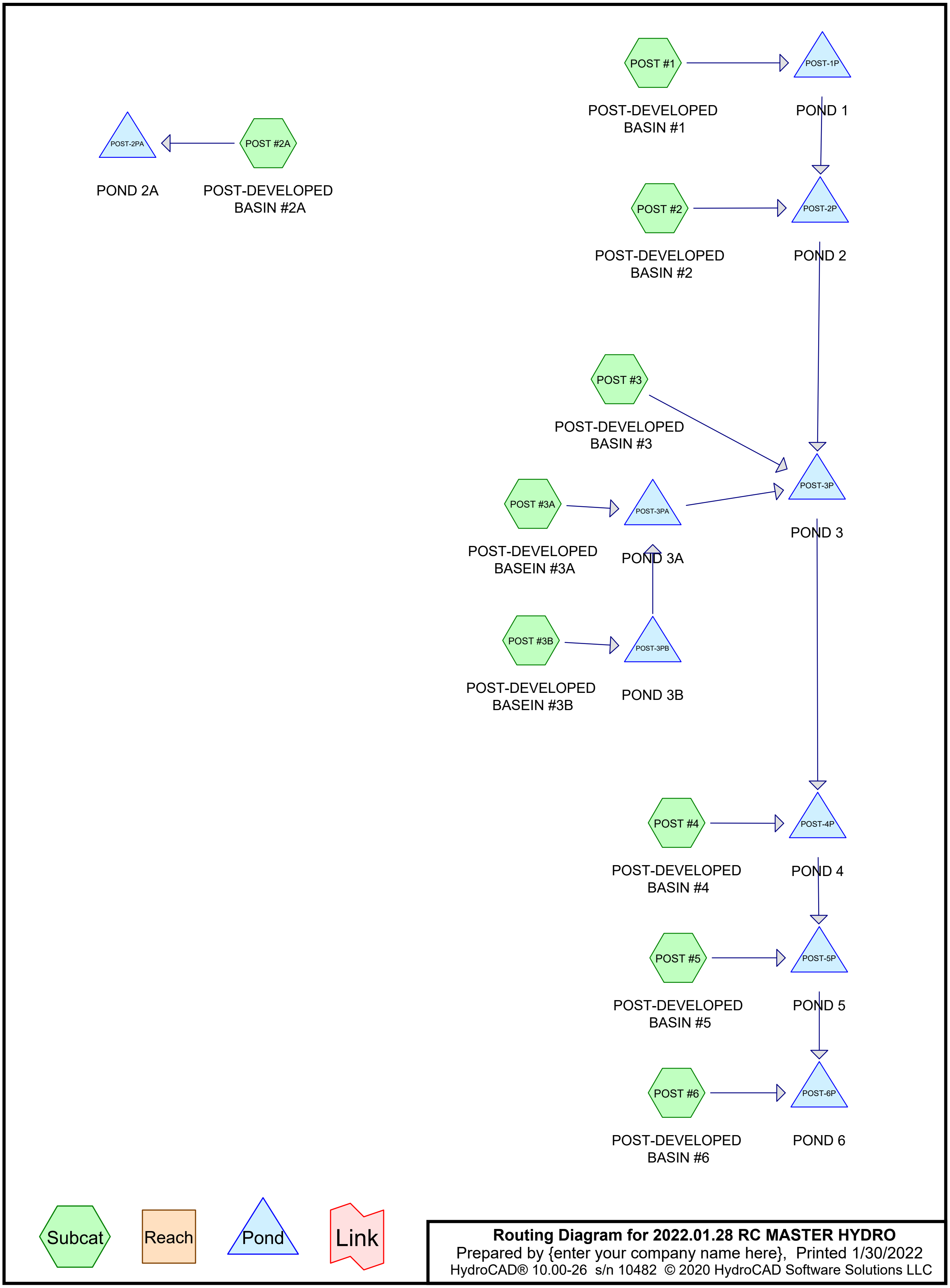
	Area (ac)	CN	Description
*	46.970	72	Woods, Good, HSG C
	46.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0	297	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
39.9	1,891	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
83.9	2,188	Total			

Subcatchment PRE #2: PRE-DEVELOPED BASIN #2



Appendix F: Post-Development HydroCAD Output



Routing Diagram for 2022.01.28 RC MASTER HYDRO
Prepared by {enter your company name here}, Printed 1/30/2022
HydroCAD® 10.00-26 s/n 10482 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment POST #1: POST-DEVELOPED BASIN #1

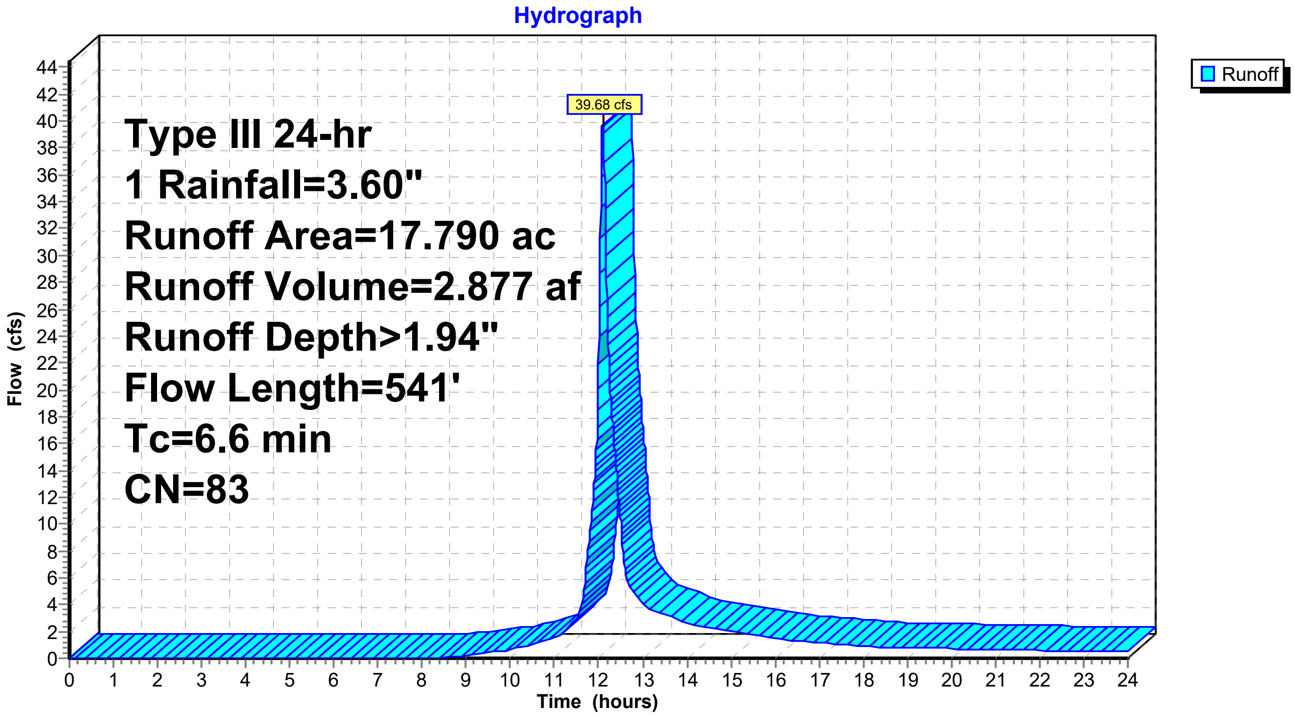
Runoff = 39.68 cfs @ 12.10 hrs, Volume= 2.877 af, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
	11.440	74	>75% Grass cover, Good, HSG C
*	2.940	98	Houses
*	2.810	98	Roads and Walkways
*	0.600	98	NWL Pond
	17.790	83	Weighted Average
	11.440		64.31% Pervious Area
	6.350		35.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0200	0.17		**Sheet Flow, YARD** Grass: Short n= 0.150 P2= 4.34"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, POST-DEV BASIN 1-SCF** Paved Kv= 20.3 fps
1.9	447	0.0030	3.97	19.47	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.015 Concrete sewer w/manholes & inlets
6.6	541	Total			

Subcatchment POST #1: POST-DEVELOPED BASIN #1



Summary for Subcatchment POST #2: POST-DEVELOPED BASIN #2

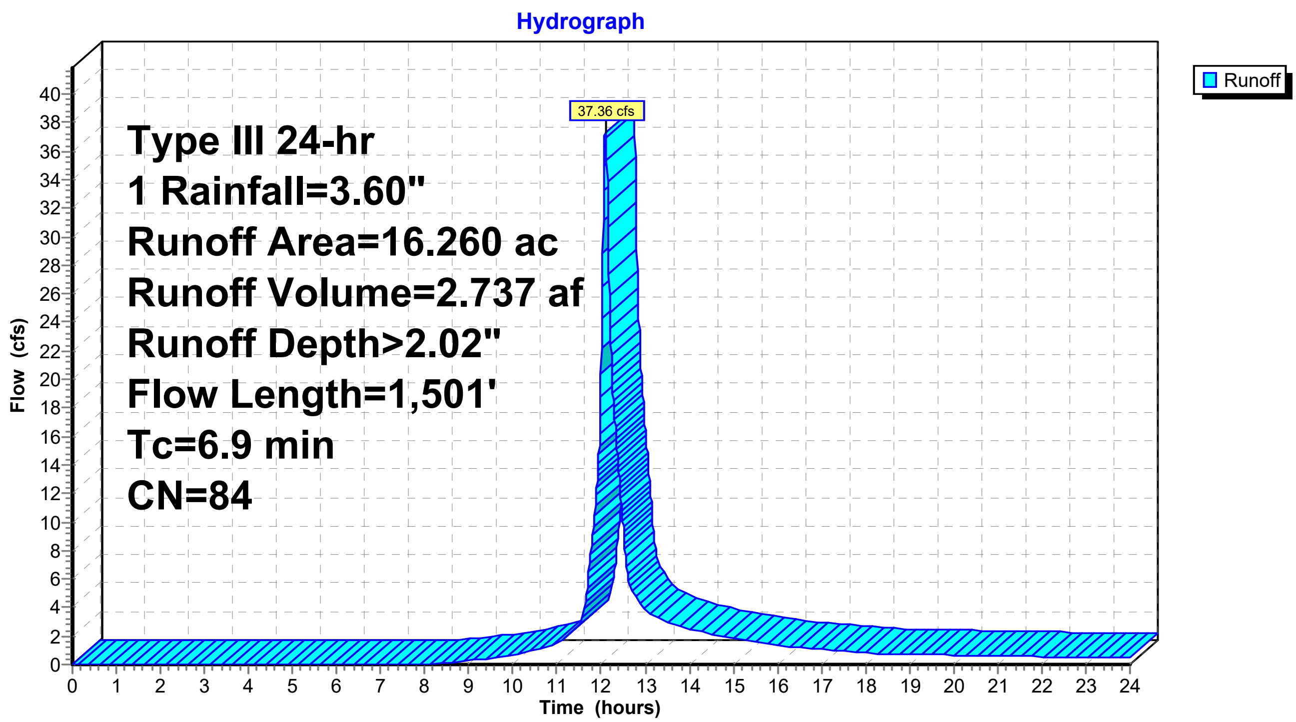
Runoff = 37.36 cfs @ 12.10 hrs, Volume= 2.737 af, Depth> 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	16.260	84	SFR lots, 30% imp, HSG D
	11.382		70.00% Pervious Area
	4.878		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2: POST-DEVELOPED BASIN #2



Summary for Subcatchment POST #2A: POST-DEVELOPED BASIN #2A

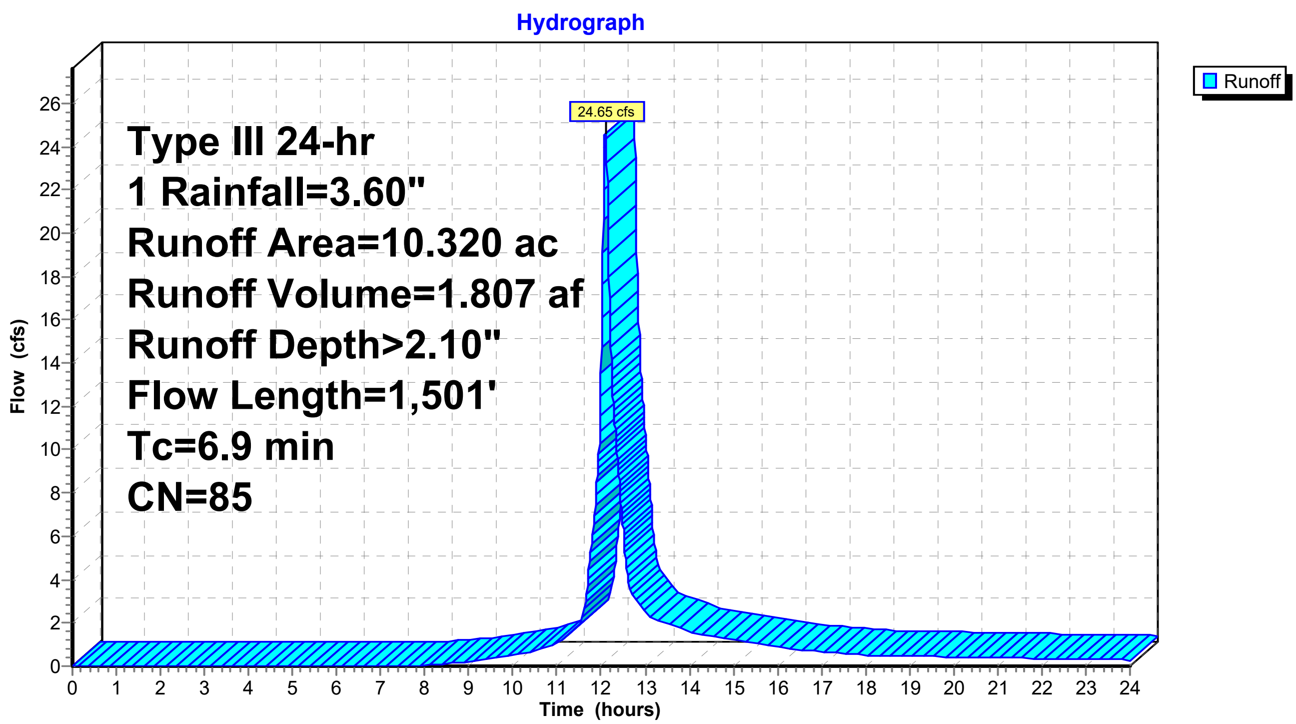
Runoff = 24.65 cfs @ 12.10 hrs, Volume= 1.807 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	10.320	85	
	10.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2A: POST-DEVELOPED BASIN #2A



Summary for Subcatchment POST #3: POST-DEVELOPED BASIN #3

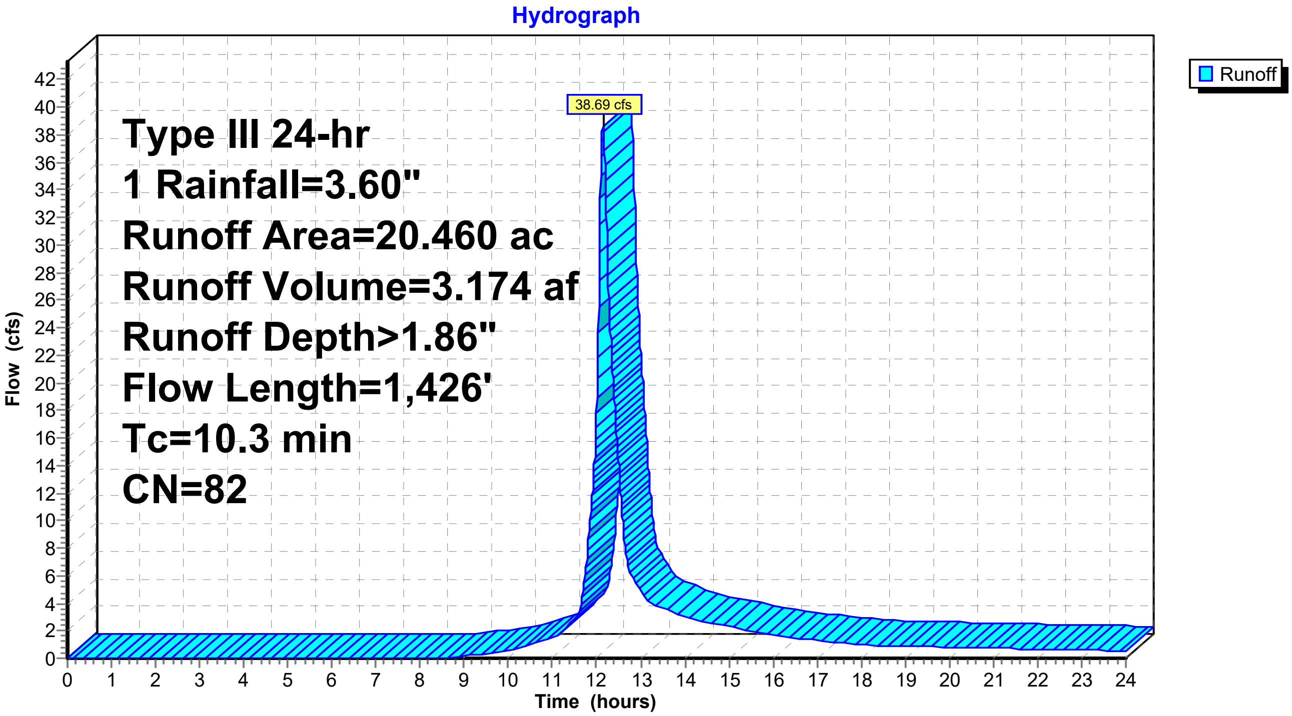
Runoff = 38.69 cfs @ 12.14 hrs, Volume= 3.174 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
	13.530	74	>75% Grass cover, Good, HSG C
*	2.480	98	Houses
*	3.570	98	Roads and Walkways
*	0.880	98	NWL Pond
	20.460	82	Weighted Average
	13.530		66.13% Pervious Area
	6.930		33.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0200	0.18		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
0.4	105	0.0100	4.86	24.28	**Channel Flow, REAR YARD SWALE** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
3.9	1,256	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
10.3	1,426	Total			

Subcatchment POST #3: POST-DEVELOPED BASIN #3



Summary for Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A

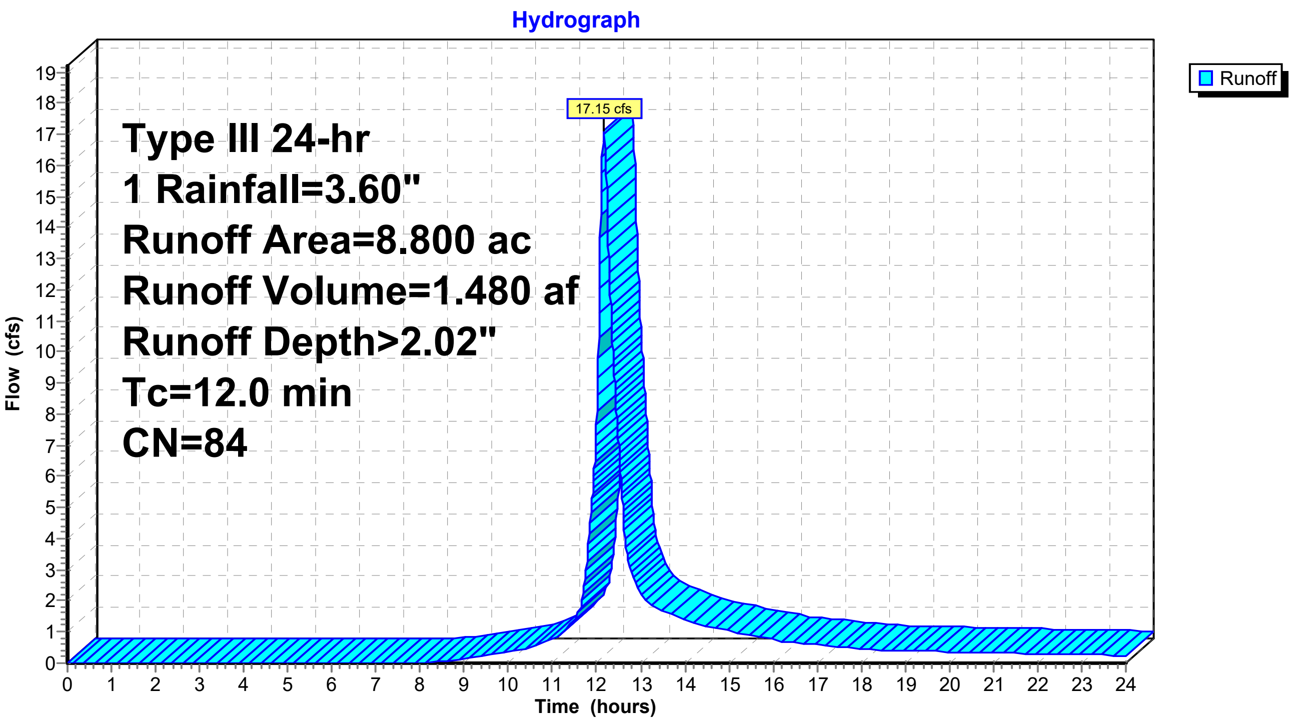
Runoff = 17.15 cfs @ 12.17 hrs, Volume= 1.480 af, Depth> 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	8.800	84	SFR lots, 30% imp, HSG D
	6.160		70.00% Pervious Area
	2.640		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A



Summary for Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B

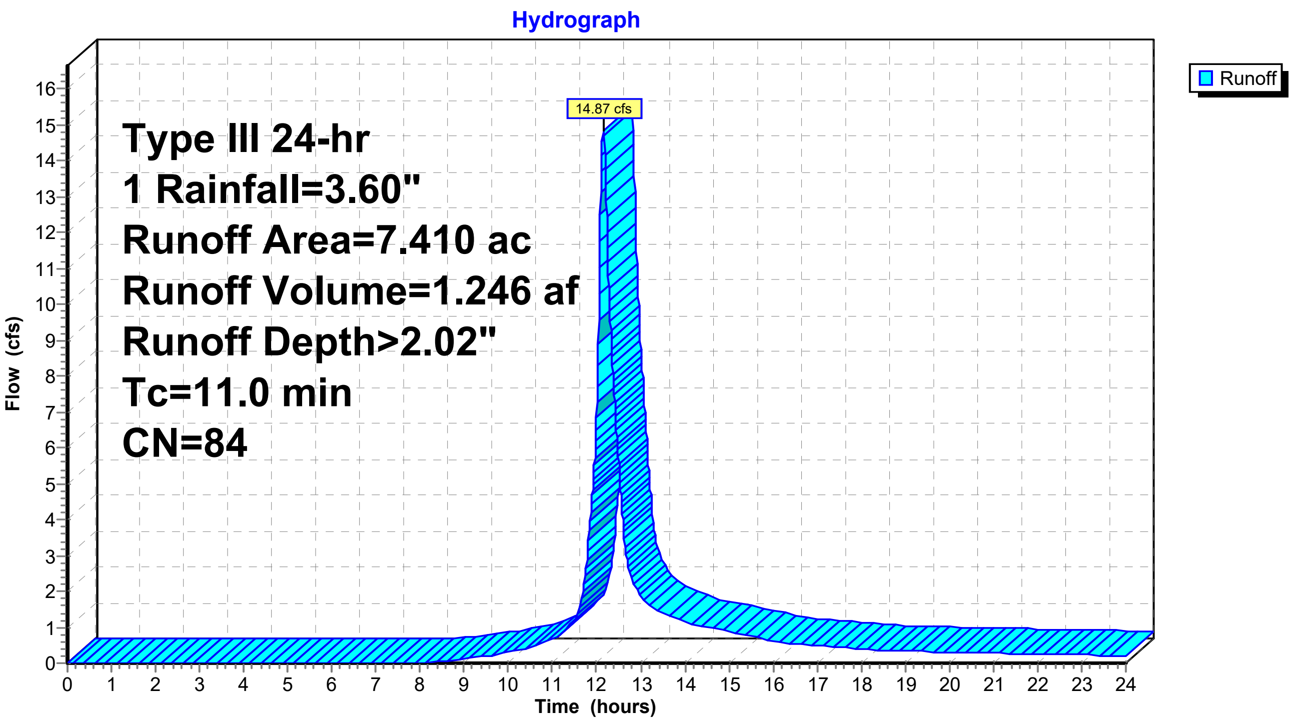
Runoff = 14.87 cfs @ 12.15 hrs, Volume= 1.246 af, Depth> 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	7.410	84	SFR lots, 30% imp, HSG D
	5.187		70.00% Pervious Area
	2.223		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0					**Direct Entry,**

Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B



Summary for Subcatchment POST #4: POST-DEVELOPED BASIN #4

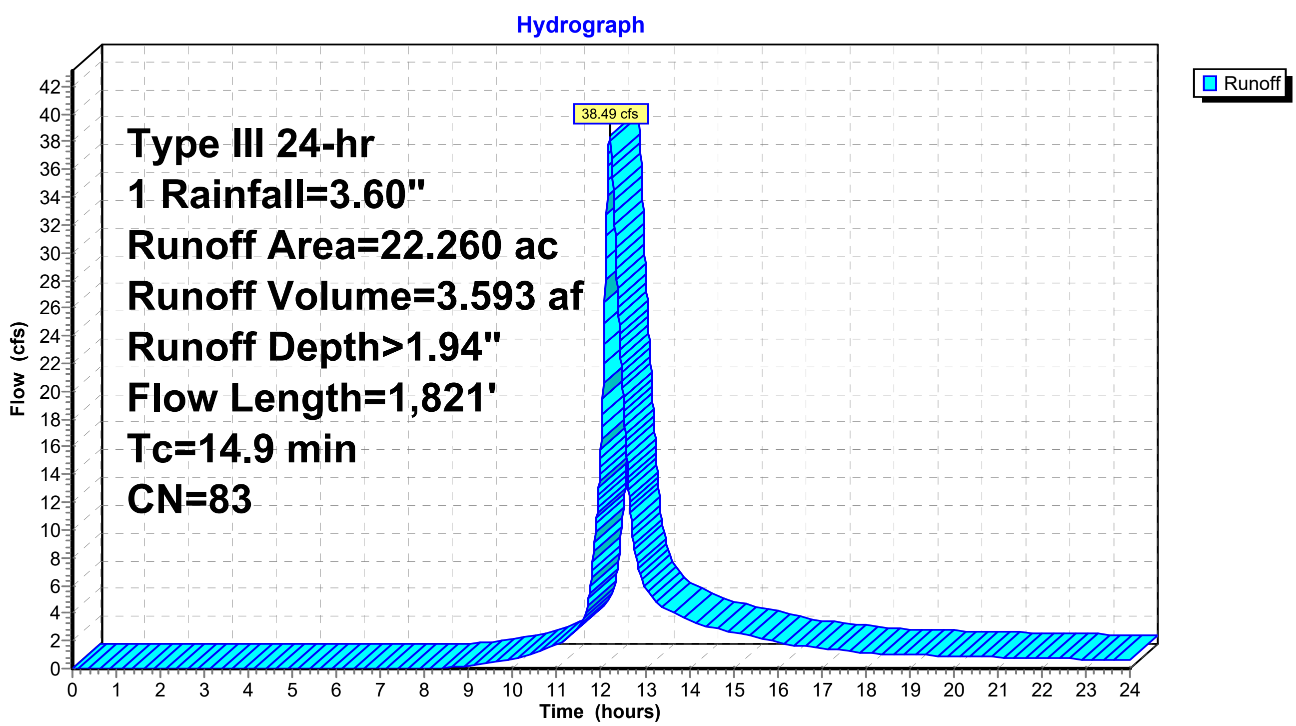
Runoff = 38.49 cfs @ 12.20 hrs, Volume= 3.593 af, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
	14.150	74	>75% Grass cover, Good, HSG C
*	8.110	98	Houses, Roads and Walkways, NWL POND
	22.260	83	Weighted Average
	14.150		63.57% Pervious Area
	8.110		36.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0100	0.13		**Sheet Flow, POST DEV BASIN #4 - SHEET** Grass: Short n= 0.150 P2= 4.34"
3.5	300	0.0050	1.44		**Shallow Concentrated Flow, Gutter Basin 4** Paved Kv= 20.3 fps
4.5	1,466	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
14.9	1,821	Total			

Subcatchment POST #4: POST-DEVELOPED BASIN #4



Summary for Subcatchment POST #5: POST-DEVELOPED BASIN #5

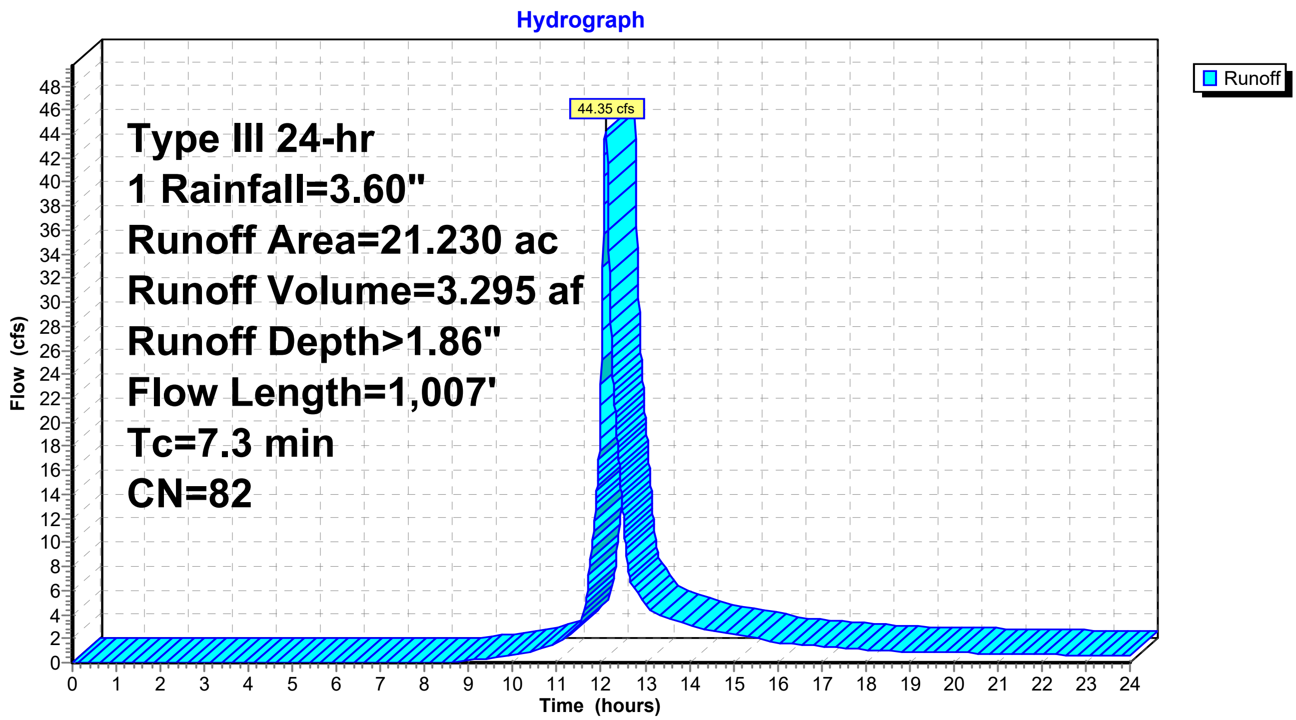
Runoff = 44.35 cfs @ 12.11 hrs, Volume= 3.295 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
	14.320	74	>75% Grass cover, Good, HSG C
*	2.850	98	Houses
*	3.410	98	Roads and Walkways
*	0.650	98	NWL Pond
	21.230	82	Weighted Average
	14.320		67.45% Pervious Area
	6.910		32.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	55	0.0300	0.21		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
2.9	952	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
7.3	1,007	Total			

Subcatchment POST #5: POST-DEVELOPED BASIN #5



Summary for Subcatchment POST #6: POST-DEVELOPED BASIN #6

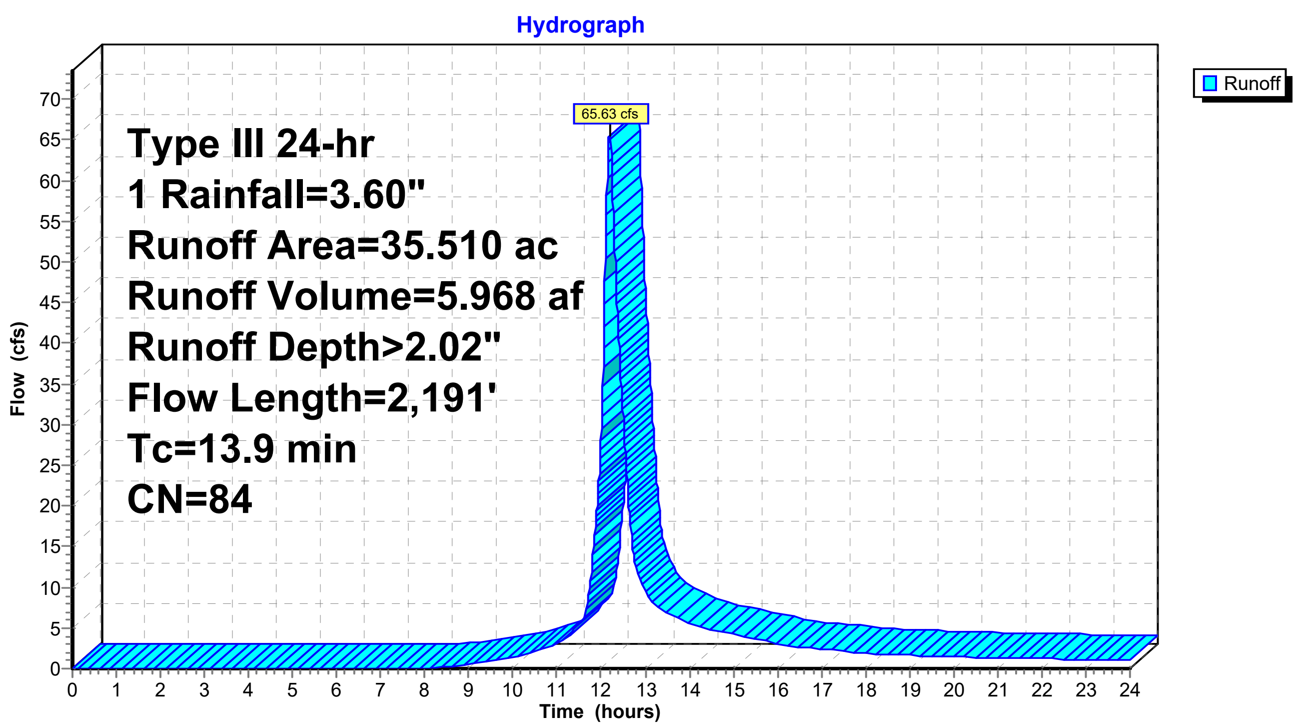
Runoff = 65.63 cfs @ 12.19 hrs, Volume= 5.968 af, Depth> 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
	21.070	74	>75% Grass cover, Good, HSG C
*	5.180	98	Houses
*	5.540	98	Roads and Walkways
*	3.720	98	NWL Pond
	35.510	84	Weighted Average
	21.070		59.34% Pervious Area
	14.440		40.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0200	0.19		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
6.5	2,106	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
13.9	2,191	Total			

Subcatchment POST #6: POST-DEVELOPED BASIN #6



Summary for Pond POST-1P: POND 1

Inflow Area = 17.790 ac, 35.69% Impervious, Inflow Depth > 1.94" for 1 event
Inflow = 39.68 cfs @ 12.10 hrs, Volume= 2.877 af
Outflow = 5.34 cfs @ 12.21 hrs, Volume= 2.046 af, Atten= 87%, Lag= 6.7 min
Primary = 5.34 cfs @ 12.21 hrs, Volume= 2.046 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 37,128 sf Storage= 113,417 cf
Peak Elev= 11.51' @ 13.46 hrs Surf.Area= 53,407 sf Storage= 182,936 cf (69,519 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 182.1 min (1,009.4 - 827.2)

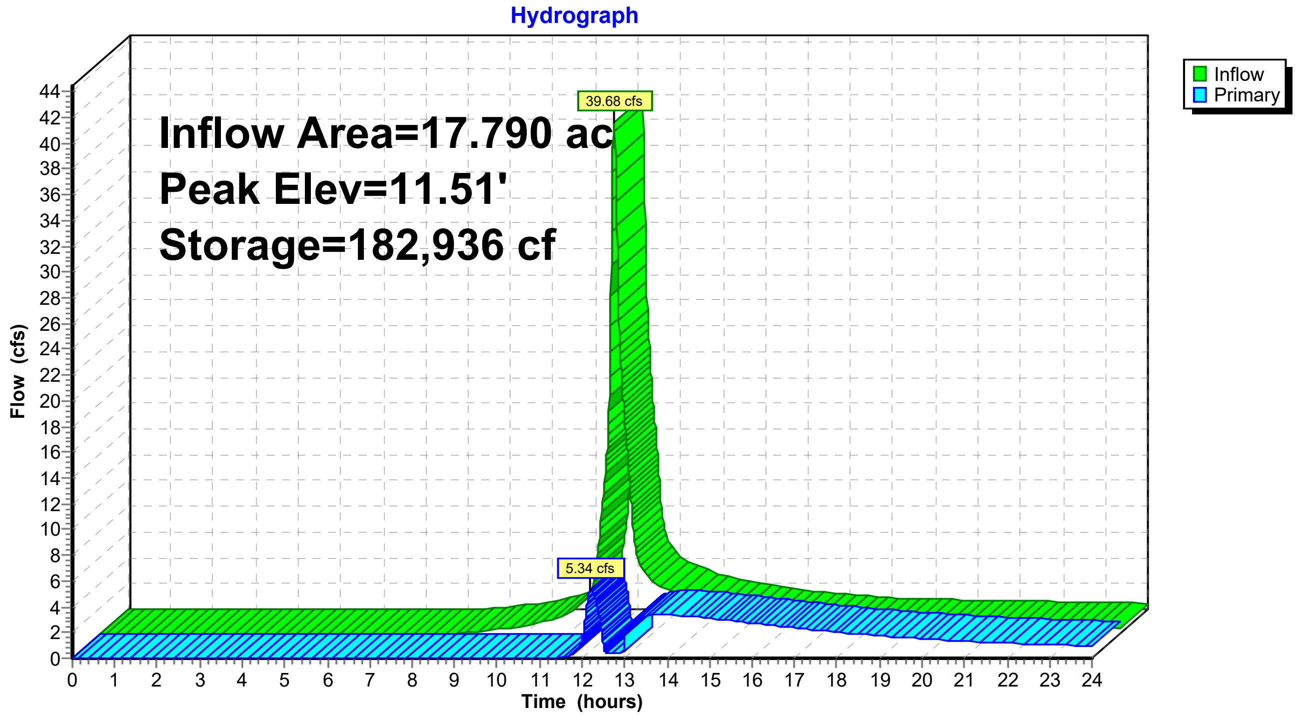
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	910,381 cf	**POND 1 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	26,411	0	0
9.97	37,128	113,417	113,417
15.00	90,446	320,849	434,266
20.00	100,000	476,115	910,381

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.11' S= 0.0143 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	9.97'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 7.89' S= 0.0145 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	10.14'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.02' S= 0.0148 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=4.86 cfs @ 12.21 hrs HW=11.04' TW=10.94' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 1.52 cfs @ 1.45 fps)
├─**2=RCP_Round 30"** (Outlet Controls 2.09 cfs @ 1.54 fps)
└─**3=RCP_Round 30"** (Outlet Controls 1.25 cfs @ 1.18 fps)

Pond POST-1P: POND 1



Summary for Pond POST-2P: POND 2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)
[80] Warning: Exceeded Pond POST-1P by 0.01' @ 12.53 hrs (1.77 cfs 0.068 af)

Inflow Area = 34.050 ac, 32.98% Impervious, Inflow Depth > 1.69" for 1 event
Inflow = 41.24 cfs @ 12.11 hrs, Volume= 4.783 af
Outflow = 6.70 cfs @ 13.89 hrs, Volume= 3.823 af, Atten= 84%, Lag= 107.3 min
Primary = 6.70 cfs @ 13.89 hrs, Volume= 3.823 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 44,416 sf Storage= 133,705 cf
Peak Elev= 11.49' @ 13.40 hrs Surf.Area= 59,693 sf Storage= 213,063 cf (79,357 cf above start)

Plug-Flow detention time= 628.8 min calculated for 0.753 af (16% of inflow)
Center-of-Mass det. time= 128.8 min (1,032.2 - 903.5)

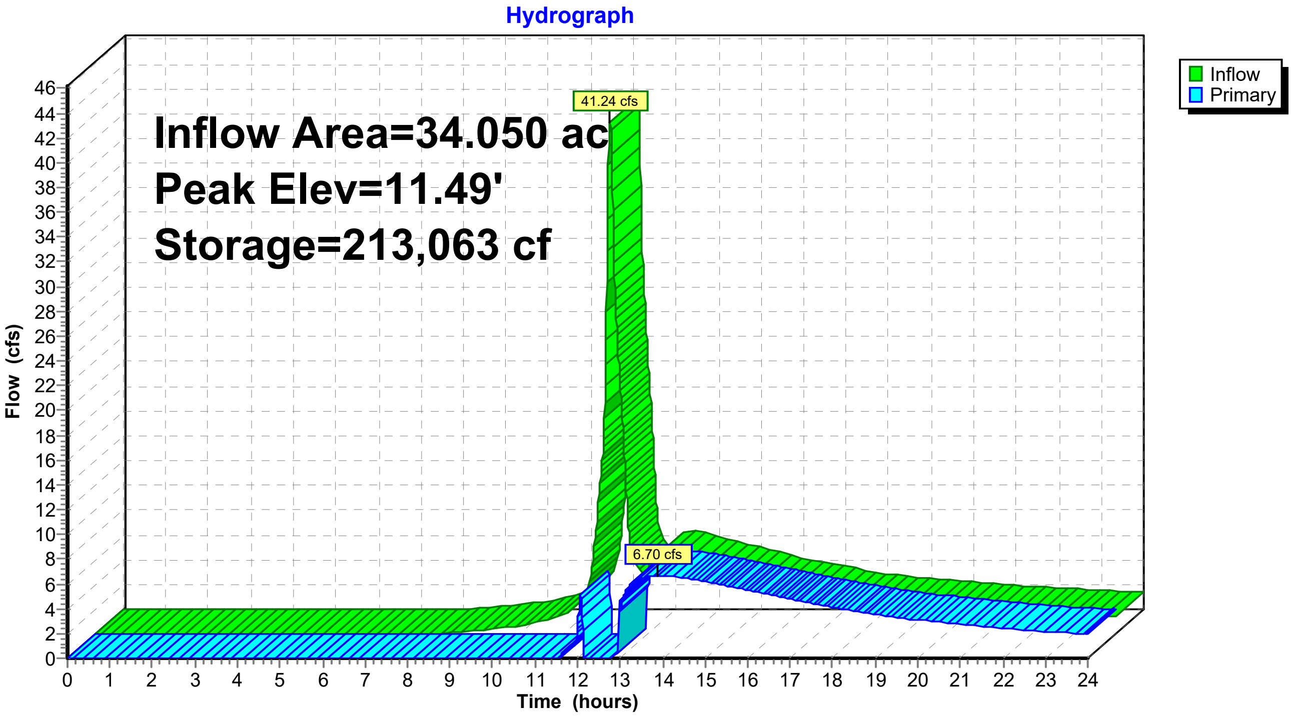
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	970,944 cf	**POND 2 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	30,489	0	0
9.97	44,416	133,705	133,705
15.00	94,822	350,184	483,889
20.00	100,000	487,055	970,944

Device	Routing	Invert	Outlet Devices
#1	Primary	8.20'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.18' / 8.20' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	8.18'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.15' / 8.18' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	8.12'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.12' / 8.10' S= 0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#4	Primary	8.07'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.07' / 8.06' S= 0.0001 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf

Primary OutFlow Max=7.12 cfs @ 13.89 hrs HW=11.48' TW=11.48' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 1.80 cfs @ 0.37 fps)
├─**2=RCP_Round 30"** (Outlet Controls 1.78 cfs @ 0.36 fps)
├─**3=RCP_Round 30"** (Outlet Controls 1.77 cfs @ 0.36 fps)
└─**4=RCP_Round 30"** (Outlet Controls 1.77 cfs @ 0.36 fps)

Pond POST-2P: POND 2



Summary for Pond POST-2PA: POND 2A

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 2.10" for 1 event
Inflow = 37.72 cfs @ 12.09 hrs, Volume= 2.732 af
Outflow = 19.54 cfs @ 12.25 hrs, Volume= 2.656 af, Atten= 48%, Lag= 9.4 min
Primary = 19.54 cfs @ 12.25 hrs, Volume= 2.656 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 13.80' @ 12.25 hrs Surf.Area= 34,312 sf Storage= 138,501 cf (29,779 cf above start)

Plug-Flow detention time= 729.5 min calculated for 0.160 af (6% of inflow)
Center-of-Mass det. time= 36.0 min (856.5 - 820.4)

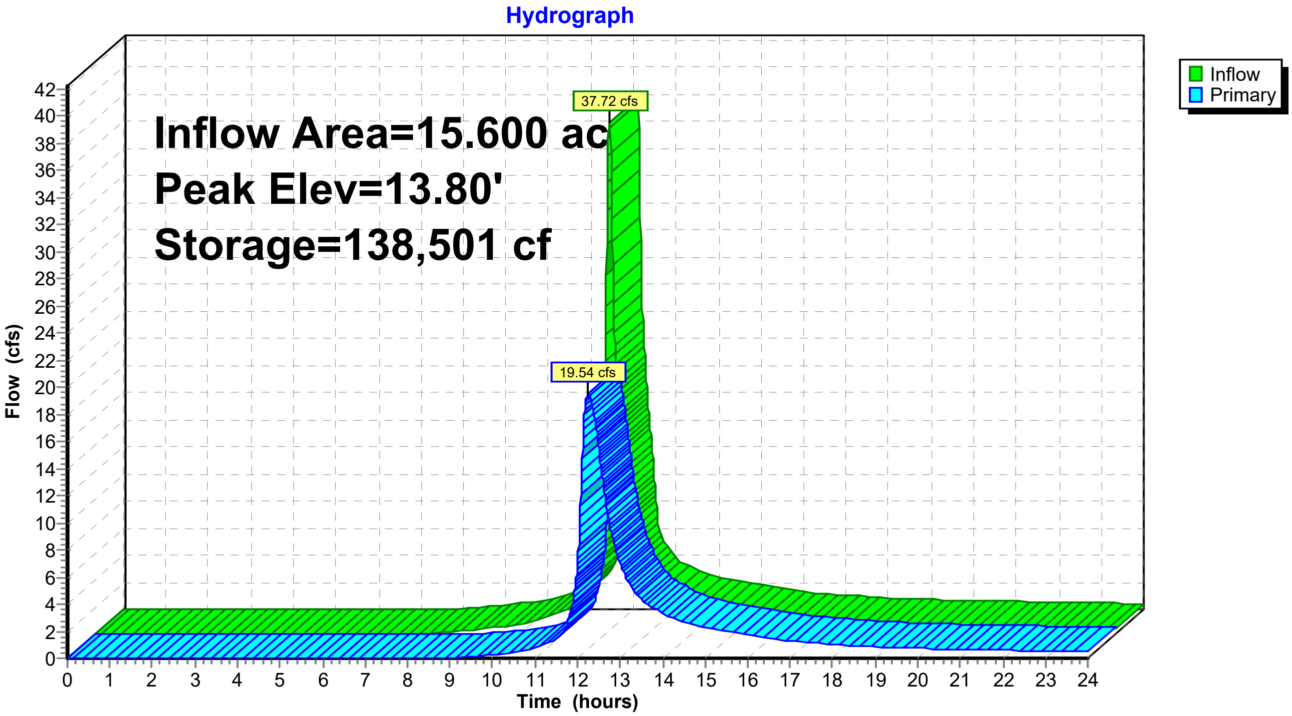
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=19.53 cfs @ 12.25 hrs HW=13.80' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 19.53 cfs @ 2.82 fps)

Pond POST-2PA: POND 2A



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.12' @ 12.54 hrs (39.85 cfs 2.995 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 1.59" for 1 event
Inflow = 48.68 cfs @ 12.11 hrs, Volume= 9.749 af
Outflow = 14.96 cfs @ 13.43 hrs, Volume= 8.530 af, Atten= 69%, Lag= 78.9 min
Primary = 14.96 cfs @ 13.43 hrs, Volume= 8.530 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 11.49' @ 12.76 hrs Surf.Area= 69,909 sf Storage= 281,549 cf (98,104 cf above start)

Plug-Flow detention time= 411.6 min calculated for 4.318 af (44% of inflow)
Center-of-Mass det. time= 77.0 min (1,016.8 - 939.8)

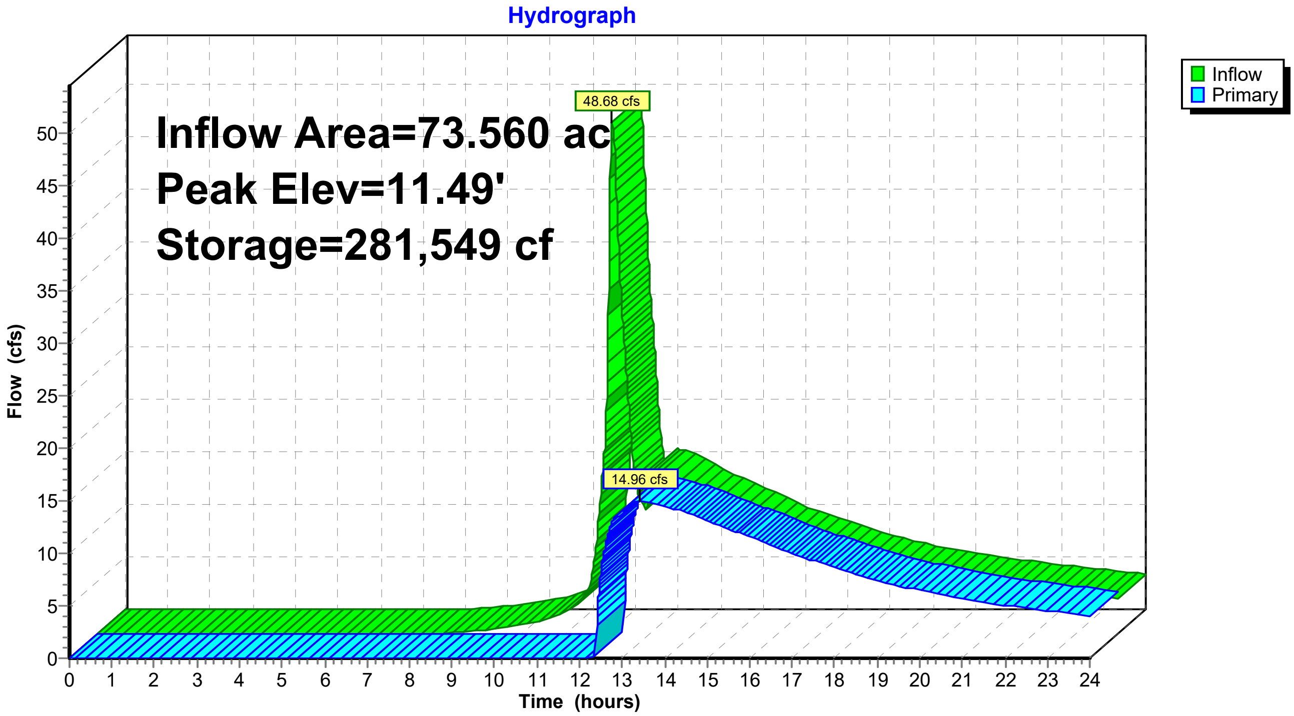
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=14.97 cfs @ 13.43 hrs HW=11.49' TW=11.29' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 4.88 cfs @ 2.35 fps)
├─**2=RCP_Round 36"** (Outlet Controls 6.00 cfs @ 2.43 fps)
└─**3=RCP_Round 36"** (Outlet Controls 4.09 cfs @ 1.95 fps)

Pond POST-3P: POND 3



Summary for Pond POST-3PA: POND 3A

[44] Hint: Outlet device #1 is below defined storage
[80] Warning: Exceeded Pond POST-3PB by 0.01' @ 12.20 hrs (0.92 cfs 0.013 af)

Inflow Area = 16.210 ac, 30.00% Impervious, Inflow Depth > 1.86" for 1 event
Inflow = 18.04 cfs @ 12.17 hrs, Volume= 2.511 af
Outflow = 6.50 cfs @ 12.35 hrs, Volume= 2.311 af, Atten= 64%, Lag= 10.8 min
Primary = 6.50 cfs @ 12.35 hrs, Volume= 2.311 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.63' @ 12.71 hrs Surf.Area= 21,091 sf Storage= 24,073 cf

Plug-Flow detention time= 105.8 min calculated for 2.310 af (92% of inflow)
Center-of-Mass det. time= 66.5 min (954.1 - 887.7)

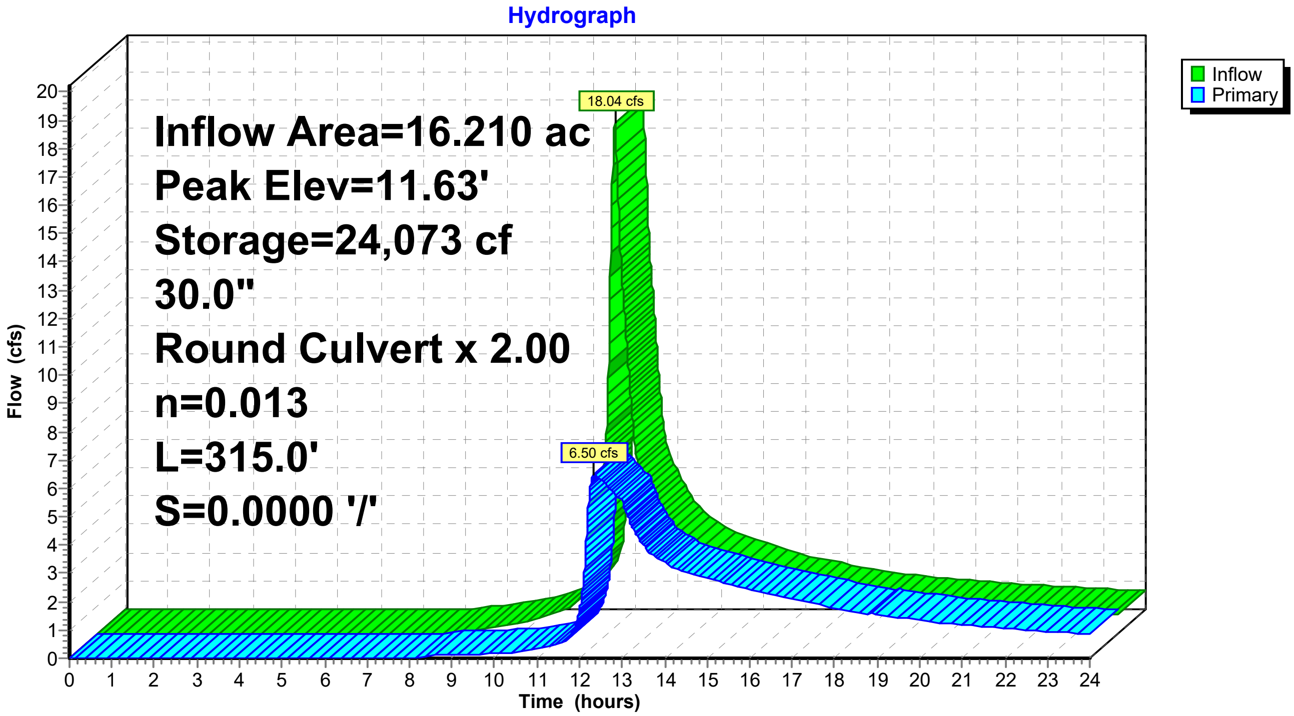
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	247,412 cf	**POND 3A (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,127	0	0
14.40	27,784	91,822	91,822
20.00	27,784	155,590	247,412

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 315.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=6.27 cfs @ 12.35 hrs HW=11.47' TW=11.25' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 6.27 cfs @ 1.73 fps)

Pond POST-3PA: POND 3A



Summary for Pond POST-3PB: POND 3B

[44] Hint: Outlet device #1 is below defined storage

Inflow Area = 7.410 ac, 30.00% Impervious, Inflow Depth > 2.02" for 1 event
Inflow = 14.87 cfs @ 12.15 hrs, Volume= 1.246 af
Outflow = 2.62 cfs @ 12.90 hrs, Volume= 1.032 af, Atten= 82%, Lag= 44.8 min
Primary = 2.62 cfs @ 12.90 hrs, Volume= 1.032 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.66' @ 12.74 hrs Surf.Area= 22,001 sf Storage= 25,741 cf

Plug-Flow detention time= 215.0 min calculated for 1.031 af (83% of inflow)
Center-of-Mass det. time= 145.1 min (972.7 - 827.5)

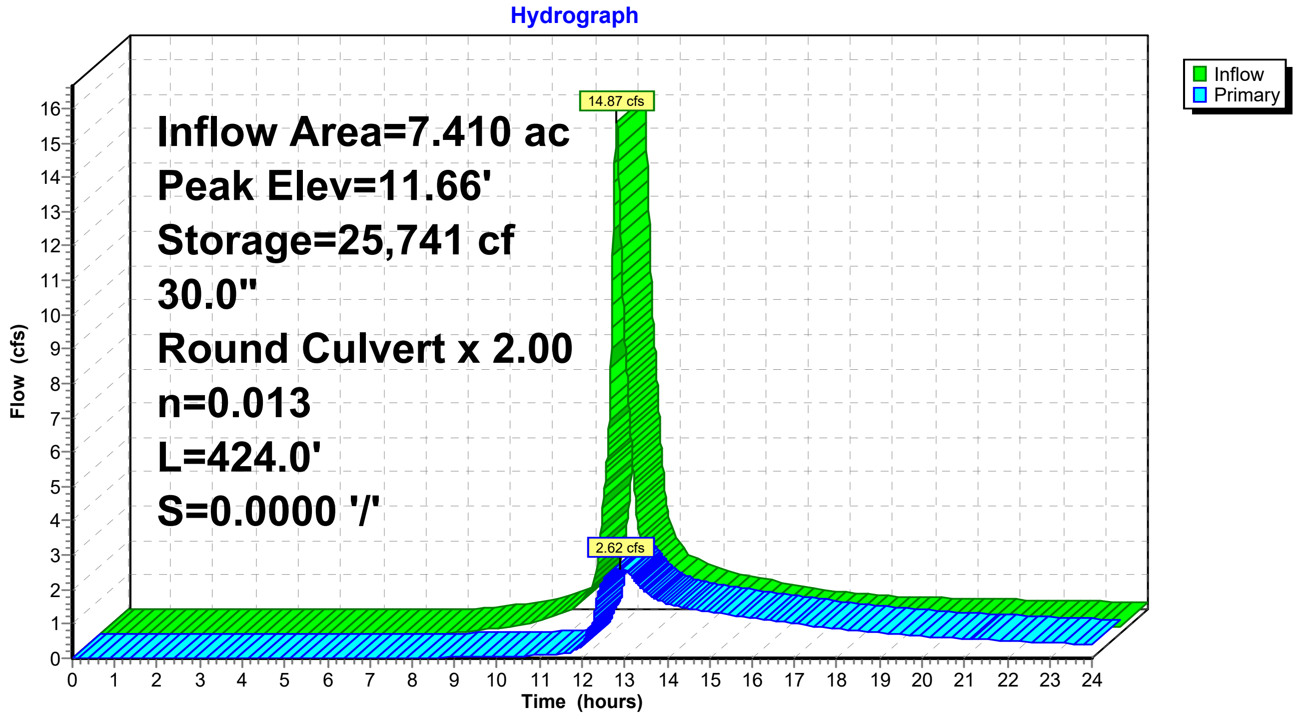
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	255,727 cf	**POND 3B (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,948	0	0
14.40	28,662	95,220	95,220
20.00	28,662	160,507	255,727

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 424.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=2.66 cfs @ 12.90 hrs HW=11.65' TW=11.62' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 2.66 cfs @ 0.62 fps)

Pond POST-3PB: POND 3B



Summary for Pond POST-4P: POND 4

[80] Warning: Exceeded Pond POST-3P by 0.14' @ 11.97 hrs (1.92 cfs 0.207 af)

Inflow Area = 95.820 ac, 32.49% Impervious, Inflow Depth > 1.52" for 1 event
Inflow = 38.49 cfs @ 12.20 hrs, Volume= 12.123 af
Outflow = 25.55 cfs @ 12.53 hrs, Volume= 11.682 af, Atten= 34%, Lag= 19.6 min
Primary = 25.55 cfs @ 12.53 hrs, Volume= 11.682 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 25,099 sf Storage= 71,286 cf
Peak Elev= 11.37' @ 12.59 hrs Surf.Area= 32,022 sf Storage= 111,181 cf (39,896 cf above start)

Plug-Flow detention time= 133.5 min calculated for 10.042 af (83% of inflow)
Center-of-Mass det. time= 23.8 min (986.4 - 962.6)

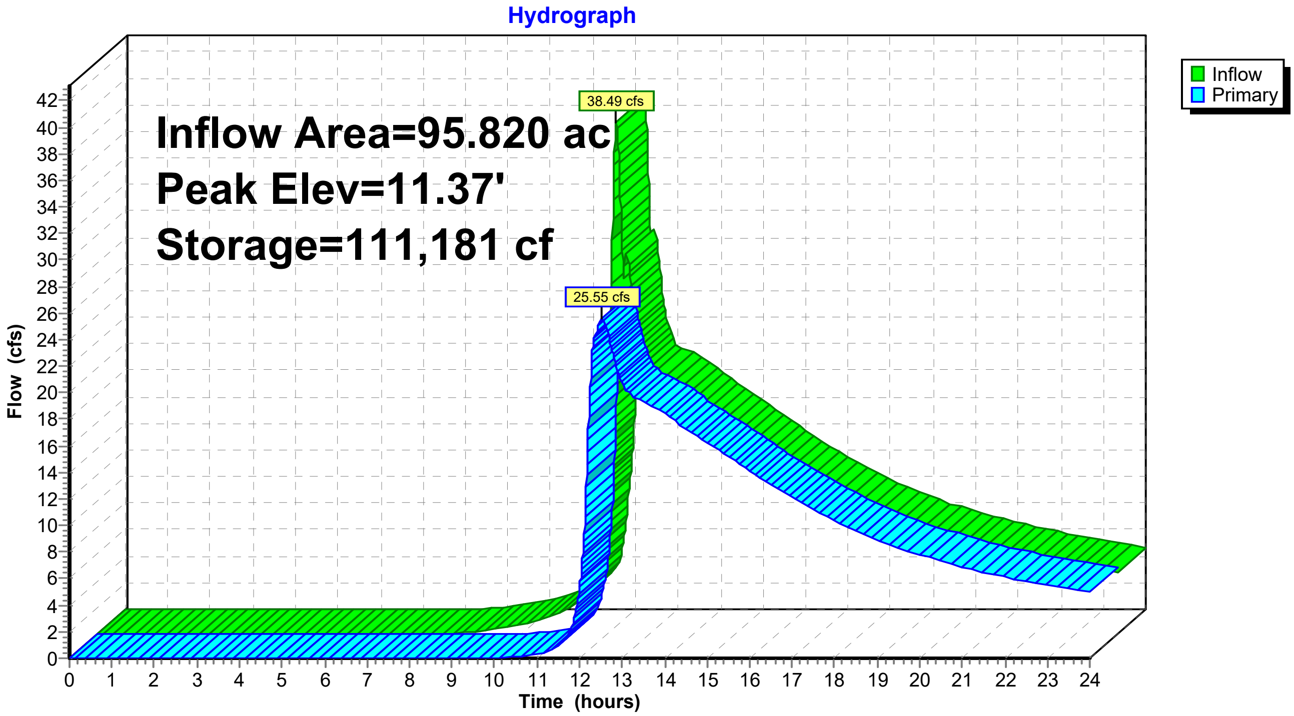
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	635,290 cf	**POND 4 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	14,837	0	0
9.97	25,099	71,286	71,286
15.00	50,026	188,939	260,225
20.00	100,000	375,065	635,290

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0109 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0097 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0098 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=25.47 cfs @ 12.53 hrs HW=11.36' TW=10.50' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 8.25 cfs @ 4.56 fps)
├─**2=RCP_Round 36"** (Outlet Controls 10.40 cfs @ 4.75 fps)
└─**3=RCP_Round 36"** (Outlet Controls 6.82 cfs @ 3.73 fps)

Pond POST-4P: POND 4



Summary for Pond POST-5P: POND 5

Inflow Area = 117.050 ac, 32.50% Impervious, Inflow Depth > 1.54" for 1 event
Inflow = 53.86 cfs @ 12.12 hrs, Volume= 14.978 af
Outflow = 32.69 cfs @ 12.34 hrs, Volume= 14.281 af, Atten= 39%, Lag= 13.3 min
Primary = 32.69 cfs @ 12.34 hrs, Volume= 14.281 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 39,178 sf Storage= 132,791 cf
Peak Elev= 10.70' @ 14.14 hrs Surf.Area= 42,965 sf Storage= 184,894 cf (52,103 cf above start)

Plug-Flow detention time= 185.8 min calculated for 11.228 af (75% of inflow)
Center-of-Mass det. time= 25.1 min (977.3 - 952.2)

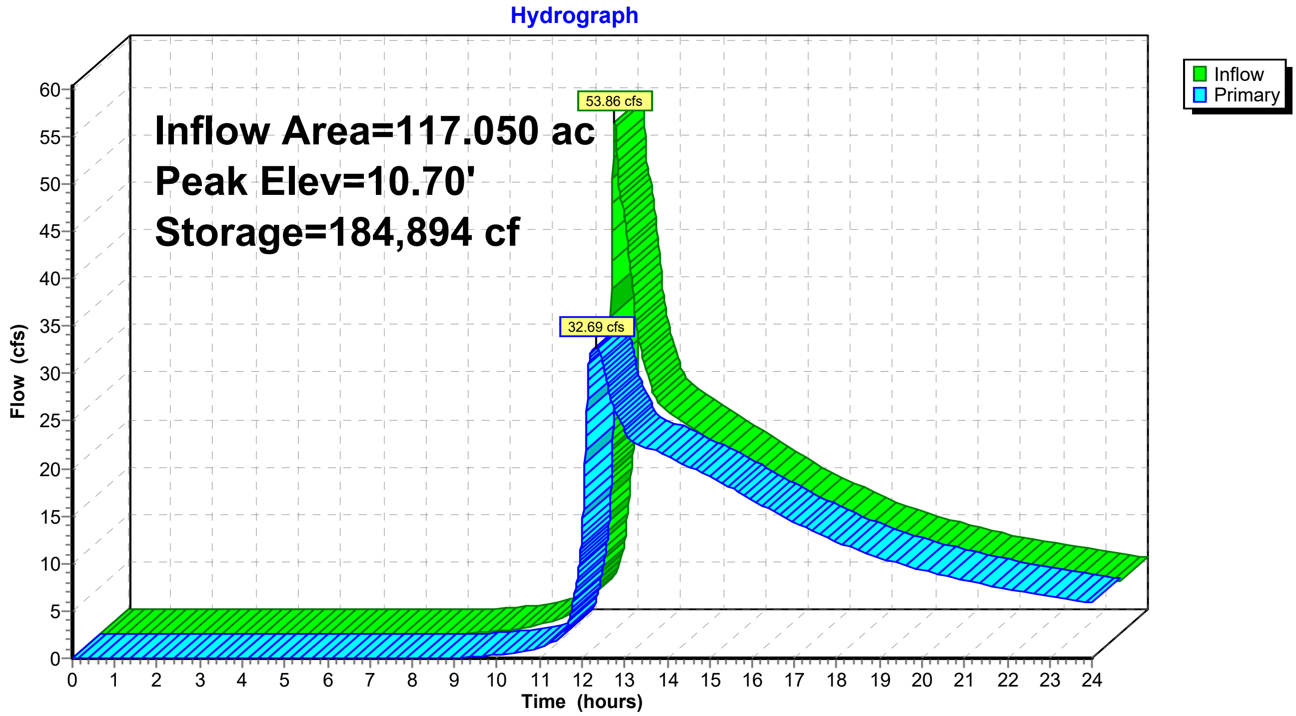
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	785,627 cf	**POND 5 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	28,400	0	0
9.50	39,370	135,540	135,540
15.10	56,162	267,490	403,030
20.00	100,000	382,597	785,627

Device	Routing	Invert	Outlet Devices
#1	Primary	8.59'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.59' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	8.52'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.52' / 8.43' S= 0.0007 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.63' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#4	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.35' / 8.63' S= -0.0022 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=31.61 cfs @ 12.34 hrs HW=10.37' TW=10.18' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 7.70 cfs @ 2.54 fps)
├─**2=RCP_Round 36"** (Outlet Controls 8.16 cfs @ 2.56 fps)
├─**3=RCP_Round 36"** (Outlet Controls 7.70 cfs @ 2.54 fps)
└─**4=RCP_Round 36"** (Outlet Controls 8.06 cfs @ 2.26 fps)

Pond POST-5P: POND 5



Summary for Pond POST-6P: POND 6

Inflow Area = 152.560 ac, 34.40% Impervious, Inflow Depth > 1.59" for 1 event
Inflow = 97.78 cfs @ 12.19 hrs, Volume= 20.249 af
Outflow = 25.85 cfs @ 14.28 hrs, Volume= 16.831 af, Atten= 74%, Lag= 125.1 min
Primary = 25.85 cfs @ 14.28 hrs, Volume= 16.831 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 196,792 sf Storage= 705,109 cf
Peak Elev= 10.65' @ 14.28 hrs Surf.Area= 207,840 sf Storage= 951,720 cf (246,612 cf above start)

Plug-Flow detention time= 769.9 min calculated for 0.644 af (3% of inflow)
Center-of-Mass det. time= 95.1 min (1,029.0 - 933.9)

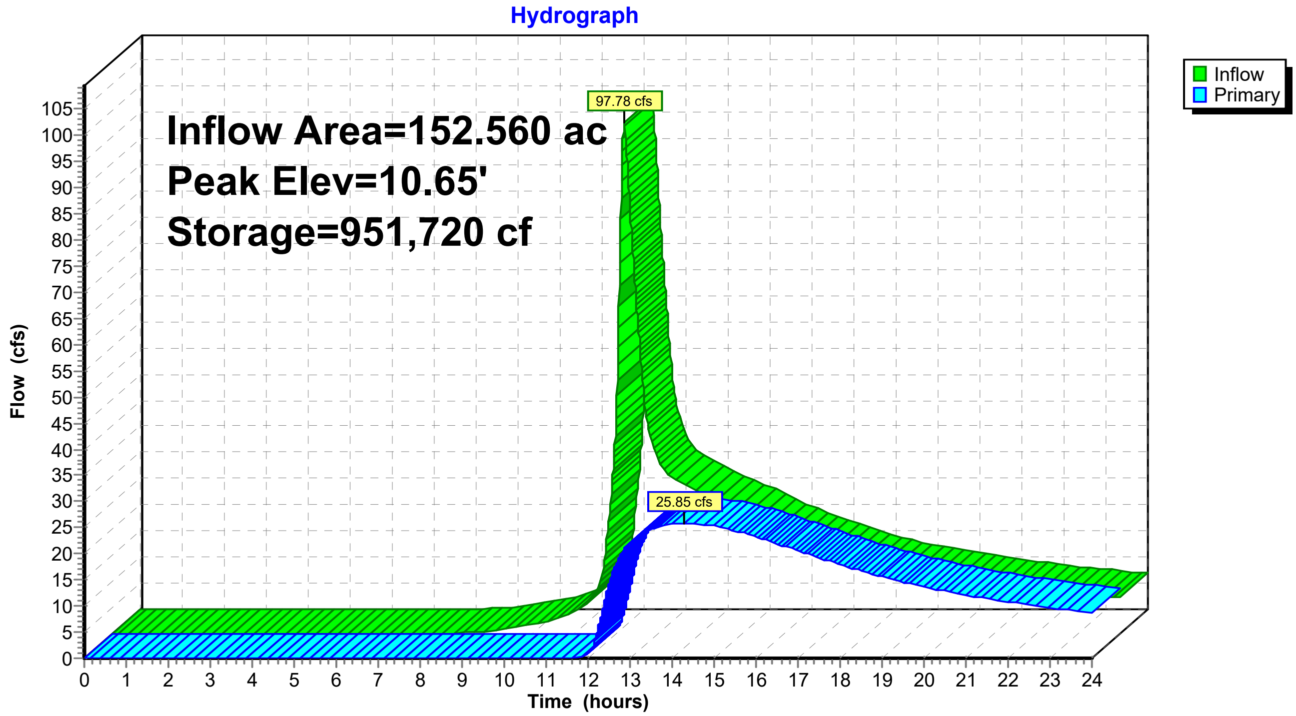
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	3,128,709 cf	**POND 6 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	162,042	0	0
9.50	197,411	718,906	718,906
14.00	238,258	980,255	1,699,161
20.00	238,258	1,429,548	3,128,709

Device	Routing	Invert	Outlet Devices
#1	Primary	9.91'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.91' / 9.89' S= 0.0004 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Primary	9.53'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.53' / 9.41' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#3	Primary	9.43'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.42' / 9.43' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#4	Primary	9.52'	**24.0" Round RCP_Round 24" X 3.00** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.52' / 9.43' S= 0.0019 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

Primary OutFlow Max=25.85 cfs @ 14.28 hrs HW=10.65' (Free Discharge)
├─**1=RCP_Round 24"** (Barrel Controls 1.83 cfs @ 2.58 fps)
├─**2=RCP_Round 24"** (Barrel Controls 4.86 cfs @ 3.89 fps)
├─**3=RCP_Round 24"** (Barrel Controls 4.88 cfs @ 3.45 fps)
└─**4=RCP_Round 24"** (Barrel Controls 14.26 cfs @ 3.76 fps)

Pond POST-6P: POND 6



Summary for Subcatchment POST #1: POST-DEVELOPED BASIN #1

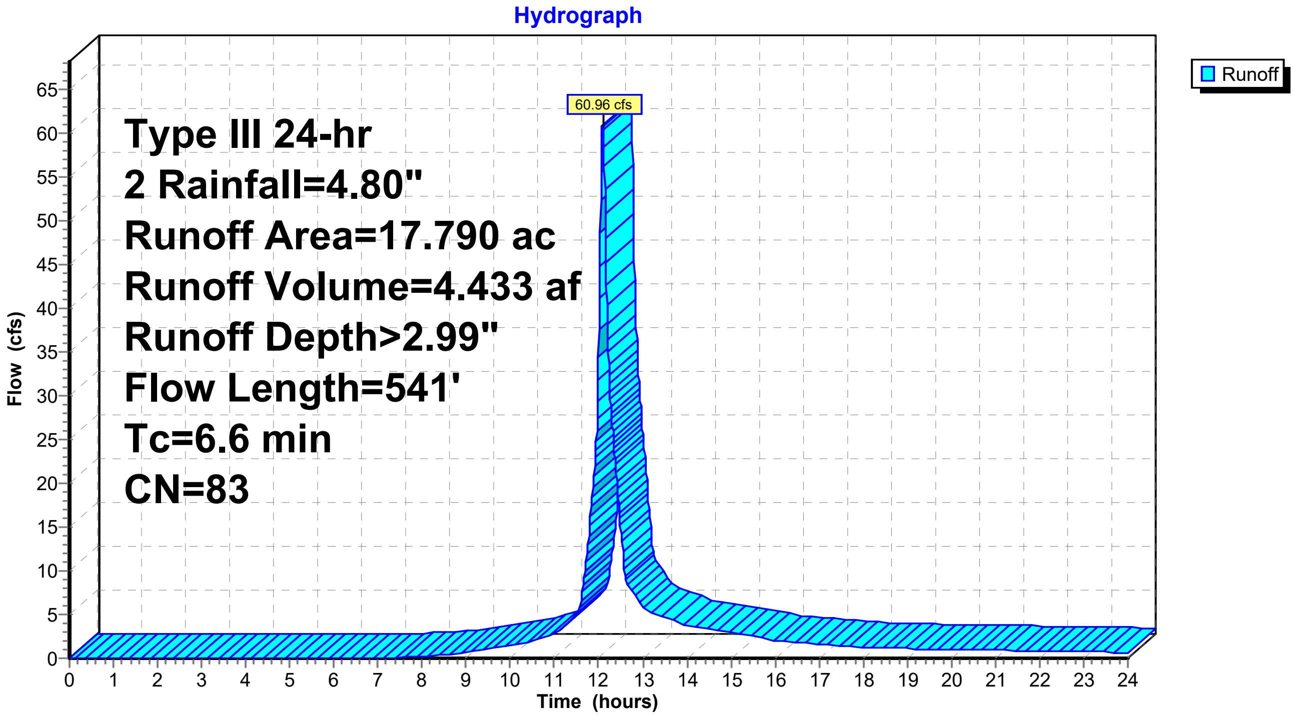
Runoff = 60.96 cfs @ 12.09 hrs, Volume= 4.433 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
	11.440	74	>75% Grass cover, Good, HSG C
*	2.940	98	Houses
*	2.810	98	Roads and Walkways
*	0.600	98	NWL Pond
	17.790	83	Weighted Average
	11.440		64.31% Pervious Area
	6.350		35.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0200	0.17		**Sheet Flow, YARD** Grass: Short n= 0.150 P2= 4.34"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, POST-DEV BASIN 1-SCF** Paved Kv= 20.3 fps
1.9	447	0.0030	3.97	19.47	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.015 Concrete sewer w/manholes & inlets
6.6	541	Total			

Subcatchment POST #1: POST-DEVELOPED BASIN #1



Summary for Subcatchment POST #2: POST-DEVELOPED BASIN #2

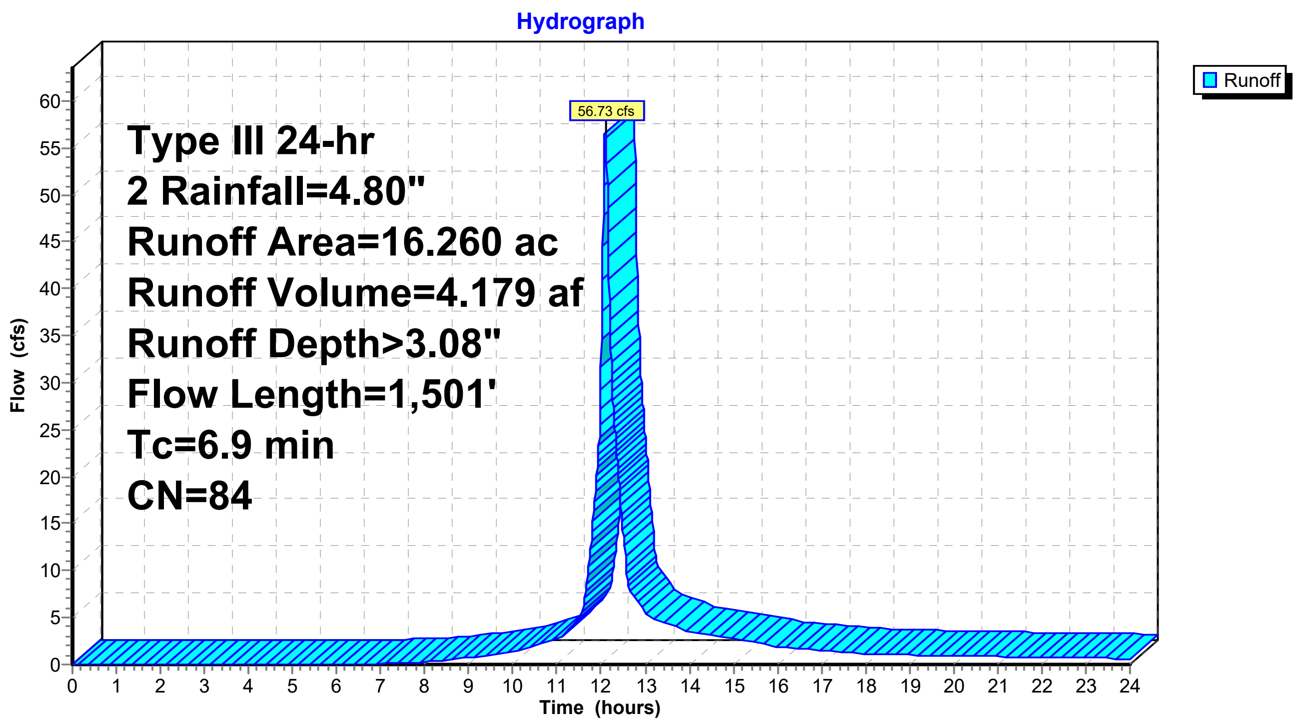
Runoff = 56.73 cfs @ 12.10 hrs, Volume= 4.179 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	16.260	84	SFR lots, 30% imp, HSG D
	11.382		70.00% Pervious Area
	4.878		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2: POST-DEVELOPED BASIN #2



Summary for Subcatchment POST #2A: POST-DEVELOPED BASIN #2A

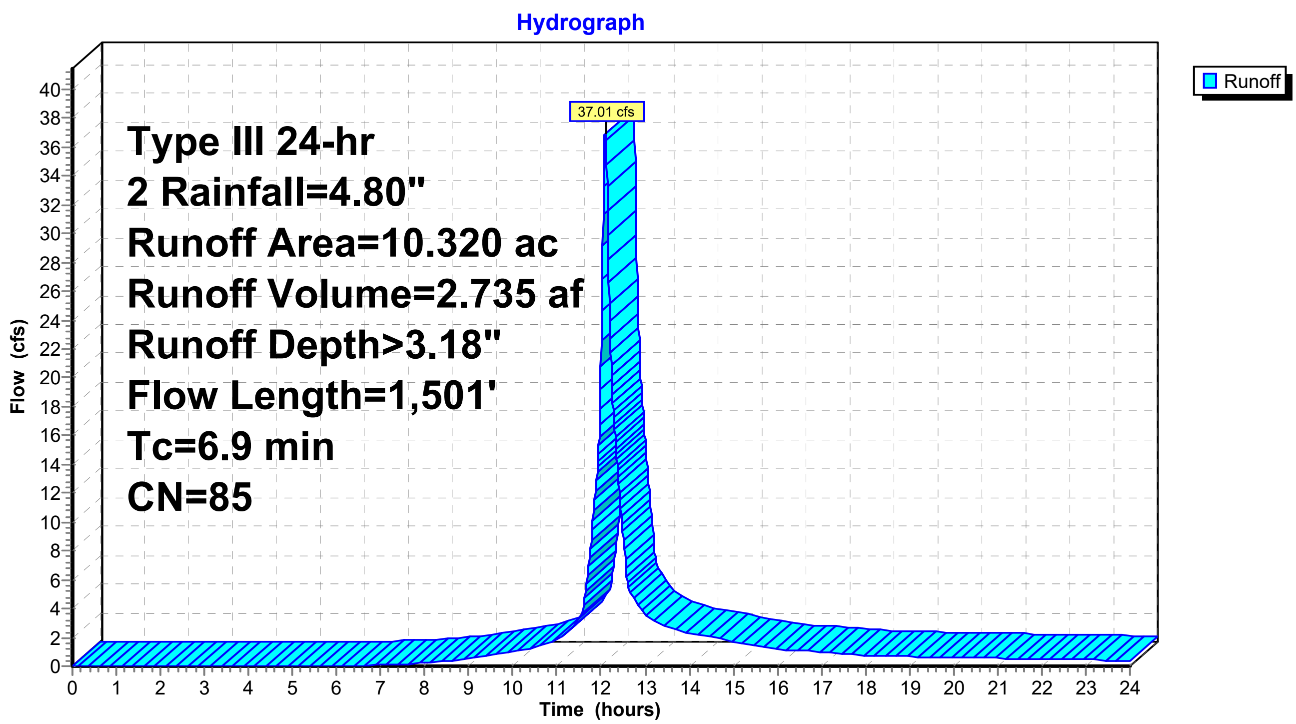
Runoff = 37.01 cfs @ 12.10 hrs, Volume= 2.735 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	10.320	85	
	10.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2A: POST-DEVELOPED BASIN #2A



Summary for Subcatchment POST #3: POST-DEVELOPED BASIN #3

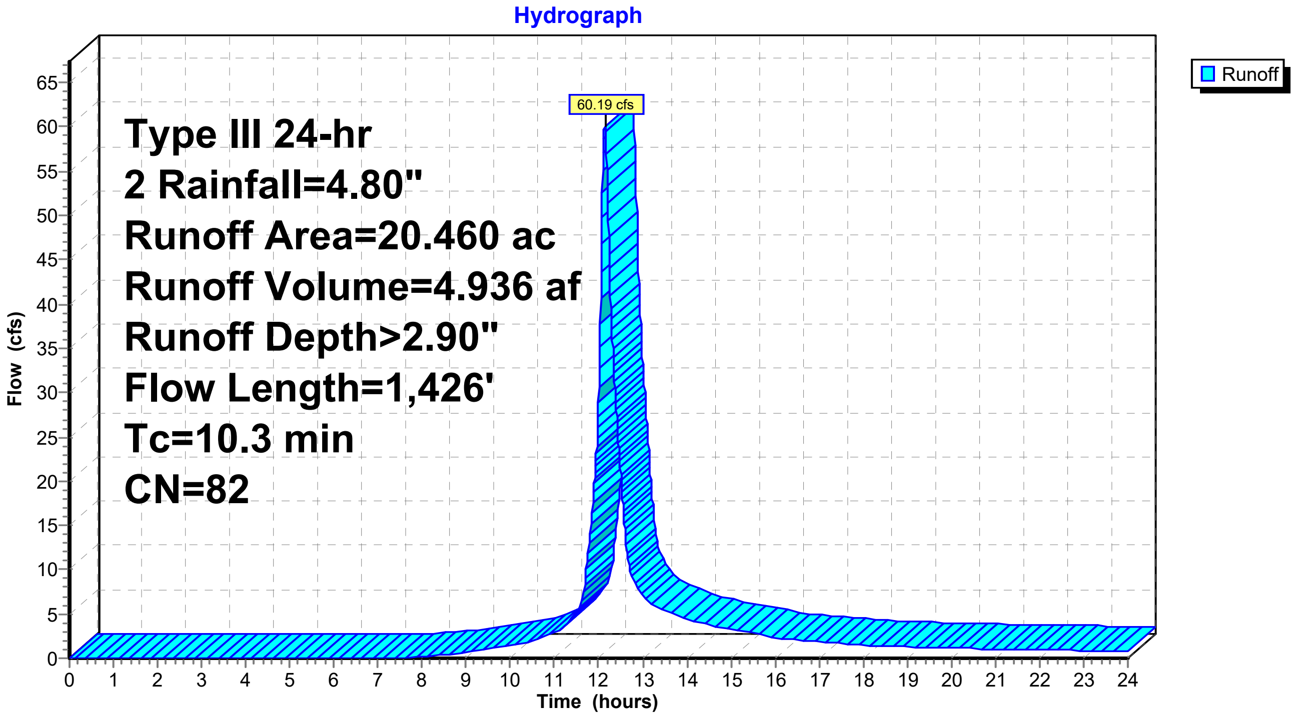
Runoff = 60.19 cfs @ 12.14 hrs, Volume= 4.936 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
	13.530	74	>75% Grass cover, Good, HSG C
*	2.480	98	Houses
*	3.570	98	Roads and Walkways
*	0.880	98	NWL Pond
	20.460	82	Weighted Average
	13.530		66.13% Pervious Area
	6.930		33.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0200	0.18		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
0.4	105	0.0100	4.86	24.28	**Channel Flow, REAR YARD SWALE** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
3.9	1,256	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
10.3	1,426	Total			

Subcatchment POST #3: POST-DEVELOPED BASIN #3



Summary for Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A

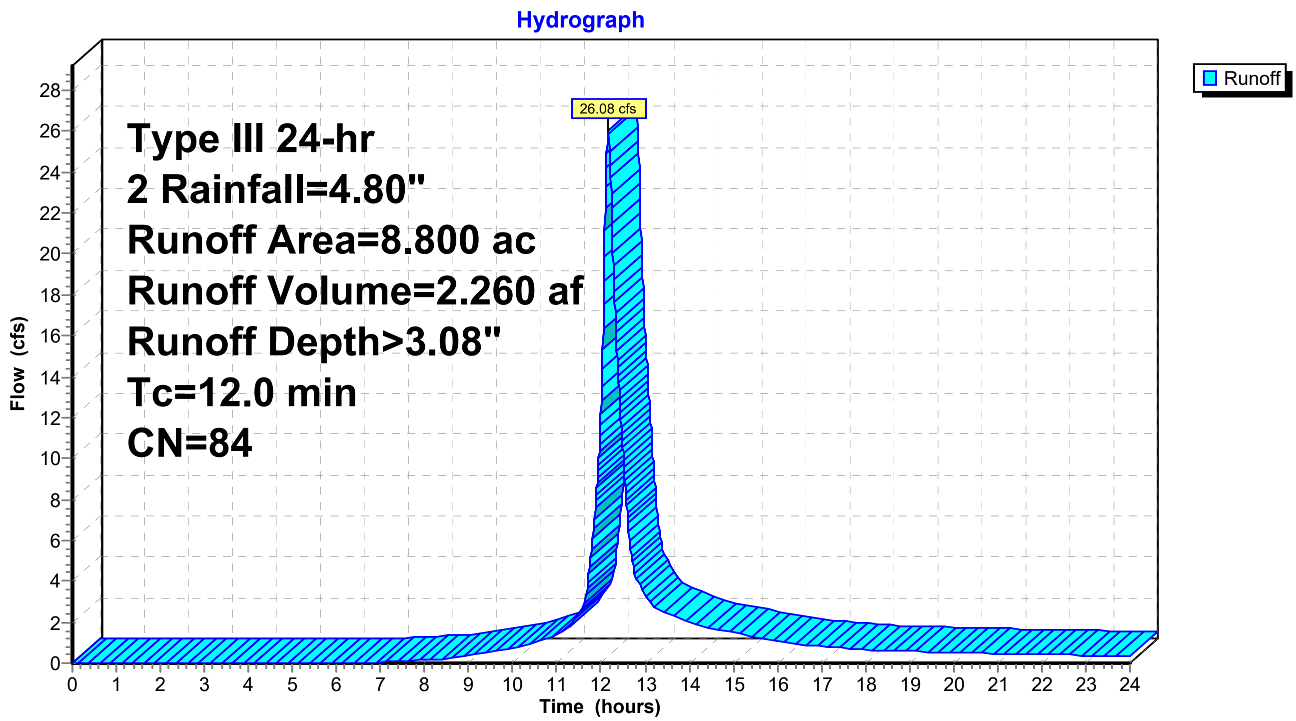
Runoff = 26.08 cfs @ 12.17 hrs, Volume= 2.260 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	8.800	84	SFR lots, 30% imp, HSG D
	6.160		70.00% Pervious Area
	2.640		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A



Summary for Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B

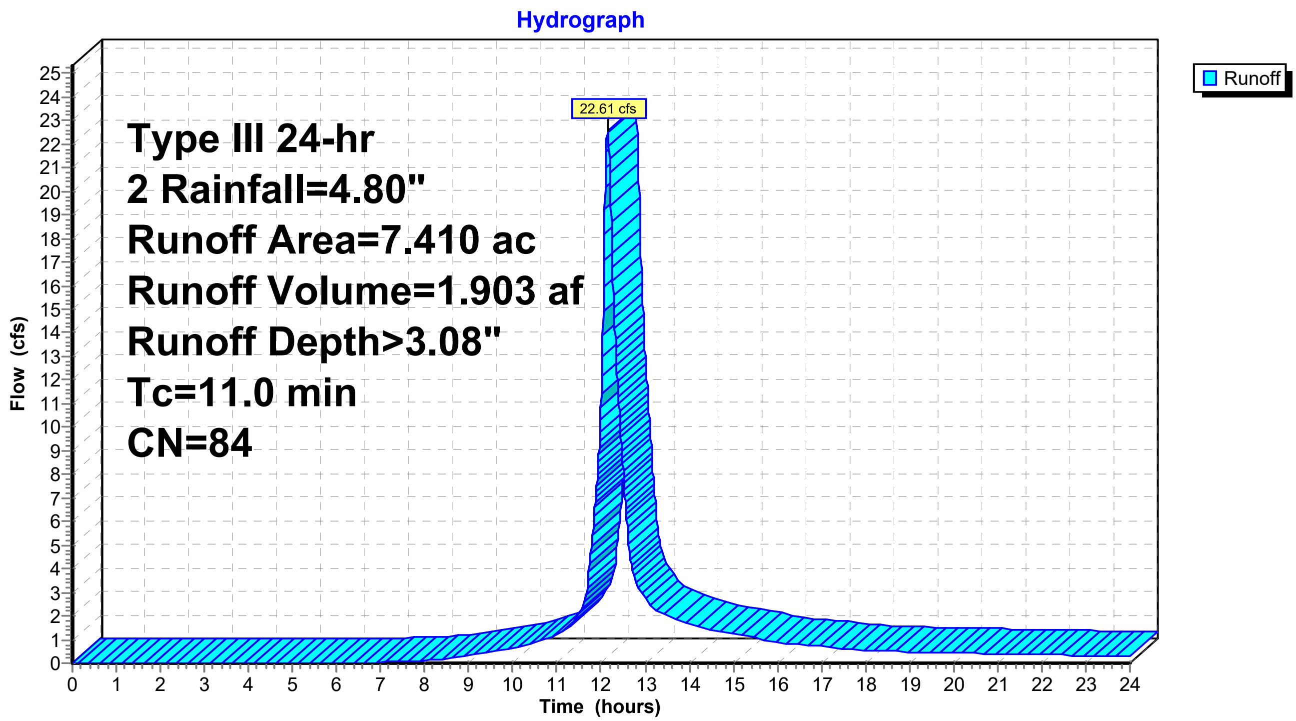
Runoff = 22.61 cfs @ 12.15 hrs, Volume= 1.903 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	7.410	84	SFR lots, 30% imp, HSG D
	5.187		70.00% Pervious Area
	2.223		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0					**Direct Entry,**

Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B



Summary for Subcatchment POST #4: POST-DEVELOPED BASIN #4

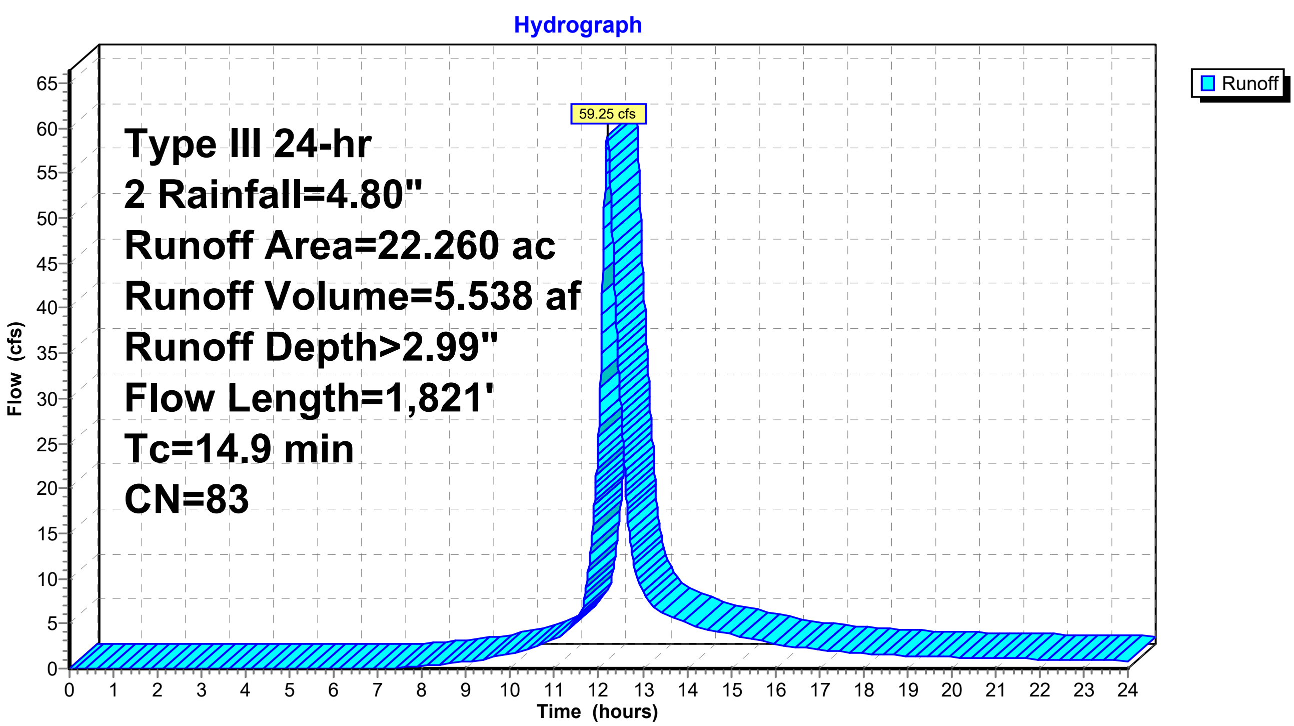
Runoff = 59.25 cfs @ 12.20 hrs, Volume= 5.538 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
	14.150	74	>75% Grass cover, Good, HSG C
*	8.110	98	Houses, Roads and Walkways, NWL POND
	22.260	83	Weighted Average
	14.150		63.57% Pervious Area
	8.110		36.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0100	0.13		**Sheet Flow, POST DEV BASIN #4 - SHEET** Grass: Short n= 0.150 P2= 4.34"
3.5	300	0.0050	1.44		**Shallow Concentrated Flow, Gutter Basin 4** Paved Kv= 20.3 fps
4.5	1,466	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
14.9	1,821	Total			

Subcatchment POST #4: POST-DEVELOPED BASIN #4



Summary for Subcatchment POST #5: POST-DEVELOPED BASIN #5

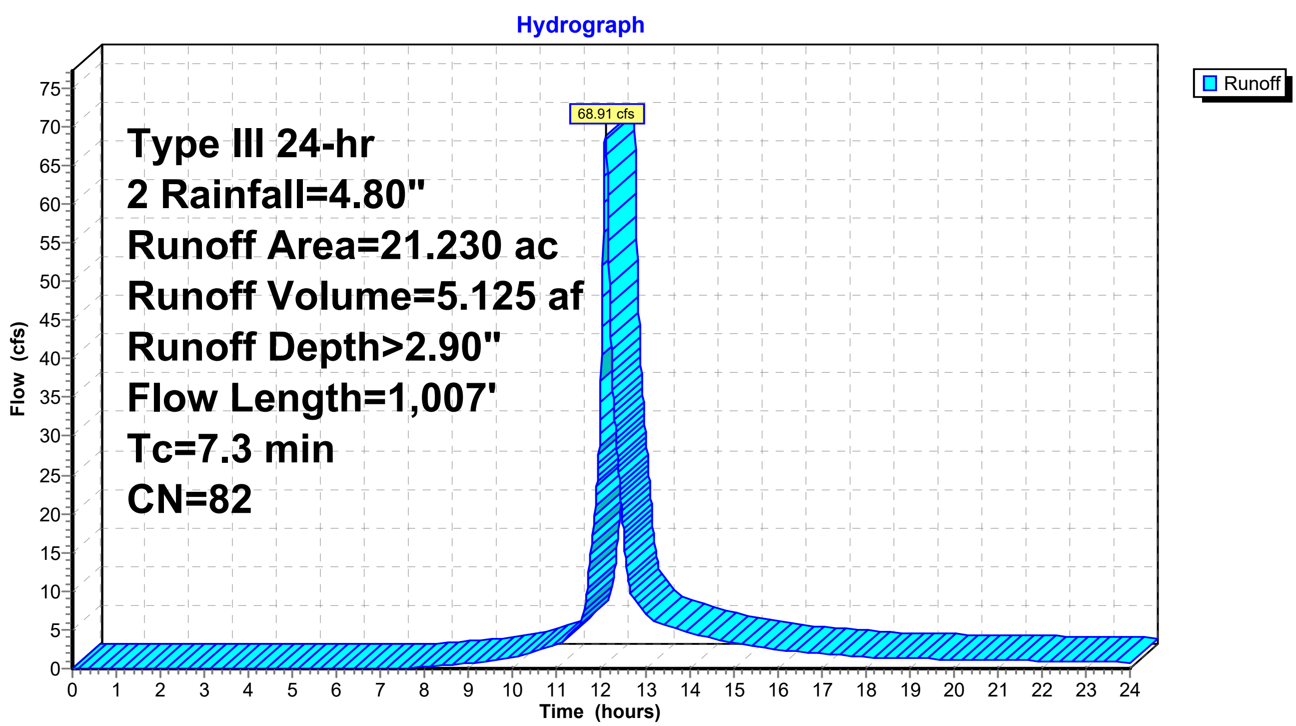
Runoff = 68.91 cfs @ 12.11 hrs, Volume= 5.125 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
	14.320	74	>75% Grass cover, Good, HSG C
*	2.850	98	Houses
*	3.410	98	Roads and Walkways
*	0.650	98	NWL Pond
	21.230	82	Weighted Average
	14.320		67.45% Pervious Area
	6.910		32.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	55	0.0300	0.21		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
2.9	952	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
7.3	1,007	Total			

Subcatchment POST #5: POST-DEVELOPED BASIN #5



Summary for Subcatchment POST #6: POST-DEVELOPED BASIN #6

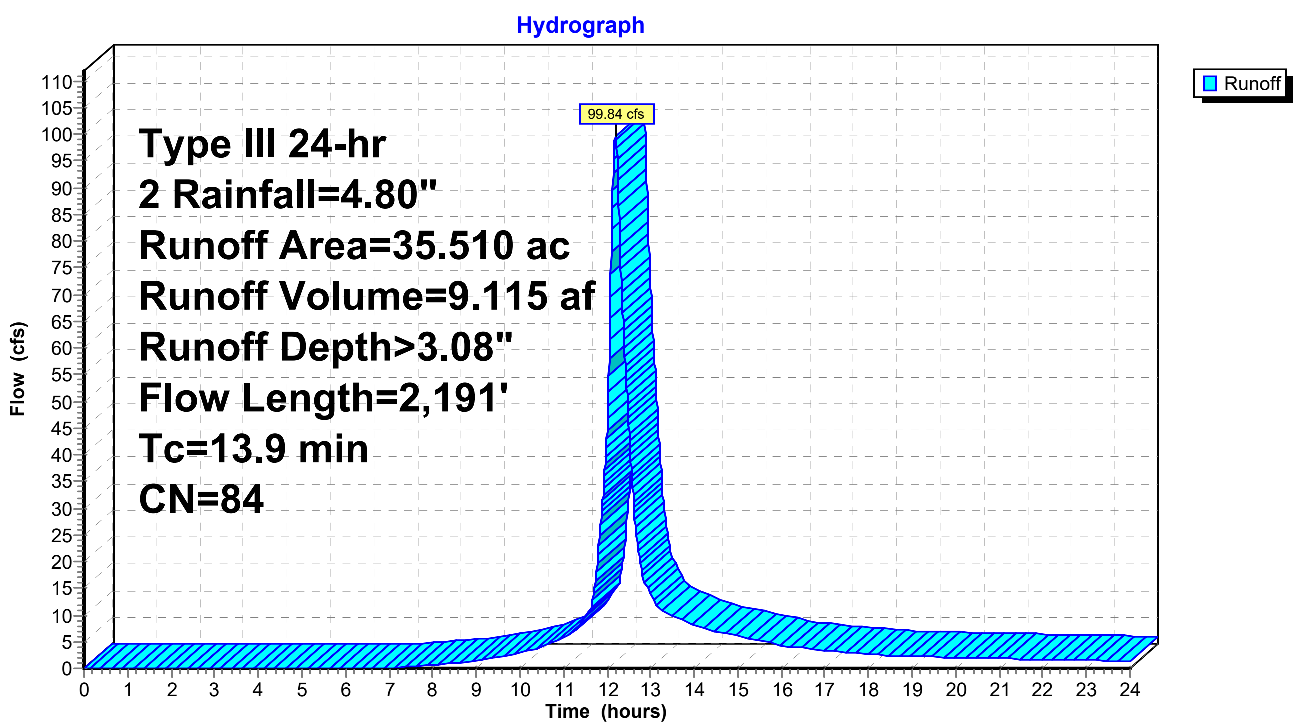
Runoff = 99.84 cfs @ 12.19 hrs, Volume= 9.115 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
	21.070	74	>75% Grass cover, Good, HSG C
*	5.180	98	Houses
*	5.540	98	Roads and Walkways
*	3.720	98	NWL Pond
	35.510	84	Weighted Average
	21.070		59.34% Pervious Area
	14.440		40.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0200	0.19		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
6.5	2,106	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
13.9	2,191	Total			

Subcatchment POST #6: POST-DEVELOPED BASIN #6



Summary for Pond POST-1P: POND 1

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

Inflow Area = 17.790 ac, 35.69% Impervious, Inflow Depth > 2.99" for 2 event
Inflow = 60.96 cfs @ 12.09 hrs, Volume= 4.433 af
Outflow = 9.40 cfs @ 12.15 hrs, Volume= 3.468 af, Atten= 85%, Lag= 3.2 min
Primary = 9.40 cfs @ 12.15 hrs, Volume= 3.468 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 37,128 sf Storage= 113,417 cf
Peak Elev= 12.15' @ 13.00 hrs Surf.Area= 60,251 sf Storage= 219,631 cf (106,213 cf above start)

Plug-Flow detention time= 595.0 min calculated for 0.864 af (19% of inflow)
Center-of-Mass det. time= 170.4 min (985.3 - 814.9)

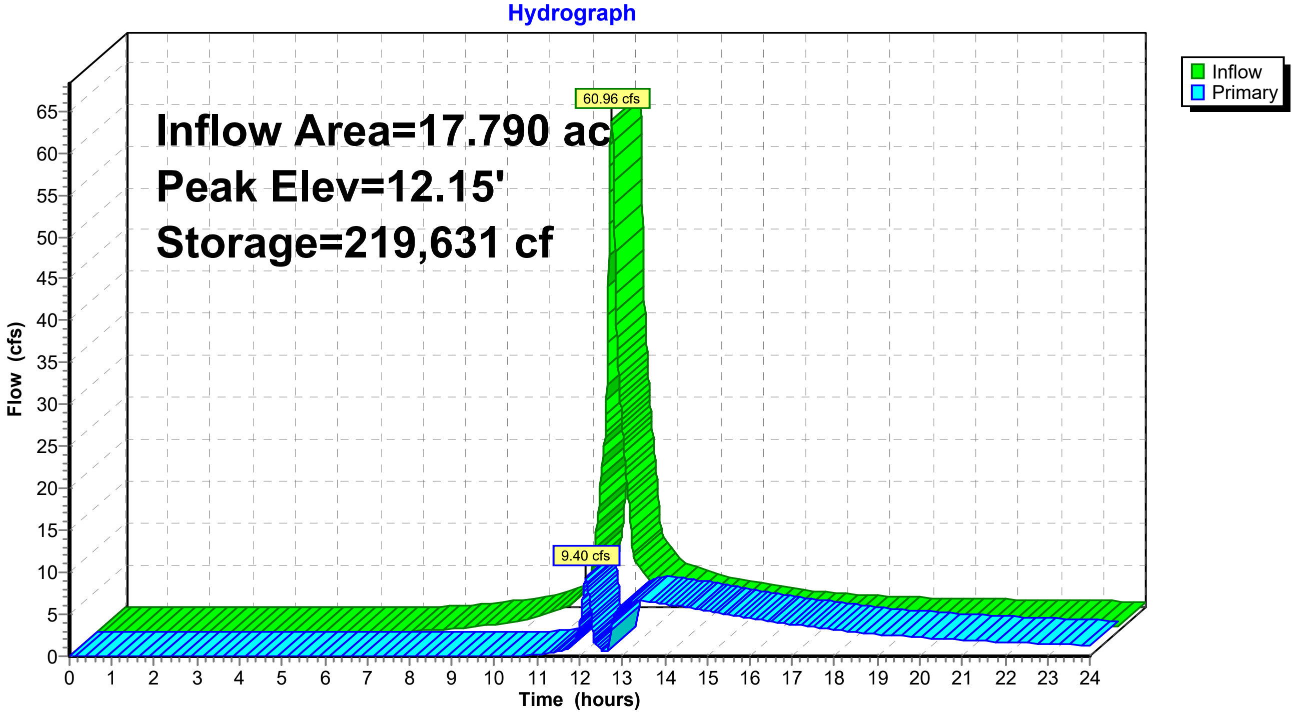
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	910,381 cf	**POND 1 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	26,411	0	0
9.97	37,128	113,417	113,417
15.00	90,446	320,849	434,266
20.00	100,000	476,115	910,381

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.11' S= 0.0143 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	9.97'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 7.89' S= 0.0145 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	10.14'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.02' S= 0.0148 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=7.66 cfs @ 12.15 hrs HW=11.45' TW=11.38' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 2.50 cfs @ 1.41 fps)
├─**2=RCP_Round 30"** (Outlet Controls 3.06 cfs @ 1.46 fps)
└─**3=RCP_Round 30"** (Outlet Controls 2.10 cfs @ 1.18 fps)

Pond POST-1P: POND 1



Summary for Pond POST-2P: POND 2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=2)
[80] Warning: Exceeded Pond POST-1P by 0.01' @ 12.34 hrs (4.62 cfs 0.154 af)

Inflow Area = 34.050 ac, 32.98% Impervious, Inflow Depth > 2.69" for 2 event
Inflow = 64.95 cfs @ 12.10 hrs, Volume= 7.647 af
Outflow = 13.17 cfs @ 13.41 hrs, Volume= 6.534 af, Atten= 80%, Lag= 78.1 min
Primary = 13.17 cfs @ 13.41 hrs, Volume= 6.534 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 44,416 sf Storage= 133,705 cf
Peak Elev= 12.14' @ 12.96 hrs Surf.Area= 66,151 sf Storage= 253,611 cf (119,905 cf above start)

Plug-Flow detention time= 419.5 min calculated for 3.465 af (45% of inflow)
Center-of-Mass det. time= 114.0 min (1,004.7 - 890.7)

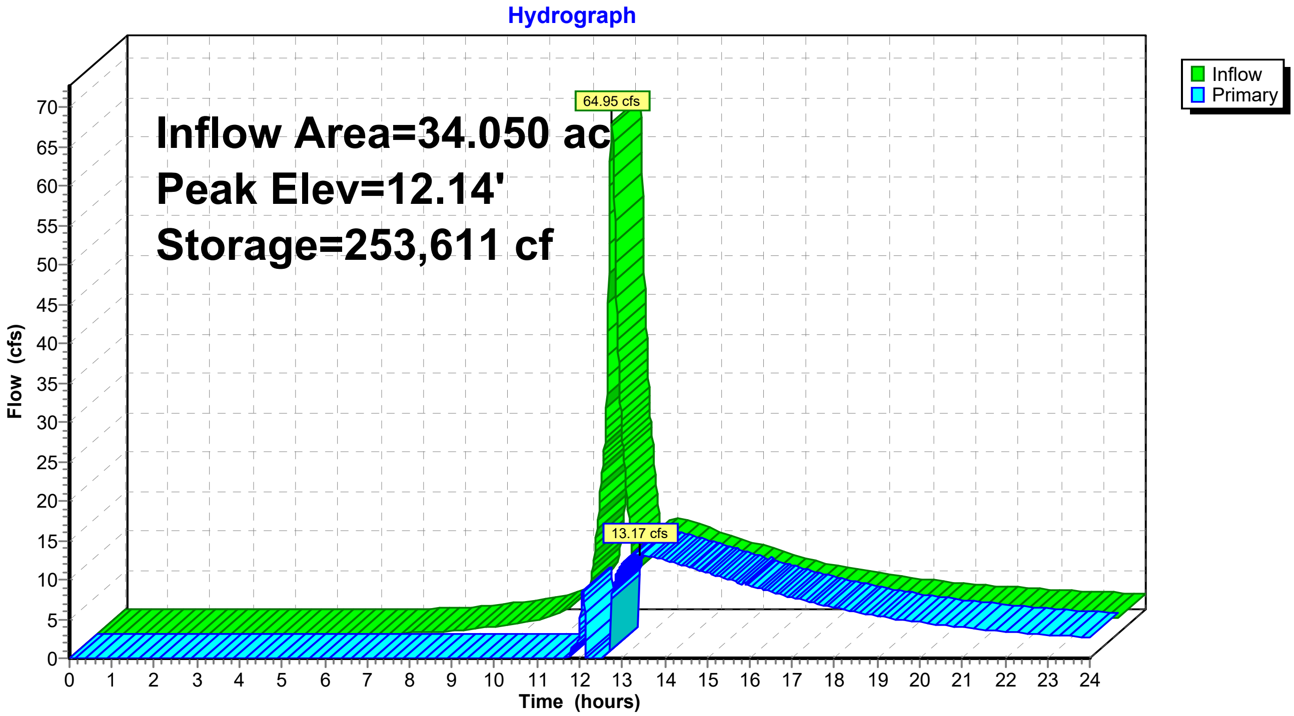
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	970,944 cf	**POND 2 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	30,489	0	0
9.97	44,416	133,705	133,705
15.00	94,822	350,184	483,889
20.00	100,000	487,055	970,944

Device	Routing	Invert	Outlet Devices
#1	Primary	8.20'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.18' / 8.20' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	8.18'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.15' / 8.18' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	8.12'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.12' / 8.10' S= 0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#4	Primary	8.07'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.07' / 8.06' S= 0.0001 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf

Primary OutFlow Max=13.72 cfs @ 13.41 hrs HW=12.11' TW=12.09' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 3.43 cfs @ 0.70 fps)
├─**2=RCP_Round 30"** (Outlet Controls 3.43 cfs @ 0.70 fps)
├─**3=RCP_Round 30"** (Outlet Controls 3.43 cfs @ 0.70 fps)
└─**4=RCP_Round 30"** (Outlet Controls 3.43 cfs @ 0.70 fps)

Pond POST-2P: POND 2



Summary for Pond POST-2PA: POND 2A

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 3.18" for 2 event
Inflow = 56.63 cfs @ 12.09 hrs, Volume= 4.134 af
Outflow = 33.71 cfs @ 12.20 hrs, Volume= 4.042 af, Atten= 40%, Lag= 6.9 min
Primary = 33.71 cfs @ 12.20 hrs, Volume= 4.042 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.09' @ 12.20 hrs Surf.Area= 35,012 sf Storage= 148,688 cf (39,966 cf above start)

Plug-Flow detention time= 325.7 min calculated for 1.545 af (37% of inflow)
Center-of-Mass det. time= 31.3 min (840.0 - 808.7)

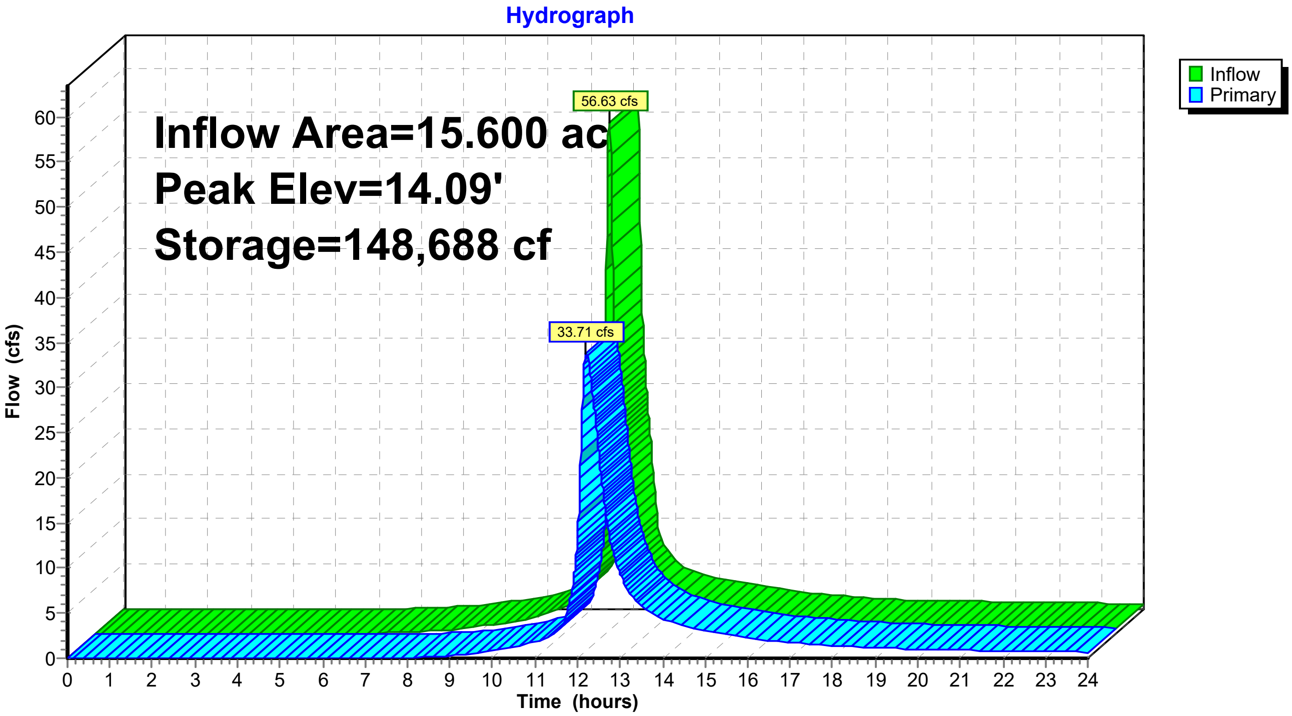
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=33.70 cfs @ 12.20 hrs HW=14.09' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 33.70 cfs @ 3.21 fps)

Pond POST-2PA: POND 2A



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.11' @ 12.41 hrs (37.70 cfs 3.359 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 2.58" for 2 event
Inflow = 78.74 cfs @ 12.12 hrs, Volume= 15.791 af
Outflow = 28.89 cfs @ 13.07 hrs, Volume= 14.386 af, Atten= 63%, Lag= 57.3 min
Primary = 28.89 cfs @ 13.07 hrs, Volume= 14.386 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 12.13' @ 12.92 hrs Surf.Area= 74,532 sf Storage= 327,367 cf (143,922 cf above start)

Plug-Flow detention time= 274.1 min calculated for 10.171 af (64% of inflow)
Center-of-Mass det. time= 66.1 min (990.6 - 924.5)

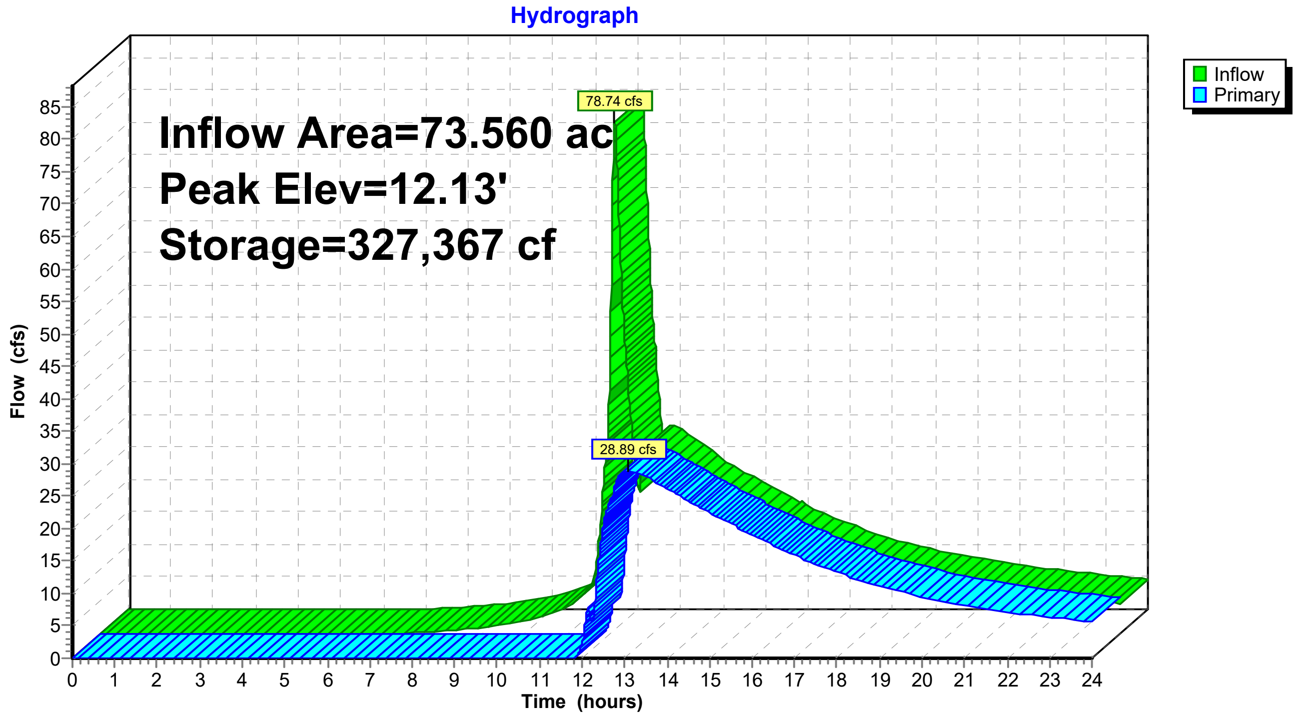
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=28.95 cfs @ 13.07 hrs HW=12.12' TW=11.88' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 9.68 cfs @ 2.79 fps)
├─**2=RCP_Round 36"** (Outlet Controls 10.98 cfs @ 2.83 fps)
└─**3=RCP_Round 36"** (Outlet Controls 8.29 cfs @ 2.37 fps)

Pond POST-3P: POND 3



Summary for Pond POST-3PA: POND 3A

[44] Hint: Outlet device #1 is below defined storage
[80] Warning: Exceeded Pond POST-3PB by 0.02' @ 12.20 hrs (2.46 cfs 0.040 af)

Inflow Area = 16.210 ac, 30.00% Impervious, Inflow Depth > 2.88" for 2 event
Inflow = 27.92 cfs @ 12.16 hrs, Volume= 3.890 af
Outflow = 10.09 cfs @ 12.73 hrs, Volume= 3.635 af, Atten= 64%, Lag= 34.2 min
Primary = 10.09 cfs @ 12.73 hrs, Volume= 3.635 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 12.26' @ 12.65 hrs Surf.Area= 22,612 sf Storage= 37,844 cf

Plug-Flow detention time= 98.6 min calculated for 3.635 af (93% of inflow)
Center-of-Mass det. time= 65.3 min (941.4 - 876.1)

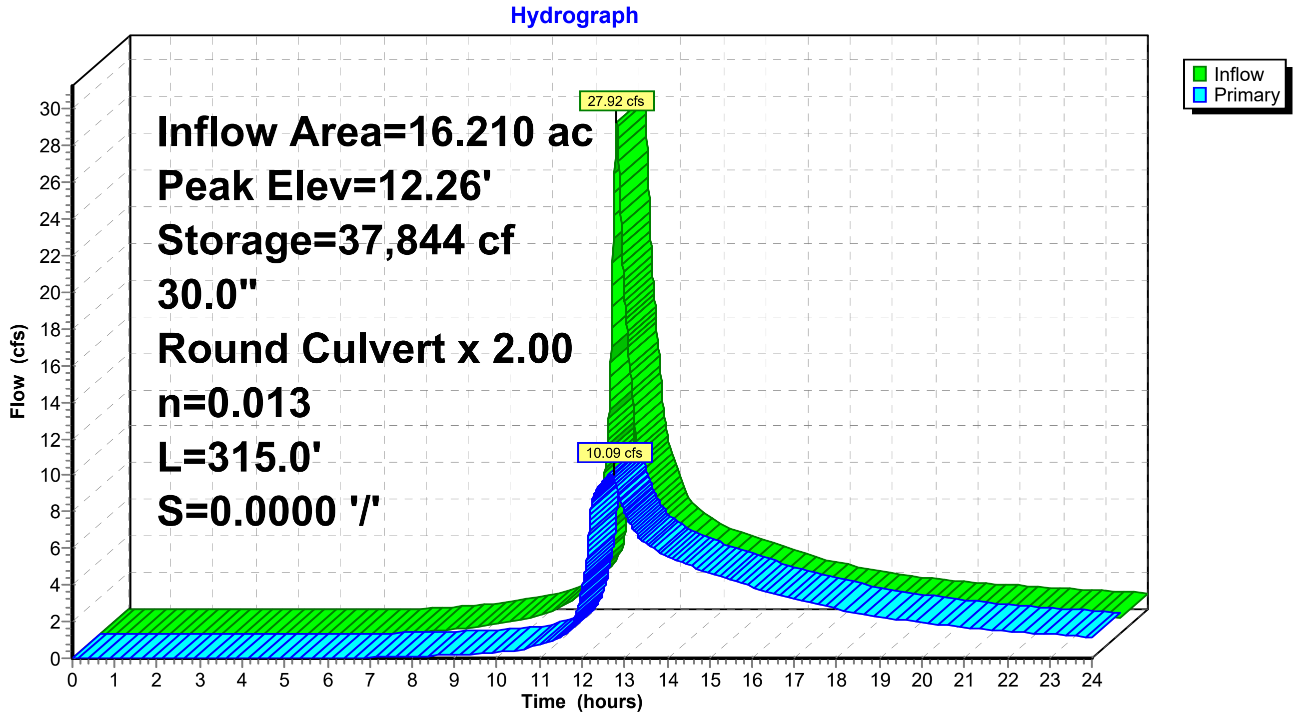
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	247,412 cf	**POND 3A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,127	0	0
14.40	27,784	91,822	91,822
20.00	27,784	155,590	247,412

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 315.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=10.10 cfs @ 12.73 hrs HW=12.25' TW=12.12' (Dynamic Tailwater)
1=RCP_Round 30" (Outlet Controls 10.10 cfs @ 1.55 fps)

Pond POST-3PA: POND 3A



Summary for Pond POST-3PB: POND 3B

[44] Hint: Outlet device #1 is below defined storage

Inflow Area = 7.410 ac, 30.00% Impervious, Inflow Depth > 3.08" for 2 event
Inflow = 22.61 cfs @ 12.15 hrs, Volume= 1.903 af
Outflow = 4.49 cfs @ 12.76 hrs, Volume= 1.631 af, Atten= 80%, Lag= 36.7 min
Primary = 4.49 cfs @ 12.76 hrs, Volume= 1.631 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 12.29' @ 12.68 hrs Surf.Area= 23,526 sf Storage= 40,038 cf

Plug-Flow detention time= 204.8 min calculated for 1.630 af (86% of inflow)
Center-of-Mass det. time= 143.3 min (958.9 - 815.5)

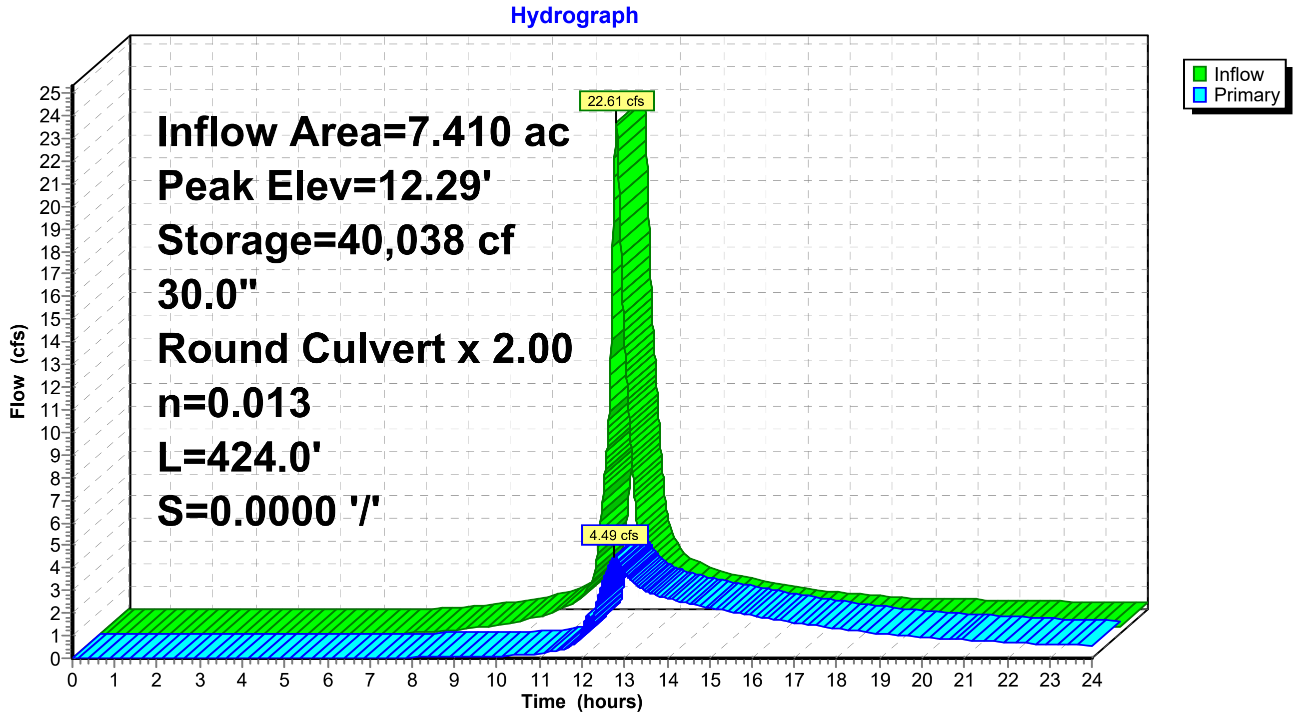
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	255,727 cf	**POND 3B (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,948	0	0
14.40	28,662	95,220	95,220
20.00	28,662	160,507	255,727

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 424.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=4.59 cfs @ 12.76 hrs HW=12.28' TW=12.25' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 4.59 cfs @ 0.69 fps)

Pond POST-3PB: POND 3B



Summary for Pond POST-4P: POND 4

[80] Warning: Exceeded Pond POST-3P by 0.12' @ 10.75 hrs (0.52 cfs 0.129 af)

Inflow Area = 95.820 ac, 32.49% Impervious, Inflow Depth > 2.50" for 2 event
Inflow = 65.68 cfs @ 12.19 hrs, Volume= 19.924 af
Outflow = 47.65 cfs @ 12.46 hrs, Volume= 19.409 af, Atten= 27%, Lag= 16.1 min
Primary = 47.65 cfs @ 12.46 hrs, Volume= 19.409 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 25,099 sf Storage= 71,286 cf
Peak Elev= 11.98' @ 12.55 hrs Surf.Area= 35,035 sf Storage= 131,572 cf (60,286 cf above start)

Plug-Flow detention time= 90.7 min calculated for 17.773 af (89% of inflow)
Center-of-Mass det. time= 21.0 min (964.6 - 943.6)

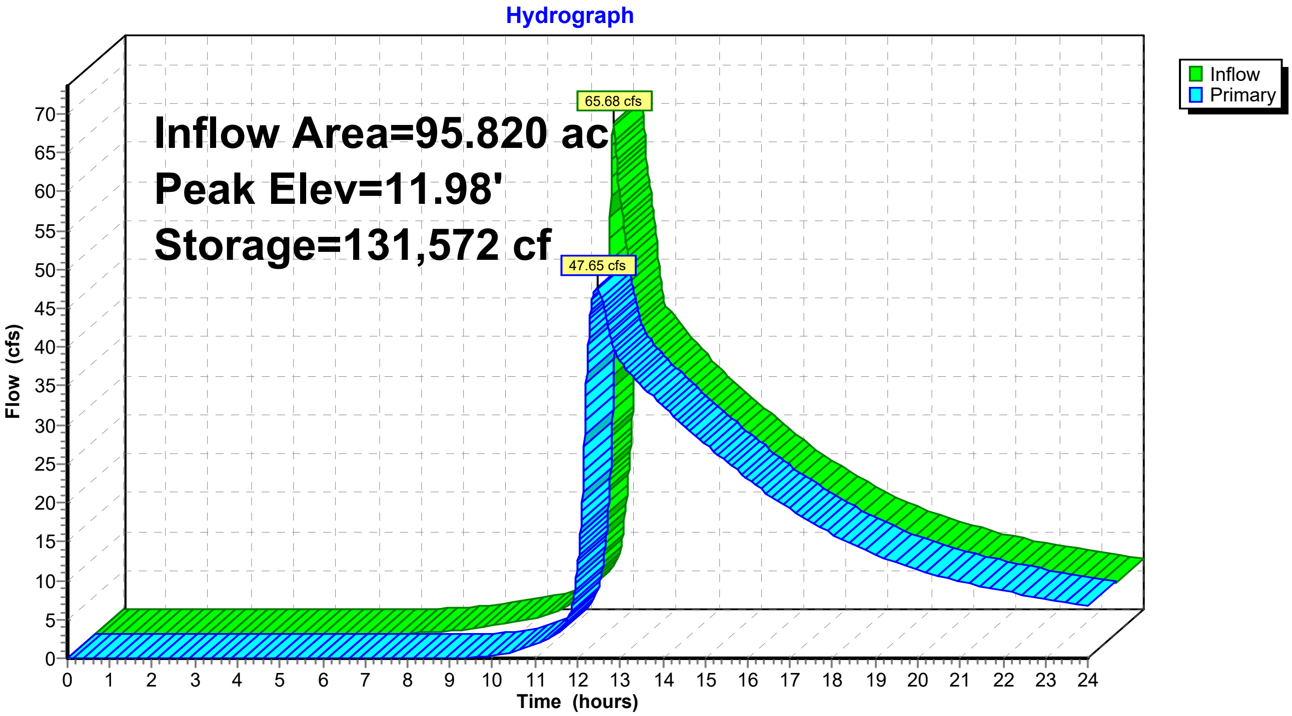
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	635,290 cf	**POND 4 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	14,837	0	0
9.97	25,099	71,286	71,286
15.00	50,026	188,939	260,225
20.00	100,000	375,065	635,290

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0109 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0097 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0098 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=47.40 cfs @ 12.46 hrs HW=11.96' TW=11.10' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 15.80 cfs @ 5.09 fps)
├─**2=RCP_Round 36"** (Outlet Controls 18.22 cfs @ 5.20 fps)
└─**3=RCP_Round 36"** (Outlet Controls 13.38 cfs @ 4.28 fps)

Pond POST-4P: POND 4



Summary for Pond POST-5P: POND 5

Inflow Area = 117.050 ac, 32.50% Impervious, Inflow Depth > 2.52" for 2 event
Inflow = 89.18 cfs @ 12.12 hrs, Volume= 24.534 af
Outflow = 58.69 cfs @ 12.36 hrs, Volume= 23.729 af, Atten= 34%, Lag= 14.2 min
Primary = 58.69 cfs @ 12.36 hrs, Volume= 23.729 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 39,178 sf Storage= 132,791 cf
Peak Elev= 11.27' @ 13.28 hrs Surf.Area= 44,675 sf Storage= 209,886 cf (77,095 cf above start)

Plug-Flow detention time= 123.5 min calculated for 20.672 af (84% of inflow)
Center-of-Mass det. time= 22.1 min (956.2 - 934.0)

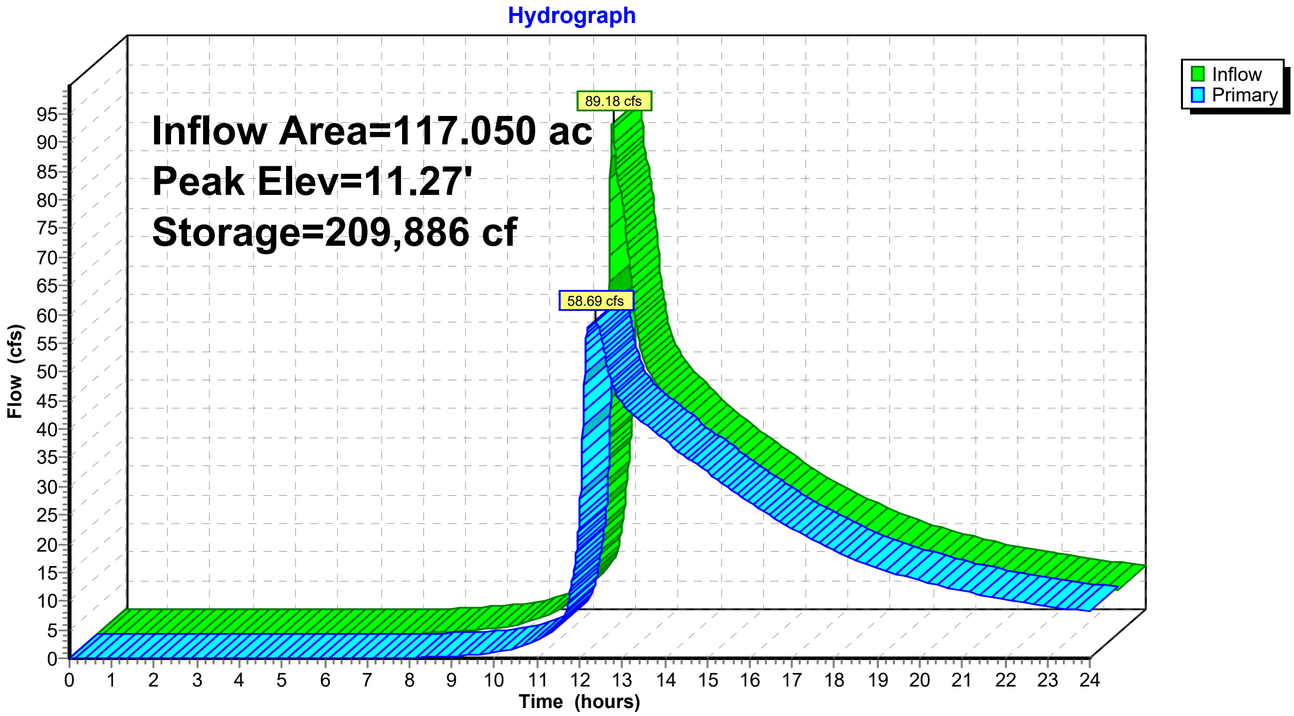
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	785,627 cf	**POND 5 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	28,400	0	0
9.50	39,370	135,540	135,540
15.10	56,162	267,490	403,030
20.00	100,000	382,597	785,627

Device	Routing	Invert	Outlet Devices
#1	Primary	8.59'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.59' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	8.52'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.52' / 8.43' S= 0.0007 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.63' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#4	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.35' / 8.63' S= -0.0022 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=56.91 cfs @ 12.36 hrs HW=10.98' TW=10.71' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 14.10 cfs @ 3.20 fps)
├─**2=RCP_Round 36"** (Outlet Controls 14.64 cfs @ 3.21 fps)
├─**3=RCP_Round 36"** (Outlet Controls 14.10 cfs @ 3.20 fps)
└─**4=RCP_Round 36"** (Outlet Controls 14.05 cfs @ 2.85 fps)

Pond POST-5P: POND 5



Summary for Pond POST-6P: POND 6

Inflow Area = 152.560 ac, 34.40% Impervious, Inflow Depth > 2.58" for 2 event
Inflow = 157.59 cfs @ 12.19 hrs, Volume= 32.843 af
Outflow = 51.36 cfs @ 13.44 hrs, Volume= 28.914 af, Atten= 67%, Lag= 75.1 min
Primary = 51.36 cfs @ 13.44 hrs, Volume= 28.914 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 196,792 sf Storage= 705,109 cf
Peak Elev= 11.16' @ 13.44 hrs Surf.Area= 212,480 sf Storage= 1,059,138 cf (354,030 cf above start)

Plug-Flow detention time= 440.0 min calculated for 12.721 af (39% of inflow)
Center-of-Mass det. time= 80.4 min (998.2 - 917.8)

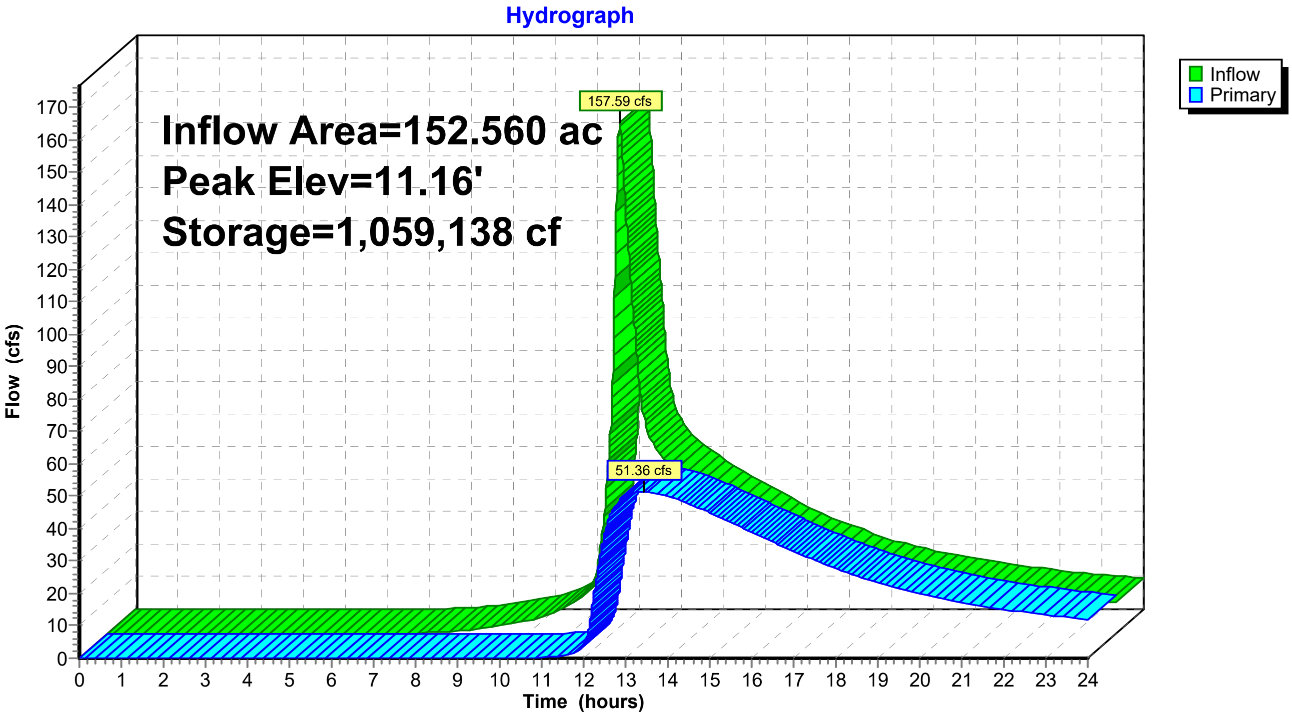
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	3,128,709 cf	**POND 6 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	162,042	0	0
9.50	197,411	718,906	718,906
14.00	238,258	980,255	1,699,161
20.00	238,258	1,429,548	3,128,709

Device	Routing	Invert	Outlet Devices
#1	Primary	9.91'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.91' / 9.89' S= 0.0004 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Primary	9.53'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.53' / 9.41' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#3	Primary	9.43'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.42' / 9.43' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#4	Primary	9.52'	**24.0" Round RCP_Round 24" X 3.00** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.52' / 9.43' S= 0.0019 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

Primary OutFlow Max=51.36 cfs @ 13.44 hrs HW=11.16' (Free Discharge)
├─**1=RCP_Round 24"** (Barrel Controls 5.20 cfs @ 3.60 fps)
├─**2=RCP_Round 24"** (Barrel Controls 9.37 cfs @ 4.65 fps)
├─**3=RCP_Round 24"** (Barrel Controls 9.22 cfs @ 4.25 fps)
└─**4=RCP_Round 24"** (Barrel Controls 27.57 cfs @ 4.53 fps)

Pond POST-6P: POND 6



Summary for Subcatchment POST #1: POST-DEVELOPED BASIN #1

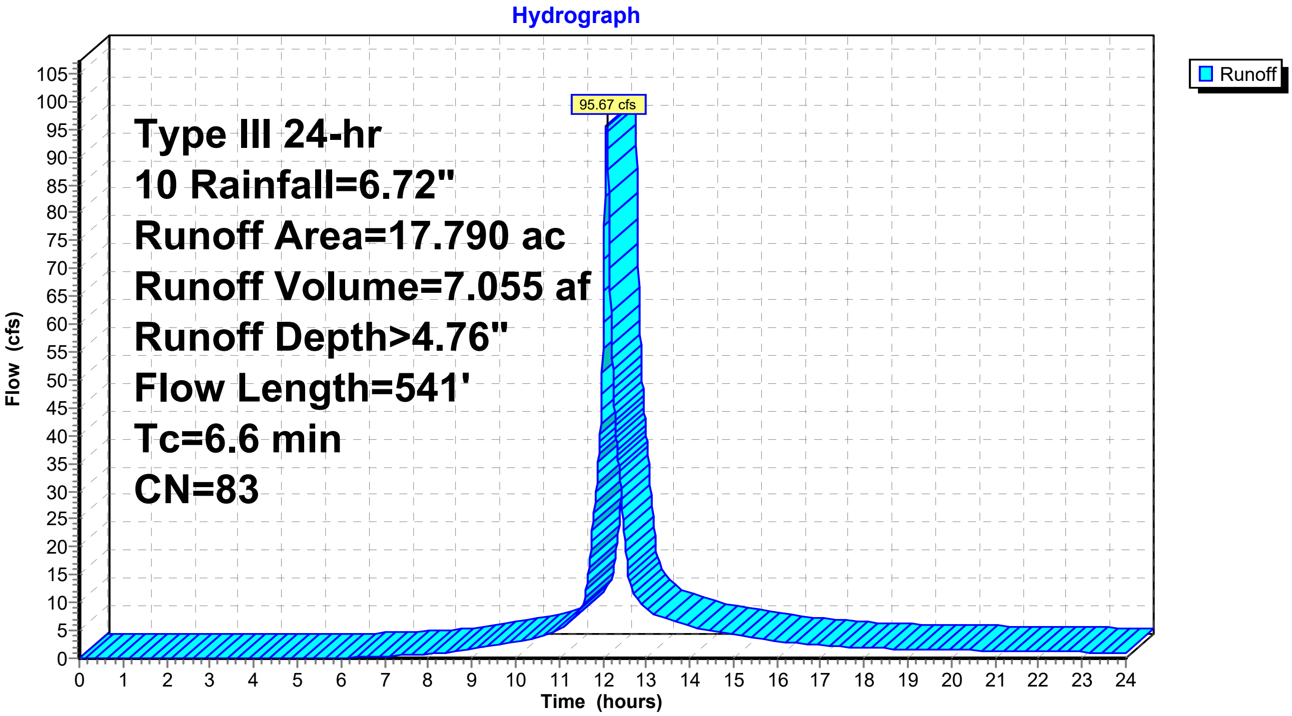
Runoff = 95.67 cfs @ 12.09 hrs, Volume= 7.055 af, Depth> 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
	11.440	74	>75% Grass cover, Good, HSG C
*	2.940	98	Houses
*	2.810	98	Roads and Walkways
*	0.600	98	NWL Pond
	17.790	83	Weighted Average
	11.440		64.31% Pervious Area
	6.350		35.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0200	0.17		**Sheet Flow, YARD** Grass: Short n= 0.150 P2= 4.34"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, POST-DEV BASIN 1-SCF** Paved Kv= 20.3 fps
1.9	447	0.0030	3.97	19.47	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.015 Concrete sewer w/manholes & inlets
6.6	541	Total			

Subcatchment POST #1: POST-DEVELOPED BASIN #1



Summary for Subcatchment POST #2: POST-DEVELOPED BASIN #2

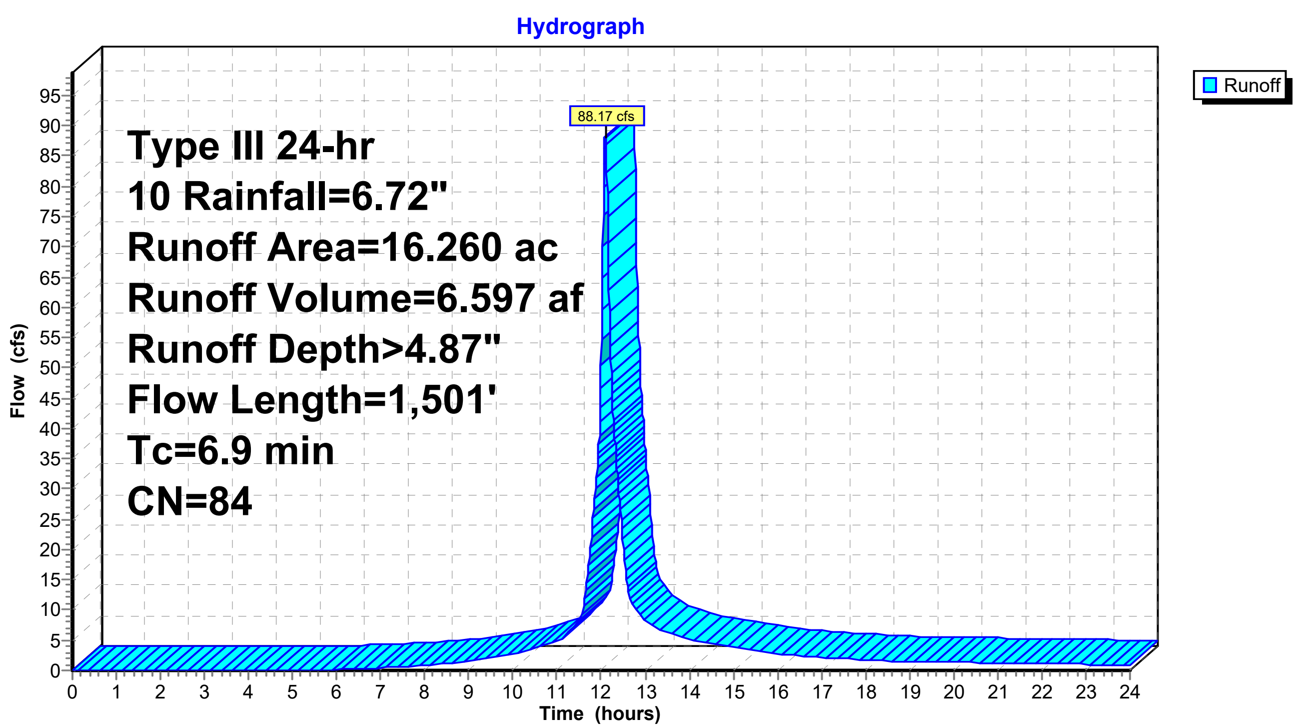
Runoff = 88.17 cfs @ 12.10 hrs, Volume= 6.597 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	16.260	84	SFR lots, 30% imp, HSG D
	11.382		70.00% Pervious Area
	4.878		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2: POST-DEVELOPED BASIN #2



Summary for Subcatchment POST #2A: POST-DEVELOPED BASIN #2A

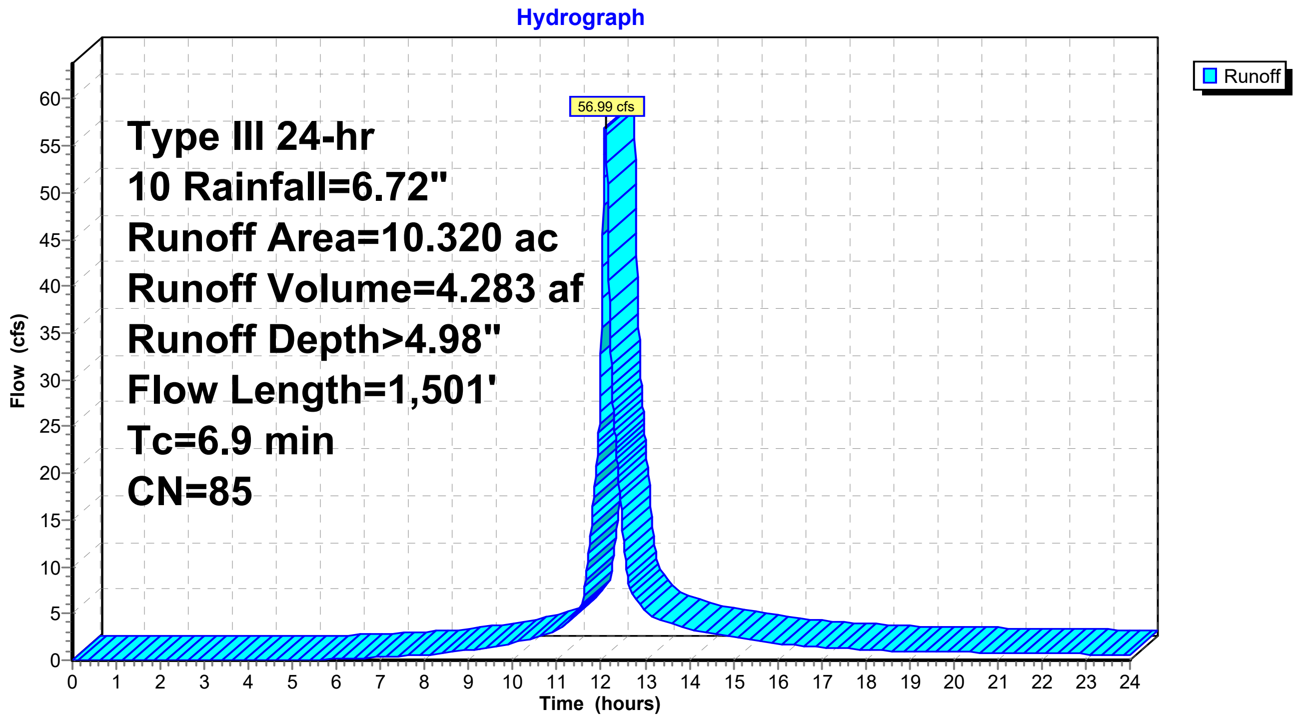
Runoff = 56.99 cfs @ 12.10 hrs, Volume= 4.283 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	10.320	85	
	10.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2A: POST-DEVELOPED BASIN #2A



Summary for Subcatchment POST #3: POST-DEVELOPED BASIN #3

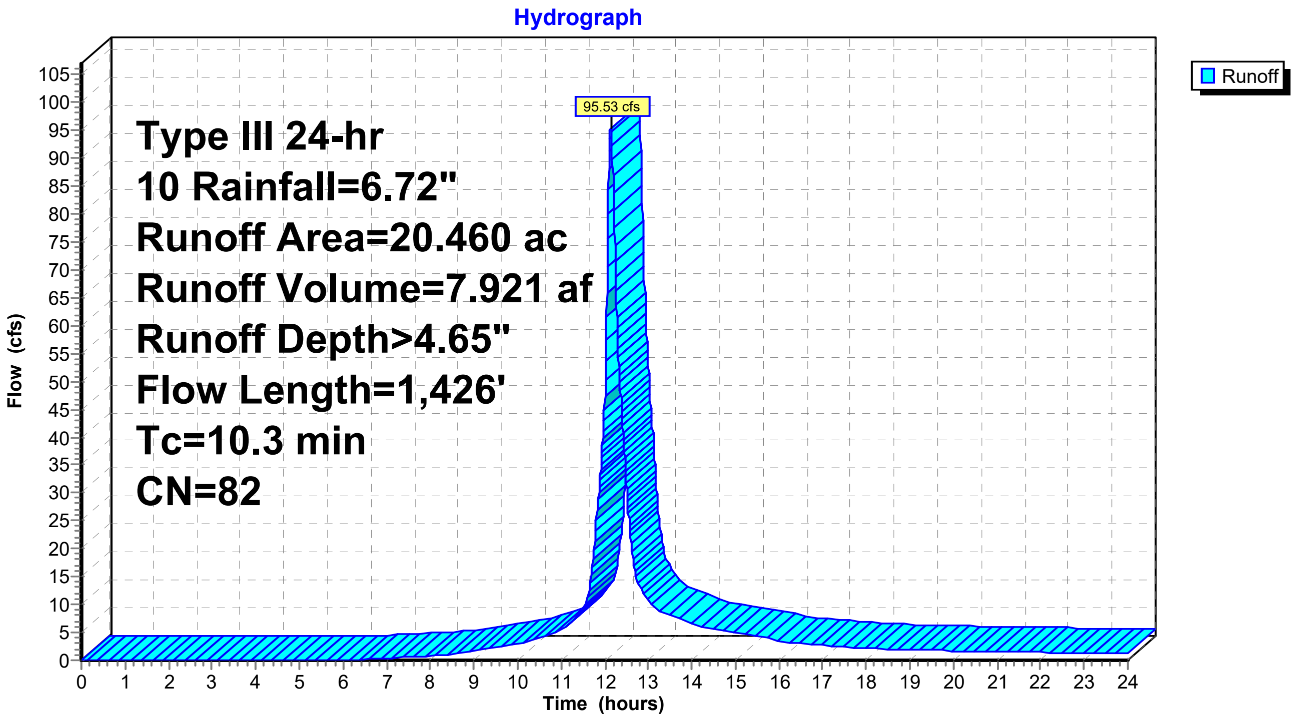
Runoff = 95.53 cfs @ 12.14 hrs, Volume= 7.921 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
	13.530	74	>75% Grass cover, Good, HSG C
*	2.480	98	Houses
*	3.570	98	Roads and Walkways
*	0.880	98	NWL Pond
	20.460	82	Weighted Average
	13.530		66.13% Pervious Area
	6.930		33.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0200	0.18		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
0.4	105	0.0100	4.86	24.28	**Channel Flow, REAR YARD SWALE** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
3.9	1,256	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
10.3	1,426	Total			

Subcatchment POST #3: POST-DEVELOPED BASIN #3



Summary for Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A

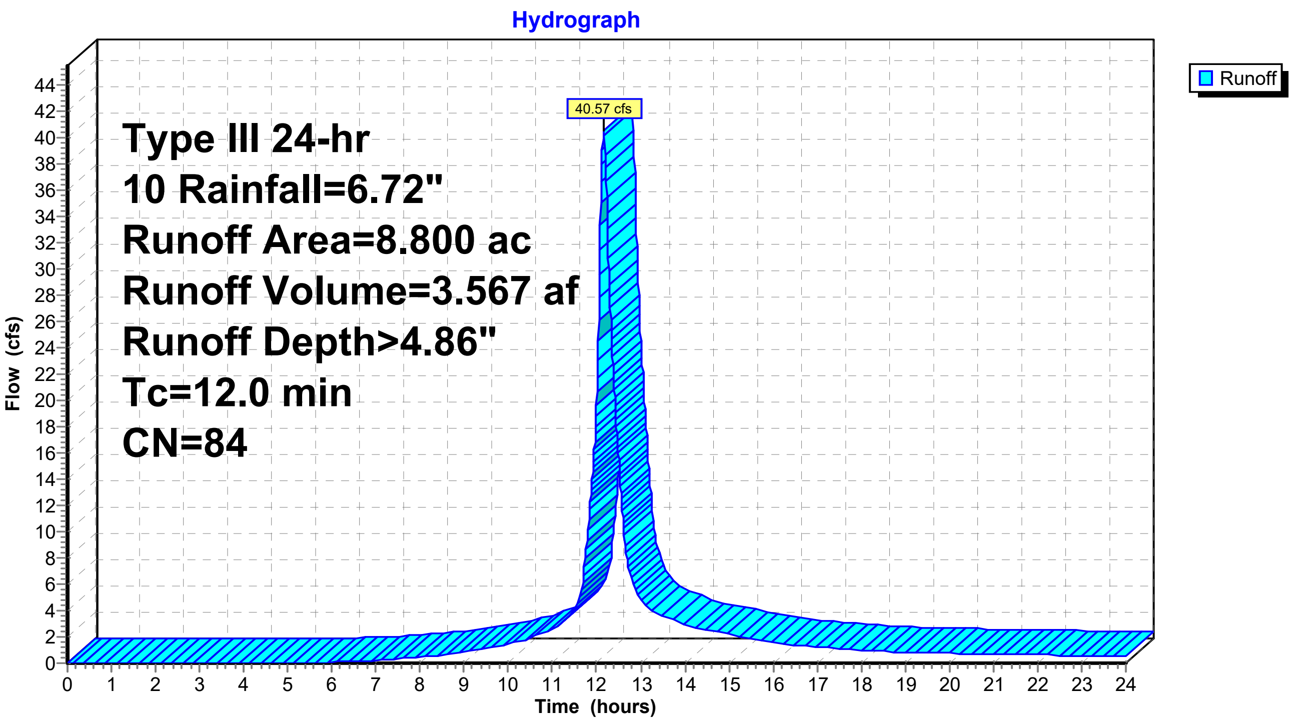
Runoff = 40.57 cfs @ 12.16 hrs, Volume= 3.567 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	8.800	84	SFR lots, 30% imp, HSG D
	6.160		70.00% Pervious Area
	2.640		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A



Summary for Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B

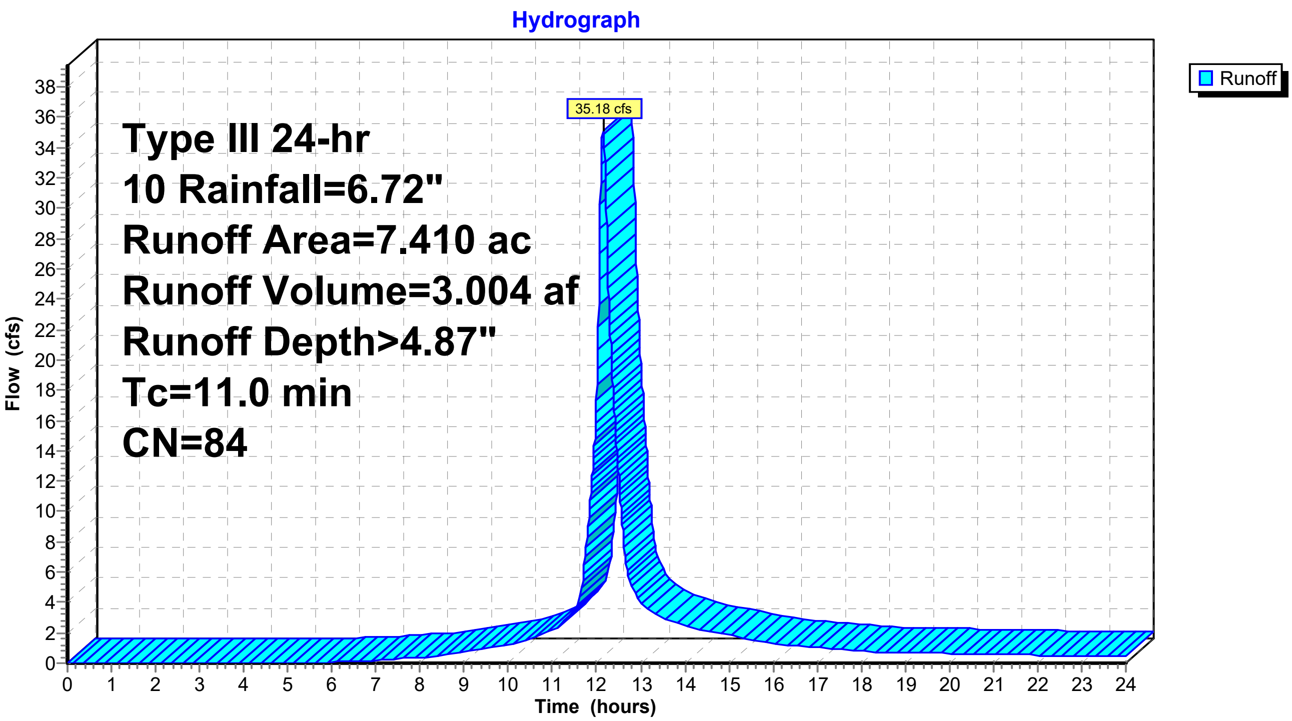
Runoff = 35.18 cfs @ 12.15 hrs, Volume= 3.004 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	7.410	84	SFR lots, 30% imp, HSG D
	5.187		70.00% Pervious Area
	2.223		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0					**Direct Entry,**

Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B



Summary for Subcatchment POST #4: POST-DEVELOPED BASIN #4

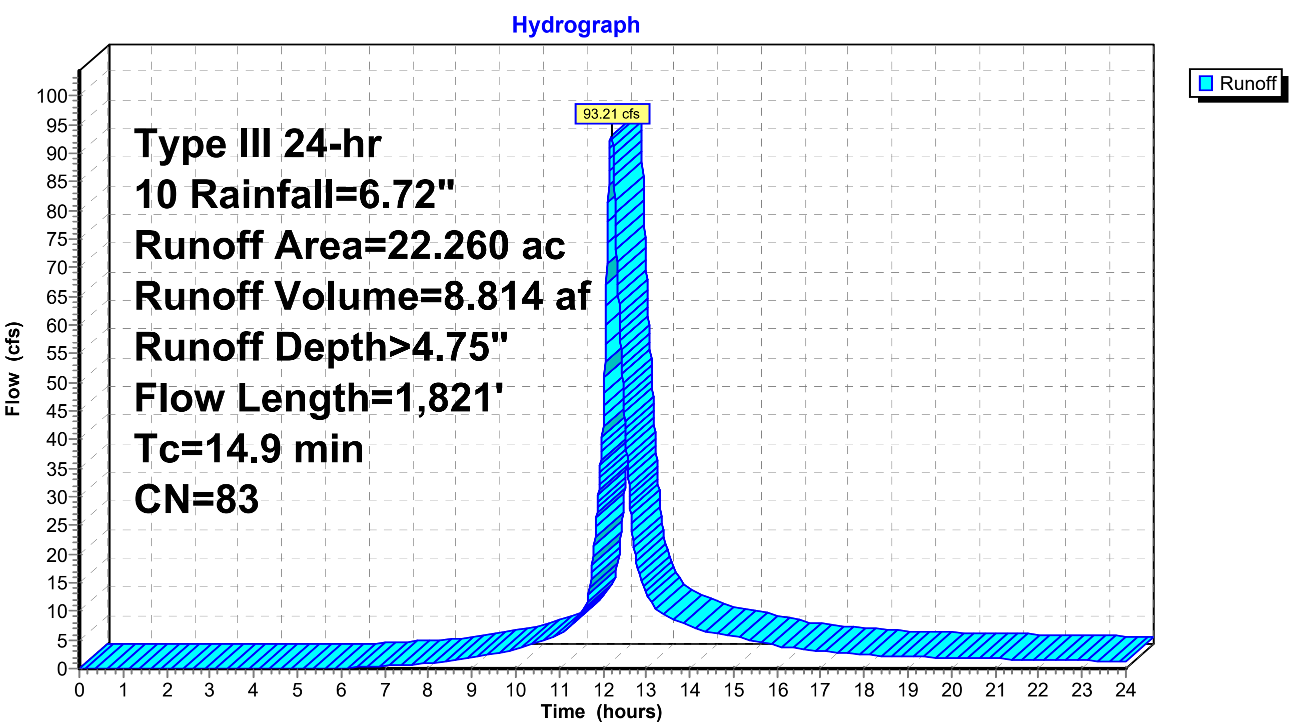
Runoff = 93.21 cfs @ 12.20 hrs, Volume= 8.814 af, Depth> 4.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
	14.150	74	>75% Grass cover, Good, HSG C
*	8.110	98	Houses, Roads and Walkways, NWL POND
	22.260	83	Weighted Average
	14.150		63.57% Pervious Area
	8.110		36.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0100	0.13		**Sheet Flow, POST DEV BASIN #4 - SHEET** Grass: Short n= 0.150 P2= 4.34"
3.5	300	0.0050	1.44		**Shallow Concentrated Flow, Gutter Basin 4** Paved Kv= 20.3 fps
4.5	1,466	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
14.9	1,821	Total			

Subcatchment POST #4: POST-DEVELOPED BASIN #4



Summary for Subcatchment POST #5: POST-DEVELOPED BASIN #5

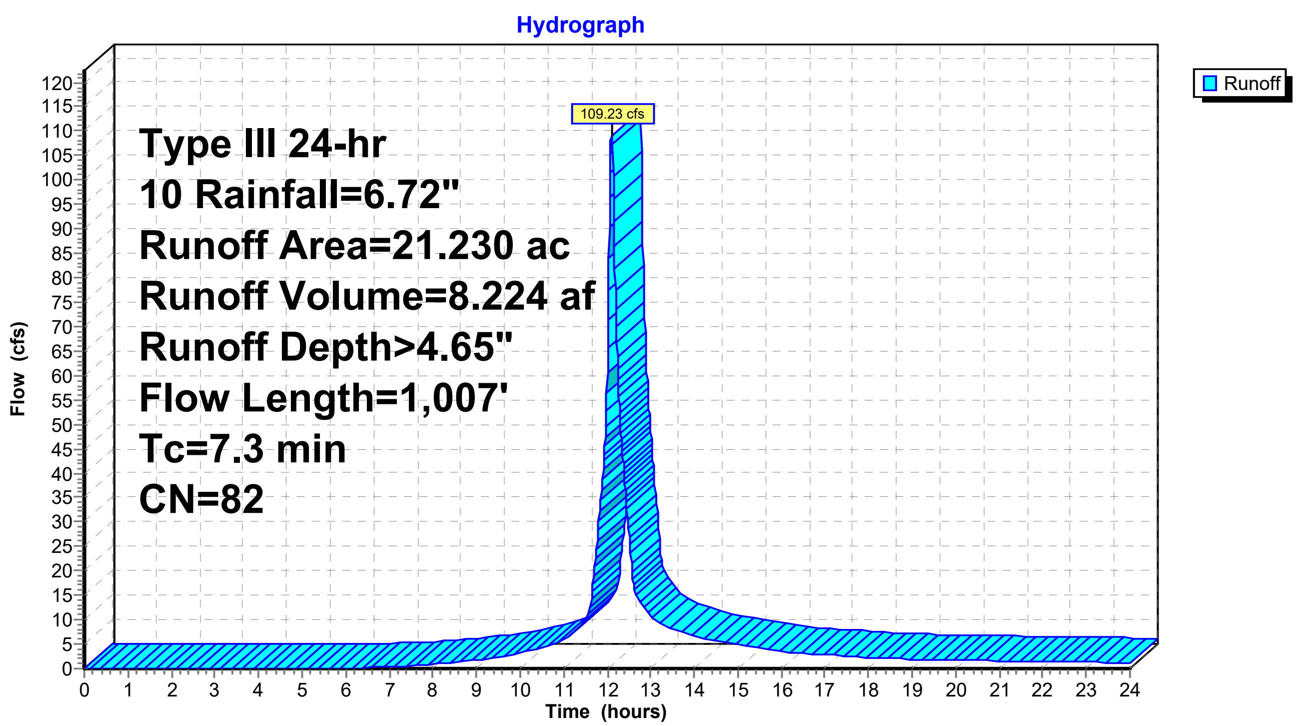
Runoff = 109.23 cfs @ 12.10 hrs, Volume= 8.224 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
	14.320	74	>75% Grass cover, Good, HSG C
*	2.850	98	Houses
*	3.410	98	Roads and Walkways
*	0.650	98	NWL Pond
	21.230	82	Weighted Average
	14.320		67.45% Pervious Area
	6.910		32.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	55	0.0300	0.21		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
2.9	952	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
7.3	1,007	Total			

Subcatchment POST #5: POST-DEVELOPED BASIN #5



Summary for Subcatchment POST #6: POST-DEVELOPED BASIN #6

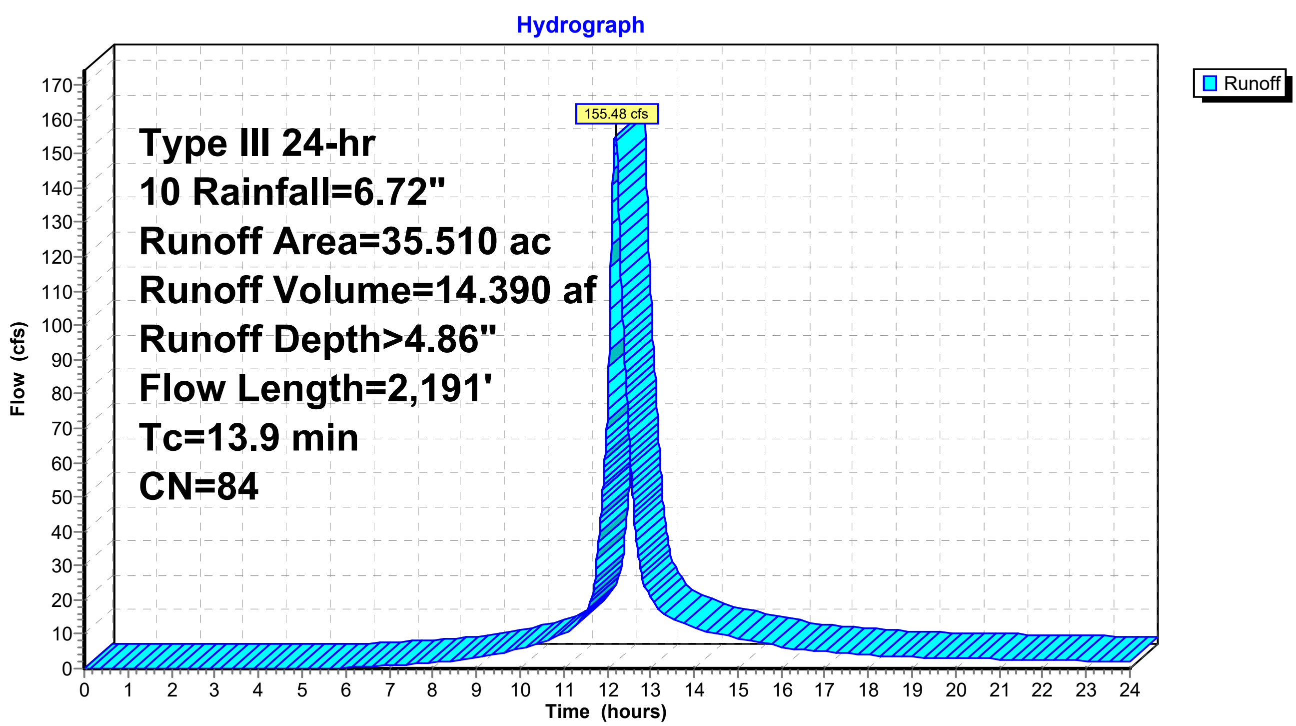
Runoff = 155.48 cfs @ 12.19 hrs, Volume= 14.390 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
	21.070	74	>75% Grass cover, Good, HSG C
*	5.180	98	Houses
*	5.540	98	Roads and Walkways
*	3.720	98	NWL Pond
	35.510	84	Weighted Average
	21.070		59.34% Pervious Area
	14.440		40.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0200	0.19		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
6.5	2,106	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
13.9	2,191	Total			

Subcatchment POST #6: POST-DEVELOPED BASIN #6



Summary for Pond POST-1P: POND 1

Inflow Area = 17.790 ac, 35.69% Impervious, Inflow Depth > 4.76" for 10 event
Inflow = 95.67 cfs @ 12.09 hrs, Volume= 7.055 af
Outflow = 16.48 cfs @ 12.13 hrs, Volume= 5.905 af, Atten= 83%, Lag= 2.1 min
Primary = 16.48 cfs @ 12.13 hrs, Volume= 5.905 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 37,128 sf Storage= 113,417 cf
Peak Elev= 13.14' @ 12.89 hrs Surf.Area= 70,678 sf Storage= 284,023 cf (170,606 cf above start)

Plug-Flow detention time= 410.8 min calculated for 3.300 af (47% of inflow)
Center-of-Mass det. time= 167.3 min (969.1 - 801.8)

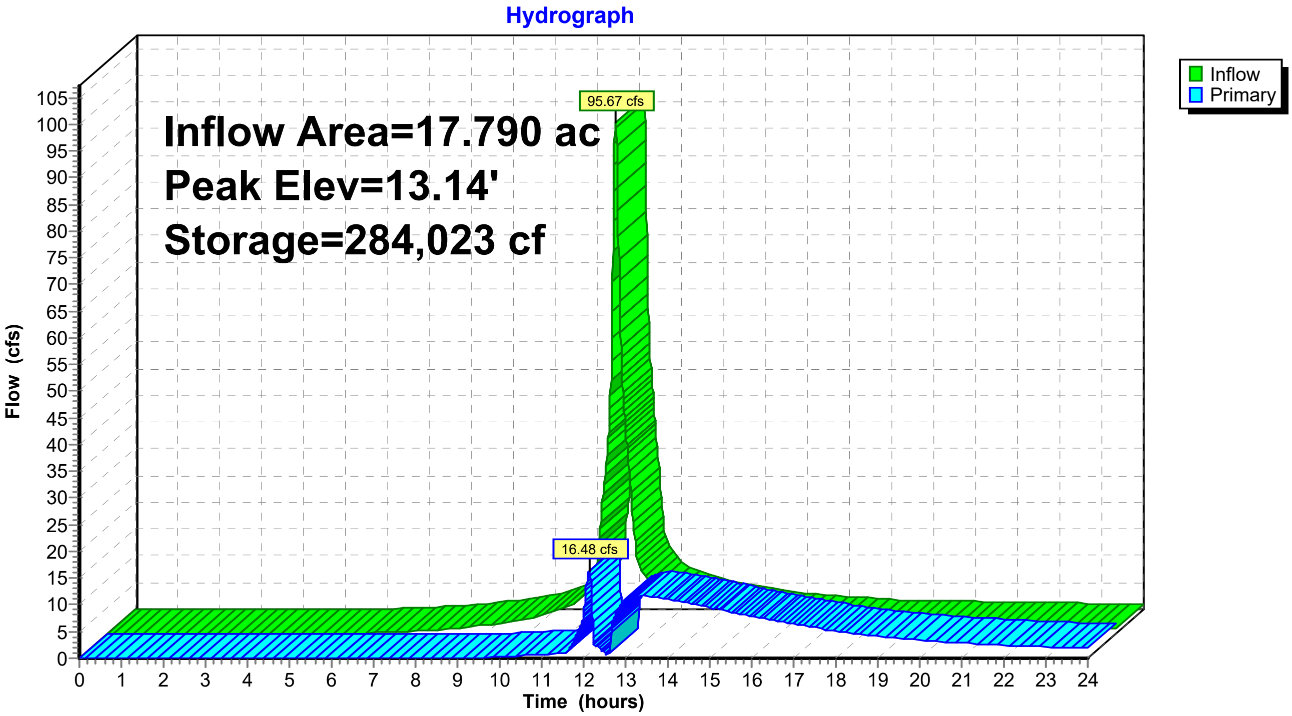
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	910,381 cf	**POND 1 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	26,411	0	0
9.97	37,128	113,417	113,417
15.00	90,446	320,849	434,266
20.00	100,000	476,115	910,381

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.11' S= 0.0143 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	9.97'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 7.89' S= 0.0145 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	10.14'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.02' S= 0.0148 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=11.66 cfs @ 12.13 hrs HW=12.16' TW=12.11' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 3.91 cfs @ 1.27 fps)
├─**2=RCP_Round 30"** (Outlet Controls 4.37 cfs @ 1.28 fps)
└─**3=RCP_Round 30"** (Outlet Controls 3.37 cfs @ 1.09 fps)

Pond POST-1P: POND 1



Summary for Pond POST-2P: POND 2

[80] Warning: Exceeded Pond POST-1P by 0.02' @ 12.25 hrs (10.12 cfs 0.313 af)

Inflow Area = 34.050 ac, 32.98% Impervious, Inflow Depth > 4.41" for 10 event
Inflow = 103.82 cfs @ 12.10 hrs, Volume= 12.502 af
Outflow = 23.36 cfs @ 13.39 hrs, Volume= 11.182 af, Atten= 78%, Lag= 77.0 min
Primary = 23.36 cfs @ 13.39 hrs, Volume= 11.182 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 44,416 sf Storage= 133,705 cf
Peak Elev= 13.12' @ 12.84 hrs Surf.Area= 75,977 sf Storage= 323,289 cf (189,584 cf above start)

Plug-Flow detention time= 302.9 min calculated for 8.112 af (65% of inflow)
Center-of-Mass det. time= 107.1 min (986.7 - 879.6)

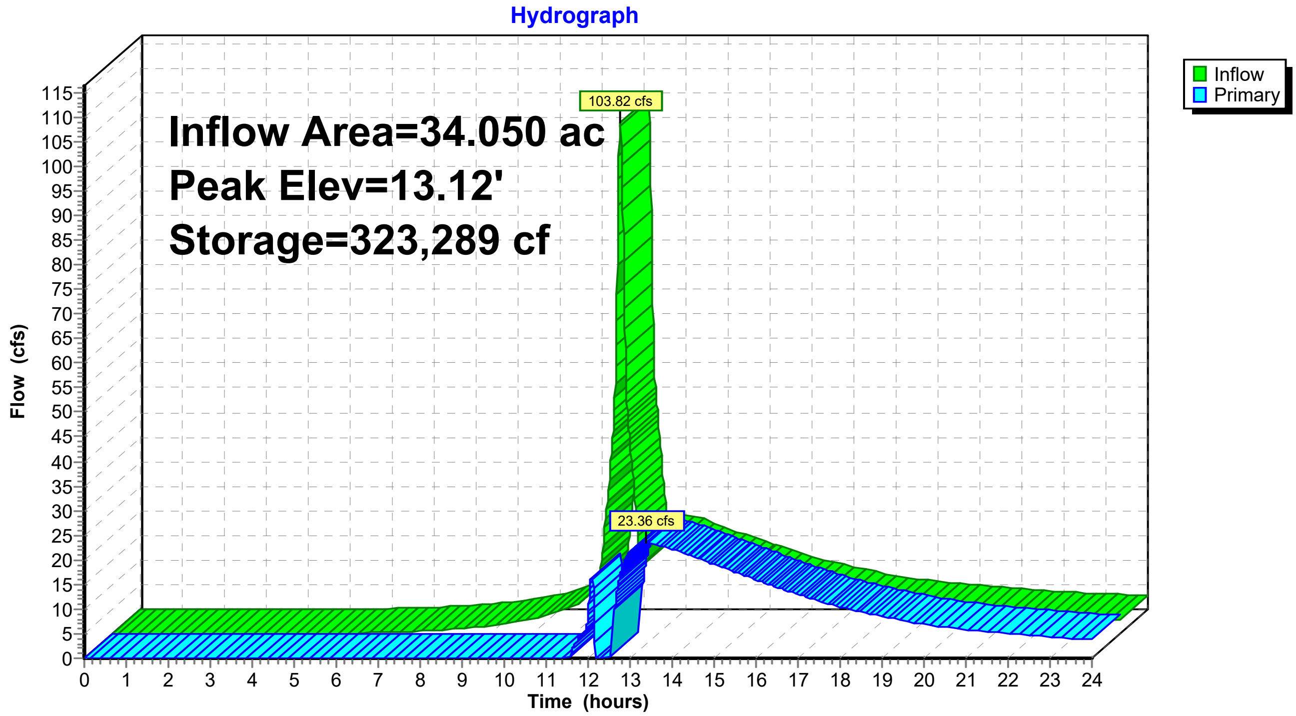
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	970,944 cf	**POND 2 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	30,489	0	0
9.97	44,416	133,705	133,705
15.00	94,822	350,184	483,889
20.00	100,000	487,055	970,944

Device	Routing	Invert	Outlet Devices
#1	Primary	8.20'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.18' / 8.20' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	8.18'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.15' / 8.18' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	8.12'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.12' / 8.10' S= 0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#4	Primary	8.07'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.07' / 8.06' S= 0.0001 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf

Primary OutFlow Max=24.01 cfs @ 13.39 hrs HW=13.03' TW=12.99' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 6.00 cfs @ 1.22 fps)
├─**2=RCP_Round 30"** (Outlet Controls 6.00 cfs @ 1.22 fps)
├─**3=RCP_Round 30"** (Outlet Controls 6.00 cfs @ 1.22 fps)
└─**4=RCP_Round 30"** (Outlet Controls 6.00 cfs @ 1.22 fps)

Pond POST-2P: POND 2



Summary for Pond POST-2PA: POND 2A

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 4.98" for 10 event
Inflow = 87.18 cfs @ 12.09 hrs, Volume= 6.474 af
Outflow = 58.75 cfs @ 12.18 hrs, Volume= 6.358 af, Atten= 33%, Lag= 5.4 min
Primary = 58.75 cfs @ 12.18 hrs, Volume= 6.358 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.47' @ 12.18 hrs Surf.Area= 35,930 sf Storage= 162,342 cf (53,620 cf above start)

Plug-Flow detention time= 210.8 min calculated for 3.862 af (60% of inflow)
Center-of-Mass det. time= 27.0 min (823.1 - 796.1)

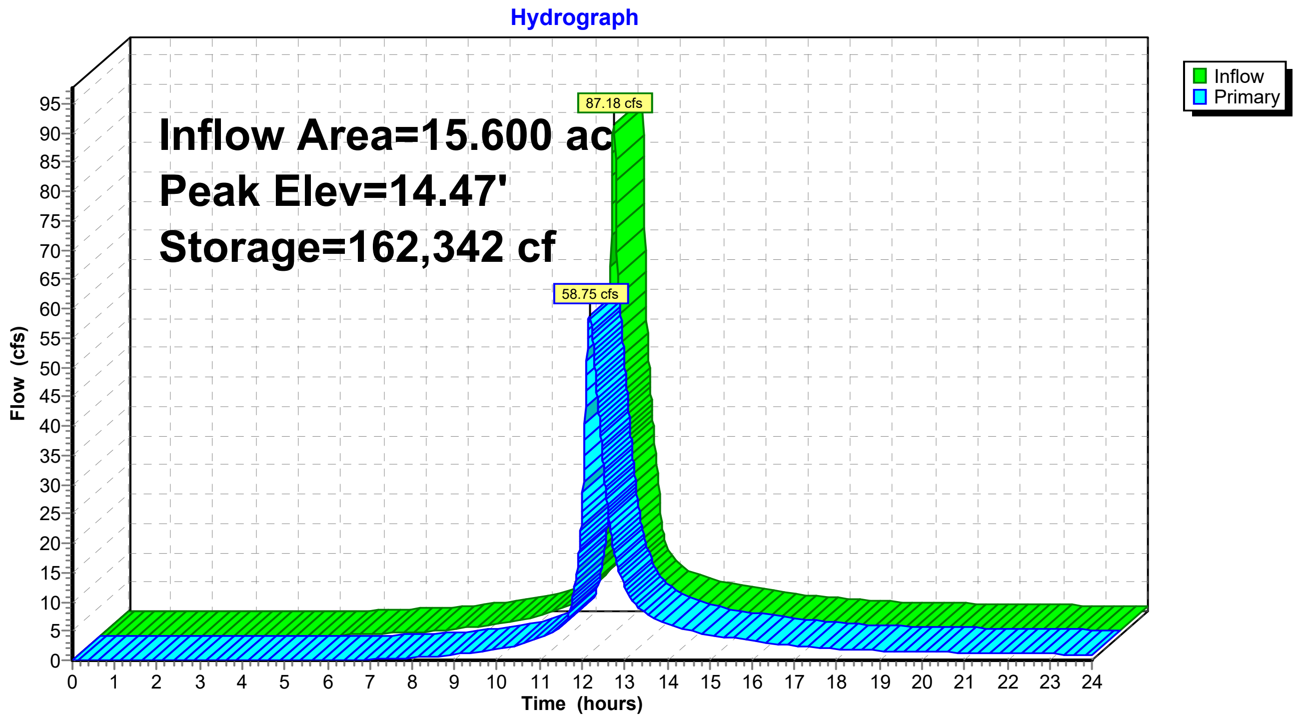
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=58.73 cfs @ 12.18 hrs HW=14.47' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 58.73 cfs @ 3.64 fps)

Pond POST-2PA: POND 2A



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.12' @ 12.36 hrs (39.75 cfs 5.104 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 4.26" for 10 event
Inflow = 128.78 cfs @ 12.12 hrs, Volume= 26.095 af
Outflow = 50.37 cfs @ 13.00 hrs, Volume= 24.440 af, Atten= 61%, Lag= 52.7 min
Primary = 50.37 cfs @ 13.00 hrs, Volume= 24.440 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 13.09' @ 12.75 hrs Surf.Area= 81,567 sf Storage= 402,725 cf (219,281 cf above start)

Plug-Flow detention time= 193.1 min calculated for 20.228 af (78% of inflow)
Center-of-Mass det. time= 59.9 min (971.5 - 911.6)

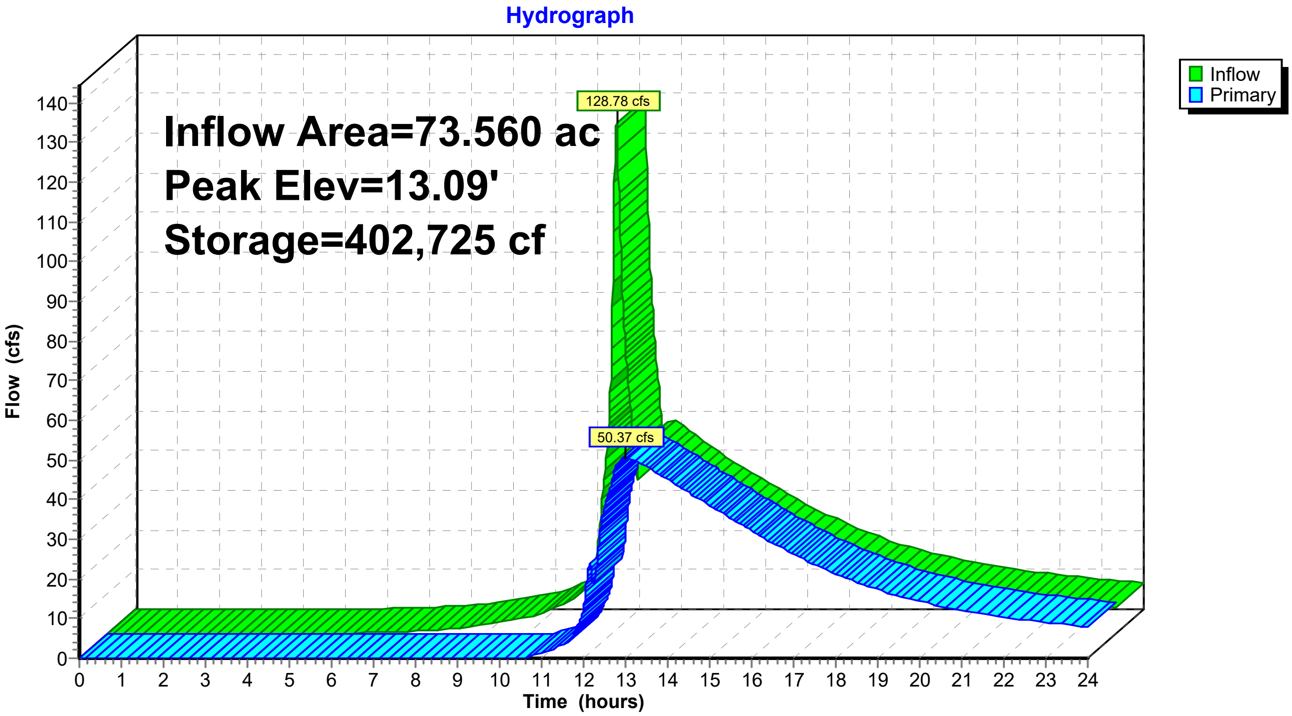
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=50.55 cfs @ 13.00 hrs HW=13.07' TW=12.80' (Dynamic Tailwater)
├—**1=RCP_Round 36"** (Outlet Controls 17.21 cfs @ 3.11 fps)
├—**2=RCP_Round 36"** (Outlet Controls 18.35 cfs @ 3.12 fps)
└—**3=RCP_Round 36"** (Outlet Controls 14.98 cfs @ 2.70 fps)

Pond POST-3P: POND 3



Summary for Pond POST-3PA: POND 3A

[44] Hint: Outlet device #1 is below defined storage
[80] Warning: Exceeded Pond POST-3PB by 0.05' @ 12.16 hrs (5.90 cfs 0.151 af)

Inflow Area = 16.210 ac, 30.00% Impervious, Inflow Depth > 4.61" for 10 event
Inflow = 42.02 cfs @ 12.15 hrs, Volume= 6.221 af
Outflow = 16.64 cfs @ 12.63 hrs, Volume= 5.891 af, Atten= 60%, Lag= 28.7 min
Primary = 16.64 cfs @ 12.63 hrs, Volume= 5.891 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.25' @ 12.62 hrs Surf.Area= 25,006 sf Storage= 61,450 cf

Plug-Flow detention time= 92.6 min calculated for 5.888 af (95% of inflow)
Center-of-Mass det. time= 65.0 min (929.4 - 864.4)

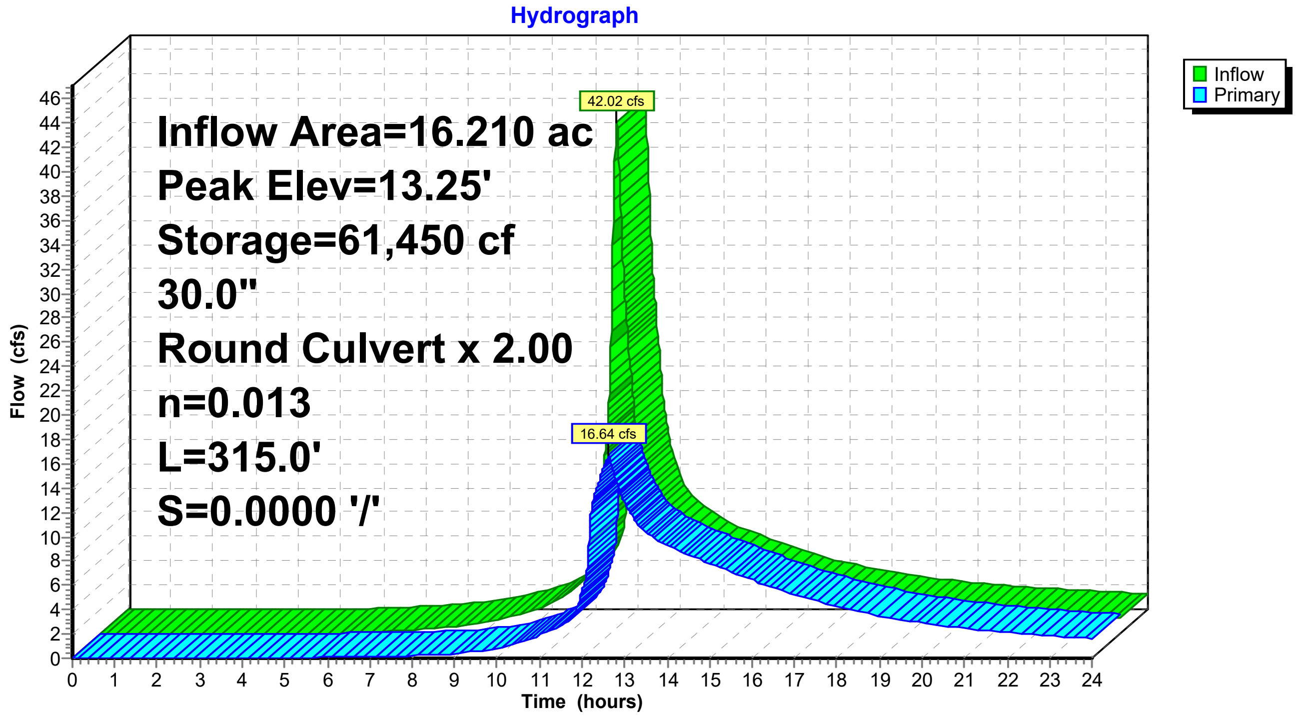
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	247,412 cf	**POND 3A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,127	0	0
14.40	27,784	91,822	91,822
20.00	27,784	155,590	247,412

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 315.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=16.62 cfs @ 12.63 hrs HW=13.25' TW=13.08' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 16.62 cfs @ 1.75 fps)

Pond POST-3PA: POND 3A



Summary for Pond POST-3PB: POND 3B

[44] Hint: Outlet device #1 is below defined storage

Inflow Area = 7.410 ac, 30.00% Impervious, Inflow Depth > 4.87" for 10 event
Inflow = 35.18 cfs @ 12.15 hrs, Volume= 3.004 af
Outflow = 7.11 cfs @ 12.70 hrs, Volume= 2.654 af, Atten= 80%, Lag= 33.0 min
Primary = 7.11 cfs @ 12.70 hrs, Volume= 2.654 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.28' @ 12.65 hrs Surf.Area= 25,952 sf Storage= 64,749 cf

Plug-Flow detention time= 196.9 min calculated for 2.653 af (88% of inflow)
Center-of-Mass det. time= 143.5 min (946.2 - 802.7)

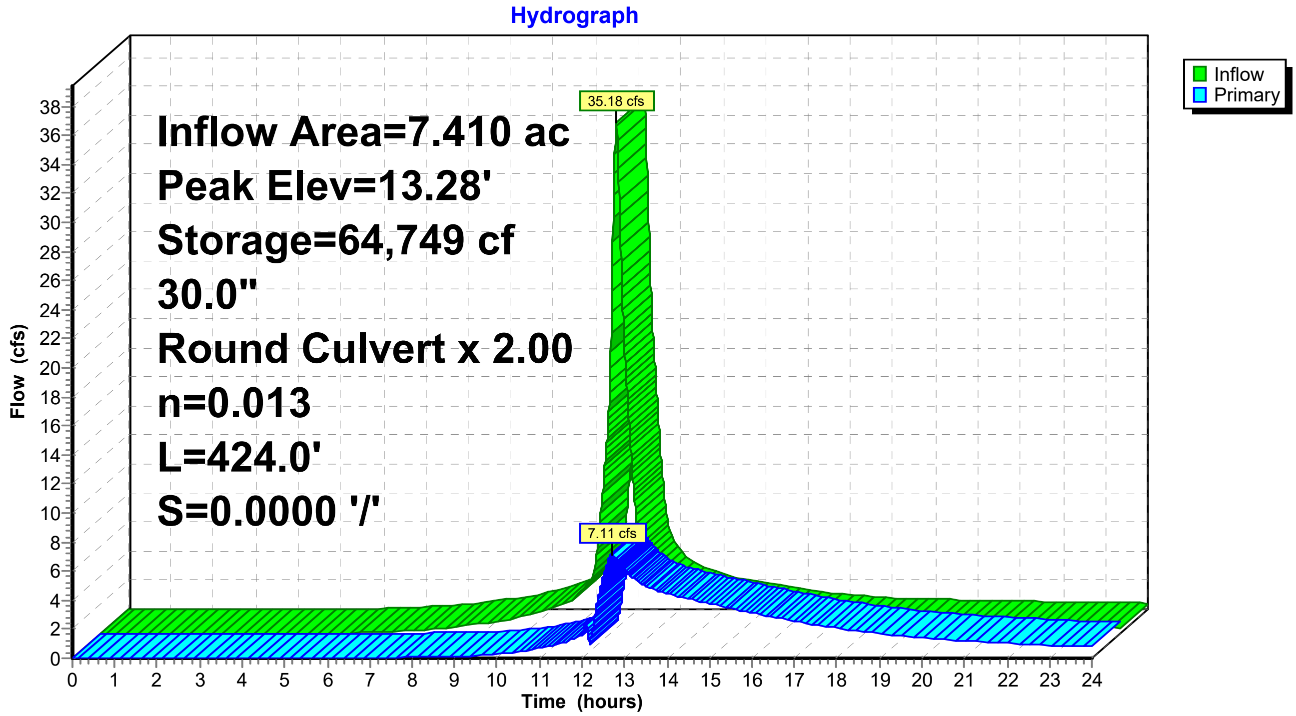
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	255,727 cf	**POND 3B (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,948	0	0
14.40	28,662	95,220	95,220
20.00	28,662	160,507	255,727

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 424.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=7.26 cfs @ 12.70 hrs HW=13.28' TW=13.24' (Dynamic Tailwater)
1=RCP_Round 30" (Outlet Controls 7.26 cfs @ 0.76 fps)

Pond POST-3PB: POND 3B



Summary for Pond POST-4P: POND 4

[80] Warning: Exceeded Pond POST-3P by 0.12' @ 9.42 hrs (0.46 cfs 0.088 af)

Inflow Area = 95.820 ac, 32.49% Impervious, Inflow Depth > 4.16" for 10 event
Inflow = 113.95 cfs @ 12.18 hrs, Volume= 33.254 af
Outflow = 82.08 cfs @ 12.38 hrs, Volume= 32.637 af, Atten= 28%, Lag= 12.2 min
Primary = 82.08 cfs @ 12.38 hrs, Volume= 32.637 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 25,099 sf Storage= 71,286 cf
Peak Elev= 12.92' @ 12.54 hrs Surf.Area= 39,698 sf Storage= 166,725 cf (95,439 cf above start)

Plug-Flow detention time= 65.0 min calculated for 30.988 af (93% of inflow)
Center-of-Mass det. time= 19.5 min (947.7 - 928.3)

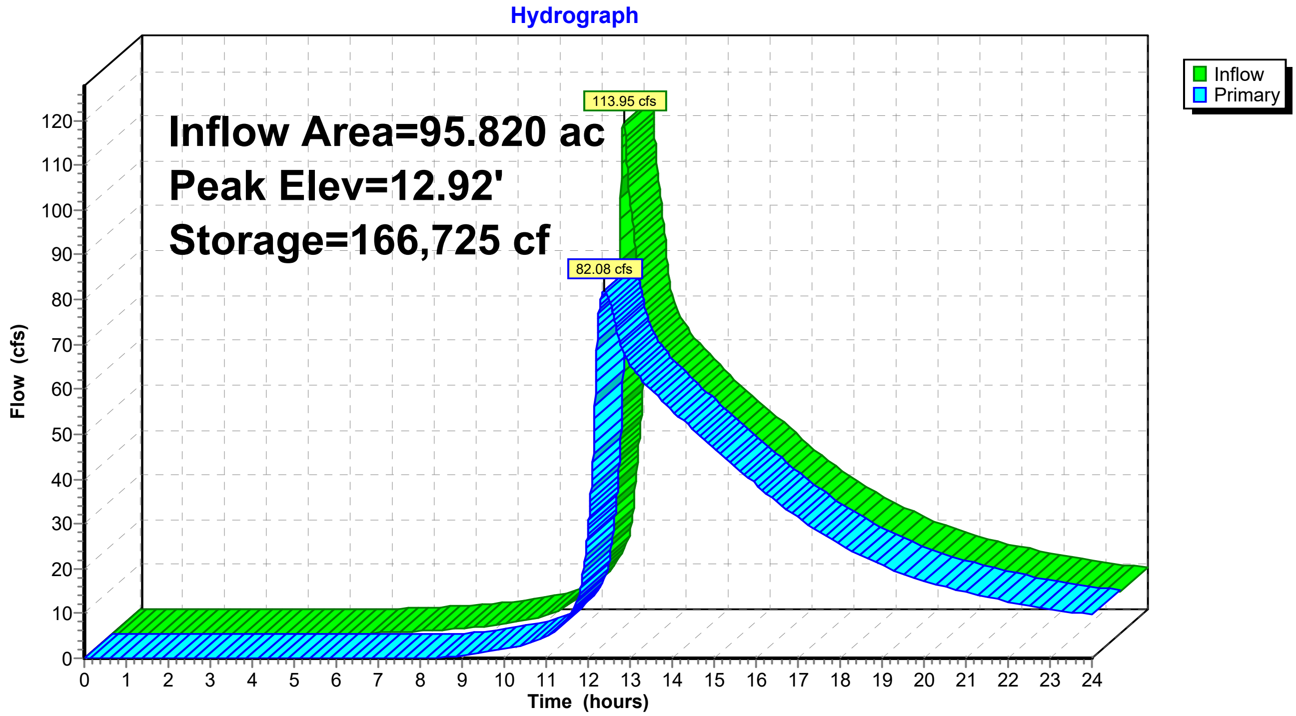
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	635,290 cf	**POND 4 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	14,837	0	0
9.97	25,099	71,286	71,286
15.00	50,026	188,939	260,225
20.00	100,000	375,065	635,290

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0109 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0097 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0098 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=81.32 cfs @ 12.38 hrs HW=12.85' TW=11.98' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 27.63 cfs @ 5.45 fps)
├─**2=RCP_Round 36"** (Outlet Controls 29.83 cfs @ 5.48 fps)
└─**3=RCP_Round 36"** (Outlet Controls 23.85 cfs @ 4.69 fps)

Pond POST-4P: POND 4



Summary for Pond POST-5P: POND 5

Inflow Area = 117.050 ac, 32.50% Impervious, Inflow Depth > 4.19" for 10 event
Inflow = 153.06 cfs @ 12.12 hrs, Volume= 40.861 af
Outflow = 105.43 cfs @ 12.20 hrs, Volume= 39.910 af, Atten= 31%, Lag= 5.0 min
Primary = 105.43 cfs @ 12.20 hrs, Volume= 39.910 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 39,178 sf Storage= 132,791 cf
Peak Elev= 12.22' @ 12.91 hrs Surf.Area= 47,533 sf Storage= 253,830 cf (121,039 cf above start)

Plug-Flow detention time= 85.9 min calculated for 36.862 af (90% of inflow)
Center-of-Mass det. time= 20.3 min (939.4 - 919.0)

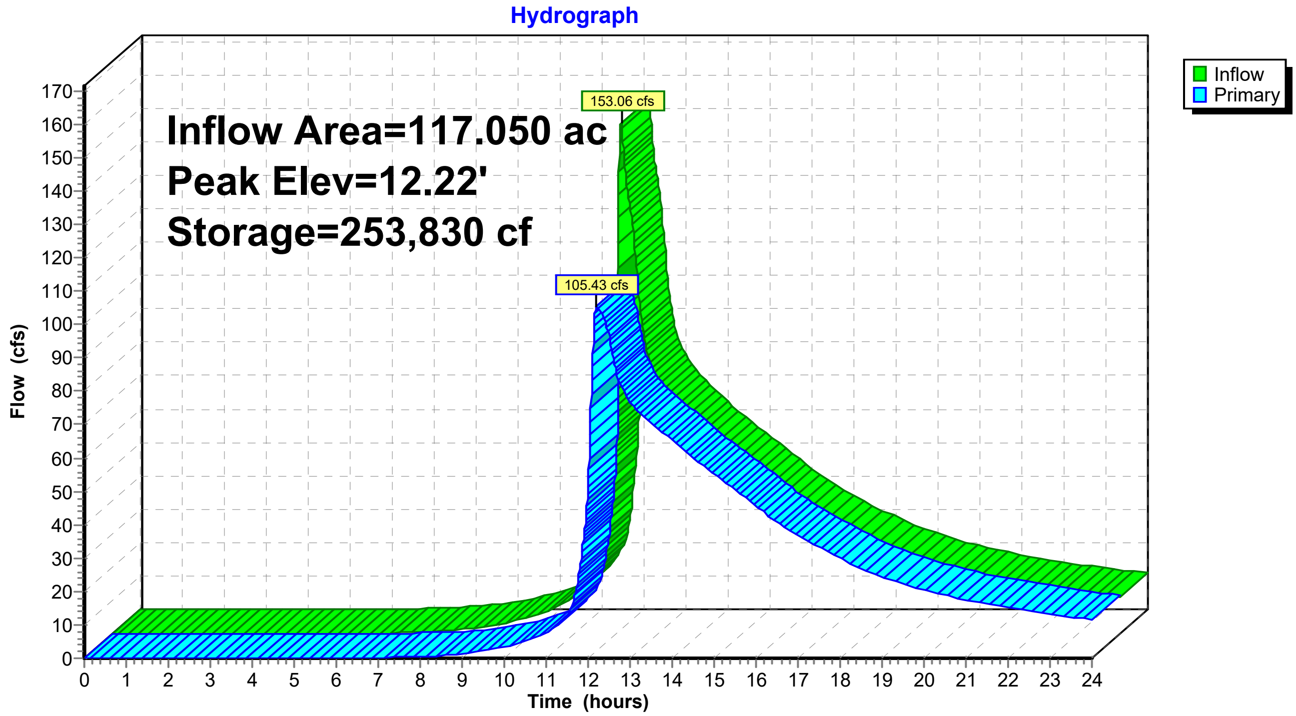
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	785,627 cf	**POND 5 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	28,400	0	0
9.50	39,370	135,540	135,540
15.10	56,162	267,490	403,030
20.00	100,000	382,597	785,627

Device	Routing	Invert	Outlet Devices
#1	Primary	8.59'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.59' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	8.52'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.52' / 8.43' S= 0.0007 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.63' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#4	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.35' / 8.63' S= -0.0022 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=101.83 cfs @ 12.20 hrs HW=11.60' TW=11.09' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 25.58 cfs @ 4.49 fps)
├─**2=RCP_Round 36"** (Outlet Controls 26.20 cfs @ 4.49 fps)
├─**3=RCP_Round 36"** (Outlet Controls 25.58 cfs @ 4.49 fps)
└─**4=RCP_Round 36"** (Outlet Controls 24.48 cfs @ 3.98 fps)

Pond POST-5P: POND 5



Summary for Pond POST-6P: POND 6

Inflow Area = 152.560 ac, 34.40% Impervious, Inflow Depth > 4.27" for 10 event
Inflow = 260.68 cfs @ 12.19 hrs, Volume= 54.300 af
Outflow = 95.34 cfs @ 13.06 hrs, Volume= 49.698 af, Atten= 63%, Lag= 52.0 min
Primary = 95.34 cfs @ 13.06 hrs, Volume= 49.698 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 196,792 sf Storage= 705,109 cf
Peak Elev= 12.01' @ 13.06 hrs Surf.Area= 220,159 sf Storage= 1,242,132 cf (537,023 cf above start)

Plug-Flow detention time= 291.8 min calculated for 33.497 af (62% of inflow)
Center-of-Mass det. time= 71.2 min (975.0 - 903.8)

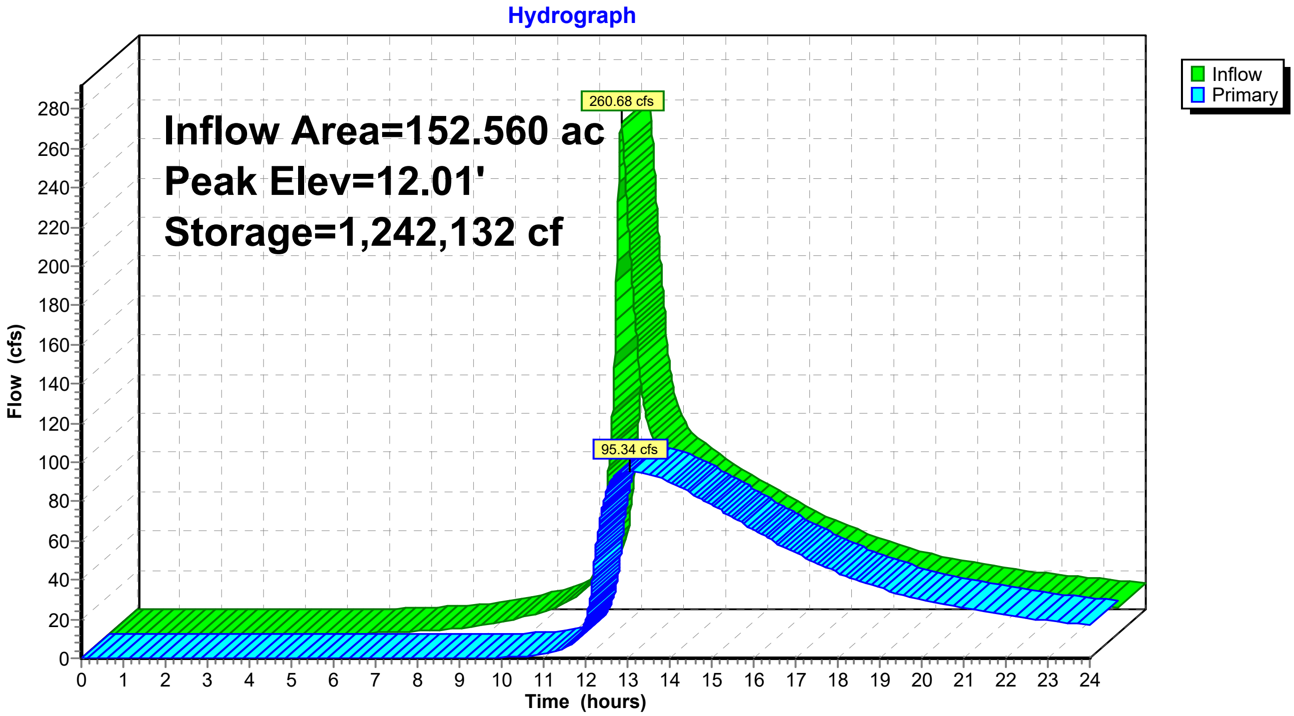
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	3,128,709 cf	**POND 6 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	162,042	0	0
9.50	197,411	718,906	718,906
14.00	238,258	980,255	1,699,161
20.00	238,258	1,429,548	3,128,709

Device	Routing	Invert	Outlet Devices
#1	Primary	9.91'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.91' / 9.89' S= 0.0004 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Primary	9.53'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.53' / 9.41' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#3	Primary	9.43'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.42' / 9.43' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#4	Primary	9.52'	**24.0" Round RCP_Round 24" X 3.00** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.52' / 9.43' S= 0.0019 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

Primary OutFlow Max=95.34 cfs @ 13.06 hrs HW=12.01' (Free Discharge)
├─**1=RCP_Round 24"** (Barrel Controls 12.67 cfs @ 4.78 fps)
├─**2=RCP_Round 24"** (Barrel Controls 16.87 cfs @ 5.55 fps)
├─**3=RCP_Round 24"** (Barrel Controls 16.03 cfs @ 5.15 fps)
└─**4=RCP_Round 24"** (Barrel Controls 49.76 cfs @ 5.44 fps)

Pond POST-6P: POND 6



Summary for Subcatchment POST #1: POST-DEVELOPED BASIN #1

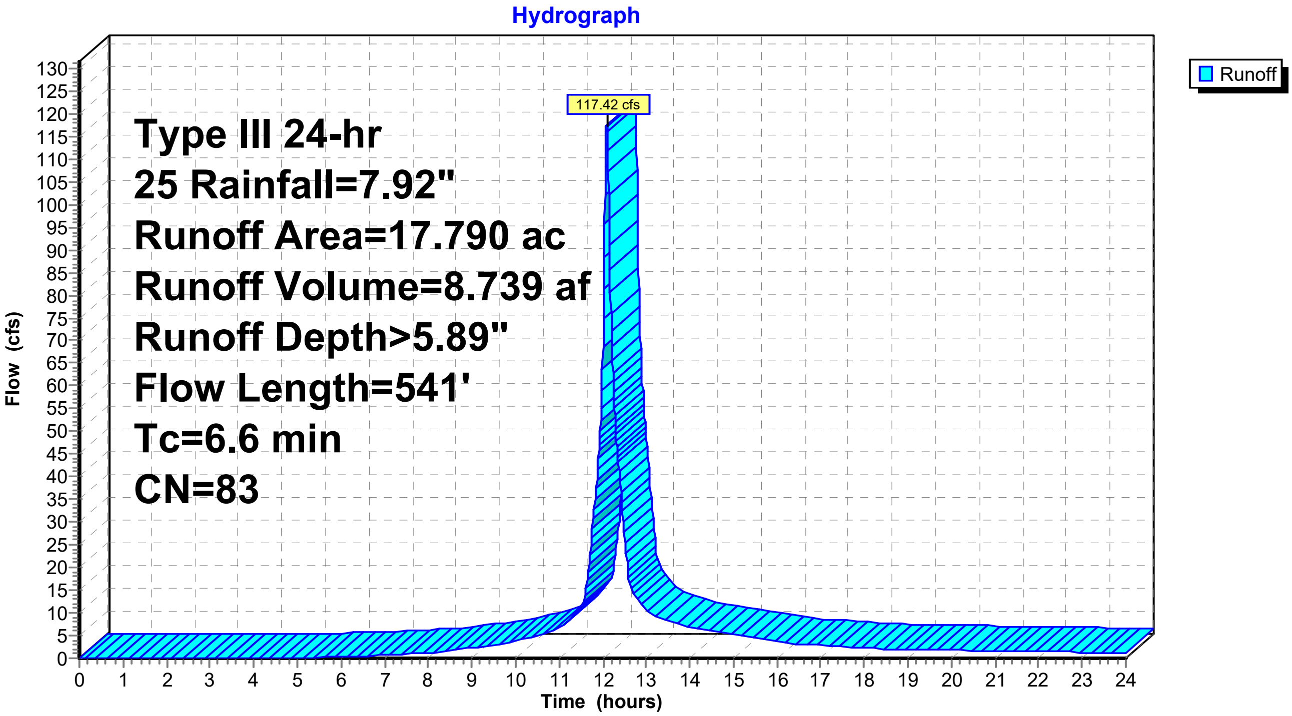
Runoff = 117.42 cfs @ 12.09 hrs, Volume= 8.739 af, Depth> 5.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
	11.440	74	>75% Grass cover, Good, HSG C
*	2.940	98	Houses
*	2.810	98	Roads and Walkways
*	0.600	98	NWL Pond
	17.790	83	Weighted Average
	11.440		64.31% Pervious Area
	6.350		35.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0200	0.17		**Sheet Flow, YARD** Grass: Short n= 0.150 P2= 4.34"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, POST-DEV BASIN 1-SCF** Paved Kv= 20.3 fps
1.9	447	0.0030	3.97	19.47	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.015 Concrete sewer w/manholes & inlets
6.6	541	Total			

Subcatchment POST #1: POST-DEVELOPED BASIN #1



Summary for Subcatchment POST #2: POST-DEVELOPED BASIN #2

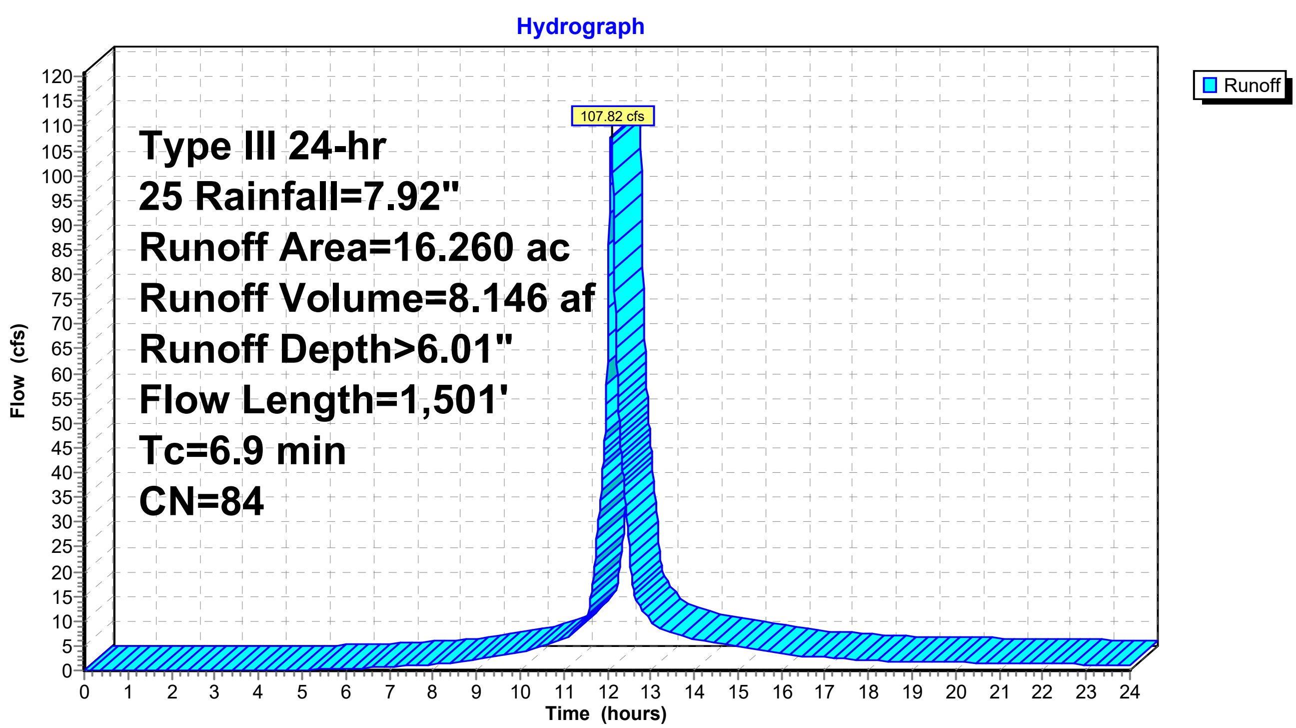
Runoff = 107.82 cfs @ 12.10 hrs, Volume= 8.146 af, Depth> 6.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	16.260	84	SFR lots, 30% imp, HSG D
	11.382		70.00% Pervious Area
	4.878		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2: POST-DEVELOPED BASIN #2



Summary for Subcatchment POST #2A: POST-DEVELOPED BASIN #2A

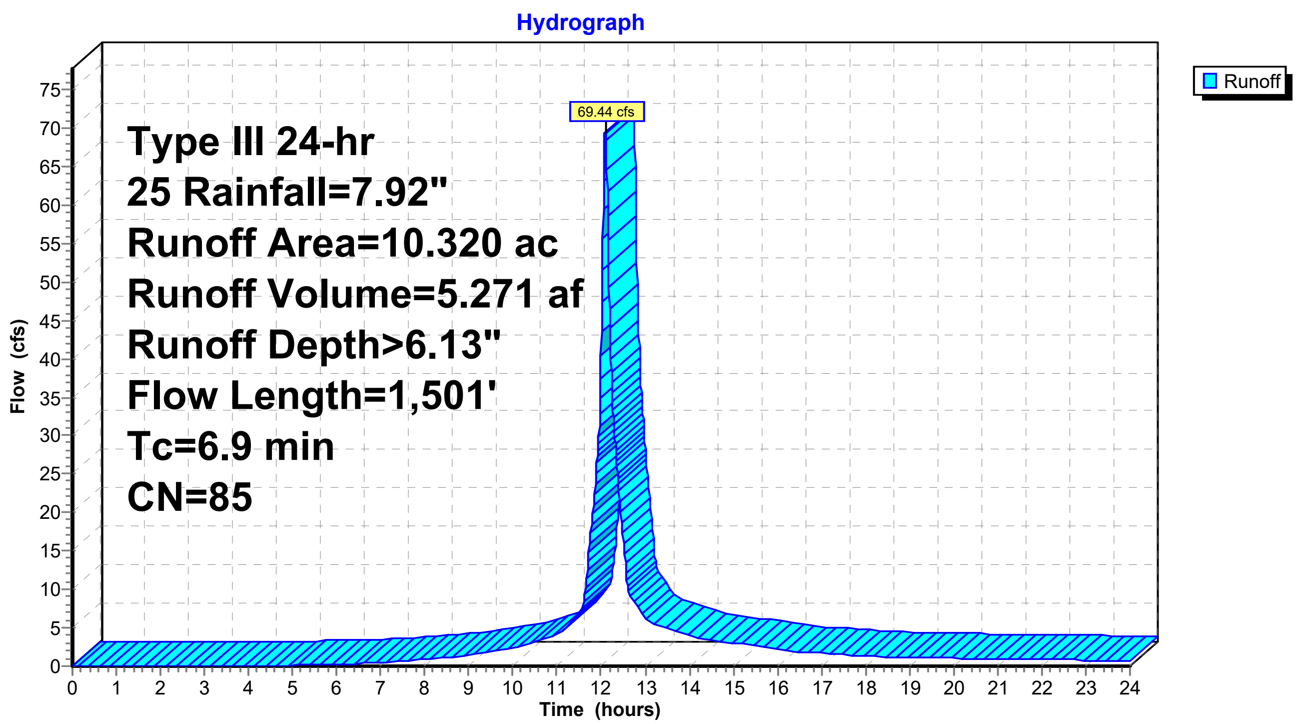
Runoff = 69.44 cfs @ 12.10 hrs, Volume= 5.271 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	10.320	85	
	10.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2A: POST-DEVELOPED BASIN #2A



Summary for Subcatchment POST #3: POST-DEVELOPED BASIN #3

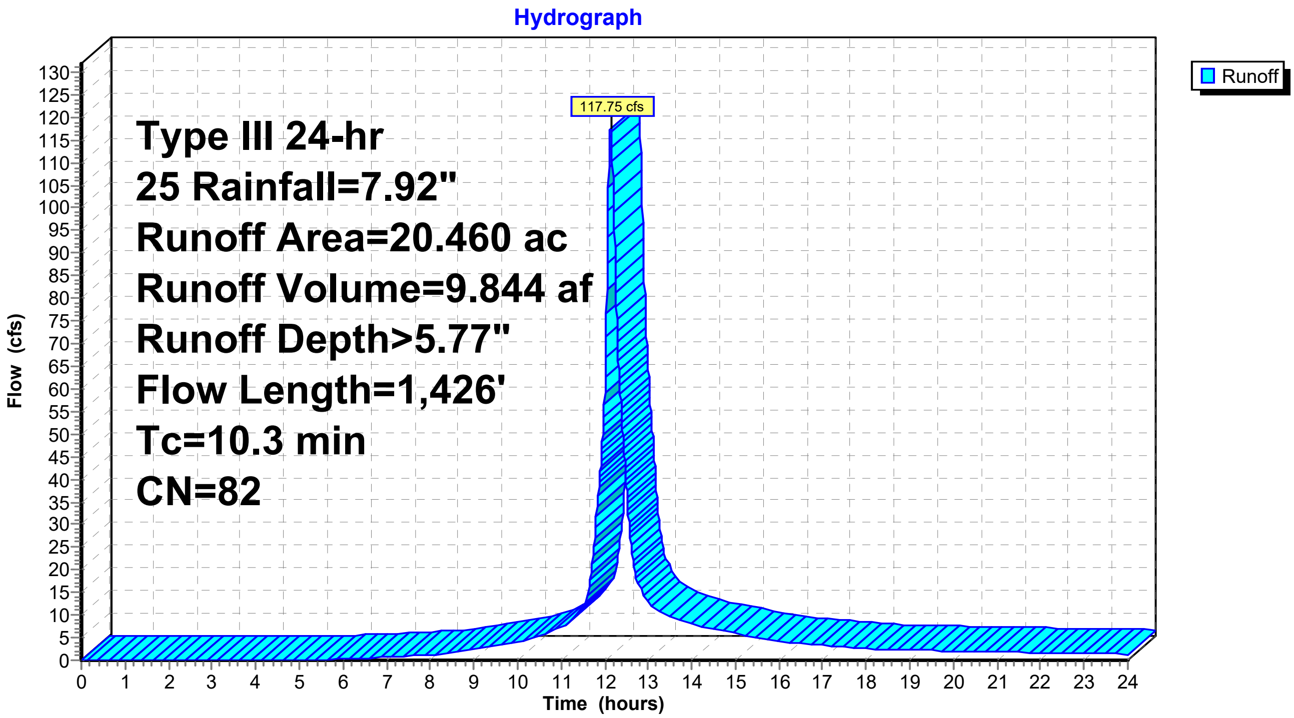
Runoff = 117.75 cfs @ 12.14 hrs, Volume= 9.844 af, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
	13.530	74	>75% Grass cover, Good, HSG C
*	2.480	98	Houses
*	3.570	98	Roads and Walkways
*	0.880	98	NWL Pond
	20.460	82	Weighted Average
	13.530		66.13% Pervious Area
	6.930		33.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0200	0.18		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
0.4	105	0.0100	4.86	24.28	**Channel Flow, REAR YARD SWALE** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
3.9	1,256	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
10.3	1,426	Total			

Subcatchment POST #3: POST-DEVELOPED BASIN #3



Summary for Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A

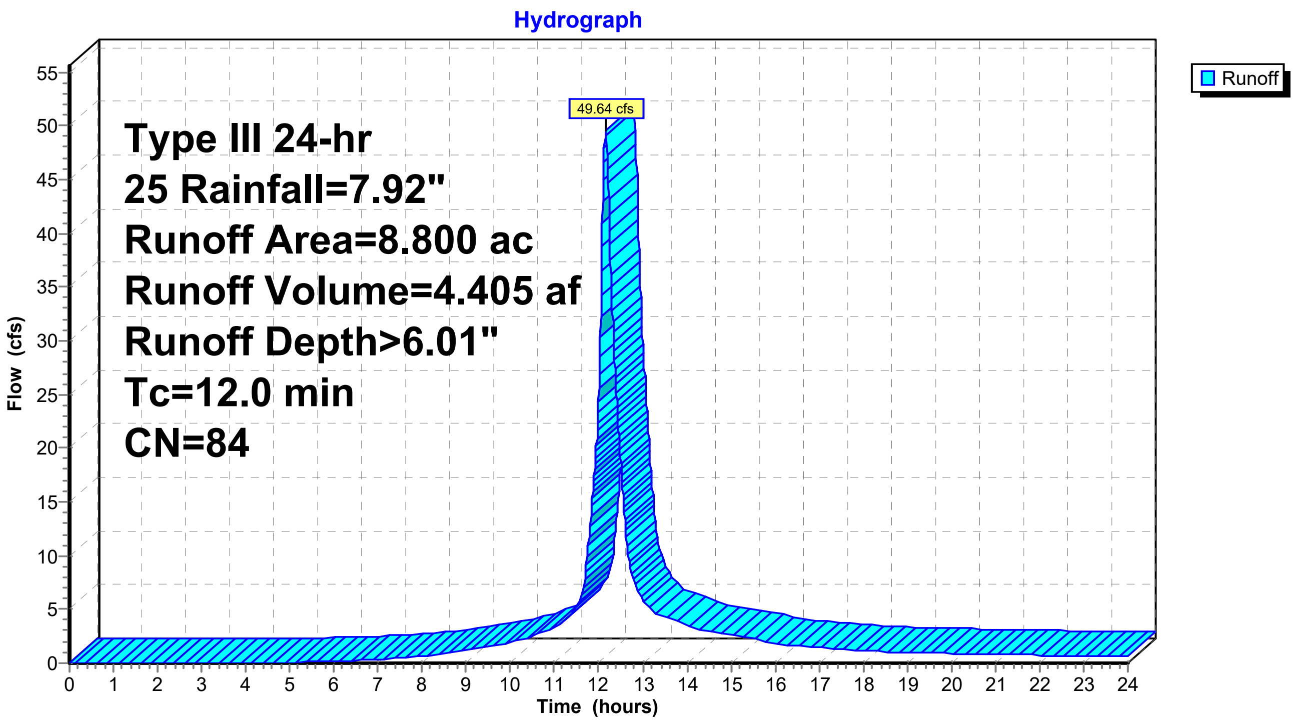
Runoff = 49.64 cfs @ 12.16 hrs, Volume= 4.405 af, Depth> 6.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	8.800	84	SFR lots, 30% imp, HSG D
	6.160		70.00% Pervious Area
	2.640		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A



Summary for Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B

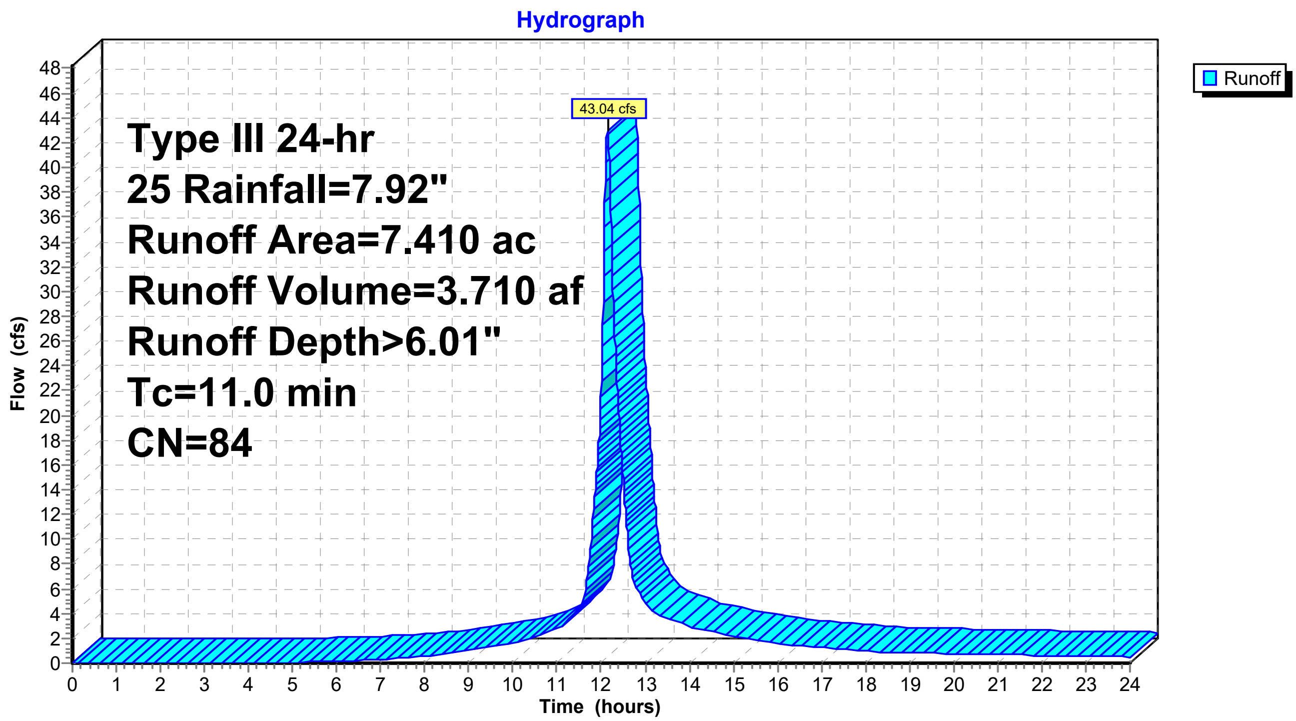
Runoff = 43.04 cfs @ 12.15 hrs, Volume= 3.710 af, Depth> 6.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	7.410	84	SFR lots, 30% imp, HSG D
	5.187		70.00% Pervious Area
	2.223		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0					**Direct Entry,**

Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B



Summary for Subcatchment POST #4: POST-DEVELOPED BASIN #4

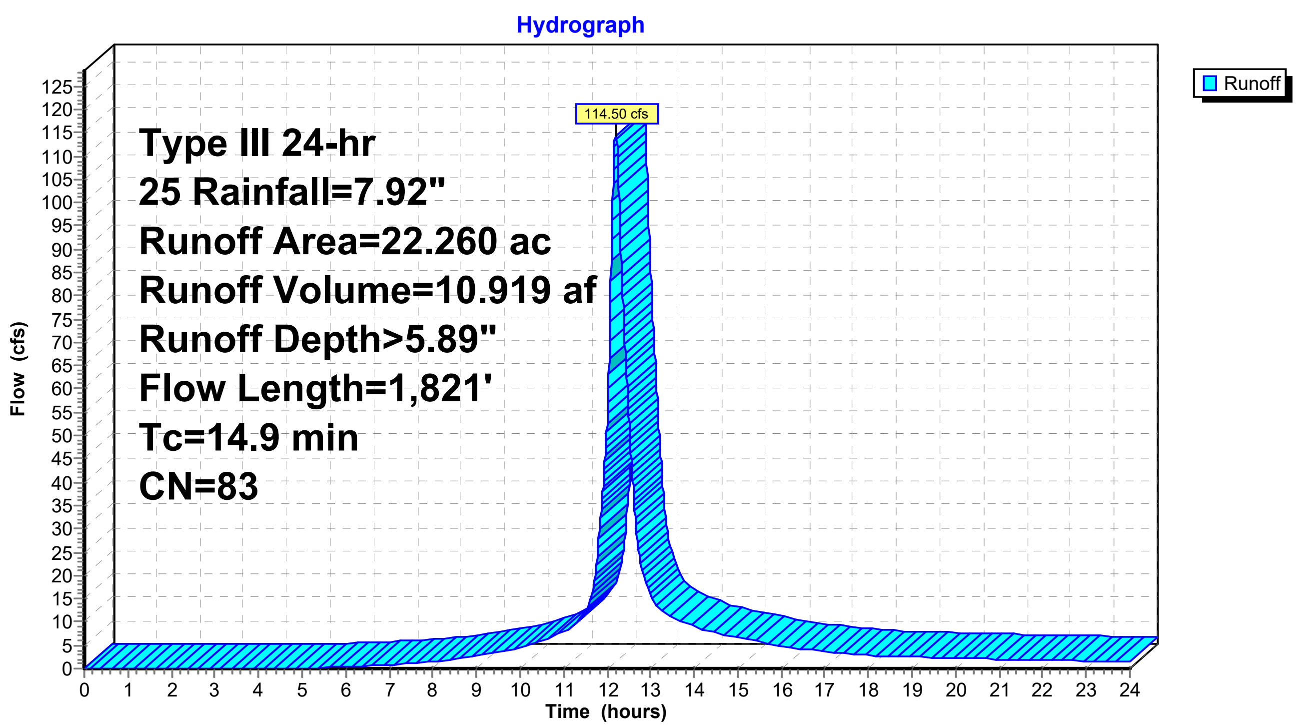
Runoff = 114.50 cfs @ 12.20 hrs, Volume= 10.919 af, Depth> 5.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
	14.150	74	>75% Grass cover, Good, HSG C
*	8.110	98	Houses, Roads and Walkways, NWL POND
	22.260	83	Weighted Average
	14.150		63.57% Pervious Area
	8.110		36.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0100	0.13		**Sheet Flow, POST DEV BASIN #4 - SHEET** Grass: Short n= 0.150 P2= 4.34"
3.5	300	0.0050	1.44		**Shallow Concentrated Flow, Gutter Basin 4** Paved Kv= 20.3 fps
4.5	1,466	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
14.9	1,821	Total			

Subcatchment POST #4: POST-DEVELOPED BASIN #4



Summary for Subcatchment POST #5: POST-DEVELOPED BASIN #5

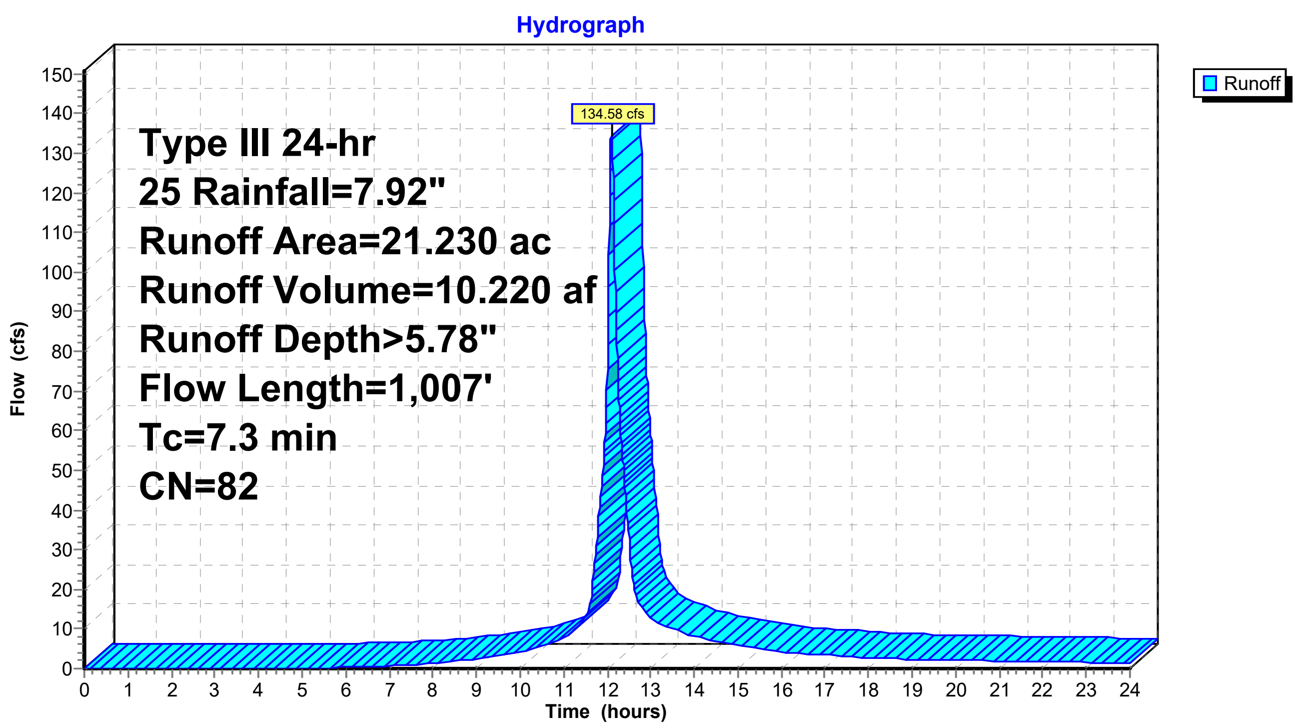
Runoff = 134.58 cfs @ 12.10 hrs, Volume= 10.220 af, Depth> 5.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
	14.320	74	>75% Grass cover, Good, HSG C
*	2.850	98	Houses
*	3.410	98	Roads and Walkways
*	0.650	98	NWL Pond
	21.230	82	Weighted Average
	14.320		67.45% Pervious Area
	6.910		32.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	55	0.0300	0.21		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
2.9	952	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
7.3	1,007	Total			

Subcatchment POST #5: POST-DEVELOPED BASIN #5



Summary for Subcatchment POST #6: POST-DEVELOPED BASIN #6

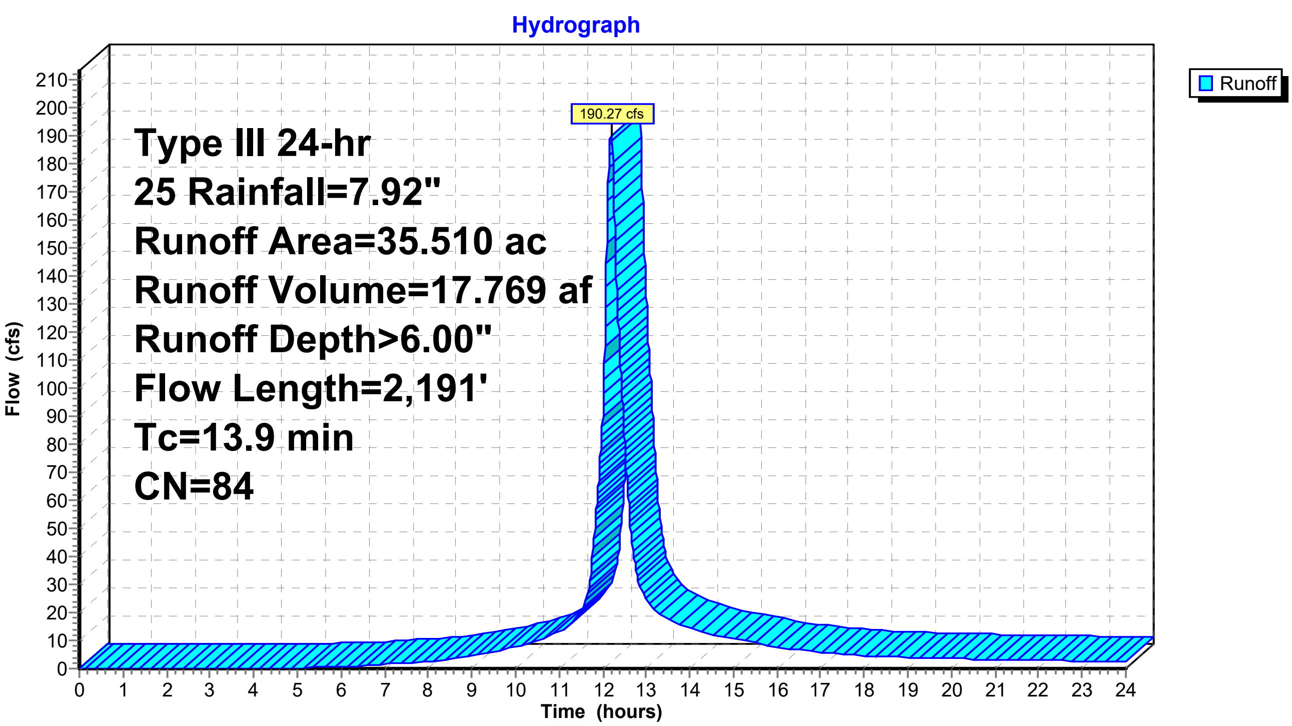
Runoff = 190.27 cfs @ 12.19 hrs, Volume= 17.769 af, Depth> 6.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
	21.070	74	>75% Grass cover, Good, HSG C
*	5.180	98	Houses
*	5.540	98	Roads and Walkways
*	3.720	98	NWL Pond
	35.510	84	Weighted Average
	21.070		59.34% Pervious Area
	14.440		40.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0200	0.19		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
6.5	2,106	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
13.9	2,191	Total			

Subcatchment POST #6: POST-DEVELOPED BASIN #6



Summary for Pond POST-1P: POND 1

Inflow Area = 17.790 ac, 35.69% Impervious, Inflow Depth > 5.89" for 25 event
Inflow = 117.42 cfs @ 12.09 hrs, Volume= 8.739 af
Outflow = 20.12 cfs @ 12.12 hrs, Volume= 7.476 af, Atten= 83%, Lag= 1.6 min
Primary = 20.12 cfs @ 12.12 hrs, Volume= 7.476 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 37,128 sf Storage= 113,417 cf
Peak Elev= 13.73' @ 12.93 hrs Surf.Area= 76,947 sf Storage= 327,681 cf (214,264 cf above start)

Plug-Flow detention time= 377.0 min calculated for 4.870 af (56% of inflow)
Center-of-Mass det. time= 172.5 min (968.4 - 795.9)

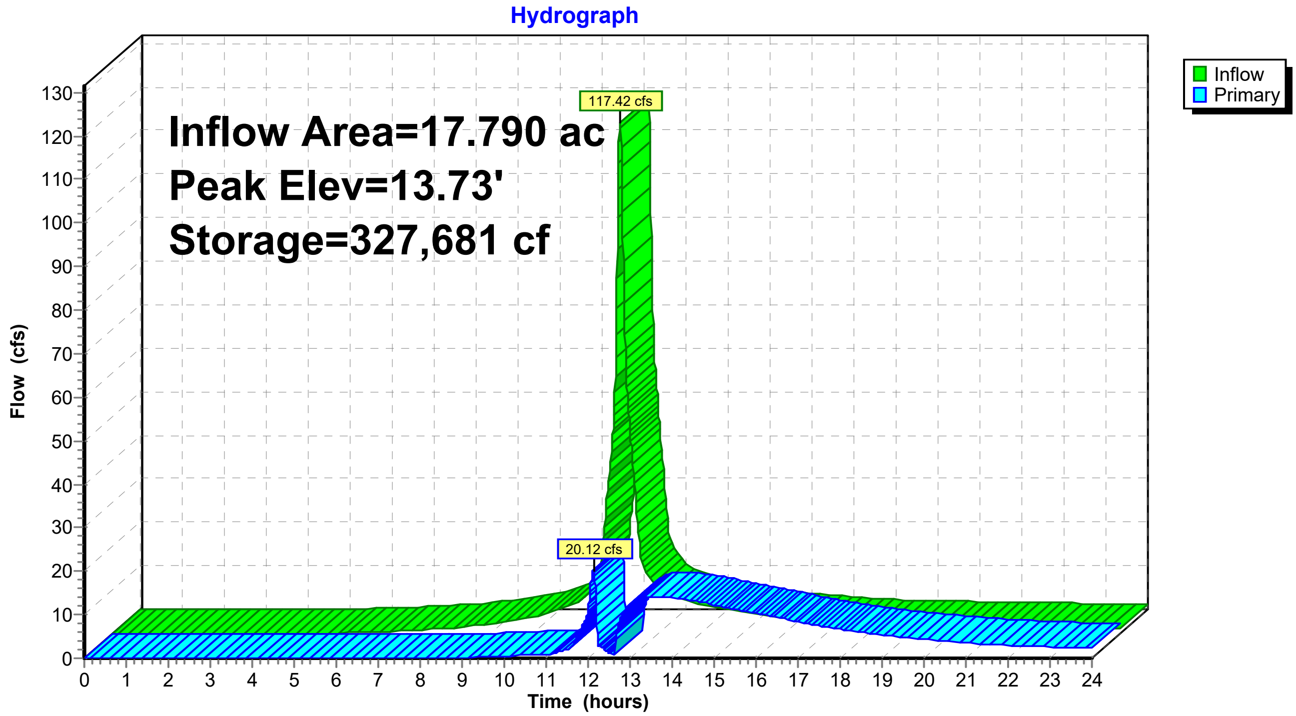
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	910,381 cf	**POND 1 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	26,411	0	0
9.97	37,128	113,417	113,417
15.00	90,446	320,849	434,266
20.00	100,000	476,115	910,381

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.11' S= 0.0143 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	9.97'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 7.89' S= 0.0145 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	10.14'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.02' S= 0.0148 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=12.86 cfs @ 12.12 hrs HW=12.55' TW=12.51' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 4.36 cfs @ 1.15 fps)
├─**2=RCP_Round 30"** (Outlet Controls 4.72 cfs @ 1.16 fps)
└─**3=RCP_Round 30"** (Outlet Controls 3.78 cfs @ 0.99 fps)

Pond POST-1P: POND 1



Summary for Pond POST-2P: POND 2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)
[80] Warning: Exceeded Pond POST-1P by 0.03' @ 12.23 hrs (13.15 cfs 0.398 af)

Inflow Area = 34.050 ac, 32.98% Impervious, Inflow Depth > 5.51" for 25 event
Inflow = 127.38 cfs @ 12.10 hrs, Volume= 15.622 af
Outflow = 28.18 cfs @ 13.57 hrs, Volume= 14.175 af, Atten= 78%, Lag= 88.4 min
Primary = 28.18 cfs @ 13.57 hrs, Volume= 14.175 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 44,416 sf Storage= 133,705 cf
Peak Elev= 13.71' @ 12.87 hrs Surf.Area= 81,846 sf Storage= 369,508 cf (235,802 cf above start)

Plug-Flow detention time= 272.9 min calculated for 11.101 af (71% of inflow)
Center-of-Mass det. time= 108.5 min (985.7 - 877.2)

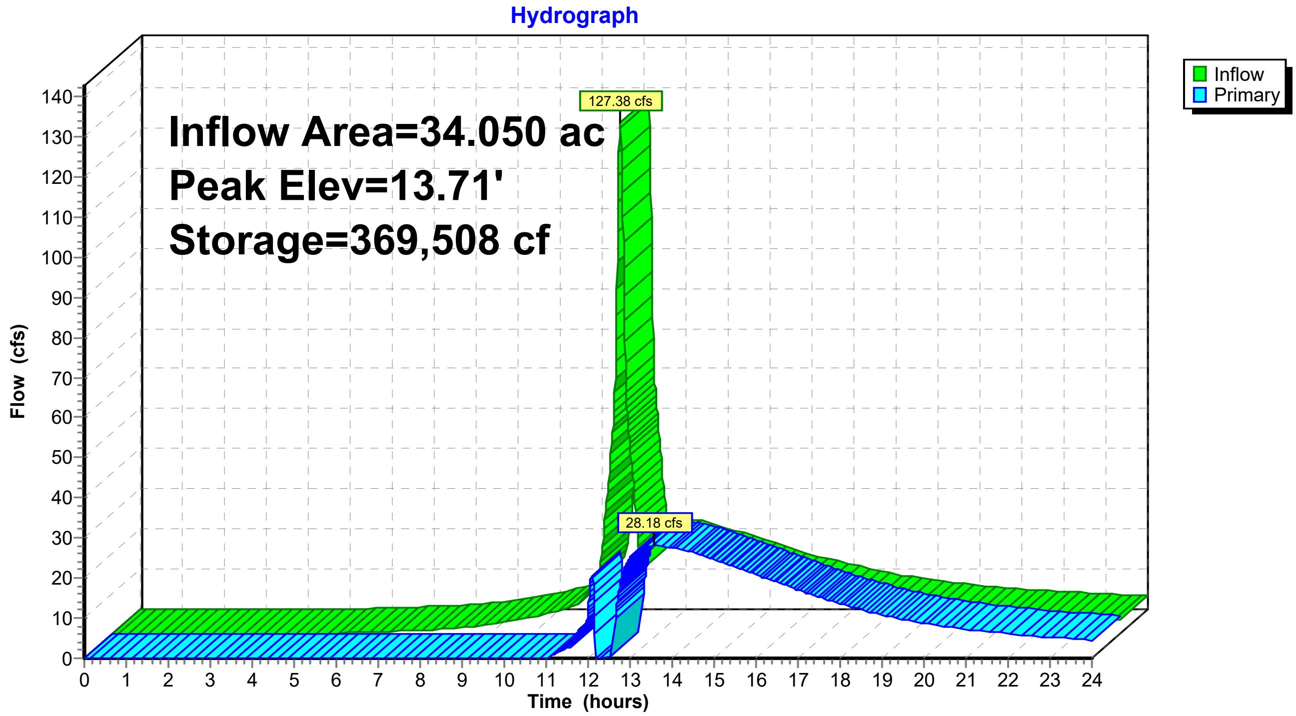
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	970,944 cf	**POND 2 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	30,489	0	0
9.97	44,416	133,705	133,705
15.00	94,822	350,184	483,889
20.00	100,000	487,055	970,944

Device	Routing	Invert	Outlet Devices
#1	Primary	8.20'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.18' / 8.20' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	8.18'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.15' / 8.18' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	8.12'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.12' / 8.10' S= 0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#4	Primary	8.07'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.07' / 8.06' S= 0.0001 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf

Primary OutFlow Max=28.85 cfs @ 13.57 hrs HW=13.57' TW=13.50' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 7.21 cfs @ 1.47 fps)
├─**2=RCP_Round 30"** (Outlet Controls 7.21 cfs @ 1.47 fps)
├─**3=RCP_Round 30"** (Outlet Controls 7.21 cfs @ 1.47 fps)
└─**4=RCP_Round 30"** (Outlet Controls 7.21 cfs @ 1.47 fps)

Pond POST-2P: POND 2



Summary for Pond POST-2PA: POND 2A

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 6.13" for 25 event
Inflow = 106.22 cfs @ 12.09 hrs, Volume= 7.969 af
Outflow = 75.09 cfs @ 12.17 hrs, Volume= 7.840 af, Atten= 29%, Lag= 4.9 min
Primary = 75.09 cfs @ 12.17 hrs, Volume= 7.840 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.68' @ 12.17 hrs Surf.Area= 36,415 sf Storage= 169,705 cf (60,983 cf above start)

Plug-Flow detention time= 184.1 min calculated for 5.344 af (67% of inflow)
Center-of-Mass det. time= 25.2 min (815.6 - 790.4)

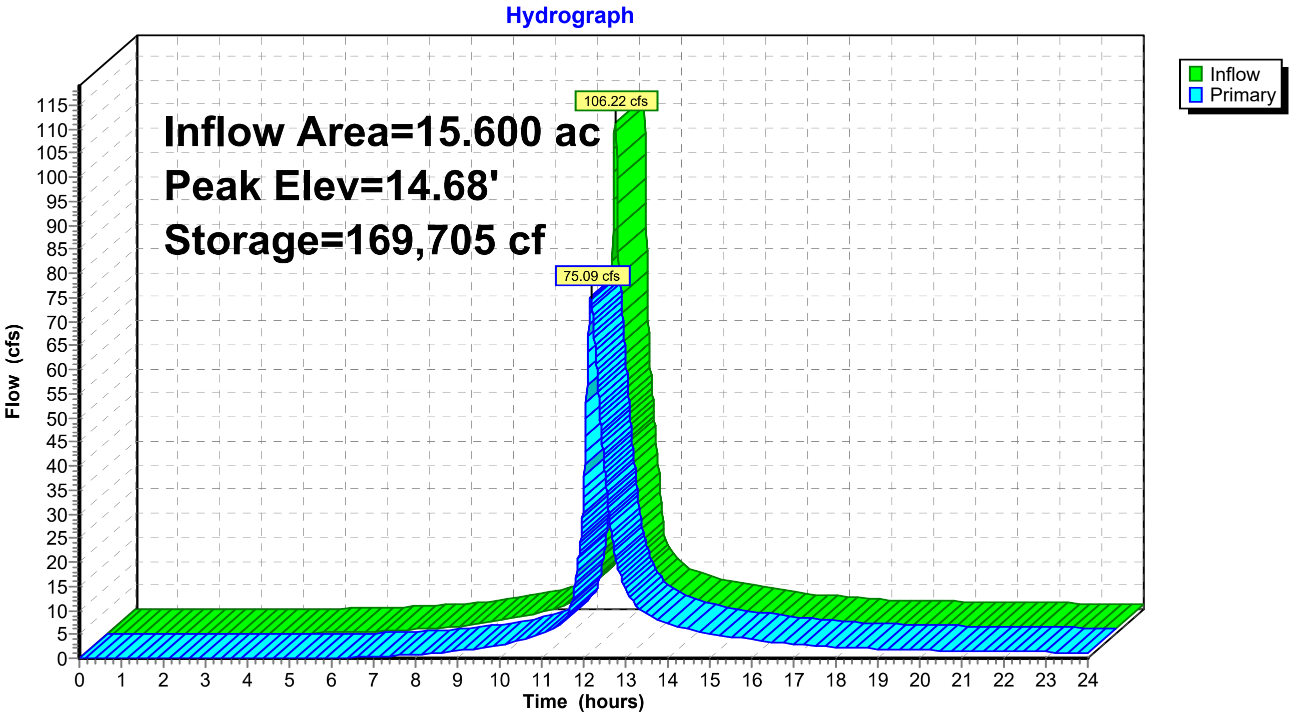
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=75.07 cfs @ 12.17 hrs HW=14.68' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 75.07 cfs @ 3.85 fps)

Pond POST-2PA: POND 2A



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.15' @ 12.36 hrs (44.19 cfs 5.968 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 5.34" for 25 event
Inflow = 159.47 cfs @ 12.12 hrs, Volume= 32.728 af
Outflow = 59.84 cfs @ 13.18 hrs, Volume= 30.922 af, Atten= 62%, Lag= 63.5 min
Primary = 59.84 cfs @ 13.18 hrs, Volume= 30.922 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 13.67' @ 12.59 hrs Surf.Area= 85,791 sf Storage= 451,232 cf (267,787 cf above start)

Plug-Flow detention time= 170.7 min calculated for 26.711 af (82% of inflow)
Center-of-Mass det. time= 59.4 min (968.9 - 909.5)

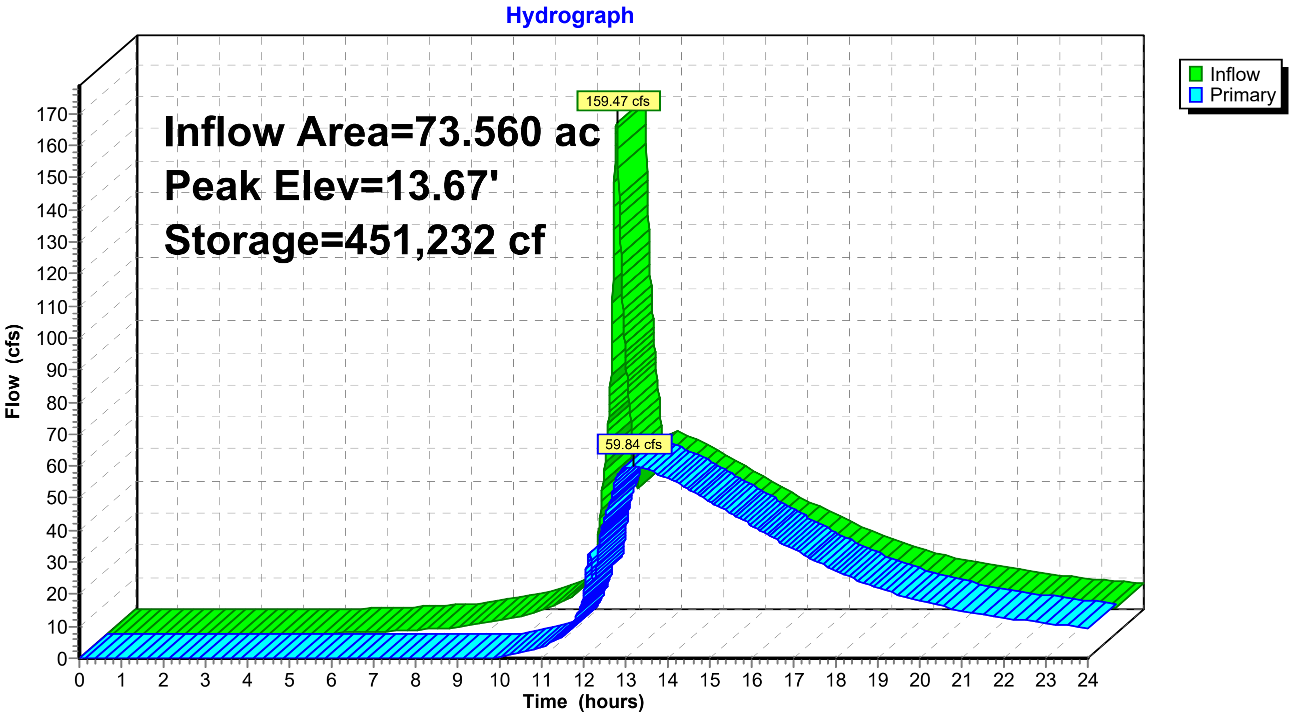
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=60.14 cfs @ 13.18 hrs HW=13.61' TW=13.33' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 20.71 cfs @ 3.19 fps)
├─**2=RCP_Round 36"** (Outlet Controls 21.42 cfs @ 3.17 fps)
└─**3=RCP_Round 36"** (Outlet Controls 18.01 cfs @ 2.76 fps)

Pond POST-3P: POND 3



Summary for Pond POST-3PA: POND 3A

[44] Hint: Outlet device #1 is below defined storage
[80] Warning: Exceeded Pond POST-3PB by 0.06' @ 12.15 hrs (7.88 cfs 0.223 af)

Inflow Area = 16.210 ac, 30.00% Impervious, Inflow Depth > 5.71" for 25 event
Inflow = 51.13 cfs @ 12.15 hrs, Volume= 7.717 af
Outflow = 18.59 cfs @ 12.66 hrs, Volume= 7.341 af, Atten= 64%, Lag= 30.3 min
Primary = 18.59 cfs @ 12.66 hrs, Volume= 7.341 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.89' @ 12.64 hrs Surf.Area= 26,557 sf Storage= 78,012 cf

Plug-Flow detention time= 92.6 min calculated for 7.341 af (95% of inflow)
Center-of-Mass det. time= 67.1 min (928.1 - 861.1)

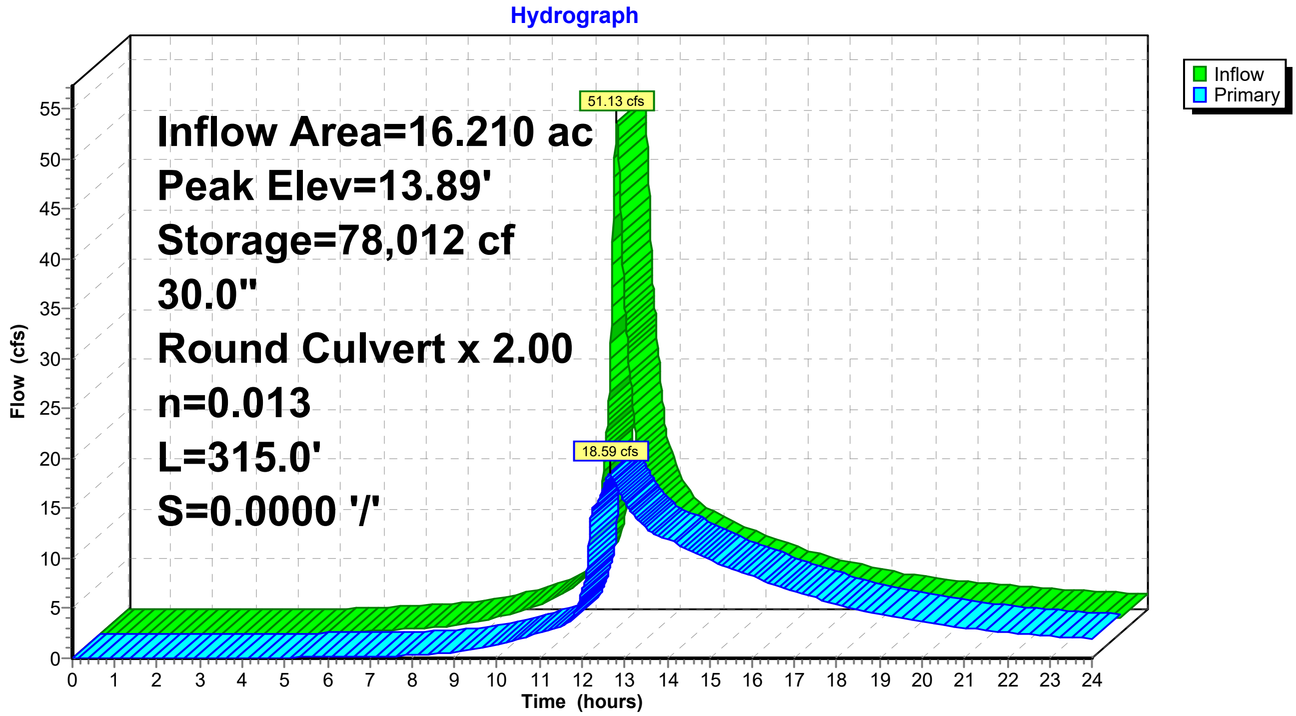
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	247,412 cf	**POND 3A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,127	0	0
14.40	27,784	91,822	91,822
20.00	27,784	155,590	247,412

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 315.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=18.58 cfs @ 12.66 hrs HW=13.89' TW=13.67' (Dynamic Tailwater)
1=RCP_Round 30" (Outlet Controls 18.58 cfs @ 1.89 fps)

Pond POST-3PA: POND 3A



Summary for Pond POST-3PB: POND 3B

[44] Hint: Outlet device #1 is below defined storage

Inflow Area = 7.410 ac, 30.00% Impervious, Inflow Depth > 6.01" for 25 event
Inflow = 43.04 cfs @ 12.15 hrs, Volume= 3.710 af
Outflow = 8.05 cfs @ 12.77 hrs, Volume= 3.312 af, Atten= 81%, Lag= 37.1 min
Primary = 8.05 cfs @ 12.77 hrs, Volume= 3.312 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.94' @ 12.68 hrs Surf.Area= 27,541 sf Storage= 82,248 cf

Plug-Flow detention time= 198.9 min calculated for 3.312 af (89% of inflow)
Center-of-Mass det. time= 148.5 min (945.4 - 796.9)

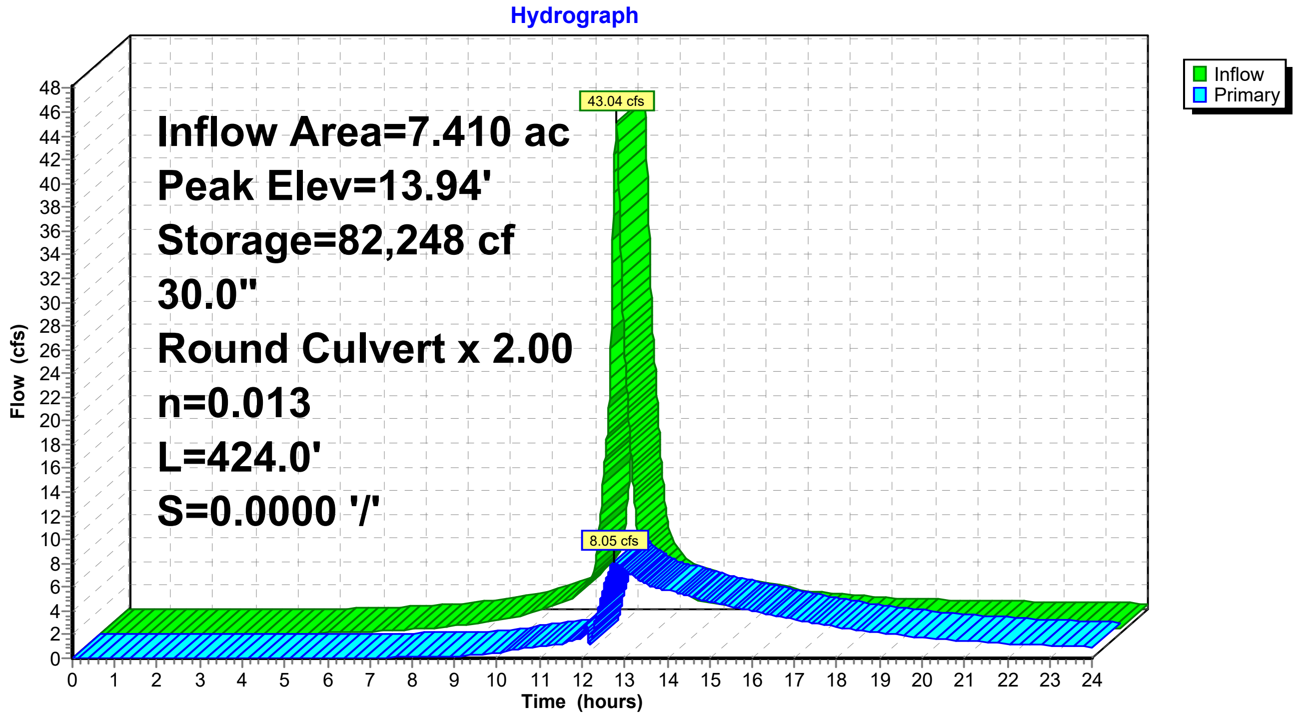
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	255,727 cf	**POND 3B (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,948	0	0
14.40	28,662	95,220	95,220
20.00	28,662	160,507	255,727

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 424.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=8.21 cfs @ 12.77 hrs HW=13.93' TW=13.87' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 8.21 cfs @ 0.84 fps)

Pond POST-3PB: POND 3B



Summary for Pond POST-4P: POND 4

[80] Warning: Exceeded Pond POST-3P by 0.11' @ 8.74 hrs (0.42 cfs 0.086 af)

Inflow Area = 95.820 ac, 32.49% Impervious, Inflow Depth > 5.24" for 25 event
Inflow = 142.92 cfs @ 12.17 hrs, Volume= 41.841 af
Outflow = 98.77 cfs @ 12.34 hrs, Volume= 41.162 af, Atten= 31%, Lag= 10.0 min
Primary = 98.77 cfs @ 12.34 hrs, Volume= 41.162 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 25,099 sf Storage= 71,286 cf
Peak Elev= 13.51' @ 12.55 hrs Surf.Area= 42,624 sf Storage= 191,036 cf (119,750 cf above start)

Plug-Flow detention time= 58.0 min calculated for 39.526 af (94% of inflow)
Center-of-Mass det. time= 19.6 min (945.1 - 925.5)

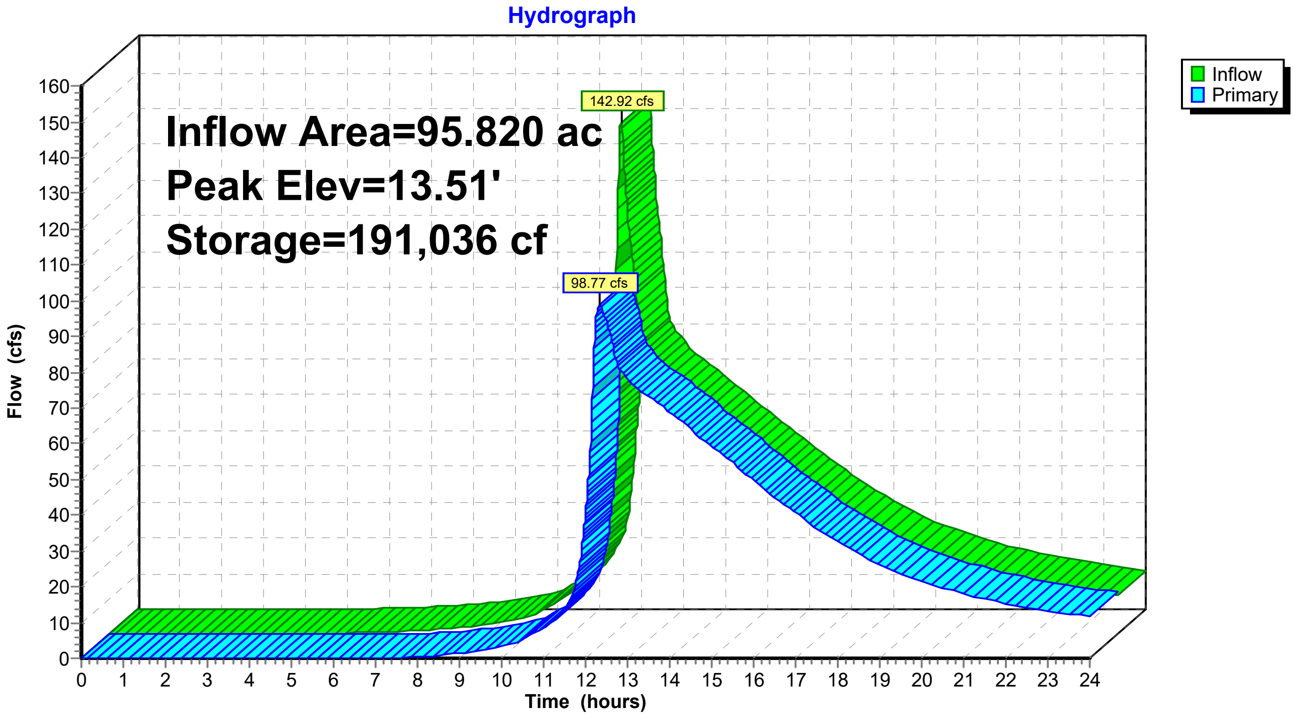
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	635,290 cf	**POND 4 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	14,837	0	0
9.97	25,099	71,286	71,286
15.00	50,026	188,939	260,225
20.00	100,000	375,065	635,290

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0109 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0097 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0098 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=97.46 cfs @ 12.34 hrs HW=13.35' TW=12.49' (Dynamic Tailwater)
├—**1=RCP_Round 36"** (Outlet Controls 33.43 cfs @ 5.51 fps)
├—**2=RCP_Round 36"** (Outlet Controls 35.11 cfs @ 5.51 fps)
└—**3=RCP_Round 36"** (Outlet Controls 28.92 cfs @ 4.75 fps)

Pond POST-4P: POND 4



Summary for Pond POST-5P: POND 5

Inflow Area = 117.050 ac, 32.50% Impervious, Inflow Depth > 5.27" for 25 event
Inflow = 192.43 cfs @ 12.12 hrs, Volume= 51.382 af
Outflow = 132.02 cfs @ 12.19 hrs, Volume= 50.344 af, Atten= 31%, Lag= 4.2 min
Primary = 132.02 cfs @ 12.19 hrs, Volume= 50.344 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 39,178 sf Storage= 132,791 cf
Peak Elev= 12.84' @ 12.78 hrs Surf.Area= 49,393 sf Storage= 283,885 cf (151,094 cf above start)

Plug-Flow detention time= 75.3 min calculated for 47.296 af (92% of inflow)
Center-of-Mass det. time= 20.4 min (936.4 - 916.0)

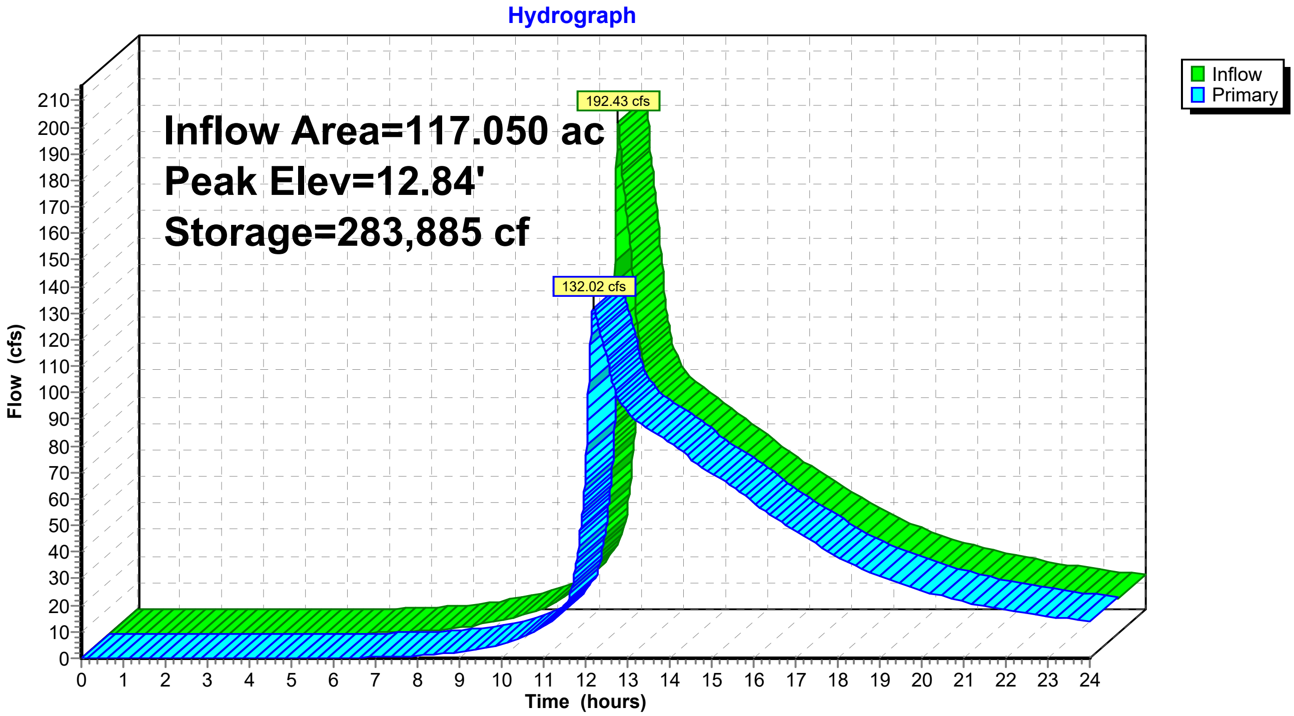
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	785,627 cf	**POND 5 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	28,400	0	0
9.50	39,370	135,540	135,540
15.10	56,162	267,490	403,030
20.00	100,000	382,597	785,627

Device	Routing	Invert	Outlet Devices
#1	Primary	8.59'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.59' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	8.52'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.52' / 8.43' S= 0.0007 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.63' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#4	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.35' / 8.63' S= -0.0022 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=127.68 cfs @ 12.19 hrs HW=12.06' TW=11.44' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 32.45 cfs @ 4.98 fps)
├─**2=RCP_Round 36"** (Outlet Controls 32.92 cfs @ 4.97 fps)
├─**3=RCP_Round 36"** (Outlet Controls 32.45 cfs @ 4.98 fps)
└─**4=RCP_Round 36"** (Outlet Controls 29.87 cfs @ 4.36 fps)

Pond POST-5P: POND 5



Summary for Pond POST-6P: POND 6

Inflow Area = 152.560 ac, 34.40% Impervious, Inflow Depth > 5.36" for 25 event
Inflow = 322.29 cfs @ 12.19 hrs, Volume= 68.113 af
Outflow = 119.29 cfs @ 12.97 hrs, Volume= 63.112 af, Atten= 63%, Lag= 46.9 min
Primary = 119.29 cfs @ 12.97 hrs, Volume= 63.112 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 196,792 sf Storage= 705,109 cf
Peak Elev= 12.51' @ 12.97 hrs Surf.Area= 224,734 sf Storage= 1,354,265 cf (649,156 cf above start)

Plug-Flow detention time= 252.4 min calculated for 46.906 af (69% of inflow)
Center-of-Mass det. time= 70.0 min (970.6 - 900.6)

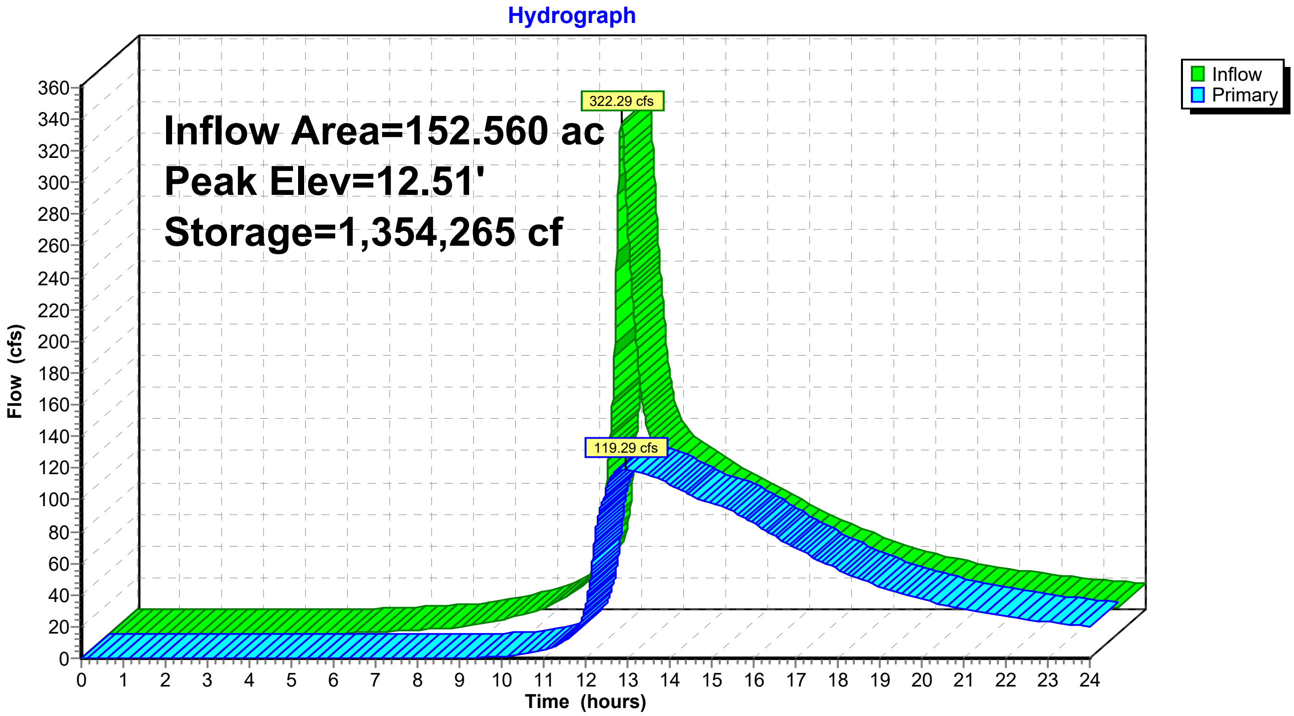
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	3,128,709 cf	**POND 6 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	162,042	0	0
9.50	197,411	718,906	718,906
14.00	238,258	980,255	1,699,161
20.00	238,258	1,429,548	3,128,709

Device	Routing	Invert	Outlet Devices
#1	Primary	9.91'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.91' / 9.89' S= 0.0004 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Primary	9.53'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.53' / 9.41' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#3	Primary	9.43'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.42' / 9.43' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#4	Primary	9.52'	**24.0" Round RCP_Round 24" X 3.00** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.52' / 9.43' S= 0.0019 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

Primary OutFlow Max=119.29 cfs @ 12.97 hrs HW=12.51' (Free Discharge)
├─**1=RCP_Round 24"** (Barrel Controls 16.33 cfs @ 5.23 fps)
├─**2=RCP_Round 24"** (Barrel Controls 20.72 cfs @ 6.60 fps)
├─**3=RCP_Round 24"** (Barrel Controls 20.63 cfs @ 6.57 fps)
└─**4=RCP_Round 24"** (Barrel Controls 61.60 cfs @ 6.54 fps)

Pond POST-6P: POND 6



Summary for Subcatchment POST #1: POST-DEVELOPED BASIN #1

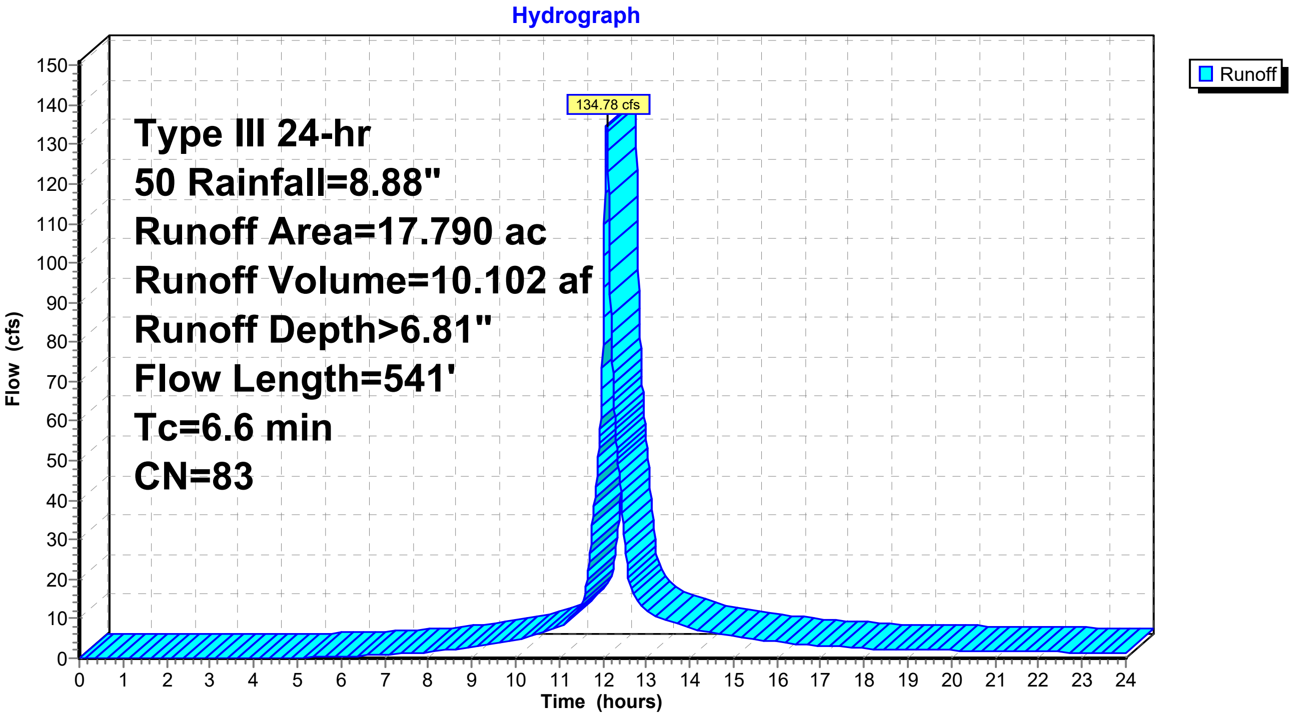
Runoff = 134.78 cfs @ 12.09 hrs, Volume= 10.102 af, Depth> 6.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
	11.440	74	>75% Grass cover, Good, HSG C
*	2.940	98	Houses
*	2.810	98	Roads and Walkways
*	0.600	98	NWL Pond
	17.790	83	Weighted Average
	11.440		64.31% Pervious Area
	6.350		35.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0200	0.17		**Sheet Flow, YARD** Grass: Short n= 0.150 P2= 4.34"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, POST-DEV BASIN 1-SCF** Paved Kv= 20.3 fps
1.9	447	0.0030	3.97	19.47	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.015 Concrete sewer w/manholes & inlets
6.6	541	Total			

Subcatchment POST #1: POST-DEVELOPED BASIN #1



Summary for Subcatchment POST #2: POST-DEVELOPED BASIN #2

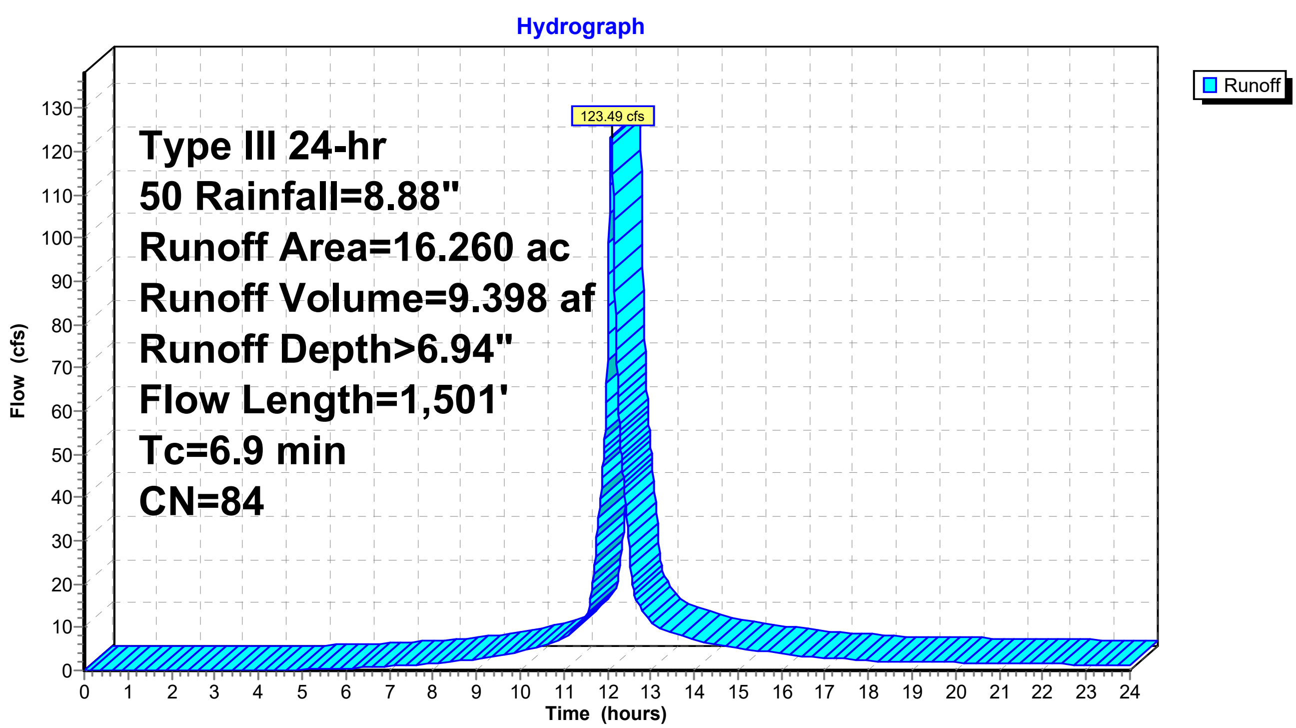
Runoff = 123.49 cfs @ 12.10 hrs, Volume= 9.398 af, Depth> 6.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	16.260	84	SFR lots, 30% imp, HSG D
	11.382		70.00% Pervious Area
	4.878		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2: POST-DEVELOPED BASIN #2



Summary for Subcatchment POST #2A: POST-DEVELOPED BASIN #2A

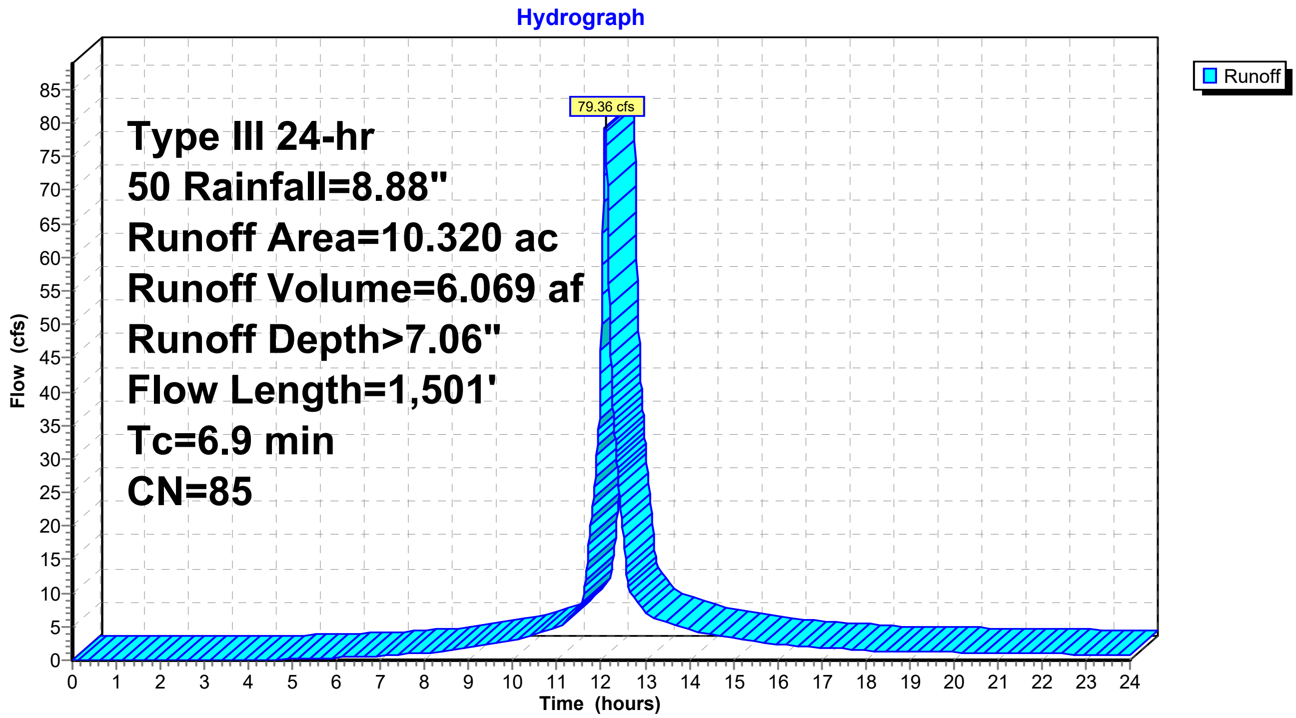
Runoff = 79.36 cfs @ 12.10 hrs, Volume= 6.069 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	10.320	85	
	10.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2A: POST-DEVELOPED BASIN #2A



Summary for Subcatchment POST #3: POST-DEVELOPED BASIN #3

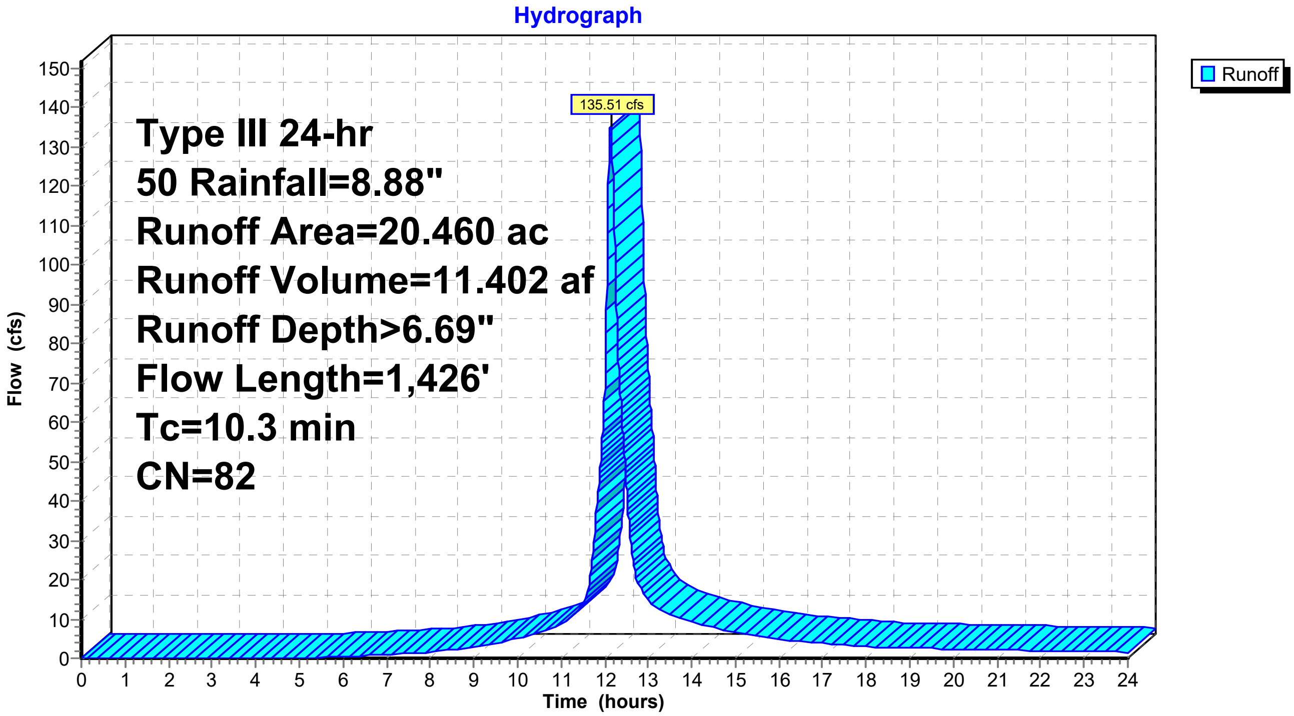
Runoff = 135.51 cfs @ 12.14 hrs, Volume= 11.402 af, Depth> 6.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
	13.530	74	>75% Grass cover, Good, HSG C
*	2.480	98	Houses
*	3.570	98	Roads and Walkways
*	0.880	98	NWL Pond
	20.460	82	Weighted Average
	13.530		66.13% Pervious Area
	6.930		33.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0200	0.18		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
0.4	105	0.0100	4.86	24.28	**Channel Flow, REAR YARD SWALE** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
3.9	1,256	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
10.3	1,426	Total			

Subcatchment POST #3: POST-DEVELOPED BASIN #3



Summary for Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A

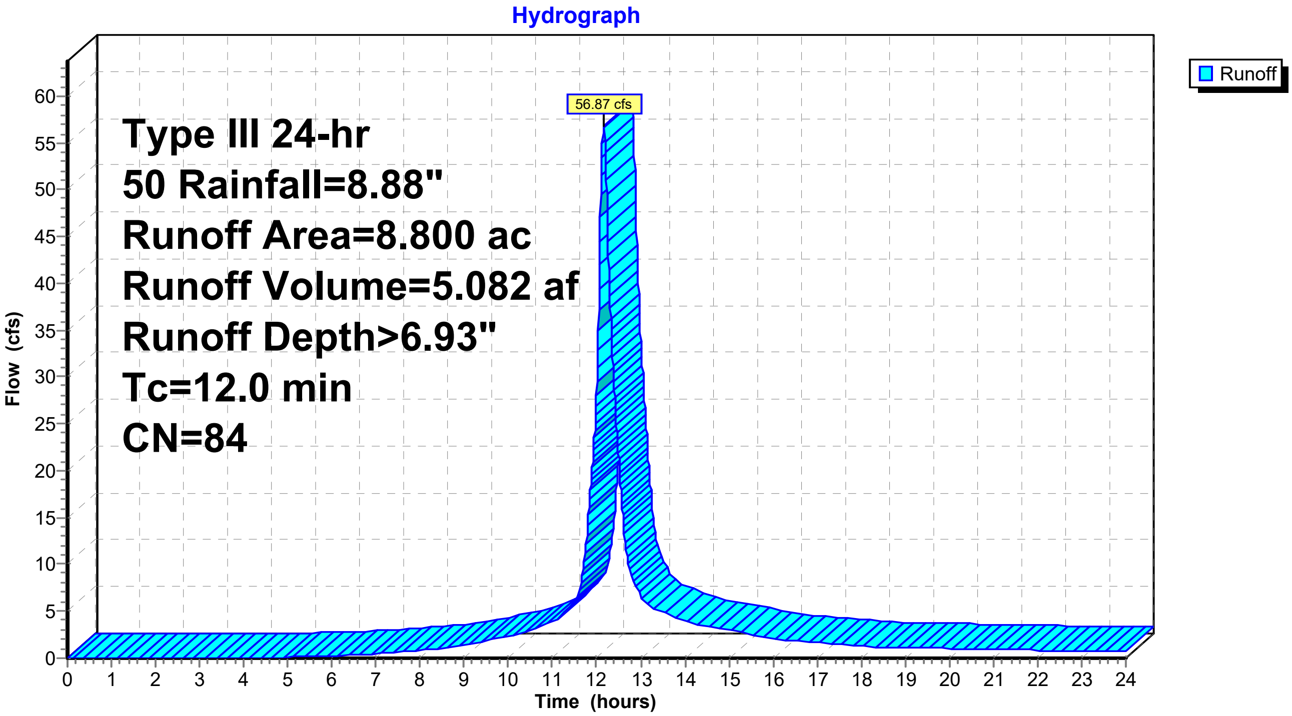
Runoff = 56.87 cfs @ 12.16 hrs, Volume= 5.082 af, Depth> 6.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	8.800	84	SFR lots, 30% imp, HSG D
	6.160		70.00% Pervious Area
	2.640		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A



Summary for Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B

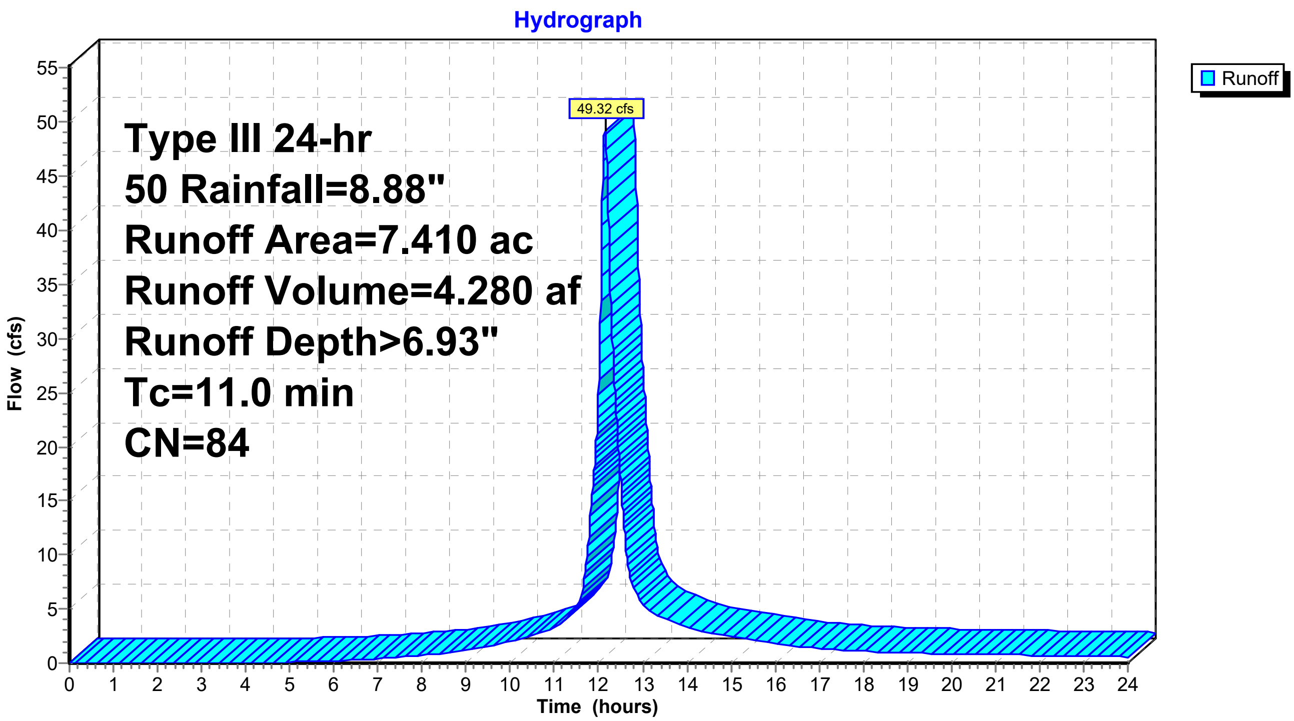
Runoff = 49.32 cfs @ 12.15 hrs, Volume= 4.280 af, Depth> 6.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	7.410	84	SFR lots, 30% imp, HSG D
	5.187		70.00% Pervious Area
	2.223		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0					**Direct Entry,**

Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B



Summary for Subcatchment POST #4: POST-DEVELOPED BASIN #4

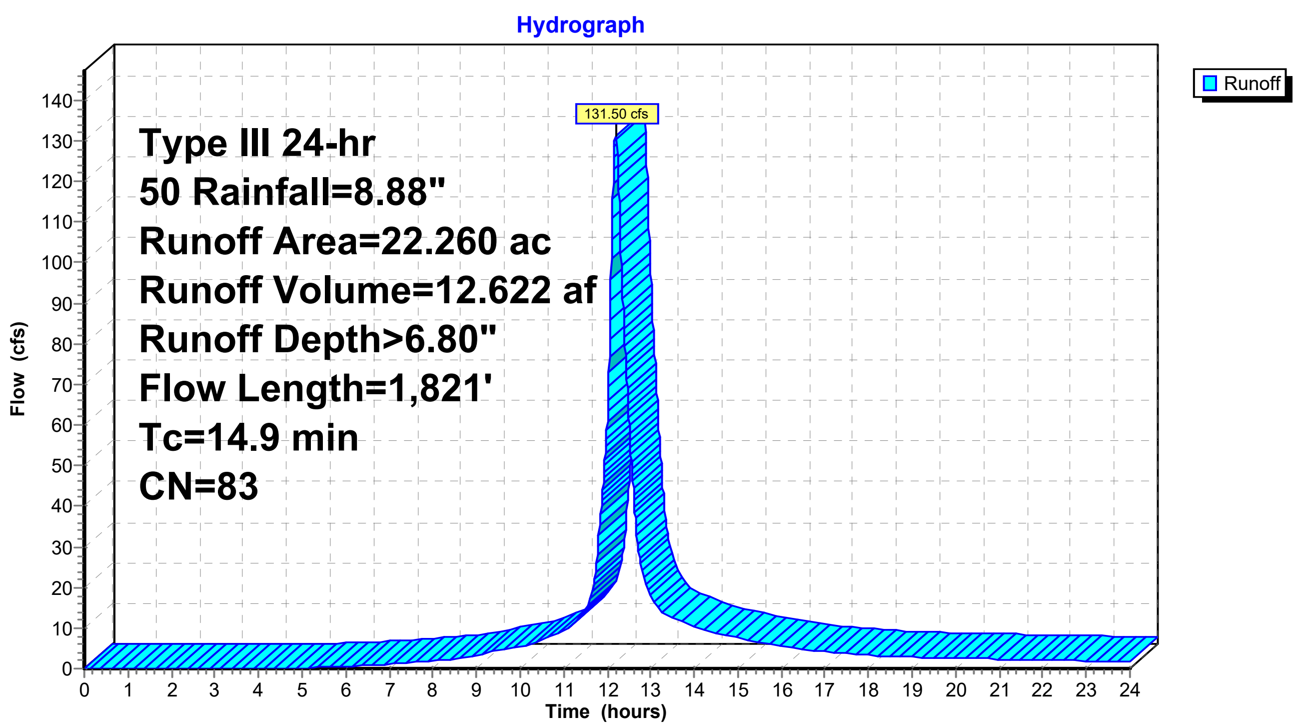
Runoff = 131.50 cfs @ 12.20 hrs, Volume= 12.622 af, Depth> 6.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
	14.150	74	>75% Grass cover, Good, HSG C
*	8.110	98	Houses, Roads and Walkways, NWL POND
	22.260	83	Weighted Average
	14.150		63.57% Pervious Area
	8.110		36.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0100	0.13		**Sheet Flow, POST DEV BASIN #4 - SHEET** Grass: Short n= 0.150 P2= 4.34"
3.5	300	0.0050	1.44		**Shallow Concentrated Flow, Gutter Basin 4** Paved Kv= 20.3 fps
4.5	1,466	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
14.9	1,821	Total			

Subcatchment POST #4: POST-DEVELOPED BASIN #4



Summary for Subcatchment POST #5: POST-DEVELOPED BASIN #5

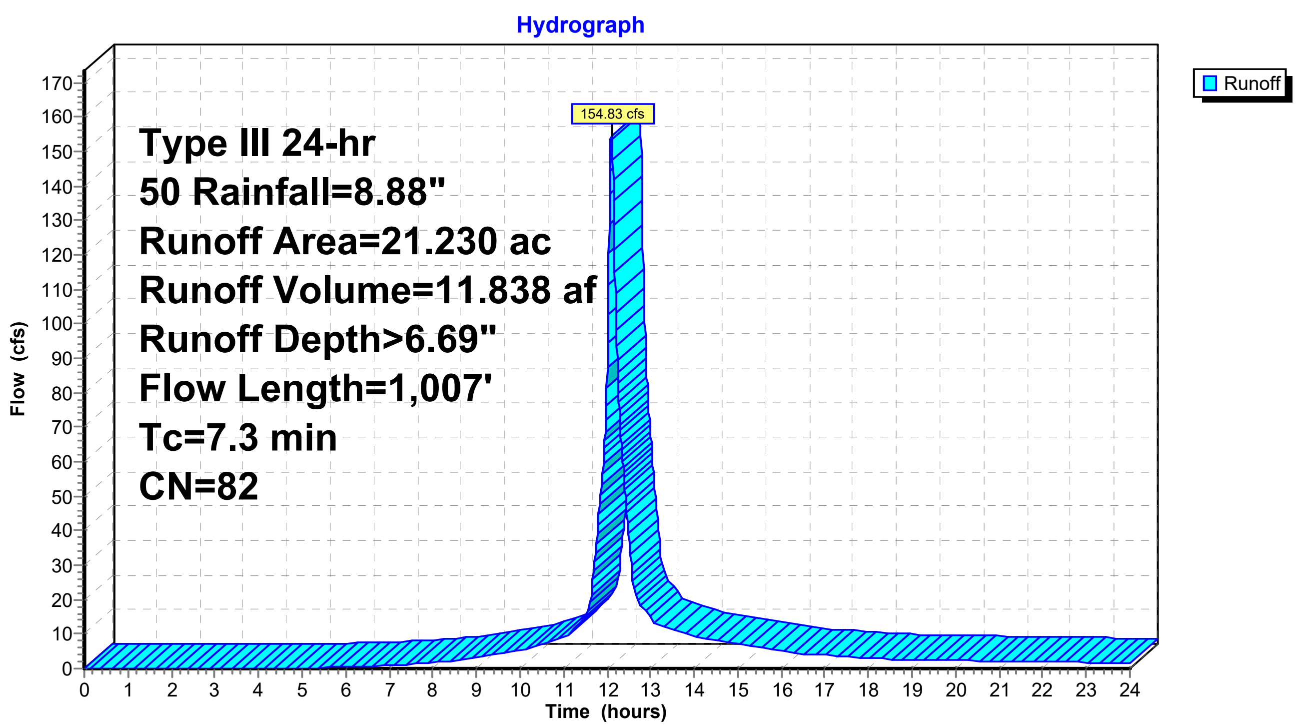
Runoff = 154.83 cfs @ 12.10 hrs, Volume= 11.838 af, Depth> 6.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
	14.320	74	>75% Grass cover, Good, HSG C
*	2.850	98	Houses
*	3.410	98	Roads and Walkways
*	0.650	98	NWL Pond
	21.230	82	Weighted Average
	14.320		67.45% Pervious Area
	6.910		32.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	55	0.0300	0.21		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
2.9	952	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
7.3	1,007	Total			

Subcatchment POST #5: POST-DEVELOPED BASIN #5



Summary for Subcatchment POST #6: POST-DEVELOPED BASIN #6

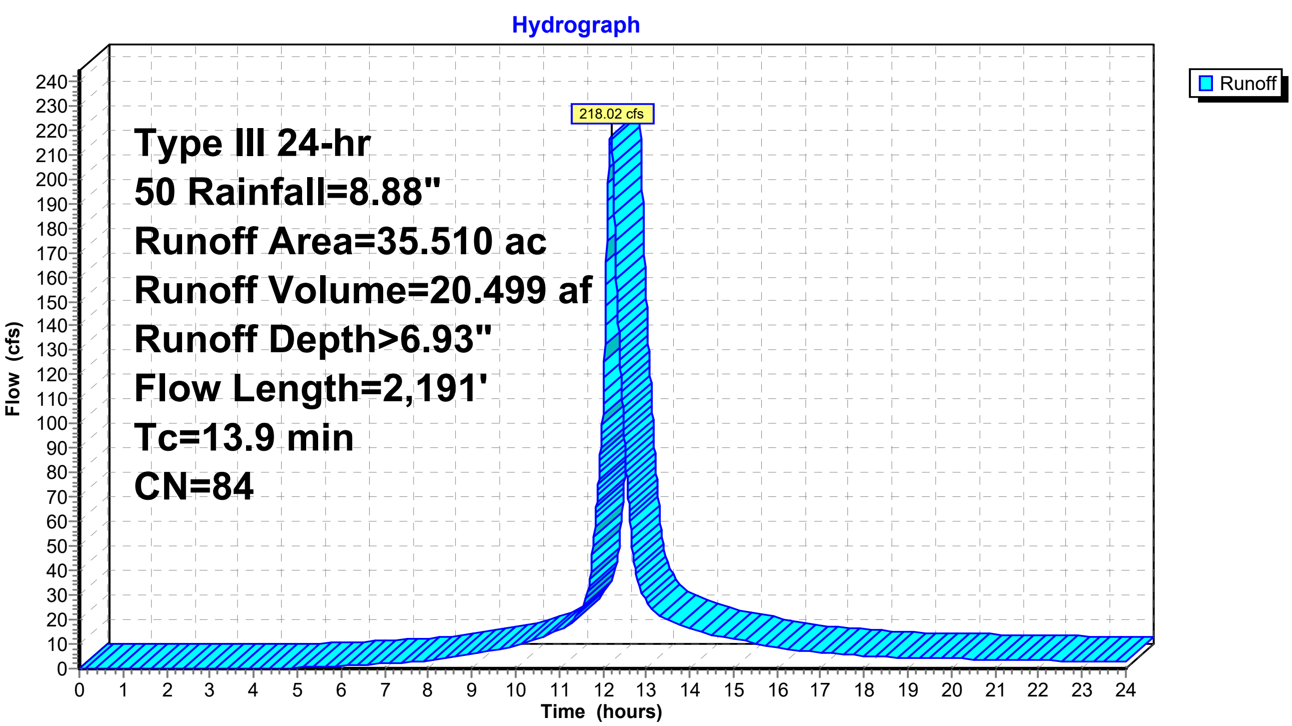
Runoff = 218.02 cfs @ 12.19 hrs, Volume= 20.499 af, Depth> 6.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
	21.070	74	>75% Grass cover, Good, HSG C
*	5.180	98	Houses
*	5.540	98	Roads and Walkways
*	3.720	98	NWL Pond
	35.510	84	Weighted Average
	21.070		59.34% Pervious Area
	14.440		40.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0200	0.19		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
6.5	2,106	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
13.9	2,191	Total			

Subcatchment POST #6: POST-DEVELOPED BASIN #6



Summary for Pond POST-1P: POND 1

Inflow Area = 17.790 ac, 35.69% Impervious, Inflow Depth > 6.81" for 50 event
Inflow = 134.78 cfs @ 12.09 hrs, Volume= 10.102 af
Outflow = 22.40 cfs @ 12.11 hrs, Volume= 8.747 af, Atten= 83%, Lag= 1.3 min
Primary = 22.40 cfs @ 12.11 hrs, Volume= 8.747 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 37,128 sf Storage= 113,417 cf
Peak Elev= 14.20' @ 12.99 hrs Surf.Area= 81,999 sf Storage= 365,553 cf (252,136 cf above start)

Plug-Flow detention time= 363.7 min calculated for 6.141 af (61% of inflow)
Center-of-Mass det. time= 178.6 min (970.4 - 791.9)

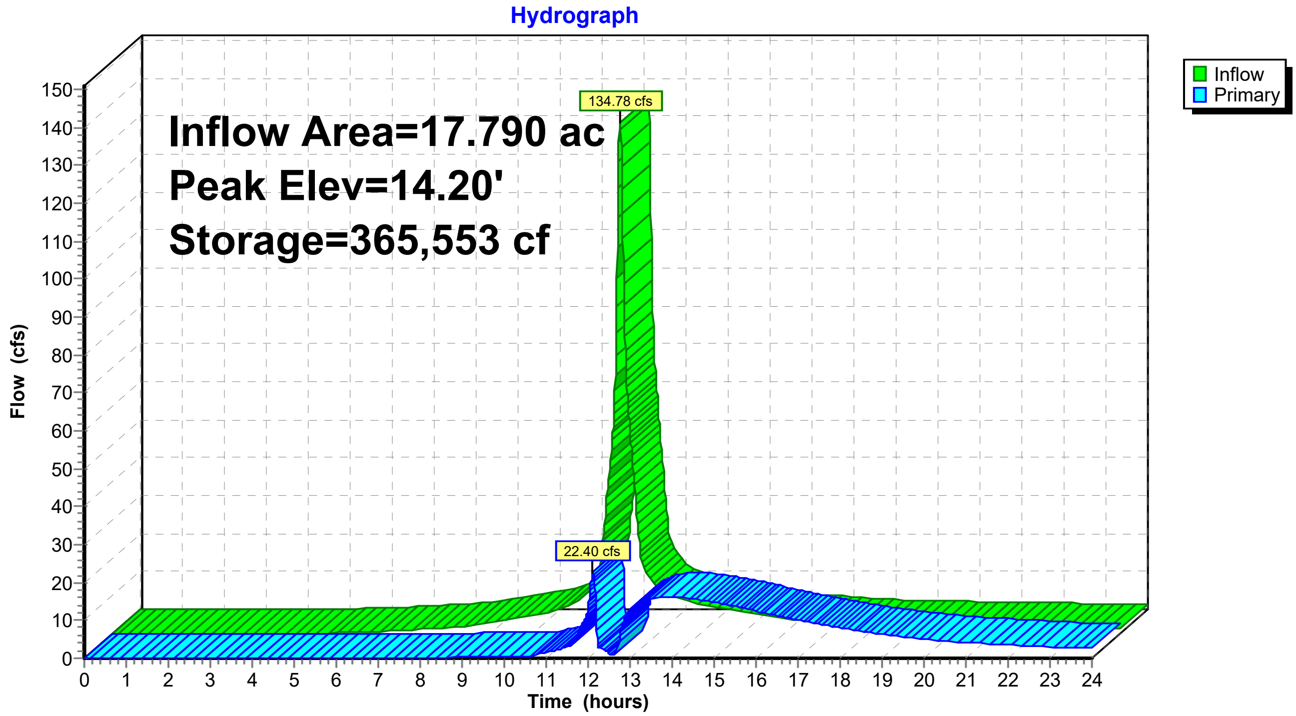
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	910,381 cf	**POND 1 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	26,411	0	0
9.97	37,128	113,417	113,417
15.00	90,446	320,849	434,266
20.00	100,000	476,115	910,381

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.11' S= 0.0143 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	9.97'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 7.89' S= 0.0145 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	10.14'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.02' S= 0.0148 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=13.07 cfs @ 12.11 hrs HW=12.85' TW=12.81' (Dynamic Tailwater)
—**1=RCP_Round 30"** (Outlet Controls 4.47 cfs @ 1.05 fps)
—**2=RCP_Round 30"** (Outlet Controls 4.73 cfs @ 1.05 fps)
—**3=RCP_Round 30"** (Outlet Controls 3.87 cfs @ 0.91 fps)

Pond POST-1P: POND 1



Summary for Pond POST-2P: POND 2

[80] Warning: Exceeded Pond POST-1P by 0.03' @ 12.22 hrs (14.35 cfs 0.464 af)

Inflow Area = 34.050 ac, 32.98% Impervious, Inflow Depth > 6.39" for 50 event
Inflow = 145.53 cfs @ 12.10 hrs, Volume= 18.145 af
Outflow = 32.21 cfs @ 13.88 hrs, Volume= 16.596 af, Atten= 78%, Lag= 106.9 min
Primary = 32.21 cfs @ 13.88 hrs, Volume= 16.596 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 44,416 sf Storage= 133,705 cf
Peak Elev= 14.18' @ 12.93 hrs Surf.Area= 86,595 sf Storage= 409,421 cf (275,716 cf above start)

Plug-Flow detention time= 258.4 min calculated for 13.526 af (75% of inflow)
Center-of-Mass det. time= 111.0 min (987.8 - 876.8)

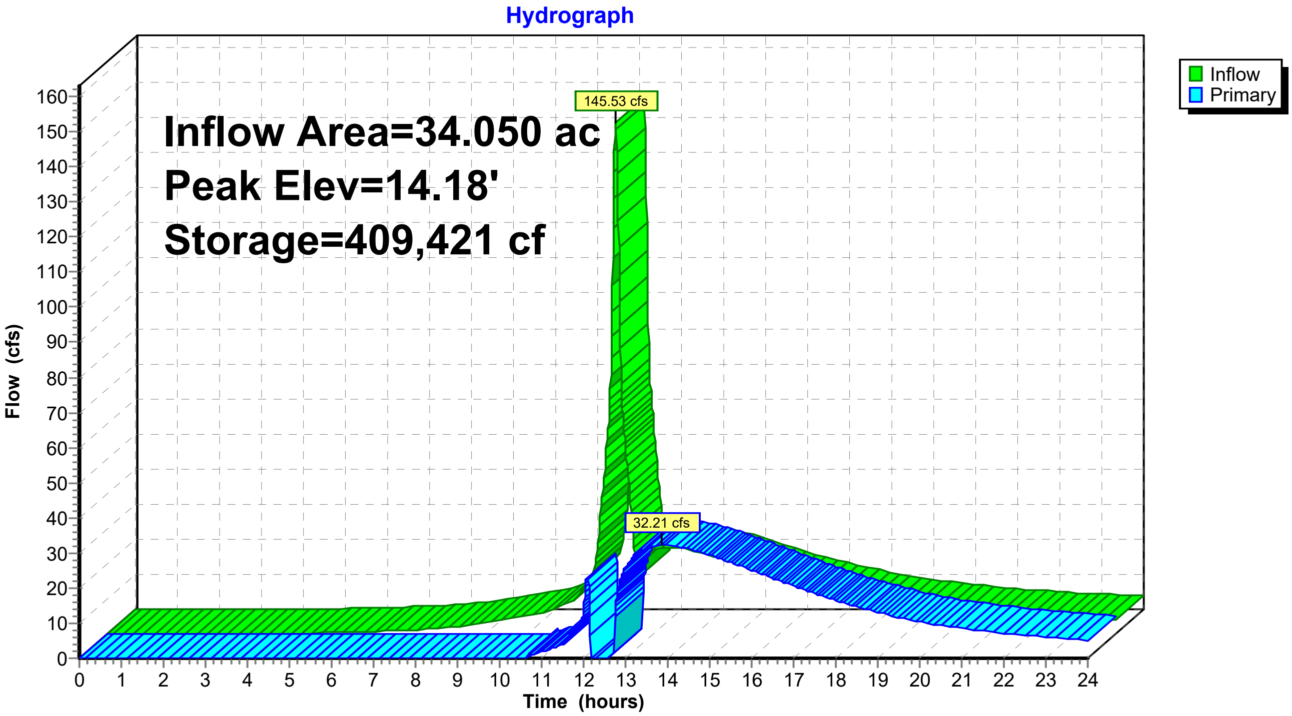
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	970,944 cf	**POND 2 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	30,489	0	0
9.97	44,416	133,705	133,705
15.00	94,822	350,184	483,889
20.00	100,000	487,055	970,944

Device	Routing	Invert	Outlet Devices
#1	Primary	8.20'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.18' / 8.20' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	8.18'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.15' / 8.18' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	8.12'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.12' / 8.10' S= 0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#4	Primary	8.07'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.07' / 8.06' S= 0.0001 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf

Primary OutFlow Max=32.94 cfs @ 13.88 hrs HW=13.94' TW=13.86' (Dynamic Tailwater)
—**1=RCP_Round 30"** (Outlet Controls 8.24 cfs @ 1.68 fps)
—**2=RCP_Round 30"** (Outlet Controls 8.24 cfs @ 1.68 fps)
—**3=RCP_Round 30"** (Outlet Controls 8.24 cfs @ 1.68 fps)
—**4=RCP_Round 30"** (Outlet Controls 8.24 cfs @ 1.68 fps)

Pond POST-2P: POND 2



Summary for Pond POST-2PA: POND 2A

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 7.06" for 50 event
Inflow = 121.40 cfs @ 12.09 hrs, Volume= 9.176 af
Outflow = 88.37 cfs @ 12.16 hrs, Volume= 9.037 af, Atten= 27%, Lag= 4.6 min
Primary = 88.37 cfs @ 12.16 hrs, Volume= 9.037 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.83' @ 12.16 hrs Surf.Area= 36,768 sf Storage= 175,122 cf (66,400 cf above start)

Plug-Flow detention time= 169.8 min calculated for 6.541 af (71% of inflow)
Center-of-Mass det. time= 24.0 min (810.6 - 786.6)

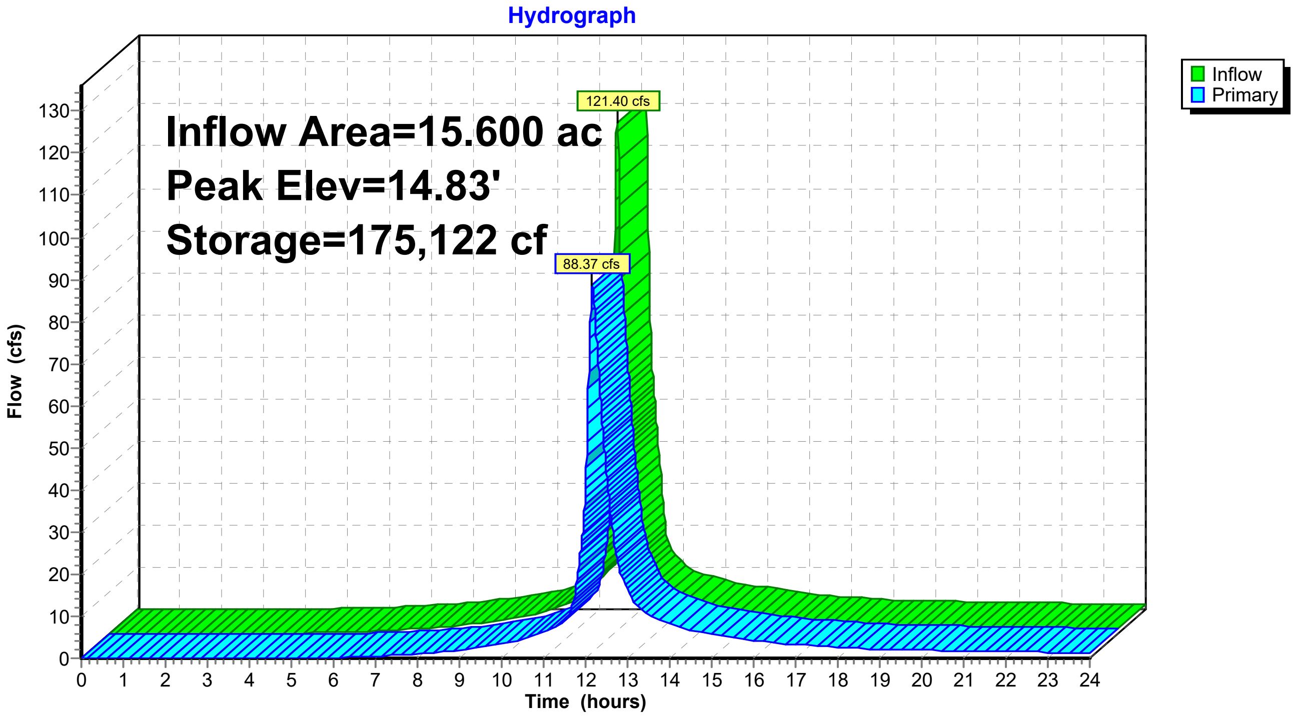
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=88.31 cfs @ 12.16 hrs HW=14.83' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 88.31 cfs @ 3.99 fps)

Pond POST-2PA: POND 2A



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.19' @ 12.39 hrs (50.41 cfs 6.802 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 6.21" for 50 event
Inflow = 183.23 cfs @ 12.12 hrs, Volume= 38.096 af
Outflow = 66.76 cfs @ 13.41 hrs, Volume= 36.170 af, Atten= 64%, Lag= 77.6 min
Primary = 66.76 cfs @ 13.41 hrs, Volume= 36.170 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 14.17' @ 12.62 hrs Surf.Area= 89,433 sf Storage= 495,035 cf (311,590 cf above start)

Plug-Flow detention time= 159.2 min calculated for 31.958 af (84% of inflow)
Center-of-Mass det. time= 59.9 min (969.4 - 909.5)

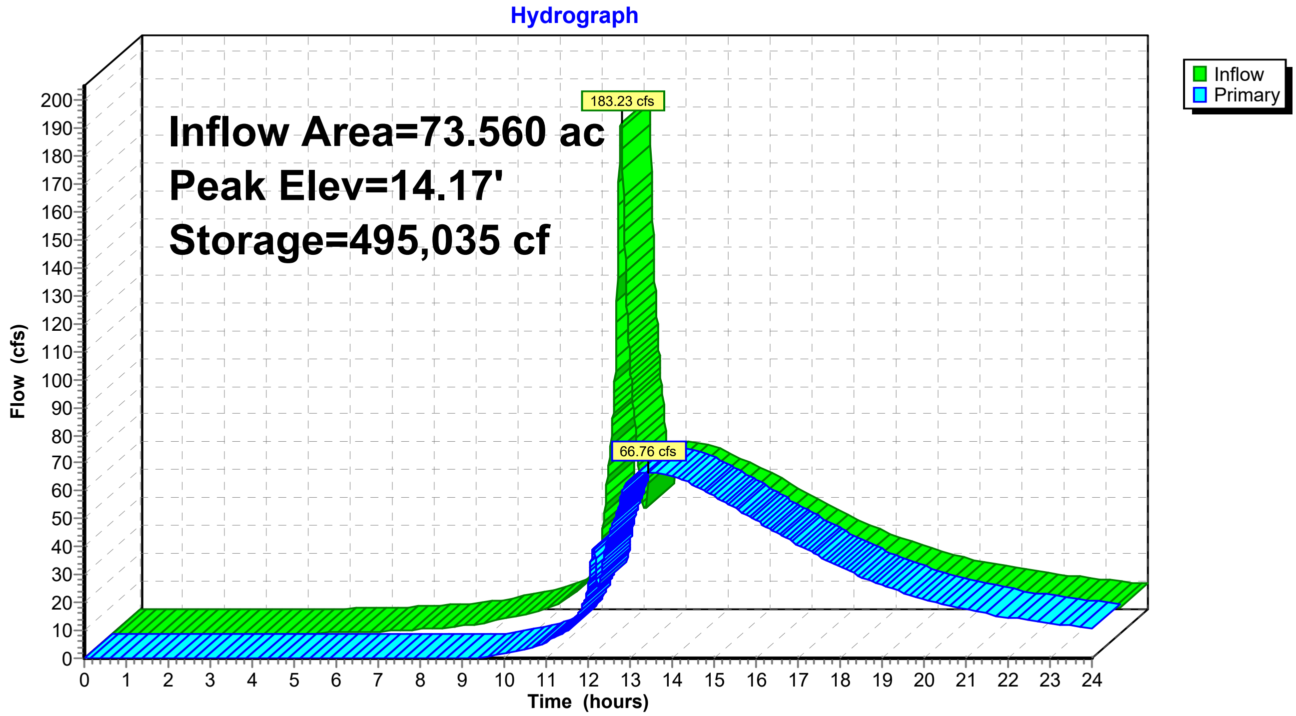
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=67.06 cfs @ 13.41 hrs HW=14.02' TW=13.69' (Dynamic Tailwater)
├—**1=RCP_Round 36"** (Outlet Controls 23.63 cfs @ 3.38 fps)
├—**2=RCP_Round 36"** (Outlet Controls 23.11 cfs @ 3.27 fps)
└—**3=RCP_Round 36"** (Outlet Controls 20.33 cfs @ 2.90 fps)

Pond POST-3P: POND 3



Summary for Pond POST-3PA: POND 3A

[44] Hint: Outlet device #1 is below defined storage
[80] Warning: Exceeded Pond POST-3PB by 0.07' @ 12.15 hrs (9.24 cfs 0.272 af)

Inflow Area = 16.210 ac, 30.00% Impervious, Inflow Depth > 6.61" for 50 event
Inflow = 58.58 cfs @ 12.15 hrs, Volume= 8.926 af
Outflow = 19.74 cfs @ 12.74 hrs, Volume= 8.514 af, Atten= 66%, Lag= 35.2 min
Primary = 19.74 cfs @ 12.74 hrs, Volume= 8.514 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.41' @ 12.66 hrs Surf.Area= 27,784 sf Storage= 92,057 cf

Plug-Flow detention time= 93.7 min calculated for 8.511 af (95% of inflow)
Center-of-Mass det. time= 69.3 min (929.0 - 859.7)

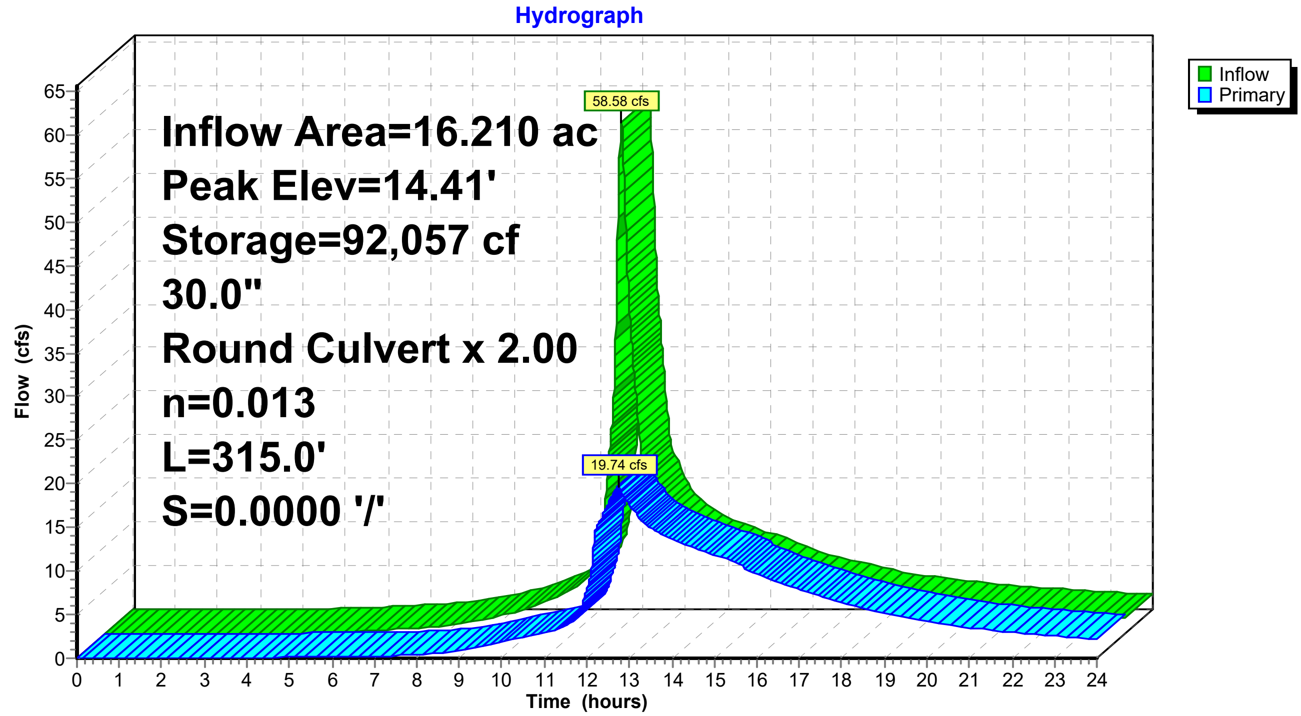
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	247,412 cf	**POND 3A (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,127	0	0
14.40	27,784	91,822	91,822
20.00	27,784	155,590	247,412

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 315.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=19.79 cfs @ 12.74 hrs HW=14.40' TW=14.14' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 19.79 cfs @ 2.02 fps)

Pond POST-3PA: POND 3A



Summary for Pond POST-3PB: POND 3B

[44] Hint: Outlet device #1 is below defined storage
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 7.410 ac, 30.00% Impervious, Inflow Depth > 6.93" for 50 event
Inflow = 49.32 cfs @ 12.15 hrs, Volume= 4.280 af
Outflow = 8.77 cfs @ 12.83 hrs, Volume= 3.844 af, Atten= 82%, Lag= 40.7 min
Primary = 8.77 cfs @ 12.83 hrs, Volume= 3.844 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.46' @ 12.71 hrs Surf.Area= 28,662 sf Storage= 96,916 cf

Plug-Flow detention time= 202.3 min calculated for 3.843 af (90% of inflow)
Center-of-Mass det. time= 153.7 min (946.8 - 793.0)

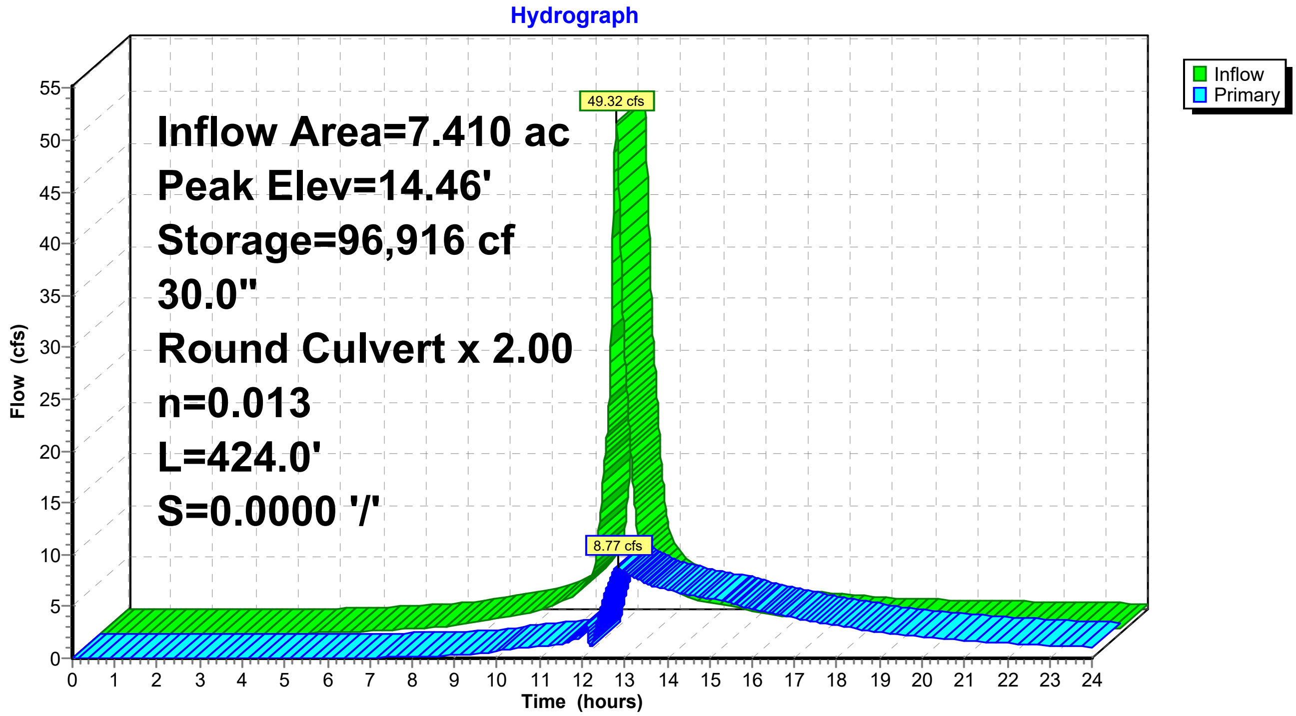
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	255,727 cf	**POND 3B (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,948	0	0
14.40	28,662	95,220	95,220
20.00	28,662	160,507	255,727

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 424.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=8.95 cfs @ 12.83 hrs HW=14.44' TW=14.38' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 8.95 cfs @ 0.91 fps)

Pond POST-3PB: POND 3B



Summary for Pond POST-4P: POND 4

[80] Warning: Exceeded Pond POST-3P by 0.11' @ 8.18 hrs (0.37 cfs 0.084 af)

Inflow Area = 95.820 ac, 32.49% Impervious, Inflow Depth > 6.11" for 50 event
Inflow = 164.41 cfs @ 12.17 hrs, Volume= 48.792 af
Outflow = 106.43 cfs @ 12.31 hrs, Volume= 48.062 af, Atten= 35%, Lag= 8.6 min
Primary = 106.43 cfs @ 12.31 hrs, Volume= 48.062 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 25,099 sf Storage= 71,286 cf
Peak Elev= 14.00' @ 12.56 hrs Surf.Area= 45,057 sf Storage= 212,553 cf (141,267 cf above start)

Plug-Flow detention time= 54.2 min calculated for 46.407 af (95% of inflow)
Center-of-Mass det. time= 19.9 min (945.1 - 925.3)

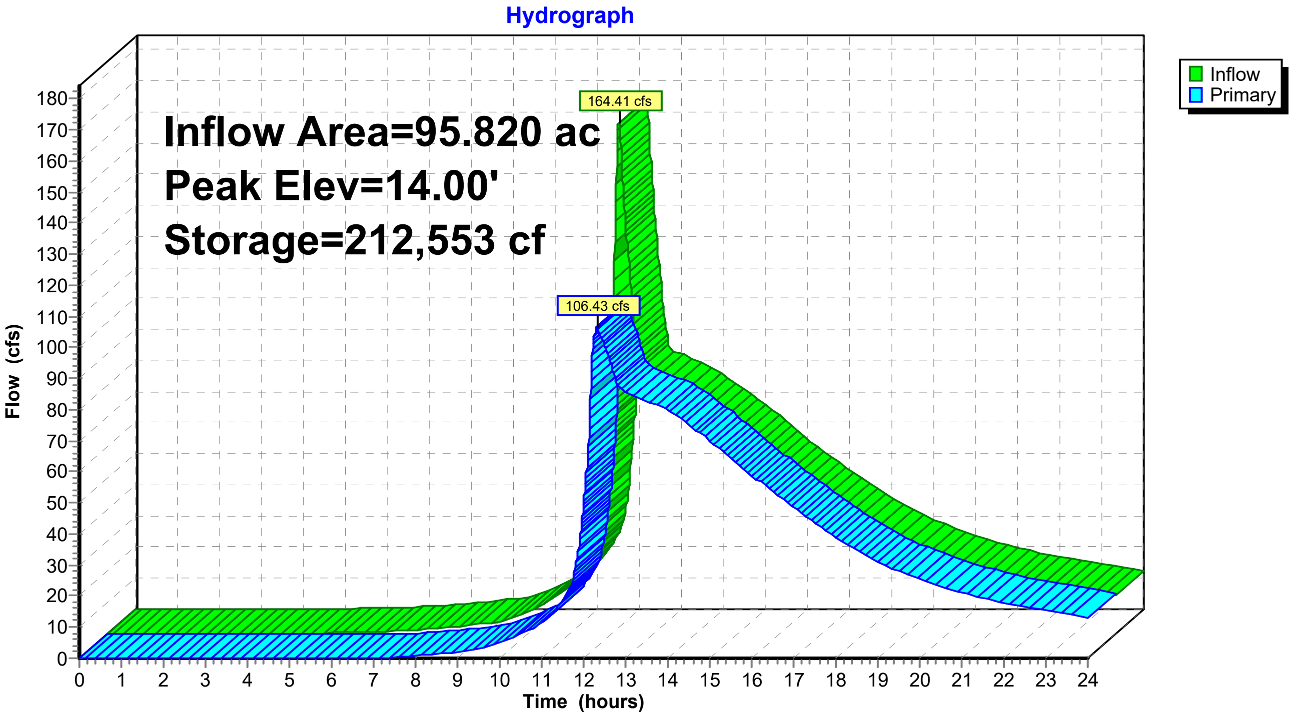
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	635,290 cf	**POND 4 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	14,837	0	0
9.97	25,099	71,286	71,286
15.00	50,026	188,939	260,225
20.00	100,000	375,065	635,290

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0109 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0097 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0098 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=104.70 cfs @ 12.31 hrs HW=13.75' TW=12.90' (Dynamic Tailwater)
1=RCP_Round 36" (Outlet Controls 36.29 cfs @ 5.42 fps)
2=RCP_Round 36" (Outlet Controls 37.12 cfs @ 5.37 fps)
3=RCP_Round 36" (Outlet Controls 31.29 cfs @ 4.66 fps)

Pond POST-4P: POND 4



Summary for Pond POST-5P: POND 5

Inflow Area = 117.050 ac, 32.50% Impervious, Inflow Depth > 6.14" for 50 event
Inflow = 222.58 cfs @ 12.12 hrs, Volume= 59.900 af
Outflow = 147.50 cfs @ 12.17 hrs, Volume= 58.792 af, Atten= 34%, Lag= 3.4 min
Primary = 147.50 cfs @ 12.17 hrs, Volume= 58.792 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 39,178 sf Storage= 132,791 cf
Peak Elev= 13.29' @ 12.71 hrs Surf.Area= 50,748 sf Storage= 306,513 cf (173,722 cf above start)

Plug-Flow detention time= 69.6 min calculated for 55.720 af (93% of inflow)
Center-of-Mass det. time= 20.4 min (935.9 - 915.4)

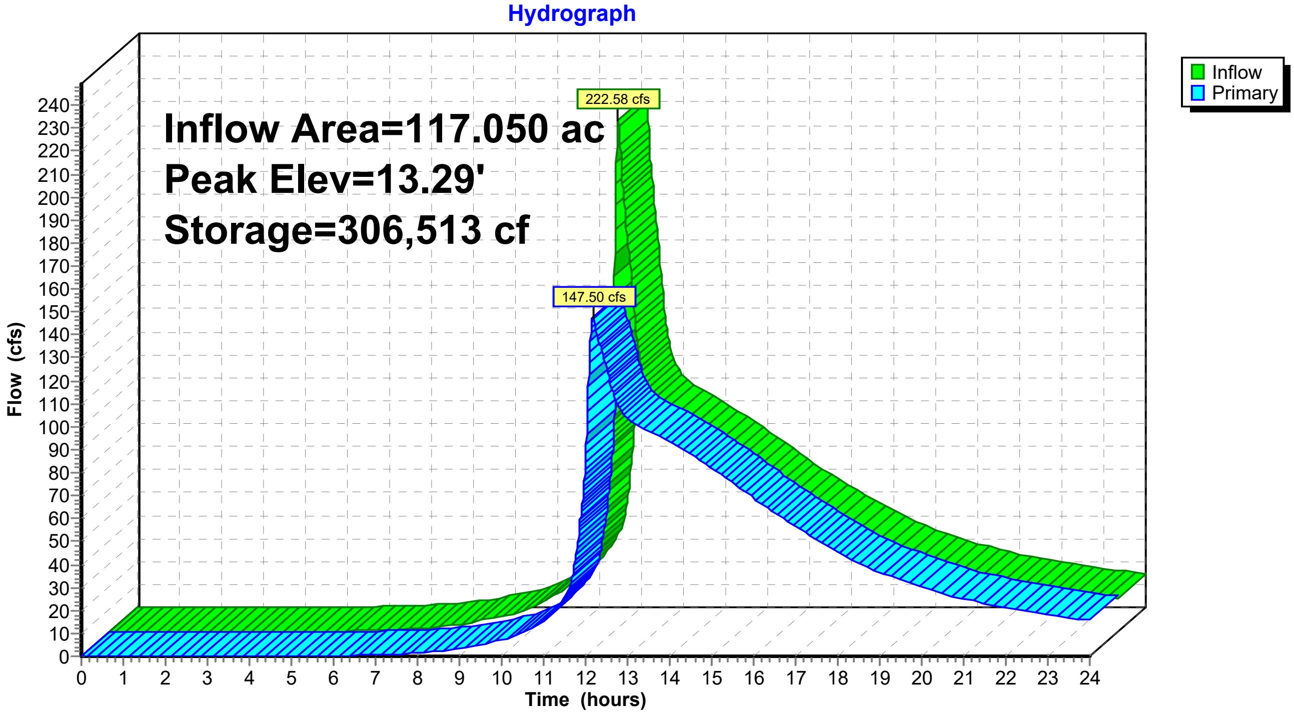
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	785,627 cf	**POND 5 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	28,400	0	0
9.50	39,370	135,540	135,540
15.10	56,162	267,490	403,030
20.00	100,000	382,597	785,627

Device	Routing	Invert	Outlet Devices
#1	Primary	8.59'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.59' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	8.52'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.52' / 8.43' S= 0.0007 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.63' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#4	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.35' / 8.63' S= -0.0022 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=142.93 cfs @ 12.17 hrs HW=12.41' TW=11.68' (Dynamic Tailwater)
1=RCP_Round 36" (Outlet Controls 37.04 cfs @ 5.32 fps)
2=RCP_Round 36" (Outlet Controls 37.13 cfs @ 5.29 fps)
3=RCP_Round 36" (Outlet Controls 37.04 cfs @ 5.32 fps)
4=RCP_Round 36" (Outlet Controls 31.72 cfs @ 4.49 fps)

Pond POST-5P: POND 5



Summary for Pond POST-6P: POND 6

Inflow Area = 152.560 ac, 34.40% Impervious, Inflow Depth > 6.24" for 50 event
Inflow = 365.22 cfs @ 12.18 hrs, Volume= 79.292 af
Outflow = 138.00 cfs @ 12.89 hrs, Volume= 73.975 af, Atten= 62%, Lag= 42.2 min
Primary = 138.00 cfs @ 12.89 hrs, Volume= 73.975 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 196,792 sf Storage= 705,109 cf
Peak Elev= 12.86' @ 12.89 hrs Surf.Area= 227,939 sf Storage= 1,434,176 cf (729,067 cf above start)

Plug-Flow detention time= 230.9 min calculated for 57.788 af (73% of inflow)
Center-of-Mass det. time= 69.0 min (968.5 - 899.6)

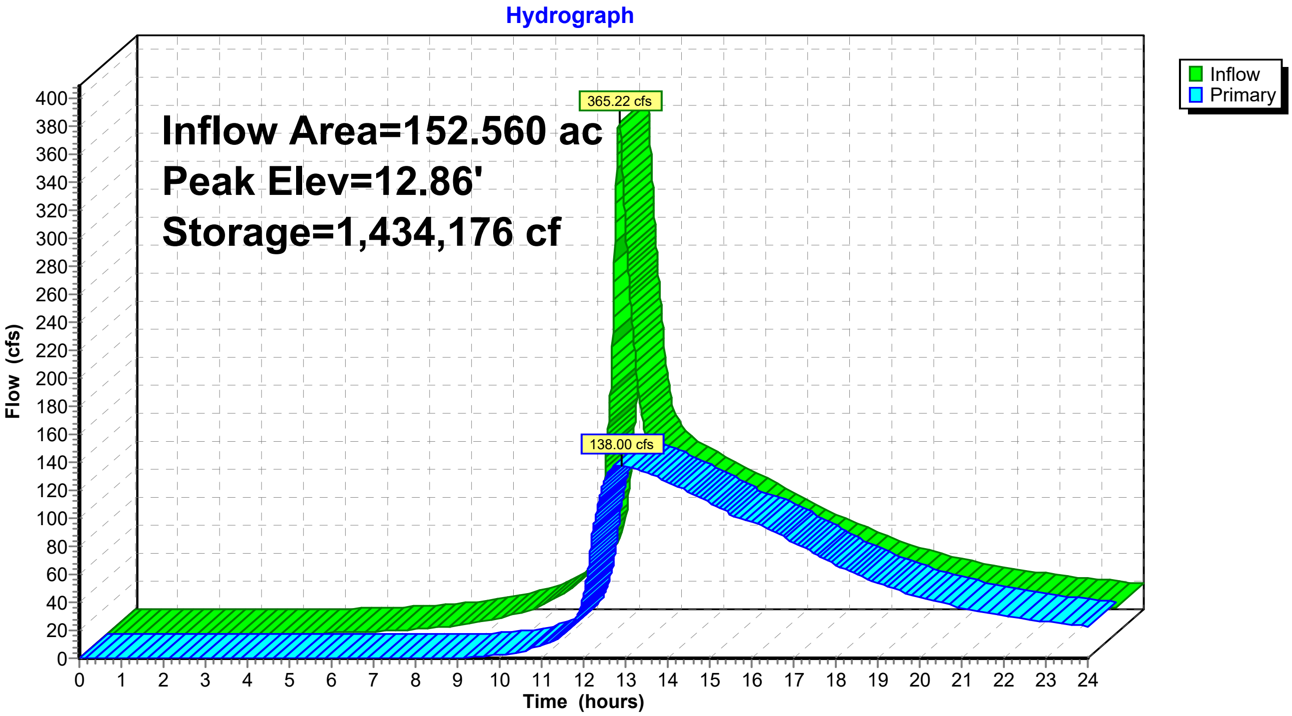
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	3,128,709 cf	**POND 6 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	162,042	0	0
9.50	197,411	718,906	718,906
14.00	238,258	980,255	1,699,161
20.00	238,258	1,429,548	3,128,709

Device	Routing	Invert	Outlet Devices
#1	Primary	9.91'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.91' / 9.89' S= 0.0004 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Primary	9.53'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.53' / 9.41' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#3	Primary	9.43'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.42' / 9.43' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#4	Primary	9.52'	**24.0" Round RCP_Round 24" X 3.00** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.52' / 9.43' S= 0.0019 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

Primary OutFlow Max=138.00 cfs @ 12.89 hrs HW=12.86' (Free Discharge)
├─**1=RCP_Round 24"** (Barrel Controls 19.49 cfs @ 6.20 fps)
├─**2=RCP_Round 24"** (Barrel Controls 23.82 cfs @ 7.58 fps)
├─**3=RCP_Round 24"** (Barrel Controls 23.73 cfs @ 7.56 fps)
└─**4=RCP_Round 24"** (Barrel Controls 70.96 cfs @ 7.53 fps)

Pond POST-6P: POND 6



Summary for Subcatchment POST #1: POST-DEVELOPED BASIN #1

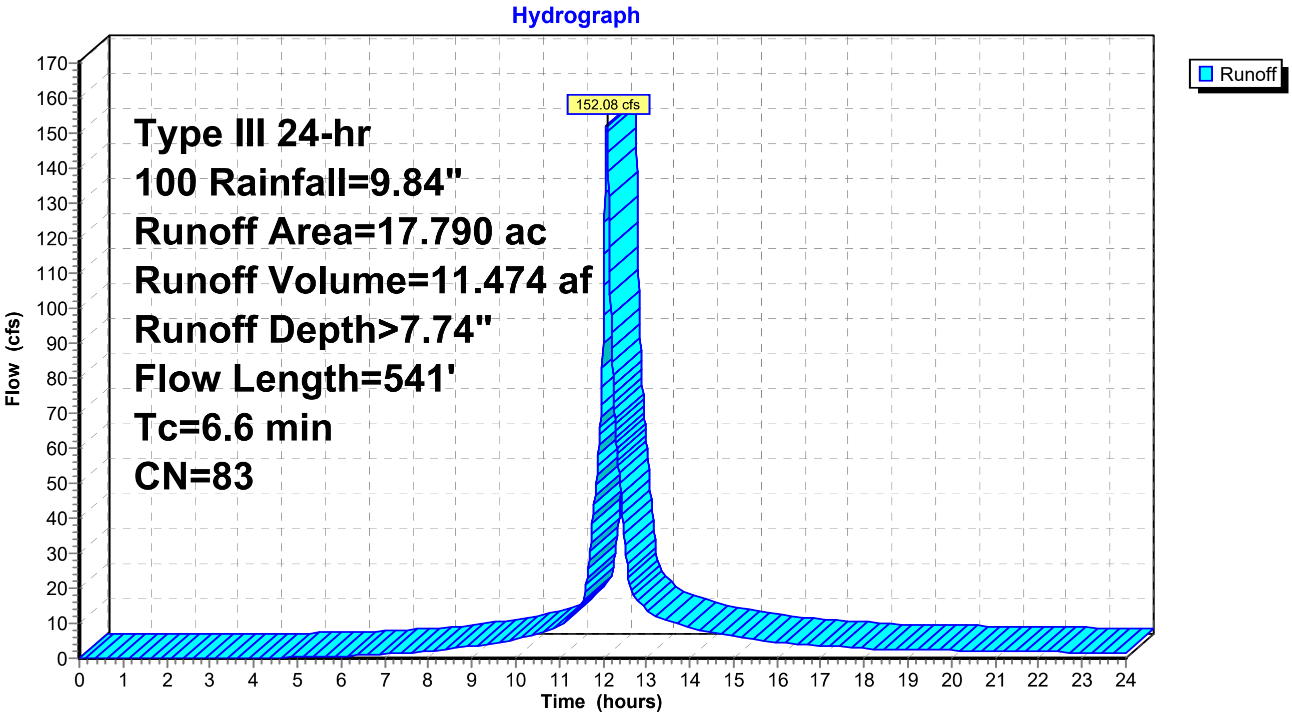
Runoff = 152.08 cfs @ 12.09 hrs, Volume= 11.474 af, Depth> 7.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
	11.440	74	>75% Grass cover, Good, HSG C
*	2.940	98	Houses
*	2.810	98	Roads and Walkways
*	0.600	98	NWL Pond
	17.790	83	Weighted Average
	11.440		64.31% Pervious Area
	6.350		35.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0200	0.17		**Sheet Flow, YARD** Grass: Short n= 0.150 P2= 4.34"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, POST-DEV BASIN 1-SCF** Paved Kv= 20.3 fps
1.9	447	0.0030	3.97	19.47	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.015 Concrete sewer w/manholes & inlets
6.6	541	Total			

Subcatchment POST #1: POST-DEVELOPED BASIN #1



Summary for Subcatchment POST #2: POST-DEVELOPED BASIN #2

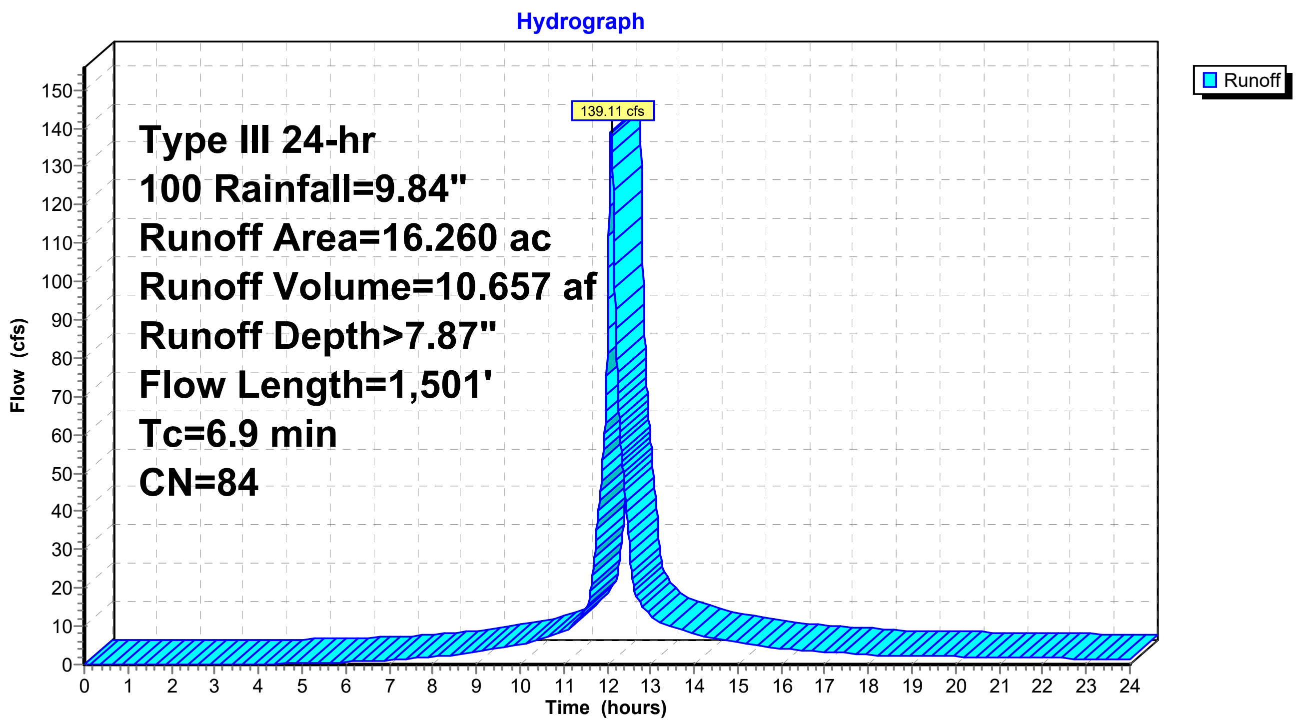
Runoff = 139.11 cfs @ 12.10 hrs, Volume= 10.657 af, Depth> 7.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	16.260	84	SFR lots, 30% imp, HSG D
	11.382		70.00% Pervious Area
	4.878		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2: POST-DEVELOPED BASIN #2



Summary for Subcatchment POST #2A: POST-DEVELOPED BASIN #2A

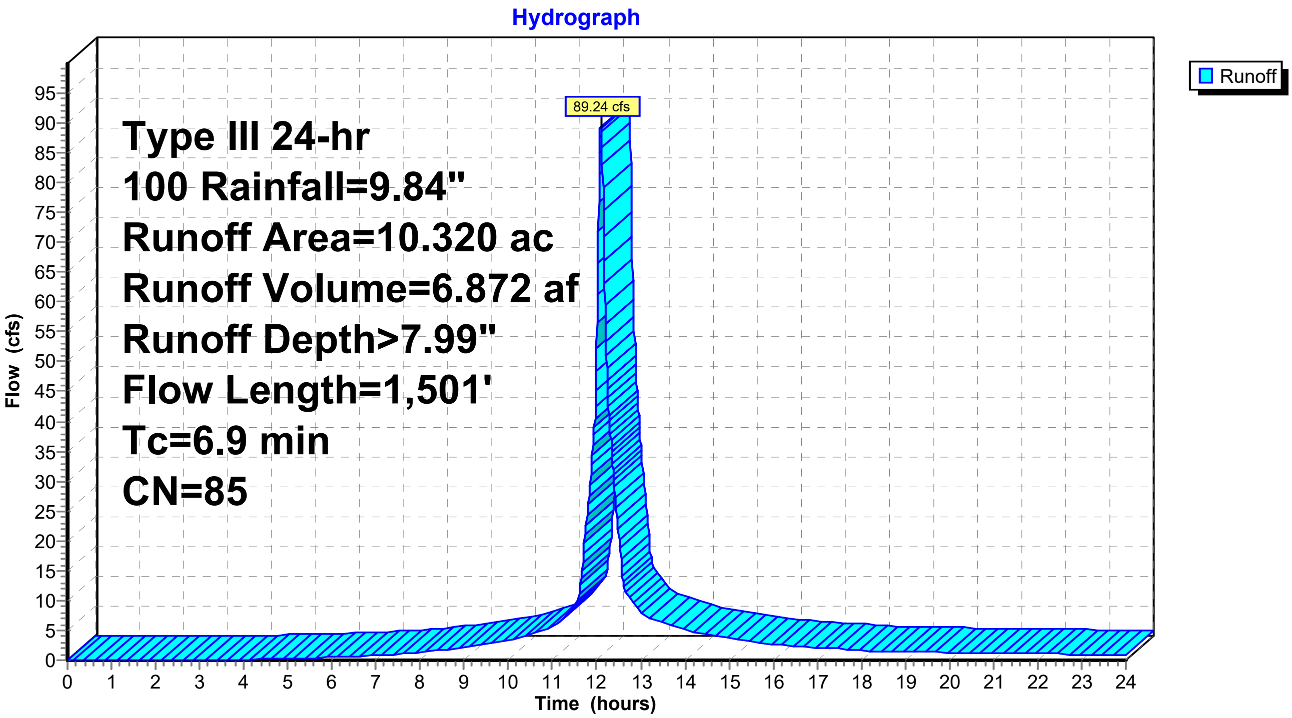
Runoff = 89.24 cfs @ 12.10 hrs, Volume= 6.872 af, Depth> 7.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	10.320	85	
	10.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2A: POST-DEVELOPED BASIN #2A



Summary for Subcatchment POST #3: POST-DEVELOPED BASIN #3

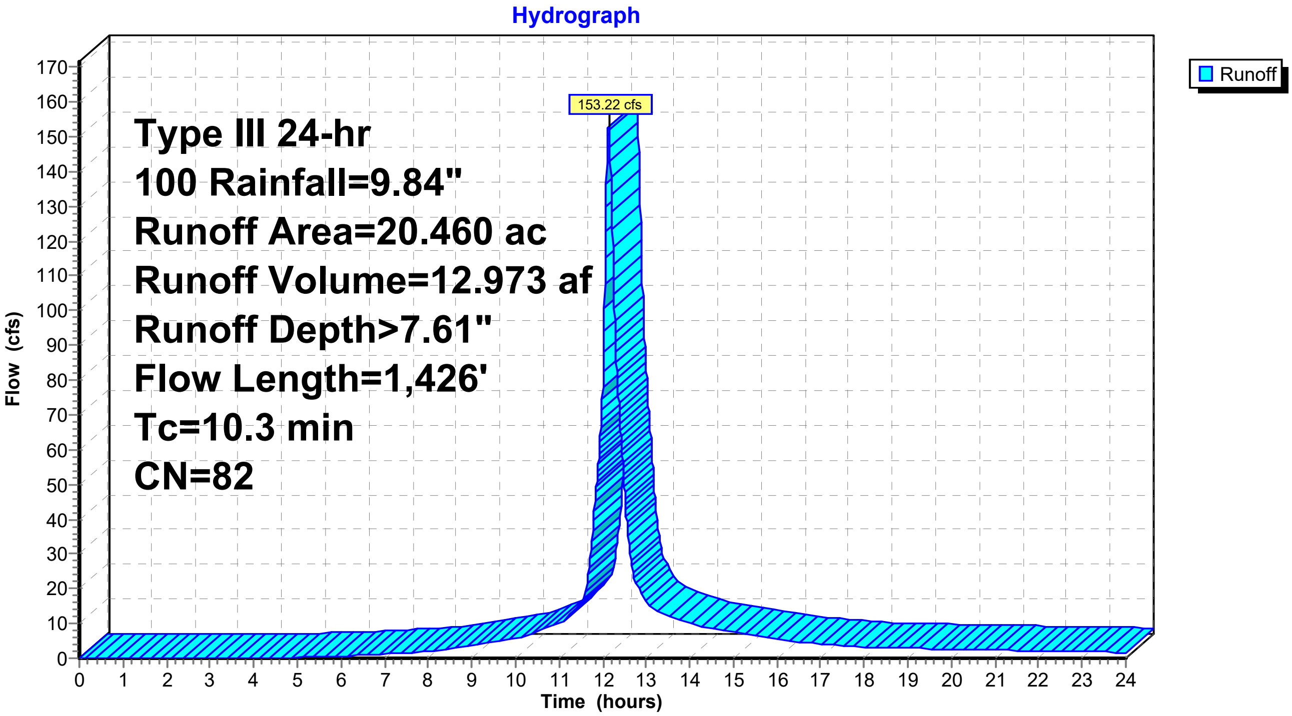
Runoff = 153.22 cfs @ 12.14 hrs, Volume= 12.973 af, Depth> 7.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
	13.530	74	>75% Grass cover, Good, HSG C
*	2.480	98	Houses
*	3.570	98	Roads and Walkways
*	0.880	98	NWL Pond
	20.460	82	Weighted Average
	13.530		66.13% Pervious Area
	6.930		33.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0200	0.18		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
0.4	105	0.0100	4.86	24.28	**Channel Flow, REAR YARD SWALE** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
3.9	1,256	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
10.3	1,426	Total			

Subcatchment POST #3: POST-DEVELOPED BASIN #3



Summary for Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A

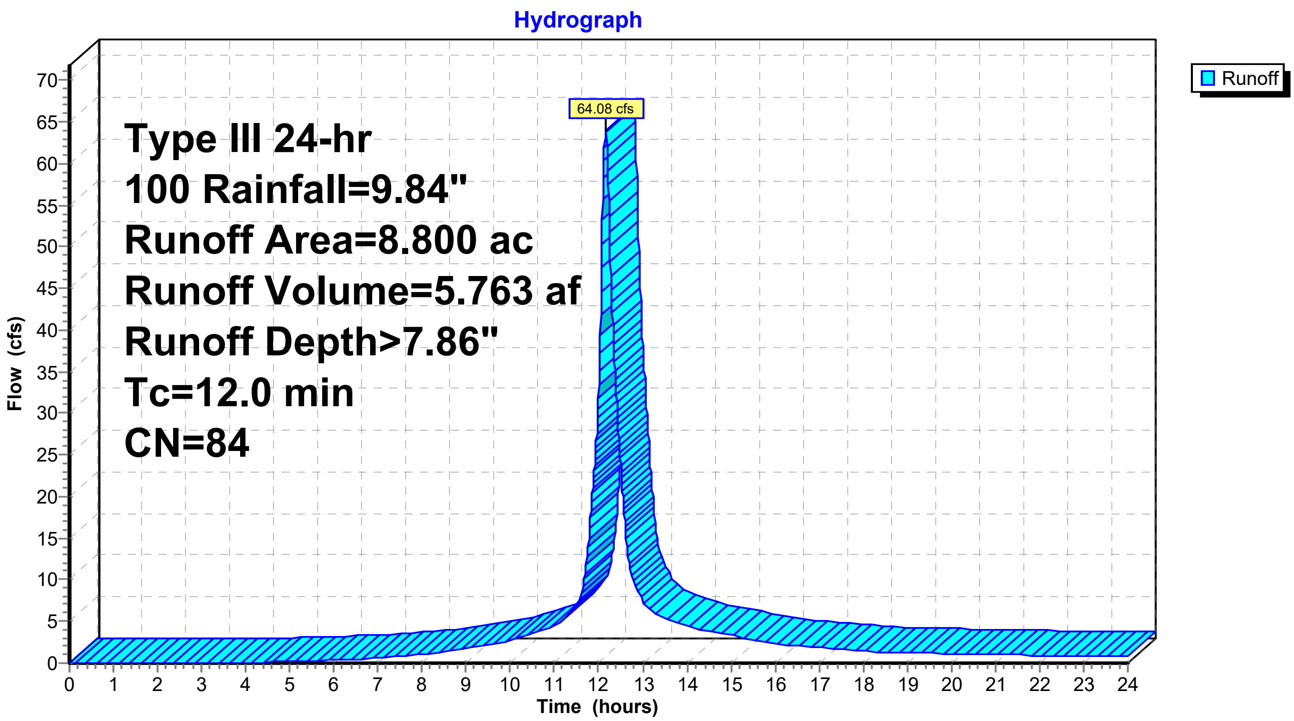
Runoff = 64.08 cfs @ 12.16 hrs, Volume= 5.763 af, Depth> 7.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	8.800	84	SFR lots, 30% imp, HSG D
	6.160		70.00% Pervious Area
	2.640		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A



Summary for Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B

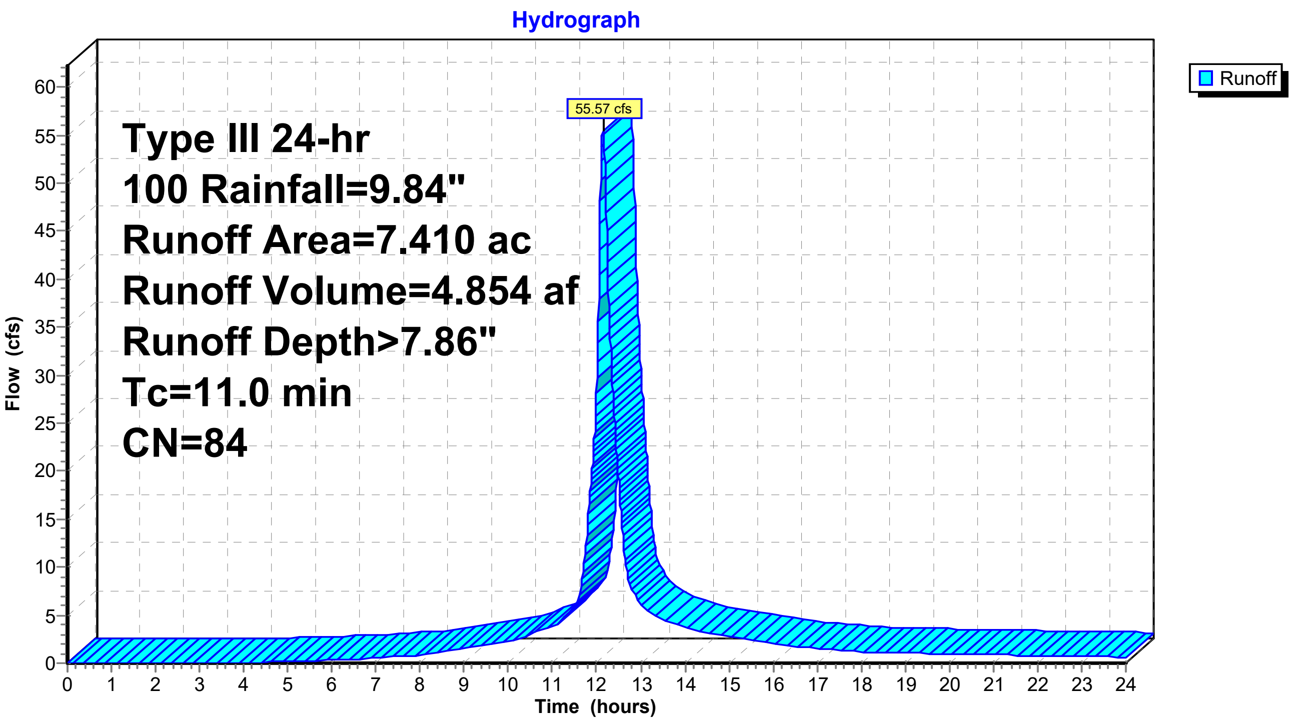
Runoff = 55.57 cfs @ 12.15 hrs, Volume= 4.854 af, Depth> 7.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	7.410	84	SFR lots, 30% imp, HSG D
	5.187		70.00% Pervious Area
	2.223		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0					**Direct Entry,**

Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B



Summary for Subcatchment POST #4: POST-DEVELOPED BASIN #4

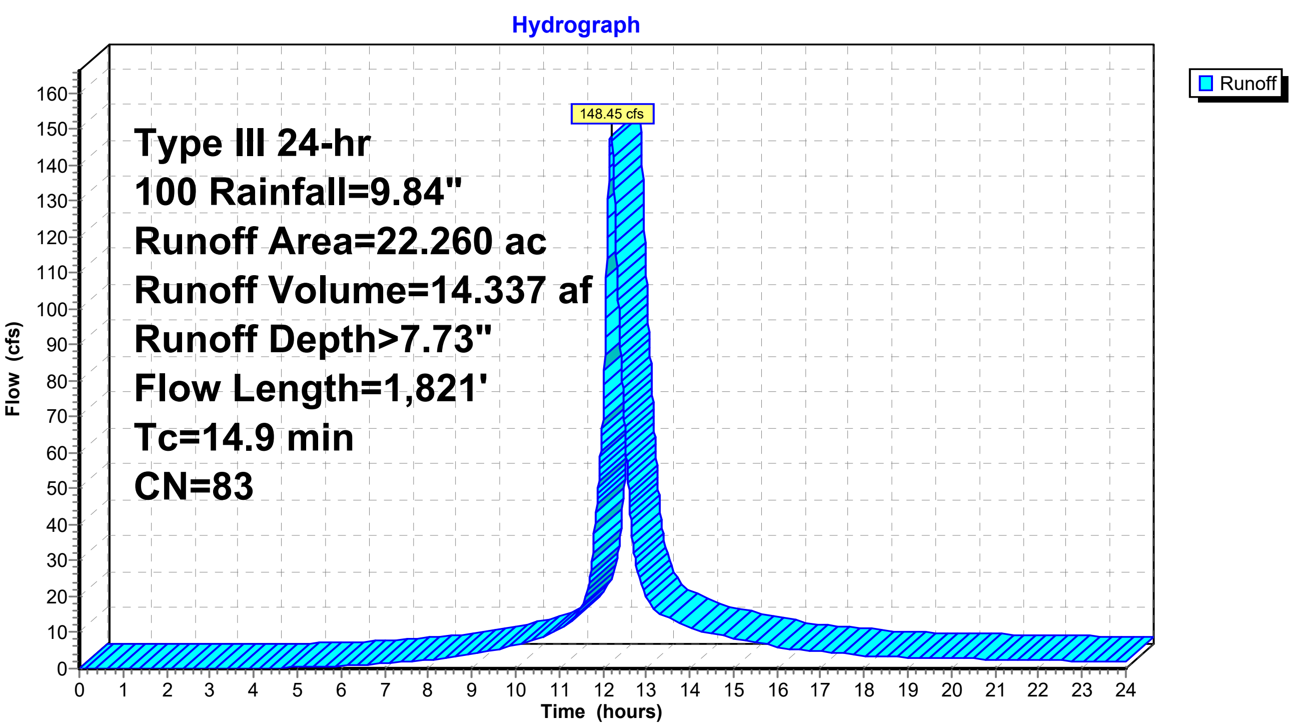
Runoff = 148.45 cfs @ 12.20 hrs, Volume= 14.337 af, Depth> 7.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
	14.150	74	>75% Grass cover, Good, HSG C
*	8.110	98	Houses, Roads and Walkways, NWL POND
	22.260	83	Weighted Average
	14.150		63.57% Pervious Area
	8.110		36.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0100	0.13		**Sheet Flow, POST DEV BASIN #4 - SHEET** Grass: Short n= 0.150 P2= 4.34"
3.5	300	0.0050	1.44		**Shallow Concentrated Flow, Gutter Basin 4** Paved Kv= 20.3 fps
4.5	1,466	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
14.9	1,821	Total			

Subcatchment POST #4: POST-DEVELOPED BASIN #4



Summary for Subcatchment POST #5: POST-DEVELOPED BASIN #5

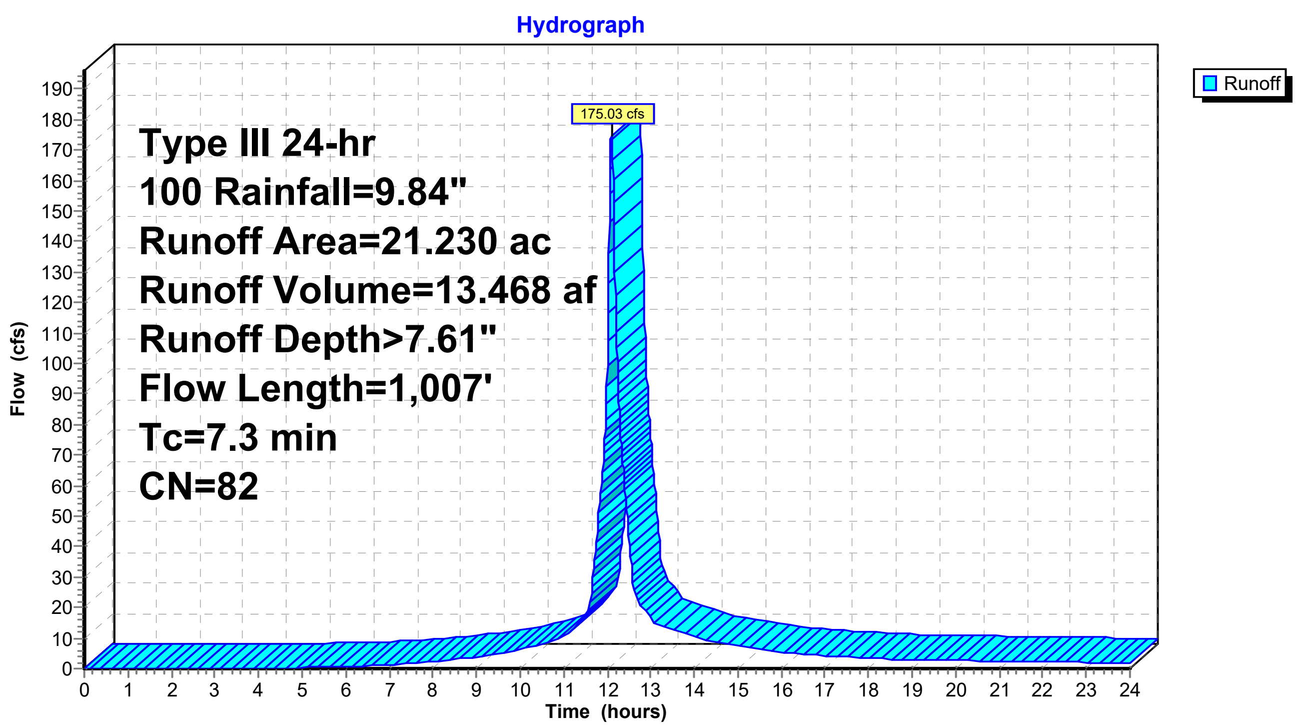
Runoff = 175.03 cfs @ 12.10 hrs, Volume= 13.468 af, Depth> 7.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
	14.320	74	>75% Grass cover, Good, HSG C
*	2.850	98	Houses
*	3.410	98	Roads and Walkways
*	0.650	98	NWL Pond
	21.230	82	Weighted Average
	14.320		67.45% Pervious Area
	6.910		32.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	55	0.0300	0.21		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
2.9	952	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
7.3	1,007	Total			

Subcatchment POST #5: POST-DEVELOPED BASIN #5



Summary for Subcatchment POST #6: POST-DEVELOPED BASIN #6

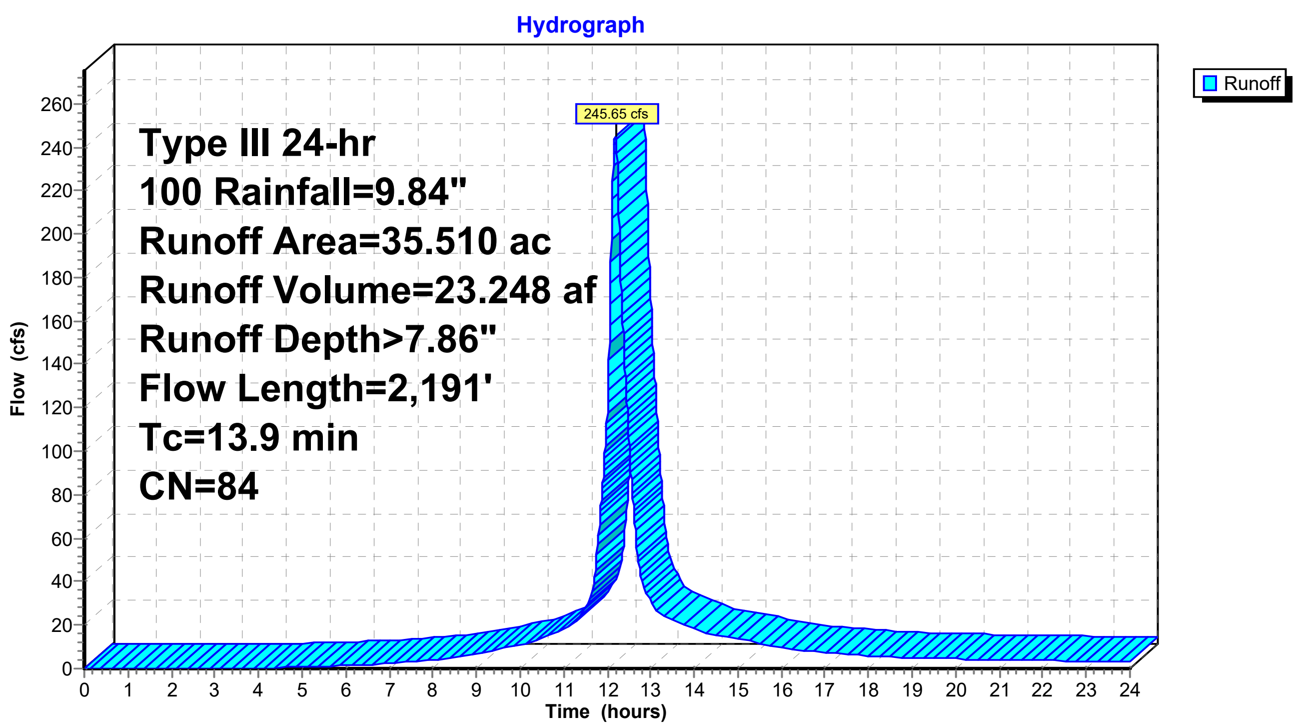
Runoff = 245.65 cfs @ 12.18 hrs, Volume= 23.248 af, Depth> 7.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
	21.070	74	>75% Grass cover, Good, HSG C
*	5.180	98	Houses
*	5.540	98	Roads and Walkways
*	3.720	98	NWL Pond
	35.510	84	Weighted Average
	21.070		59.34% Pervious Area
	14.440		40.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0200	0.19		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
6.5	2,106	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
13.9	2,191	Total			

Subcatchment POST #6: POST-DEVELOPED BASIN #6



Summary for Pond POST-1P: POND 1

Inflow Area = 17.790 ac, 35.69% Impervious, Inflow Depth > 7.74" for 100 event
Inflow = 152.08 cfs @ 12.09 hrs, Volume= 11.474 af
Outflow = 24.07 cfs @ 12.11 hrs, Volume= 10.024 af, Atten= 84%, Lag= 0.9 min
Primary = 24.07 cfs @ 12.11 hrs, Volume= 10.024 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 37,128 sf Storage= 113,417 cf
Peak Elev= 14.68' @ 13.08 hrs Surf.Area= 87,036 sf Storage= 405,721 cf (292,304 cf above start)

Plug-Flow detention time= 358.6 min calculated for 7.417 af (65% of inflow)
Center-of-Mass det. time= 186.8 min (975.2 - 788.4)

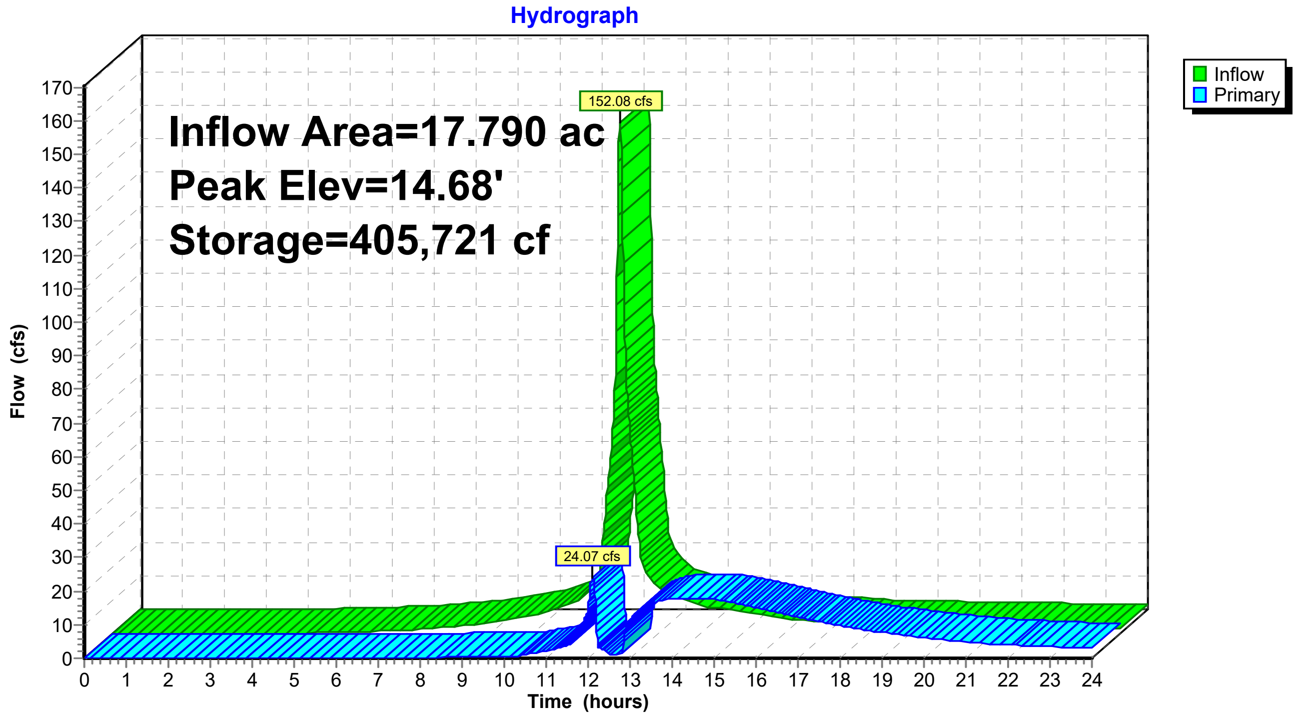
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	910,381 cf	**POND 1 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	26,411	0	0
9.97	37,128	113,417	113,417
15.00	90,446	320,849	434,266
20.00	100,000	476,115	910,381

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.11' S= 0.0143 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	9.97'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 7.89' S= 0.0145 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	10.14'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.02' S= 0.0148 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=12.96 cfs @ 12.11 hrs HW=13.11' TW=13.09' (Dynamic Tailwater)
├—**1=RCP_Round 30"** (Outlet Controls 4.48 cfs @ 0.97 fps)
├—**2=RCP_Round 30"** (Outlet Controls 4.61 cfs @ 0.96 fps)
└—**3=RCP_Round 30"** (Outlet Controls 3.87 cfs @ 0.84 fps)

Pond POST-1P: POND 1



Summary for Pond POST-2P: POND 2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)
[80] Warning: Exceeded Pond POST-1P by 0.03' @ 12.23 hrs (14.32 cfs 0.535 af)

Inflow Area = 34.050 ac, 32.98% Impervious, Inflow Depth > 7.29" for 100 event
Inflow = 163.02 cfs @ 12.10 hrs, Volume= 20.681 af
Outflow = 35.93 cfs @ 14.49 hrs, Volume= 19.025 af, Atten= 78%, Lag= 143.6 min
Primary = 35.93 cfs @ 14.49 hrs, Volume= 19.025 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 44,416 sf Storage= 133,705 cf
Peak Elev= 14.65' @ 13.03 hrs Surf.Area= 91,354 sf Storage= 451,673 cf (317,968 cf above start)

Plug-Flow detention time= 249.9 min calculated for 15.955 af (77% of inflow)
Center-of-Mass det. time= 114.9 min (992.8 - 877.9)

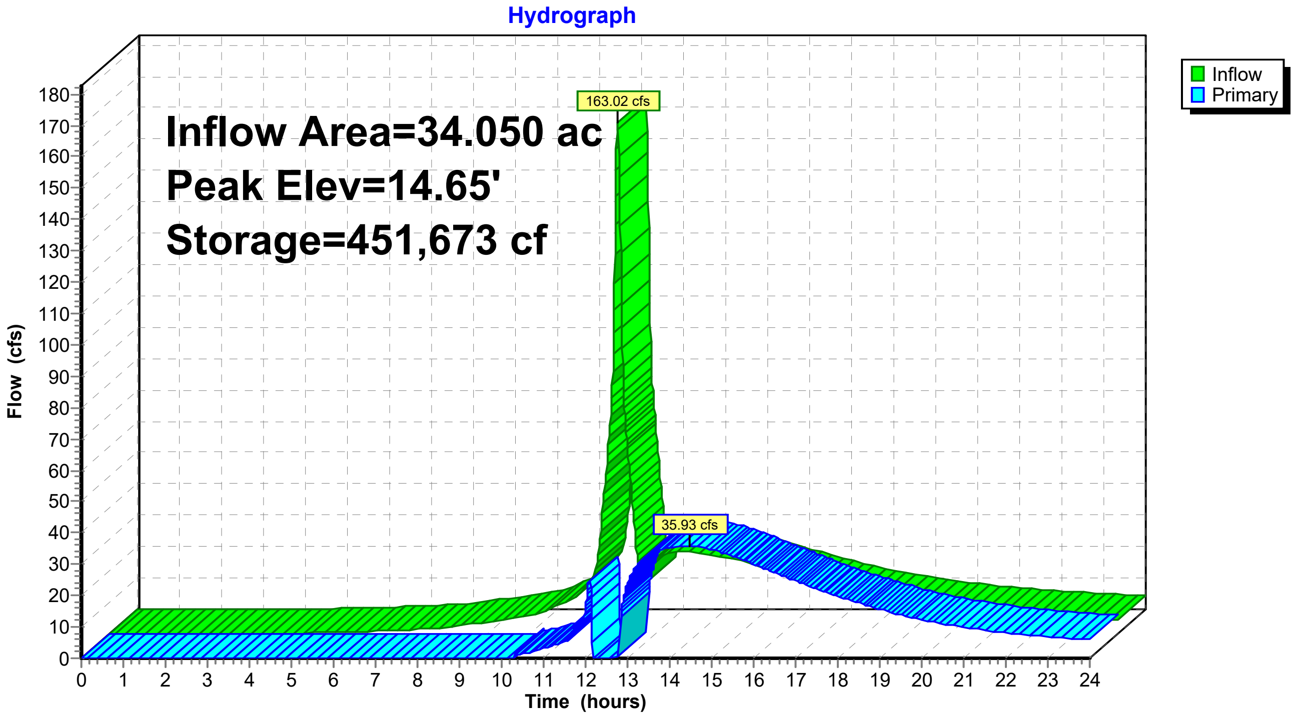
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	970,944 cf	**POND 2 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	30,489	0	0
9.97	44,416	133,705	133,705
15.00	94,822	350,184	483,889
20.00	100,000	487,055	970,944

Device	Routing	Invert	Outlet Devices
#1	Primary	8.20'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.18' / 8.20' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	8.18'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.15' / 8.18' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	8.12'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.12' / 8.10' S= 0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#4	Primary	8.07'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.07' / 8.06' S= 0.0001 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf

Primary OutFlow Max=36.76 cfs @ 14.49 hrs HW=14.20' TW=14.09' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 9.19 cfs @ 1.87 fps)
├─**2=RCP_Round 30"** (Outlet Controls 9.19 cfs @ 1.87 fps)
├─**3=RCP_Round 30"** (Outlet Controls 9.19 cfs @ 1.87 fps)
└─**4=RCP_Round 30"** (Outlet Controls 9.19 cfs @ 1.87 fps)

Pond POST-2P: POND 2



Summary for Pond POST-2PA: POND 2A

[95] Warning: Outlet Device #1 rise exceeded

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 7.99" for 100 event
Inflow = 136.52 cfs @ 12.09 hrs, Volume= 10.389 af
Outflow = 100.90 cfs @ 12.16 hrs, Volume= 10.241 af, Atten= 26%, Lag= 4.5 min
Primary = 100.90 cfs @ 12.16 hrs, Volume= 10.241 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.97' @ 12.16 hrs Surf.Area= 37,100 sf Storage= 180,276 cf (71,554 cf above start)

Plug-Flow detention time= 158.8 min calculated for 7.742 af (75% of inflow)
Center-of-Mass det. time= 23.0 min (806.3 - 783.3)

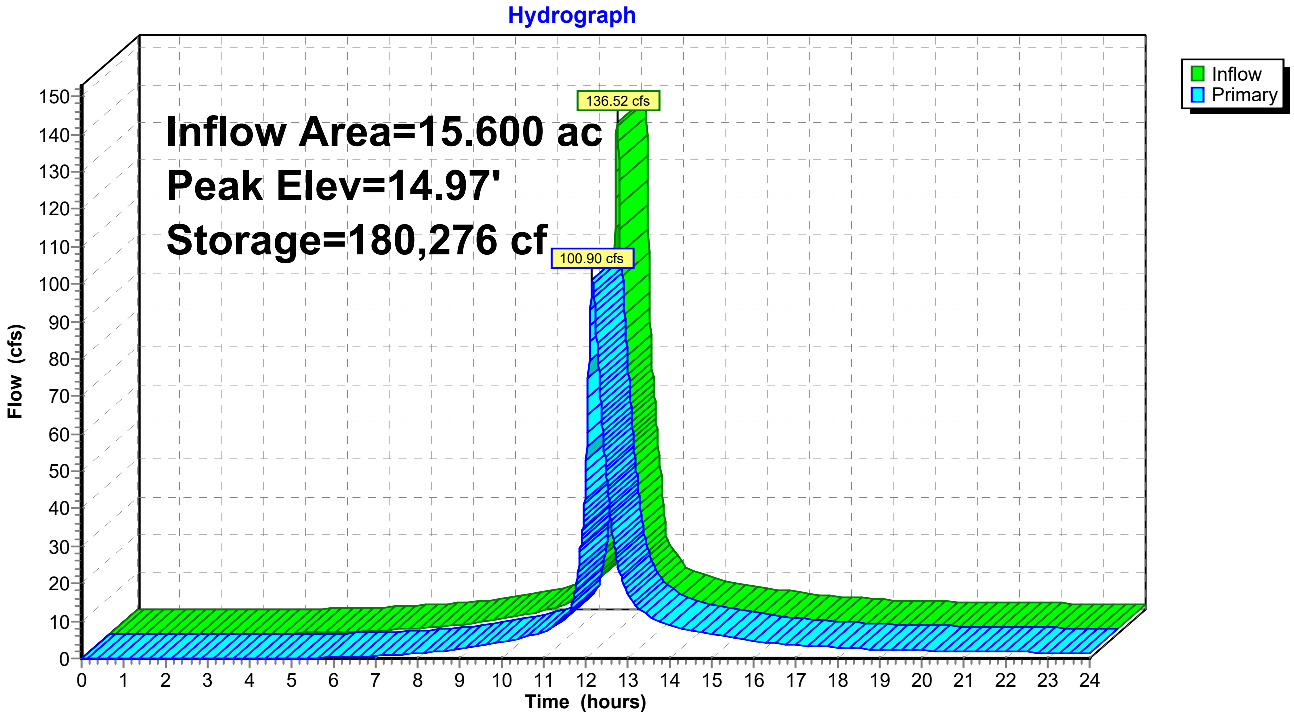
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=100.93 cfs @ 12.16 hrs HW=14.97' (Free Discharge)
└─**1=Custom Weir/Orifice** (Orifice Controls 100.93 cfs @ 4.30 fps)

Pond POST-2PA: POND 2A



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.28' @ 12.44 hrs (60.57 cfs 7.895 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 7.10" for 100 event
Inflow = 205.97 cfs @ 12.12 hrs, Volume= 43.492 af
Outflow = 72.34 cfs @ 13.99 hrs, Volume= 41.440 af, Atten= 65%, Lag= 112.2 min
Primary = 72.34 cfs @ 13.99 hrs, Volume= 41.440 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 14.70' @ 12.64 hrs Surf.Area= 93,240 sf Storage= 542,747 cf (359,303 cf above start)

Plug-Flow detention time= 151.8 min calculated for 37.213 af (86% of inflow)
Center-of-Mass det. time= 61.3 min (972.7 - 911.4)

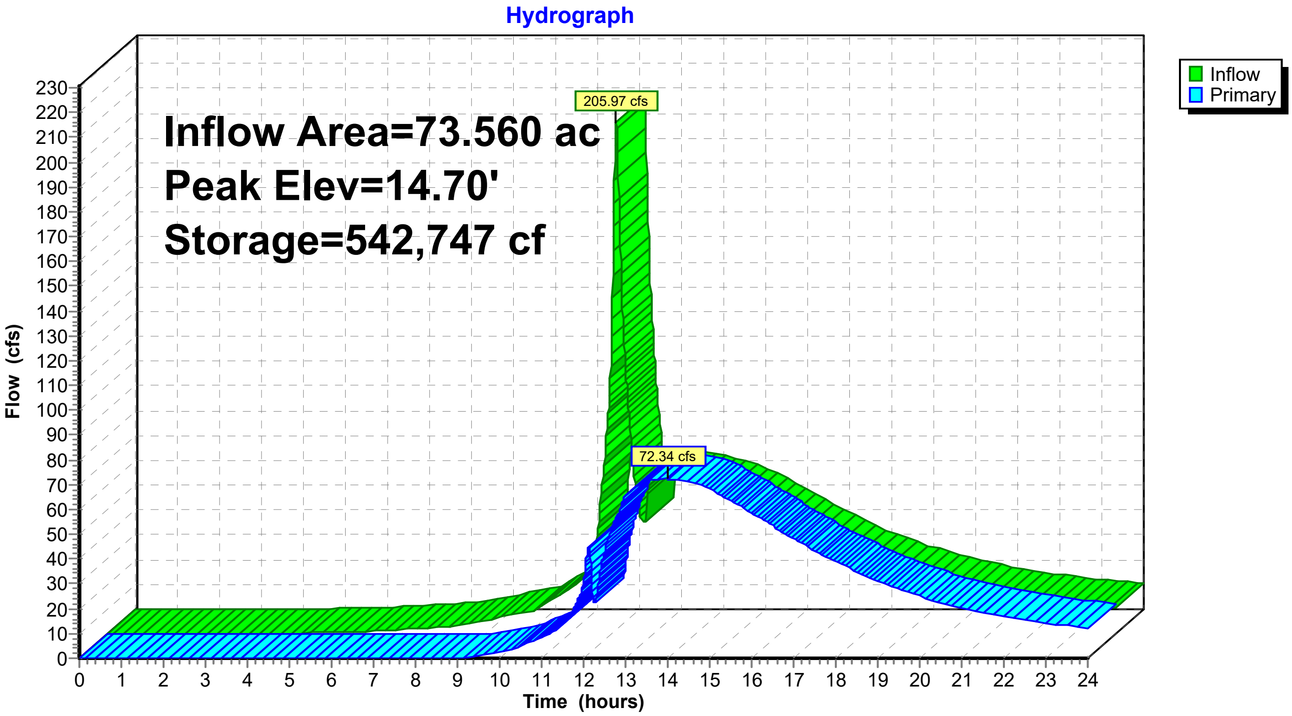
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=72.71 cfs @ 13.99 hrs HW=14.31' TW=13.91' (Dynamic Tailwater)
├—**1=RCP_Round 36"** (Outlet Controls 25.51 cfs @ 3.61 fps)
├—**2=RCP_Round 36"** (Outlet Controls 25.51 cfs @ 3.61 fps)
└—**3=RCP_Round 36"** (Outlet Controls 21.70 cfs @ 3.07 fps)

Pond POST-3P: POND 3



Summary for Pond POST-3PA: POND 3A

[44] Hint: Outlet device #1 is below defined storage
[80] Warning: Exceeded Pond POST-3PB by 0.07' @ 12.16 hrs (9.48 cfs 0.322 af)

Inflow Area = 16.210 ac, 30.00% Impervious, Inflow Depth > 7.51" for 100 event
Inflow = 65.81 cfs @ 12.15 hrs, Volume= 10.142 af
Outflow = 20.87 cfs @ 12.85 hrs, Volume= 9.692 af, Atten= 68%, Lag= 41.9 min
Primary = 20.87 cfs @ 12.85 hrs, Volume= 9.692 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.94' @ 12.70 hrs Surf.Area= 27,784 sf Storage= 106,773 cf

Plug-Flow detention time= 95.8 min calculated for 9.688 af (96% of inflow)
Center-of-Mass det. time= 72.3 min (931.8 - 859.4)

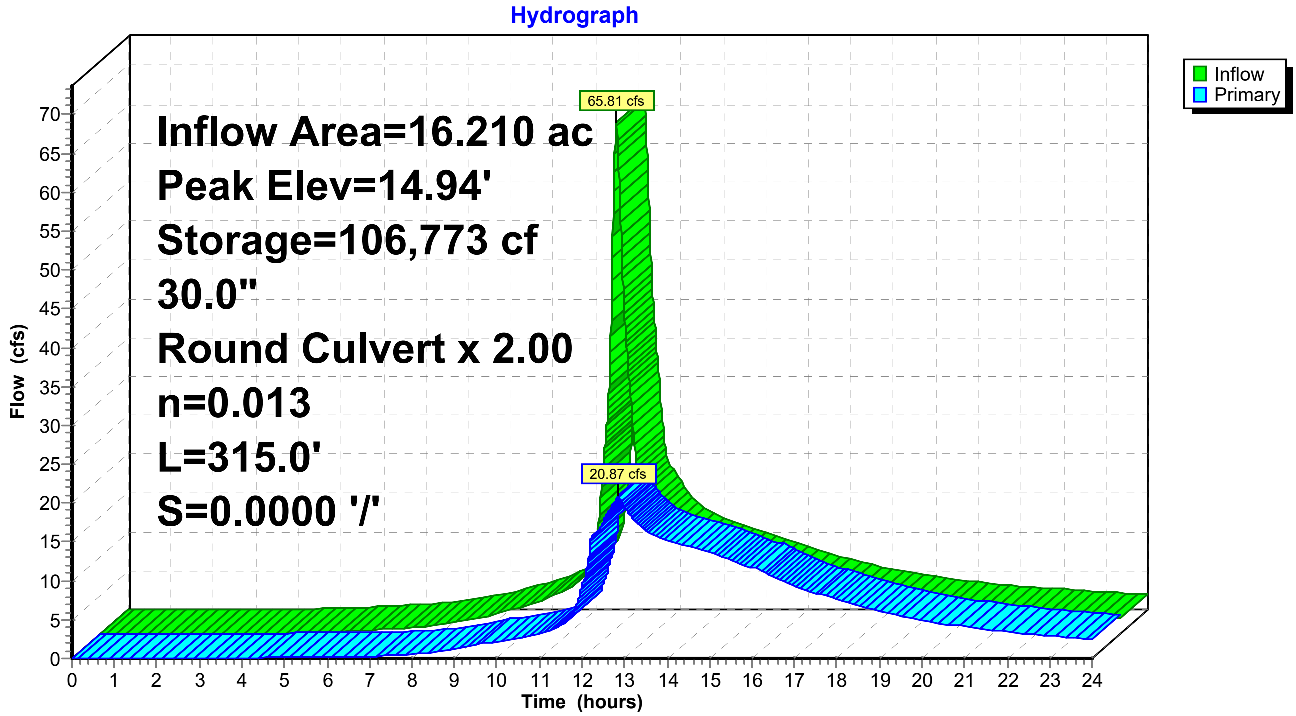
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	247,412 cf	**POND 3A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,127	0	0
14.40	27,784	91,822	91,822
20.00	27,784	155,590	247,412

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 315.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=20.95 cfs @ 12.85 hrs HW=14.91' TW=14.62' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 20.95 cfs @ 2.13 fps)

Pond POST-3PA: POND 3A



Summary for Pond POST-3PB: POND 3B

[44] Hint: Outlet device #1 is below defined storage
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 7.410 ac, 30.00% Impervious, Inflow Depth > 7.86" for 100 event
Inflow = 55.57 cfs @ 12.15 hrs, Volume= 4.854 af
Outflow = 9.45 cfs @ 12.92 hrs, Volume= 4.379 af, Atten= 83%, Lag= 46.1 min
Primary = 9.45 cfs @ 12.92 hrs, Volume= 4.379 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.99' @ 12.75 hrs Surf.Area= 28,662 sf Storage= 112,190 cf

Plug-Flow detention time= 207.9 min calculated for 4.379 af (90% of inflow)
Center-of-Mass det. time= 160.6 min (950.2 - 789.6)

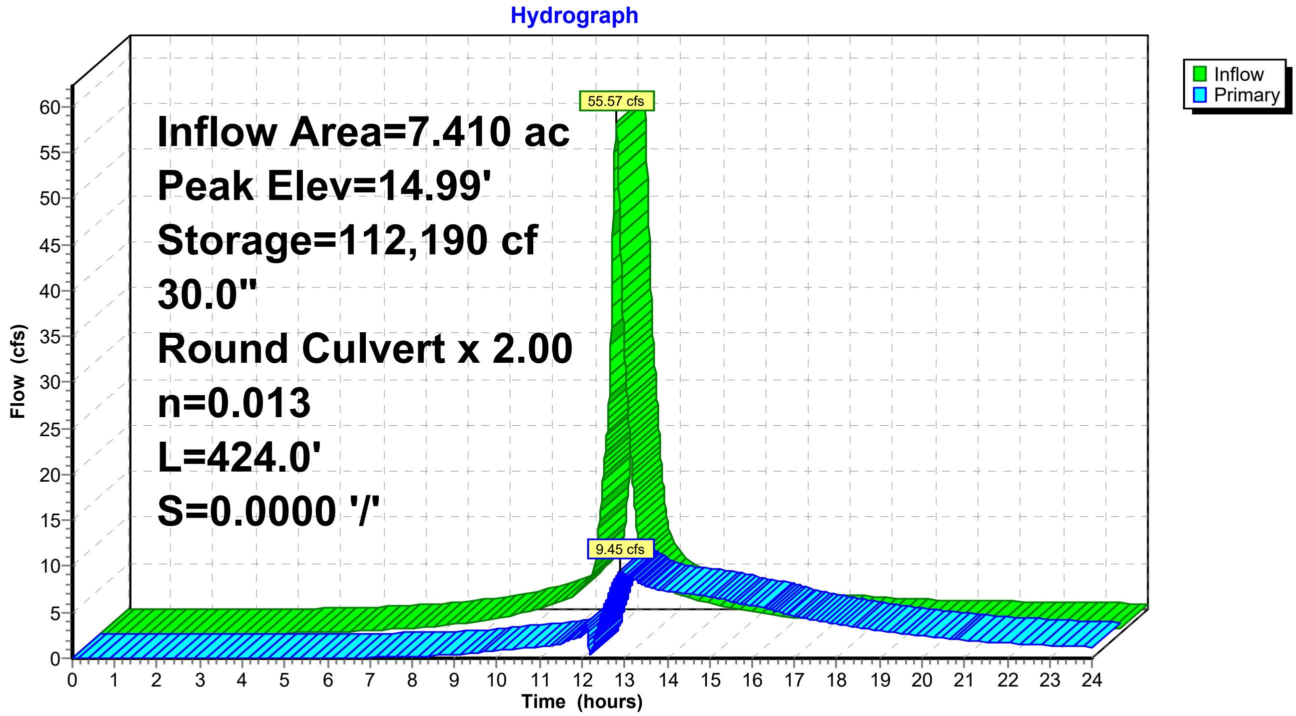
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	255,727 cf	**POND 3B (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,948	0	0
14.40	28,662	95,220	95,220
20.00	28,662	160,507	255,727

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 424.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=9.67 cfs @ 12.92 hrs HW=14.96' TW=14.88' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 9.67 cfs @ 0.98 fps)

Pond POST-3PB: POND 3B



Summary for Pond POST-4P: POND 4

[80] Warning: Exceeded Pond POST-3P by 0.11' @ 7.75 hrs (0.38 cfs 0.147 af)

Inflow Area = 95.820 ac, 32.49% Impervious, Inflow Depth > 6.99" for 100 event
Inflow = 183.63 cfs @ 12.17 hrs, Volume= 55.778 af
Outflow = 107.29 cfs @ 12.28 hrs, Volume= 54.996 af, Atten= 42%, Lag= 6.6 min
Primary = 107.29 cfs @ 12.28 hrs, Volume= 54.996 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 25,099 sf Storage= 71,286 cf
Peak Elev= 14.51' @ 12.57 hrs Surf.Area= 47,616 sf Storage= 236,484 cf (165,198 cf above start)

Plug-Flow detention time= 51.7 min calculated for 53.359 af (96% of inflow)
Center-of-Mass det. time= 20.4 min (947.4 - 927.0)

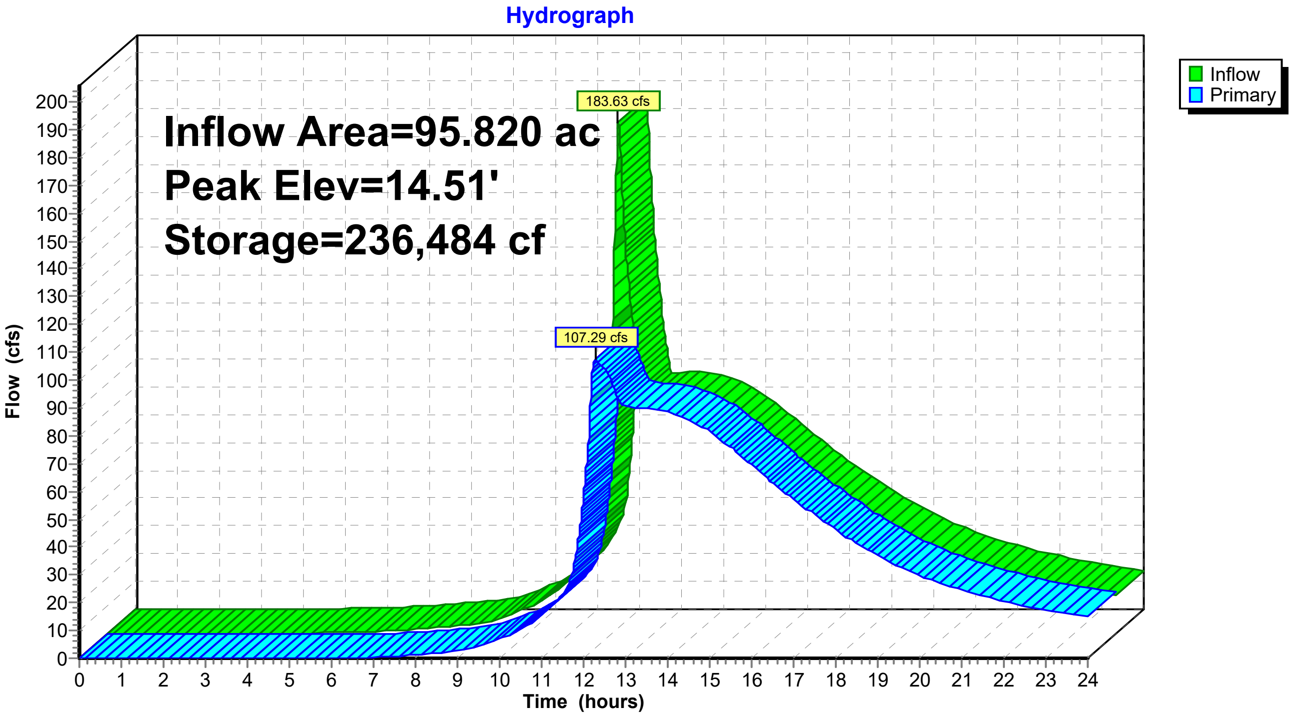
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	635,290 cf	**POND 4 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	14,837	0	0
9.97	25,099	71,286	71,286
15.00	50,026	188,939	260,225
20.00	100,000	375,065	635,290

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0109 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0097 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0098 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=105.39 cfs @ 12.28 hrs HW=14.08' TW=13.23' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 37.23 cfs @ 5.29 fps)
├─**2=RCP_Round 36"** (Outlet Controls 36.44 cfs @ 5.15 fps)
└─**3=RCP_Round 36"** (Outlet Controls 31.72 cfs @ 4.50 fps)

Pond POST-4P: POND 4



Summary for Pond POST-5P: POND 5

Inflow Area = 117.050 ac, 32.50% Impervious, Inflow Depth > 7.02" for 100 event
Inflow = 251.04 cfs @ 12.11 hrs, Volume= 68.464 af
Outflow = 157.92 cfs @ 12.18 hrs, Volume= 67.284 af, Atten= 37%, Lag= 3.9 min
Primary = 157.92 cfs @ 12.18 hrs, Volume= 67.284 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 39,178 sf Storage= 132,791 cf
Peak Elev= 13.70' @ 12.68 hrs Surf.Area= 51,977 sf Storage= 327,572 cf (194,781 cf above start)

Plug-Flow detention time= 65.3 min calculated for 64.235 af (94% of inflow)
Center-of-Mass det. time= 20.6 min (937.3 - 916.7)

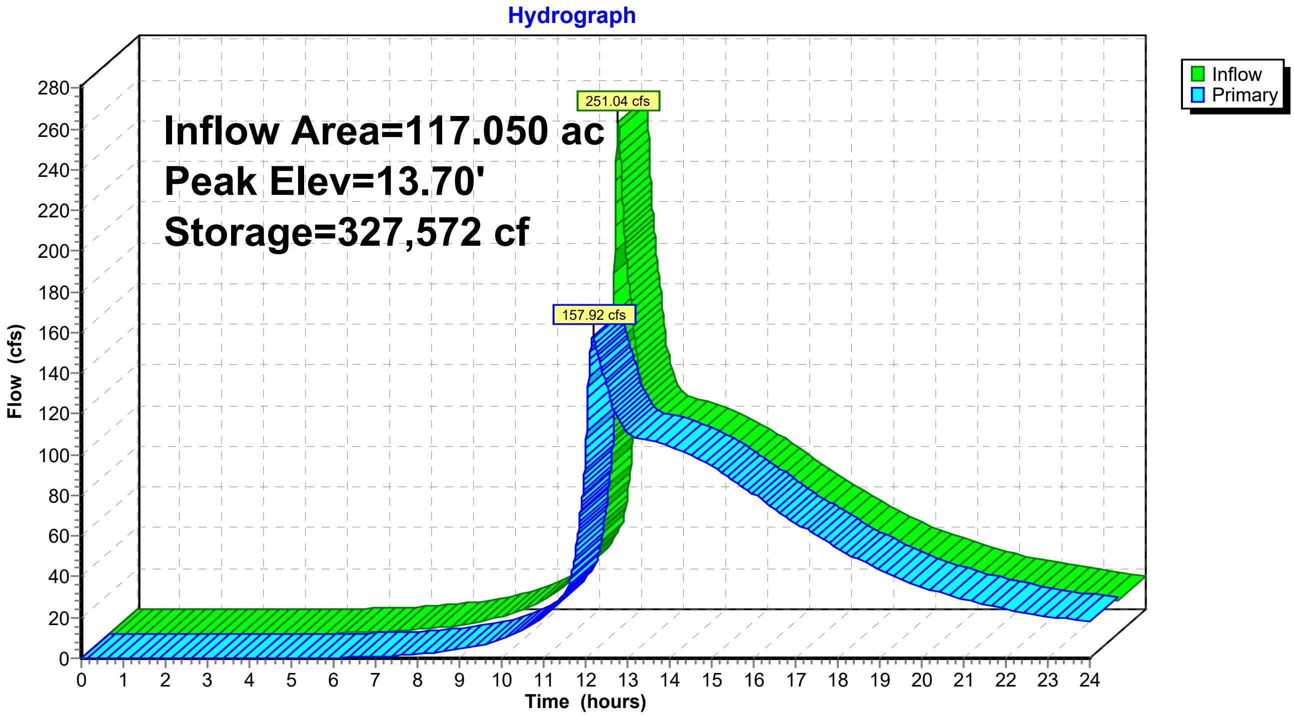
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	785,627 cf	**POND 5 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	28,400	0	0
9.50	39,370	135,540	135,540
15.10	56,162	267,490	403,030
20.00	100,000	382,597	785,627

Device	Routing	Invert	Outlet Devices
#1	Primary	8.59'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.59' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	8.52'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.52' / 8.43' S= 0.0007 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.63' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#4	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.35' / 8.63' S= -0.0022 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=153.47 cfs @ 12.18 hrs HW=12.85' TW=11.99' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 39.66 cfs @ 5.61 fps)
├─**2=RCP_Round 36"** (Outlet Controls 39.66 cfs @ 5.61 fps)
├─**3=RCP_Round 36"** (Outlet Controls 39.66 cfs @ 5.61 fps)
└─**4=RCP_Round 36"** (Outlet Controls 34.47 cfs @ 4.88 fps)

Pond POST-5P: POND 5



Summary for Pond POST-6P: POND 6

Inflow Area = 152.560 ac, 34.40% Impervious, Inflow Depth > 7.12" for 100 event
Inflow = 403.51 cfs @ 12.18 hrs, Volume= 90.531 af
Outflow = 153.86 cfs @ 12.84 hrs, Volume= 84.889 af, Atten= 62%, Lag= 39.7 min
Primary = 153.86 cfs @ 12.84 hrs, Volume= 84.889 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 196,792 sf Storage= 705,109 cf
Peak Elev= 13.19' @ 12.84 hrs Surf.Area= 230,917 sf Storage= 1,509,449 cf (804,340 cf above start)

Plug-Flow detention time= 215.1 min calculated for 68.702 af (76% of inflow)
Center-of-Mass det. time= 68.2 min (968.2 - 900.0)

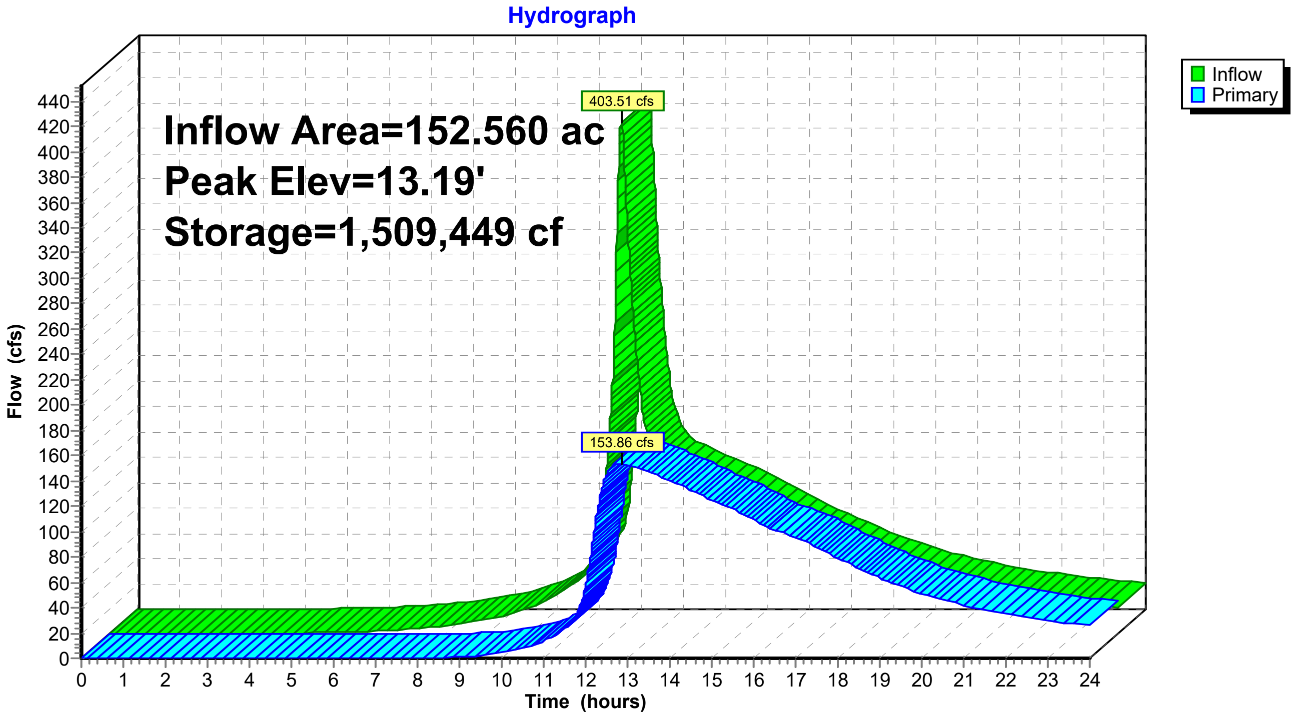
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	3,128,709 cf	**POND 6 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	162,042	0	0
9.50	197,411	718,906	718,906
14.00	238,258	980,255	1,699,161
20.00	238,258	1,429,548	3,128,709

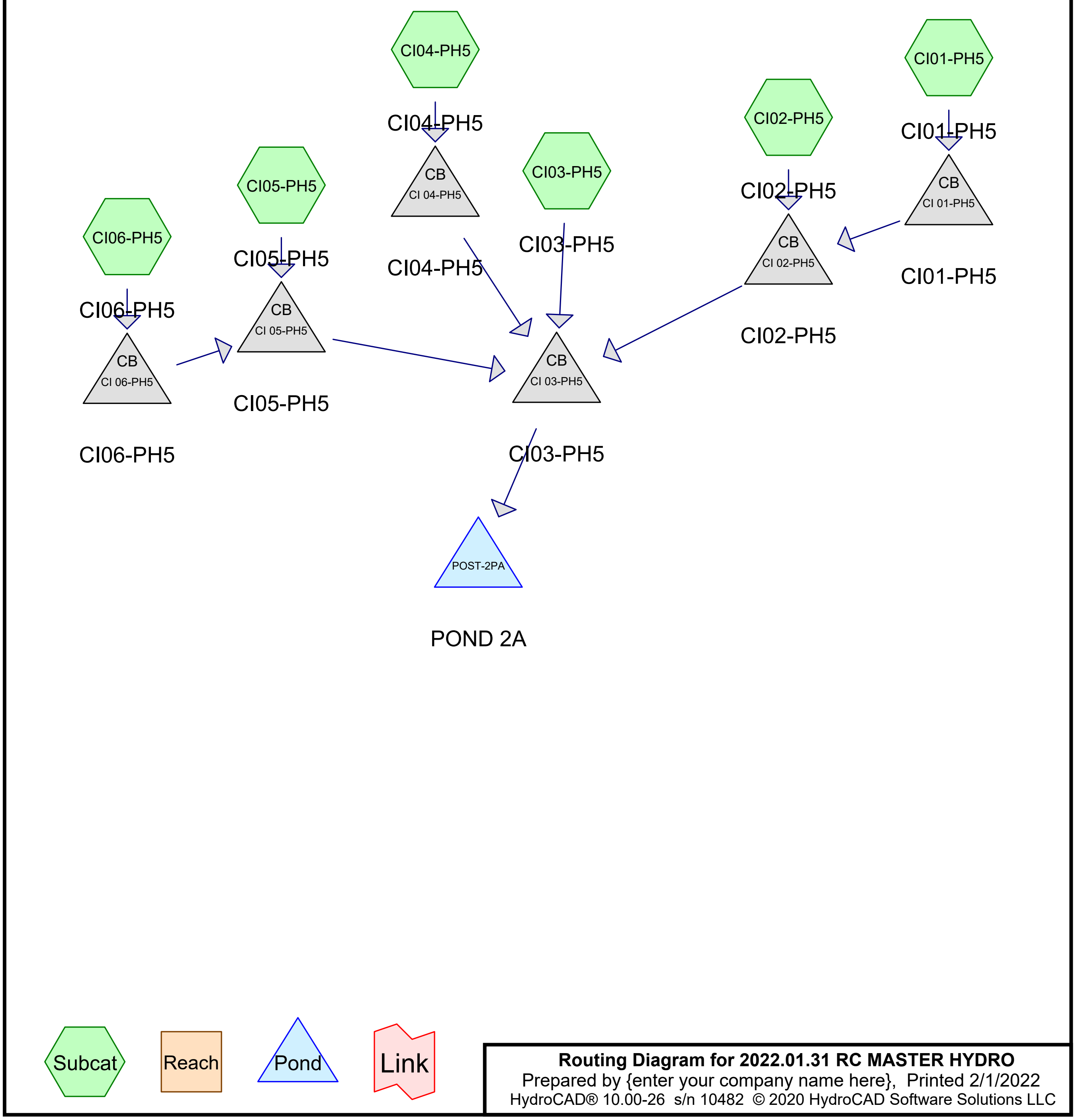
Device	Routing	Invert	Outlet Devices
#1	Primary	9.91'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.91' / 9.89' S= 0.0004 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Primary	9.53'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.53' / 9.41' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#3	Primary	9.43'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.42' / 9.43' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#4	Primary	9.52'	**24.0" Round RCP_Round 24" X 3.00** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.52' / 9.43' S= 0.0019 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

Primary OutFlow Max=153.86 cfs @ 12.84 hrs HW=13.19' (Free Discharge)
├─**1=RCP_Round 24"** (Barrel Controls 22.54 cfs @ 7.17 fps)
├─**2=RCP_Round 24"** (Barrel Controls 26.37 cfs @ 8.39 fps)
├─**3=RCP_Round 24"** (Barrel Controls 26.29 cfs @ 8.37 fps)
└─**4=RCP_Round 24"** (Barrel Controls 78.66 cfs @ 8.35 fps)

Pond POST-6P: POND 6



Appendix G: PH V Storm Sewer HydroCAD Output



Routing Diagram for 2022.01.31 RC MASTER HYDRO
Prepared by {enter your company name here}, Printed 2/1/2022
HydroCAD® 10.00-26 s/n 10482 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment CI01-PH5: CI01-PH5

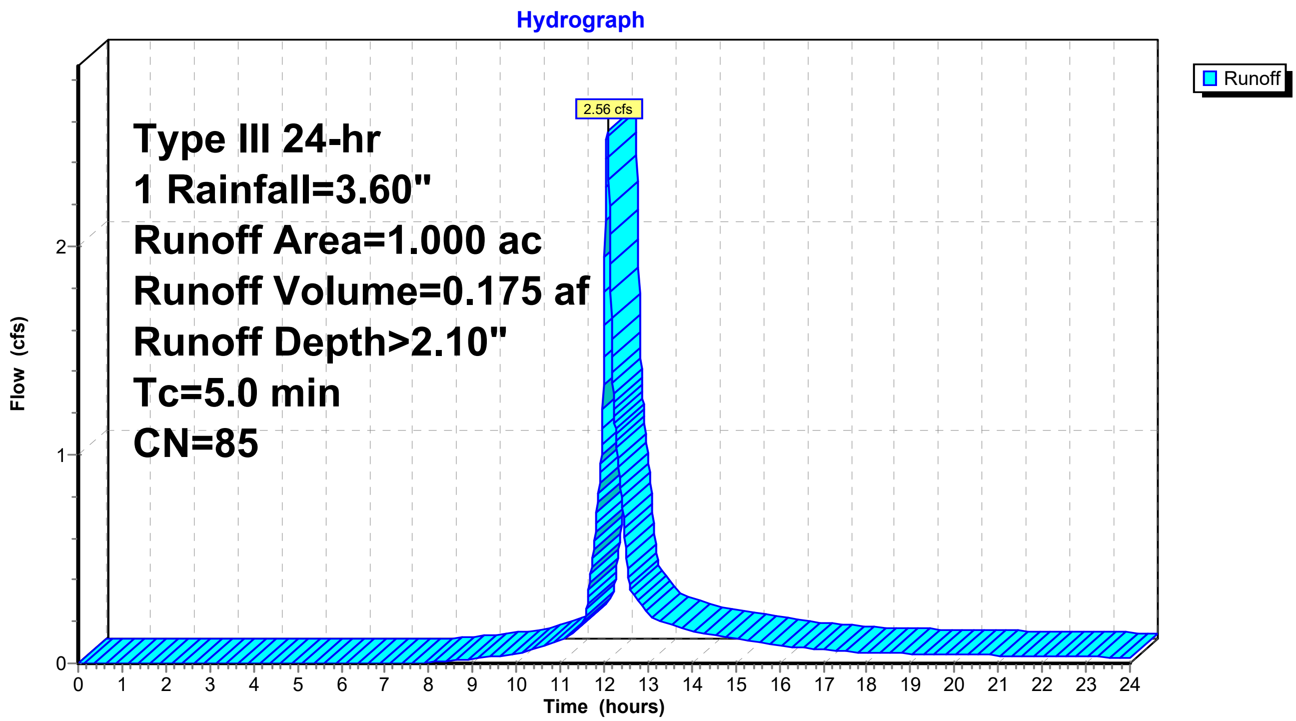
Runoff = 2.56 cfs @ 12.07 hrs, Volume= 0.175 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI01-PH5: CI01-PH5



Summary for Subcatchment CI02-PH5: CI02-PH5

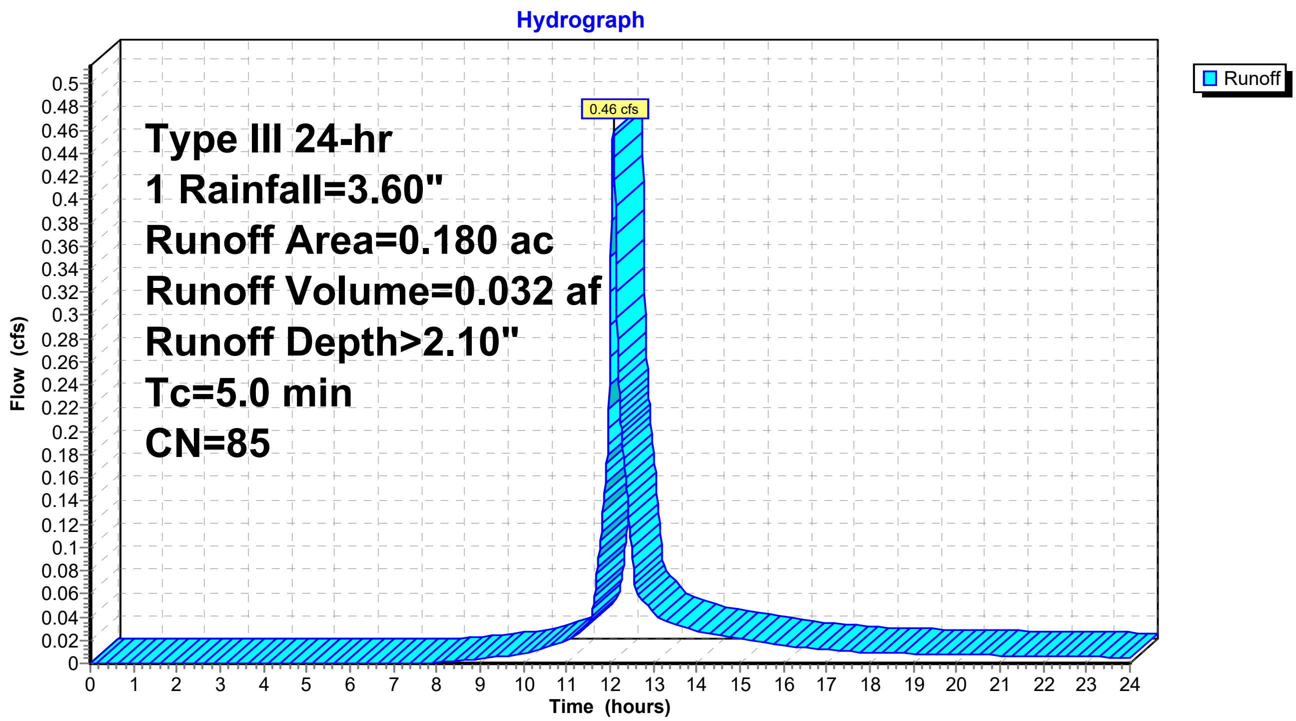
Runoff = 0.46 cfs @ 12.07 hrs, Volume= 0.032 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	0.180	85	
	0.180		100.00% Pervious Area

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

Subcatchment CI02-PH5: CI02-PH5



Summary for Subcatchment CI03-PH5: CI03-PH5

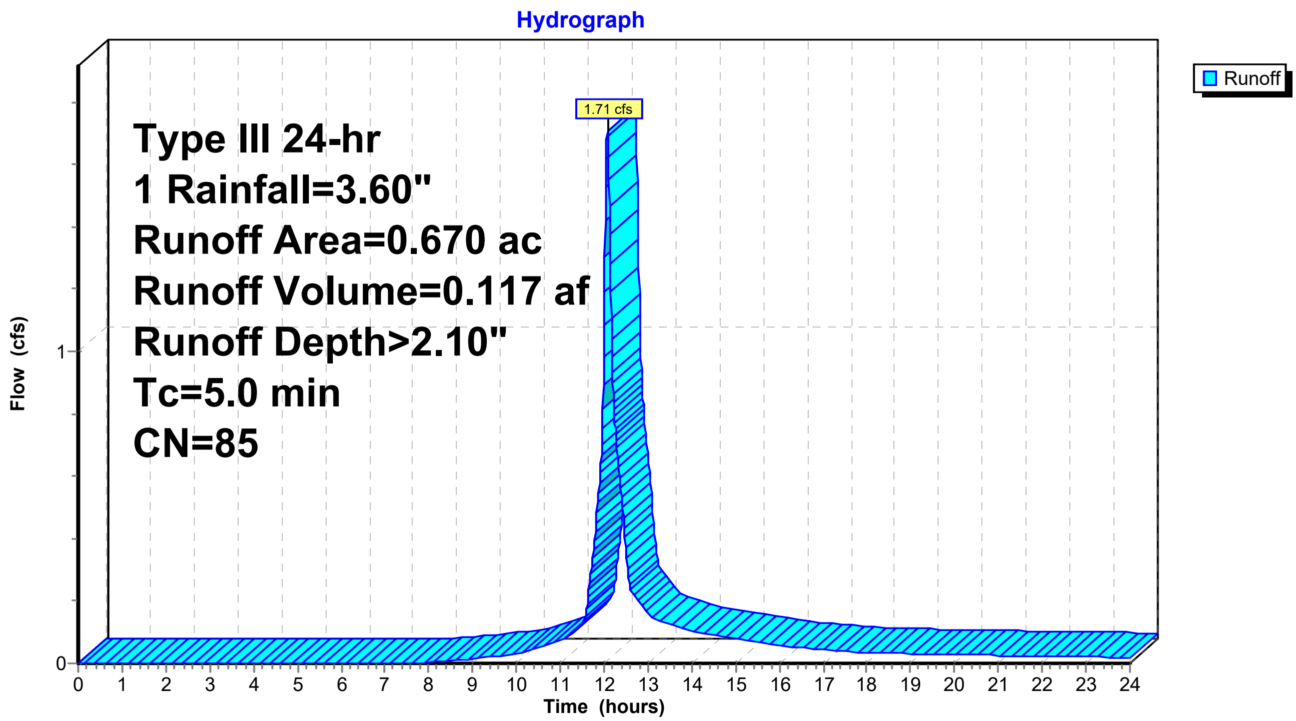
Runoff = 1.71 cfs @ 12.07 hrs, Volume= 0.117 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI03-PH5: CI03-PH5



Summary for Subcatchment CI04-PH5: CI04-PH5

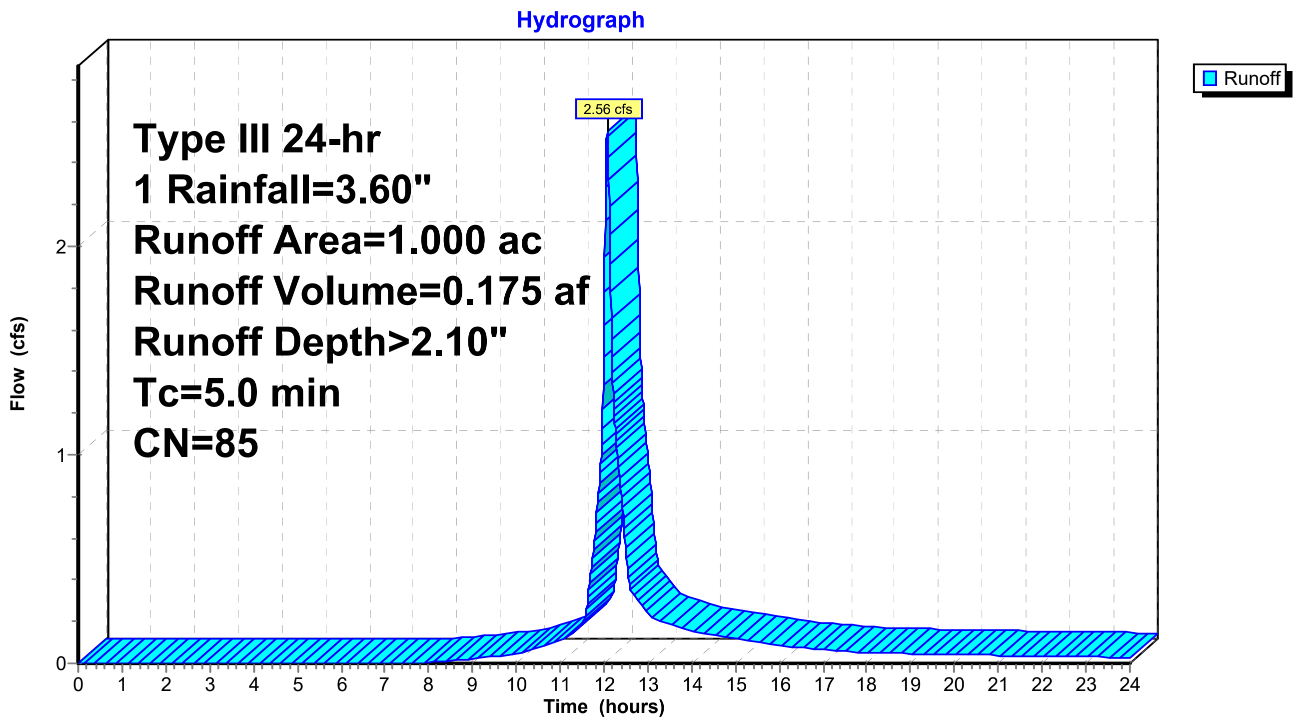
Runoff = 2.56 cfs @ 12.07 hrs, Volume= 0.175 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI04-PH5: CI04-PH5



Summary for Subcatchment CI05-PH5: CI05-PH5

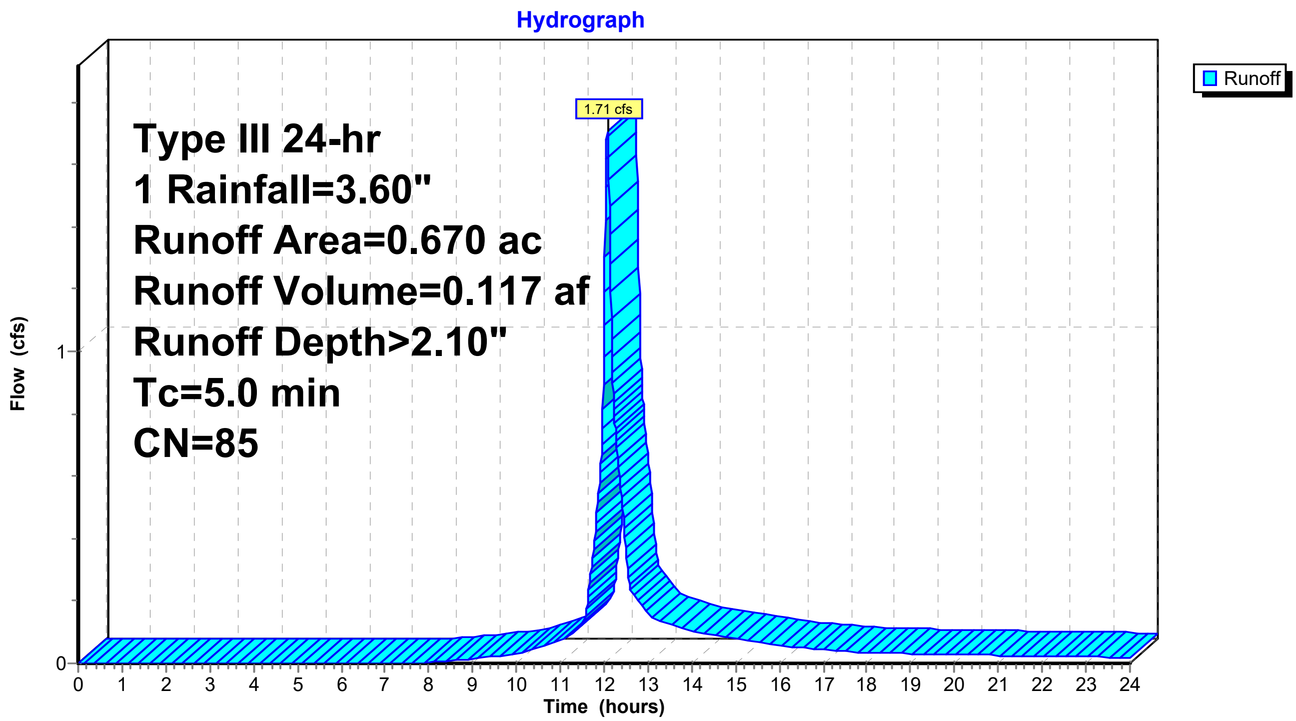
Runoff = 1.71 cfs @ 12.07 hrs, Volume= 0.117 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI05-PH5: CI05-PH5



Summary for Subcatchment CI06-PH5: CI06-PH5

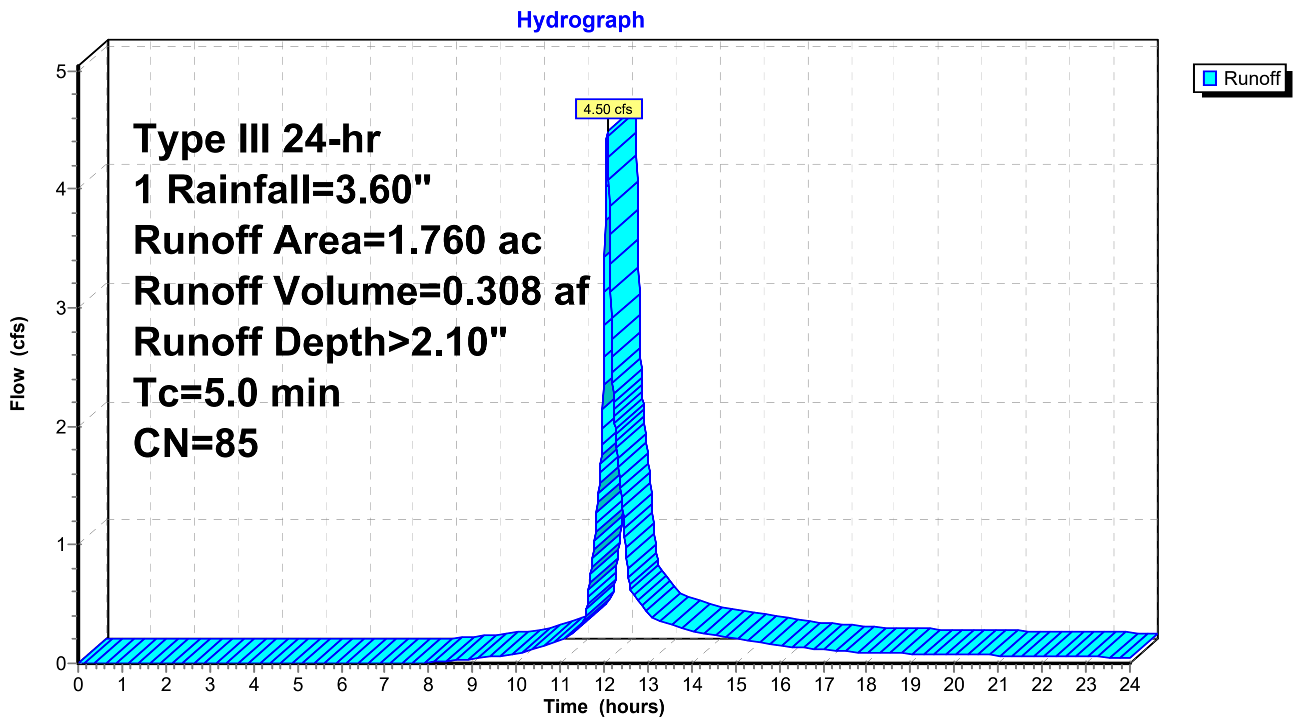
Runoff = 4.50 cfs @ 12.07 hrs, Volume= 0.308 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	1.760	85	
	1.760		100.00% Pervious Area

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

Subcatchment CI06-PH5: CI06-PH5



Summary for Pond CI 01-PH5: CI01-PH5

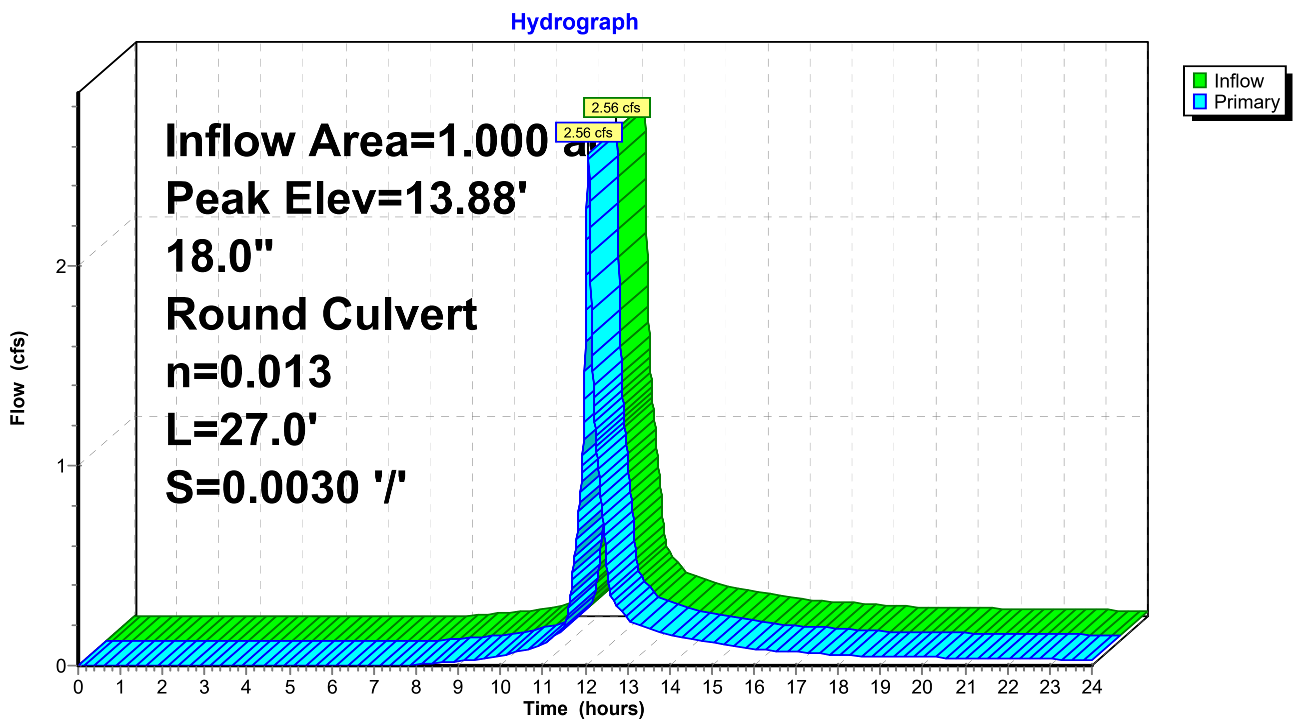
Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth >	2.10"	for 1 event
Inflow =	2.56 cfs @	12.07 hrs, Volume=	0.175 af	
Outflow =	2.56 cfs @	12.07 hrs, Volume=	0.175 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.56 cfs @	12.07 hrs, Volume=	0.175 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.88' @ 12.11 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.84'	**18.0" Round RCP_Round 18"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.84' / 12.76' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=2.40 cfs @ 12.07 hrs HW=13.86' TW=13.67' (Dynamic Tailwater)
└─**1=RCP_Round 18"** (Outlet Controls 2.40 cfs @ 2.66 fps)

Pond CI 01-PH5: CI01-PH5



Summary for Pond CI 02-PH5: CI02-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=742)
[80] Warning: Exceeded Pond CI 01-PH5 by 0.12' @ 15.80 hrs (0.25 cfs 0.036 af)

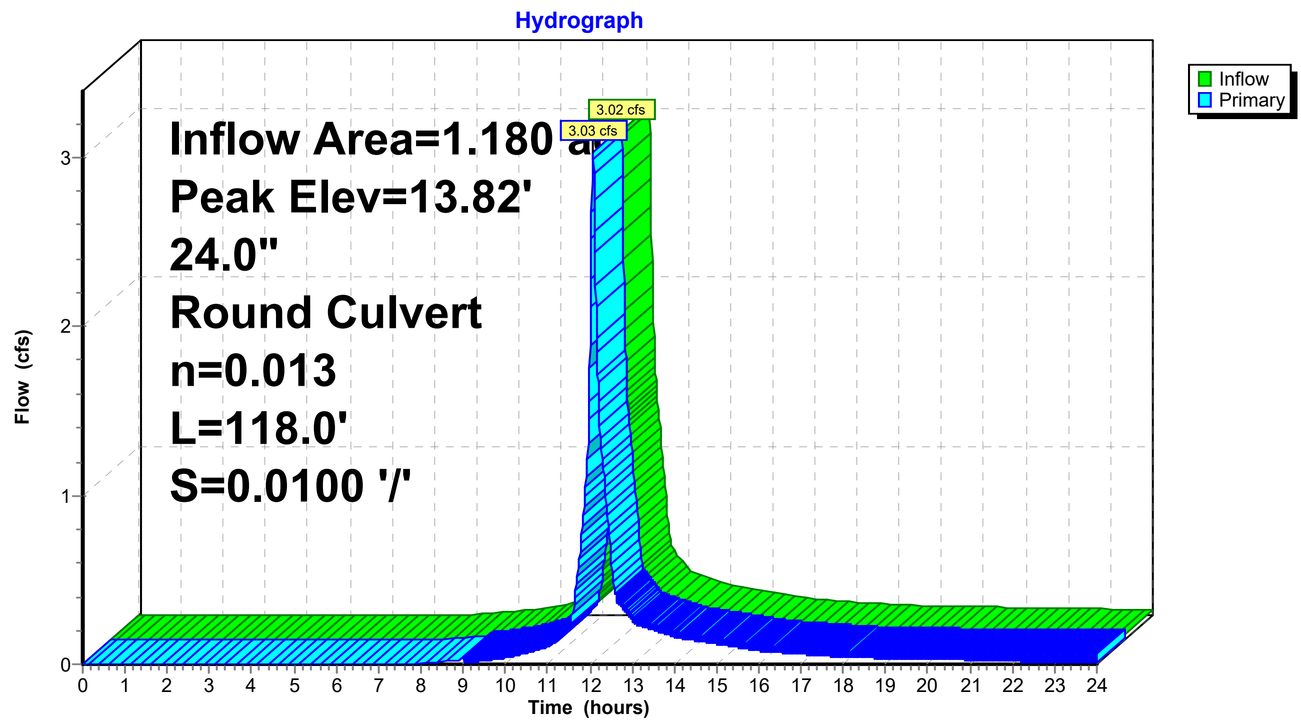
Inflow Area =	1.180 ac,	0.00% Impervious, Inflow Depth > 2.10"	for 1 event	
Inflow =	3.02 cfs @	12.07 hrs, Volume=	0.207 af	
Outflow =	3.03 cfs @	12.07 hrs, Volume=	0.207 af,	Atten= 0%, Lag= 0.0 min
Primary =	3.03 cfs @	12.07 hrs, Volume=	0.207 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.82' @ 12.25 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.16'	**24.0" Round RCP_Round 24"** L= 118.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.16' / 10.98' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=2.59 cfs @ 12.07 hrs HW=13.66' TW=13.59' (Dynamic Tailwater)
└**1=RCP_Round 24"** (Outlet Controls 2.59 cfs @ 1.42 fps)

Pond CI 02-PH5: CI02-PH5



Summary for Pond CI 03-PH5: CI03-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=248)
[80] Warning: Exceeded Pond CI 02-PH5 by 0.83' @ 15.79 hrs (4.22 cfs 1.379 af)
[80] Warning: Exceeded Pond CI 04-PH5 by 2.09' @ 14.90 hrs (13.65 cfs 6.539 af)
[80] Warning: Exceeded Pond CI 05-PH5 by 2.65' @ 16.97 hrs (25.34 cfs 9.111 af)

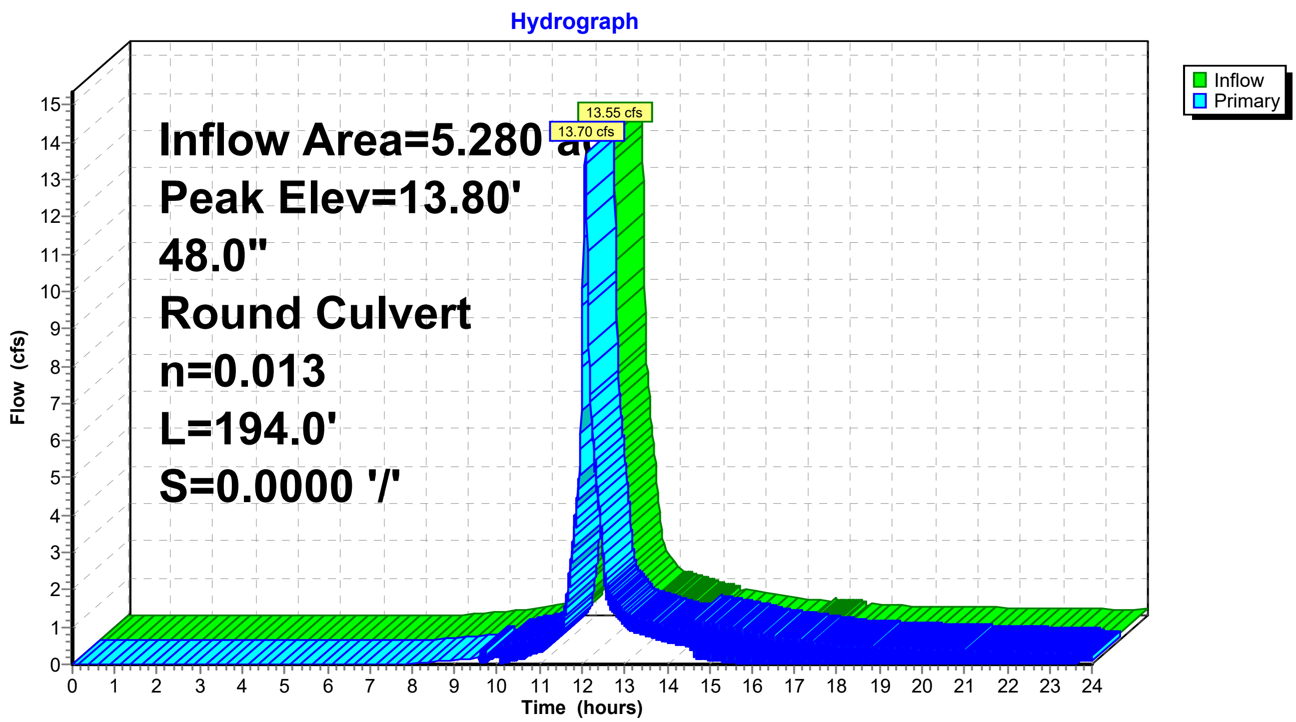
Inflow Area = 5.280 ac, 0.00% Impervious, Inflow Depth > 2.10" for 1 event
Inflow = 13.55 cfs @ 12.08 hrs, Volume= 0.925 af
Outflow = 13.70 cfs @ 12.07 hrs, Volume= 0.925 af, Atten= 0%, Lag= 0.0 min
Primary = 13.70 cfs @ 12.07 hrs, Volume= 0.925 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.80' @ 12.25 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.00'	**48.0" Round RCP_Round 48"** L= 194.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.00' / 9.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 12.57 sf

Primary OutFlow Max=8.32 cfs @ 12.07 hrs HW=13.58' TW=13.57' (Dynamic Tailwater)
└─**1=RCP_Round 48"** (Outlet Controls 8.32 cfs @ 0.72 fps)

Pond CI 03-PH5: CI03-PH5



Summary for Pond CI 04-PH5: CI04-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=725)

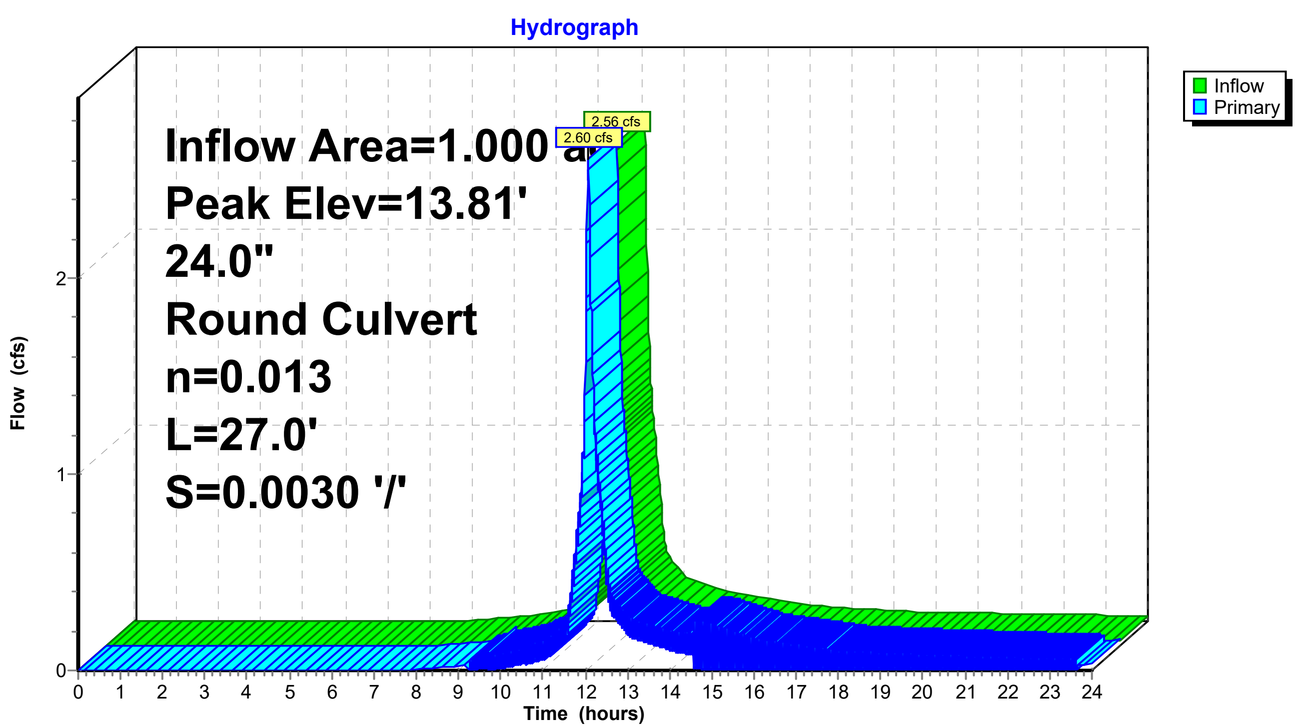
Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth > 2.10"	for 1 event	
Inflow =	2.56 cfs @	12.07 hrs, Volume=	0.175 af	
Outflow =	2.60 cfs @	12.07 hrs, Volume=	0.175 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.60 cfs @	12.07 hrs, Volume=	0.175 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.81' @ 12.26 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.06'	**24.0" Round RCP_Round 24"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 11.06' / 10.98' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=13.57' TW=13.58' (Dynamic Tailwater)
1=RCP_Round 24" (Controls 0.00 cfs)

Pond CI 04-PH5: CI04-PH5



Summary for Pond CI 05-PH5: CI05-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=337)
[80] Warning: Exceeded Pond CI 06-PH5 by 2.09' @ 23.67 hrs (16.91 cfs 9.027 af)

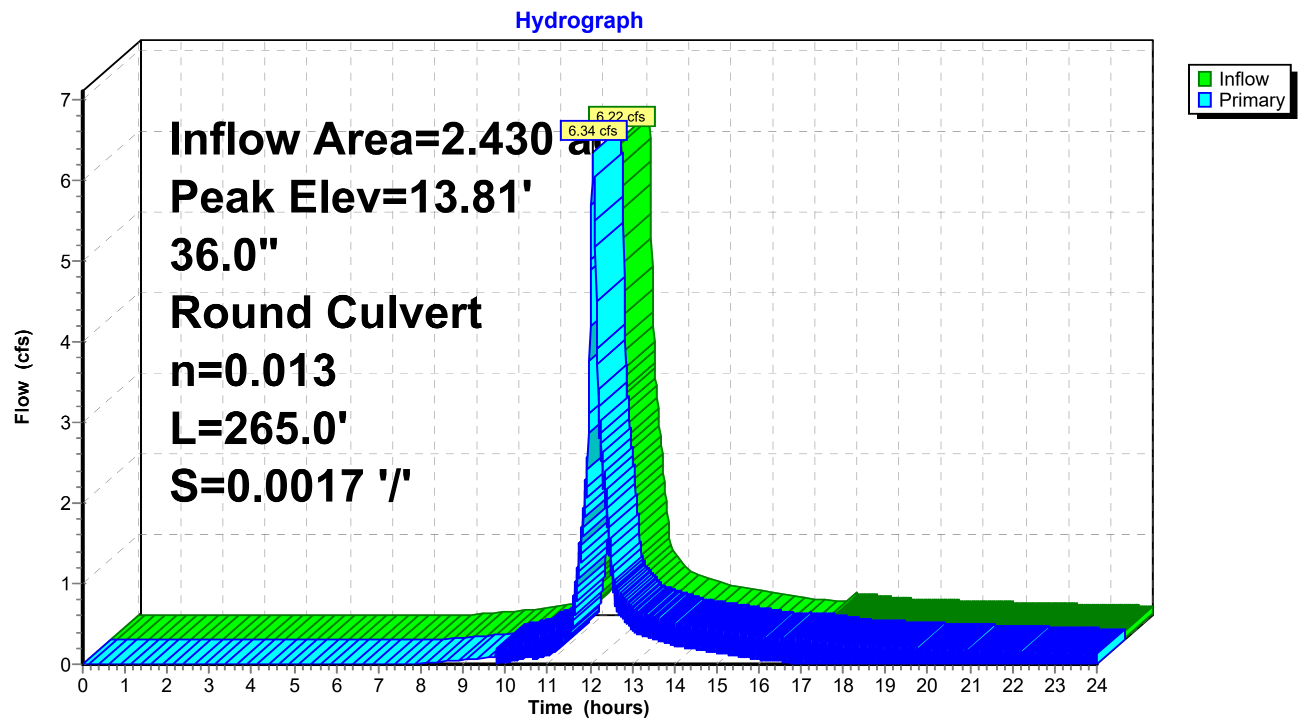
Inflow Area =	2.430 ac,	0.00% Impervious, Inflow Depth > 2.10"	for 1 event	
Inflow =	6.22 cfs @	12.08 hrs, Volume=	0.426 af	
Outflow =	6.34 cfs @	12.08 hrs, Volume=	0.426 af,	Atten= 0%, Lag= 0.2 min
Primary =	6.34 cfs @	12.08 hrs, Volume=	0.426 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.81' @ 12.26 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.44'	**36.0" Round RCP_Round 36"** L= 265.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.44' / 9.98' S= 0.0017 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 7.07 sf

Primary OutFlow Max=4.33 cfs @ 12.08 hrs HW=13.62' TW=13.60' (Dynamic Tailwater)
1=RCP_Round 36" (Outlet Controls 4.33 cfs @ 0.72 fps)

Pond CI 05-PH5: CI05-PH5



Summary for Pond CI 06-PH5: CI06-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=418)

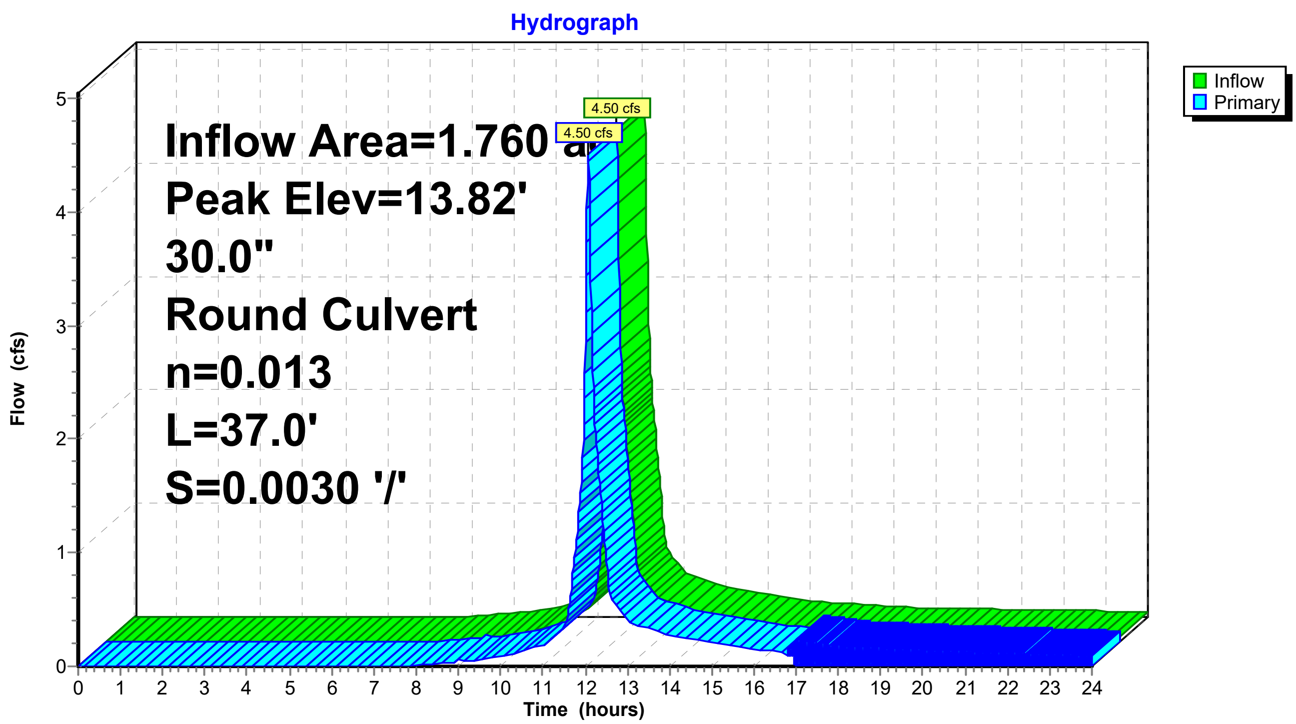
Inflow Area =	1.760 ac,	0.00% Impervious, Inflow Depth > 2.10"	for 1 event	
Inflow =	4.50 cfs @	12.07 hrs, Volume=	0.308 af	
Outflow =	4.50 cfs @	12.08 hrs, Volume=	0.308 af,	Atten= 0%, Lag= 0.1 min
Primary =	4.50 cfs @	12.08 hrs, Volume=	0.308 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.82' @ 12.27 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.89'	**30.0" Round RCP_Round 30"** L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.89' / 10.78' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=0.00 cfs @ 12.08 hrs HW=13.61' TW=13.62' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Controls 0.00 cfs)

Pond CI 06-PH5: CI06-PH5



Summary for Pond POST-2PA: POND 2A

[80] Warning: Exceeded Pond CI 03-PH5 by 4.13' @ 15.78 hrs (61.11 cfs 27.870 af)

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 2.10" for 1 event
Inflow = 37.94 cfs @ 12.09 hrs, Volume= 2.731 af
Outflow = 19.54 cfs @ 12.25 hrs, Volume= 2.656 af, Atten= 49%, Lag= 9.4 min
Primary = 19.54 cfs @ 12.25 hrs, Volume= 2.656 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 13.80' @ 12.25 hrs Surf.Area= 34,312 sf Storage= 138,501 cf (29,779 cf above start)

Plug-Flow detention time= 729.6 min calculated for 0.160 af (6% of inflow)
Center-of-Mass det. time= 36.0 min (856.5 - 820.5)

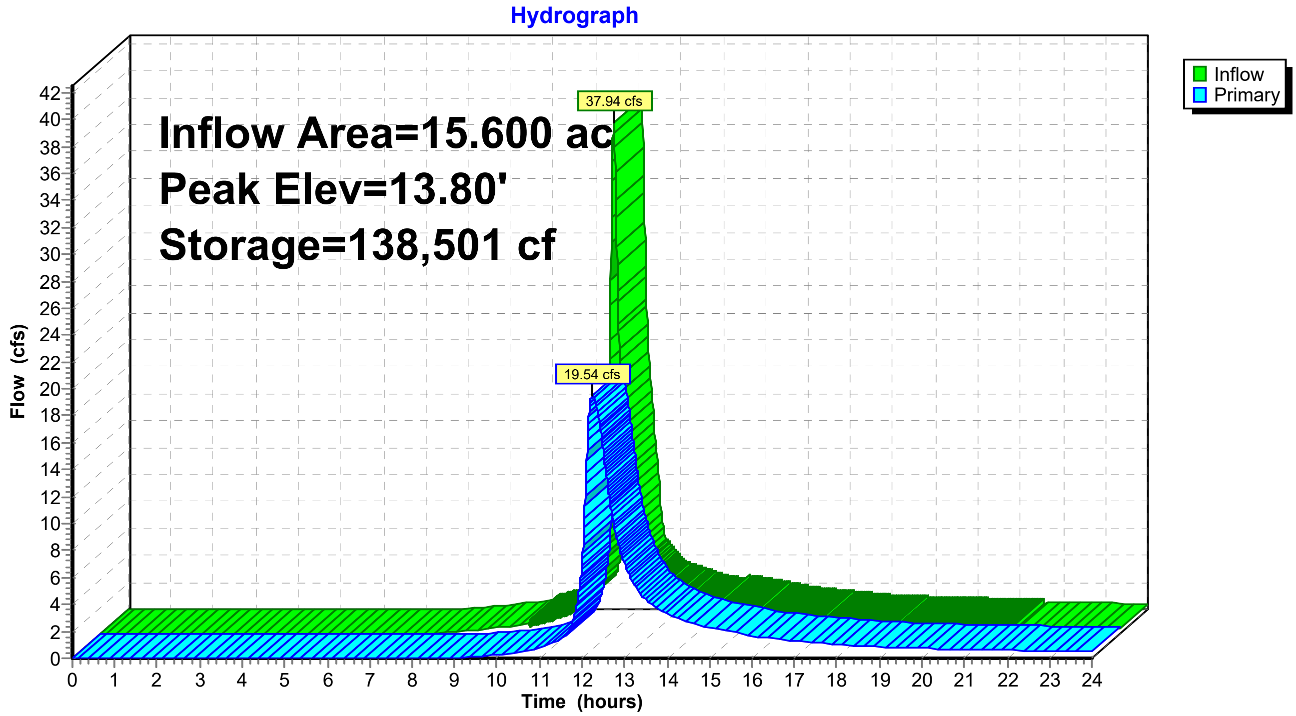
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=19.53 cfs @ 12.25 hrs HW=13.80' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 19.53 cfs @ 2.82 fps)

Pond POST-2PA: POND 2A



Summary for Subcatchment CI01-PH5: CI01-PH5

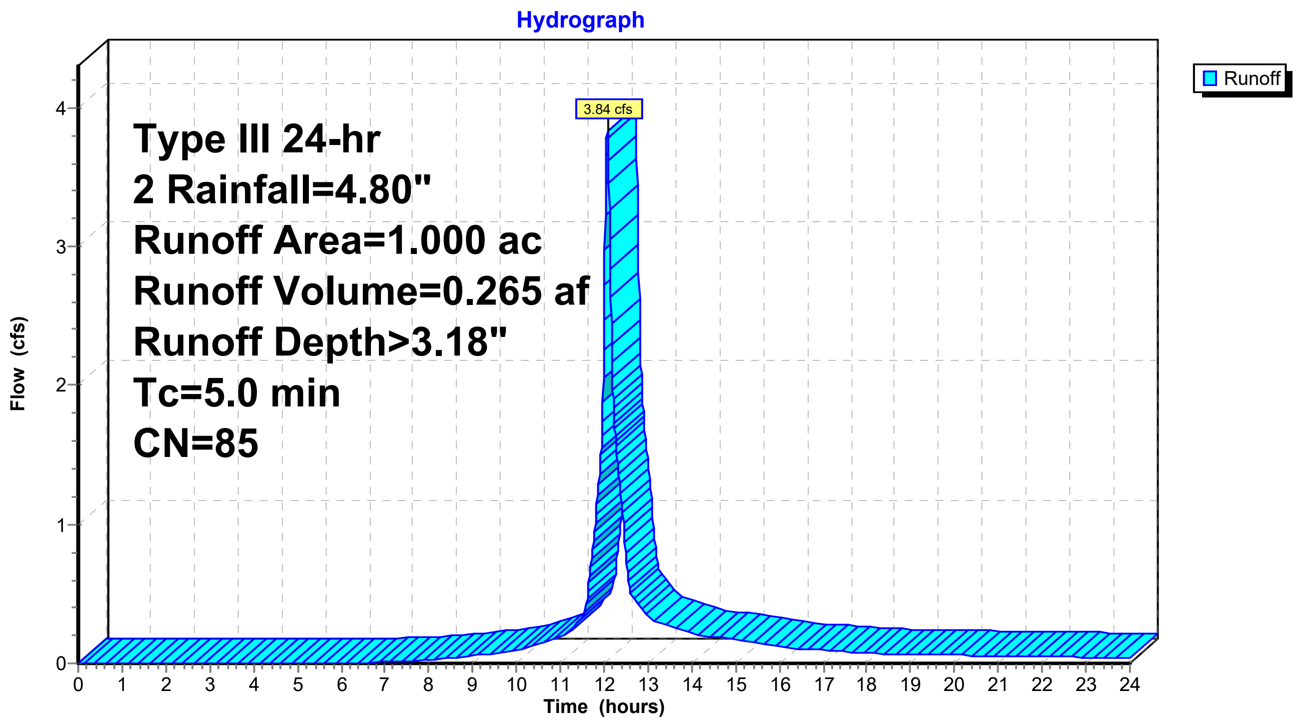
Runoff = 3.84 cfs @ 12.07 hrs, Volume= 0.265 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI01-PH5: CI01-PH5



Summary for Subcatchment CI02-PH5: CI02-PH5

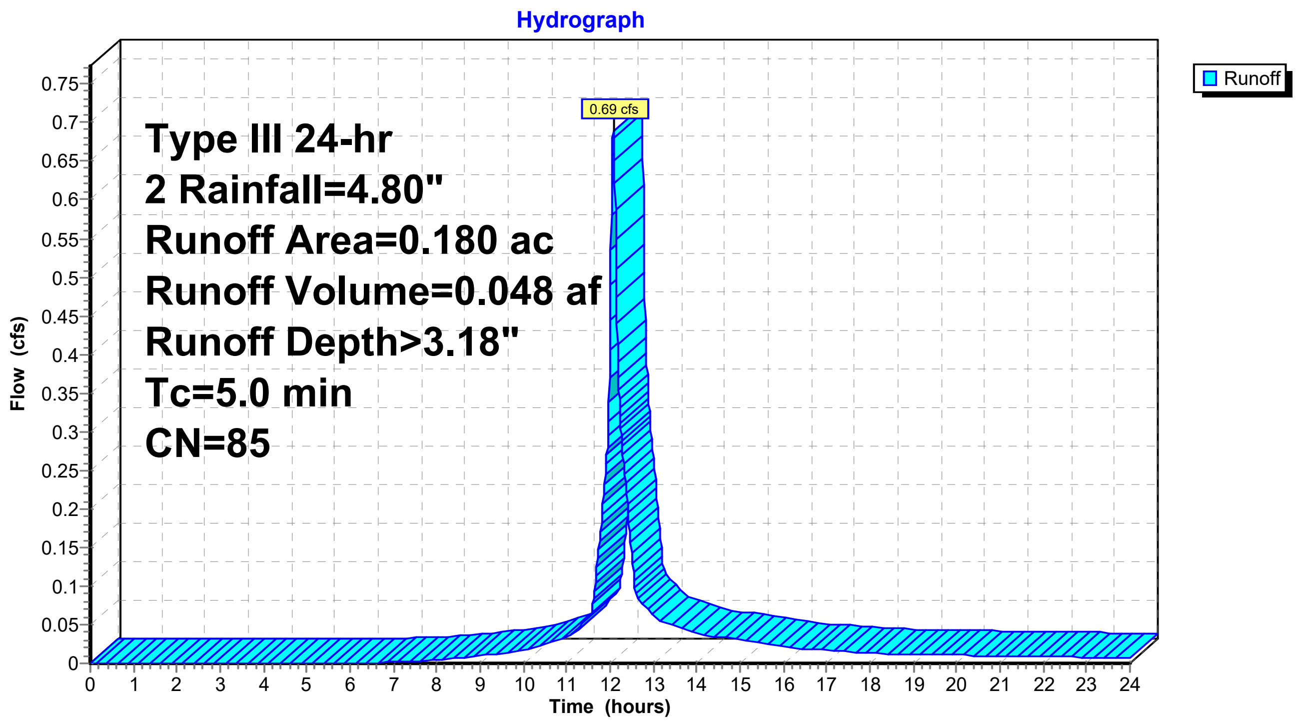
Runoff = 0.69 cfs @ 12.07 hrs, Volume= 0.048 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	0.180	85	
	0.180		100.00% Pervious Area

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

Subcatchment CI02-PH5: CI02-PH5



Summary for Subcatchment CI03-PH5: CI03-PH5

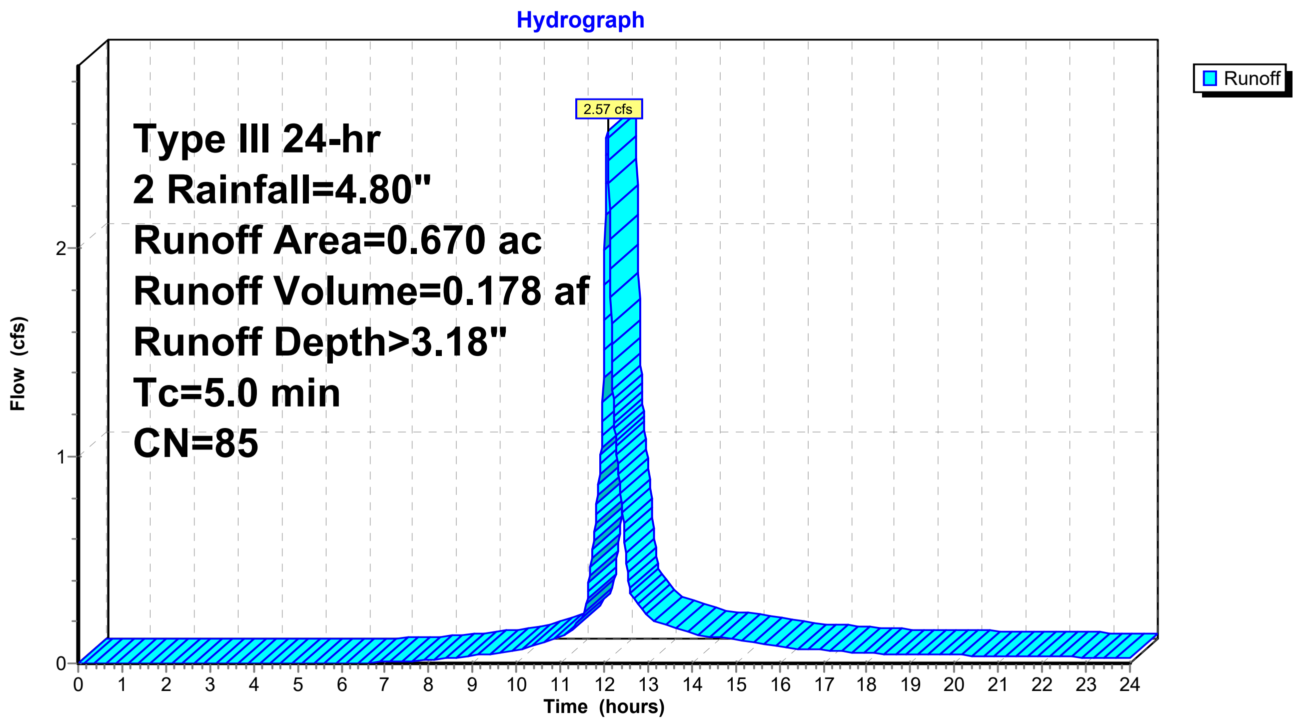
Runoff = 2.57 cfs @ 12.07 hrs, Volume= 0.178 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI03-PH5: CI03-PH5



Summary for Subcatchment CI04-PH5: CI04-PH5

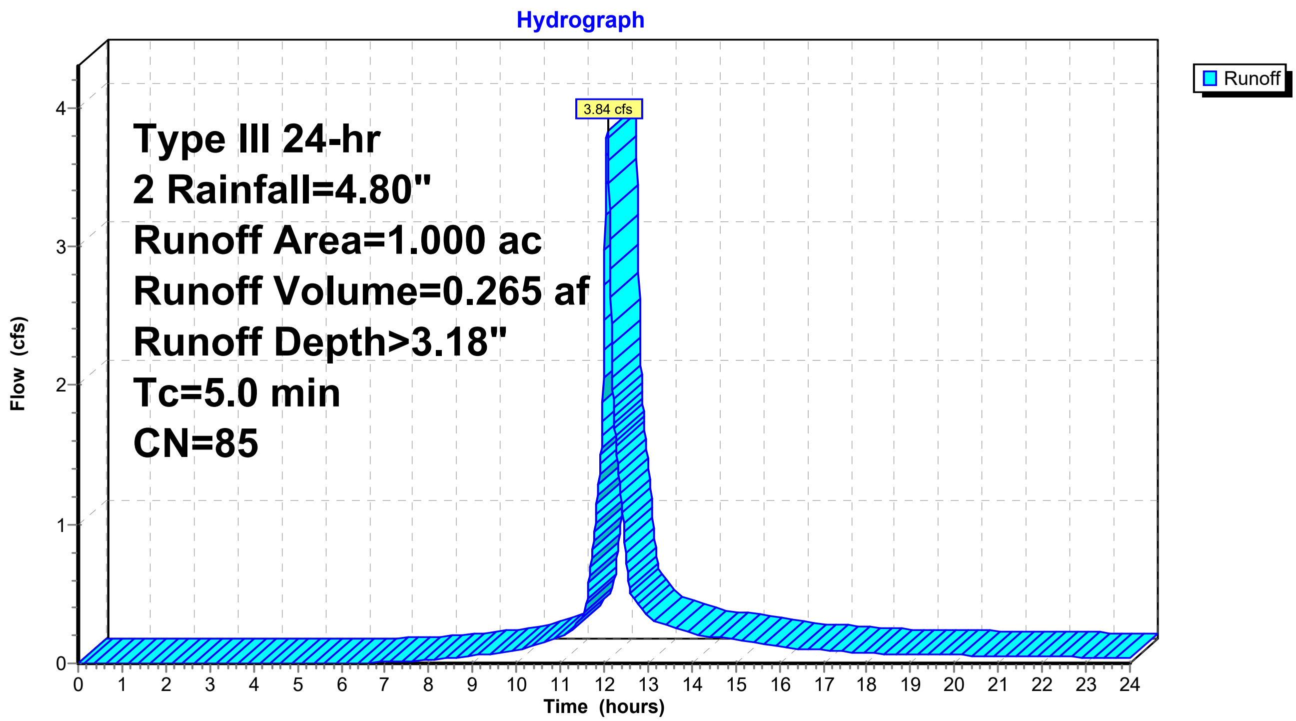
Runoff = 3.84 cfs @ 12.07 hrs, Volume= 0.265 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI04-PH5: CI04-PH5



Summary for Subcatchment CI05-PH5: CI05-PH5

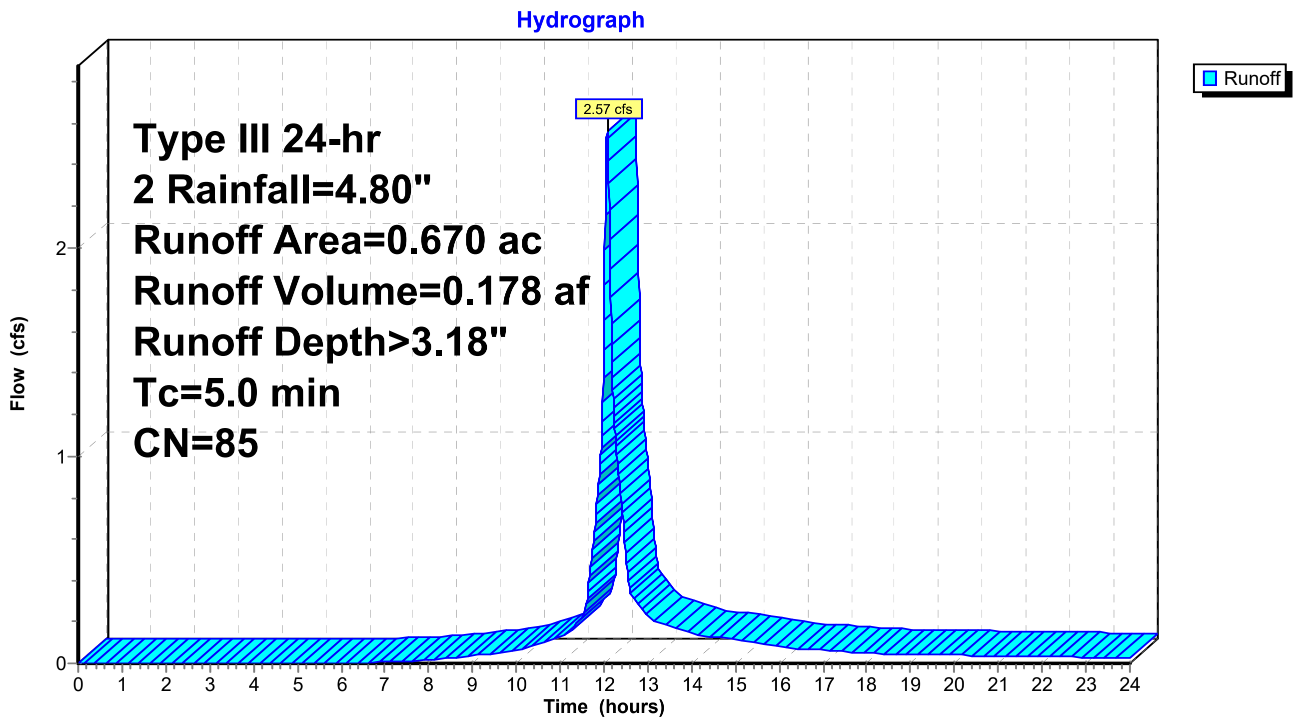
Runoff = 2.57 cfs @ 12.07 hrs, Volume= 0.178 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI05-PH5: CI05-PH5



Summary for Subcatchment CI06-PH5: CI06-PH5

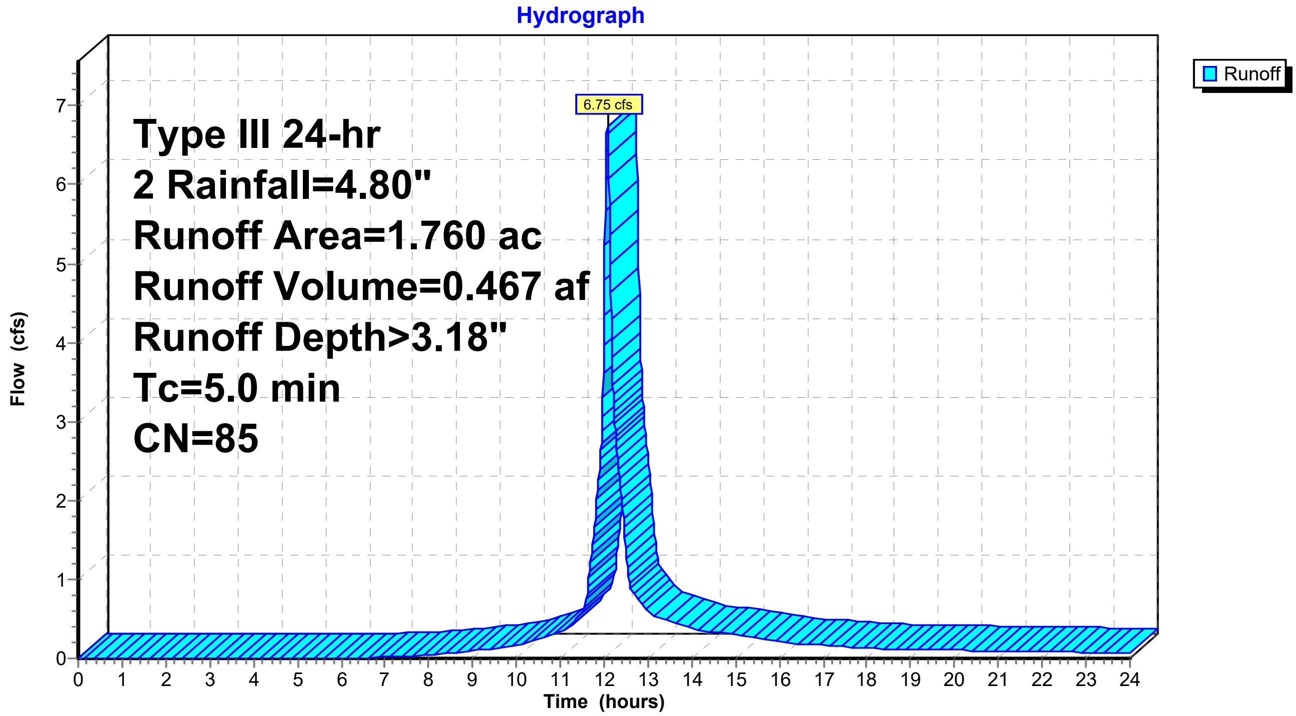
Runoff = 6.75 cfs @ 12.07 hrs, Volume= 0.467 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	1.760	85	
	1.760		100.00% Pervious Area

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

Subcatchment CI06-PH5: CI06-PH5



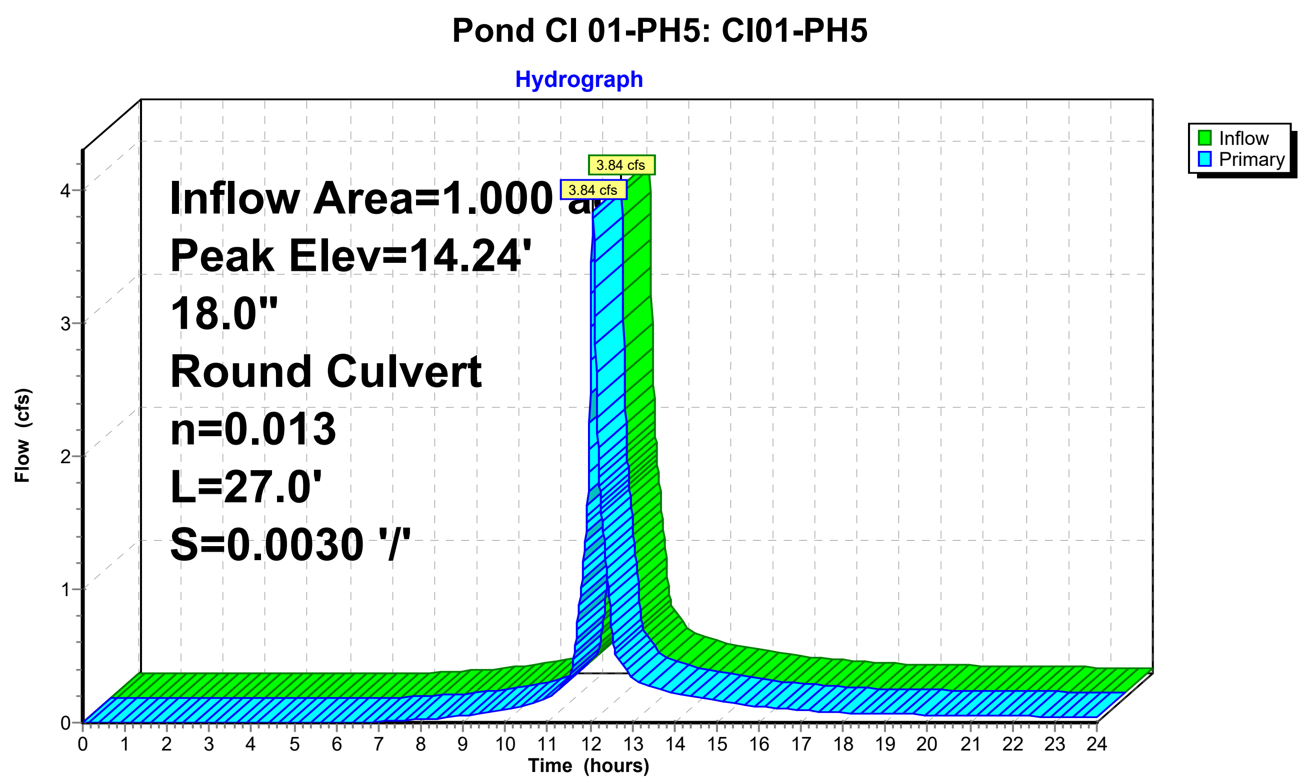
Summary for Pond CI 01-PH5: CI01-PH5

Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth >	3.18"	for 2 event
Inflow =	3.84 cfs @	12.07 hrs, Volume=	0.265 af	
Outflow =	3.84 cfs @	12.07 hrs, Volume=	0.265 af, Atten= 0%, Lag= 0.0 min	
Primary =	3.84 cfs @	12.07 hrs, Volume=	0.265 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.24' @ 12.11 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.84'	**18.0" Round RCP_Round 18"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.84' / 12.76' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=3.53 cfs @ 12.07 hrs HW=14.20' TW=14.01' (Dynamic Tailwater)
└─**1=RCP_Round 18"** (Outlet Controls 3.53 cfs @ 2.77 fps)



Summary for Pond CI 02-PH5: CI02-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[80] Warning: Exceeded Pond CI 01-PH5 by 0.09' @ 18.91 hrs (0.15 cfs 0.023 af)

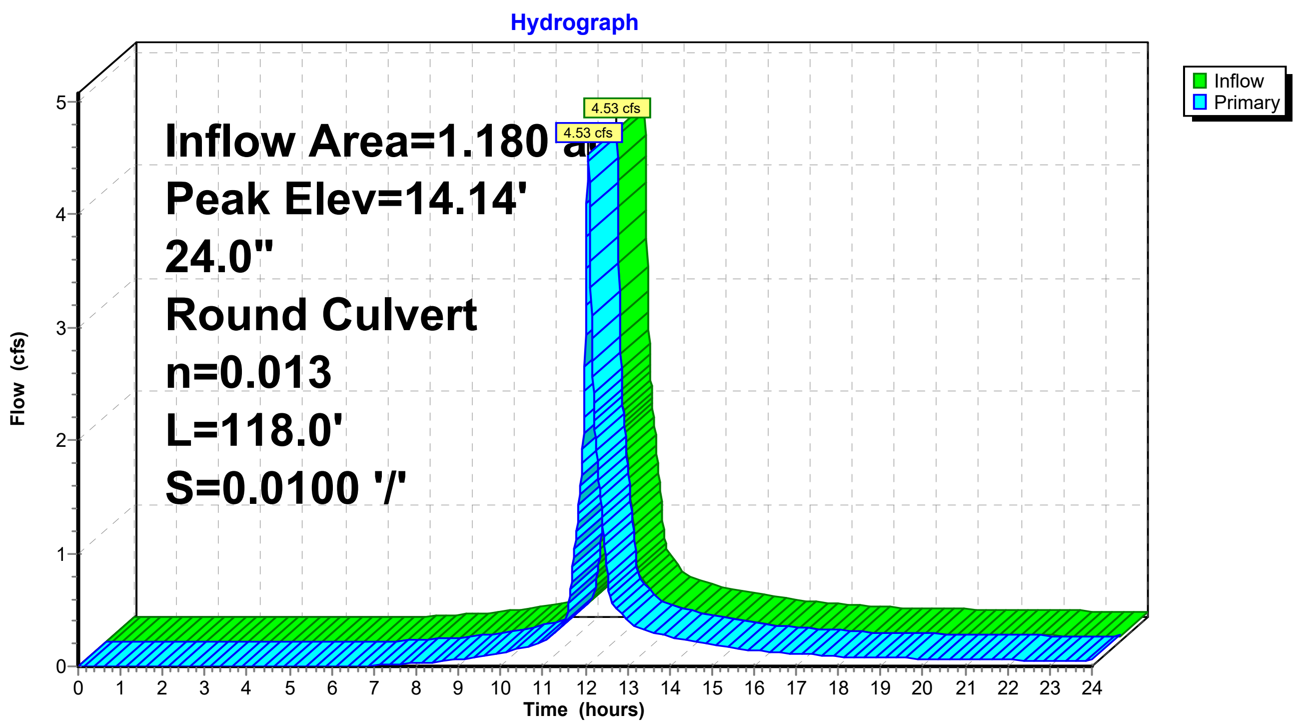
Inflow Area =	1.180 ac,	0.00% Impervious,	Inflow Depth > 3.18"	for 2 event
Inflow =	4.53 cfs @	12.07 hrs, Volume=	0.313 af	
Outflow =	4.53 cfs @	12.08 hrs, Volume=	0.313 af, Atten= 0%, Lag= 0.1 min	
Primary =	4.53 cfs @	12.08 hrs, Volume=	0.313 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.14' @ 12.21 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.16'	**24.0" Round RCP_Round 24"** L= 118.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.16' / 10.98' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=3.90 cfs @ 12.08 hrs HW=14.01' TW=13.91' (Dynamic Tailwater)
1=RCP_Round 24" (Outlet Controls 3.90 cfs @ 1.67 fps)

Pond CI 02-PH5: CI02-PH5



Summary for Pond CI 03-PH5: CI03-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=53)
[80] Warning: Exceeded Pond CI 02-PH5 by 0.80' @ 18.90 hrs (3.76 cfs 0.967 af)
[80] Warning: Exceeded Pond CI 04-PH5 by 2.20' @ 14.40 hrs (14.60 cfs 6.843 af)
[80] Warning: Exceeded Pond CI 05-PH5 by 2.51' @ 18.96 hrs (25.14 cfs 6.338 af)

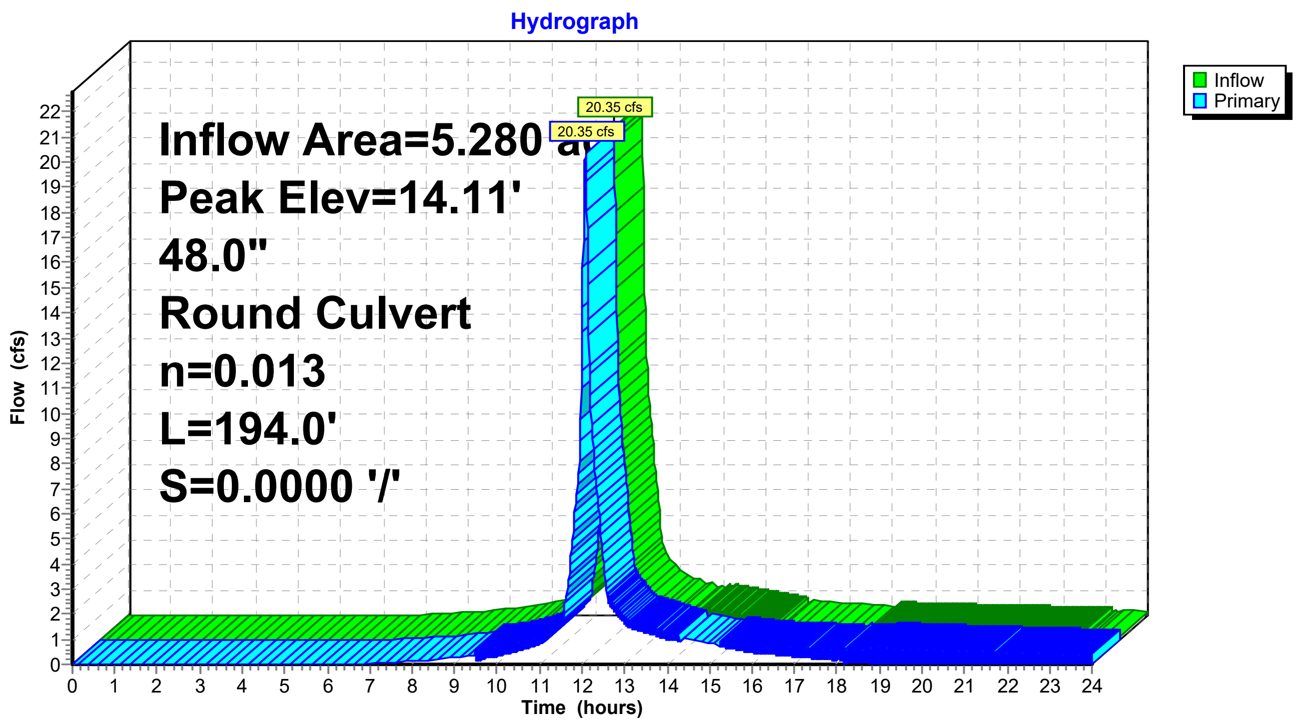
Inflow Area = 5.280 ac, 0.00% Impervious, Inflow Depth > 3.18" for 2 event
Inflow = 20.35 cfs @ 12.07 hrs, Volume= 1.400 af
Outflow = 20.35 cfs @ 12.08 hrs, Volume= 1.400 af, Atten= 0%, Lag= 0.4 min
Primary = 20.35 cfs @ 12.08 hrs, Volume= 1.400 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.11' @ 12.20 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.00'	**48.0" Round RCP_Round 48"** L= 194.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.00' / 9.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 12.57 sf

Primary OutFlow Max=15.57 cfs @ 12.08 hrs HW=13.92' TW=13.87' (Dynamic Tailwater)
└─**1=RCP_Round 48"** (Outlet Controls 15.57 cfs @ 1.29 fps)

Pond CI 03-PH5: CI03-PH5



Summary for Pond CI 04-PH5: CI04-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=753)

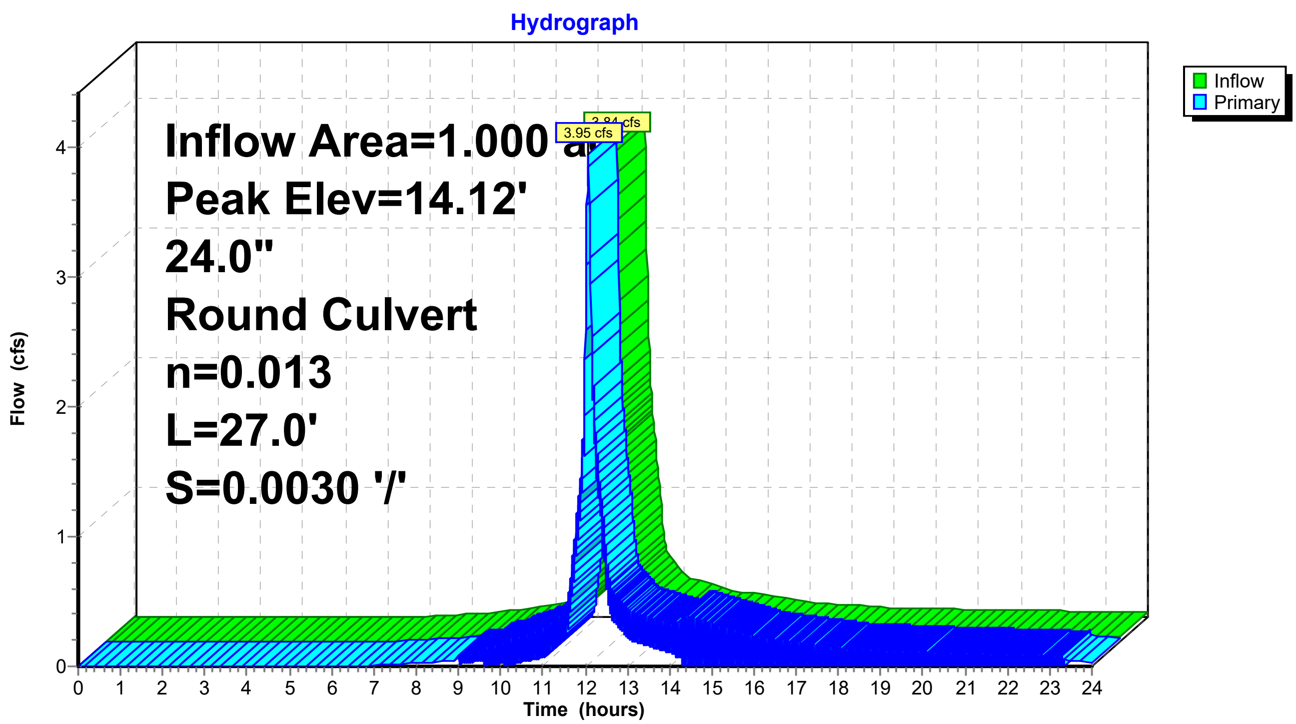
Inflow Area =	1.000 ac,	0.00% Impervious,	Inflow Depth > 3.18"	for 2 event	
Inflow =	3.84 cfs @	12.07 hrs,	Volume=	0.265 af	
Outflow =	3.95 cfs @	12.07 hrs,	Volume=	0.265 af,	Atten= 0%, Lag= 0.0 min
Primary =	3.95 cfs @	12.07 hrs,	Volume=	0.265 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.12' @ 12.21 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.06'	**24.0" Round RCP_Round 24"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 11.06' / 10.98' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=1.85 cfs @ 12.07 hrs HW=13.90' TW=13.89' (Dynamic Tailwater)
└─**1=RCP_Round 24"** (Inlet Controls 1.85 cfs @ 0.59 fps)

Pond CI 04-PH5: CI04-PH5



Summary for Pond CI 05-PH5: CI05-PH5

[80] Warning: Exceeded Pond CI 06-PH5 by 2.10' @ 23.30 hrs (17.10 cfs 6.481 af)

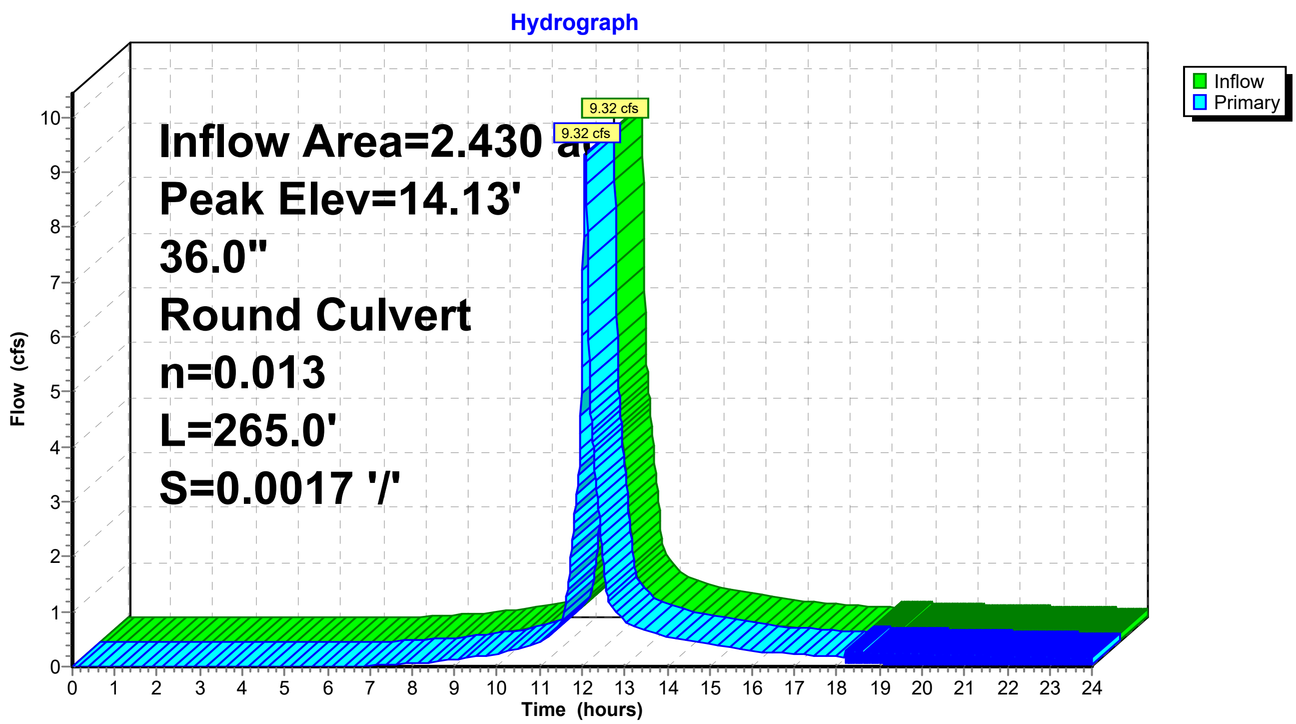
Inflow Area =	2.430 ac,	0.00% Impervious,	Inflow Depth > 3.18"	for 2 event
Inflow =	9.32 cfs @	12.07 hrs, Volume=	0.644 af	
Outflow =	9.32 cfs @	12.07 hrs, Volume=	0.644 af,	Atten= 0%, Lag= 0.0 min
Primary =	9.32 cfs @	12.07 hrs, Volume=	0.644 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.13' @ 12.21 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.44'	**36.0" Round RCP_Round 36"** L= 265.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.44' / 9.98' S= 0.0017 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 7.07 sf

Primary OutFlow Max=7.13 cfs @ 12.07 hrs HW=13.95' TW=13.90' (Dynamic Tailwater)
└─**1=RCP_Round 36"** (Outlet Controls 7.13 cfs @ 1.08 fps)

Pond CI 05-PH5: CI05-PH5



Summary for Pond CI 06-PH5: CI06-PH5

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=350)

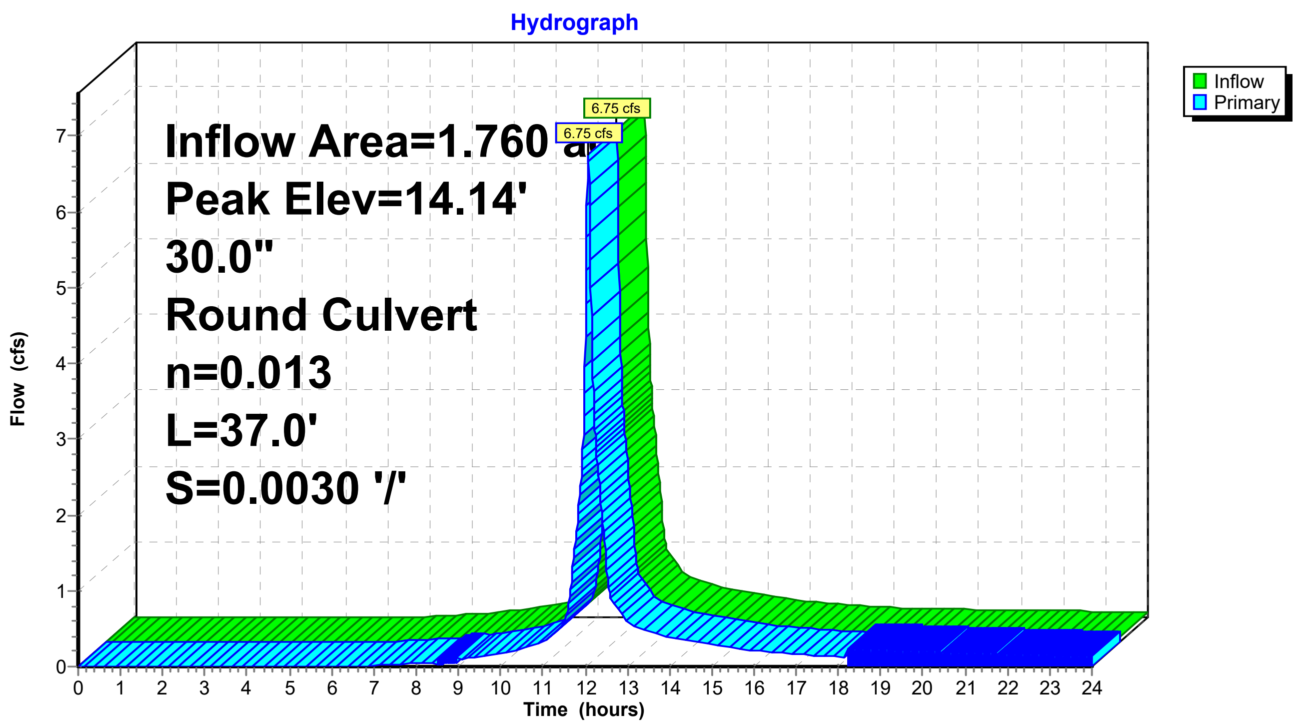
Inflow Area =	1.760 ac,	0.00% Impervious, Inflow Depth > 3.18"	for 2 event	
Inflow =	6.75 cfs @	12.07 hrs, Volume=	0.467 af	
Outflow =	6.75 cfs @	12.07 hrs, Volume=	0.466 af,	Atten= 0%, Lag= 0.0 min
Primary =	6.75 cfs @	12.07 hrs, Volume=	0.466 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.14' @ 12.20 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.89'	**30.0" Round RCP_Round 30"** L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.89' / 10.78' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=3.44 cfs @ 12.07 hrs HW=13.96' TW=13.95' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Inlet Controls 3.44 cfs @ 0.70 fps)

Pond CI 06-PH5: CI06-PH5



Summary for Pond POST-2PA: POND 2A

[80] Warning: Exceeded Pond CI 03-PH5 by 4.08' @ 18.89 hrs (59.88 cfs 20.888 af)

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 3.18" for 2 event
Inflow = 56.65 cfs @ 12.08 hrs, Volume= 4.134 af
Outflow = 33.71 cfs @ 12.20 hrs, Volume= 4.041 af, Atten= 40%, Lag= 7.1 min
Primary = 33.71 cfs @ 12.20 hrs, Volume= 4.041 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.09' @ 12.20 hrs Surf.Area= 35,012 sf Storage= 148,688 cf (39,966 cf above start)

Plug-Flow detention time= 325.9 min calculated for 1.546 af (37% of inflow)
Center-of-Mass det. time= 31.3 min (840.0 - 808.7)

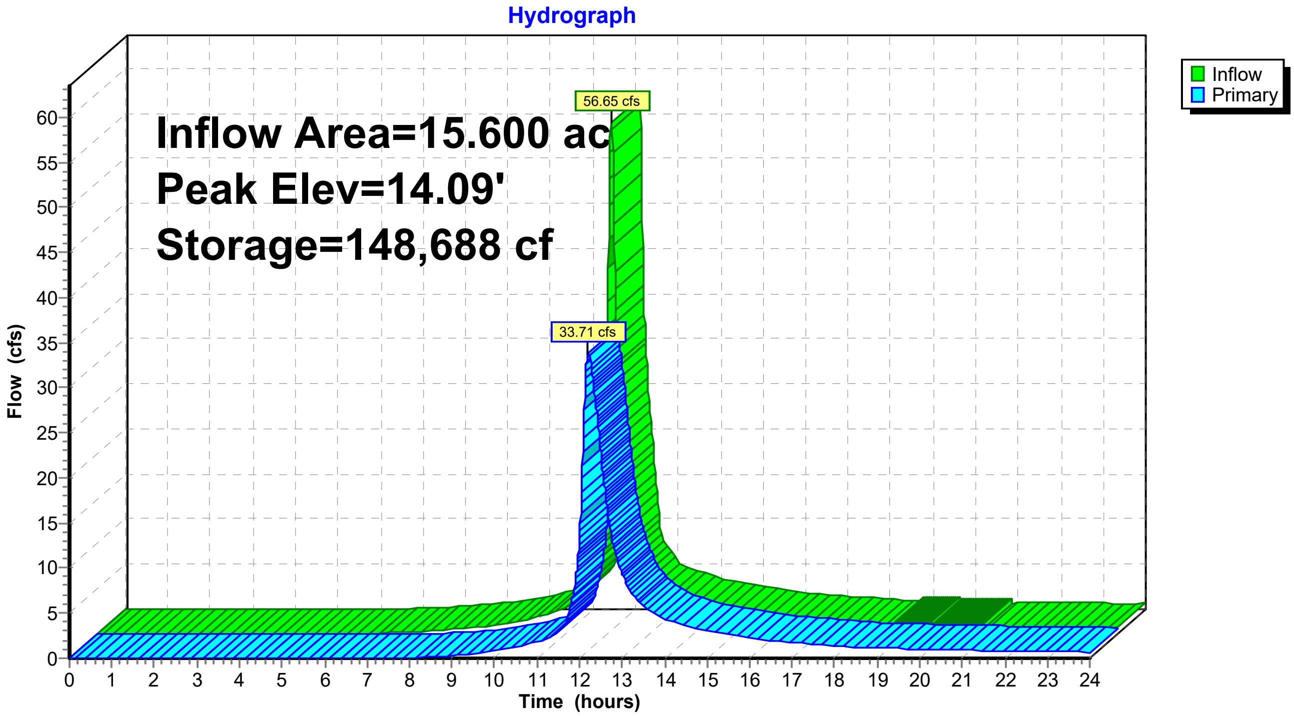
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=33.70 cfs @ 12.20 hrs HW=14.09' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 33.70 cfs @ 3.21 fps)

Pond POST-2PA: POND 2A



Summary for Subcatchment CI01-PH5: CI01-PH5

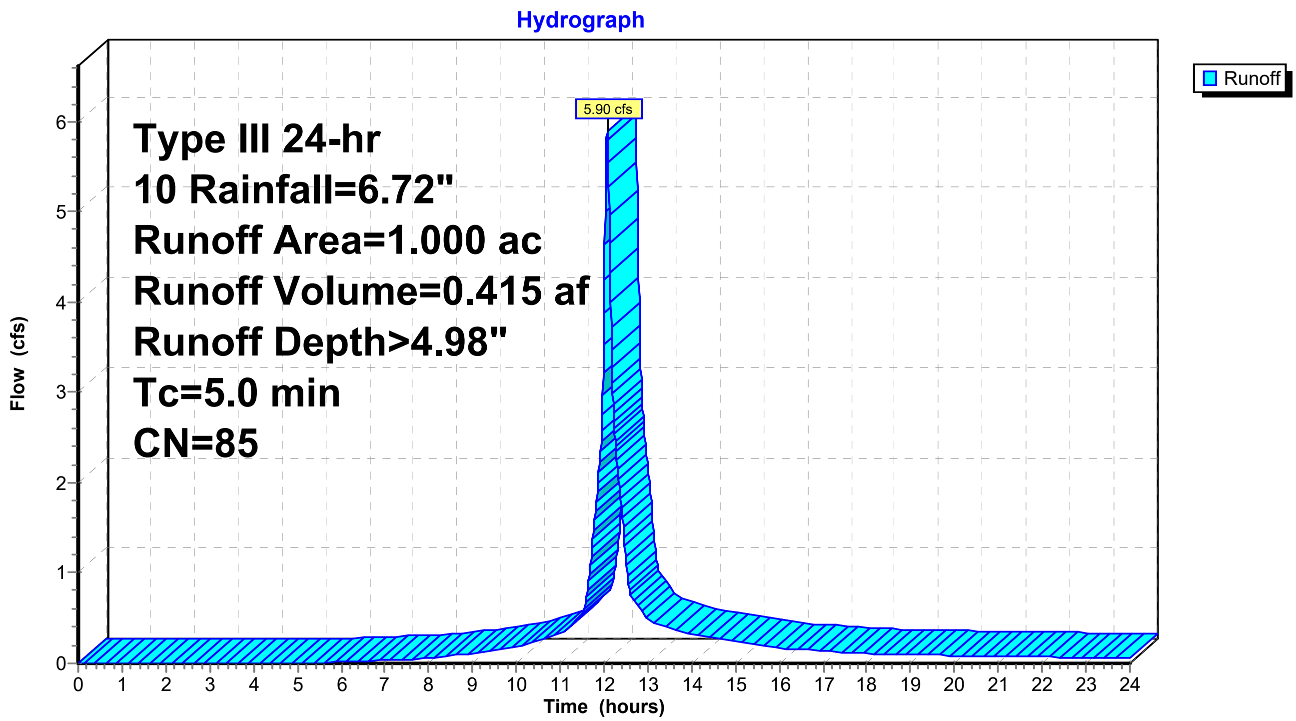
Runoff = 5.90 cfs @ 12.07 hrs, Volume= 0.415 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI01-PH5: CI01-PH5



Summary for Subcatchment CI02-PH5: CI02-PH5

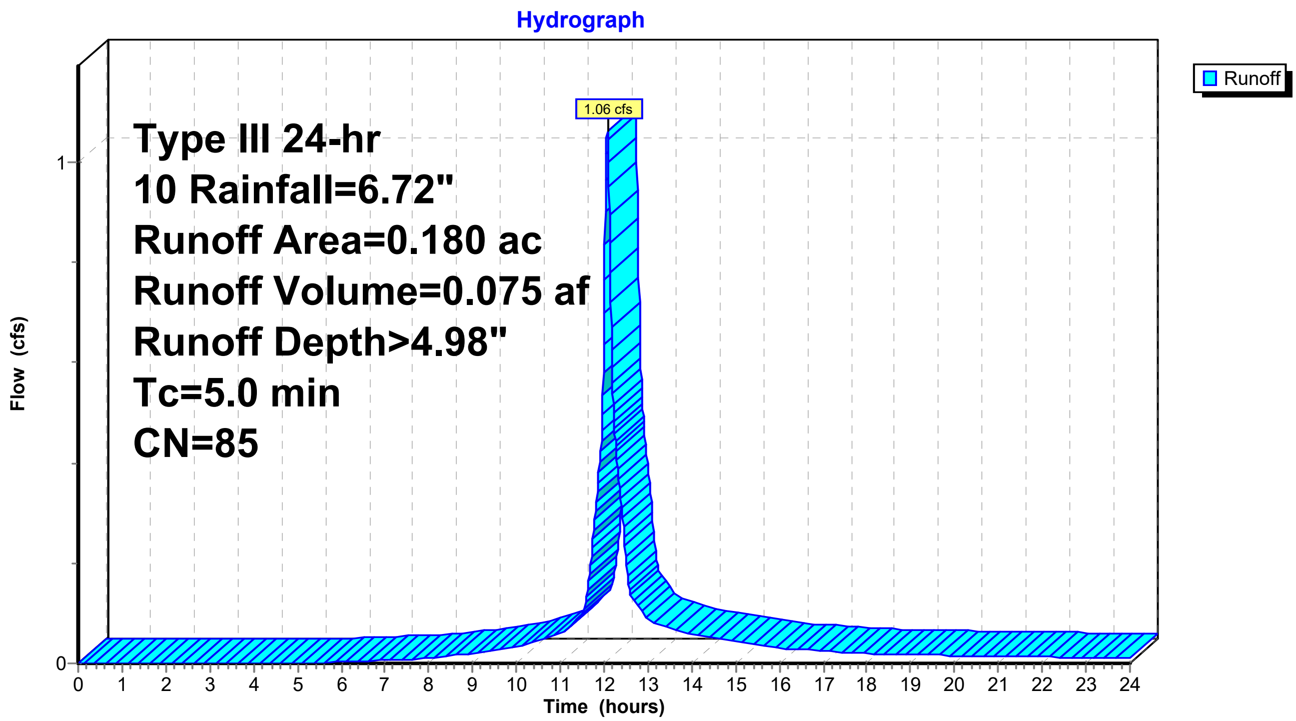
Runoff = 1.06 cfs @ 12.07 hrs, Volume= 0.075 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	0.180	85	
	0.180		100.00% Pervious Area

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

Subcatchment CI02-PH5: CI02-PH5



Summary for Subcatchment CI03-PH5: CI03-PH5

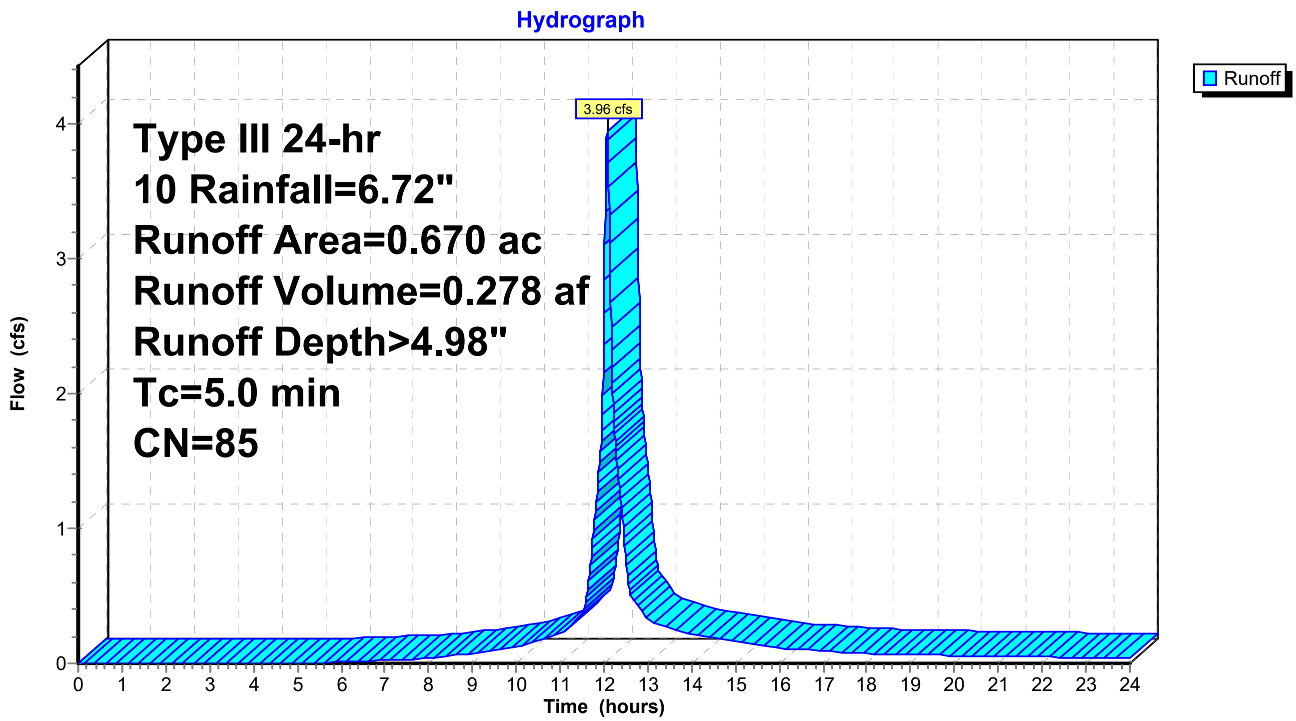
Runoff = 3.96 cfs @ 12.07 hrs, Volume= 0.278 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI03-PH5: CI03-PH5



Summary for Subcatchment CI04-PH5: CI04-PH5

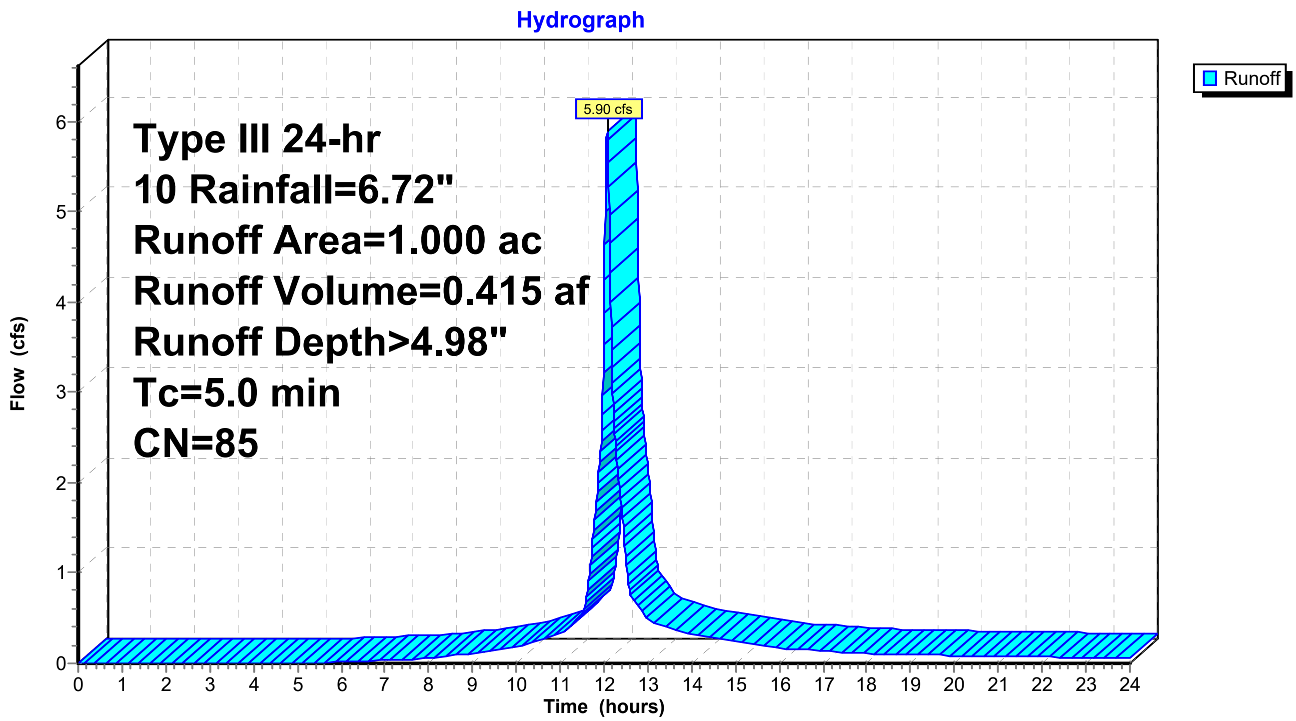
Runoff = 5.90 cfs @ 12.07 hrs, Volume= 0.415 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI04-PH5: CI04-PH5



Summary for Subcatchment CI05-PH5: CI05-PH5

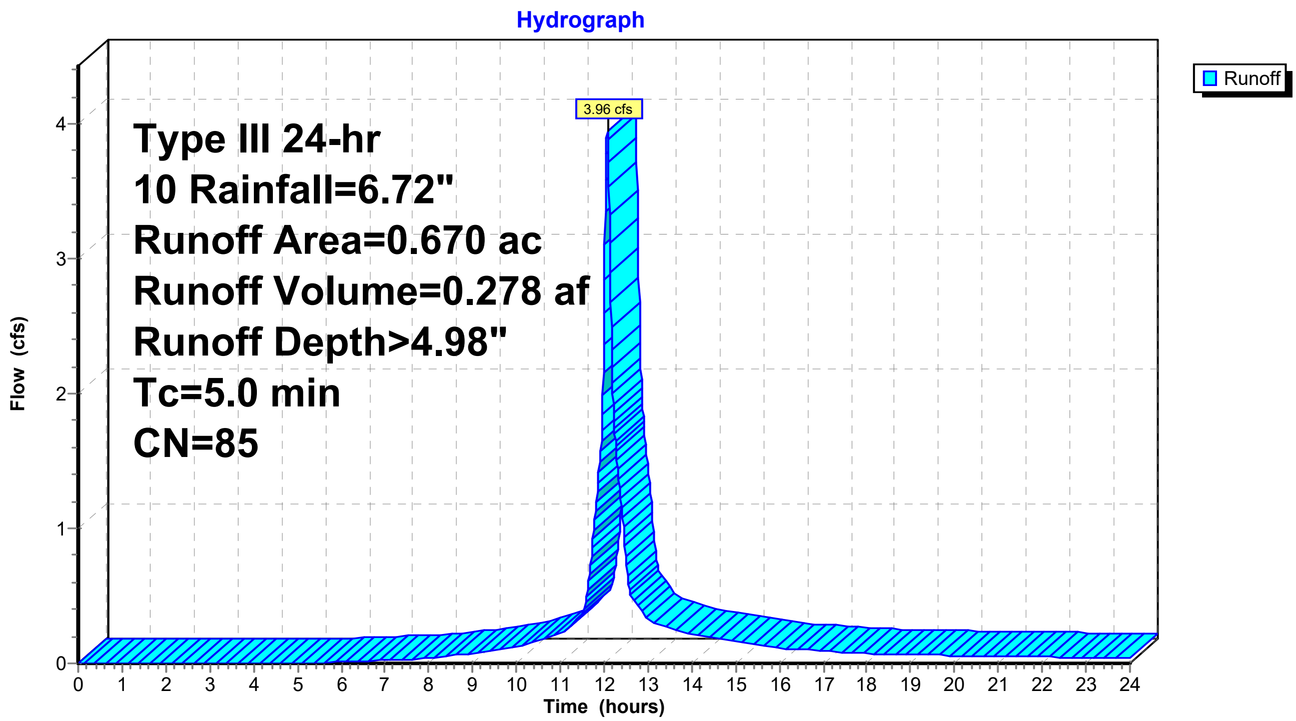
Runoff = 3.96 cfs @ 12.07 hrs, Volume= 0.278 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI05-PH5: CI05-PH5



Summary for Subcatchment CI06-PH5: CI06-PH5

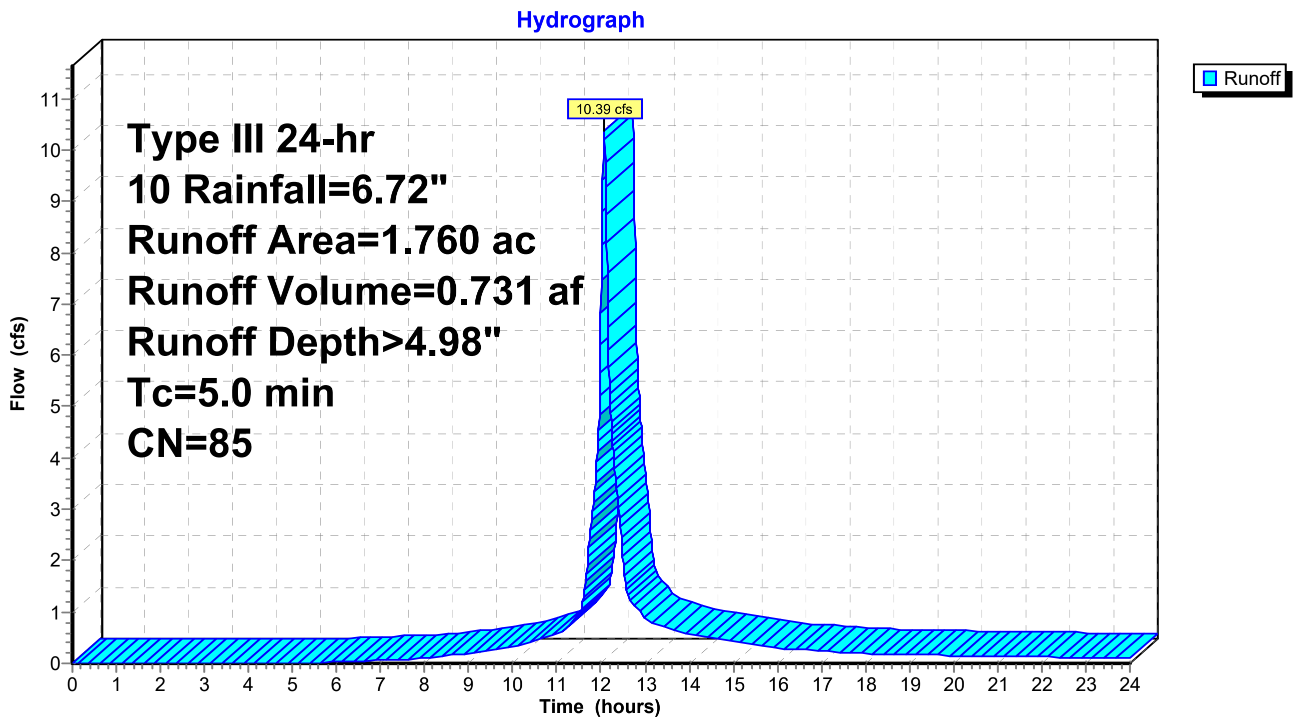
Runoff = 10.39 cfs @ 12.07 hrs, Volume= 0.731 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	1.760	85	
	1.760		100.00% Pervious Area

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

Subcatchment CI06-PH5: CI06-PH5



Summary for Pond CI 01-PH5: CI01-PH5

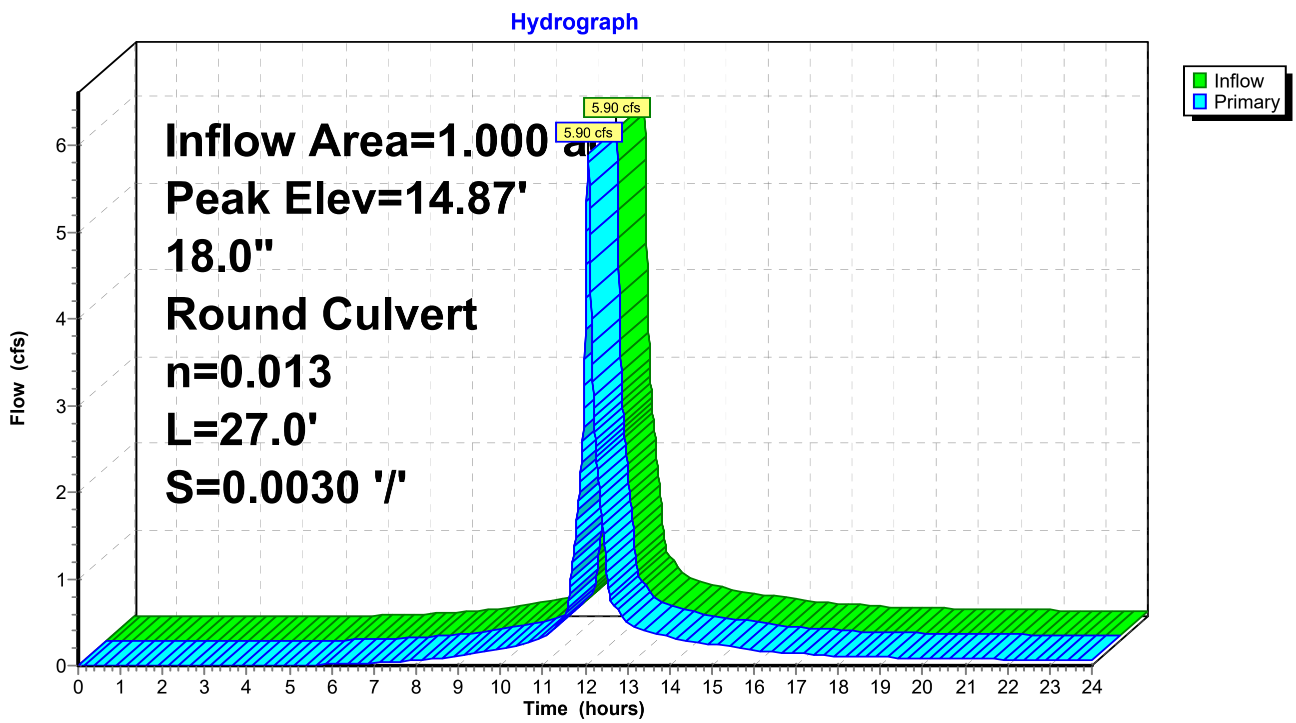
Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth >	4.98"	for 10 event
Inflow =	5.90 cfs @	12.07 hrs, Volume=	0.415 af	
Outflow =	5.90 cfs @	12.07 hrs, Volume=	0.415 af,	Atten= 0%, Lag= 0.0 min
Primary =	5.90 cfs @	12.07 hrs, Volume=	0.415 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.87' @ 12.11 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.84'	**18.0" Round RCP_Round 18"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.84' / 12.76' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=5.44 cfs @ 12.07 hrs HW=14.78' TW=14.52' (Dynamic Tailwater)
1=RCP_Round 18" (Inlet Controls 5.44 cfs @ 3.08 fps)

Pond CI 01-PH5: CI01-PH5



Summary for Pond CI 02-PH5: CI02-PH5

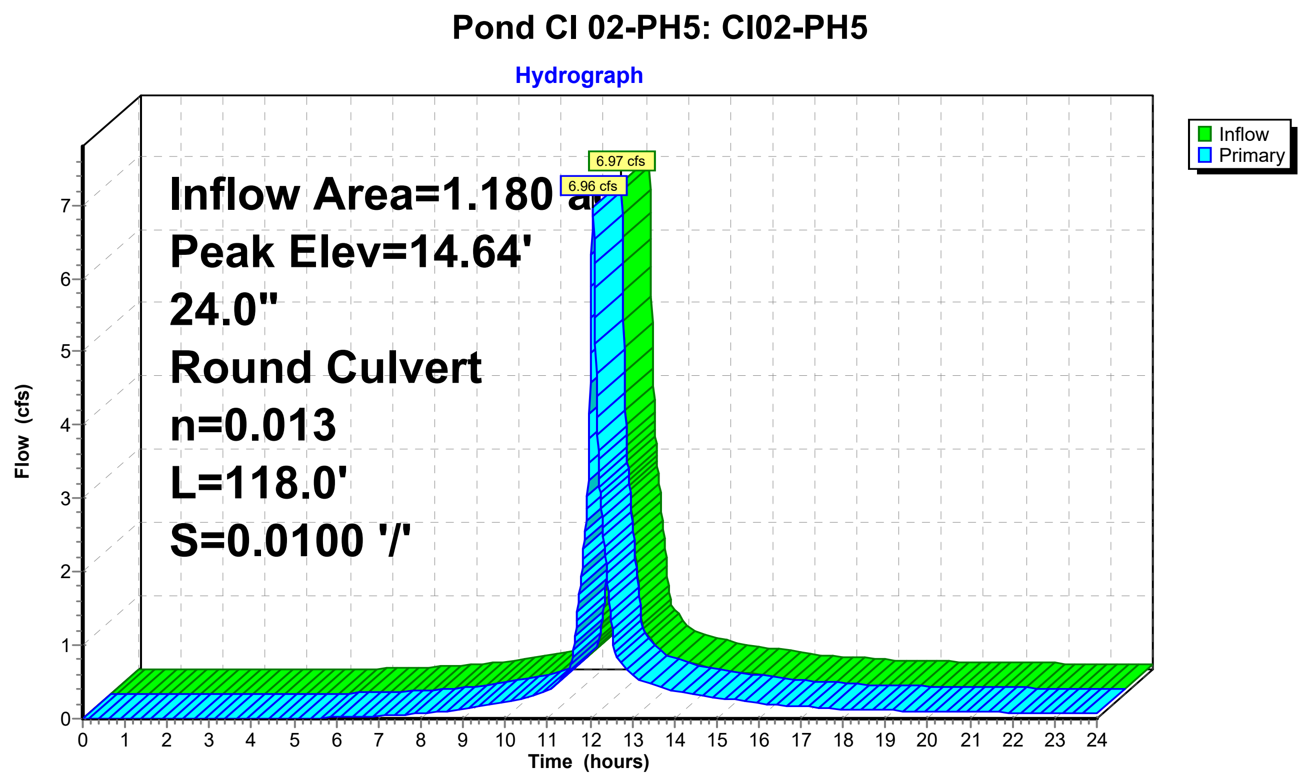
[80] Warning: Exceeded Pond CI 01-PH5 by 0.17' @ 15.90 hrs (0.52 cfs 0.064 af)

Inflow Area =	1.180 ac,	0.00% Impervious,	Inflow Depth > 4.98"	for 10 event
Inflow =	6.97 cfs @	12.07 hrs, Volume=	0.490 af	
Outflow =	6.96 cfs @	12.07 hrs, Volume=	0.490 af,	Atten= 0%, Lag= 0.0 min
Primary =	6.96 cfs @	12.07 hrs, Volume=	0.490 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.64' @ 12.12 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.16'	**24.0" Round RCP_Round 24"** L= 118.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.16' / 10.98' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=5.85 cfs @ 12.07 hrs HW=14.53' TW=14.38' (Dynamic Tailwater)
└─**1=RCP_Round 24"** (Outlet Controls 5.85 cfs @ 1.98 fps)



Summary for Pond CI 03-PH5: CI03-PH5

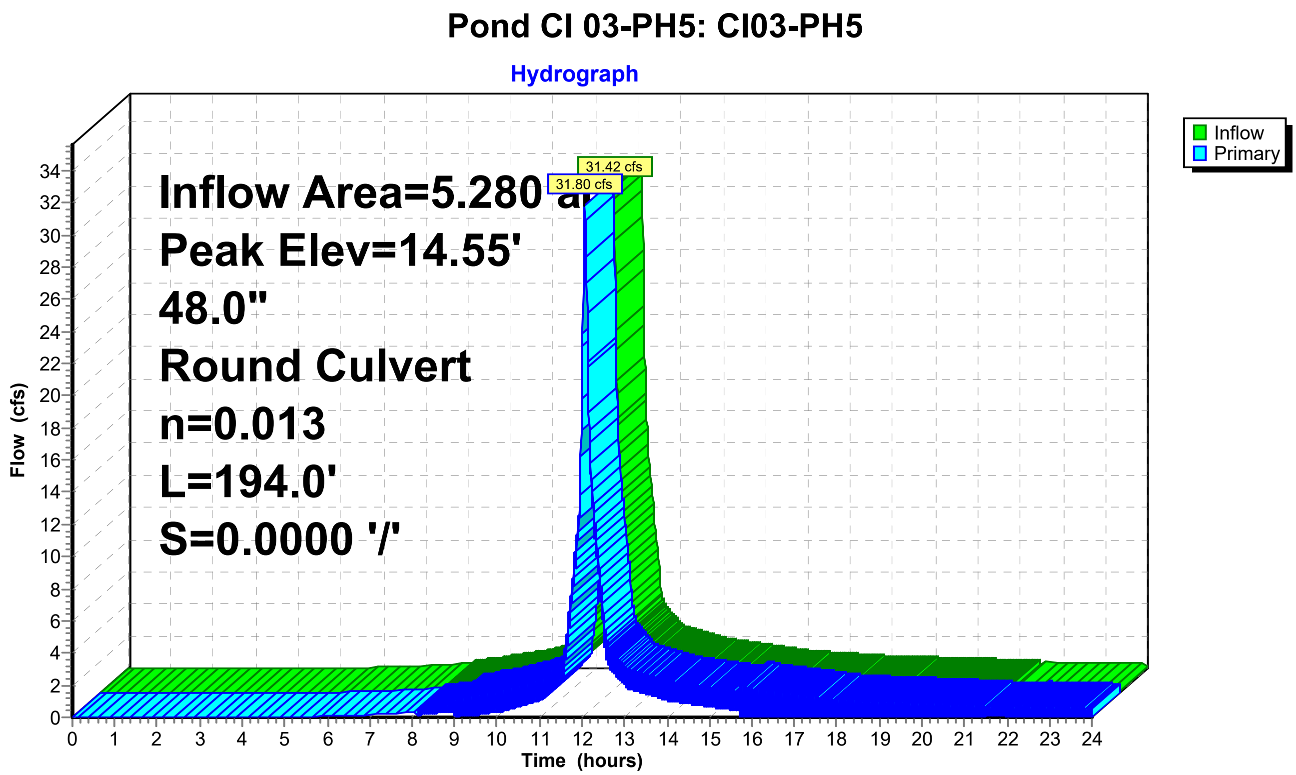
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=13)
[80] Warning: Exceeded Pond CI 02-PH5 by 0.90' @ 15.89 hrs (5.23 cfs 1.294 af)
[80] Warning: Exceeded Pond CI 04-PH5 by 2.02' @ 21.50 hrs (12.95 cfs 6.080 af)
[80] Warning: Exceeded Pond CI 05-PH5 by 2.41' @ 15.89 hrs (27.59 cfs 7.901 af)

Inflow Area = 5.280 ac, 0.00% Impervious, Inflow Depth > 4.98" for 10 event
Inflow = 31.42 cfs @ 12.07 hrs, Volume= 2.191 af
Outflow = 31.80 cfs @ 12.07 hrs, Volume= 2.191 af, Atten= 0%, Lag= 0.0 min
Primary = 31.80 cfs @ 12.07 hrs, Volume= 2.191 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.55' @ 12.15 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.00'	**48.0" Round RCP_Round 48"** L= 194.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.00' / 9.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 12.57 sf

Primary OutFlow Max=28.15 cfs @ 12.07 hrs HW=14.37' TW=14.21' (Dynamic Tailwater)
└─**1=RCP_Round 48"** (Outlet Controls 28.15 cfs @ 2.24 fps)



Summary for Pond CI 04-PH5: CI04-PH5

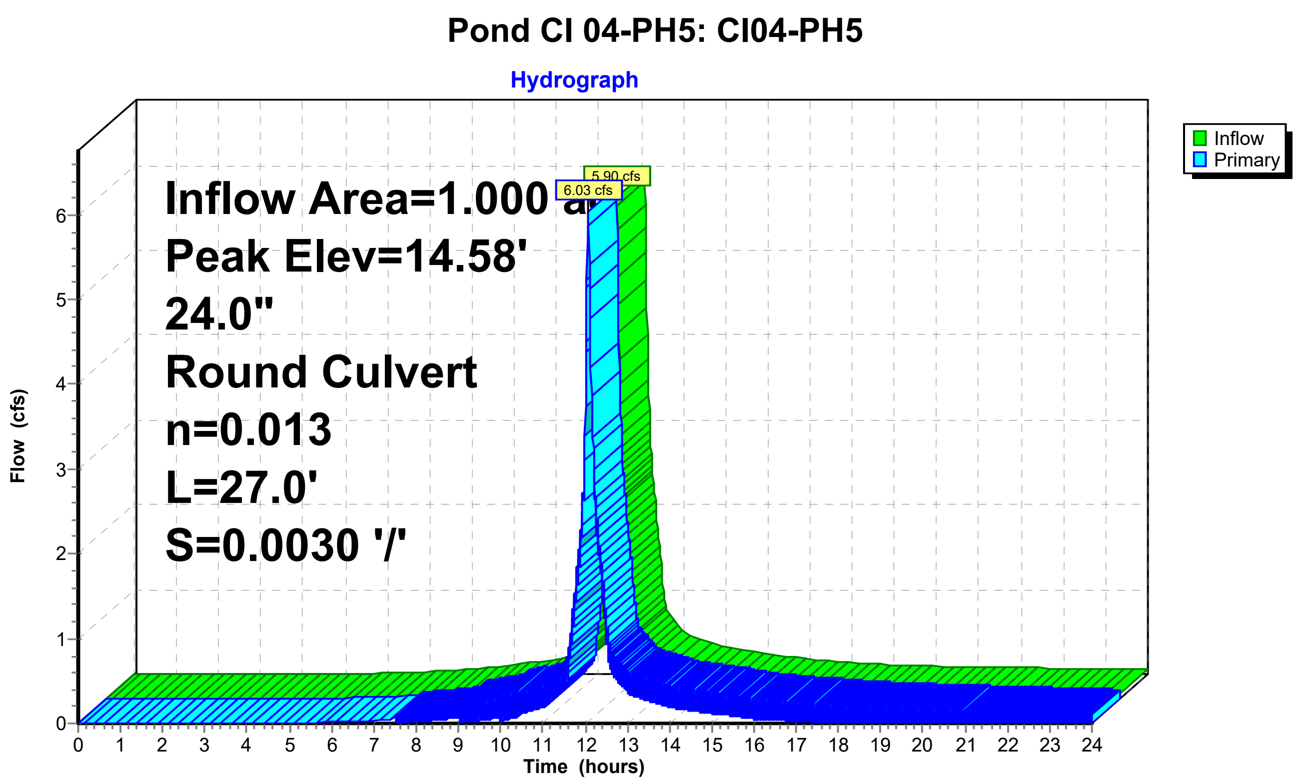
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=816)

Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth > 4.98"	for 10 event	
Inflow =	5.90 cfs @	12.07 hrs, Volume=	0.415 af	
Outflow =	6.03 cfs @	12.07 hrs, Volume=	0.415 af,	Atten= 0%, Lag= 0.0 min
Primary =	6.03 cfs @	12.07 hrs, Volume=	0.415 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.58' @ 12.14 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.06'	**24.0" Round RCP_Round 24"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 11.06' / 10.98' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=3.31 cfs @ 12.07 hrs HW=14.41' TW=14.37' (Dynamic Tailwater)
└─**1=RCP_Round 24"** (Inlet Controls 3.31 cfs @ 1.05 fps)



Summary for Pond CI 05-PH5: CI05-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=585)
[80] Warning: Exceeded Pond CI 06-PH5 by 2.19' @ 21.85 hrs (18.24 cfs 7.551 af)

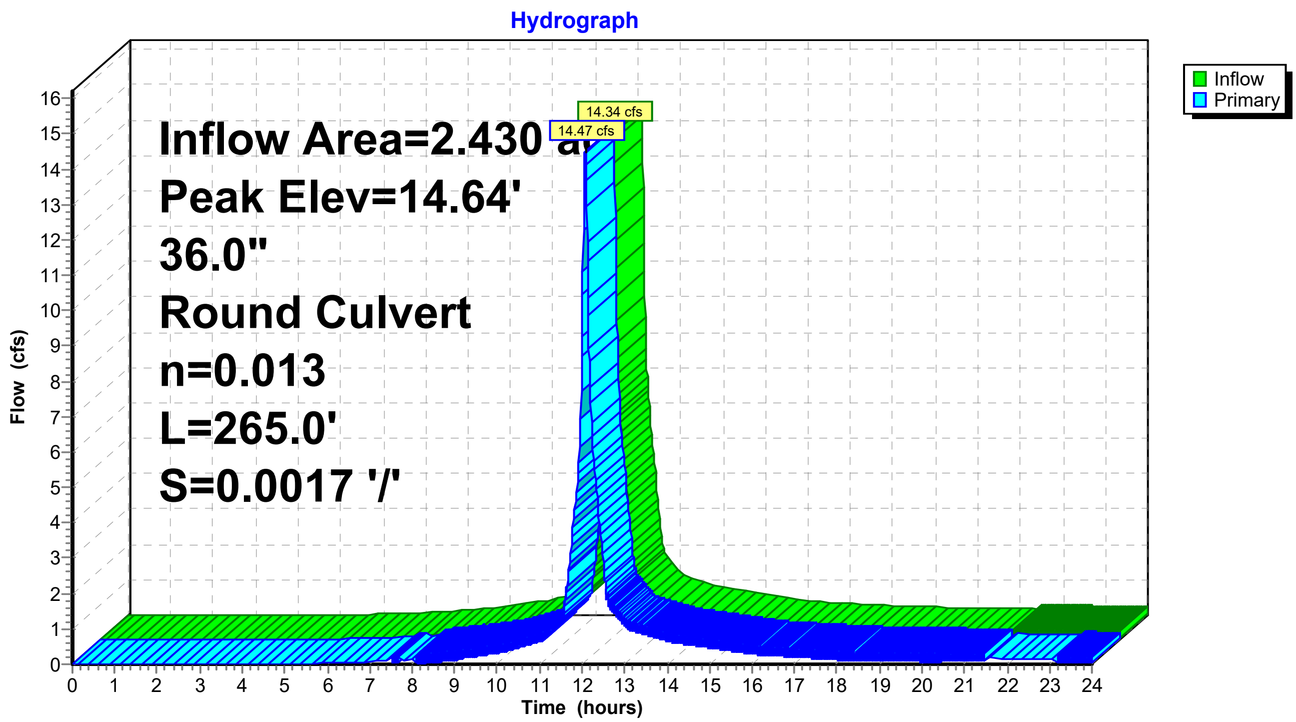
Inflow Area = 2.430 ac, 0.00% Impervious, Inflow Depth > 4.98" for 10 event
Inflow = 14.34 cfs @ 12.07 hrs, Volume= 1.009 af
Outflow = 14.47 cfs @ 12.07 hrs, Volume= 1.008 af, Atten= 0%, Lag= 0.0 min
Primary = 14.47 cfs @ 12.07 hrs, Volume= 1.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.64' @ 12.12 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.44'	**36.0" Round RCP_Round 36"** L= 265.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.44' / 9.98' S= 0.0017 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 7.07 sf

Primary OutFlow Max=11.72 cfs @ 12.07 hrs HW=14.51' TW=14.38' (Dynamic Tailwater)
└─**1=RCP_Round 36"** (Outlet Controls 11.72 cfs @ 1.66 fps)

Pond CI 05-PH5: CI05-PH5



Summary for Pond CI 06-PH5: CI06-PH5

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=195)

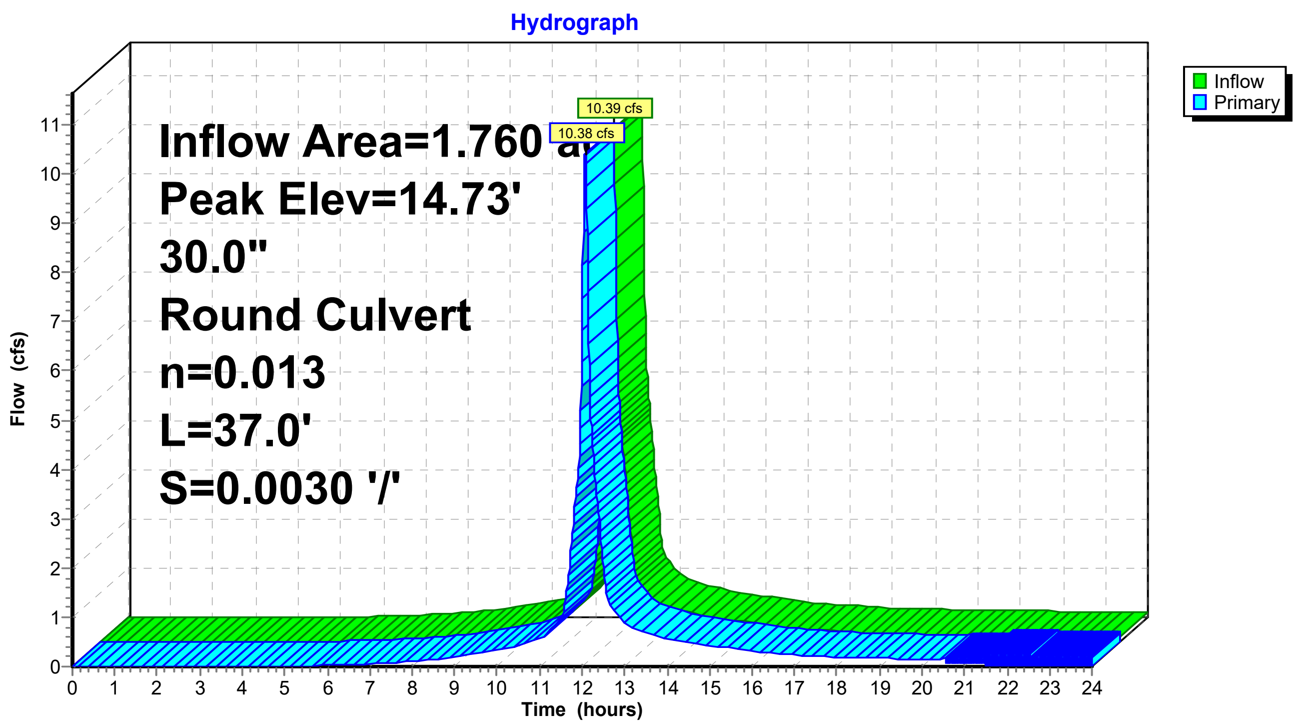
Inflow Area =	1.760 ac,	0.00% Impervious, Inflow Depth > 4.98"	for 10 event
Inflow =	10.39 cfs @	12.07 hrs, Volume=	0.731 af
Outflow =	10.38 cfs @	12.07 hrs, Volume=	0.731 af, Atten= 0%, Lag= 0.0 min
Primary =	10.38 cfs @	12.07 hrs, Volume=	0.731 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.73' @ 12.11 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.89'	**30.0" Round RCP_Round 30"** L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.89' / 10.78' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=7.65 cfs @ 12.07 hrs HW=14.59' TW=14.52' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Inlet Controls 7.65 cfs @ 1.56 fps)

Pond CI 06-PH5: CI06-PH5



Summary for Pond POST-2PA: POND 2A

[80] Warning: Exceeded Pond CI 03-PH5 by 4.24' @ 15.88 hrs (63.49 cfs 23.428 af)

Inflow Area =	15.600 ac,	0.00% Impervious,	Inflow Depth > 4.98"	for 10 event	
Inflow =	87.79 cfs @	12.09 hrs, Volume=	6.474 af		
Outflow =	58.75 cfs @	12.18 hrs, Volume=	6.358 af,	Atten= 33%,	Lag= 5.3 min
Primary =	58.75 cfs @	12.18 hrs, Volume=	6.358 af		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.47' @ 12.18 hrs Surf.Area= 35,930 sf Storage= 162,342 cf (53,620 cf above start)

Plug-Flow detention time= 210.8 min calculated for 3.862 af (60% of inflow)
Center-of-Mass det. time= 27.0 min (823.1 - 796.1)

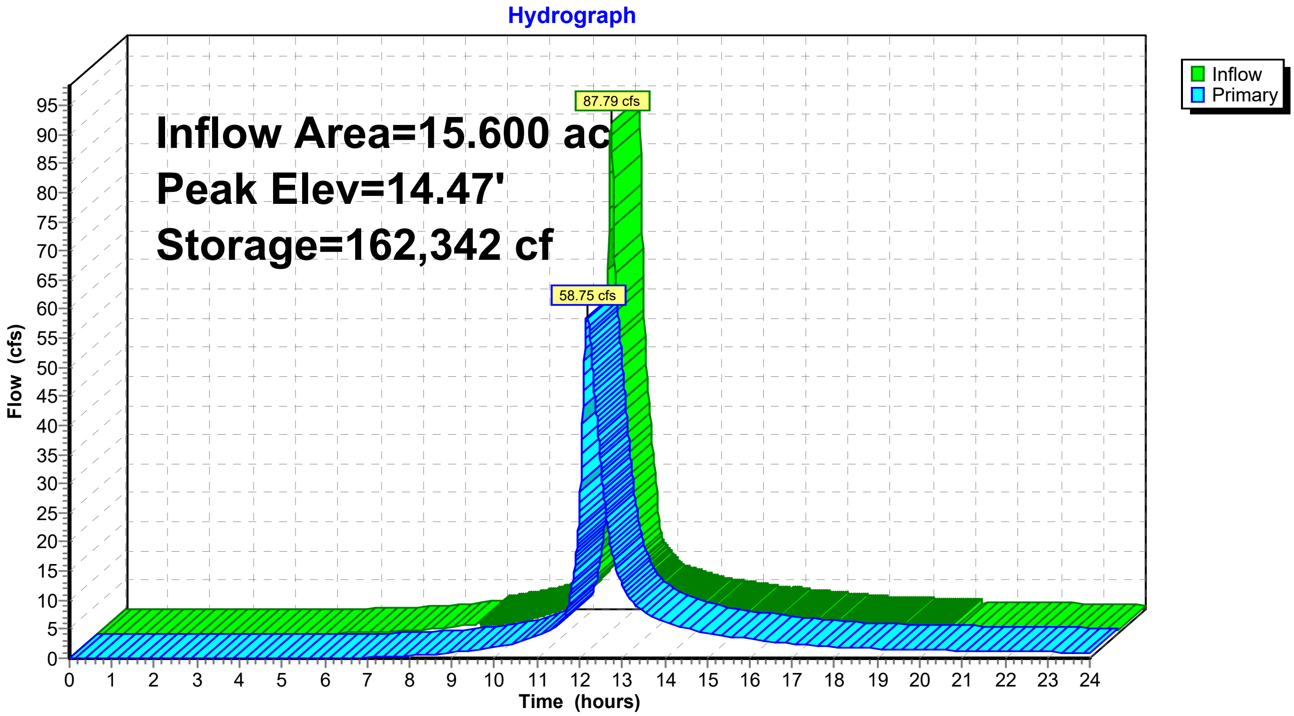
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=58.73 cfs @ 12.18 hrs HW=14.47' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 58.73 cfs @ 3.64 fps)

Pond POST-2PA: POND 2A



Summary for Subcatchment CI01-PH5: CI01-PH5

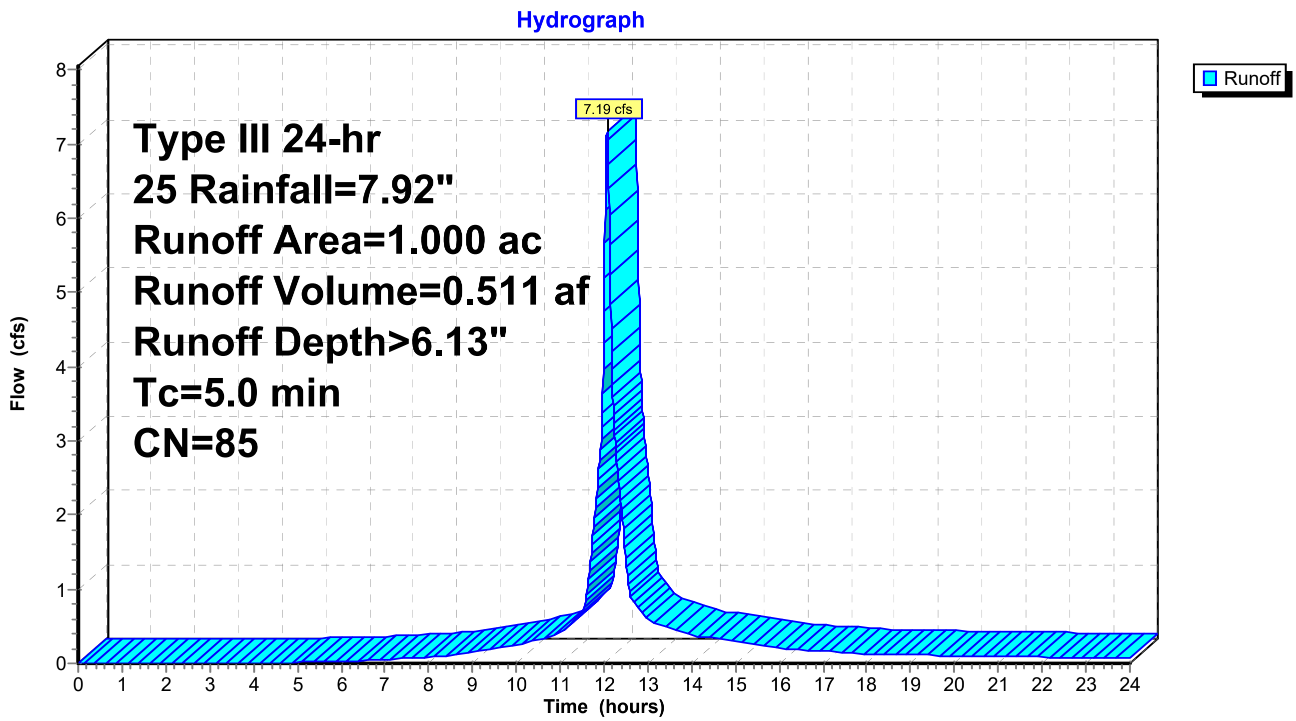
Runoff = 7.19 cfs @ 12.07 hrs, Volume= 0.511 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI01-PH5: CI01-PH5



Summary for Subcatchment CI02-PH5: CI02-PH5

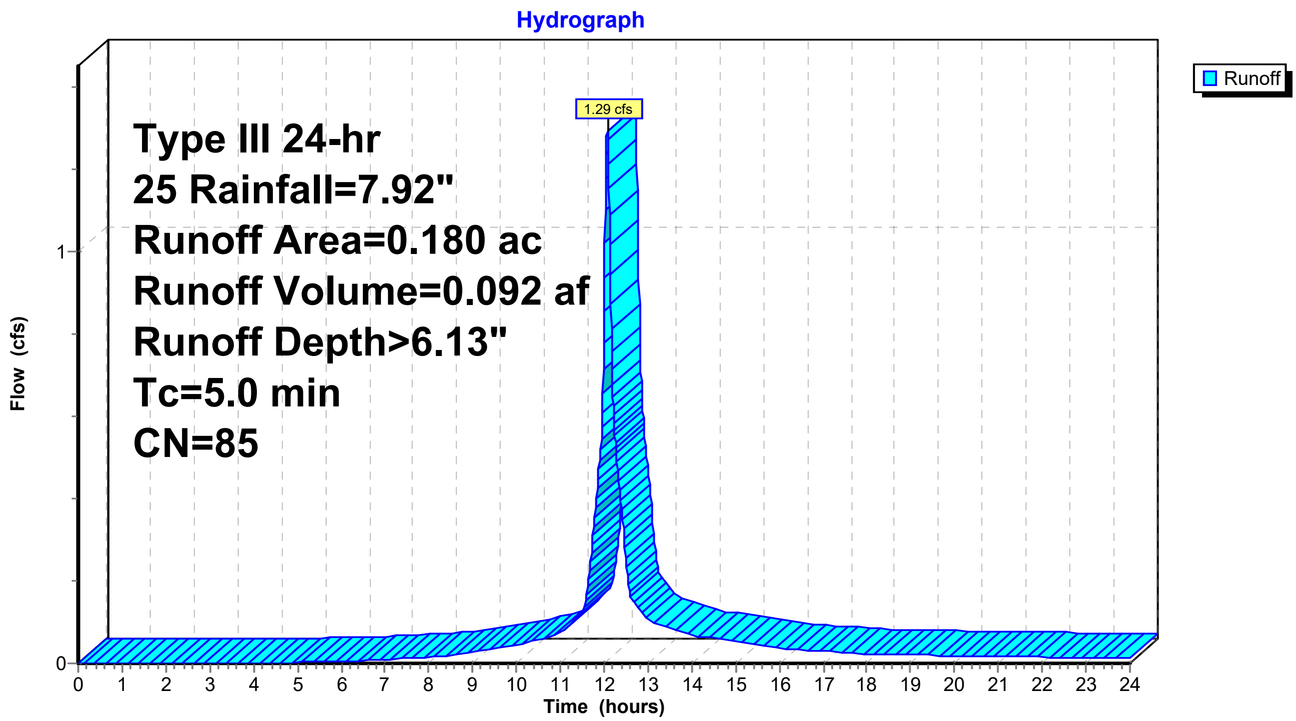
Runoff = 1.29 cfs @ 12.07 hrs, Volume= 0.092 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	0.180	85	
	0.180		100.00% Pervious Area

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

Subcatchment CI02-PH5: CI02-PH5



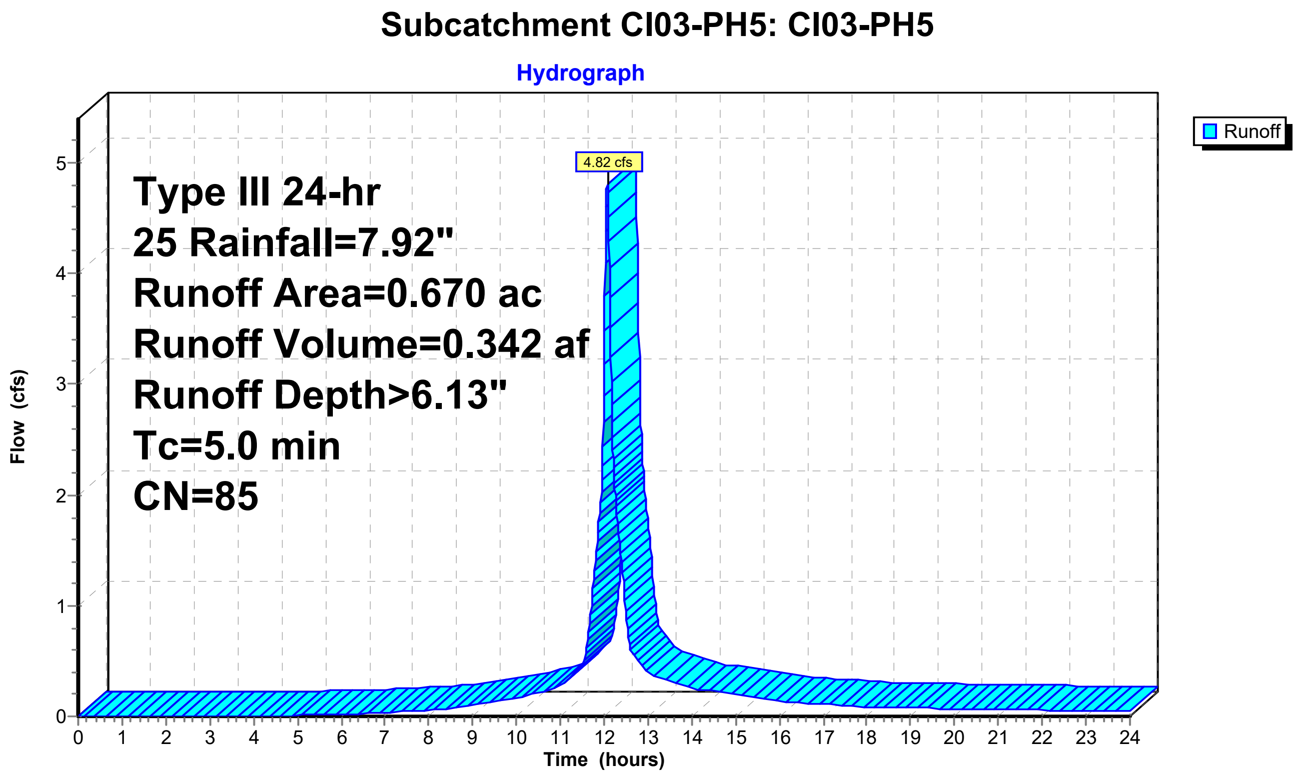
Summary for Subcatchment CI03-PH5: CI03-PH5

Runoff = 4.82 cfs @ 12.07 hrs, Volume= 0.342 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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



Summary for Subcatchment CI04-PH5: CI04-PH5

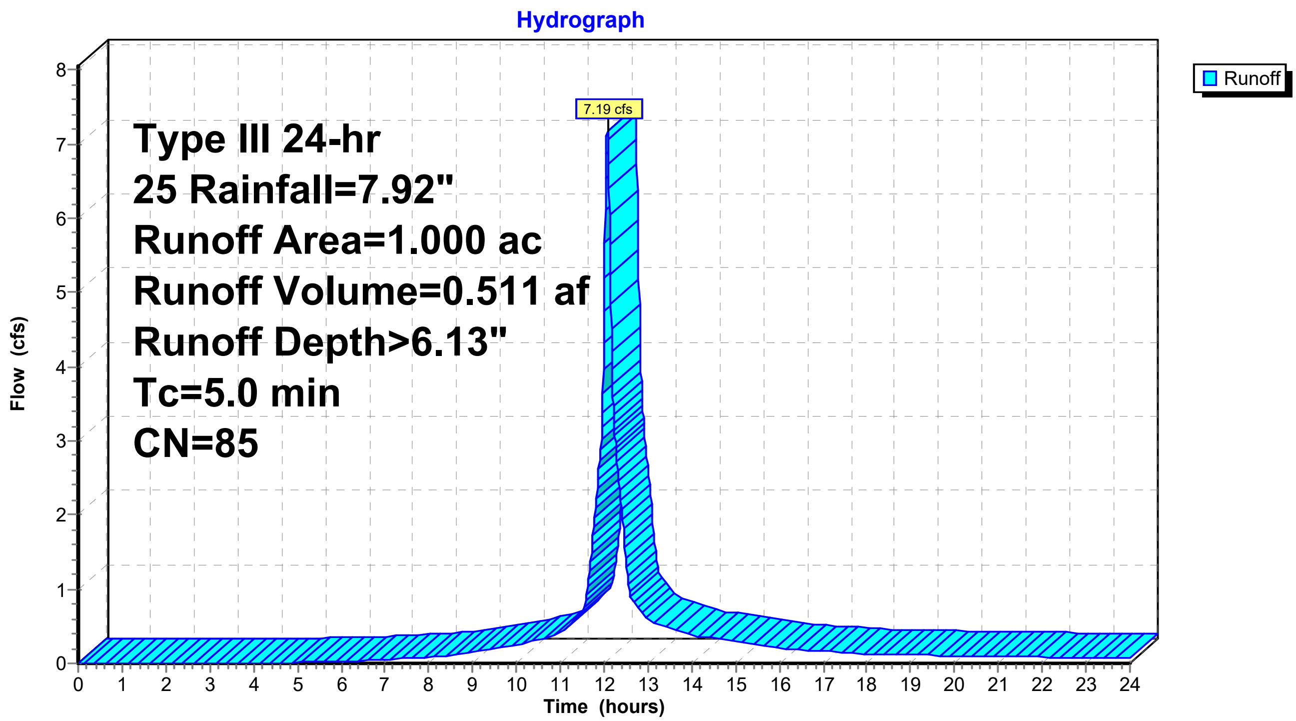
Runoff = 7.19 cfs @ 12.07 hrs, Volume= 0.511 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI04-PH5: CI04-PH5



Summary for Subcatchment CI05-PH5: CI05-PH5

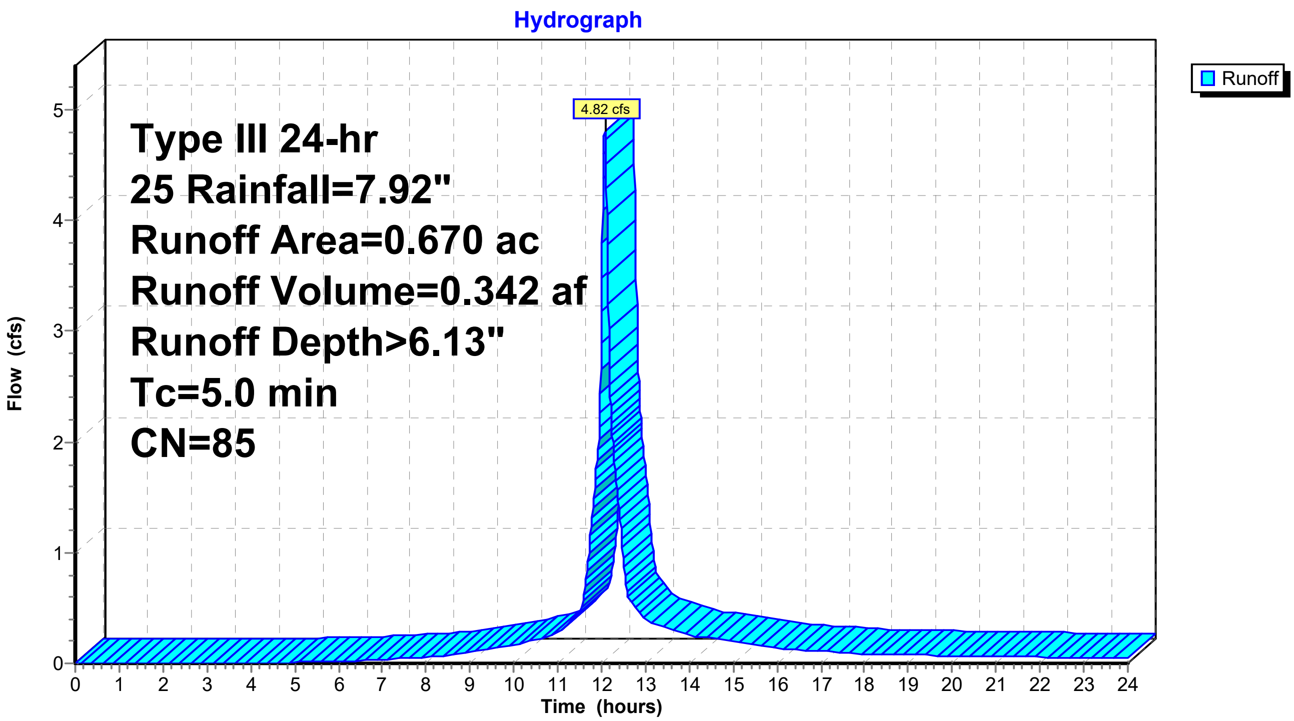
Runoff = 4.82 cfs @ 12.07 hrs, Volume= 0.342 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI05-PH5: CI05-PH5



Summary for Subcatchment CI06-PH5: CI06-PH5

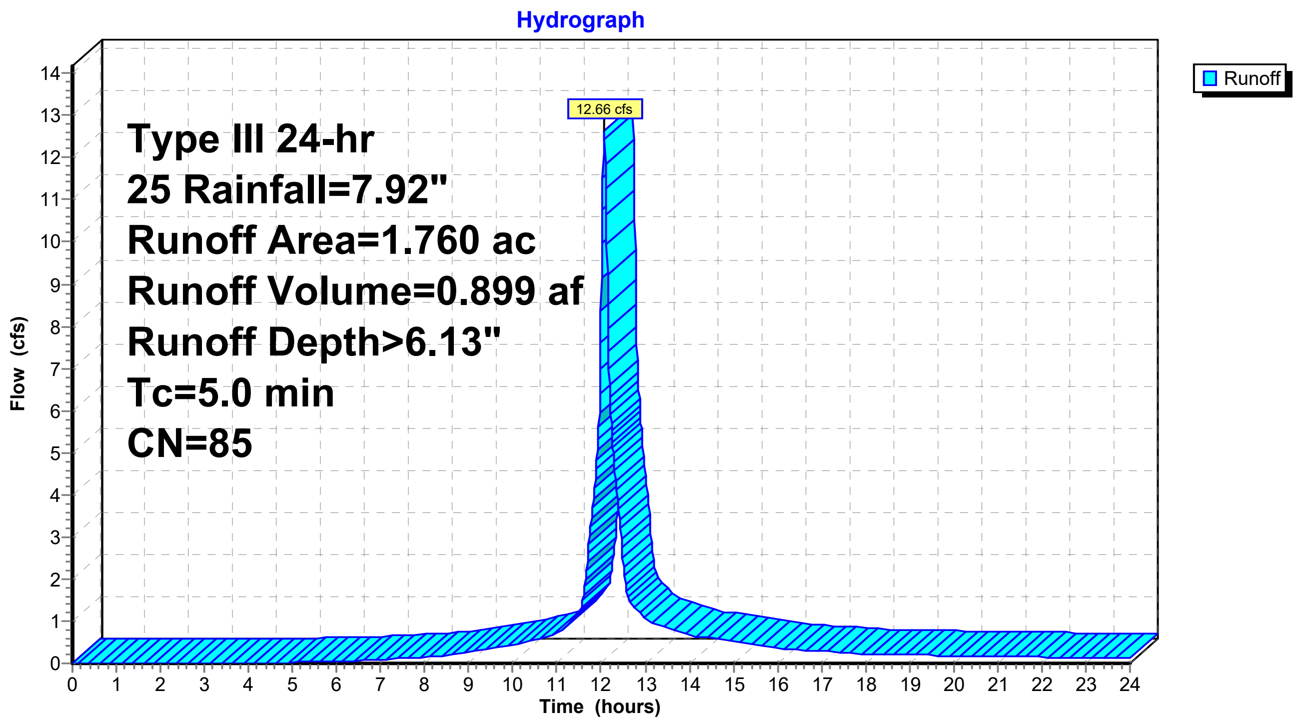
Runoff = 12.66 cfs @ 12.07 hrs, Volume= 0.899 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	1.760	85	
	1.760		100.00% Pervious Area

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

Subcatchment CI06-PH5: CI06-PH5



Summary for Pond CI 01-PH5: CI01-PH5

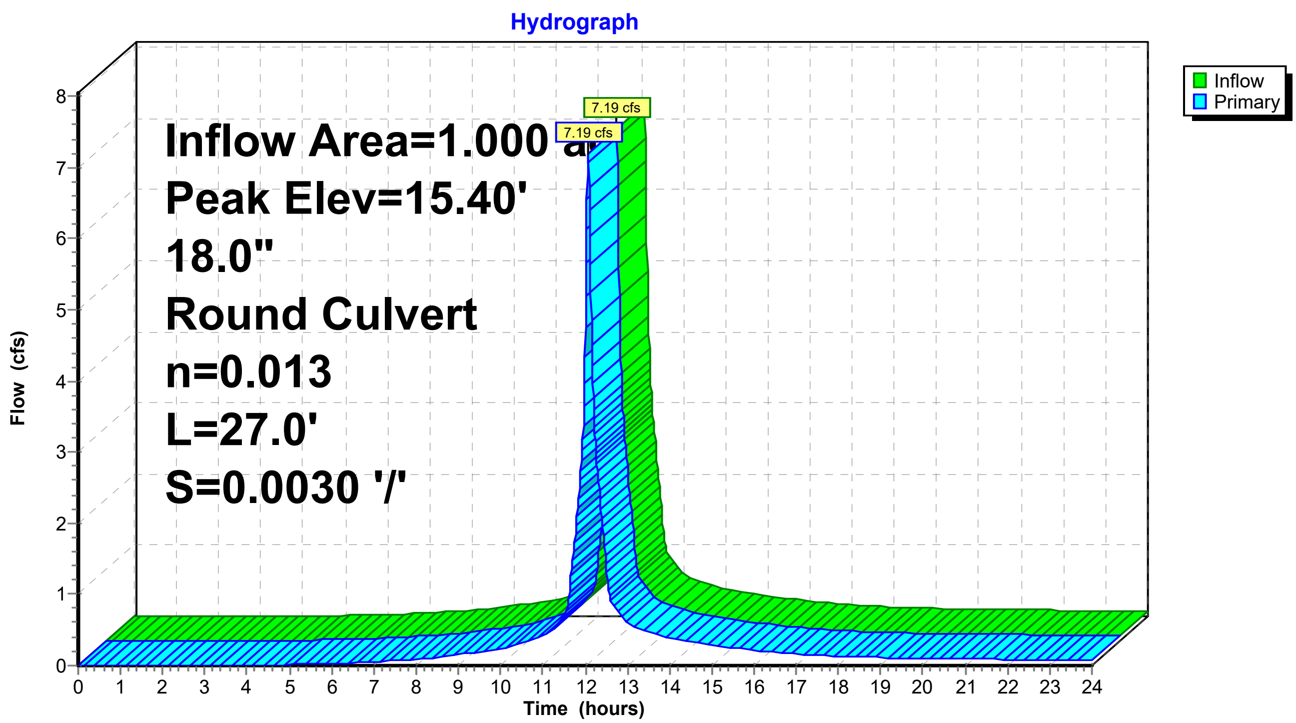
Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth > 6.13"	for 25 event	
Inflow =	7.19 cfs @	12.07 hrs, Volume=	0.511 af	
Outflow =	7.19 cfs @	12.07 hrs, Volume=	0.511 af,	Atten= 0%, Lag= 0.0 min
Primary =	7.19 cfs @	12.07 hrs, Volume=	0.511 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.40' @ 12.09 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.84'	**18.0" Round RCP_Round 18"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.84' / 12.76' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=6.78 cfs @ 12.07 hrs HW=15.30' TW=14.90' (Dynamic Tailwater)
└─**1=RCP_Round 18"** (Inlet Controls 6.78 cfs @ 3.84 fps)

Pond CI 01-PH5: CI01-PH5



Summary for Pond CI 02-PH5: CI02-PH5

[80] Warning: Exceeded Pond CI 01-PH5 by 0.18' @ 16.00 hrs (0.61 cfs 0.089 af)

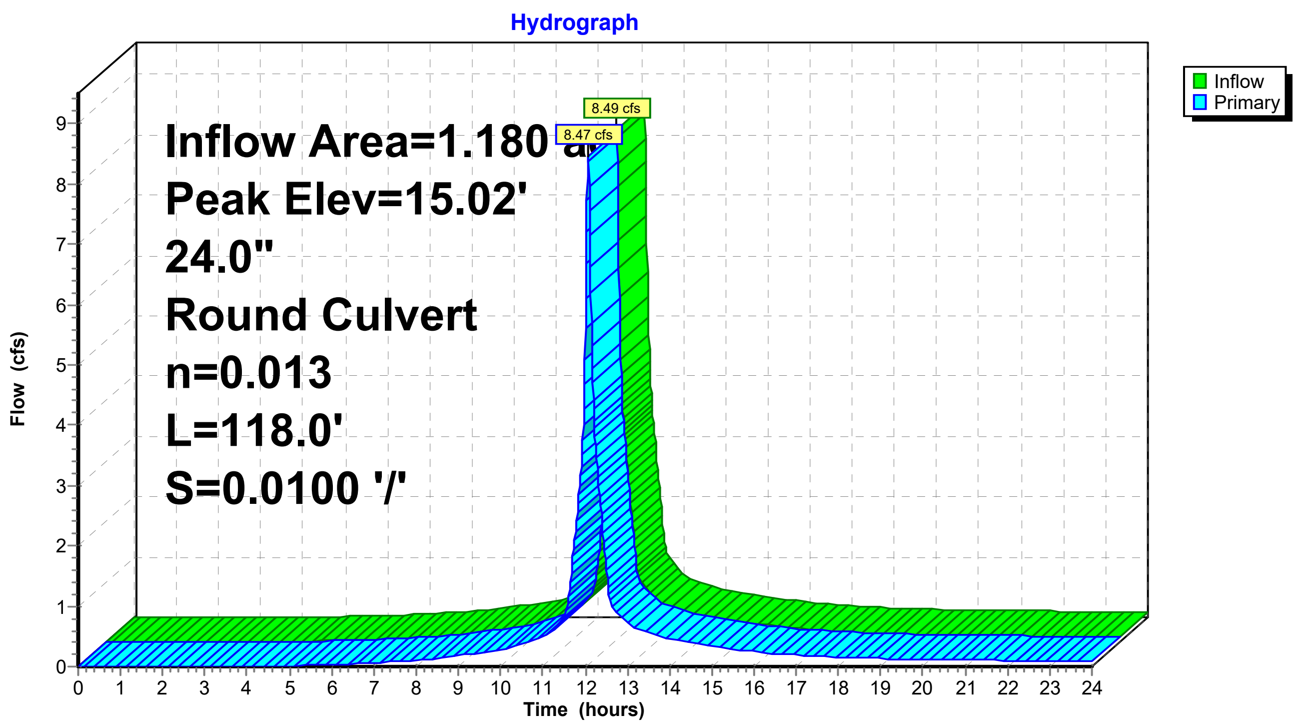
Inflow Area =	1.180 ac,	0.00% Impervious, Inflow Depth > 6.13"	for 25 event
Inflow =	8.49 cfs @	12.07 hrs, Volume=	0.603 af
Outflow =	8.47 cfs @	12.07 hrs, Volume=	0.603 af, Atten= 0%, Lag= 0.1 min
Primary =	8.47 cfs @	12.07 hrs, Volume=	0.603 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.02' @ 12.10 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.16'	**24.0" Round RCP_Round 24"** L= 118.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.16' / 10.98' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=7.41 cfs @ 12.07 hrs HW=14.90' TW=14.67' (Dynamic Tailwater)
1=RCP_Round 24" (Outlet Controls 7.41 cfs @ 2.36 fps)

Pond CI 02-PH5: CI02-PH5



Summary for Pond CI 03-PH5: CI03-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=795)
[80] Warning: Exceeded Pond CI 02-PH5 by 0.91' @ 15.99 hrs (5.51 cfs 1.630 af)
[80] Warning: Exceeded Pond CI 04-PH5 by 2.01' @ 15.99 hrs (14.67 cfs 5.941 af)
[80] Warning: Exceeded Pond CI 05-PH5 by 2.47' @ 6.00 hrs (22.58 cfs 9.907 af)

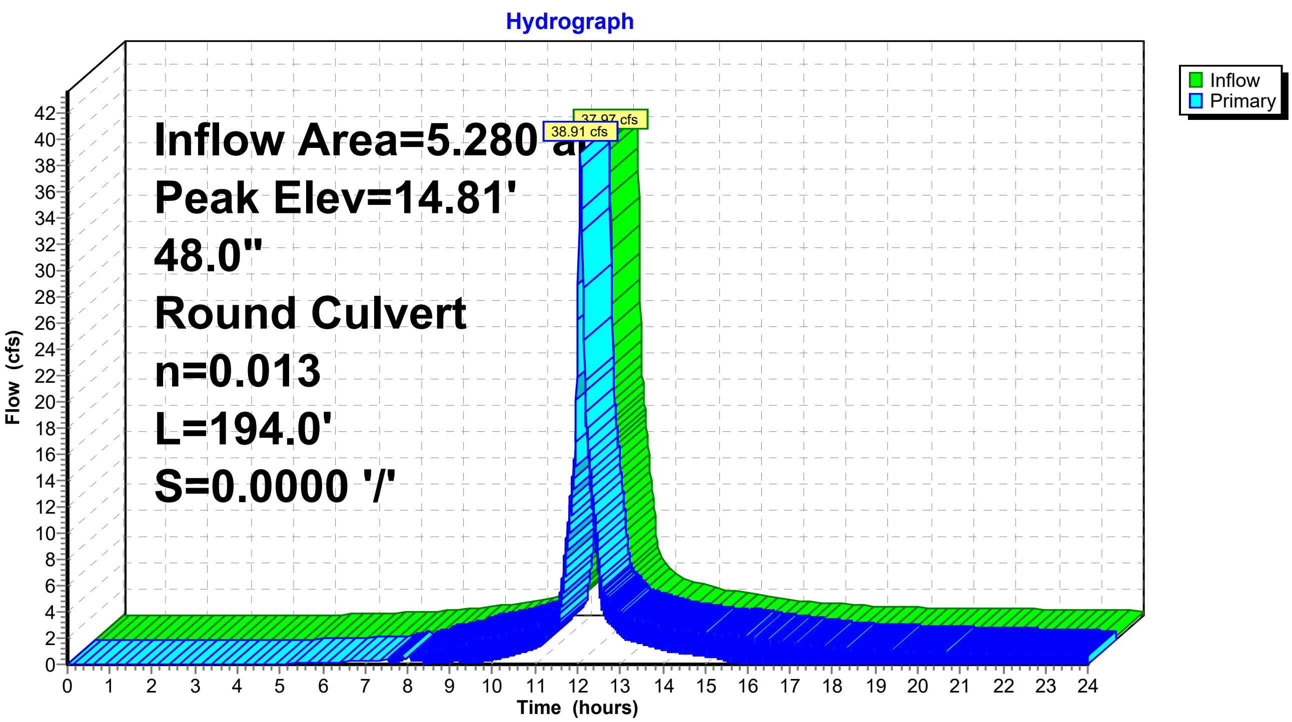
Inflow Area = 5.280 ac, 0.00% Impervious, Inflow Depth > 6.13" for 25 event
Inflow = 37.97 cfs @ 12.07 hrs, Volume= 2.698 af
Outflow = 38.91 cfs @ 12.07 hrs, Volume= 2.697 af, Atten= 0%, Lag= 0.0 min
Primary = 38.91 cfs @ 12.07 hrs, Volume= 2.697 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.81' @ 12.13 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.00'	**48.0" Round RCP_Round 48"** L= 194.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.00' / 9.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 12.57 sf

Primary OutFlow Max=35.62 cfs @ 12.07 hrs HW=14.67' TW=14.40' (Dynamic Tailwater)
└─**1=RCP_Round 48"** (Outlet Controls 35.62 cfs @ 2.83 fps)

Pond CI 03-PH5: CI03-PH5



Summary for Pond CI 04-PH5: CI04-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=869)

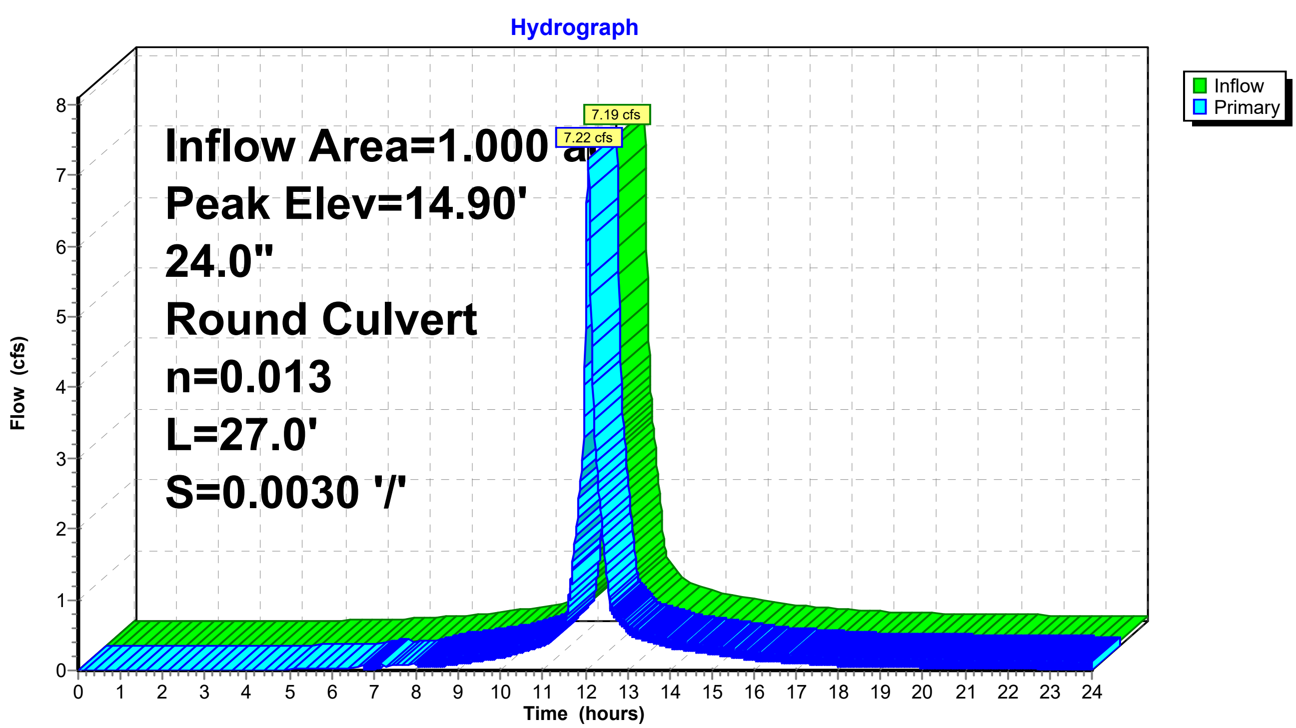
Inflow Area = 1.000 ac, 0.00% Impervious, Inflow Depth > 6.13" for 25 event
Inflow = 7.19 cfs @ 12.07 hrs, Volume= 0.511 af
Outflow = 7.22 cfs @ 12.08 hrs, Volume= 0.511 af, Atten= 0%, Lag= 0.3 min
Primary = 7.22 cfs @ 12.08 hrs, Volume= 0.511 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.90' @ 12.12 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.06'	**24.0" Round RCP_Round 24"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 11.06' / 10.98' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=6.21 cfs @ 12.08 hrs HW=14.79' TW=14.68' (Dynamic Tailwater)
↑—**1=RCP_Round 24"** (Inlet Controls 6.21 cfs @ 1.98 fps)

Pond CI 04-PH5: CI04-PH5



Summary for Pond CI 05-PH5: CI05-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=46)
[80] Warning: Exceeded Pond CI 06-PH5 by 2.11' @ 16.00 hrs (20.78 cfs 7.227 af)

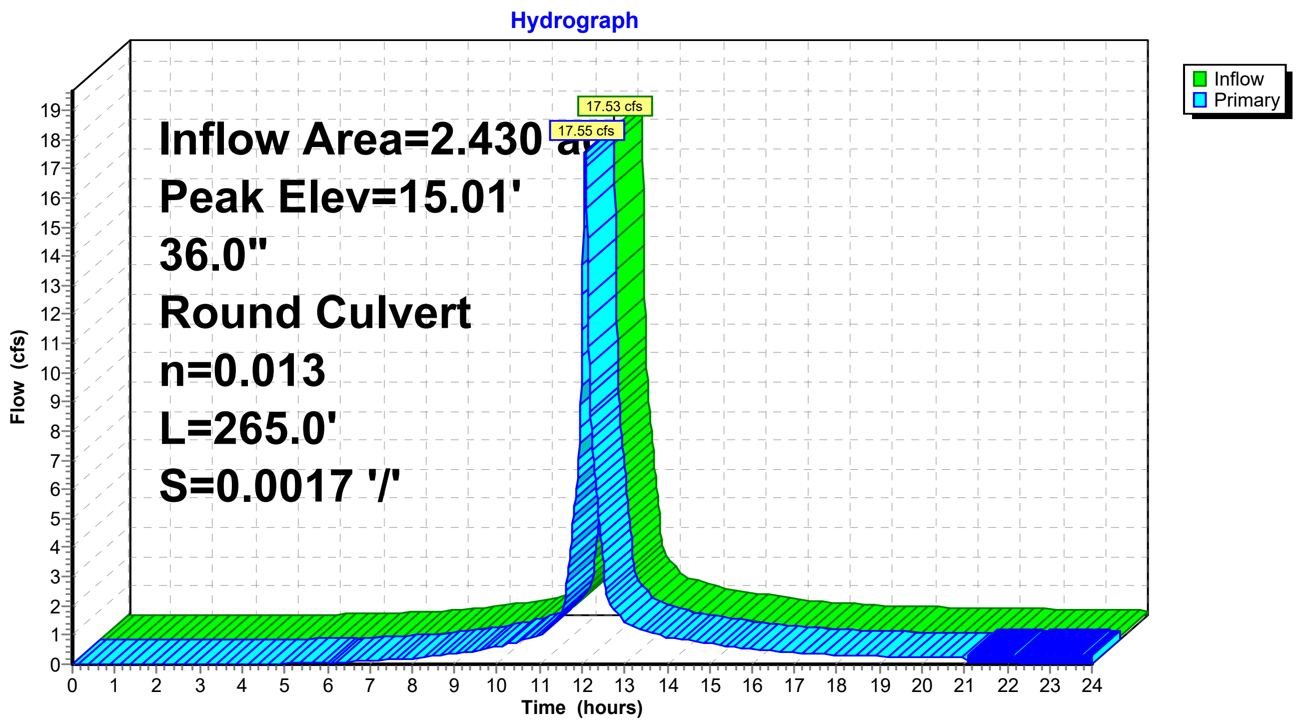
Inflow Area =	2.430 ac,	0.00% Impervious, Inflow Depth > 6.13"	for 25 event	
Inflow =	17.53 cfs @	12.07 hrs, Volume=	1.242 af	
Outflow =	17.55 cfs @	12.07 hrs, Volume=	1.241 af,	Atten= 0%, Lag= 0.0 min
Primary =	17.55 cfs @	12.07 hrs, Volume=	1.241 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.01' @ 12.10 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.44'	**36.0" Round RCP_Round 36"** L= 265.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.44' / 9.98' S= 0.0017 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 7.07 sf

Primary OutFlow Max=14.90 cfs @ 12.07 hrs HW=14.89' TW=14.67' (Dynamic Tailwater)
└1=RCP_Round 36" (Outlet Controls 14.90 cfs @ 2.11 fps)

Pond CI 05-PH5: CI05-PH5



Summary for Pond CI 06-PH5: CI06-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=846)

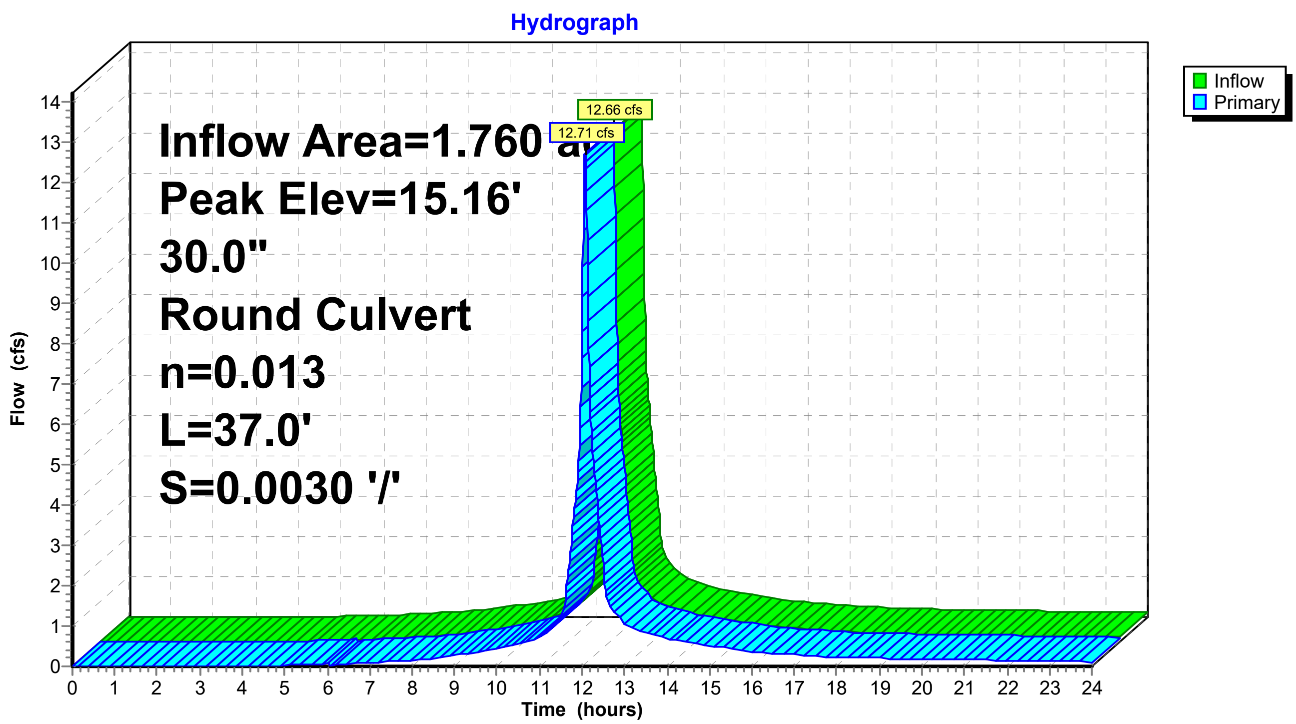
Inflow Area =	1.760 ac,	0.00% Impervious, Inflow Depth > 6.13"	for 25 event	
Inflow =	12.66 cfs @	12.07 hrs, Volume=	0.899 af	
Outflow =	12.71 cfs @	12.07 hrs, Volume=	0.899 af,	Atten= 0%, Lag= 0.0 min
Primary =	12.71 cfs @	12.07 hrs, Volume=	0.899 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.16' @ 12.11 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.89'	**30.0" Round RCP_Round 30"** L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.89' / 10.78' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=10.74 cfs @ 12.07 hrs HW=15.02' TW=14.89' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Inlet Controls 10.74 cfs @ 2.19 fps)

Pond CI 06-PH5: CI06-PH5



Summary for Pond POST-2PA: POND 2A

[80] Warning: Exceeded Pond CI 03-PH5 by 4.26' @ 15.98 hrs (64.10 cfs 27.577 af)

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 6.13" for 25 event
Inflow = 107.11 cfs @ 12.09 hrs, Volume= 7.969 af
Outflow = 75.09 cfs @ 12.17 hrs, Volume= 7.840 af, Atten= 30%, Lag= 4.8 min
Primary = 75.09 cfs @ 12.17 hrs, Volume= 7.840 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.68' @ 12.17 hrs Surf.Area= 36,415 sf Storage= 169,705 cf (60,983 cf above start)

Plug-Flow detention time= 184.1 min calculated for 5.344 af (67% of inflow)
Center-of-Mass det. time= 25.2 min (815.6 - 790.4)

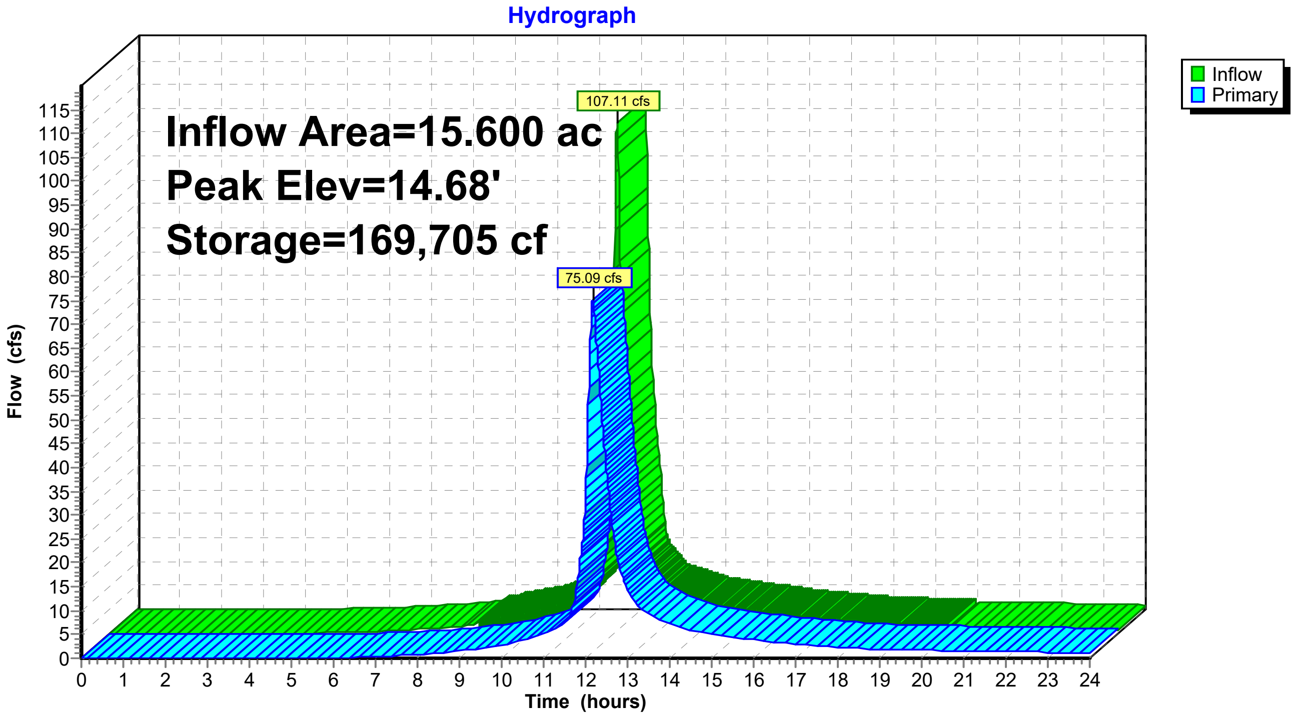
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=75.07 cfs @ 12.17 hrs HW=14.68' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 75.07 cfs @ 3.85 fps)

Pond POST-2PA: POND 2A



Summary for Subcatchment CI01-PH5: CI01-PH5

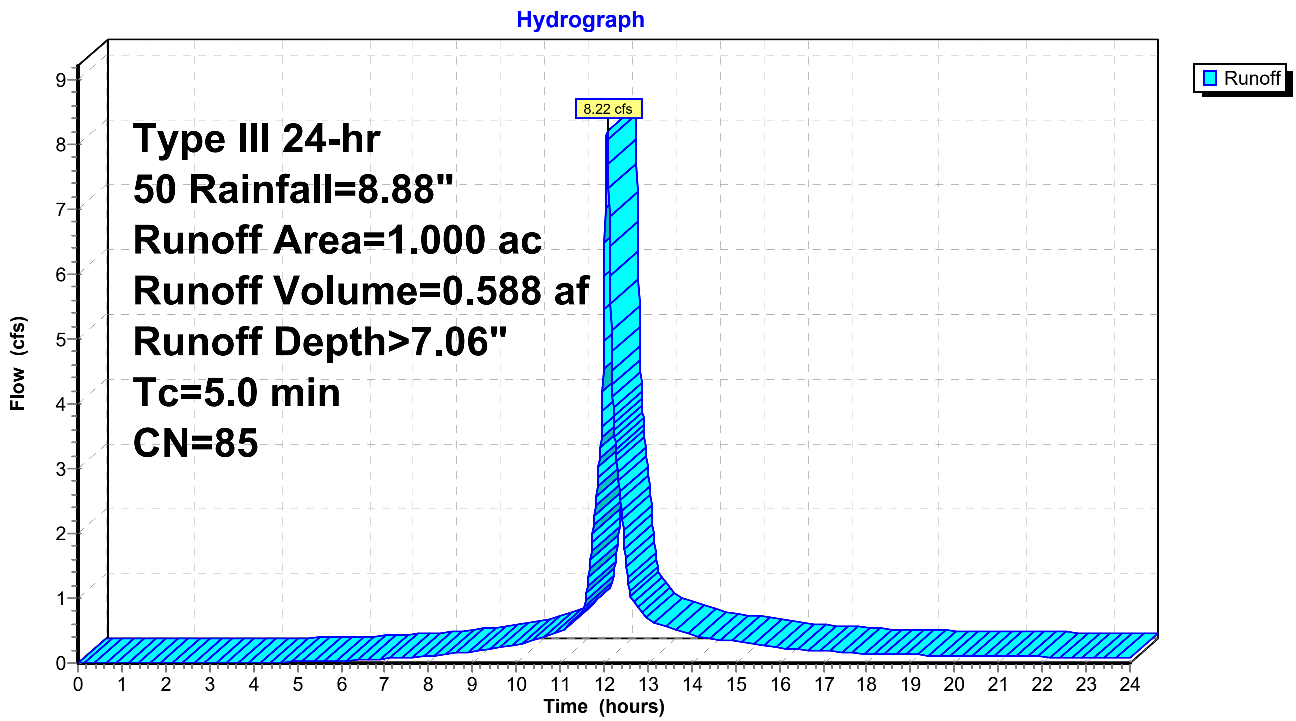
Runoff = 8.22 cfs @ 12.07 hrs, Volume= 0.588 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI01-PH5: CI01-PH5



Summary for Subcatchment CI02-PH5: CI02-PH5

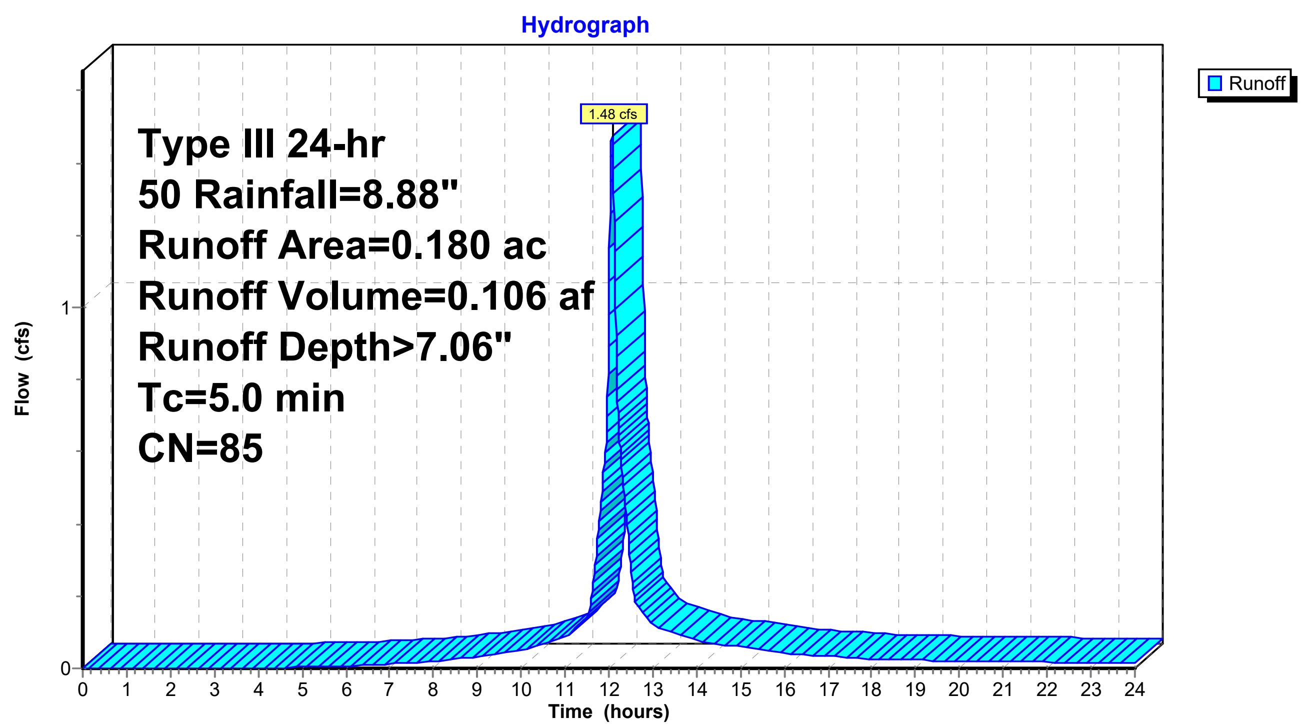
Runoff = 1.48 cfs @ 12.07 hrs, Volume= 0.106 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	0.180	85	
	0.180		100.00% Pervious Area

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

Subcatchment CI02-PH5: CI02-PH5



Summary for Subcatchment CI03-PH5: CI03-PH5

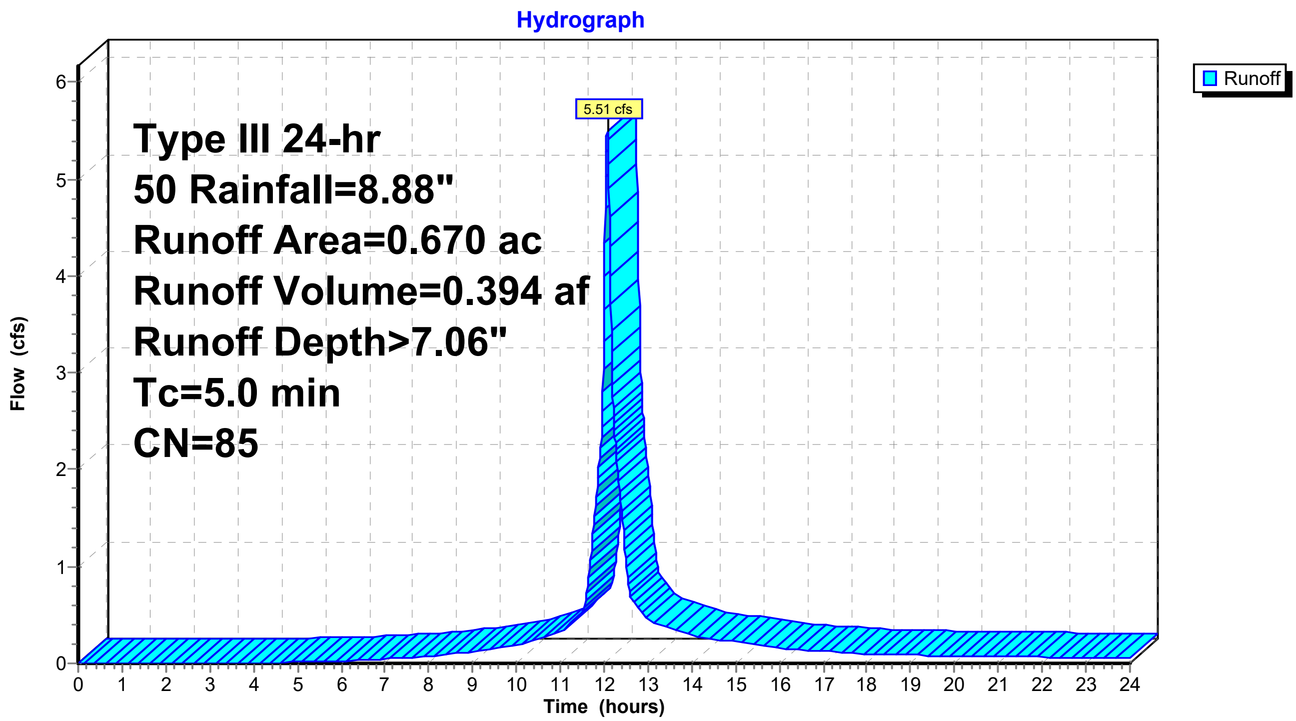
Runoff = 5.51 cfs @ 12.07 hrs, Volume= 0.394 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI03-PH5: CI03-PH5



Summary for Subcatchment CI04-PH5: CI04-PH5

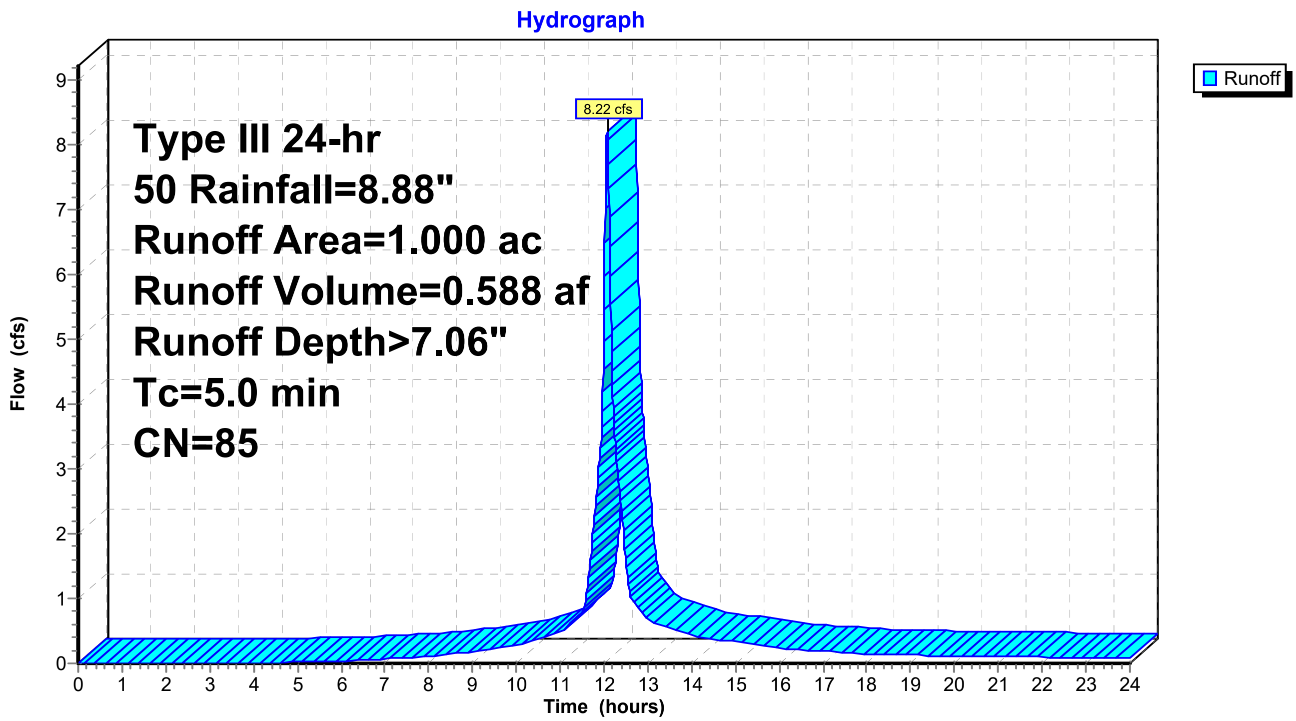
Runoff = 8.22 cfs @ 12.07 hrs, Volume= 0.588 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI04-PH5: CI04-PH5



Summary for Subcatchment CI05-PH5: CI05-PH5

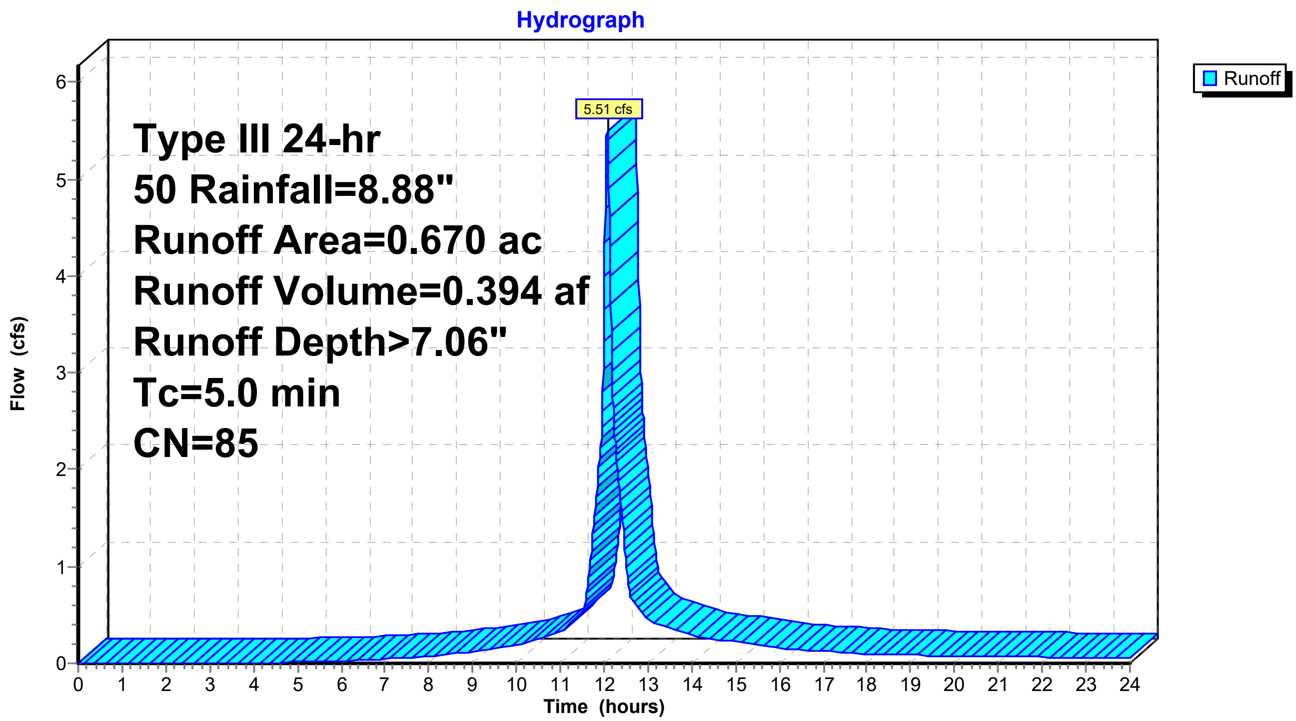
Runoff = 5.51 cfs @ 12.07 hrs, Volume= 0.394 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI05-PH5: CI05-PH5



Summary for Subcatchment CI06-PH5: CI06-PH5

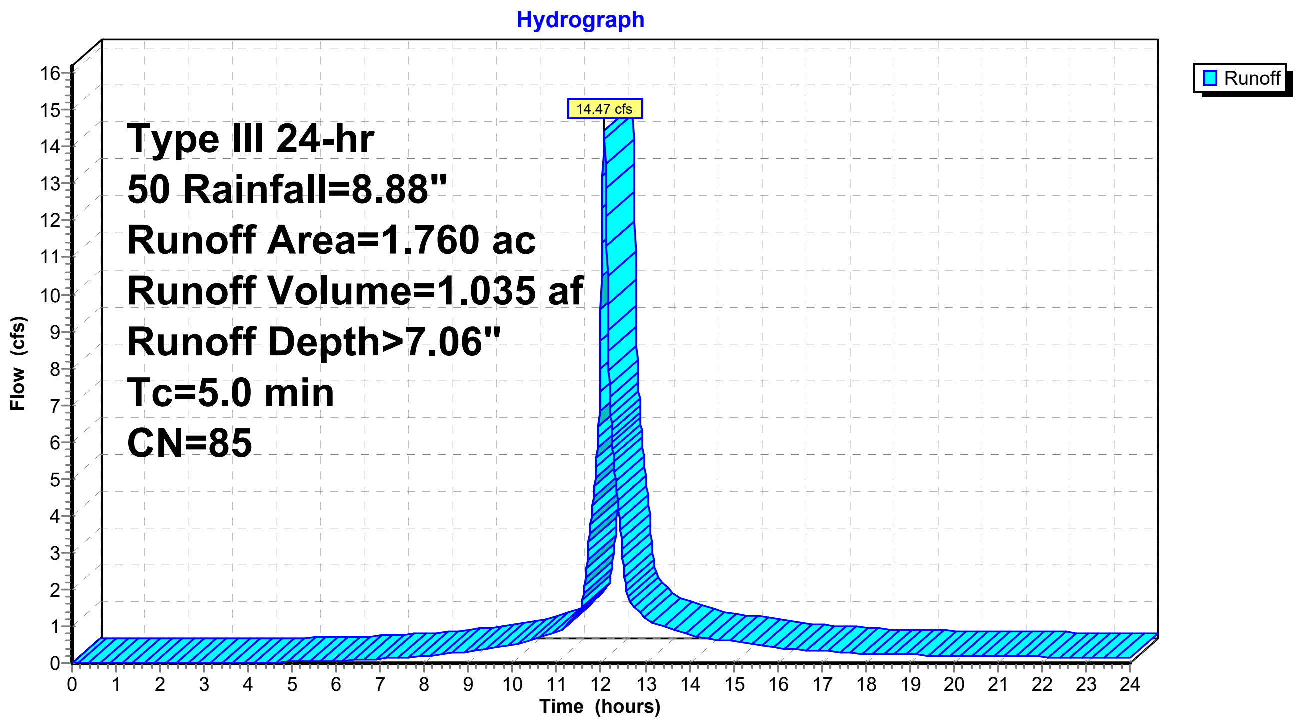
Runoff = 14.47 cfs @ 12.07 hrs, Volume= 1.035 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	1.760	85	
	1.760		100.00% Pervious Area

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

Subcatchment CI06-PH5: CI06-PH5



Summary for Pond CI 01-PH5: CI01-PH5

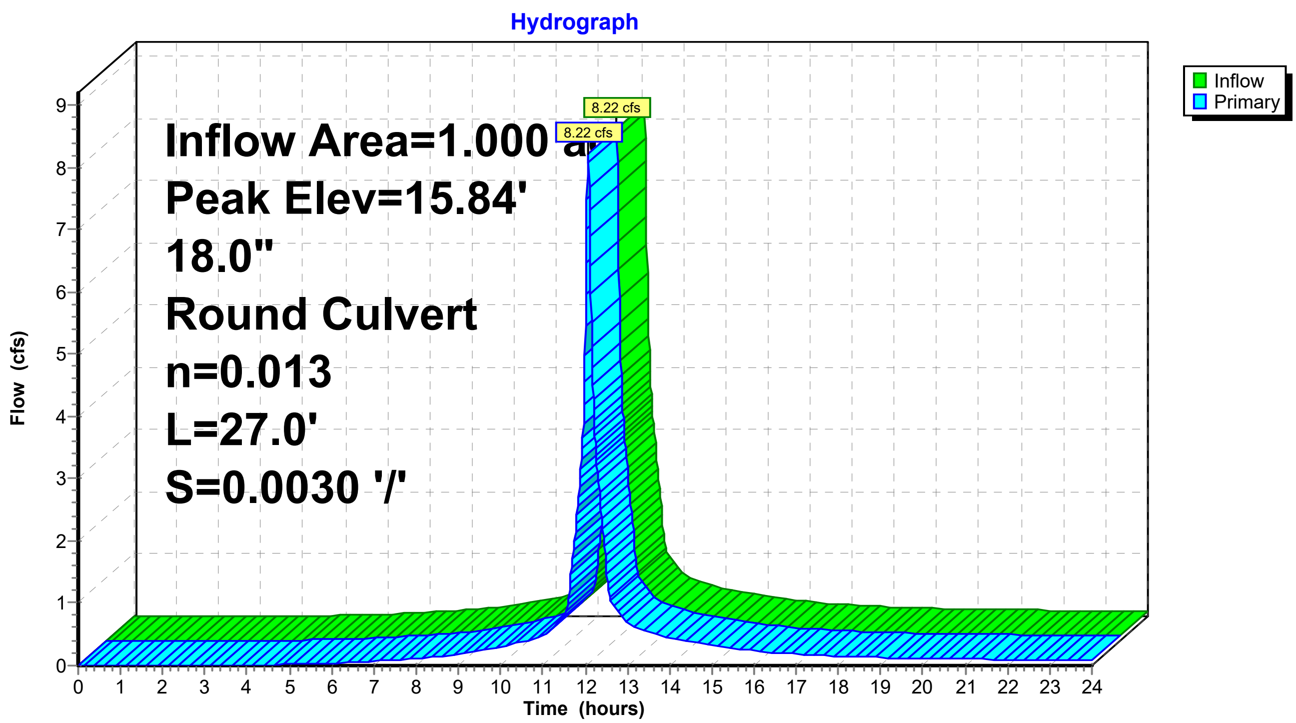
Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth > 7.06"	for 50 event	
Inflow =	8.22 cfs @	12.07 hrs, Volume=	0.588 af	
Outflow =	8.22 cfs @	12.07 hrs, Volume=	0.588 af,	Atten= 0%, Lag= 0.0 min
Primary =	8.22 cfs @	12.07 hrs, Volume=	0.588 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.84' @ 12.09 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.84'	**18.0" Round RCP_Round 18"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.84' / 12.76' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=7.64 cfs @ 12.07 hrs HW=15.74' TW=15.22' (Dynamic Tailwater)
└─1=RCP_Round 18" (Inlet Controls 7.64 cfs @ 4.32 fps)

Pond CI 01-PH5: CI01-PH5



Summary for Pond CI 02-PH5: CI02-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=310)
[80] Warning: Exceeded Pond CI 01-PH5 by 0.03' @ 0.70 hrs (0.00 cfs 0.000 af)

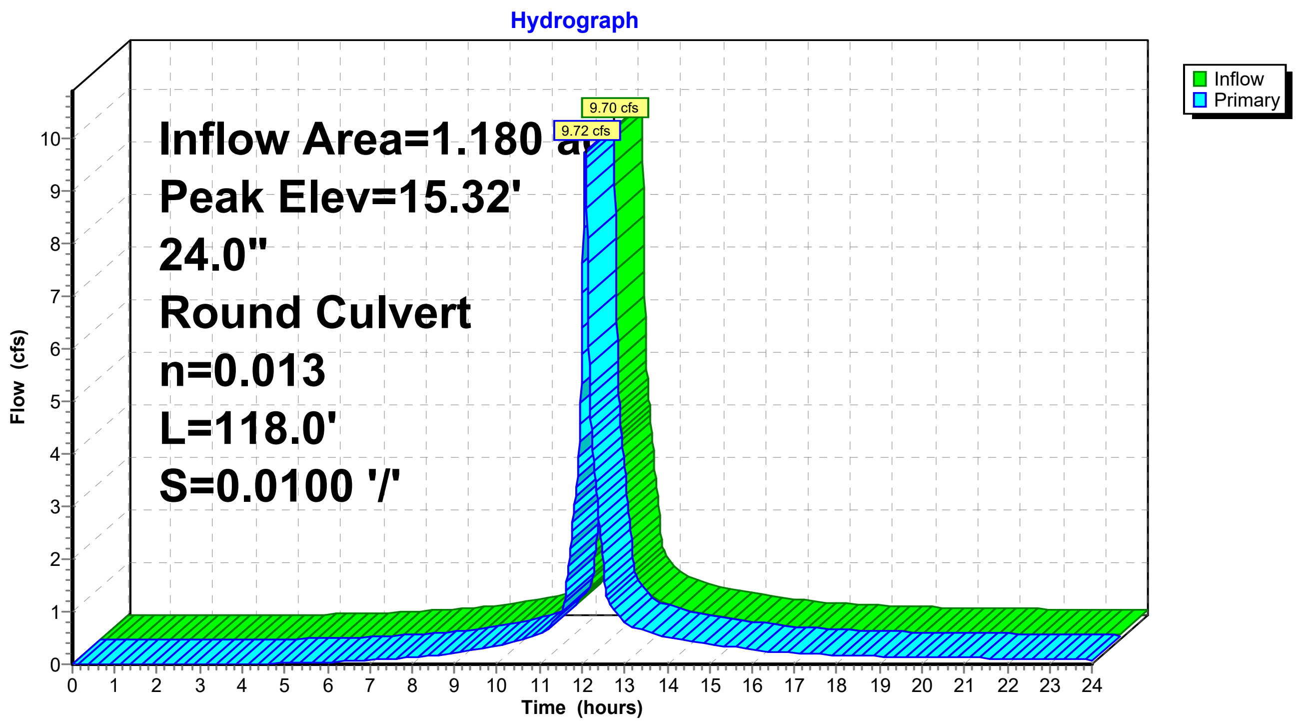
Inflow Area =	1.180 ac,	0.00% Impervious, Inflow Depth >	7.06"	for 50 event
Inflow =	9.70 cfs @	12.07 hrs, Volume=	0.694 af	
Outflow =	9.72 cfs @	12.07 hrs, Volume=	0.694 af, Atten= 0%, Lag= 0.0 min	
Primary =	9.72 cfs @	12.07 hrs, Volume=	0.694 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.32' @ 12.10 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.16'	**24.0" Round RCP_Round 24"** L= 118.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.16' / 10.98' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=8.83 cfs @ 12.07 hrs HW=15.22' TW=14.89' (Dynamic Tailwater)
1=RCP_Round 24" (Outlet Controls 8.83 cfs @ 2.81 fps)

Pond CI 02-PH5: CI02-PH5



Summary for Pond CI 03-PH5: CI03-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=476)
[80] Warning: Exceeded Pond CI 02-PH5 by 0.33' @ 0.62 hrs (1.59 cfs 0.204 af)
[80] Warning: Exceeded Pond CI 04-PH5 by 2.25' @ 15.69 hrs (15.08 cfs 6.008 af)
[80] Warning: Exceeded Pond CI 05-PH5 by 2.71' @ 19.34 hrs (26.28 cfs 6.451 af)

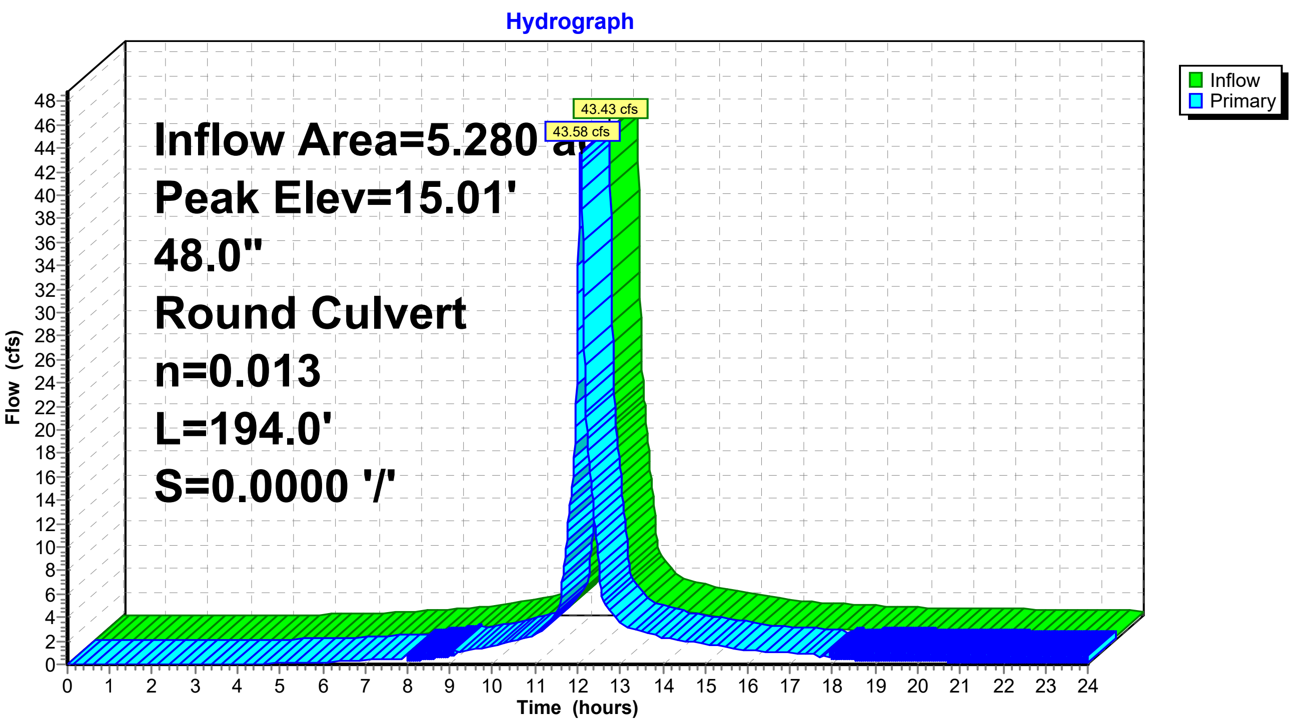
Inflow Area = 5.280 ac, 0.00% Impervious, Inflow Depth > 7.06" for 50 event
Inflow = 43.43 cfs @ 12.07 hrs, Volume= 3.106 af
Outflow = 43.58 cfs @ 12.07 hrs, Volume= 3.106 af, Atten= 0%, Lag= 0.0 min
Primary = 43.58 cfs @ 12.07 hrs, Volume= 3.106 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.01' @ 12.13 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.00'	**48.0" Round RCP_Round 48"** L= 194.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.00' / 9.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 12.57 sf

Primary OutFlow Max=40.44 cfs @ 12.07 hrs HW=14.89' TW=14.55' (Dynamic Tailwater)
└─**1=RCP_Round 48"** (Outlet Controls 40.44 cfs @ 3.22 fps)

Pond CI 03-PH5: CI03-PH5



Summary for Pond CI 04-PH5: CI04-PH5

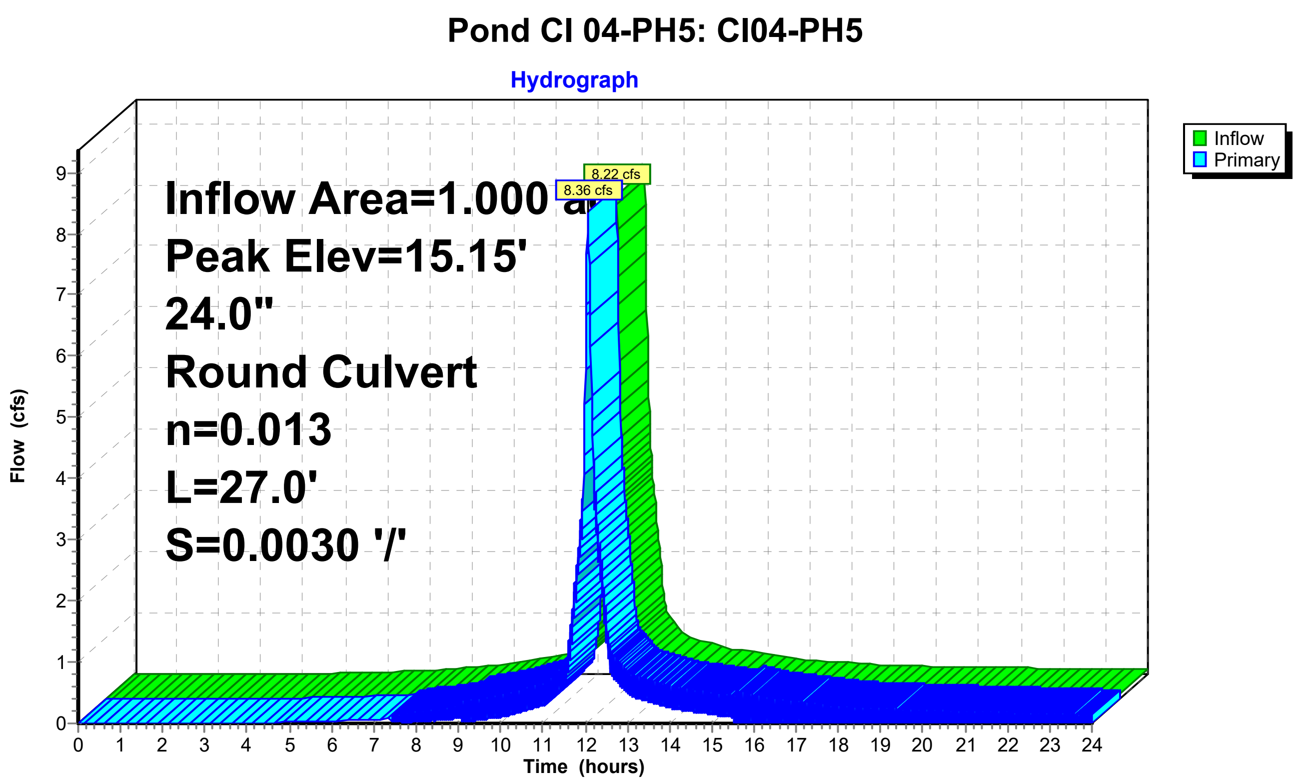
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=846)

Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth > 7.06"	for 50 event
Inflow =	8.22 cfs @	12.07 hrs, Volume=	0.588 af
Outflow =	8.36 cfs @	12.08 hrs, Volume=	0.588 af, Atten= 0%, Lag= 0.4 min
Primary =	8.36 cfs @	12.08 hrs, Volume=	0.588 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.15' @ 12.12 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.06'	**24.0" Round RCP_Round 24"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 11.06' / 10.98' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=7.22 cfs @ 12.08 hrs HW=15.07' TW=14.93' (Dynamic Tailwater)
1=RCP_Round 24" (Inlet Controls 7.22 cfs @ 2.30 fps)



Summary for Pond CI 05-PH5: CI05-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=130)
[80] Warning: Exceeded Pond CI 06-PH5 by 1.99' @ 19.35 hrs (19.24 cfs 5.586 af)

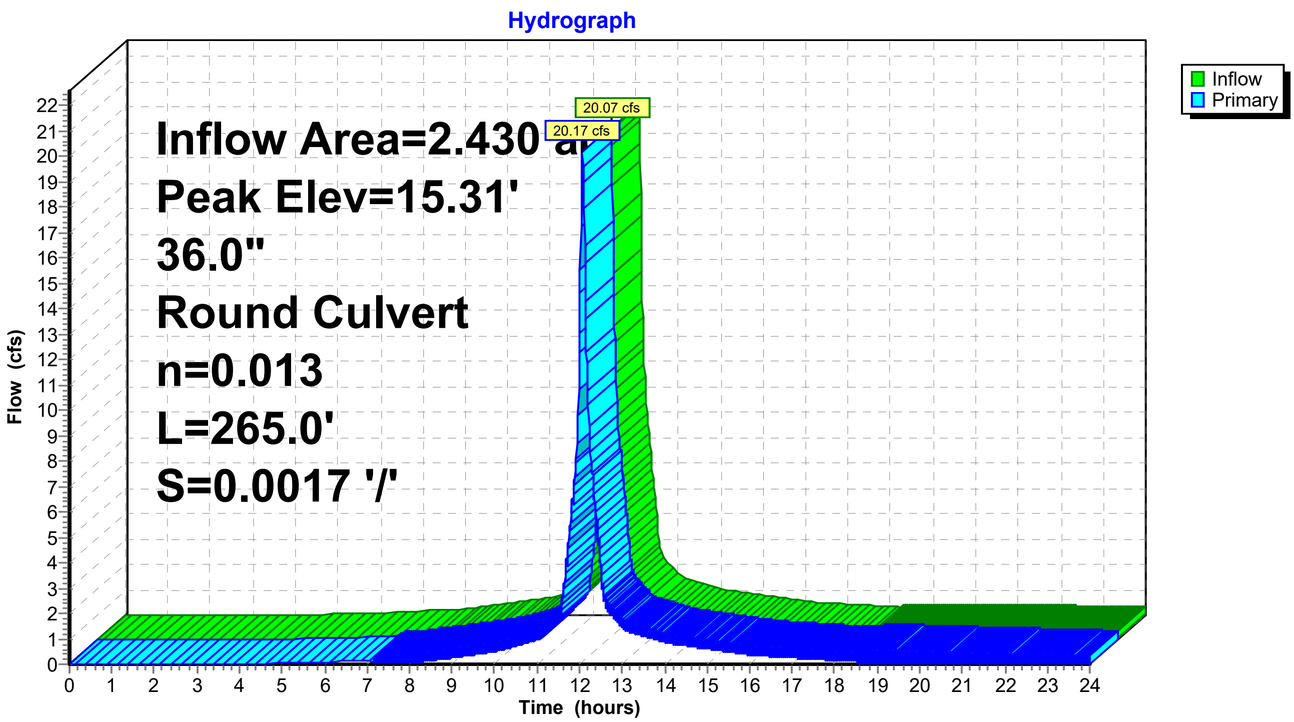
Inflow Area = 2.430 ac, 0.00% Impervious, Inflow Depth > 7.06" for 50 event
Inflow = 20.07 cfs @ 12.07 hrs, Volume= 1.429 af
Outflow = 20.17 cfs @ 12.07 hrs, Volume= 1.429 af, Atten= 0%, Lag= 0.0 min
Primary = 20.17 cfs @ 12.07 hrs, Volume= 1.429 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.31' @ 12.10 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.44'	**36.0" Round RCP_Round 36"** L= 265.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.44' / 9.98' S= 0.0017 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 7.07 sf

Primary OutFlow Max=18.27 cfs @ 12.07 hrs HW=15.22' TW=14.89' (Dynamic Tailwater)
↑**1=RCP_Round 36"** (Outlet Controls 18.27 cfs @ 2.58 fps)

Pond CI 05-PH5: CI05-PH5



Summary for Pond CI 06-PH5: CI06-PH5

[58] Hint: Peaked 0.19' above defined flood level
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=881)

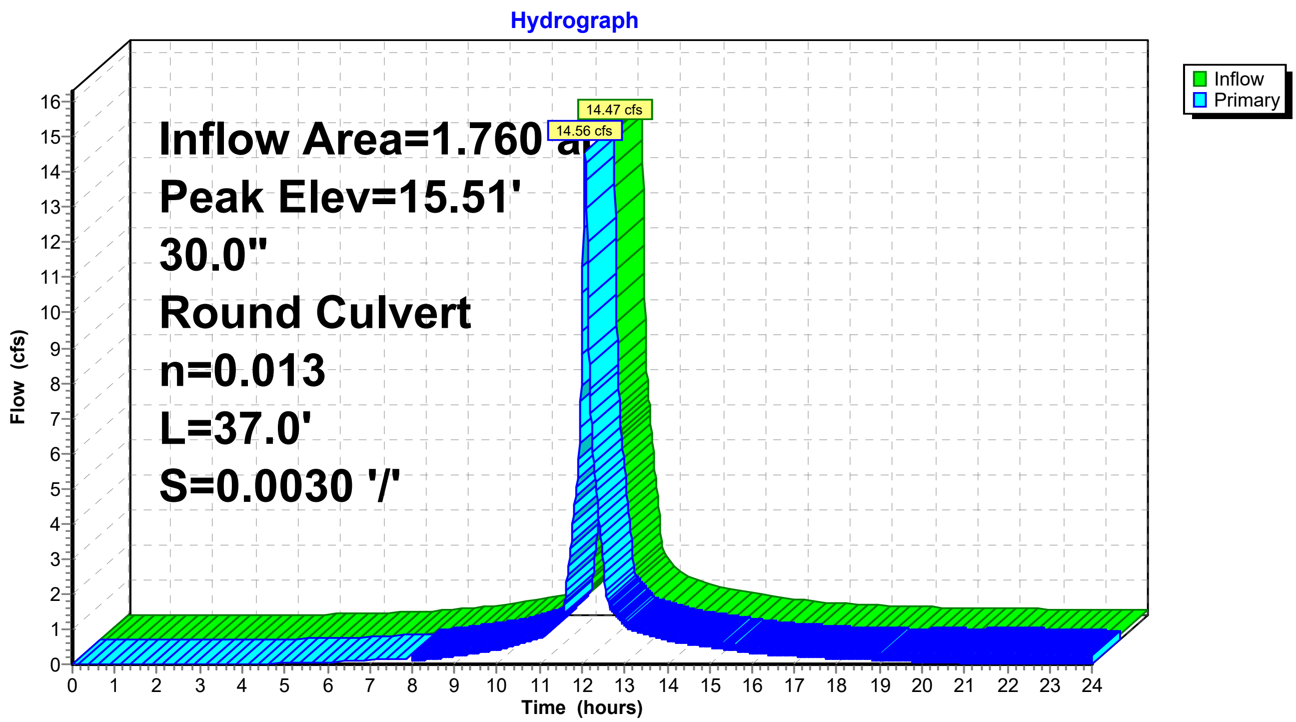
Inflow Area =	1.760 ac,	0.00% Impervious,	Inflow Depth > 7.06"	for 50 event	
Inflow =	14.47 cfs @	12.07 hrs,	Volume=	1.035 af	
Outflow =	14.56 cfs @	12.07 hrs,	Volume=	1.035 af,	Atten= 0%, Lag= 0.0 min
Primary =	14.56 cfs @	12.07 hrs,	Volume=	1.035 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.51' @ 12.10 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.89'	**30.0" Round RCP_Round 30"** L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.89' / 10.78' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=11.47 cfs @ 12.07 hrs HW=15.37' TW=15.22' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Inlet Controls 11.47 cfs @ 2.34 fps)

Pond CI 06-PH5: CI06-PH5



Summary for Pond POST-2PA: POND 2A

[80] Warning: Exceeded Pond CI 03-PH5 by 3.90' @ 0.00 hrs (55.84 cfs 7.423 af)

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 7.06" for 50 event
Inflow = 121.56 cfs @ 12.09 hrs, Volume= 9.175 af
Outflow = 88.37 cfs @ 12.16 hrs, Volume= 9.036 af, Atten= 27%, Lag= 4.6 min
Primary = 88.37 cfs @ 12.16 hrs, Volume= 9.036 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.83' @ 12.16 hrs Surf.Area= 36,768 sf Storage= 175,122 cf (66,400 cf above start)

Plug-Flow detention time= 169.8 min calculated for 6.541 af (71% of inflow)
Center-of-Mass det. time= 24.0 min (810.6 - 786.6)

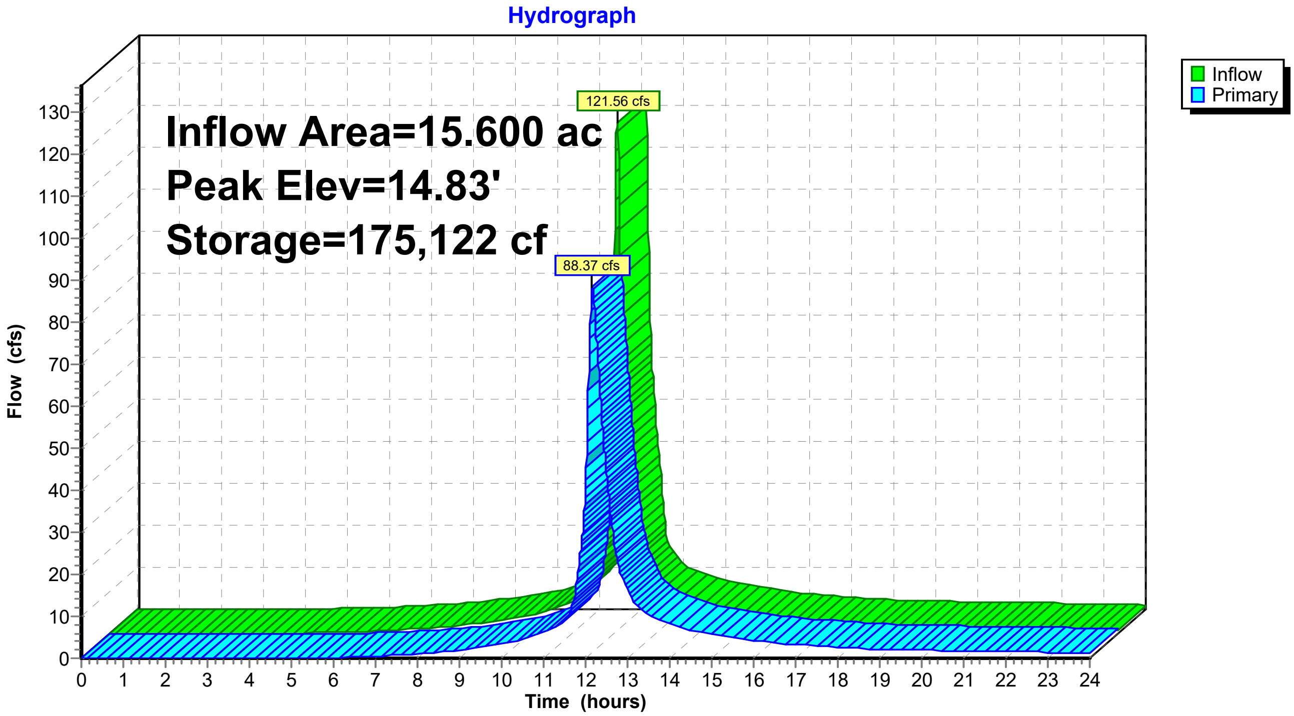
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=88.31 cfs @ 12.16 hrs HW=14.83' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 88.31 cfs @ 3.99 fps)

Pond POST-2PA: POND 2A



Summary for Subcatchment CI01-PH5: CI01-PH5

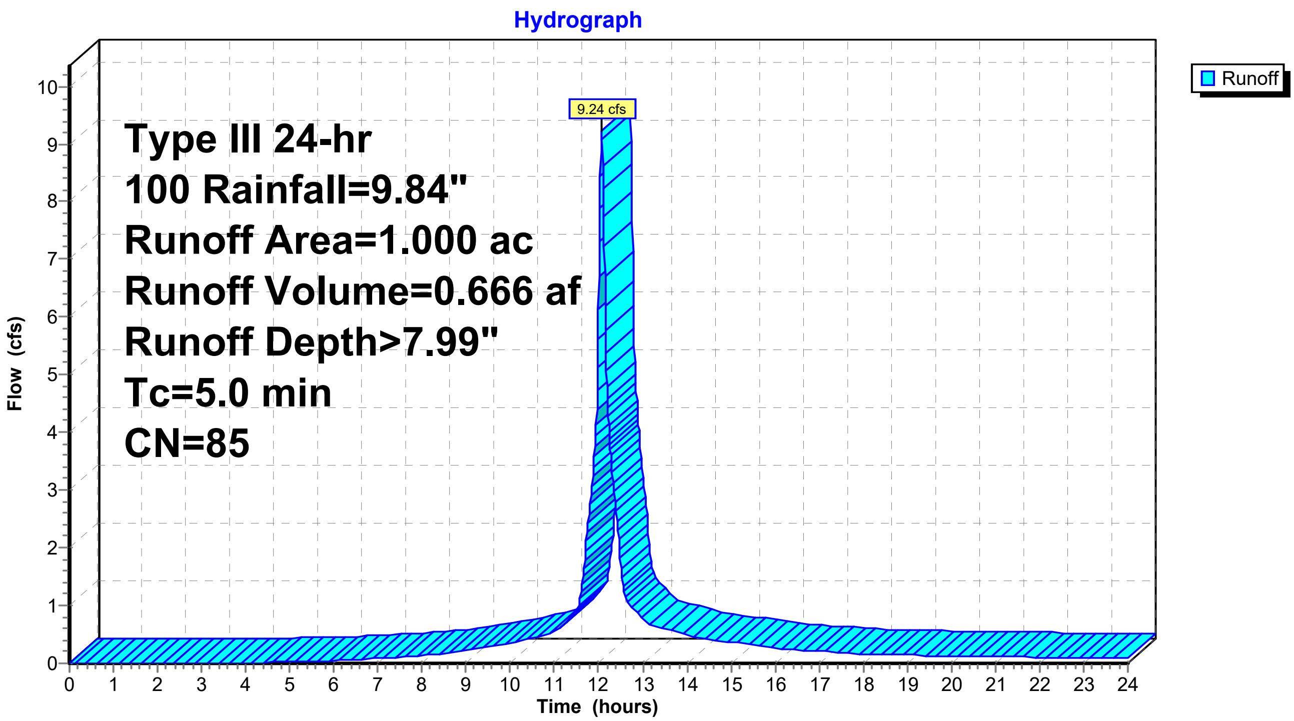
Runoff = 9.24 cfs @ 12.07 hrs, Volume= 0.666 af, Depth> 7.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI01-PH5: CI01-PH5



Summary for Subcatchment CI02-PH5: CI02-PH5

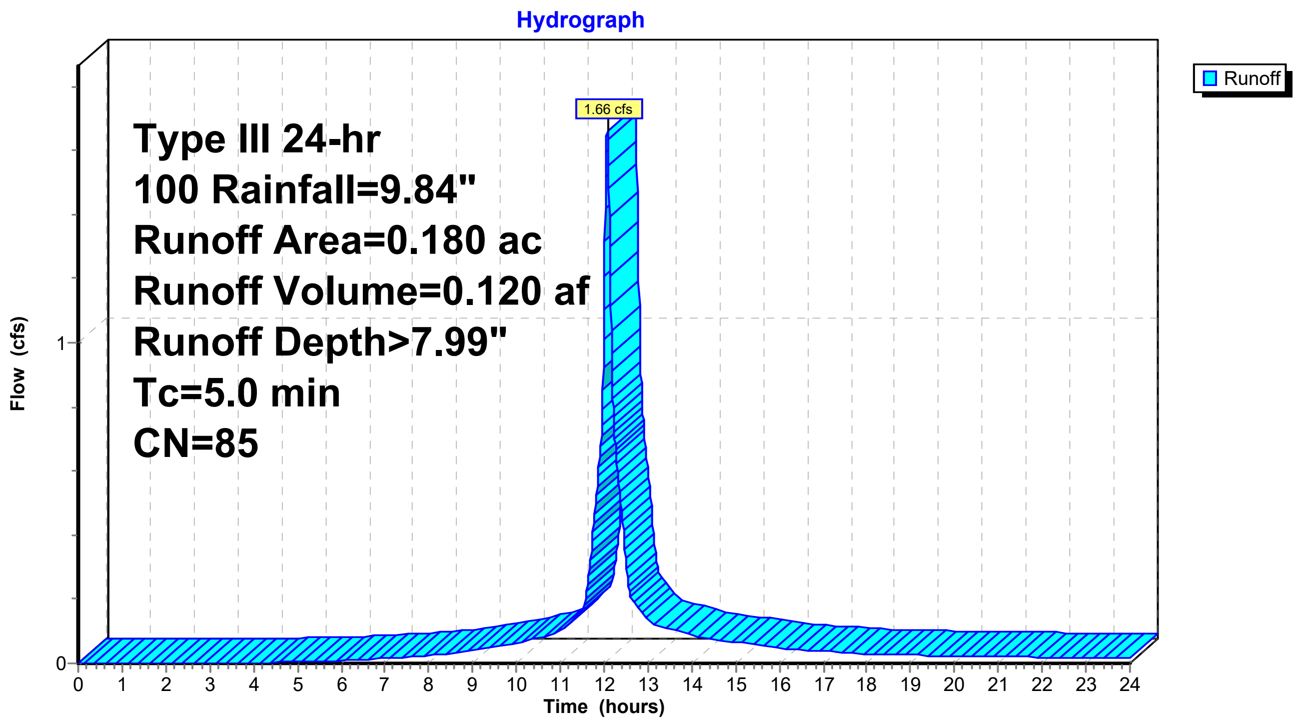
Runoff = 1.66 cfs @ 12.07 hrs, Volume= 0.120 af, Depth> 7.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	0.180	85	
	0.180		100.00% Pervious Area

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

Subcatchment CI02-PH5: CI02-PH5



Summary for Subcatchment CI03-PH5: CI03-PH5

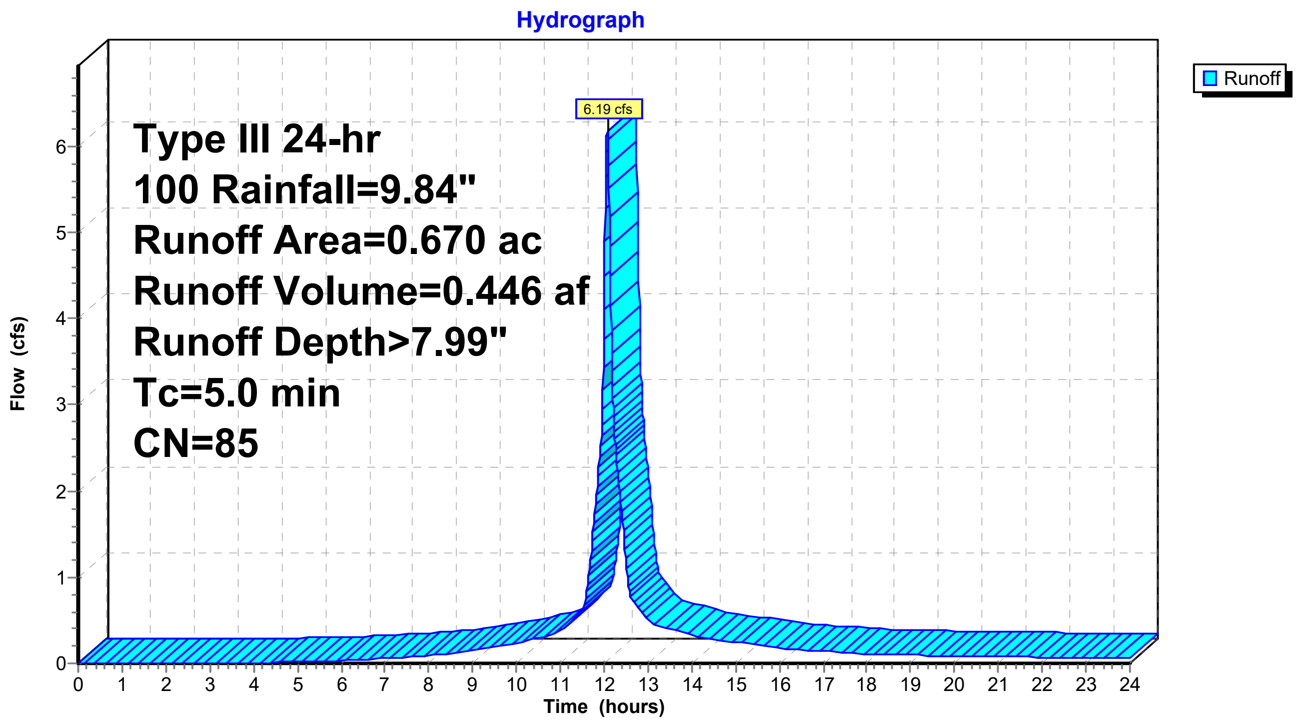
Runoff = 6.19 cfs @ 12.07 hrs, Volume= 0.446 af, Depth> 7.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI03-PH5: CI03-PH5



Summary for Subcatchment CI04-PH5: CI04-PH5

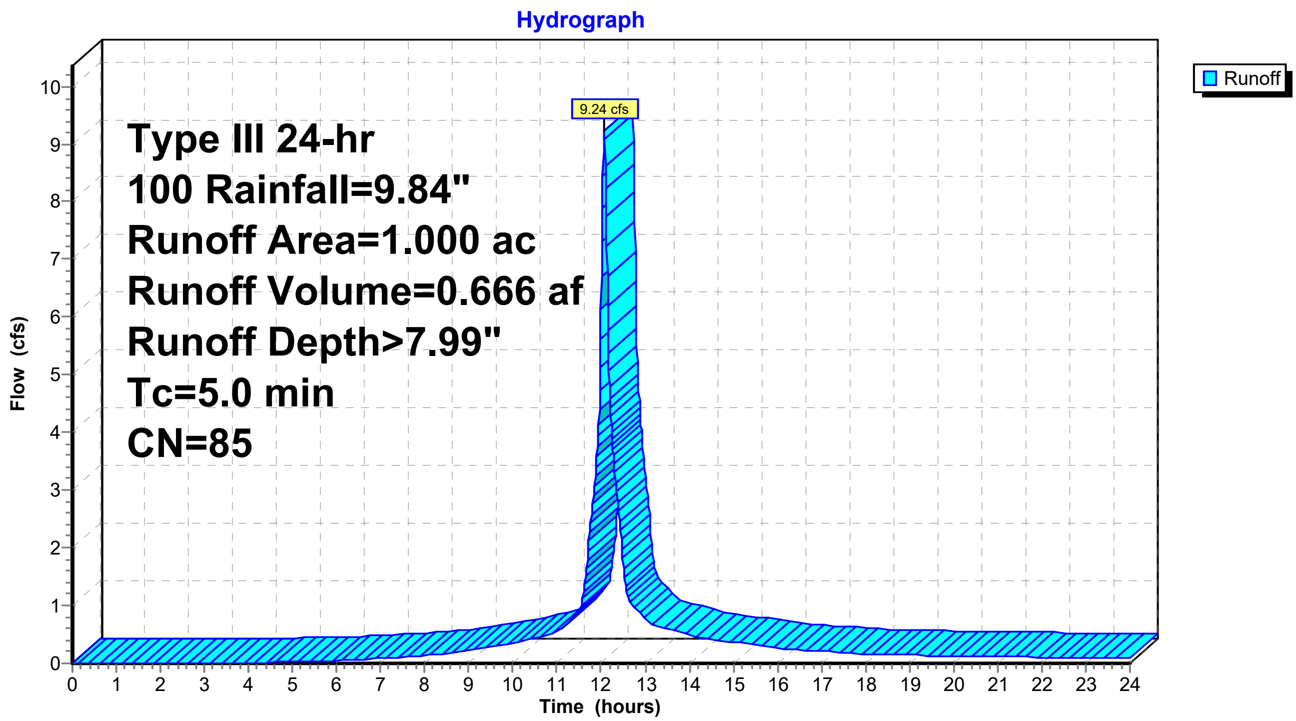
Runoff = 9.24 cfs @ 12.07 hrs, Volume= 0.666 af, Depth> 7.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI04-PH5: CI04-PH5



Summary for Subcatchment CI05-PH5: CI05-PH5

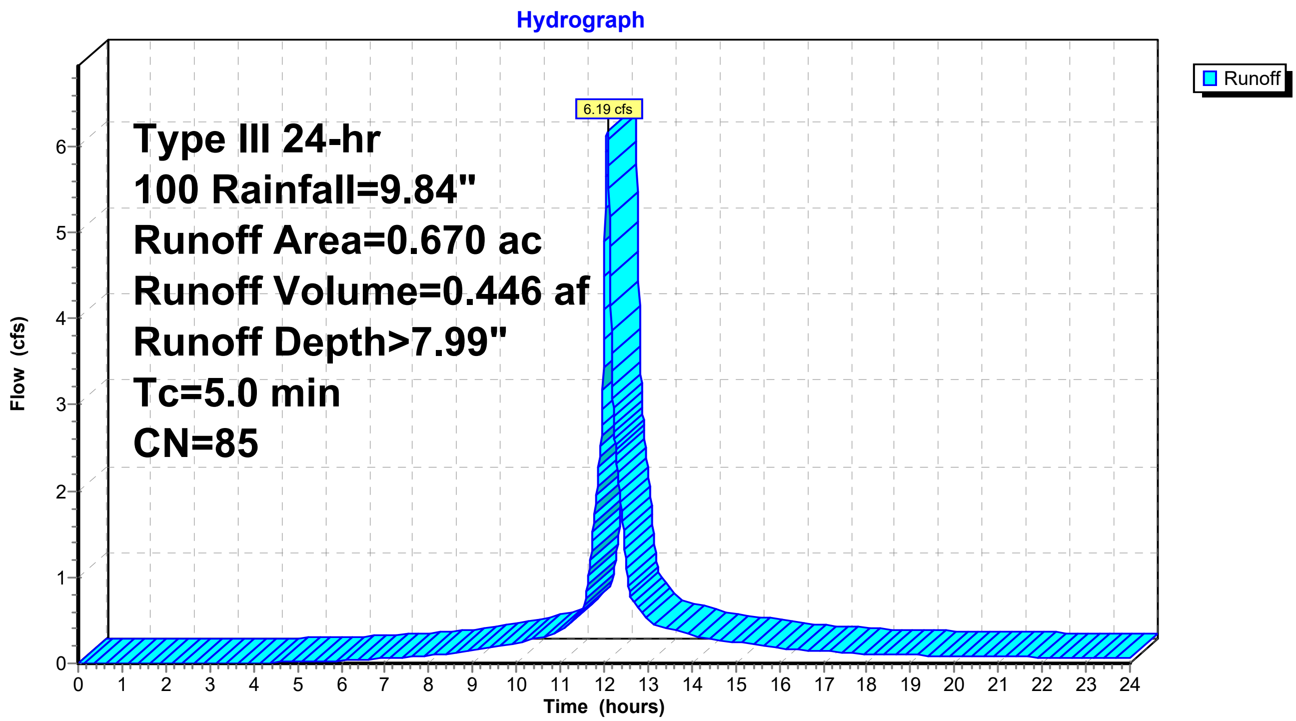
Runoff = 6.19 cfs @ 12.07 hrs, Volume= 0.446 af, Depth> 7.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI05-PH5: CI05-PH5



Summary for Subcatchment CI06-PH5: CI06-PH5

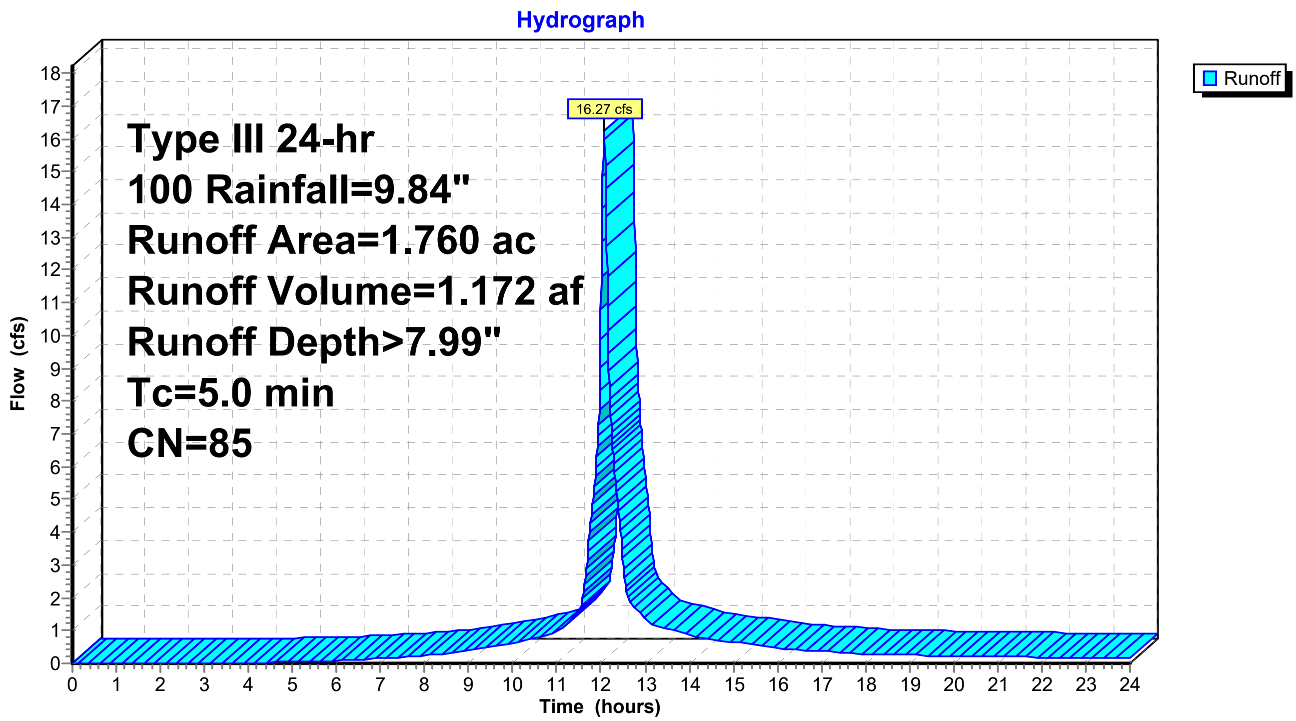
Runoff = 16.27 cfs @ 12.07 hrs, Volume= 1.172 af, Depth> 7.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	1.760	85	
	1.760		100.00% Pervious Area

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

Subcatchment CI06-PH5: CI06-PH5



Summary for Pond CI 01-PH5: CI01-PH5

[58] Hint: Peaked 0.26' above defined flood level

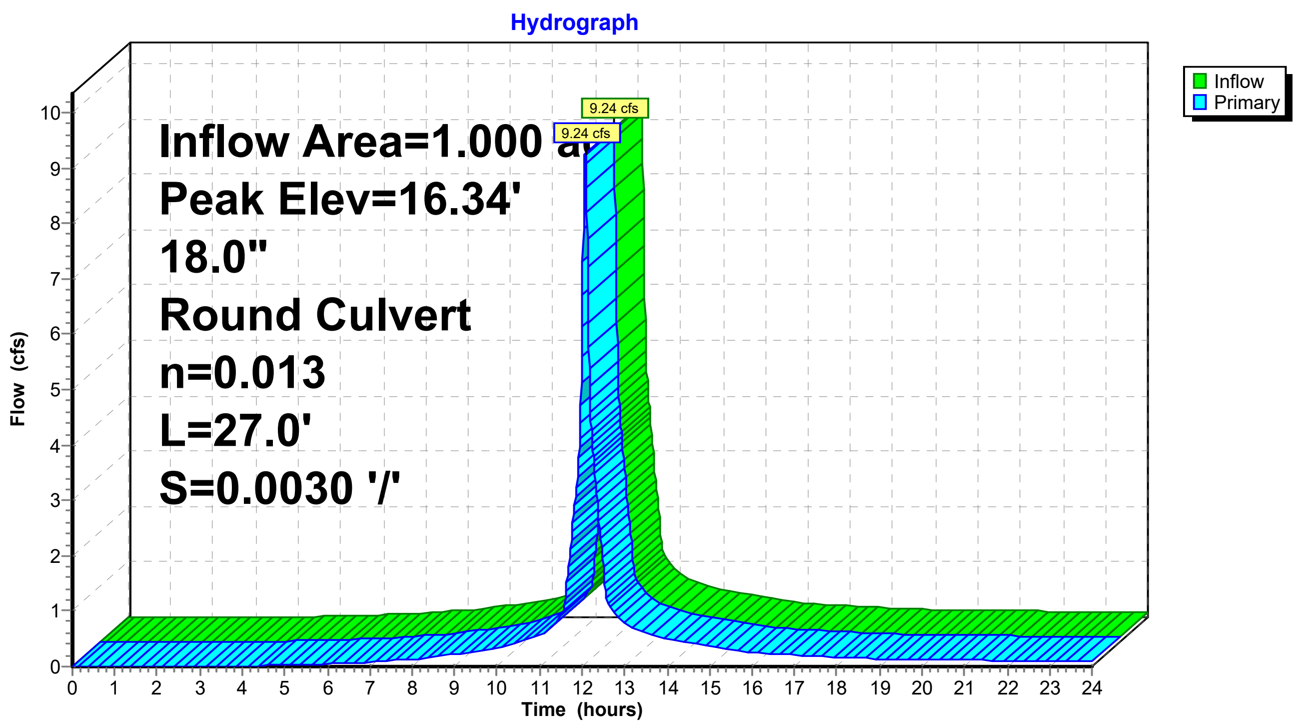
Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth > 7.99"	for 100 event	
Inflow =	9.24 cfs @	12.07 hrs, Volume=	0.666 af	
Outflow =	9.24 cfs @	12.07 hrs, Volume=	0.666 af,	Atten= 0%, Lag= 0.0 min
Primary =	9.24 cfs @	12.07 hrs, Volume=	0.666 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 16.34' @ 12.09 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.84'	**18.0" Round RCP_Round 18"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.84' / 12.76' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=8.85 cfs @ 12.07 hrs HW=16.23' TW=15.54' (Dynamic Tailwater)
1=RCP_Round 18" (Inlet Controls 8.85 cfs @ 5.01 fps)

Pond CI 01-PH5: CI01-PH5



Summary for Pond CI 02-PH5: CI02-PH5

[80] Warning: Exceeded Pond CI 01-PH5 by 0.19' @ 16.30 hrs (0.69 cfs 0.101 af)

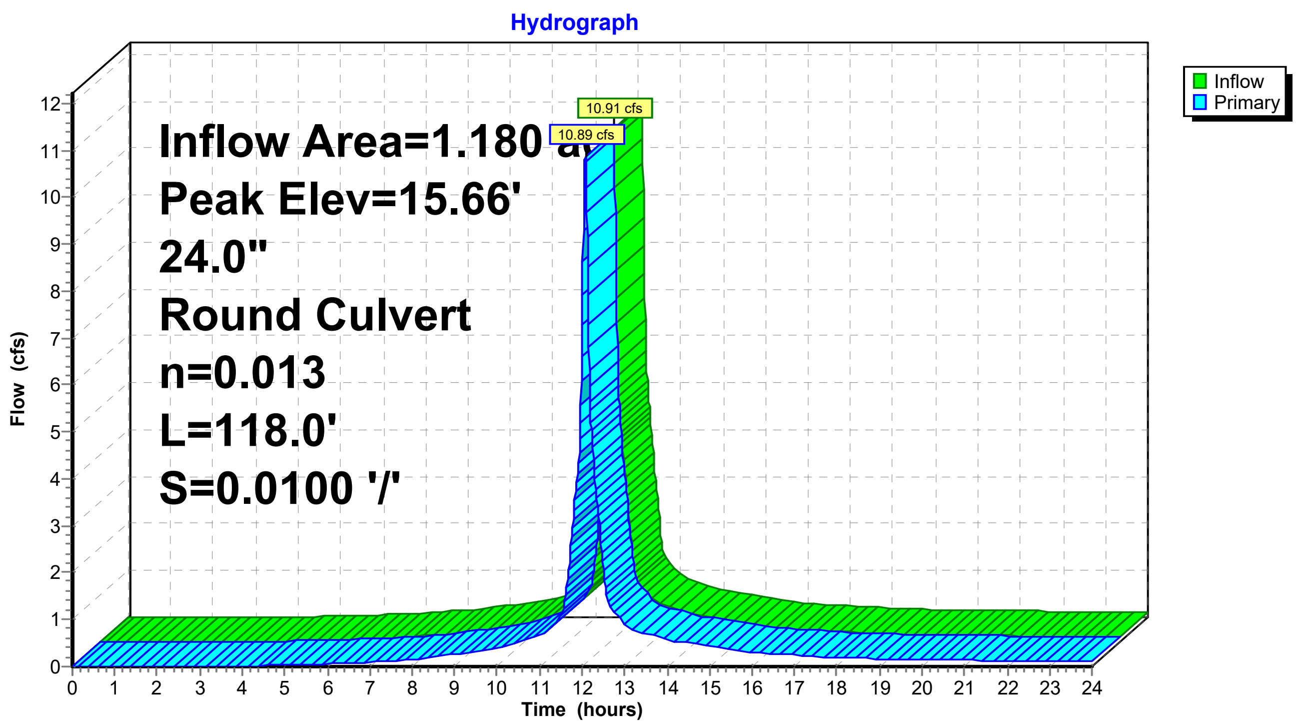
Inflow Area =	1.180 ac,	0.00% Impervious,	Inflow Depth > 7.99"	for 100 event
Inflow =	10.91 cfs @	12.07 hrs, Volume=	0.786 af	
Outflow =	10.89 cfs @	12.07 hrs, Volume=	0.786 af,	Atten= 0%, Lag= 0.0 min
Primary =	10.89 cfs @	12.07 hrs, Volume=	0.786 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.66' @ 12.10 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.16'	**24.0" Round RCP_Round 24"** L= 118.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.16' / 10.98' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=9.81 cfs @ 12.07 hrs HW=15.55' TW=15.14' (Dynamic Tailwater)
└**1=RCP_Round 24"** (Outlet Controls 9.81 cfs @ 3.12 fps)

Pond CI 02-PH5: CI02-PH5



Summary for Pond CI 03-PH5: CI03-PH5

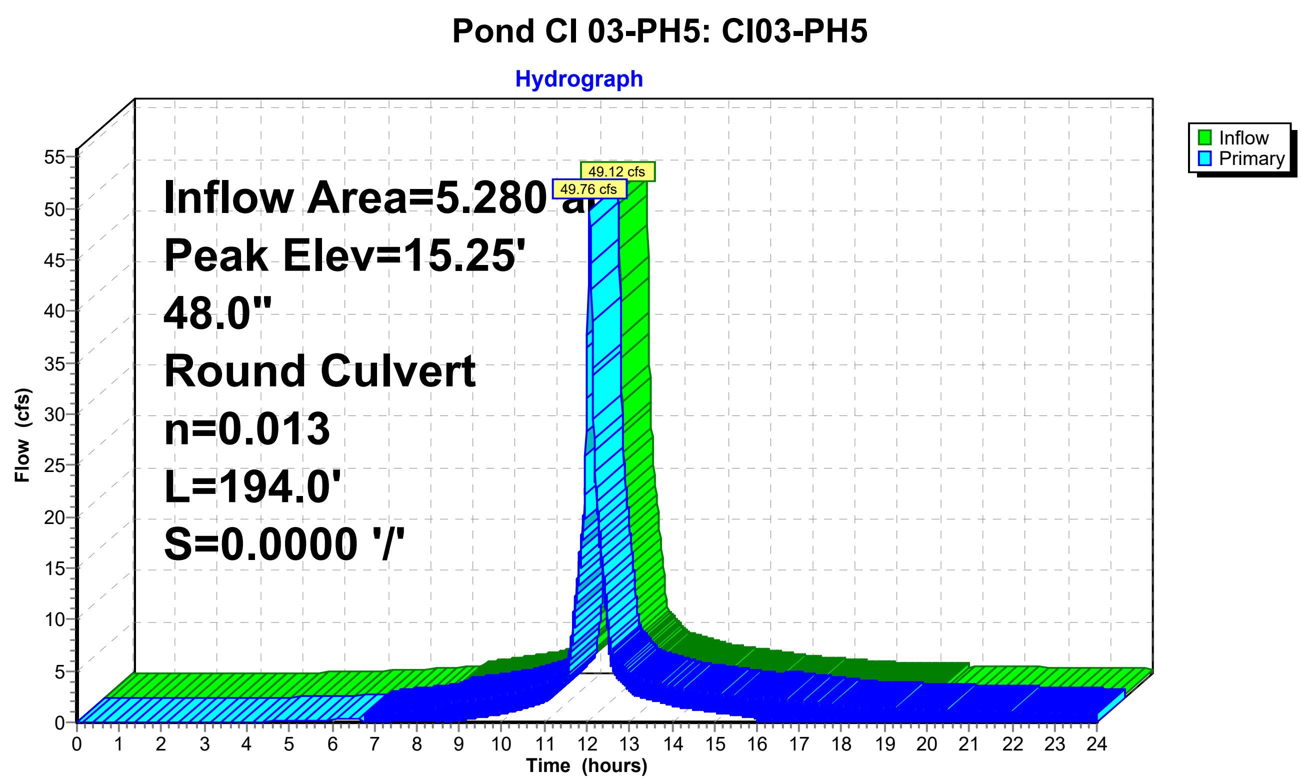
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=118)
[80] Warning: Exceeded Pond CI 02-PH5 by 0.93' @ 16.29 hrs (5.76 cfs 1.589 af)
[80] Warning: Exceeded Pond CI 04-PH5 by 2.01' @ 16.29 hrs (14.90 cfs 5.648 af)
[80] Warning: Exceeded Pond CI 05-PH5 by 2.66' @ 8.22 hrs (25.47 cfs 9.495 af)

Inflow Area = 5.280 ac, 0.00% Impervious, Inflow Depth > 7.99" for 100 event
Inflow = 49.12 cfs @ 12.07 hrs, Volume= 3.517 af
Outflow = 49.76 cfs @ 12.07 hrs, Volume= 3.516 af, Atten= 0%, Lag= 0.0 min
Primary = 49.76 cfs @ 12.07 hrs, Volume= 3.516 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.25' @ 12.11 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.00'	**48.0" Round RCP_Round 48"** L= 194.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.00' / 9.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 12.57 sf

Primary OutFlow Max=46.84 cfs @ 12.07 hrs HW=15.14' TW=14.67' (Dynamic Tailwater)
└─**1=RCP_Round 48"** (Outlet Controls 46.84 cfs @ 3.73 fps)



Summary for Pond CI 04-PH5: CI04-PH5

[58] Hint: Peaked 0.18' above defined flood level
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=859)

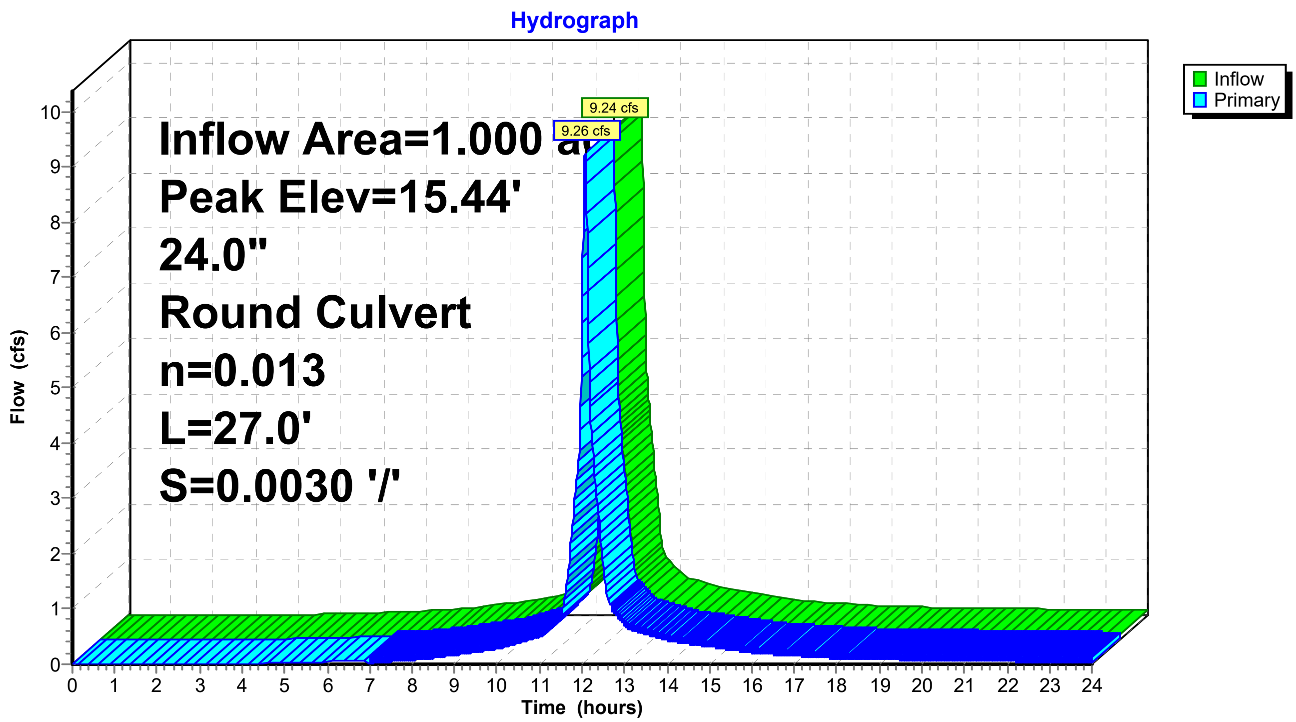
Inflow Area = 1.000 ac, 0.00% Impervious, Inflow Depth > 7.99" for 100 event
Inflow = 9.24 cfs @ 12.07 hrs, Volume= 0.666 af
Outflow = 9.26 cfs @ 12.08 hrs, Volume= 0.666 af, Atten= 0%, Lag= 0.3 min
Primary = 9.26 cfs @ 12.08 hrs, Volume= 0.666 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.44' @ 12.10 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.06'	**24.0" Round RCP_Round 24"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 11.06' / 10.98' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=8.21 cfs @ 12.08 hrs HW=15.34' TW=15.15' (Dynamic Tailwater)
└─**1=RCP_Round 24"** (Inlet Controls 8.21 cfs @ 2.61 fps)

Pond CI 04-PH5: CI04-PH5



Summary for Pond CI 05-PH5: CI05-PH5

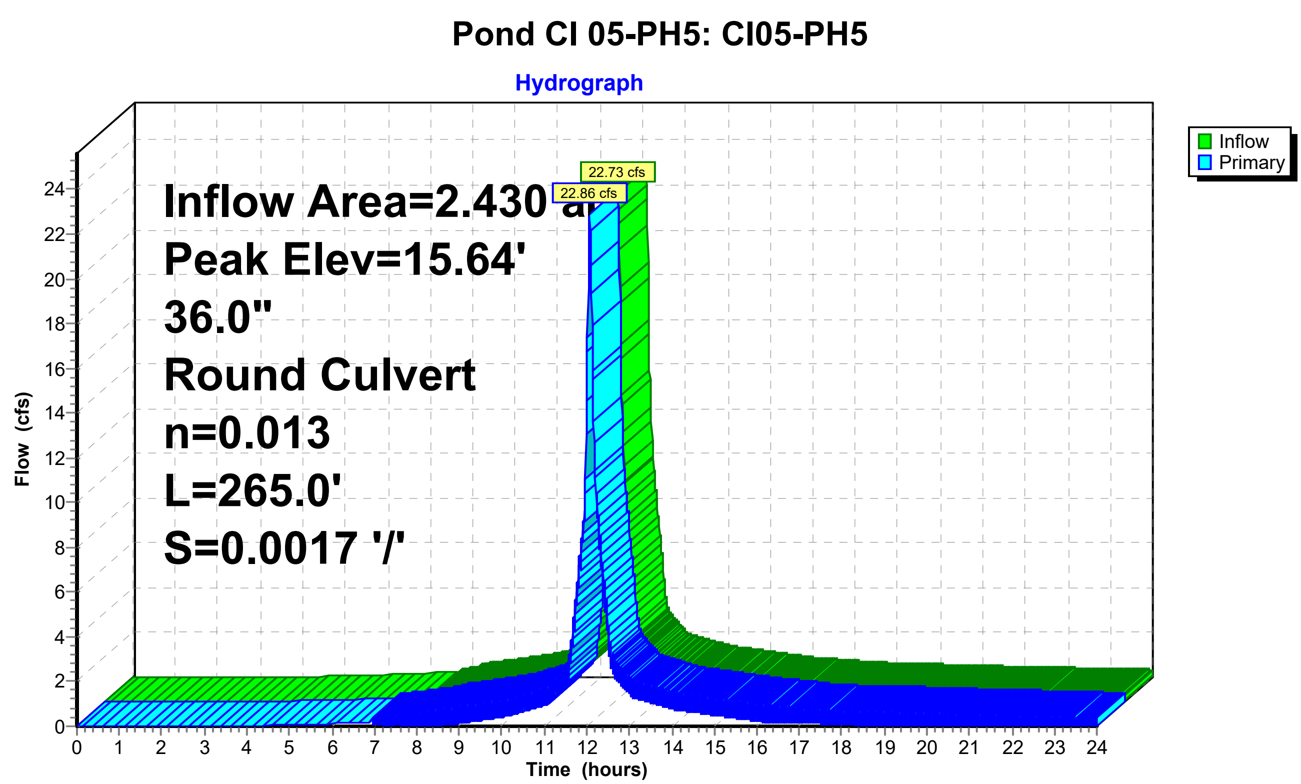
[58] Hint: Peaked 0.32' above defined flood level
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[80] Warning: Exceeded Pond CI 06-PH5 by 2.26' @ 18.82 hrs (19.61 cfs 3.849 af)

Inflow Area = 2.430 ac, 0.00% Impervious, Inflow Depth > 7.99" for 100 event
Inflow = 22.73 cfs @ 12.07 hrs, Volume= 1.618 af
Outflow = 22.86 cfs @ 12.07 hrs, Volume= 1.618 af, Atten= 0%, Lag= 0.0 min
Primary = 22.86 cfs @ 12.07 hrs, Volume= 1.618 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.64' @ 12.10 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.44'	**36.0" Round RCP_Round 36"** L= 265.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.44' / 9.98' S= 0.0017 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 7.07 sf

Primary OutFlow Max=20.26 cfs @ 12.07 hrs HW=15.54' TW=15.14' (Dynamic Tailwater)
↑—**1=RCP_Round 36"** (Outlet Controls 20.26 cfs @ 2.87 fps)



Summary for Pond CI 06-PH5: CI06-PH5

[58] Hint: Peaked 0.59' above defined flood level
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=905)

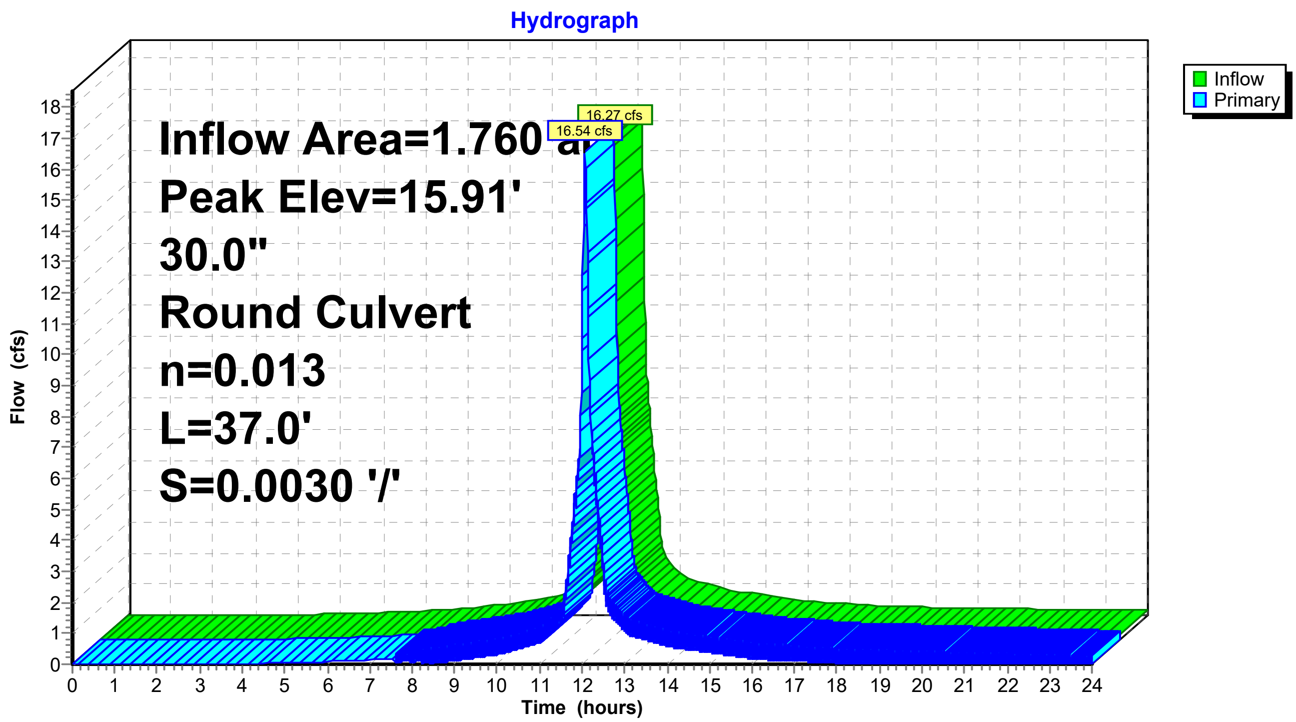
Inflow Area = 1.760 ac, 0.00% Impervious, Inflow Depth > 7.99" for 100 event
Inflow = 16.27 cfs @ 12.07 hrs, Volume= 1.172 af
Outflow = 16.54 cfs @ 12.07 hrs, Volume= 1.172 af, Atten= 0%, Lag= 0.0 min
Primary = 16.54 cfs @ 12.07 hrs, Volume= 1.172 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.91' @ 12.09 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.89'	**30.0" Round RCP_Round 30"** L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.89' / 10.78' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=13.87 cfs @ 12.07 hrs HW=15.76' TW=15.54' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Inlet Controls 13.87 cfs @ 2.82 fps)

Pond CI 06-PH5: CI06-PH5



Summary for Pond POST-2PA: POND 2A

[95] Warning: Outlet Device #1 rise exceeded
[80] Warning: Exceeded Pond CI 03-PH5 by 4.29' @ 16.28 hrs (64.67 cfs 25.948 af)

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 7.99" for 100 event
Inflow = 137.40 cfs @ 12.09 hrs, Volume= 10.389 af
Outflow = 100.90 cfs @ 12.16 hrs, Volume= 10.241 af, Atten= 27%, Lag= 4.3 min
Primary = 100.90 cfs @ 12.16 hrs, Volume= 10.241 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.97' @ 12.16 hrs Surf.Area= 37,100 sf Storage= 180,276 cf (71,554 cf above start)

Plug-Flow detention time= 159.0 min calculated for 7.745 af (75% of inflow)
Center-of-Mass det. time= 23.0 min (806.3 - 783.3)

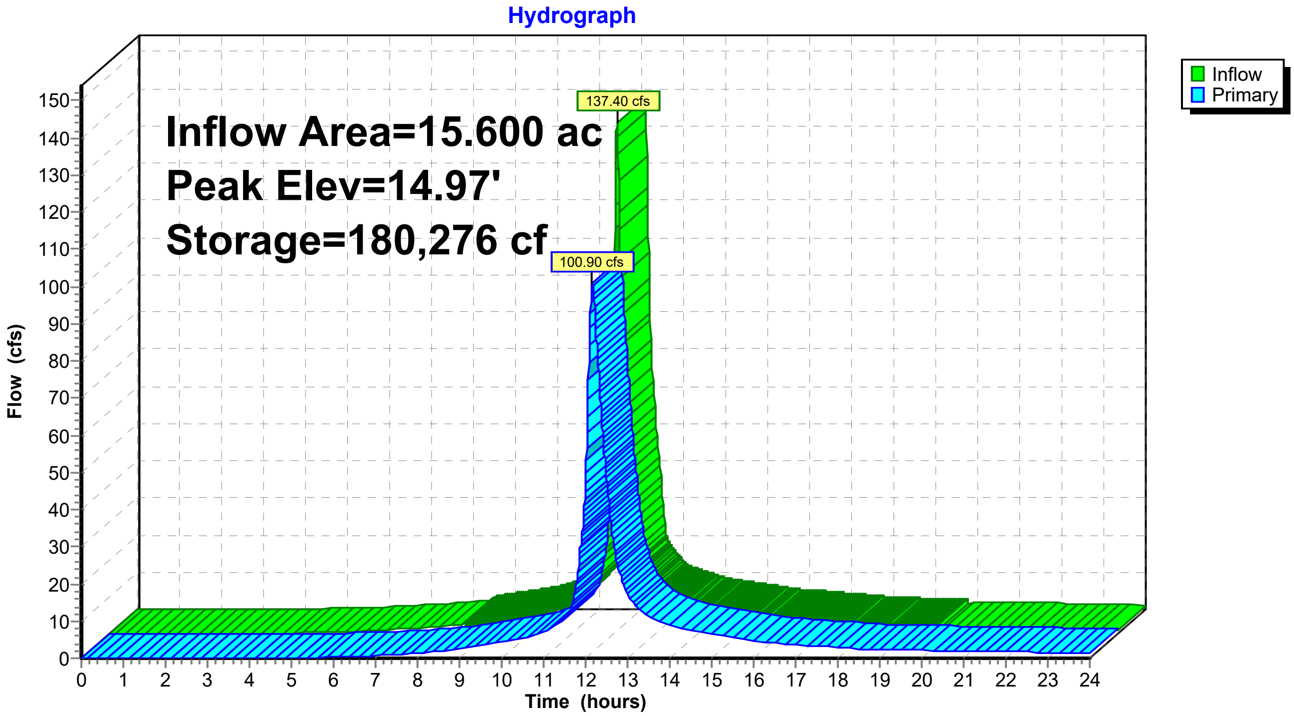
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

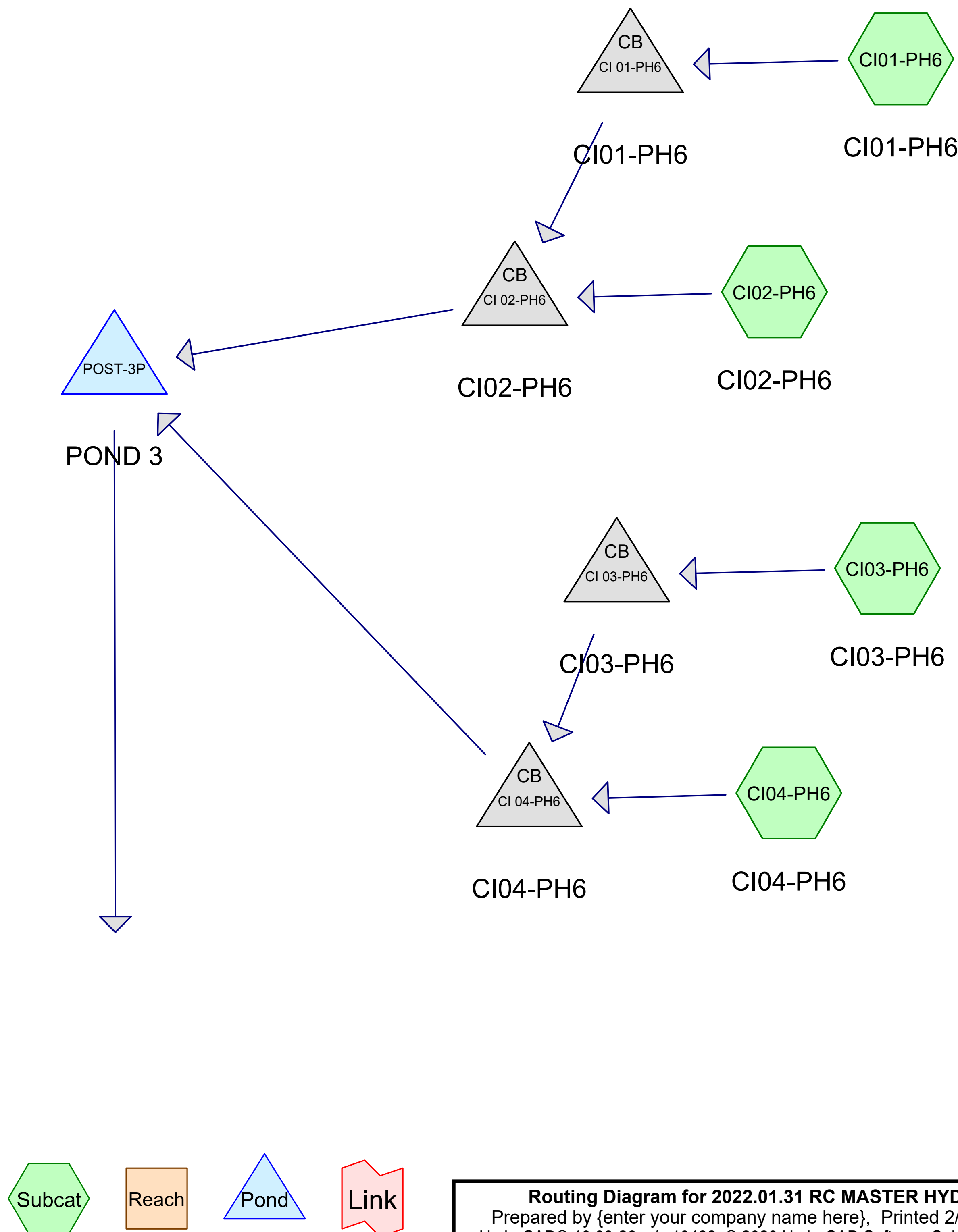
Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=100.93 cfs @ 12.16 hrs HW=14.97' (Free Discharge)
└—**1=Custom Weir/Orifice** (Orifice Controls 100.93 cfs @ 4.30 fps)

Pond POST-2PA: POND 2A



Appendix H: PH VI Storm Sewer HydroCAD Output



Routing Diagram for 2022.01.31 RC MASTER HYDRO
Prepared by {enter your company name here}, Printed 2/1/2022
HydroCAD® 10.00-26 s/n 10482 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment CI01-PH6: CI01-PH6

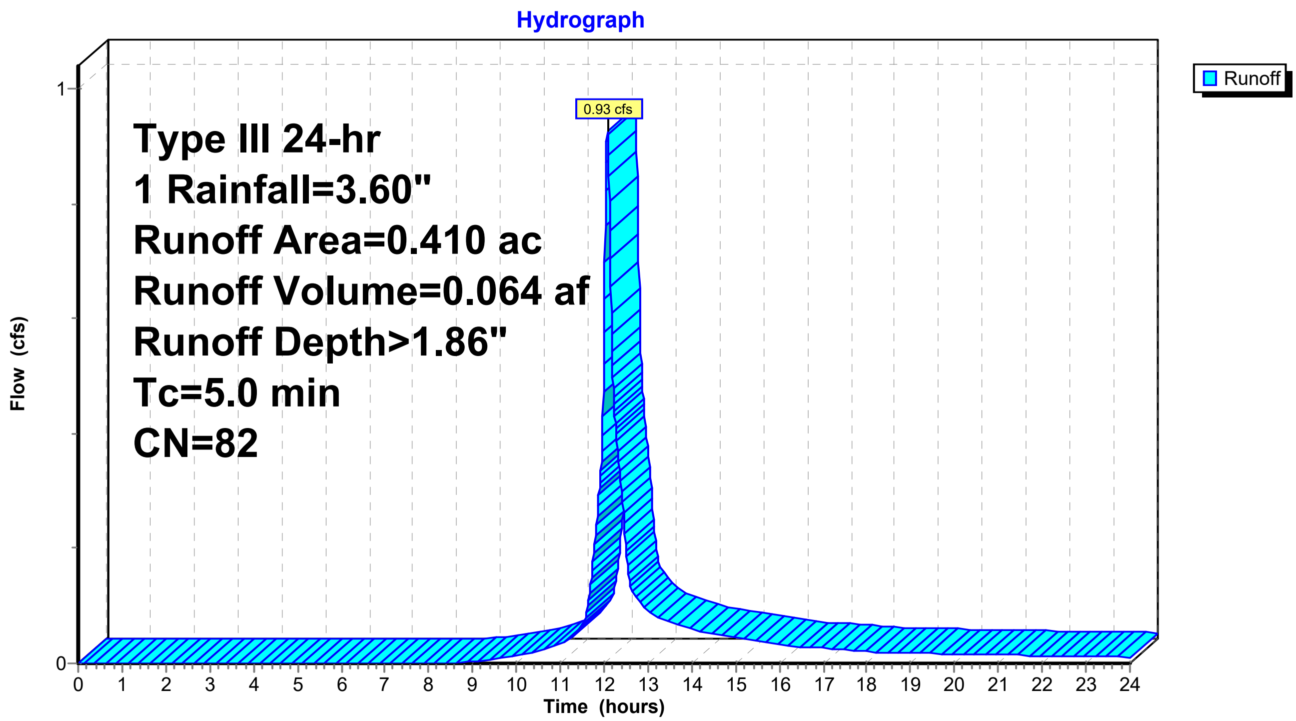
Runoff = 0.93 cfs @ 12.08 hrs, Volume= 0.064 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	0.410	82	
	0.410		100.00% Pervious Area

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

Subcatchment CI01-PH6: CI01-PH6



Summary for Subcatchment CI02-PH6: CI02-PH6

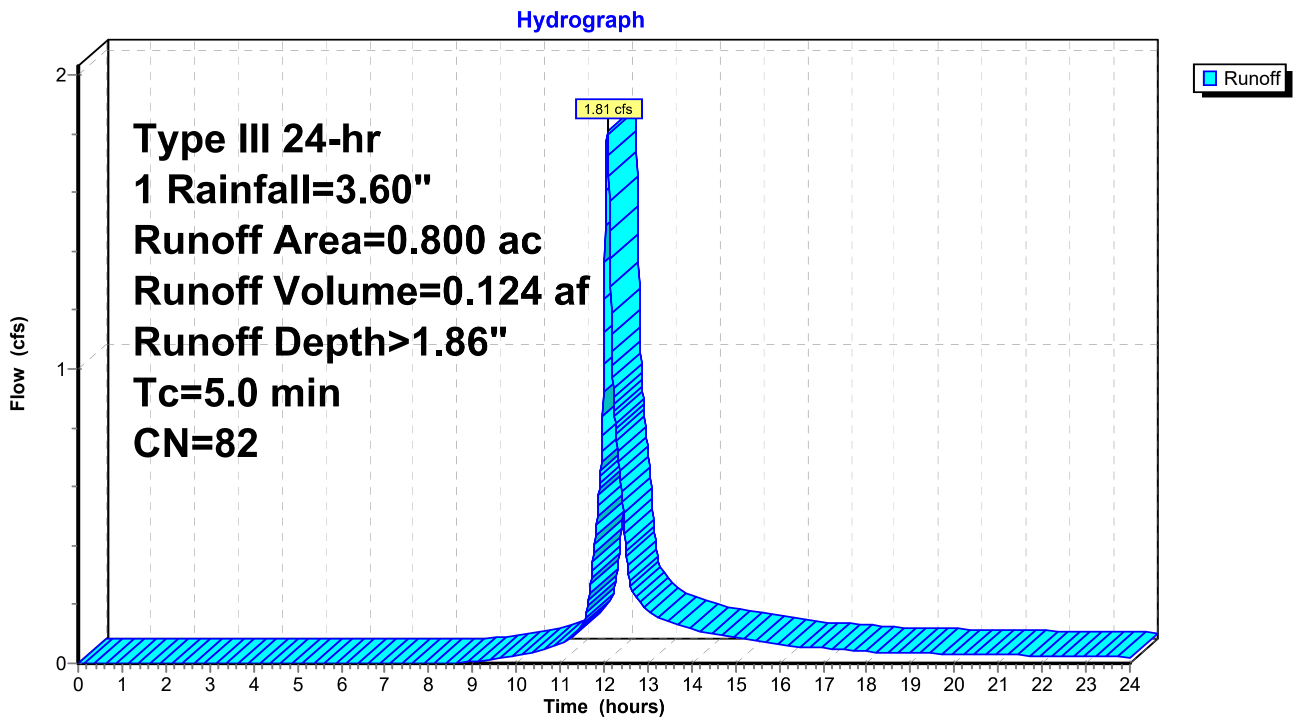
Runoff = 1.81 cfs @ 12.08 hrs, Volume= 0.124 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI02-PH6: CI02-PH6



Summary for Subcatchment CI03-PH6: CI03-PH6

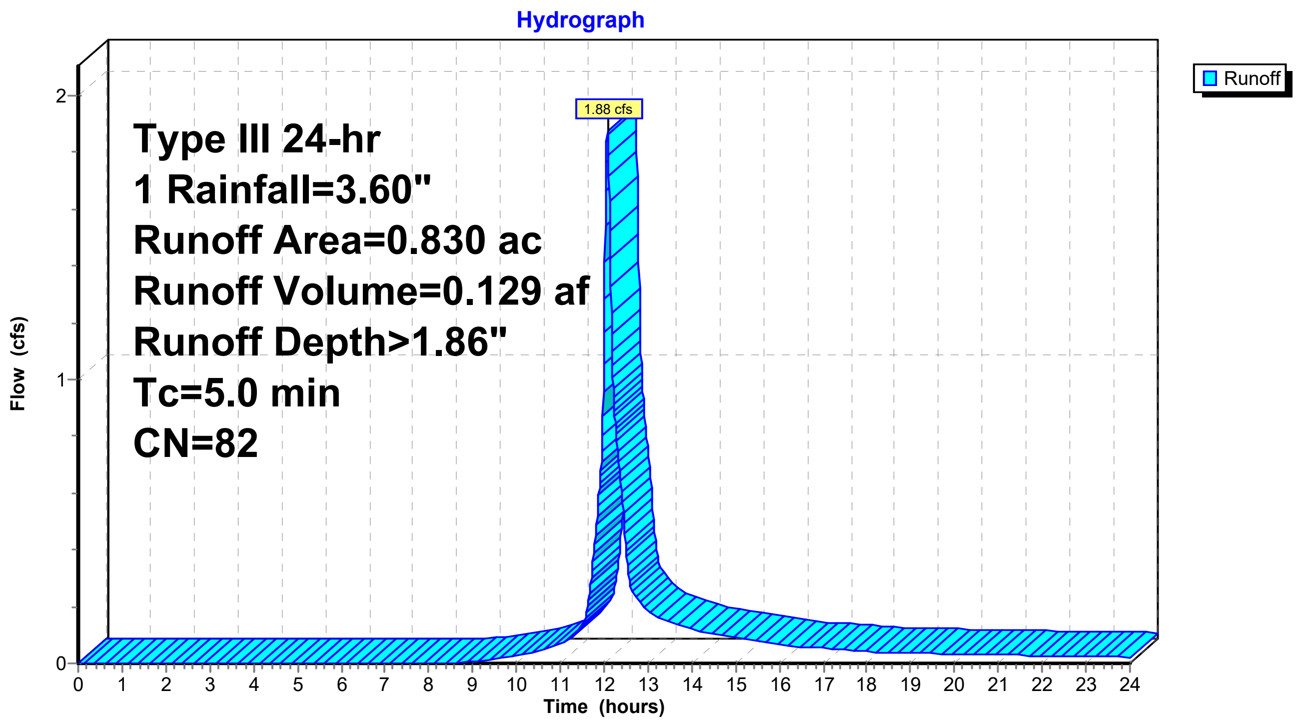
Runoff = 1.88 cfs @ 12.08 hrs, Volume= 0.129 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	0.830	82	
	0.830		100.00% Pervious Area

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

Subcatchment CI03-PH6: CI03-PH6



Summary for Subcatchment CI04-PH6: CI04-PH6

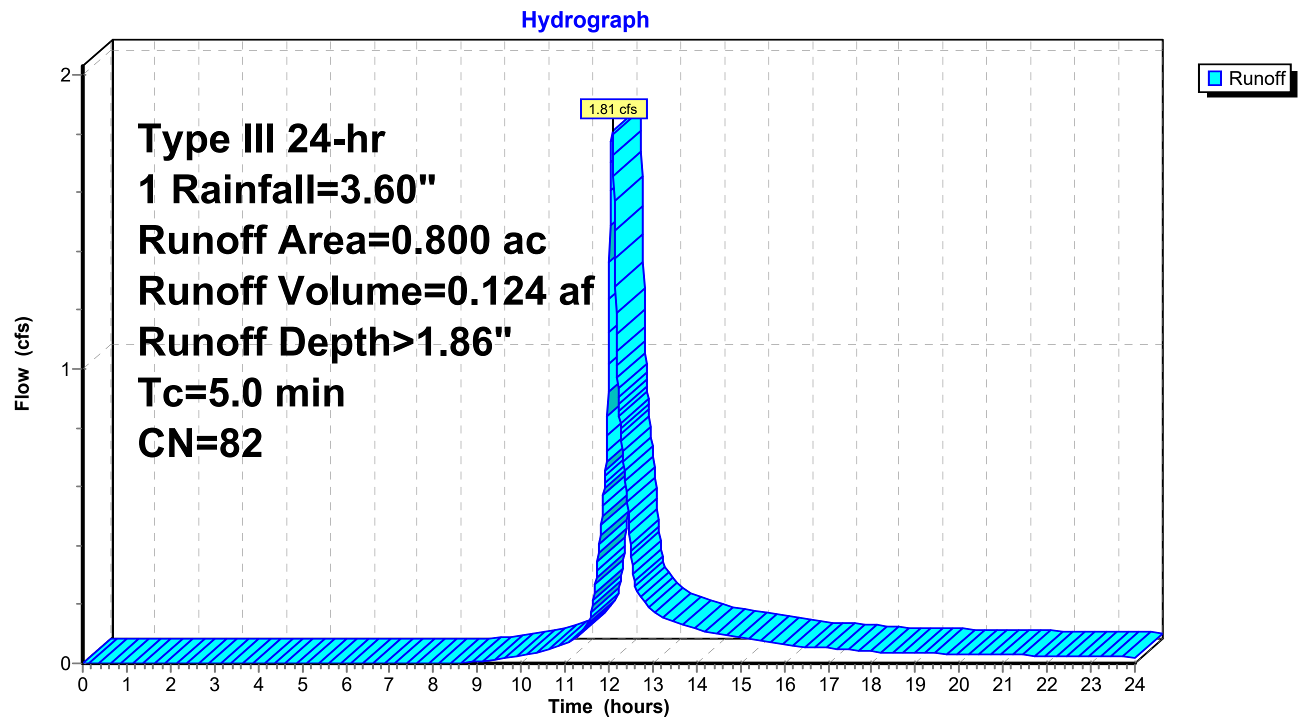
Runoff = 1.81 cfs @ 12.08 hrs, Volume= 0.124 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI04-PH6: CI04-PH6



Summary for Pond CI 01-PH6: CI01-PH6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=434)

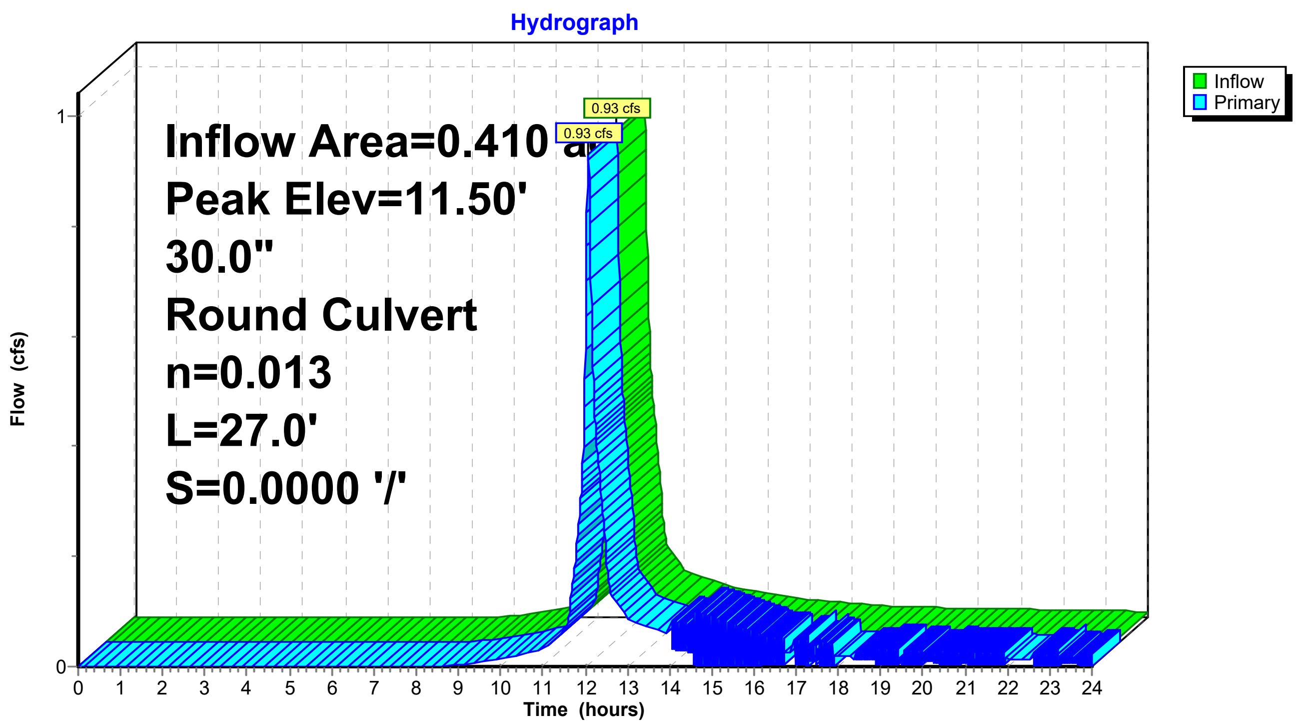
Inflow Area =	0.410 ac,	0.00% Impervious,	Inflow Depth > 1.86"	for 1 event
Inflow =	0.93 cfs @	12.08 hrs, Volume=	0.064 af	
Outflow =	0.93 cfs @	12.08 hrs, Volume=	0.064 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.93 cfs @	12.08 hrs, Volume=	0.064 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.50' @ 12.78 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=0.75 cfs @ 12.08 hrs HW=11.19' TW=11.19' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 0.75 cfs @ 0.57 fps)

Pond CI 01-PH6: CI01-PH6



Summary for Pond CI 02-PH6: CI02-PH6

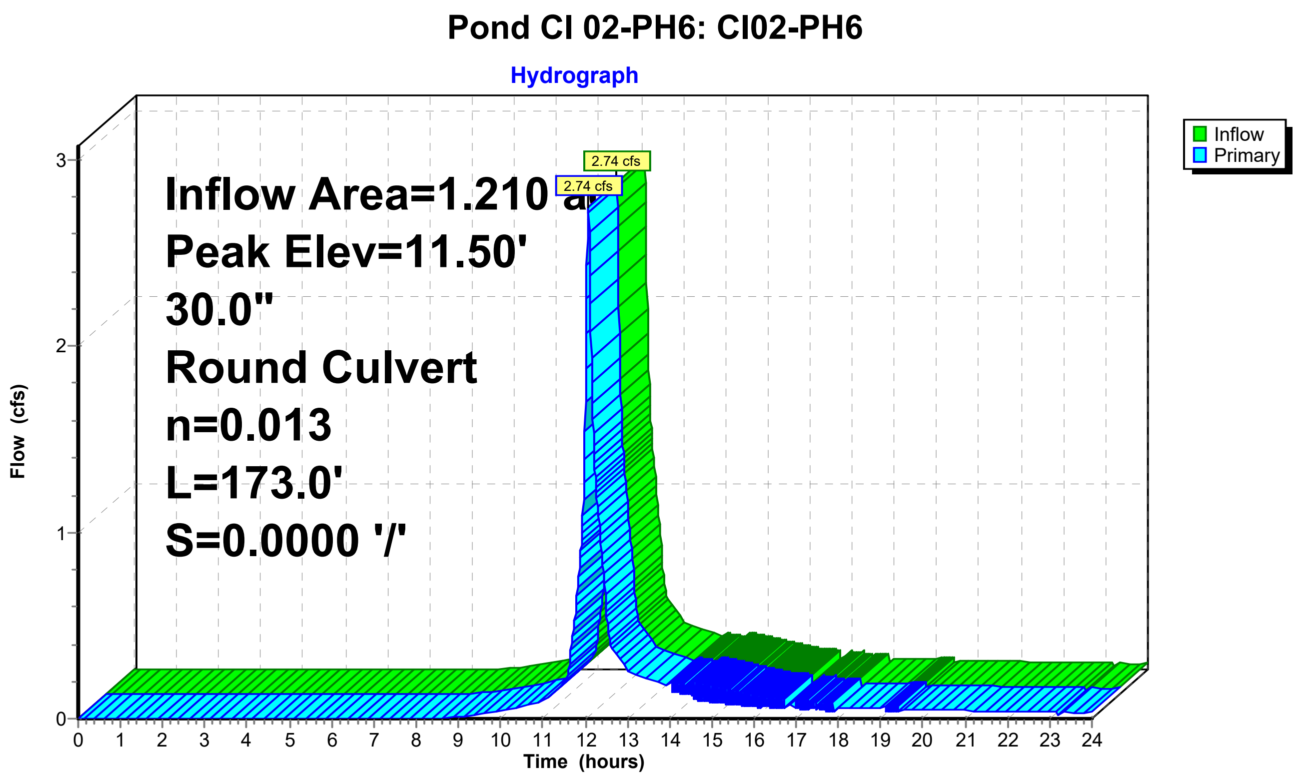
[80] Warning: Exceeded Pond CI 01-PH6 by 1.28' @ 14.76 hrs (6.36 cfs 0.751 af)

Inflow Area =	1.210 ac,	0.00% Impervious, Inflow Depth > 1.86"	for 1 event
Inflow =	2.74 cfs @	12.08 hrs, Volume=	0.188 af
Outflow =	2.74 cfs @	12.08 hrs, Volume=	0.188 af, Atten= 0%, Lag= 0.0 min
Primary =	2.74 cfs @	12.08 hrs, Volume=	0.188 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.50' @ 12.77 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=2.74 cfs @ 12.08 hrs HW=11.19' TW=10.64' (Dynamic Tailwater)
1=RCP_Round 30" (Barrel Controls 2.74 cfs @ 2.11 fps)



Summary for Pond CI 03-PH6: CI03-PH6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=350)

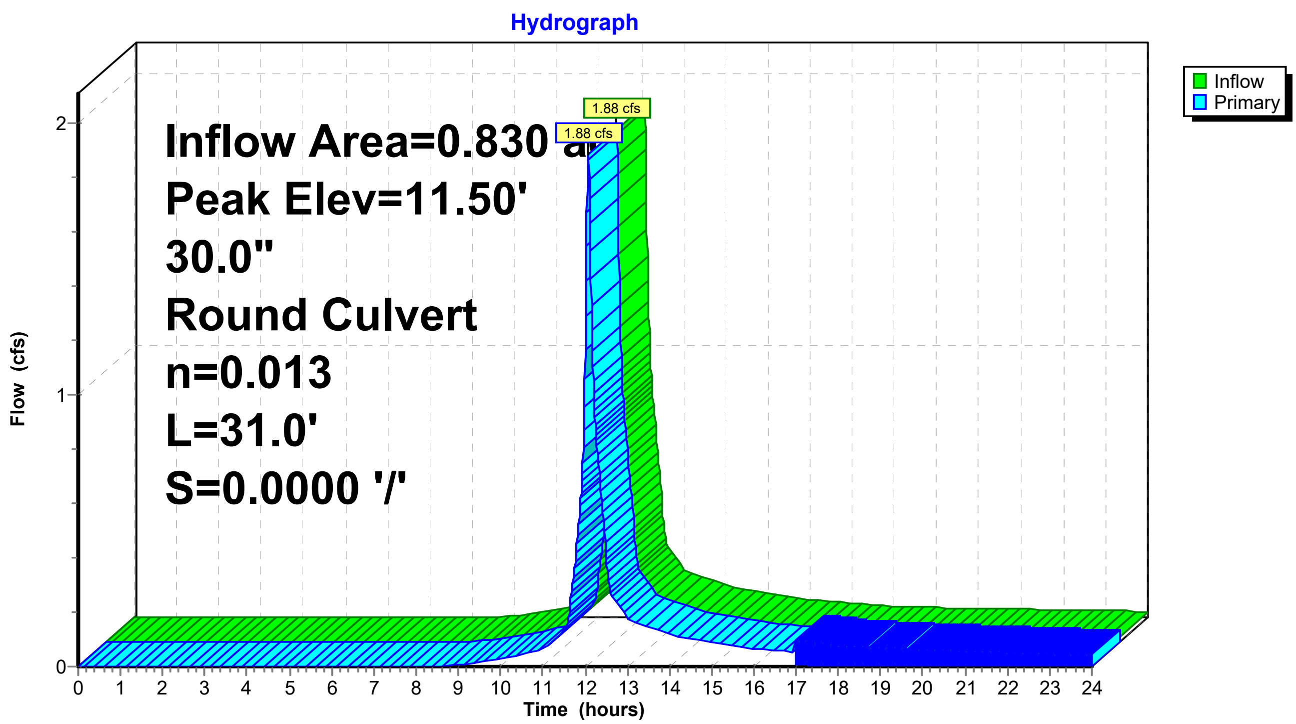
Inflow Area =	0.830 ac,	0.00% Impervious, Inflow Depth > 1.86"	for 1 event
Inflow =	1.88 cfs @	12.08 hrs, Volume=	0.129 af
Outflow =	1.88 cfs @	12.08 hrs, Volume=	0.129 af, Atten= 0%, Lag= 0.0 min
Primary =	1.88 cfs @	12.08 hrs, Volume=	0.129 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.50' @ 12.78 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 31.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=1.74 cfs @ 12.08 hrs HW=11.35' TW=11.32' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 1.74 cfs @ 1.09 fps)

Pond CI 03-PH6: CI03-PH6



Summary for Pond CI 04-PH6: CI04-PH6

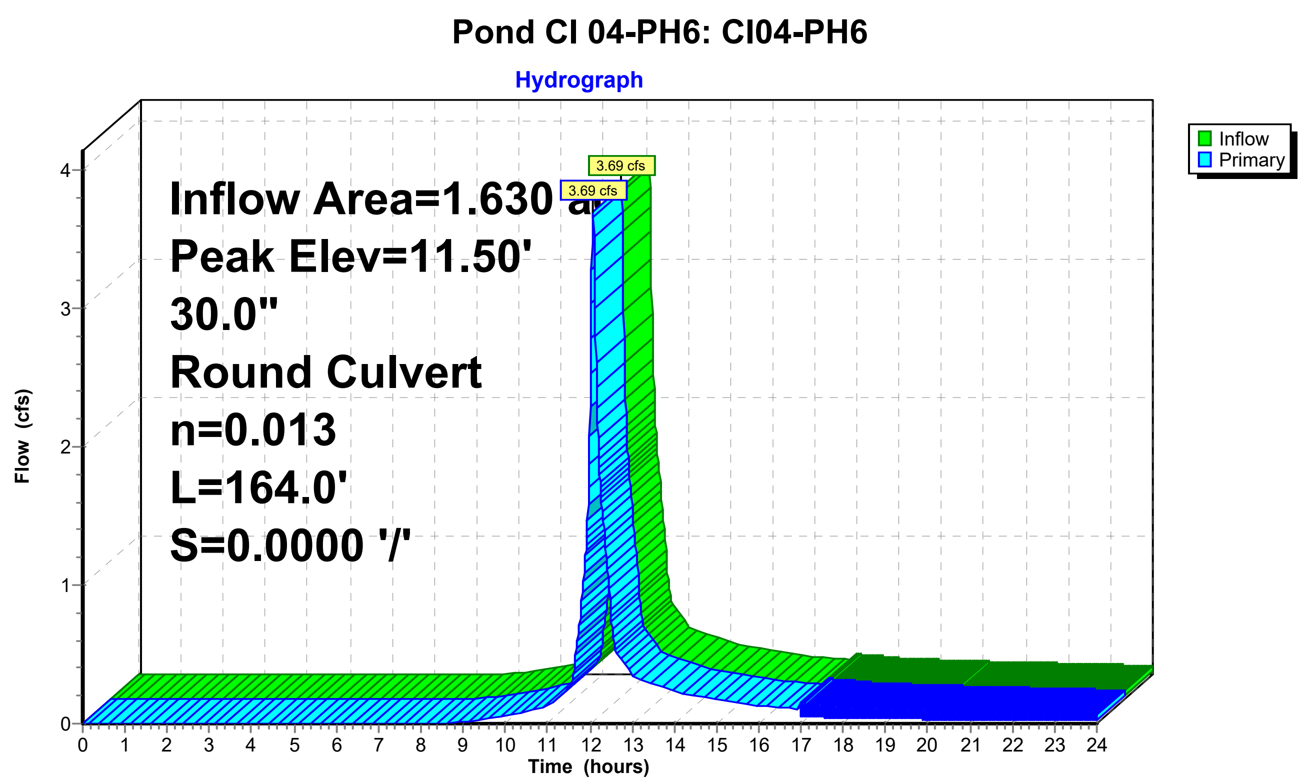
[80] Warning: Exceeded Pond CI 03-PH6 by 1.04' @ 17.54 hrs (4.19 cfs 0.775 af)

Inflow Area =	1.630 ac,	0.00% Impervious, Inflow Depth > 1.86"	for 1 event
Inflow =	3.69 cfs @	12.08 hrs, Volume=	0.253 af
Outflow =	3.69 cfs @	12.08 hrs, Volume=	0.253 af, Atten= 0%, Lag= 0.0 min
Primary =	3.69 cfs @	12.08 hrs, Volume=	0.253 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.50' @ 12.77 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 164.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=3.69 cfs @ 12.08 hrs HW=11.32' TW=10.64' (Dynamic Tailwater)
1=RCP_Round 30" (Barrel Controls 3.69 cfs @ 2.39 fps)



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.12' @ 12.54 hrs (39.85 cfs 2.995 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 1.59" for 1 event
Inflow = 48.68 cfs @ 12.11 hrs, Volume= 9.749 af
Outflow = 14.96 cfs @ 13.43 hrs, Volume= 8.529 af, Atten= 69%, Lag= 78.9 min
Primary = 14.96 cfs @ 13.43 hrs, Volume= 8.529 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 11.49' @ 12.76 hrs Surf.Area= 69,909 sf Storage= 281,549 cf (98,104 cf above start)

Plug-Flow detention time= 411.5 min calculated for 4.316 af (44% of inflow)
Center-of-Mass det. time= 77.0 min (1,016.8 - 939.8)

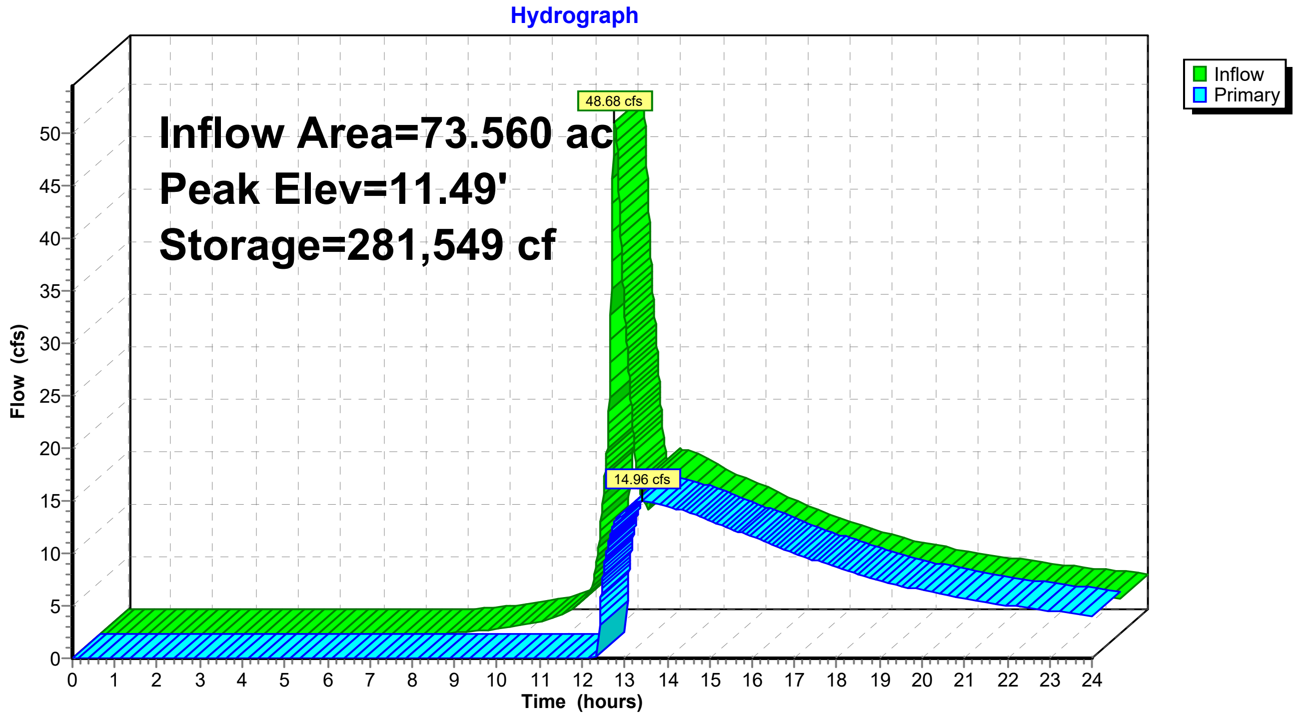
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=14.97 cfs @ 13.43 hrs HW=11.49' TW=11.29' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 4.88 cfs @ 2.35 fps)
├─**2=RCP_Round 36"** (Outlet Controls 6.00 cfs @ 2.43 fps)
└─**3=RCP_Round 36"** (Outlet Controls 4.09 cfs @ 1.95 fps)

Pond POST-3P: POND 3



Summary for Subcatchment CI01-PH6: CI01-PH6

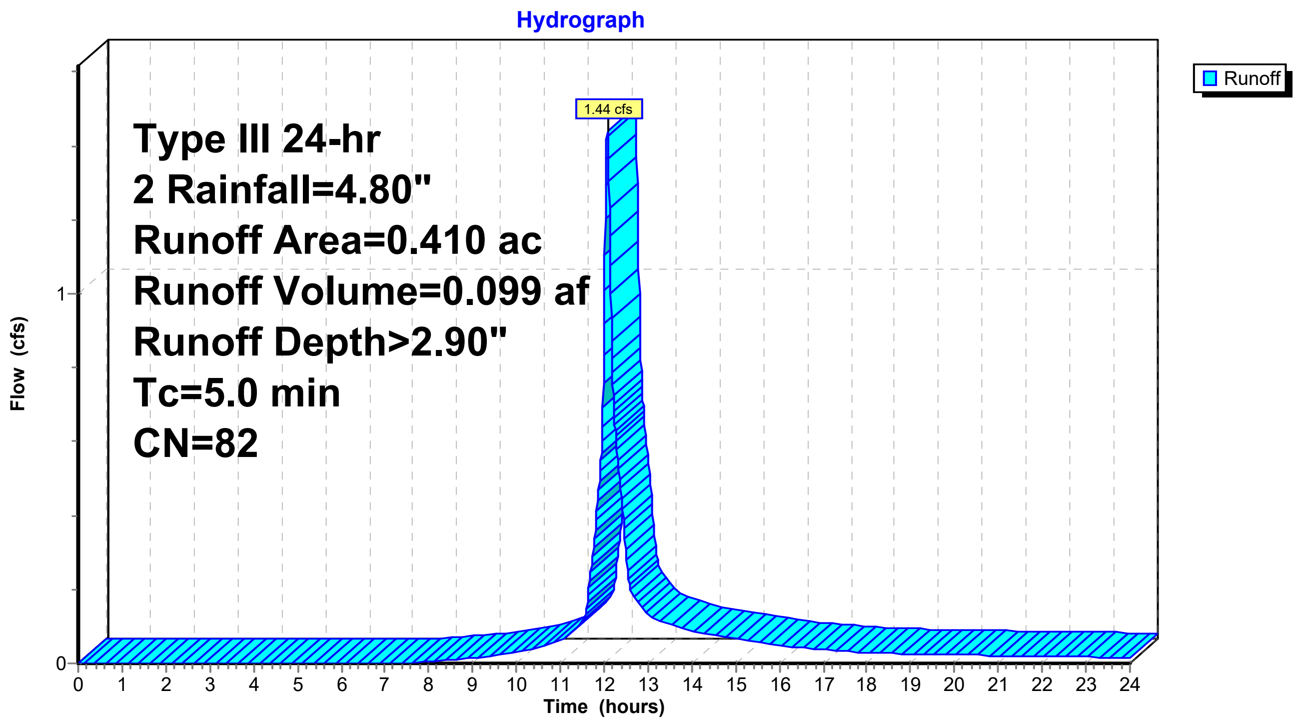
Runoff = 1.44 cfs @ 12.07 hrs, Volume= 0.099 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	0.410	82	
	0.410		100.00% Pervious Area

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

Subcatchment CI01-PH6: CI01-PH6



Summary for Subcatchment CI02-PH6: CI02-PH6

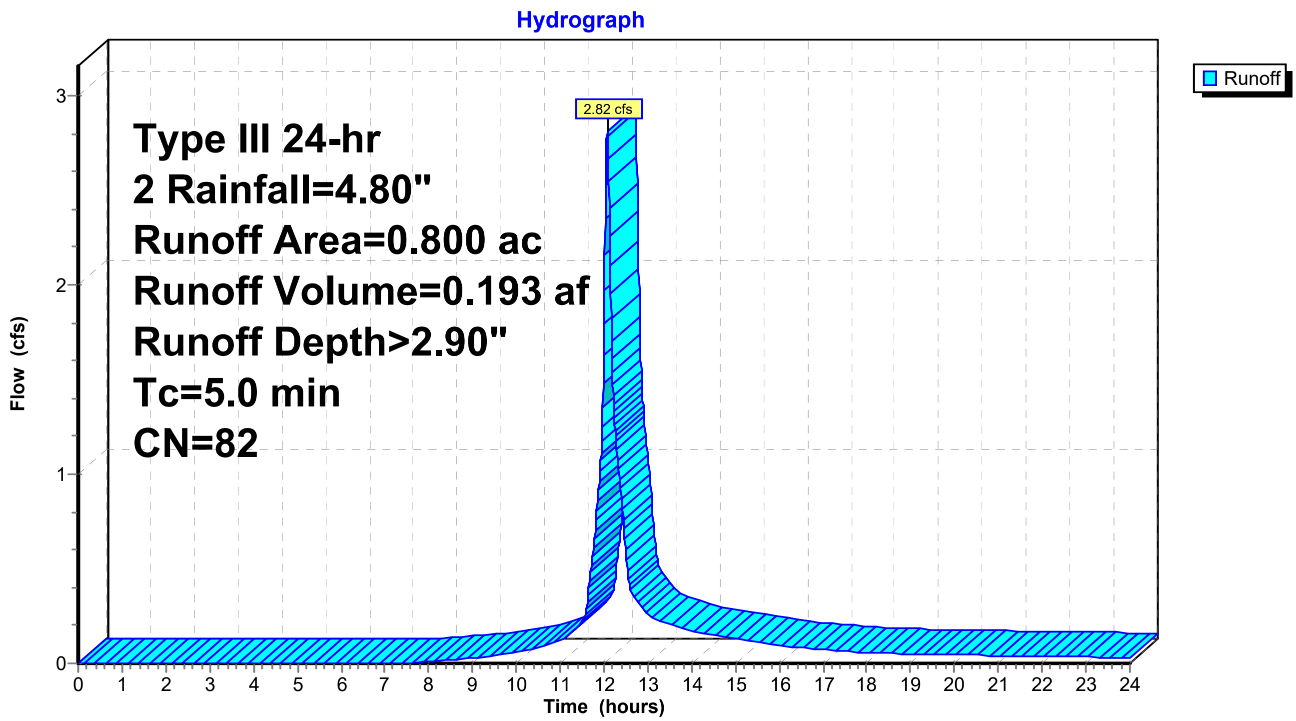
Runoff = 2.82 cfs @ 12.07 hrs, Volume= 0.193 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI02-PH6: CI02-PH6



Summary for Subcatchment CI03-PH6: CI03-PH6

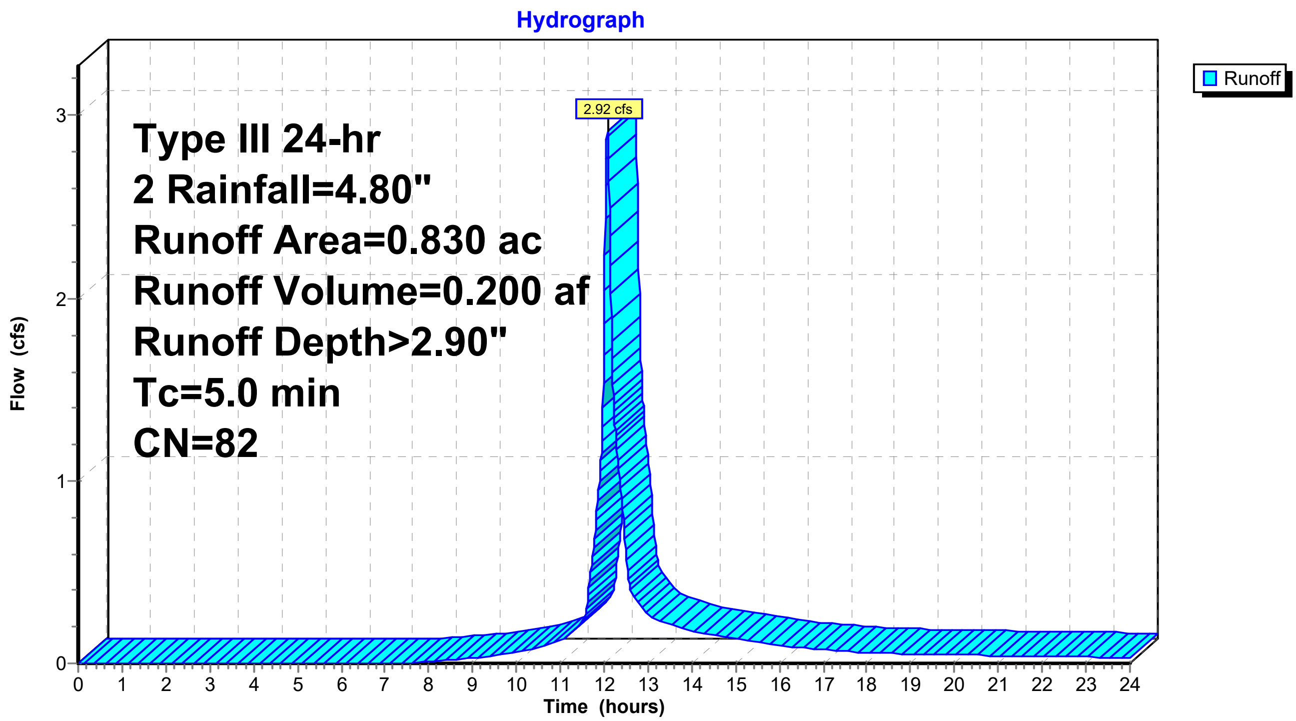
Runoff = 2.92 cfs @ 12.07 hrs, Volume= 0.200 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	0.830	82	
	0.830		100.00% Pervious Area

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

Subcatchment CI03-PH6: CI03-PH6



Summary for Subcatchment CI04-PH6: CI04-PH6

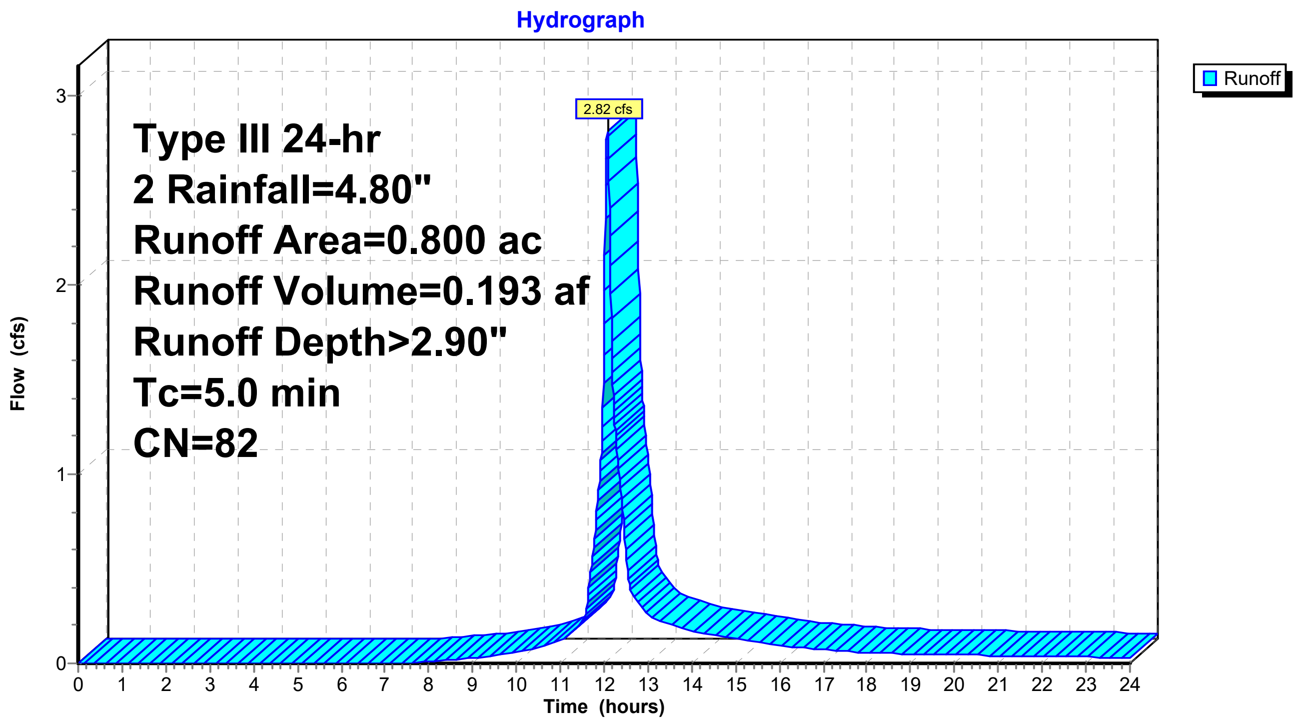
Runoff = 2.82 cfs @ 12.07 hrs, Volume= 0.193 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI04-PH6: CI04-PH6



Summary for Pond CI 01-PH6: CI01-PH6

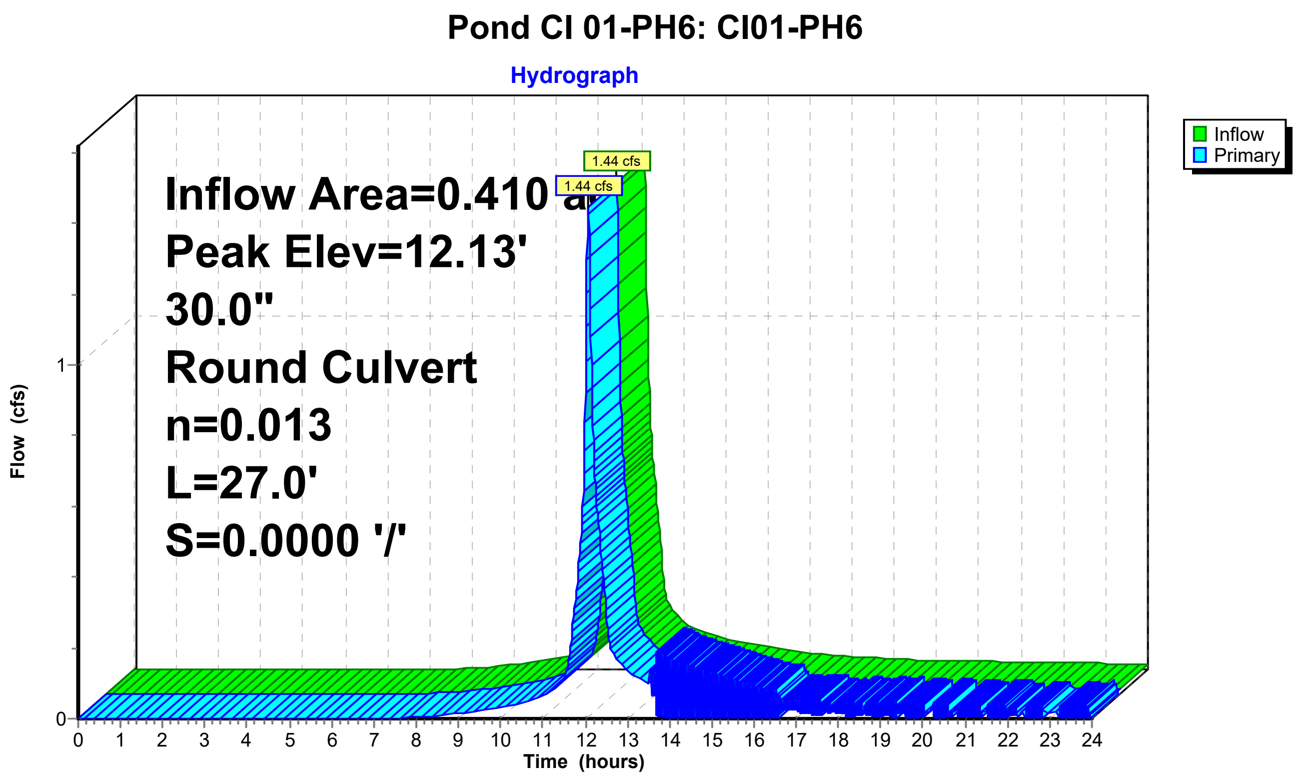
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=489)

Inflow Area = 0.410 ac, 0.00% Impervious, Inflow Depth > 2.90" for 2 event
Inflow = 1.44 cfs @ 12.07 hrs, Volume= 0.099 af
Outflow = 1.44 cfs @ 12.07 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min
Primary = 1.44 cfs @ 12.07 hrs, Volume= 0.099 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 12.13' @ 12.94 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=0.75 cfs @ 12.07 hrs HW=11.42' TW=11.42' (Dynamic Tailwater)
└**1=RCP_Round 30"** (Outlet Controls 0.75 cfs @ 0.44 fps)



Summary for Pond CI 02-PH6: CI02-PH6

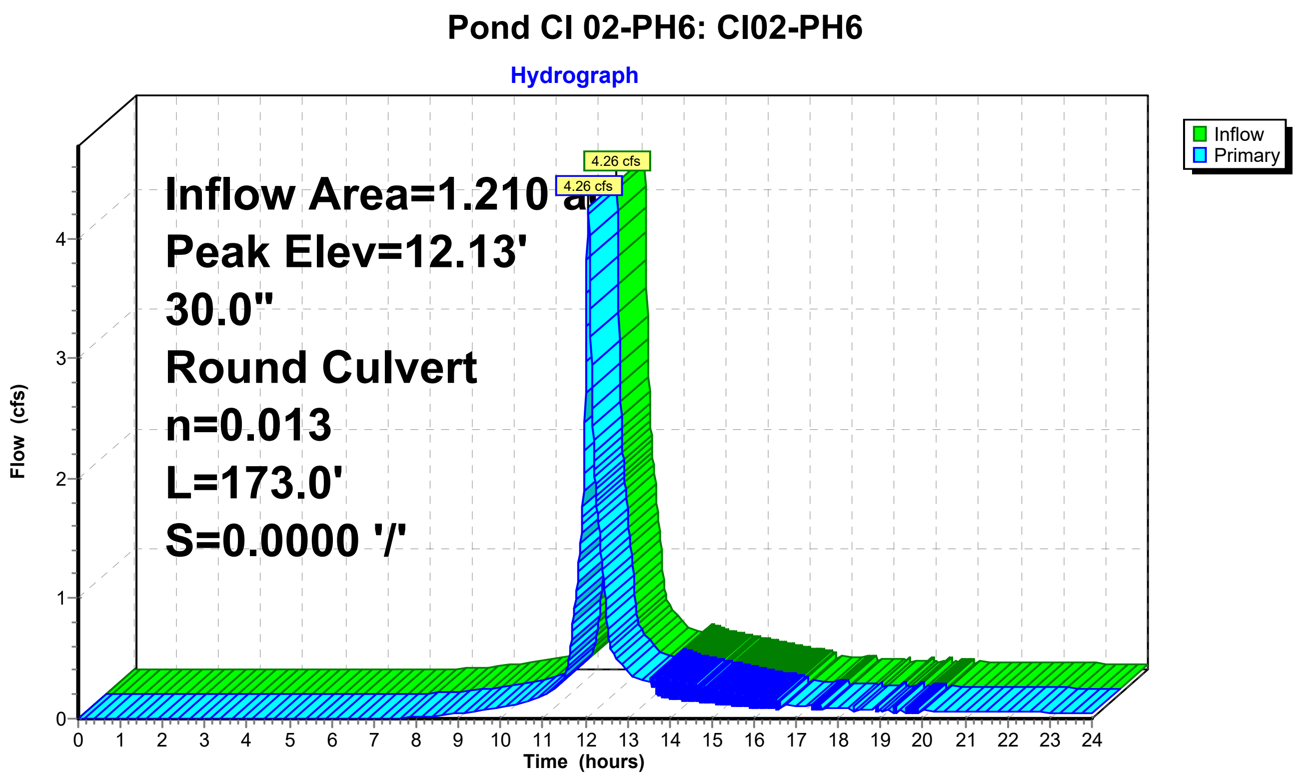
[80] Warning: Exceeded Pond CI 01-PH6 by 1.88' @ 13.91 hrs (13.12 cfs 1.600 af)

Inflow Area =	1.210 ac,	0.00% Impervious,	Inflow Depth > 2.89"	for 2 event
Inflow =	4.26 cfs @	12.07 hrs, Volume=	0.292 af	
Outflow =	4.26 cfs @	12.07 hrs, Volume=	0.292 af,	Atten= 0%, Lag= 0.0 min
Primary =	4.26 cfs @	12.07 hrs, Volume=	0.292 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 12.13' @ 12.93 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=4.03 cfs @ 12.07 hrs HW=11.42' TW=11.14' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 4.03 cfs @ 2.35 fps)



Summary for Pond CI 03-PH6: CI03-PH6

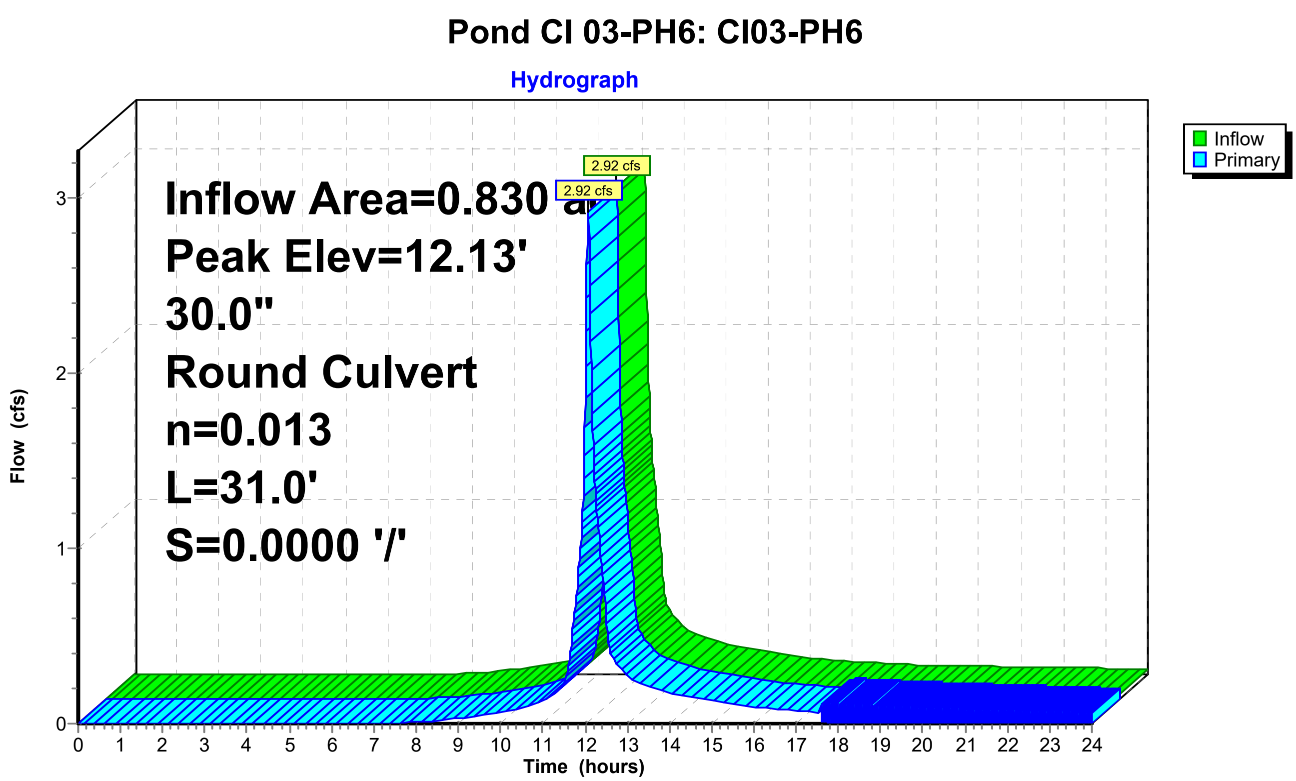
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=333)

Inflow Area = 0.830 ac, 0.00% Impervious, Inflow Depth > 2.90" for 2 event
Inflow = 2.92 cfs @ 12.07 hrs, Volume= 0.200 af
Outflow = 2.92 cfs @ 12.07 hrs, Volume= 0.200 af, Atten= 0%, Lag= 0.0 min
Primary = 2.92 cfs @ 12.07 hrs, Volume= 0.200 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 12.13' @ 12.93 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 31.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=2.70 cfs @ 12.07 hrs HW=11.63' TW=11.59' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 2.70 cfs @ 1.28 fps)



Summary for Pond CI 04-PH6: CI04-PH6

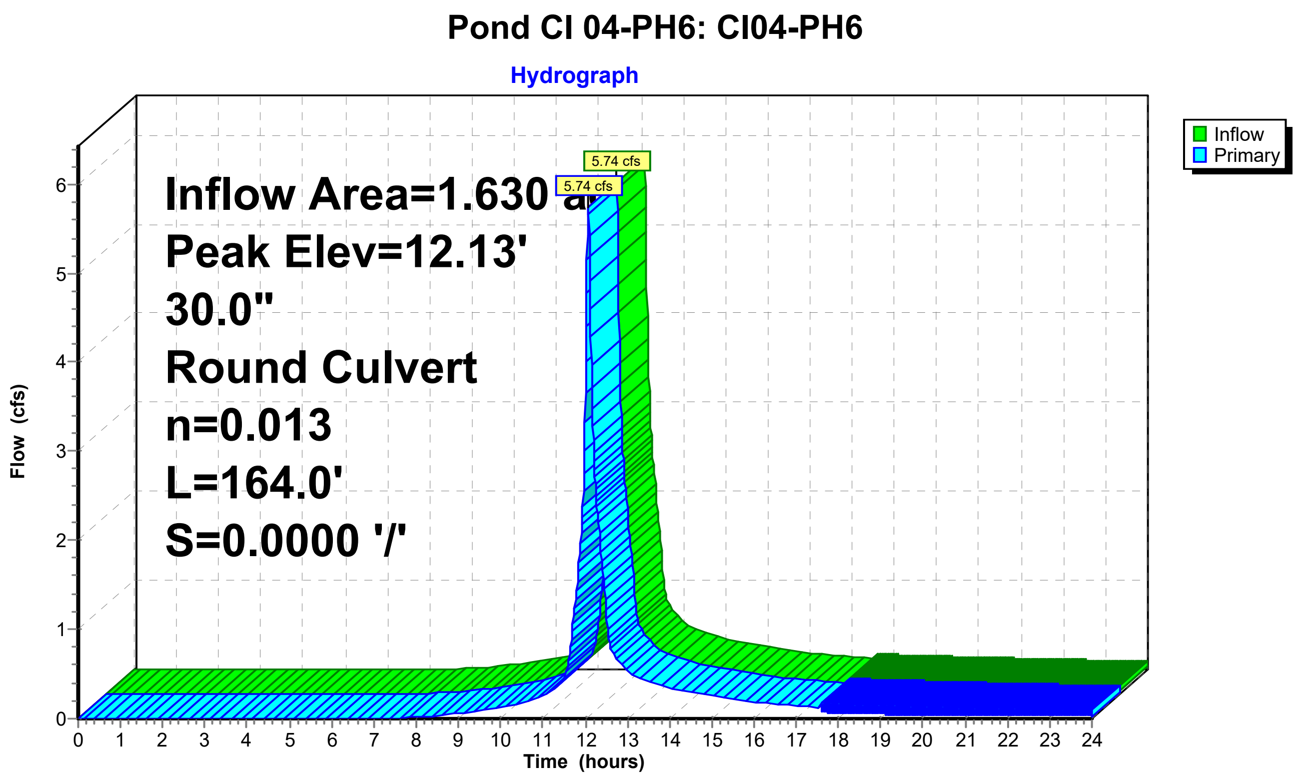
[80] Warning: Exceeded Pond CI 03-PH6 by 1.30' @ 17.77 hrs (6.49 cfs 1.097 af)

Inflow Area =	1.630 ac,	0.00% Impervious,	Inflow Depth > 2.90"	for 2 event
Inflow =	5.74 cfs @	12.07 hrs, Volume=	0.394 af	
Outflow =	5.74 cfs @	12.07 hrs, Volume=	0.394 af,	Atten= 0%, Lag= 0.0 min
Primary =	5.74 cfs @	12.07 hrs, Volume=	0.394 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 12.13' @ 12.92 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 164.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=5.73 cfs @ 12.07 hrs HW=11.59' TW=11.14' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Barrel Controls 5.73 cfs @ 2.81 fps)



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.11' @ 12.41 hrs (37.70 cfs 3.359 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 2.58" for 2 event
Inflow = 78.74 cfs @ 12.12 hrs, Volume= 15.791 af
Outflow = 28.89 cfs @ 13.07 hrs, Volume= 14.386 af, Atten= 63%, Lag= 57.3 min
Primary = 28.89 cfs @ 13.07 hrs, Volume= 14.386 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 12.13' @ 12.92 hrs Surf.Area= 74,532 sf Storage= 327,367 cf (143,922 cf above start)

Plug-Flow detention time= 274.2 min calculated for 10.175 af (64% of inflow)
Center-of-Mass det. time= 66.1 min (990.6 - 924.5)

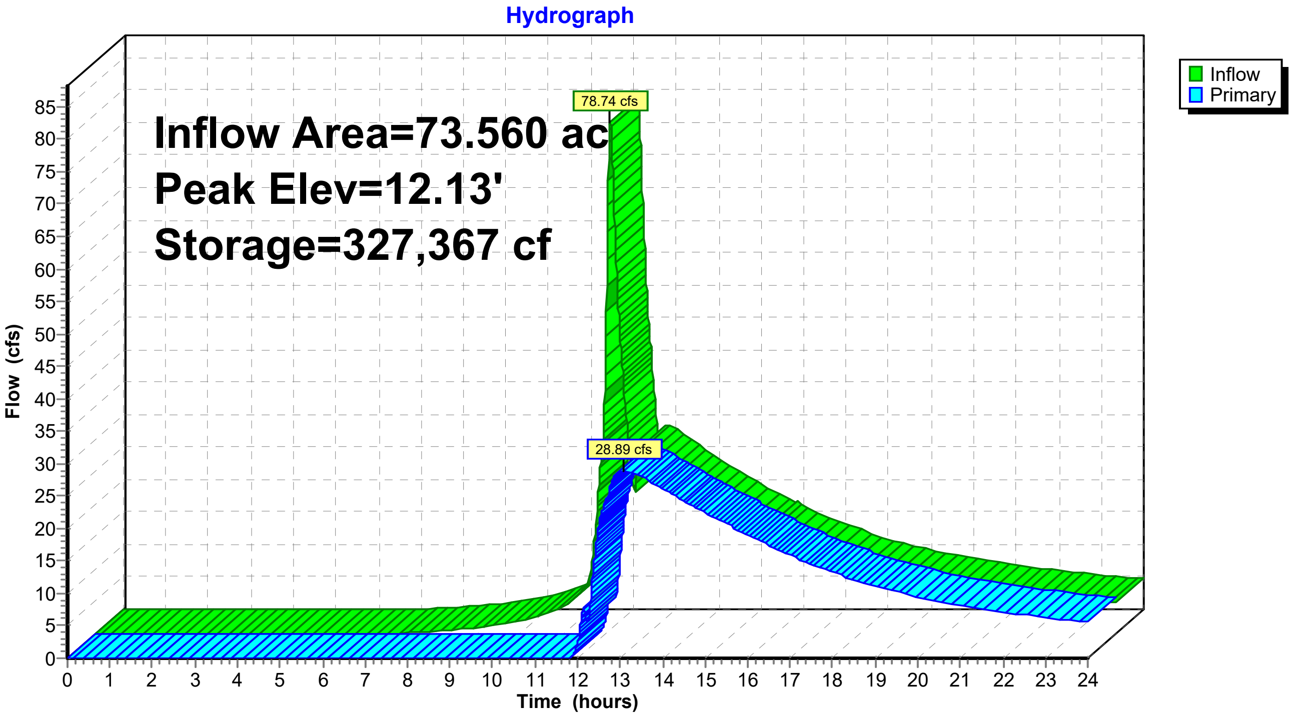
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=28.95 cfs @ 13.07 hrs HW=12.12' TW=11.88' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 9.68 cfs @ 2.79 fps)
├─**2=RCP_Round 36"** (Outlet Controls 10.98 cfs @ 2.83 fps)
└─**3=RCP_Round 36"** (Outlet Controls 8.29 cfs @ 2.37 fps)

Pond POST-3P: POND 3



Summary for Subcatchment CI01-PH6: CI01-PH6

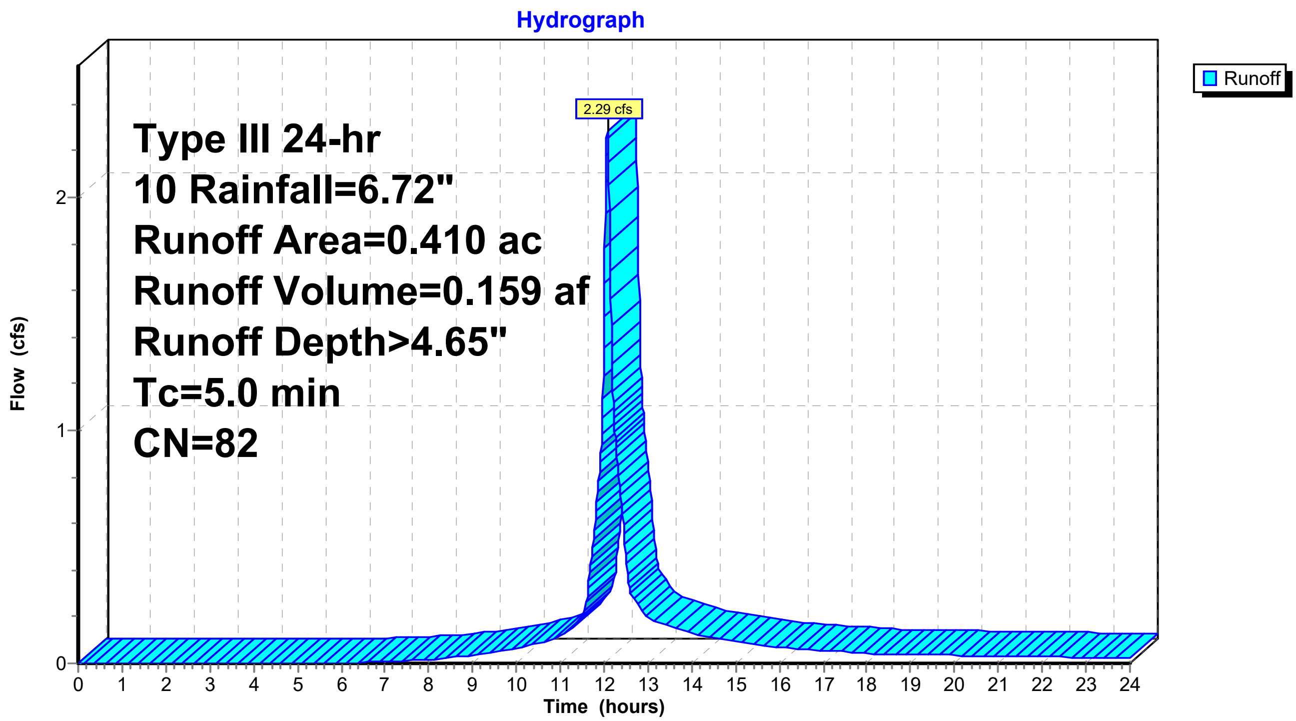
Runoff = 2.29 cfs @ 12.07 hrs, Volume= 0.159 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	0.410	82	
	0.410		100.00% Pervious Area

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

Subcatchment CI01-PH6: CI01-PH6



Summary for Subcatchment CI02-PH6: CI02-PH6

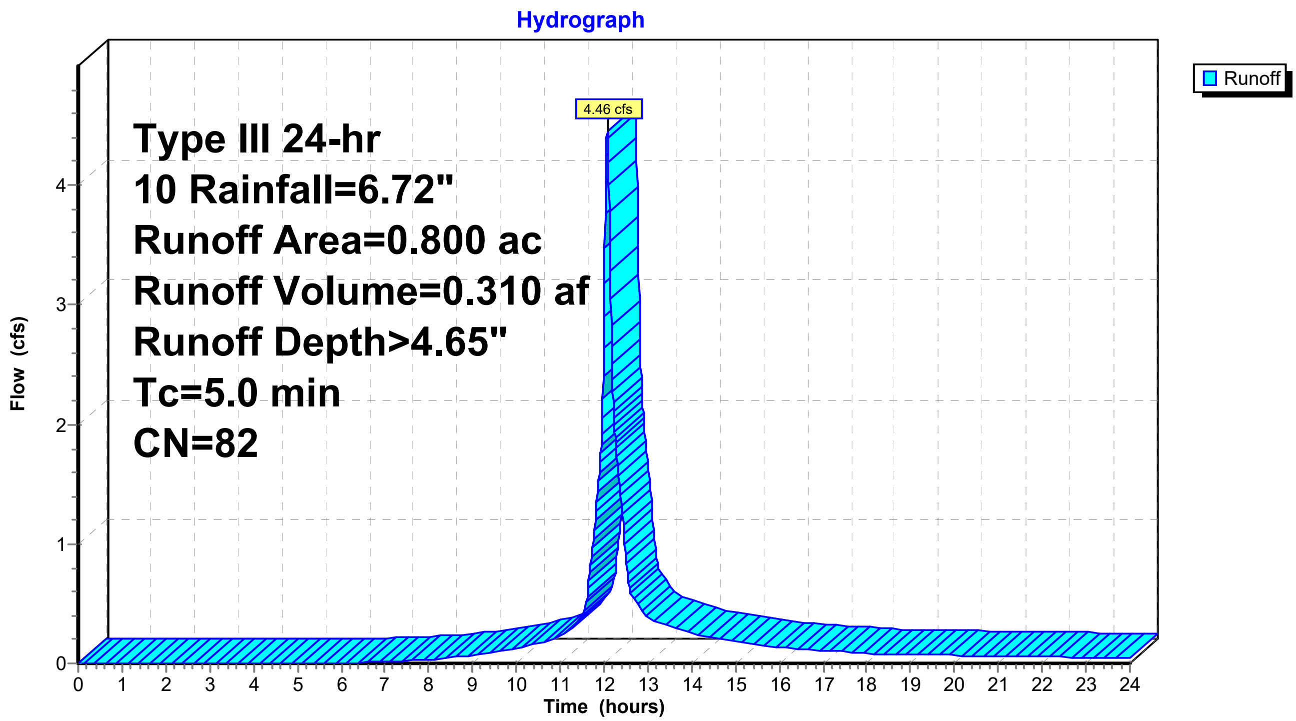
Runoff = 4.46 cfs @ 12.07 hrs, Volume= 0.310 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI02-PH6: CI02-PH6



Summary for Subcatchment CI03-PH6: CI03-PH6

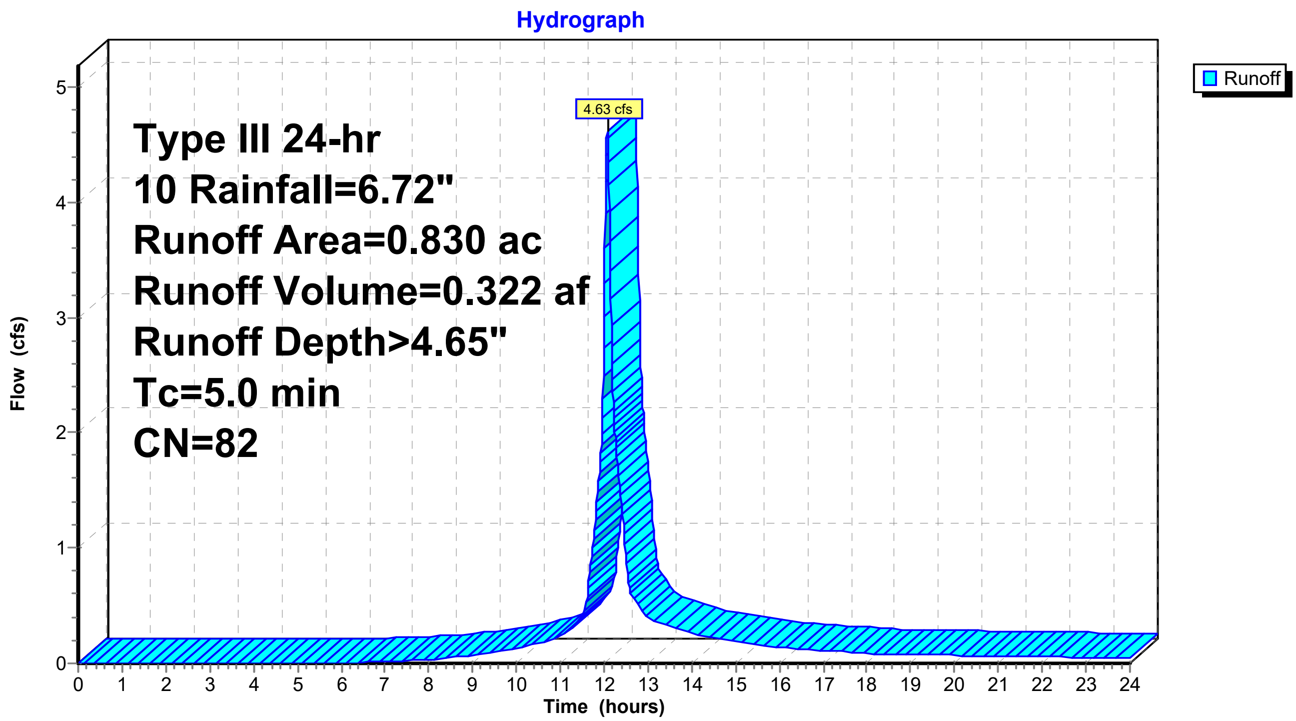
Runoff = 4.63 cfs @ 12.07 hrs, Volume= 0.322 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	0.830	82	
	0.830		100.00% Pervious Area

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

Subcatchment CI03-PH6: CI03-PH6



Summary for Subcatchment CI04-PH6: CI04-PH6

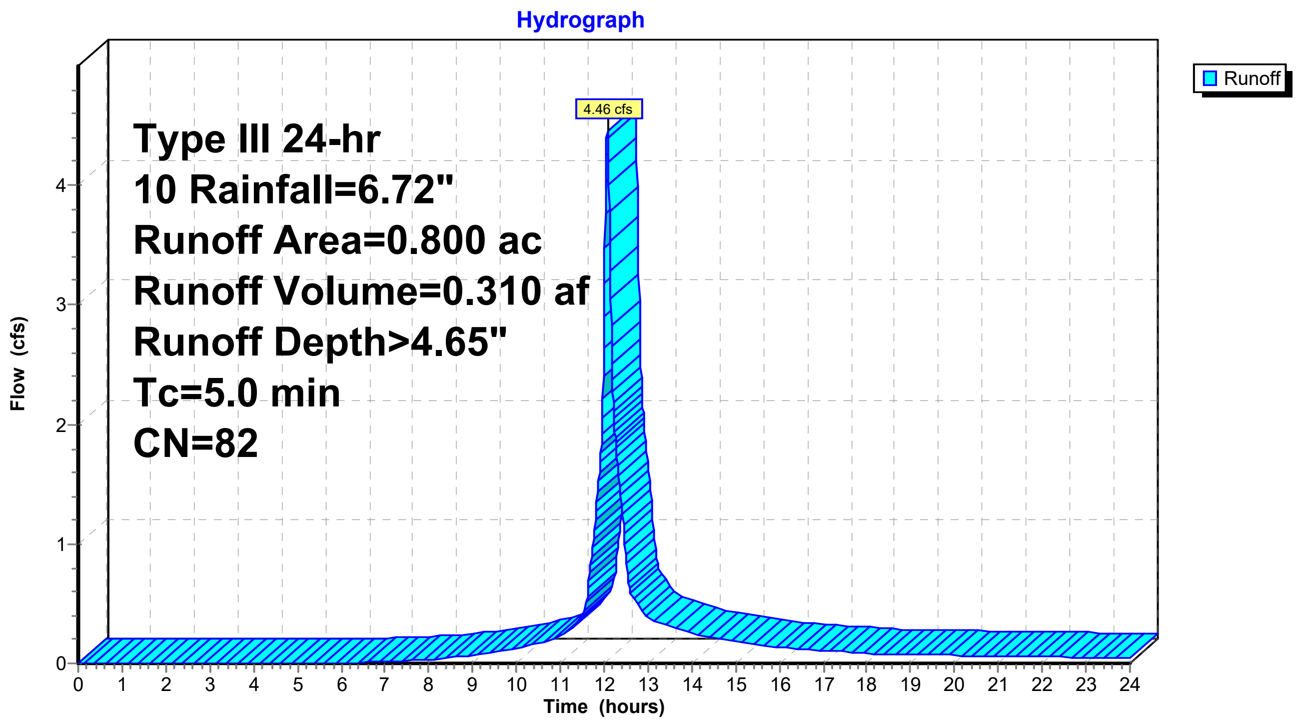
Runoff = 4.46 cfs @ 12.07 hrs, Volume= 0.310 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI04-PH6: CI04-PH6



Summary for Pond CI 01-PH6: CI01-PH6

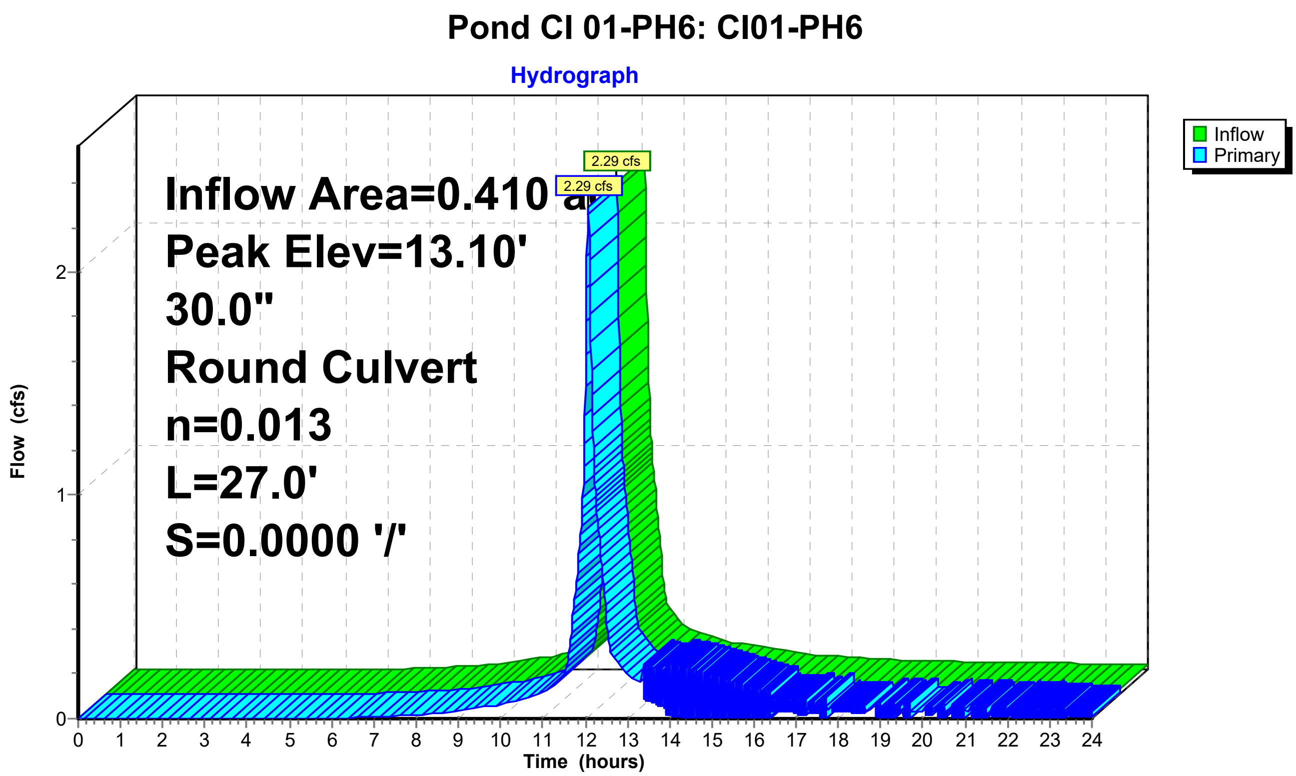
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=512)

Inflow Area =	0.410 ac,	0.00% Impervious,	Inflow Depth > 4.65"	for 10 event
Inflow =	2.29 cfs @	12.07 hrs, Volume=	0.159 af	
Outflow =	2.29 cfs @	12.07 hrs, Volume=	0.158 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.29 cfs @	12.07 hrs, Volume=	0.158 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.10' @ 12.76 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=12.02' TW=12.05' (Dynamic Tailwater)
└**1=RCP_Round 30"** (Controls 0.00 cfs)



Summary for Pond CI 02-PH6: CI02-PH6

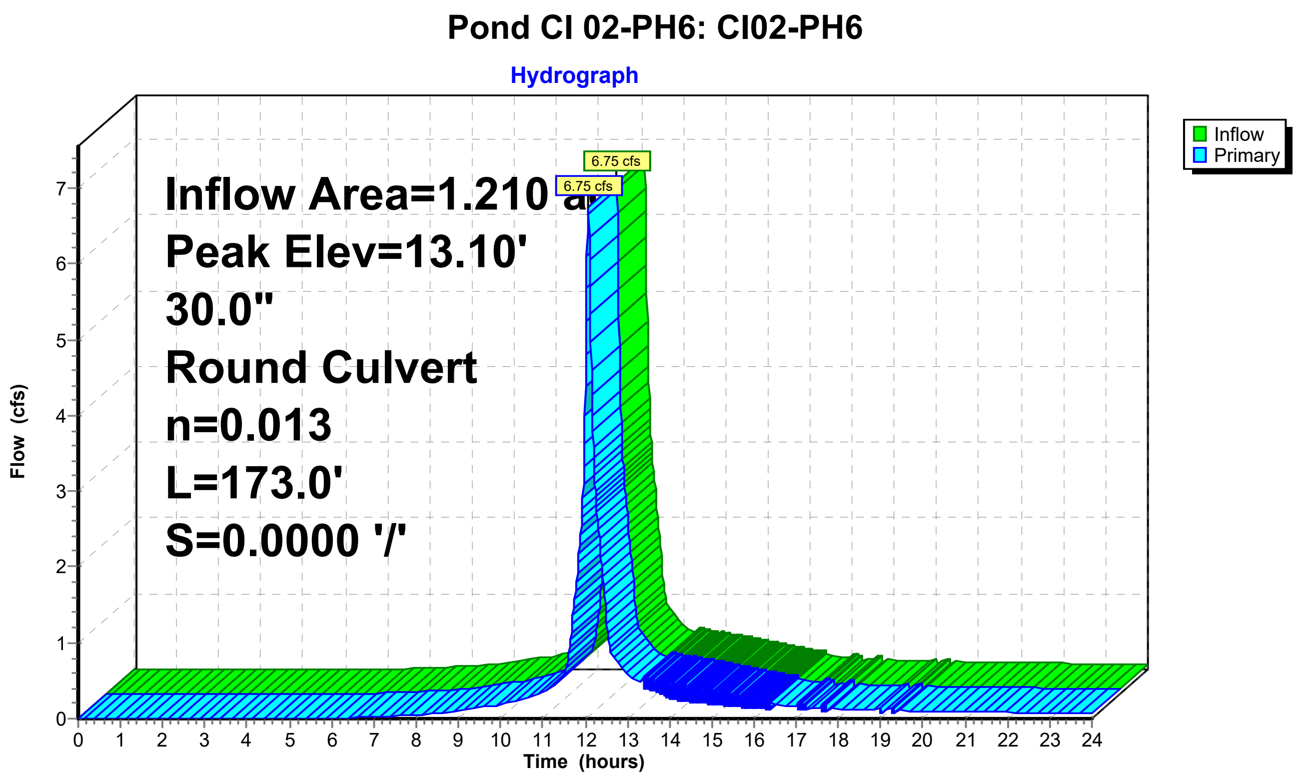
[80] Warning: Exceeded Pond CI 01-PH6 by 2.56' @ 14.45 hrs (21.99 cfs 2.190 af)

Inflow Area =	1.210 ac,	0.00% Impervious, Inflow Depth > 4.65"	for 10 event	
Inflow =	6.75 cfs @	12.07 hrs, Volume=	0.468 af	
Outflow =	6.75 cfs @	12.07 hrs, Volume=	0.468 af,	Atten= 0%, Lag= 0.0 min
Primary =	6.75 cfs @	12.07 hrs, Volume=	0.468 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.10' @ 12.75 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=6.00 cfs @ 12.07 hrs HW=12.05' TW=11.87' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 6.00 cfs @ 2.08 fps)



Summary for Pond CI 03-PH6: CI03-PH6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=371)

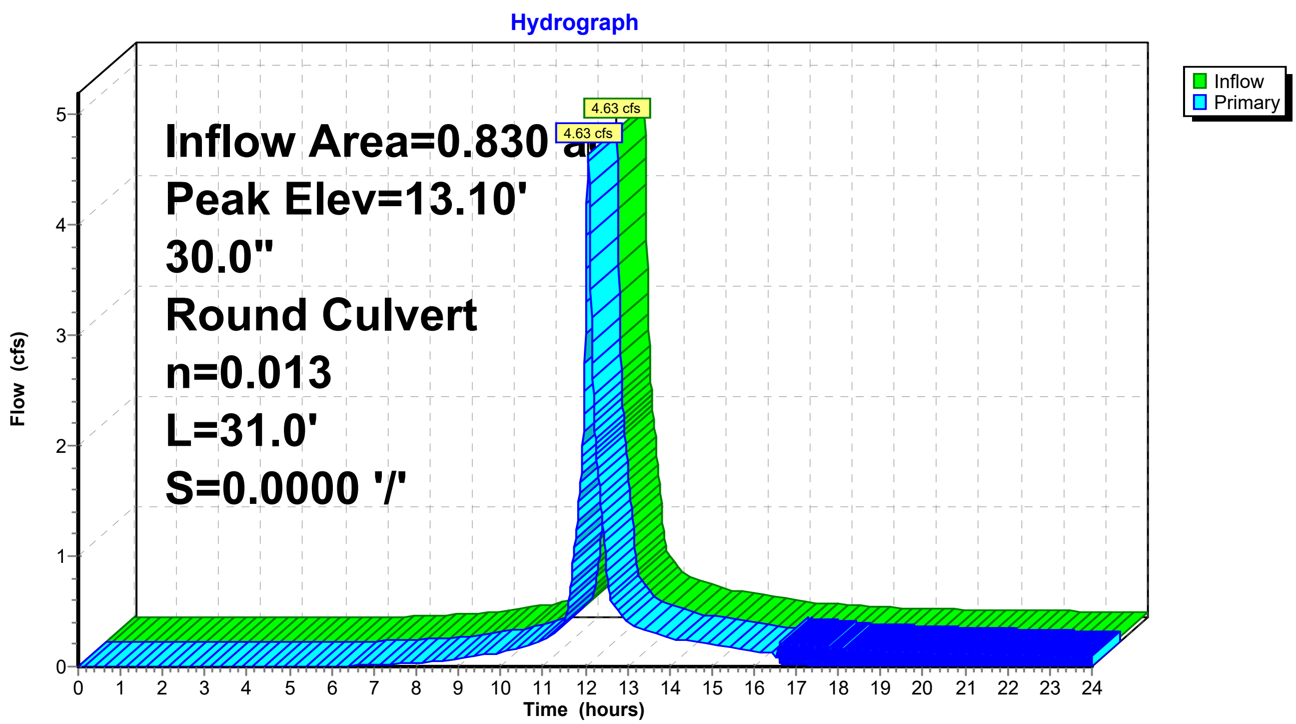
Inflow Area = 0.830 ac, 0.00% Impervious, Inflow Depth > 4.65" for 10 event
Inflow = 4.63 cfs @ 12.07 hrs, Volume= 0.322 af
Outflow = 4.63 cfs @ 12.07 hrs, Volume= 0.322 af, Atten= 0%, Lag= 0.0 min
Primary = 4.63 cfs @ 12.07 hrs, Volume= 0.322 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.10' @ 12.76 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 31.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=2.55 cfs @ 12.07 hrs HW=12.17' TW=12.16' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 2.55 cfs @ 0.82 fps)

Pond CI 03-PH6: CI03-PH6



Summary for Pond CI 04-PH6: CI04-PH6

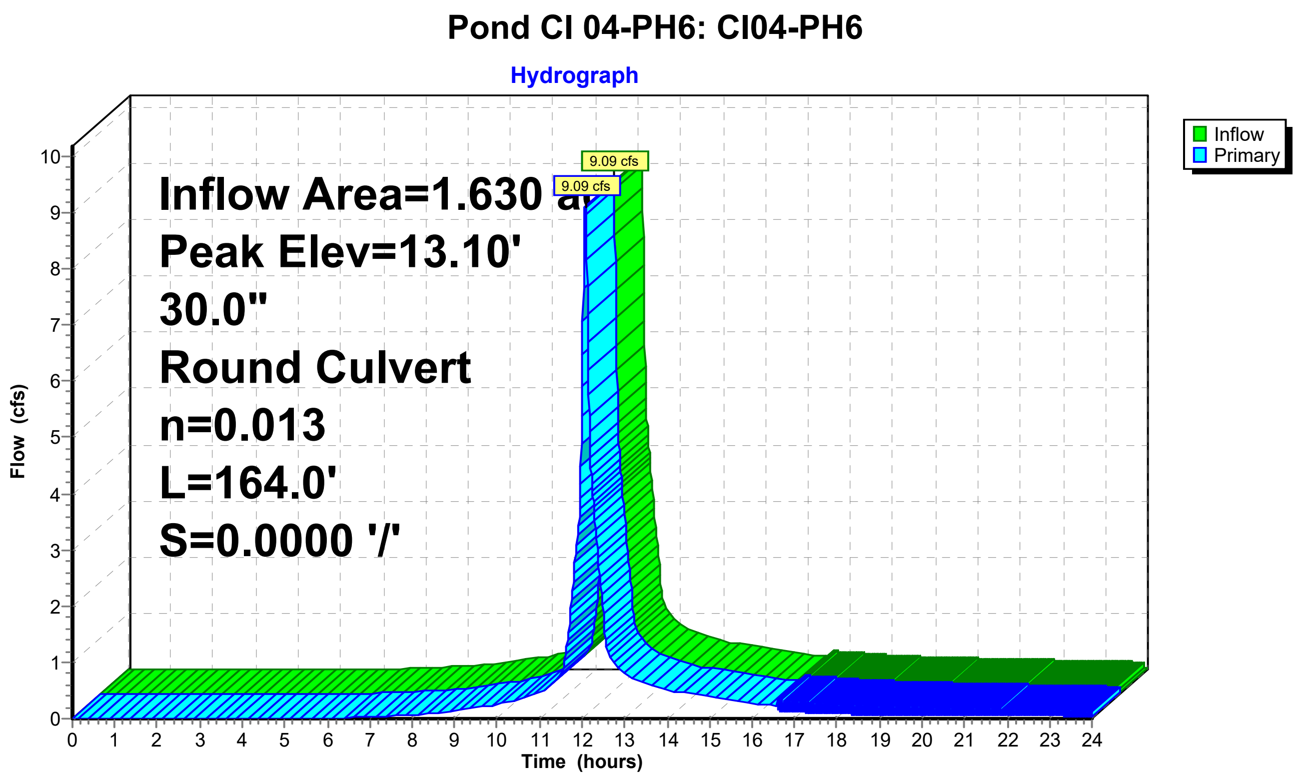
[80] Warning: Exceeded Pond CI 03-PH6 by 1.74' @ 17.62 hrs (11.25 cfs 1.887 af)

Inflow Area =	1.630 ac,	0.00% Impervious,	Inflow Depth > 4.65"	for 10 event
Inflow =	9.09 cfs @	12.07 hrs, Volume=	0.632 af	
Outflow =	9.09 cfs @	12.07 hrs, Volume=	0.632 af,	Atten= 0%, Lag= 0.0 min
Primary =	9.09 cfs @	12.07 hrs, Volume=	0.632 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.10' @ 12.75 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 164.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=8.43 cfs @ 12.07 hrs HW=12.16' TW=11.87' (Dynamic Tailwater)
└**1=RCP_Round 30"** (Outlet Controls 8.43 cfs @ 2.73 fps)



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond CI 02-PH6 by 0.01' @ 12.26 hrs (2.21 cfs 0.052 af)
[80] Warning: Exceeded Pond POST-2P by 0.12' @ 12.36 hrs (39.75 cfs 5.104 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 4.26" for 10 event
Inflow = 128.78 cfs @ 12.12 hrs, Volume= 26.094 af
Outflow = 50.37 cfs @ 13.00 hrs, Volume= 24.439 af, Atten= 61%, Lag= 52.7 min
Primary = 50.37 cfs @ 13.00 hrs, Volume= 24.439 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 13.09' @ 12.75 hrs Surf.Area= 81,567 sf Storage= 402,725 cf (219,281 cf above start)

Plug-Flow detention time= 193.1 min calculated for 20.228 af (78% of inflow)
Center-of-Mass det. time= 59.9 min (971.5 - 911.6)

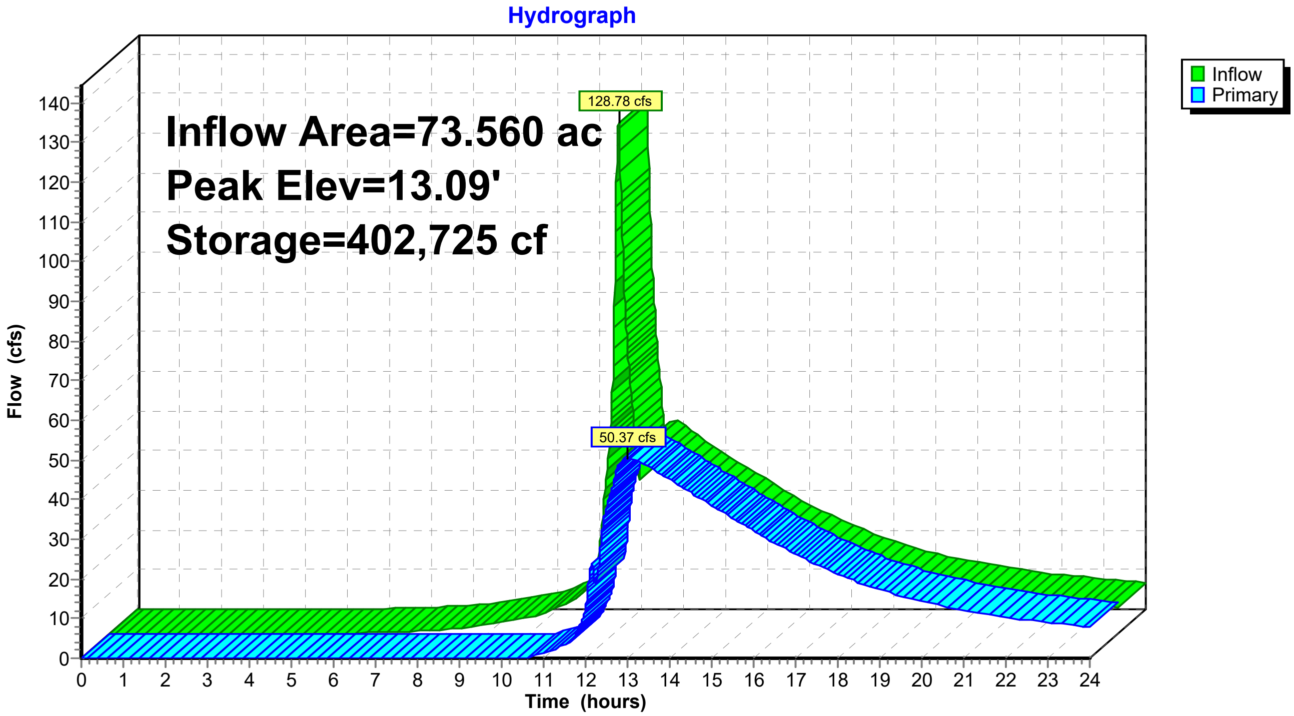
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=50.55 cfs @ 13.00 hrs HW=13.07' TW=12.80' (Dynamic Tailwater)
1=RCP_Round 36" (Outlet Controls 17.21 cfs @ 3.11 fps)
2=RCP_Round 36" (Outlet Controls 18.35 cfs @ 3.12 fps)
3=RCP_Round 36" (Outlet Controls 14.98 cfs @ 2.70 fps)

Pond POST-3P: POND 3



Summary for Subcatchment CI01-PH6: CI01-PH6

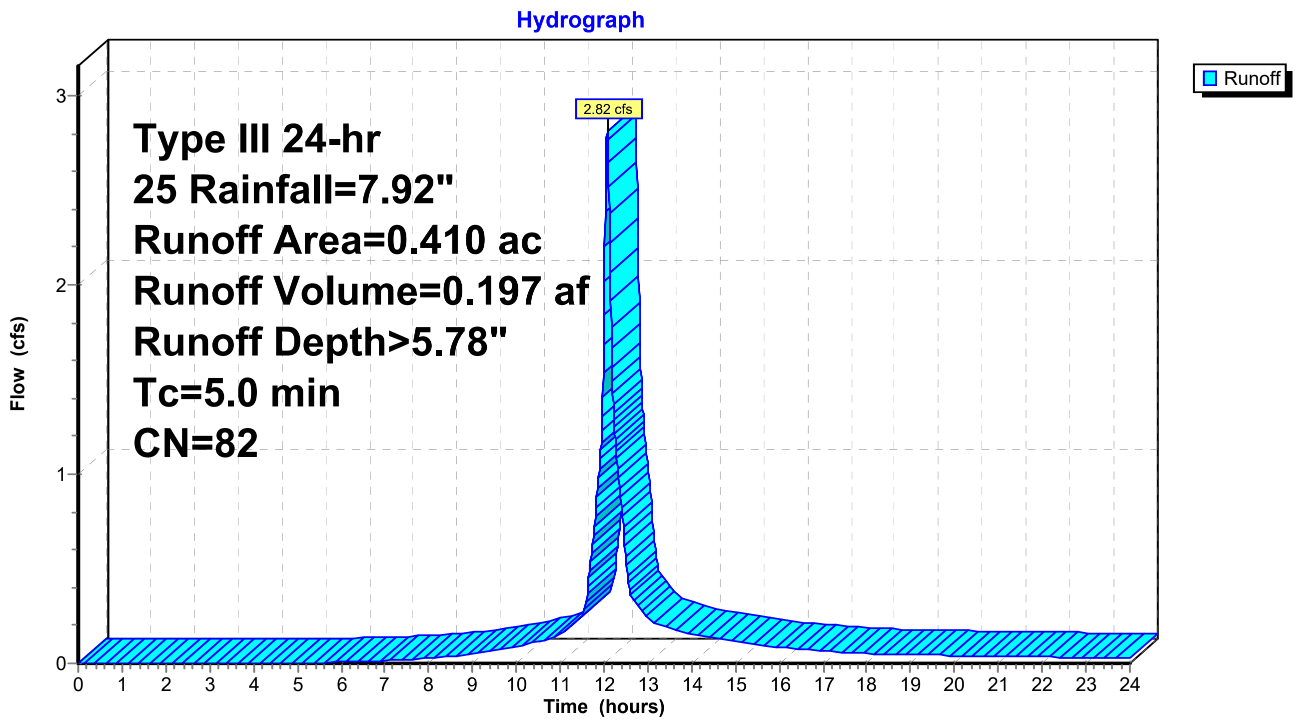
Runoff = 2.82 cfs @ 12.07 hrs, Volume= 0.197 af, Depth> 5.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	0.410	82	
	0.410		100.00% Pervious Area

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

Subcatchment CI01-PH6: CI01-PH6



Summary for Subcatchment CI02-PH6: CI02-PH6

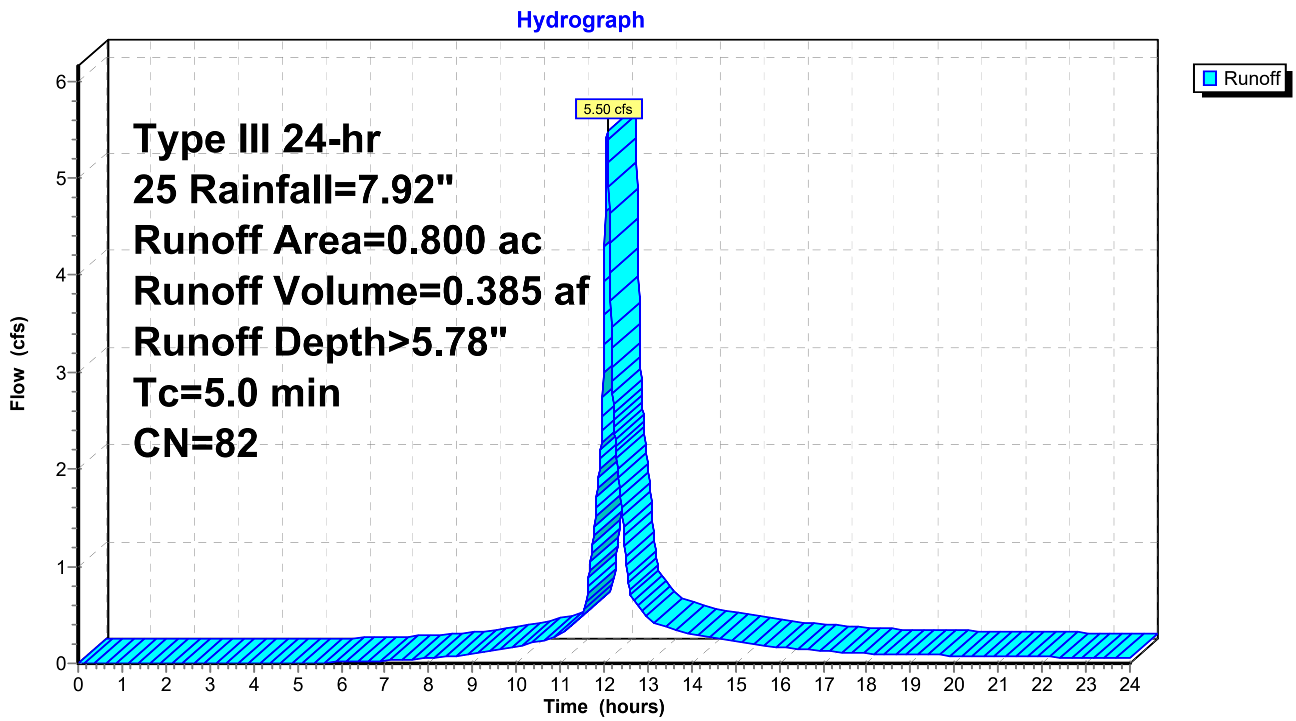
Runoff = 5.50 cfs @ 12.07 hrs, Volume= 0.385 af, Depth> 5.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI02-PH6: CI02-PH6



Summary for Subcatchment CI03-PH6: CI03-PH6

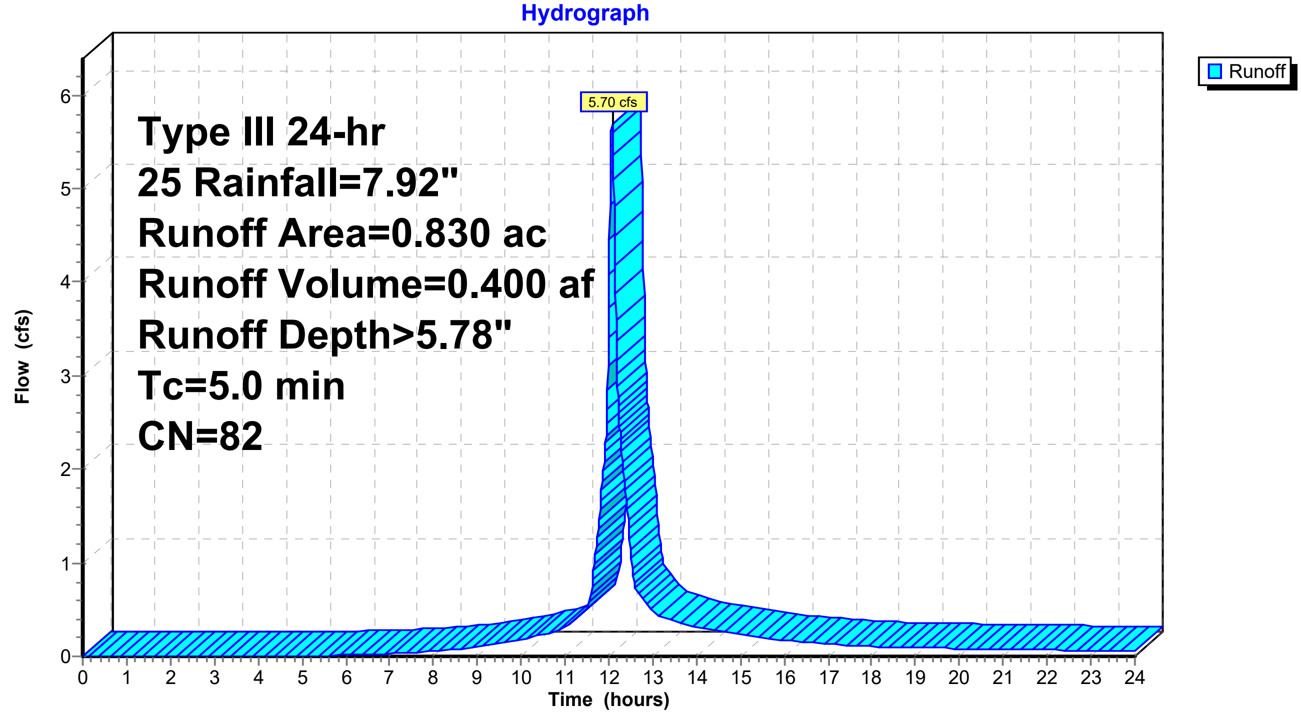
Runoff = 5.70 cfs @ 12.07 hrs, Volume= 0.400 af, Depth> 5.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	0.830	82	
	0.830		100.00% Pervious Area

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

Subcatchment CI03-PH6: CI03-PH6



Summary for Subcatchment CI04-PH6: CI04-PH6

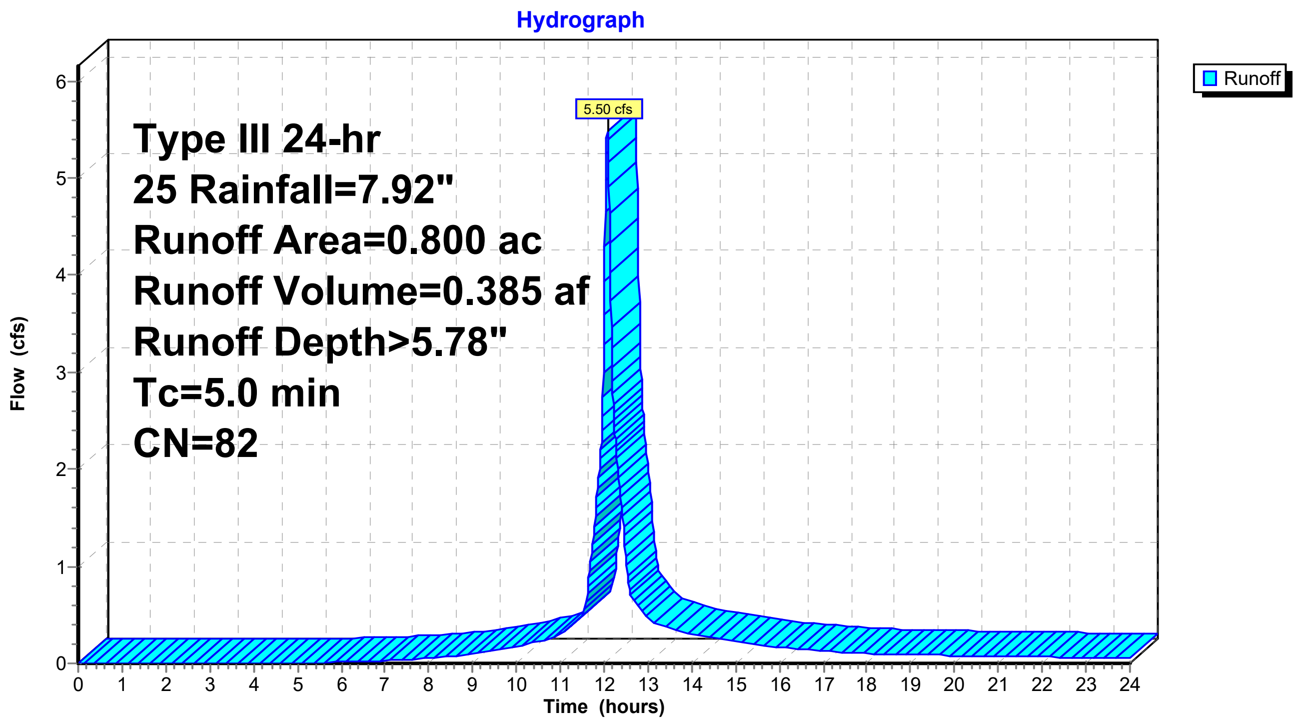
Runoff = 5.50 cfs @ 12.07 hrs, Volume= 0.385 af, Depth> 5.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI04-PH6: CI04-PH6



Summary for Pond CI 01-PH6: CI01-PH6

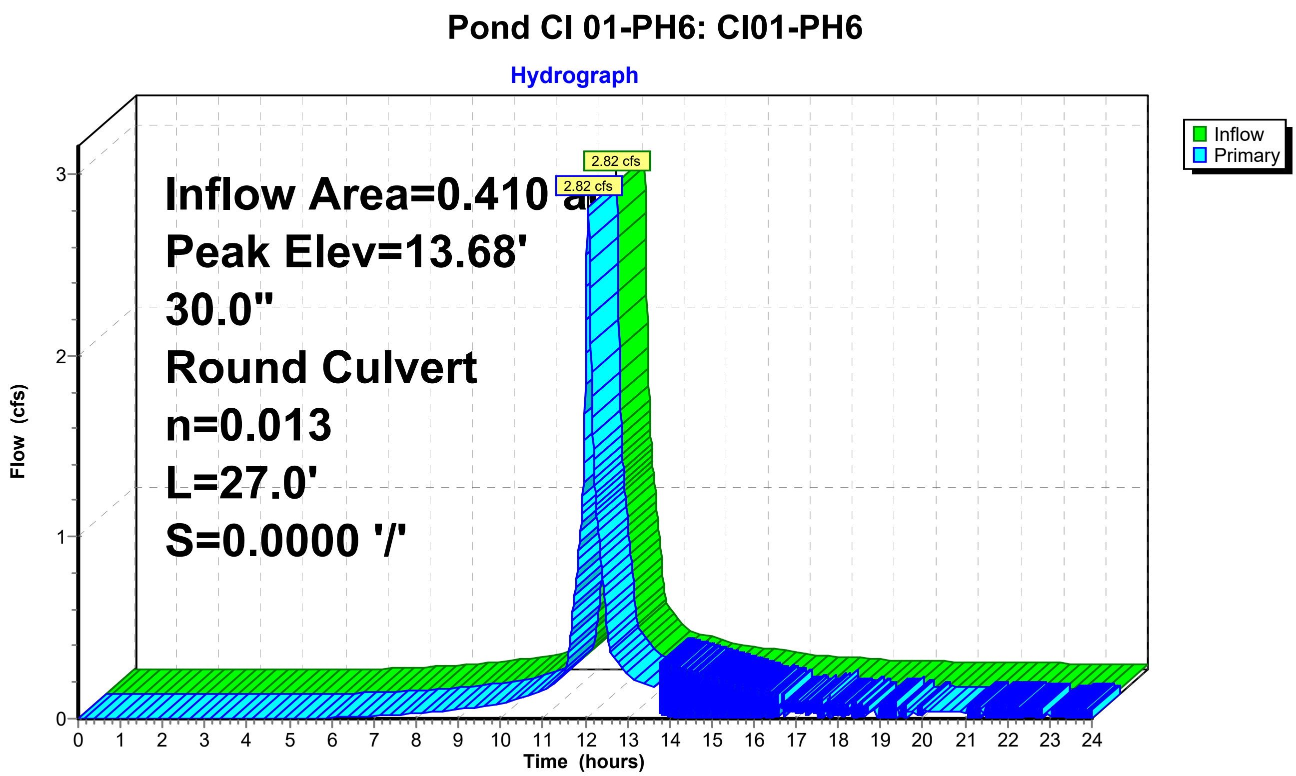
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=465)

Inflow Area =	0.410 ac,	0.00% Impervious,	Inflow Depth > 5.78"	for 25 event
Inflow =	2.82 cfs @	12.07 hrs, Volume=	0.197 af	
Outflow =	2.82 cfs @	12.07 hrs, Volume=	0.197 af, Atten= 0%, Lag= 0.0 min	
Primary =	2.82 cfs @	12.07 hrs, Volume=	0.197 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.68' @ 12.61 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=12.40' TW=12.43' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Controls 0.00 cfs)



Summary for Pond CI 02-PH6: CI02-PH6

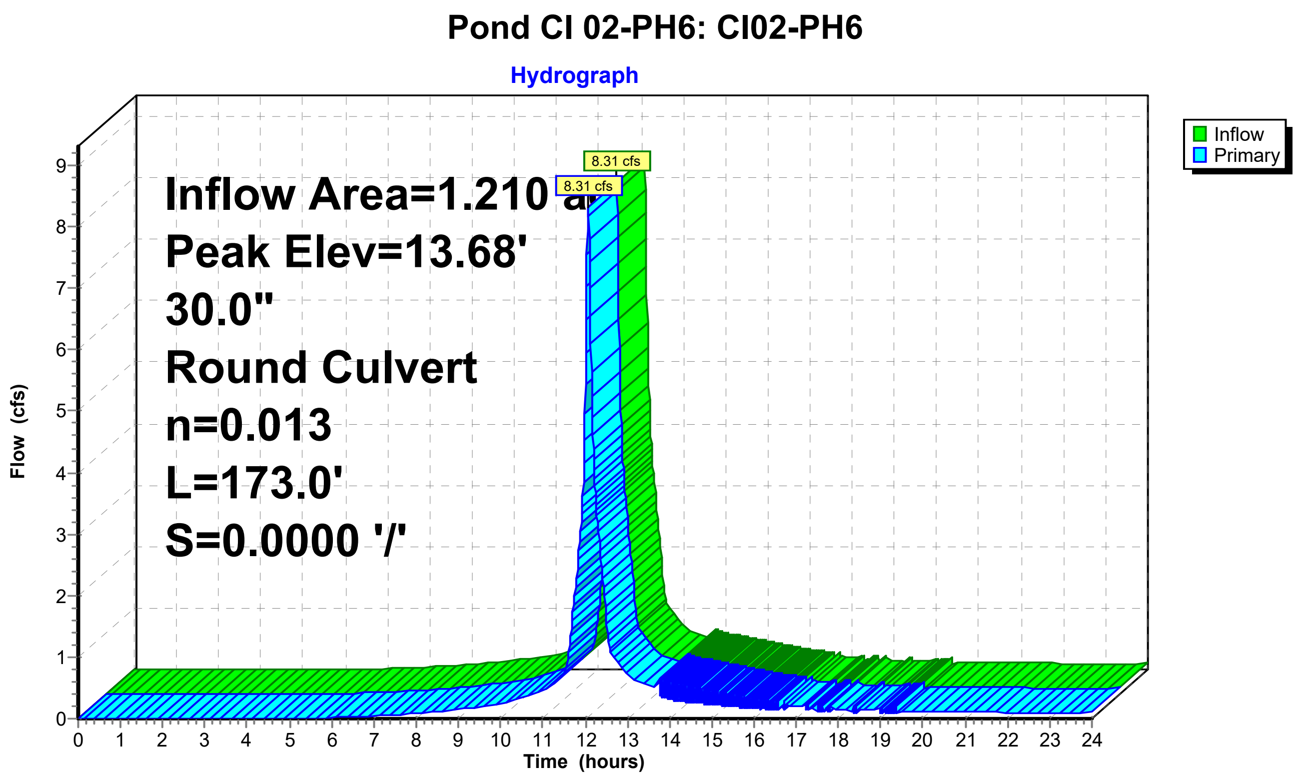
[80] Warning: Exceeded Pond CI 01-PH6 by 3.13' @ 14.27 hrs (28.69 cfs 2.916 af)

Inflow Area =	1.210 ac,	0.00% Impervious,	Inflow Depth > 5.78"	for 25 event
Inflow =	8.31 cfs @	12.07 hrs, Volume=	0.582 af	
Outflow =	8.31 cfs @	12.07 hrs, Volume=	0.582 af,	Atten= 0%, Lag= 0.0 min
Primary =	8.31 cfs @	12.07 hrs, Volume=	0.582 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.68' @ 12.60 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=7.17 cfs @ 12.07 hrs HW=12.43' TW=12.28' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 7.17 cfs @ 2.00 fps)



Summary for Pond CI 03-PH6: CI03-PH6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=384)

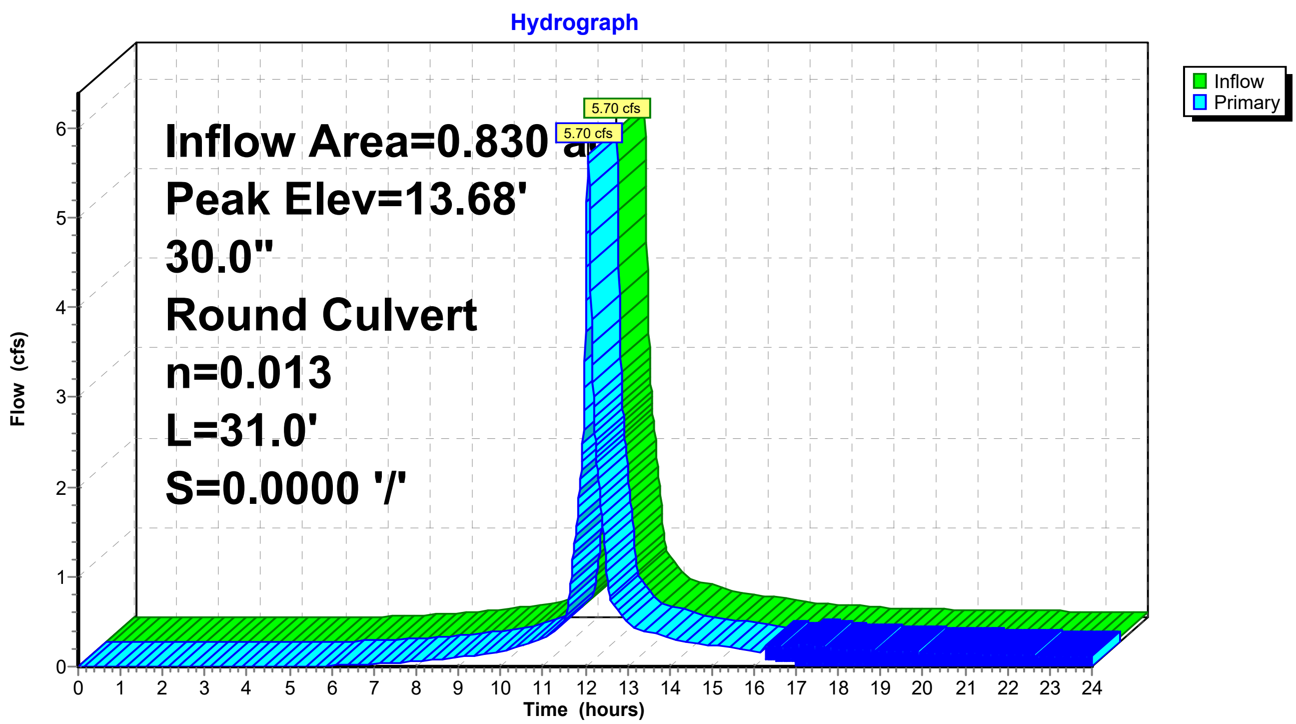
Inflow Area =	0.830 ac,	0.00% Impervious,	Inflow Depth > 5.78"	for 25 event
Inflow =	5.70 cfs @	12.07 hrs, Volume=	0.400 af	
Outflow =	5.70 cfs @	12.07 hrs, Volume=	0.400 af,	Atten= 0%, Lag= 0.0 min
Primary =	5.70 cfs @	12.07 hrs, Volume=	0.400 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.68' @ 12.61 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 31.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=2.16 cfs @ 12.07 hrs HW=12.56' TW=12.55' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 2.16 cfs @ 0.57 fps)

Pond CI 03-PH6: CI03-PH6



Summary for Pond CI 04-PH6: CI04-PH6

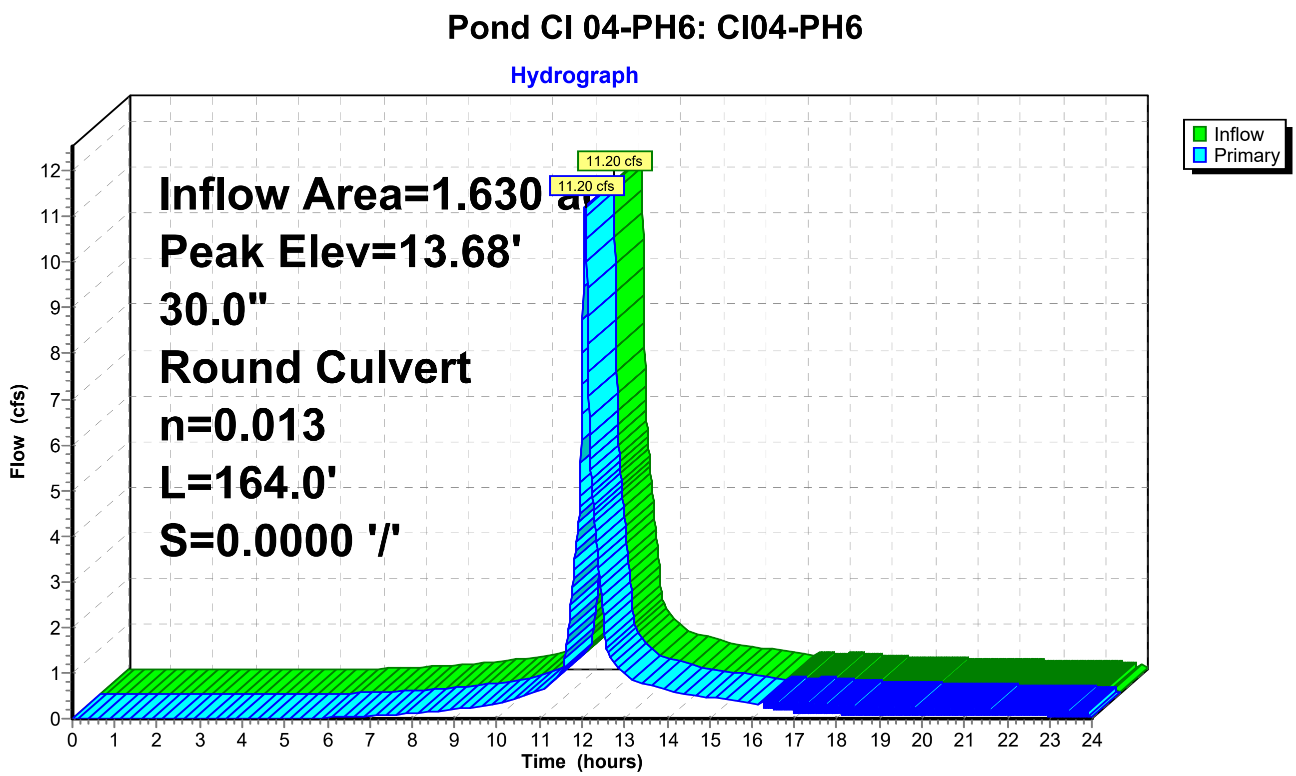
[80] Warning: Exceeded Pond CI 03-PH6 by 2.17' @ 17.12 hrs (16.69 cfs 2.693 af)

Inflow Area =	1.630 ac,	0.00% Impervious, Inflow Depth >	5.78"	for 25 event
Inflow =	11.20 cfs @	12.07 hrs, Volume=	0.785 af	
Outflow =	11.20 cfs @	12.07 hrs, Volume=	0.785 af,	Atten= 0%, Lag= 0.0 min
Primary =	11.20 cfs @	12.07 hrs, Volume=	0.785 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.68' @ 12.60 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 164.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=10.23 cfs @ 12.07 hrs HW=12.55' TW=12.28' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 10.23 cfs @ 2.71 fps)



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond CI 02-PH6 by 0.01' @ 12.24 hrs (2.89 cfs 0.060 af)
[80] Warning: Exceeded Pond POST-2P by 0.15' @ 12.36 hrs (44.19 cfs 5.967 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 5.34" for 25 event
Inflow = 159.47 cfs @ 12.12 hrs, Volume= 32.728 af
Outflow = 59.84 cfs @ 13.18 hrs, Volume= 30.922 af, Atten= 62%, Lag= 63.5 min
Primary = 59.84 cfs @ 13.18 hrs, Volume= 30.922 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 13.67' @ 12.59 hrs Surf.Area= 85,791 sf Storage= 451,232 cf (267,787 cf above start)

Plug-Flow detention time= 170.6 min calculated for 26.699 af (82% of inflow)
Center-of-Mass det. time= 59.4 min (968.9 - 909.5)

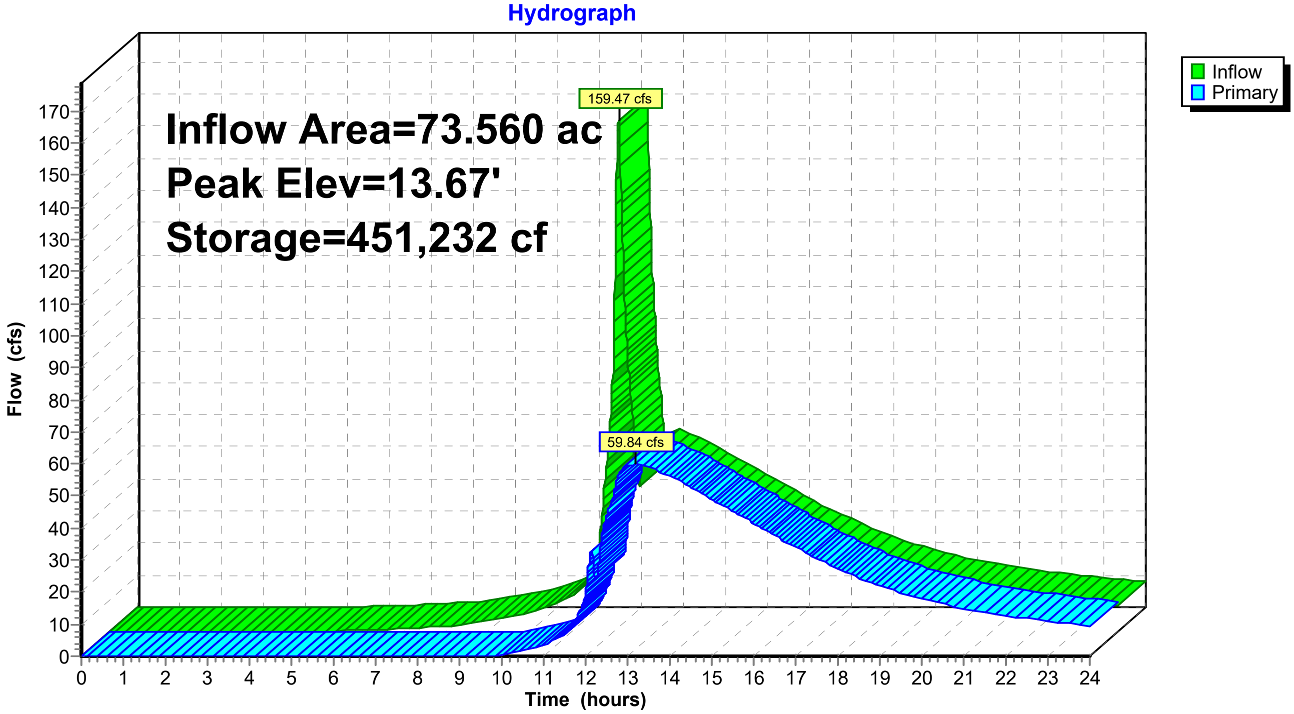
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=60.14 cfs @ 13.18 hrs HW=13.61' TW=13.33' (Dynamic Tailwater)
1=RCP_Round 36" (Outlet Controls 20.71 cfs @ 3.19 fps)
2=RCP_Round 36" (Outlet Controls 21.42 cfs @ 3.17 fps)
3=RCP_Round 36" (Outlet Controls 18.01 cfs @ 2.76 fps)

Pond POST-3P: POND 3



Summary for Subcatchment CI01-PH6: CI01-PH6

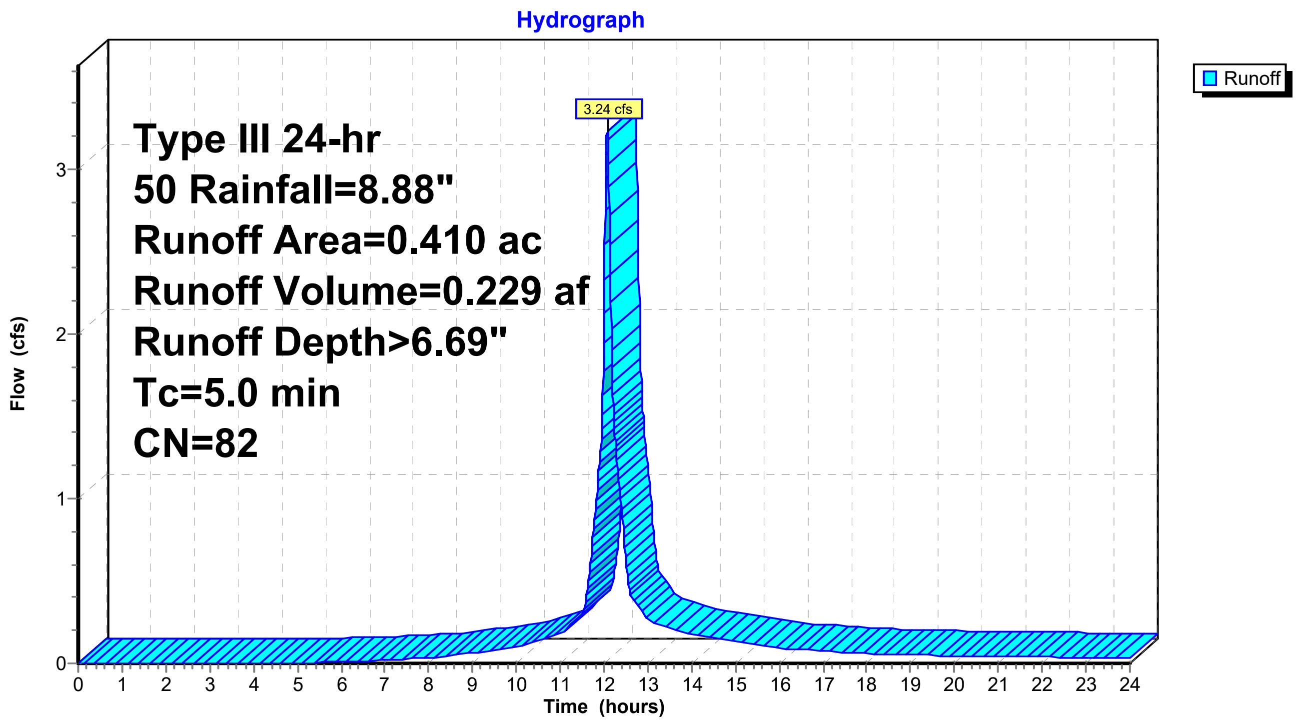
Runoff = 3.24 cfs @ 12.07 hrs, Volume= 0.229 af, Depth> 6.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	0.410	82	
	0.410		100.00% Pervious Area

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

Subcatchment CI01-PH6: CI01-PH6



Summary for Subcatchment CI02-PH6: CI02-PH6

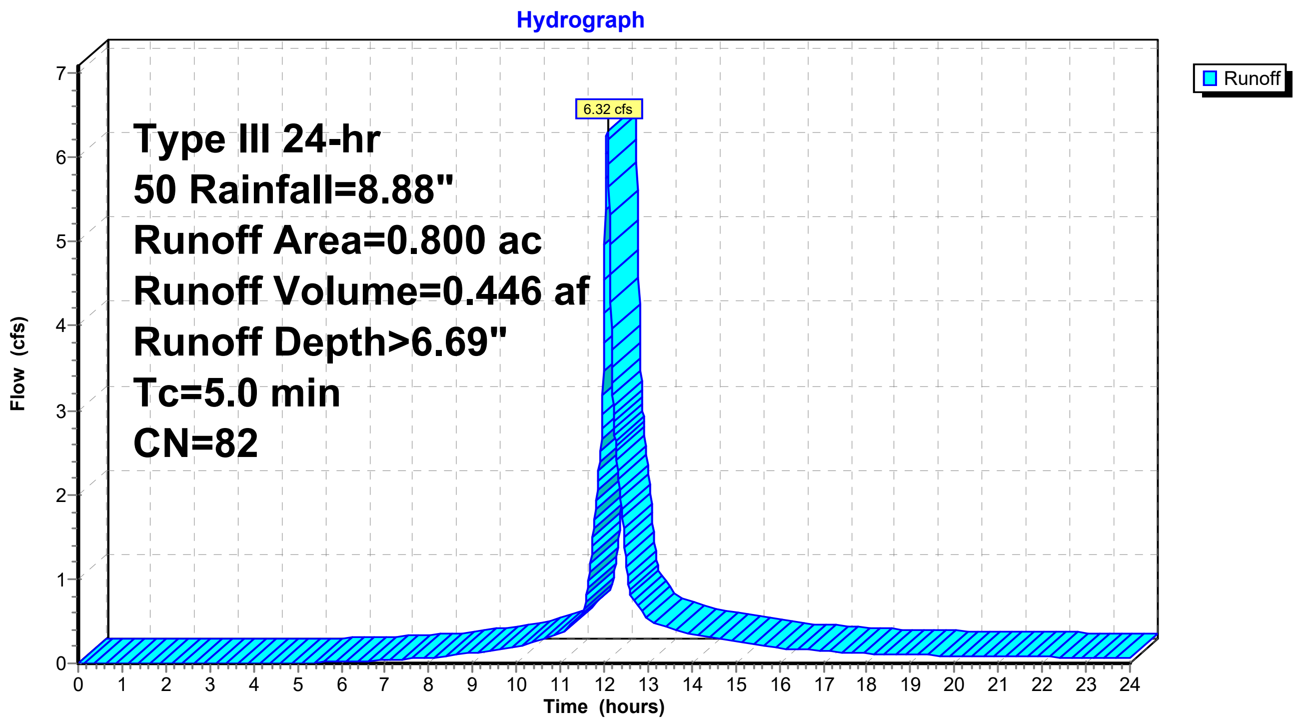
Runoff = 6.32 cfs @ 12.07 hrs, Volume= 0.446 af, Depth> 6.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI02-PH6: CI02-PH6



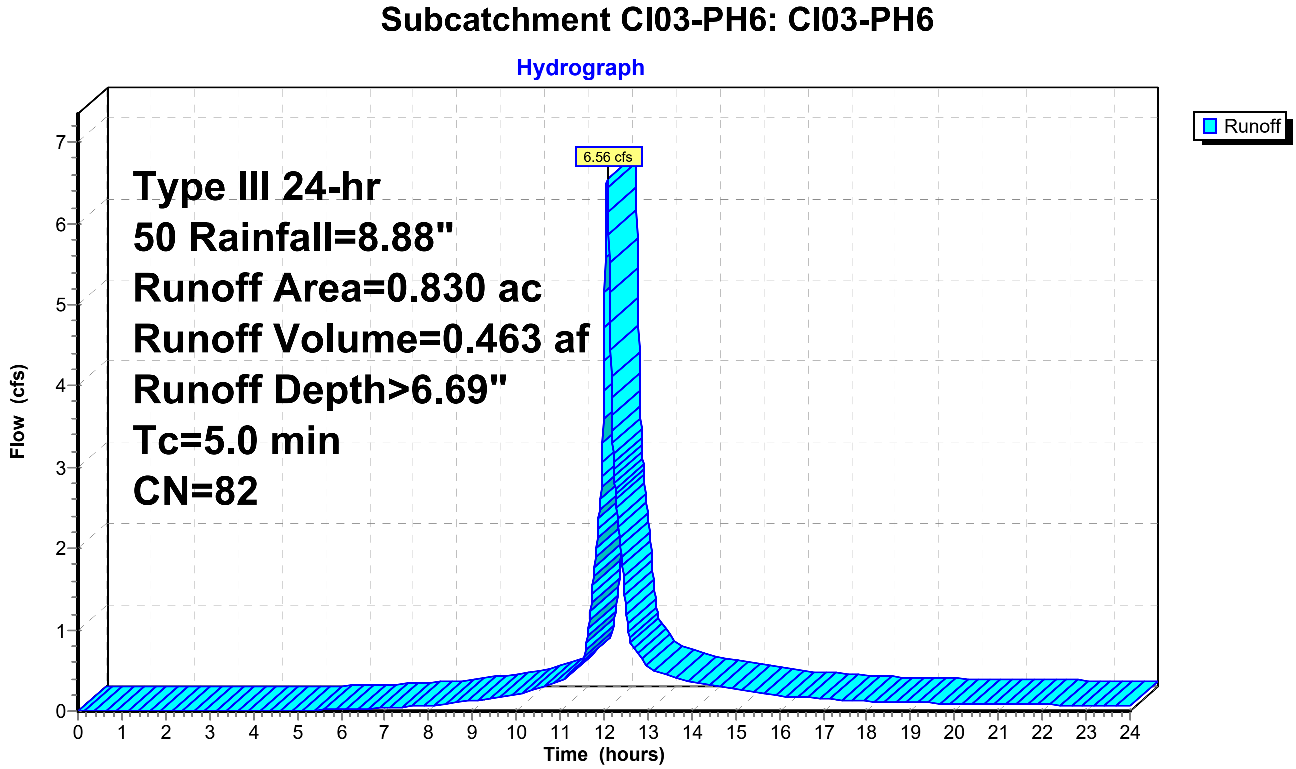
Summary for Subcatchment CI03-PH6: CI03-PH6

Runoff = 6.56 cfs @ 12.07 hrs, Volume= 0.463 af, Depth> 6.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	0.830	82	
	0.830		100.00% Pervious Area

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



Summary for Subcatchment CI04-PH6: CI04-PH6

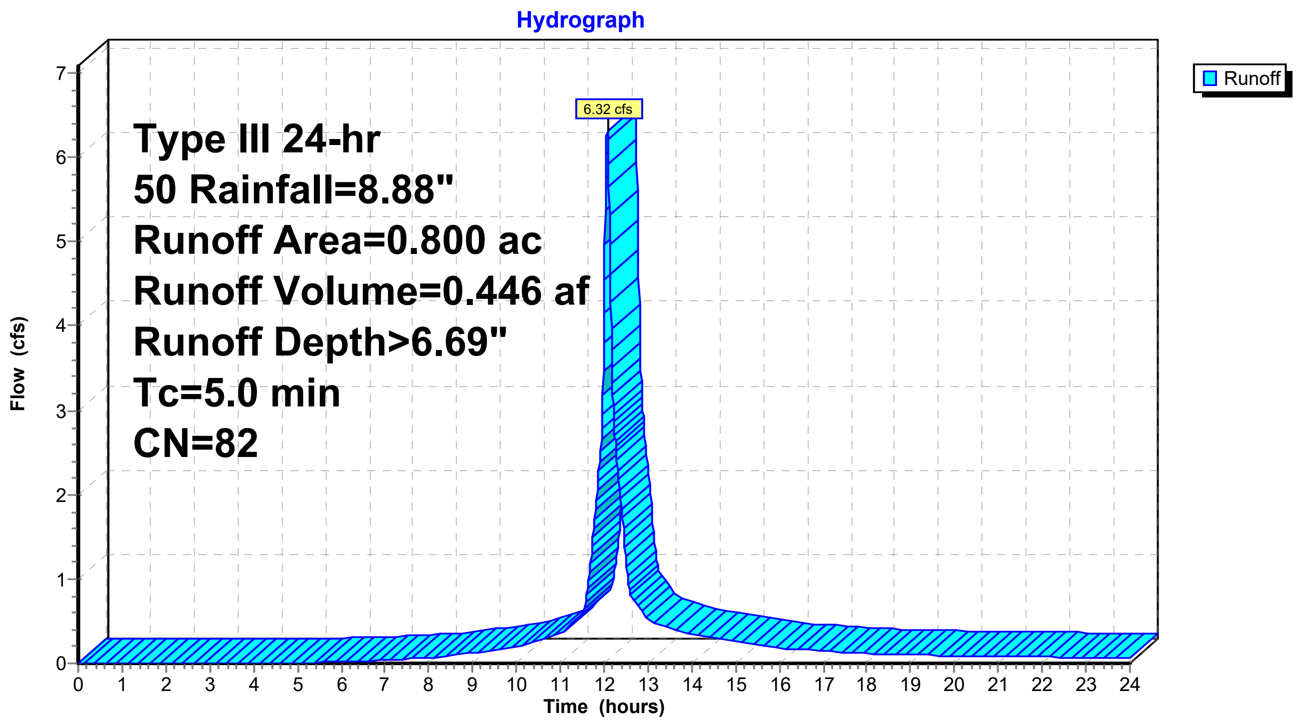
Runoff = 6.32 cfs @ 12.07 hrs, Volume= 0.446 af, Depth> 6.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI04-PH6: CI04-PH6



Summary for Pond CI 01-PH6: CI01-PH6

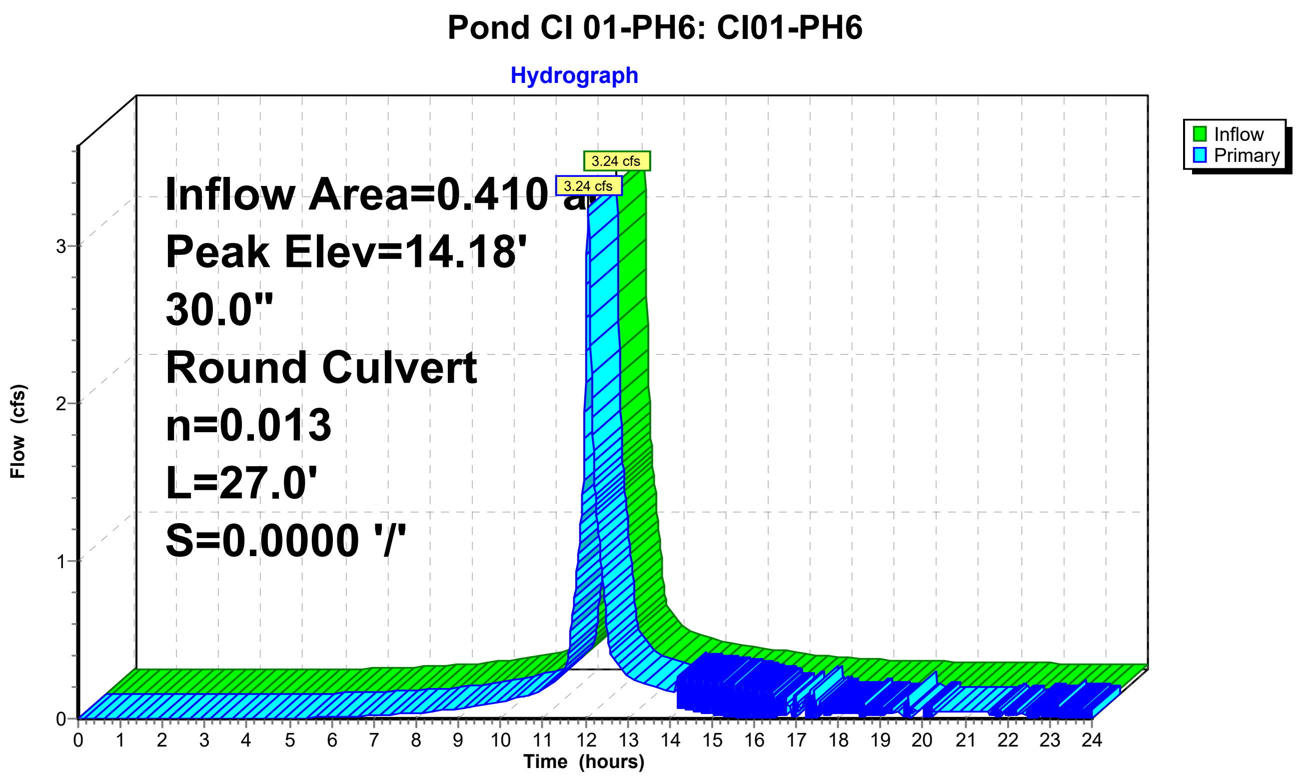
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=466)

Inflow Area =	0.410 ac,	0.00% Impervious, Inflow Depth > 6.69"	for 50 event	
Inflow =	3.24 cfs @	12.07 hrs, Volume=	0.229 af	
Outflow =	3.24 cfs @	12.07 hrs, Volume=	0.228 af,	Atten= 0%, Lag= 0.0 min
Primary =	3.24 cfs @	12.07 hrs, Volume=	0.228 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.18' @ 12.63 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=12.69' TW=12.73' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Controls 0.00 cfs)



Summary for Pond CI 02-PH6: CI02-PH6

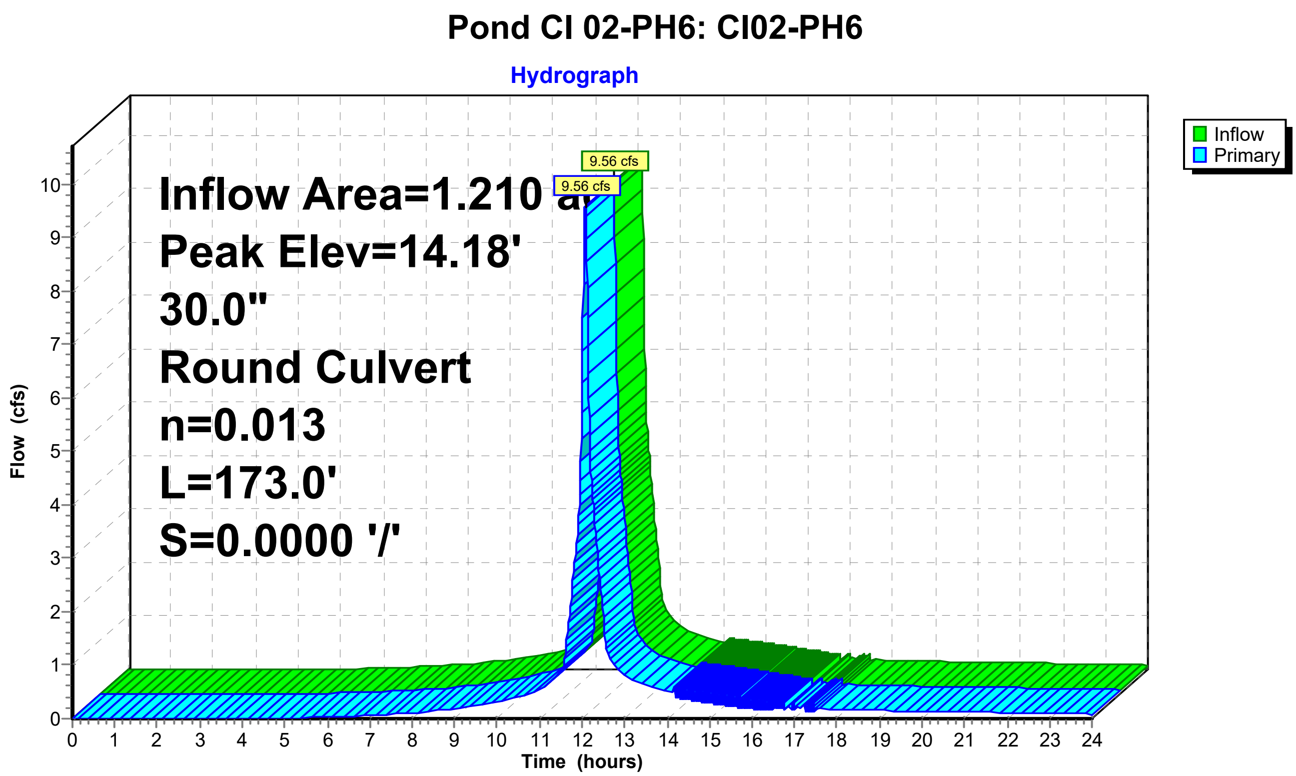
[80] Warning: Exceeded Pond CI 01-PH6 by 2.99' @ 15.71 hrs (27.27 cfs 1.956 af)

Inflow Area = 1.210 ac, 0.00% Impervious, Inflow Depth > 6.69" for 50 event
Inflow = 9.56 cfs @ 12.07 hrs, Volume= 0.675 af
Outflow = 9.56 cfs @ 12.07 hrs, Volume= 0.675 af, Atten= 0%, Lag= 0.0 min
Primary = 9.56 cfs @ 12.07 hrs, Volume= 0.675 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.18' @ 12.62 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=8.10 cfs @ 12.07 hrs HW=12.73' TW=12.58' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 8.10 cfs @ 1.99 fps)



Summary for Pond CI 03-PH6: CI03-PH6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=361)

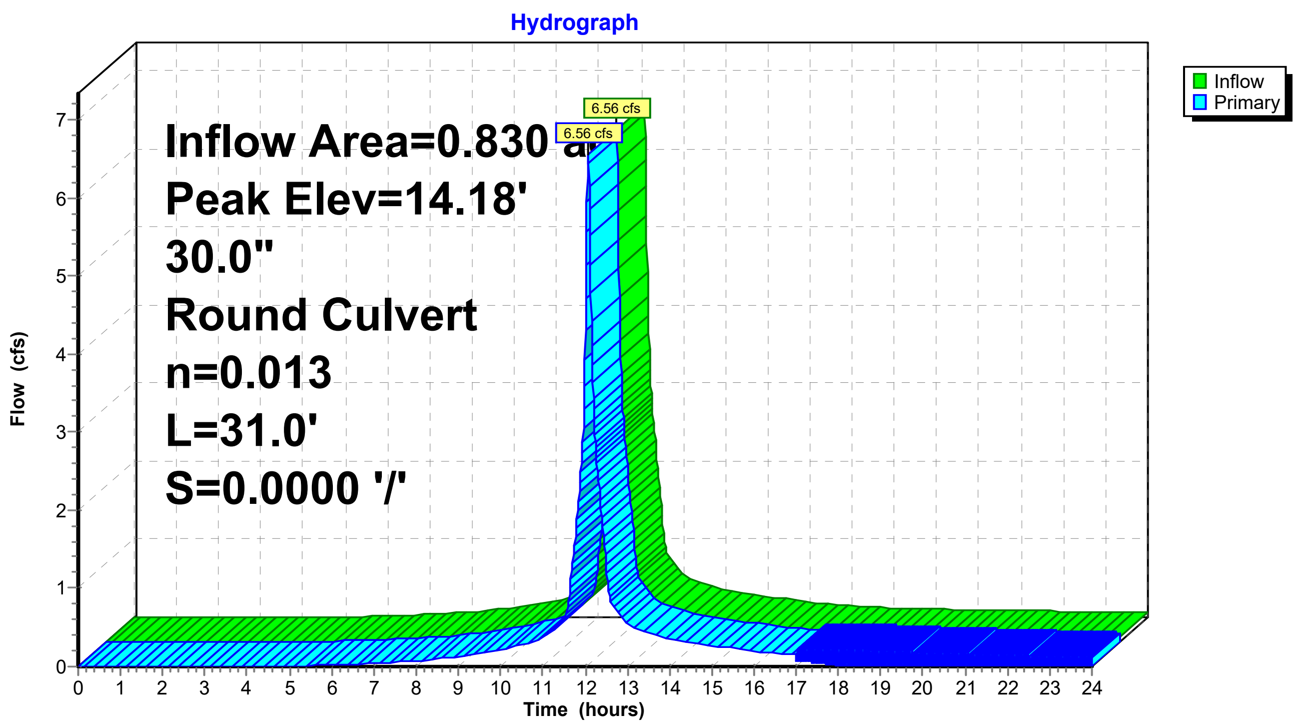
Inflow Area = 0.830 ac, 0.00% Impervious, Inflow Depth > 6.69" for 50 event
Inflow = 6.56 cfs @ 12.07 hrs, Volume= 0.463 af
Outflow = 6.56 cfs @ 12.07 hrs, Volume= 0.463 af, Atten= 0%, Lag= 0.0 min
Primary = 6.56 cfs @ 12.07 hrs, Volume= 0.463 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.18' @ 12.63 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 31.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=1.34 cfs @ 12.07 hrs HW=12.86' TW=12.86' (Dynamic Tailwater)
1=RCP_Round 30" (Outlet Controls 1.34 cfs @ 0.31 fps)

Pond CI 03-PH6: CI03-PH6



Summary for Pond CI 04-PH6: CI04-PH6

[80] Warning: Exceeded Pond CI 03-PH6 by 1.98' @ 18.61 hrs (14.19 cfs 2.258 af)

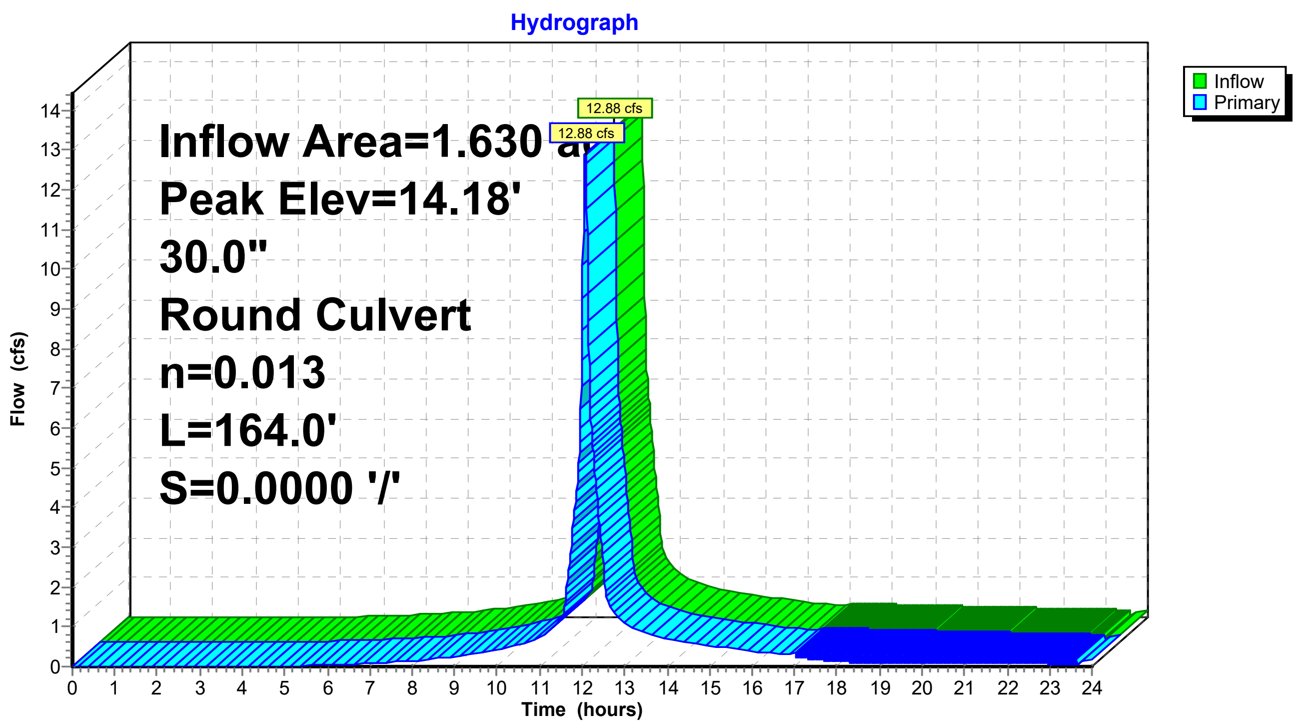
Inflow Area = 1.630 ac, 0.00% Impervious, Inflow Depth > 6.69" for 50 event
Inflow = 12.88 cfs @ 12.07 hrs, Volume= 0.909 af
Outflow = 12.88 cfs @ 12.07 hrs, Volume= 0.909 af, Atten= 0%, Lag= 0.0 min
Primary = 12.88 cfs @ 12.07 hrs, Volume= 0.909 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.18' @ 12.62 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 164.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=11.69 cfs @ 12.07 hrs HW=12.86' TW=12.58' (Dynamic Tailwater)
└─1=RCP_Round 30" (Outlet Controls 11.69 cfs @ 2.74 fps)

Pond CI 04-PH6: CI04-PH6



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond CI 02-PH6 by 0.01' @ 12.22 hrs (2.74 cfs 0.059 af)
[80] Warning: Exceeded Pond POST-2P by 0.19' @ 12.39 hrs (50.41 cfs 6.802 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 6.21" for 50 event
Inflow = 183.23 cfs @ 12.12 hrs, Volume= 38.096 af
Outflow = 66.76 cfs @ 13.41 hrs, Volume= 36.169 af, Atten= 64%, Lag= 77.6 min
Primary = 66.76 cfs @ 13.41 hrs, Volume= 36.169 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 14.17' @ 12.62 hrs Surf.Area= 89,433 sf Storage= 495,035 cf (311,590 cf above start)

Plug-Flow detention time= 159.2 min calculated for 31.945 af (84% of inflow)
Center-of-Mass det. time= 59.9 min (969.4 - 909.5)

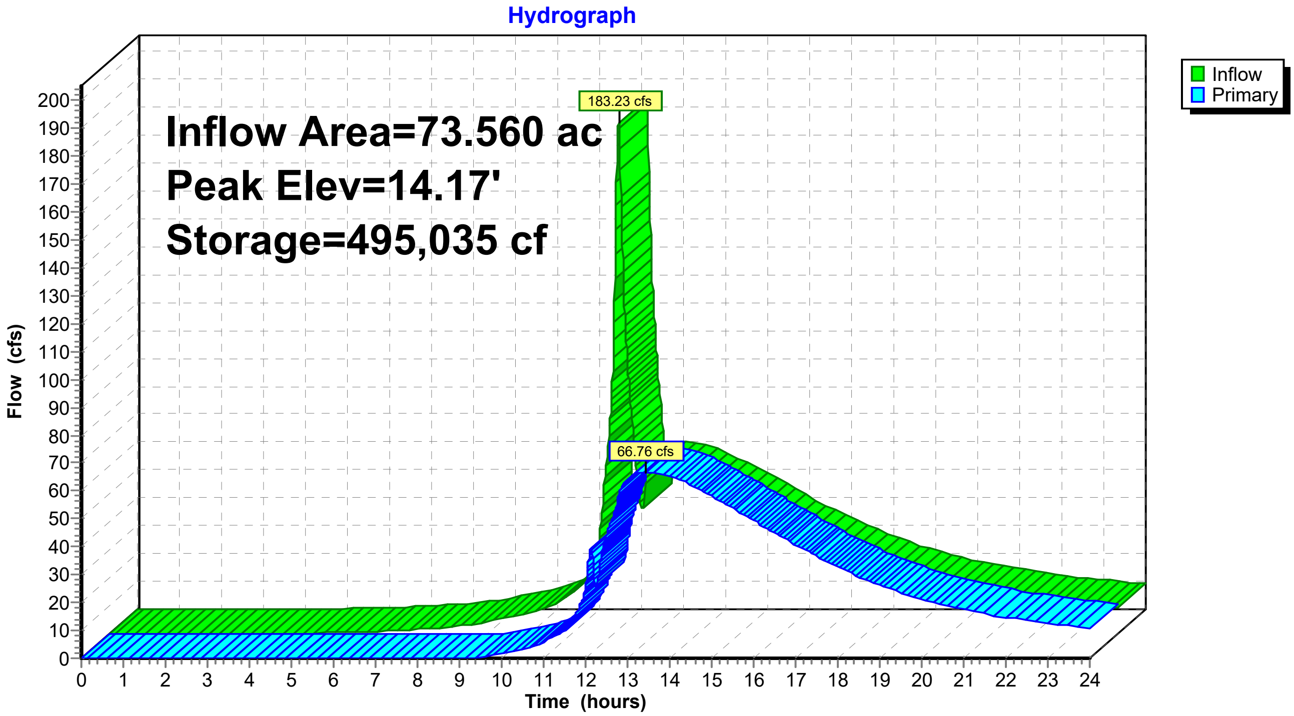
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=67.06 cfs @ 13.41 hrs HW=14.02' TW=13.69' (Dynamic Tailwater)
—**1=RCP_Round 36"** (Outlet Controls 23.63 cfs @ 3.38 fps)
—**2=RCP_Round 36"** (Outlet Controls 23.11 cfs @ 3.27 fps)
—**3=RCP_Round 36"** (Outlet Controls 20.33 cfs @ 2.90 fps)

Pond POST-3P: POND 3



Summary for Subcatchment CI01-PH6: CI01-PH6

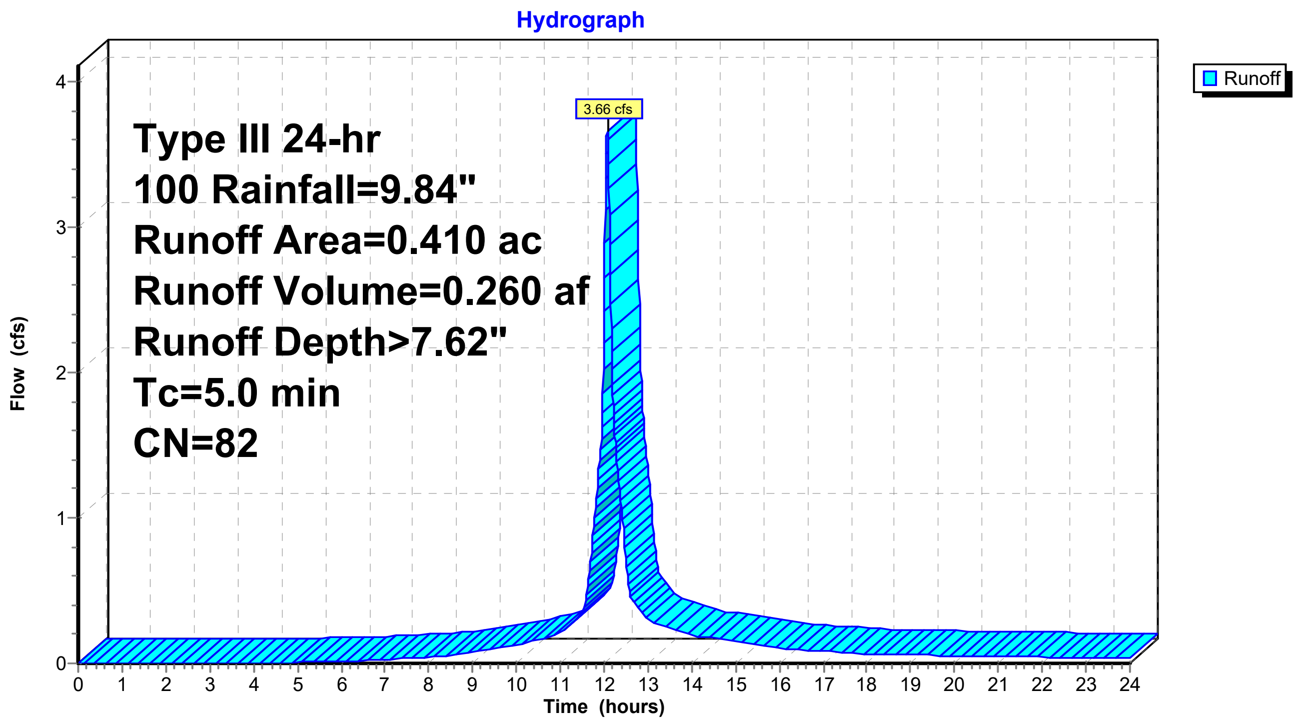
Runoff = 3.66 cfs @ 12.07 hrs, Volume= 0.260 af, Depth> 7.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	0.410	82	
	0.410		100.00% Pervious Area

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

Subcatchment CI01-PH6: CI01-PH6



Summary for Subcatchment CI02-PH6: CI02-PH6

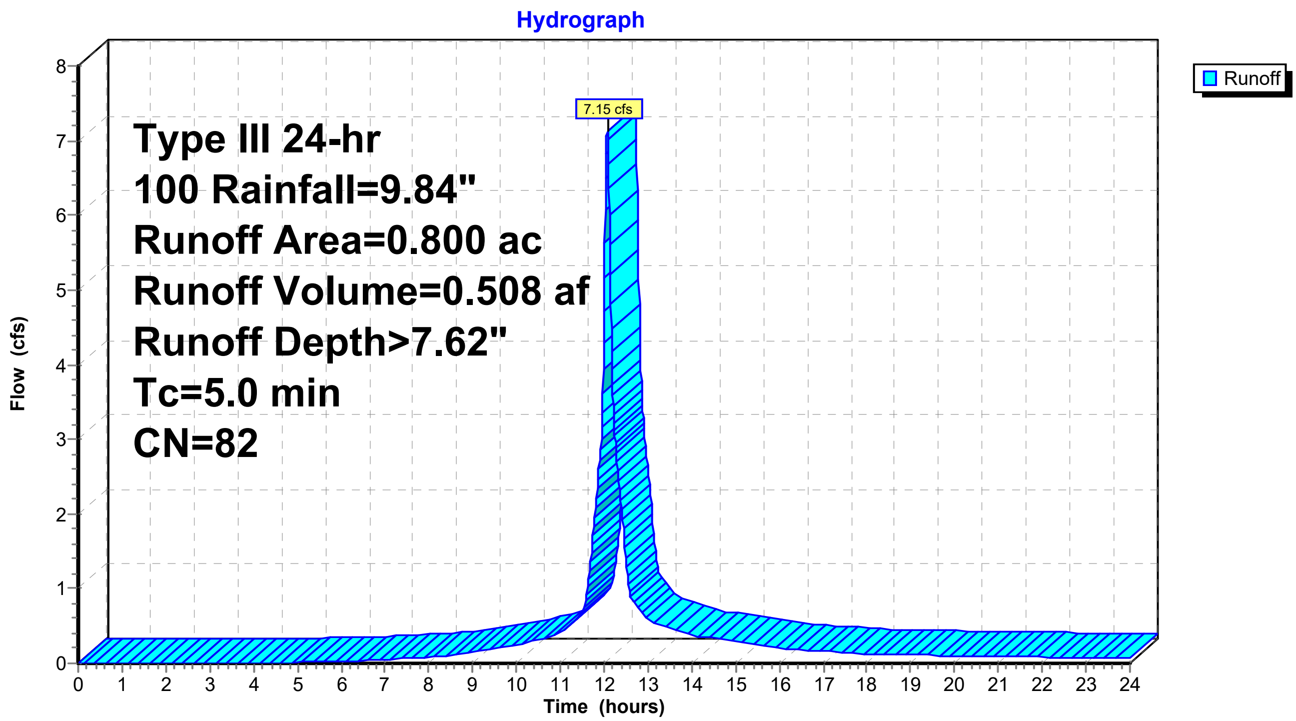
Runoff = 7.15 cfs @ 12.07 hrs, Volume= 0.508 af, Depth> 7.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI02-PH6: CI02-PH6



Summary for Subcatchment CI03-PH6: CI03-PH6

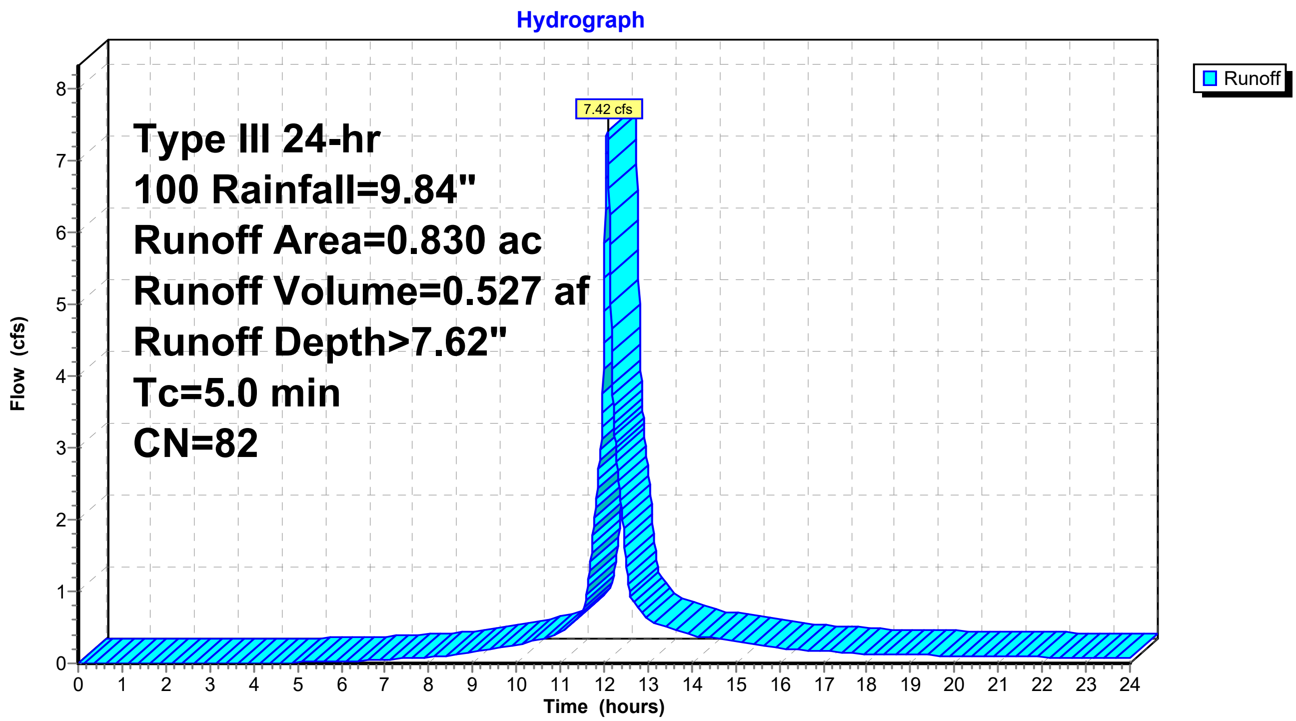
Runoff = 7.42 cfs @ 12.07 hrs, Volume= 0.527 af, Depth> 7.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	0.830	82	
	0.830		100.00% Pervious Area

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

Subcatchment CI03-PH6: CI03-PH6



Summary for Subcatchment CI04-PH6: CI04-PH6

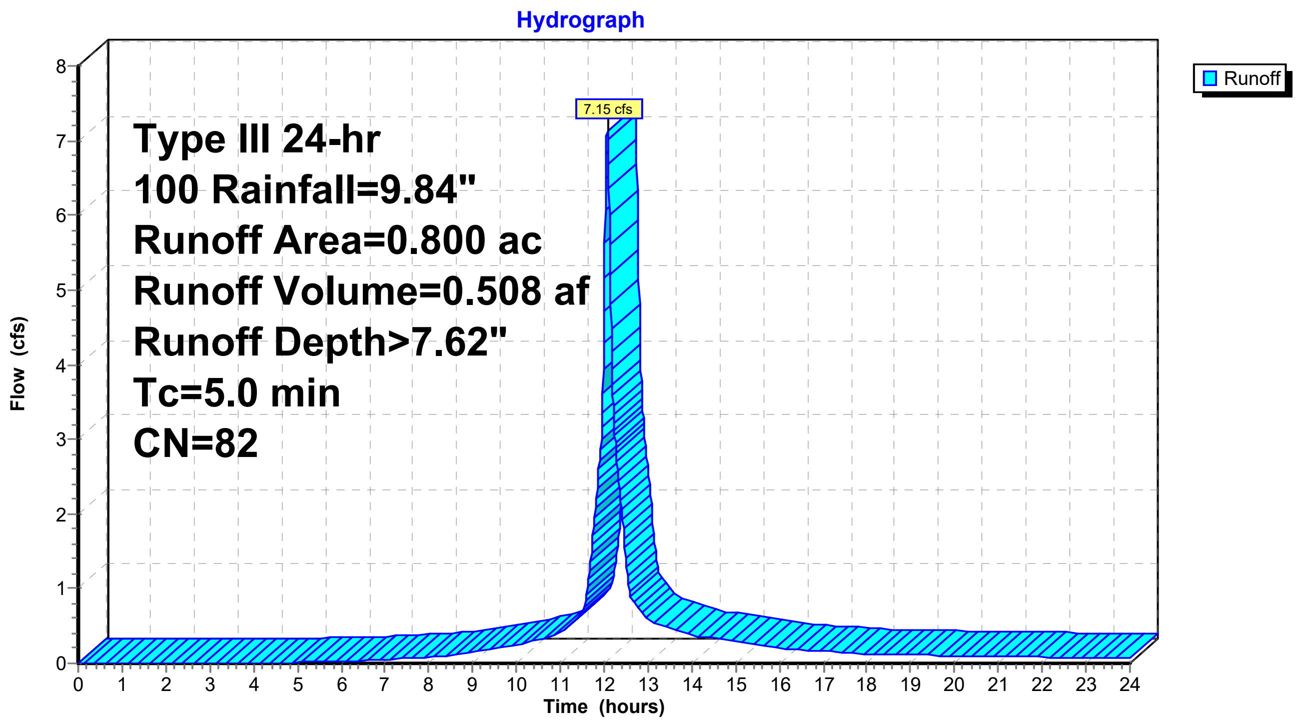
Runoff = 7.15 cfs @ 12.07 hrs, Volume= 0.508 af, Depth> 7.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI04-PH6: CI04-PH6



Summary for Pond CI 01-PH6: CI01-PH6

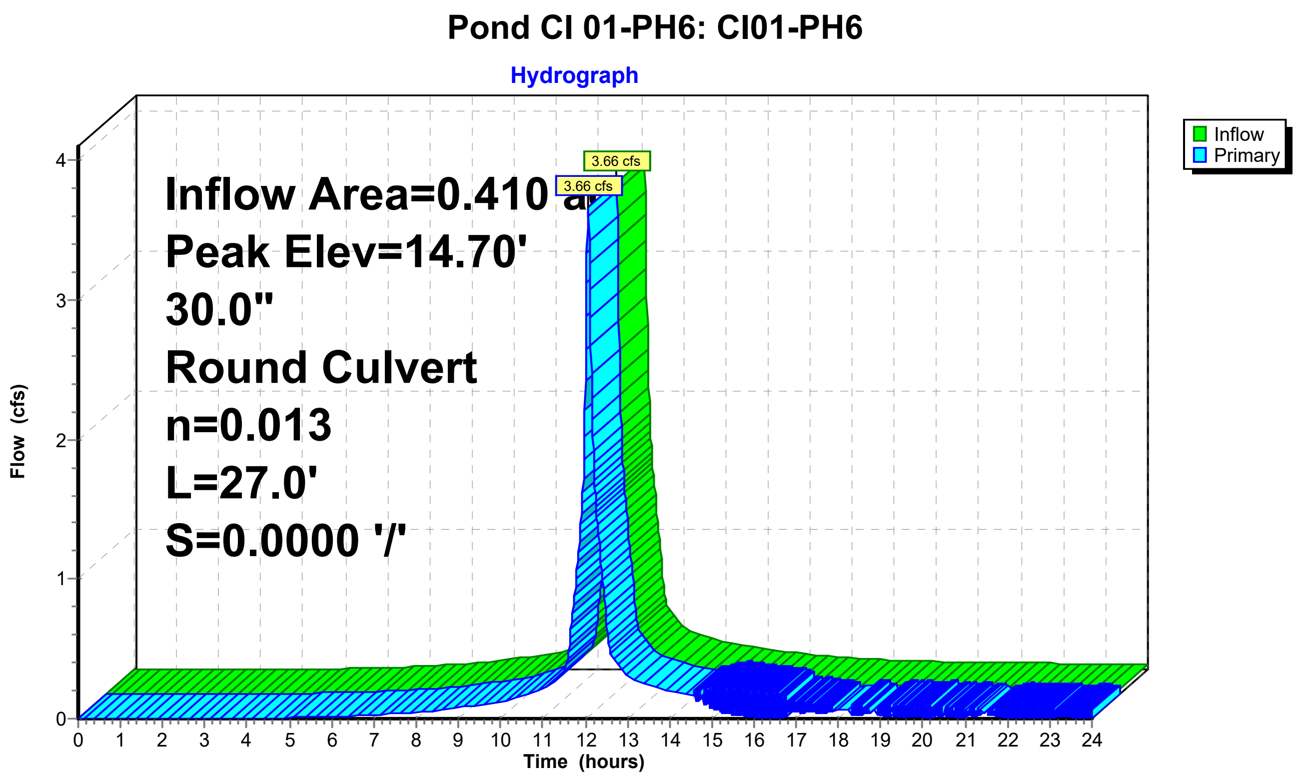
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=439)

Inflow Area =	0.410 ac,	0.00% Impervious,	Inflow Depth > 7.62"	for 100 event
Inflow =	3.66 cfs @	12.07 hrs, Volume=	0.260 af	
Outflow =	3.66 cfs @	12.07 hrs, Volume=	0.260 af,	Atten= 0%, Lag= 0.0 min
Primary =	3.66 cfs @	12.07 hrs, Volume=	0.260 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.70' @ 12.66 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=12.99' TW=13.03' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Controls 0.00 cfs)



Summary for Pond CI 02-PH6: CI02-PH6

[80] Warning: Exceeded Pond CI 01-PH6 by 3.09' @ 16.34 hrs (28.31 cfs 1.626 af)

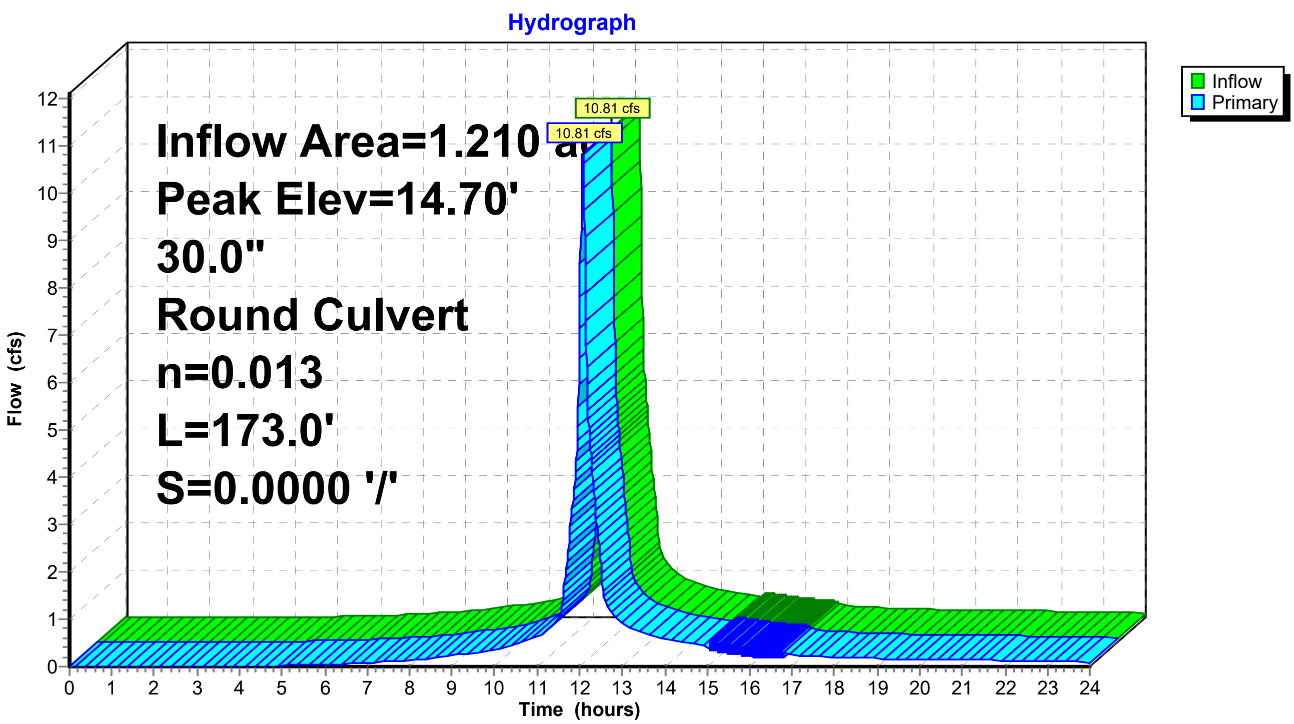
Inflow Area =	1.210 ac,	0.00% Impervious, Inflow Depth > 7.61"	for 100 event	
Inflow =	10.81 cfs @	12.07 hrs, Volume=	0.767 af	
Outflow =	10.81 cfs @	12.07 hrs, Volume=	0.767 af,	Atten= 0%, Lag= 0.0 min
Primary =	10.81 cfs @	12.07 hrs, Volume=	0.767 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.70' @ 12.65 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=9.10 cfs @ 12.07 hrs HW=13.03' TW=12.87' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 9.10 cfs @ 2.02 fps)

Pond CI 02-PH6: CI02-PH6



Summary for Pond CI 03-PH6: CI03-PH6

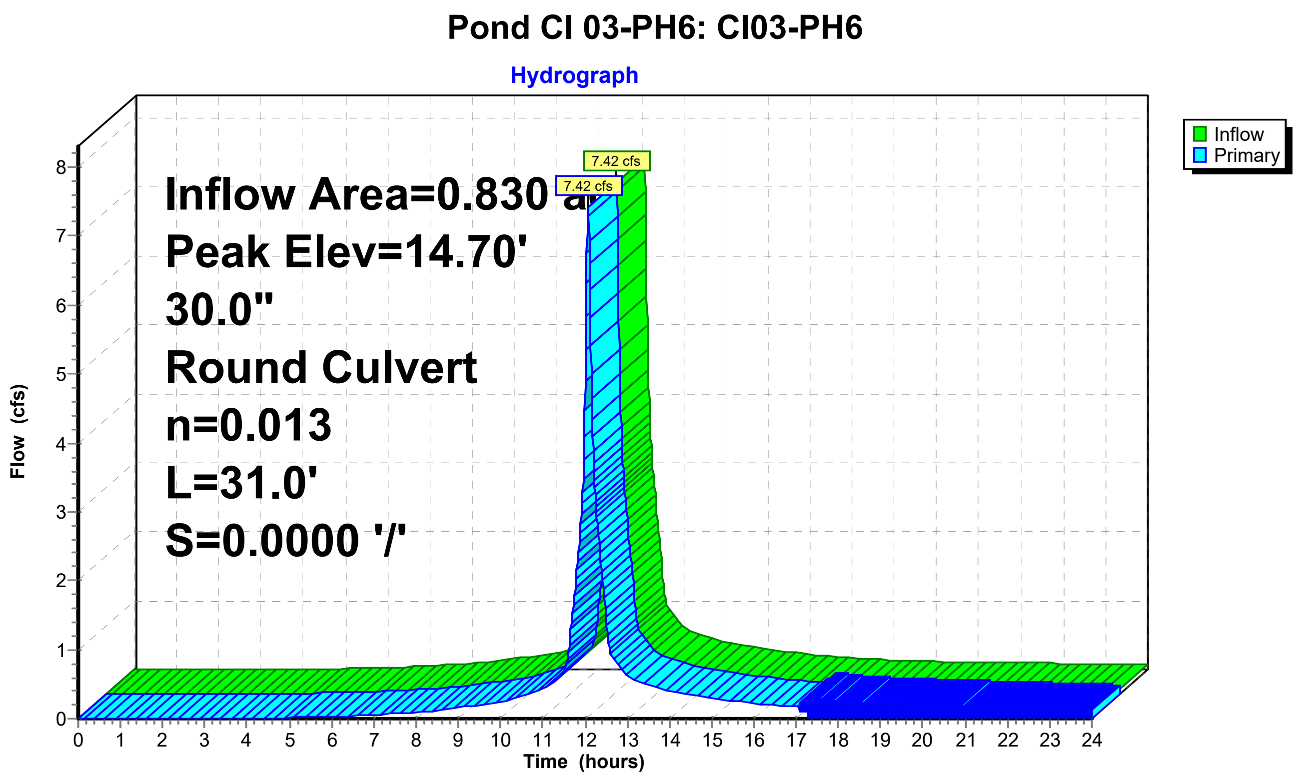
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=346)

Inflow Area =	0.830 ac,	0.00% Impervious,	Inflow Depth > 7.62"	for 100 event
Inflow =	7.42 cfs @	12.07 hrs, Volume=	0.527 af	
Outflow =	7.42 cfs @	12.07 hrs, Volume=	0.527 af,	Atten= 0%, Lag= 0.0 min
Primary =	7.42 cfs @	12.07 hrs, Volume=	0.527 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.70' @ 12.66 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 31.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=1.95 cfs @ 12.07 hrs HW=13.18' TW=13.17' (Dynamic Tailwater)
1=RCP_Round 30" (Inlet Controls 1.95 cfs @ 0.40 fps)



Summary for Pond CI 04-PH6: CI04-PH6

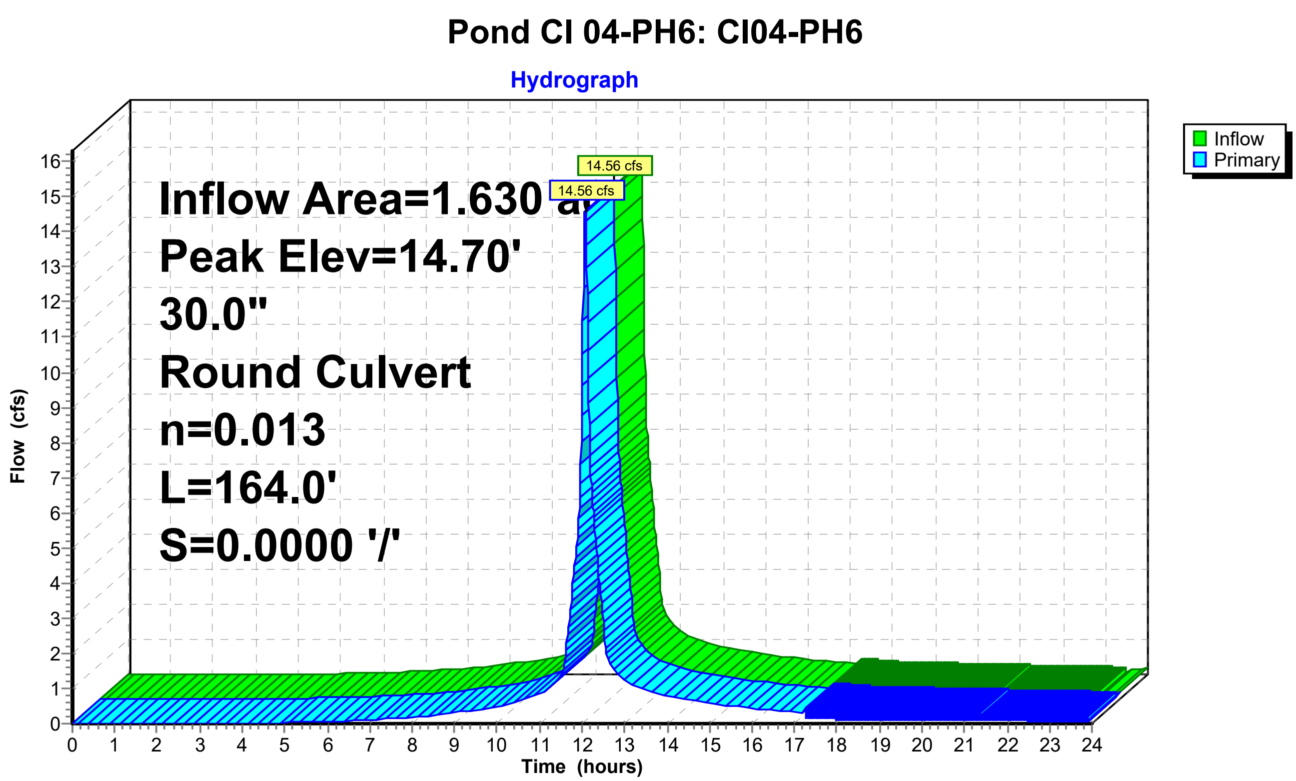
[80] Warning: Exceeded Pond CI 03-PH6 by 2.58' @ 17.55 hrs (22.09 cfs 3.417 af)

Inflow Area =	1.630 ac,	0.00% Impervious,	Inflow Depth > 7.62"	for 100 event
Inflow =	14.56 cfs @	12.07 hrs, Volume=	1.034 af	
Outflow =	14.56 cfs @	12.07 hrs, Volume=	1.034 af,	Atten= 0%, Lag= 0.0 min
Primary =	14.56 cfs @	12.07 hrs, Volume=	1.034 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.70' @ 12.65 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 164.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=13.22 cfs @ 12.07 hrs HW=13.17' TW=12.87' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 13.22 cfs @ 2.83 fps)



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond CI 02-PH6 by 0.01' @ 12.26 hrs (2.26 cfs 0.056 af)
[80] Warning: Exceeded Pond POST-2P by 0.28' @ 12.44 hrs (60.57 cfs 7.895 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 7.09" for 100 event
Inflow = 205.97 cfs @ 12.12 hrs, Volume= 43.492 af
Outflow = 72.34 cfs @ 13.99 hrs, Volume= 41.440 af, Atten= 65%, Lag= 112.2 min
Primary = 72.34 cfs @ 13.99 hrs, Volume= 41.440 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 14.70' @ 12.64 hrs Surf.Area= 93,240 sf Storage= 542,747 cf (359,303 cf above start)

Plug-Flow detention time= 151.8 min calculated for 37.228 af (86% of inflow)
Center-of-Mass det. time= 61.3 min (972.6 - 911.4)

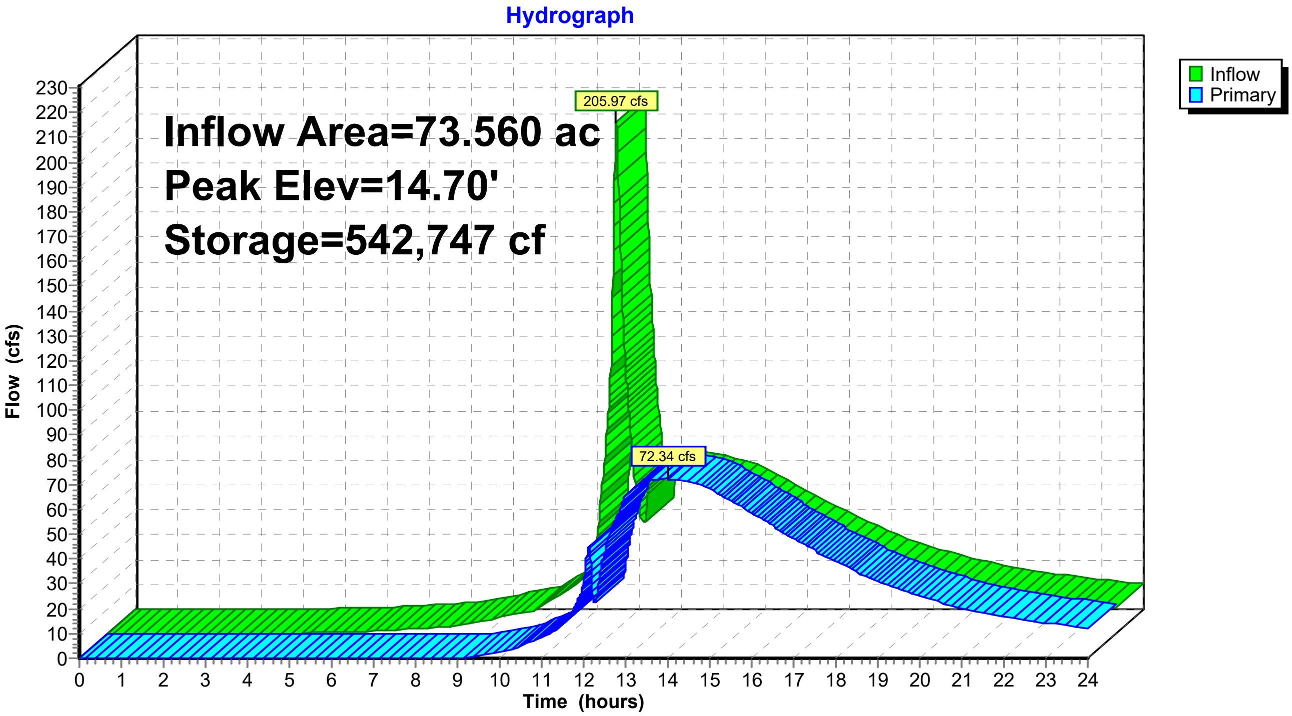
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=72.71 cfs @ 13.99 hrs HW=14.31' TW=13.91' (Dynamic Tailwater)
—**1=RCP_Round 36"** (Outlet Controls 25.51 cfs @ 3.61 fps)
—**2=RCP_Round 36"** (Outlet Controls 25.51 cfs @ 3.61 fps)
—**3=RCP_Round 36"** (Outlet Controls 21.70 cfs @ 3.07 fps)

Pond POST-3P: POND 3



Appendix I: NRCS Soils Report and Maps


81° 12' 30" W
81° 11' 26" W
32° 14' 22" N
32° 13' 9" N
480400
480600
480800
481000
481200
481400
481600
481800
482000
3566900
3566700
3566500
3566300
3566100
3565900
3565700
3565500
3565300
3565100
3564900
PeA
Moore Rd
Cc
BdA
Pn
SuA
W
Pl
Oj
21
Ok
Little-Hearst Branch
Soil Map may not be valid at this scale.
Map Scale: 1:10,900 if printed on A portrait (8.5" x 11") sheet.
Meters
0 150 300 600 900
Feet
0 500 1000 2000 3000
N
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Apr 22, 2020—May 1, 2020

MAP LEGEND

MAP INFORMATION

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Cc	Cape Fear soils	110.3	33.1%
Oj	Ocilla complex	13.3	4.0%
Ok	Ogeechee loamy fine sand	10.3	3.1%
Pl	Pelham loamy sand, 0 to 2 percent slopes, frequently flooded	41.7	12.5%
Pn	Pooler fine sandy loam	129.5	38.8%
W	Water	9.1	2.7%
Subtotals for Soil Survey Area		**314.3**	**94.2%**
Totals for Area of Interest		**333.6**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BdA	Bladen fine sandy loam, 0 to 2 percent slopes	12.6	3.8%
PeA	Pelham loamy sand, 0 to 2 percent slopes	1.9	0.6%
SuA	Surrency mucky sand, 0 to 1 percent slopes, frequently flooded	4.7	1.4%
Subtotals for Soil Survey Area		**19.3**	**5.8%**
Totals for Area of Interest		**333.6**	**100.0%**

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named, soils that are similar to the named components, and some minor components that differ in use and management from the major soils.

Most of the soils similar to the major components have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Some minor components, however, have properties and behavior characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Effingham County, Georgia

BdA—Bladen fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1v33t
Elevation: 20 to 130 feet
Mean annual precipitation: 49 to 52 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 237 to 245 days

Farmland classification: Not prime farmland

Map Unit Composition

Bladen and similar soils: 80 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bladen

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear, convex, concave
Across-slope shape: Linear
Parent material: Clayey fluviomarine deposits

Typical profile

A - 0 to 7 inches: fine sandy loam
E - 7 to 14 inches: fine sandy loam
Btg - 14 to 80 inches: clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named, soils that are similar to the named components, and some minor components that differ in use and management from the major soils.

Most of the soils similar to the major components have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Some minor components, however, have properties and behavior characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

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Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Bryan and Chatham Counties, Georgia

Cc—Cape Fear soils

Map Unit Setting

National map unit symbol: 46g5
Elevation: 0 to 50 feet
Mean annual precipitation: 44 to 52 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 230 to 290 days

Farmland classification: Not prime farmland

Map Unit Composition

Cape fear and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cape Fear

Setting

Landform: Drainageways, depressions
Down-slope shape: Linear, concave
Across-slope shape: Concave
Parent material: Marine deposits

Typical profile

H1 - 0 to 16 inches: loam
H2 - 16 to 52 inches: clay
H3 - 52 to 62 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water capacity: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named, soils that are similar to the named components, and some minor components that differ in use and management from the major soils.

Most of the soils similar to the major components have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Some minor components, however, have properties and behavior characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

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Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Bryan and Chatham Counties, Georgia

Oj—Ocilla complex

Map Unit Setting

National map unit symbol: 46gt
Elevation: 10 to 450 feet
Mean annual precipitation: 44 to 52 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 230 to 290 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Ocilla and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ocilla

Setting

Landform: Interfluves
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Marine deposits

Typical profile

H1 - 0 to 28 inches: loamy fine sand
H2 - 28 to 59 inches: sandy clay loam
H3 - 59 to 67 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 12 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: R153AY001GA - Loamy Rise, Moderately Wet
Hydric soil rating: No

Minor Components

Ellabelle

Percent of map unit: 3 percent
Landform: Depressions, drainageways
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Pelham

Percent of map unit: 2 percent
Landform: Depressions, flats
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

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An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

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Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Bryan and Chatham Counties, Georgia

Ok—Ogeechee loamy fine sand

Map Unit Setting

National map unit symbol: 46gw
Elevation: 10 to 50 feet
Mean annual precipitation: 44 to 52 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 230 to 290 days

Farmland classification: Not prime farmland

Map Unit Composition

Ogeechee and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ogeechee

Setting

Landform: Flats, depressions, drainageways
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Marine deposits

Typical profile

H1 - 0 to 8 inches: loamy fine sand
H2 - 8 to 23 inches: sandy clay loam
H3 - 23 to 42 inches: sandy clay
H4 - 42 to 60 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Available water capacity: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

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Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

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Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Effingham County, Georgia

PeA—Pelham loamy sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tzk8
Elevation: 0 to 180 feet
Mean annual precipitation: 40 to 62 inches
Mean annual air temperature: 51 to 78 degrees F
Frost-free period: 189 to 272 days

Farmland classification: Not prime farmland

Map Unit Composition

Pelham and similar soils: 95 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pelham

Setting

Landform: Flatwoods
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 6 inches: loamy sand
Eg - 6 to 33 inches: loamy sand
Btg1 - 33 to 41 inches: sandy loam
Btg2 - 41 to 66 inches: sandy clay loam
Cg - 66 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Surrency

Percent of map unit: 2 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G153AA245FL)

Hydric soil rating: Yes

Rains

Percent of map unit: 1 percent
Landform: Flatwoods
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pickney

Percent of map unit: 1 percent
Landform: Depressions, drainageways
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Map Unit Description

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Most of the soils similar to the major components have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Some minor components, however, have properties and behavior characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

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Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Bryan and Chatham Counties, Georgia

Pl—Pelham loamy sand, 0 to 2 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2tg59
Elevation: 0 to 300 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 54 to 78 degrees F

Frost-free period: 209 to 317 days
Farmland classification: Not prime farmland

Map Unit Composition

Pelham, frequently flooded, and similar soils: 95 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pelham, Frequently Flooded

Setting

Landform: Drainageways, depressions, flatwoods
Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 6 inches: loamy sand
Eg - 6 to 33 inches: loamy sand
Btg1 - 33 to 41 inches: sandy loam
Btg2 - 41 to 66 inches: sandy clay loam
Cg - 66 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Surrency, frequently ponded

Percent of map unit: 2 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave

Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G153AA245FL)
Hydric soil rating: Yes

Rains

Percent of map unit: 1 percent
Landform: Flatwoods
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pickney, frequently ponded

Percent of map unit: 1 percent
Landform: Depressions, drainageways
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Map Unit Description

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Bryan and Chatham Counties, Georgia

Pn—Pooler fine sandy loam

Map Unit Setting

National map unit symbol: 46h1
Elevation: 20 to 100 feet
Mean annual precipitation: 44 to 52 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 230 to 290 days

Farmland classification: Not prime farmland

Map Unit Composition

Pooler and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pooler

Setting

Landform: Depressions, flats
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Marine deposits

Typical profile

H1 - 0 to 6 inches: fine sandy loam
H2 - 6 to 12 inches: sandy clay loam
H3 - 12 to 52 inches: clay
H4 - 52 to 72 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Map Unit Description

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Effingham County, Georgia

SuA—Surrency mucky sand, 0 to 1 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 1v34l
Elevation: 20 to 50 feet
Mean annual precipitation: 49 to 52 inches
Mean annual air temperature: 64 to 66 degrees F

Frost-free period: 237 to 245 days
Farmland classification: Not prime farmland

Map Unit Composition

Surrency and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Surrency

Setting

Landform: Depressions, drainageways
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Loamy marine deposits over sandy marine deposits

Typical profile

A - 0 to 22 inches: mucky sand
Btg1 - 22 to 35 inches: sandy loam
Btg2 - 35 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: FrequentNone
Frequency of ponding: Frequent
Available water capacity: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

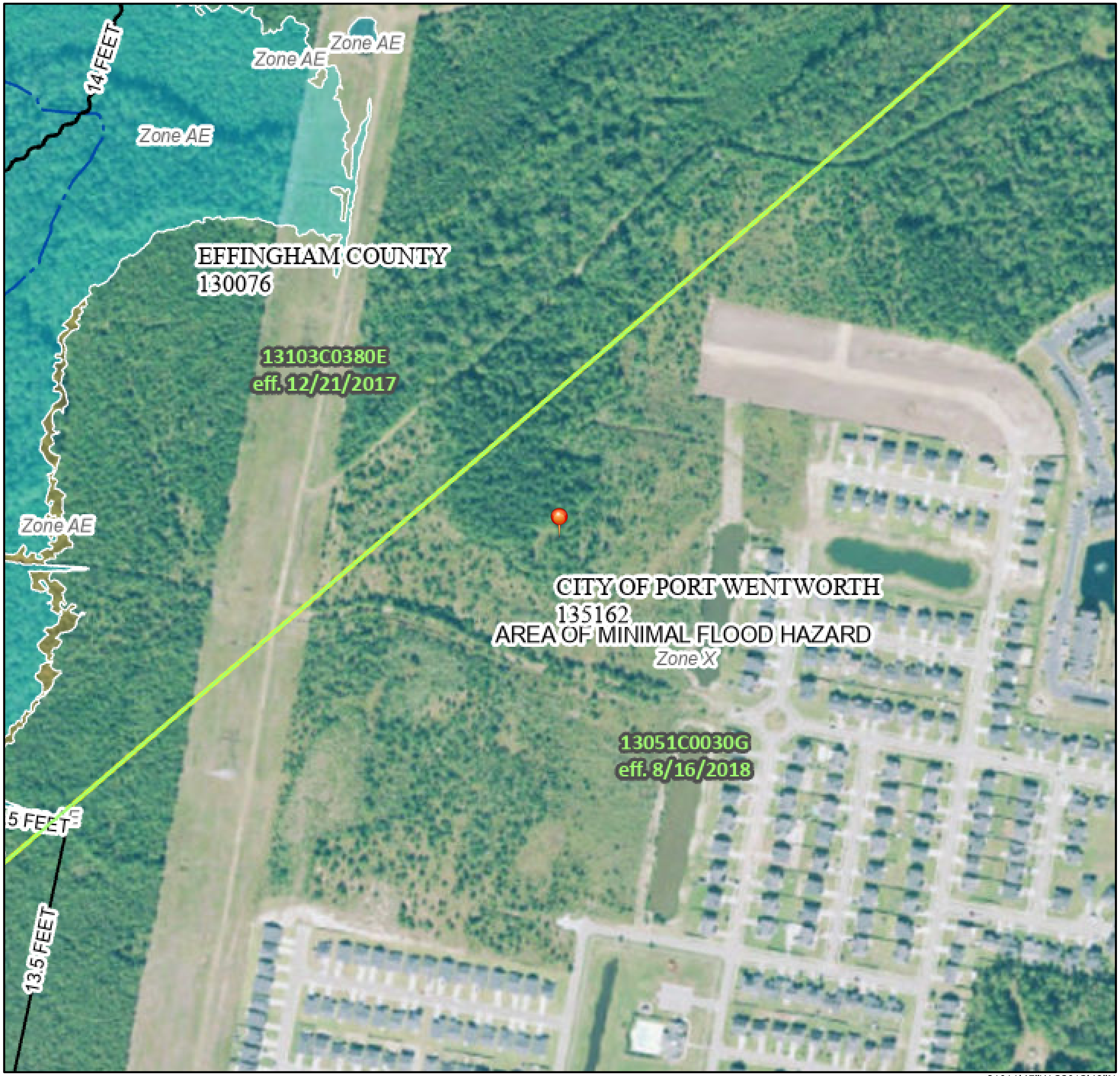
Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Appendix J: FEMA Firmette Flood Zone Map

National Flood Hazard Layer FIRMette

FEMA

81°12'23"W 32°14'11"N



81°11'45"W 32°13'40"N

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

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

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
- B 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 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 2/26/2021 at 4:33 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.

City Council
7224 GA Highway 21
Port Wentworth, GA 31407

SCHEDULED

Meeting: 03/24/22 07:00 PM
Department: Development Services
Category: Planning/Zoning Item
Prepared By: Melanie Ellis
Department Head: Brian Harvey

AGENDA ITEM (ID # 2626)

DOC ID: 2626

Subdivision Application submitted by Jessica Vick, Roberts Civil Engineering, LLC., on behalf of Landmark 24 Homes of Savannah, LLC., for PIN # 7-0906-01-031 (Miller Park Circle) located in a P-R-M (Planned Residential Multi-Family) Zoning District for a Preliminary Plat of a Major Subdivision (Rice Creek Tract C-1 Phase VI) for the purpose of Single-Family Homes

Issue/Item: Subdivision Application submitted by Jessica Vick, Roberts Civil Engineering, LLC., on behalf of Landmark 24 Homes of Savannah, LLC., for PIN # 7-0906-01-031 (Miller Park Circle) located in a P-R-M (Planned Residential Multi-Family) Zoning District for a Preliminary Plat of a Major Subdivision (Rice Creek Tract C-1 Phase VI) for the purpose of Single-Family Homes

Background: This is the Preliminary Plat Submittal for Phase VI of the Rice Creek Subdivision. Rice Creek Tract C-1 Phase VI includes twenty (20) single-family lots on approximately 4.54 acres.

Facts and Findings: The application appears to be complete. The Subdivision will be connected to City water and sanitary sewer utilities and will include the extension of Marsh Salt Lane. This application is currently under review by City engineers T.R. Long Engineering.

Funding: N/A

Recommendation: The Planning Commission will hear this application on Monday, March 14, 2022 at 6:30 P.M. **/ UPDATE: THE PLANNING COMMISSION VOTED UNANIMOUSLY TO APPROVE THIS APPLICATION.**

ATTACHMENTS:

- RICE CREEK TRACT C1 PH 6 PRELIMINARY PLAT MAR 22 - Application (PDF)
- RICE CREEK TRACT C1 PH 6 PRELIMINARY PLAT MAR 22 - NPDES Letter (PDF)
- RICE CREEK TRACT C1 PH 6 PRELIMINARY PLAT MAR 22 - Timeline (DOCX)
- RICE CREEK TRACT C1 PH 6 PRELIMINARY PLAT MAR 22 - 1st Review Comment Letter TR Long 3.7.22(PDF)
- RICE CREEK TRACT C1 PH 6 PRELIMINARY PLAT MAR 22 - Preliminary Plat (PDF)
- Planning Commission Minutes March 14, 2022 DRAFT (PDF)

220009

SUBDIVISION APPLICATION FORM
FOR THE
CITY OF PORT WENTWORTH

Application Form Required

This application form is to accompany **all** subdivisions submitted for Port Wentworth Planning Commission review and is to be filled out in its **entirety**. Plats/subdivisions not accompanied by this application will not be accepted for processing. All subdivisions with their completed applications must be received by the City of Port Wentworth at least 20 business days prior to the Planning Commission meeting at which they are to be considered. Revisions to a subdivision under review by the Port Wentworth Planning Commission must be received 10 business days prior to the Port Wentworth Planning Commission at which each subdivision is scheduled to be heard.

Subdivision Name: Rice Creek Phase VI -Tract C-1

Location: 0 Miller Park Circle, Port Wentworth, GA 31407

Number of Lots: 20 Number of Acres: 4.54

PIN #: 70906 01031 Current Zoning: PUD-M

Type of Subdivision: (Check applicable blanks from each column)

A.
- ___ Sketch Plan
- ___ Master Plan
- ✓ Preliminary Plat
- ___ Final Plat
- ___ Revision to a Recorded Plat

B.
- ✓ Major Subdivision (4 or more lots or a new road)
- ___ Minor Subdivision (3 or less lots & no new road)

Purpose of Subdivision:

- ✓ Single-Family
- ___ Multi-Family
- ___ Retail
- ___ Other Business
- ___ Industrial
- ___ Institutional
- ___ Other
- ___ Sign

Variances: (List all variances being requested)

None

Georgia DOT Review

In all applications in which property being subdivided lies along a State Highway or access is needed from a State Highway, all applicants are required to submit a plat to the Georgia Department of Transportation for review. The subdivision application will not be considered by the Port Wentworth Planning Commission until the Georgia Department of Transportation has commented on the subdivision. The comments must accompany the application.

Previous Submittal

Has this tract of land being proposed for subdividing been submitted to the Port Wentworth Planning Commission under a different subdivision name?

Yes ________ No ✓

If yes, what name? ________

Date Submitted: ________ PWPC File No: ________

Number of Required Prints

All submittals, regardless of type, shall include fifteen (15) prints. **Final Plats must include a copy of the plat scanned to a CD along with the fifteen (15) printed copies. Stamp must be in contrasting ink.**

Statements as to Covenants/Deed Restrictions: **(Check One)**

________ A copy of all existing deed restrictions or subdivision covenants applicable to this property are attached.

✓ There are no added restrictions or subdivision covenants on this property.

Contact Person (s): **(Type or Print Legibly)**

Engineer/Surveyor: Roberts Civil Engineering - Jessica Vick, P.E.

Address: 6001 Chatham Center Dr., Suite 255 Savannah, GA Zip Code: 31405

Phone #: 912-298-7006 Fax #: ________

Owner: Landmark 24 Homes of Savannah, LLC - Cole Chenowith

Address: 2702 Whatley Ave, Savannah, GA Zip Code: 31404

Phone #: 912-925-3440 Fax #: ________

Date of Submittal: 12-20-2021

Please list all property owners that are adjacent to the parcel to be subdivided including those across the public right-of-way:

Please see the attached list

Certifications

1. I hereby certify that this proposed subdivision/plan does not violate any covenants or deed restrictions currently in effect for the property being subdivided.

2. I hereby certify that all taxes applicable to this property have been paid and that there are no delinquent taxes outstanding.

3. I hereby certify that I am the owner of the property being proposed for subdivision.

4. I hereby certify that all the information pertained in this application is true and correct.

DocuSigned by:
Cole Chenowith
134762830A304D3...
Signature of Owner

Comments: Place any pertinent comments you wish to make in the following space:

Submit this form along with the proposed subdivision and any accompanying information to:

CITY OF PORT WENTWORTH
7306 HIGHWAY 21, SUITE 301
PORT WENTWORTH, GEORGIA 31407

114 North Commerce Street
Hinesville, Georgia 31313
Office: (912) 368-5664
Fax: (912) 368-7206

TR LONG ENGINEERING, P.C.

308 Commercial Drive
Savannah, Georgia 31406
Office: (912) 335-1046
Fax: (912) 355-1642

March 7, 2022

Mr. Brian Harvey
City of Port Wentworth
7224 Georgia Highway 21
Port Wentworth, Georgia 31407

Re: Rice Creek Subdivision – Phase 6
Port Wentworth, Georgia

Dear Mr. Harvey,

T. R. Long Engineering, P.C. has reviewed the "Site Construction Plans, Rice Creek Phase 6" prepared by Roberts Civil Engineering dated January 3, 2022. We offer the following comments:

1. The plans do not include any benchmarks or control point references. Additionally, the north arrow does not indicate whether project is magnetic or state plane. Please update the plan accordingly.
2. Please provide copy of Erosion and Sedimentation Control Plans for the above referenced project.
3. Provide a fire hydrant assembly at Huntington Road instead of an 8" blowoff valve. Terminate the line with an 8" gate valve in a manhole.
4. Please provide pressure test and fire flow calculations for the new water line.
5. Please clarify the note to the contractor to use 2" asphalt concrete surface "E" mix over the typical roadway section. Is this just replacing the 1.5" topping or the entire pavement section?
6. All unsuitable soil in roadway and/or under utilities, shall be removed and replaced with structural fill.
7. Please update the drainage plan to reflect the pipe network shown in the master drainage report revised 1/31/2022.

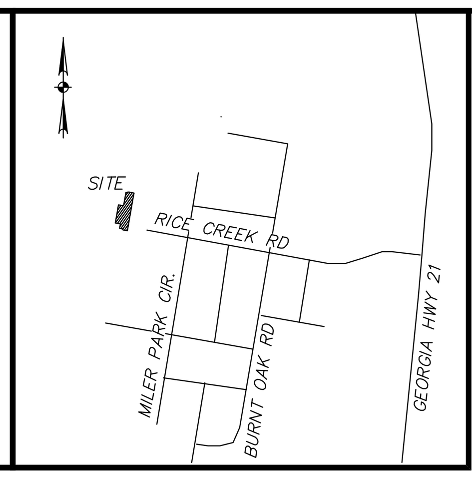
Should you have any questions, comments, or need additional information please contact us.

Sincerely,

Trent R. Long

Trent R. Long, P.E.

THIS BLOCK IS RESERVED FOR THE CLERK OF SUPERIOR COURT



VICINITY MAP
NOT TO SCALE

SURVEYOR'S SPECIAL NOTE

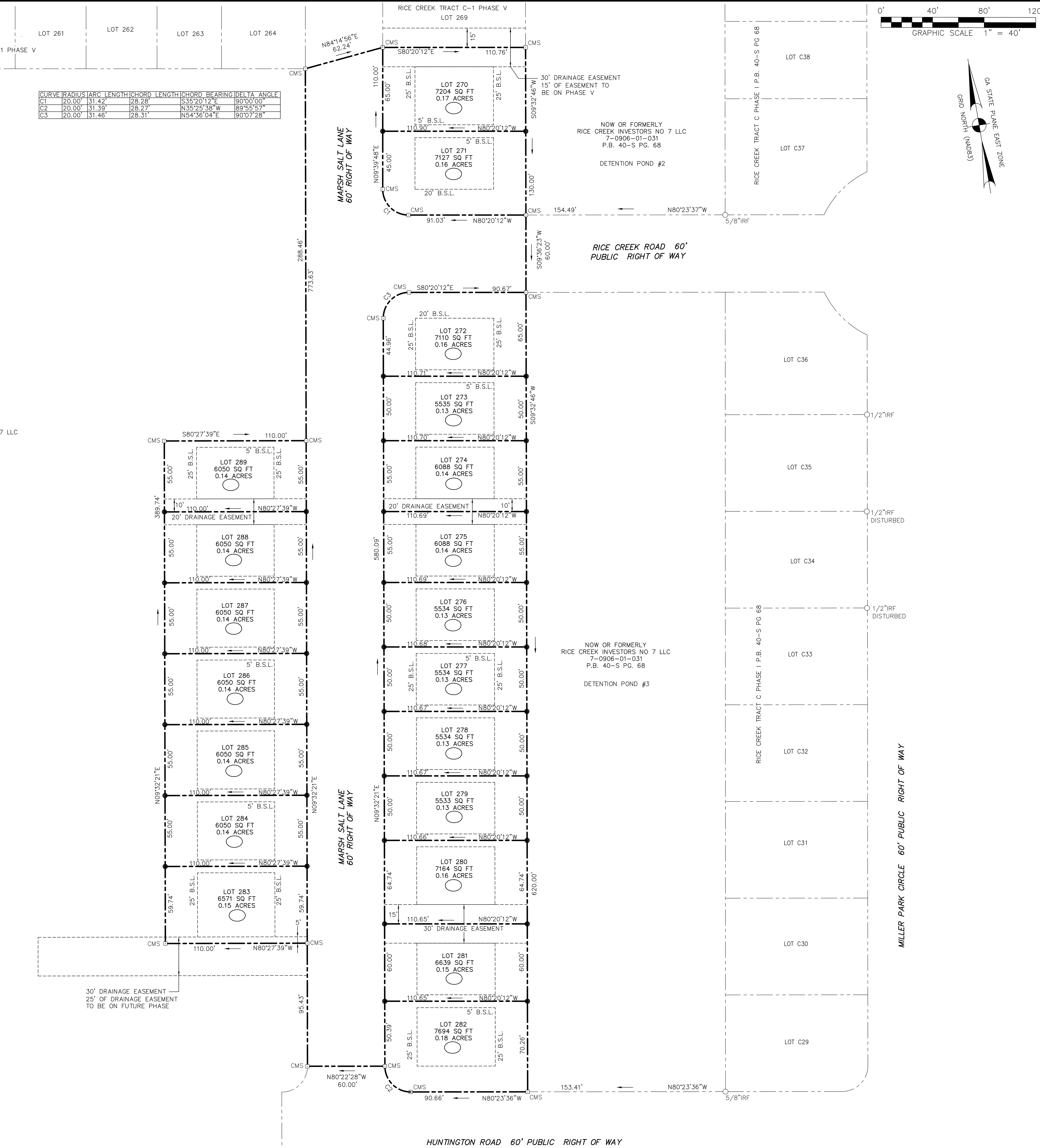
NO FIELD WORK HAS BEEN PERFORMED BY BREWER LAND SURVEYING FOR THIS PRELIMINARY PLAT. PROPOSED LOT LINES TAKEN FROM ENGINEERING PLANS BY ROBERTS CIVIL ENGINEERING. BREWER LAND SURVEYING WILL PERFORM FIELD SURVEY ON THIS SUBDIVISION PRIOR TO FINAL PLAT BEING SUBMITTED.

REFERENCES

1. P.R.B. 34-P PG 73
2. S.M.B. 40-S PG 68
3. P.R.B. 46-P PG 42
4. P.B. 50 PG 137
5. P.B. 51 PG 569
6. P.B. 53 PG 206

LEGEND

IRF	1/2" IRON ROD FOUND
XF	X FOUND IN CONCRETE
IRS	5/8" IRON ROD SET
B.S.L.	BUILDING SETBACK LINE
CMS	CONCRETE MONUMENT SET
	ADDRESS



CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	20.00'	31.42'	28.28'	S35°20'12"E	90°00'00"
C2	20.00'	31.39'	28.27'	N35°25'38"W	89°55'57"
C3	20.00'	31.46'	28.31'	N54°36'04"E	90°07'28"

SURVEYOR'S NOTES

1. ALL COORDINATES AND BEARINGS ARE BASED ON GEORGIA STATE PLANE COORDINATE SYSTEM, NAD 83, EAST ZONE.
2. ACCORDING TO THE FLOOD INSURANCE RATE MAP AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, THIS PROPERTY LIES IN ZONE X, NOT WITHIN A 100 YEAR FLOOD HAZARD AREA. SEE COMMUNITY PANEL NO. 13051C0030G, DATED 08/16/2018.
3. THIS PROPERTY IS SUBJECT TO ANY AND ALL EASEMENTS, COVENANTS, OR RESTRICTIONS EITHER RECORDED OR UNRECORDED.
4. THIS PROPERTY IS SERVED BY CITY OF PORT WENTWORTH WATER AND SEWER SYSTEMS.
5. THE PUBLIC RECORDS REFERENCED WERE USED FOR THE ESTABLISHMENT OF THE BOUNDARY OF THIS PROPERTY. THEY ARE NOT AND DO NOT CONSTITUTE A TITLE SEARCH.
6. THE PARENT TRACT TAX PARCEL NUMBER OF THIS PROPERTY IS 7-0906-01-031
7. THE CERTIFICATION, AS SHOWN HEREON, IS PURELY A STATEMENT OF PROFESSIONAL OPINION BASED ON KNOWLEDGE, INFORMATION AND BELIEF, AND BASED ON EXISTING FIELD EVIDENCE AND AVAILABLE DOCUMENTS. THE CERTIFICATION IS NOT AN EXPRESSED OR IMPLIED WARRANTY OR GUARANTEE.
8. THIS SUBDIVISION CONTAINS A TOTAL AREA OF 4.12 ACRES

LOT AREA	2.89 ACRES
RIGHT-OF-WAY AREA	1.23 ACRES

SURVEYOR'S CERTIFICATION

AS REQUIRED BY SUBSECTION (d) OF O.C.G.A. SECTION 15-6-67, THIS PLAT HAS BEEN PREPARED BY A LAND SURVEYOR AND APPROVED BY ALL APPLICABLE LOCAL JURISDICTIONS FOR RECORDING AS EVIDENCED BY APPROVAL CERTIFICATES, SIGNATURES, STAMPS, OR STATEMENTS HEREON. SUCH APPROVALS OR AFFIRMATIONS SHOULD BE CONFIRMED WITH THE APPROPRIATE GOVERNMENTAL BODIES BY ANY PURCHASER OR USER OF THIS PLAT AS TO INTENDED USE OF ANY PARCEL. FURTHERMORE, THE UNDERSIGNED LAND SURVEYOR CERTIFIES THAT THIS PLAT COMPLIES WITH THE MINIMUM TECHNICAL STANDARDS FOR PROPERTY SURVEYS IN GEORGIA AS SET FORTH IN THE RULES AND REGULATIONS OF THE GEORGIA BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS AND AS SET FORTH IN O.C.G.A. SECTION 15-6-67.

JAMES CRAIG BREWER GA PLS# 3022 ____ DATE

GEORGIA REGISTERED No. 3022 PROFESSIONAL LAND SURVEYOR JAMES CRAIG BREWER

FOR REVIEW

THE FOLLOWING GOVERNMENTAL BODIES HAVE APPROVED THIS PLAT FOR FILING:

APPROVED BY MAYOR AND CITY COUNCIL, PORT WENTWORTH

MAYOR ____ DATE

COUNCILMAN ____ DATE

COUNCILMAN ____ DATE

COUNCILMAN ____ DATE

COUNCILMAN ____ DATE

COUNCILMAN ____ DATE

COUNCILMAN ____ DATE

ALL STREETS, RIGHT-OF-WAY, EASEMENTS AND ANY SITES FOR PUBLIC USE AS NOTED ON THIS PLAT ARE HEREBY DEDICATED TO THE CITY OF PORT WENTWORTH FOR THE USE INTENDED. UCH DEDICATIONS ARE MORE SPECIFICALLY DESCRIBED IN THE DEED THAT ACCOMPANIES THIS PLAT.

OWNER OR ATTORNEY AS AGENT ____ DATE

EQUIPMENT USED: TOTAL STATION
ANGULAR ERROR = 9" PER POINT
ADJUSTED BY: COMPASS RULE
PLAT CLOSURE = 1/264,207
FIELD CLOSURE = 1/27,397

BREWER LANDSURVEYING
604 U.S. Highway 80 W
Pooler, GA 31322
info@brewersurvey.com
Phone (912) 856-2205
www.BrewerSurvey.com
LSF # 1095

A PRELIMINARY SUBDIVISION PLAT OF

RICE CREEK - TRACT C-1 - PHASE VI

8TH G.M. DISTRICT, CITY OF PORT WENTWORTH, CHATHAM COUNTY, GEORGIA

PREPARED FOR:
ROBERTS CIVIL ENGINEERING, INC.

PROJECT #:	210267
FIELD DATE:	05/10/2021
DRAWING DATE:	12/13/2021
LAST REVISED:	N/A
DRAWN BY:	SCH
SCALE:	1"=40'

SHEET: 1 OF 1

SITE CONSTRUCTION PLANS

Rice Creek Phase 6

PREPARED FOR:
Landmark 24, LLC
2702 Whatley Ave, Ste. B-1
Savannah, GA 31404
912-925-3440

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK
01/03/22

ROBERTS
CIVIL ENGINEERING
WWW.ROBERTSCIVILENGINEERING.COM

301 SEA ISLAND ROAD, SUITE 10
ST. SIMONS ISLAND, GA 31522
912-638-9681

6001 CHATHAM CENTER DRIVE, SUITE 255
SAVANNAH, GA 31405
912-298-7006

14600 WHIRLWIND AVENUE, SUITE 119A
JACKSONVILLE, FL 32218
904-741-0099

4000 FABER PLACE DRIVE, SUITE 300
NORTH CHARLESTON, SC 29405
843-323-4224

811 Know what's below. Call before you dig.

VICINITY MAP NTS

Port Wentworth

Rice Creek Phase 6

OWNER	ENGINEER
Landmark 24, LLC CONTACT Cole Chenowith EMAIL cchenowith@landmark24.com 912-925-3440	ROBERTS CIVIL ENGINEERING CONTACT Jessica Vick, P.E. jvick@robertscivilengineering.com 912-977-5244

#	REVISIONS
1	
2	
3	
4	
5	

01/03/2022: ORIGINAL ISSUE DATE

RCE PROJECT NUMBER: 21508

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SHEET		DATE
0	COVER	01/03/22
1	GENERAL NOTES	01/03/22
2	EXISTING CONDITIONS	01/03/22
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4	DETAILED GRADING PLANS	01/03/22
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7	STORM PROFILE	01/03/22
8	SANITARY PLAN	01/03/22
9	SANITARY PROFILE	01/03/22
10	WATER PLAN	01/03/22
11	RECLAIMED WATER PLAN	01/03/22
D1-D4	CONSTRUCTION PLANS	01/03/22

COVER

GENERAL NOTES

1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS.

2. ALL PERMITS NECESSARY FOR CONSTRUCTION SHALL BE OBTAINED BY CONTRACTOR.

3. ANY DEVIATIONS FROM THE PLANS ARE PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.

4. THE CONTRACTOR IS TO IMMEDIATELY CONTACT THE ENGINEER IF ANY UNFORESEEN COMPLICATIONS OR DISCREPANCIES OCCUR.

5. CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF ALL UTILITIES ON SITE WITH THE APPROPRIATE PROVIDER (e.g. POWER, PHONE, CABLE, ETC.)

6. THE ENGINEER SHALL NOT BE HELD RESPONSIBLE FOR THE PHYSICAL CONSTRUCTION OF THE SITE.

7. CONTRACTOR SHALL MAINTAIN A SAFE SITE AND MEET ALL APPROPRIATE REGULATIONS CONCERNING SAFETY.

8. SURVEY DATA PROVIDED BY:
BREWER LAND SURVEYING
604 U.S. HIGHWAY 80
POOLER, GA 31322
(912)856-2205

9. EXISTING SURVEY INFORMATION TO BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES IN FIELD OBSERVATIONS VERSUS SURVEY DATA.

10. CONTRACTOR TO LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION BY CALLING THE CALL BEFORE YOU DIG HOTLINE: 811.

11. ACCORDING TO FEMA FLOOD INSURANCE RATEMAPS 13051C0030G DATED 8/16/2018
THE SITE IS LOCATED IN ZONE X.

12. HORIZONTAL DATUM BASED ON GEORGIA STATE PLANE COORDINATE SYSTEM, EAST ZONE. NAD83. VERTICAL DATUM BASED ON NAVD 88.

ADA NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL CURRENT ADA REQUIREMENTS.

2. THE EXTERIOR ACCESSIBLE ROUTE SHALL HAVE A MINIMUM WIDTH OF 3 FEET. IF THE ACCESSIBLE ROUTE CLEAR WIDTH IS LESS THAN 5 FEET, THEN 5'X5' PASSING SPACES SHALL BE PROVIDED EVERY 200' OR LESS. INTERSECTING SIDEWALKS MEET THIS REQUIREMENT.

3. THE FINISHED SURFACE HEIGHT DIFFERENCE REQUIREMENTS SHALL MEET THE FOLLOWING:
0 - 1/4" NO REQUIREMENTS
1/4"- 1/2"BEVEL WITH 1:2 SLOPE
GREATER THAN 1/2" CONFORM TO RAMP REQUIREMENTS

4. RAMPS SHALL MEET THE FOLLOWING CONSTRAINTS:
MAX SLOPE 1:12
MAX RAMP RISE IS 30"
MAX RAMP LENGTH IS 30'
MAX CROSS SLOPE IS 2.00%

5. RAMP LANDINGS SHALL MEET THE FOLLOWING CONSTRAINTS:
A MINIMUM 5' LONG LEVEL LANDING AT LEAST AS WIDE AS THE RAMP SHALL BE PLACED AT THE TOP AND BOTTOM OF THE RAMP.
LANDING SHALL BE MINIMUM 5'X5' WHERE RAMP CHANGES DIRECTION.
LANDINGS SHALL NOT EXCEED A 2.00% SLOPE

6. HANDRAILS SHALL MEET THE FOLLOWING CONSTRAINTS:
IF RAMP RISE IS GREATER THAN 6", THEN HANDRAILS ARE REQUIRED ON BOTH SIDES OF RAMP.MINIMUM OF 12" LONG HANDRAIL EXTENSIONS SHALL BE PROVIDED AT THE TOP AND BOTTOM OF LANDINGS.

EARTHWORK AND PAVING

1. CONTRACTOR TO REMOVE ALL UNSUITABLE MATERIAL SUCH THAT THERE IS A MINIMUM 2' SEPARATION BETWEEN THE PLASTIC CLAY LAYER AND THE BOTTOM OF THE FOOTINGS, BOTTOM OF SLAB-ON-GRADE, AND BOTTOM OF PAVEMENT SECTIONS.

2. THE UPPER 12 INCHES OF SUBGRADE BELOW THE PAVEMENT AND BUILDINGS SHALL BE SCARIFIED AND RECOMPACTED TO 100% STANDARD PROCTOR MAX DRY WEIGHT DENSITY WITH A MOISTURE CONTENT WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT.

3. IN AREAS WHERE STRUCTURAL FILL IS REQUIRED, THE FILL SHALL BE PLACED IN LIFTS OF 6 INCHES AND COMPACTED TO 100% STANDARD PROCTOR MAX DRY WEIGHT DENSITY. STRUCTURAL FILL SHALL CONSIST OF GRANULAR SOIL CONTAINING LESS THAN 10% MATERIAL PASSING THE NO 200 SIEVE.

4. ALL FILLING AND EXCAVATION SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF ANY UTILITIES.

5. CONTRACTOR TO PROVIDE TEST RESULTS OF SUBGRADE AND BASE COURSE COMPACTION TO ENGINEER.

GRADING & DRAINAGE NOTES:

1. STORM PIPES SHALL BE JOINED PER DOT SPECIFICATIONS.

2 ALL PIPE SHALL BE INSTALLED IN NEW CONDITION.

3. A RIGHT OF WAY WORK PERMIT MAY BE REQUIRED BEFORE ANY WORK CAN BE DONE IN THE RIGHT OF WAY.

4. ALL STORM DRAINAGE PIPING SHALL BE CONSTRUCTED PER DOT SPECS.

5. ALL STORM DRAINAGE PIPING JOINTS SHALL BE WRAPPED IN FILTER FABRIC.

6. CONTRACTOR TO REQUEST CONFIRMATION OF LATEST PLAN REVISION DATE FROM ENGINEER IN WRITING PRIOR TO ORDERING MATERIALS,

7. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO REVIEW AND APPROVE SHOP DRAWINGS PRIOR TO ORDERING MATERIALS.

8. CONTRACTOR SHALL USE APPROVED STRUCTURAL FILL WHERE THE RIGHT-OF-WAY CROSSES THE EXISTING DITCHES.

GENERAL WATER NOTES:

1. PVC PIPE SHALL BE BLUE IN COLOR. PIPE 4" TO 12" SHALL CONFORM
TO REQUIREMENTS OF AWWA C-900, DR 18 PRESSURE CASS 235 P.S.I. AND SHALL HAVE THE FOLLOWING MINIMUM WALL THICKNESS:

4"	0.267 INCHES
6"	0.383 INCHES
8"	0.503 INCHES
10"	0.617 INCHES
12"	0.733 INCHES

PIPE LESS THAN 4" IN DIAMETER SHALL CONFORM TO ASTM D-1784 AND
D-2241 (SDR 21). THE PIPE SHALL HAVE A MINIMUM PRESSURE RATING OF 200 P.S.I. THE PVC PIPE SHALL BEAR THE NATIONAL SANITATION FOUNDATION SEAL OF APPROVAL.

2. FITTING FOR PVC SHALL BE DUCTILE IRON IN ACCORDANCE WITH ANSI A-21.53 (AWWA C-153). FITTINGS SHALL BE CEMENT LINED IN ACCORDANCE WITH ANSI A-21,4 (AWWA C-104). FITTINGS LESS THAN 4" SHALL BE PVC WITH RING TITE RUBBER JOINTS CONFORMING TO ASTM D-3139.

3. ALL VALVES 8" OR GREATER SHALL BE INSTALLED IN A MANHOLE. SEE CITY OF PORT WENTWORTH DETAILS W14 AND W34 FOR SPECIFICATIONS. THERE SHALL BE NO MANHOLE STEPS IN ANY STRUCTURE AT FINAL INSPECTION.

4. MAINTAIN A TEN (10)FOOT HORIZONTAL SEPARATION BETWEEN ANY EXISTING OR PROPOSED WATER MAIN AND SANITARY SEWER, STORM SEWER, OR SEWER MANHOLE.

5. WHEN A 10 FOOT HORIZONTAL SEPARATION CANNOT BE MAINTAINED, THE WATER MAIN MAY BE LAID CLOSER TO THE SEWER PROVIDED THAT THE WATER MAIN IS LAID IN A SEPARATE TRENCH AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.

6. WATER CROSSING A SEWER SHALL BE AT LEAST 18" ABOVE THE TOP OF THE SEWER. A FULL LENGTH OF WATER PIPE SHALL BE USED AT THE CROSSING WITH THE ENDS OF THE WATER AS FAR AWAY FROM THE SEWER AS POSSIBLE.

7. VERIFY SIZE AND LOCATION OF WATER SERVICES PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS.

8. IF UTILITY CONFLICT IS ENCOUNTERED IN THE FIELD, SEE UTILITY CONFLICT DETAIL.

GENERAL SEWER NOTES:

1. PVC PIPE SHALL BE POLYVINYL CHLORIDE PLASTIC (PVC) AND SHALL MEET ALL REQUIREMENTS OF ASTM D 3034 SDR 26. DEPTHS LESS THAN 3 FEET SHALL BE DUCTILE IRON PIPE. ASTM D 2321 MUST BE FOLLOWED FOR THE INSTALLATION OF PVC PIPE. RUBBER RINGS SHOULD BE USED FOR CONTRACTION AND EXPANSION AT EACH JOINT. FITTINGS SHALL MEET THE SAME SPECIFICATION REQUIREMENTS AS THE PIPE. TESTS ON PVC PIPE SHALL BE DESIGNED TO PASS ALL TESTS AT 73° F. PIPE STANDARD LENGTHS SHALL BE 12.5 FEET (PLUS OR MINUS 1 INCH). PIPE SIZES AND DIMENSIONS SHALL BE AS SHOWN IN THE TABLE BELOW:

NOM SIZE	OUTSIDE DIA	MIN WALL THICKNESS
4"	4.215	0.162
6"	6.275	0.241
8"	8.400	0.323
10"	10.500	0.404
12"	12.500	0.481

2. JOINTS FOR PVC PIPE - SHALL BE INTEGRAL WALL BELL AND SPIGOT WITH A RUBBER RING GASKET. THE JOINTS SHALL CONFORM TO ASTM D 3212 AND THE GASKETS SHALL CONFORM TO ASTM F 477.

3. PRECAST CONCRETE MANHOLES- SHALL BE REINFORCED CONCRETE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 AND THE DETAILS SHOWN ON THE PLANS. THE JOINTS SHALL BE TONGUE AND GROOVE SEALED WITH FLEXIBLE GASKETS OR MASTIC SEALANT. GASKETS SHALL BE O-RING OR EQUIVALENT TO TYPE A OR B "TYLOX" CONFORMING TO ASTM C 443. MASTIC SHALL BE EQUIVALENT TO "RAM-NEK" WITH PRIMER. ALL CONTACT SURFACES OF THE MANHOLE JOINT SHALL HAVE THE PRIMER IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

4. FRAMES AND COVERS - SHALL BE THE EQUIVALENT OF NEENAH FOUNDRY CO. R-1668 TYPE "C" LID

5. MANHOLE STEPS - THERE SHALL BE NO MANHOLE STEPS AT FINAL INSPECTION.

6. PIPE CONNECTIONS - SHALL HAVE FLEXIBLE WATERTIGHT JOINTS AT THE POINT OF ENTRY OF ANY SEWER MAIN INTO THE MANHOLE. THE JOINT SHALL BE WEDGED RUBBER SHAPE EQUIVALENT TO "PRESS WEDGE II," OR A RUBBER SLEEVE EQUIVALENT TO "KOR-N-SEAL" OR 'LOCK JOINT."

7. #12 GAUGE SINGLE STRAND COPPER TRACING WIRE SHALL BE USED OVER ALL FORCE MAIN, SANITARY SEWER, AND SERVICE LATERAL LINES.

8. SEWER EXCAVATIONS SHALL BE TO THE DESIRED DEPTHS SHOWN ON THE PLANS WITH ADHERENCE TO THE OCCUPATIONAL AND SAFETY HEALTH ADMINISTRATION'S (OSHA) REGULATIONS. IN AREAS OF UNSUITABLE SOIL CONDITIONS, THE TRENCH MAY BE REQUIRE ADDITIONAL EXCAVATION AND BACKFILLED WITH SAND, GRAVEL, OR CONCRETE.

9. SEWER PIPES SHALL BE LAID UPGRADE WITH SPIGOTS POINTING DOWNGRADE. ASSEMBLY OF JOINTS SHALL COMPLY WITH MANUFACTURER'S RECOMMENDATIONS. SEAL OPEN ENDS OF PIPES IF INSTALLATION IS INTERRUPTED. MANHOLE CONNECTIONS SHOULD BE WATER TIGHT WITH THE USE OF FLEXIBLE WATER STOPS AND RESILIENT CONNECTORS.

10. MANHOLES SHALL HAVE A CHANNEL IN THE BOTTOM THAT IS SMOOTH AND ROUNDED. MANHOLE TOP ELEVATIONS SHALL BE GREATER THAN OR EQUAL TO THE FIFTY (50) YEAR FLOOD ELEVATION, UNLESS WATERTIGHT COVERS ARE PROVIDED. OUTSIDE OF PAVED AREAS, THE MANHOLE TOP ELEVATION SHALL BE 1" ABOVE THE GROUND SURFACE IN DEVELOPED AREAS AND 6" ABOVE THE GROUND SURFACE IN UNDEVELOPED AREAS UNLESS SHOWN OTHERWISE ON THE PLANS. MANHOLES IN PAVED AREAS SHALL BE BUILT AS DESIGNATED BY THE ENGINEER. NO LEAKS IN MANHOLES ARE ACCEPTABLE.

GENERAL STORM NOTES:

1. MANHOLE STEPS - THERE SHALL BE NO MANHOLE STEPS AT FINAL INSPECTION.

2. THE MINIMUM OPENING OF ALL CURB INLETS ALONG THE GUTTER LINE IS 3'-10".

3. ALL STRUCTURES AND INLETS SHALL HAVE A MINIMUM 6" CLEARANCE FROM THE INNER STRUCTURE WALLS TO THE OUTSIDE DIAMETER OF ALL INCOMING/OUTGOING PIPES.

GEORGIA REGISTERED PROFESSIONAL ENGINEER
No. 046602
JESSICA VICK
01/03/22

REVISIONS

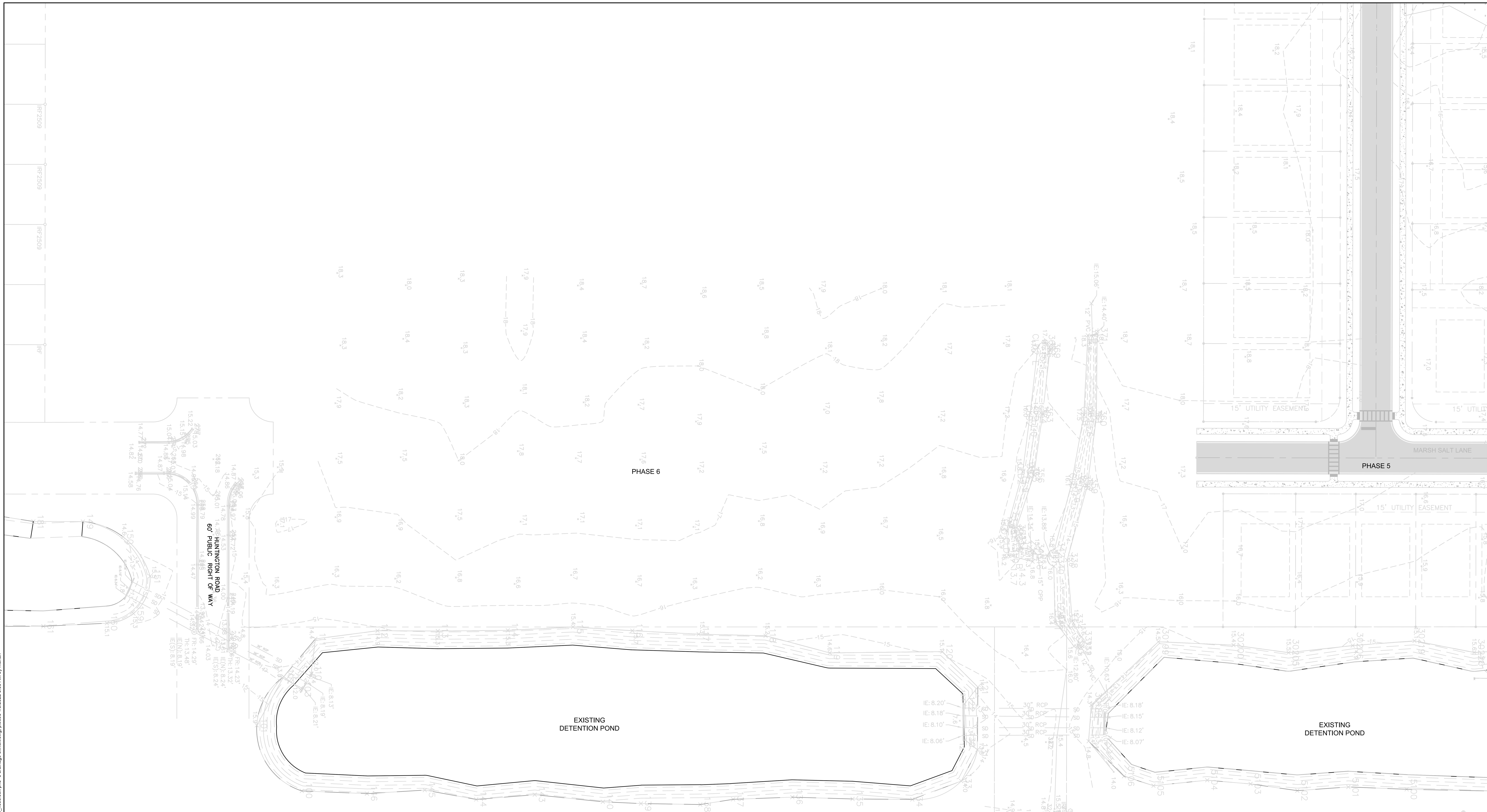
ROBERTS
CIVIL ENGINEERING
ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON
WWW.ROBERTSCIVILENGINEERING.COM

GENERAL NOTES

Rice Creek Phase 6
Port Wentworth
PREPARED FOR:
Landmark 24, LLC

DATE: 01/03/2022
PROJECT NUMBER: 21508
DRAWN BY: JLV
CHECKED BY: JLV
SCALE: NTS

SHEET: 1



LEGEND

17.9	EXISTING SPOT ELEVATION
IPS / IRF	EXISTING PROPERTY CORNER
	EXISTING ASPHALT PAVEMENT
	EXISTING CONCRETE SIDEWALK
17	EXISTING CONTOUR
	EXISTING UNDERGROUND CABLE LINE
	EXISTING UNDERGROUND TELEPHONE LINE
SD	EXISTING STORM DRAIN PIPE
SS	EXISTING SANITARY SEWER PIPE
S	EXISTING SEWER MANHOLE
W	EXISTING WATER MAIN
	SOILS DELINEATION LINE
Cc	SOIL SERIES - CAPE FEAR SOILS
Pn	SOIL SERIES - POOLER FINE SANDY LOAM

Know what's below. Call before you dig.

0' 40' 80'

SCALE: 1" = 40'

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK 01/03/22

REVISIONS

ROBERTS CIVIL ENGINEERING

ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON

WWW.ROBERTSCIVILENGINEERING.COM

EXISTING CONDITIONS

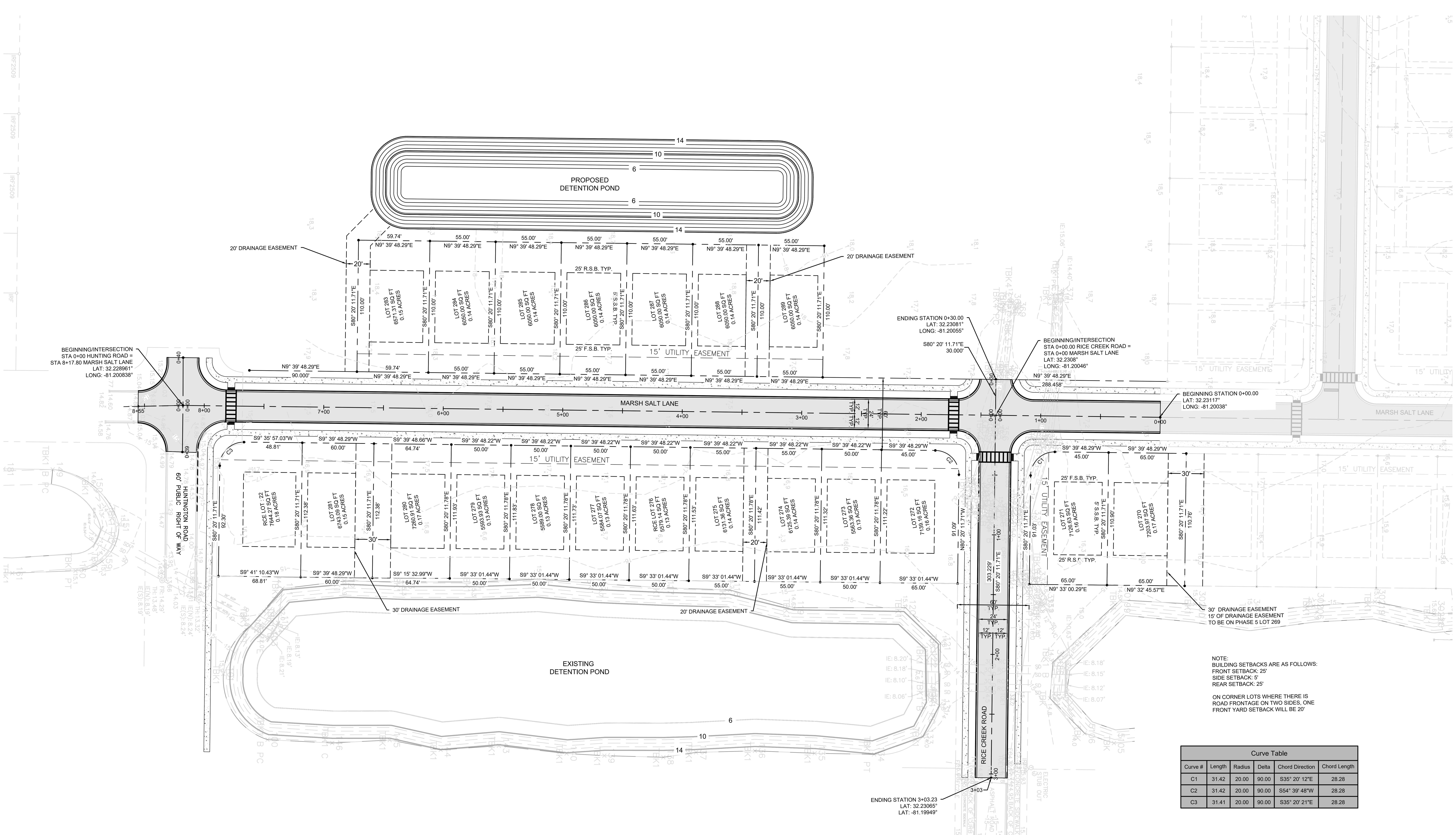
Rice Creek Phase 6 Port Wentworth

PREPARED FOR:
Landmark 24, LLC

DATE: 01/03/2022
PROJECT NUMBER: 21508
DRAWN BY: JLV
CHECKED BY: JLV
SCALE: 1"-40' (FOR 24"X36" PLOT)

2

SHEET:



NOTE:
BUILDING SETBACKS ARE AS FOLLOWS:
FRONT SETBACK: 25'
SIDE SETBACK: 5'
REAR SETBACK: 25'

ON CORNER LOTS WHERE THERE IS
ROAD FRONTAGE ON TWO SIDES, ONE
FRONT YARD SETBACK WILL BE 20'

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	31.42	20.00	90.00	S35° 20' 12"E	28.28
C2	31.42	20.00	90.00	S54° 39' 48"W	28.28
C3	31.41	20.00	90.00	S35° 20' 21"E	28.28

LEGEND

- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE SIDEWALK
- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE SIDEWALK

Know what's below. Call before you dig.

0' 40' 80'
GRAPHIC SCALE
1" = 40'

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK
01/03/22

REVISIONS

ROBERTS CIVIL ENGINEERING
ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON
WWW.ROBERTSCIVILENGINEERING.COM

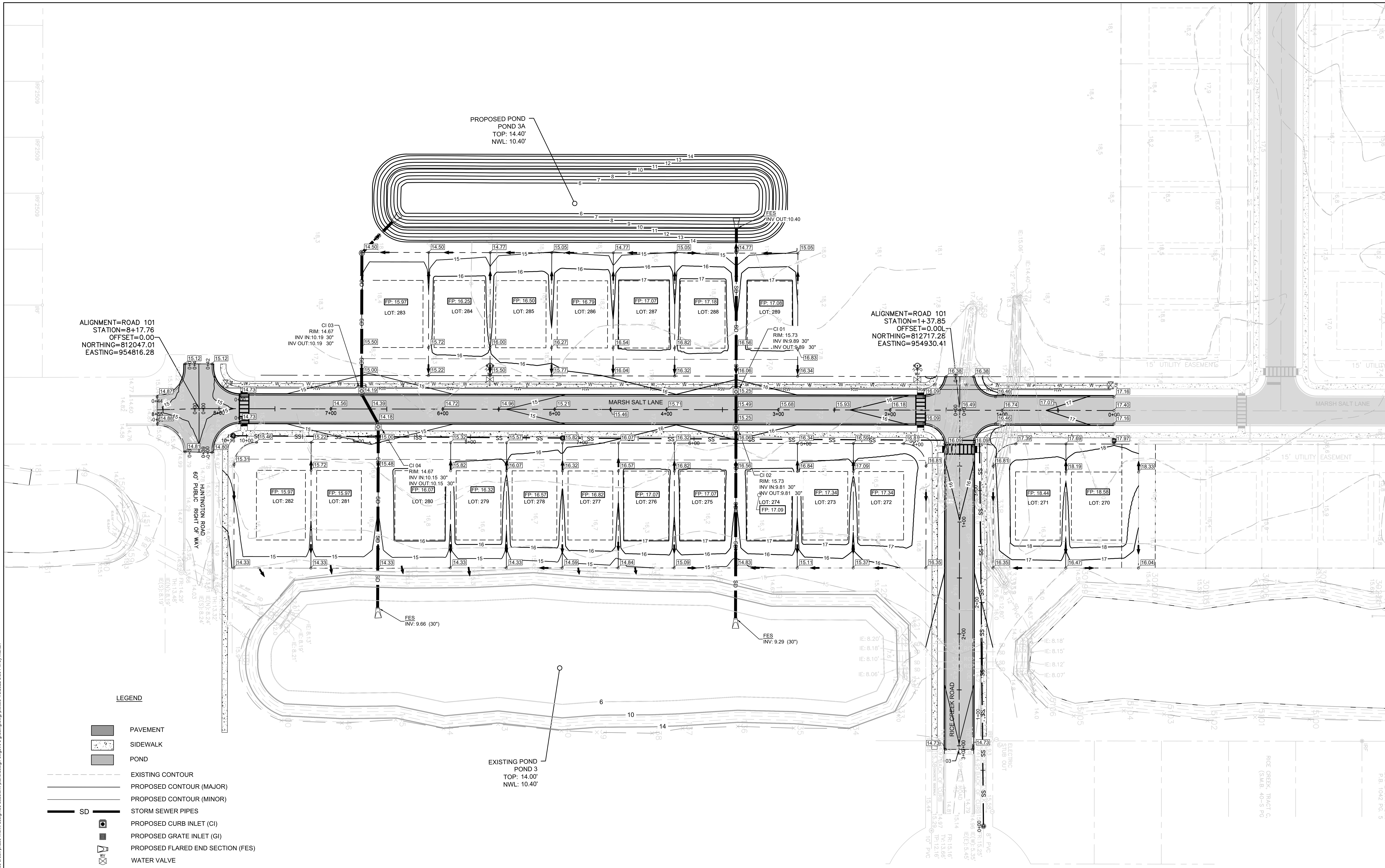
STAKING PLAN

Rice Creek Phase 6 Port Wentworth

PREPARED FOR:
Landmark 24, LLC

DATE: 01/03/2022
PROJECT NUMBER: 21508
DRAWN BY: JLV
CHECKED BY: JLV
SCALE: 1"-40'

SHEET: 3



LEGEND

- PAVEMENT
- SIDEWALK
- POND
- EXISTING CONTOUR
- PROPOSED CONTOUR (MAJOR)
- PROPOSED CONTOUR (MINOR)
- SD — STORM SEWER PIPES
- PROPOSED CURB INLET (CI)
- PROPOSED GRATE INLET (GI)
- PROPOSED FLARED END SECTION (FES)
- WATER VALVE
- WATER FITTING TEE
- WATER FITTING 45°
- FIRE HYDRANT
- SANITARY SEWER MANHOLE
- SS — SANITARY SEWER PIPES
- W — WATERMAIN
- RW — RECLAIMED WATER
- LOT LINES
- PROPERTY LINES
- SETBACKS

Know what's below. Call before you dig.

0' 40' 80'

SCALE: 1" = 40'

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK

01/03/22

REVISIONS

ROBERTS CIVIL ENGINEERING

ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON

WWW.ROBERTSCIVILENGINEERING.COM

GRADING PLAN

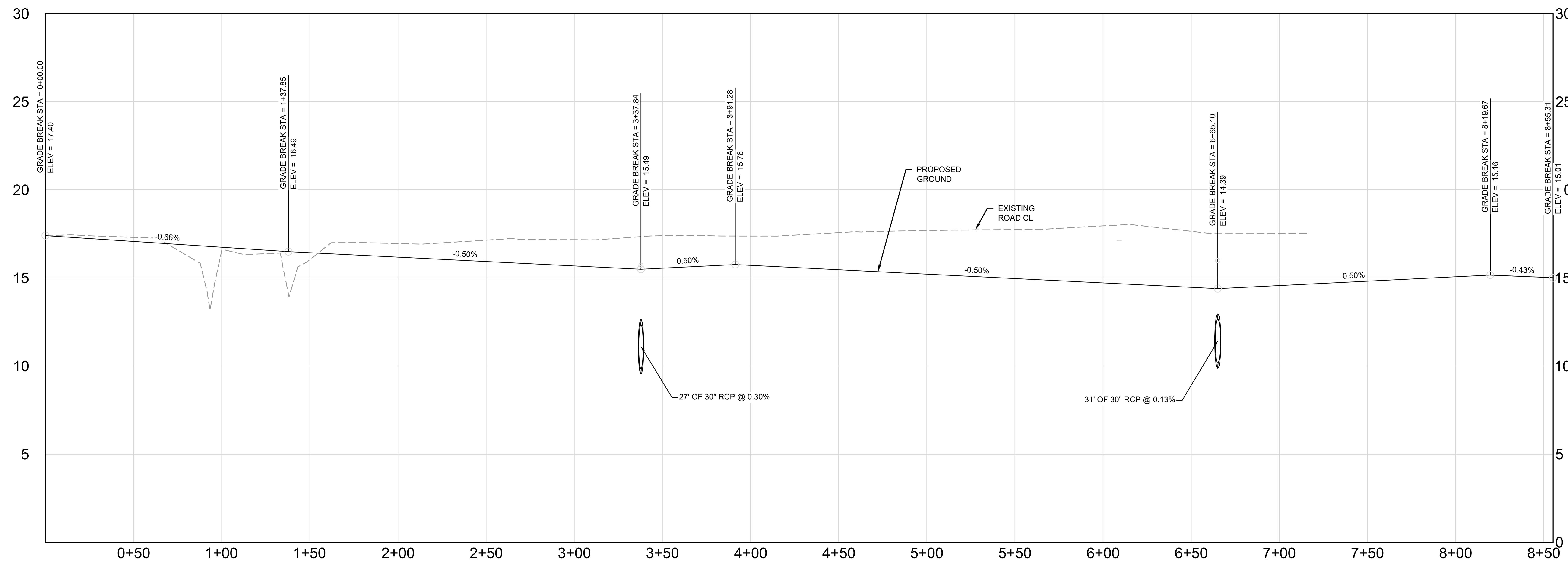
Rice Creek Phase 6 Port Wentworth

PREPARED FOR:
Landmark 24, LLC

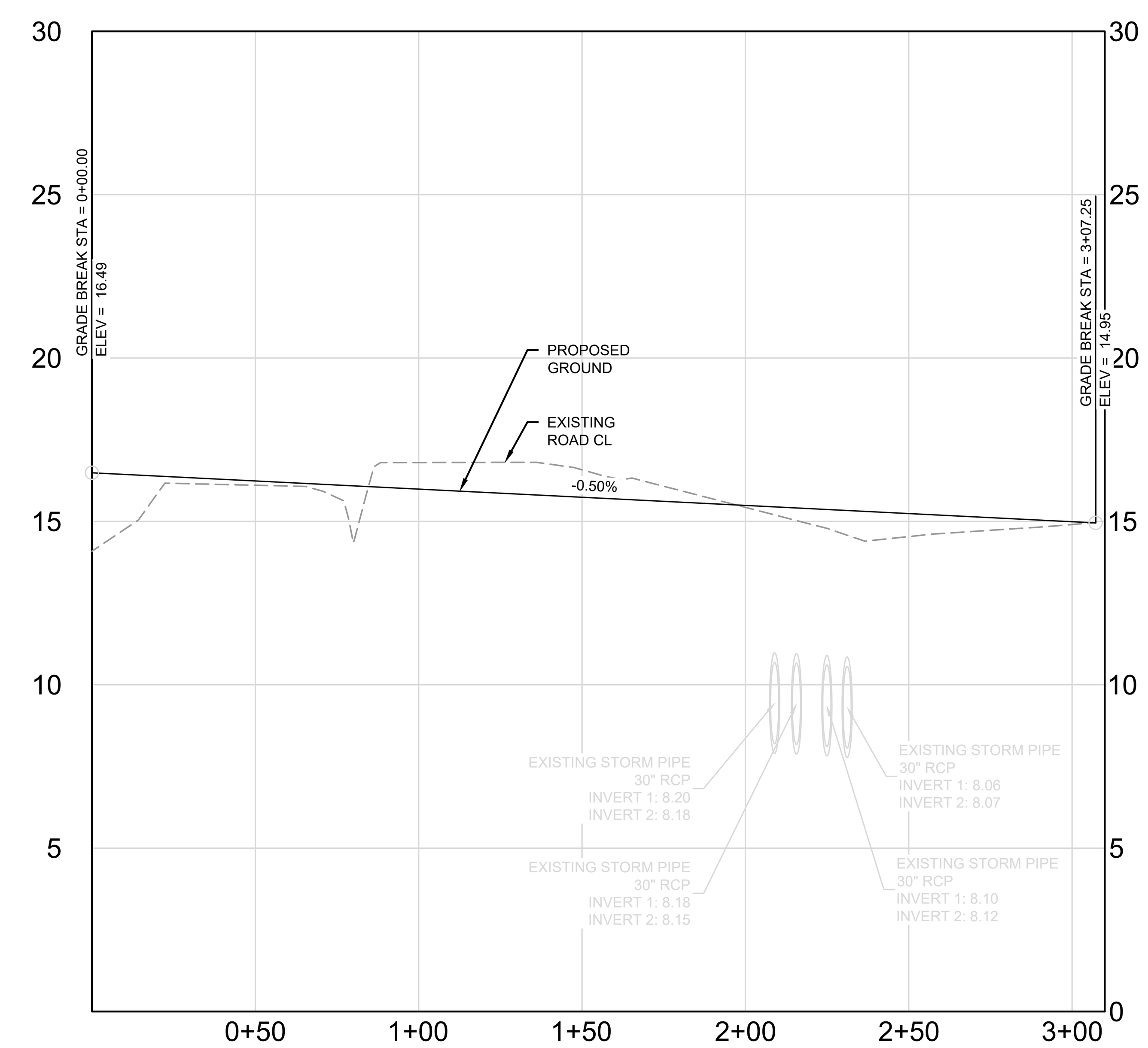
DATE: 01/03/2022
PROJECT NUMBER: 21508
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: 1"=40' (FOR 24"X36" PLOT)

4

SHEET:



MARSH SALT LANE ROAD PROFILE
Vertical Scale: 1" = 4 FT
Horizontal Scale: 1" = 40 FT



RICE CREEK ROAD PROFILE
Vertical Scale: 1" = 4 FT
Horizontal Scale: 1" = 40 FT

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK
01/03/22

REVISIONS

ROBERTS
CIVIL ENGINEERING
ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON
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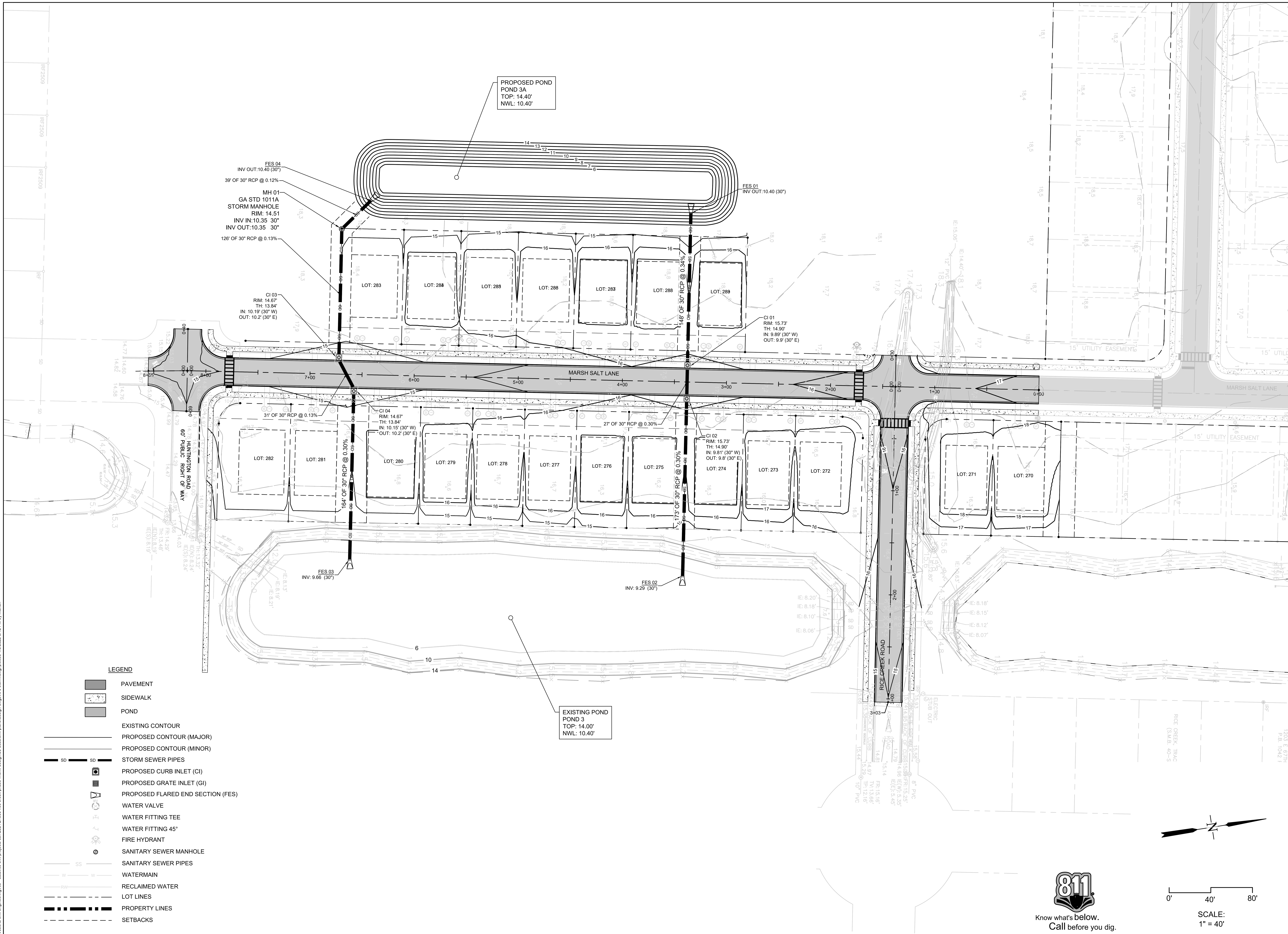
ROAD PROFILES

Rice Creek Phase 6
Port Wentworth
PREPARED FOR:
Landmark 24, LLC

DATE: 01/03/2022
PROJECT NUMBER: 21508
DRAWN BY: JLV
CHECKED BY: JLV
SCALE: AS SHOWN

5
SHEET:



GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK
01/03/22

REVISIONS

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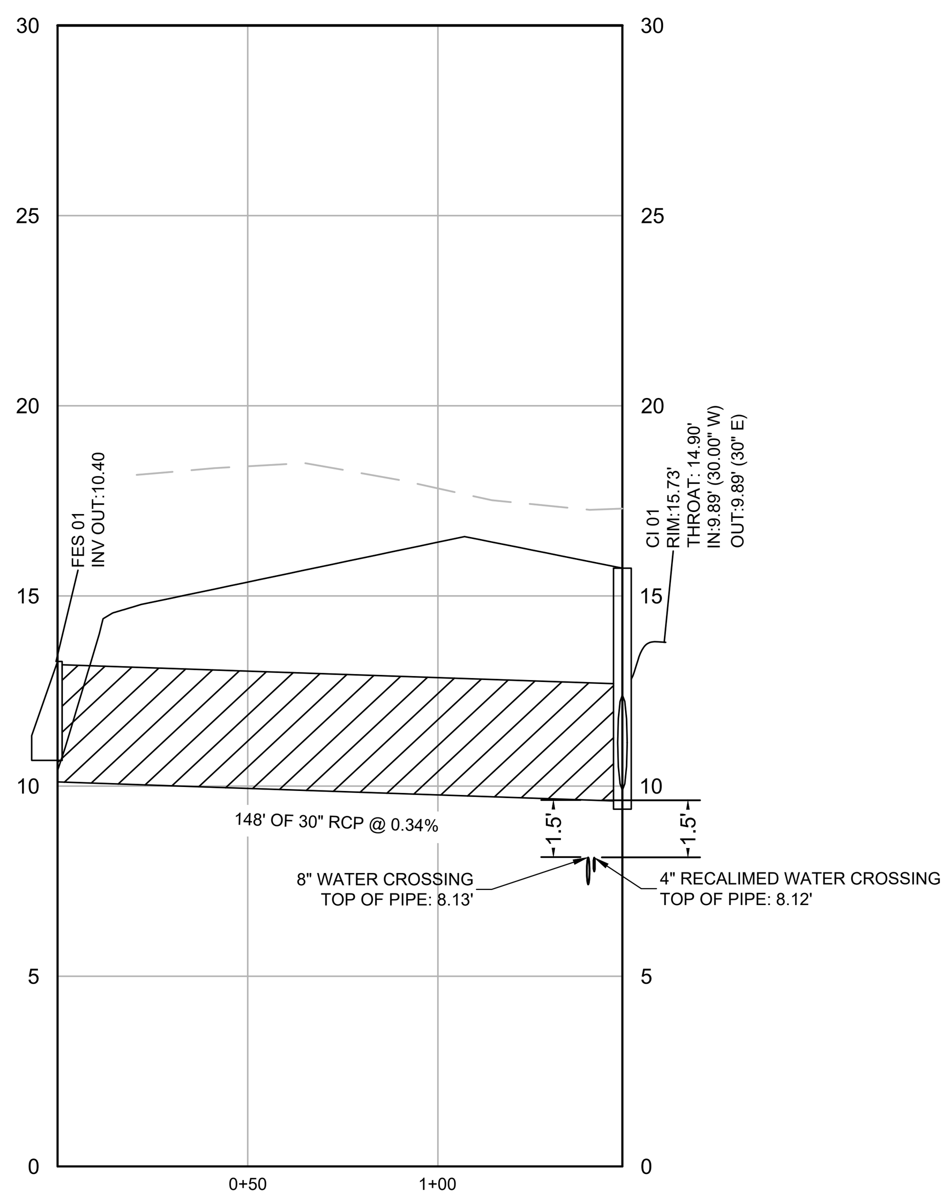
STORM SEWER PLAN

Rice Creek Phase 6
Port Wentworth

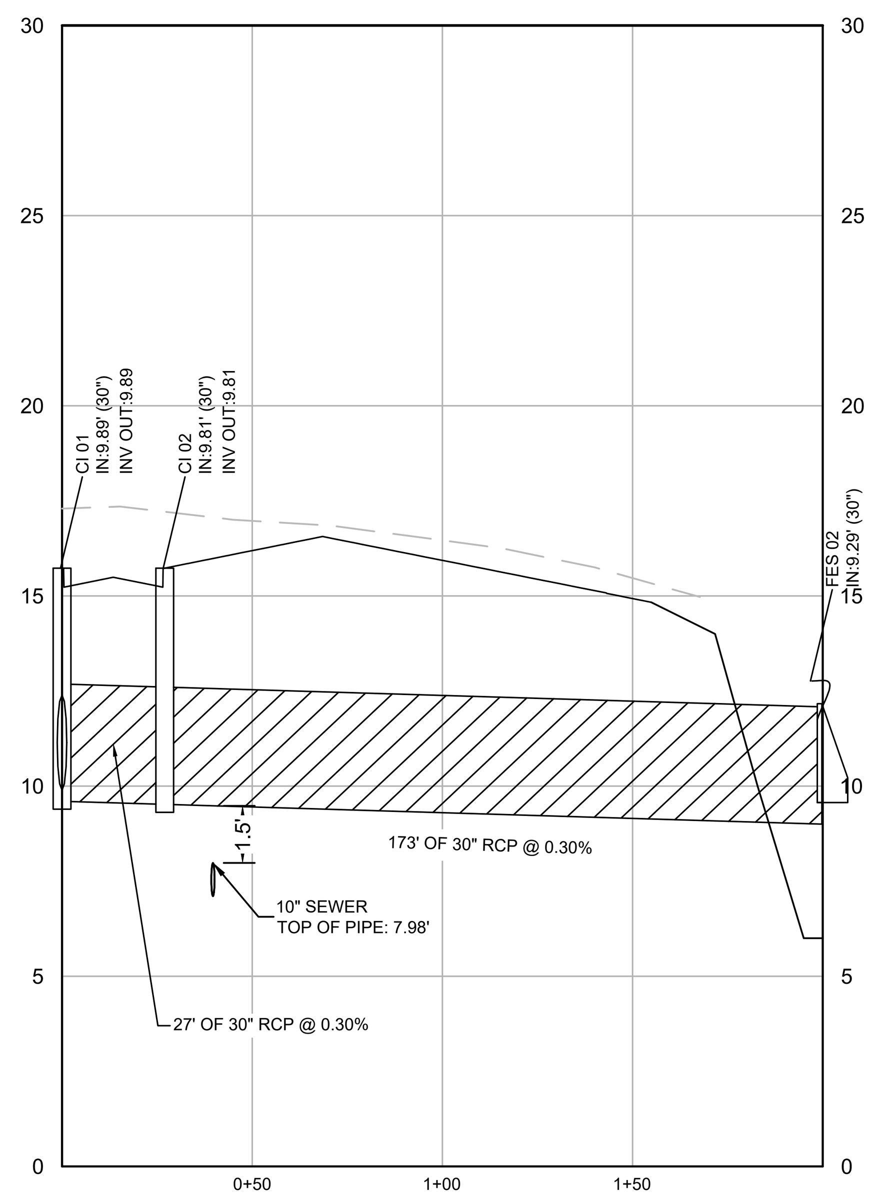
PREPARED FOR:
Landmark 24, LLC

DATE: 01/03/2022
PROJECT NUMBER: 21508
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: 1"=40' (FOR 24"X36" PLOT)

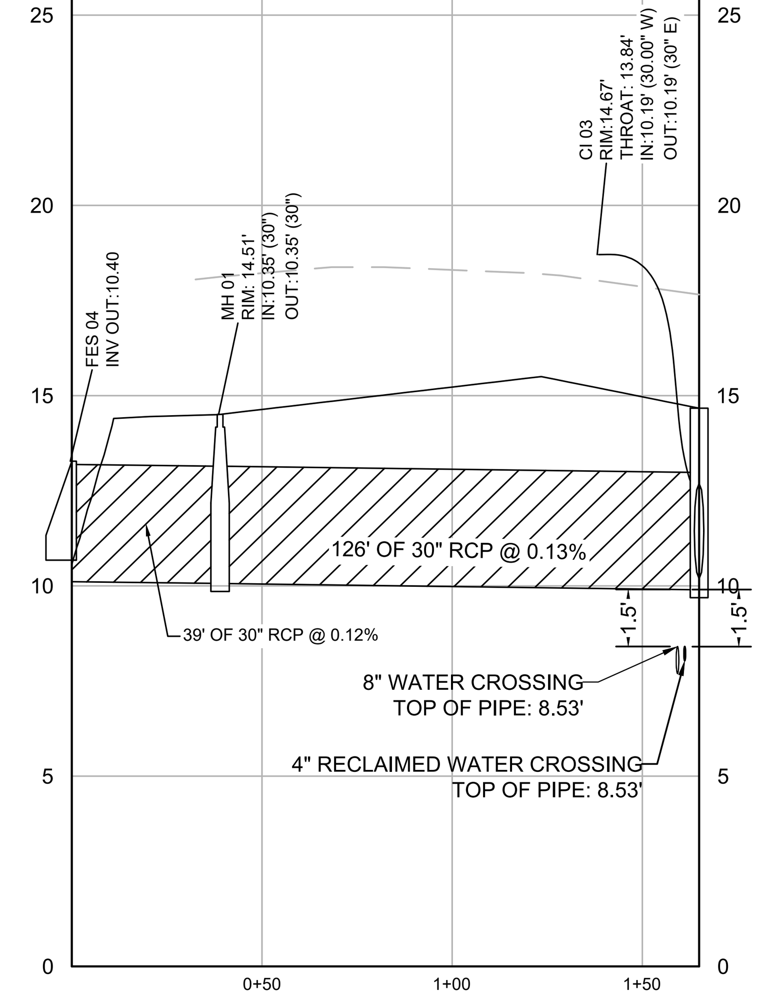
6
SHEET:



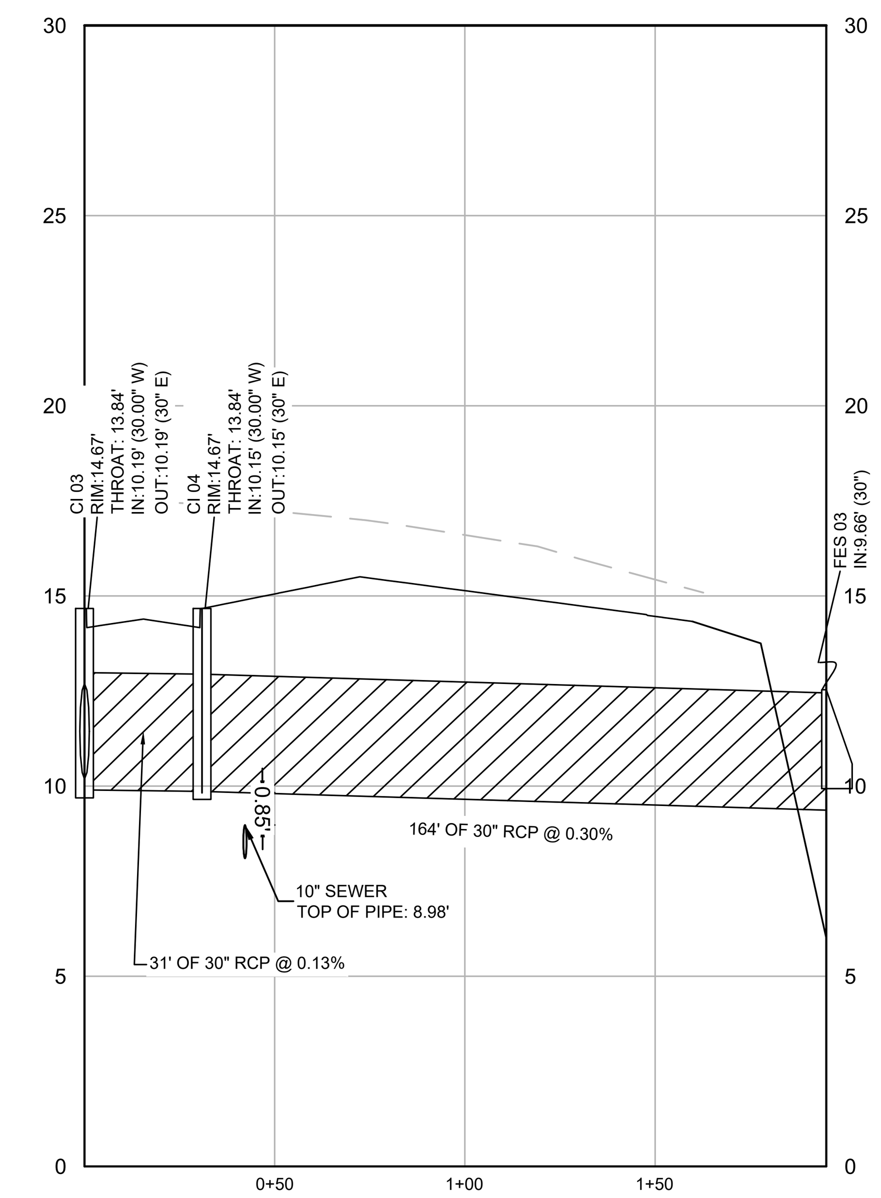
STORM 100
Vertical Scale: 1" = 4 FT
Horizontal Scale: 1" = 40 FT



STORM 200
Vertical Scale: 1" = 4 FT
Horizontal Scale: 1" = 40 FT



STORM 300-A
Vertical Scale: 1" = 4 FT
Horizontal Scale: 1" = 40 FT



STORM 300
Vertical Scale: 1" = 4 FT
Horizontal Scale: 1" = 40 FT

GEORGIA
REGISTERED
No. 046602
PROFESSIONAL
ENGINEER
JESSICA VICK
01/03/22

REVISIONS

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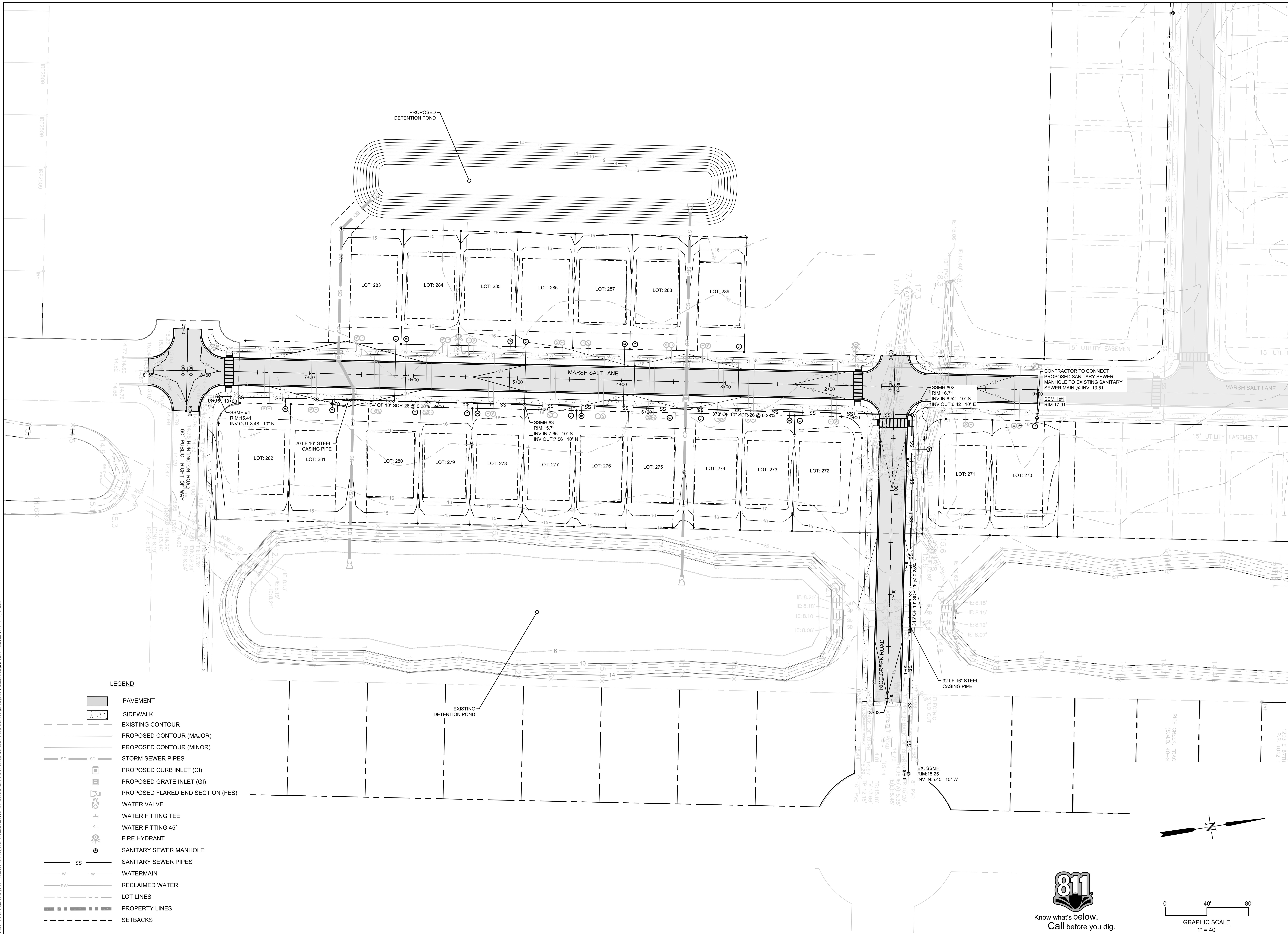
STORM PROFILES

Rice Creek Phase 6
Port Wentworth
PREPARED FOR:
Landmark 24, LLC

DATE: 01/03/2022
PROJECT NUMBER: 21508
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: AS SHOWN

SHEET:
7



GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK
01/03/22

REVISIONS

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SANITARY PLAN

Rice Creek Phase 6 Port Wentworth

PREPARED FOR:
Landmark 24, LLC

DATE: 01/03/2022
PROJECT NUMBER: 21508
DRAWN BY: JLV
CHECKED BY: JLV
SCALE: 1"=40' (FOR 24"X36" PLOT)

8

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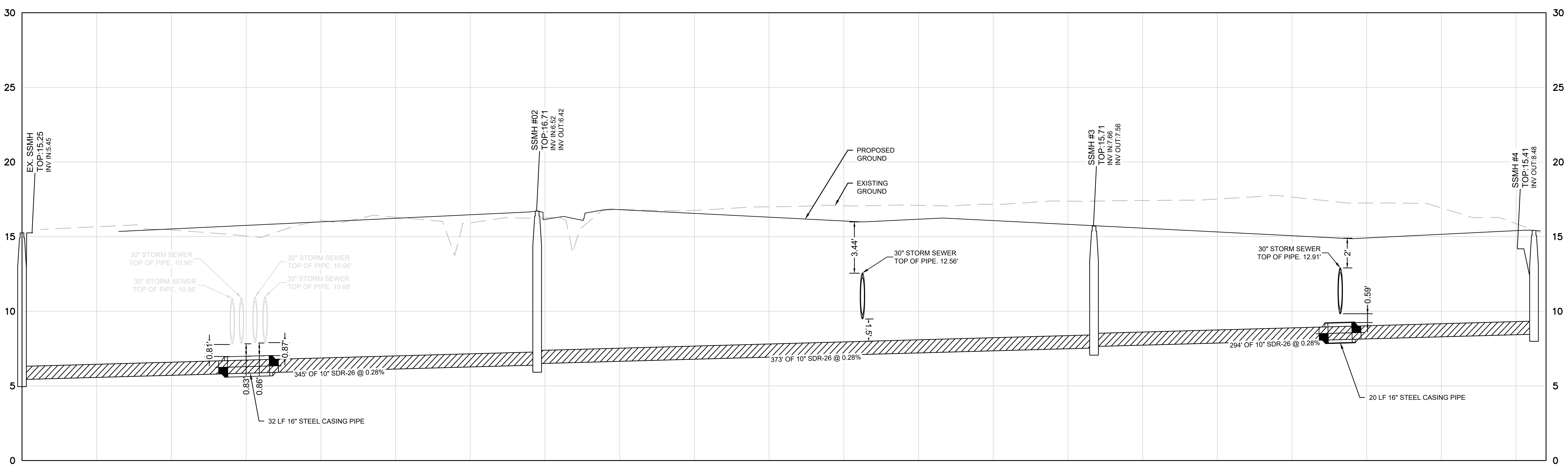

SEWER 100
Vertical Scale: 1" = 4 ft
Horizontal Scale: 1" = 40 ft

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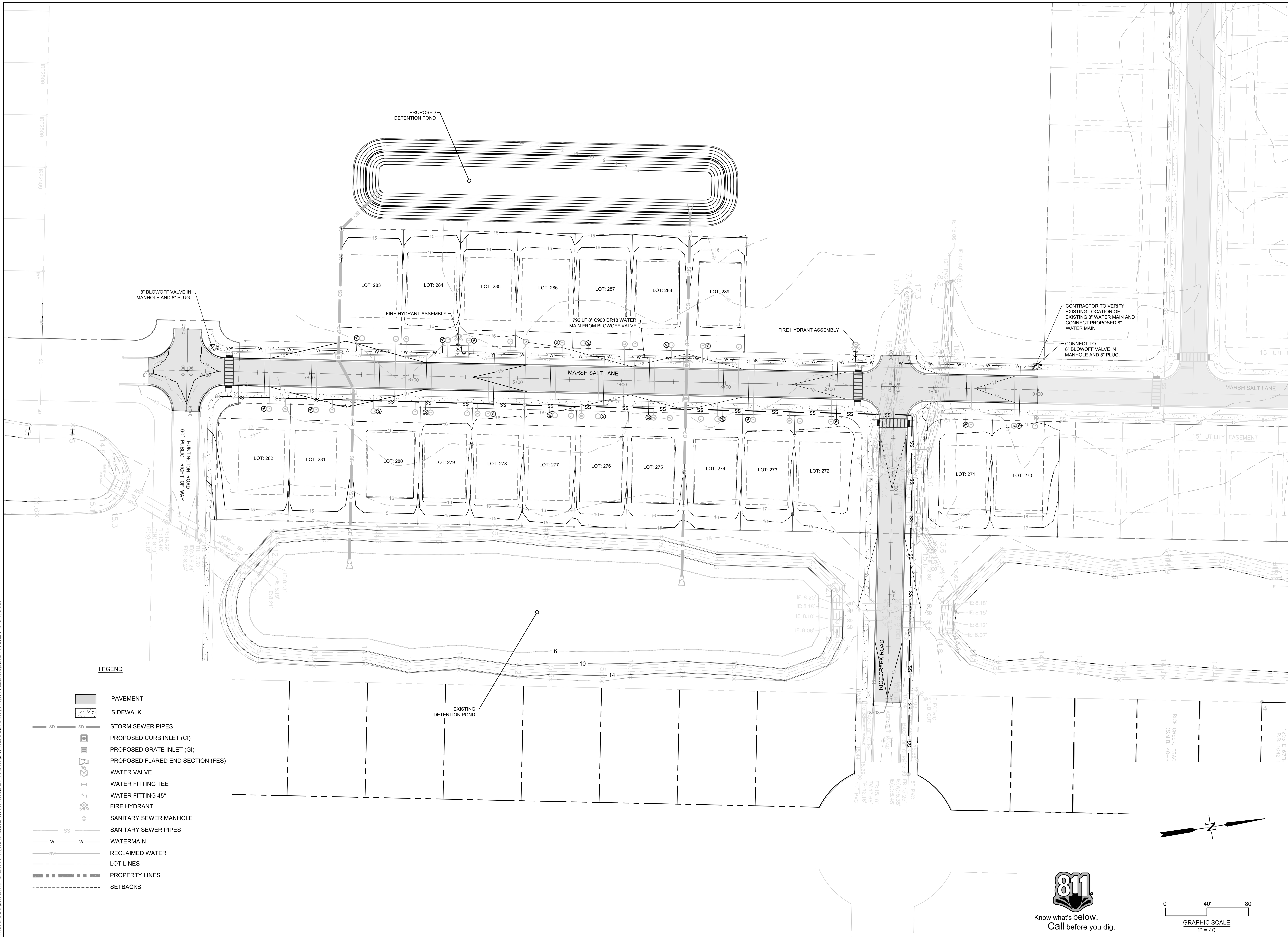
SANITARY PROFILE

Rice Creek Phase 6
Port Wentworth
PREPARED FOR:
Landmark 24, LLC

DATE: 01/03/2022
PROJECT NUMBER: 21508
DRAWN BY: JLV
CHECKED BY: JLV
SCALE: 1"; AS SHOWN

9
SHEET:



GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK

01/03/22

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WATER PLAN

Rice Creek Phase 6
Port Wentworth

PREPARED FOR:
Landmark 24, LLC

DATE: 01/03/2022

PROJECT NUMBER: 21508

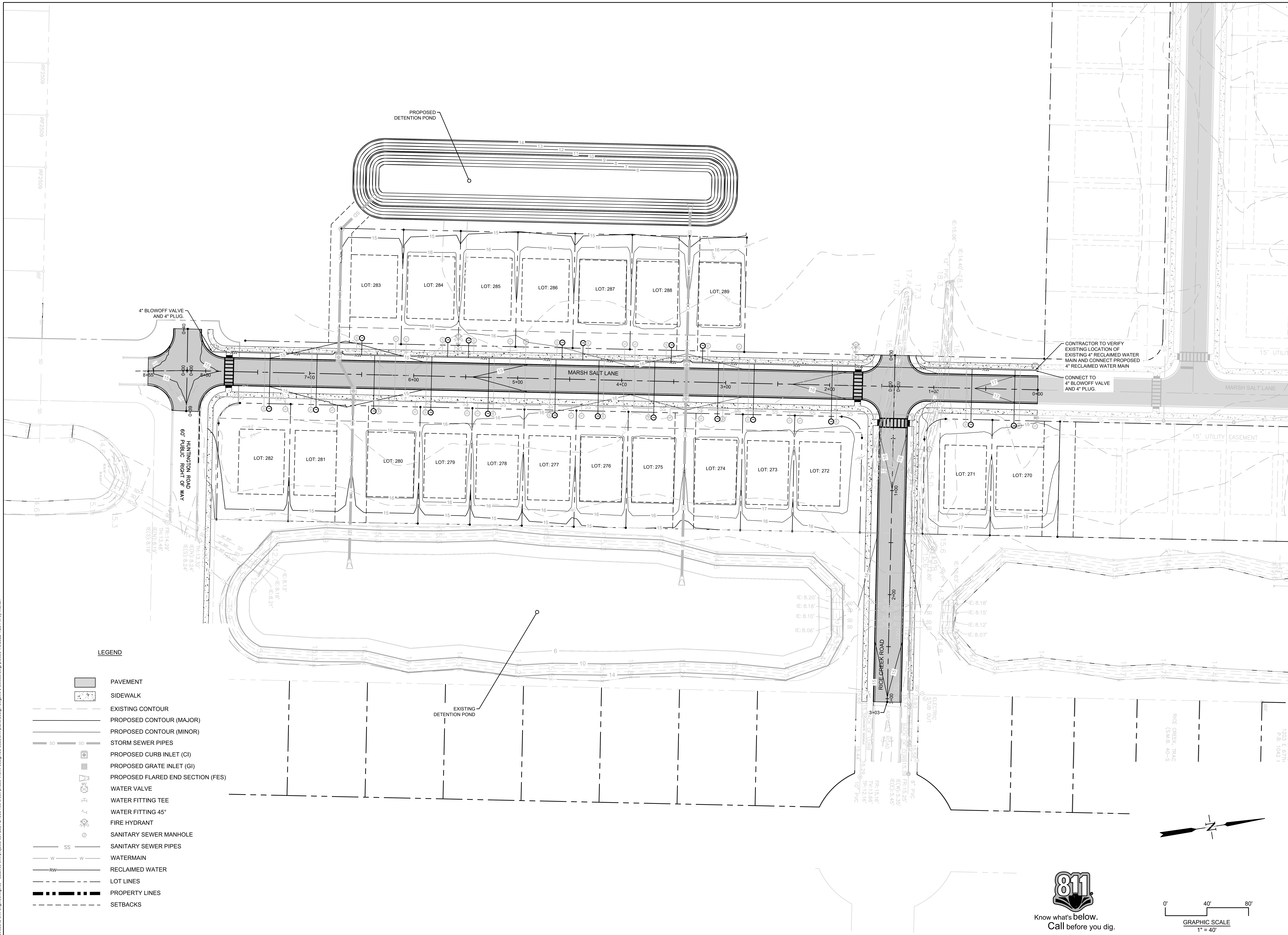
DRAWN BY: JLV

CHECKED BY: JLV

SCALE: 1":40' (FOR 24"X36" PLOT)

10

SHEET:



GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK

01/03/22

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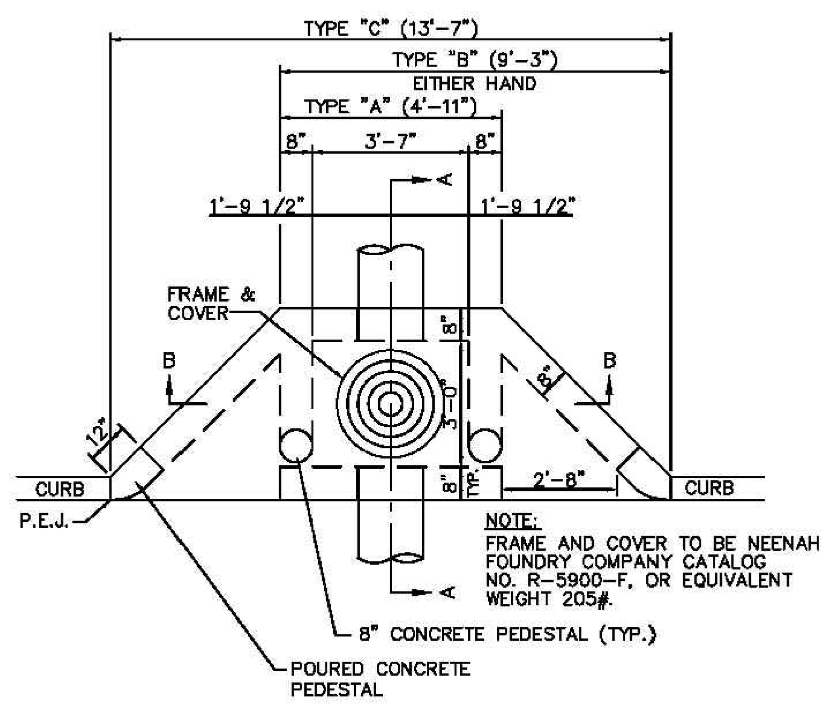
RECLAIMED WATER PLAN

Rice Creek Phase 6
Port Wentworth

PREPARED FOR:
Landmark 24, LLC

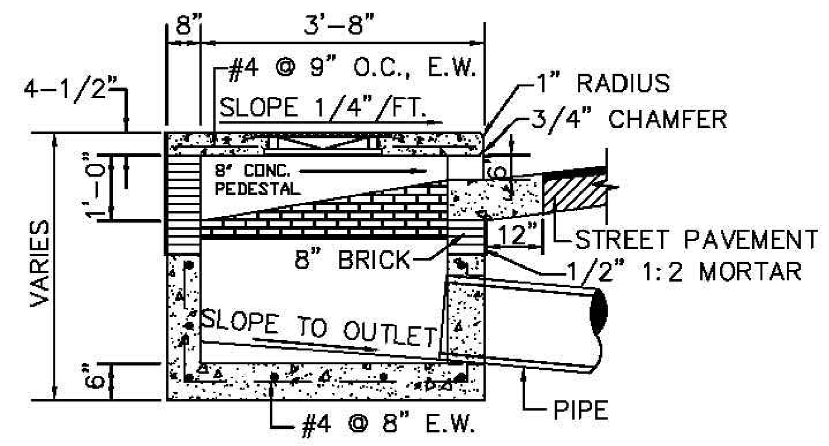
DATE: 01/03/2022
PROJECT NUMBER: 21508
DRAWN BY: JLV
CHECKED BY: JLV
SCALE: 1"=40' (FOR 24"X36" PLOT)

SHEET:
11



PLAN OF CURB INLET

City of Port Wentworth
TECHNICAL DETAILS
SD-1
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

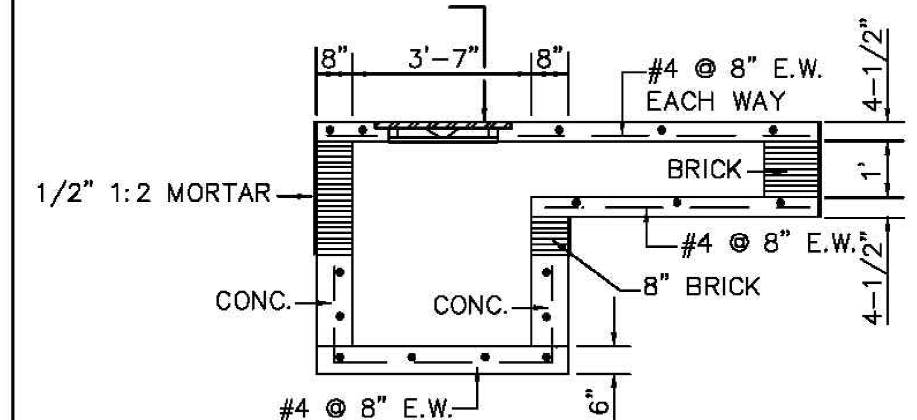


NOTES:
1. CHAMFER ALL EXPOSED CONCRETE EDGES 3/4"
2. PIPE TIEING TO CURB INLET MUST BE SEALED INSIDE AND OUTSIDE OF STRUCTURE WITH BRICK AND MORTAR

CURB INLET SECTION A – A

City of Port Wentworth
TECHNICAL DETAILS
SD-3
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

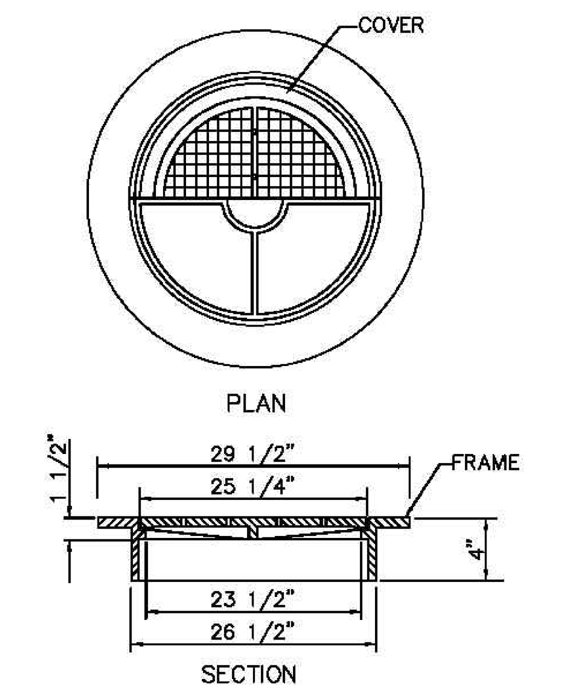
NOTE:
C.I. MANHOLE FRAME AND COVER EQUIVALENT TO NEENAH R-5900-F. FRAME AND COVER TO BE MACHINE FITTED PRIOR TO LEAVING SHOP. WEIGHT – 205 LBS.



NOTES:
1. MATCH TOP OF PIPE ELEVATIONS WHEN DIFFERENT SIZE PIPES ARE CONSTRUCTED IN CURB INLET.
2. TYPE "B" INLET SHOWN

CURB INLET SECTION B – B

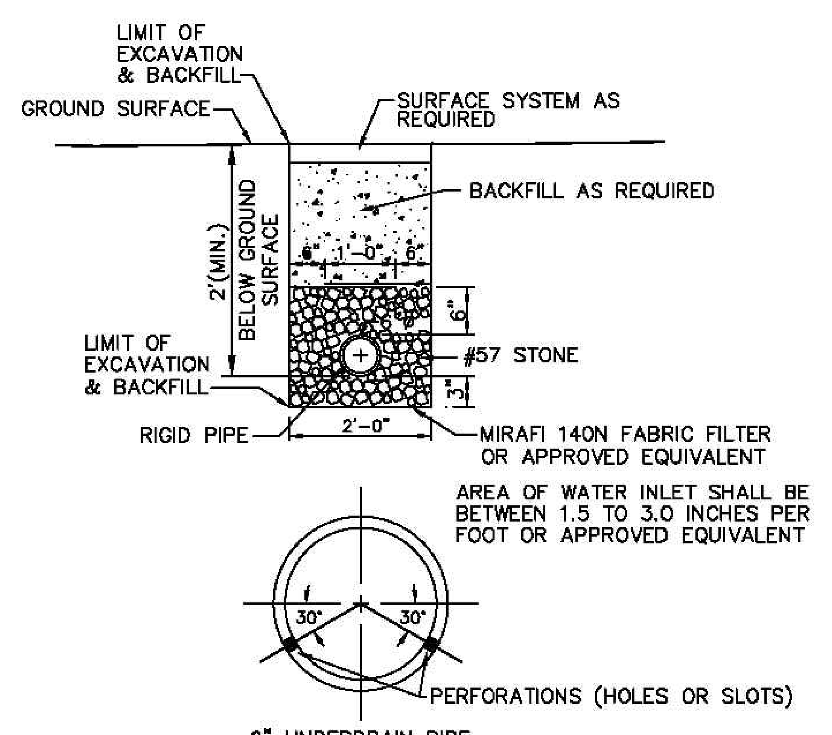
City of Port Wentworth
TECHNICAL DETAILS
SD-4
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTES:
1. FRAME AND COVER TO BE NEENAH FOUNDRY COMPANY CATALOG NO. R-5900-F OR EQUIVALENT WEIGHT 205#.
2. COVER MUST HAVE FOUNDRY STAMP SHOWING THE UTILITY (DRAINAGE).

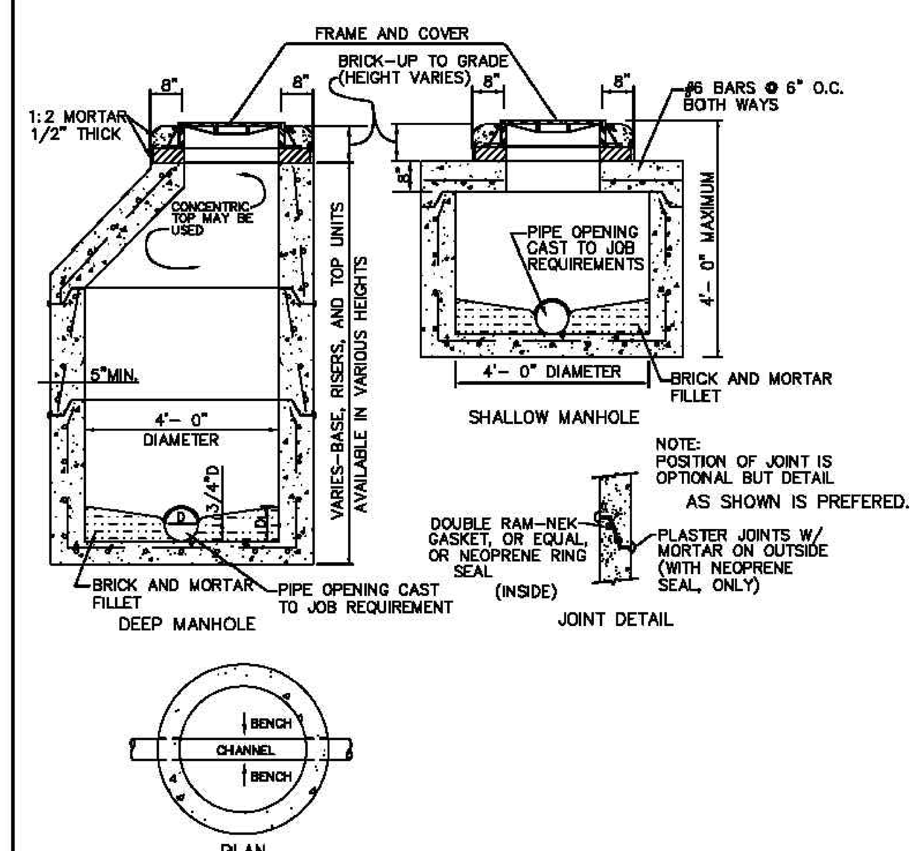
INLET FRAME & COVER

City of Port Wentworth
TECHNICAL DETAILS
SD-5
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



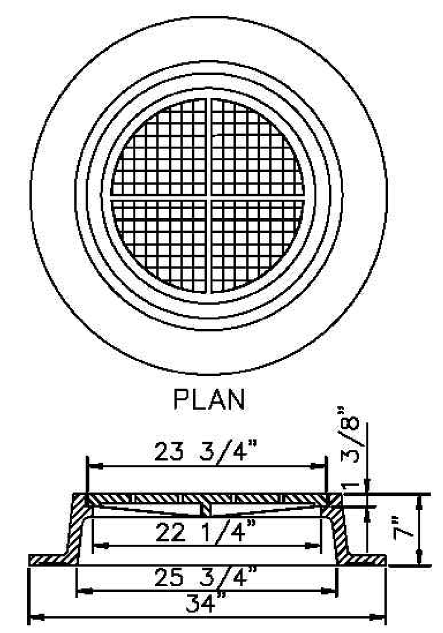
6" UNDERDRAIN PIPE

City of Port Wentworth
TECHNICAL DETAILS
SD-10
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



PRECAST STORM MANHOLE

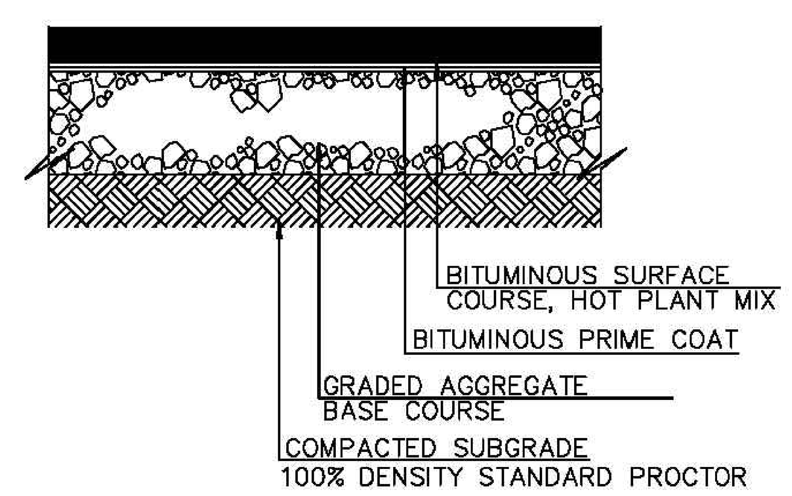
City of Port Wentworth
TECHNICAL DETAILS
SD-12
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTE:
MANHOLE RIM & COVER SIMILAR TO NEENAH FOUNDRY CO. R-1412-A4. TOTAL WEIGHT 310#. TYPE "C" LID TO HAVE MACHINED BEARING SURFACES. LID TO BE LETTERED "STORM".

STORM MANHOLE RING & COVER

City of Port Wentworth
TECHNICAL DETAILS
SD-14
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



TYPICAL BITUMINOUS PAVING SECTION

City of Port Wentworth
TECHNICAL DETAILS
P-1
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK
01/03/22

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CONSTRUCTION DETAILS

Rice Creek Phase 6
Port Wentworth
PREPARED FOR:
Landmark 24, LLC

DATE: 01/03/2022
PROJECT NUMBER: 21508
DRAWN BY: JLV
CHECKED BY: JLV
SCALE: NTS

D1
SHEET:

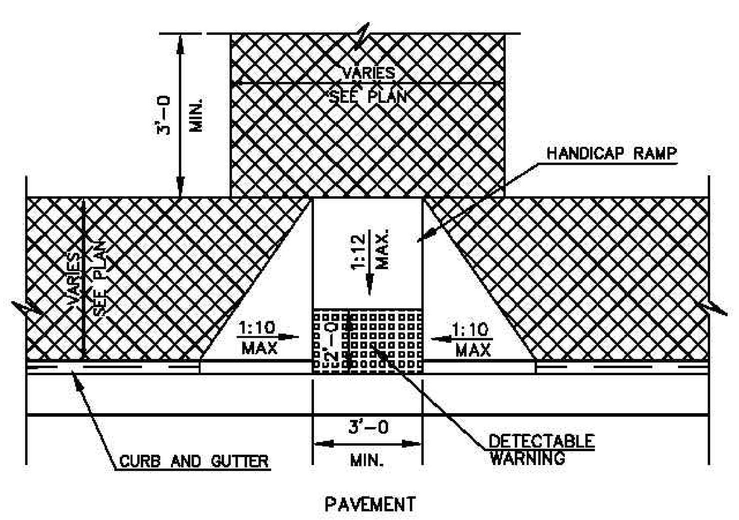
NOTE:
CONTRACTOR IS TO USE 2" ASPHALT CONCRETE SURFACE "E" MIX.

DETECTABLE WARNINGS ON WALKING SURFACE OF HANDICAP RAMP

DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 IN (23mm). A HEIGHT OF NOMINAL 0.2 IN (5mm) AND A CENTER–TO–CENTER SPACING OF NOMINAL 2.35 IN (60mm) AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT–ON–DARK, OR DARK–ON–LIGHT.

THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE INTEGRAL PART OF THE WALKING SURFACE. DETECTABLE WARNINGS USED ON SURFACES SHALL DIFFER FROM ADJOINING WALKING SURFACES IN RESILIENCY OR SOUND–ON–CANE

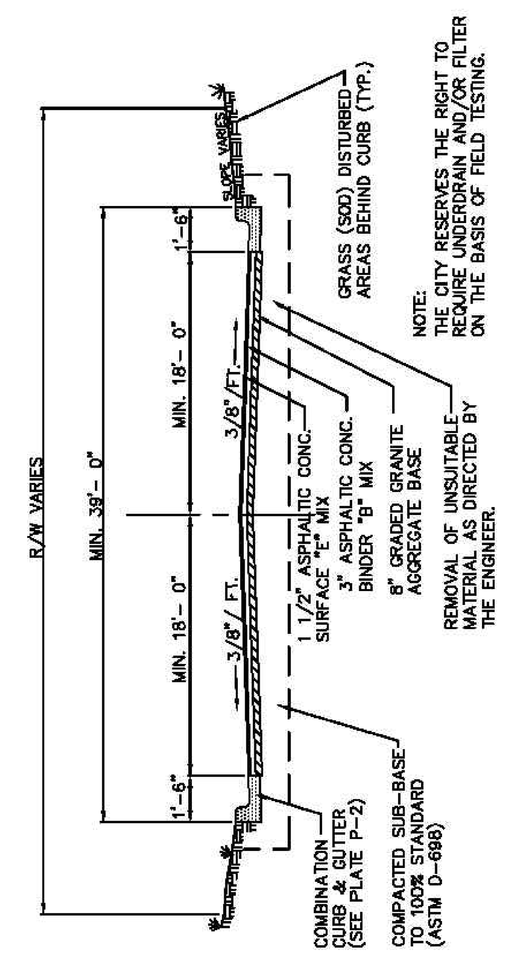
SURFACES SHALL MEET THE ADA ACCESSIBILITY GUIDELINES SECTION 4.29.2.



HANDICAP RAMP TYPE "A"

City of Port Wentworth
TECHNICAL DETAILS
P–4

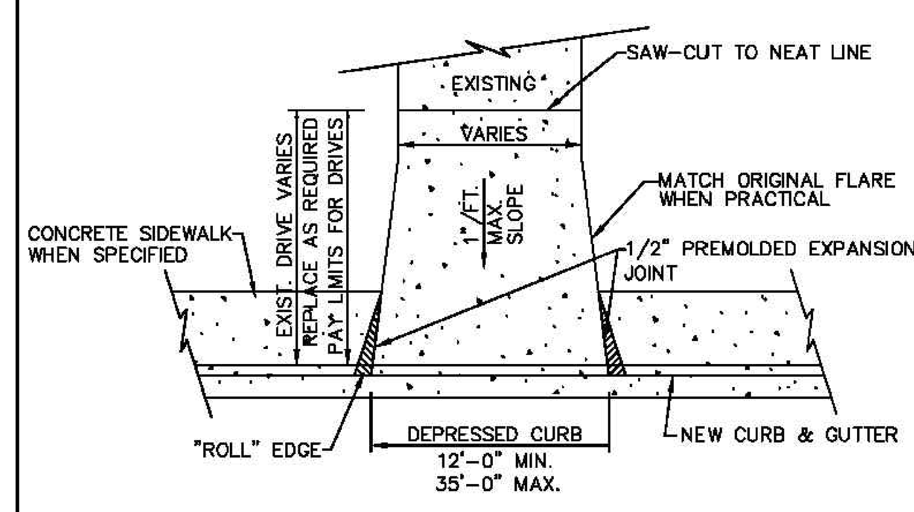
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



TYPICAL SECTION COLLECTOR/ARTERIAL STREET

City of Port Wentworth
TECHNICAL DETAILS
P–6

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

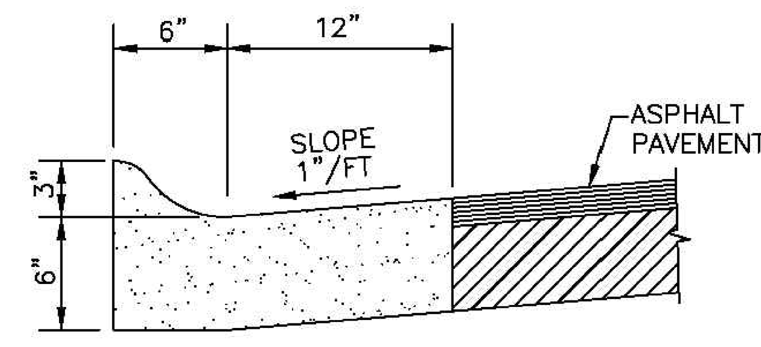


NOTE:
1. % OF THE SLOPE FROM DRIVE TO STREET
2. DRIVEWAY THICKNESS SHALL BE 6" FIBER REINFORCED CONCRETE.

DRIVEWAY

City of Port Wentworth
TECHNICAL DETAILS
P–8

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

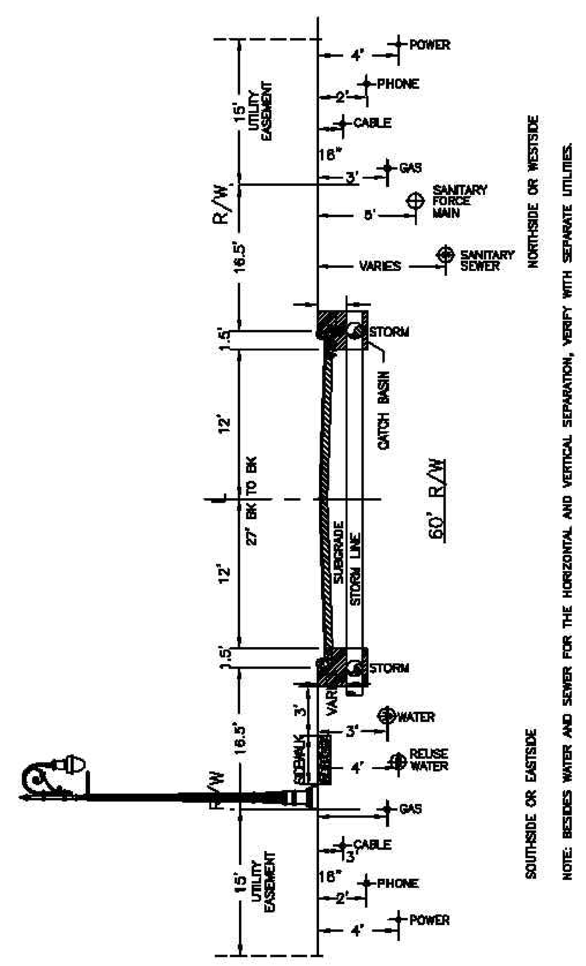


NOTE: FOR RESIDENTIAL USE ONLY

ROLL–OVER CURB

City of Port Wentworth
TECHNICAL DETAILS
P–11

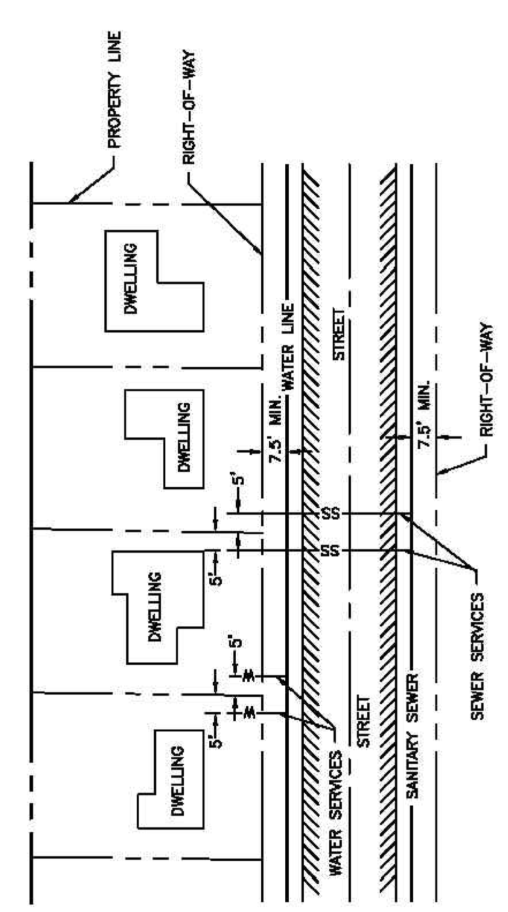
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



TYP. SECTION UNDERGROUND UTILITY INSTALLATION

City of Port Wentworth
TECHNICAL DETAILS
U–1

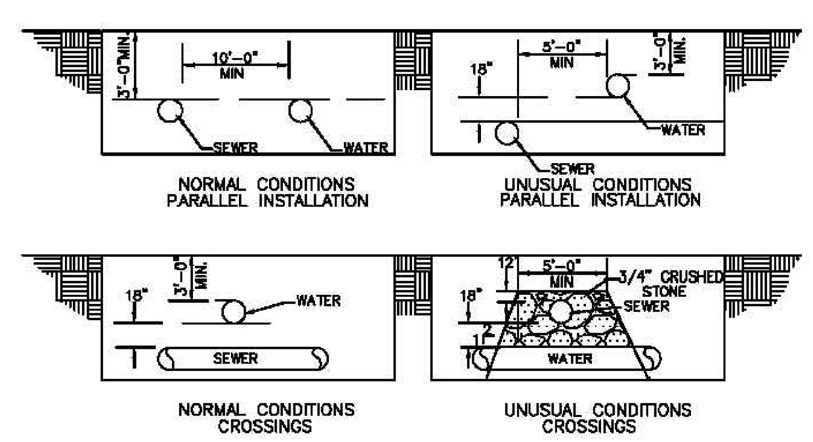
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



TYP. WATER & SEWER PLANNING

City of Port Wentworth
TECHNICAL DETAILS
U–2

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTES:

THE SEPARATION OF WATER MAINS AND SEWERS SHALL COMPLY WITH THE GEORGIA ENVIROMENTAL PROTECTION DIVISION MINIMUM STANDARDS FOR PUBLIC WATER SYSTEMS, WHICH ARE GENERALLY AS FOLLOWS:

A. PARALLEL INSTALLATION:

1. NORMAL CONDITIONS: THE INSIDE EDGE OF A WATER LINE SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM THE INSIDE EDGE OF ANY SANITARY SEWER, STORM SEWER OR SEWER MANHOLE.

2. UNUSUAL CONDITIONS: WHEN LOCAL CONDITIONS PREVENT A HORIZONTAL SEPARATION OF 10 FEET, AND WHEN APPROVED BY THE ENGINEER, THE INSIDE EDGE OF A WATER MAIN MAY BE LAID A MINIMUM OF 5 FEET FROM THE INSIDE EDGE OF A SEWER PROVIDED THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES HIGHER THAN THE TOP OF THE SEWER (SEE DETAIL), AND THE WATER MAIN IS LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF.

B. CROSSINGS:

1. NORMAL CONDITIONS: WHENEVER POSSIBLE, THE BOTTOM OF THE WATER MAIN SHALL BE AT LEAST 18 INCHES HIGHER THAN THE TOP OF THE SEWER.

2. UNUSUAL CONDITIONS: IF A WATER MAIN MUST CROSS UNDER A SEWER, THE TOP OF THE WATER MAIN SHALL BE AT LEAST 18 INCHES LOWER THAN THE BOTTOM OF THE SEWER, THE WATER MAIN PIPE SHALL BE CENTERED AT THE CROSSING SO THAT THE JOINTS ARE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER, AND ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT EXCESSIVE DEFLECTION OF THE SEWER AT THE CROSSING. ADEQUATE STRUCTURAL SUPPORT SHALL INCLUDE BACKFILLING THE ENTIRE UTILITY CROSSING AREA WITH 3/4" CRUSHED STONE AS SHOWN IN THE DETAIL.

MINIMUM WATER & SEWER PIPE SEPARATION

City of Port Wentworth
TECHNICAL DETAILS
U–3

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

NOTES:
1. ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCEWITH THE CITY OF PORT WENTWORTH'S LATEST CONSTRUCTION SPECIFICATIONS AND DETAILS. THE SYSTEM SHALL BE DESIGNED AND TESTED PER THE SPECIFICATIONS AND REQUIREMENTS MAINTAINED BY THE CITY ENGINEER.
2. AN APPROVED WATER SUPPLY FOR FIRE PROTECTION, EITHER TEMPORARY OR PERMANENT, SHALL BE MADE AVAILABLE AS SOON AS COMBUSTIBLE MATERIAL ARRIVES ON THE SITE.
3. ALL WATER USED FOR CONSTRUCTION SHALL BE METERED THROUGH AN APPROVED BACKFLOW-PREVENTION DEVICE AND FIRE HYDRANT METER OBTAINED FROM THE CONVEYANCE AND DISTRIBUTION DEPARTMENT.
4. ALL ABANDONED SANITARY SEWER LINES SHALL BE PLUGGED.
5. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE SEWER LINES ARE PLACED WITHIN THE EASEMENTS WITH A MINIMUM 7'-6" AVAILABLE FROM PIPE CENTERLINE TO EASEMENT LINE.
6. CONTACT THE UTILITIES PROTECTION CENTER (811 IN GEORGIA OR 1-800-282-7411) FOR LOCATION OF CITY SEWER LINES A MINIMUM OF SEVENTY-TWO (72) HOURS PRIOR TO DIGGING.
7. CONTRACTOR SHALL NOTIFY RESIDENTS A MINIMUM OF 24 HOURS IN ADVANCE OF ANY WORK THAT MAY IMPACT THEM, INCLUDING BUT NOT LIMITED TO: PARKING STALL IMPACT, LOSS OF SERVICE, DRIVEWAY CUTS, REMOVAL/RELOCATION OF FENCES AND MAIL BOXES, SIDEWALK IMPACTS, ETC.

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 046602 JESSICA VICK
01/03/22

REVISIONS

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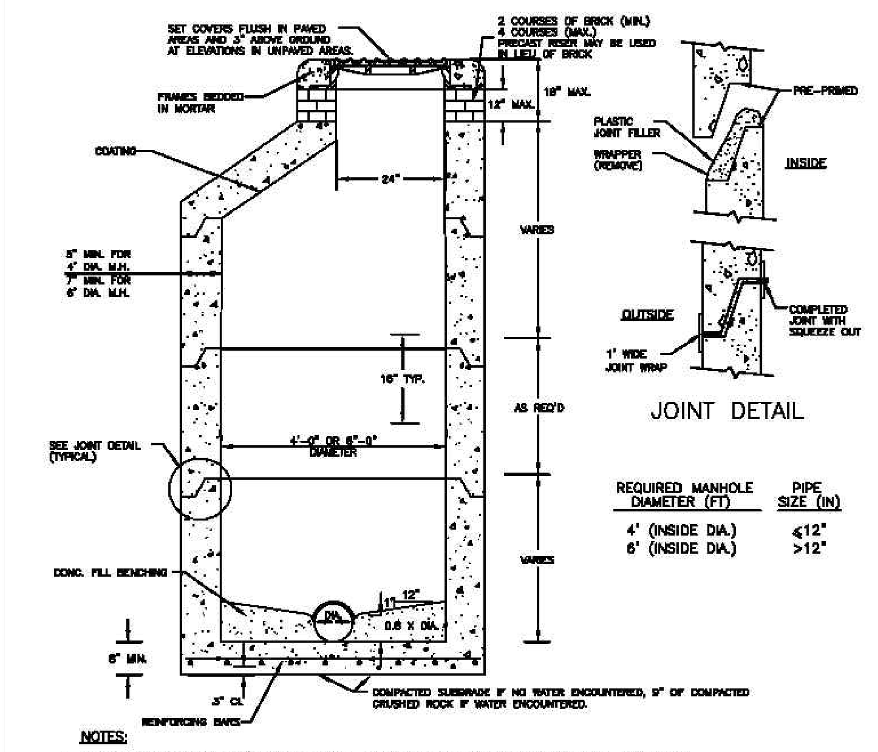
CONSTRUCTION DETAILS

Rice Creek Phase 6
Port Wentworth
PREPARED FOR:
Landmark 24, LLC

DATE: 01/03/2022
PROJECT NUMBER: 21508
DRAWN BY: JLV
CHECKED BY: JLV
SCALE: NTS

D2
SHEET:



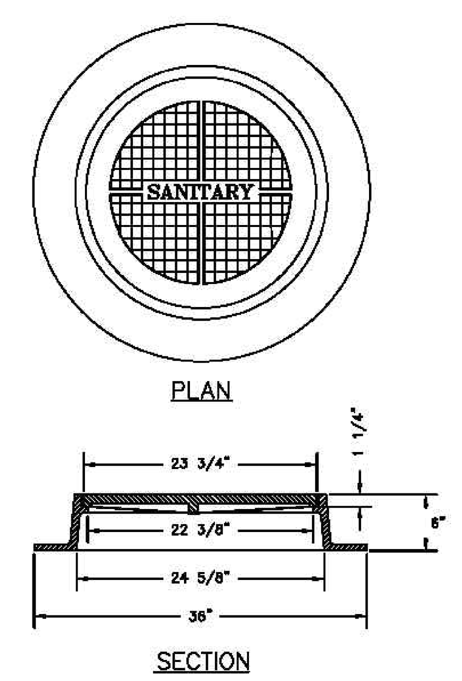
NOTES:

1. PRECAST REINFORCED CONCRETE TOPS, RISERS, BASES AND REBARS SHALL CONFORM TO LATEST ASTM C–478 STD. SPECIFICATIONS.
2. INTERIOR OF MANHOLE SHALL BE COATED IN ACCORDANCE WITH CITY OF PORT WENTWORTH STD. SPECIFICATIONS. THE EXTERIOR OF MANHOLE SHALL BE COATED WITH CONSEAL CS–55 DAMP–PROOF COATING OR EQUAL
3. MANUFACTURER CERTIFICATION THAT MANHOLE MEETS ASTM SPECIFICATION SHALL BE SUBMITTED TO CITY OF PORT WENTWORTH.
4. SEE DETAIL SHEET FOR MANHOLE COVER & FRAME.
6. BUOYANCY MAY NEED TO BE CHECKED IF NECESSARY
7. ALL PIPE PENETRATIONS SHALL HAVE A BOOT CONNECTION. SEE DETAIL S–6.

PRECAST CONCRETE MANHOLE

City of Port Wentworth
TECHNICAL DETAILS
S–1

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTE:

MANHOLE RING & COVER SHALL BE HEAVY DUTY RATED EQUAL TO U. S. FOUNDRY CO. USF 195–ORS. TOTAL WEIGHT 325# TYPE "C" LID TO HAVE MACHINED BEARING SURFACES. LID TO BE LETTERED 2 1/2" –3" LETTER HEIGHT "SANITARY" (NON VENTED). MANHOLE RING SHALL INCLUDE A WATERTIGHT GASKET. STACKING CLEATS ON THE BOTTOM OF THE COVER SHALL NOT BE ALLOWED.

MANHOLE RING & COVER

City of Port Wentworth
TECHNICAL DETAILS
S–2

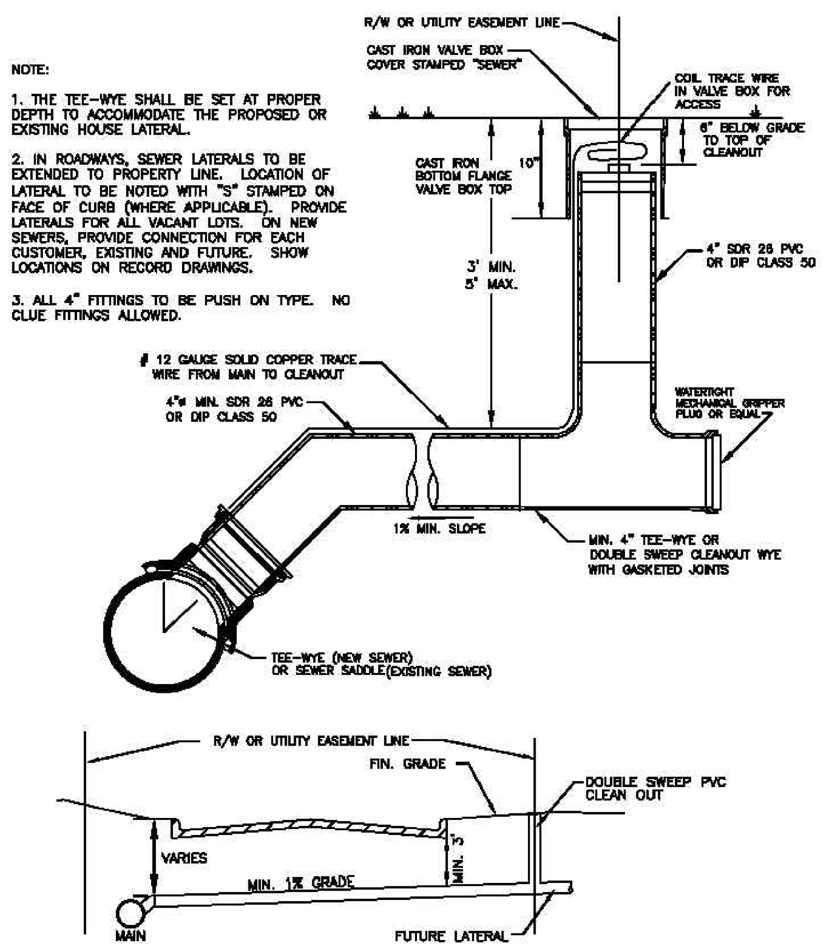
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

NOTE:

1. THE TEE–WYE SHALL BE SET AT PROPER DEPTH TO ACCOMMODATE THE PROPOSED OR EXISTING HOUSE LATERAL.

2. IN ROADWAYS, SEWER LATERALS TO BE EXTENDED TO PROPERTY LINE. LOCATION OF LATERAL TO BE NOTED WITH "S" STAMPED ON FACE OF CURB (WHERE APPLICABLE). PROVIDE LATERALS FOR ALL VACANT LOTS. ON NEW SEWERS, PROVIDE CONNECTION FOR EACH CUSTOMER, EXISTING AND FUTURE. SHOW LOCATIONS ON RECORD DRAWINGS.

3. ALL 4" FITTINGS TO BE PUSH ON TYPE. NO CLUE FITTINGS ALLOWED.

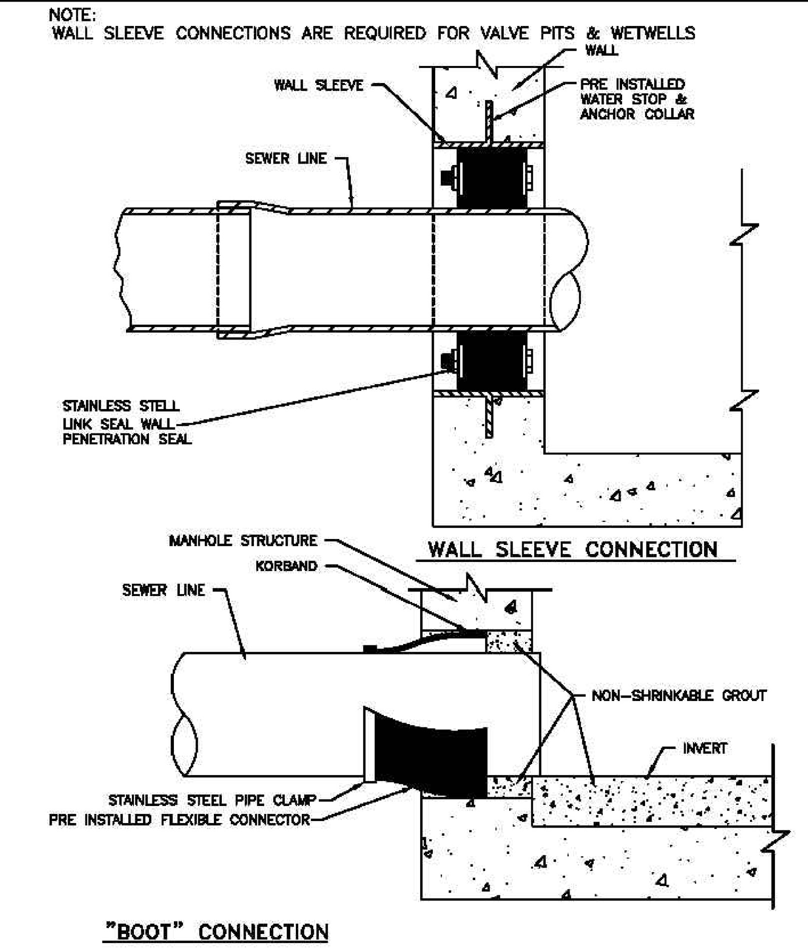


SANITARY SEWER SERVICE CONNECTION

City of Port Wentworth
TECHNICAL DETAILS
S–4

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

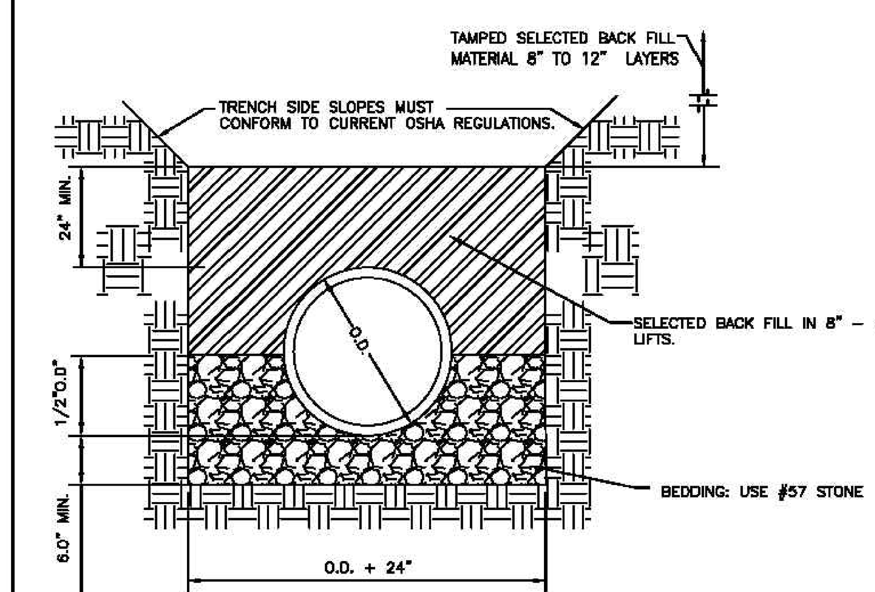
NOTE:
WALL SLEEVE CONNECTIONS ARE REQUIRED FOR VALVE PITS & WETWELLS



PRECAST STRUCTURE PIPE CONNECTION

City of Port Wentworth
TECHNICAL DETAILS
S–6

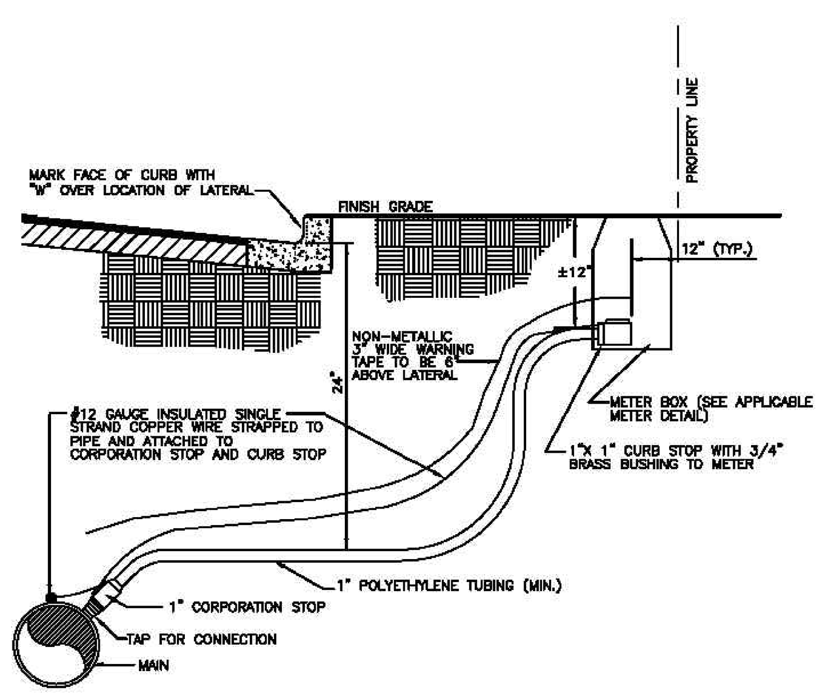
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



PIPE BEDDING

City of Port Wentworth
TECHNICAL DETAILS
S–8

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

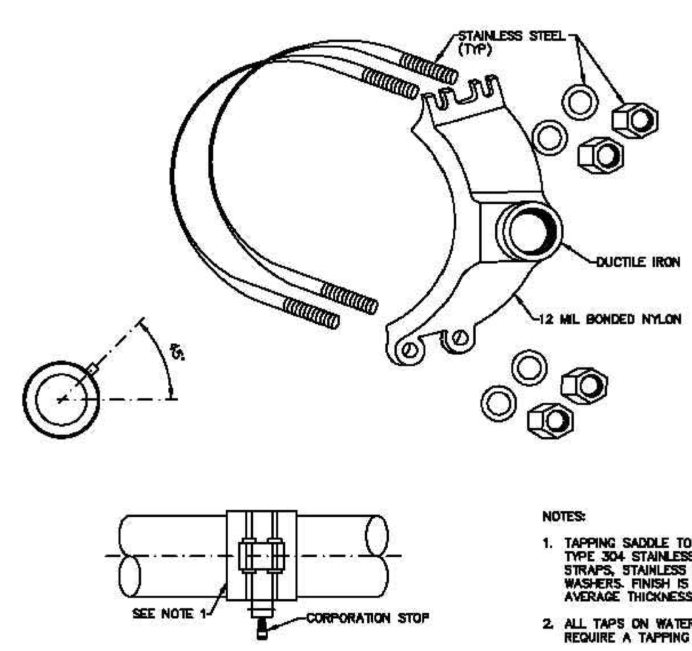


NOTE:
ALL FITTINGS IN LATERAL SHALL BE COMPRESSION TYPE.

WATER SERVICE LATERAL

City of Port Wentworth
TECHNICAL DETAILS
W–1

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTES:

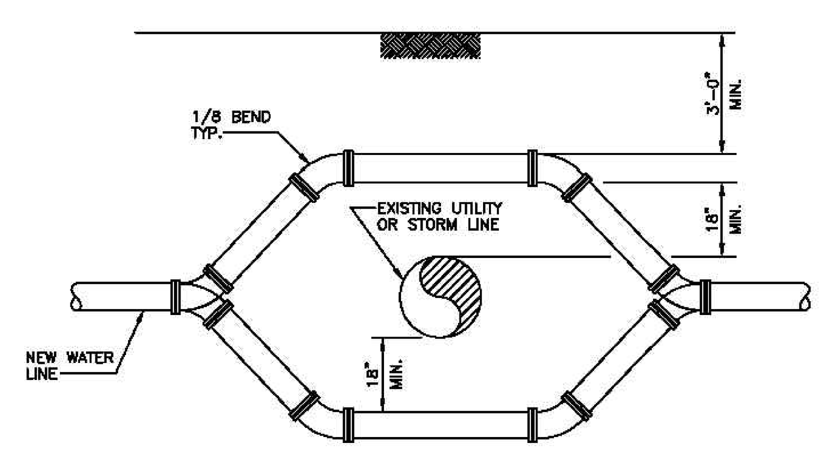
1. TAPPING SADDLE TO BE DUCTILE IRON WITH TYPE 304 STAINLESS STEEL FORGED DOUBLE STRAPS, STAINLESS STEEL BOLTS, NUTS AND WASHERS. FINISH IS FUSION–BONDED NYLON TO AVERAGE THICKNESS OF 12 MILS.

2. ALL TAPS ON WATER MAIN WILL REQUIRE A TAPPING SADDLE.

1" AND 2" TAPPING SADDLE

City of Port Wentworth
TECHNICAL DETAILS
W–2

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTES:

1. WATER LINE SHALL BE INSTALLED ABOVE SANITARY OR STORM LINE IF POSSIBLE.

2. STRAIGHT RUN OF WATER LINE DIRECTLY ABOVE OR BELOW EXISTING UTILITY LINE MUST BE 10' MINIMUM WITH NO JOINT.

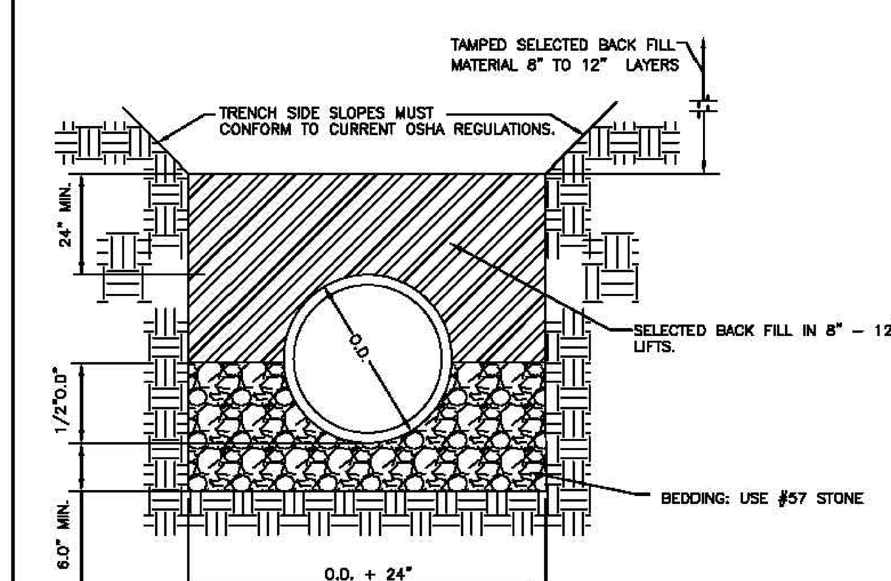
3. IF WATER LINE IS INSTALLED BELOW SANITARY LINE WATER LINE SHALL BE DUCTILE IRON PIPE.

4. JOINTS SHALL BE RESTRAINED IN ACCORDANCE WITH CITY OF PORT WENTWORTH STANDARD DETAILS.

STANDARD UTILITY CROSSING

City of Port Wentworth
TECHNICAL DETAILS
W–6

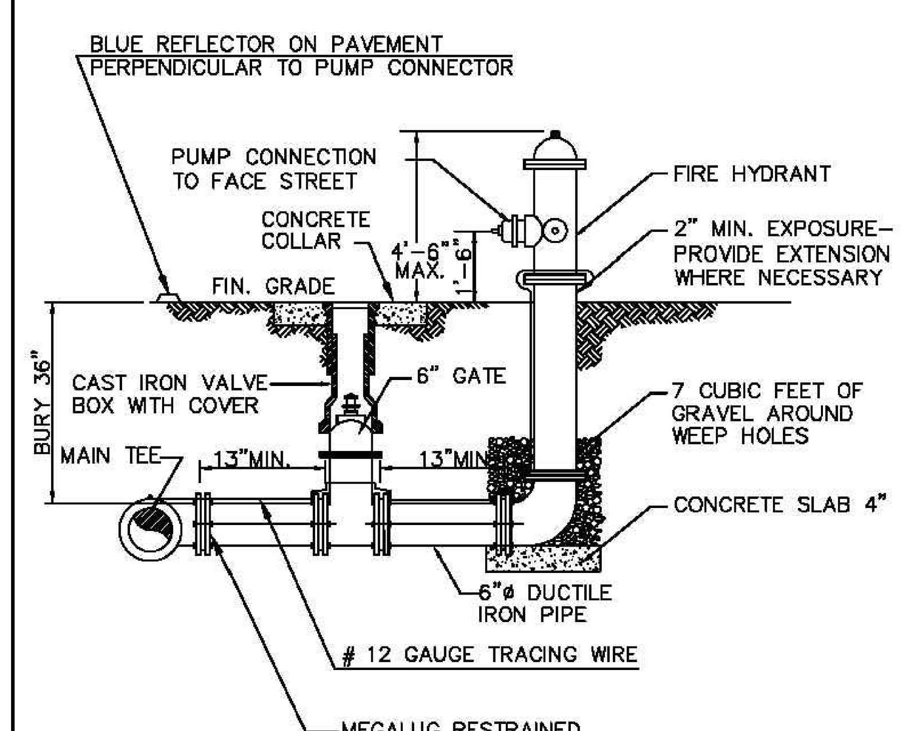
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



PIPE BEDDING

City of Port Wentworth
TECHNICAL DETAILS
W–8

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTE:

1. ALL JOINTS FROM MAIN TO HYDRANT SHALL BE RESTRAINED.
2. PROTECT BOLTS AND THREADS FROM CONCRETE.

STANDARD FIRE HYDRANT

City of Port Wentworth
TECHNICAL DETAILS
W–9

PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 046602 JESSICA VICK 01/03/22

REVISIONS

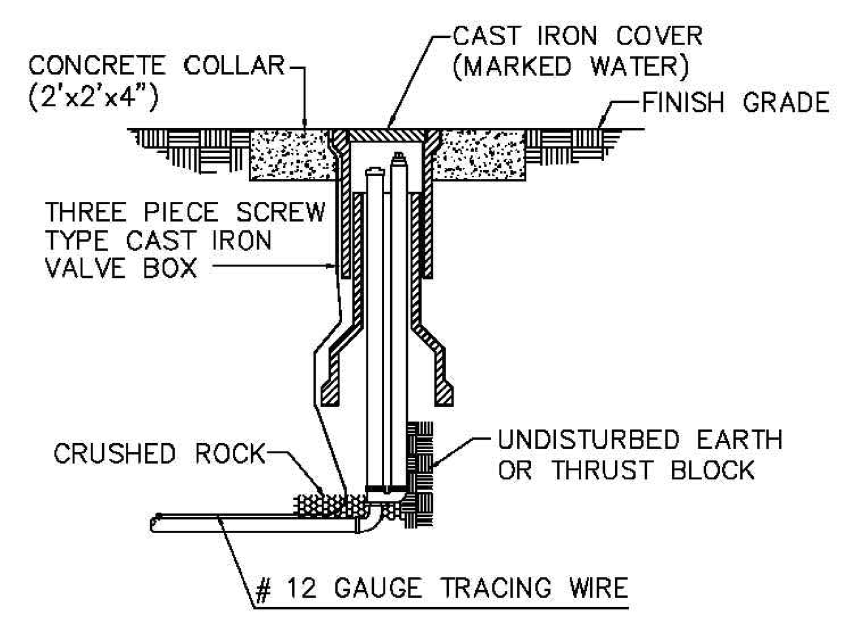
ROBERTS CIVIL ENGINEERING
ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON
WWW.ROBERTSCIVILENGINEERING.COM

CONSTRUCTION DETAILS

Rice Creek Phase 6
Port Wentworth
PREPARED FOR:
Landmark 24, LLC

DATE: 01/03/2022
PROJECT NUMBER: 21508
DRAWN BY: JLV
CHECKED BY: JLV
SCALE: NTS

D3
SHEET:

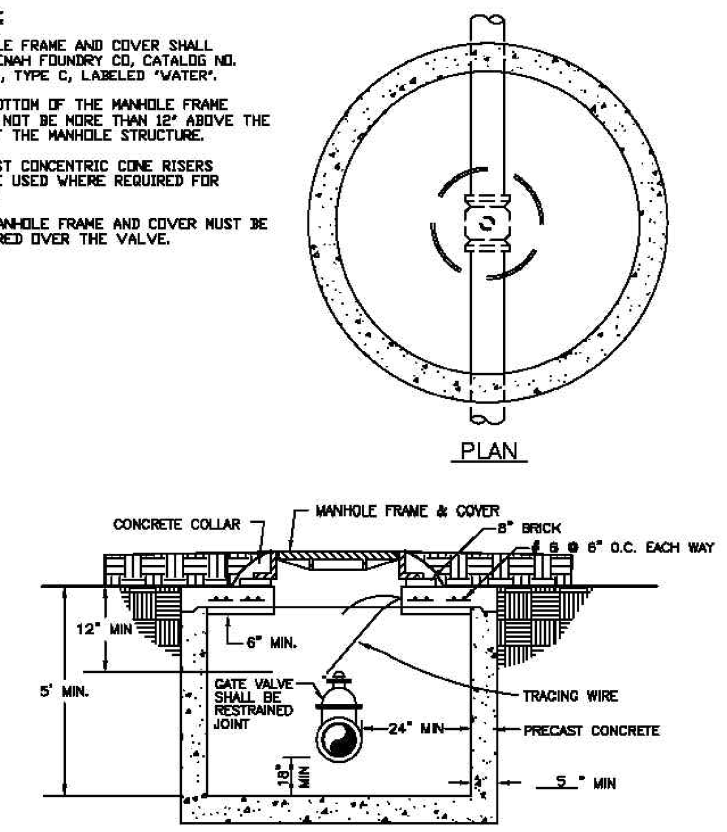


NOTE:
1. MAINGUARD #79 BLOW-OFF HYDRANT BY THE KUPFERLE FOUNDRY COMPANY. SEE MANUFACTURER'S SPECIFICATION FOR FURTHER DETAIL.

BLOW-OFF HYDRANT

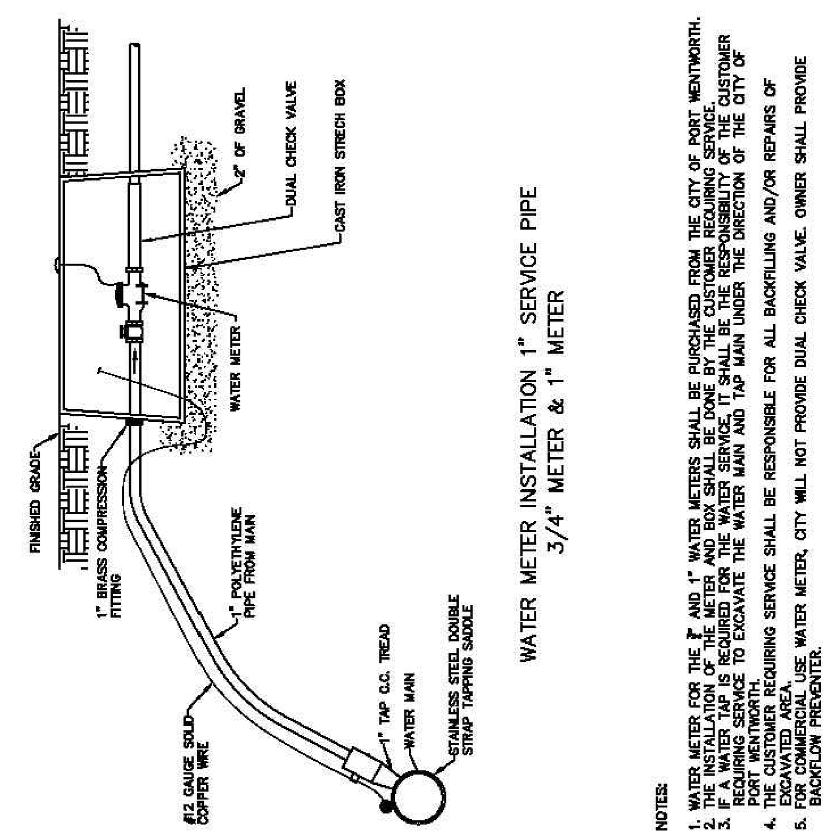
City of Port Wentworth
TECHNICAL DETAILS
W-10
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

NOTES:
1. MANHOLE FRAME AND COVER SHALL BE NEENAH FOUNDRY CO, CATALOG NO. R-1668, TYPE C, LABELED "WATER".
2. THE BOTTOM OF THE MANHOLE FRAME SHALL NOT BE MORE THAN 12" ABOVE THE TOP OF THE MANHOLE STRUCTURE.
3. PRECAST CONCENTRIC CONE RISERS MAY BE USED WHERE REQUIRED FOR DEPTH.
4. THE MANHOLE FRAME AND COVER MUST BE CENTERED OVER THE VALVE.



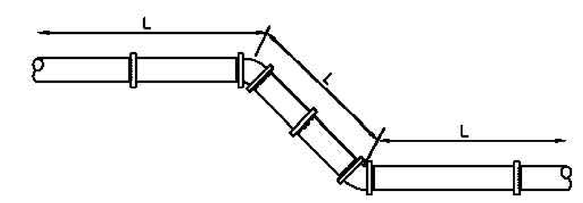
VALVE MANHOLE FOR 8" & GREATER GATE VALVE

City of Port Wentworth
TECHNICAL DETAILS
W-14
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



WATER METER

City of Port Wentworth
TECHNICAL DETAILS
W-17
ADDENDUM 01
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



PVC LINE

PIPE DIA.	BEND ANGLE 11 1/4°	22 1/2°	45°	90°
4	5	10	22	52
6	7	15	30	74
8	9	19	40	96
10	11	23	48	115
12	13	27	56	136

DUCTILE IRON LINE

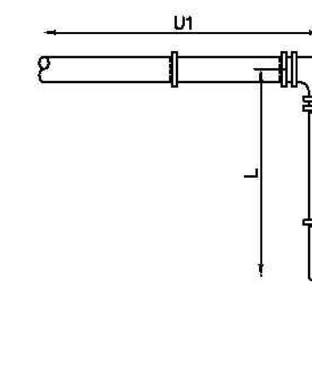
PIPE DIA.	BEND ANGLE 11 1/4°	22 1/2°	45°	90°
4	3	6	12	28
6	4	8	17	40
8	4	10	22	52
10	5	12	26	62
12	6	15	30	73
16	7	19	39	94
20	11	23	47	114
24	13	26	55	132

MINIMUM RESTRAINED LENGTH (L)

NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LINES CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.

STANDARD VERTICAL BEND RESTRAINT

City of Port Wentworth
TECHNICAL DETAILS
W-28
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



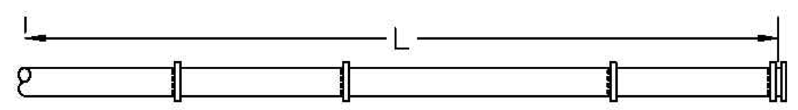
NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET
2. WHERE LIMITS CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.
3. U1 AND U2 = UNINTERUPTED STRAIGHT RUNS OF PIPE IN EACH DIRECTION.
4. Ur = THE SMALLER OF U1 OR U2.
5. L = MINIMUM RESTRAINED LENGTH ALONG THE BRANCH
6. WHERE Ur IS LESS THAN 5', RESTRAIN TEE AS A 90° HORIZONTAL BEND.

TEE \ Ur	5'-10'	11'-20'	21'-35'	> 35'
4x4	43	28	4	*
6x4	38	17	*	*
6x6	64	49	25	*
8x4	34	6	*	*
8x6	61	42	10	*
8x8	87	72	48	12
10x4	29	*	*	*
10x6	58	34	*	*
10x8	84	66	35	*
10x10	106	91	67	31
12x4	24	*	*	*
12x6	54	26	*	*
12x8	82	60	23	*
12x10	104	86	57	13
12x12	126	112	87	51

MINIMUM RESTRAINED LENGTH (L)
* RESTRAIN AT TEE ONLY

STANDARD TEE RESTRAINT (PVC LINE)

City of Port Wentworth
TECHNICAL DETAILS
W-29
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



DUCTILE IRON LINE

PIPE DIA.	L
4	26
6	40
8	52
10	62
12	73
16	94
20	114
24	132

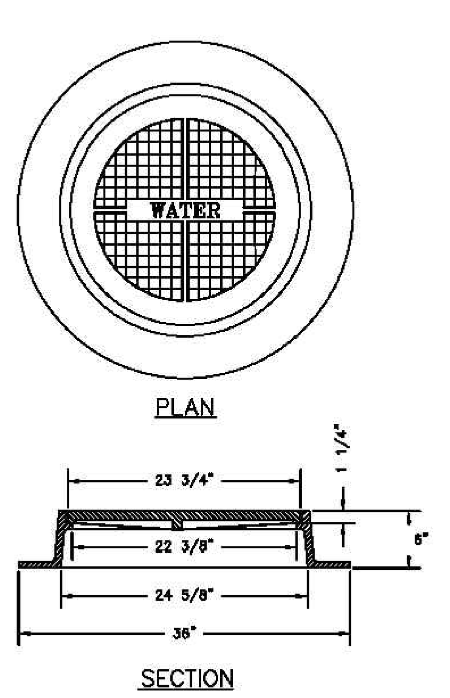
PVC LINE

PIPE DIA.	L
4	52
6	74
8	96
10	115
12	136

NOTES:
1. LENGTH OF RESTRAINT SHOWN IS IN FEET.
2. WHERE LIMITS CONSIST OF BOTH DUCTILE IRON AND PVC WITHIN THE LIMITS OF REQUIRED RESTRAINT, LIMITS FOR PVC SHALL APPLY.
3. FOR LINE STUBS (SEE DETAIL W39). THE LENGTH OF RESTRAINT (L) SHALL BE FROM THE VALVE AND NOT THE CAP.

STANDARD DEAD END RESTRAINT

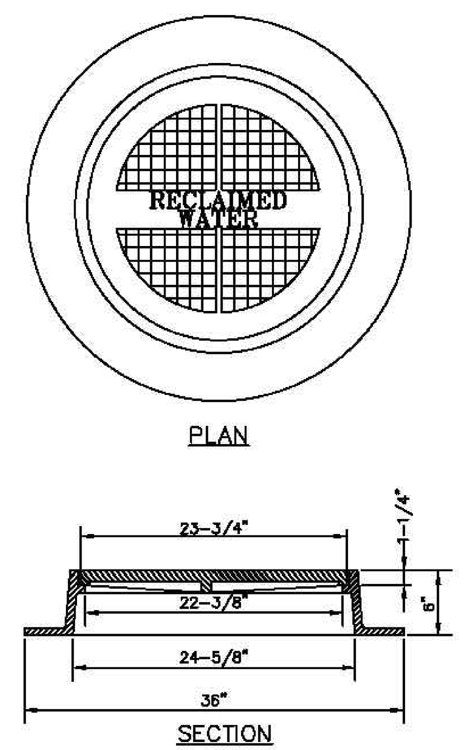
City of Port Wentworth
TECHNICAL DETAILS
W-31
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTE:
MANHOLE RING & COVER SHALL BE HEAVY DUTY RATED EQUAL TO U. S. FOUNDRY CO. USF 195-ORS. TOTAL WEIGHT 325# TYPE "C" LID TO HAVE MACHINED BEARING SURFACES. LID TO BE LETTERED 2 1/2" -3" LETTER HEIGHT "WATER" (NON VENTED). MANHOLE RING SHALL INCLUDE A WATERTIGHT GASKET. STACKING CLEATS ON THE BOTTOM OF THE COVER SHALL NOT BE ALLOWED.

MANHOLE RING & COVER

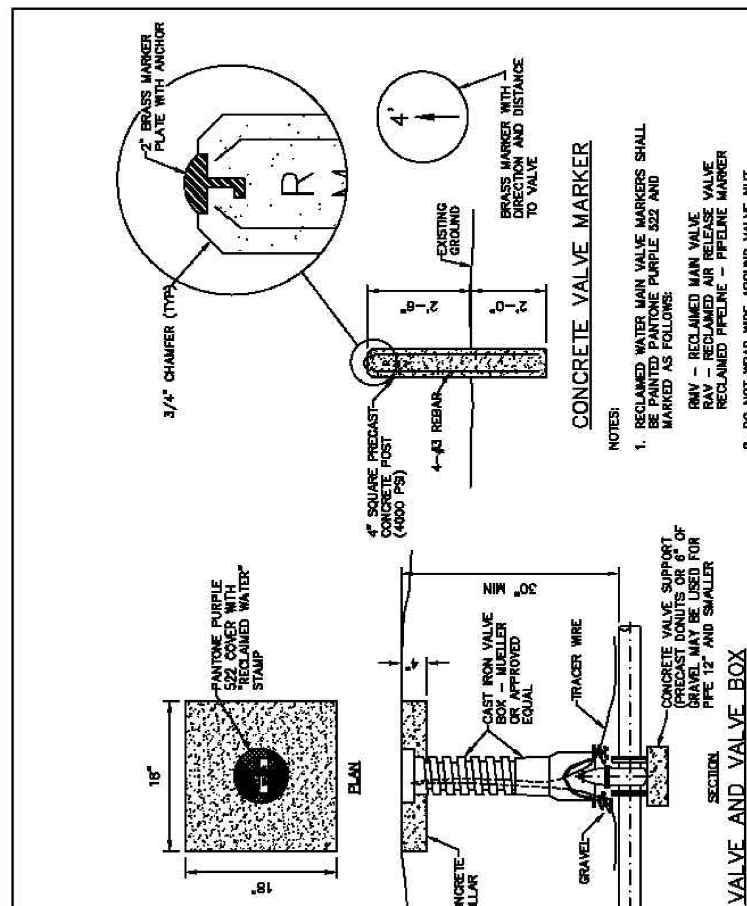
City of Port Wentworth
TECHNICAL DETAILS
W-34
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



NOTE:
MANHOLE RIM & COVER EQUIVALENT TO U.S. FOUNDRY CO. USF 195-ORS. TOTAL WEIGHT 325#. TYPE "E" LID TO HAVE MACHINED BEARING SURFACES. LID TO BE LETTERED "RECLAIMED WATER" FOR RECLAIMED WATER ARV MANHOLES OR RECLAIMED WATER VALVE MANHOLES.

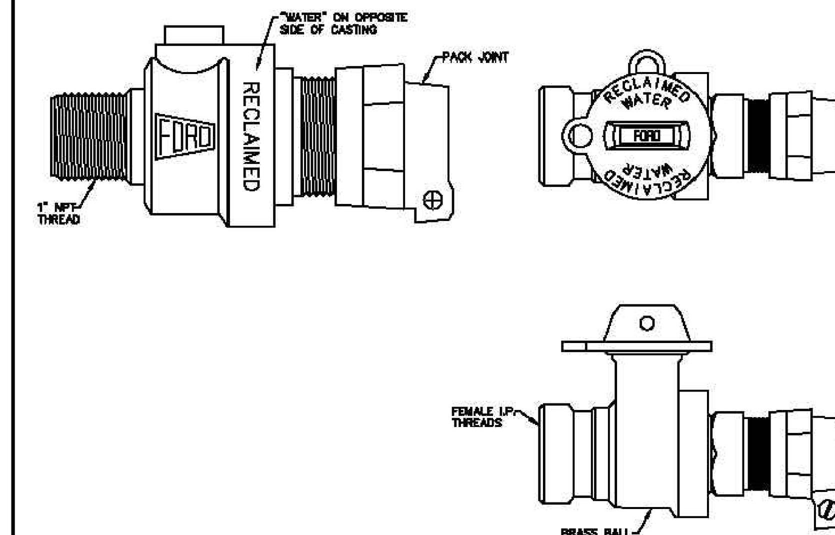
REUSE WATER MANHOLE RING & COVER

City of Port Wentworth
TECHNICAL DETAILS
RW-2
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



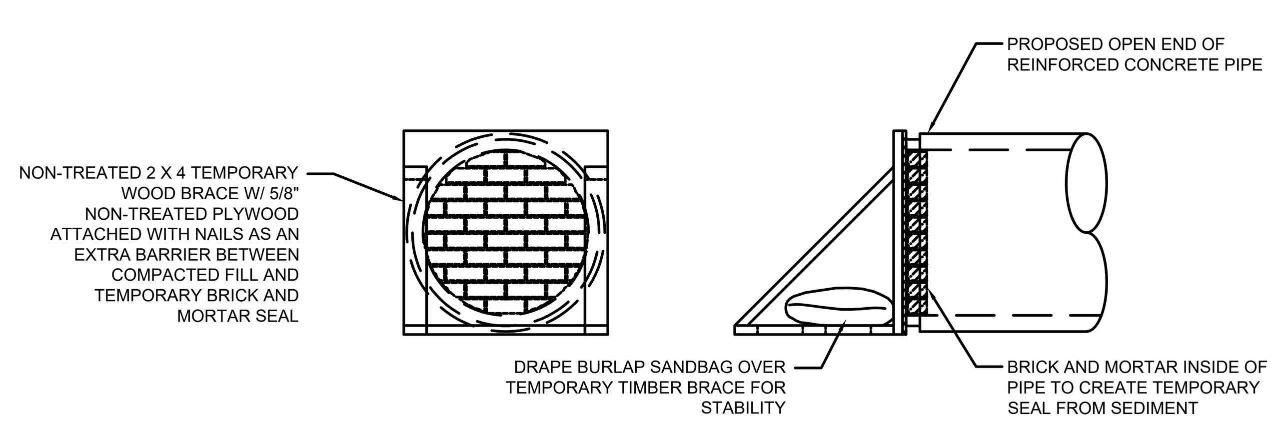
WATER VALVE 4" OR 6"

City of Port Wentworth
TECHNICAL DETAILS
RW-6
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007

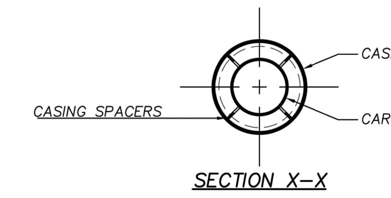


BRASS FITTINGS FOR WATER METER

City of Port Wentworth
TECHNICAL DETAILS
RW-14
PREPARED BY SAUSSY ENGINEERING, LLC.
SCALE: N.T.S.
DATED: FEBRUARY 2007



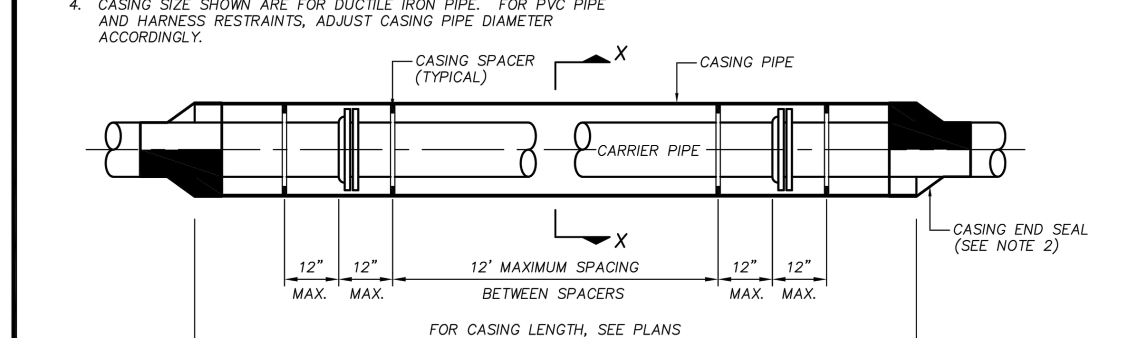
TEMPORARY STORM PIPE BRICK AND MORTAR SEAL
NTS



CARRIER PIPE DIAMETER (INCHES)	CASING PIPE DIAMETER (INCHES)	WALL THICKNESS* (INCHES)
6	12	0.375
8	16	0.375
10	16	0.375
12	20	0.375
14	22	0.375
16	24	0.375
18	30	0.375
20	30	0.375
24	36	0.375
30	42	0.375

* SEE NOTE 2

GENERAL NOTES:
1. DETAIL SHOWN IS FOR CITY AND COUNTY ROADWAY CROSSINGS.
2. INSTALLATIONS UNDER STATE ROADS AND RAILROADS MAY HAVE REQUIREMENTS DIFFERENT FROM THOSE SHOWN. SUCH INSTALLATIONS SHALL MEET ALL APPLICABLE REQUIREMENTS OF THE GEORGIA DEPARTMENT OF TRANSPORTATION OR THE PARTICULAR RAILROAD INVOLVED.
3. SEE BGJWSC STANDARD CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL INFORMATION.
4. CASING SIZE SHOWN ARE FOR DUCTILE IRON PIPE. FOR PVC PIPE AND HARNESS RESTRAINTS, ADJUST CASING PIPE DIAMETER ACCORDINGLY.



STEEL CASING AND CARRIER PIPE INSTALLATION
NTS

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK
01/03/22

REVISIONS

ROBERTS CIVIL ENGINEERING
ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON
WWW.ROBERTSCIVILENGINEERING.COM

CONSTRUCTION DETAILS
Rice Creek Phase 6
Port Wentworth
PREPARED FOR:
Landmark 24, LLC

DATE: 01/03/2022
PROJECT NUMBER: 21508
DRAWN BY: JLV
CHECKED BY: JLV
SCALE: NTS

SHEET:
D4

DRAINAGE REPORT

Rice Creek Master Plan
Port Wentworth, GA

Prepared for: Landmark 24, LLC

Revised Date 01/31/2022
Date 11/17/2021

Prepared by:

ROBERTS
CIVIL ENGINEERING

301 Sea Island Road, Suite 10, St. Simons Island, GA 31522 912-638-9681 Office 912-289-0339 Fax

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Appendix A: Pre-Developed Hydrology Exhibit i

Appendix B: Post-Developed Hydrology Exhibit ii

Appendix C: PH V Storm Sewer Exhibit iii

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Appendix E: Pre-Development HydroCAD Output v

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Appendix G: PH V Storm Sewer HydroCAD Output vii

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1.0 Introduction

The proposed Rice Creek Development is located adjacent to GA Highway 21, near the intersection of Rice Creek Road and GA Highway 21 in Brunswick, GA. The 168 acre site consists of a multi-phased existing and proposed single family residential home development. The proposed storm sewer drainage system serving this development, will discharge into an existing wetland system.

2.0 Proposed Hydrology versus Existing Hydrology

2.1 Existing System

The pre-development condition consists of (2) basins. Pre- Dev Basin #1 drains southwest, discharging into an un-named canal at OUTFALL #1. Pre-Dev Basin #2 drains northwest, discharging into an unnamed canal at OUTFALL #2 (see *Appendix A: Pre-Developed Hydrology Exhibit* for location of OUTFALLS).

Both wetland systems ultimately discharge into Black Creek, which then outfalls to the Savannah River and ultimately to the Atlantic Ocean.

2.2 Proposed System

The proposed storm sewer conveyance system collects stormwater runoff generated by this development, and discharges into an interconnected pond system. The multi-pond system is controlled by a series of pipes and outfall control structures.

Post-Dev Basin #1 sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #1. It then discharges via outfall control structure and a series of pipes to pond #2 (see *Appendix B: Post-Developed Hydrology Exhibit* for location of outfall). POND #1 makes up 7.6% of the total area of its basin, with 5' of vertical storage.

Post-Dev Basin #2 sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #2. It then discharges via outfall control structure and a series of pipes to pond #3 (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #2 makes up 8.2% of the total area of its basin, with 5' of vertical storage.

Post-Dev Basin #2A sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into an un-named canal northwest of the site (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #2A makes up 5.5% of the total area of its basin, with 2' of vertical storage.

Post-Dev Basin #3 sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #3. It then discharges via outfall control structure and a series of pipes to pond #4 (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #3 makes up 7.2% of the total area of its basin, with 5' of vertical storage.

Post-Dev Basin #3A sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #3A. It then discharges via outfall control structure and a series of pipes to pond #3 (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #3A makes up 7.2% of the total area of its basin, with 5' of vertical storage.

Post-Dev Basin #3B sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #3B. It then discharges via outfall control structure and a series of pipes to pond #3A (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #3B makes up 8.9% of the total area of its basin, with 5' of vertical storage.

Post-Dev Basin #4 sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #3. It then discharges via outfall control structure and a series of pipes to pond #5 (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #4 makes up 3.8% of the total area of its basin, with 5' of vertical storage.

Post-Dev Basin #5 sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #6. It then discharges via outfall control structure and a series of pipes to pond #4 (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #5 makes up 6.1% of the total area of its basin, with 5.5' of vertical storage.

Post-Dev Basin #6 sheet flows across grassed side yards, collects as shallow concentrated flow along curb and gutter, then travels as pipe-channel flow and outfalls into detention pond #6. It then discharges into an un-named canal southwest of the site (see *Appendix B: Post- Developed Hydrology Exhibit* for location of outfall). POND #6 makes up 15.4% of the total area of its basin, with 5.5' of vertical storage.

Both wetland systems ultimately discharge into Black Creek, which then outfalls to the Savannah River and ultimately to the Atlantic Ocean.

3.0 Design Variables & Discharge

3.1 1 Year Storm Table

OUTFALL #1	Pre-Developed Basin #1	Post-Developed Basin #1	Post-Developed Basin #2	Post-Developed Basin #3	Post-Developed Basin #3A	Post-Developed Basin #3B	Post-Developed Basin #4	Post-Developed Basin #5	Post-Developed Basin #6
Area (Acres)	121.08	17.79	16.26	23.30	8.80	7.41	22.26	21.23	35.51
Tc (min)	118.70	6.60	6.90	10.30	12.00	11.00	14.90	7.30	13.90
CN	72	83	84	82	84	84	83	82	85
Basin Discharge (CFS)	39.49	39.68	37.36	38.69	17.15	14.87	38.49	44.35	65.63
Pk Water Surface Elevation (ft)	N/A	11.51	11.49	11.49	11.63	11.66	11.37	10.70	10.65
Pond Discharge (CFS)	N/A	5.34	6.70	14.96	6.50	2.62	25.55	32.69	25..85
Total Outfall Discharge (CFS)	39.49	25.85							

OUTFALL #2	Pre-Developed Basin #2	Post-Developed Basin #2A
Area (Acres)	46.97	15.60
Tc (min)	83.90	6.90
CN	72	85
Basin Discharge (CFS)	19.54	70.02
Pk Water Surface Elevation (ft)	N/A	13.80
Pond Discharge (CFS)	N/A	19.54
Total Outfall Discharge (CFS)	19.54	19.54

3.2 2 Year Storm Table

OUTFALL #1	Pre-Developed Basin #1	Post-Developed Basin #1	Post-Developed Basin #2	Post-Developed Basin #3	Post-Developed Basin #3A	Post-Developed Basin #3B	Post-Developed Basin #4	Post-Developed Basin #5	Post-Developed Basin #6
Area (Acres)	121.08	17.79	16.26	23.30	8.80	7.41	22.26	21.23	35.51
Tc (min)	118.70	6.60	6.90	10.30	12.00	11.00	14.90	7.30	13.90
CN	72	83	84	82	84	84	83	82	85
Basin Discharge (CFS)	71.42	60.96	56.73	60.19	26.08	22.61	59.25	68.91	99.84
Pk Water Surface Elevation (ft)	N/A	12.15	12.14	12.13	12.26	12.29'	11.98	11.27	11.16
Pond Discharge (CFS)	N/A	9.40	13.17	28.89	10.09	4.49	47.65	58.69	51.36
Total Outfall Discharge (CFS)	71.42	51.36							

OUTFALL #2	Pre-Developed Basin #2	Post-Developed Basin #2A
Area (Acres)	46.97	15.60
Tc (min)	83.90	6.90
CN	72	85
Basin Discharge (CFS)	35.25	56.63
Pk Water Surface Elevation (ft)	N/A	14.09
Pond Discharge (CFS)	N/A	33.71
Total Outfall Discharge (CFS)	35.25	33.71

3.3 10 Year Storm Table

OUTFALL #1	Pre-Developed Basin #1	Post-Developed Basin #1	Post-Developed Basin #2	Post-Developed Basin #3	Post-Developed Basin #3A	Post-Developed Basin #3B	Post-Developed Basin #4	Post-Developed Basin #5	Post-Developed Basin #6
Area (Acres)	121.08	17.79	16.26	23.30	8.80	7.41	22.26	21.23	35.51
Tc (min)	118.70	6.60	6.90	10.30	12.00	11.00	14.90	7.30	13.90
CN	72	83	84	82	84	84	83	82	85
Basin Discharge (CFS)	128.48	95.67	88.17	95.53	40.57	35.18	93.21	109.23	155.48
Pk Water Surface Elevation (ft)	N/A	13.14	13.12	13.09	13.25	13.28	12.92	12.22	12.01
Pond Discharge (CFS)	N/A	16.48	23.36	50.37	16.64	7.11	82.08	105.43	95.34
Total Outfall Discharge (CFS)	128.48	95.34							

OUTFALL #2	Pre-Developed Basin #2	Post-Developed Basin #2A
Area (Acres)	46.97	15.60
Tc (min)	83.90	6.90
CN	72	85
Basin Discharge (CFS)	63.19	87.18
Pk Water Surface Elevation (ft)	N/A	14.47
Pond Discharge (CFS)	N/A	58.75
Total Outfall Discharge (CFS)	63.19	58.75

3.4 25 Year Storm Table

OUTFALL #1	Pre-Developed Basin #1	Post-Developed Basin #1	Post-Developed Basin #2	Post-Developed Basin #3	Post-Developed Basin #3A	Post-Developed Basin #3B	Post-Developed Basin #4	Post-Developed Basin #5	Post-Developed Basin #6
Area (Acres)	121.08	17.79	16.26	23.30	8.80	7.41	22.26	21.23	35.51
Tc (min)	118.70	6.60	6.90	10.30	12.00	11.00	14.90	7.30	13.90
CN	72	83	84	82	84	84	83	82	85
Basin Discharge (CFS)	166.10	117.42	107.82	117.75	49.64	43.04	114.50	134.58	190.27
Pk Water Surface Elevation (ft)	N/A	13.73	13.71	13.67	13.89	13.94	13.51	12.84	12.51
Pond Discharge (CFS)	N/A	20.12	28.18	59.84	18.59	8.05	98.77	132.02	119.29
Total Outfall Discharge (CFS)	166.10	119.29							

OUTFALL #2	Pre-Developed Basin #2	Post-Developed Basin #2A
Area (Acres)	46.97	15.60
Tc (min)	83.90	6.90
CN	72	85
Basin Discharge (CFS)	81.57	106.22
Pk Water Surface Elevation (ft)	N/A	14.68
Pond Discharge (CFS)	N/A	75.09
Total Outfall Discharge (CFS)	81.57	75.09

3.5 50 Year Storm Table

OUTFALL #1	Pre-Developed Basin #1	Post-Developed Basin #1	Post-Developed Basin #2	Post-Developed Basin #3	Post-Developed Basin #3A	Post-Developed Basin #3B	Post-Developed Basin #4	Post-Developed Basin #5	Post-Developed Basin #6
Area (Acres)	121.08	17.79	16.26	23.30	8.80	7.41	22.26	21.23	35.51
Tc (min)	118.70	6.60	6.90	10.30	12.00	11.00	14.90	7.30	13.90
CN	72	83	84	82	84	84	83	82	85
Basin Discharge (CFS)	196.80	134.78	123.49	135.51	56.87	49.32	131.50	154.83	218.02
Pk Water Surface Elevation (ft)	N/A	14.20	14.18	14.17	14.41	14.46	14.00	13.29	12.86
Pond Discharge (CFS)	N/A	22.40	32.21	66.76	19.74	8.77	106.43	147.50	138.00
Total Outfall Discharge (CFS)	196.80	138.00							

OUTFALL #2	Pre-Developed Basin #2	Post-Developed Basin #2A
Area (Acres)	46.97	15.60
Tc (min)	83.90	6.90
CN	72	85
Basin Discharge (CFS)	96.54	121.40
Pk Water Surface Elevation (ft)	N/A	14.83
Pond Discharge (CFS)	N/A	88.37
Total Outfall Discharge (CFS)	96.54	88.37

3.6 100 Year Storm Table

OUTFALL #1	Pre-Developed Basin #1	Post-Developed Basin #1	Post-Developed Basin #2	Post-Developed Basin #3	Post-Developed Basin #3A	Post-Developed Basin #3B	Post-Developed Basin #4	Post-Developed Basin #5	Post-Developed Basin #6
Area (Acres)	121.08	17.79	16.26	23.30	8.80	7.41	22.26	21.23	35.51
Tc (min)	118.70	6.60	6.90	10.30	12.00	11.00	14.90	7.30	13.90
CN	72	83	84	82	84	84	83	82	85
Basin Discharge (CFS)	227.84	152.08	139.11	153.22	64.08	55.57	148.45	175.03	245.65
Pk Water Surface Elevation (ft)	N/A	14.68	14.65	14.70	14.94	14.99	14.51	13.70	13.19
Pond Discharge (CFS)	N/A	24.07	35.93	72.34	20.87	9.45	107.29	157.92	153.86
Total Outfall Discharge (CFS)	227.84	153.86							

OUTFALL #2	Pre-Developed Basin #2	Post-Developed Basin #2A
Area (Acres)	46.97	15.60
Tc (min)	83.90	6.90
CN	72	85
Basin Discharge (CFS)	111.67	136.52
Pk Water Surface Elevation (ft)	N/A	14.97
Pond Discharge (CFS)	N/A	100.90
Total Outfall Discharge (CFS)	111.67	100.90

4.0 Purpose of Analysis

The purpose of the analysis was to ensure the proposed storm sewer system could safely convey the 100 year storm event to the detention pond during and after development. Prior to the installation of the storm pipe system, diversion ditches will be installed to convey the stormwater runoff, during the initial phase of construction.

The underground storm sewer system was modeled in HydroCAD using the SCS method to determine the hydraulic grade for the 25 year storm event. *See Appendix C and Appendix D for the Storm Sewer Exhibits for phases V and IV*.

5.0 Water Quantity & Quality

It was determined that the hydraulic grade line for the proposed storm sewer system was below the flooding elevation for each inlet for the 100-year storm event, and all ditches maintain the required minimum freeboard.

The water quality aspect will be handled by the on-site detention ponds

6.0 Summary

The proposed project consists of single family residential lots on the 168 acre site off GA HWY 21, Port Wentworth, GA. An analysis was performed to determine that the storm piping system will handle a 25 year storm so that staging does not exceed the inlet elevations. Water quality will be satisfied through use of the on-site detention ponds.

Appendix A: Pre-Developed Hydrology Exhibit

NOT RELEASED FOR CONSTRUCTION

REVISIONS

1st Comment Letter TR Long 1.21.22

ROBERTS CIVIL ENGINEERING

ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON

WWW.ROBERTSCIVILENGINEERING.COM

PRE DEVELOPMENT EXHIBIT

RICE CREEK MASTER DRAINAGE PLAN

PREPARED FOR: LANDMARK 24

DATE: 01.31.2022

PROJECT NUMBER: 21509

DRAWN BY: JLV

CHECKED BY: JLV

SCALE: 1"=150' (FOR 24"X36" PLOT)

A

APPENDIX

Appendix B: Post-Developed Hydrology Exhibit

NOT RELEASED FOR CONSTRUCTION

REVISIONS

1st Comment Letter TR Long 1.21.22

ROBERTS CIVIL ENGINEERING

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WWW.ROBERTSCIVILENGINEERING.COM

POST DEVELOPMENT EXHIBIT

RICE CREEK
MASTER DRAINAGE PLAN

PREPARED FOR:
LANDMARK 24

DATE: 01.31.2022

PROJECT NUMBER: 21509

DRAWN BY: JLV

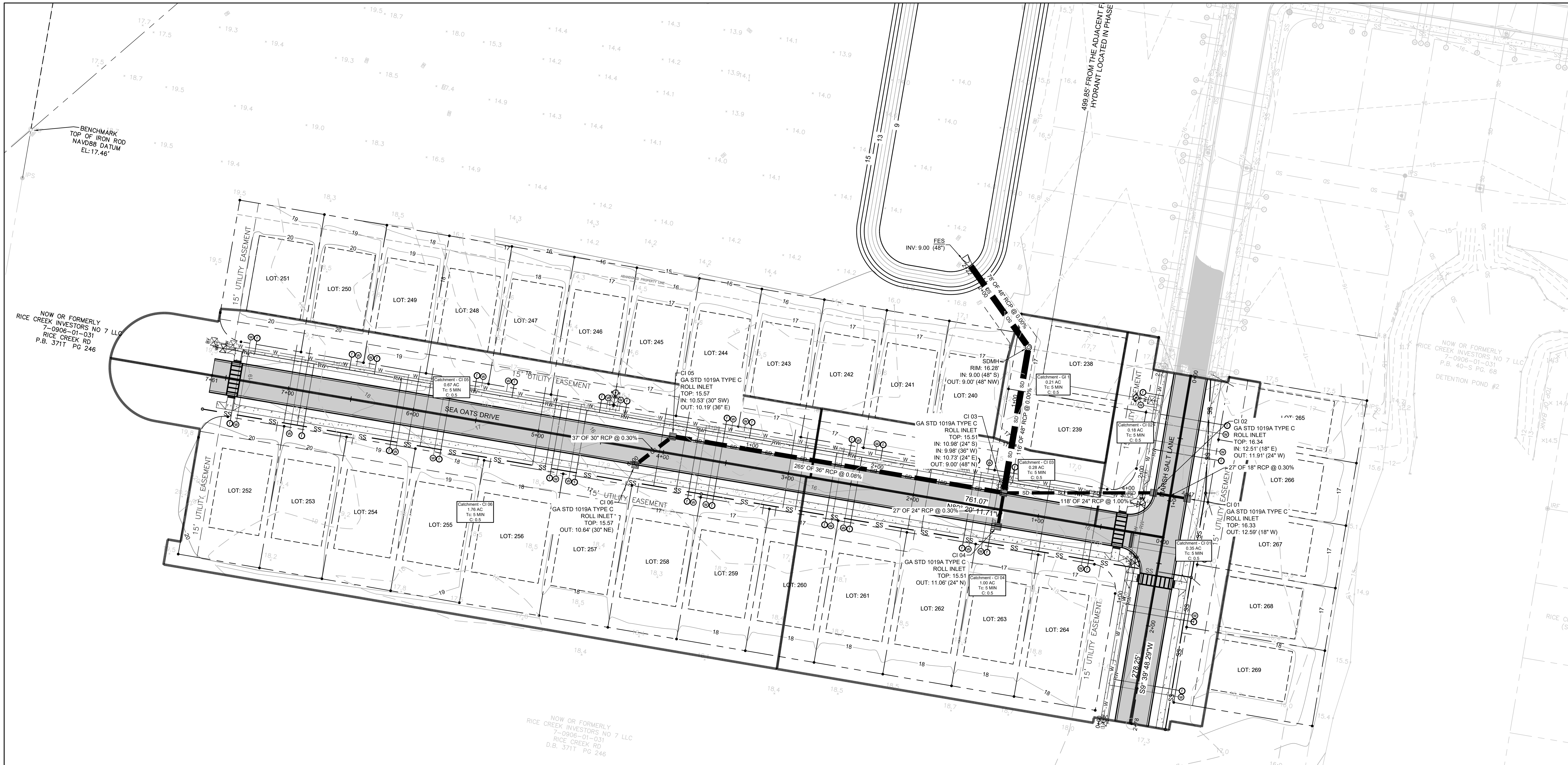
CHECKED BY: JLV

SCALE: 1":150' (FOR 24"X36" PLOT)

B

APPENDIX

Appendix C: PH V Storm Sewer Exhibit



LEGEND

- BUILDING PAD
- PAVEMENT
- SIDEWALK
- POND
- EXISTING CONTOUR
- PROPOSED CONTOUR (MAJOR)
- PROPOSED CONTOUR (MINOR)
- SD — STORM SEWER PIPES
- PROPOSED CURB INLET (CI)
- PROPOSED GRATE INLET (GI)
- PROPOSED FLARED END SECTION (FES)
- WATER VALVE
- WATER FITTING TEE
- WATER FITTING 45°
- FIRE HYDRANT
- SANITARY SEWER MANHOLE
- SS — SANITARY SEWER PIPES
- W — WATERMAIN
- RW — RECLAIMED WATER
- SIDEWALKS
- LOT LINES
- PROPERTY LINES
- SETBACKS

811 Know what's below. Call before you dig.

0' 40' 80'

SCALE: 1" = 40'

GEORGIA REGISTERED No. 046602 PROFESSIONAL ENGINEER JESSICA VICK

01/31/22

REVISIONS

1st Comment Letter TR Long 1.21.22

ROBERTS CIVIL ENGINEERING

ST. SIMONS ISLAND | SAVANNAH | JACKSONVILLE | CHARLESTON

WWW.ROBERTSCIVILENGINEERING.COM

STORM SEWER EXHIBIT

Rice Creek Phase 5 Port Wentworth

PREPARED FOR: Rice Creek Investors #7, LLC

DATE: 01.31.2022

PROJECT NUMBER: 21507

DRAWN BY: JAF

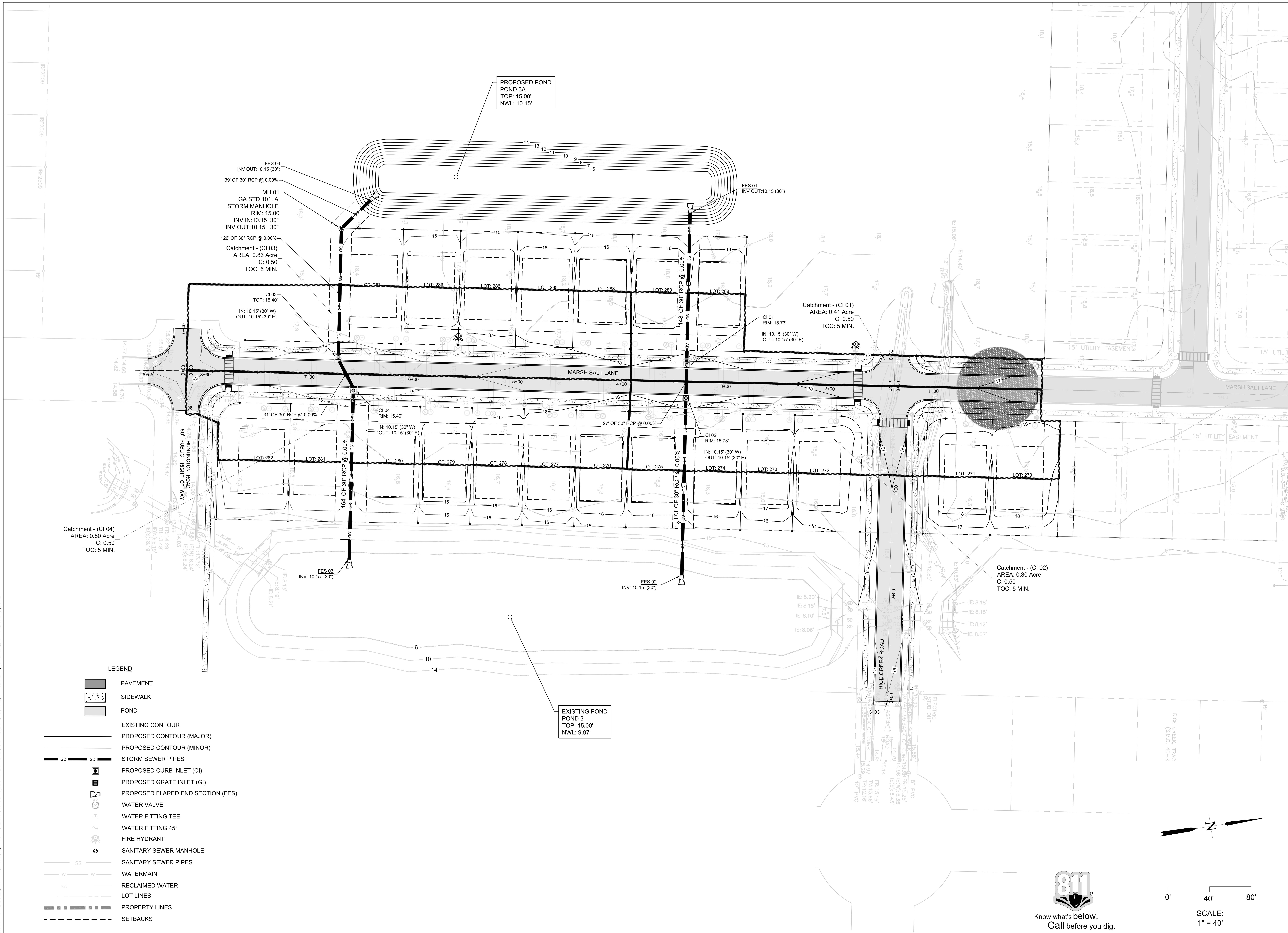
CHECKED BY: JLV

SCALE: 1"=40" (FOR 24"x36" PLOT)

6

SHEET:

Appendix D: PH VI Storm Sewer Exhibit



No. 046602
PROFESSIONAL
01/25/22

REVISIONS
1st Comment Letter TR Long 1.21.22

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CIVIL ENGINEERING
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STORM SEWER EXHIBIT

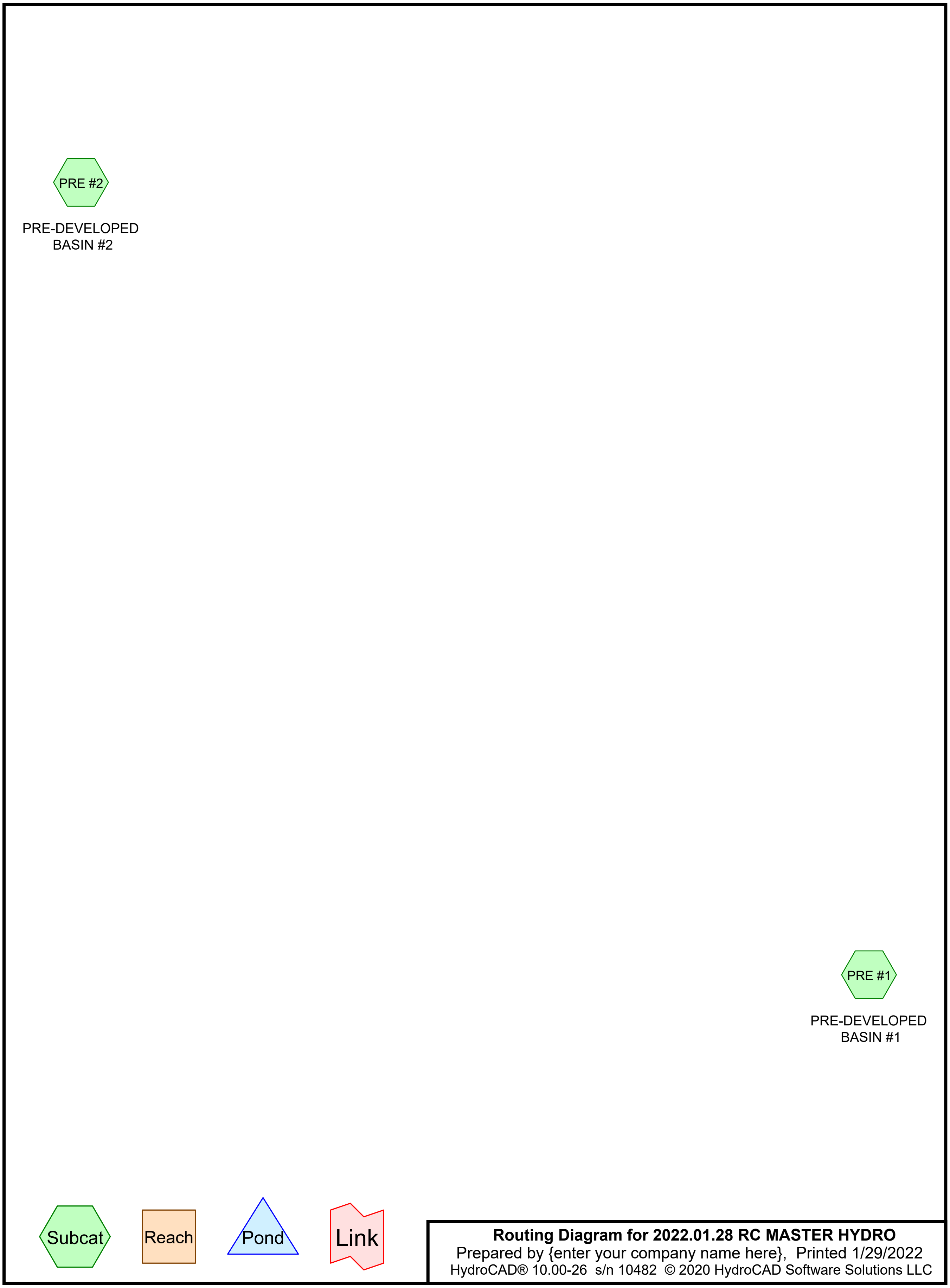
Rice Creek Phase 6
Port Wentworth
PREPARED FOR:
Landmark 24, LLC

DATE: 01.31.2022
PROJECT NUMBER: 21508
DRAWN BY: JAF
CHECKED BY: JLV
SCALE: 1"=40' (FOR 24"X36" PLOT)

STORM

SHEET:

Appendix E: Pre-Development HydroCAD Output



Routing Diagram for 2022.01.28 RC MASTER HYDRO

Prepared by {enter your company name here}, Printed 1/29/2022

Summary for Subcatchment PRE #1: PRE-DEVELOPED BASIN #1

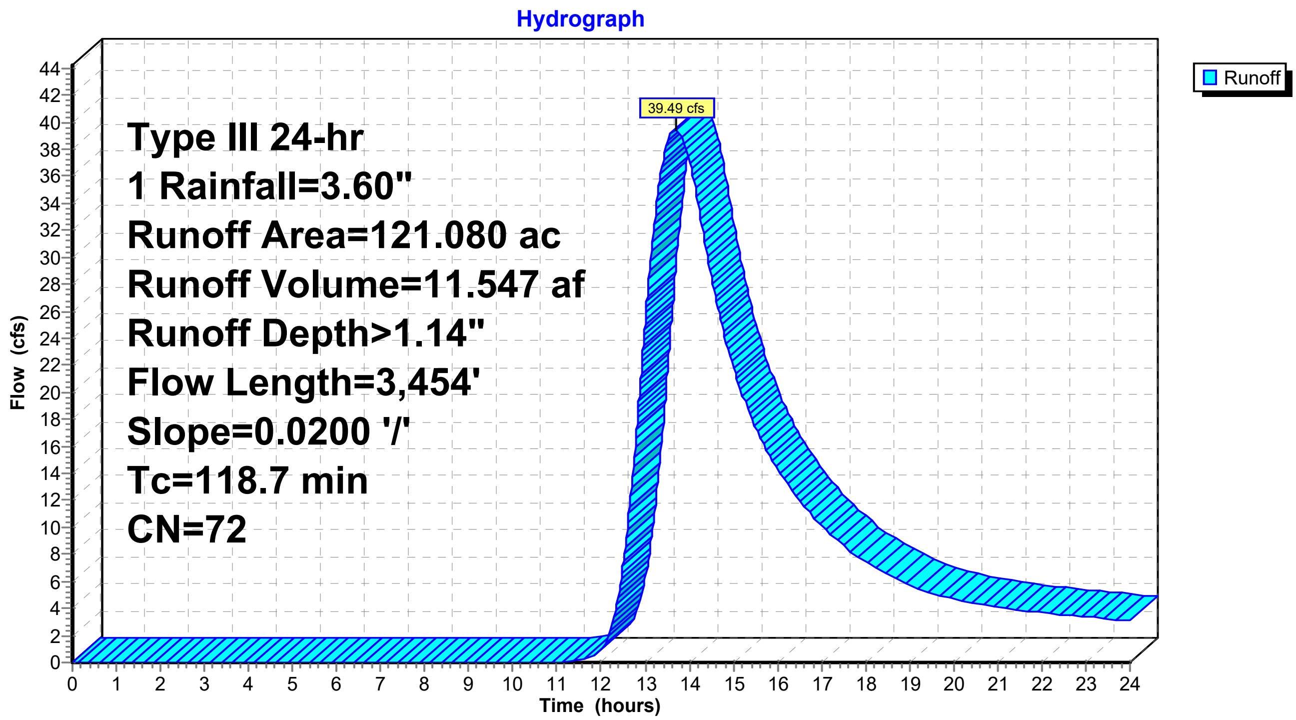
Runoff = 39.49 cfs @ 13.71 hrs, Volume= 11.547 af, Depth> 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	121.080	72	Woods, Good, HSG C
	121.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.4	300	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
74.3	3,154	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
118.7	3,454	Total			

Subcatchment PRE #1: PRE-DEVELOPED BASIN #1



Summary for Subcatchment PRE #2: PRE-DEVELOPED BASIN #2

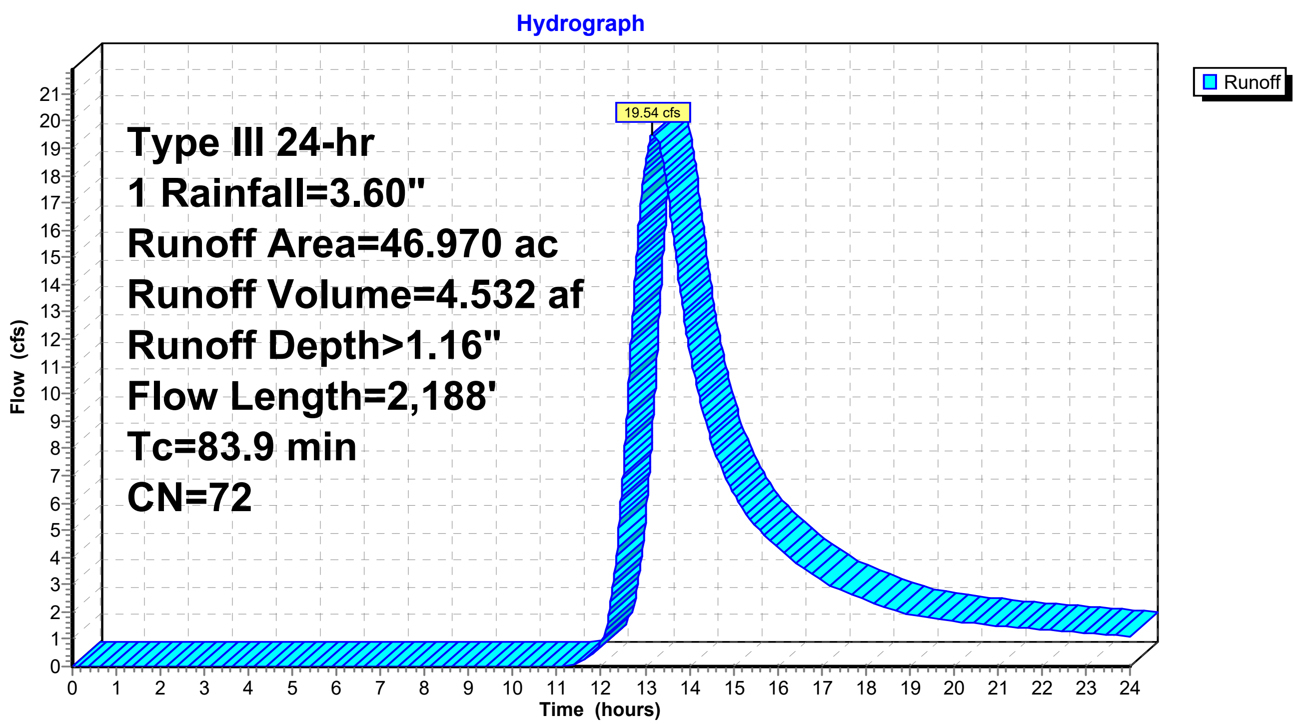
Runoff = 19.54 cfs @ 13.15 hrs, Volume= 4.532 af, Depth> 1.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	46.970	72	Woods, Good, HSG C
	46.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0	297	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
39.9	1,891	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
83.9	2,188	Total			

Subcatchment PRE #2: PRE-DEVELOPED BASIN #2



Summary for Subcatchment PRE #1: PRE-DEVELOPED BASIN #1

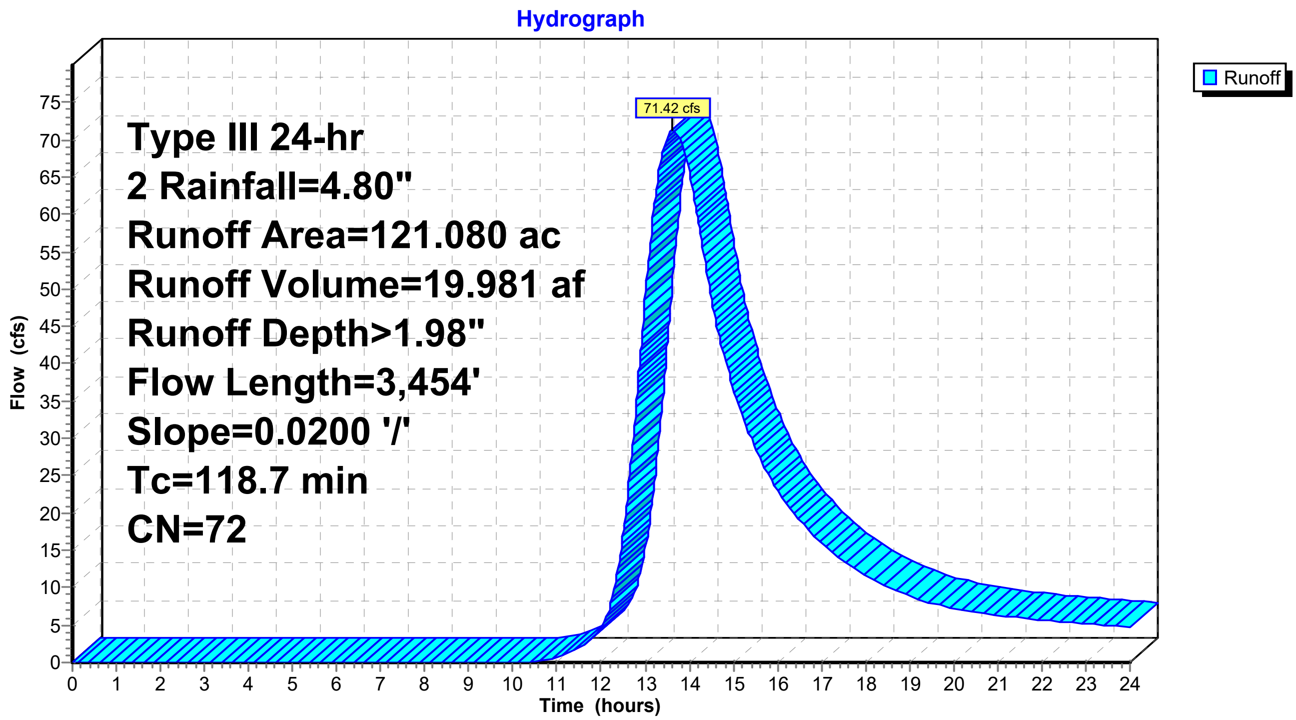
Runoff = 71.42 cfs @ 13.59 hrs, Volume= 19.981 af, Depth> 1.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	121.080	72	Woods, Good, HSG C
	121.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.4	300	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
74.3	3,154	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
118.7	3,454	Total			

Subcatchment PRE #1: PRE-DEVELOPED BASIN #1



Summary for Subcatchment PRE #2: PRE-DEVELOPED BASIN #2

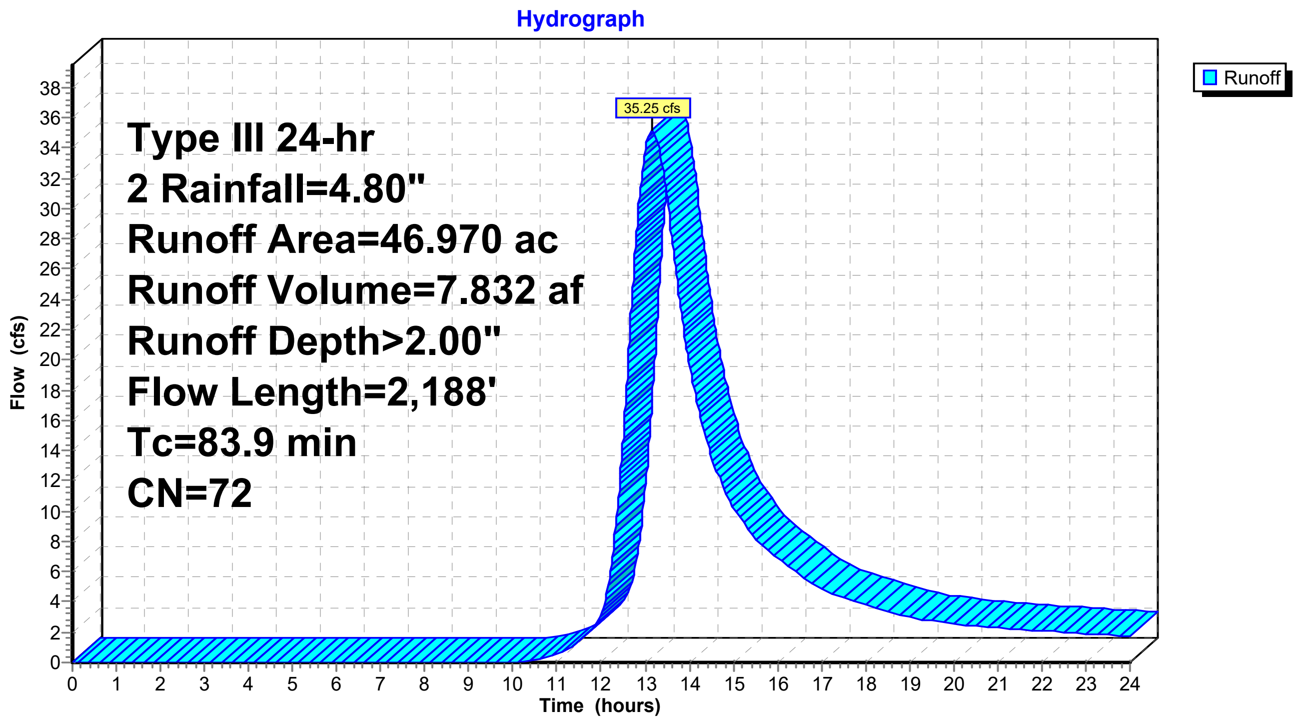
Runoff = 35.25 cfs @ 13.15 hrs, Volume= 7.832 af, Depth> 2.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	46.970	72	Woods, Good, HSG C
	46.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0	297	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
39.9	1,891	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
83.9	2,188	Total			

Subcatchment PRE #2: PRE-DEVELOPED BASIN #2



Summary for Subcatchment PRE #1: PRE-DEVELOPED BASIN #1

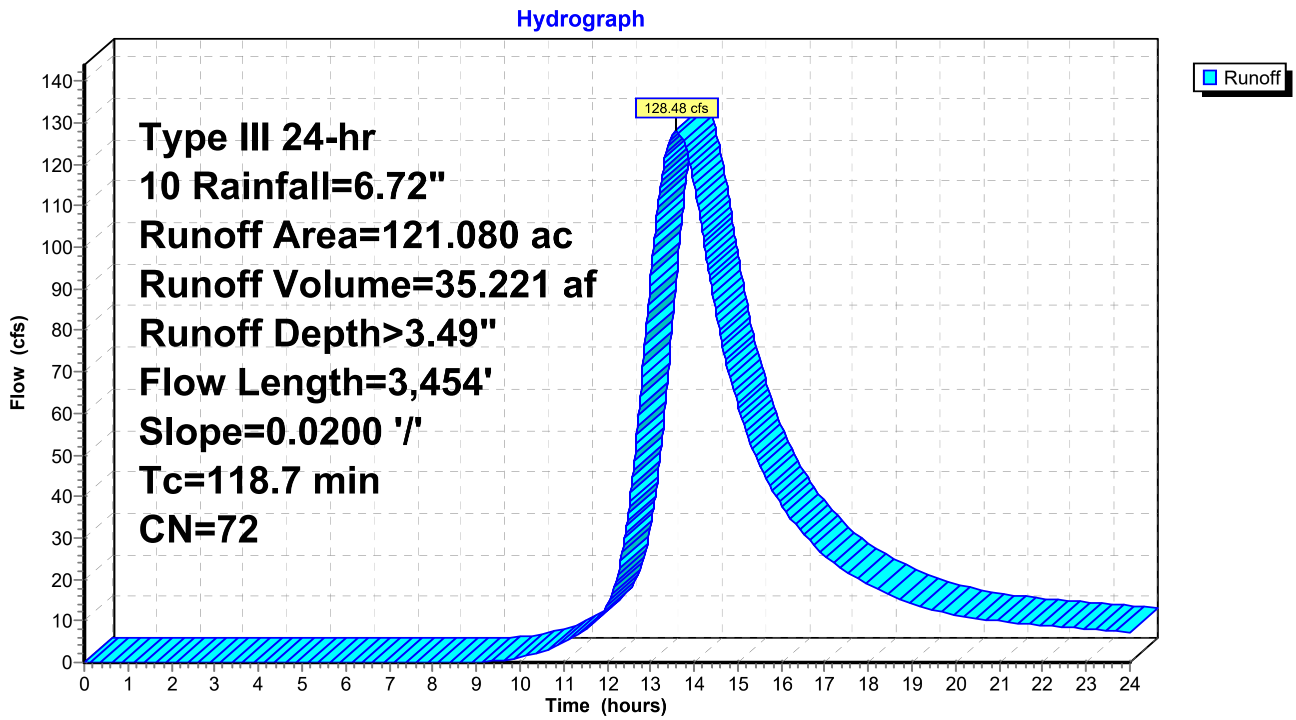
Runoff = 128.48 cfs @ 13.58 hrs, Volume= 35.221 af, Depth> 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	121.080	72	Woods, Good, HSG C
	121.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.4	300	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
74.3	3,154	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
118.7	3,454	Total			

Subcatchment PRE #1: PRE-DEVELOPED BASIN #1



Summary for Subcatchment PRE #2: PRE-DEVELOPED BASIN #2

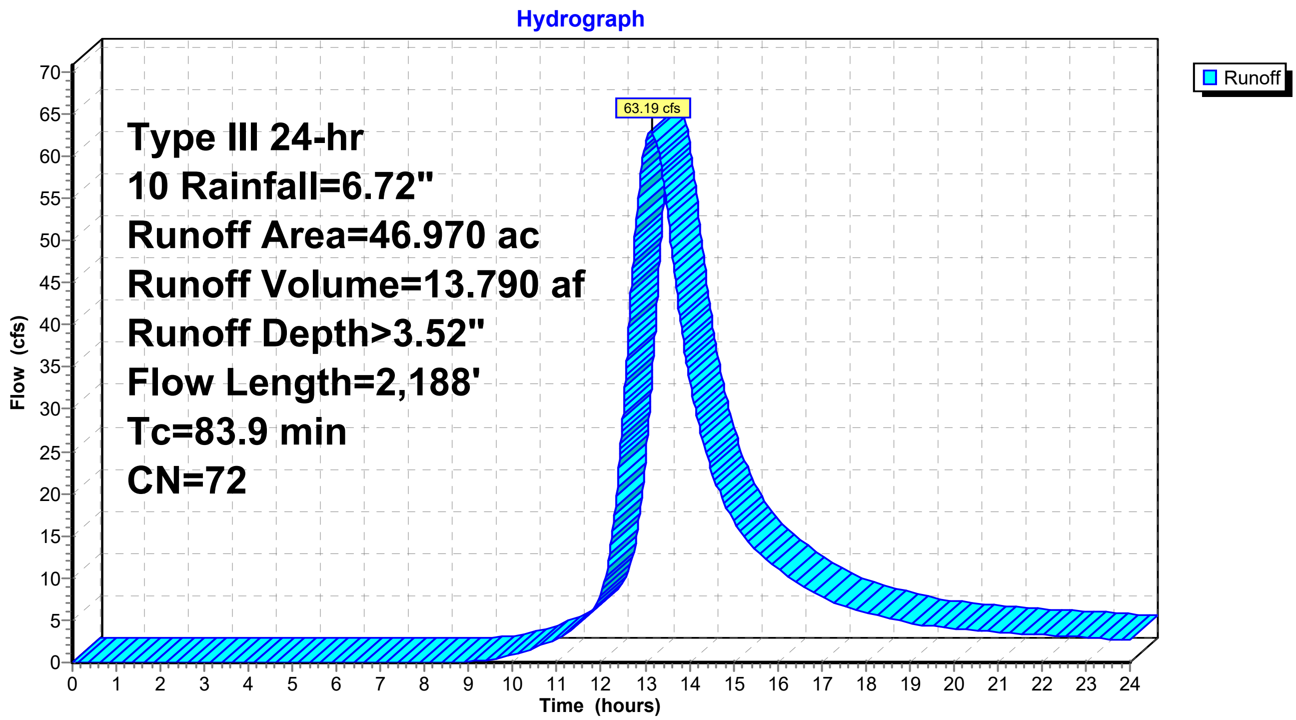
Runoff = 63.19 cfs @ 13.14 hrs, Volume= 13.790 af, Depth> 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	46.970	72	Woods, Good, HSG C
	46.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0	297	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
39.9	1,891	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
83.9	2,188	Total			

Subcatchment PRE #2: PRE-DEVELOPED BASIN #2



Summary for Subcatchment PRE #1: PRE-DEVELOPED BASIN #1

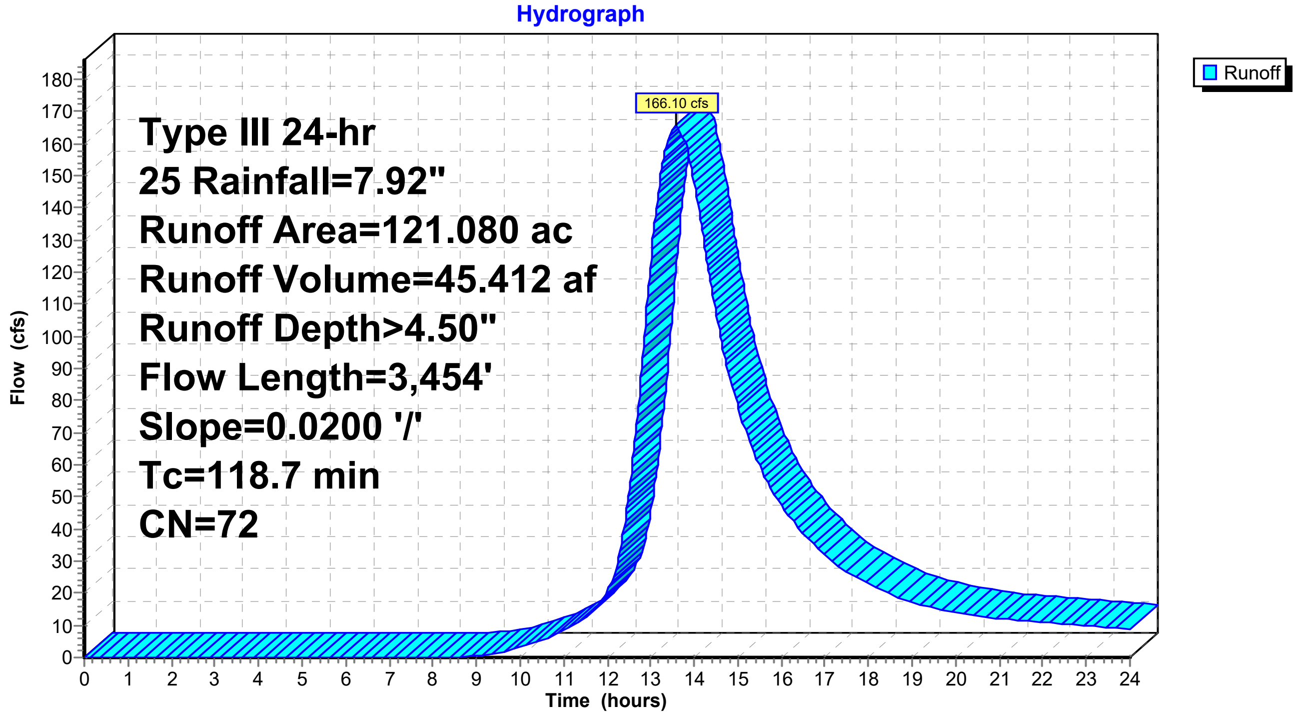
Runoff = 166.10 cfs @ 13.58 hrs, Volume= 45.412 af, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	121.080	72	Woods, Good, HSG C
	121.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.4	300	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
74.3	3,154	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
118.7	3,454	Total			

Subcatchment PRE #1: PRE-DEVELOPED BASIN #1



Summary for Subcatchment PRE #2: PRE-DEVELOPED BASIN #2

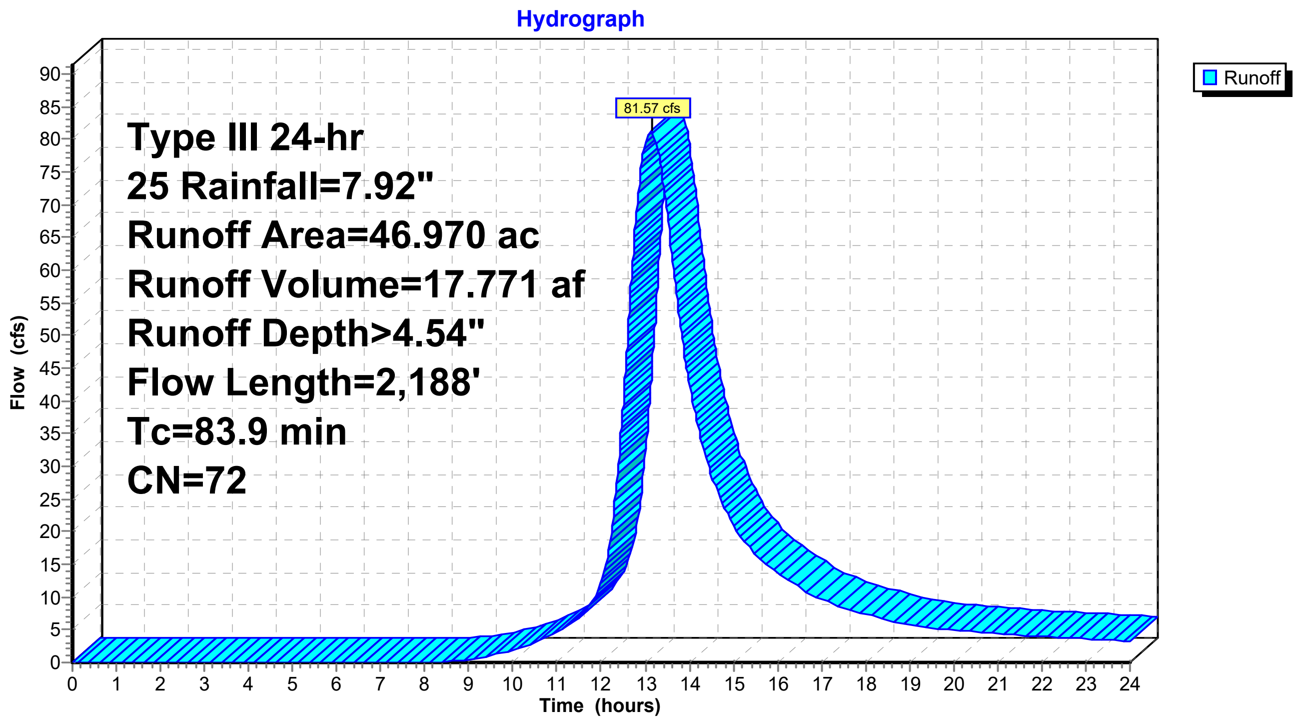
Runoff = 81.57 cfs @ 13.14 hrs, Volume= 17.771 af, Depth> 4.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	46.970	72	Woods, Good, HSG C
	46.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0	297	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
39.9	1,891	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
83.9	2,188	Total			

Subcatchment PRE #2: PRE-DEVELOPED BASIN #2



Summary for Subcatchment PRE #1: PRE-DEVELOPED BASIN #1

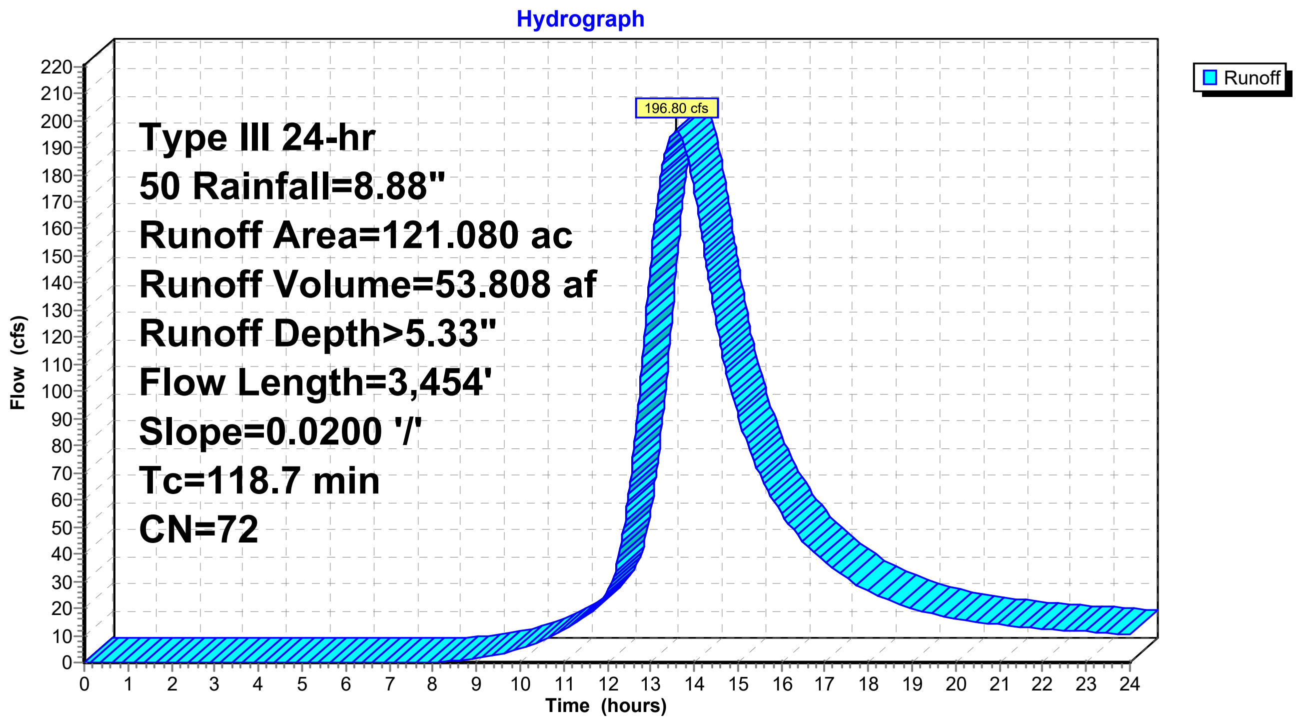
Runoff = 196.80 cfs @ 13.58 hrs, Volume= 53.808 af, Depth> 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	121.080	72	Woods, Good, HSG C
	121.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.4	300	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
74.3	3,154	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
118.7	3,454	Total			

Subcatchment PRE #1: PRE-DEVELOPED BASIN #1



Summary for Subcatchment PRE #2: PRE-DEVELOPED BASIN #2

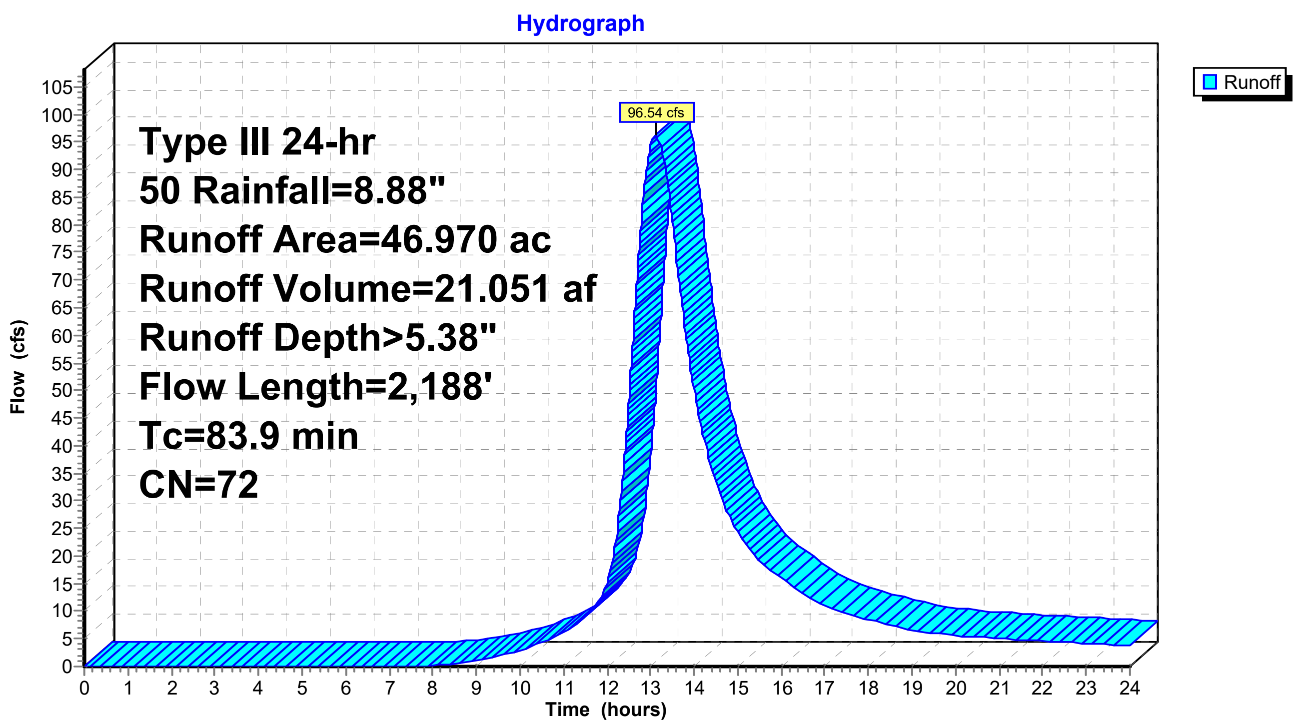
Runoff = 96.54 cfs @ 13.14 hrs, Volume= 21.051 af, Depth> 5.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	46.970	72	Woods, Good, HSG C
	46.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0	297	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
39.9	1,891	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
83.9	2,188	Total			

Subcatchment PRE #2: PRE-DEVELOPED BASIN #2



Summary for Subcatchment PRE #1: PRE-DEVELOPED BASIN #1

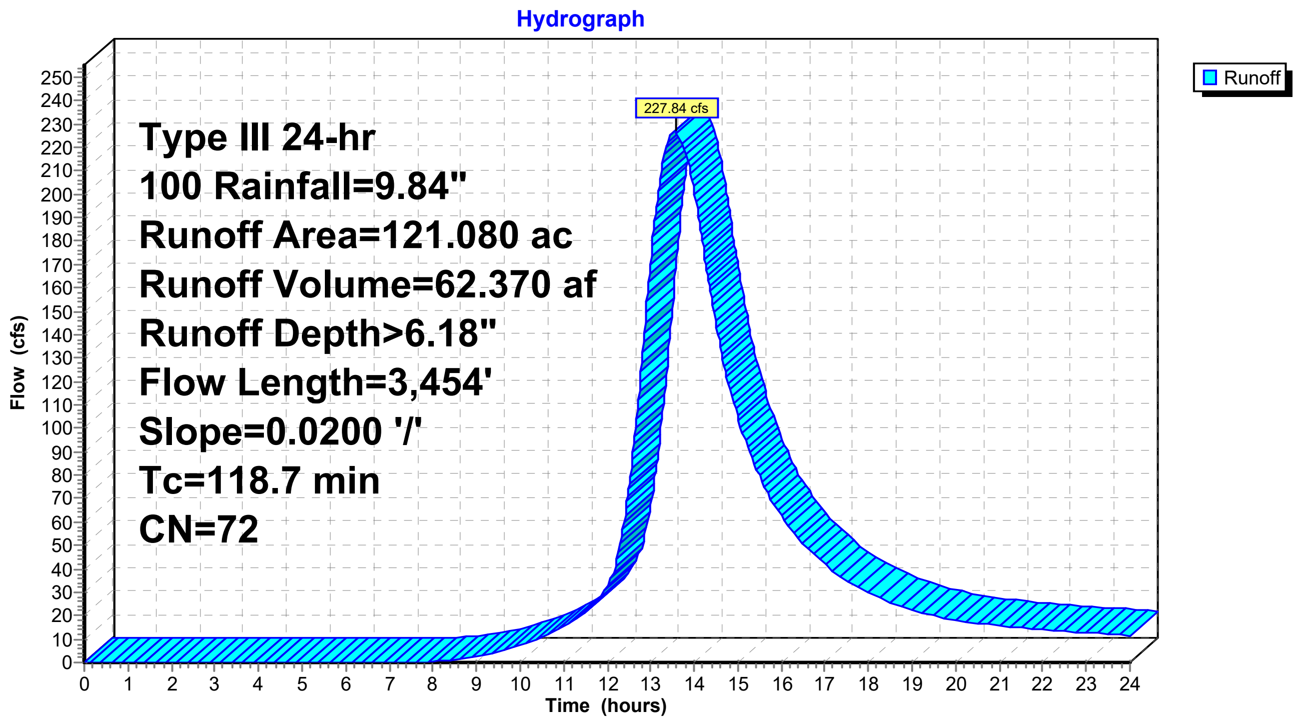
Runoff = 227.84 cfs @ 13.58 hrs, Volume= 62.370 af, Depth> 6.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	121.080	72	Woods, Good, HSG C
	121.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.4	300	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
74.3	3,154	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
118.7	3,454	Total			

Subcatchment PRE #1: PRE-DEVELOPED BASIN #1



Summary for Subcatchment PRE #2: PRE-DEVELOPED BASIN #2

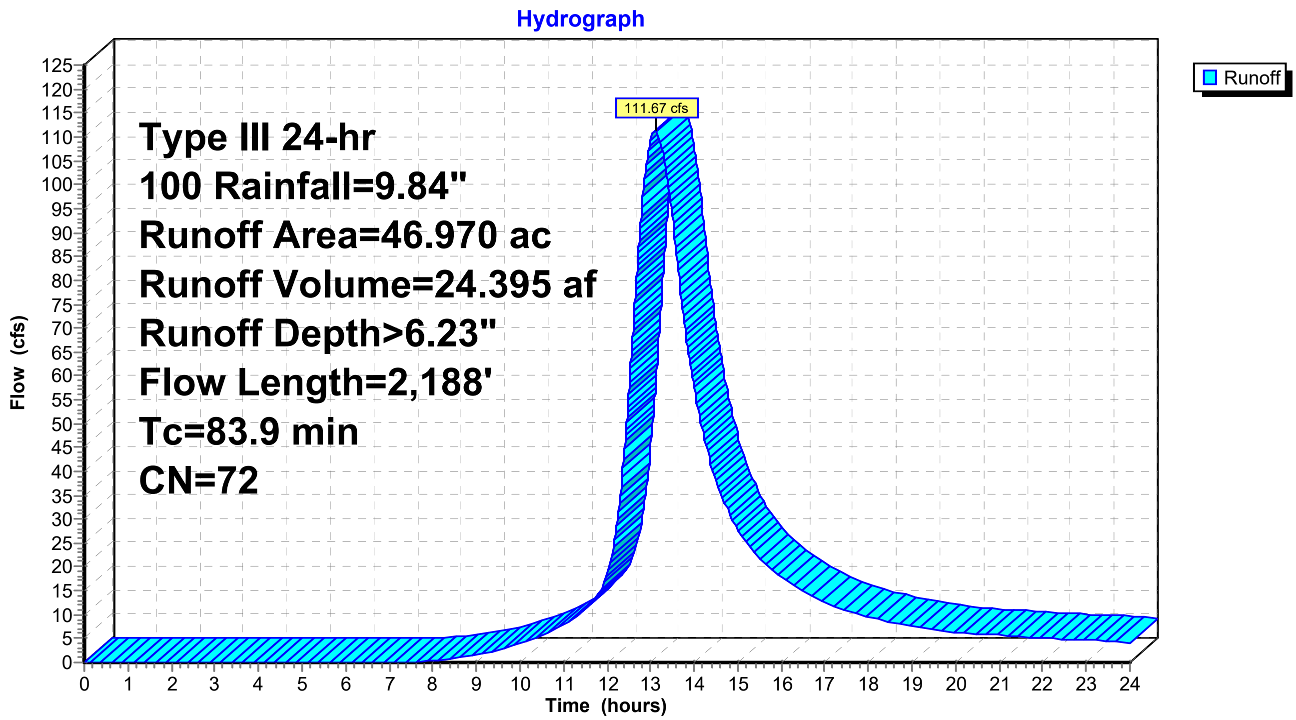
Runoff = 111.67 cfs @ 13.14 hrs, Volume= 24.395 af, Depth> 6.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

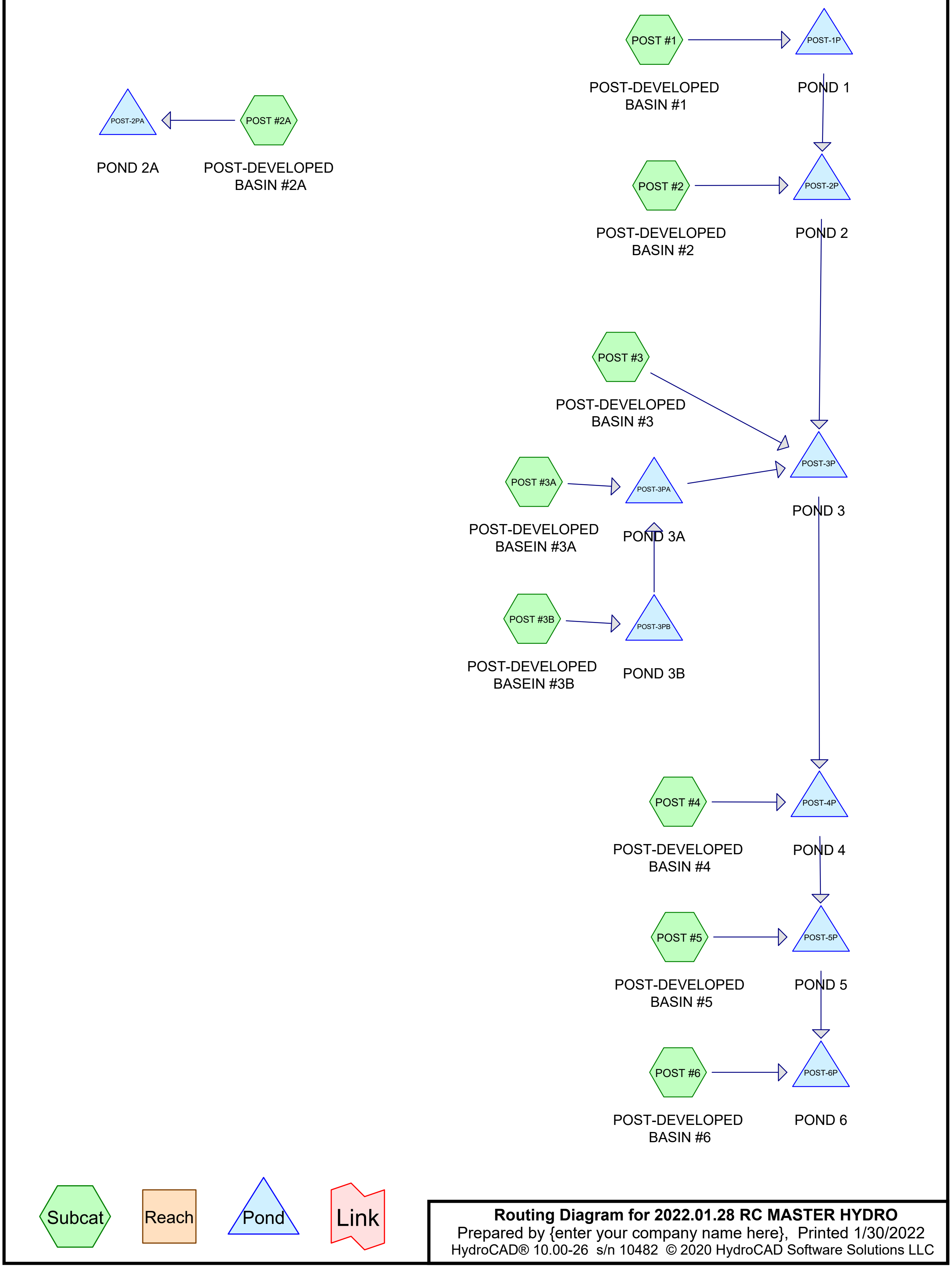
	Area (ac)	CN	Description
*	46.970	72	Woods, Good, HSG C
	46.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.0	297	0.0200	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 4.34"
39.9	1,891	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
83.9	2,188	Total			

Subcatchment PRE #2: PRE-DEVELOPED BASIN #2



Appendix F: Post-Development HydroCAD Output



Routing Diagram for 2022.01.28 RC MASTER HYDRO
Prepared by {enter your company name here}, Printed 1/30/2022
HydroCAD® 10.00-26 s/n 10482 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment POST #1: POST-DEVELOPED BASIN #1

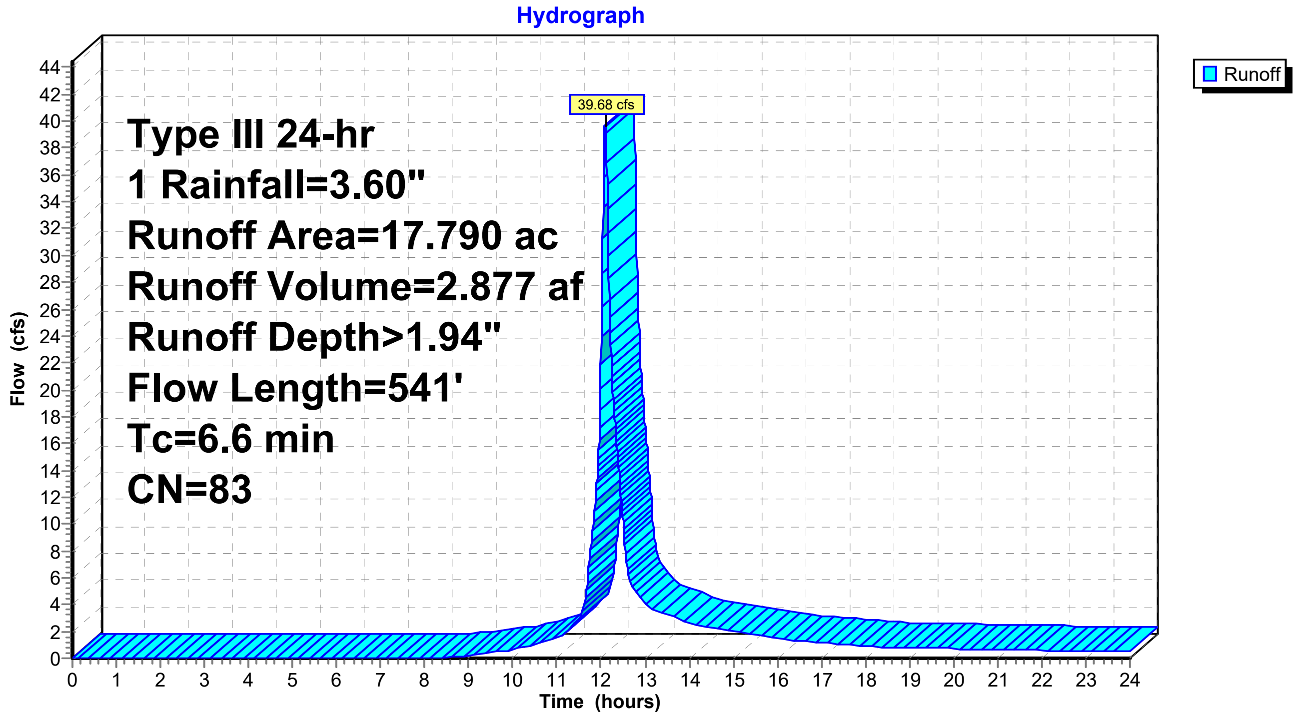
Runoff = 39.68 cfs @ 12.10 hrs, Volume= 2.877 af, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
	11.440	74	>75% Grass cover, Good, HSG C
*	2.940	98	Houses
*	2.810	98	Roads and Walkways
*	0.600	98	NWL Pond
	17.790	83	Weighted Average
	11.440		64.31% Pervious Area
	6.350		35.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0200	0.17		**Sheet Flow, YARD** Grass: Short n= 0.150 P2= 4.34"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, POST-DEV BASIN 1-SCF** Paved Kv= 20.3 fps
1.9	447	0.0030	3.97	19.47	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.015 Concrete sewer w/manholes & inlets
6.6	541	Total			

Subcatchment POST #1: POST-DEVELOPED BASIN #1



Summary for Subcatchment POST #2: POST-DEVELOPED BASIN #2

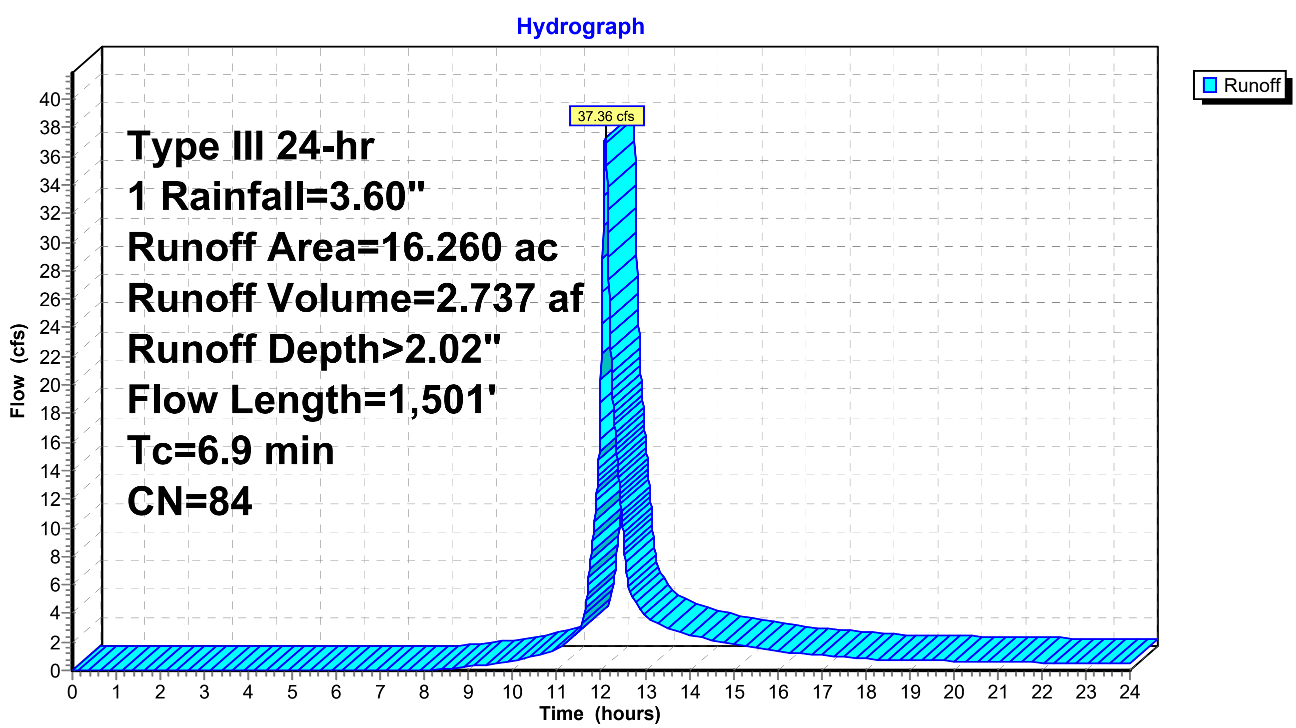
Runoff = 37.36 cfs @ 12.10 hrs, Volume= 2.737 af, Depth> 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	16.260	84	SFR lots, 30% imp, HSG D
	11.382		70.00% Pervious Area
	4.878		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2: POST-DEVELOPED BASIN #2



Summary for Subcatchment POST #2A: POST-DEVELOPED BASIN #2A

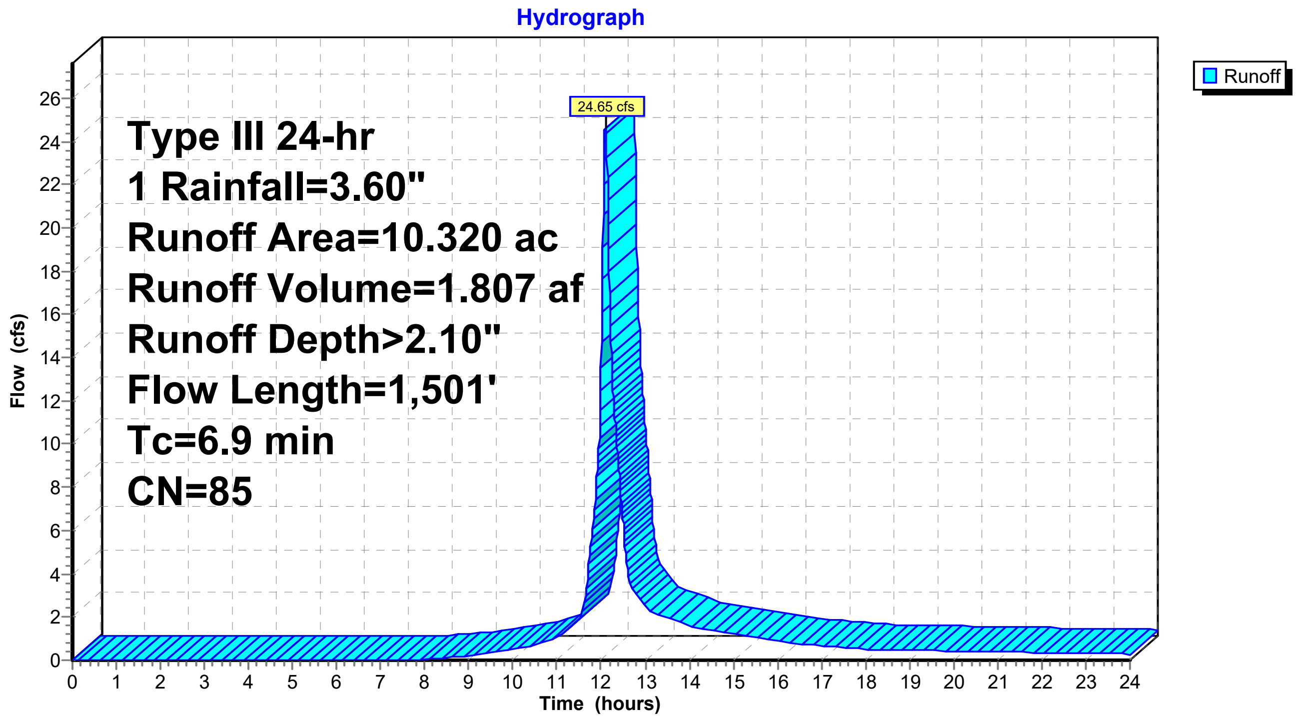
Runoff = 24.65 cfs @ 12.10 hrs, Volume= 1.807 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	10.320	85	
	10.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2A: POST-DEVELOPED BASIN #2A



Summary for Subcatchment POST #3: POST-DEVELOPED BASIN #3

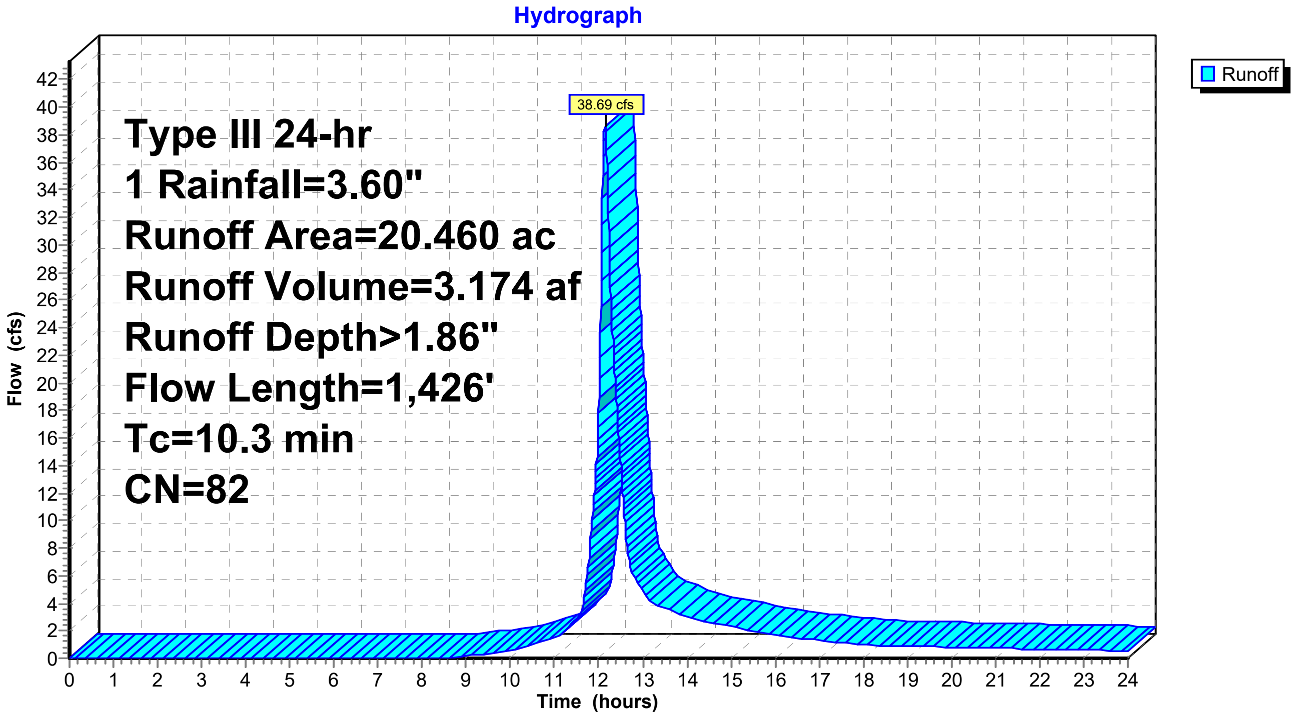
Runoff = 38.69 cfs @ 12.14 hrs, Volume= 3.174 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
	13.530	74	>75% Grass cover, Good, HSG C
*	2.480	98	Houses
*	3.570	98	Roads and Walkways
*	0.880	98	NWL Pond
	20.460	82	Weighted Average
	13.530		66.13% Pervious Area
	6.930		33.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0200	0.18		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
0.4	105	0.0100	4.86	24.28	**Channel Flow, REAR YARD SWALE** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
3.9	1,256	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
10.3	1,426	Total			

Subcatchment POST #3: POST-DEVELOPED BASIN #3



Summary for Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A

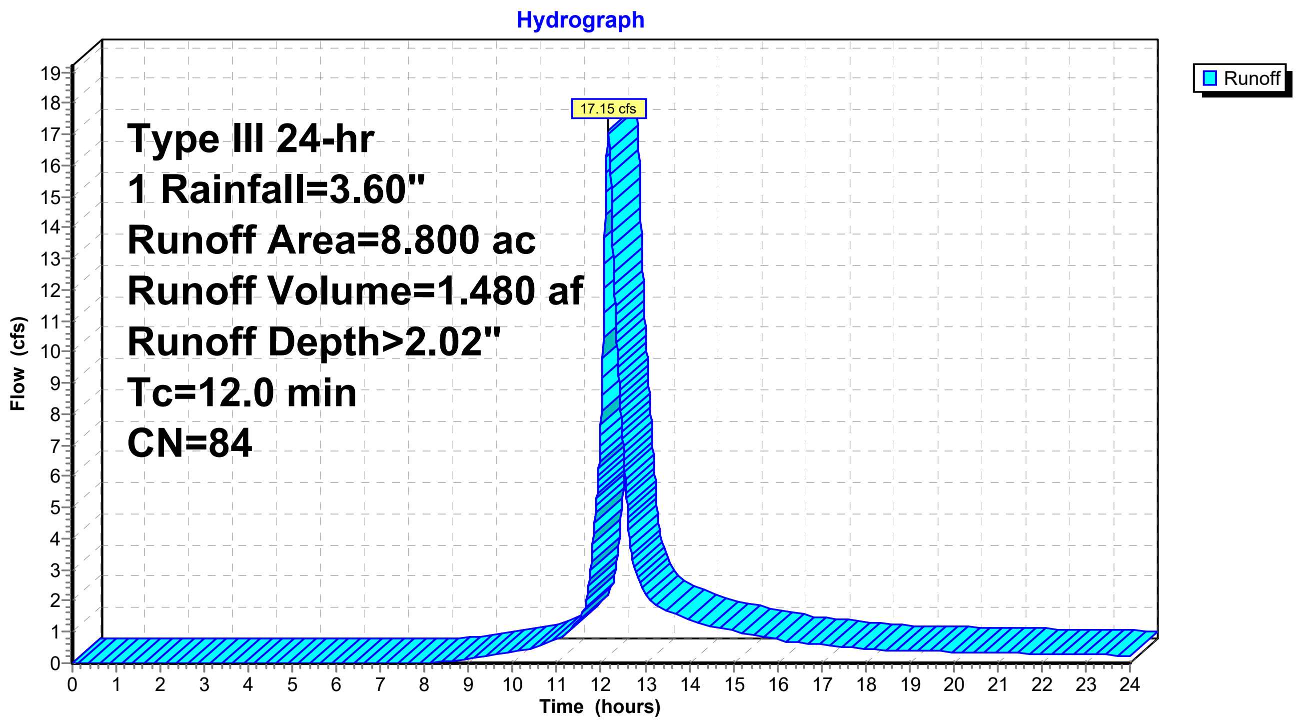
Runoff = 17.15 cfs @ 12.17 hrs, Volume= 1.480 af, Depth> 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	8.800	84	SFR lots, 30% imp, HSG D
	6.160		70.00% Pervious Area
	2.640		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A



Summary for Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B

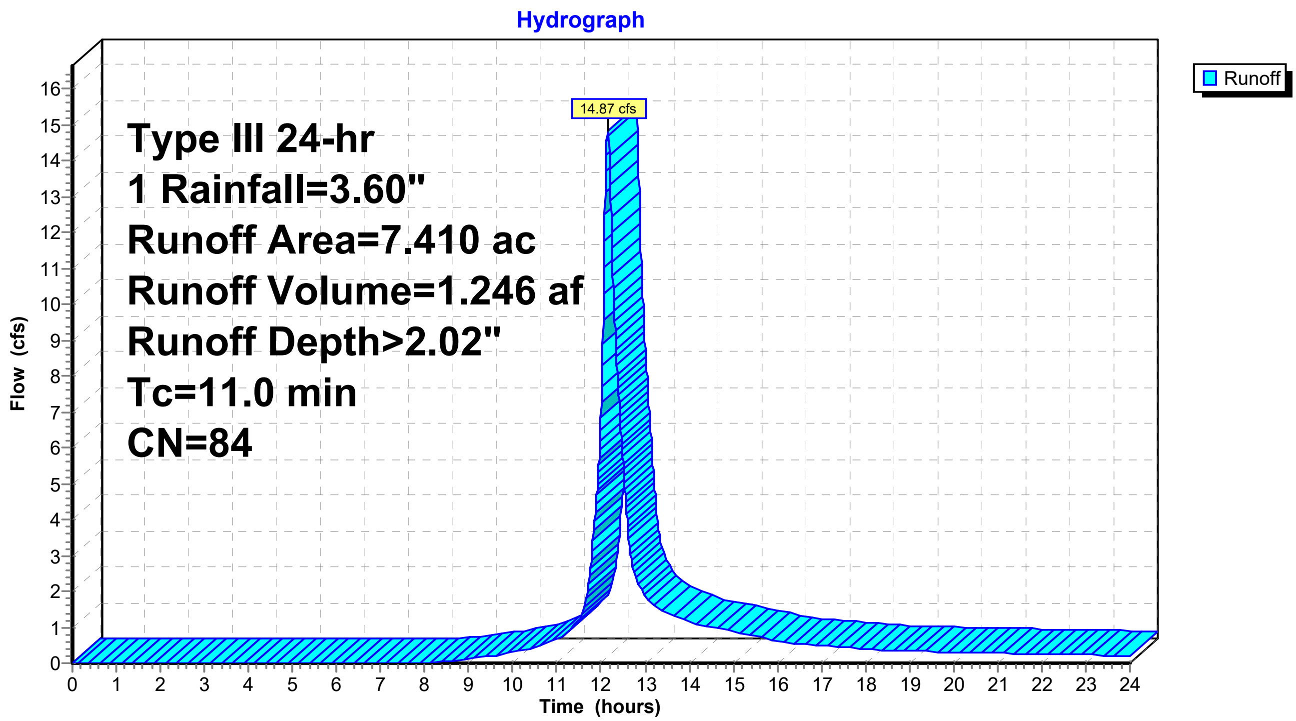
Runoff = 14.87 cfs @ 12.15 hrs, Volume= 1.246 af, Depth> 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	7.410	84	SFR lots, 30% imp, HSG D
	5.187		70.00% Pervious Area
	2.223		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0					**Direct Entry,**

Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B



Summary for Subcatchment POST #4: POST-DEVELOPED BASIN #4

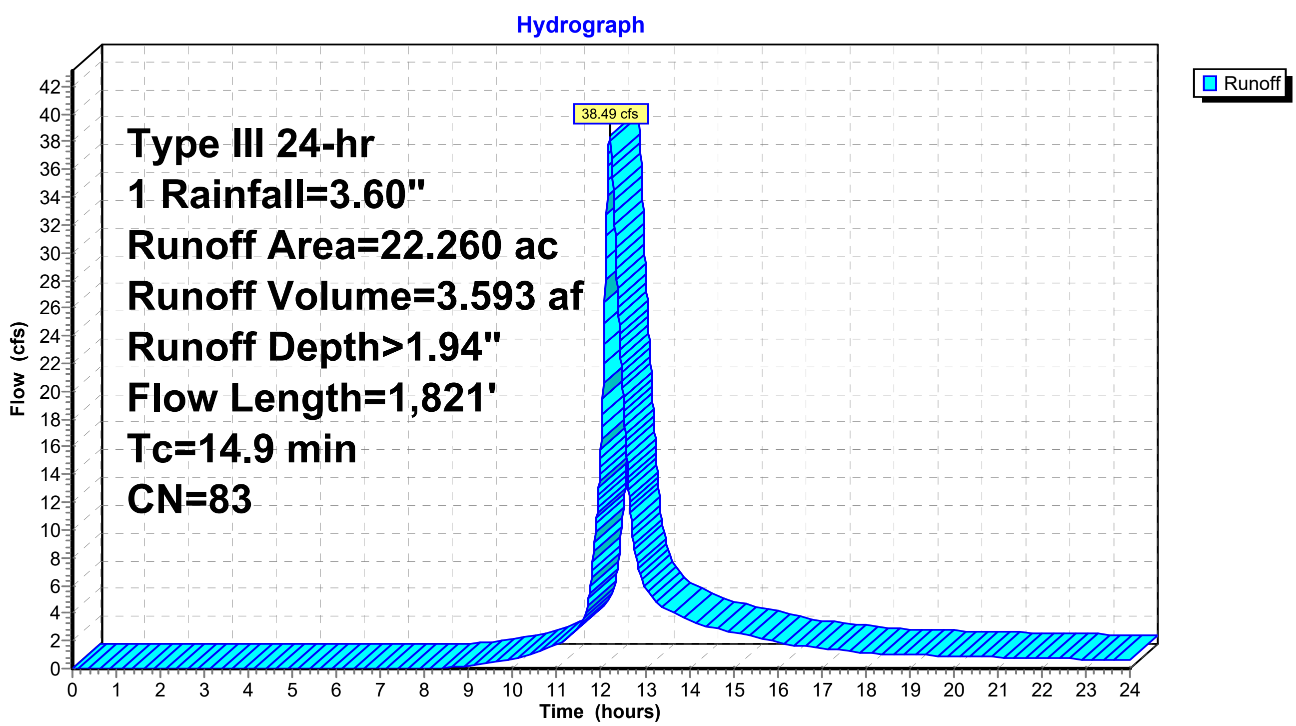
Runoff = 38.49 cfs @ 12.20 hrs, Volume= 3.593 af, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
	14.150	74	>75% Grass cover, Good, HSG C
*	8.110	98	Houses, Roads and Walkways, NWL POND
	22.260	83	Weighted Average
	14.150		63.57% Pervious Area
	8.110		36.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0100	0.13		**Sheet Flow, POST DEV BASIN #4 - SHEET** Grass: Short n= 0.150 P2= 4.34"
3.5	300	0.0050	1.44		**Shallow Concentrated Flow, Gutter Basin 4** Paved Kv= 20.3 fps
4.5	1,466	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
14.9	1,821	Total			

Subcatchment POST #4: POST-DEVELOPED BASIN #4



Summary for Subcatchment POST #5: POST-DEVELOPED BASIN #5

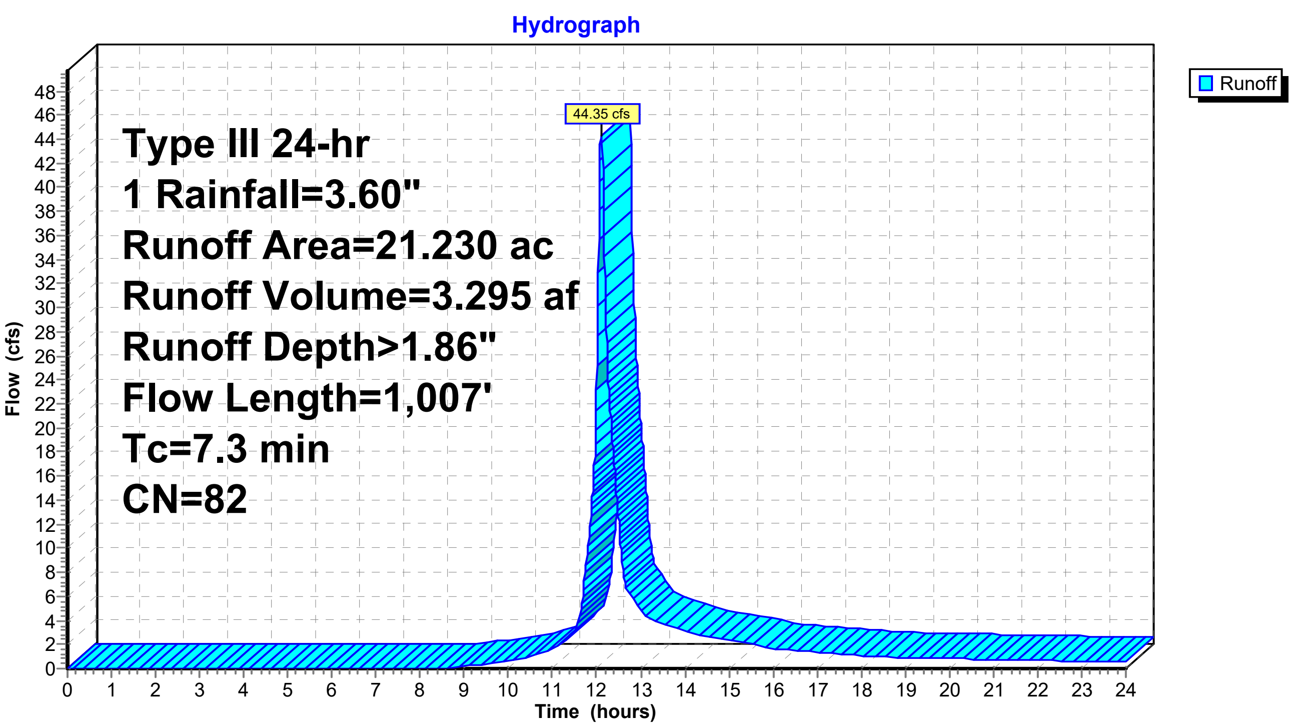
Runoff = 44.35 cfs @ 12.11 hrs, Volume= 3.295 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
	14.320	74	>75% Grass cover, Good, HSG C
*	2.850	98	Houses
*	3.410	98	Roads and Walkways
*	0.650	98	NWL Pond
	21.230	82	Weighted Average
	14.320		67.45% Pervious Area
	6.910		32.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	55	0.0300	0.21		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
2.9	952	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
7.3	1,007	Total			

Subcatchment POST #5: POST-DEVELOPED BASIN #5



Summary for Subcatchment POST #6: POST-DEVELOPED BASIN #6

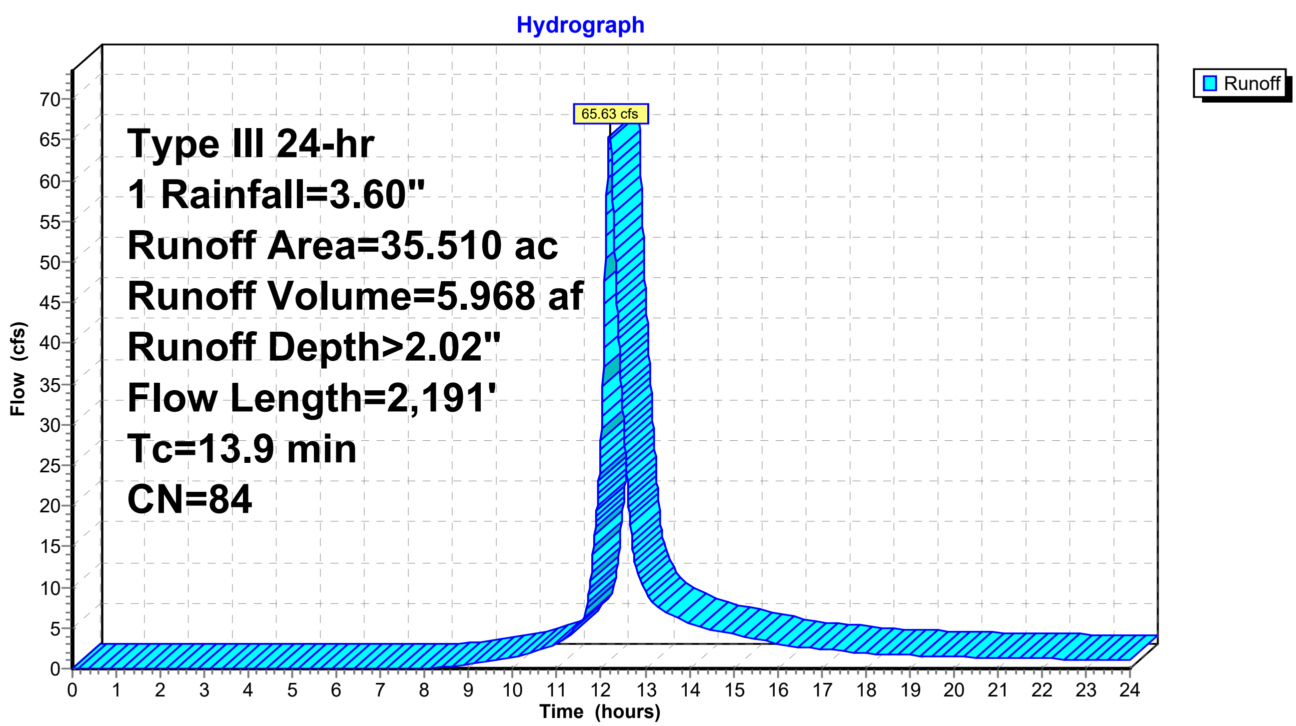
Runoff = 65.63 cfs @ 12.19 hrs, Volume= 5.968 af, Depth> 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
	21.070	74	>75% Grass cover, Good, HSG C
*	5.180	98	Houses
*	5.540	98	Roads and Walkways
*	3.720	98	NWL Pond
	35.510	84	Weighted Average
	21.070		59.34% Pervious Area
	14.440		40.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0200	0.19		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
6.5	2,106	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
13.9	2,191	Total			

Subcatchment POST #6: POST-DEVELOPED BASIN #6



Summary for Pond POST-1P: POND 1

Inflow Area = 17.790 ac, 35.69% Impervious, Inflow Depth > 1.94" for 1 event
Inflow = 39.68 cfs @ 12.10 hrs, Volume= 2.877 af
Outflow = 5.34 cfs @ 12.21 hrs, Volume= 2.046 af, Atten= 87%, Lag= 6.7 min
Primary = 5.34 cfs @ 12.21 hrs, Volume= 2.046 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 37,128 sf Storage= 113,417 cf
Peak Elev= 11.51' @ 13.46 hrs Surf.Area= 53,407 sf Storage= 182,936 cf (69,519 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 182.1 min (1,009.4 - 827.2)

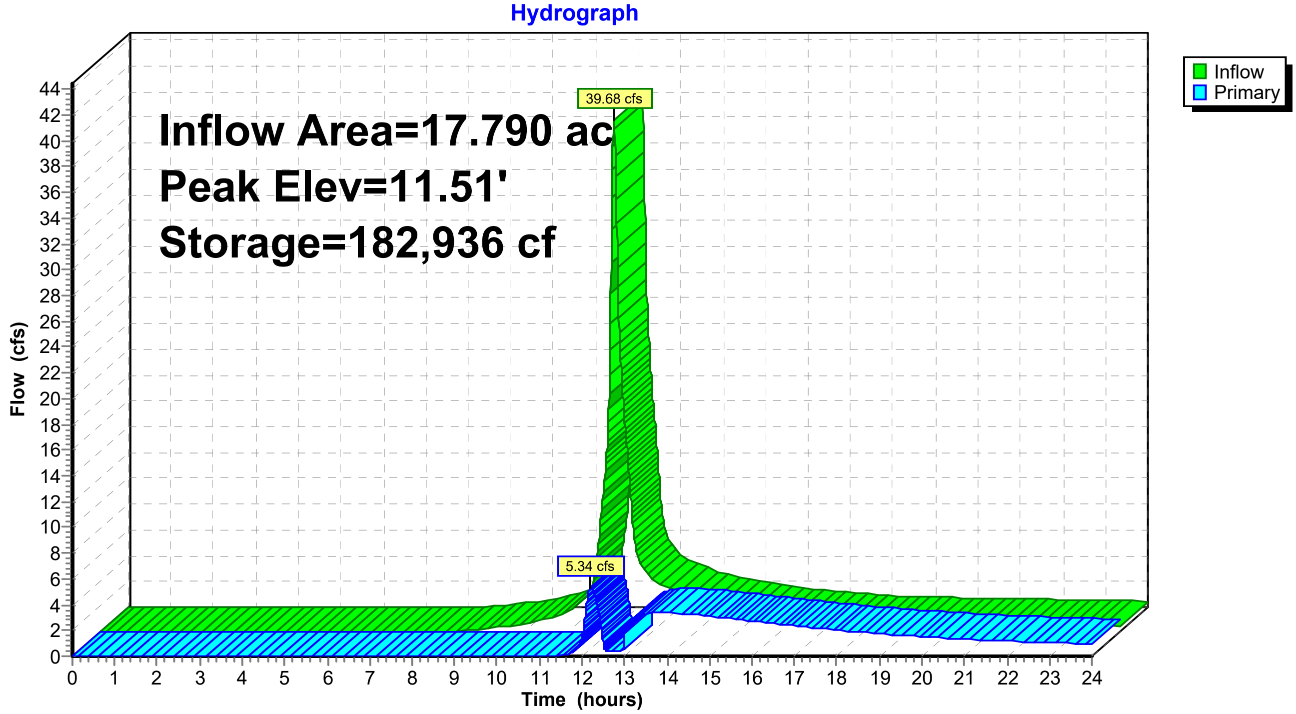
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	910,381 cf	**POND 1 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	26,411	0	0
9.97	37,128	113,417	113,417
15.00	90,446	320,849	434,266
20.00	100,000	476,115	910,381

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.11' S= 0.0143 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	9.97'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 7.89' S= 0.0145 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	10.14'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.02' S= 0.0148 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=4.86 cfs @ 12.21 hrs HW=11.04' TW=10.94' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 1.52 cfs @ 1.45 fps)
├─**2=RCP_Round 30"** (Outlet Controls 2.09 cfs @ 1.54 fps)
└─**3=RCP_Round 30"** (Outlet Controls 1.25 cfs @ 1.18 fps)

Pond POST-1P: POND 1



Summary for Pond POST-2P: POND 2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)
[80] Warning: Exceeded Pond POST-1P by 0.01' @ 12.53 hrs (1.77 cfs 0.068 af)

Inflow Area = 34.050 ac, 32.98% Impervious, Inflow Depth > 1.69" for 1 event
Inflow = 41.24 cfs @ 12.11 hrs, Volume= 4.783 af
Outflow = 6.70 cfs @ 13.89 hrs, Volume= 3.823 af, Atten= 84%, Lag= 107.3 min
Primary = 6.70 cfs @ 13.89 hrs, Volume= 3.823 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 44,416 sf Storage= 133,705 cf
Peak Elev= 11.49' @ 13.40 hrs Surf.Area= 59,693 sf Storage= 213,063 cf (79,357 cf above start)

Plug-Flow detention time= 628.8 min calculated for 0.753 af (16% of inflow)
Center-of-Mass det. time= 128.8 min (1,032.2 - 903.5)

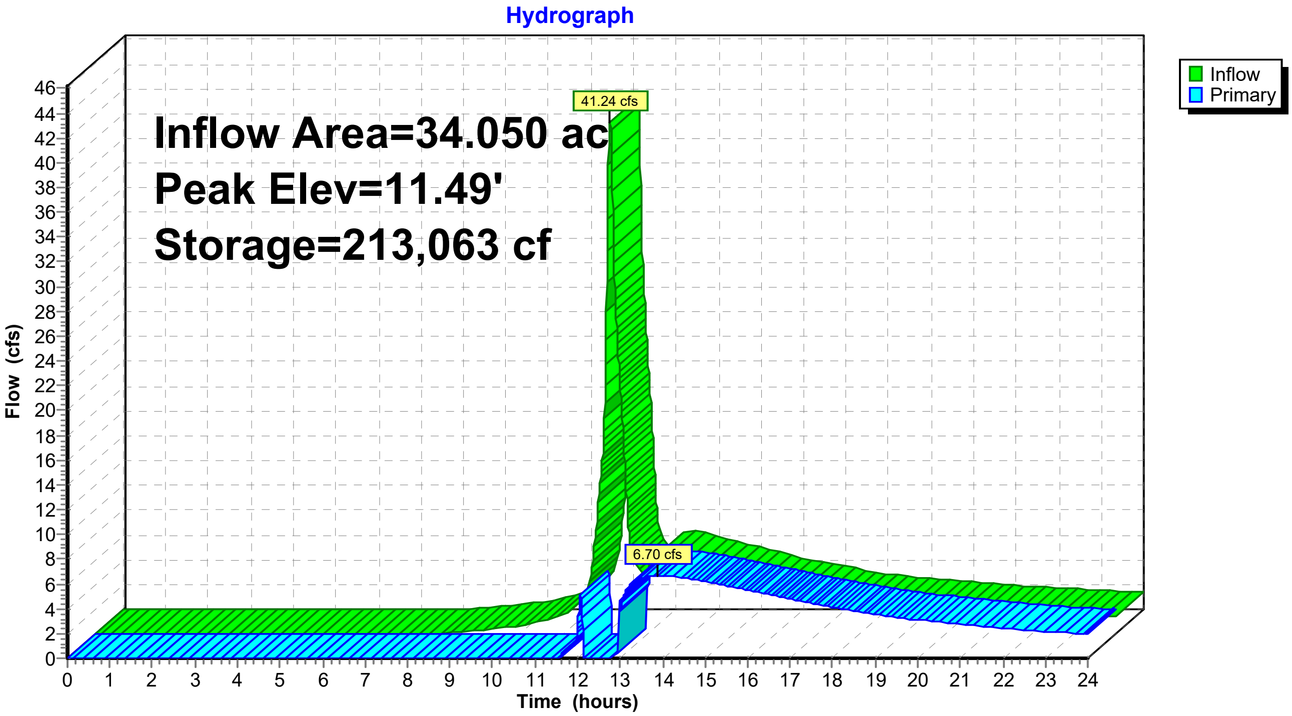
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	970,944 cf	**POND 2 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	30,489	0	0
9.97	44,416	133,705	133,705
15.00	94,822	350,184	483,889
20.00	100,000	487,055	970,944

Device	Routing	Invert	Outlet Devices
#1	Primary	8.20'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.18' / 8.20' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	8.18'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.15' / 8.18' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	8.12'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.12' / 8.10' S= 0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#4	Primary	8.07'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.07' / 8.06' S= 0.0001 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf

Primary OutFlow Max=7.12 cfs @ 13.89 hrs HW=11.48' TW=11.48' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 1.80 cfs @ 0.37 fps)
├─**2=RCP_Round 30"** (Outlet Controls 1.78 cfs @ 0.36 fps)
├─**3=RCP_Round 30"** (Outlet Controls 1.77 cfs @ 0.36 fps)
└─**4=RCP_Round 30"** (Outlet Controls 1.77 cfs @ 0.36 fps)

Pond POST-2P: POND 2



Summary for Pond POST-2PA: POND 2A

Inflow Area =	15.600 ac,	0.00% Impervious,	Inflow Depth > 2.10"	for 1 event	
Inflow =	37.72 cfs @	12.09 hrs,	Volume=	2.732 af	
Outflow =	19.54 cfs @	12.25 hrs,	Volume=	2.656 af,	Atten= 48%, Lag= 9.4 min
Primary =	19.54 cfs @	12.25 hrs,	Volume=	2.656 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 13.80' @ 12.25 hrs Surf.Area= 34,312 sf Storage= 138,501 cf (29,779 cf above start)

Plug-Flow detention time= 729.5 min calculated for 0.160 af (6% of inflow)
Center-of-Mass det. time= 36.0 min (856.5 - 820.4)

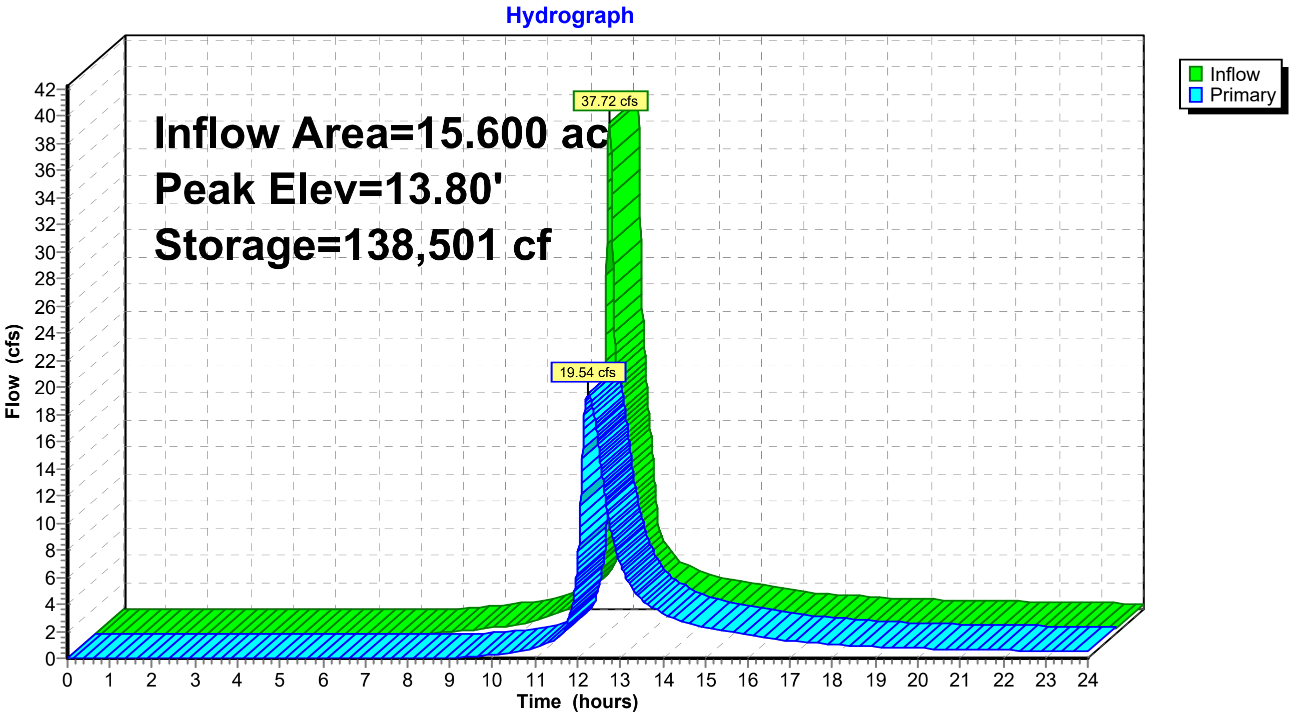
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=19.53 cfs @ 12.25 hrs HW=13.80' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 19.53 cfs @ 2.82 fps)

Pond POST-2PA: POND 2A



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.12' @ 12.54 hrs (39.85 cfs 2.995 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 1.59" for 1 event
Inflow = 48.68 cfs @ 12.11 hrs, Volume= 9.749 af
Outflow = 14.96 cfs @ 13.43 hrs, Volume= 8.530 af, Atten= 69%, Lag= 78.9 min
Primary = 14.96 cfs @ 13.43 hrs, Volume= 8.530 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 11.49' @ 12.76 hrs Surf.Area= 69,909 sf Storage= 281,549 cf (98,104 cf above start)

Plug-Flow detention time= 411.6 min calculated for 4.318 af (44% of inflow)
Center-of-Mass det. time= 77.0 min (1,016.8 - 939.8)

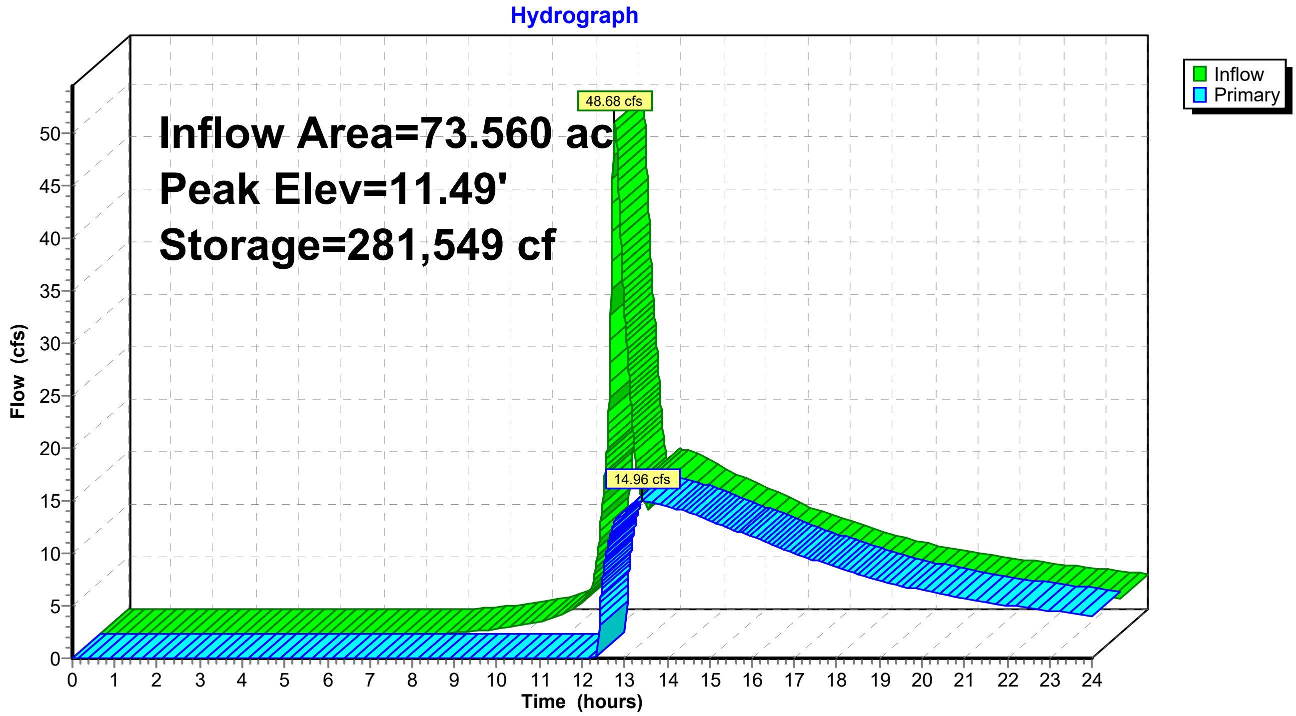
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=14.97 cfs @ 13.43 hrs HW=11.49' TW=11.29' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 4.88 cfs @ 2.35 fps)
├─**2=RCP_Round 36"** (Outlet Controls 6.00 cfs @ 2.43 fps)
└─**3=RCP_Round 36"** (Outlet Controls 4.09 cfs @ 1.95 fps)

Pond POST-3P: POND 3



Summary for Pond POST-3PA: POND 3A

[44] Hint: Outlet device #1 is below defined storage
[80] Warning: Exceeded Pond POST-3PB by 0.01' @ 12.20 hrs (0.92 cfs 0.013 af)

Inflow Area = 16.210 ac, 30.00% Impervious, Inflow Depth > 1.86" for 1 event
Inflow = 18.04 cfs @ 12.17 hrs, Volume= 2.511 af
Outflow = 6.50 cfs @ 12.35 hrs, Volume= 2.311 af, Atten= 64%, Lag= 10.8 min
Primary = 6.50 cfs @ 12.35 hrs, Volume= 2.311 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.63' @ 12.71 hrs Surf.Area= 21,091 sf Storage= 24,073 cf

Plug-Flow detention time= 105.8 min calculated for 2.310 af (92% of inflow)
Center-of-Mass det. time= 66.5 min (954.1 - 887.7)

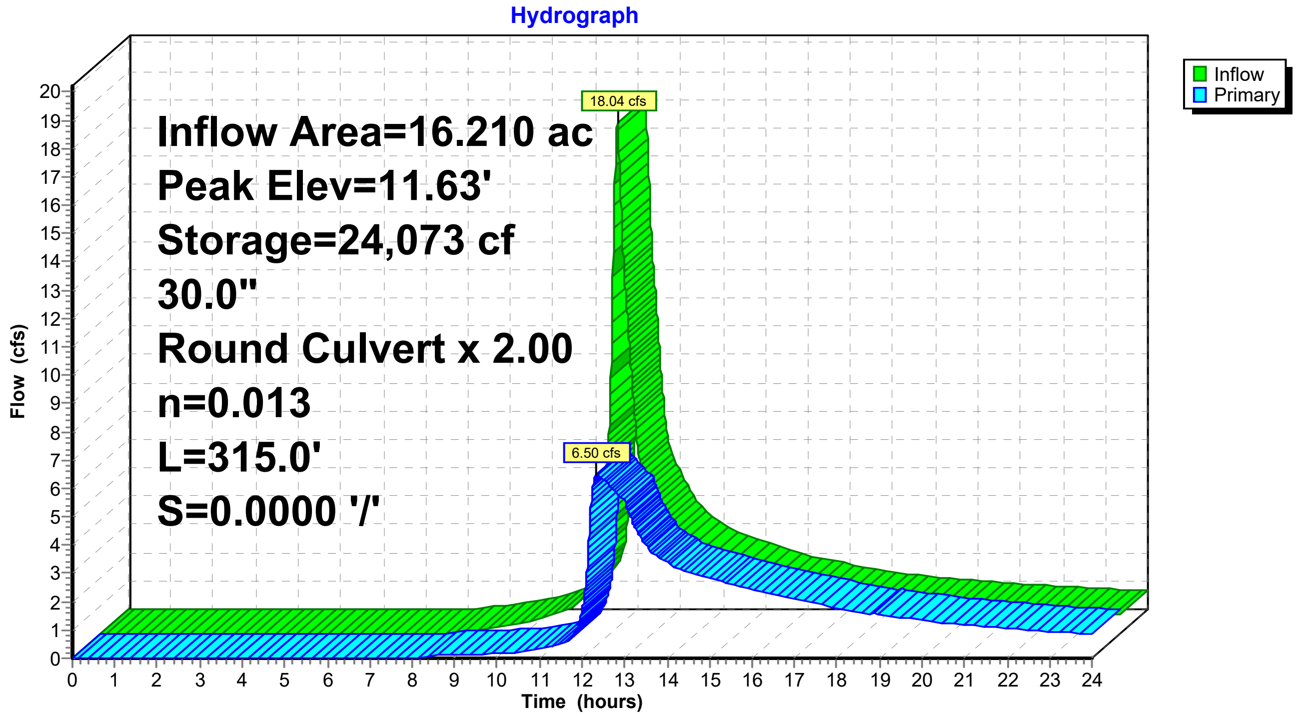
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	247,412 cf	**POND 3A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,127	0	0
14.40	27,784	91,822	91,822
20.00	27,784	155,590	247,412

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 315.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=6.27 cfs @ 12.35 hrs HW=11.47' TW=11.25' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 6.27 cfs @ 1.73 fps)

Pond POST-3PA: POND 3A



Summary for Pond POST-3PB: POND 3B

[44] Hint: Outlet device #1 is below defined storage

Inflow Area = 7.410 ac, 30.00% Impervious, Inflow Depth > 2.02" for 1 event
Inflow = 14.87 cfs @ 12.15 hrs, Volume= 1.246 af
Outflow = 2.62 cfs @ 12.90 hrs, Volume= 1.032 af, Atten= 82%, Lag= 44.8 min
Primary = 2.62 cfs @ 12.90 hrs, Volume= 1.032 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.66' @ 12.74 hrs Surf.Area= 22,001 sf Storage= 25,741 cf

Plug-Flow detention time= 215.0 min calculated for 1.031 af (83% of inflow)
Center-of-Mass det. time= 145.1 min (972.7 - 827.5)

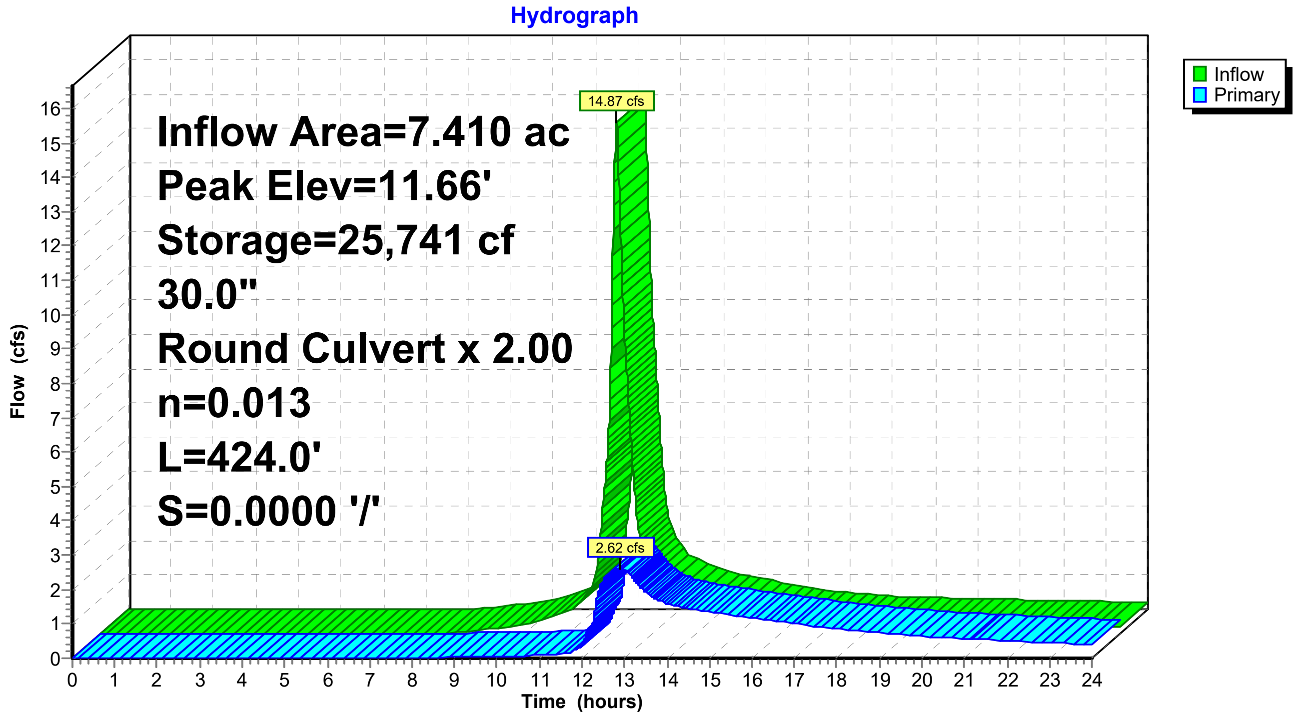
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	255,727 cf	**POND 3B (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,948	0	0
14.40	28,662	95,220	95,220
20.00	28,662	160,507	255,727

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 424.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=2.66 cfs @ 12.90 hrs HW=11.65' TW=11.62' (Dynamic Tailwater)
↑—**1=RCP_Round 30"** (Outlet Controls 2.66 cfs @ 0.62 fps)

Pond POST-3PB: POND 3B



Summary for Pond POST-4P: POND 4

[80] Warning: Exceeded Pond POST-3P by 0.14' @ 11.97 hrs (1.92 cfs 0.207 af)

Inflow Area = 95.820 ac, 32.49% Impervious, Inflow Depth > 1.52" for 1 event
Inflow = 38.49 cfs @ 12.20 hrs, Volume= 12.123 af
Outflow = 25.55 cfs @ 12.53 hrs, Volume= 11.682 af, Atten= 34%, Lag= 19.6 min
Primary = 25.55 cfs @ 12.53 hrs, Volume= 11.682 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 25,099 sf Storage= 71,286 cf
Peak Elev= 11.37' @ 12.59 hrs Surf.Area= 32,022 sf Storage= 111,181 cf (39,896 cf above start)

Plug-Flow detention time= 133.5 min calculated for 10.042 af (83% of inflow)
Center-of-Mass det. time= 23.8 min (986.4 - 962.6)

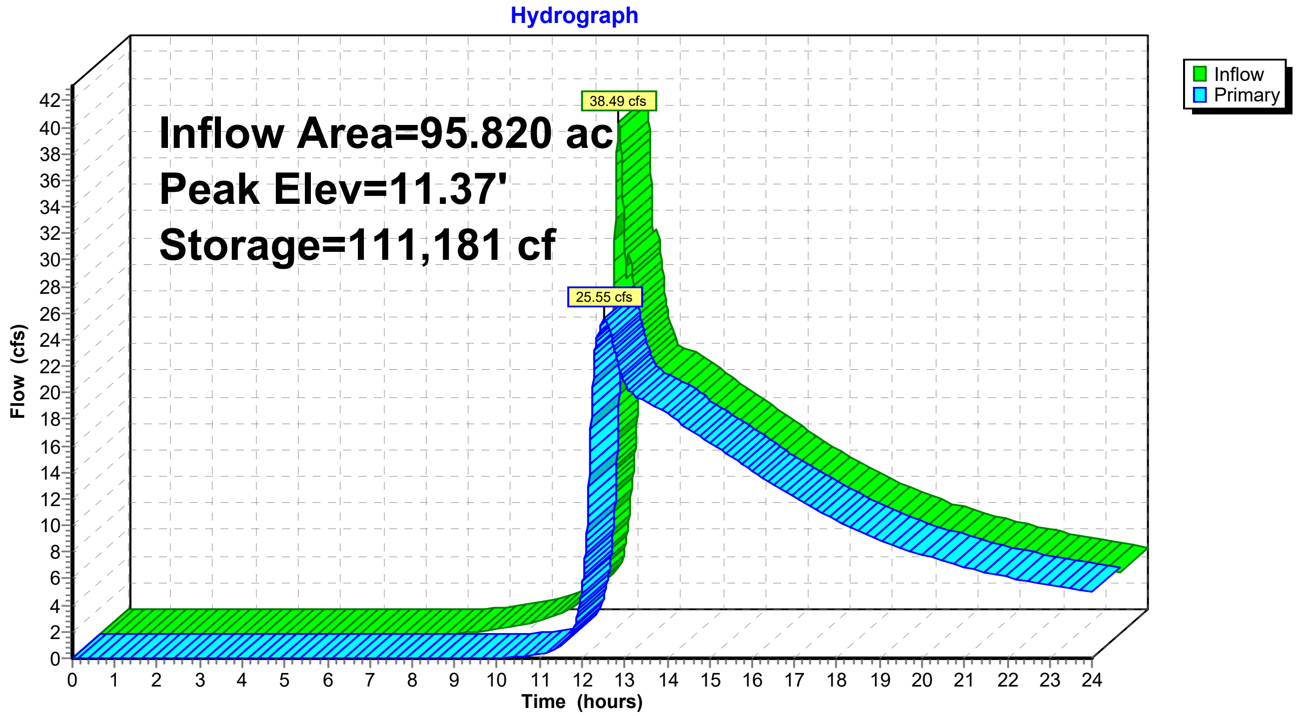
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	635,290 cf	**POND 4 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	14,837	0	0
9.97	25,099	71,286	71,286
15.00	50,026	188,939	260,225
20.00	100,000	375,065	635,290

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0109 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0097 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0098 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=25.47 cfs @ 12.53 hrs HW=11.36' TW=10.50' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 8.25 cfs @ 4.56 fps)
├─**2=RCP_Round 36"** (Outlet Controls 10.40 cfs @ 4.75 fps)
└─**3=RCP_Round 36"** (Outlet Controls 6.82 cfs @ 3.73 fps)

Pond POST-4P: POND 4



Summary for Pond POST-5P: POND 5

Inflow Area = 117.050 ac, 32.50% Impervious, Inflow Depth > 1.54" for 1 event
Inflow = 53.86 cfs @ 12.12 hrs, Volume= 14.978 af
Outflow = 32.69 cfs @ 12.34 hrs, Volume= 14.281 af, Atten= 39%, Lag= 13.3 min
Primary = 32.69 cfs @ 12.34 hrs, Volume= 14.281 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 39,178 sf Storage= 132,791 cf
Peak Elev= 10.70' @ 14.14 hrs Surf.Area= 42,965 sf Storage= 184,894 cf (52,103 cf above start)

Plug-Flow detention time= 185.8 min calculated for 11.228 af (75% of inflow)
Center-of-Mass det. time= 25.1 min (977.3 - 952.2)

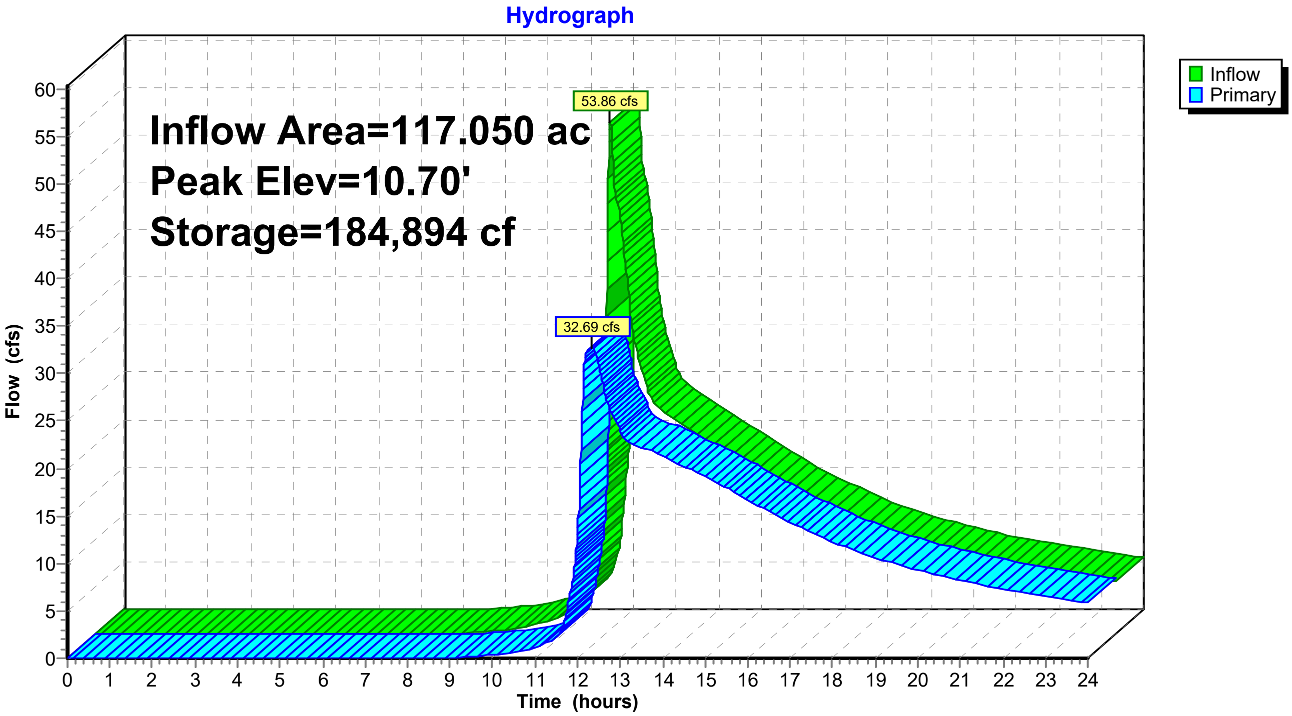
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	785,627 cf	**POND 5 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	28,400	0	0
9.50	39,370	135,540	135,540
15.10	56,162	267,490	403,030
20.00	100,000	382,597	785,627

Device	Routing	Invert	Outlet Devices
#1	Primary	8.59'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.59' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	8.52'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.52' / 8.43' S= 0.0007 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.63' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#4	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.35' / 8.63' S= -0.0022 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=31.61 cfs @ 12.34 hrs HW=10.37' TW=10.18' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 7.70 cfs @ 2.54 fps)
├─**2=RCP_Round 36"** (Outlet Controls 8.16 cfs @ 2.56 fps)
├─**3=RCP_Round 36"** (Outlet Controls 7.70 cfs @ 2.54 fps)
└─**4=RCP_Round 36"** (Outlet Controls 8.06 cfs @ 2.26 fps)

Pond POST-5P: POND 5



Summary for Pond POST-6P: POND 6

Inflow Area = 152.560 ac, 34.40% Impervious, Inflow Depth > 1.59" for 1 event
Inflow = 97.78 cfs @ 12.19 hrs, Volume= 20.249 af
Outflow = 25.85 cfs @ 14.28 hrs, Volume= 16.831 af, Atten= 74%, Lag= 125.1 min
Primary = 25.85 cfs @ 14.28 hrs, Volume= 16.831 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 196,792 sf Storage= 705,109 cf
Peak Elev= 10.65' @ 14.28 hrs Surf.Area= 207,840 sf Storage= 951,720 cf (246,612 cf above start)

Plug-Flow detention time= 769.9 min calculated for 0.644 af (3% of inflow)
Center-of-Mass det. time= 95.1 min (1,029.0 - 933.9)

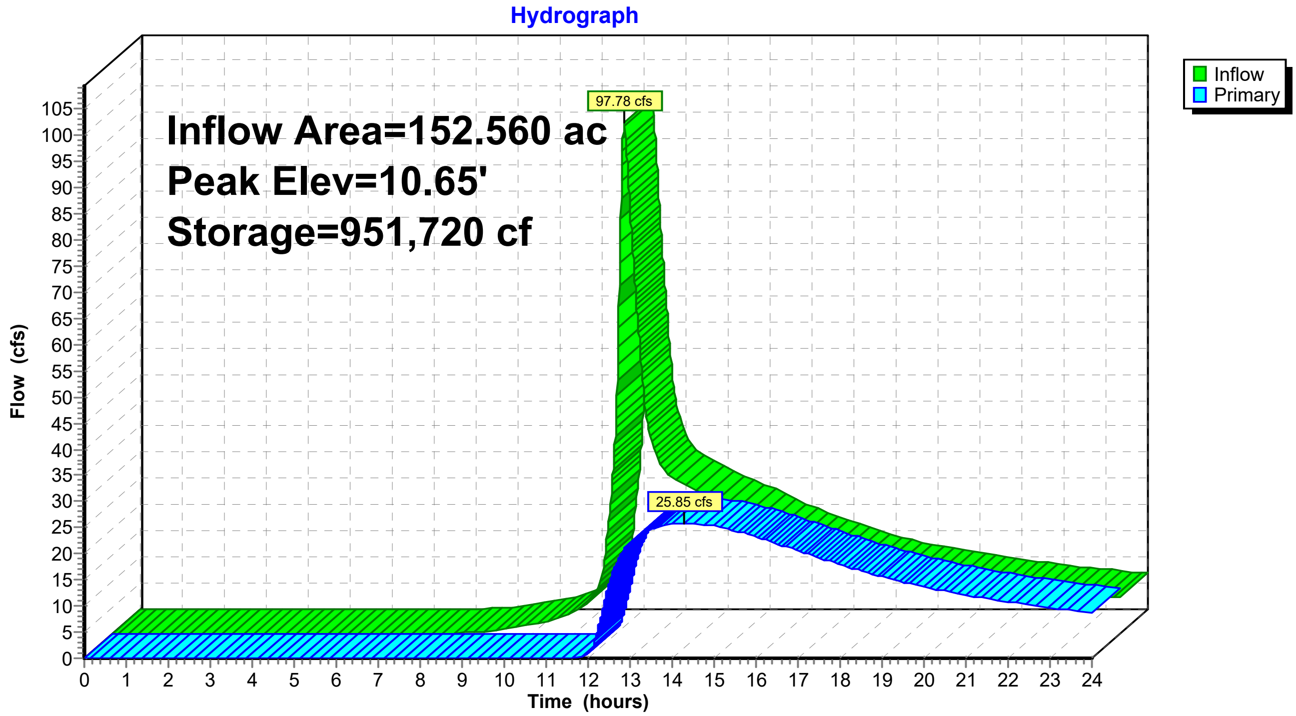
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	3,128,709 cf	**POND 6 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	162,042	0	0
9.50	197,411	718,906	718,906
14.00	238,258	980,255	1,699,161
20.00	238,258	1,429,548	3,128,709

Device	Routing	Invert	Outlet Devices
#1	Primary	9.91'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.91' / 9.89' S= 0.0004 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Primary	9.53'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.53' / 9.41' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#3	Primary	9.43'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.42' / 9.43' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#4	Primary	9.52'	**24.0" Round RCP_Round 24" X 3.00** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.52' / 9.43' S= 0.0019 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

Primary OutFlow Max=25.85 cfs @ 14.28 hrs HW=10.65' (Free Discharge)
├─**1=RCP_Round 24"** (Barrel Controls 1.83 cfs @ 2.58 fps)
├─**2=RCP_Round 24"** (Barrel Controls 4.86 cfs @ 3.89 fps)
├─**3=RCP_Round 24"** (Barrel Controls 4.88 cfs @ 3.45 fps)
└─**4=RCP_Round 24"** (Barrel Controls 14.26 cfs @ 3.76 fps)

Pond POST-6P: POND 6



Summary for Subcatchment POST #1: POST-DEVELOPED BASIN #1

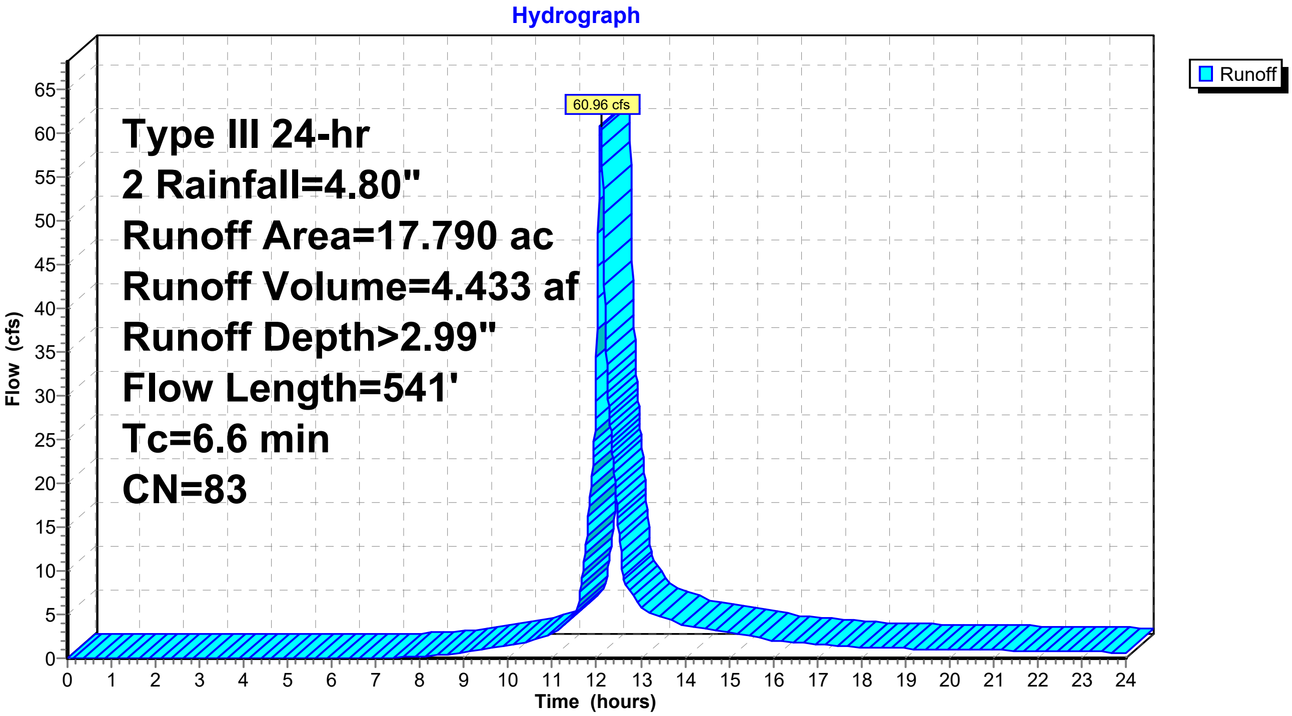
Runoff = 60.96 cfs @ 12.09 hrs, Volume= 4.433 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
	11.440	74	>75% Grass cover, Good, HSG C
*	2.940	98	Houses
*	2.810	98	Roads and Walkways
*	0.600	98	NWL Pond
	17.790	83	Weighted Average
	11.440		64.31% Pervious Area
	6.350		35.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0200	0.17		**Sheet Flow, YARD** Grass: Short n= 0.150 P2= 4.34"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, POST-DEV BASIN 1-SCF** Paved Kv= 20.3 fps
1.9	447	0.0030	3.97	19.47	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.015 Concrete sewer w/manholes & inlets
6.6	541	Total			

Subcatchment POST #1: POST-DEVELOPED BASIN #1



Summary for Subcatchment POST #2: POST-DEVELOPED BASIN #2

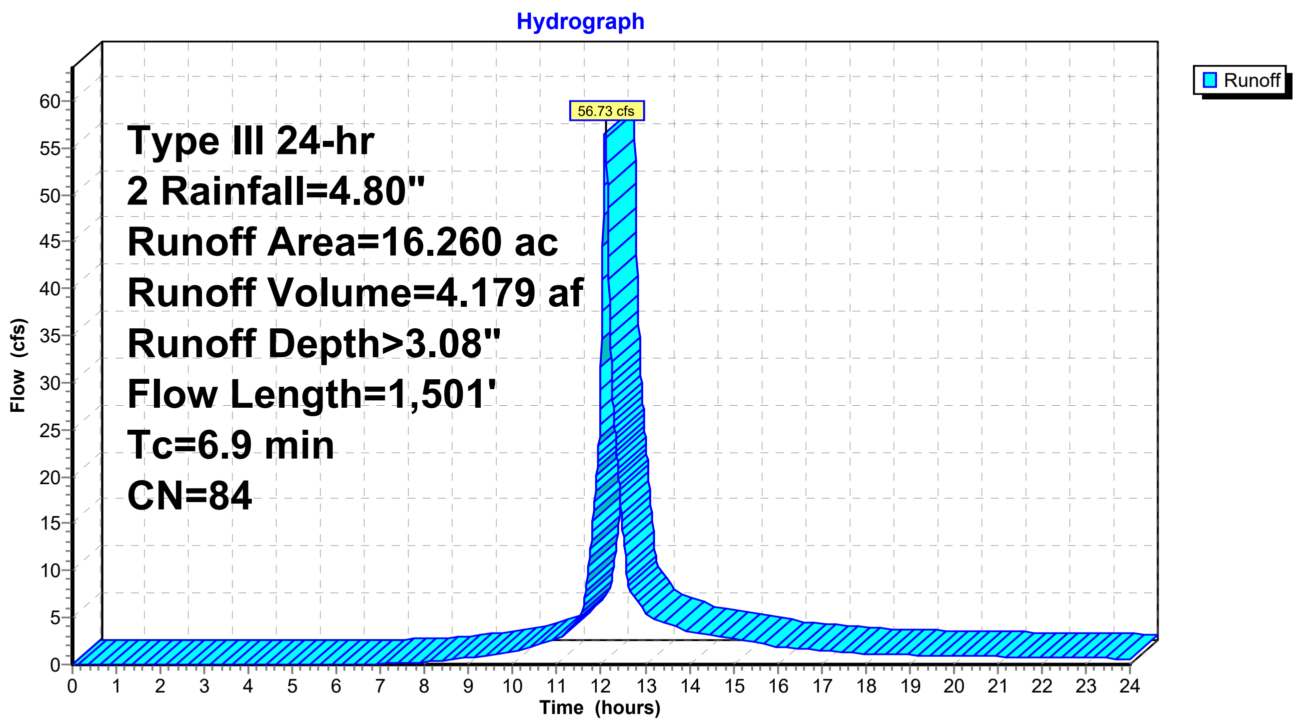
Runoff = 56.73 cfs @ 12.10 hrs, Volume= 4.179 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	16.260	84	SFR lots, 30% imp, HSG D
	11.382		70.00% Pervious Area
	4.878		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2: POST-DEVELOPED BASIN #2



Summary for Subcatchment POST #2A: POST-DEVELOPED BASIN #2A

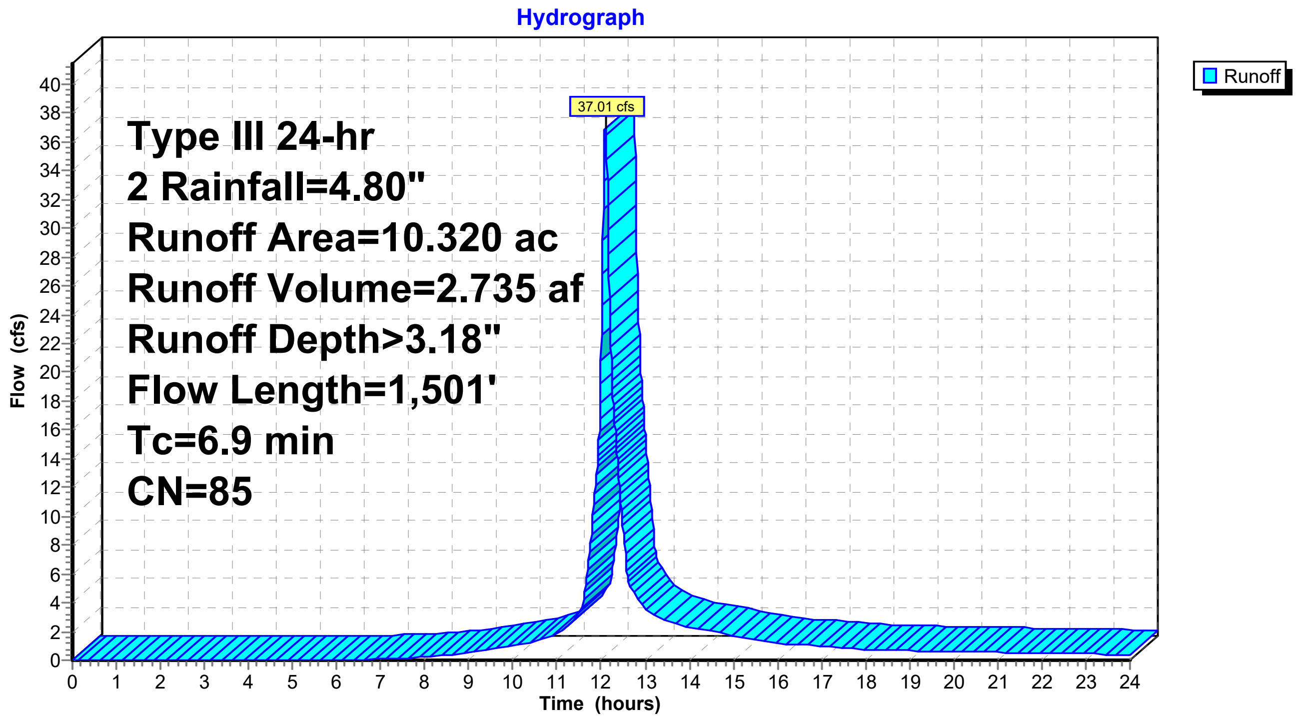
Runoff = 37.01 cfs @ 12.10 hrs, Volume= 2.735 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	10.320	85	
	10.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2A: POST-DEVELOPED BASIN #2A



Summary for Subcatchment POST #3: POST-DEVELOPED BASIN #3

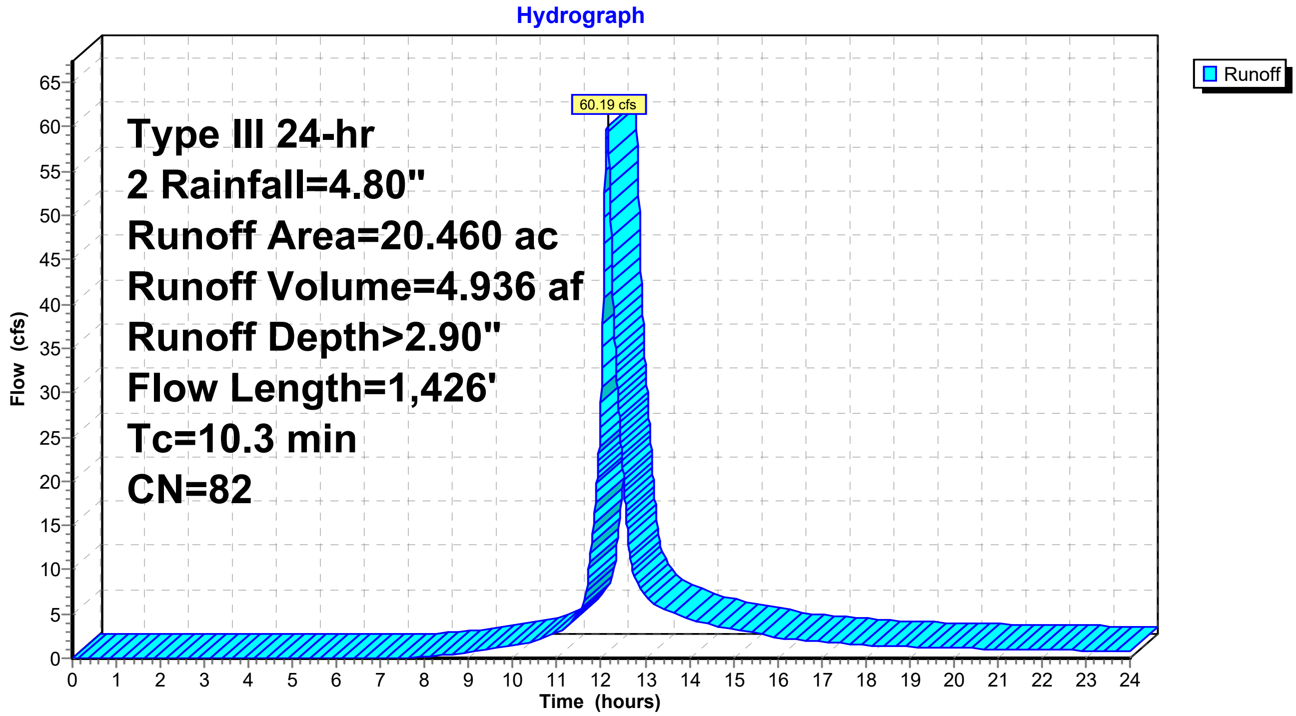
Runoff = 60.19 cfs @ 12.14 hrs, Volume= 4.936 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
	13.530	74	>75% Grass cover, Good, HSG C
*	2.480	98	Houses
*	3.570	98	Roads and Walkways
*	0.880	98	NWL Pond
	20.460	82	Weighted Average
	13.530		66.13% Pervious Area
	6.930		33.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0200	0.18		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
0.4	105	0.0100	4.86	24.28	**Channel Flow, REAR YARD SWALE** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
3.9	1,256	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
10.3	1,426	Total			

Subcatchment POST #3: POST-DEVELOPED BASIN #3



Summary for Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A

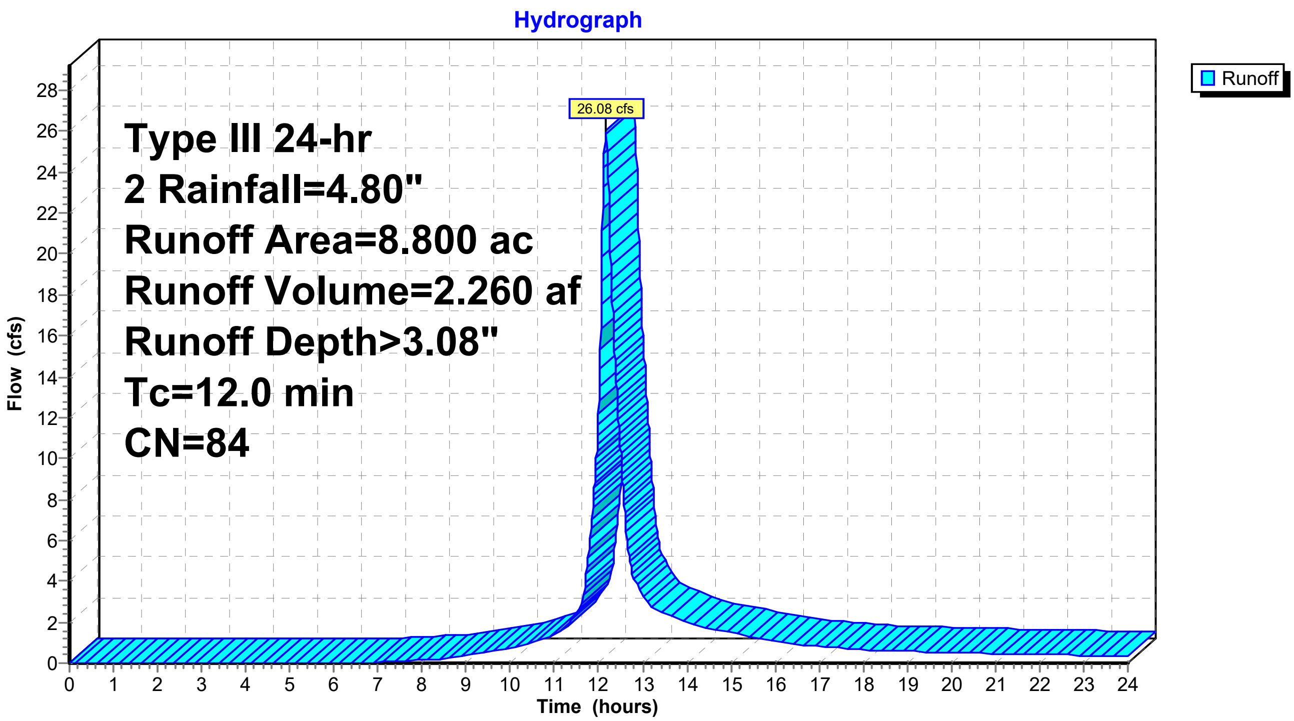
Runoff = 26.08 cfs @ 12.17 hrs, Volume= 2.260 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	8.800	84	SFR lots, 30% imp, HSG D
	6.160		70.00% Pervious Area
	2.640		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A



Summary for Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B

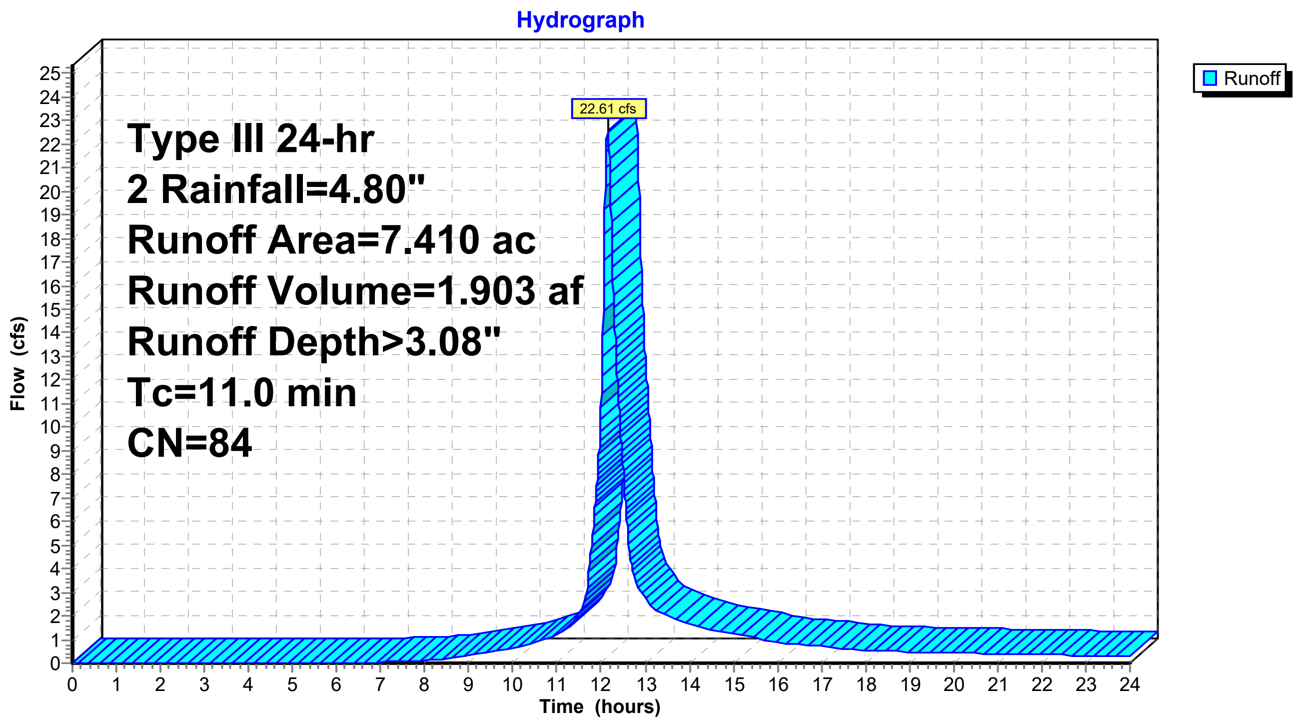
Runoff = 22.61 cfs @ 12.15 hrs, Volume= 1.903 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	7.410	84	SFR lots, 30% imp, HSG D
	5.187		70.00% Pervious Area
	2.223		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0					**Direct Entry,**

Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B



Summary for Subcatchment POST #4: POST-DEVELOPED BASIN #4

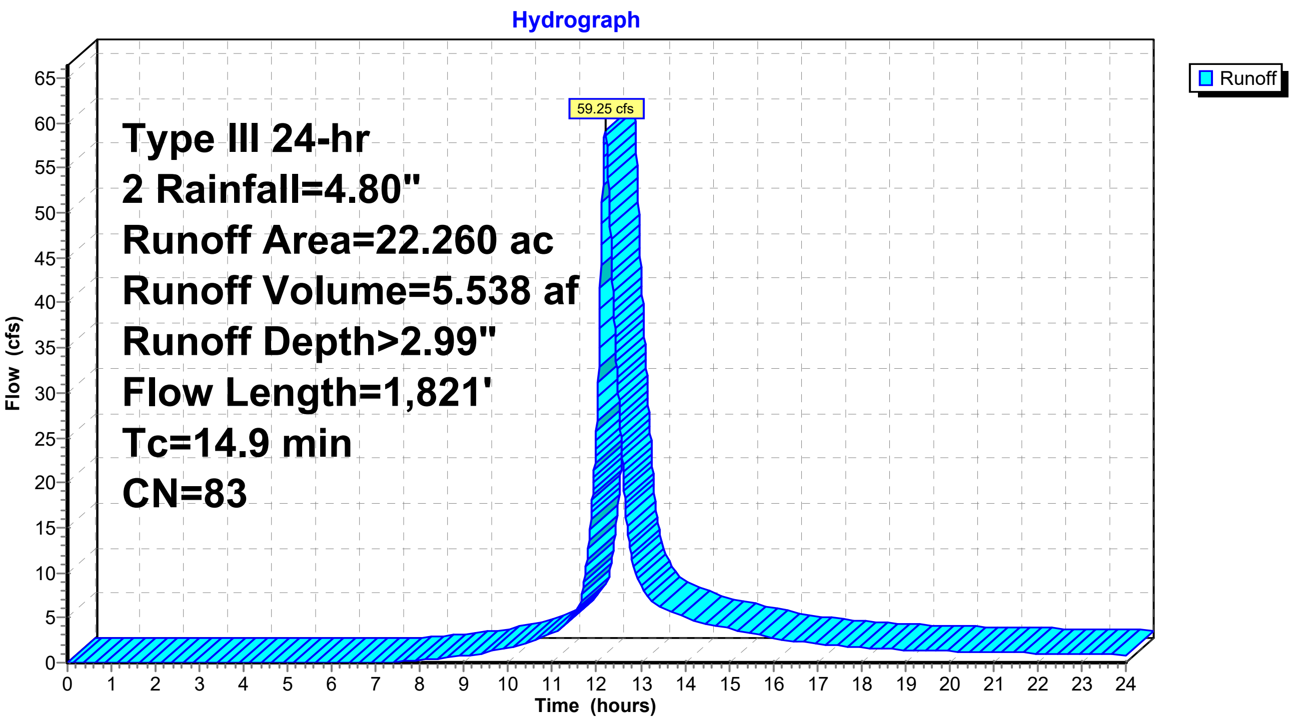
Runoff = 59.25 cfs @ 12.20 hrs, Volume= 5.538 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
	14.150	74	>75% Grass cover, Good, HSG C
*	8.110	98	Houses, Roads and Walkways, NWL POND
	22.260	83	Weighted Average
	14.150		63.57% Pervious Area
	8.110		36.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0100	0.13		**Sheet Flow, POST DEV BASIN #4 - SHEET** Grass: Short n= 0.150 P2= 4.34"
3.5	300	0.0050	1.44		**Shallow Concentrated Flow, Gutter Basin 4** Paved Kv= 20.3 fps
4.5	1,466	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
14.9	1,821	Total			

Subcatchment POST #4: POST-DEVELOPED BASIN #4



Summary for Subcatchment POST #5: POST-DEVELOPED BASIN #5

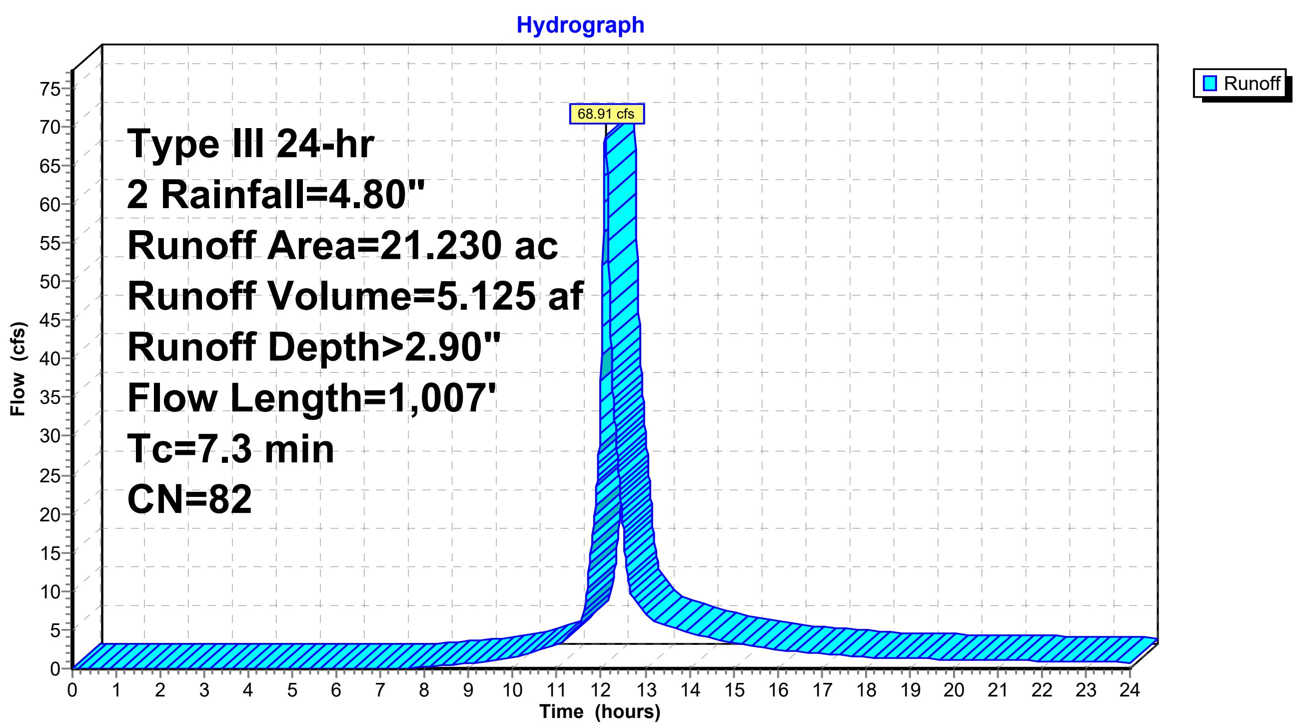
Runoff = 68.91 cfs @ 12.11 hrs, Volume= 5.125 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
	14.320	74	>75% Grass cover, Good, HSG C
*	2.850	98	Houses
*	3.410	98	Roads and Walkways
*	0.650	98	NWL Pond
	21.230	82	Weighted Average
	14.320		67.45% Pervious Area
	6.910		32.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	55	0.0300	0.21		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
2.9	952	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
7.3	1,007	Total			

Subcatchment POST #5: POST-DEVELOPED BASIN #5



Summary for Subcatchment POST #6: POST-DEVELOPED BASIN #6

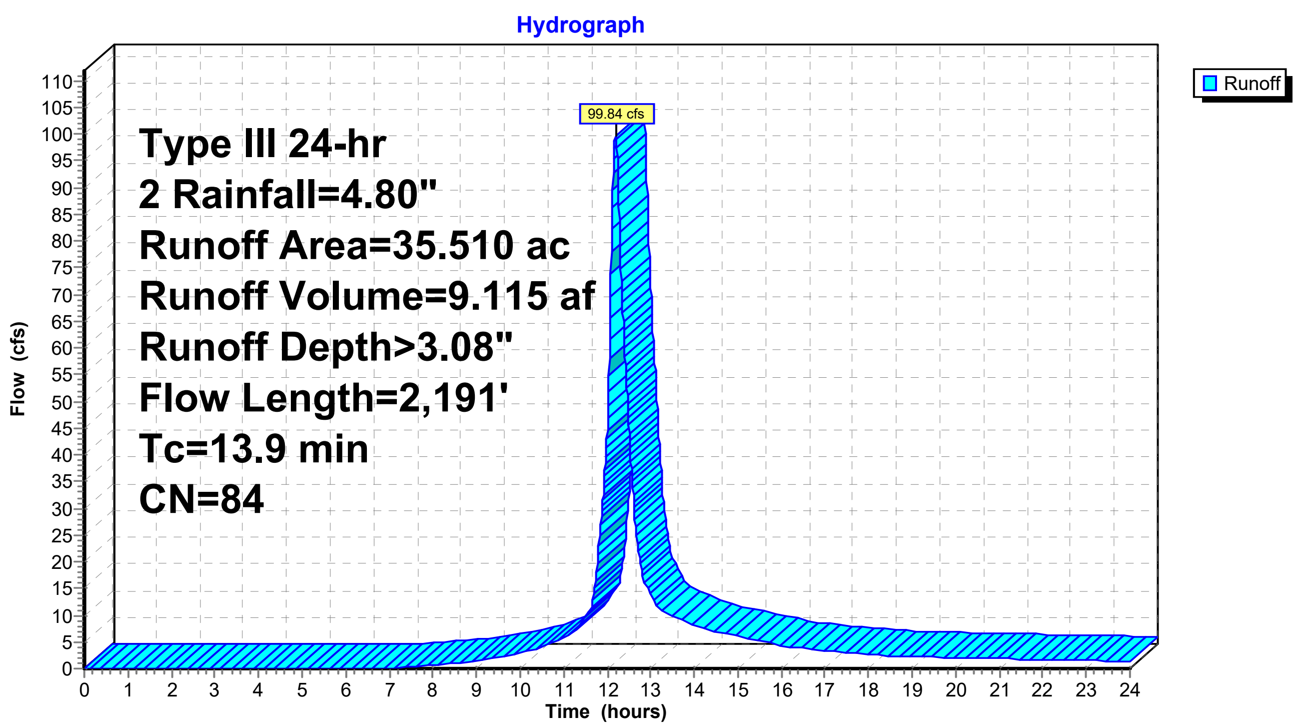
Runoff = 99.84 cfs @ 12.19 hrs, Volume= 9.115 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
	21.070	74	>75% Grass cover, Good, HSG C
*	5.180	98	Houses
*	5.540	98	Roads and Walkways
*	3.720	98	NWL Pond
	35.510	84	Weighted Average
	21.070		59.34% Pervious Area
	14.440		40.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0200	0.19		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
6.5	2,106	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
13.9	2,191	Total			

Subcatchment POST #6: POST-DEVELOPED BASIN #6



Summary for Pond POST-1P: POND 1

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

Inflow Area = 17.790 ac, 35.69% Impervious, Inflow Depth > 2.99" for 2 event
Inflow = 60.96 cfs @ 12.09 hrs, Volume= 4.433 af
Outflow = 9.40 cfs @ 12.15 hrs, Volume= 3.468 af, Atten= 85%, Lag= 3.2 min
Primary = 9.40 cfs @ 12.15 hrs, Volume= 3.468 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 37,128 sf Storage= 113,417 cf
Peak Elev= 12.15' @ 13.00 hrs Surf.Area= 60,251 sf Storage= 219,631 cf (106,213 cf above start)

Plug-Flow detention time= 595.0 min calculated for 0.864 af (19% of inflow)
Center-of-Mass det. time= 170.4 min (985.3 - 814.9)

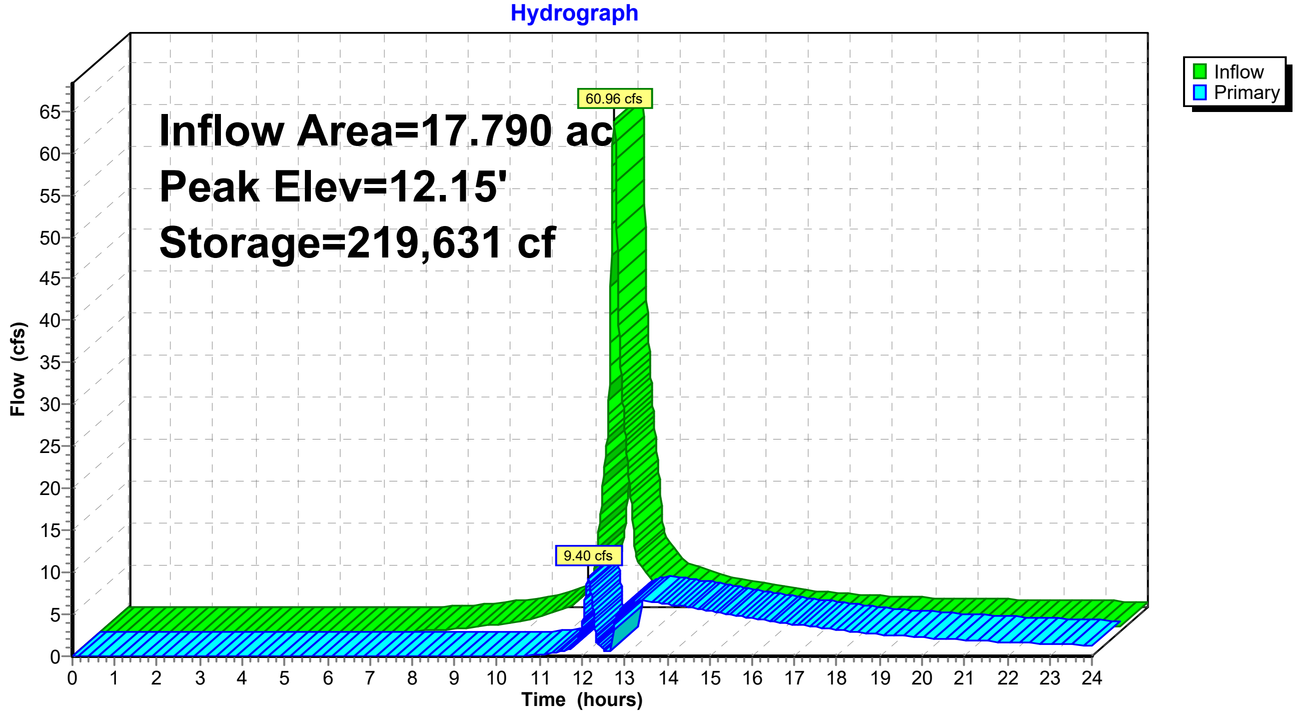
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	910,381 cf	**POND 1 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	26,411	0	0
9.97	37,128	113,417	113,417
15.00	90,446	320,849	434,266
20.00	100,000	476,115	910,381

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.11' S= 0.0143 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	9.97'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 7.89' S= 0.0145 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	10.14'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.02' S= 0.0148 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=7.66 cfs @ 12.15 hrs HW=11.45' TW=11.38' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 2.50 cfs @ 1.41 fps)
├─**2=RCP_Round 30"** (Outlet Controls 3.06 cfs @ 1.46 fps)
└─**3=RCP_Round 30"** (Outlet Controls 2.10 cfs @ 1.18 fps)

Pond POST-1P: POND 1



Summary for Pond POST-2P: POND 2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=2)
[80] Warning: Exceeded Pond POST-1P by 0.01' @ 12.34 hrs (4.62 cfs 0.154 af)

Inflow Area = 34.050 ac, 32.98% Impervious, Inflow Depth > 2.69" for 2 event
Inflow = 64.95 cfs @ 12.10 hrs, Volume= 7.647 af
Outflow = 13.17 cfs @ 13.41 hrs, Volume= 6.534 af, Atten= 80%, Lag= 78.1 min
Primary = 13.17 cfs @ 13.41 hrs, Volume= 6.534 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 44,416 sf Storage= 133,705 cf
Peak Elev= 12.14' @ 12.96 hrs Surf.Area= 66,151 sf Storage= 253,611 cf (119,905 cf above start)

Plug-Flow detention time= 419.5 min calculated for 3.465 af (45% of inflow)
Center-of-Mass det. time= 114.0 min (1,004.7 - 890.7)

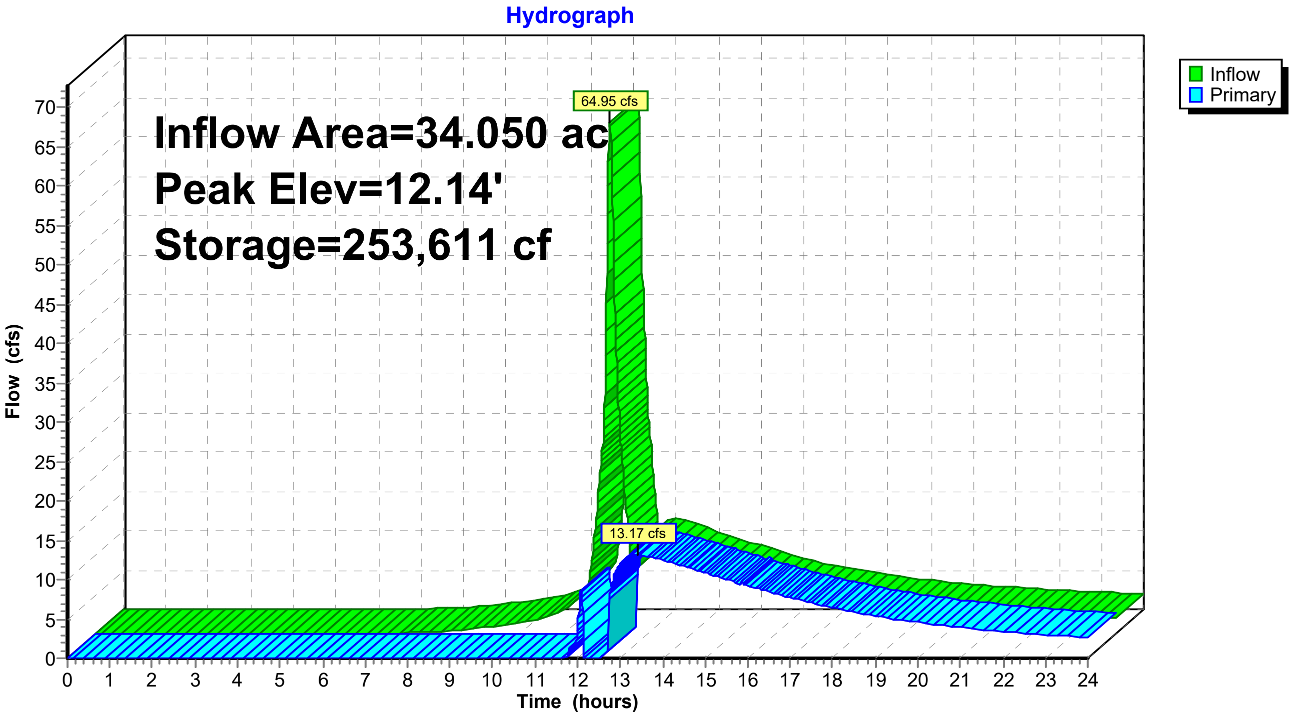
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	970,944 cf	**POND 2 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	30,489	0	0
9.97	44,416	133,705	133,705
15.00	94,822	350,184	483,889
20.00	100,000	487,055	970,944

Device	Routing	Invert	Outlet Devices
#1	Primary	8.20'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.18' / 8.20' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	8.18'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.15' / 8.18' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	8.12'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.12' / 8.10' S= 0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#4	Primary	8.07'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.07' / 8.06' S= 0.0001 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf

Primary OutFlow Max=13.72 cfs @ 13.41 hrs HW=12.11' TW=12.09' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 3.43 cfs @ 0.70 fps)
├─**2=RCP_Round 30"** (Outlet Controls 3.43 cfs @ 0.70 fps)
├─**3=RCP_Round 30"** (Outlet Controls 3.43 cfs @ 0.70 fps)
└─**4=RCP_Round 30"** (Outlet Controls 3.43 cfs @ 0.70 fps)

Pond POST-2P: POND 2



Summary for Pond POST-2PA: POND 2A

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 3.18" for 2 event
Inflow = 56.63 cfs @ 12.09 hrs, Volume= 4.134 af
Outflow = 33.71 cfs @ 12.20 hrs, Volume= 4.042 af, Atten= 40%, Lag= 6.9 min
Primary = 33.71 cfs @ 12.20 hrs, Volume= 4.042 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.09' @ 12.20 hrs Surf.Area= 35,012 sf Storage= 148,688 cf (39,966 cf above start)

Plug-Flow detention time= 325.7 min calculated for 1.545 af (37% of inflow)
Center-of-Mass det. time= 31.3 min (840.0 - 808.7)

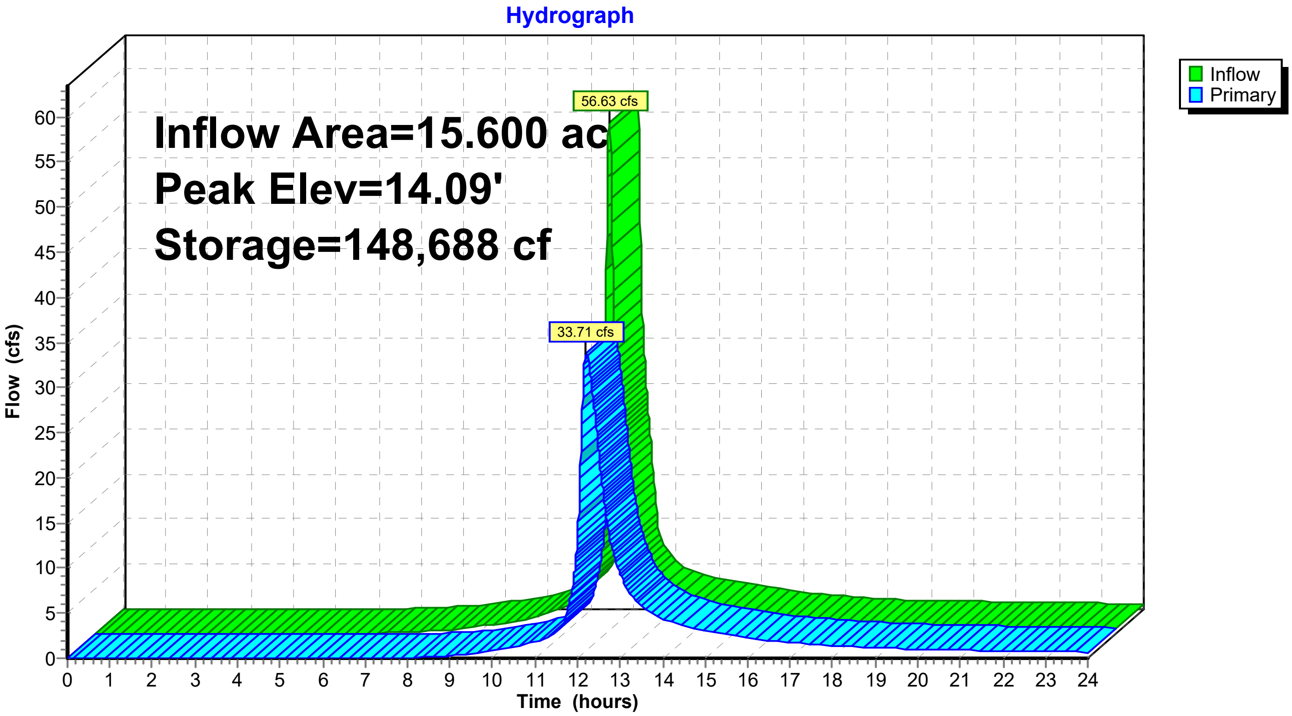
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=33.70 cfs @ 12.20 hrs HW=14.09' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 33.70 cfs @ 3.21 fps)

Pond POST-2PA: POND 2A



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.11' @ 12.41 hrs (37.70 cfs 3.359 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 2.58" for 2 event
Inflow = 78.74 cfs @ 12.12 hrs, Volume= 15.791 af
Outflow = 28.89 cfs @ 13.07 hrs, Volume= 14.386 af, Atten= 63%, Lag= 57.3 min
Primary = 28.89 cfs @ 13.07 hrs, Volume= 14.386 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 12.13' @ 12.92 hrs Surf.Area= 74,532 sf Storage= 327,367 cf (143,922 cf above start)

Plug-Flow detention time= 274.1 min calculated for 10.171 af (64% of inflow)
Center-of-Mass det. time= 66.1 min (990.6 - 924.5)

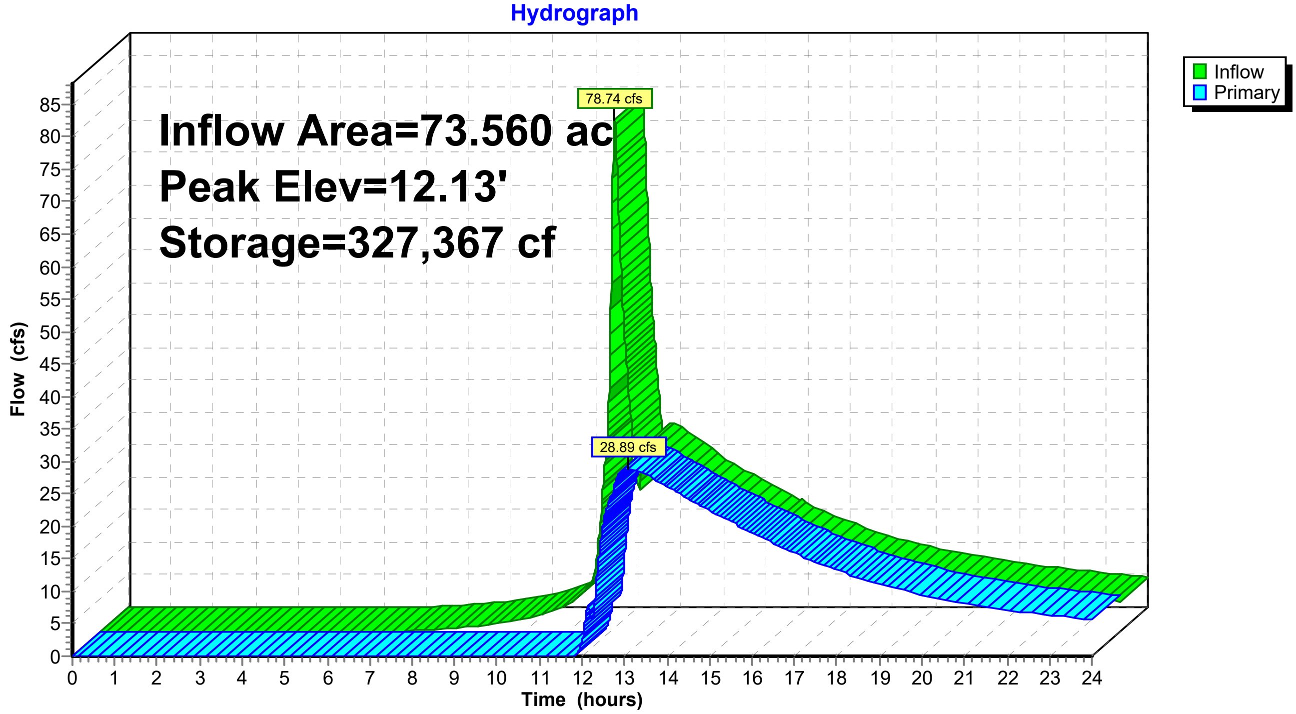
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=28.95 cfs @ 13.07 hrs HW=12.12' TW=11.88' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 9.68 cfs @ 2.79 fps)
├─**2=RCP_Round 36"** (Outlet Controls 10.98 cfs @ 2.83 fps)
└─**3=RCP_Round 36"** (Outlet Controls 8.29 cfs @ 2.37 fps)

Pond POST-3P: POND 3



Summary for Pond POST-3PA: POND 3A

[44] Hint: Outlet device #1 is below defined storage
[80] Warning: Exceeded Pond POST-3PB by 0.02' @ 12.20 hrs (2.46 cfs 0.040 af)

Inflow Area = 16.210 ac, 30.00% Impervious, Inflow Depth > 2.88" for 2 event
Inflow = 27.92 cfs @ 12.16 hrs, Volume= 3.890 af
Outflow = 10.09 cfs @ 12.73 hrs, Volume= 3.635 af, Atten= 64%, Lag= 34.2 min
Primary = 10.09 cfs @ 12.73 hrs, Volume= 3.635 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 12.26' @ 12.65 hrs Surf.Area= 22,612 sf Storage= 37,844 cf

Plug-Flow detention time= 98.6 min calculated for 3.635 af (93% of inflow)
Center-of-Mass det. time= 65.3 min (941.4 - 876.1)

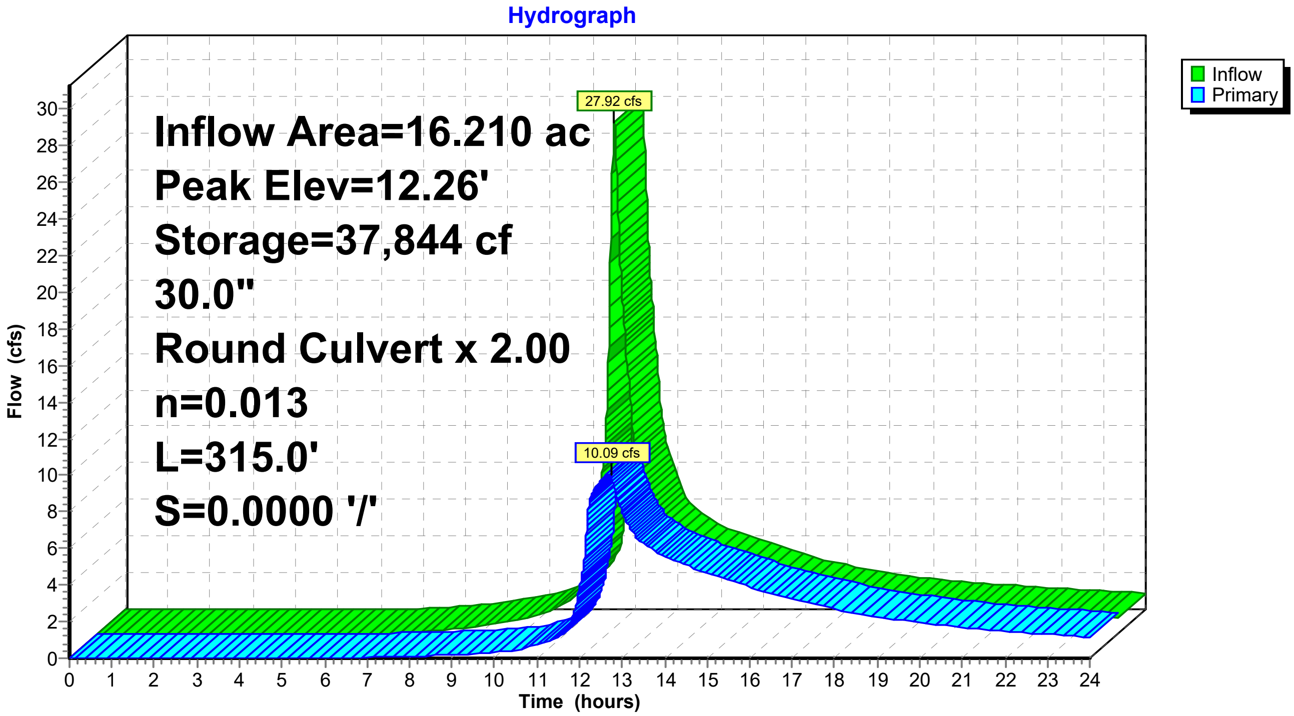
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	247,412 cf	**POND 3A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,127	0	0
14.40	27,784	91,822	91,822
20.00	27,784	155,590	247,412

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 315.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=10.10 cfs @ 12.73 hrs HW=12.25' TW=12.12' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 10.10 cfs @ 1.55 fps)

Pond POST-3PA: POND 3A



Summary for Pond POST-3PB: POND 3B

[44] Hint: Outlet device #1 is below defined storage

Inflow Area = 7.410 ac, 30.00% Impervious, Inflow Depth > 3.08" for 2 event
Inflow = 22.61 cfs @ 12.15 hrs, Volume= 1.903 af
Outflow = 4.49 cfs @ 12.76 hrs, Volume= 1.631 af, Atten= 80%, Lag= 36.7 min
Primary = 4.49 cfs @ 12.76 hrs, Volume= 1.631 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 12.29' @ 12.68 hrs Surf.Area= 23,526 sf Storage= 40,038 cf

Plug-Flow detention time= 204.8 min calculated for 1.630 af (86% of inflow)
Center-of-Mass det. time= 143.3 min (958.9 - 815.5)

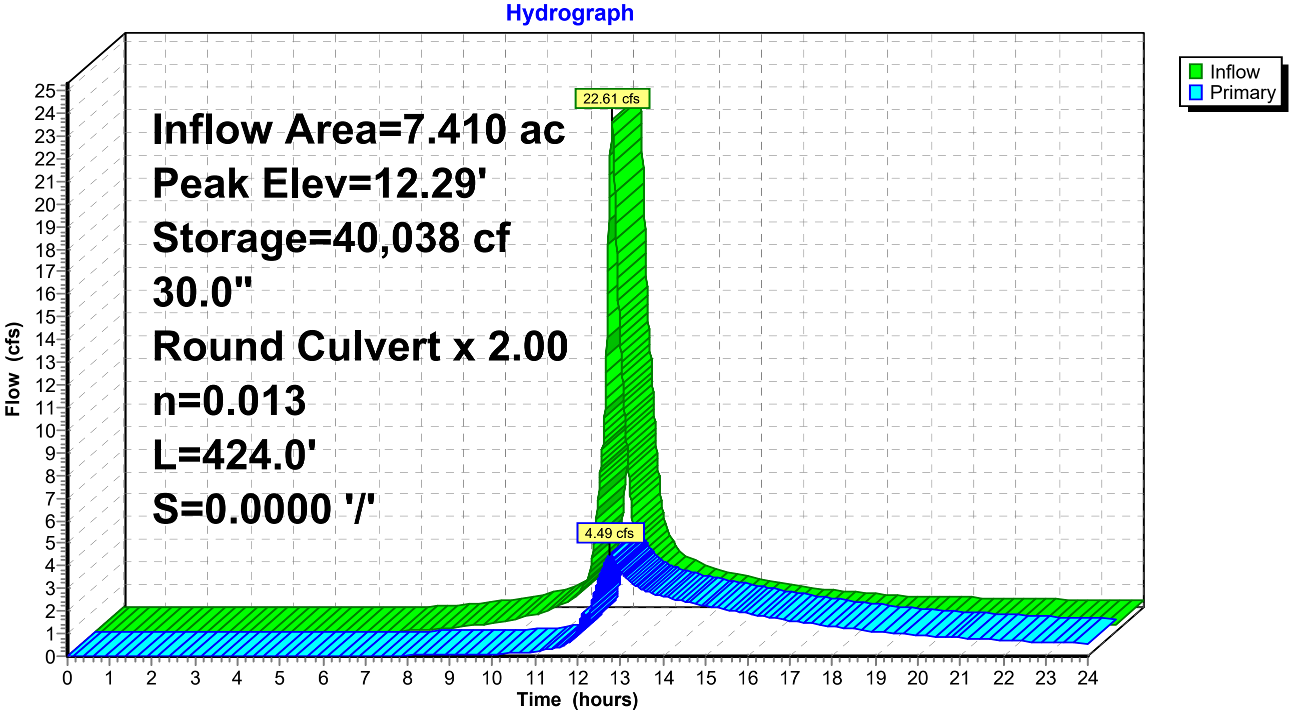
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	255,727 cf	**POND 3B (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,948	0	0
14.40	28,662	95,220	95,220
20.00	28,662	160,507	255,727

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 424.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=4.59 cfs @ 12.76 hrs HW=12.28' TW=12.25' (Dynamic Tailwater)
1=RCP_Round 30" (Outlet Controls 4.59 cfs @ 0.69 fps)

Pond POST-3PB: POND 3B



Summary for Pond POST-4P: POND 4

[80] Warning: Exceeded Pond POST-3P by 0.12' @ 10.75 hrs (0.52 cfs 0.129 af)

Inflow Area = 95.820 ac, 32.49% Impervious, Inflow Depth > 2.50" for 2 event
Inflow = 65.68 cfs @ 12.19 hrs, Volume= 19.924 af
Outflow = 47.65 cfs @ 12.46 hrs, Volume= 19.409 af, Atten= 27%, Lag= 16.1 min
Primary = 47.65 cfs @ 12.46 hrs, Volume= 19.409 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 25,099 sf Storage= 71,286 cf
Peak Elev= 11.98' @ 12.55 hrs Surf.Area= 35,035 sf Storage= 131,572 cf (60,286 cf above start)

Plug-Flow detention time= 90.7 min calculated for 17.773 af (89% of inflow)
Center-of-Mass det. time= 21.0 min (964.6 - 943.6)

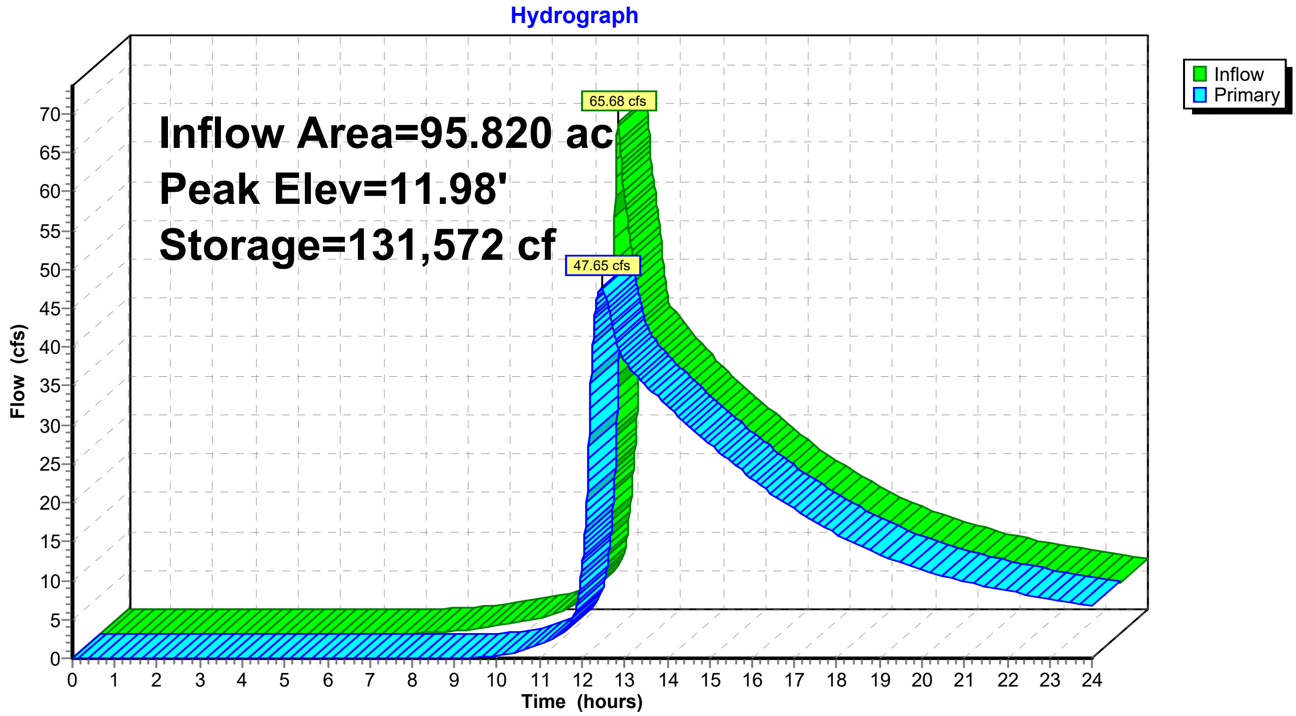
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	635,290 cf	**POND 4 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	14,837	0	0
9.97	25,099	71,286	71,286
15.00	50,026	188,939	260,225
20.00	100,000	375,065	635,290

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0109 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0097 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0098 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=47.40 cfs @ 12.46 hrs HW=11.96' TW=11.10' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 15.80 cfs @ 5.09 fps)
├─**2=RCP_Round 36"** (Outlet Controls 18.22 cfs @ 5.20 fps)
└─**3=RCP_Round 36"** (Outlet Controls 13.38 cfs @ 4.28 fps)

Pond POST-4P: POND 4



Summary for Pond POST-5P: POND 5

Inflow Area = 117.050 ac, 32.50% Impervious, Inflow Depth > 2.52" for 2 event
Inflow = 89.18 cfs @ 12.12 hrs, Volume= 24.534 af
Outflow = 58.69 cfs @ 12.36 hrs, Volume= 23.729 af, Atten= 34%, Lag= 14.2 min
Primary = 58.69 cfs @ 12.36 hrs, Volume= 23.729 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 39,178 sf Storage= 132,791 cf
Peak Elev= 11.27' @ 13.28 hrs Surf.Area= 44,675 sf Storage= 209,886 cf (77,095 cf above start)

Plug-Flow detention time= 123.5 min calculated for 20.672 af (84% of inflow)
Center-of-Mass det. time= 22.1 min (956.2 - 934.0)

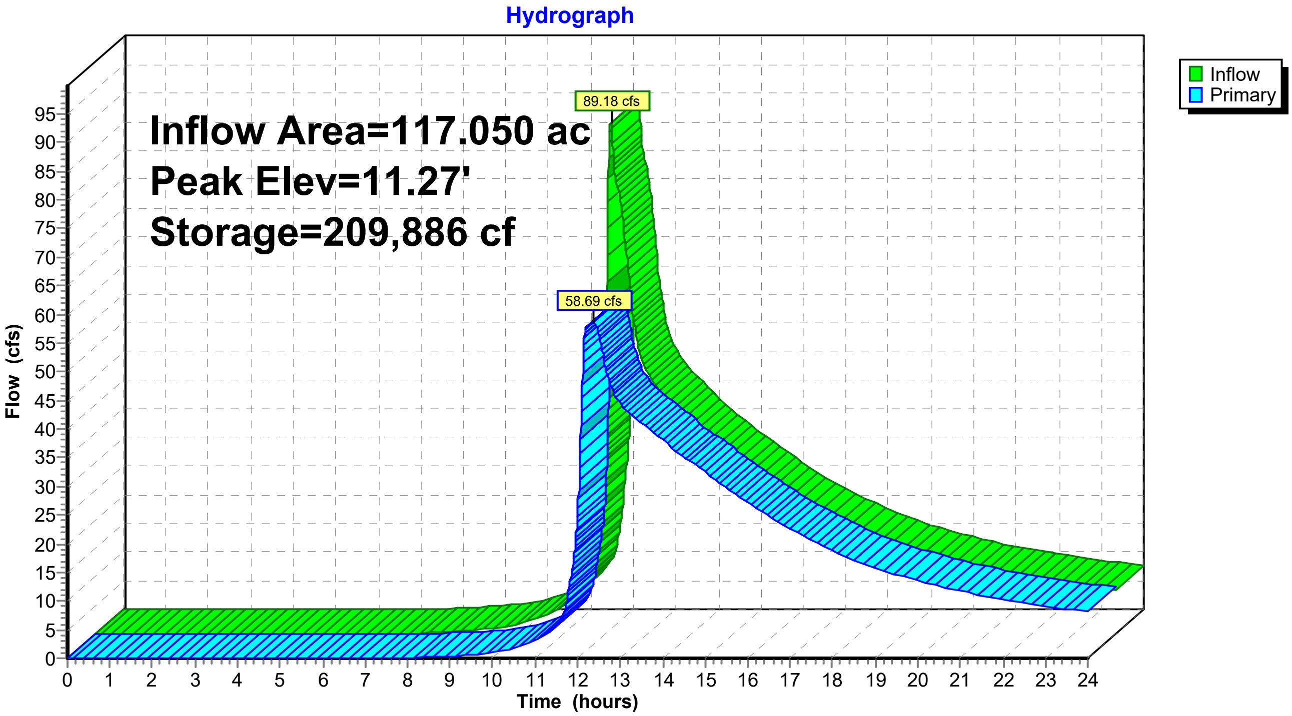
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	785,627 cf	**POND 5 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	28,400	0	0
9.50	39,370	135,540	135,540
15.10	56,162	267,490	403,030
20.00	100,000	382,597	785,627

Device	Routing	Invert	Outlet Devices
#1	Primary	8.59'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.59' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	8.52'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.52' / 8.43' S= 0.0007 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.63' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#4	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.35' / 8.63' S= -0.0022 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=56.91 cfs @ 12.36 hrs HW=10.98' TW=10.71' (Dynamic Tailwater)
—**1=RCP_Round 36"** (Outlet Controls 14.10 cfs @ 3.20 fps)
—**2=RCP_Round 36"** (Outlet Controls 14.64 cfs @ 3.21 fps)
—**3=RCP_Round 36"** (Outlet Controls 14.10 cfs @ 3.20 fps)
—**4=RCP_Round 36"** (Outlet Controls 14.05 cfs @ 2.85 fps)

Pond POST-5P: POND 5



Summary for Pond POST-6P: POND 6

Inflow Area = 152.560 ac, 34.40% Impervious, Inflow Depth > 2.58" for 2 event
Inflow = 157.59 cfs @ 12.19 hrs, Volume= 32.843 af
Outflow = 51.36 cfs @ 13.44 hrs, Volume= 28.914 af, Atten= 67%, Lag= 75.1 min
Primary = 51.36 cfs @ 13.44 hrs, Volume= 28.914 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 196,792 sf Storage= 705,109 cf
Peak Elev= 11.16' @ 13.44 hrs Surf.Area= 212,480 sf Storage= 1,059,138 cf (354,030 cf above start)

Plug-Flow detention time= 440.0 min calculated for 12.721 af (39% of inflow)
Center-of-Mass det. time= 80.4 min (998.2 - 917.8)

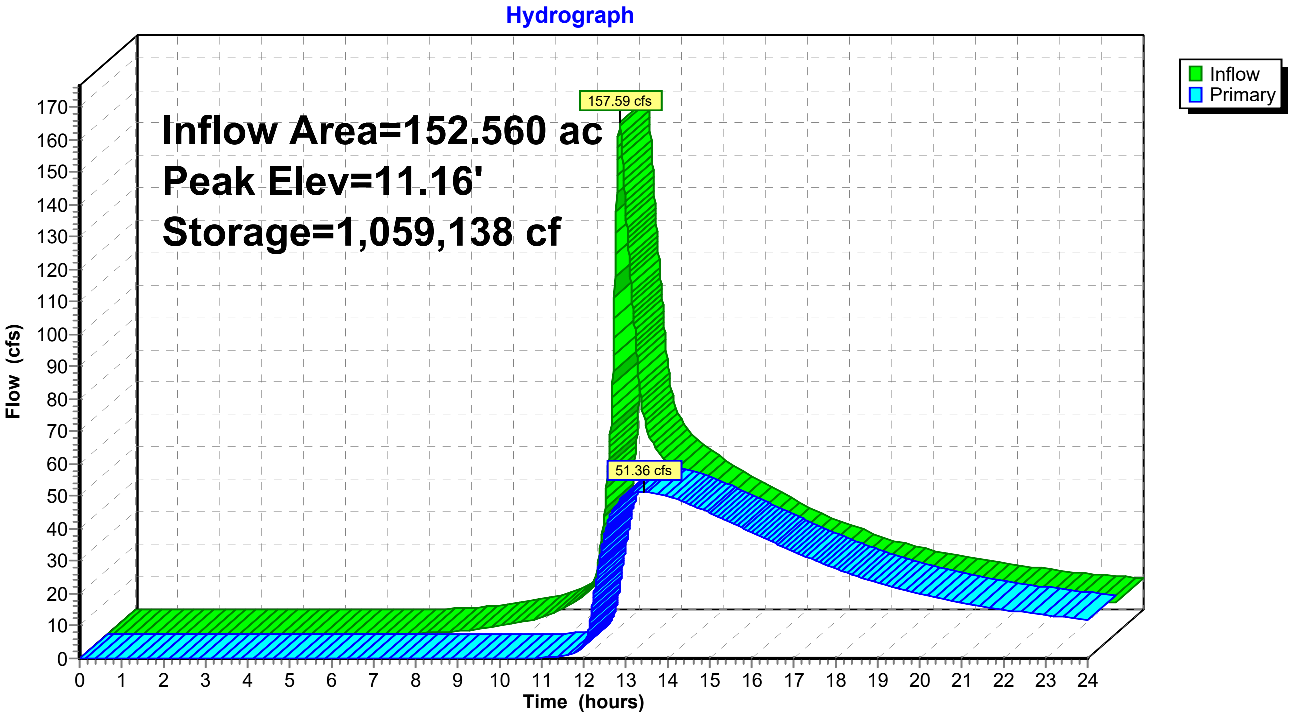
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	3,128,709 cf	**POND 6 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	162,042	0	0
9.50	197,411	718,906	718,906
14.00	238,258	980,255	1,699,161
20.00	238,258	1,429,548	3,128,709

Device	Routing	Invert	Outlet Devices
#1	Primary	9.91'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.91' / 9.89' S= 0.0004 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Primary	9.53'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.53' / 9.41' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#3	Primary	9.43'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.42' / 9.43' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#4	Primary	9.52'	**24.0" Round RCP_Round 24" X 3.00** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.52' / 9.43' S= 0.0019 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

Primary OutFlow Max=51.36 cfs @ 13.44 hrs HW=11.16' (Free Discharge)
—**1=RCP_Round 24"** (Barrel Controls 5.20 cfs @ 3.60 fps)
—**2=RCP_Round 24"** (Barrel Controls 9.37 cfs @ 4.65 fps)
—**3=RCP_Round 24"** (Barrel Controls 9.22 cfs @ 4.25 fps)
—**4=RCP_Round 24"** (Barrel Controls 27.57 cfs @ 4.53 fps)

Pond POST-6P: POND 6



Summary for Subcatchment POST #1: POST-DEVELOPED BASIN #1

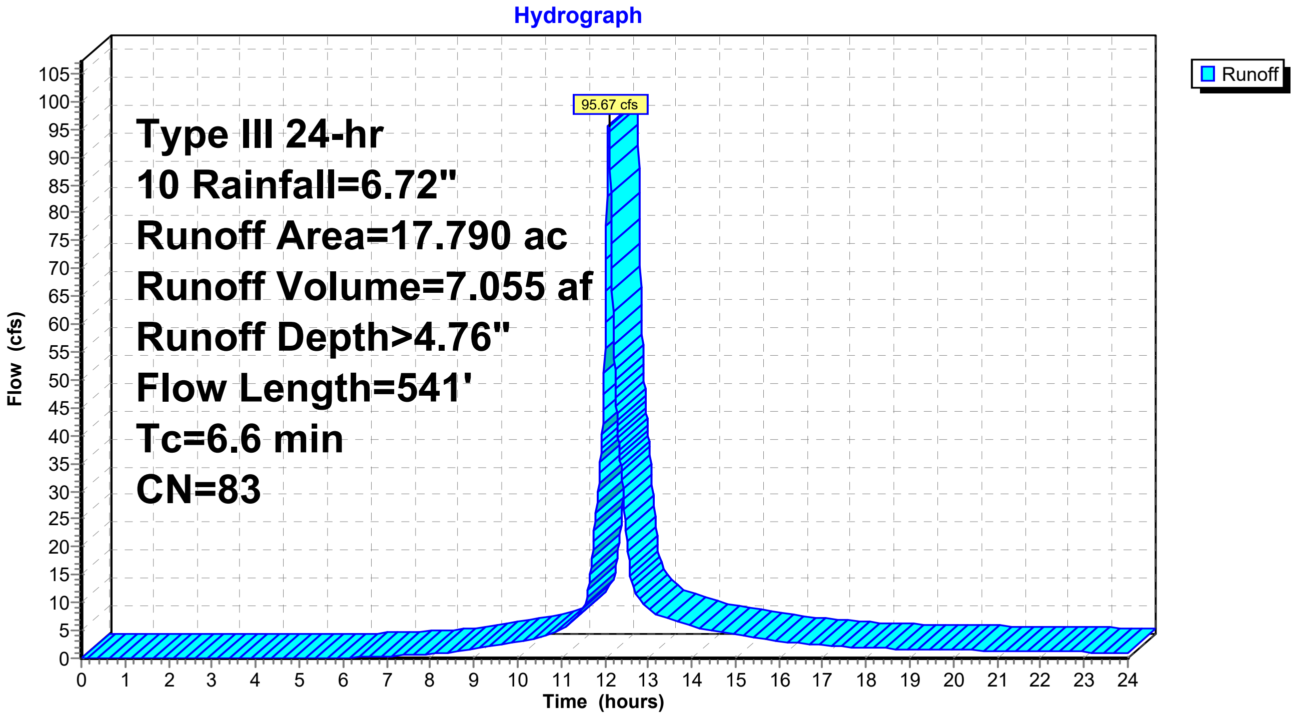
Runoff = 95.67 cfs @ 12.09 hrs, Volume= 7.055 af, Depth> 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
	11.440	74	>75% Grass cover, Good, HSG C
*	2.940	98	Houses
*	2.810	98	Roads and Walkways
*	0.600	98	NWL Pond
	17.790	83	Weighted Average
	11.440		64.31% Pervious Area
	6.350		35.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0200	0.17		**Sheet Flow, YARD** Grass: Short n= 0.150 P2= 4.34"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, POST-DEV BASIN 1-SCF** Paved Kv= 20.3 fps
1.9	447	0.0030	3.97	19.47	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.015 Concrete sewer w/manholes & inlets
6.6	541	Total			

Subcatchment POST #1: POST-DEVELOPED BASIN #1



Summary for Subcatchment POST #2: POST-DEVELOPED BASIN #2

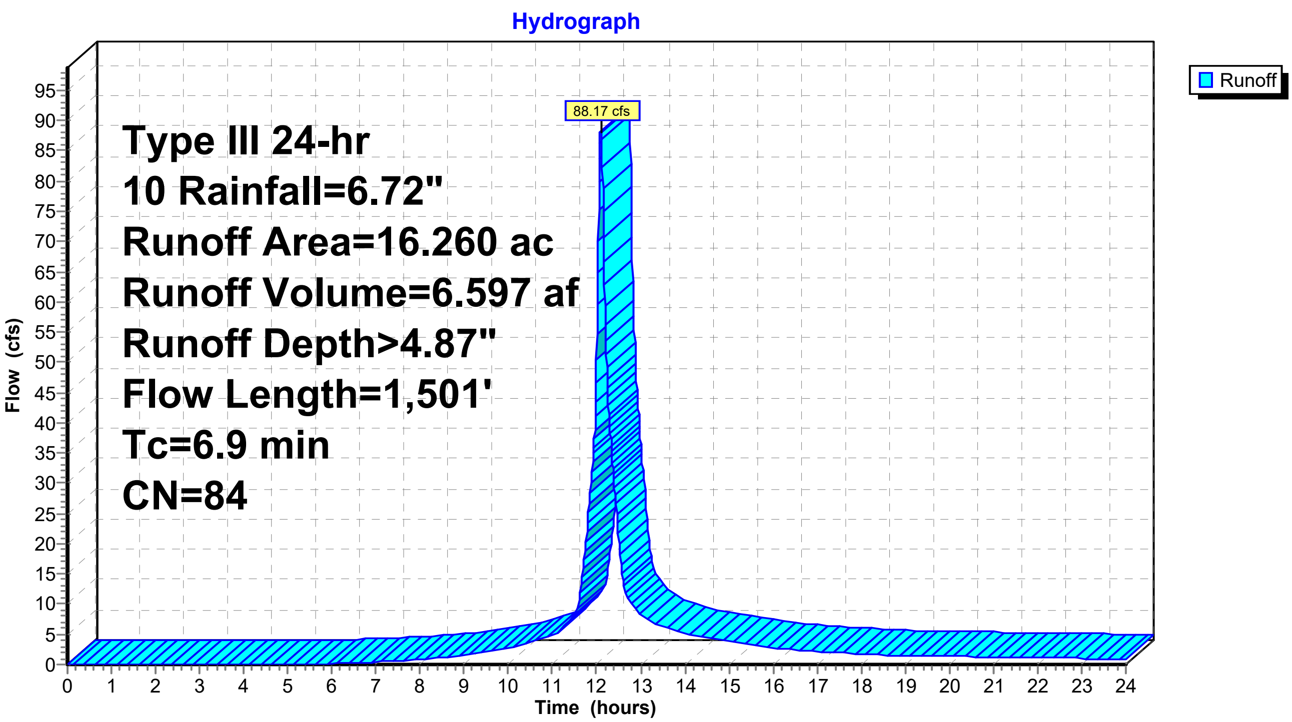
Runoff = 88.17 cfs @ 12.10 hrs, Volume= 6.597 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	16.260	84	SFR lots, 30% imp, HSG D
	11.382		70.00% Pervious Area
	4.878		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2: POST-DEVELOPED BASIN #2



Summary for Subcatchment POST #2A: POST-DEVELOPED BASIN #2A

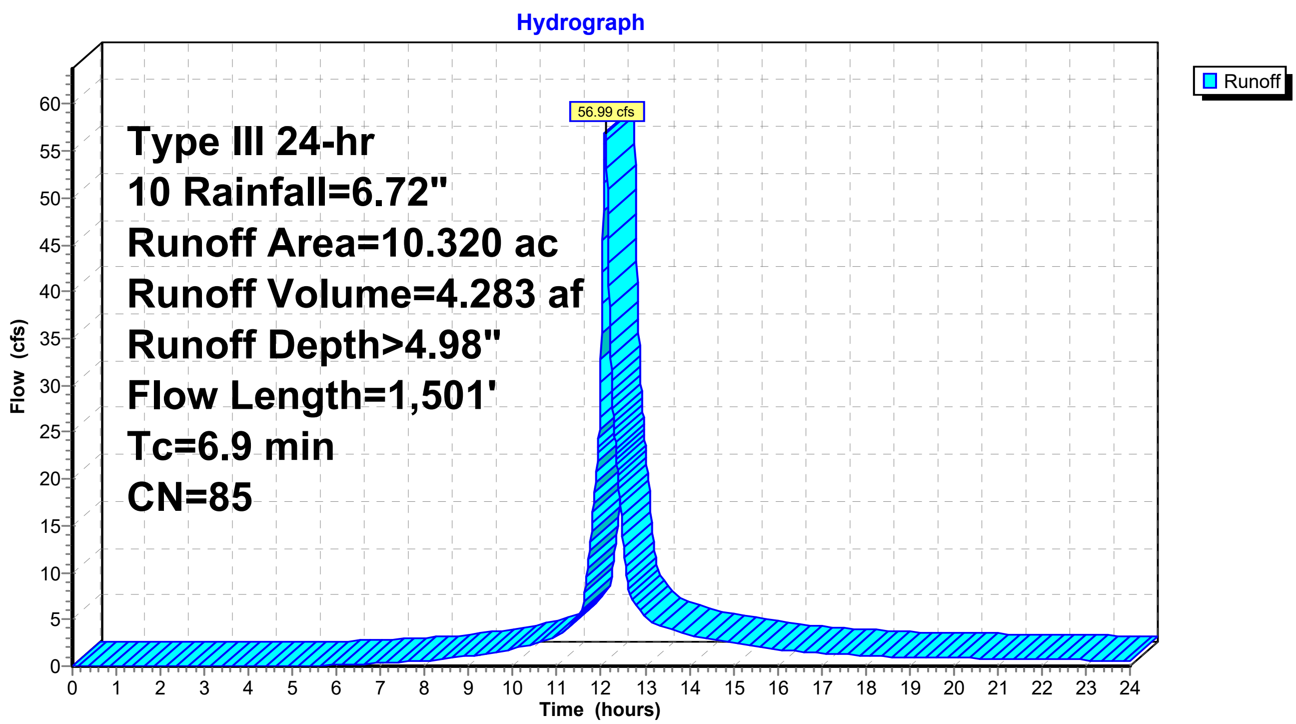
Runoff = 56.99 cfs @ 12.10 hrs, Volume= 4.283 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	10.320	85	
	10.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2A: POST-DEVELOPED BASIN #2A



Summary for Subcatchment POST #3: POST-DEVELOPED BASIN #3

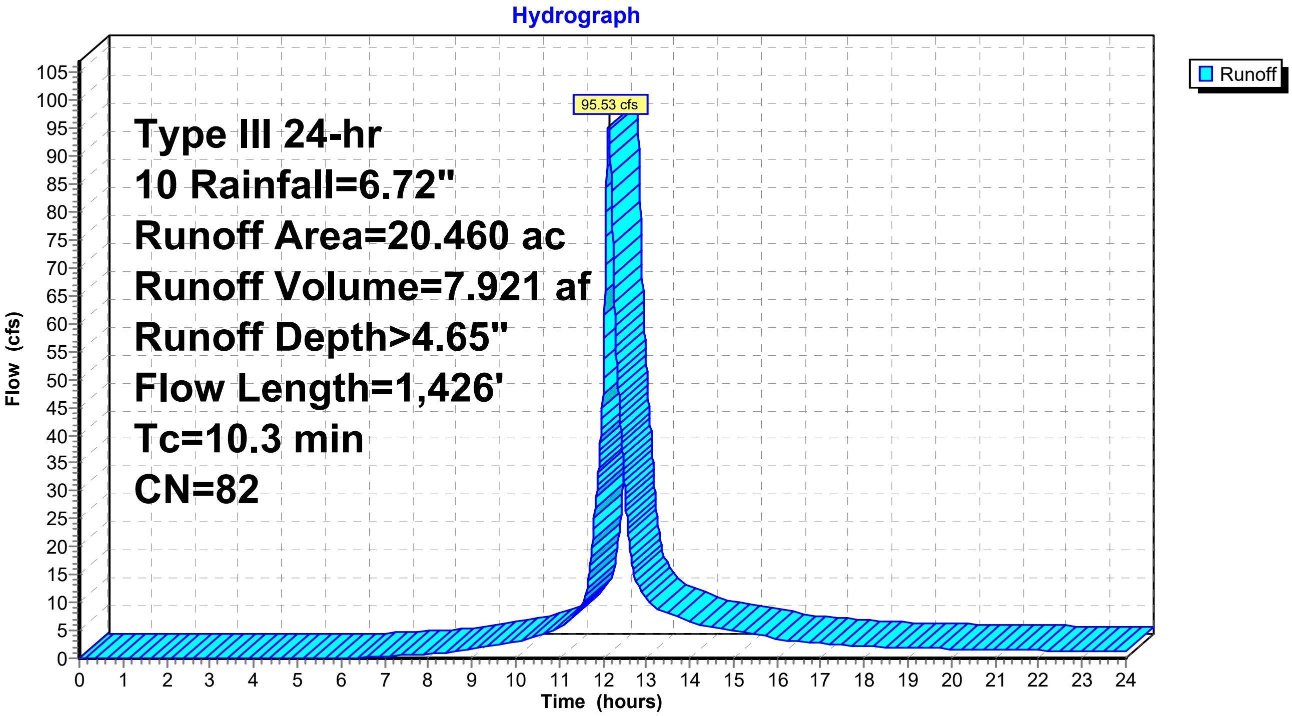
Runoff = 95.53 cfs @ 12.14 hrs, Volume= 7.921 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
	13.530	74	>75% Grass cover, Good, HSG C
*	2.480	98	Houses
*	3.570	98	Roads and Walkways
*	0.880	98	NWL Pond
	20.460	82	Weighted Average
	13.530		66.13% Pervious Area
	6.930		33.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0200	0.18		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
0.4	105	0.0100	4.86	24.28	**Channel Flow, REAR YARD SWALE** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
3.9	1,256	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
10.3	1,426	Total			

Subcatchment POST #3: POST-DEVELOPED BASIN #3



Summary for Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A

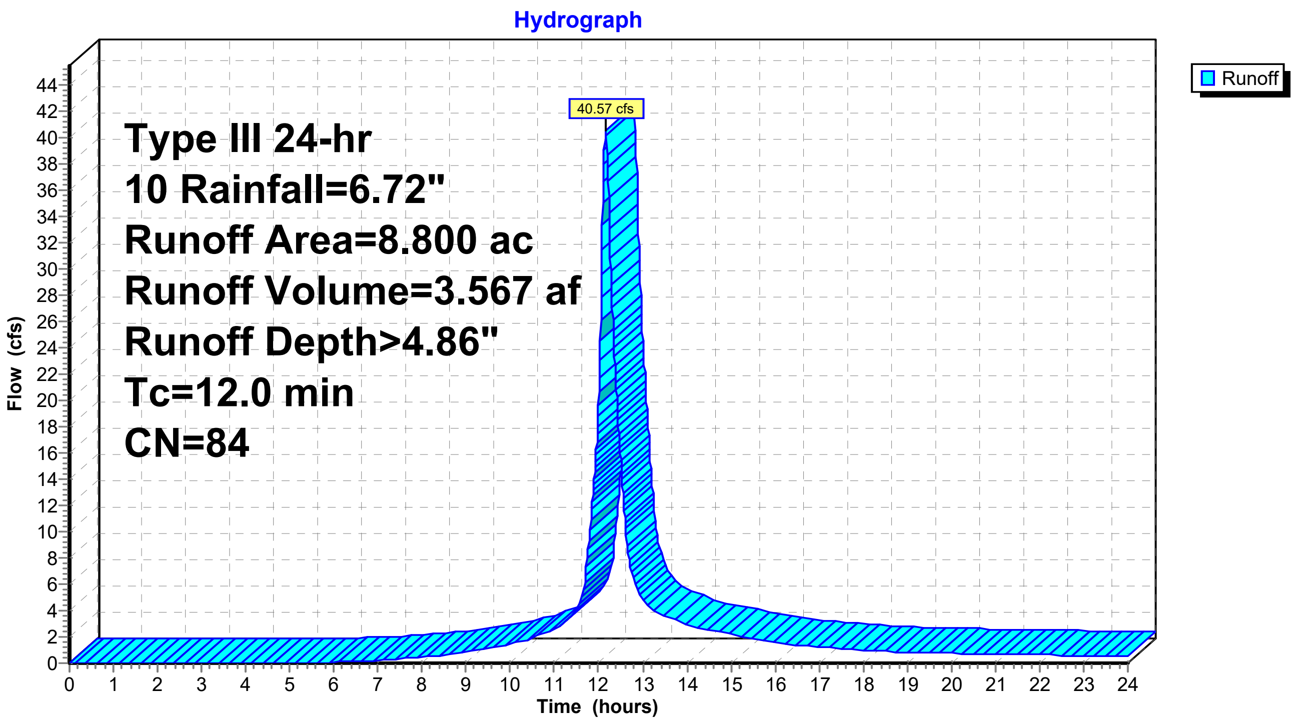
Runoff = 40.57 cfs @ 12.16 hrs, Volume= 3.567 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	8.800	84	SFR lots, 30% imp, HSG D
	6.160		70.00% Pervious Area
	2.640		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A



Summary for Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B

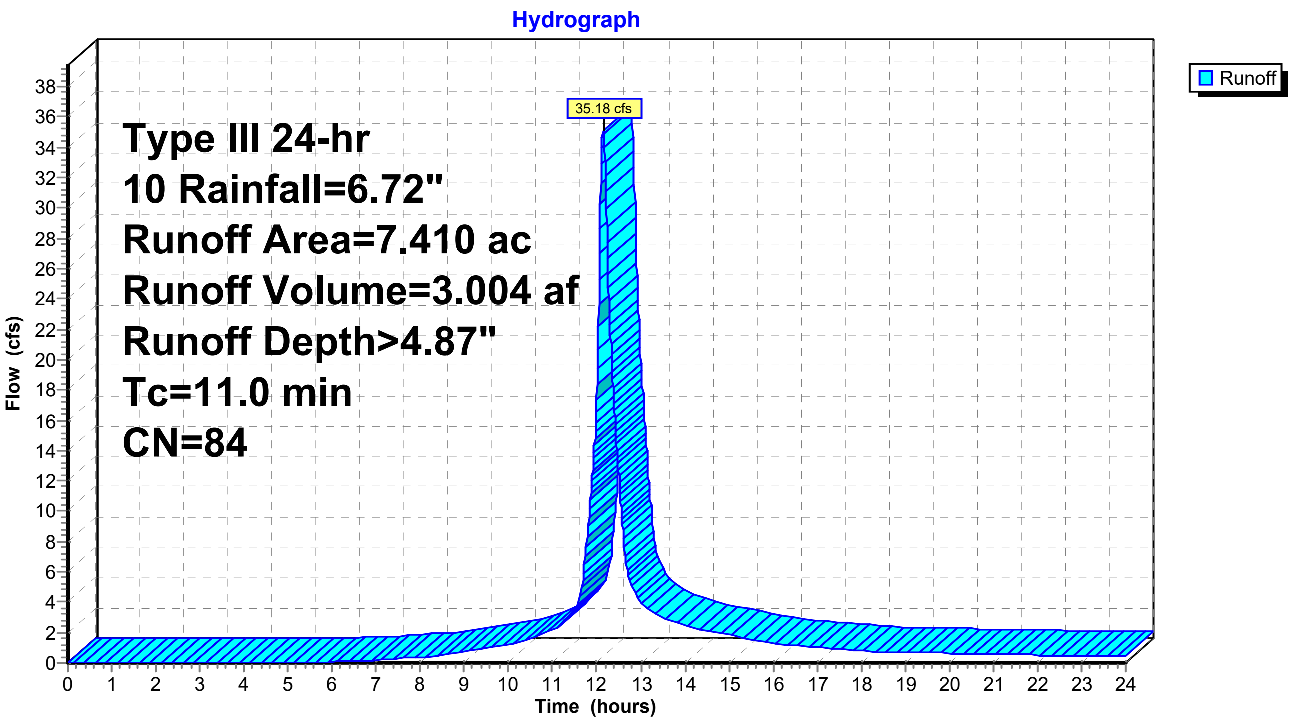
Runoff = 35.18 cfs @ 12.15 hrs, Volume= 3.004 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	7.410	84	SFR lots, 30% imp, HSG D
	5.187		70.00% Pervious Area
	2.223		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0					**Direct Entry,**

Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B



Summary for Subcatchment POST #4: POST-DEVELOPED BASIN #4

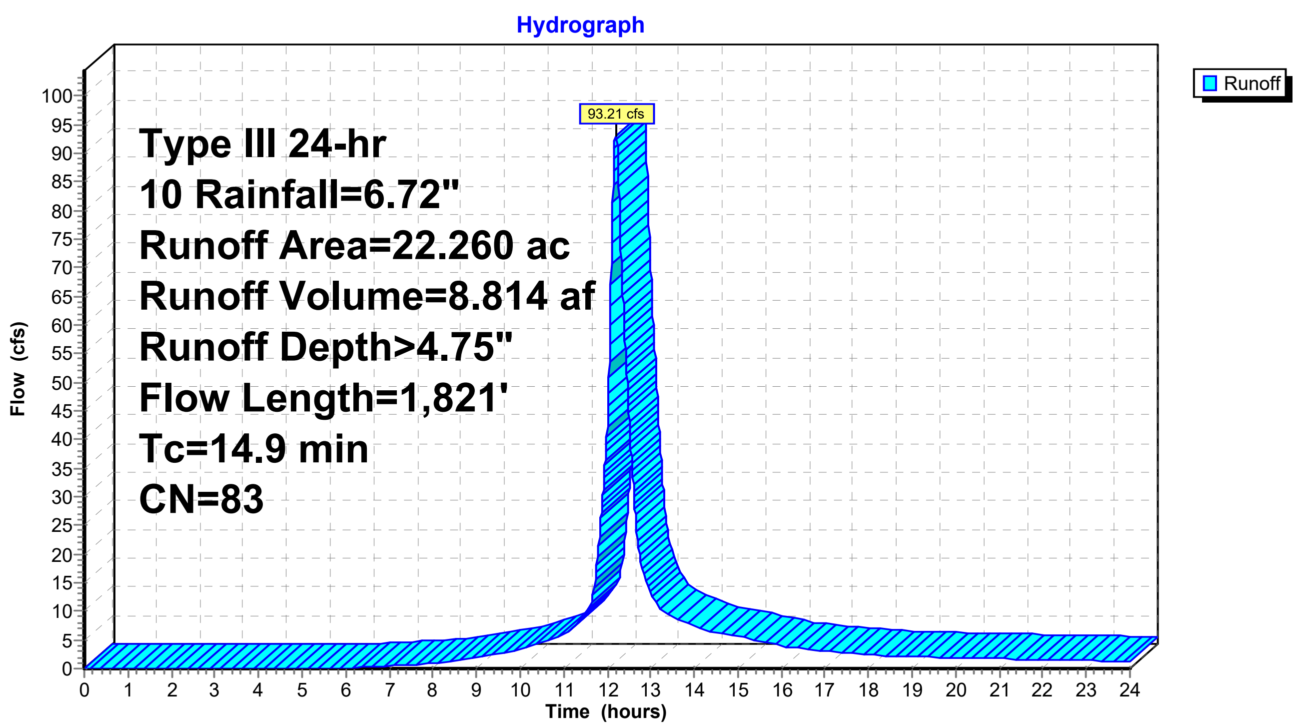
Runoff = 93.21 cfs @ 12.20 hrs, Volume= 8.814 af, Depth> 4.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
	14.150	74	>75% Grass cover, Good, HSG C
*	8.110	98	Houses, Roads and Walkways, NWL POND
	22.260	83	Weighted Average
	14.150		63.57% Pervious Area
	8.110		36.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0100	0.13		**Sheet Flow, POST DEV BASIN #4 - SHEET** Grass: Short n= 0.150 P2= 4.34"
3.5	300	0.0050	1.44		**Shallow Concentrated Flow, Gutter Basin 4** Paved Kv= 20.3 fps
4.5	1,466	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
14.9	1,821	Total			

Subcatchment POST #4: POST-DEVELOPED BASIN #4



Summary for Subcatchment POST #5: POST-DEVELOPED BASIN #5

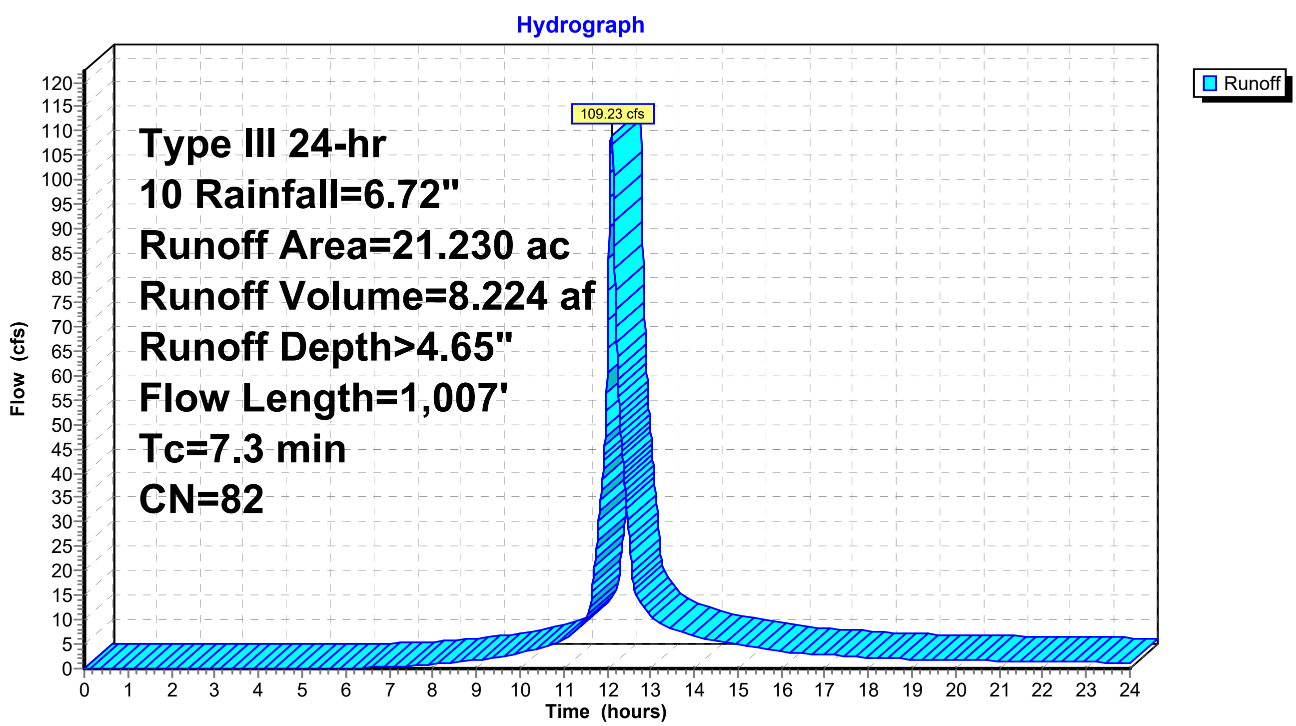
Runoff = 109.23 cfs @ 12.10 hrs, Volume= 8.224 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
	14.320	74	>75% Grass cover, Good, HSG C
*	2.850	98	Houses
*	3.410	98	Roads and Walkways
*	0.650	98	NWL Pond
	21.230	82	Weighted Average
	14.320		67.45% Pervious Area
	6.910		32.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	55	0.0300	0.21		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
2.9	952	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
7.3	1,007	Total			

Subcatchment POST #5: POST-DEVELOPED BASIN #5



Summary for Subcatchment POST #6: POST-DEVELOPED BASIN #6

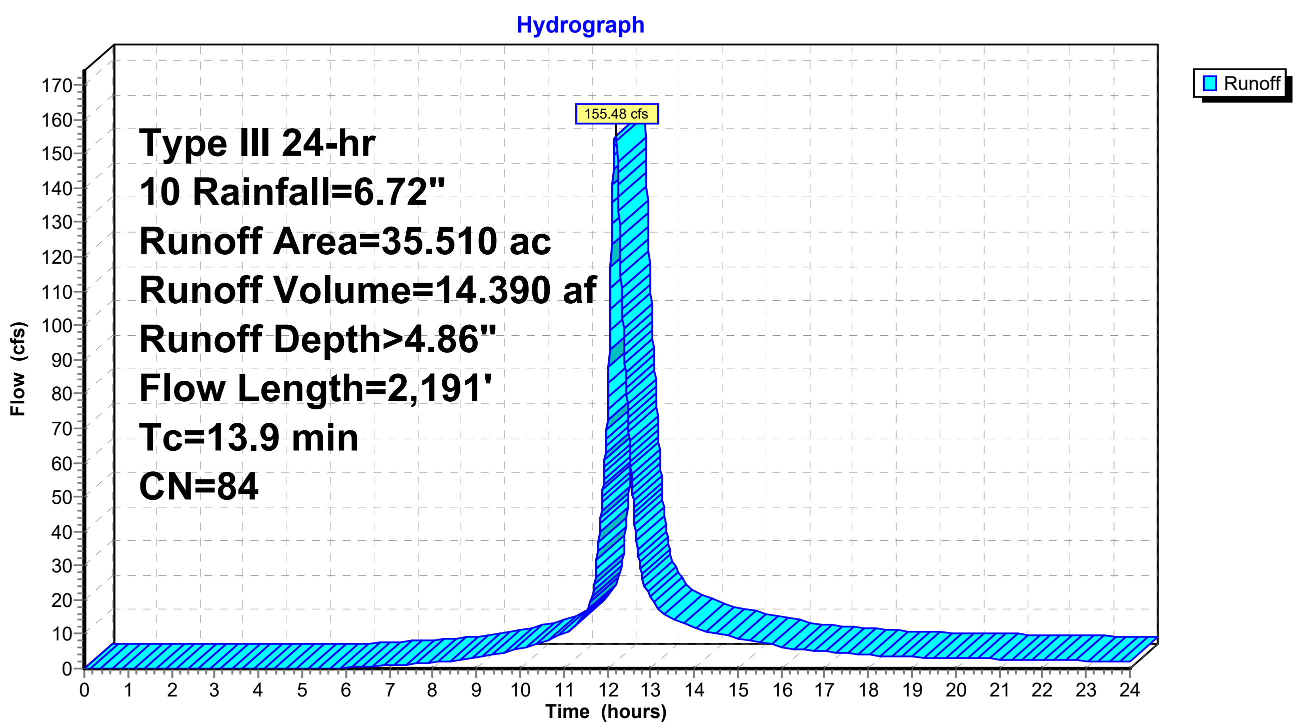
Runoff = 155.48 cfs @ 12.19 hrs, Volume= 14.390 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
	21.070	74	>75% Grass cover, Good, HSG C
*	5.180	98	Houses
*	5.540	98	Roads and Walkways
*	3.720	98	NWL Pond
	35.510	84	Weighted Average
	21.070		59.34% Pervious Area
	14.440		40.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0200	0.19		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
6.5	2,106	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
13.9	2,191	Total			

Subcatchment POST #6: POST-DEVELOPED BASIN #6



Summary for Pond POST-1P: POND 1

Inflow Area = 17.790 ac, 35.69% Impervious, Inflow Depth > 4.76" for 10 event
Inflow = 95.67 cfs @ 12.09 hrs, Volume= 7.055 af
Outflow = 16.48 cfs @ 12.13 hrs, Volume= 5.905 af, Atten= 83%, Lag= 2.1 min
Primary = 16.48 cfs @ 12.13 hrs, Volume= 5.905 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 37,128 sf Storage= 113,417 cf
Peak Elev= 13.14' @ 12.89 hrs Surf.Area= 70,678 sf Storage= 284,023 cf (170,606 cf above start)

Plug-Flow detention time= 410.8 min calculated for 3.300 af (47% of inflow)
Center-of-Mass det. time= 167.3 min (969.1 - 801.8)

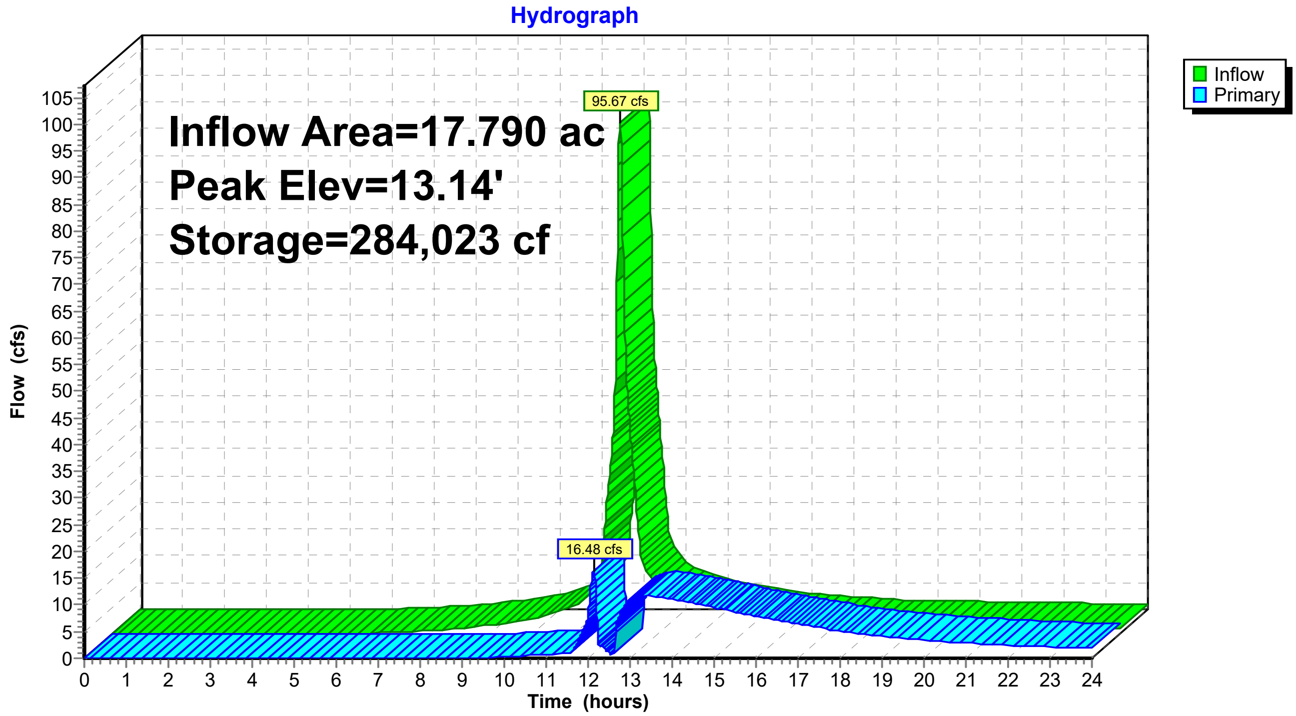
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	910,381 cf	**POND 1 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	26,411	0	0
9.97	37,128	113,417	113,417
15.00	90,446	320,849	434,266
20.00	100,000	476,115	910,381

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.11' S= 0.0143 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	9.97'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 7.89' S= 0.0145 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	10.14'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.02' S= 0.0148 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=11.66 cfs @ 12.13 hrs HW=12.16' TW=12.11' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 3.91 cfs @ 1.27 fps)
├─**2=RCP_Round 30"** (Outlet Controls 4.37 cfs @ 1.28 fps)
└─**3=RCP_Round 30"** (Outlet Controls 3.37 cfs @ 1.09 fps)

Pond POST-1P: POND 1



Summary for Pond POST-2P: POND 2

[80] Warning: Exceeded Pond POST-1P by 0.02' @ 12.25 hrs (10.12 cfs 0.313 af)

Inflow Area = 34.050 ac, 32.98% Impervious, Inflow Depth > 4.41" for 10 event
Inflow = 103.82 cfs @ 12.10 hrs, Volume= 12.502 af
Outflow = 23.36 cfs @ 13.39 hrs, Volume= 11.182 af, Atten= 78%, Lag= 77.0 min
Primary = 23.36 cfs @ 13.39 hrs, Volume= 11.182 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 44,416 sf Storage= 133,705 cf
Peak Elev= 13.12' @ 12.84 hrs Surf.Area= 75,977 sf Storage= 323,289 cf (189,584 cf above start)

Plug-Flow detention time= 302.9 min calculated for 8.112 af (65% of inflow)
Center-of-Mass det. time= 107.1 min (986.7 - 879.6)

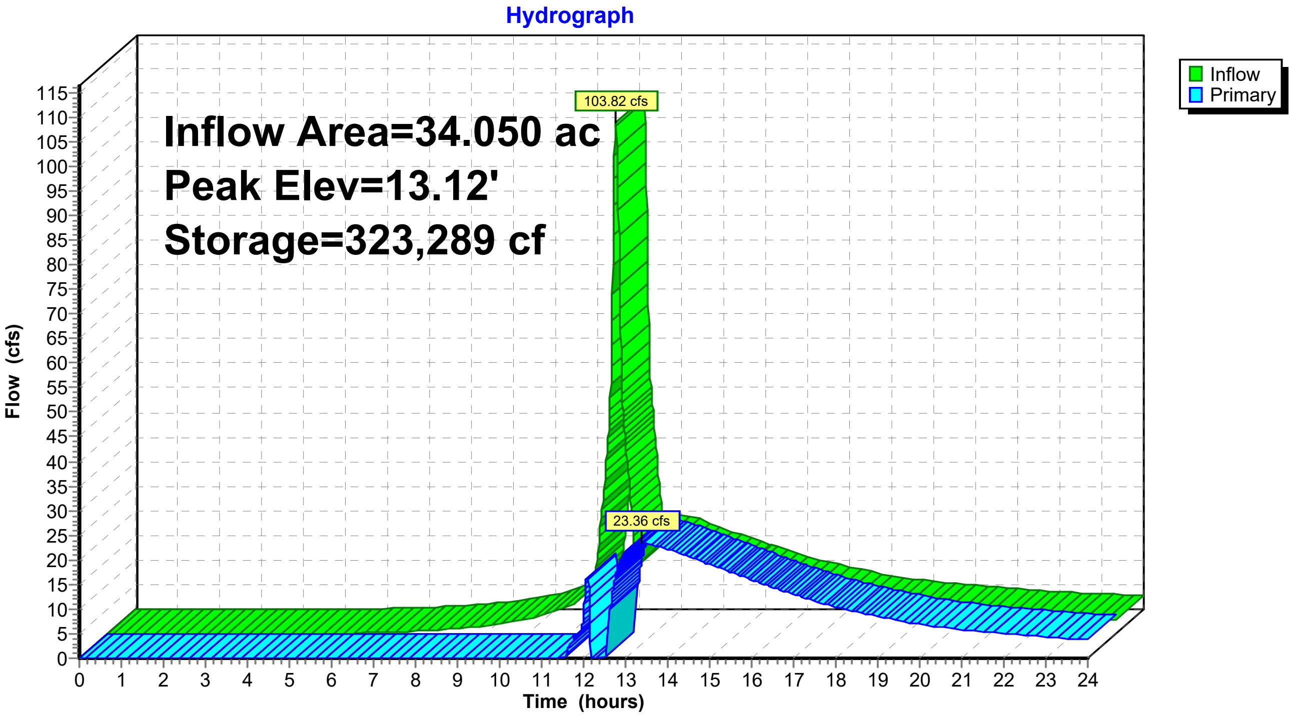
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	970,944 cf	**POND 2 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	30,489	0	0
9.97	44,416	133,705	133,705
15.00	94,822	350,184	483,889
20.00	100,000	487,055	970,944

Device	Routing	Invert	Outlet Devices
#1	Primary	8.20'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.18' / 8.20' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	8.18'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.15' / 8.18' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	8.12'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.12' / 8.10' S= 0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#4	Primary	8.07'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.07' / 8.06' S= 0.0001 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf

Primary OutFlow Max=24.01 cfs @ 13.39 hrs HW=13.03' TW=12.99' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 6.00 cfs @ 1.22 fps)
├─**2=RCP_Round 30"** (Outlet Controls 6.00 cfs @ 1.22 fps)
├─**3=RCP_Round 30"** (Outlet Controls 6.00 cfs @ 1.22 fps)
└─**4=RCP_Round 30"** (Outlet Controls 6.00 cfs @ 1.22 fps)

Pond POST-2P: POND 2



Summary for Pond POST-2PA: POND 2A

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 4.98" for 10 event
Inflow = 87.18 cfs @ 12.09 hrs, Volume= 6.474 af
Outflow = 58.75 cfs @ 12.18 hrs, Volume= 6.358 af, Atten= 33%, Lag= 5.4 min
Primary = 58.75 cfs @ 12.18 hrs, Volume= 6.358 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.47' @ 12.18 hrs Surf.Area= 35,930 sf Storage= 162,342 cf (53,620 cf above start)

Plug-Flow detention time= 210.8 min calculated for 3.862 af (60% of inflow)
Center-of-Mass det. time= 27.0 min (823.1 - 796.1)

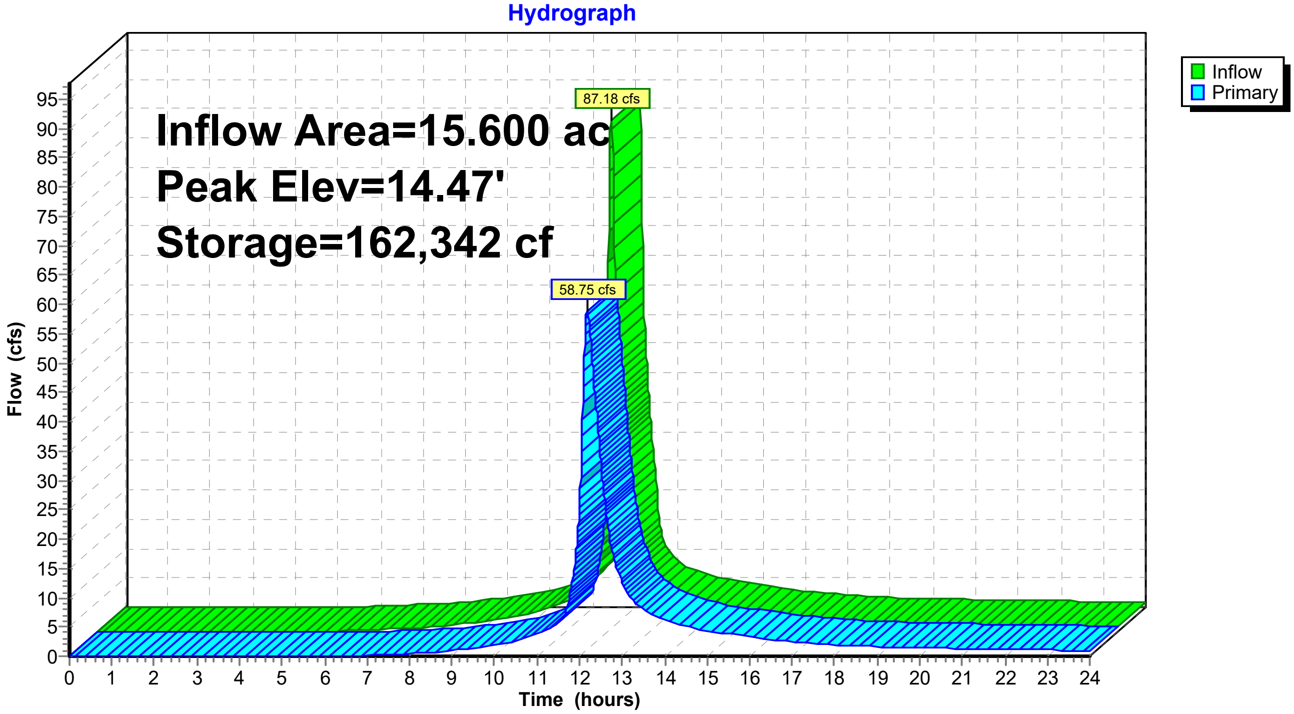
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=58.73 cfs @ 12.18 hrs HW=14.47' (Free Discharge)
1=Custom Weir/Orifice (Weir Controls 58.73 cfs @ 3.64 fps)

Pond POST-2PA: POND 2A



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.12' @ 12.36 hrs (39.75 cfs 5.104 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 4.26" for 10 event
Inflow = 128.78 cfs @ 12.12 hrs, Volume= 26.095 af
Outflow = 50.37 cfs @ 13.00 hrs, Volume= 24.440 af, Atten= 61%, Lag= 52.7 min
Primary = 50.37 cfs @ 13.00 hrs, Volume= 24.440 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 13.09' @ 12.75 hrs Surf.Area= 81,567 sf Storage= 402,725 cf (219,281 cf above start)

Plug-Flow detention time= 193.1 min calculated for 20.228 af (78% of inflow)
Center-of-Mass det. time= 59.9 min (971.5 - 911.6)

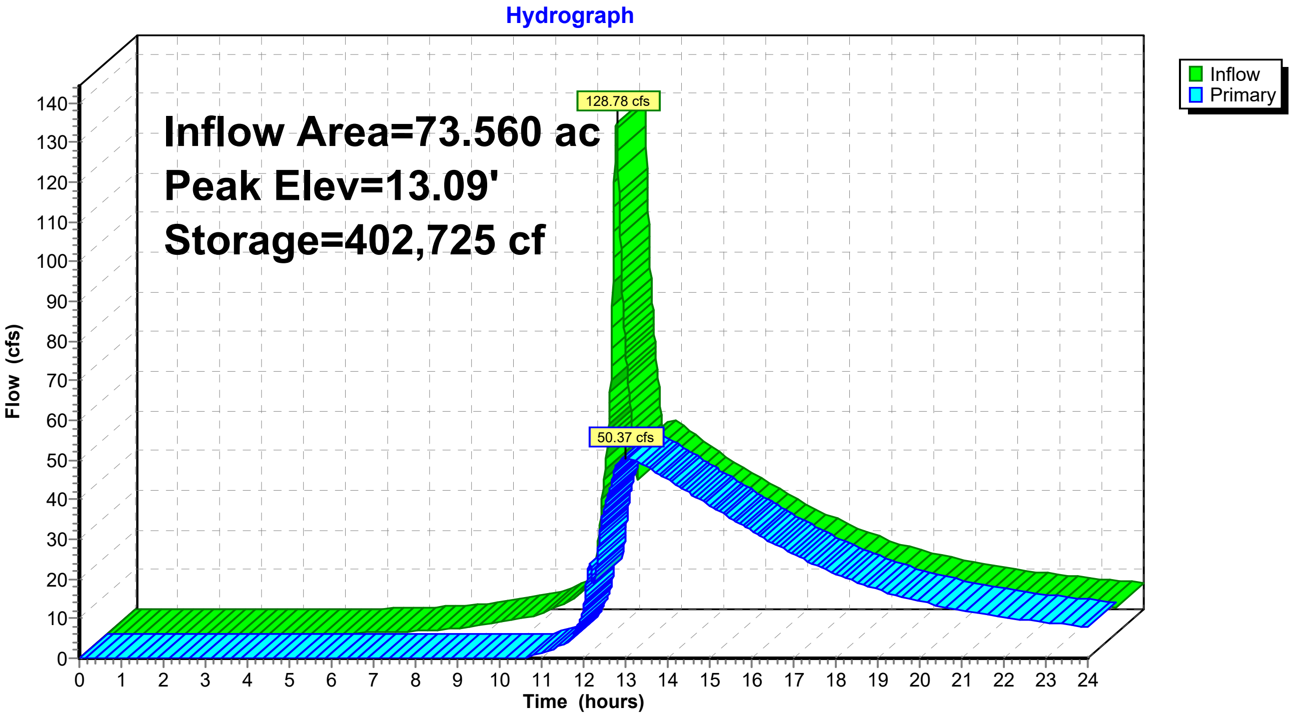
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=50.55 cfs @ 13.00 hrs HW=13.07' TW=12.80' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 17.21 cfs @ 3.11 fps)
├─**2=RCP_Round 36"** (Outlet Controls 18.35 cfs @ 3.12 fps)
└─**3=RCP_Round 36"** (Outlet Controls 14.98 cfs @ 2.70 fps)

Pond POST-3P: POND 3



Summary for Pond POST-3PA: POND 3A

[44] Hint: Outlet device #1 is below defined storage
[80] Warning: Exceeded Pond POST-3PB by 0.05' @ 12.16 hrs (5.90 cfs 0.151 af)

Inflow Area = 16.210 ac, 30.00% Impervious, Inflow Depth > 4.61" for 10 event
Inflow = 42.02 cfs @ 12.15 hrs, Volume= 6.221 af
Outflow = 16.64 cfs @ 12.63 hrs, Volume= 5.891 af, Atten= 60%, Lag= 28.7 min
Primary = 16.64 cfs @ 12.63 hrs, Volume= 5.891 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.25' @ 12.62 hrs Surf.Area= 25,006 sf Storage= 61,450 cf

Plug-Flow detention time= 92.6 min calculated for 5.888 af (95% of inflow)
Center-of-Mass det. time= 65.0 min (929.4 - 864.4)

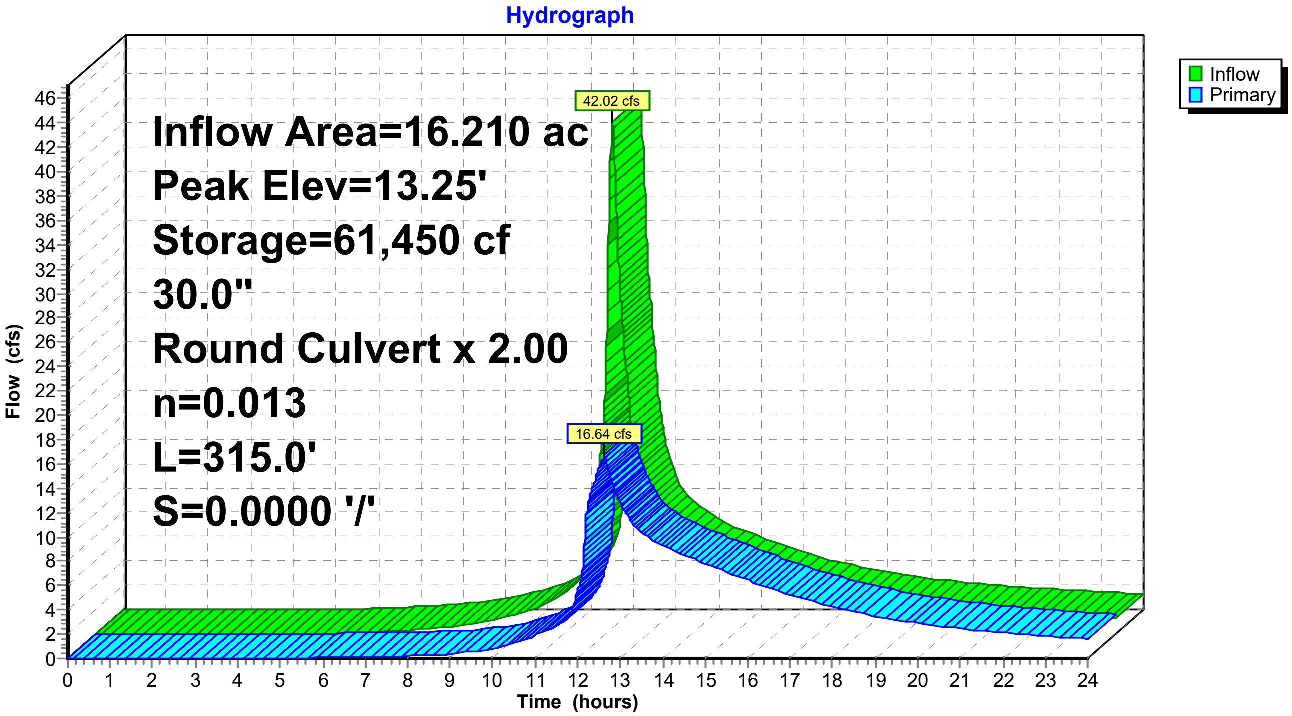
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	247,412 cf	**POND 3A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,127	0	0
14.40	27,784	91,822	91,822
20.00	27,784	155,590	247,412

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 315.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=16.62 cfs @ 12.63 hrs HW=13.25' TW=13.08' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 16.62 cfs @ 1.75 fps)

Pond POST-3PA: POND 3A



Summary for Pond POST-3PB: POND 3B

[44] Hint: Outlet device #1 is below defined storage

Inflow Area = 7.410 ac, 30.00% Impervious, Inflow Depth > 4.87" for 10 event
Inflow = 35.18 cfs @ 12.15 hrs, Volume= 3.004 af
Outflow = 7.11 cfs @ 12.70 hrs, Volume= 2.654 af, Atten= 80%, Lag= 33.0 min
Primary = 7.11 cfs @ 12.70 hrs, Volume= 2.654 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.28' @ 12.65 hrs Surf.Area= 25,952 sf Storage= 64,749 cf

Plug-Flow detention time= 196.9 min calculated for 2.653 af (88% of inflow)
Center-of-Mass det. time= 143.5 min (946.2 - 802.7)

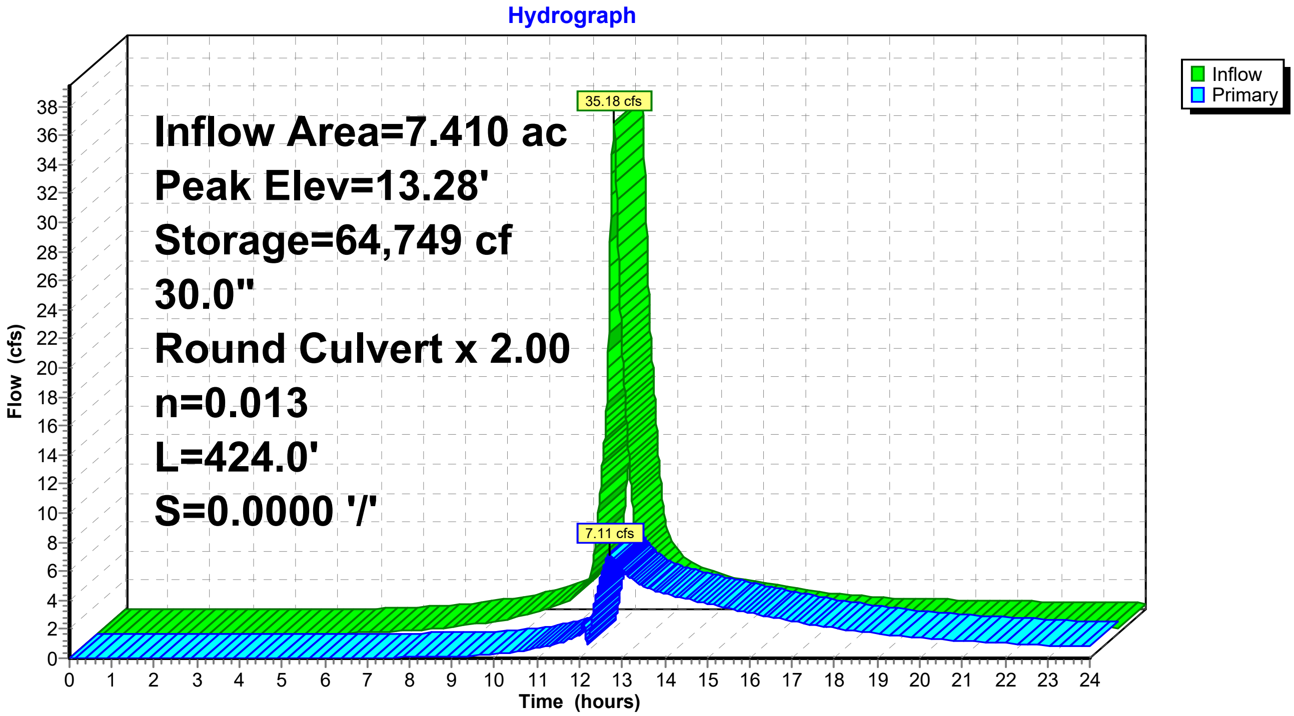
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	255,727 cf	**POND 3B (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,948	0	0
14.40	28,662	95,220	95,220
20.00	28,662	160,507	255,727

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 424.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=7.26 cfs @ 12.70 hrs HW=13.28' TW=13.24' (Dynamic Tailwater)
↑**1=RCP_Round 30"** (Outlet Controls 7.26 cfs @ 0.76 fps)

Pond POST-3PB: POND 3B



Summary for Pond POST-4P: POND 4

[80] Warning: Exceeded Pond POST-3P by 0.12' @ 9.42 hrs (0.46 cfs 0.088 af)

Inflow Area = 95.820 ac, 32.49% Impervious, Inflow Depth > 4.16" for 10 event
Inflow = 113.95 cfs @ 12.18 hrs, Volume= 33.254 af
Outflow = 82.08 cfs @ 12.38 hrs, Volume= 32.637 af, Atten= 28%, Lag= 12.2 min
Primary = 82.08 cfs @ 12.38 hrs, Volume= 32.637 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 25,099 sf Storage= 71,286 cf
Peak Elev= 12.92' @ 12.54 hrs Surf.Area= 39,698 sf Storage= 166,725 cf (95,439 cf above start)

Plug-Flow detention time= 65.0 min calculated for 30.988 af (93% of inflow)
Center-of-Mass det. time= 19.5 min (947.7 - 928.3)

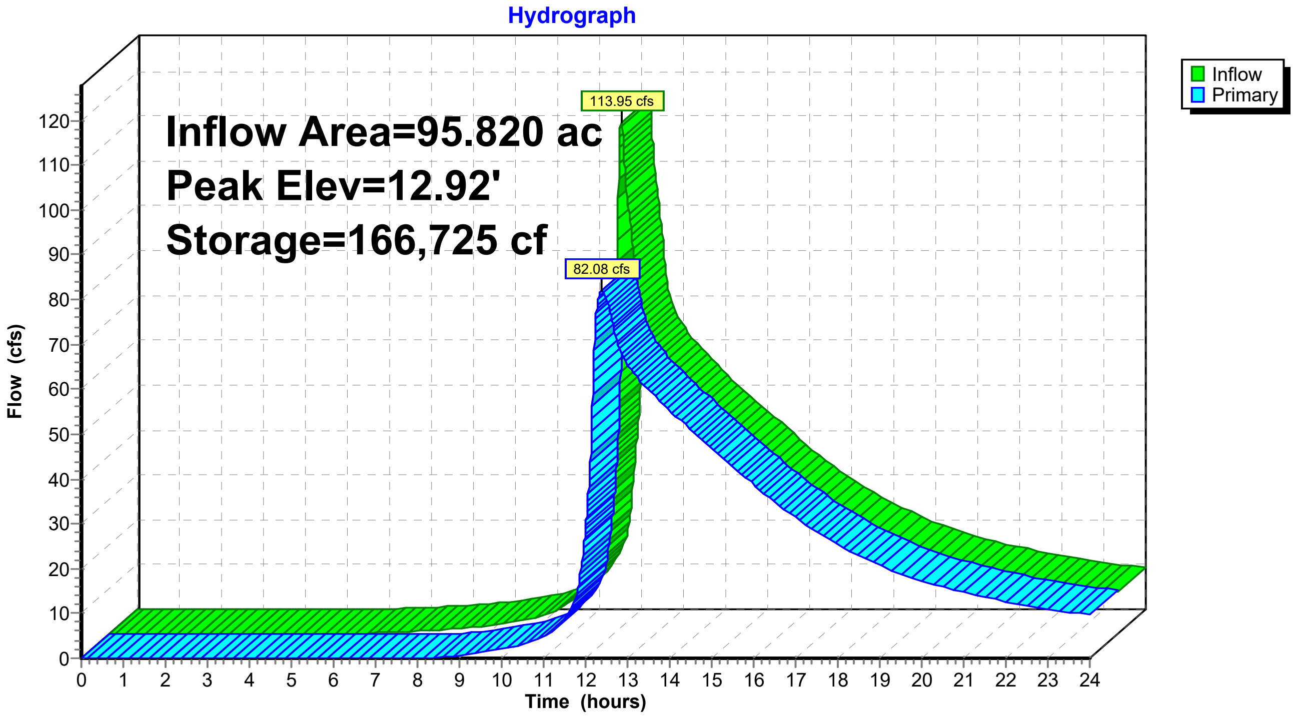
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	635,290 cf	**POND 4 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	14,837	0	0
9.97	25,099	71,286	71,286
15.00	50,026	188,939	260,225
20.00	100,000	375,065	635,290

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0109 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0097 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0098 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=81.32 cfs @ 12.38 hrs HW=12.85' TW=11.98' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 27.63 cfs @ 5.45 fps)
├─**2=RCP_Round 36"** (Outlet Controls 29.83 cfs @ 5.48 fps)
└─**3=RCP_Round 36"** (Outlet Controls 23.85 cfs @ 4.69 fps)

Pond POST-4P: POND 4



Summary for Pond POST-5P: POND 5

Inflow Area = 117.050 ac, 32.50% Impervious, Inflow Depth > 4.19" for 10 event
Inflow = 153.06 cfs @ 12.12 hrs, Volume= 40.861 af
Outflow = 105.43 cfs @ 12.20 hrs, Volume= 39.910 af, Atten= 31%, Lag= 5.0 min
Primary = 105.43 cfs @ 12.20 hrs, Volume= 39.910 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 39,178 sf Storage= 132,791 cf
Peak Elev= 12.22' @ 12.91 hrs Surf.Area= 47,533 sf Storage= 253,830 cf (121,039 cf above start)

Plug-Flow detention time= 85.9 min calculated for 36.862 af (90% of inflow)
Center-of-Mass det. time= 20.3 min (939.4 - 919.0)

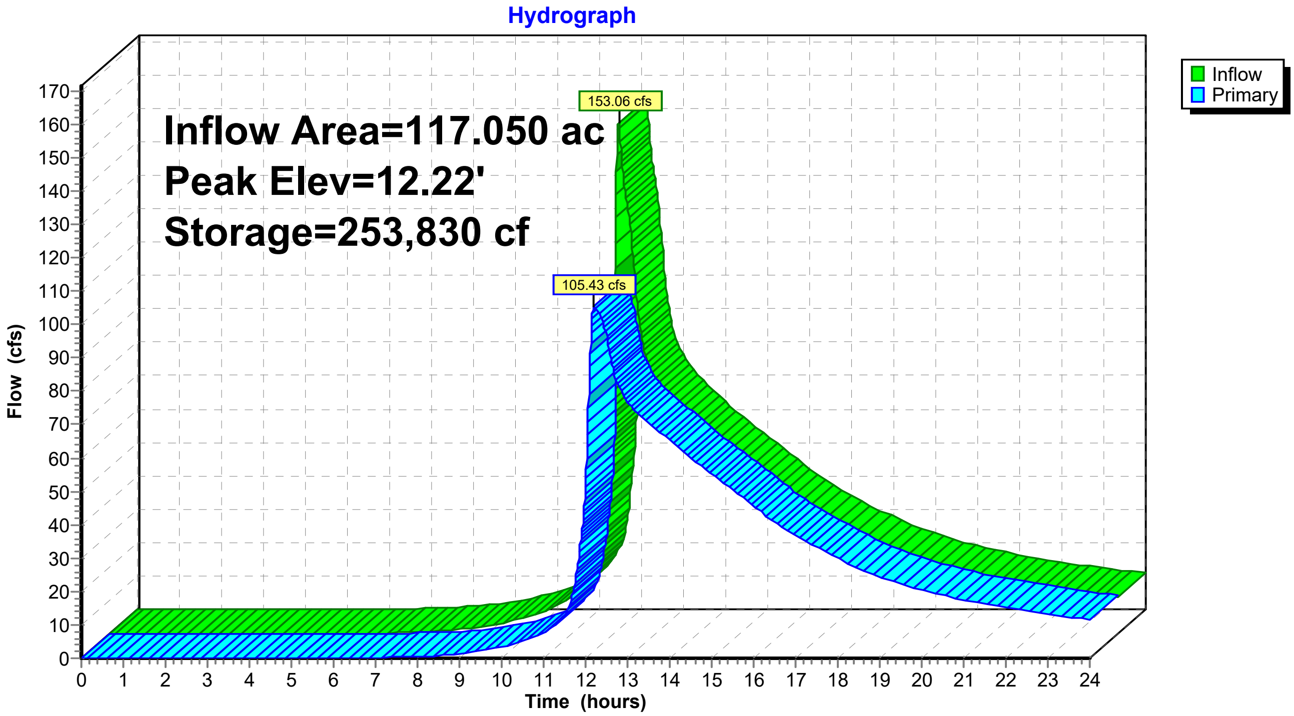
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	785,627 cf	**POND 5 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	28,400	0	0
9.50	39,370	135,540	135,540
15.10	56,162	267,490	403,030
20.00	100,000	382,597	785,627

Device	Routing	Invert	Outlet Devices
#1	Primary	8.59'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.59' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	8.52'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.52' / 8.43' S= 0.0007 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.63' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#4	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.35' / 8.63' S= -0.0022 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=101.83 cfs @ 12.20 hrs HW=11.60' TW=11.09' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 25.58 cfs @ 4.49 fps)
├─**2=RCP_Round 36"** (Outlet Controls 26.20 cfs @ 4.49 fps)
├─**3=RCP_Round 36"** (Outlet Controls 25.58 cfs @ 4.49 fps)
└─**4=RCP_Round 36"** (Outlet Controls 24.48 cfs @ 3.98 fps)

Pond POST-5P: POND 5



Summary for Pond POST-6P: POND 6

Inflow Area = 152.560 ac, 34.40% Impervious, Inflow Depth > 4.27" for 10 event
Inflow = 260.68 cfs @ 12.19 hrs, Volume= 54.300 af
Outflow = 95.34 cfs @ 13.06 hrs, Volume= 49.698 af, Atten= 63%, Lag= 52.0 min
Primary = 95.34 cfs @ 13.06 hrs, Volume= 49.698 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 196,792 sf Storage= 705,109 cf
Peak Elev= 12.01' @ 13.06 hrs Surf.Area= 220,159 sf Storage= 1,242,132 cf (537,023 cf above start)

Plug-Flow detention time= 291.8 min calculated for 33.497 af (62% of inflow)
Center-of-Mass det. time= 71.2 min (975.0 - 903.8)

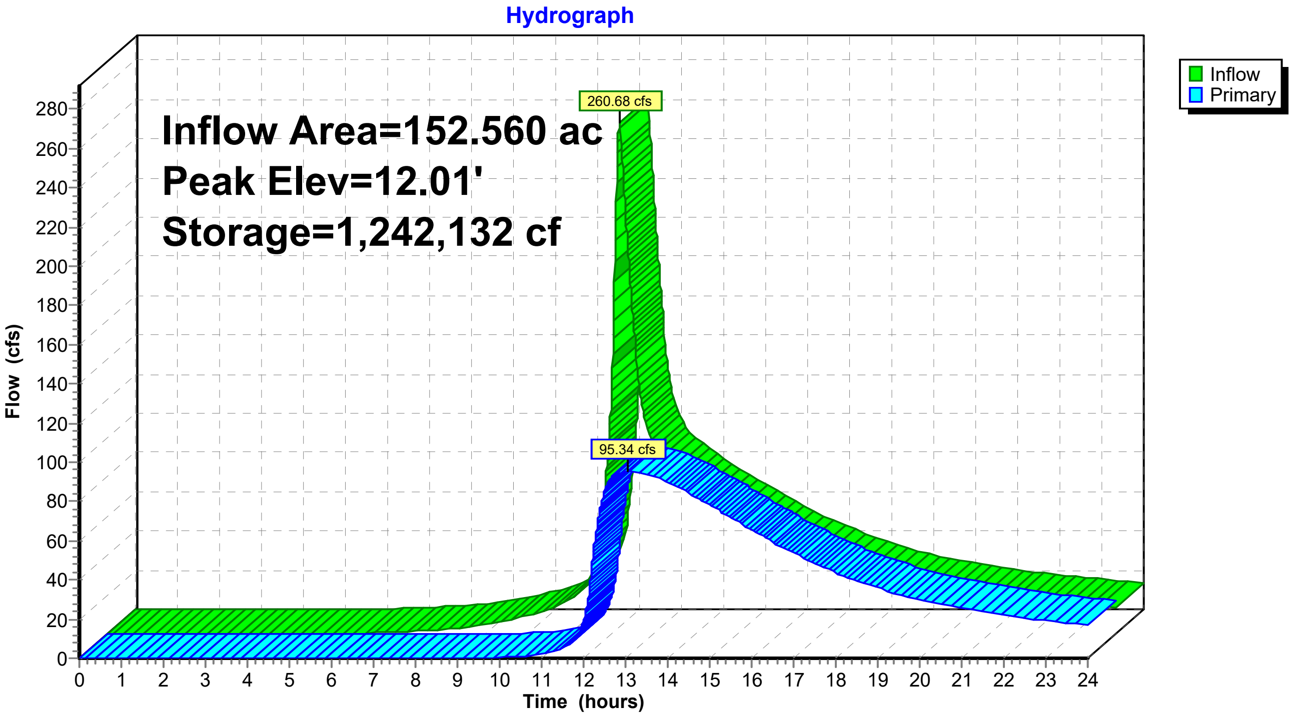
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	3,128,709 cf	**POND 6 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	162,042	0	0
9.50	197,411	718,906	718,906
14.00	238,258	980,255	1,699,161
20.00	238,258	1,429,548	3,128,709

Device	Routing	Invert	Outlet Devices
#1	Primary	9.91'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.91' / 9.89' S= 0.0004 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Primary	9.53'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.53' / 9.41' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#3	Primary	9.43'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.42' / 9.43' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#4	Primary	9.52'	**24.0" Round RCP_Round 24" X 3.00** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.52' / 9.43' S= 0.0019 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

Primary OutFlow Max=95.34 cfs @ 13.06 hrs HW=12.01' (Free Discharge)
├─**1=RCP_Round 24"** (Barrel Controls 12.67 cfs @ 4.78 fps)
├─**2=RCP_Round 24"** (Barrel Controls 16.87 cfs @ 5.55 fps)
├─**3=RCP_Round 24"** (Barrel Controls 16.03 cfs @ 5.15 fps)
└─**4=RCP_Round 24"** (Barrel Controls 49.76 cfs @ 5.44 fps)

Pond POST-6P: POND 6



Summary for Subcatchment POST #1: POST-DEVELOPED BASIN #1

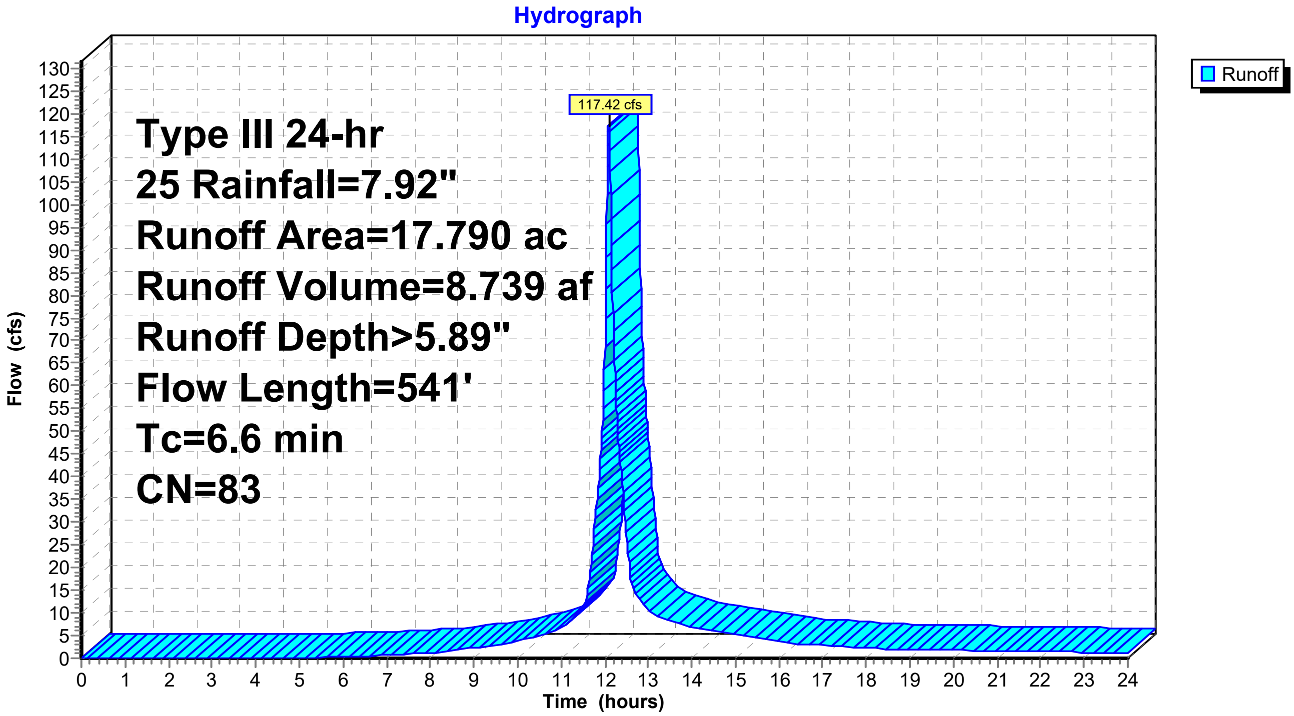
Runoff = 117.42 cfs @ 12.09 hrs, Volume= 8.739 af, Depth> 5.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
	11.440	74	>75% Grass cover, Good, HSG C
*	2.940	98	Houses
*	2.810	98	Roads and Walkways
*	0.600	98	NWL Pond
	17.790	83	Weighted Average
	11.440		64.31% Pervious Area
	6.350		35.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0200	0.17		**Sheet Flow, YARD** Grass: Short n= 0.150 P2= 4.34"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, POST-DEV BASIN 1-SCF** Paved Kv= 20.3 fps
1.9	447	0.0030	3.97	19.47	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.015 Concrete sewer w/manholes & inlets
6.6	541	Total			

Subcatchment POST #1: POST-DEVELOPED BASIN #1



Summary for Subcatchment POST #2: POST-DEVELOPED BASIN #2

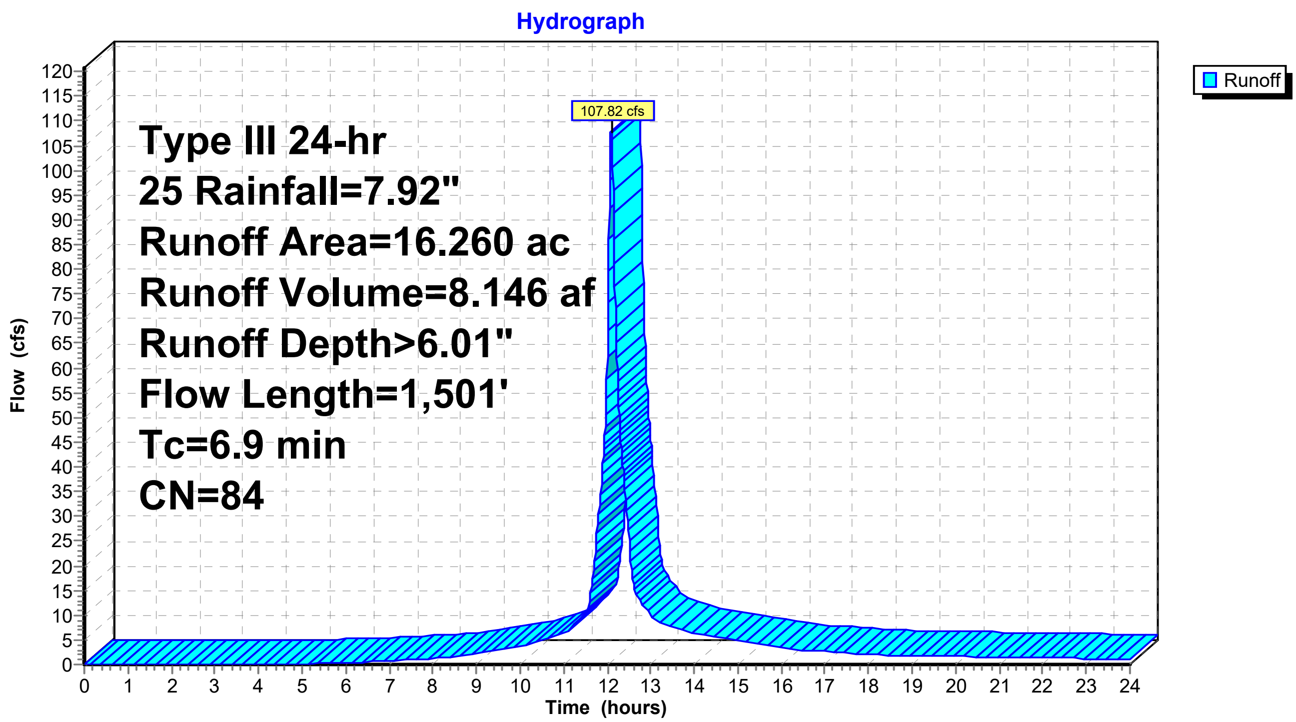
Runoff = 107.82 cfs @ 12.10 hrs, Volume= 8.146 af, Depth> 6.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	16.260	84	SFR lots, 30% imp, HSG D
	11.382		70.00% Pervious Area
	4.878		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2: POST-DEVELOPED BASIN #2



Summary for Subcatchment POST #2A: POST-DEVELOPED BASIN #2A

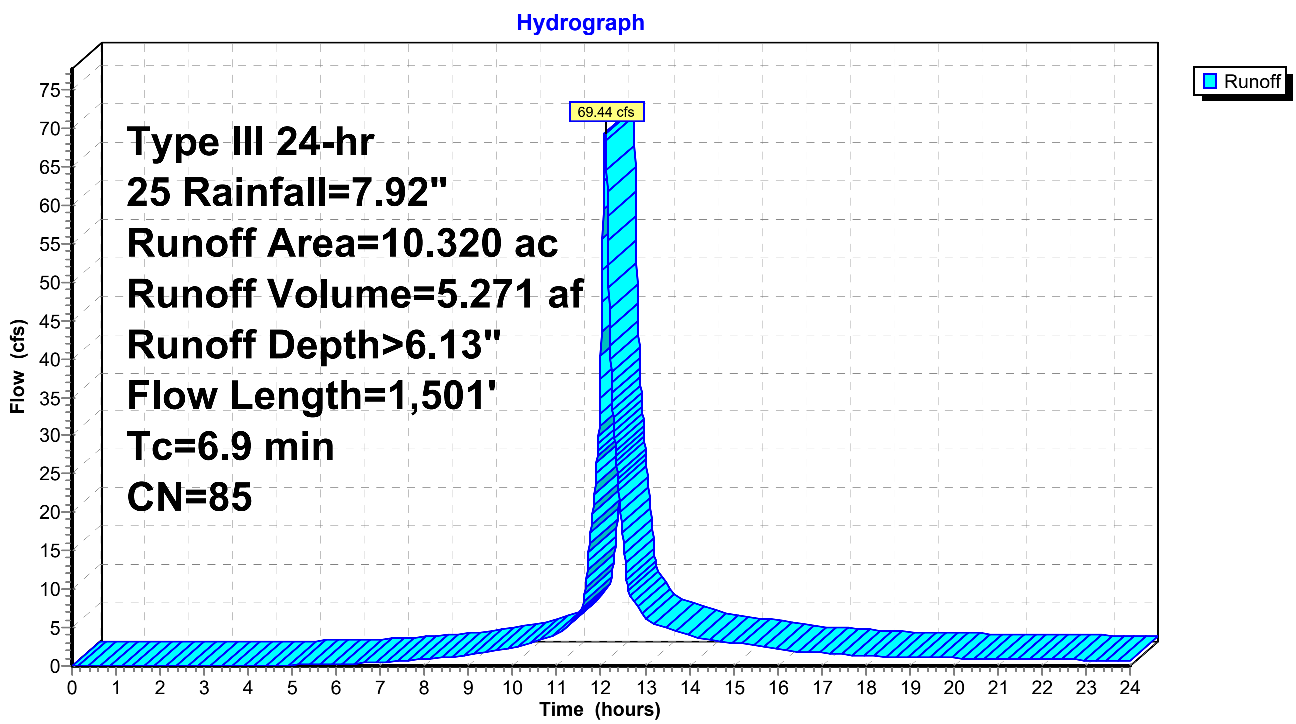
Runoff = 69.44 cfs @ 12.10 hrs, Volume= 5.271 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	10.320	85	
	10.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2A: POST-DEVELOPED BASIN #2A



Summary for Subcatchment POST #3: POST-DEVELOPED BASIN #3

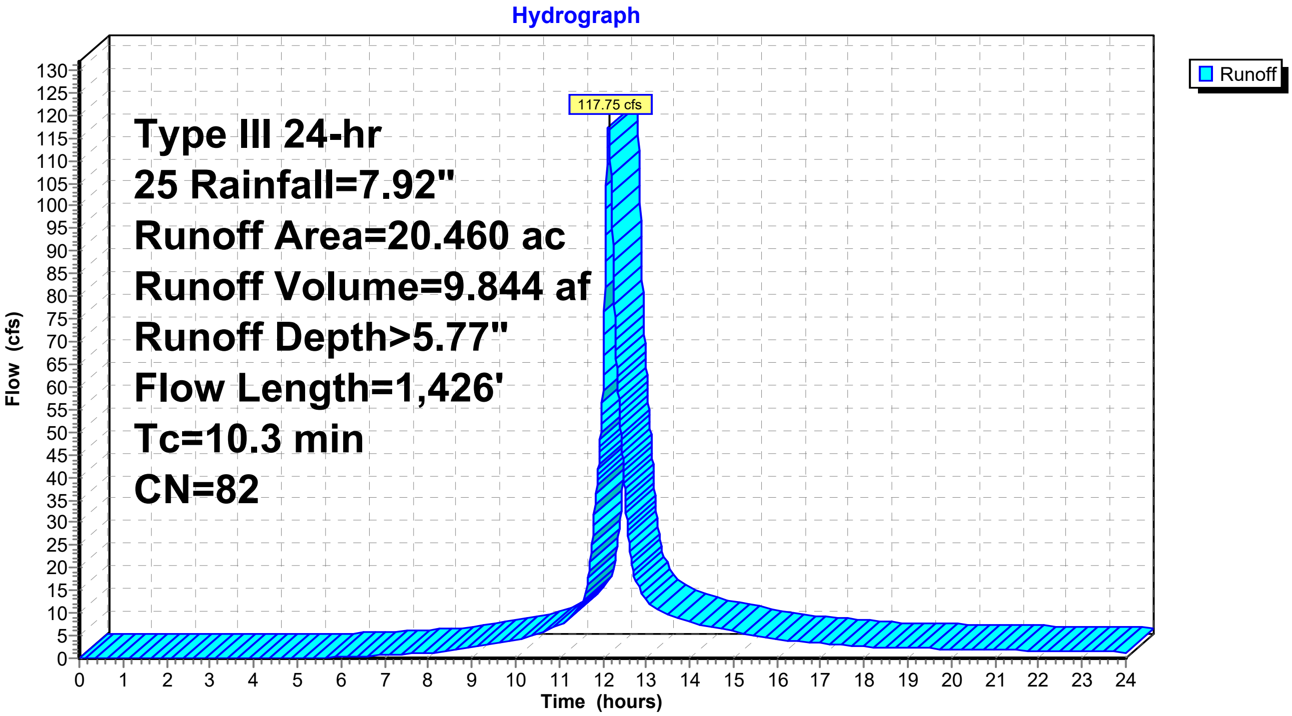
Runoff = 117.75 cfs @ 12.14 hrs, Volume= 9.844 af, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
	13.530	74	>75% Grass cover, Good, HSG C
*	2.480	98	Houses
*	3.570	98	Roads and Walkways
*	0.880	98	NWL Pond
	20.460	82	Weighted Average
	13.530		66.13% Pervious Area
	6.930		33.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0200	0.18		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
0.4	105	0.0100	4.86	24.28	**Channel Flow, REAR YARD SWALE** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
3.9	1,256	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
10.3	1,426	Total			

Subcatchment POST #3: POST-DEVELOPED BASIN #3



Summary for Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A

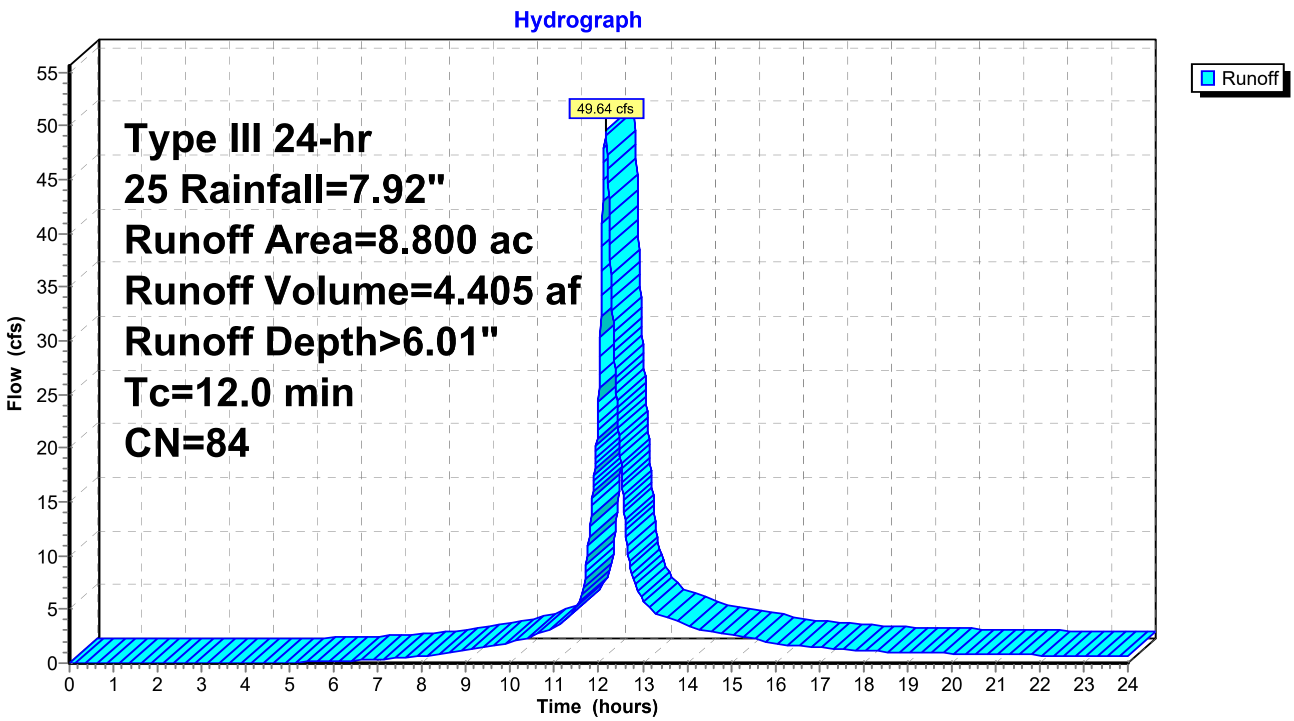
Runoff = 49.64 cfs @ 12.16 hrs, Volume= 4.405 af, Depth> 6.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	8.800	84	SFR lots, 30% imp, HSG D
	6.160		70.00% Pervious Area
	2.640		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A



Summary for Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B

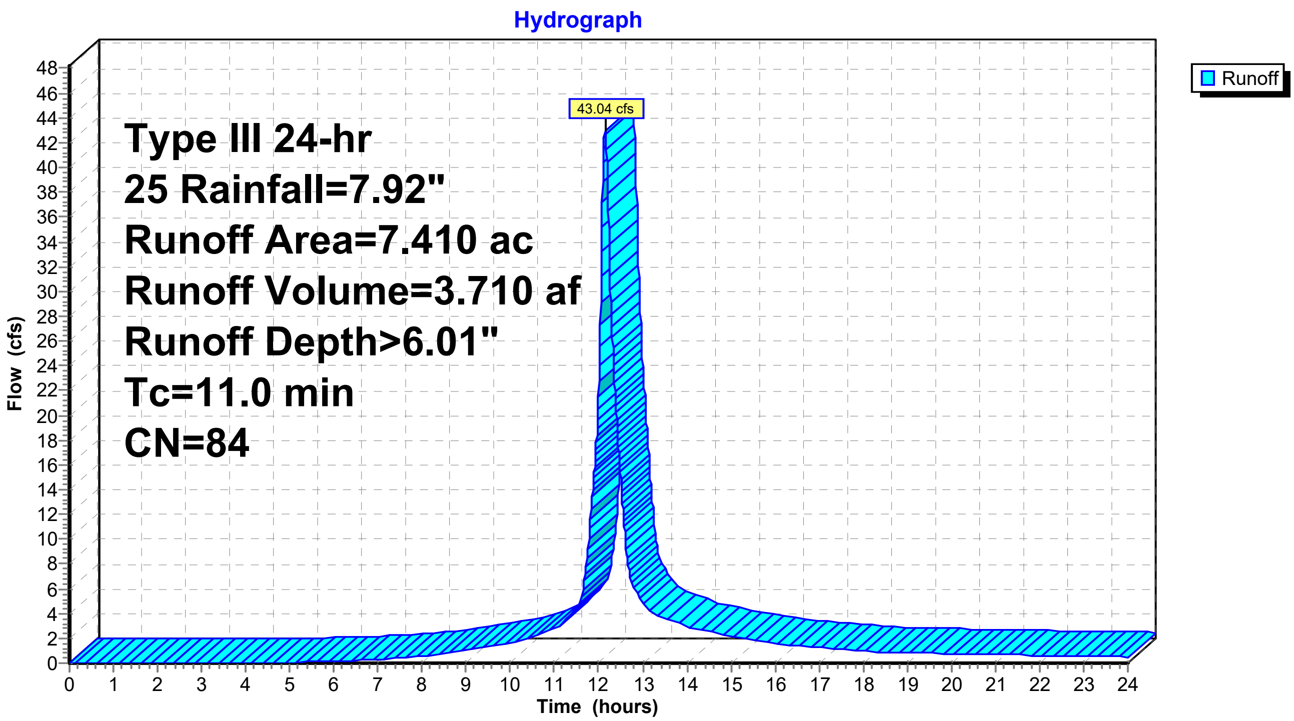
Runoff = 43.04 cfs @ 12.15 hrs, Volume= 3.710 af, Depth> 6.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	7.410	84	SFR lots, 30% imp, HSG D
	5.187		70.00% Pervious Area
	2.223		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0					**Direct Entry,**

Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B



Summary for Subcatchment POST #4: POST-DEVELOPED BASIN #4

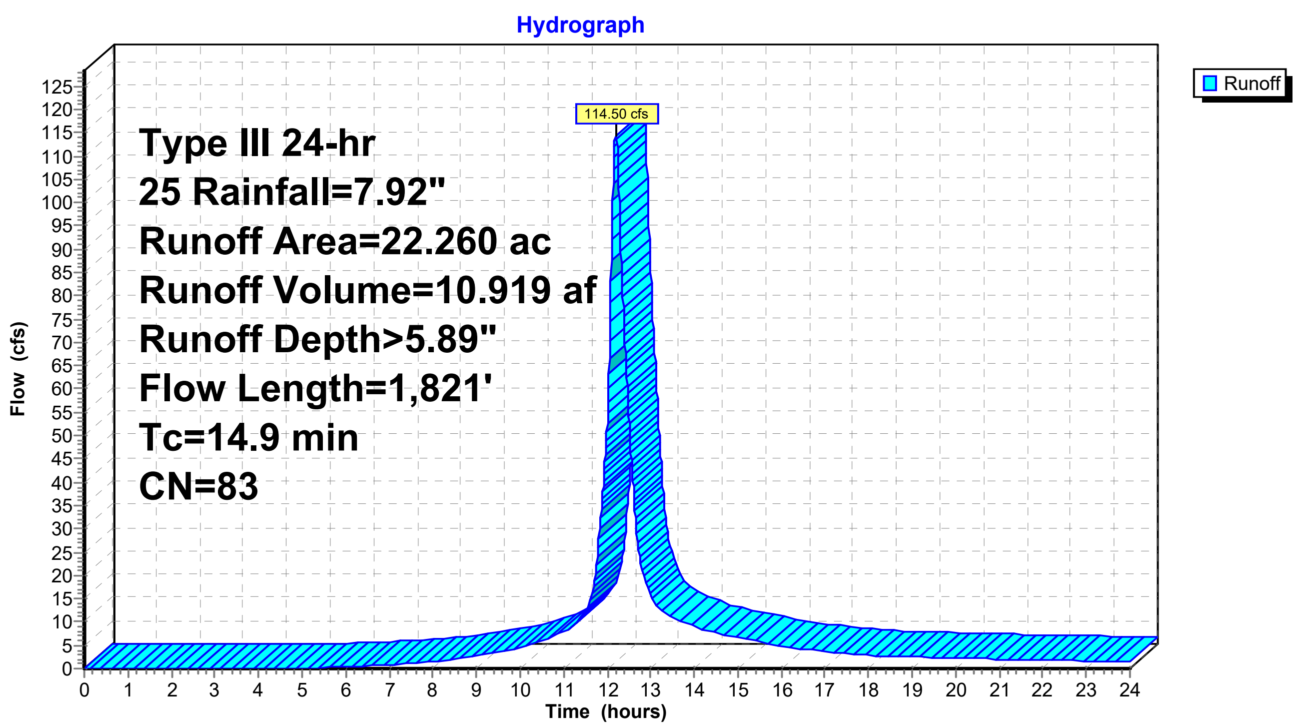
Runoff = 114.50 cfs @ 12.20 hrs, Volume= 10.919 af, Depth> 5.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
	14.150	74	>75% Grass cover, Good, HSG C
*	8.110	98	Houses, Roads and Walkways, NWL POND
	22.260	83	Weighted Average
	14.150		63.57% Pervious Area
	8.110		36.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0100	0.13		**Sheet Flow, POST DEV BASIN #4 - SHEET** Grass: Short n= 0.150 P2= 4.34"
3.5	300	0.0050	1.44		**Shallow Concentrated Flow, Gutter Basin 4** Paved Kv= 20.3 fps
4.5	1,466	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
14.9	1,821	Total			

Subcatchment POST #4: POST-DEVELOPED BASIN #4



Summary for Subcatchment POST #5: POST-DEVELOPED BASIN #5

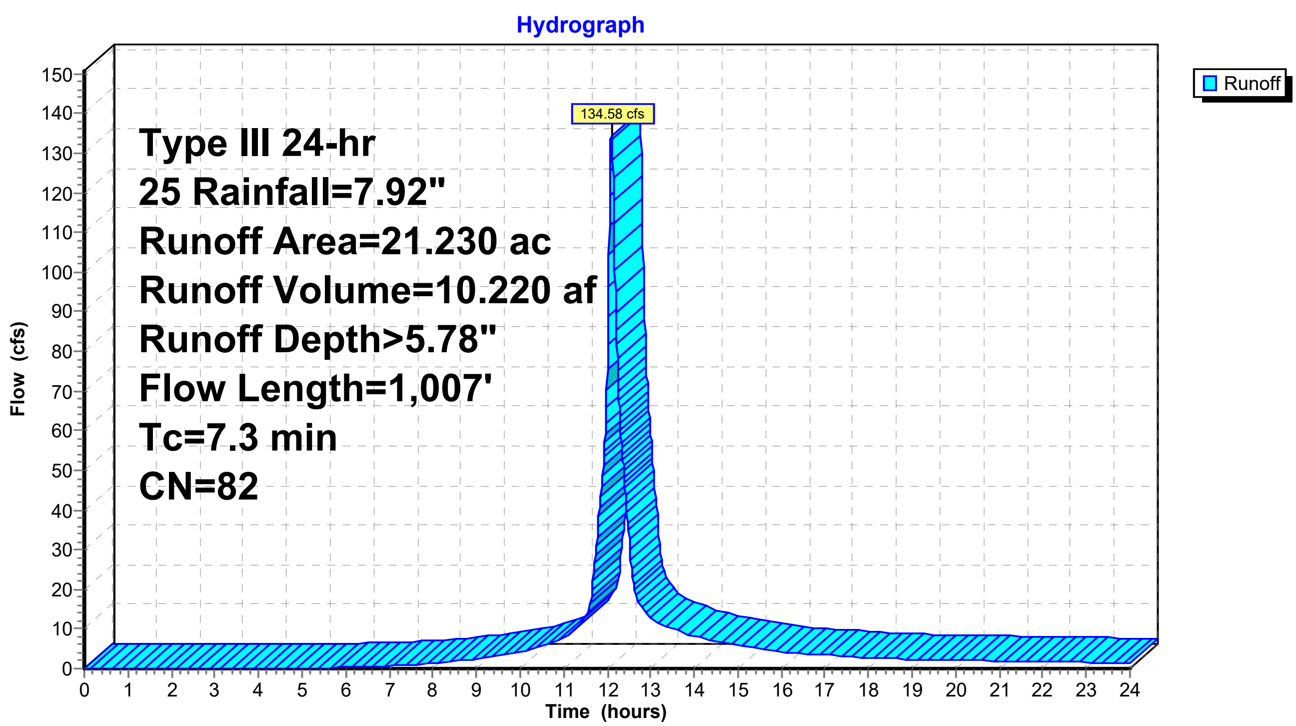
Runoff = 134.58 cfs @ 12.10 hrs, Volume= 10.220 af, Depth> 5.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
	14.320	74	>75% Grass cover, Good, HSG C
*	2.850	98	Houses
*	3.410	98	Roads and Walkways
*	0.650	98	NWL Pond
	21.230	82	Weighted Average
	14.320		67.45% Pervious Area
	6.910		32.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	55	0.0300	0.21		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
2.9	952	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
7.3	1,007	Total			

Subcatchment POST #5: POST-DEVELOPED BASIN #5



Summary for Subcatchment POST #6: POST-DEVELOPED BASIN #6

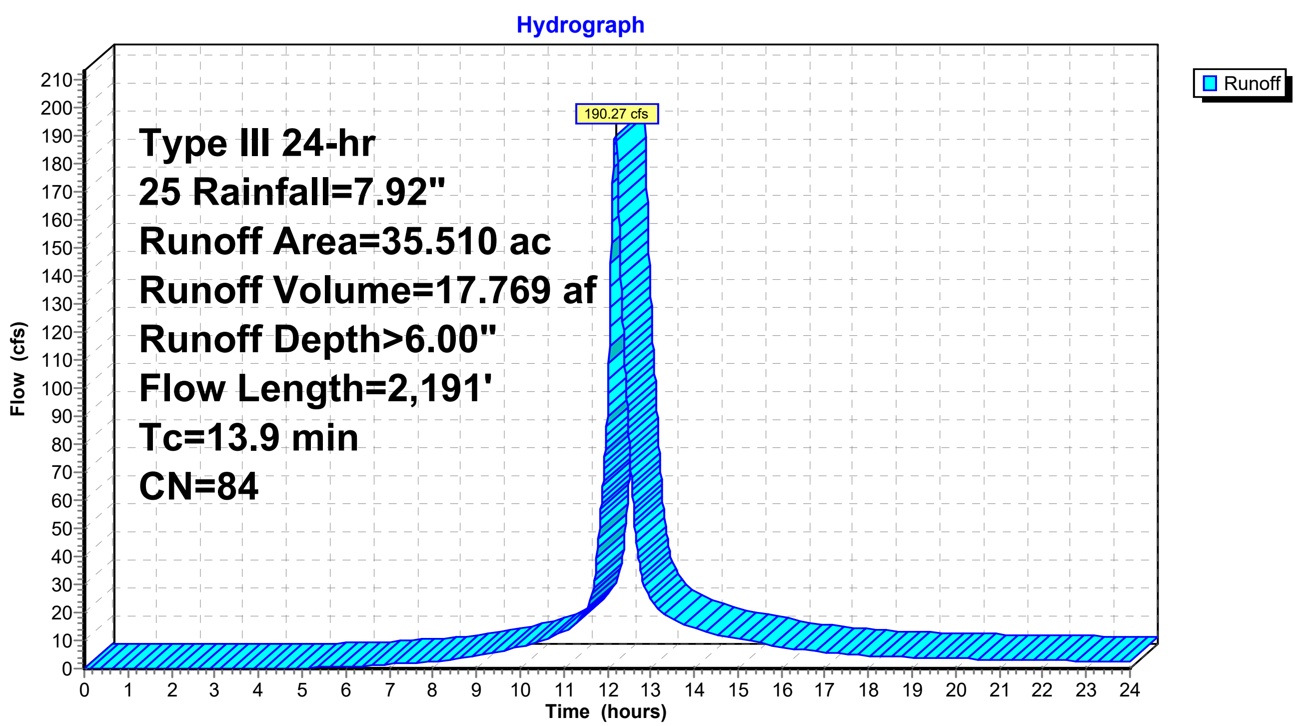
Runoff = 190.27 cfs @ 12.19 hrs, Volume= 17.769 af, Depth> 6.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
	21.070	74	>75% Grass cover, Good, HSG C
*	5.180	98	Houses
*	5.540	98	Roads and Walkways
*	3.720	98	NWL Pond
	35.510	84	Weighted Average
	21.070		59.34% Pervious Area
	14.440		40.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0200	0.19		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
6.5	2,106	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
13.9	2,191	Total			

Subcatchment POST #6: POST-DEVELOPED BASIN #6



Summary for Pond POST-1P: POND 1

Inflow Area = 17.790 ac, 35.69% Impervious, Inflow Depth > 5.89" for 25 event
Inflow = 117.42 cfs @ 12.09 hrs, Volume= 8.739 af
Outflow = 20.12 cfs @ 12.12 hrs, Volume= 7.476 af, Atten= 83%, Lag= 1.6 min
Primary = 20.12 cfs @ 12.12 hrs, Volume= 7.476 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 37,128 sf Storage= 113,417 cf
Peak Elev= 13.73' @ 12.93 hrs Surf.Area= 76,947 sf Storage= 327,681 cf (214,264 cf above start)

Plug-Flow detention time= 377.0 min calculated for 4.870 af (56% of inflow)
Center-of-Mass det. time= 172.5 min (968.4 - 795.9)

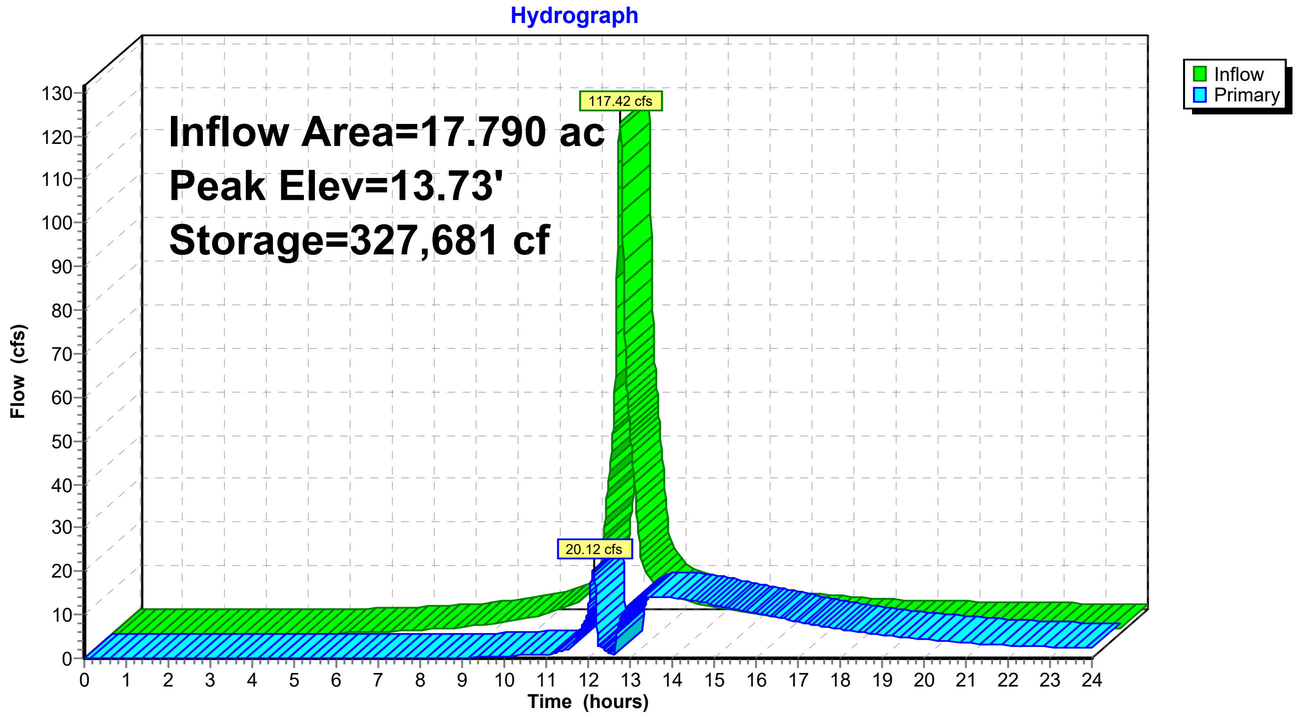
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	910,381 cf	**POND 1 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	26,411	0	0
9.97	37,128	113,417	113,417
15.00	90,446	320,849	434,266
20.00	100,000	476,115	910,381

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.11' S= 0.0143 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	9.97'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 7.89' S= 0.0145 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	10.14'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.02' S= 0.0148 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=12.86 cfs @ 12.12 hrs HW=12.55' TW=12.51' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 4.36 cfs @ 1.15 fps)
├─**2=RCP_Round 30"** (Outlet Controls 4.72 cfs @ 1.16 fps)
└─**3=RCP_Round 30"** (Outlet Controls 3.78 cfs @ 0.99 fps)

Pond POST-1P: POND 1



Summary for Pond POST-2P: POND 2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)
[80] Warning: Exceeded Pond POST-1P by 0.03' @ 12.23 hrs (13.15 cfs 0.398 af)

Inflow Area = 34.050 ac, 32.98% Impervious, Inflow Depth > 5.51" for 25 event
Inflow = 127.38 cfs @ 12.10 hrs, Volume= 15.622 af
Outflow = 28.18 cfs @ 13.57 hrs, Volume= 14.175 af, Atten= 78%, Lag= 88.4 min
Primary = 28.18 cfs @ 13.57 hrs, Volume= 14.175 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 44,416 sf Storage= 133,705 cf
Peak Elev= 13.71' @ 12.87 hrs Surf.Area= 81,846 sf Storage= 369,508 cf (235,802 cf above start)

Plug-Flow detention time= 272.9 min calculated for 11.101 af (71% of inflow)
Center-of-Mass det. time= 108.5 min (985.7 - 877.2)

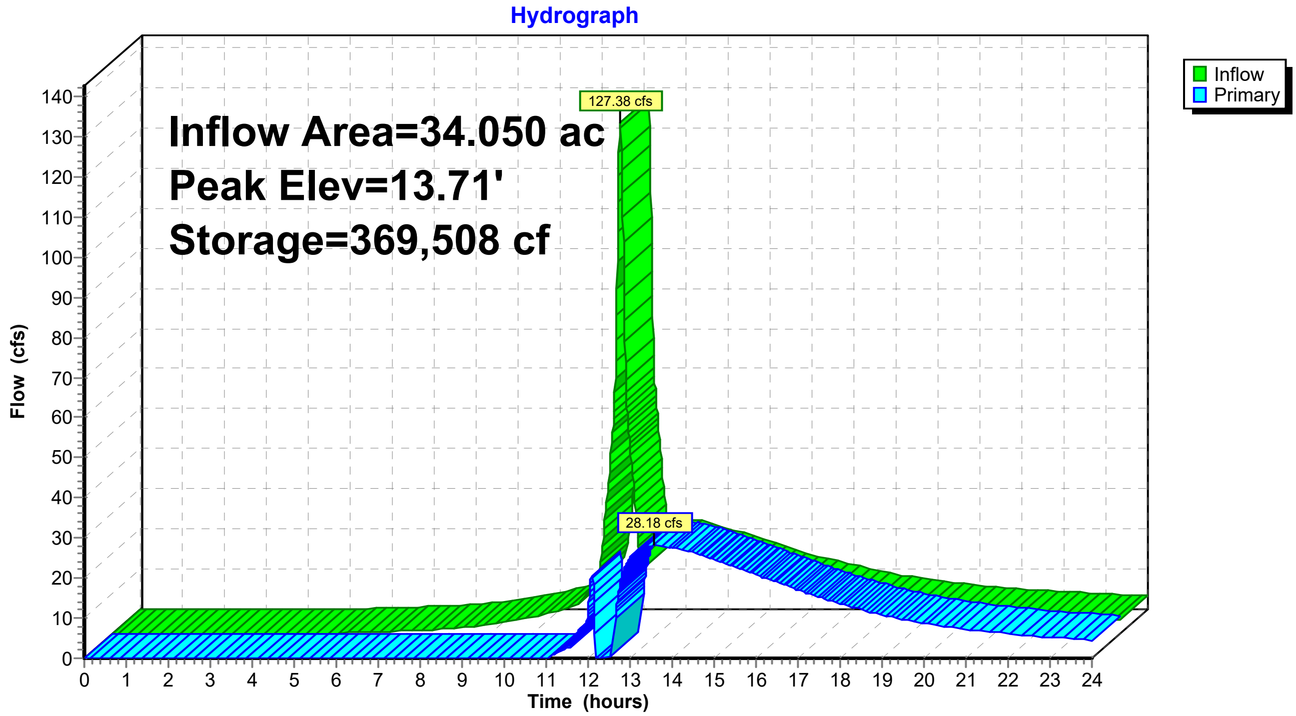
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	970,944 cf	**POND 2 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	30,489	0	0
9.97	44,416	133,705	133,705
15.00	94,822	350,184	483,889
20.00	100,000	487,055	970,944

Device	Routing	Invert	Outlet Devices
#1	Primary	8.20'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.18' / 8.20' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	8.18'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.15' / 8.18' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	8.12'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.12' / 8.10' S= 0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#4	Primary	8.07'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.07' / 8.06' S= 0.0001 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf

Primary OutFlow Max=28.85 cfs @ 13.57 hrs HW=13.57' TW=13.50' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 7.21 cfs @ 1.47 fps)
├─**2=RCP_Round 30"** (Outlet Controls 7.21 cfs @ 1.47 fps)
├─**3=RCP_Round 30"** (Outlet Controls 7.21 cfs @ 1.47 fps)
└─**4=RCP_Round 30"** (Outlet Controls 7.21 cfs @ 1.47 fps)

Pond POST-2P: POND 2



Summary for Pond POST-2PA: POND 2A

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 6.13" for 25 event
Inflow = 106.22 cfs @ 12.09 hrs, Volume= 7.969 af
Outflow = 75.09 cfs @ 12.17 hrs, Volume= 7.840 af, Atten= 29%, Lag= 4.9 min
Primary = 75.09 cfs @ 12.17 hrs, Volume= 7.840 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.68' @ 12.17 hrs Surf.Area= 36,415 sf Storage= 169,705 cf (60,983 cf above start)

Plug-Flow detention time= 184.1 min calculated for 5.344 af (67% of inflow)
Center-of-Mass det. time= 25.2 min (815.6 - 790.4)

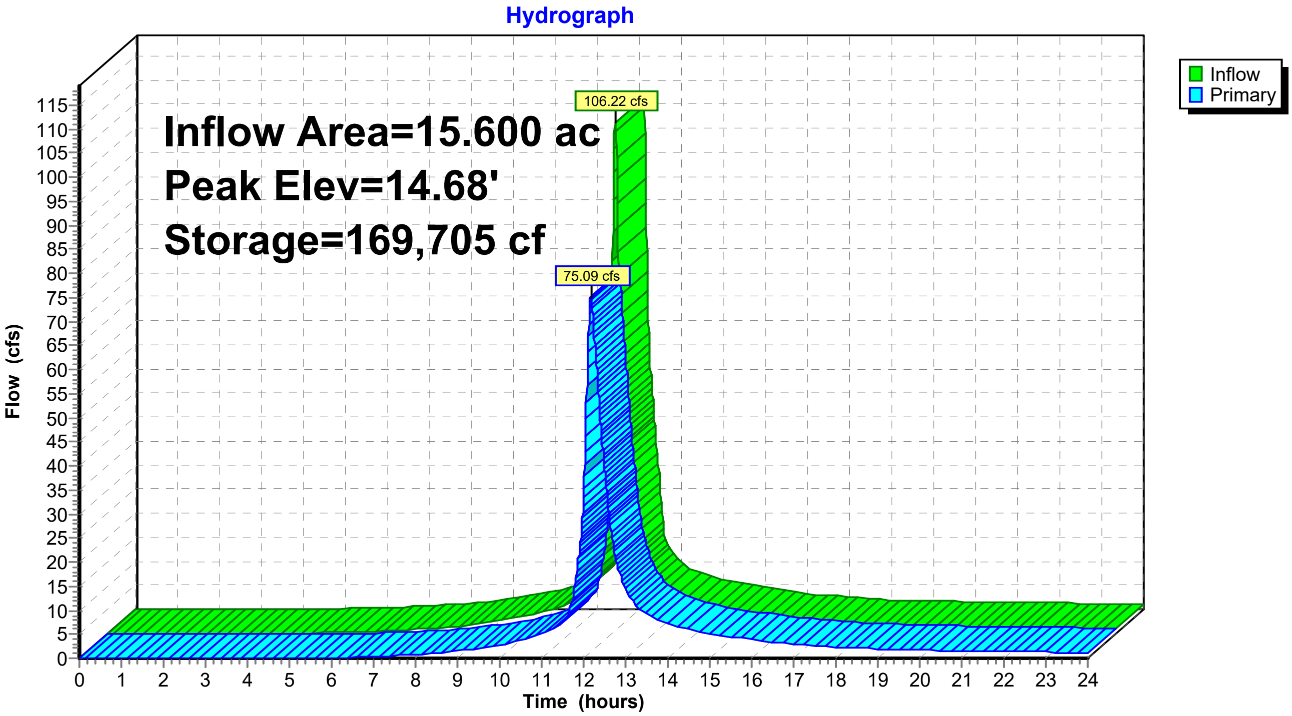
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=75.07 cfs @ 12.17 hrs HW=14.68' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 75.07 cfs @ 3.85 fps)

Pond POST-2PA: POND 2A



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.15' @ 12.36 hrs (44.19 cfs 5.968 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 5.34" for 25 event
Inflow = 159.47 cfs @ 12.12 hrs, Volume= 32.728 af
Outflow = 59.84 cfs @ 13.18 hrs, Volume= 30.922 af, Atten= 62%, Lag= 63.5 min
Primary = 59.84 cfs @ 13.18 hrs, Volume= 30.922 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 13.67' @ 12.59 hrs Surf.Area= 85,791 sf Storage= 451,232 cf (267,787 cf above start)

Plug-Flow detention time= 170.7 min calculated for 26.711 af (82% of inflow)
Center-of-Mass det. time= 59.4 min (968.9 - 909.5)

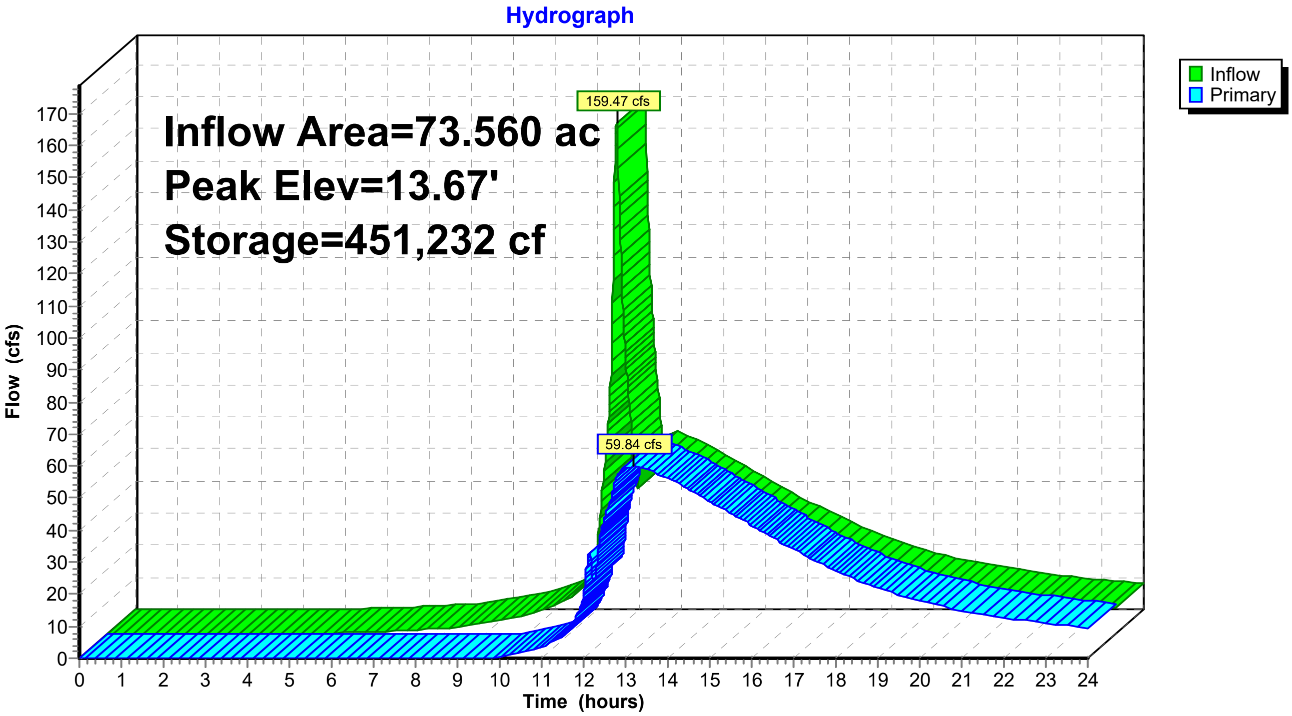
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=60.14 cfs @ 13.18 hrs HW=13.61' TW=13.33' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 20.71 cfs @ 3.19 fps)
├─**2=RCP_Round 36"** (Outlet Controls 21.42 cfs @ 3.17 fps)
└─**3=RCP_Round 36"** (Outlet Controls 18.01 cfs @ 2.76 fps)

Pond POST-3P: POND 3



Summary for Pond POST-3PA: POND 3A

[44] Hint: Outlet device #1 is below defined storage
[80] Warning: Exceeded Pond POST-3PB by 0.06' @ 12.15 hrs (7.88 cfs 0.223 af)

Inflow Area = 16.210 ac, 30.00% Impervious, Inflow Depth > 5.71" for 25 event
Inflow = 51.13 cfs @ 12.15 hrs, Volume= 7.717 af
Outflow = 18.59 cfs @ 12.66 hrs, Volume= 7.341 af, Atten= 64%, Lag= 30.3 min
Primary = 18.59 cfs @ 12.66 hrs, Volume= 7.341 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.89' @ 12.64 hrs Surf.Area= 26,557 sf Storage= 78,012 cf

Plug-Flow detention time= 92.6 min calculated for 7.341 af (95% of inflow)
Center-of-Mass det. time= 67.1 min (928.1 - 861.1)

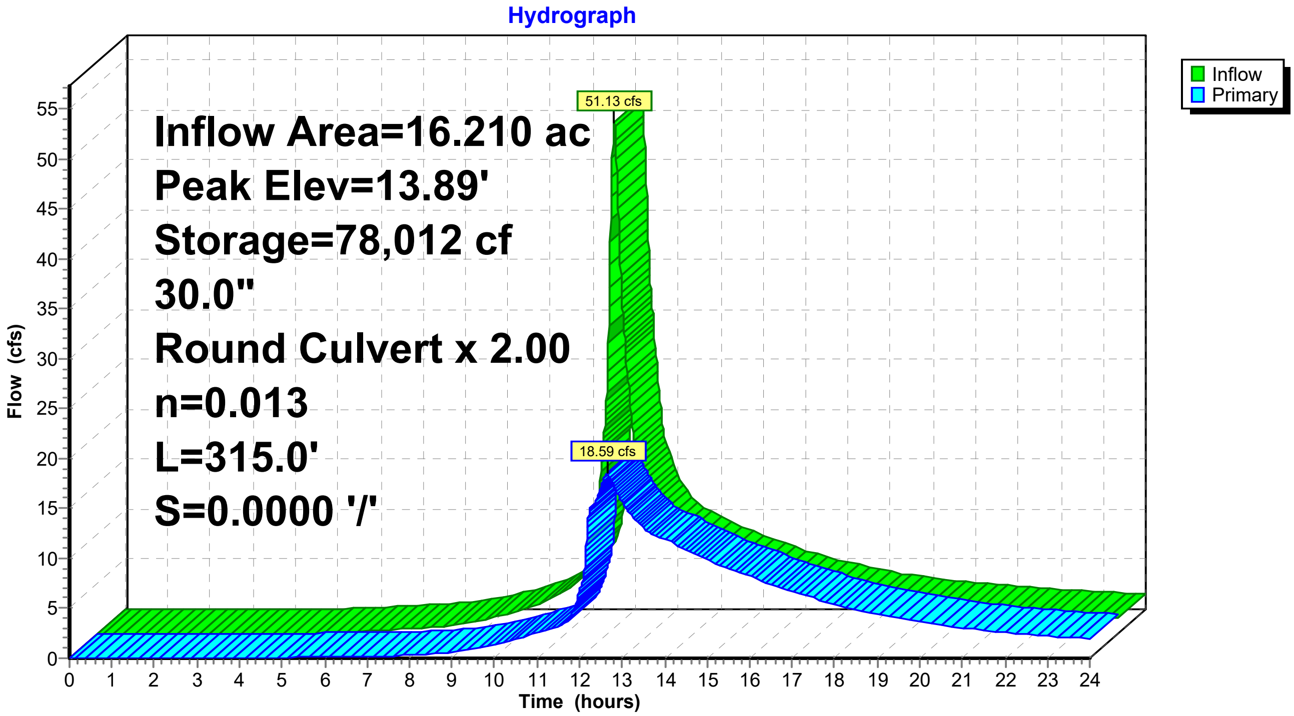
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	247,412 cf	**POND 3A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,127	0	0
14.40	27,784	91,822	91,822
20.00	27,784	155,590	247,412

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 315.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=18.58 cfs @ 12.66 hrs HW=13.89' TW=13.67' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 18.58 cfs @ 1.89 fps)

Pond POST-3PA: POND 3A



Summary for Pond POST-3PB: POND 3B

[44] Hint: Outlet device #1 is below defined storage

Inflow Area = 7.410 ac, 30.00% Impervious, Inflow Depth > 6.01" for 25 event
Inflow = 43.04 cfs @ 12.15 hrs, Volume= 3.710 af
Outflow = 8.05 cfs @ 12.77 hrs, Volume= 3.312 af, Atten= 81%, Lag= 37.1 min
Primary = 8.05 cfs @ 12.77 hrs, Volume= 3.312 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.94' @ 12.68 hrs Surf.Area= 27,541 sf Storage= 82,248 cf

Plug-Flow detention time= 198.9 min calculated for 3.312 af (89% of inflow)
Center-of-Mass det. time= 148.5 min (945.4 - 796.9)

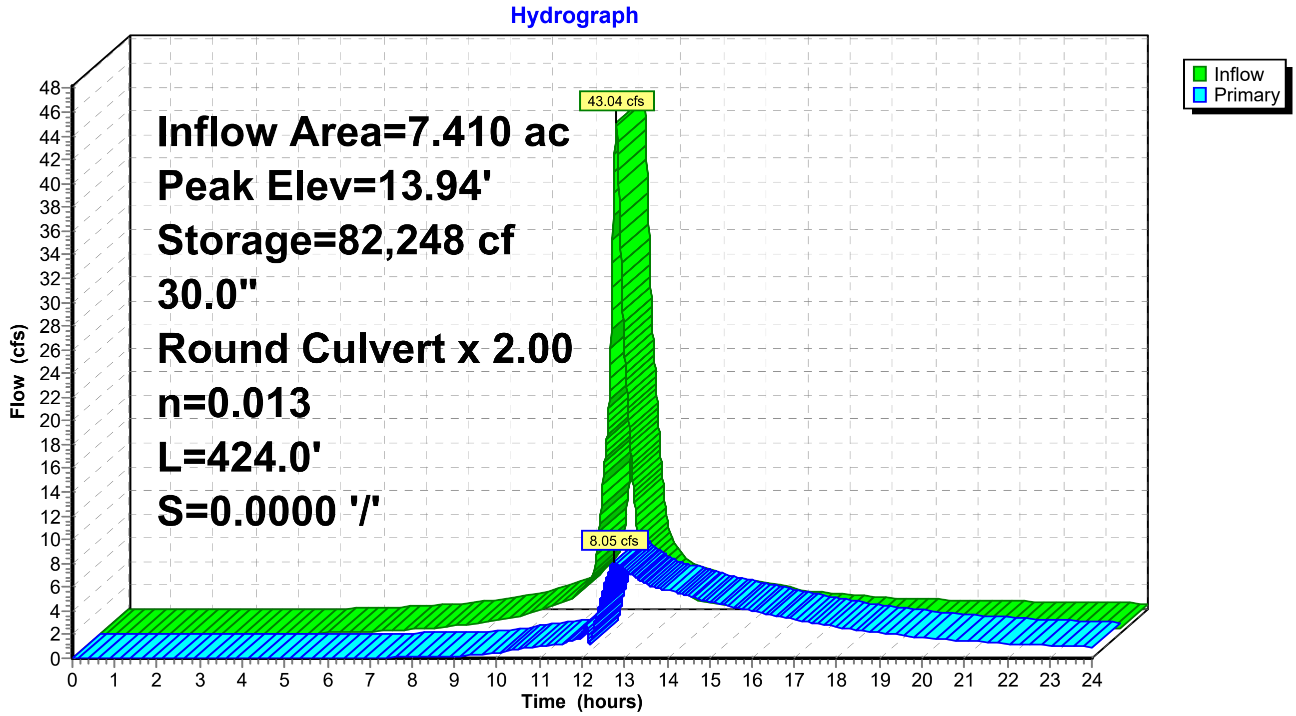
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	255,727 cf	**POND 3B (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,948	0	0
14.40	28,662	95,220	95,220
20.00	28,662	160,507	255,727

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 424.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=8.21 cfs @ 12.77 hrs HW=13.93' TW=13.87' (Dynamic Tailwater)
1=RCP_Round 30" (Outlet Controls 8.21 cfs @ 0.84 fps)

Pond POST-3PB: POND 3B



Summary for Pond POST-4P: POND 4

[80] Warning: Exceeded Pond POST-3P by 0.11' @ 8.74 hrs (0.42 cfs 0.086 af)

Inflow Area = 95.820 ac, 32.49% Impervious, Inflow Depth > 5.24" for 25 event
Inflow = 142.92 cfs @ 12.17 hrs, Volume= 41.841 af
Outflow = 98.77 cfs @ 12.34 hrs, Volume= 41.162 af, Atten= 31%, Lag= 10.0 min
Primary = 98.77 cfs @ 12.34 hrs, Volume= 41.162 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 25,099 sf Storage= 71,286 cf
Peak Elev= 13.51' @ 12.55 hrs Surf.Area= 42,624 sf Storage= 191,036 cf (119,750 cf above start)

Plug-Flow detention time= 58.0 min calculated for 39.526 af (94% of inflow)
Center-of-Mass det. time= 19.6 min (945.1 - 925.5)

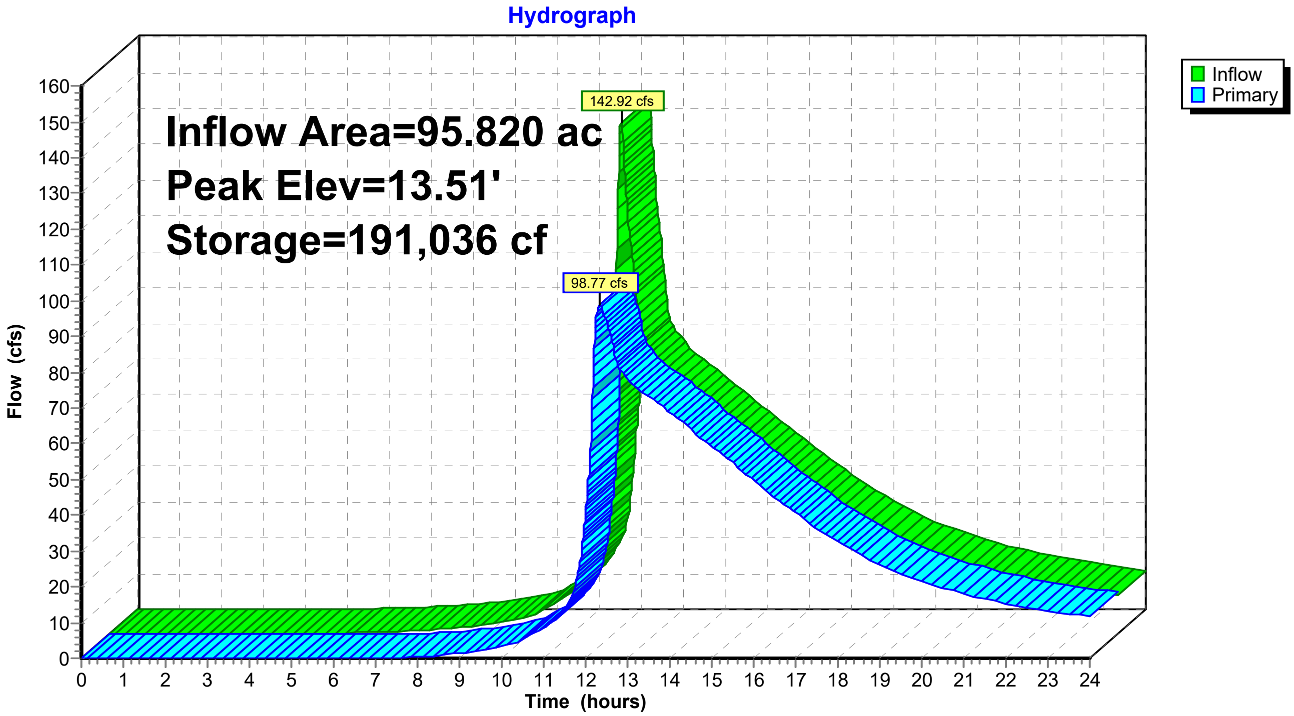
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	635,290 cf	**POND 4 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	14,837	0	0
9.97	25,099	71,286	71,286
15.00	50,026	188,939	260,225
20.00	100,000	375,065	635,290

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0109 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0097 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0098 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=97.46 cfs @ 12.34 hrs HW=13.35' TW=12.49' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 33.43 cfs @ 5.51 fps)
├─**2=RCP_Round 36"** (Outlet Controls 35.11 cfs @ 5.51 fps)
└─**3=RCP_Round 36"** (Outlet Controls 28.92 cfs @ 4.75 fps)

Pond POST-4P: POND 4



Summary for Pond POST-5P: POND 5

Inflow Area = 117.050 ac, 32.50% Impervious, Inflow Depth > 5.27" for 25 event
Inflow = 192.43 cfs @ 12.12 hrs, Volume= 51.382 af
Outflow = 132.02 cfs @ 12.19 hrs, Volume= 50.344 af, Atten= 31%, Lag= 4.2 min
Primary = 132.02 cfs @ 12.19 hrs, Volume= 50.344 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 39,178 sf Storage= 132,791 cf
Peak Elev= 12.84' @ 12.78 hrs Surf.Area= 49,393 sf Storage= 283,885 cf (151,094 cf above start)

Plug-Flow detention time= 75.3 min calculated for 47.296 af (92% of inflow)
Center-of-Mass det. time= 20.4 min (936.4 - 916.0)

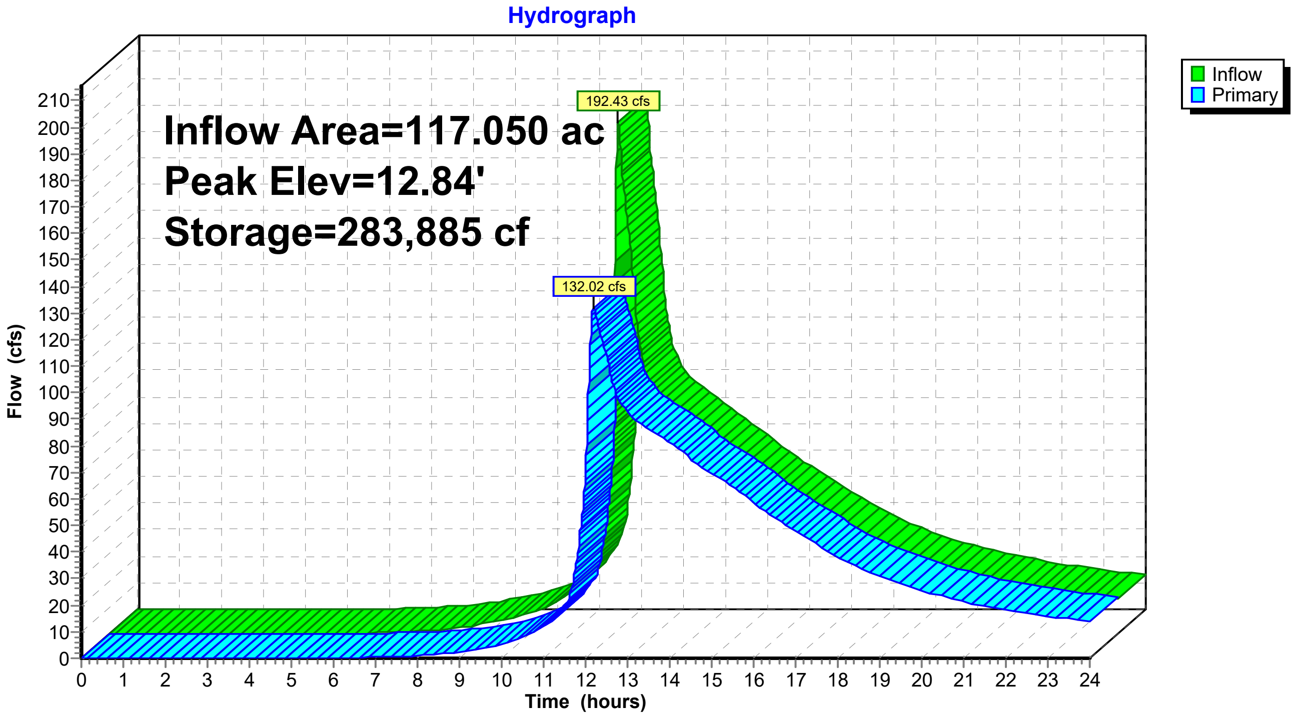
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	785,627 cf	**POND 5 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	28,400	0	0
9.50	39,370	135,540	135,540
15.10	56,162	267,490	403,030
20.00	100,000	382,597	785,627

Device	Routing	Invert	Outlet Devices
#1	Primary	8.59'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.59' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	8.52'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.52' / 8.43' S= 0.0007 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.63' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#4	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.35' / 8.63' S= -0.0022 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=127.68 cfs @ 12.19 hrs HW=12.06' TW=11.44' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 32.45 cfs @ 4.98 fps)
├─**2=RCP_Round 36"** (Outlet Controls 32.92 cfs @ 4.97 fps)
├─**3=RCP_Round 36"** (Outlet Controls 32.45 cfs @ 4.98 fps)
└─**4=RCP_Round 36"** (Outlet Controls 29.87 cfs @ 4.36 fps)

Pond POST-5P: POND 5



Summary for Pond POST-6P: POND 6

Inflow Area = 152.560 ac, 34.40% Impervious, Inflow Depth > 5.36" for 25 event
Inflow = 322.29 cfs @ 12.19 hrs, Volume= 68.113 af
Outflow = 119.29 cfs @ 12.97 hrs, Volume= 63.112 af, Atten= 63%, Lag= 46.9 min
Primary = 119.29 cfs @ 12.97 hrs, Volume= 63.112 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 196,792 sf Storage= 705,109 cf
Peak Elev= 12.51' @ 12.97 hrs Surf.Area= 224,734 sf Storage= 1,354,265 cf (649,156 cf above start)

Plug-Flow detention time= 252.4 min calculated for 46.906 af (69% of inflow)
Center-of-Mass det. time= 70.0 min (970.6 - 900.6)

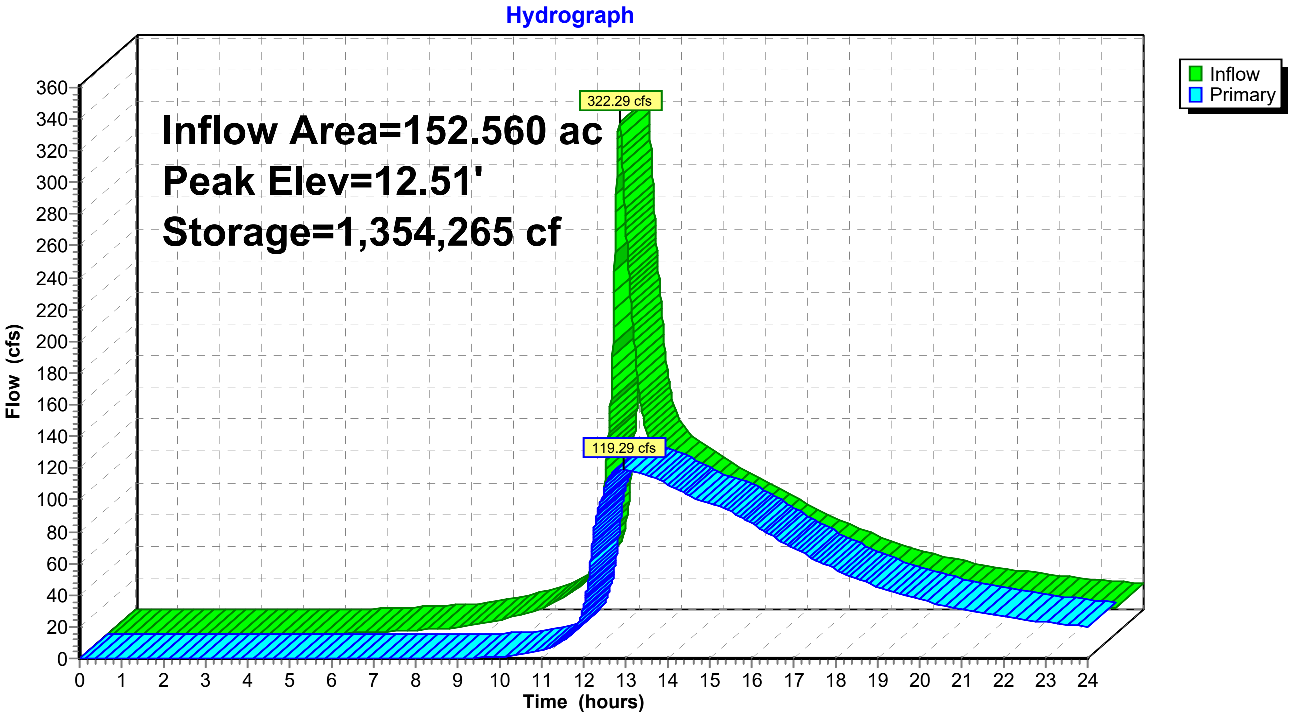
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	3,128,709 cf	**POND 6 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	162,042	0	0
9.50	197,411	718,906	718,906
14.00	238,258	980,255	1,699,161
20.00	238,258	1,429,548	3,128,709

Device	Routing	Invert	Outlet Devices
#1	Primary	9.91'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.91' / 9.89' S= 0.0004 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Primary	9.53'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.53' / 9.41' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#3	Primary	9.43'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.42' / 9.43' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#4	Primary	9.52'	**24.0" Round RCP_Round 24" X 3.00** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.52' / 9.43' S= 0.0019 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

Primary OutFlow Max=119.29 cfs @ 12.97 hrs HW=12.51' (Free Discharge)
├—**1=RCP_Round 24"** (Barrel Controls 16.33 cfs @ 5.23 fps)
├—**2=RCP_Round 24"** (Barrel Controls 20.72 cfs @ 6.60 fps)
├—**3=RCP_Round 24"** (Barrel Controls 20.63 cfs @ 6.57 fps)
└—**4=RCP_Round 24"** (Barrel Controls 61.60 cfs @ 6.54 fps)

Pond POST-6P: POND 6



Summary for Subcatchment POST #1: POST-DEVELOPED BASIN #1

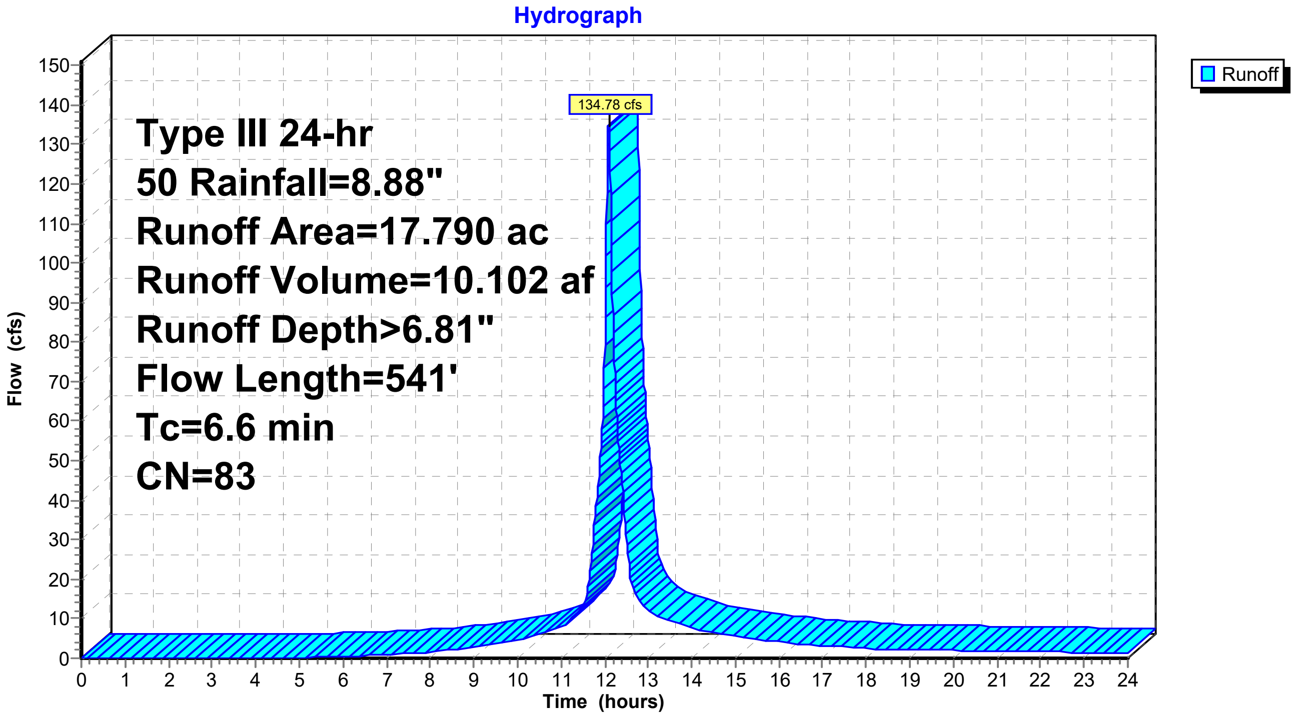
Runoff = 134.78 cfs @ 12.09 hrs, Volume= 10.102 af, Depth> 6.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
	11.440	74	>75% Grass cover, Good, HSG C
*	2.940	98	Houses
*	2.810	98	Roads and Walkways
*	0.600	98	NWL Pond
	17.790	83	Weighted Average
	11.440		64.31% Pervious Area
	6.350		35.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0200	0.17		**Sheet Flow, YARD** Grass: Short n= 0.150 P2= 4.34"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, POST-DEV BASIN 1-SCF** Paved Kv= 20.3 fps
1.9	447	0.0030	3.97	19.47	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.015 Concrete sewer w/manholes & inlets
6.6	541	Total			

Subcatchment POST #1: POST-DEVELOPED BASIN #1



Summary for Subcatchment POST #2: POST-DEVELOPED BASIN #2

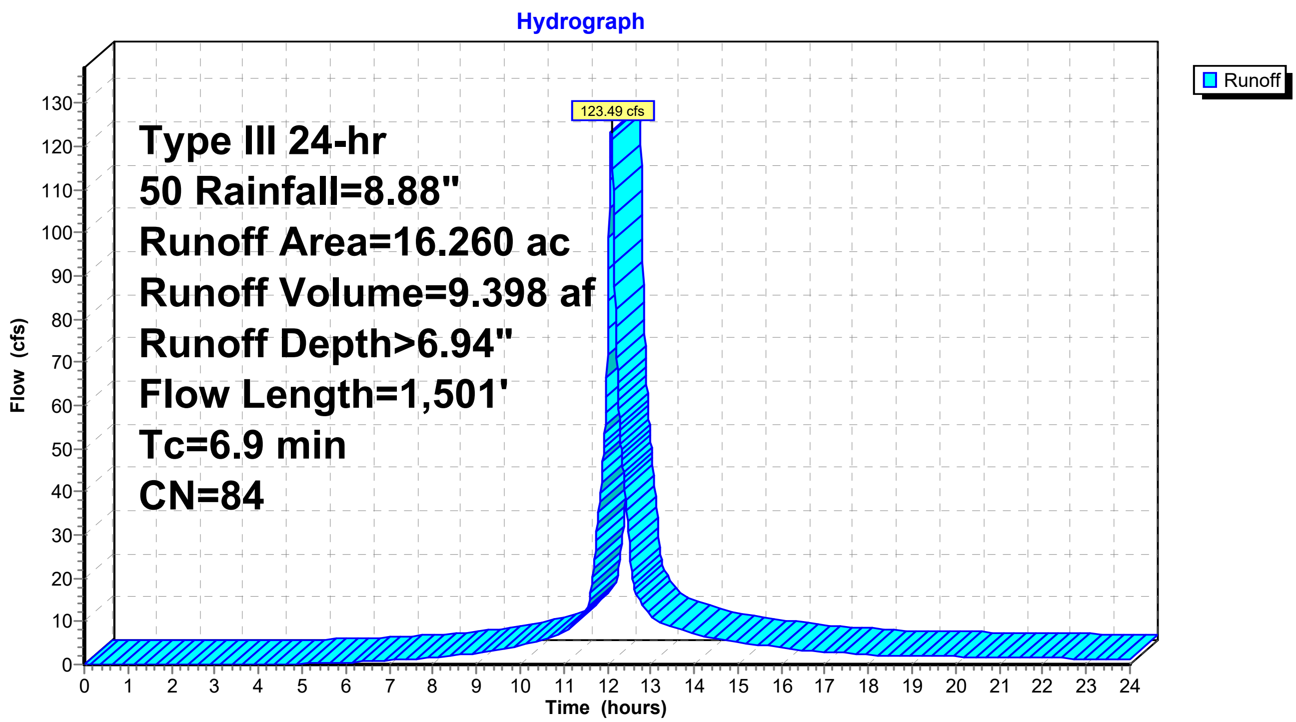
Runoff = 123.49 cfs @ 12.10 hrs, Volume= 9.398 af, Depth> 6.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	16.260	84	SFR lots, 30% imp, HSG D
	11.382		70.00% Pervious Area
	4.878		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2: POST-DEVELOPED BASIN #2



Summary for Subcatchment POST #2A: POST-DEVELOPED BASIN #2A

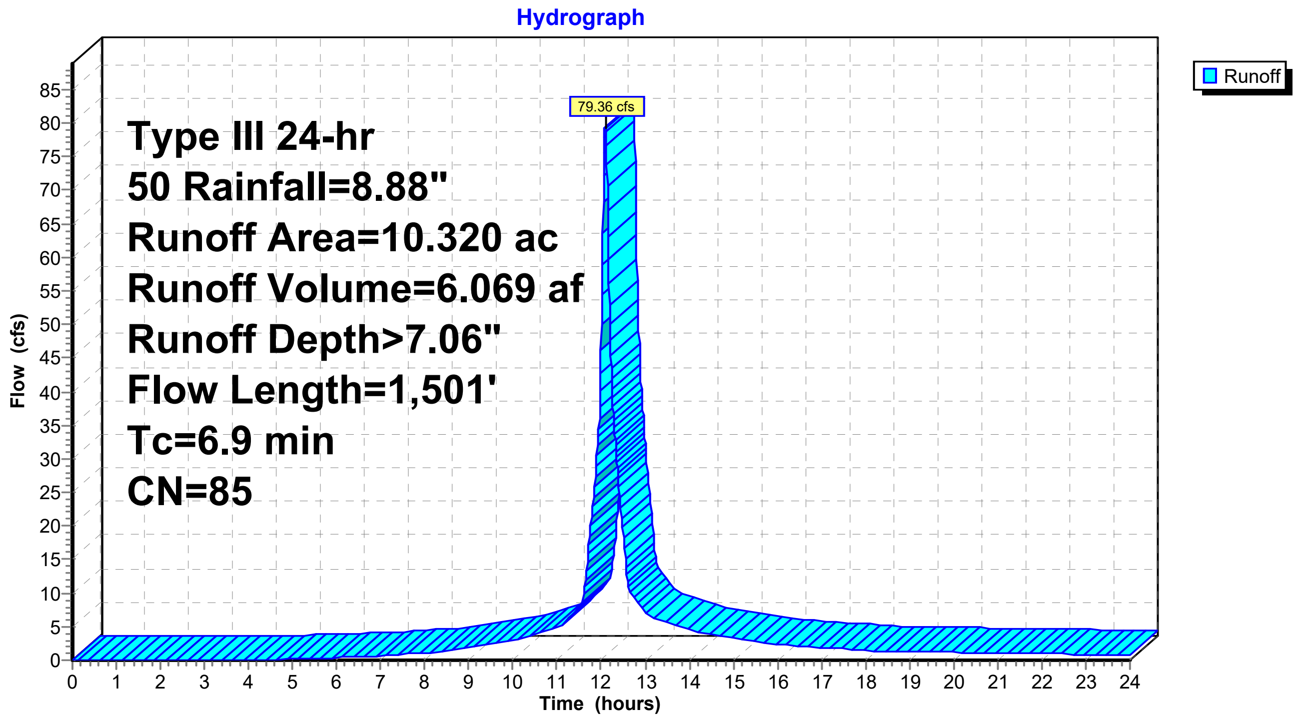
Runoff = 79.36 cfs @ 12.10 hrs, Volume= 6.069 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	10.320	85	
	10.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2A: POST-DEVELOPED BASIN #2A



Summary for Subcatchment POST #3: POST-DEVELOPED BASIN #3

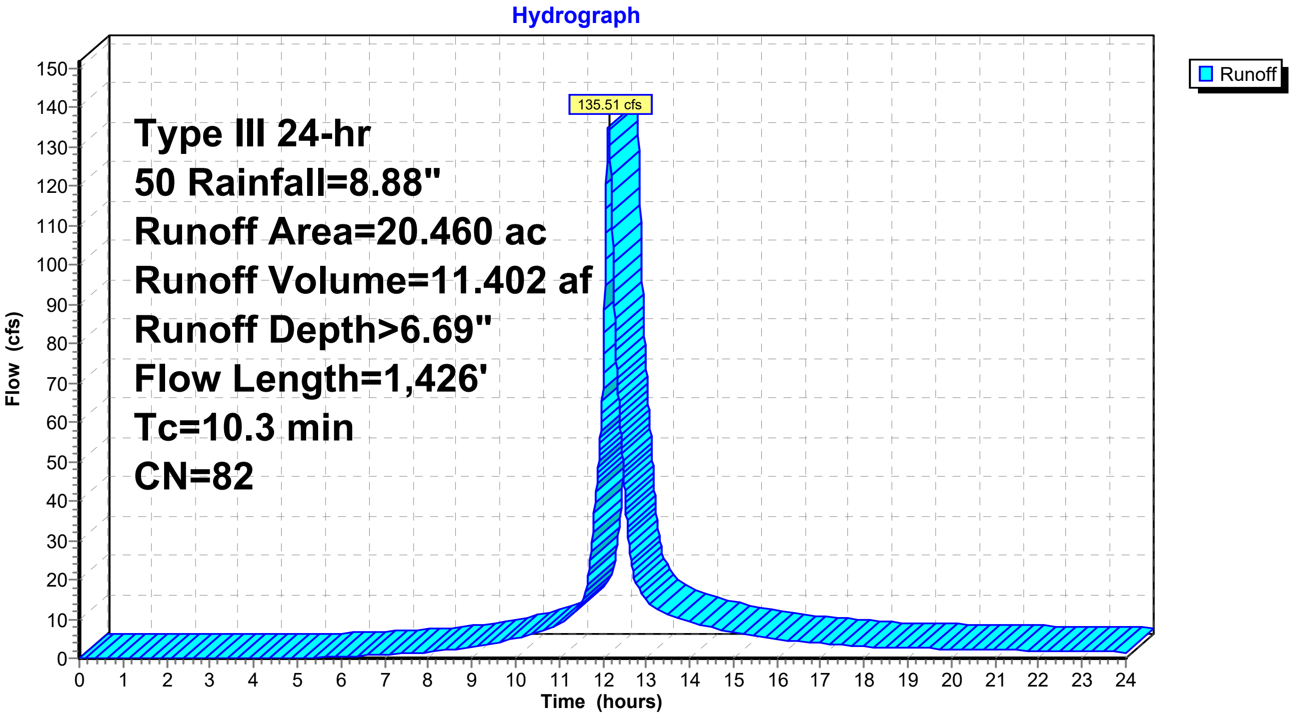
Runoff = 135.51 cfs @ 12.14 hrs, Volume= 11.402 af, Depth> 6.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
	13.530	74	>75% Grass cover, Good, HSG C
*	2.480	98	Houses
*	3.570	98	Roads and Walkways
*	0.880	98	NWL Pond
	20.460	82	Weighted Average
	13.530		66.13% Pervious Area
	6.930		33.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0200	0.18		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
0.4	105	0.0100	4.86	24.28	**Channel Flow, REAR YARD SWALE** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
3.9	1,256	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
10.3	1,426	Total			

Subcatchment POST #3: POST-DEVELOPED BASIN #3



Summary for Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A

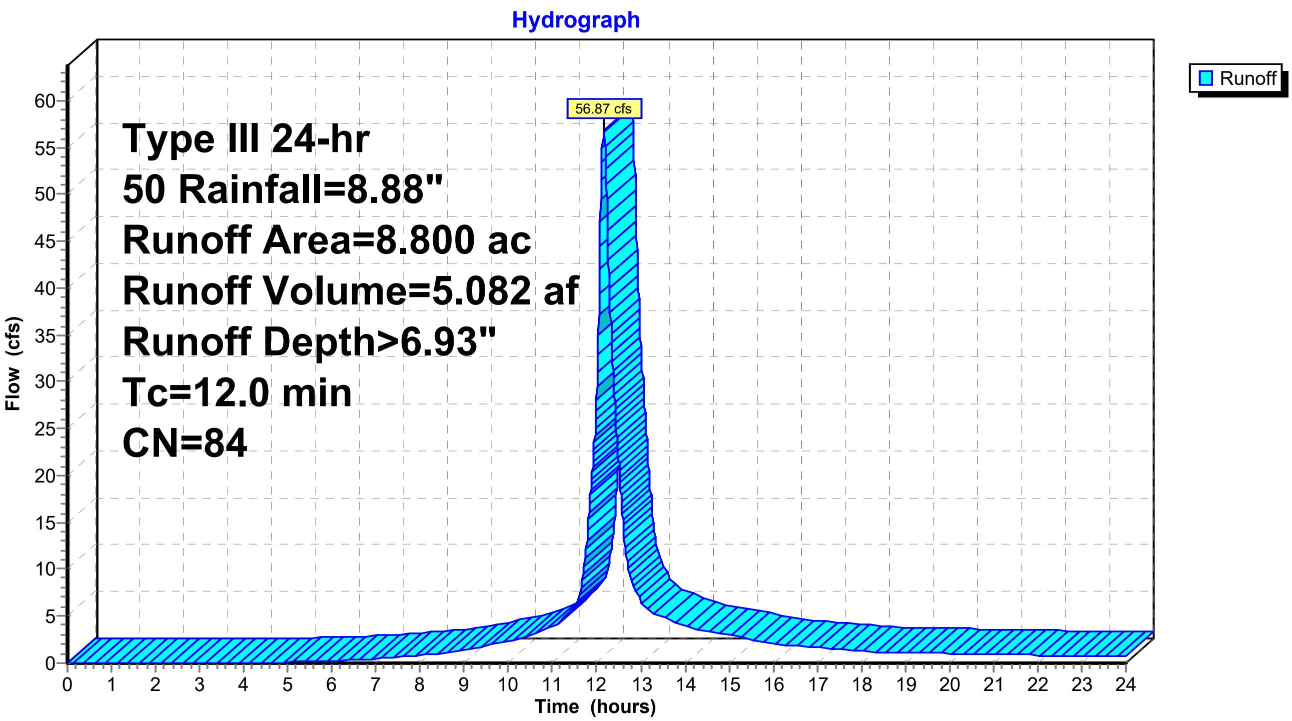
Runoff = 56.87 cfs @ 12.16 hrs, Volume= 5.082 af, Depth> 6.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	8.800	84	SFR lots, 30% imp, HSG D
	6.160		70.00% Pervious Area
	2.640		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A



Summary for Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B

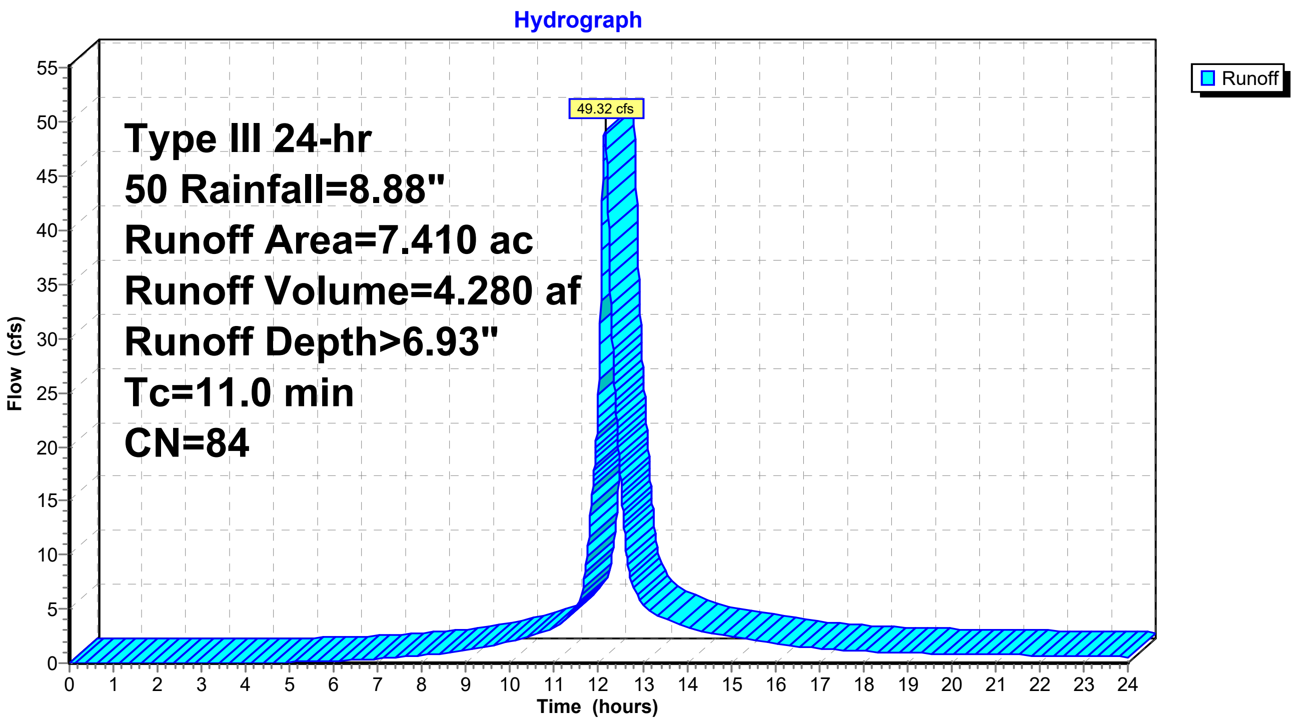
Runoff = 49.32 cfs @ 12.15 hrs, Volume= 4.280 af, Depth> 6.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	7.410	84	SFR lots, 30% imp, HSG D
	5.187		70.00% Pervious Area
	2.223		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0					**Direct Entry,**

Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B



Summary for Subcatchment POST #4: POST-DEVELOPED BASIN #4

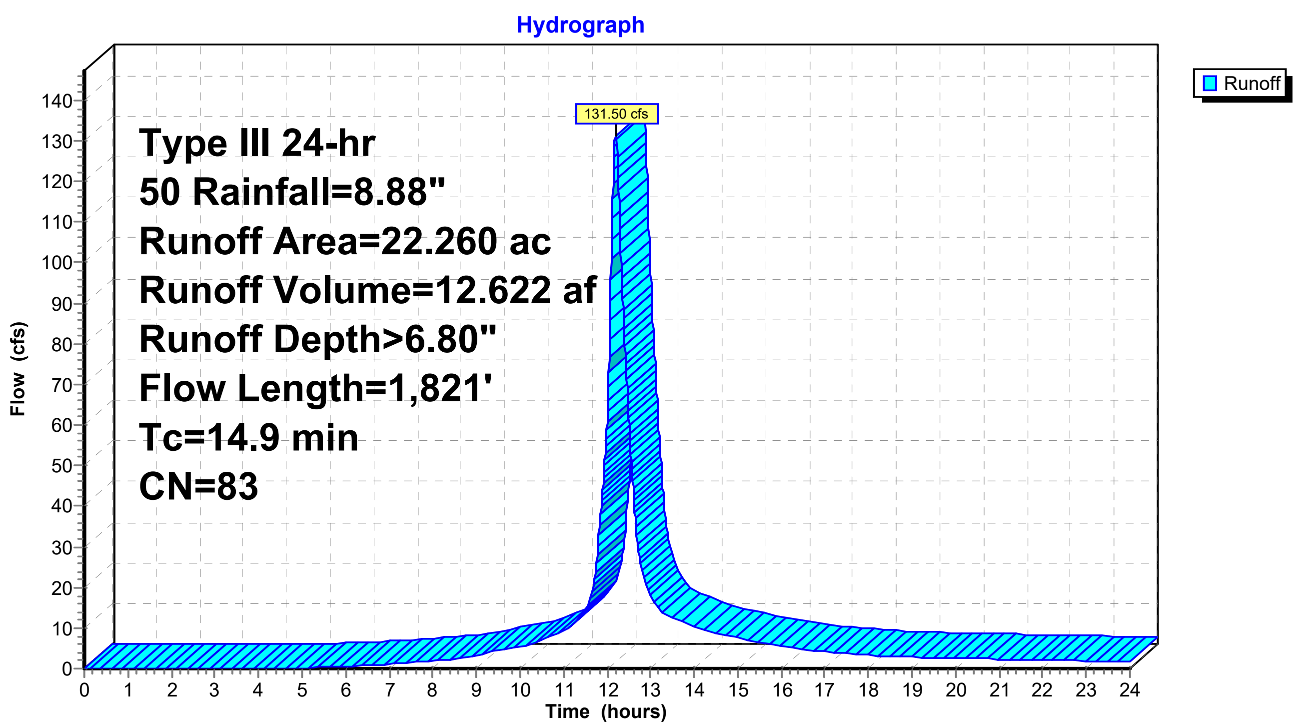
Runoff = 131.50 cfs @ 12.20 hrs, Volume= 12.622 af, Depth> 6.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
	14.150	74	>75% Grass cover, Good, HSG C
*	8.110	98	Houses, Roads and Walkways, NWL POND
	22.260	83	Weighted Average
	14.150		63.57% Pervious Area
	8.110		36.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0100	0.13		**Sheet Flow, POST DEV BASIN #4 - SHEET** Grass: Short n= 0.150 P2= 4.34"
3.5	300	0.0050	1.44		**Shallow Concentrated Flow, Gutter Basin 4** Paved Kv= 20.3 fps
4.5	1,466	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
14.9	1,821	Total			

Subcatchment POST #4: POST-DEVELOPED BASIN #4



Summary for Subcatchment POST #5: POST-DEVELOPED BASIN #5

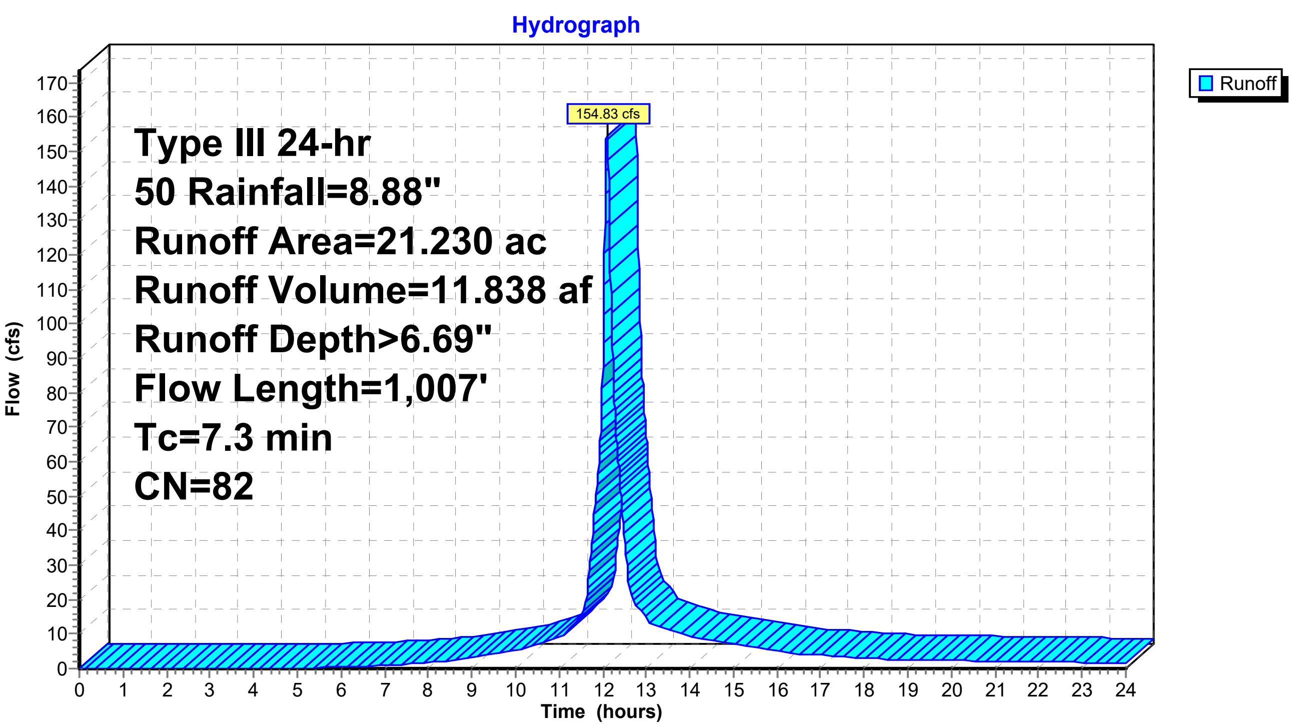
Runoff = 154.83 cfs @ 12.10 hrs, Volume= 11.838 af, Depth> 6.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
	14.320	74	>75% Grass cover, Good, HSG C
*	2.850	98	Houses
*	3.410	98	Roads and Walkways
*	0.650	98	NWL Pond
	21.230	82	Weighted Average
	14.320		67.45% Pervious Area
	6.910		32.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	55	0.0300	0.21		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
2.9	952	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
7.3	1,007	Total			

Subcatchment POST #5: POST-DEVELOPED BASIN #5



Summary for Subcatchment POST #6: POST-DEVELOPED BASIN #6

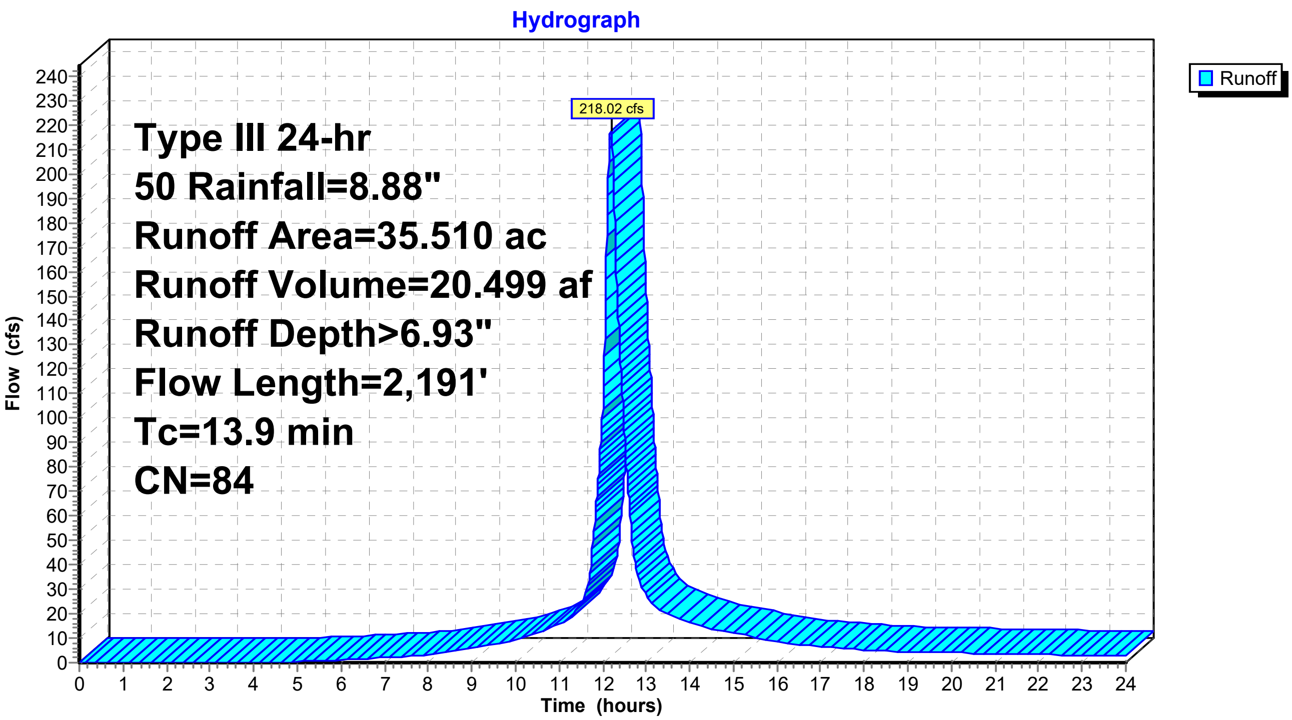
Runoff = 218.02 cfs @ 12.19 hrs, Volume= 20.499 af, Depth> 6.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
	21.070	74	>75% Grass cover, Good, HSG C
*	5.180	98	Houses
*	5.540	98	Roads and Walkways
*	3.720	98	NWL Pond
	35.510	84	Weighted Average
	21.070		59.34% Pervious Area
	14.440		40.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0200	0.19		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
6.5	2,106	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
13.9	2,191	Total			

Subcatchment POST #6: POST-DEVELOPED BASIN #6



Summary for Pond POST-1P: POND 1

Inflow Area = 17.790 ac, 35.69% Impervious, Inflow Depth > 6.81" for 50 event
Inflow = 134.78 cfs @ 12.09 hrs, Volume= 10.102 af
Outflow = 22.40 cfs @ 12.11 hrs, Volume= 8.747 af, Atten= 83%, Lag= 1.3 min
Primary = 22.40 cfs @ 12.11 hrs, Volume= 8.747 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 37,128 sf Storage= 113,417 cf
Peak Elev= 14.20' @ 12.99 hrs Surf.Area= 81,999 sf Storage= 365,553 cf (252,136 cf above start)

Plug-Flow detention time= 363.7 min calculated for 6.141 af (61% of inflow)
Center-of-Mass det. time= 178.6 min (970.4 - 791.9)

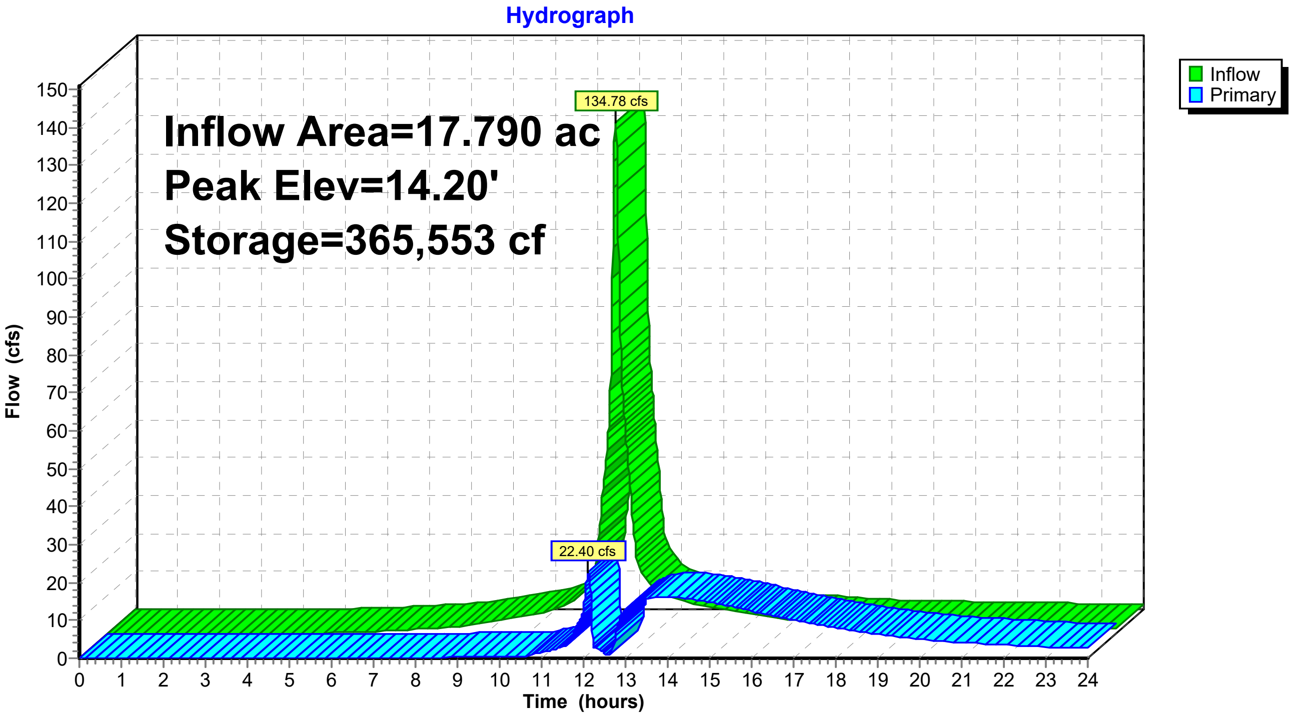
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	910,381 cf	**POND 1 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	26,411	0	0
9.97	37,128	113,417	113,417
15.00	90,446	320,849	434,266
20.00	100,000	476,115	910,381

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.11' S= 0.0143 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	9.97'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 7.89' S= 0.0145 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	10.14'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.02' S= 0.0148 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=13.07 cfs @ 12.11 hrs HW=12.85' TW=12.81' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 4.47 cfs @ 1.05 fps)
├─**2=RCP_Round 30"** (Outlet Controls 4.73 cfs @ 1.05 fps)
└─**3=RCP_Round 30"** (Outlet Controls 3.87 cfs @ 0.91 fps)

Pond POST-1P: POND 1



Summary for Pond POST-2P: POND 2

[80] Warning: Exceeded Pond POST-1P by 0.03' @ 12.22 hrs (14.35 cfs 0.464 af)

Inflow Area = 34.050 ac, 32.98% Impervious, Inflow Depth > 6.39" for 50 event
Inflow = 145.53 cfs @ 12.10 hrs, Volume= 18.145 af
Outflow = 32.21 cfs @ 13.88 hrs, Volume= 16.596 af, Atten= 78%, Lag= 106.9 min
Primary = 32.21 cfs @ 13.88 hrs, Volume= 16.596 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 44,416 sf Storage= 133,705 cf
Peak Elev= 14.18' @ 12.93 hrs Surf.Area= 86,595 sf Storage= 409,421 cf (275,716 cf above start)

Plug-Flow detention time= 258.4 min calculated for 13.526 af (75% of inflow)
Center-of-Mass det. time= 111.0 min (987.8 - 876.8)

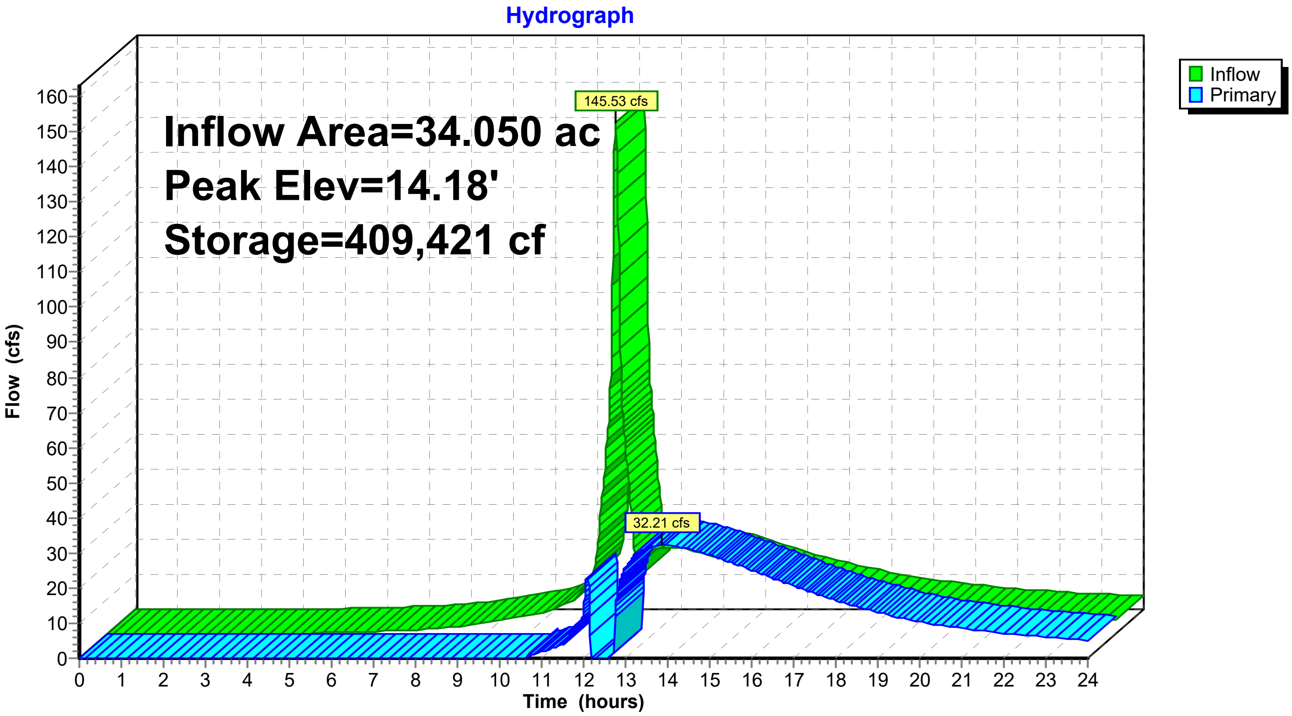
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	970,944 cf	**POND 2 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	30,489	0	0
9.97	44,416	133,705	133,705
15.00	94,822	350,184	483,889
20.00	100,000	487,055	970,944

Device	Routing	Invert	Outlet Devices
#1	Primary	8.20'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.18' / 8.20' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	8.18'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.15' / 8.18' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	8.12'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.12' / 8.10' S= 0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#4	Primary	8.07'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.07' / 8.06' S= 0.0001 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf

Primary OutFlow Max=32.94 cfs @ 13.88 hrs HW=13.94' TW=13.86' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 8.24 cfs @ 1.68 fps)
├─**2=RCP_Round 30"** (Outlet Controls 8.24 cfs @ 1.68 fps)
├─**3=RCP_Round 30"** (Outlet Controls 8.24 cfs @ 1.68 fps)
└─**4=RCP_Round 30"** (Outlet Controls 8.24 cfs @ 1.68 fps)

Pond POST-2P: POND 2



Summary for Pond POST-2PA: POND 2A

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 7.06" for 50 event
Inflow = 121.40 cfs @ 12.09 hrs, Volume= 9.176 af
Outflow = 88.37 cfs @ 12.16 hrs, Volume= 9.037 af, Atten= 27%, Lag= 4.6 min
Primary = 88.37 cfs @ 12.16 hrs, Volume= 9.037 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.83' @ 12.16 hrs Surf.Area= 36,768 sf Storage= 175,122 cf (66,400 cf above start)

Plug-Flow detention time= 169.8 min calculated for 6.541 af (71% of inflow)
Center-of-Mass det. time= 24.0 min (810.6 - 786.6)

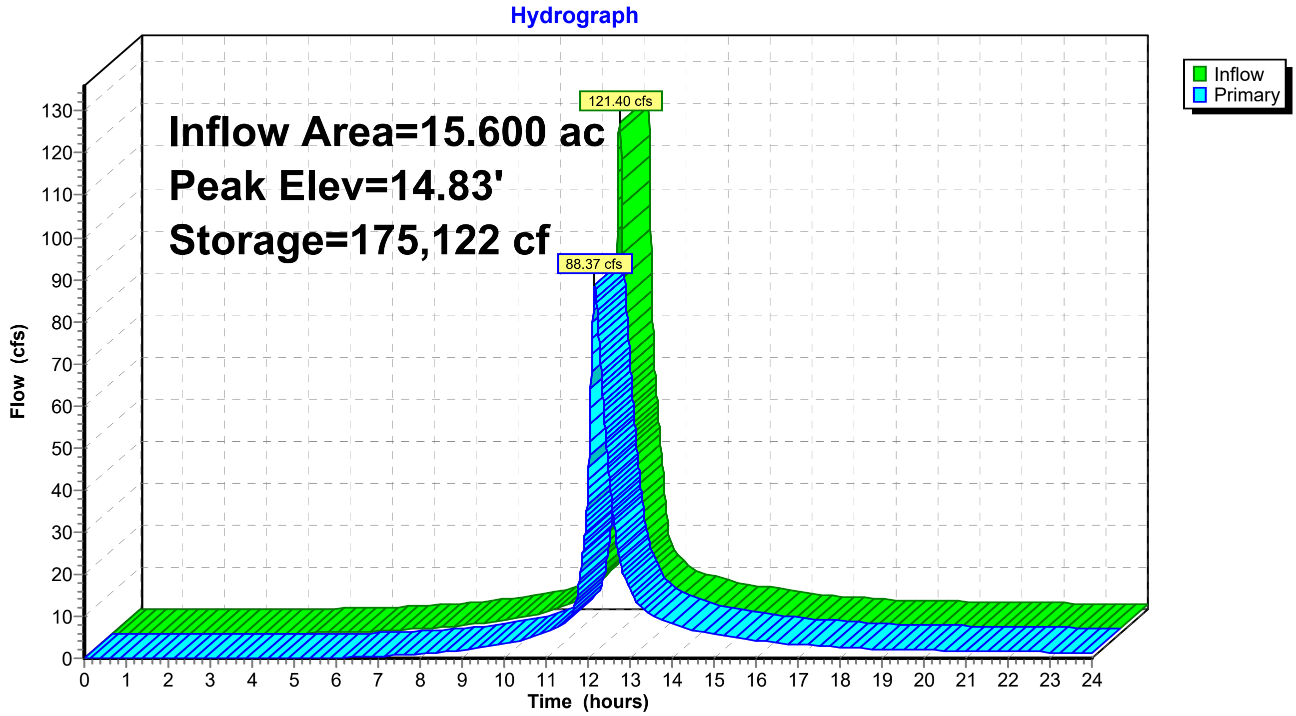
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=88.31 cfs @ 12.16 hrs HW=14.83' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 88.31 cfs @ 3.99 fps)

Pond POST-2PA: POND 2A



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.19' @ 12.39 hrs (50.41 cfs 6.802 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 6.21" for 50 event
Inflow = 183.23 cfs @ 12.12 hrs, Volume= 38.096 af
Outflow = 66.76 cfs @ 13.41 hrs, Volume= 36.170 af, Atten= 64%, Lag= 77.6 min
Primary = 66.76 cfs @ 13.41 hrs, Volume= 36.170 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 14.17' @ 12.62 hrs Surf.Area= 89,433 sf Storage= 495,035 cf (311,590 cf above start)

Plug-Flow detention time= 159.2 min calculated for 31.958 af (84% of inflow)
Center-of-Mass det. time= 59.9 min (969.4 - 909.5)

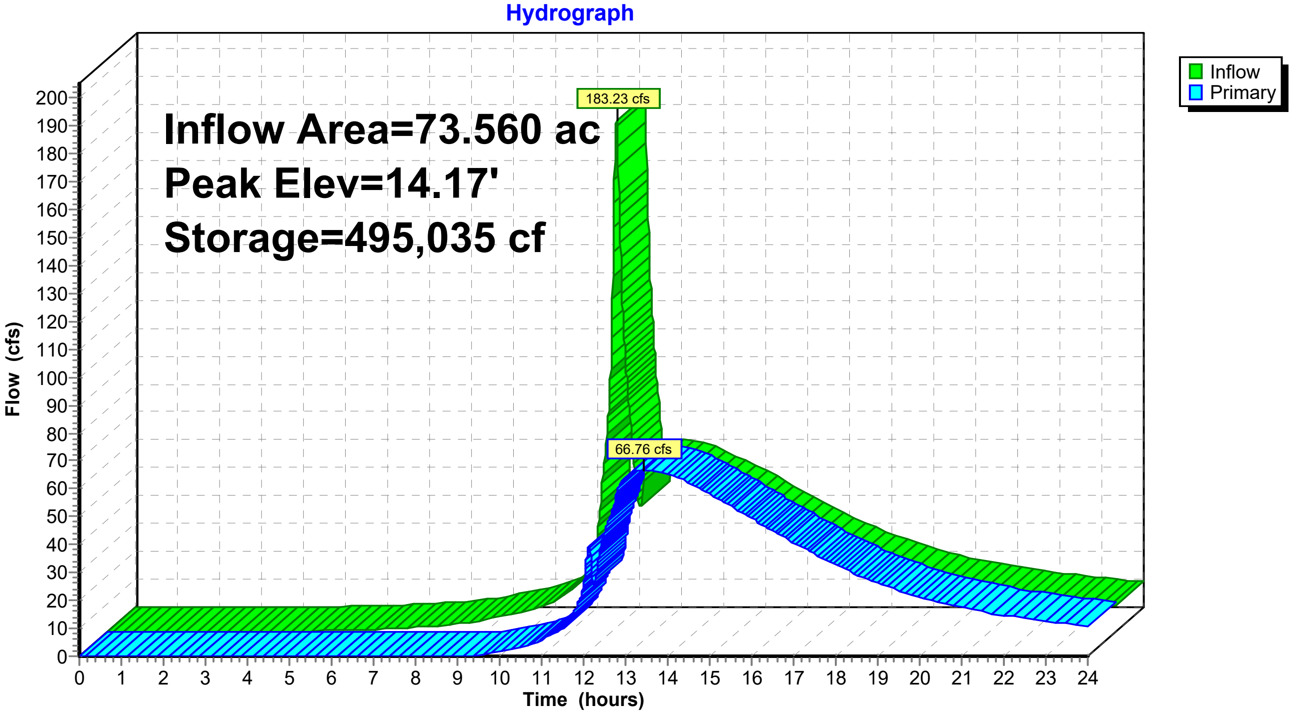
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=67.06 cfs @ 13.41 hrs HW=14.02' TW=13.69' (Dynamic Tailwater)
├—**1=RCP_Round 36"** (Outlet Controls 23.63 cfs @ 3.38 fps)
├—**2=RCP_Round 36"** (Outlet Controls 23.11 cfs @ 3.27 fps)
└—**3=RCP_Round 36"** (Outlet Controls 20.33 cfs @ 2.90 fps)

Pond POST-3P: POND 3



Summary for Pond POST-3PA: POND 3A

[44] Hint: Outlet device #1 is below defined storage
[80] Warning: Exceeded Pond POST-3PB by 0.07' @ 12.15 hrs (9.24 cfs 0.272 af)

Inflow Area = 16.210 ac, 30.00% Impervious, Inflow Depth > 6.61" for 50 event
Inflow = 58.58 cfs @ 12.15 hrs, Volume= 8.926 af
Outflow = 19.74 cfs @ 12.74 hrs, Volume= 8.514 af, Atten= 66%, Lag= 35.2 min
Primary = 19.74 cfs @ 12.74 hrs, Volume= 8.514 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.41' @ 12.66 hrs Surf.Area= 27,784 sf Storage= 92,057 cf

Plug-Flow detention time= 93.7 min calculated for 8.511 af (95% of inflow)
Center-of-Mass det. time= 69.3 min (929.0 - 859.7)

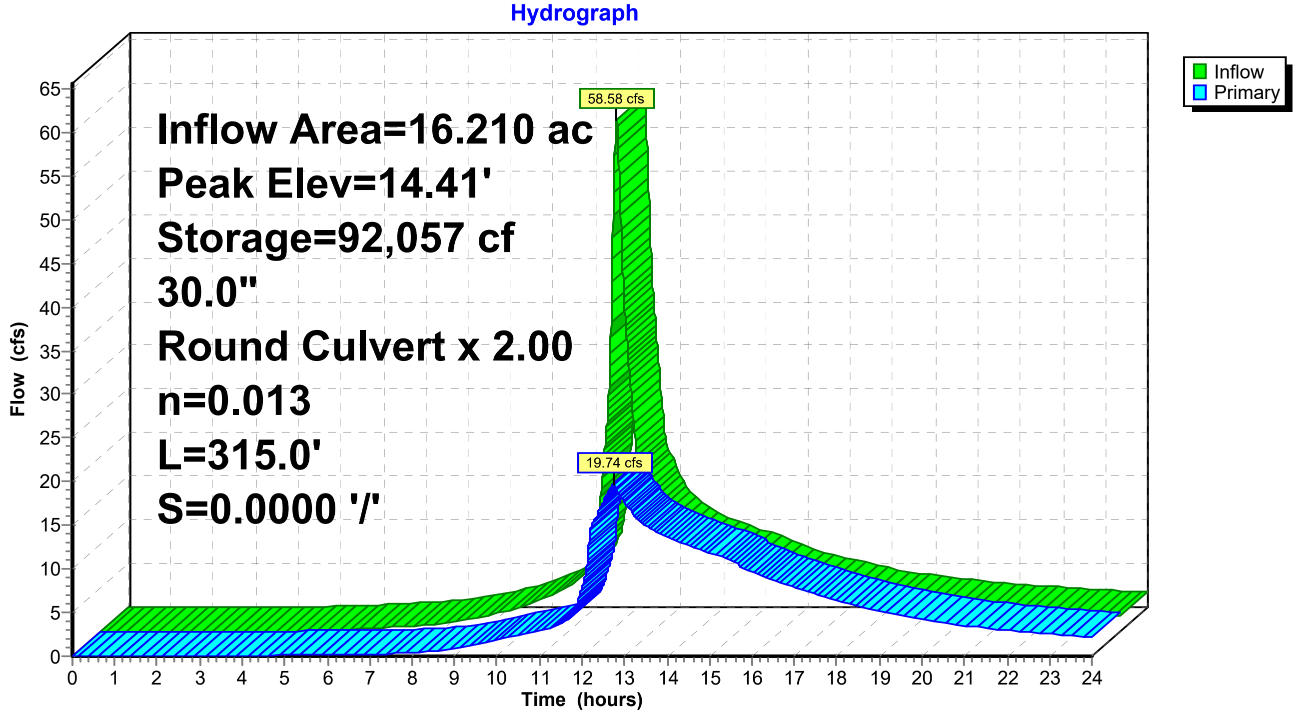
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	247,412 cf	**POND 3A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,127	0	0
14.40	27,784	91,822	91,822
20.00	27,784	155,590	247,412

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 315.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=19.79 cfs @ 12.74 hrs HW=14.40' TW=14.14' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 19.79 cfs @ 2.02 fps)

Pond POST-3PA: POND 3A



Summary for Pond POST-3PB: POND 3B

[44] Hint: Outlet device #1 is below defined storage
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area =	7.410 ac,	30.00% Impervious,	Inflow Depth > 6.93"	for 50 event
Inflow =	49.32 cfs @	12.15 hrs, Volume=	4.280 af	
Outflow =	8.77 cfs @	12.83 hrs, Volume=	3.844 af,	Atten= 82%, Lag= 40.7 min
Primary =	8.77 cfs @	12.83 hrs, Volume=	3.844 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.46' @ 12.71 hrs Surf.Area= 28,662 sf Storage= 96,916 cf

Plug-Flow detention time= 202.3 min calculated for 3.843 af (90% of inflow)
Center-of-Mass det. time= 153.7 min (946.8 - 793.0)

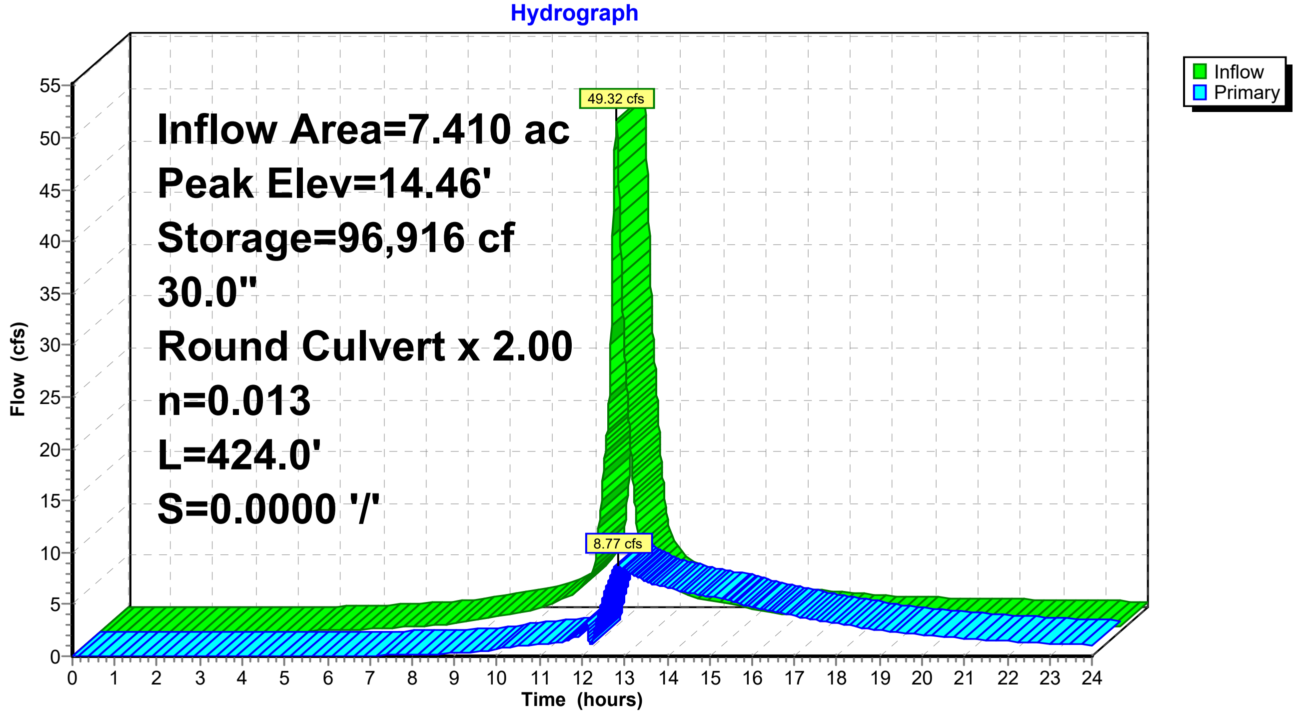
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	255,727 cf	**POND 3B (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,948	0	0
14.40	28,662	95,220	95,220
20.00	28,662	160,507	255,727

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 424.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=8.95 cfs @ 12.83 hrs HW=14.44' TW=14.38' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 8.95 cfs @ 0.91 fps)

Pond POST-3PB: POND 3B



Summary for Pond POST-4P: POND 4

[80] Warning: Exceeded Pond POST-3P by 0.11' @ 8.18 hrs (0.37 cfs 0.084 af)

Inflow Area = 95.820 ac, 32.49% Impervious, Inflow Depth > 6.11" for 50 event
Inflow = 164.41 cfs @ 12.17 hrs, Volume= 48.792 af
Outflow = 106.43 cfs @ 12.31 hrs, Volume= 48.062 af, Atten= 35%, Lag= 8.6 min
Primary = 106.43 cfs @ 12.31 hrs, Volume= 48.062 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 25,099 sf Storage= 71,286 cf
Peak Elev= 14.00' @ 12.56 hrs Surf.Area= 45,057 sf Storage= 212,553 cf (141,267 cf above start)

Plug-Flow detention time= 54.2 min calculated for 46.407 af (95% of inflow)
Center-of-Mass det. time= 19.9 min (945.1 - 925.3)

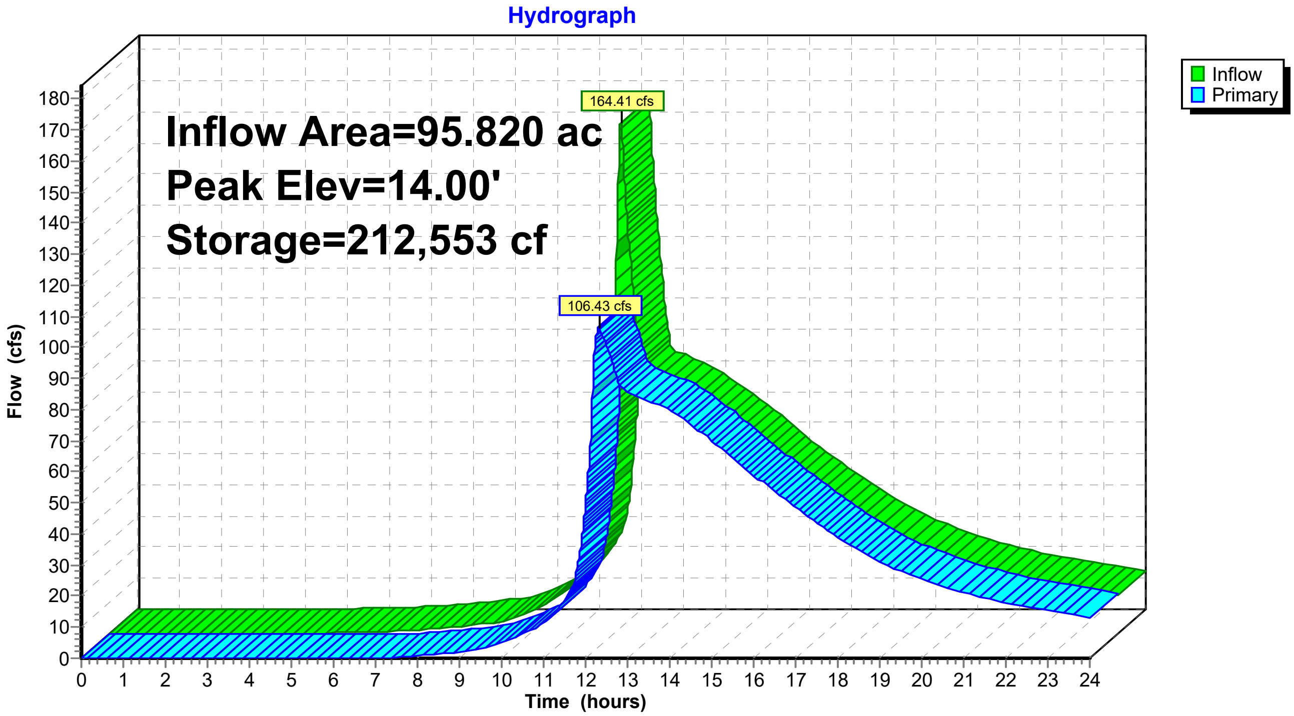
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	635,290 cf	**POND 4 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	14,837	0	0
9.97	25,099	71,286	71,286
15.00	50,026	188,939	260,225
20.00	100,000	375,065	635,290

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0109 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0097 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0098 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=104.70 cfs @ 12.31 hrs HW=13.75' TW=12.90' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 36.29 cfs @ 5.42 fps)
├─**2=RCP_Round 36"** (Outlet Controls 37.12 cfs @ 5.37 fps)
└─**3=RCP_Round 36"** (Outlet Controls 31.29 cfs @ 4.66 fps)

Pond POST-4P: POND 4



Summary for Pond POST-5P: POND 5

Inflow Area = 117.050 ac, 32.50% Impervious, Inflow Depth > 6.14" for 50 event
Inflow = 222.58 cfs @ 12.12 hrs, Volume= 59.900 af
Outflow = 147.50 cfs @ 12.17 hrs, Volume= 58.792 af, Atten= 34%, Lag= 3.4 min
Primary = 147.50 cfs @ 12.17 hrs, Volume= 58.792 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 39,178 sf Storage= 132,791 cf
Peak Elev= 13.29' @ 12.71 hrs Surf.Area= 50,748 sf Storage= 306,513 cf (173,722 cf above start)

Plug-Flow detention time= 69.6 min calculated for 55.720 af (93% of inflow)
Center-of-Mass det. time= 20.4 min (935.9 - 915.4)

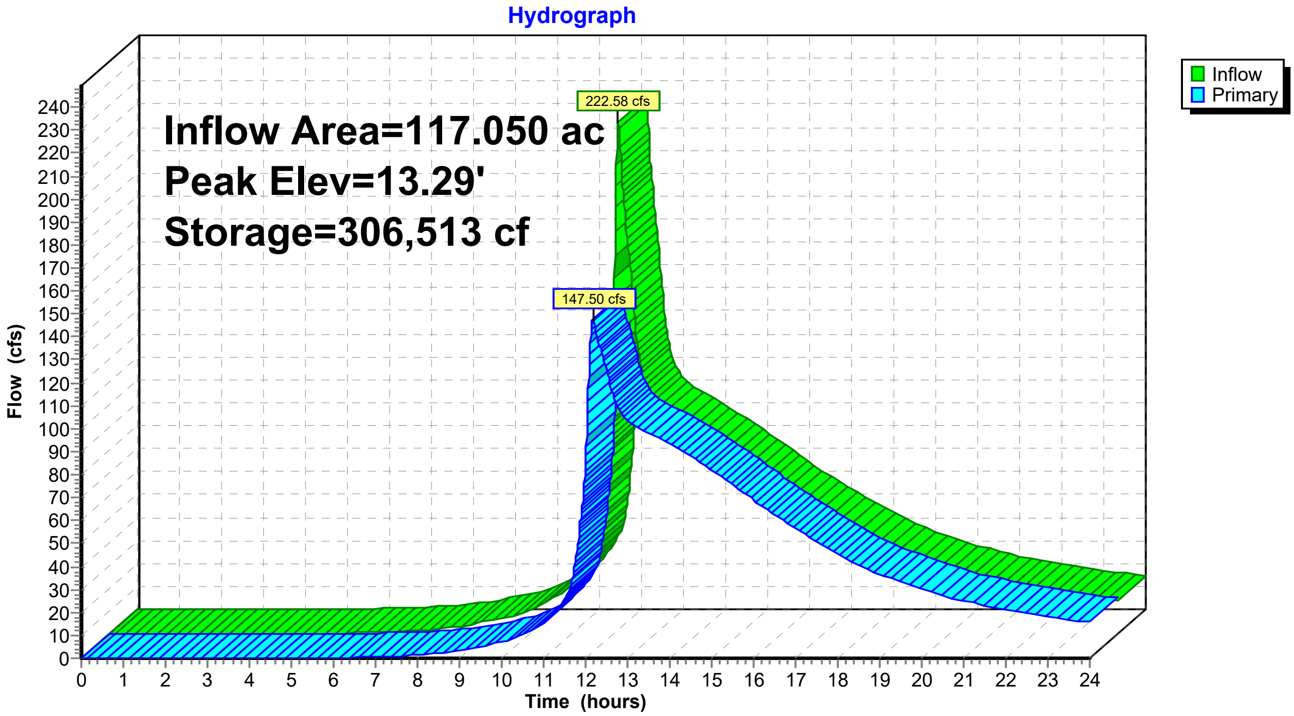
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	785,627 cf	**POND 5 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	28,400	0	0
9.50	39,370	135,540	135,540
15.10	56,162	267,490	403,030
20.00	100,000	382,597	785,627

Device	Routing	Invert	Outlet Devices
#1	Primary	8.59'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.59' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	8.52'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.52' / 8.43' S= 0.0007 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.63' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#4	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.35' / 8.63' S= -0.0022 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=142.93 cfs @ 12.17 hrs HW=12.41' TW=11.68' (Dynamic Tailwater)
—**1=RCP_Round 36"** (Outlet Controls 37.04 cfs @ 5.32 fps)
—**2=RCP_Round 36"** (Outlet Controls 37.13 cfs @ 5.29 fps)
—**3=RCP_Round 36"** (Outlet Controls 37.04 cfs @ 5.32 fps)
—**4=RCP_Round 36"** (Outlet Controls 31.72 cfs @ 4.49 fps)

Pond POST-5P: POND 5



Summary for Pond POST-6P: POND 6

Inflow Area = 152.560 ac, 34.40% Impervious, Inflow Depth > 6.24" for 50 event
Inflow = 365.22 cfs @ 12.18 hrs, Volume= 79.292 af
Outflow = 138.00 cfs @ 12.89 hrs, Volume= 73.975 af, Atten= 62%, Lag= 42.2 min
Primary = 138.00 cfs @ 12.89 hrs, Volume= 73.975 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 196,792 sf Storage= 705,109 cf
Peak Elev= 12.86' @ 12.89 hrs Surf.Area= 227,939 sf Storage= 1,434,176 cf (729,067 cf above start)

Plug-Flow detention time= 230.9 min calculated for 57.788 af (73% of inflow)
Center-of-Mass det. time= 69.0 min (968.5 - 899.6)

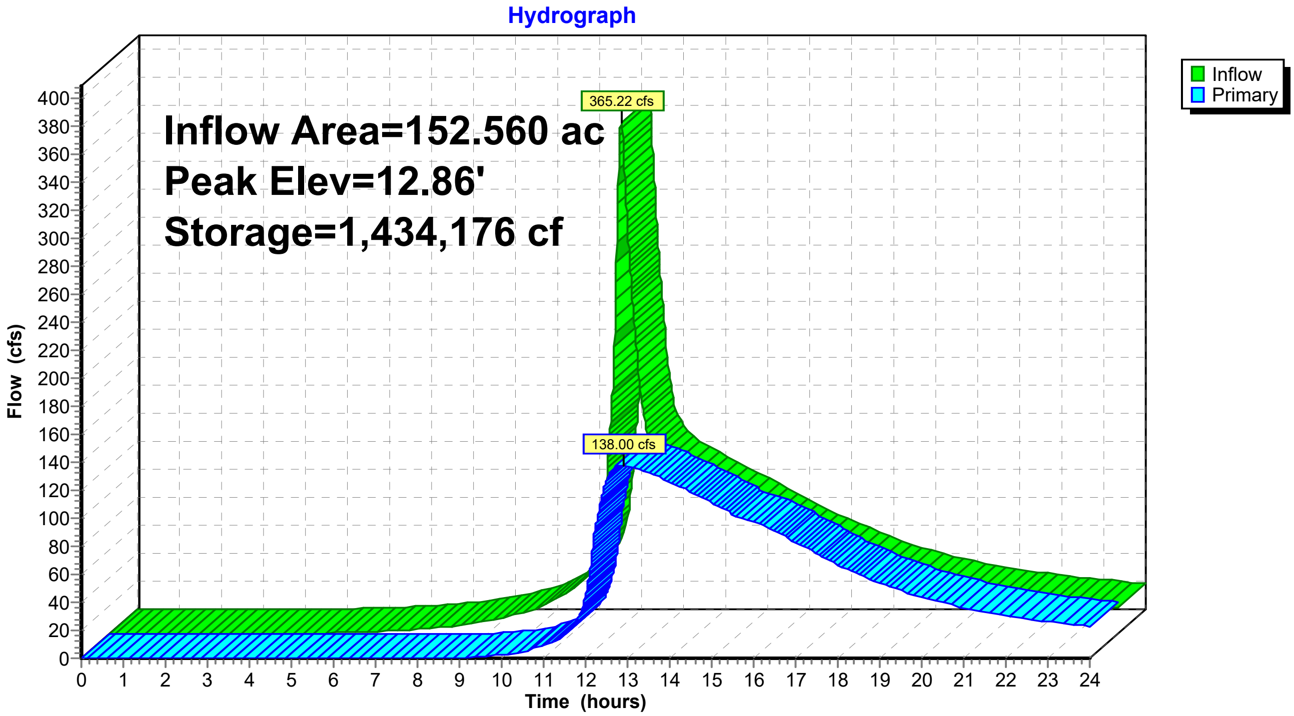
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	3,128,709 cf	**POND 6 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	162,042	0	0
9.50	197,411	718,906	718,906
14.00	238,258	980,255	1,699,161
20.00	238,258	1,429,548	3,128,709

Device	Routing	Invert	Outlet Devices
#1	Primary	9.91'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.91' / 9.89' S= 0.0004 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Primary	9.53'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.53' / 9.41' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#3	Primary	9.43'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.42' / 9.43' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#4	Primary	9.52'	**24.0" Round RCP_Round 24" X 3.00** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.52' / 9.43' S= 0.0019 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

Primary OutFlow Max=138.00 cfs @ 12.89 hrs HW=12.86' (Free Discharge)
1=RCP_Round 24" (Barrel Controls 19.49 cfs @ 6.20 fps)
2=RCP_Round 24" (Barrel Controls 23.82 cfs @ 7.58 fps)
3=RCP_Round 24" (Barrel Controls 23.73 cfs @ 7.56 fps)
4=RCP_Round 24" (Barrel Controls 70.96 cfs @ 7.53 fps)

Pond POST-6P: POND 6



Summary for Subcatchment POST #1: POST-DEVELOPED BASIN #1

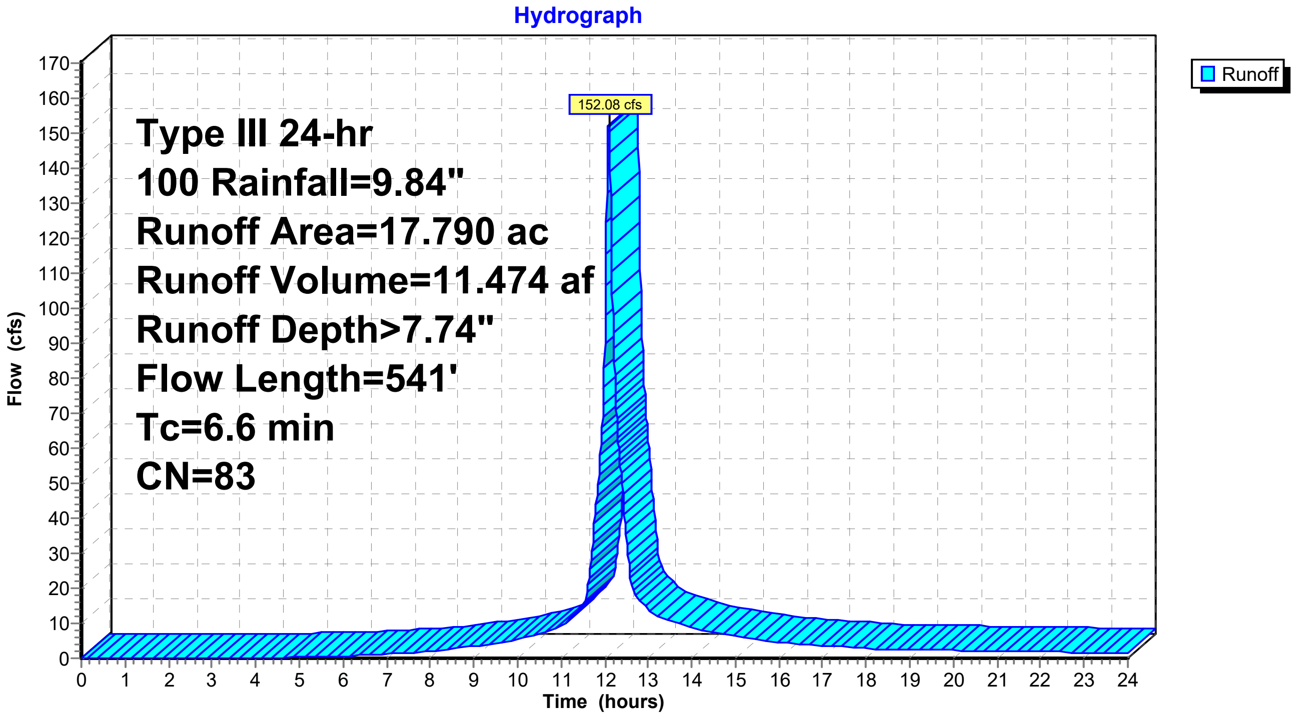
Runoff = 152.08 cfs @ 12.09 hrs, Volume= 11.474 af, Depth> 7.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
	11.440	74	>75% Grass cover, Good, HSG C
*	2.940	98	Houses
*	2.810	98	Roads and Walkways
*	0.600	98	NWL Pond
	17.790	83	Weighted Average
	11.440		64.31% Pervious Area
	6.350		35.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0200	0.17		**Sheet Flow, YARD** Grass: Short n= 0.150 P2= 4.34"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, POST-DEV BASIN 1-SCF** Paved Kv= 20.3 fps
1.9	447	0.0030	3.97	19.47	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.015 Concrete sewer w/manholes & inlets
6.6	541	Total			

Subcatchment POST #1: POST-DEVELOPED BASIN #1



Summary for Subcatchment POST #2: POST-DEVELOPED BASIN #2

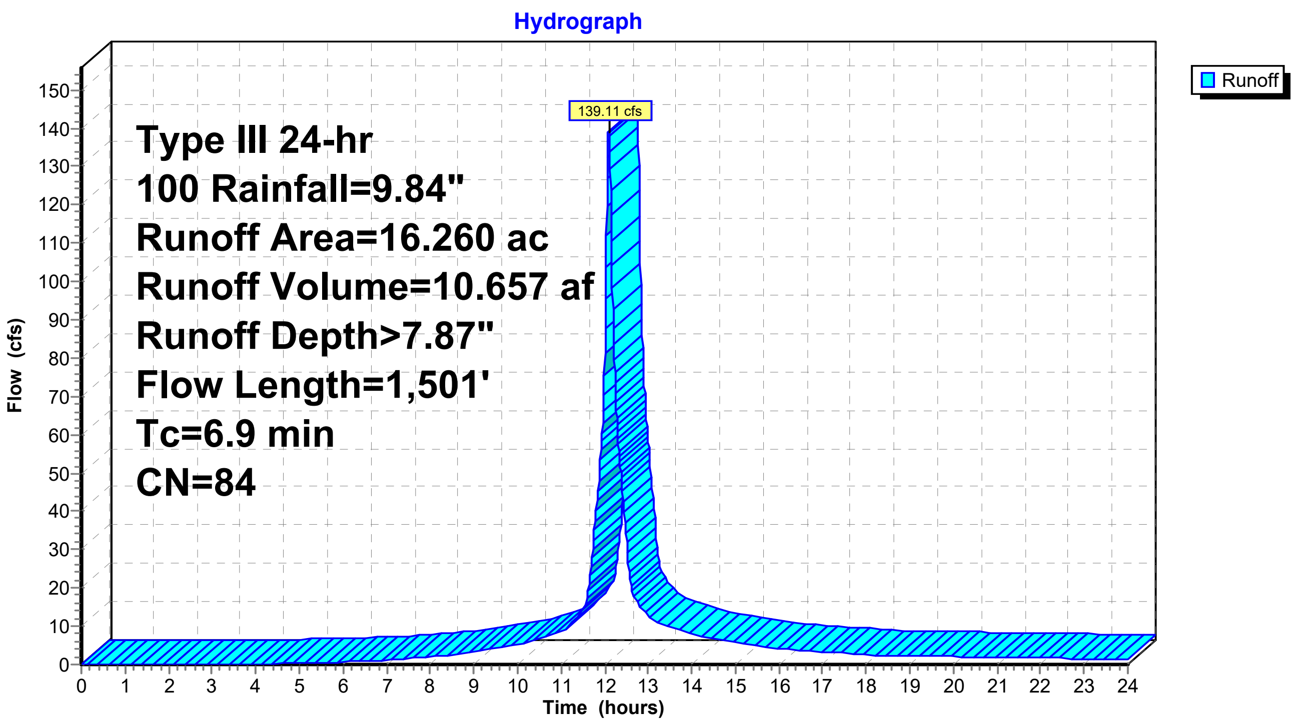
Runoff = 139.11 cfs @ 12.10 hrs, Volume= 10.657 af, Depth> 7.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	16.260	84	SFR lots, 30% imp, HSG D
	11.382		70.00% Pervious Area
	4.878		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2: POST-DEVELOPED BASIN #2



Summary for Subcatchment POST #2A: POST-DEVELOPED BASIN #2A

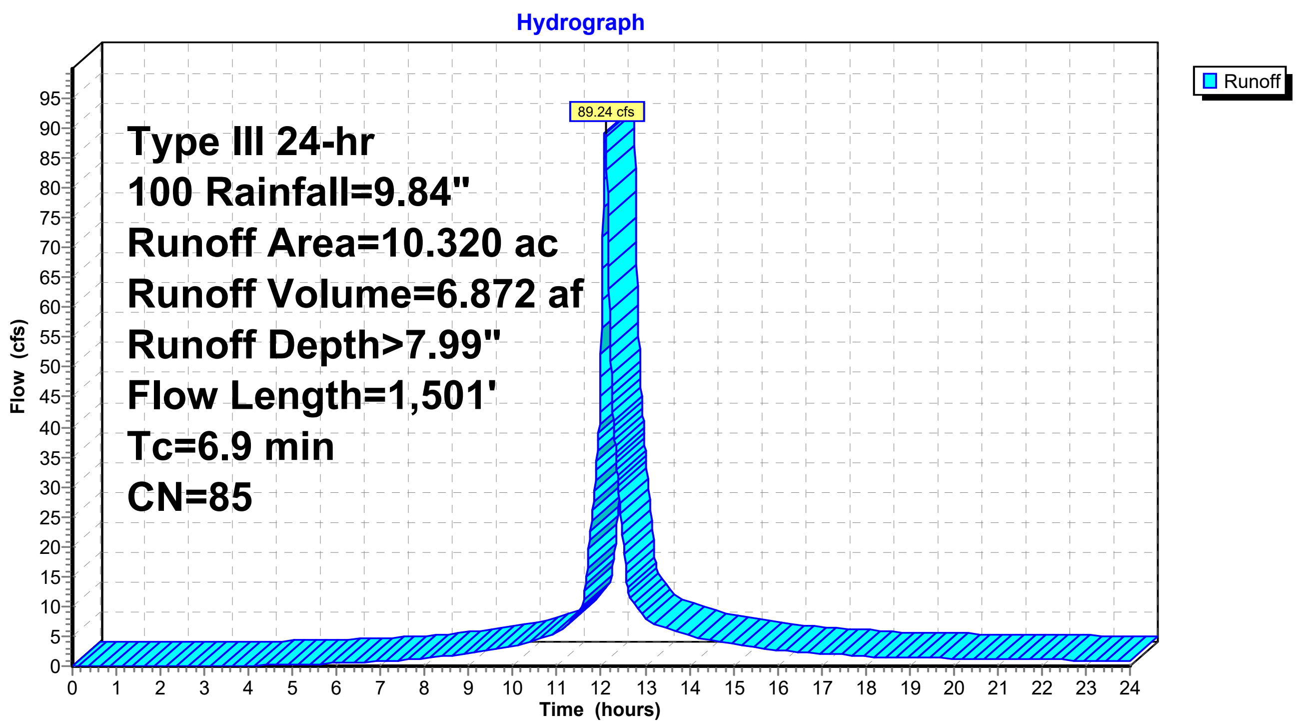
Runoff = 89.24 cfs @ 12.10 hrs, Volume= 6.872 af, Depth> 7.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	10.320	85	
	10.320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	10	0.0150	0.08		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Dense n= 0.240 P2= 4.34"
0.5	113	0.0050	3.43	17.17	**Channel Flow, rear yard swale** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
4.2	1,378	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
6.9	1,501	Total			

Subcatchment POST #2A: POST-DEVELOPED BASIN #2A



Summary for Subcatchment POST #3: POST-DEVELOPED BASIN #3

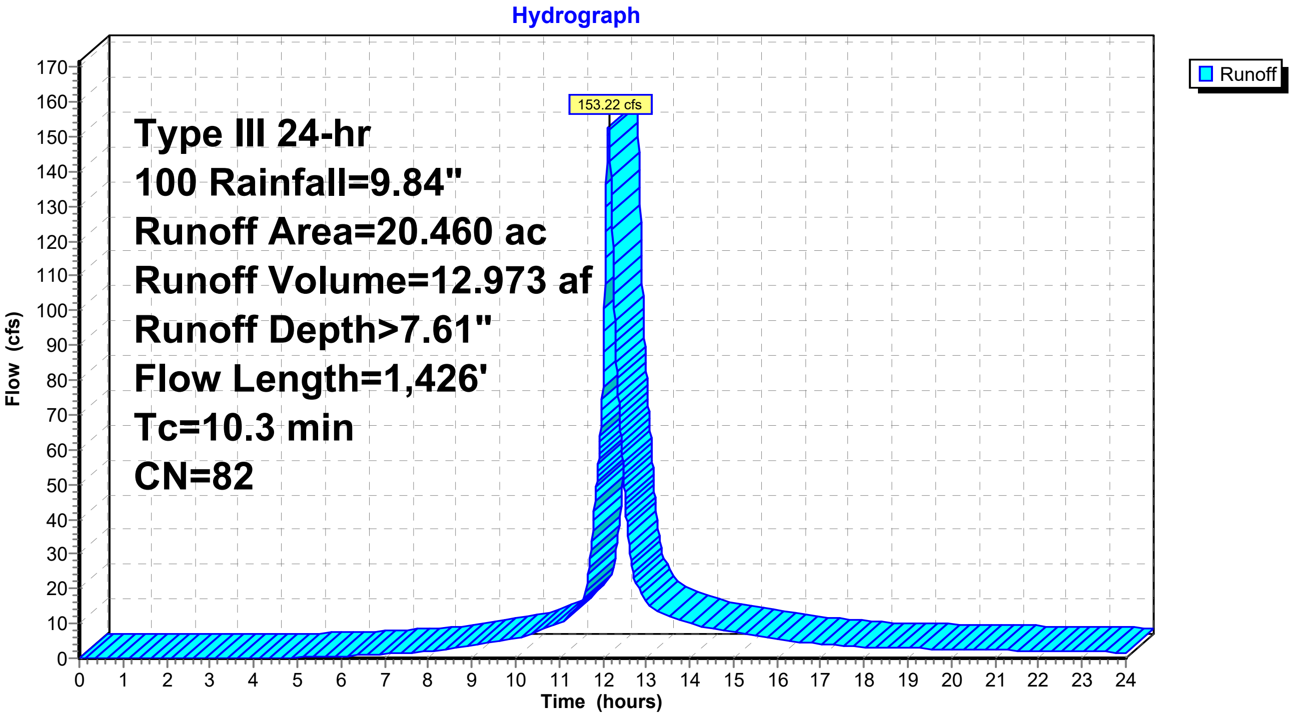
Runoff = 153.22 cfs @ 12.14 hrs, Volume= 12.973 af, Depth> 7.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
	13.530	74	>75% Grass cover, Good, HSG C
*	2.480	98	Houses
*	3.570	98	Roads and Walkways
*	0.880	98	NWL Pond
	20.460	82	Weighted Average
	13.530		66.13% Pervious Area
	6.930		33.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0200	0.18		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
0.4	105	0.0100	4.86	24.28	**Channel Flow, REAR YARD SWALE** Area= 5.0 sf Perim= 8.2' r= 0.61' n= 0.022 Earth, clean & straight
3.9	1,256	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
10.3	1,426	Total			

Subcatchment POST #3: POST-DEVELOPED BASIN #3



Summary for Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A

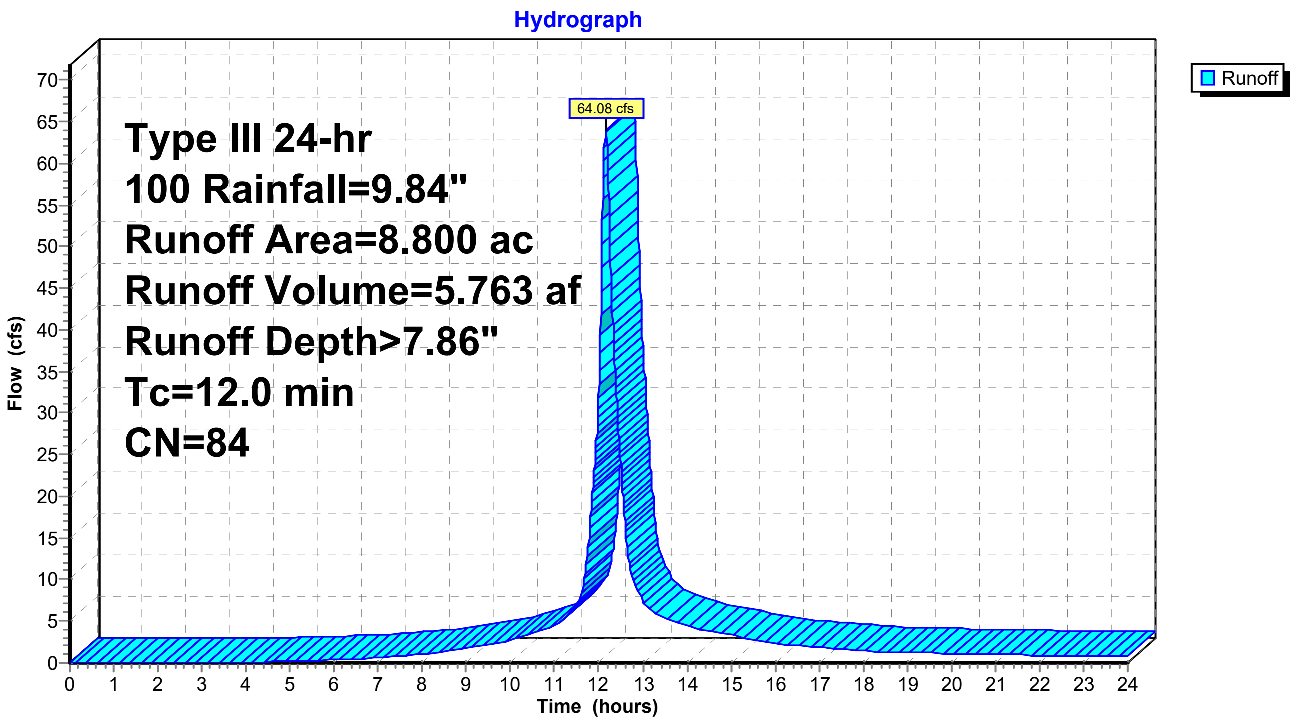
Runoff = 64.08 cfs @ 12.16 hrs, Volume= 5.763 af, Depth> 7.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	8.800	84	SFR lots, 30% imp, HSG D
	6.160		70.00% Pervious Area
	2.640		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment POST #3A: POST-DEVELOPED BASEIN #3A



Summary for Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B

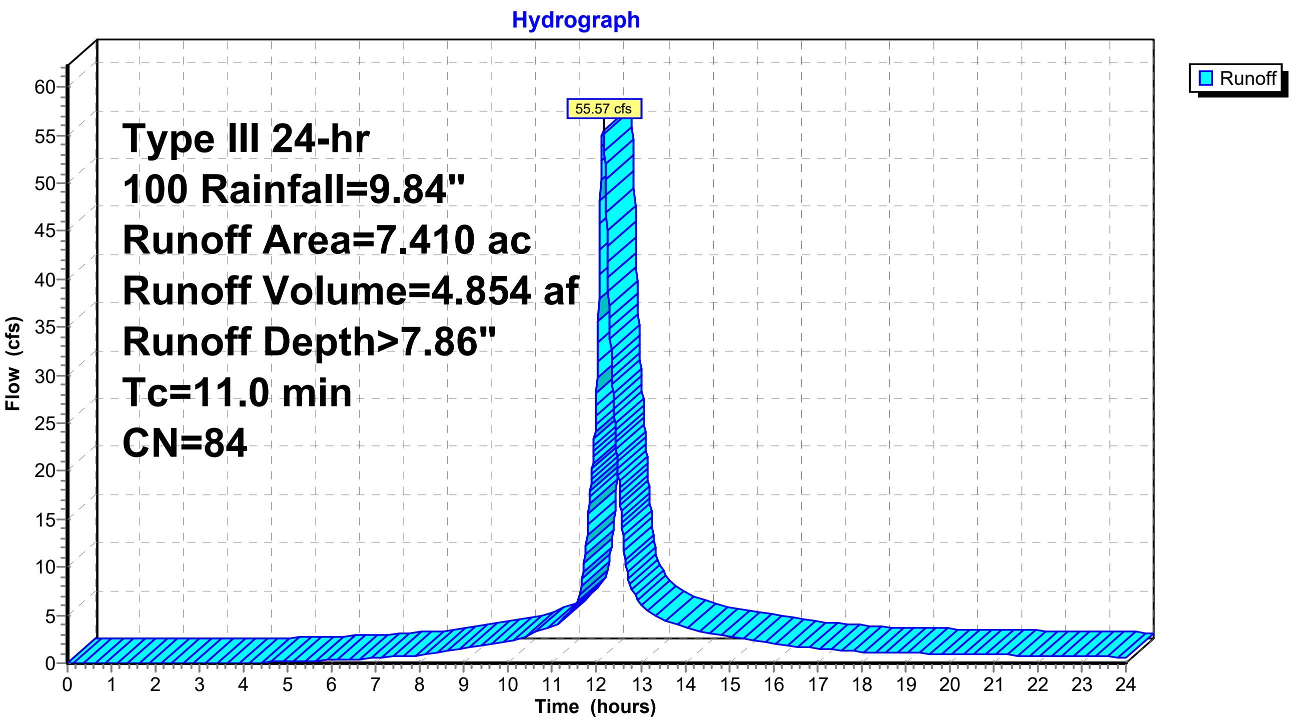
Runoff = 55.57 cfs @ 12.15 hrs, Volume= 4.854 af, Depth> 7.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	7.410	84	SFR lots, 30% imp, HSG D
	5.187		70.00% Pervious Area
	2.223		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0					**Direct Entry,**

Subcatchment POST #3B: POST-DEVELOPED BASEIN #3B



Summary for Subcatchment POST #4: POST-DEVELOPED BASIN #4

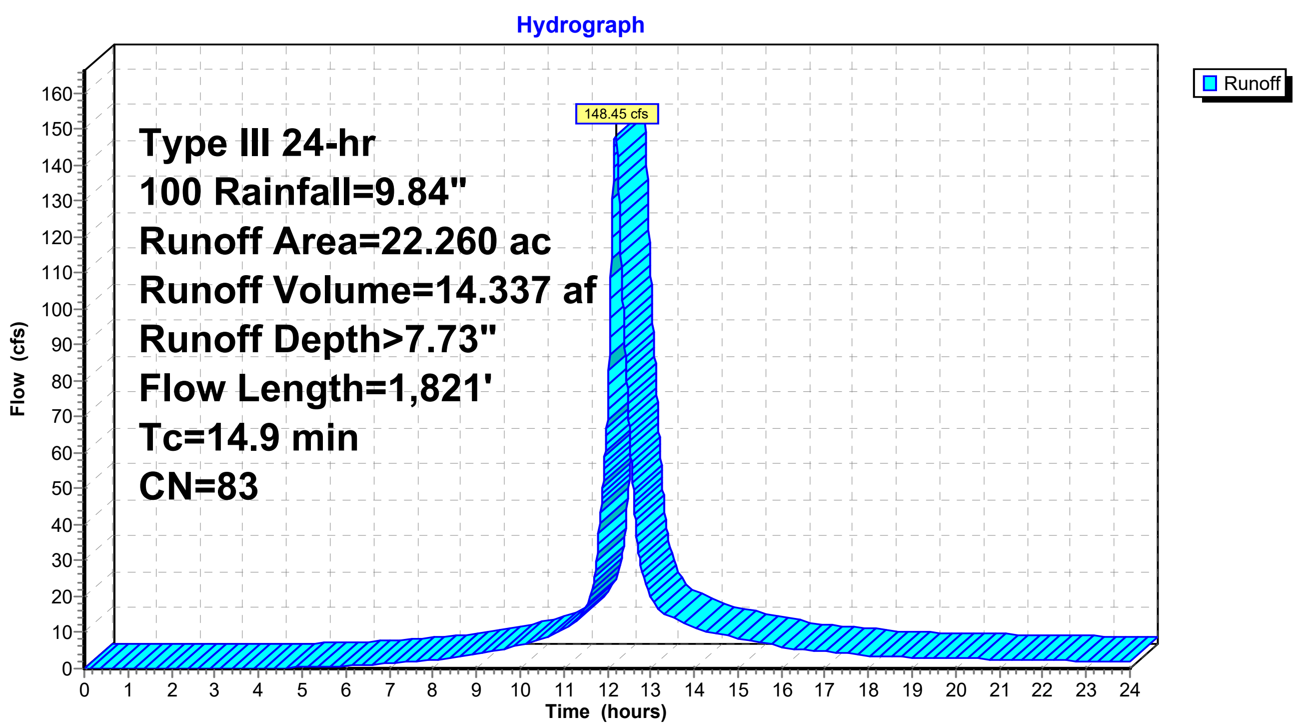
Runoff = 148.45 cfs @ 12.20 hrs, Volume= 14.337 af, Depth> 7.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
	14.150	74	>75% Grass cover, Good, HSG C
*	8.110	98	Houses, Roads and Walkways, NWL POND
	22.260	83	Weighted Average
	14.150		63.57% Pervious Area
	8.110		36.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	55	0.0100	0.13		**Sheet Flow, POST DEV BASIN #4 - SHEET** Grass: Short n= 0.150 P2= 4.34"
3.5	300	0.0050	1.44		**Shallow Concentrated Flow, Gutter Basin 4** Paved Kv= 20.3 fps
4.5	1,466	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
14.9	1,821	Total			

Subcatchment POST #4: POST-DEVELOPED BASIN #4



Summary for Subcatchment POST #5: POST-DEVELOPED BASIN #5

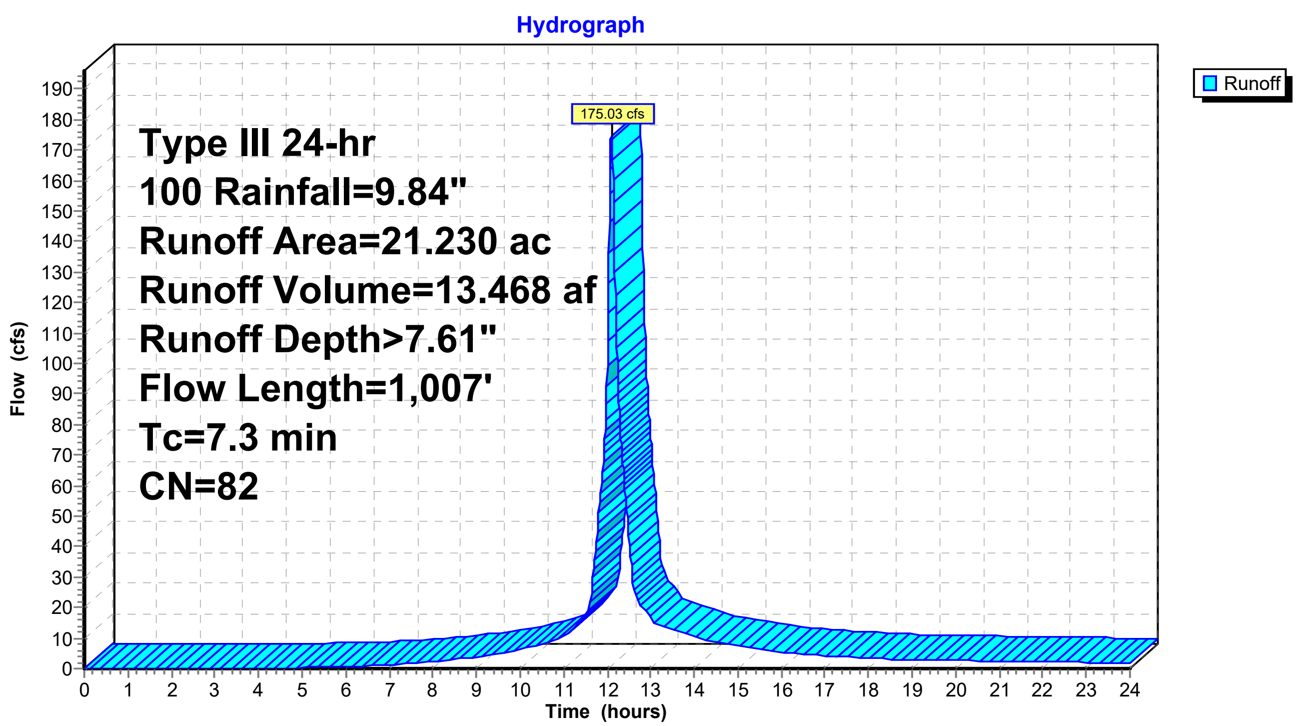
Runoff = 175.03 cfs @ 12.10 hrs, Volume= 13.468 af, Depth> 7.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
	14.320	74	>75% Grass cover, Good, HSG C
*	2.850	98	Houses
*	3.410	98	Roads and Walkways
*	0.650	98	NWL Pond
	21.230	82	Weighted Average
	14.320		67.45% Pervious Area
	6.910		32.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	55	0.0300	0.21		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
2.9	952	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
7.3	1,007	Total			

Subcatchment POST #5: POST-DEVELOPED BASIN #5



Summary for Subcatchment POST #6: POST-DEVELOPED BASIN #6

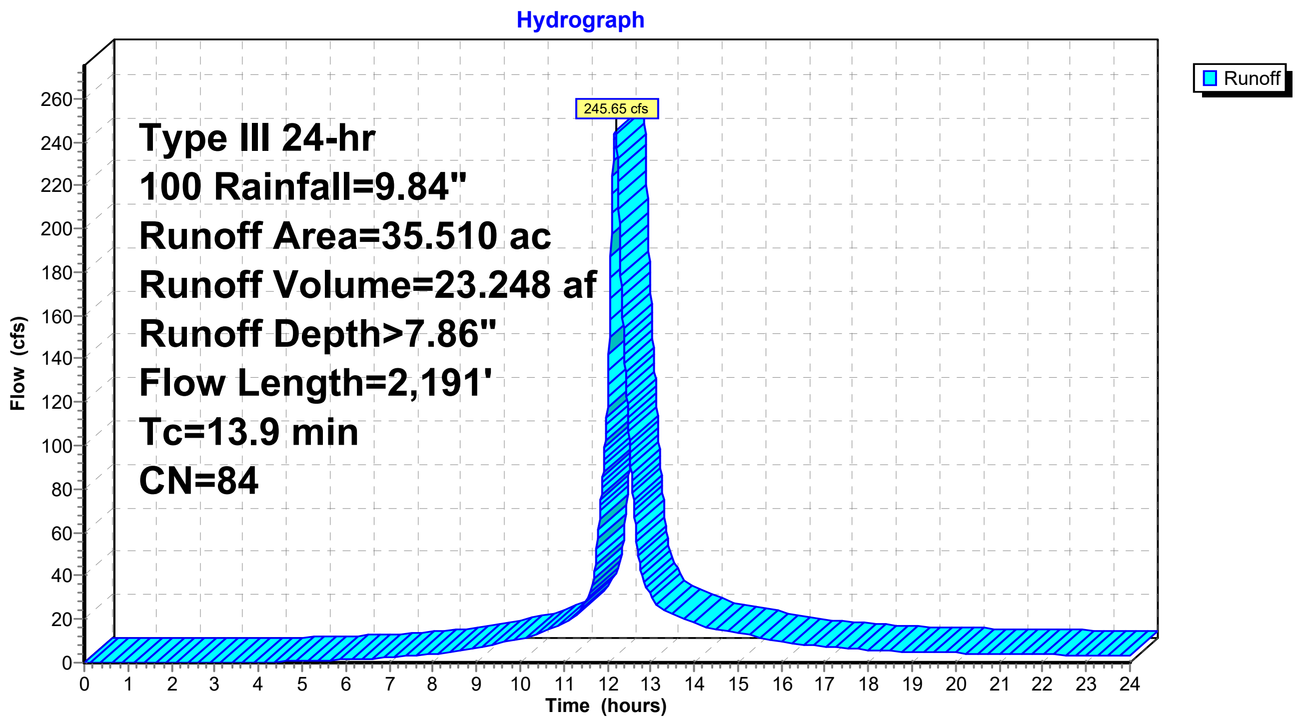
Runoff = 245.65 cfs @ 12.18 hrs, Volume= 23.248 af, Depth> 7.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
	21.070	74	>75% Grass cover, Good, HSG C
*	5.180	98	Houses
*	5.540	98	Roads and Walkways
*	3.720	98	NWL Pond
	35.510	84	Weighted Average
	21.070		59.34% Pervious Area
	14.440		40.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0200	0.19		**Sheet Flow, POST DEV BASIN #2 - SHEET** Grass: Short n= 0.150 P2= 4.34"
6.5	2,106	0.0030	5.41	26.55	**Pipe Channel, CMP_Round 30"** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
13.9	2,191	Total			

Subcatchment POST #6: POST-DEVELOPED BASIN #6



Summary for Pond POST-1P: POND 1

Inflow Area = 17.790 ac, 35.69% Impervious, Inflow Depth > 7.74" for 100 event
Inflow = 152.08 cfs @ 12.09 hrs, Volume= 11.474 af
Outflow = 24.07 cfs @ 12.11 hrs, Volume= 10.024 af, Atten= 84%, Lag= 0.9 min
Primary = 24.07 cfs @ 12.11 hrs, Volume= 10.024 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 37,128 sf Storage= 113,417 cf
Peak Elev= 14.68' @ 13.08 hrs Surf.Area= 87,036 sf Storage= 405,721 cf (292,304 cf above start)

Plug-Flow detention time= 358.6 min calculated for 7.417 af (65% of inflow)
Center-of-Mass det. time= 186.8 min (975.2 - 788.4)

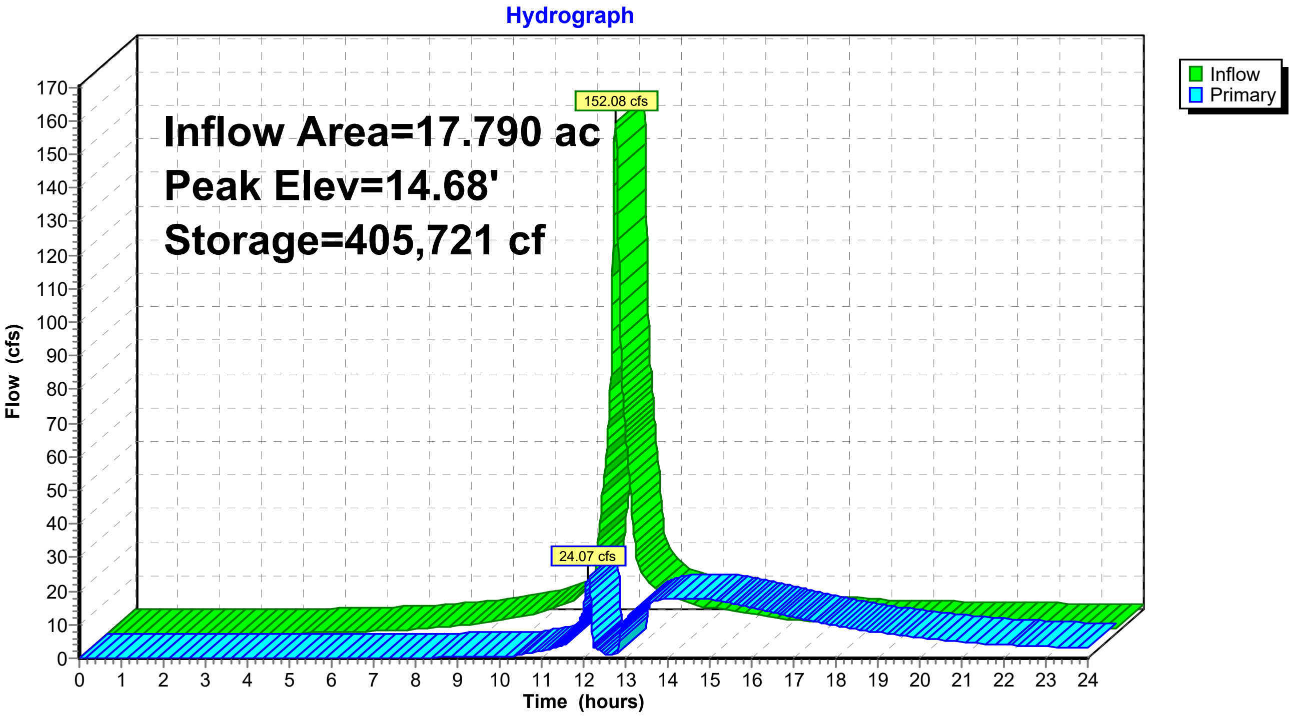
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	910,381 cf	**POND 1 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	26,411	0	0
9.97	37,128	113,417	113,417
15.00	90,446	320,849	434,266
20.00	100,000	476,115	910,381

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.11' S= 0.0143 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	9.97'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 7.89' S= 0.0145 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	10.14'	**30.0" Round RCP_Round 30"** L= 143.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.02' S= 0.0148 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=12.96 cfs @ 12.11 hrs HW=13.11' TW=13.09' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 4.48 cfs @ 0.97 fps)
├─**2=RCP_Round 30"** (Outlet Controls 4.61 cfs @ 0.96 fps)
└─**3=RCP_Round 30"** (Outlet Controls 3.87 cfs @ 0.84 fps)

Pond POST-1P: POND 1



Summary for Pond POST-2P: POND 2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)
[80] Warning: Exceeded Pond POST-1P by 0.03' @ 12.23 hrs (14.32 cfs 0.535 af)

Inflow Area = 34.050 ac, 32.98% Impervious, Inflow Depth > 7.29" for 100 event
Inflow = 163.02 cfs @ 12.10 hrs, Volume= 20.681 af
Outflow = 35.93 cfs @ 14.49 hrs, Volume= 19.025 af, Atten= 78%, Lag= 143.6 min
Primary = 35.93 cfs @ 14.49 hrs, Volume= 19.025 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 44,416 sf Storage= 133,705 cf
Peak Elev= 14.65' @ 13.03 hrs Surf.Area= 91,354 sf Storage= 451,673 cf (317,968 cf above start)

Plug-Flow detention time= 249.9 min calculated for 15.955 af (77% of inflow)
Center-of-Mass det. time= 114.9 min (992.8 - 877.9)

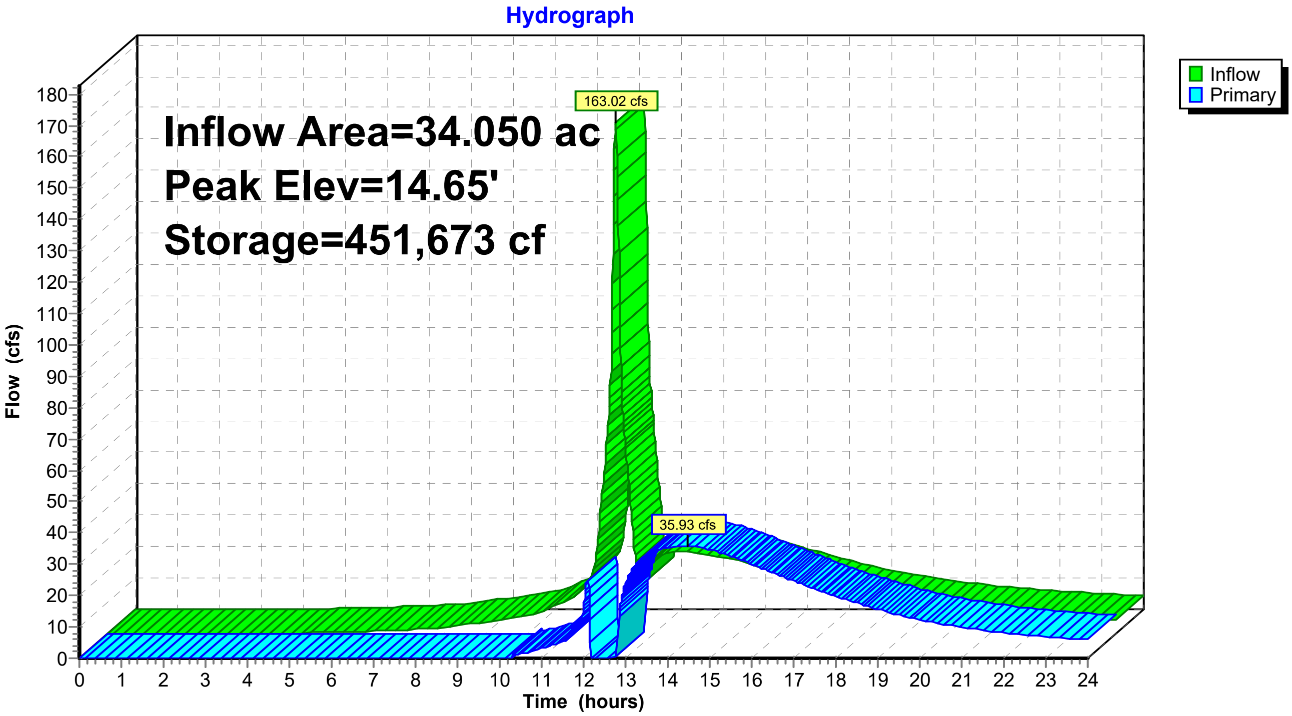
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	970,944 cf	**POND 2 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	30,489	0	0
9.97	44,416	133,705	133,705
15.00	94,822	350,184	483,889
20.00	100,000	487,055	970,944

Device	Routing	Invert	Outlet Devices
#1	Primary	8.20'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.18' / 8.20' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	8.18'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.15' / 8.18' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Primary	8.12'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.12' / 8.10' S= 0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#4	Primary	8.07'	**30.0" Round RCP_Round 30"** L= 119.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.07' / 8.06' S= 0.0001 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf

Primary OutFlow Max=36.76 cfs @ 14.49 hrs HW=14.20' TW=14.09' (Dynamic Tailwater)
├─**1=RCP_Round 30"** (Outlet Controls 9.19 cfs @ 1.87 fps)
├─**2=RCP_Round 30"** (Outlet Controls 9.19 cfs @ 1.87 fps)
├─**3=RCP_Round 30"** (Outlet Controls 9.19 cfs @ 1.87 fps)
└─**4=RCP_Round 30"** (Outlet Controls 9.19 cfs @ 1.87 fps)

Pond POST-2P: POND 2



Summary for Pond POST-2PA: POND 2A

[95] Warning: Outlet Device #1 rise exceeded

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 7.99" for 100 event
Inflow = 136.52 cfs @ 12.09 hrs, Volume= 10.389 af
Outflow = 100.90 cfs @ 12.16 hrs, Volume= 10.241 af, Atten= 26%, Lag= 4.5 min
Primary = 100.90 cfs @ 12.16 hrs, Volume= 10.241 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.97' @ 12.16 hrs Surf.Area= 37,100 sf Storage= 180,276 cf (71,554 cf above start)

Plug-Flow detention time= 158.8 min calculated for 7.742 af (75% of inflow)
Center-of-Mass det. time= 23.0 min (806.3 - 783.3)

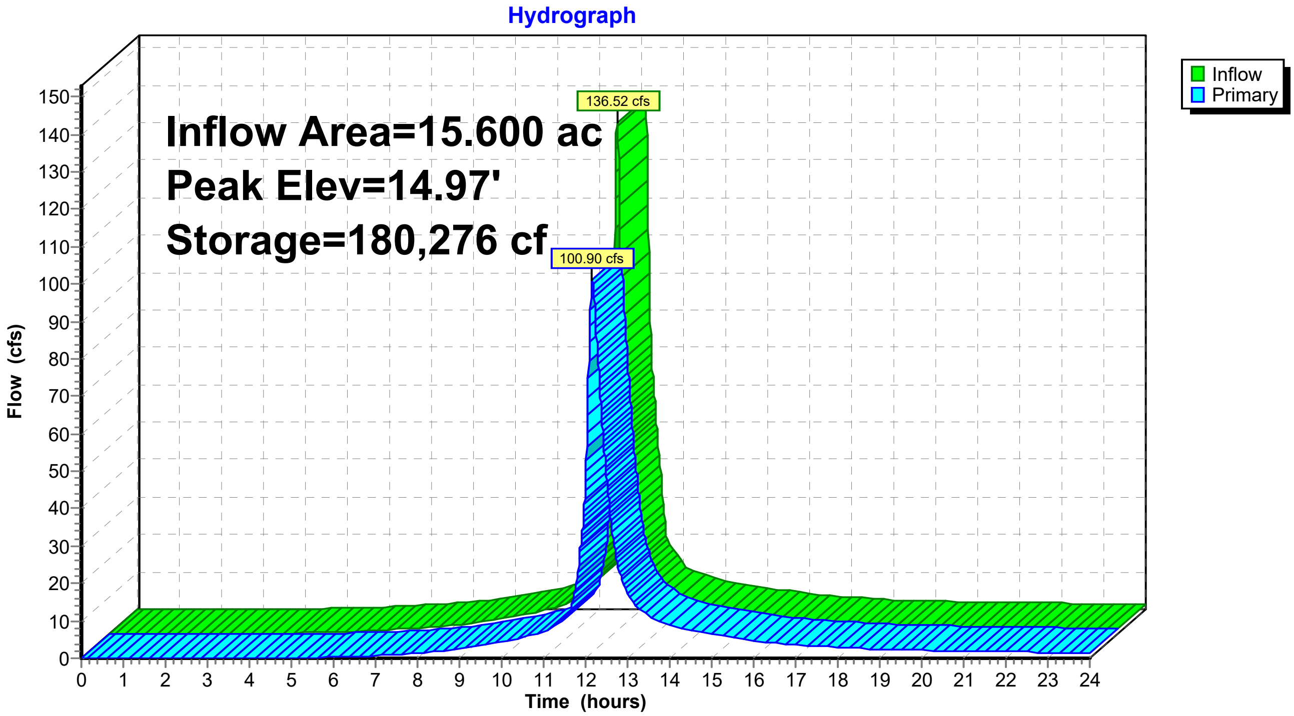
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=100.93 cfs @ 12.16 hrs HW=14.97' (Free Discharge)
└─**1=Custom Weir/Orifice** (Orifice Controls 100.93 cfs @ 4.30 fps)

Pond POST-2PA: POND 2A



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.28' @ 12.44 hrs (60.57 cfs 7.895 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 7.10" for 100 event
Inflow = 205.97 cfs @ 12.12 hrs, Volume= 43.492 af
Outflow = 72.34 cfs @ 13.99 hrs, Volume= 41.440 af, Atten= 65%, Lag= 112.2 min
Primary = 72.34 cfs @ 13.99 hrs, Volume= 41.440 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 14.70' @ 12.64 hrs Surf.Area= 93,240 sf Storage= 542,747 cf (359,303 cf above start)

Plug-Flow detention time= 151.8 min calculated for 37.213 af (86% of inflow)
Center-of-Mass det. time= 61.3 min (972.7 - 911.4)

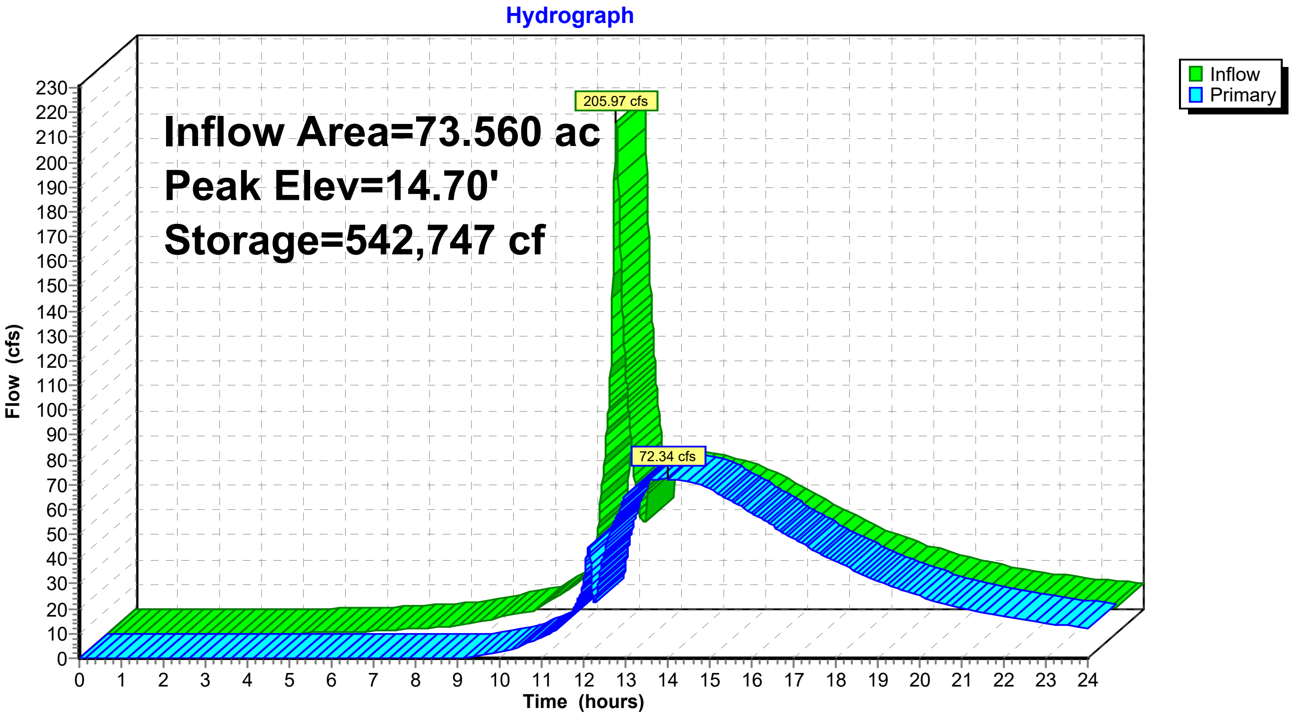
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=72.71 cfs @ 13.99 hrs HW=14.31' TW=13.91' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 25.51 cfs @ 3.61 fps)
├─**2=RCP_Round 36"** (Outlet Controls 25.51 cfs @ 3.61 fps)
└─**3=RCP_Round 36"** (Outlet Controls 21.70 cfs @ 3.07 fps)

Pond POST-3P: POND 3



Summary for Pond POST-3PA: POND 3A

[44] Hint: Outlet device #1 is below defined storage
[80] Warning: Exceeded Pond POST-3PB by 0.07' @ 12.16 hrs (9.48 cfs 0.322 af)

Inflow Area = 16.210 ac, 30.00% Impervious, Inflow Depth > 7.51" for 100 event
Inflow = 65.81 cfs @ 12.15 hrs, Volume= 10.142 af
Outflow = 20.87 cfs @ 12.85 hrs, Volume= 9.692 af, Atten= 68%, Lag= 41.9 min
Primary = 20.87 cfs @ 12.85 hrs, Volume= 9.692 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.94' @ 12.70 hrs Surf.Area= 27,784 sf Storage= 106,773 cf

Plug-Flow detention time= 95.8 min calculated for 9.688 af (96% of inflow)
Center-of-Mass det. time= 72.3 min (931.8 - 859.4)

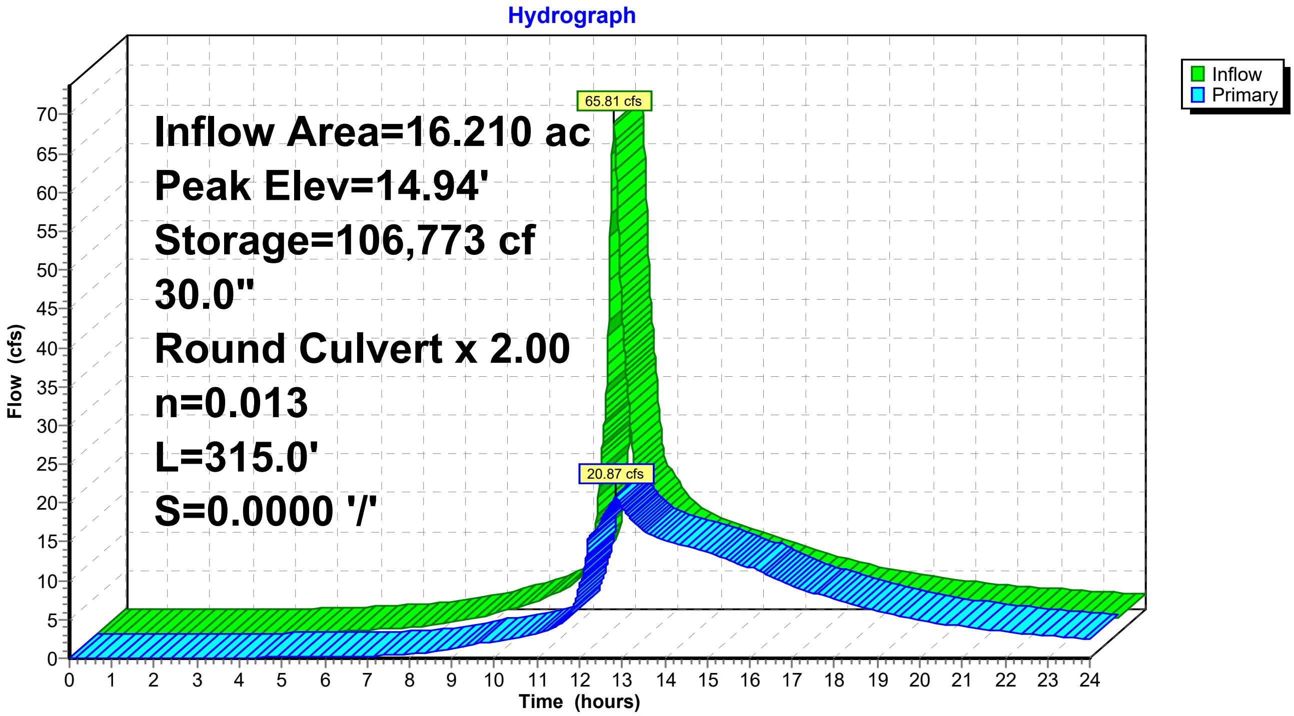
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	247,412 cf	**POND 3A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,127	0	0
14.40	27,784	91,822	91,822
20.00	27,784	155,590	247,412

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 315.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=20.95 cfs @ 12.85 hrs HW=14.91' TW=14.62' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 20.95 cfs @ 2.13 fps)

Pond POST-3PA: POND 3A



Summary for Pond POST-3PB: POND 3B

[44] Hint: Outlet device #1 is below defined storage
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area =	7.410 ac,	30.00% Impervious,	Inflow Depth > 7.86"	for 100 event	
Inflow =	55.57 cfs @	12.15 hrs,	Volume=	4.854 af	
Outflow =	9.45 cfs @	12.92 hrs,	Volume=	4.379 af,	Atten= 83%, Lag= 46.1 min
Primary =	9.45 cfs @	12.92 hrs,	Volume=	4.379 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.99' @ 12.75 hrs Surf.Area= 28,662 sf Storage= 112,190 cf

Plug-Flow detention time= 207.9 min calculated for 4.379 af (90% of inflow)
Center-of-Mass det. time= 160.6 min (950.2 - 789.6)

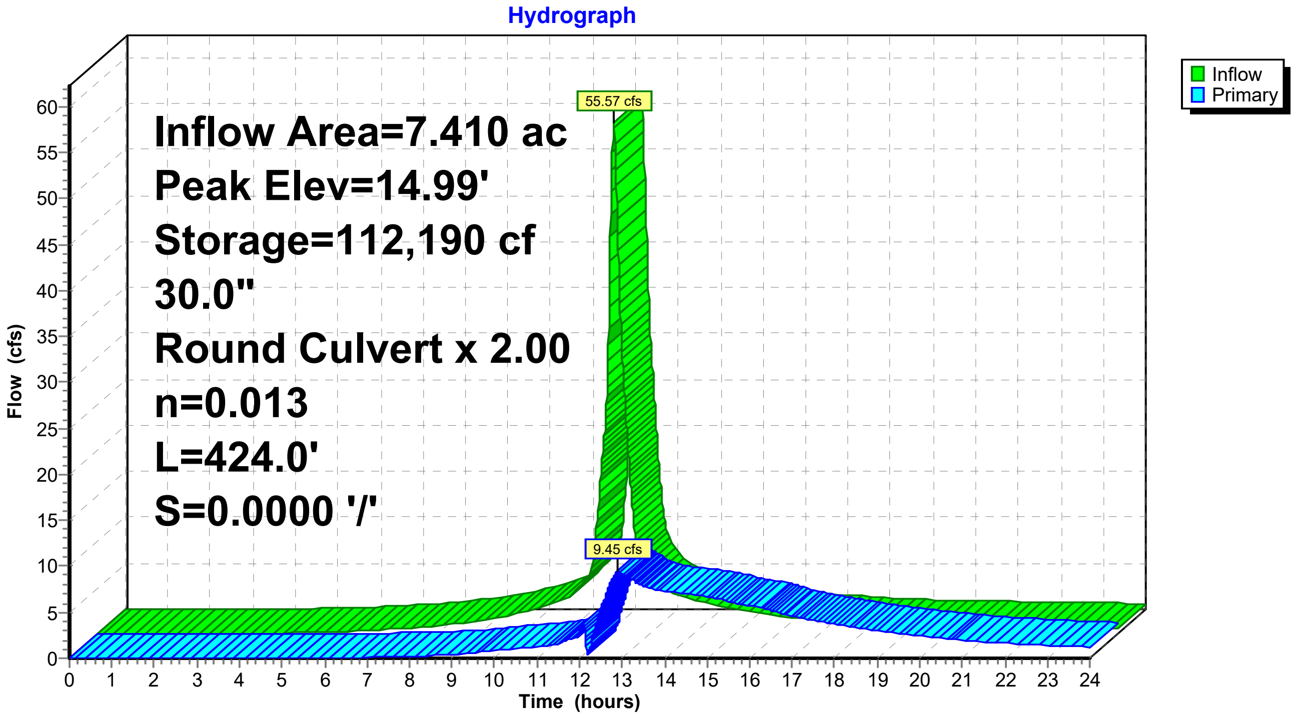
Volume	Invert	Avail.Storage	Storage Description
#1	10.40'	255,727 cf	**POND 3B (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.40	18,948	0	0
14.40	28,662	95,220	95,220
20.00	28,662	160,507	255,727

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30" X 2.00** L= 424.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete sewer w/manholes & inlets, Flow Area= 4.91 sf

Primary OutFlow Max=9.67 cfs @ 12.92 hrs HW=14.96' TW=14.88' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 9.67 cfs @ 0.98 fps)

Pond POST-3PB: POND 3B



Summary for Pond POST-4P: POND 4

[80] Warning: Exceeded Pond POST-3P by 0.11' @ 7.75 hrs (0.38 cfs 0.147 af)

Inflow Area = 95.820 ac, 32.49% Impervious, Inflow Depth > 6.99" for 100 event
Inflow = 183.63 cfs @ 12.17 hrs, Volume= 55.778 af
Outflow = 107.29 cfs @ 12.28 hrs, Volume= 54.996 af, Atten= 42%, Lag= 6.6 min
Primary = 107.29 cfs @ 12.28 hrs, Volume= 54.996 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 25,099 sf Storage= 71,286 cf
Peak Elev= 14.51' @ 12.57 hrs Surf.Area= 47,616 sf Storage= 236,484 cf (165,198 cf above start)

Plug-Flow detention time= 51.7 min calculated for 53.359 af (96% of inflow)
Center-of-Mass det. time= 20.4 min (947.4 - 927.0)

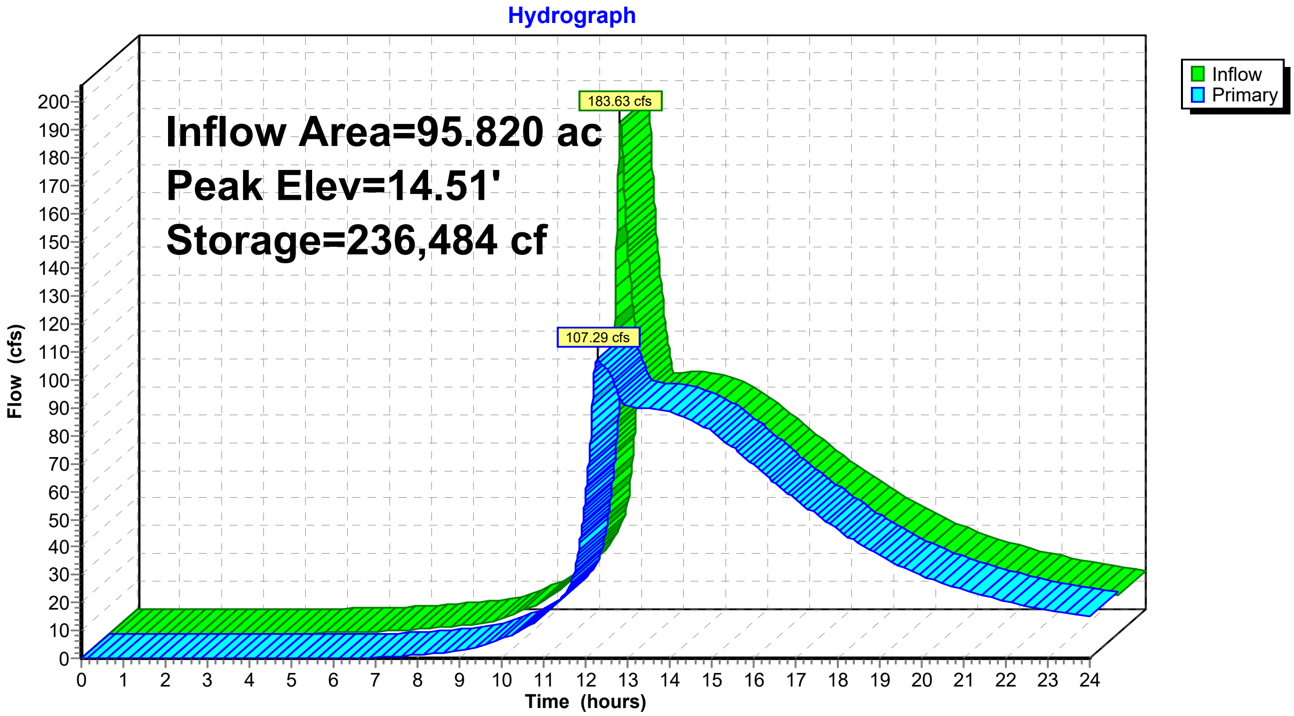
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	635,290 cf	**POND 4 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	14,837	0	0
9.97	25,099	71,286	71,286
15.00	50,026	188,939	260,225
20.00	100,000	375,065	635,290

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0109 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0097 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 183.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0098 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=105.39 cfs @ 12.28 hrs HW=14.08' TW=13.23' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 37.23 cfs @ 5.29 fps)
├─**2=RCP_Round 36"** (Outlet Controls 36.44 cfs @ 5.15 fps)
└─**3=RCP_Round 36"** (Outlet Controls 31.72 cfs @ 4.50 fps)

Pond POST-4P: POND 4



Summary for Pond POST-5P: POND 5

Inflow Area = 117.050 ac, 32.50% Impervious, Inflow Depth > 7.02" for 100 event
Inflow = 251.04 cfs @ 12.11 hrs, Volume= 68.464 af
Outflow = 157.92 cfs @ 12.18 hrs, Volume= 67.284 af, Atten= 37%, Lag= 3.9 min
Primary = 157.92 cfs @ 12.18 hrs, Volume= 67.284 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 39,178 sf Storage= 132,791 cf
Peak Elev= 13.70' @ 12.68 hrs Surf.Area= 51,977 sf Storage= 327,572 cf (194,781 cf above start)

Plug-Flow detention time= 65.3 min calculated for 64.235 af (94% of inflow)
Center-of-Mass det. time= 20.6 min (937.3 - 916.7)

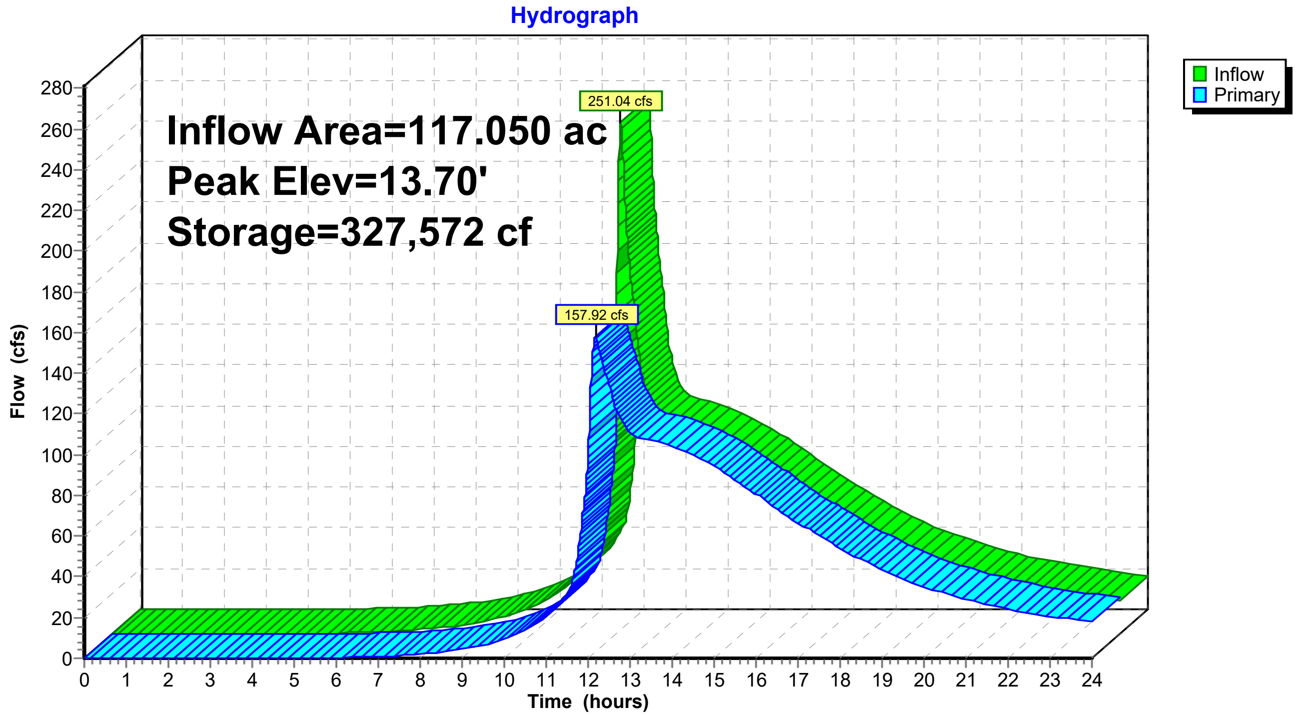
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	785,627 cf	**POND 5 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	28,400	0	0
9.50	39,370	135,540	135,540
15.10	56,162	267,490	403,030
20.00	100,000	382,597	785,627

Device	Routing	Invert	Outlet Devices
#1	Primary	8.59'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.59' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	8.52'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.52' / 8.43' S= 0.0007 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.59' / 8.63' S= -0.0003 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#4	Primary	8.63'	**36.0" Round RCP_Round 36"** L= 128.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 8.35' / 8.63' S= -0.0022 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=153.47 cfs @ 12.18 hrs HW=12.85' TW=11.99' (Dynamic Tailwater)
├—**1=RCP_Round 36"** (Outlet Controls 39.66 cfs @ 5.61 fps)
├—**2=RCP_Round 36"** (Outlet Controls 39.66 cfs @ 5.61 fps)
├—**3=RCP_Round 36"** (Outlet Controls 39.66 cfs @ 5.61 fps)
└—**4=RCP_Round 36"** (Outlet Controls 34.47 cfs @ 4.88 fps)

Pond POST-5P: POND 5



Summary for Pond POST-6P: POND 6

Inflow Area = 152.560 ac, 34.40% Impervious, Inflow Depth > 7.12" for 100 event
Inflow = 403.51 cfs @ 12.18 hrs, Volume= 90.531 af
Outflow = 153.86 cfs @ 12.84 hrs, Volume= 84.889 af, Atten= 62%, Lag= 39.7 min
Primary = 153.86 cfs @ 12.84 hrs, Volume= 84.889 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.43' Surf.Area= 196,792 sf Storage= 705,109 cf
Peak Elev= 13.19' @ 12.84 hrs Surf.Area= 230,917 sf Storage= 1,509,449 cf (804,340 cf above start)

Plug-Flow detention time= 215.1 min calculated for 68.702 af (76% of inflow)
Center-of-Mass det. time= 68.2 min (968.2 - 900.0)

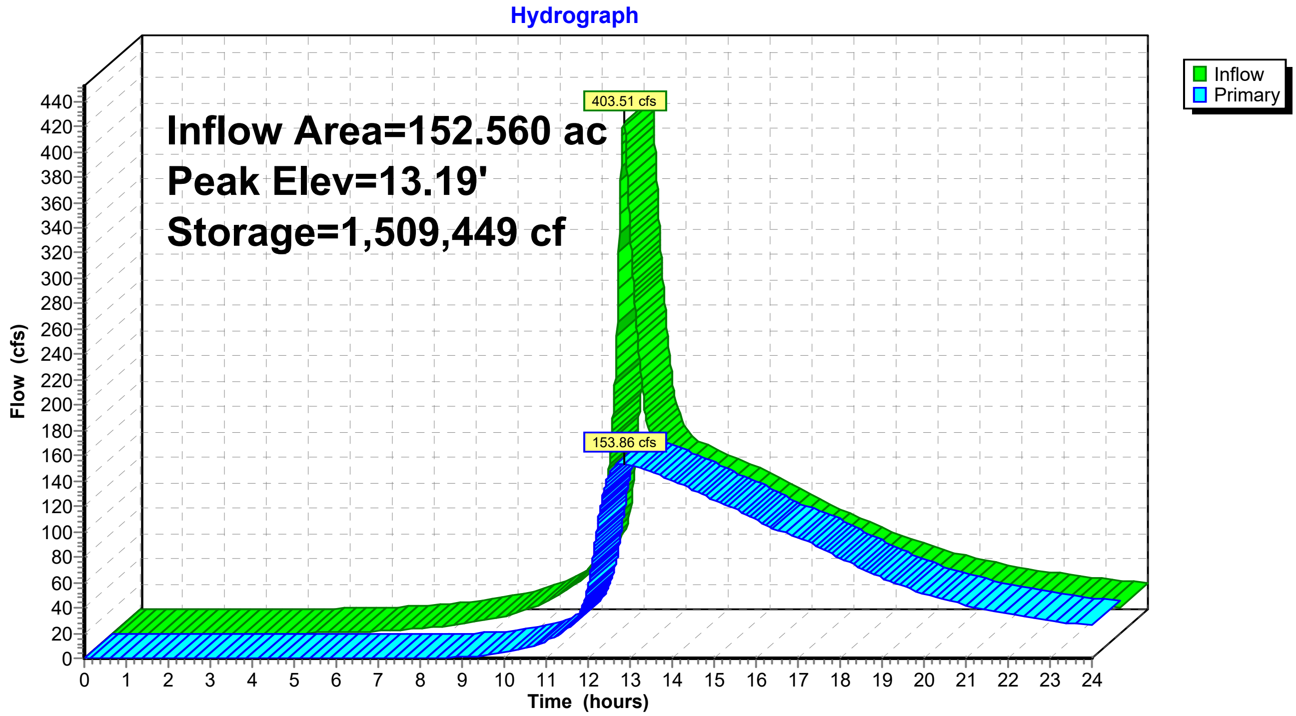
Volume	Invert	Avail.Storage	Storage Description
#1	5.50'	3,128,709 cf	**POND 6 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.50	162,042	0	0
9.50	197,411	718,906	718,906
14.00	238,258	980,255	1,699,161
20.00	238,258	1,429,548	3,128,709

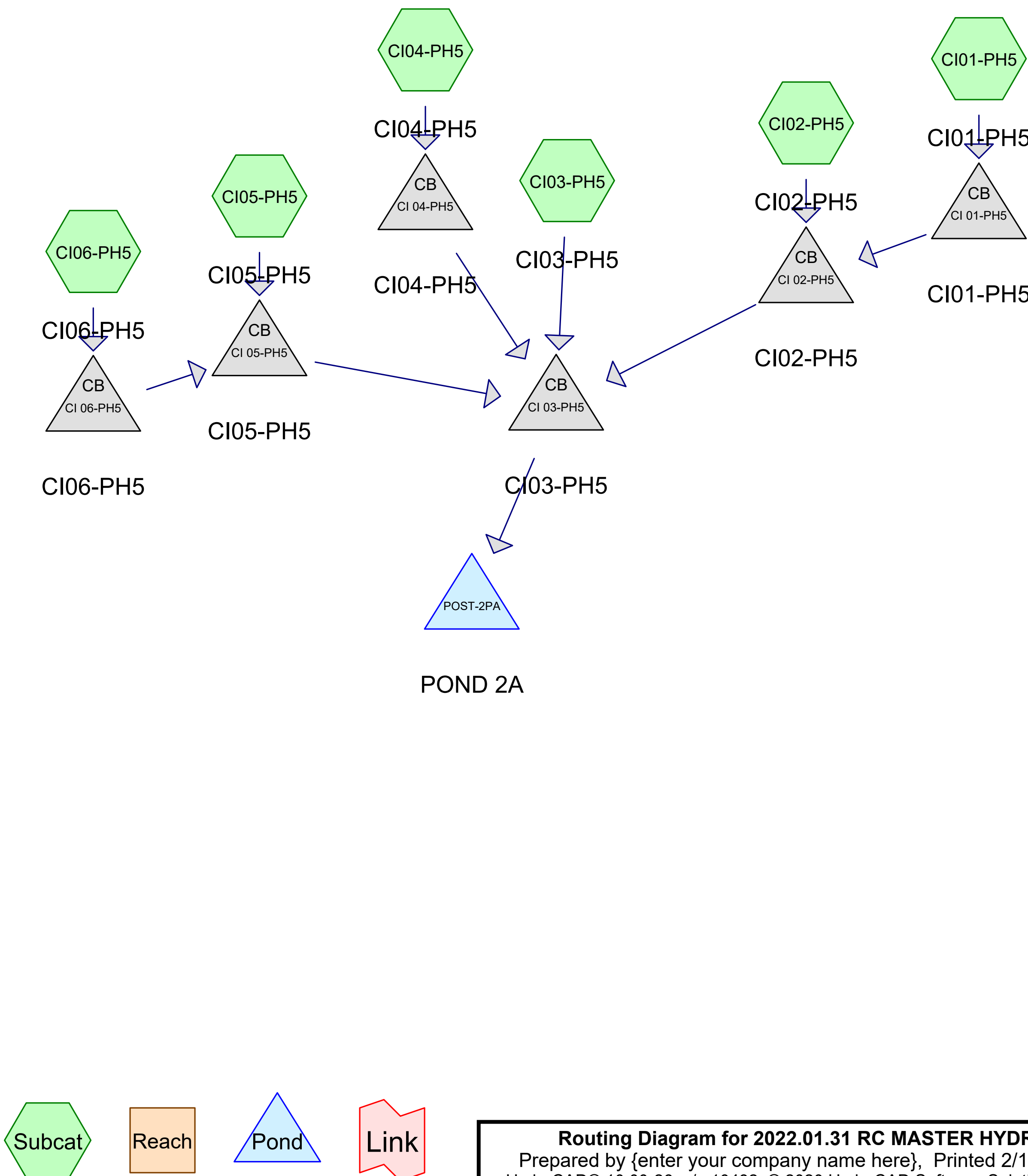
Device	Routing	Invert	Outlet Devices
#1	Primary	9.91'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.91' / 9.89' S= 0.0004 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Primary	9.53'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.53' / 9.41' S= 0.0025 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#3	Primary	9.43'	**24.0" Round RCP_Round 24"** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.42' / 9.43' S= -0.0002 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#4	Primary	9.52'	**24.0" Round RCP_Round 24" X 3.00** L= 48.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.52' / 9.43' S= 0.0019 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf

Primary OutFlow Max=153.86 cfs @ 12.84 hrs HW=13.19' (Free Discharge)
├─**1=RCP_Round 24"** (Barrel Controls 22.54 cfs @ 7.17 fps)
├─**2=RCP_Round 24"** (Barrel Controls 26.37 cfs @ 8.39 fps)
├─**3=RCP_Round 24"** (Barrel Controls 26.29 cfs @ 8.37 fps)
└─**4=RCP_Round 24"** (Barrel Controls 78.66 cfs @ 8.35 fps)

Pond POST-6P: POND 6



Appendix G: PH V Storm Sewer HydroCAD Output



Routing Diagram for 2022.01.31 RC MASTER HYDRO
Prepared by {enter your company name here}, Printed 2/1/2022
HydroCAD® 10.00-26 s/n 10482 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment CI01-PH5: CI01-PH5

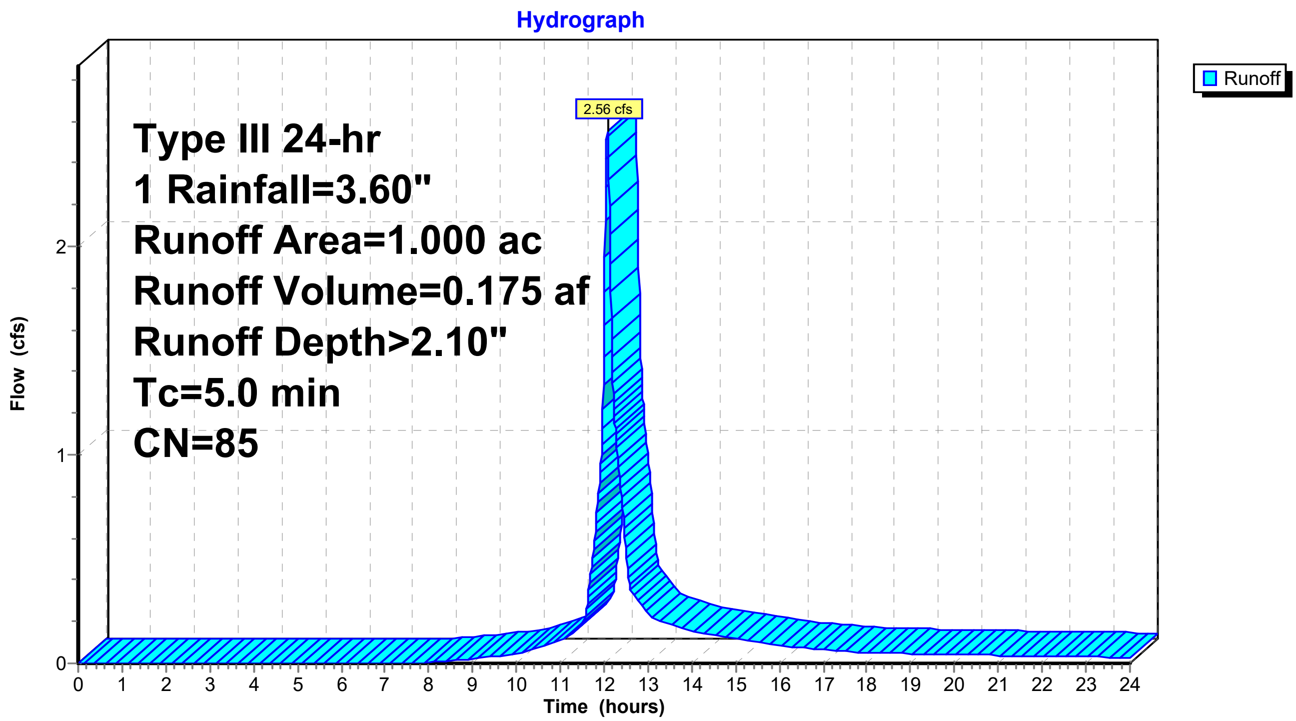
Runoff = 2.56 cfs @ 12.07 hrs, Volume= 0.175 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI01-PH5: CI01-PH5



Summary for Subcatchment CI02-PH5: CI02-PH5

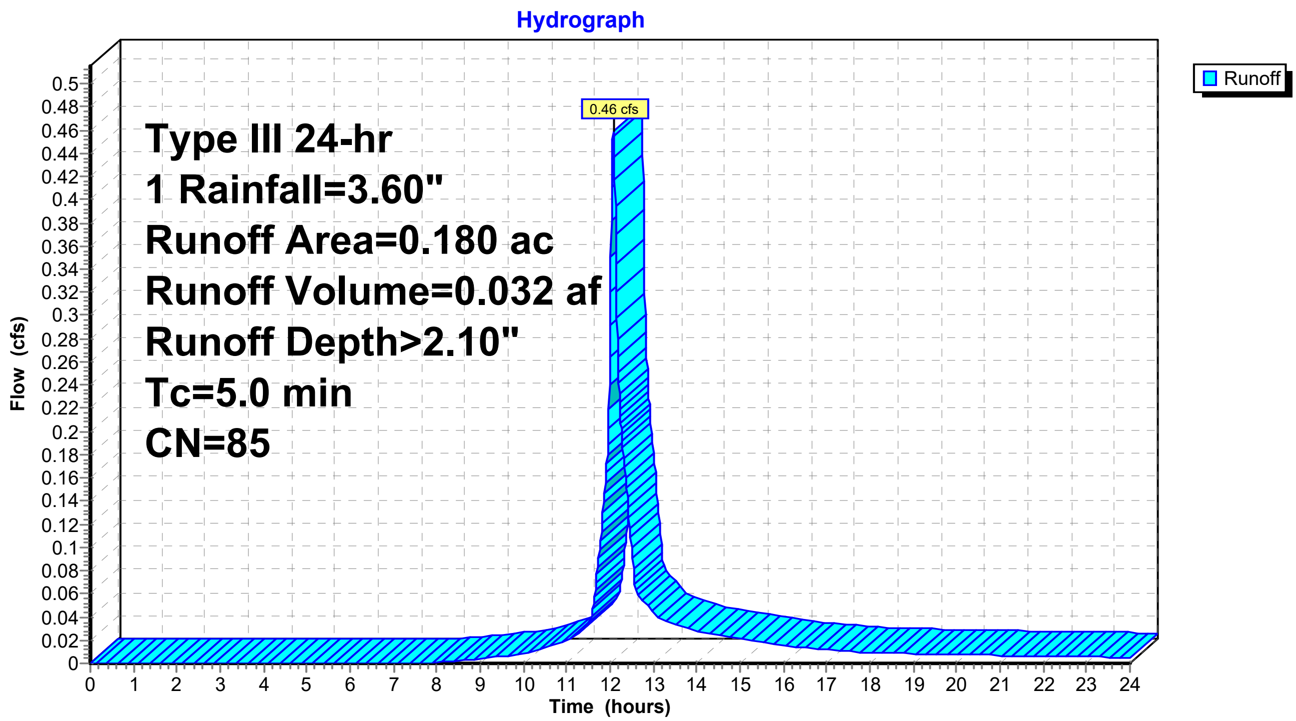
Runoff = 0.46 cfs @ 12.07 hrs, Volume= 0.032 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	0.180	85	
	0.180		100.00% Pervious Area

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

Subcatchment CI02-PH5: CI02-PH5



Summary for Subcatchment CI03-PH5: CI03-PH5

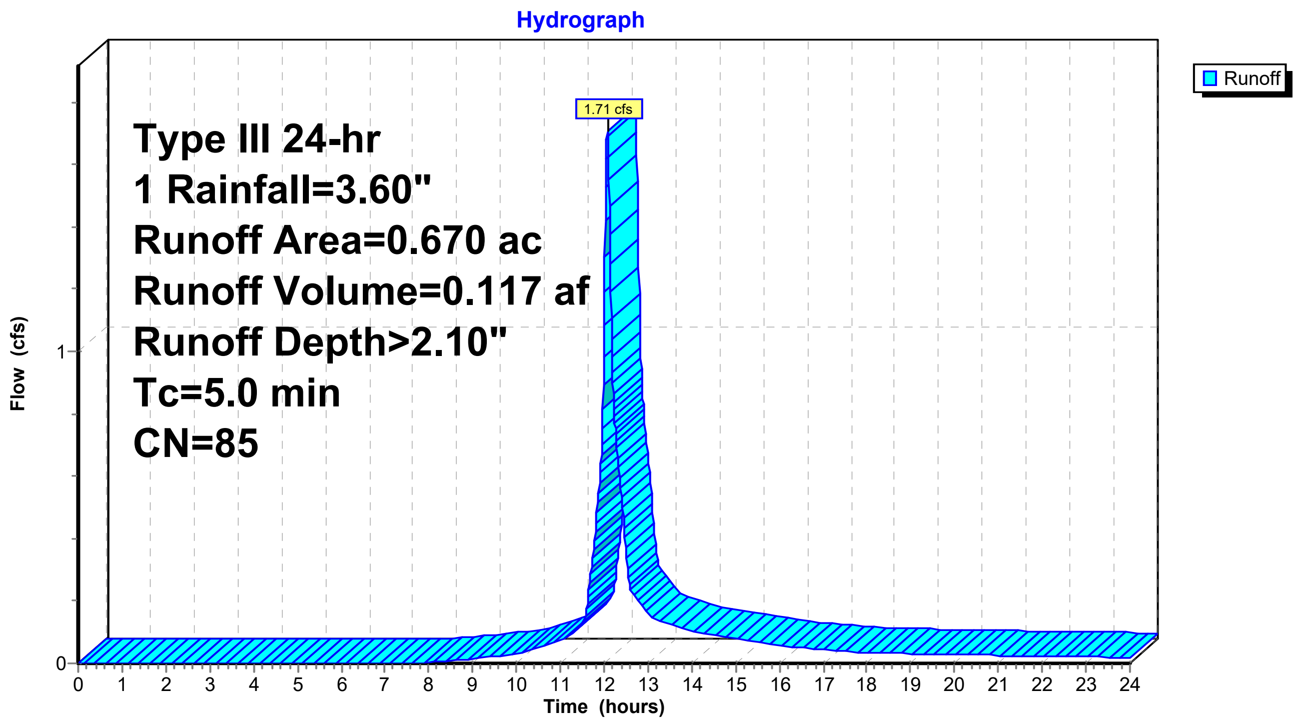
Runoff = 1.71 cfs @ 12.07 hrs, Volume= 0.117 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI03-PH5: CI03-PH5



Summary for Subcatchment CI04-PH5: CI04-PH5

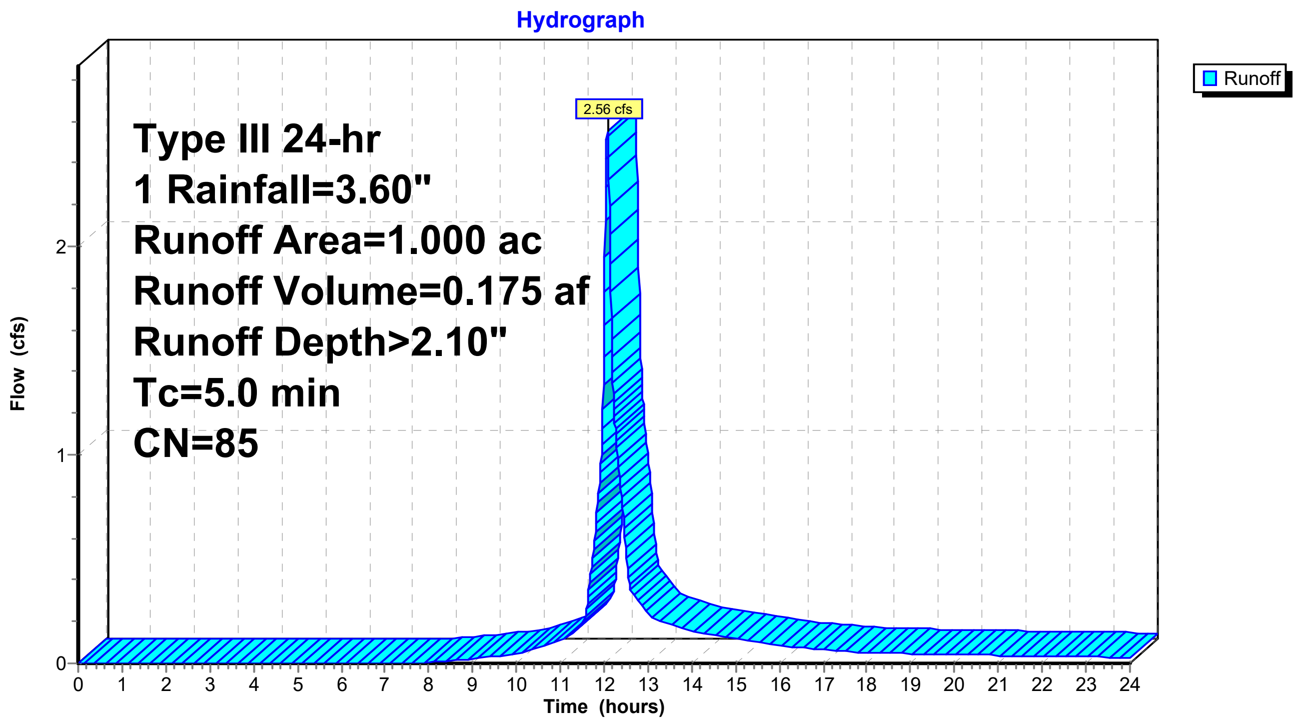
Runoff = 2.56 cfs @ 12.07 hrs, Volume= 0.175 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI04-PH5: CI04-PH5



Summary for Subcatchment CI05-PH5: CI05-PH5

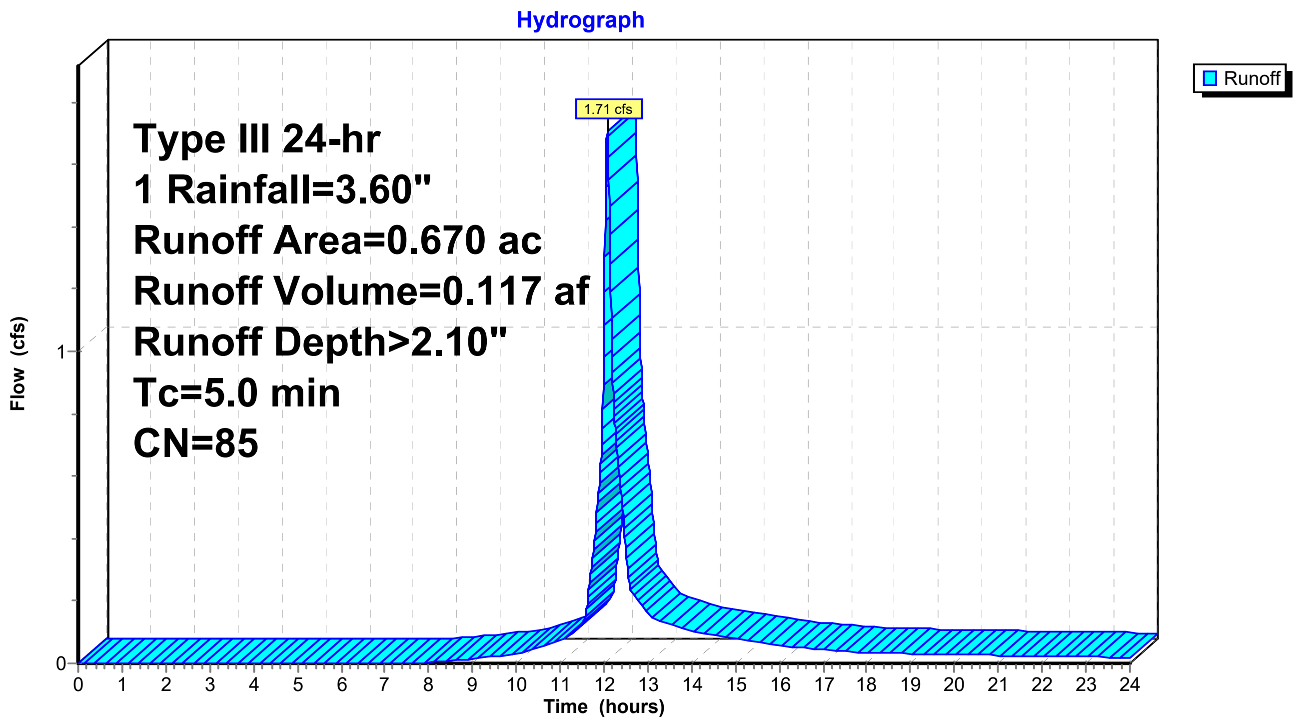
Runoff = 1.71 cfs @ 12.07 hrs, Volume= 0.117 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI05-PH5: CI05-PH5



Summary for Subcatchment CI06-PH5: CI06-PH5

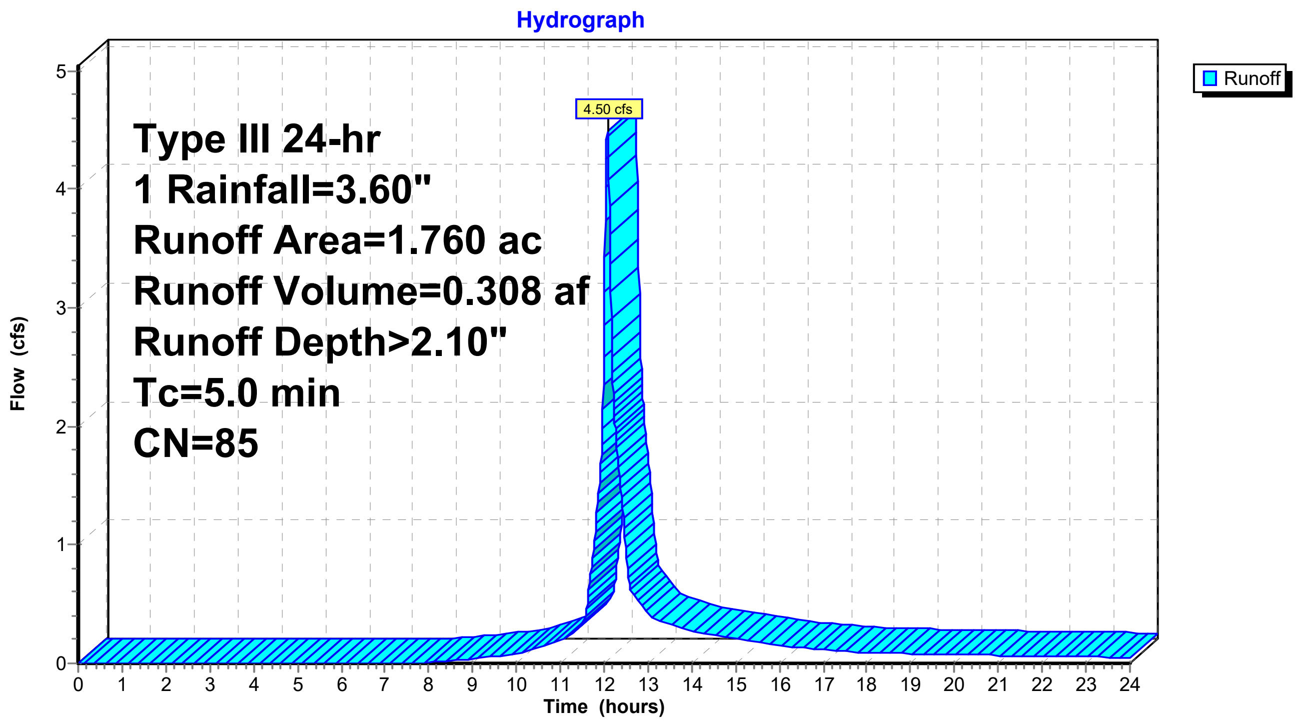
Runoff = 4.50 cfs @ 12.07 hrs, Volume= 0.308 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	1.760	85	
	1.760		100.00% Pervious Area

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

Subcatchment CI06-PH5: CI06-PH5



Summary for Pond CI 01-PH5: CI01-PH5

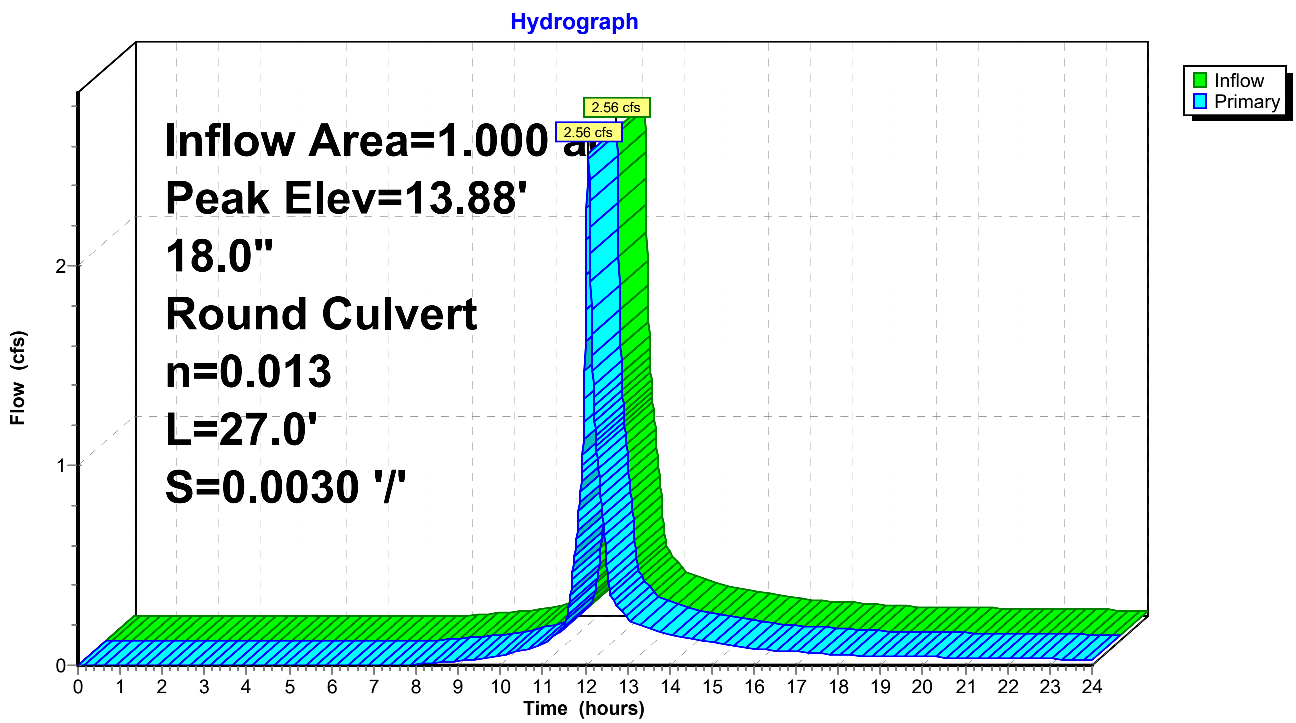
Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth > 2.10"	for 1 event	
Inflow =	2.56 cfs @	12.07 hrs, Volume=	0.175 af	
Outflow =	2.56 cfs @	12.07 hrs, Volume=	0.175 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.56 cfs @	12.07 hrs, Volume=	0.175 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.88' @ 12.11 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.84'	**18.0" Round RCP_Round 18"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.84' / 12.76' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=2.40 cfs @ 12.07 hrs HW=13.86' TW=13.67' (Dynamic Tailwater)
└─**1=RCP_Round 18"** (Outlet Controls 2.40 cfs @ 2.66 fps)

Pond CI 01-PH5: CI01-PH5



Summary for Pond CI 02-PH5: CI02-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=742)
[80] Warning: Exceeded Pond CI 01-PH5 by 0.12' @ 15.80 hrs (0.25 cfs 0.036 af)

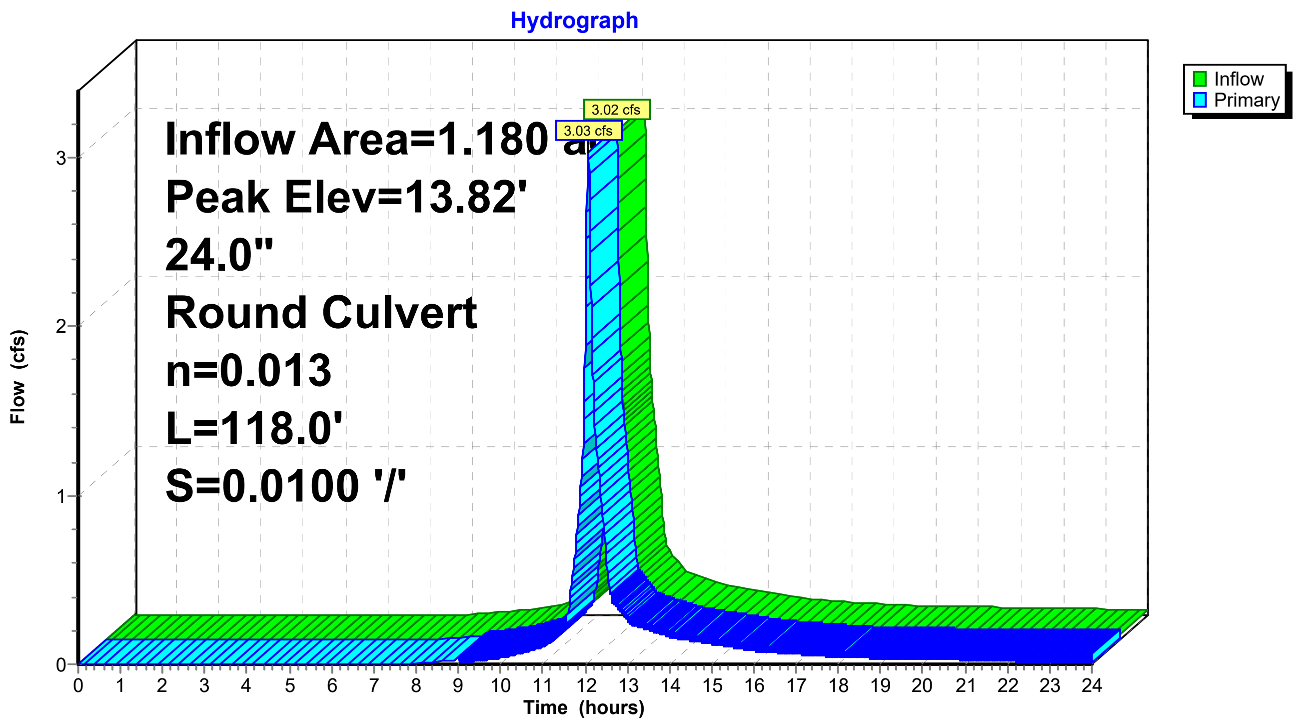
Inflow Area =	1.180 ac,	0.00% Impervious, Inflow Depth > 2.10"	for 1 event
Inflow =	3.02 cfs @	12.07 hrs, Volume=	0.207 af
Outflow =	3.03 cfs @	12.07 hrs, Volume=	0.207 af, Atten= 0%, Lag= 0.0 min
Primary =	3.03 cfs @	12.07 hrs, Volume=	0.207 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.82' @ 12.25 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.16'	**24.0" Round RCP_Round 24"** L= 118.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.16' / 10.98' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=2.59 cfs @ 12.07 hrs HW=13.66' TW=13.59' (Dynamic Tailwater)
└**1=RCP_Round 24"** (Outlet Controls 2.59 cfs @ 1.42 fps)

Pond CI 02-PH5: CI02-PH5



Summary for Pond CI 03-PH5: CI03-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=248)
[80] Warning: Exceeded Pond CI 02-PH5 by 0.83' @ 15.79 hrs (4.22 cfs 1.379 af)
[80] Warning: Exceeded Pond CI 04-PH5 by 2.09' @ 14.90 hrs (13.65 cfs 6.539 af)
[80] Warning: Exceeded Pond CI 05-PH5 by 2.65' @ 16.97 hrs (25.34 cfs 9.111 af)

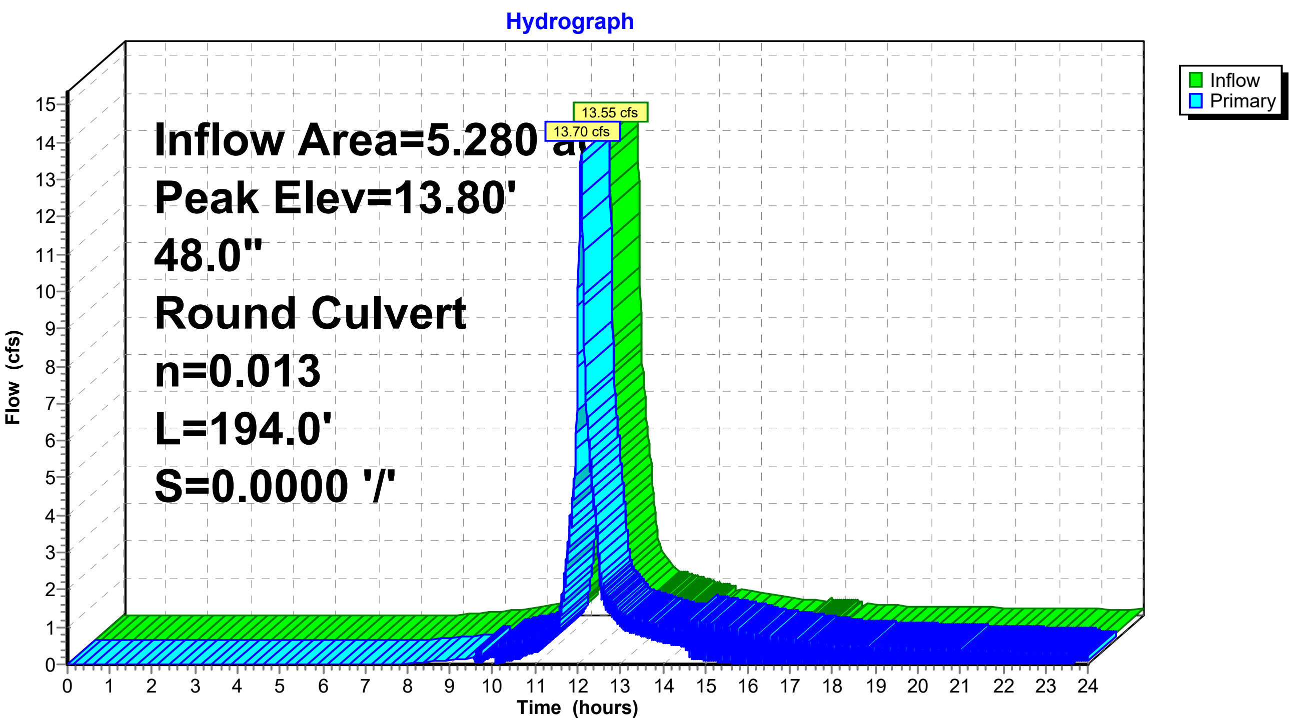
Inflow Area =	5.280 ac,	0.00% Impervious, Inflow Depth >	2.10"	for 1 event
Inflow =	13.55 cfs @	12.08 hrs, Volume=	0.925 af	
Outflow =	13.70 cfs @	12.07 hrs, Volume=	0.925 af,	Atten= 0%, Lag= 0.0 min
Primary =	13.70 cfs @	12.07 hrs, Volume=	0.925 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.80' @ 12.25 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.00'	**48.0" Round RCP_Round 48"** L= 194.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.00' / 9.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 12.57 sf

Primary OutFlow Max=8.32 cfs @ 12.07 hrs HW=13.58' TW=13.57' (Dynamic Tailwater)
└─**1=RCP_Round 48"** (Outlet Controls 8.32 cfs @ 0.72 fps)

Pond CI 03-PH5: CI03-PH5



Summary for Pond CI 04-PH5: CI04-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=725)

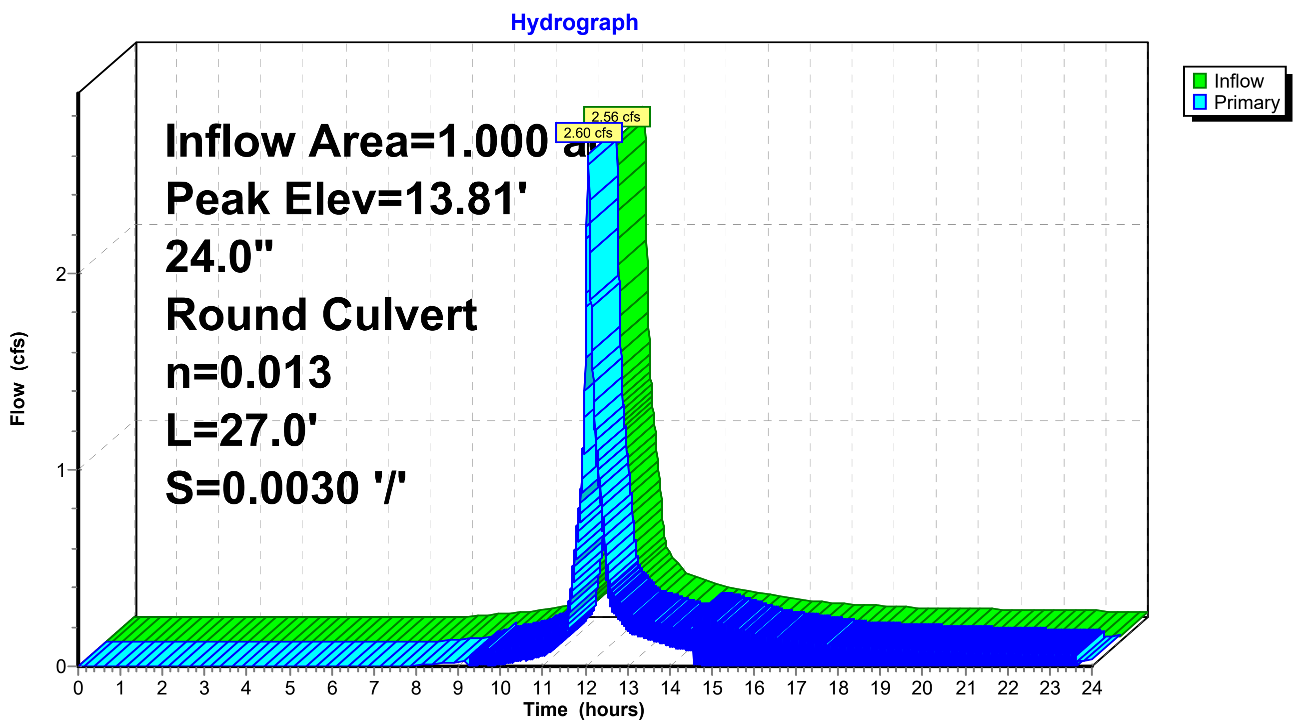
Inflow Area =	1.000 ac,	0.00% Impervious,	Inflow Depth > 2.10"	for 1 event	
Inflow =	2.56 cfs @	12.07 hrs,	Volume=	0.175 af	
Outflow =	2.60 cfs @	12.07 hrs,	Volume=	0.175 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.60 cfs @	12.07 hrs,	Volume=	0.175 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.81' @ 12.26 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.06'	**24.0" Round RCP_Round 24"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 11.06' / 10.98' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=13.57' TW=13.58' (Dynamic Tailwater)
└─**1=RCP_Round 24"** (Controls 0.00 cfs)

Pond CI 04-PH5: CI04-PH5



Summary for Pond CI 05-PH5: CI05-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=337)
[80] Warning: Exceeded Pond CI 06-PH5 by 2.09' @ 23.67 hrs (16.91 cfs 9.027 af)

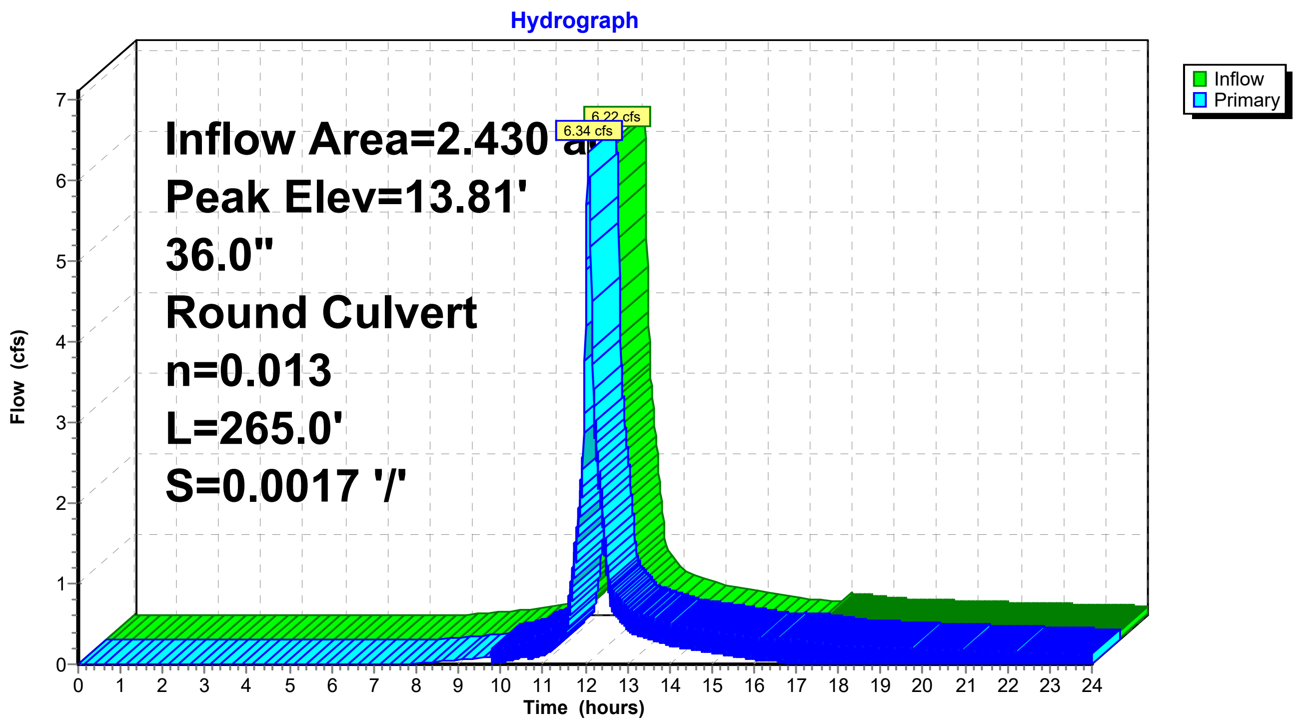
Inflow Area =	2.430 ac,	0.00% Impervious,	Inflow Depth > 2.10"	for 1 event
Inflow =	6.22 cfs @	12.08 hrs, Volume=	0.426 af	
Outflow =	6.34 cfs @	12.08 hrs, Volume=	0.426 af,	Atten= 0%, Lag= 0.2 min
Primary =	6.34 cfs @	12.08 hrs, Volume=	0.426 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.81' @ 12.26 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.44'	**36.0" Round RCP_Round 36"** L= 265.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.44' / 9.98' S= 0.0017 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 7.07 sf

Primary OutFlow Max=4.33 cfs @ 12.08 hrs HW=13.62' TW=13.60' (Dynamic Tailwater)
1=RCP_Round 36" (Outlet Controls 4.33 cfs @ 0.72 fps)

Pond CI 05-PH5: CI05-PH5



Summary for Pond CI 06-PH5: CI06-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=418)

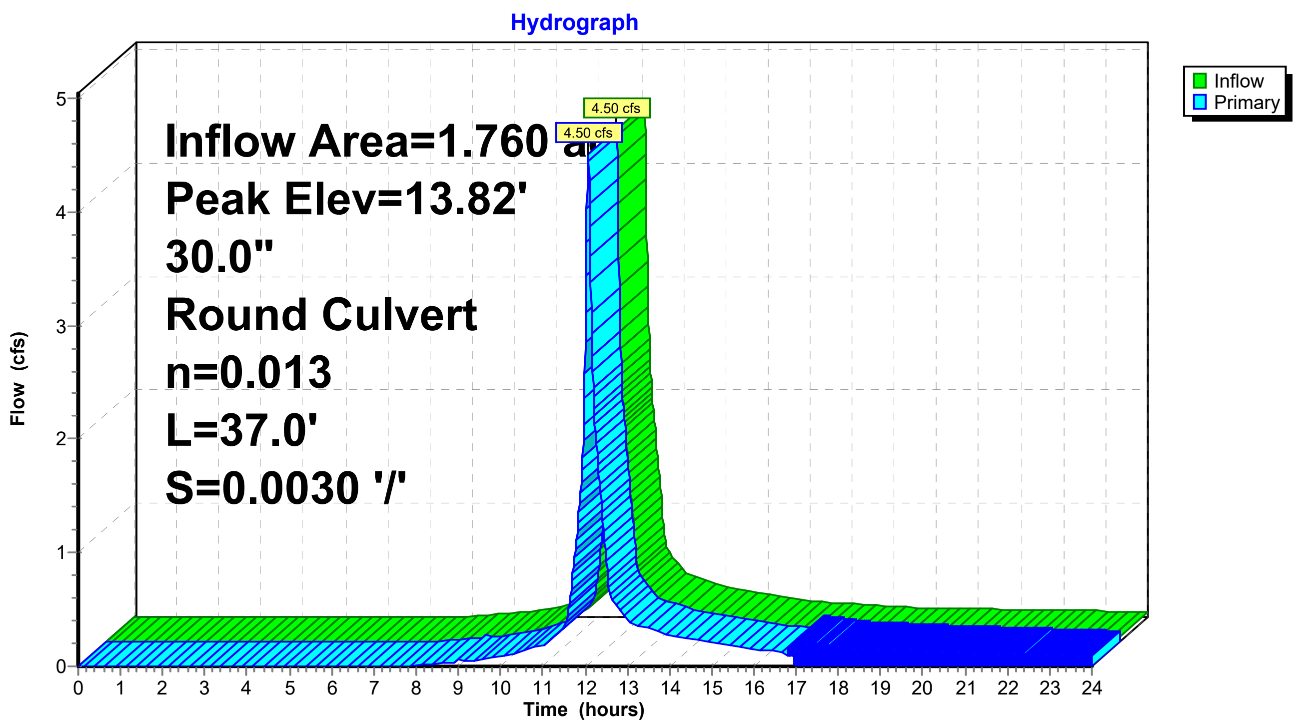
Inflow Area =	1.760 ac,	0.00% Impervious,	Inflow Depth > 2.10"	for 1 event
Inflow =	4.50 cfs @	12.07 hrs, Volume=	0.308 af	
Outflow =	4.50 cfs @	12.08 hrs, Volume=	0.308 af, Atten= 0%, Lag= 0.1 min	
Primary =	4.50 cfs @	12.08 hrs, Volume=	0.308 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.82' @ 12.27 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.89'	**30.0" Round RCP_Round 30"** L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.89' / 10.78' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=0.00 cfs @ 12.08 hrs HW=13.61' TW=13.62' (Dynamic Tailwater)
1=RCP_Round 30" (Controls 0.00 cfs)

Pond CI 06-PH5: CI06-PH5



Summary for Pond POST-2PA: POND 2A

[80] Warning: Exceeded Pond CI 03-PH5 by 4.13' @ 15.78 hrs (61.11 cfs 27.870 af)

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 2.10" for 1 event
Inflow = 37.94 cfs @ 12.09 hrs, Volume= 2.731 af
Outflow = 19.54 cfs @ 12.25 hrs, Volume= 2.656 af, Atten= 49%, Lag= 9.4 min
Primary = 19.54 cfs @ 12.25 hrs, Volume= 2.656 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 13.80' @ 12.25 hrs Surf.Area= 34,312 sf Storage= 138,501 cf (29,779 cf above start)

Plug-Flow detention time= 729.6 min calculated for 0.160 af (6% of inflow)
Center-of-Mass det. time= 36.0 min (856.5 - 820.5)

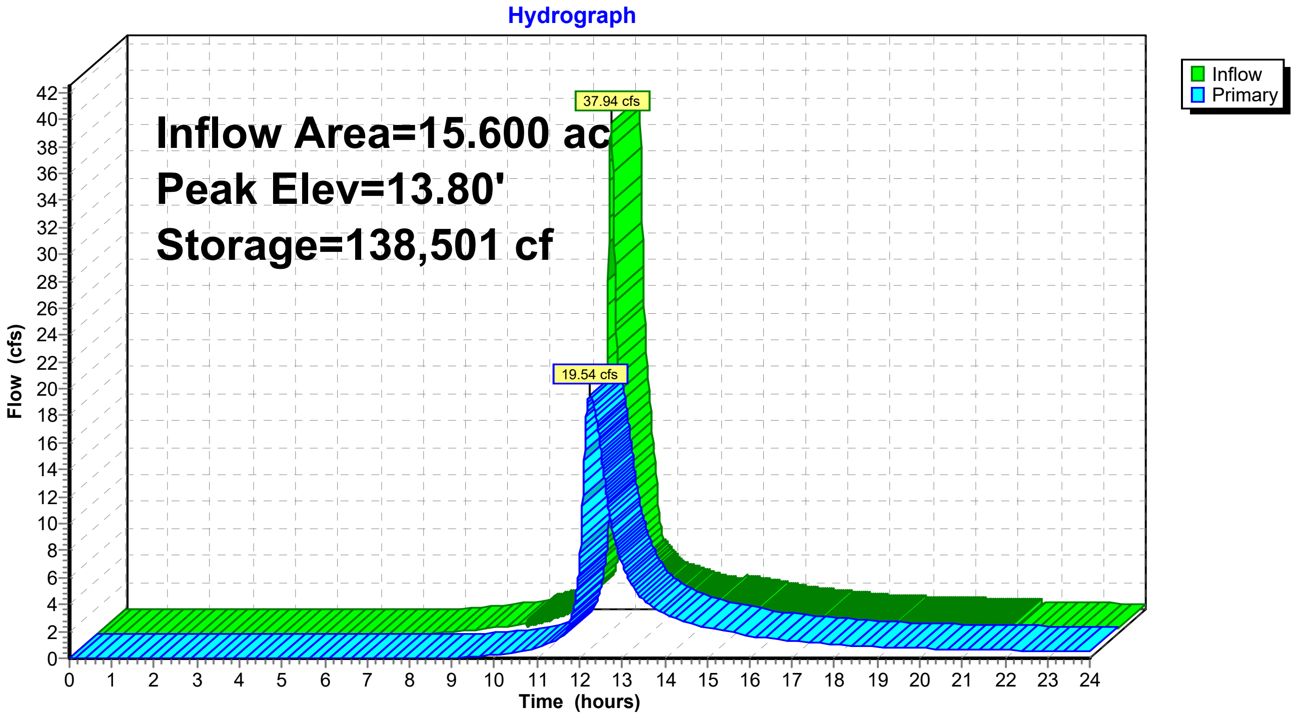
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=19.53 cfs @ 12.25 hrs HW=13.80' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 19.53 cfs @ 2.82 fps)

Pond POST-2PA: POND 2A



Summary for Subcatchment CI01-PH5: CI01-PH5

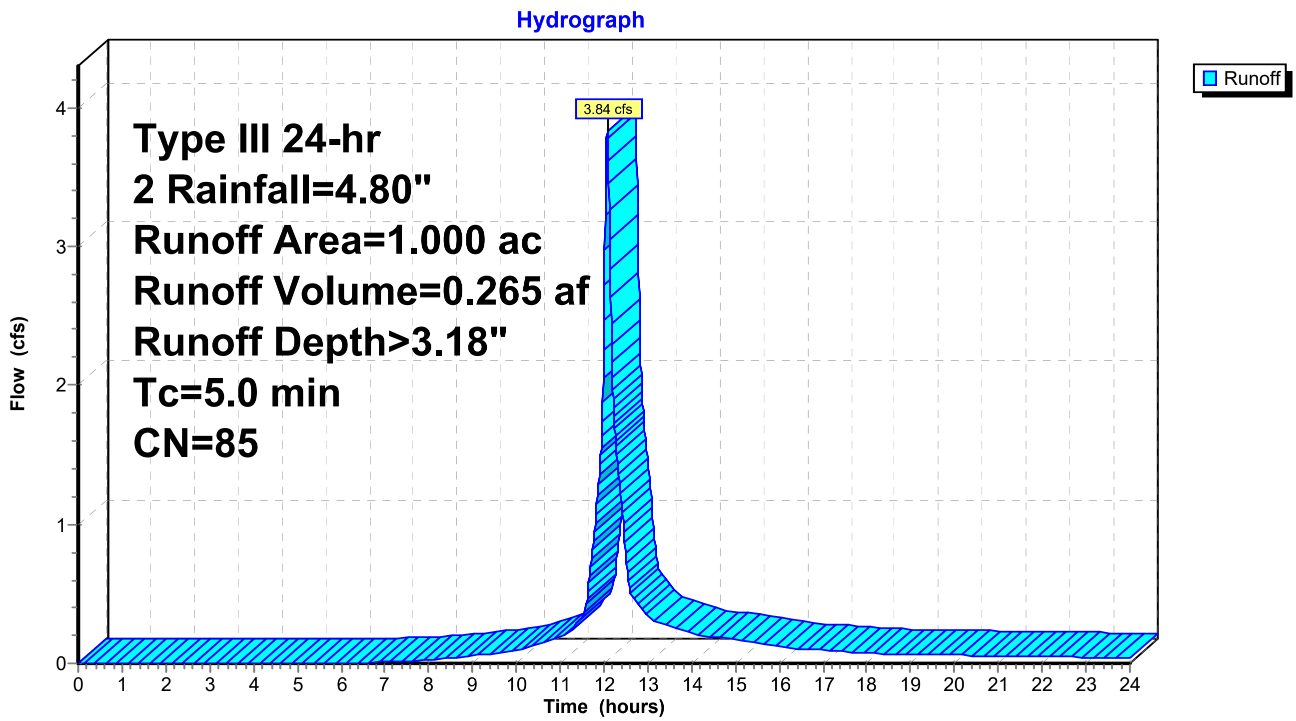
Runoff = 3.84 cfs @ 12.07 hrs, Volume= 0.265 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI01-PH5: CI01-PH5



Summary for Subcatchment CI02-PH5: CI02-PH5

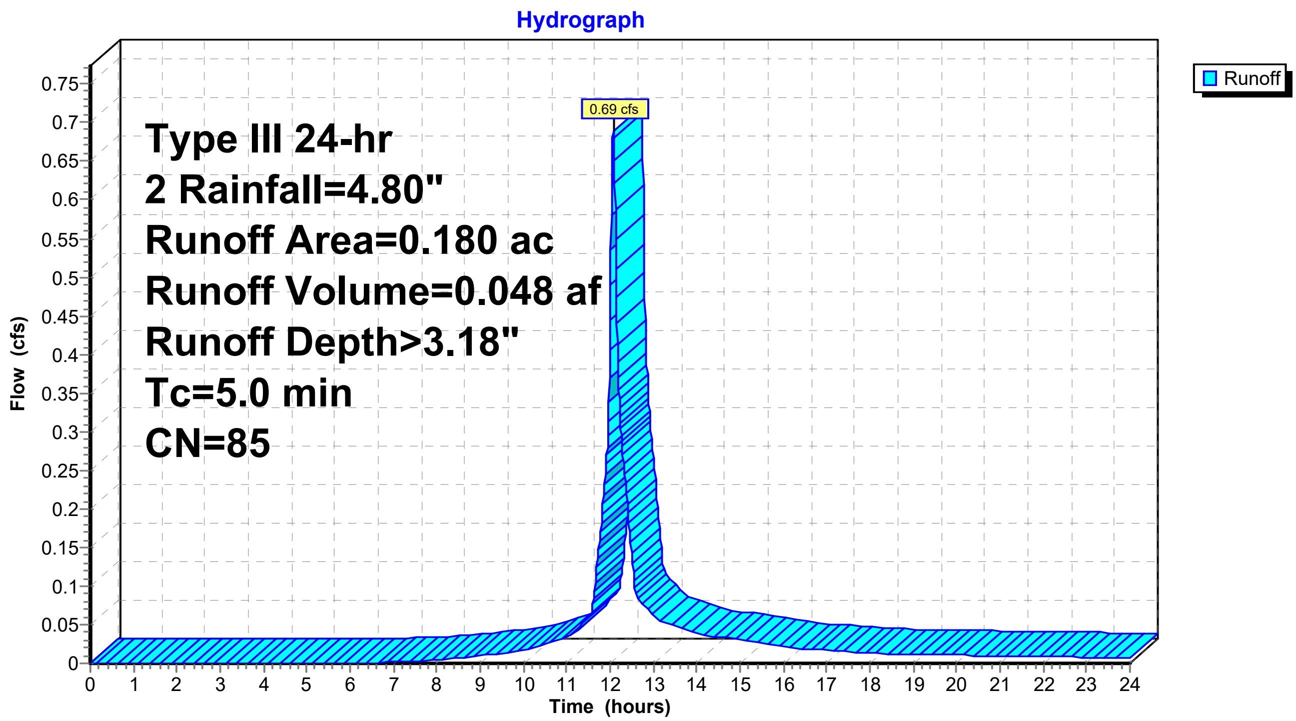
Runoff = 0.69 cfs @ 12.07 hrs, Volume= 0.048 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	0.180	85	
	0.180		100.00% Pervious Area

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

Subcatchment CI02-PH5: CI02-PH5



Summary for Subcatchment CI03-PH5: CI03-PH5

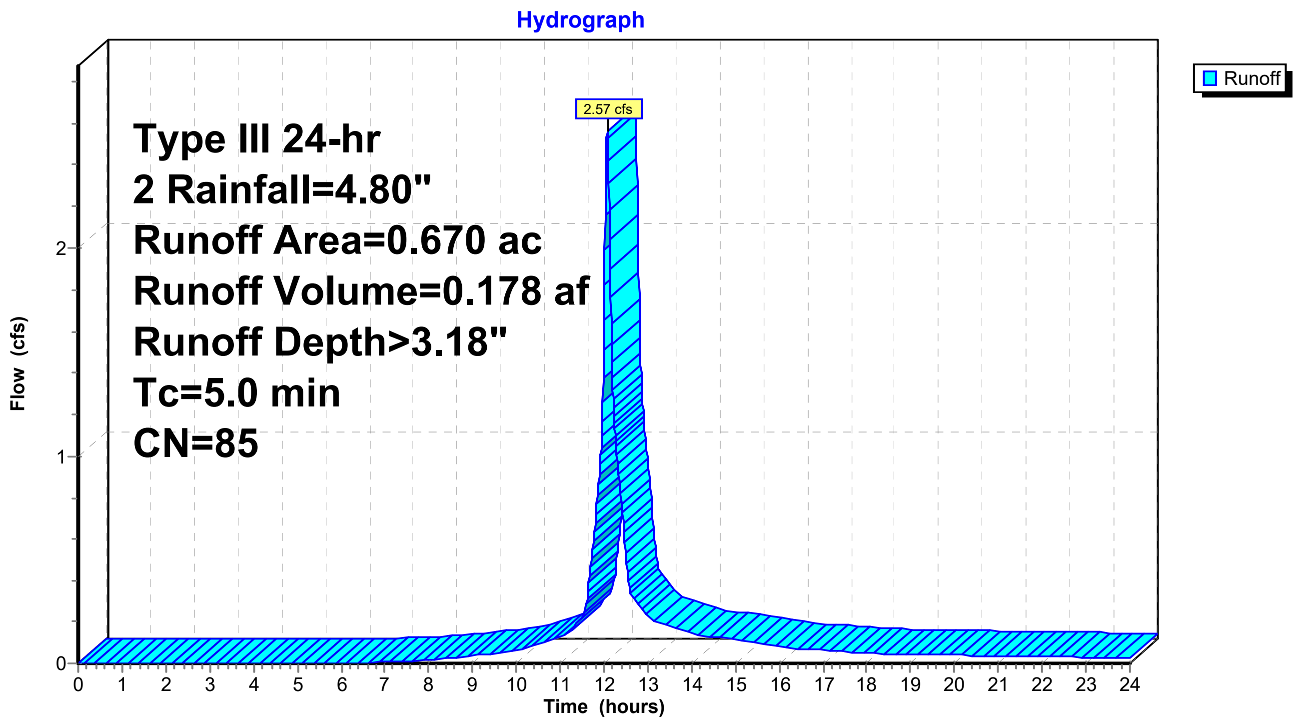
Runoff = 2.57 cfs @ 12.07 hrs, Volume= 0.178 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI03-PH5: CI03-PH5



Summary for Subcatchment CI04-PH5: CI04-PH5

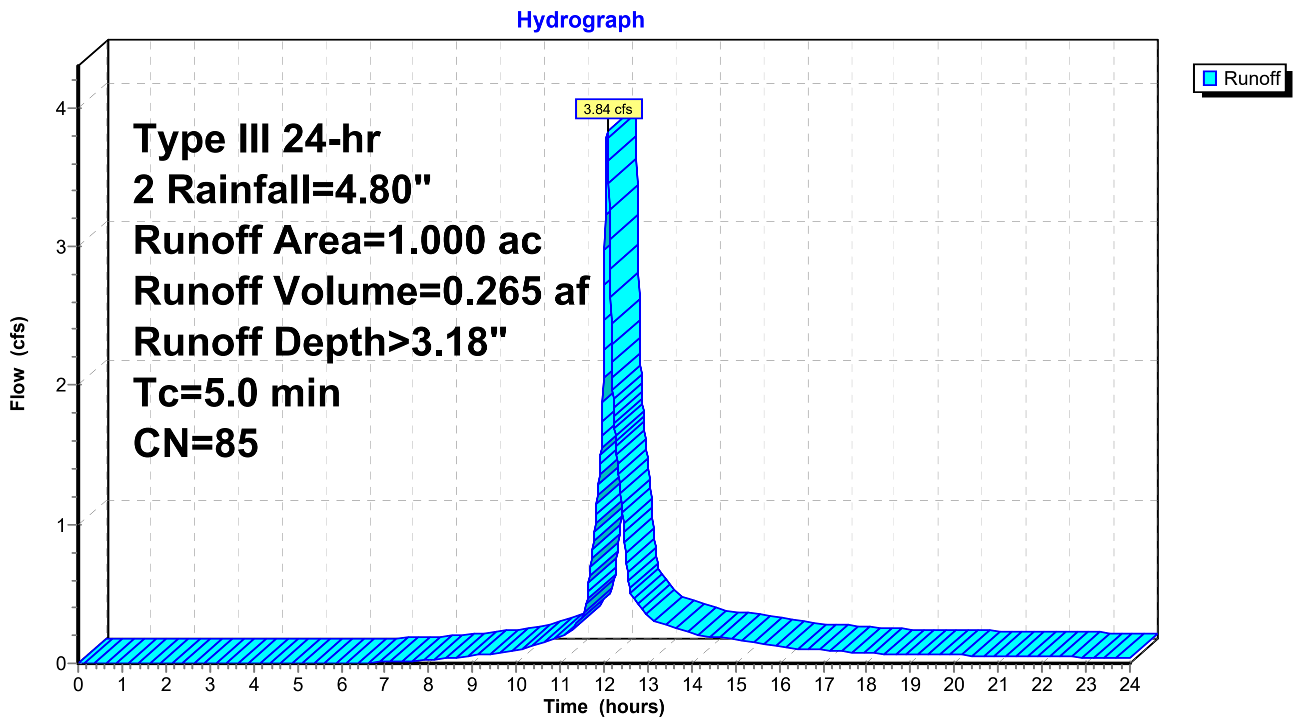
Runoff = 3.84 cfs @ 12.07 hrs, Volume= 0.265 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI04-PH5: CI04-PH5



Summary for Subcatchment CI05-PH5: CI05-PH5

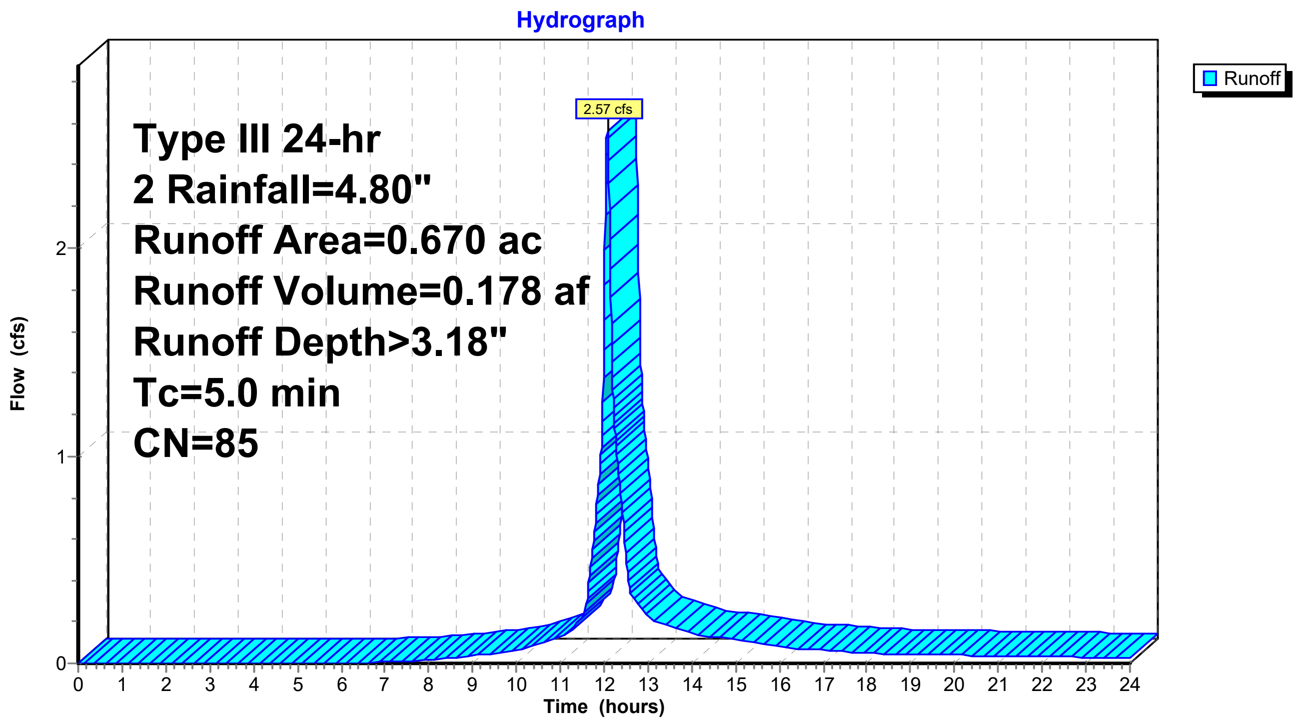
Runoff = 2.57 cfs @ 12.07 hrs, Volume= 0.178 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI05-PH5: CI05-PH5



Summary for Subcatchment CI06-PH5: CI06-PH5

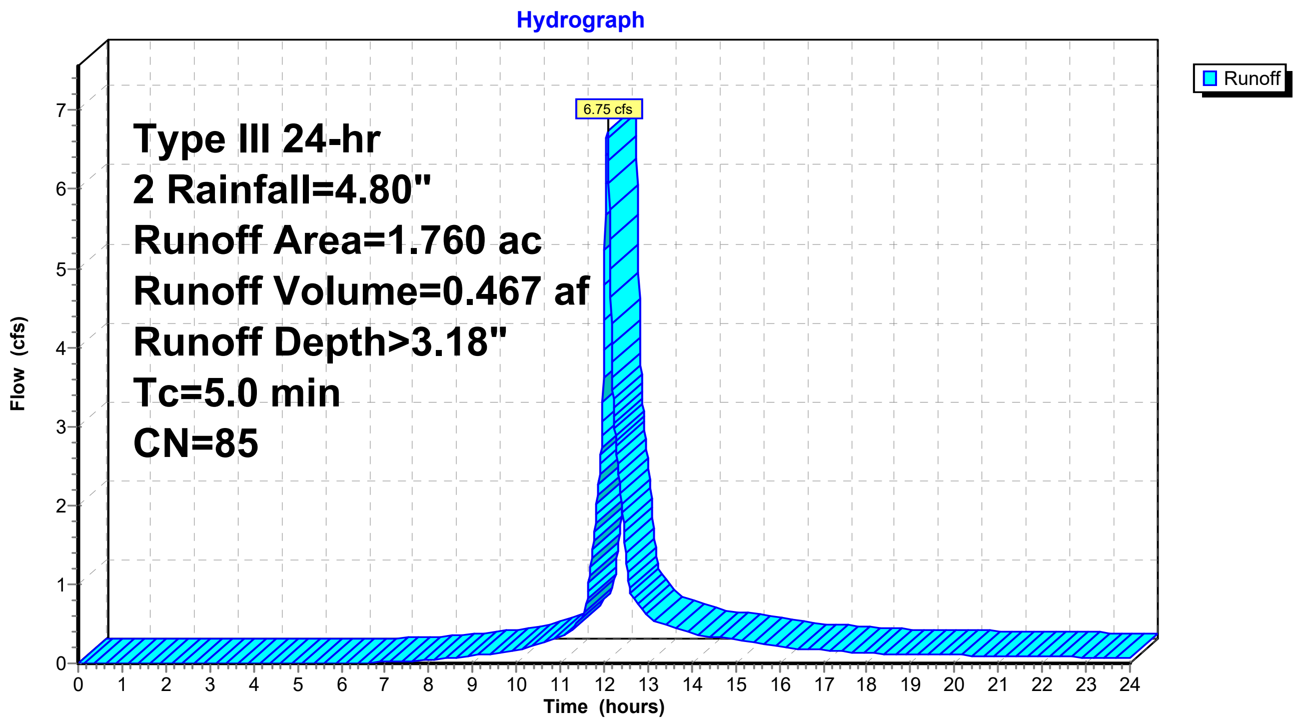
Runoff = 6.75 cfs @ 12.07 hrs, Volume= 0.467 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	1.760	85	
	1.760		100.00% Pervious Area

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

Subcatchment CI06-PH5: CI06-PH5



Summary for Pond CI 01-PH5: CI01-PH5

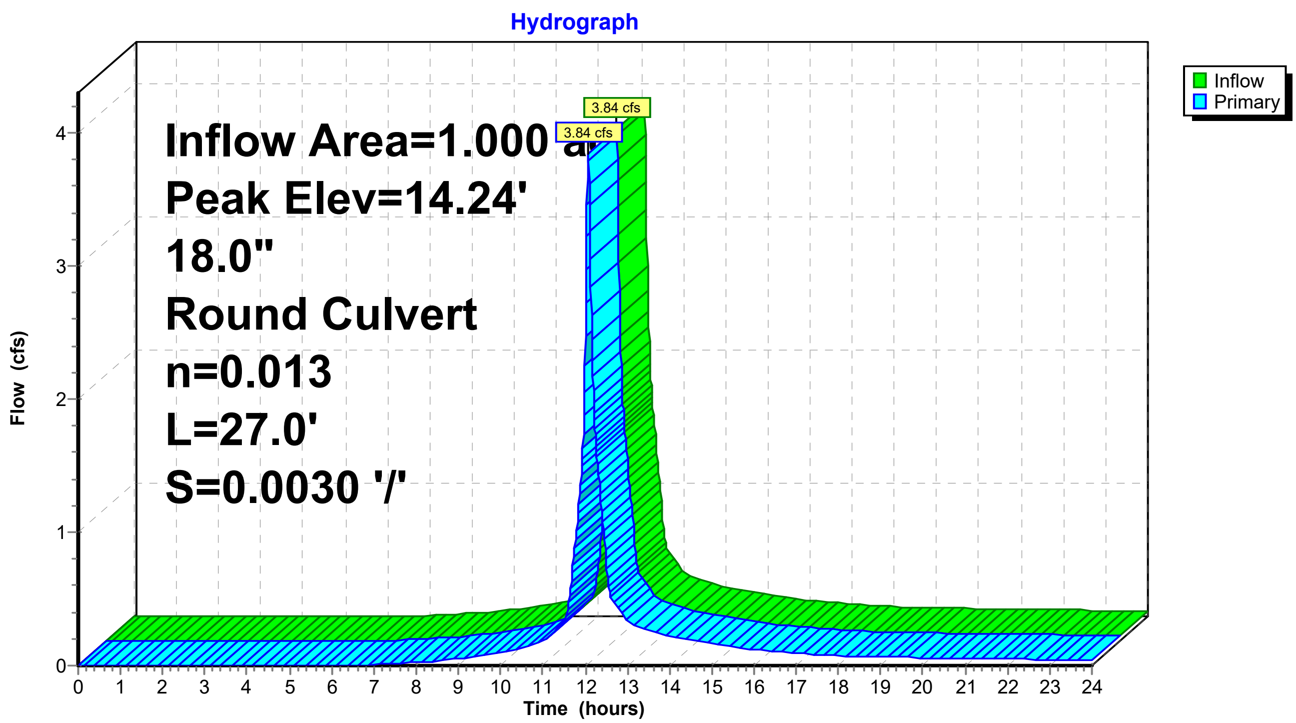
Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth >	3.18"	for 2 event
Inflow =	3.84 cfs @	12.07 hrs, Volume=	0.265 af	
Outflow =	3.84 cfs @	12.07 hrs, Volume=	0.265 af, Atten= 0%, Lag= 0.0 min	
Primary =	3.84 cfs @	12.07 hrs, Volume=	0.265 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.24' @ 12.11 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.84'	**18.0" Round RCP_Round 18"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.84' / 12.76' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=3.53 cfs @ 12.07 hrs HW=14.20' TW=14.01' (Dynamic Tailwater)
1=RCP_Round 18" (Outlet Controls 3.53 cfs @ 2.77 fps)

Pond CI 01-PH5: CI01-PH5



Summary for Pond CI 02-PH5: CI02-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[80] Warning: Exceeded Pond CI 01-PH5 by 0.09' @ 18.91 hrs (0.15 cfs 0.023 af)

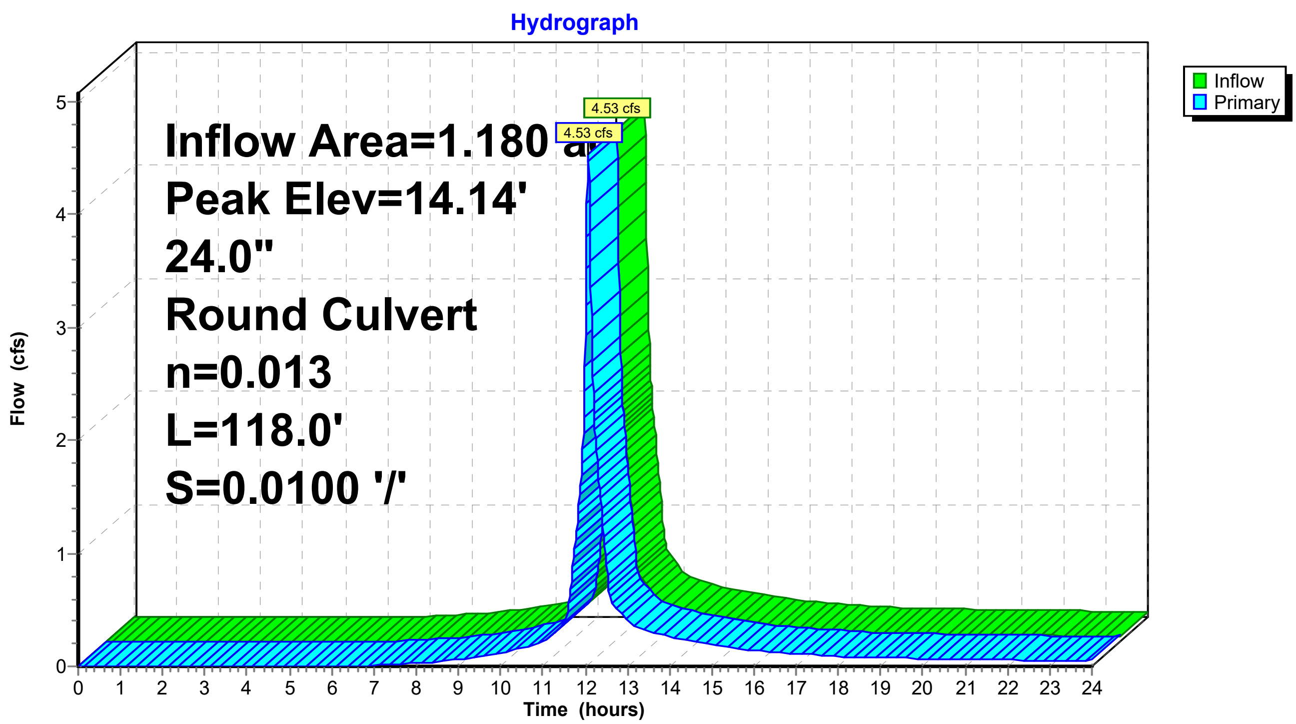
Inflow Area = 1.180 ac, 0.00% Impervious, Inflow Depth > 3.18" for 2 event
Inflow = 4.53 cfs @ 12.07 hrs, Volume= 0.313 af
Outflow = 4.53 cfs @ 12.08 hrs, Volume= 0.313 af, Atten= 0%, Lag= 0.1 min
Primary = 4.53 cfs @ 12.08 hrs, Volume= 0.313 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.14' @ 12.21 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.16'	**24.0" Round RCP_Round 24"** L= 118.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.16' / 10.98' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=3.90 cfs @ 12.08 hrs HW=14.01' TW=13.91' (Dynamic Tailwater)
└─**1=RCP_Round 24"** (Outlet Controls 3.90 cfs @ 1.67 fps)

Pond CI 02-PH5: CI02-PH5



Summary for Pond CI 03-PH5: CI03-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=53)
[80] Warning: Exceeded Pond CI 02-PH5 by 0.80' @ 18.90 hrs (3.76 cfs 0.967 af)
[80] Warning: Exceeded Pond CI 04-PH5 by 2.20' @ 14.40 hrs (14.60 cfs 6.843 af)
[80] Warning: Exceeded Pond CI 05-PH5 by 2.51' @ 18.96 hrs (25.14 cfs 6.338 af)

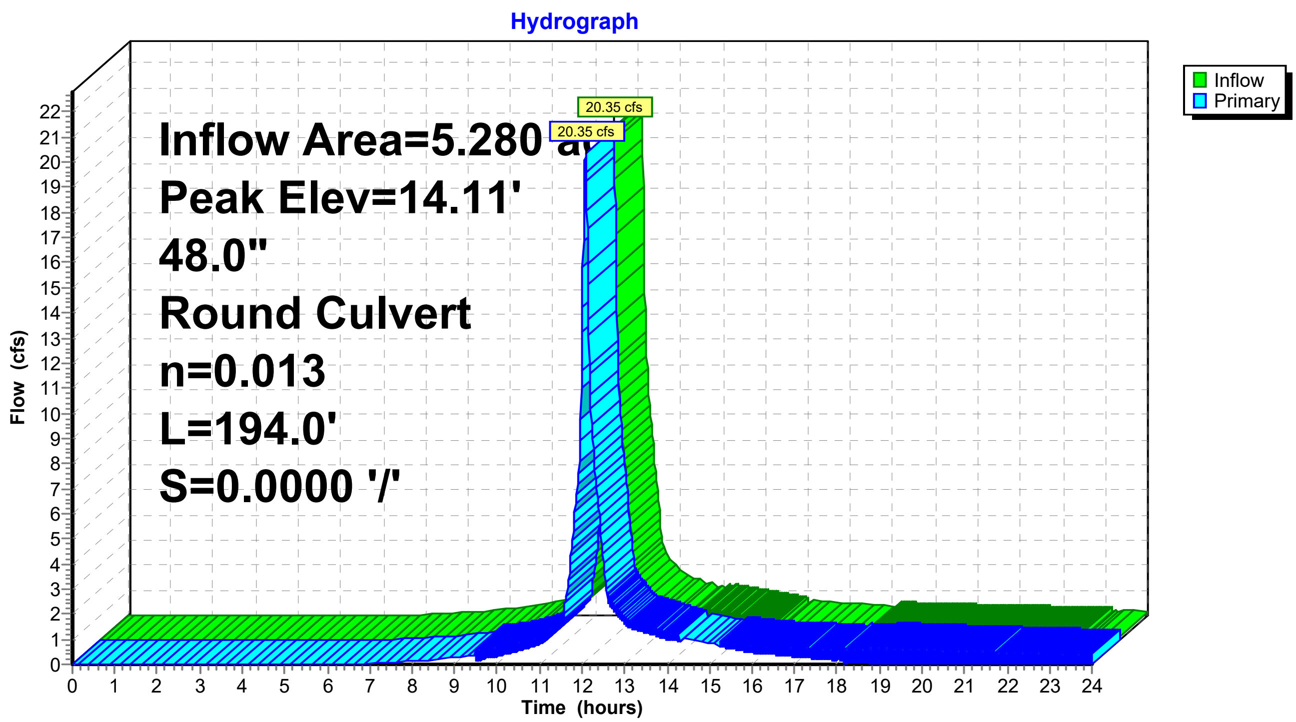
Inflow Area = 5.280 ac, 0.00% Impervious, Inflow Depth > 3.18" for 2 event
Inflow = 20.35 cfs @ 12.07 hrs, Volume= 1.400 af
Outflow = 20.35 cfs @ 12.08 hrs, Volume= 1.400 af, Atten= 0%, Lag= 0.4 min
Primary = 20.35 cfs @ 12.08 hrs, Volume= 1.400 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.11' @ 12.20 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.00'	**48.0" Round RCP_Round 48"** L= 194.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.00' / 9.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 12.57 sf

Primary OutFlow Max=15.57 cfs @ 12.08 hrs HW=13.92' TW=13.87' (Dynamic Tailwater)
└─**1=RCP_Round 48"** (Outlet Controls 15.57 cfs @ 1.29 fps)

Pond CI 03-PH5: CI03-PH5



Summary for Pond CI 04-PH5: CI04-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=753)

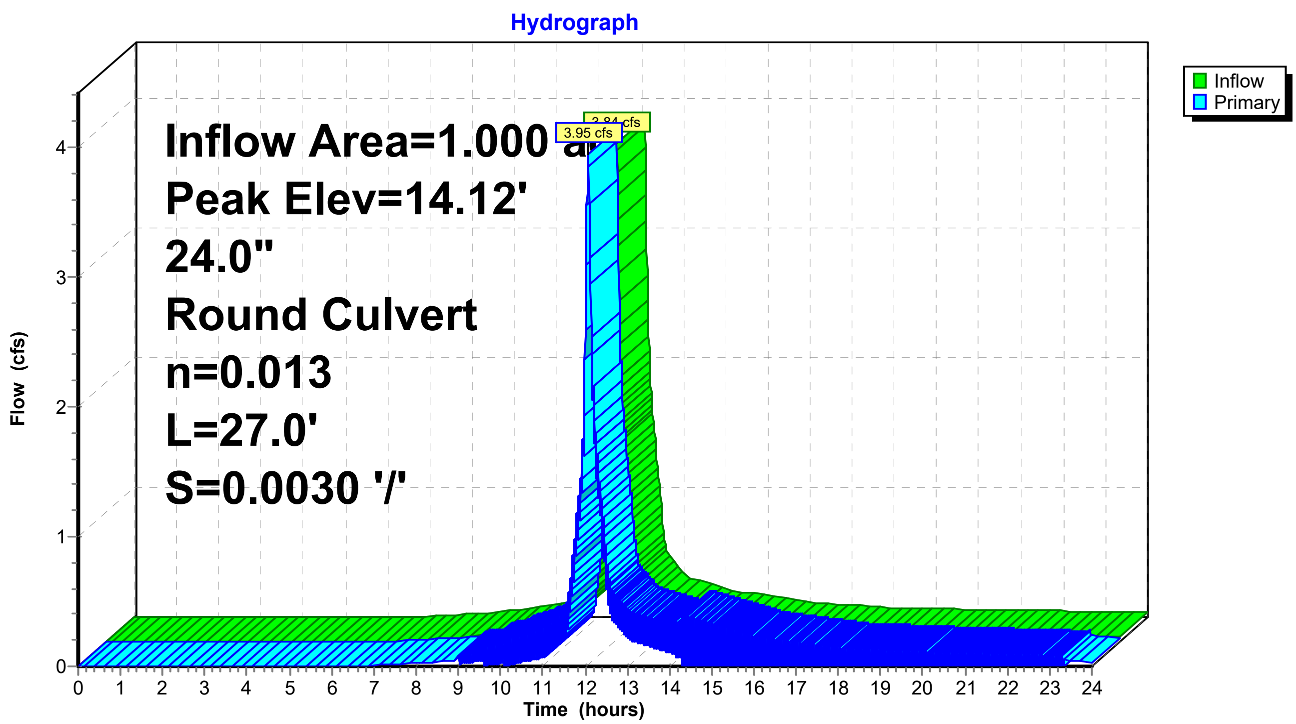
Inflow Area = 1.000 ac, 0.00% Impervious, Inflow Depth > 3.18" for 2 event
Inflow = 3.84 cfs @ 12.07 hrs, Volume= 0.265 af
Outflow = 3.95 cfs @ 12.07 hrs, Volume= 0.265 af, Atten= 0%, Lag= 0.0 min
Primary = 3.95 cfs @ 12.07 hrs, Volume= 0.265 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.12' @ 12.21 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.06'	**24.0" Round RCP_Round 24"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 11.06' / 10.98' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=1.85 cfs @ 12.07 hrs HW=13.90' TW=13.89' (Dynamic Tailwater)
└—**1=RCP_Round 24"** (Inlet Controls 1.85 cfs @ 0.59 fps)

Pond CI 04-PH5: CI04-PH5



Summary for Pond CI 05-PH5: CI05-PH5

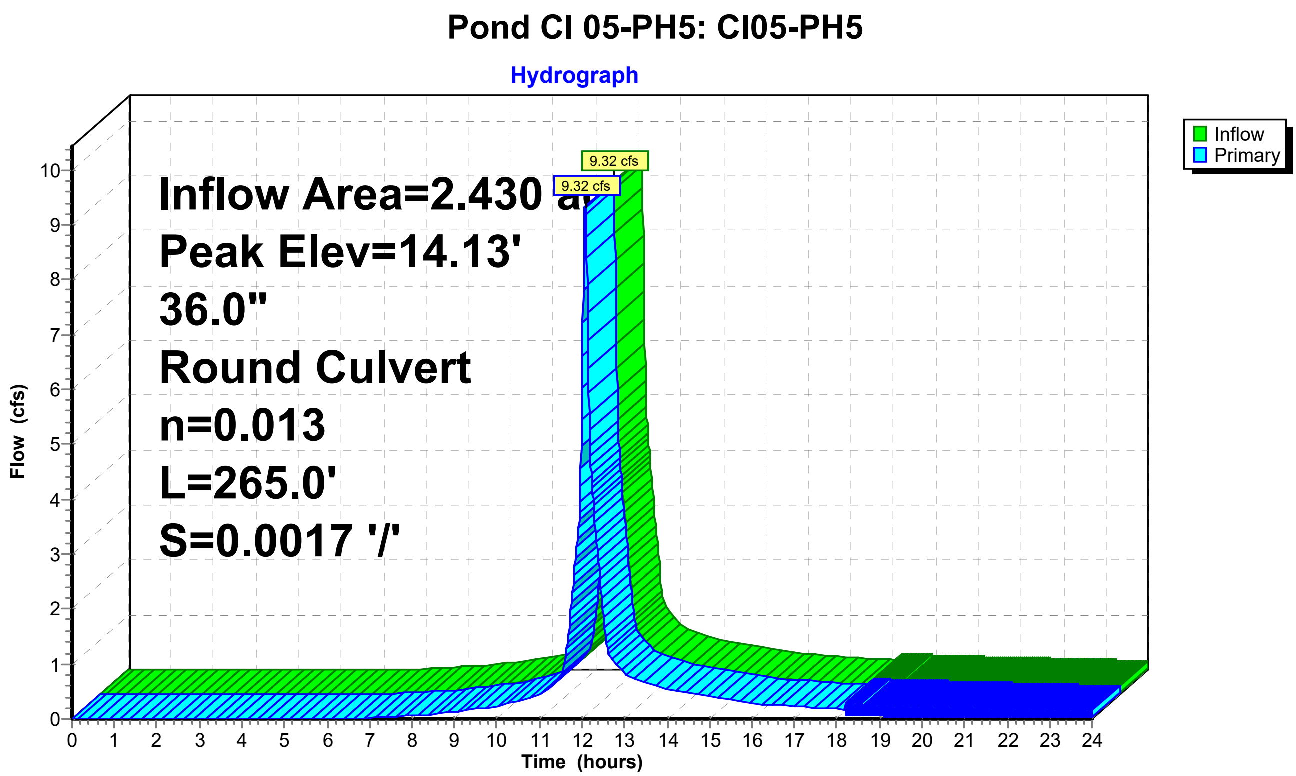
[80] Warning: Exceeded Pond CI 06-PH5 by 2.10' @ 23.30 hrs (17.10 cfs 6.481 af)

Inflow Area = 2.430 ac, 0.00% Impervious, Inflow Depth > 3.18" for 2 event
Inflow = 9.32 cfs @ 12.07 hrs, Volume= 0.644 af
Outflow = 9.32 cfs @ 12.07 hrs, Volume= 0.644 af, Atten= 0%, Lag= 0.0 min
Primary = 9.32 cfs @ 12.07 hrs, Volume= 0.644 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.13' @ 12.21 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.44'	**36.0" Round RCP_Round 36"** L= 265.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.44' / 9.98' S= 0.0017 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 7.07 sf

Primary OutFlow Max=7.13 cfs @ 12.07 hrs HW=13.95' TW=13.90' (Dynamic Tailwater)
└─**1=RCP_Round 36"** (Outlet Controls 7.13 cfs @ 1.08 fps)



Summary for Pond CI 06-PH5: CI06-PH5

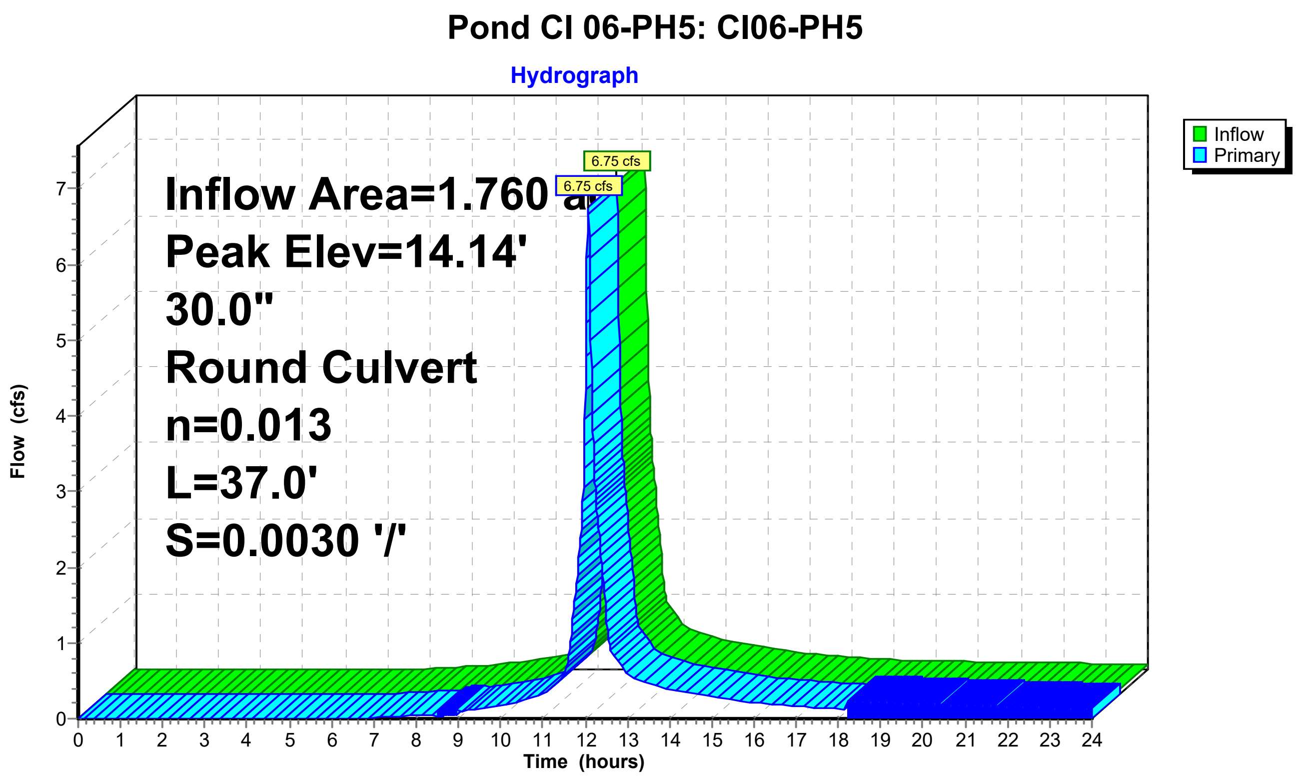
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=350)

Inflow Area =	1.760 ac,	0.00% Impervious, Inflow Depth > 3.18"	for 2 event
Inflow =	6.75 cfs @	12.07 hrs, Volume=	0.467 af
Outflow =	6.75 cfs @	12.07 hrs, Volume=	0.466 af, Atten= 0%, Lag= 0.0 min
Primary =	6.75 cfs @	12.07 hrs, Volume=	0.466 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.14' @ 12.20 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.89'	**30.0" Round RCP_Round 30"** L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.89' / 10.78' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=3.44 cfs @ 12.07 hrs HW=13.96' TW=13.95' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Inlet Controls 3.44 cfs @ 0.70 fps)



Summary for Pond POST-2PA: POND 2A

[80] Warning: Exceeded Pond CI 03-PH5 by 4.08' @ 18.89 hrs (59.88 cfs 20.888 af)

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 3.18" for 2 event
Inflow = 56.65 cfs @ 12.08 hrs, Volume= 4.134 af
Outflow = 33.71 cfs @ 12.20 hrs, Volume= 4.041 af, Atten= 40%, Lag= 7.1 min
Primary = 33.71 cfs @ 12.20 hrs, Volume= 4.041 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.09' @ 12.20 hrs Surf.Area= 35,012 sf Storage= 148,688 cf (39,966 cf above start)

Plug-Flow detention time= 325.9 min calculated for 1.546 af (37% of inflow)
Center-of-Mass det. time= 31.3 min (840.0 - 808.7)

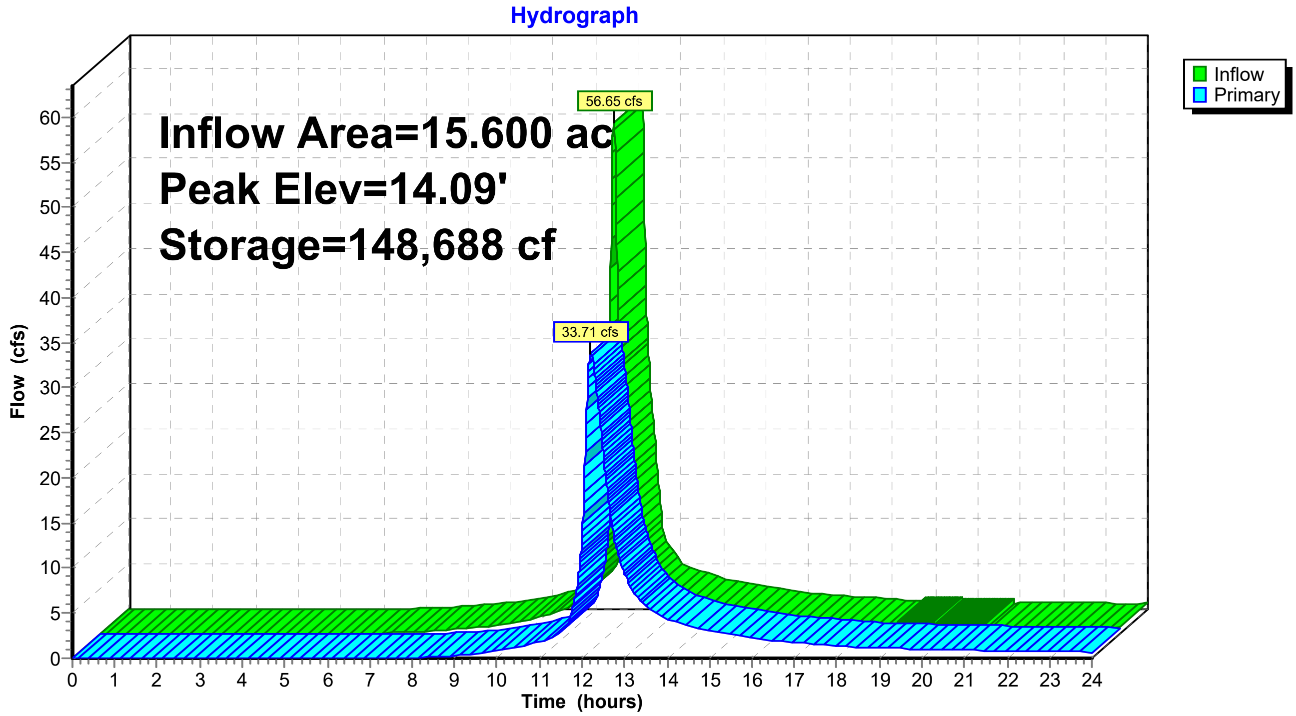
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=33.70 cfs @ 12.20 hrs HW=14.09' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 33.70 cfs @ 3.21 fps)

Pond POST-2PA: POND 2A



Summary for Subcatchment CI01-PH5: CI01-PH5

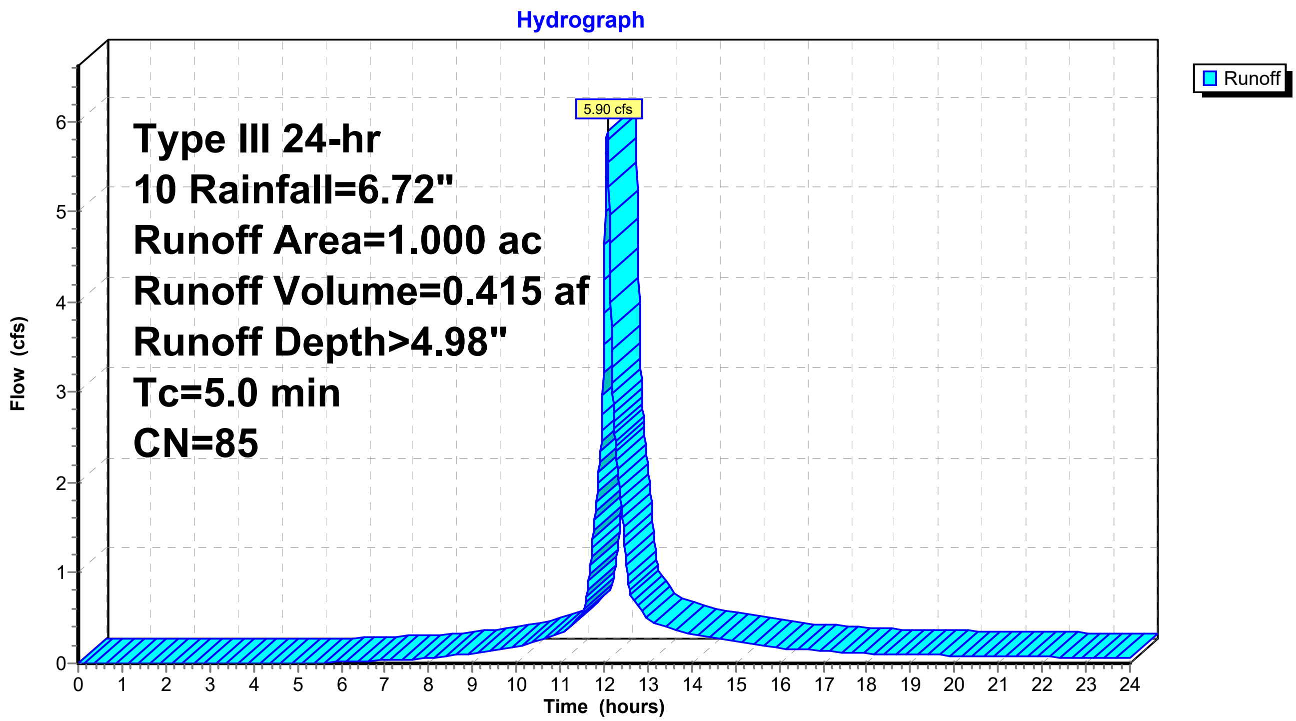
Runoff = 5.90 cfs @ 12.07 hrs, Volume= 0.415 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI01-PH5: CI01-PH5



Summary for Subcatchment CI02-PH5: CI02-PH5

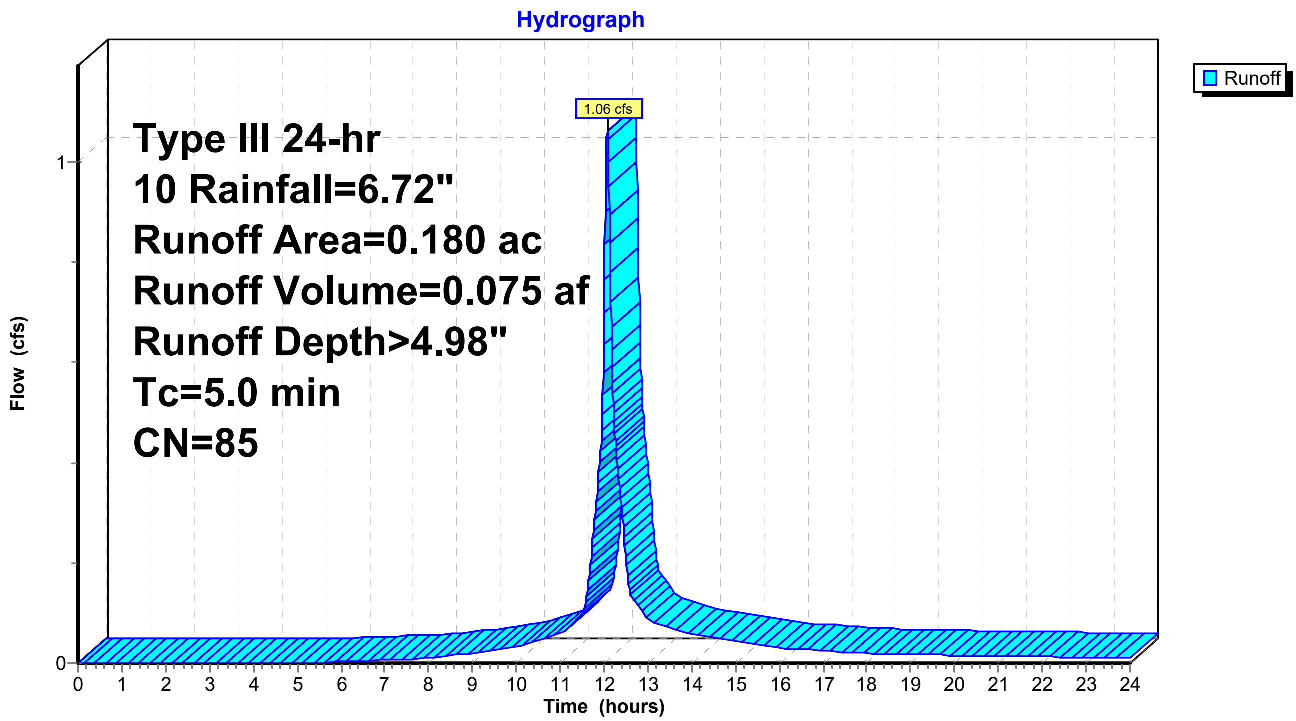
Runoff = 1.06 cfs @ 12.07 hrs, Volume= 0.075 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	0.180	85	
	0.180		100.00% Pervious Area

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

Subcatchment CI02-PH5: CI02-PH5



Summary for Subcatchment CI03-PH5: CI03-PH5

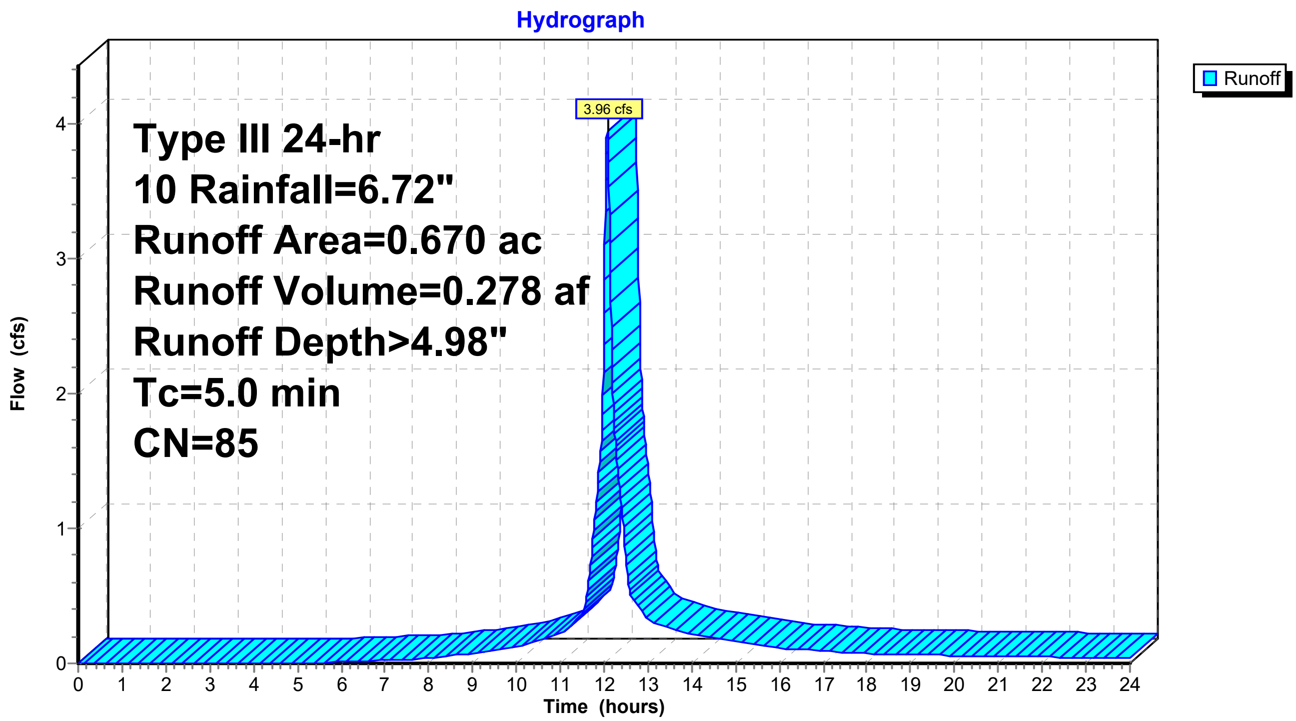
Runoff = 3.96 cfs @ 12.07 hrs, Volume= 0.278 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI03-PH5: CI03-PH5



Summary for Subcatchment CI04-PH5: CI04-PH5

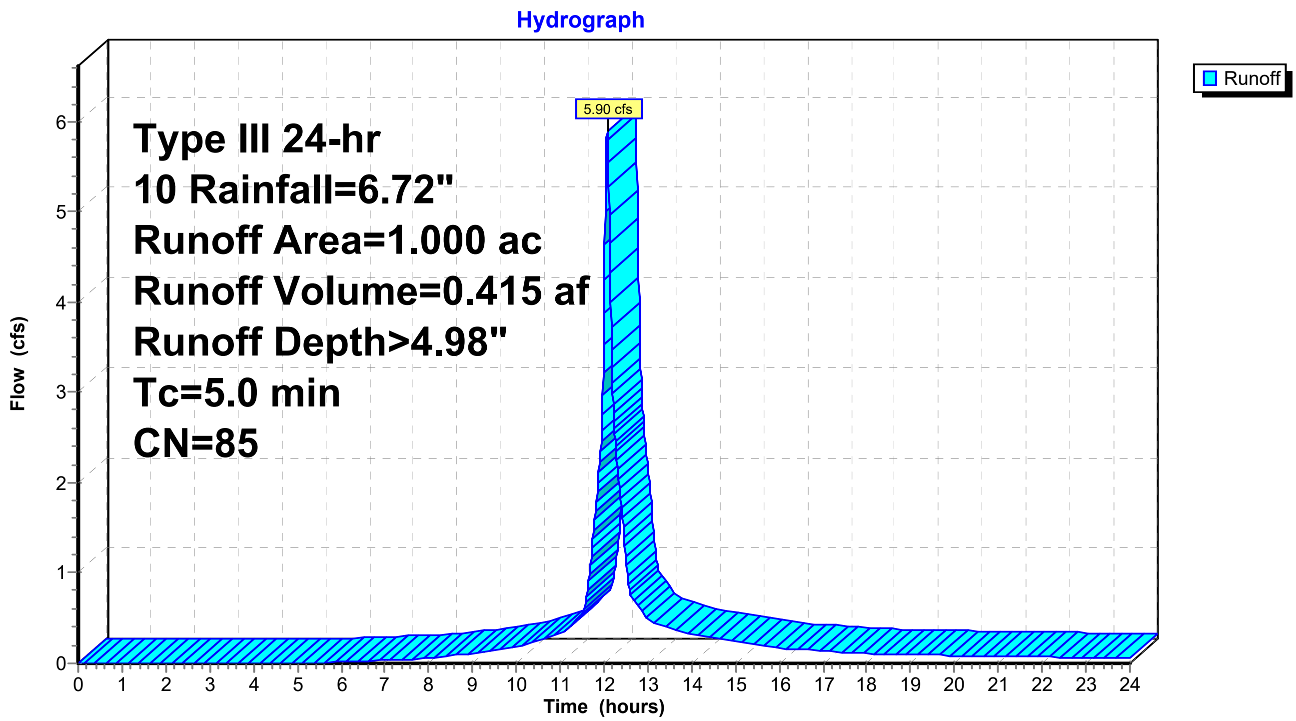
Runoff = 5.90 cfs @ 12.07 hrs, Volume= 0.415 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI04-PH5: CI04-PH5



Summary for Subcatchment CI05-PH5: CI05-PH5

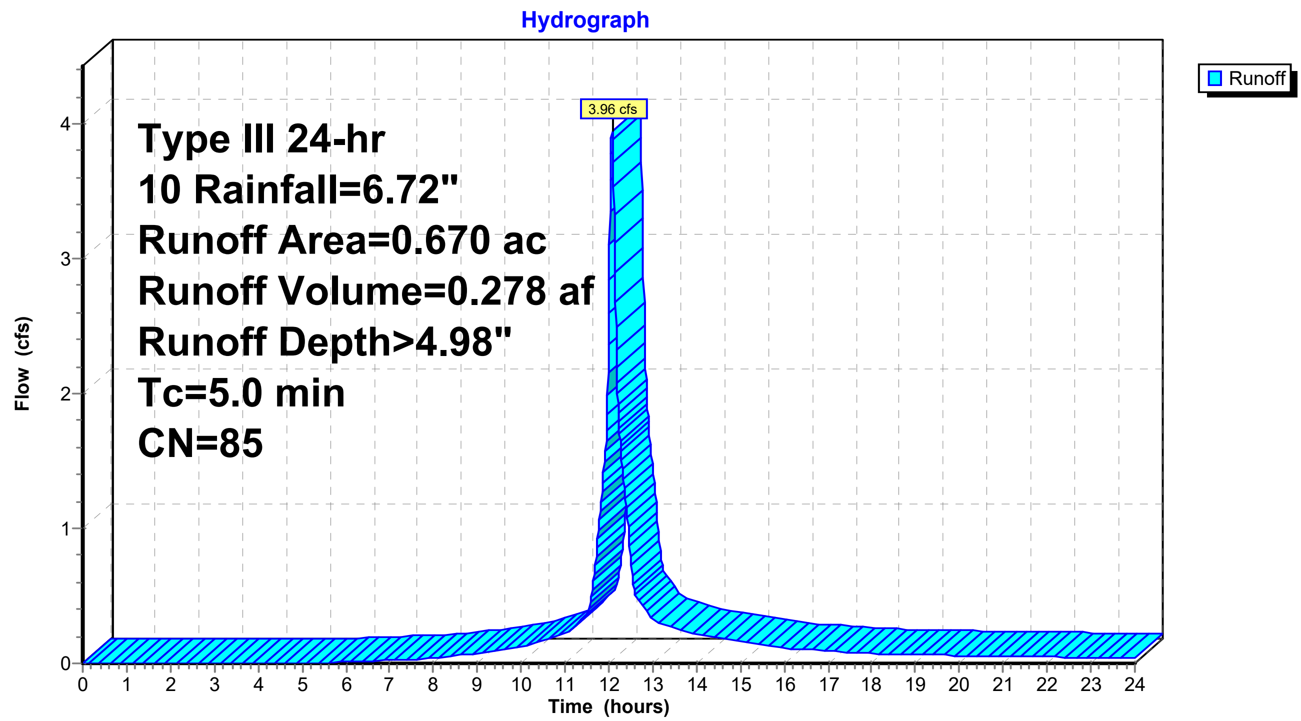
Runoff = 3.96 cfs @ 12.07 hrs, Volume= 0.278 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI05-PH5: CI05-PH5



Summary for Subcatchment CI06-PH5: CI06-PH5

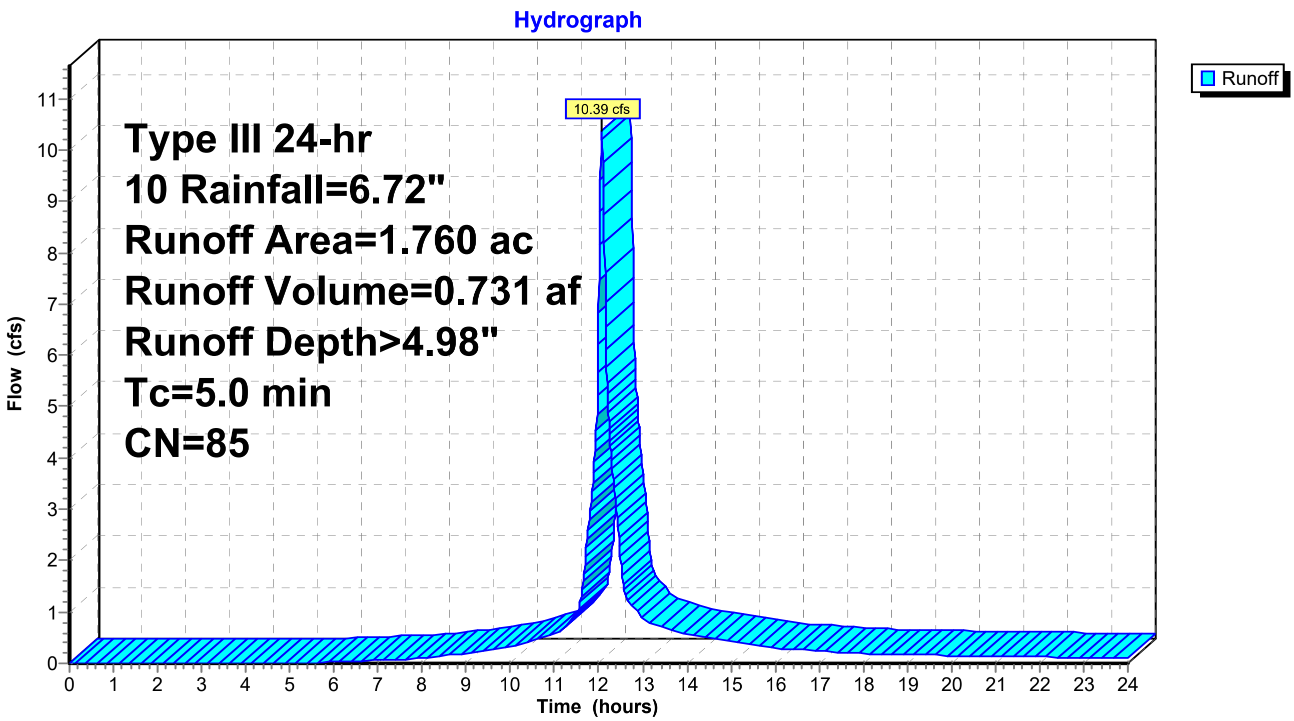
Runoff = 10.39 cfs @ 12.07 hrs, Volume= 0.731 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	1.760	85	
	1.760		100.00% Pervious Area

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

Subcatchment CI06-PH5: CI06-PH5



Summary for Pond CI 01-PH5: CI01-PH5

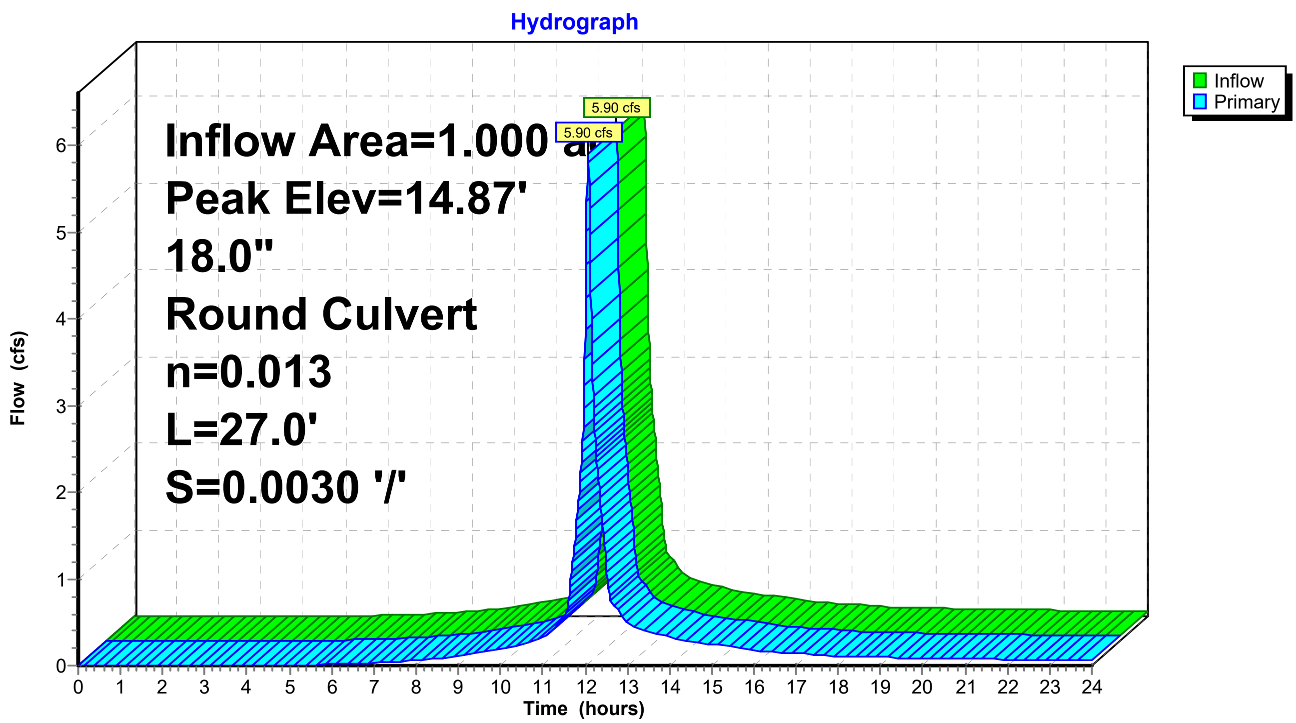
Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth > 4.98"	for 10 event
Inflow =	5.90 cfs @	12.07 hrs, Volume=	0.415 af
Outflow =	5.90 cfs @	12.07 hrs, Volume=	0.415 af, Atten= 0%, Lag= 0.0 min
Primary =	5.90 cfs @	12.07 hrs, Volume=	0.415 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.87' @ 12.11 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.84'	**18.0" Round RCP_Round 18"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.84' / 12.76' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=5.44 cfs @ 12.07 hrs HW=14.78' TW=14.52' (Dynamic Tailwater)
↑—**1=RCP_Round 18"** (Inlet Controls 5.44 cfs @ 3.08 fps)

Pond CI 01-PH5: CI01-PH5



Summary for Pond CI 02-PH5: CI02-PH5

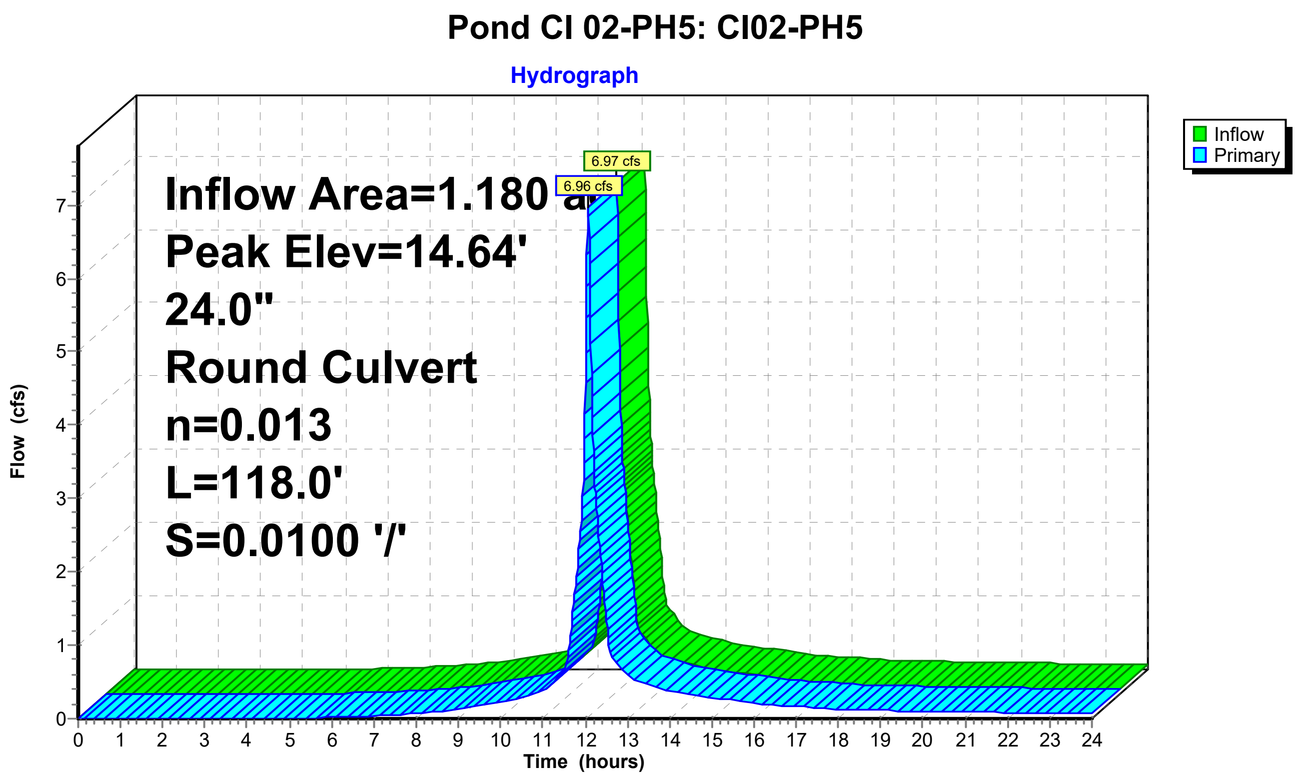
[80] Warning: Exceeded Pond CI 01-PH5 by 0.17' @ 15.90 hrs (0.52 cfs 0.064 af)

Inflow Area =	1.180 ac,	0.00% Impervious, Inflow Depth > 4.98"	for 10 event
Inflow =	6.97 cfs @	12.07 hrs, Volume=	0.490 af
Outflow =	6.96 cfs @	12.07 hrs, Volume=	0.490 af, Atten= 0%, Lag= 0.0 min
Primary =	6.96 cfs @	12.07 hrs, Volume=	0.490 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.64' @ 12.12 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.16'	**24.0" Round RCP_Round 24"** L= 118.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.16' / 10.98' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=5.85 cfs @ 12.07 hrs HW=14.53' TW=14.38' (Dynamic Tailwater)
└─**1=RCP_Round 24"** (Outlet Controls 5.85 cfs @ 1.98 fps)



Summary for Pond CI 03-PH5: CI03-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=13)
[80] Warning: Exceeded Pond CI 02-PH5 by 0.90' @ 15.89 hrs (5.23 cfs 1.294 af)
[80] Warning: Exceeded Pond CI 04-PH5 by 2.02' @ 21.50 hrs (12.95 cfs 6.080 af)
[80] Warning: Exceeded Pond CI 05-PH5 by 2.41' @ 15.89 hrs (27.59 cfs 7.901 af)

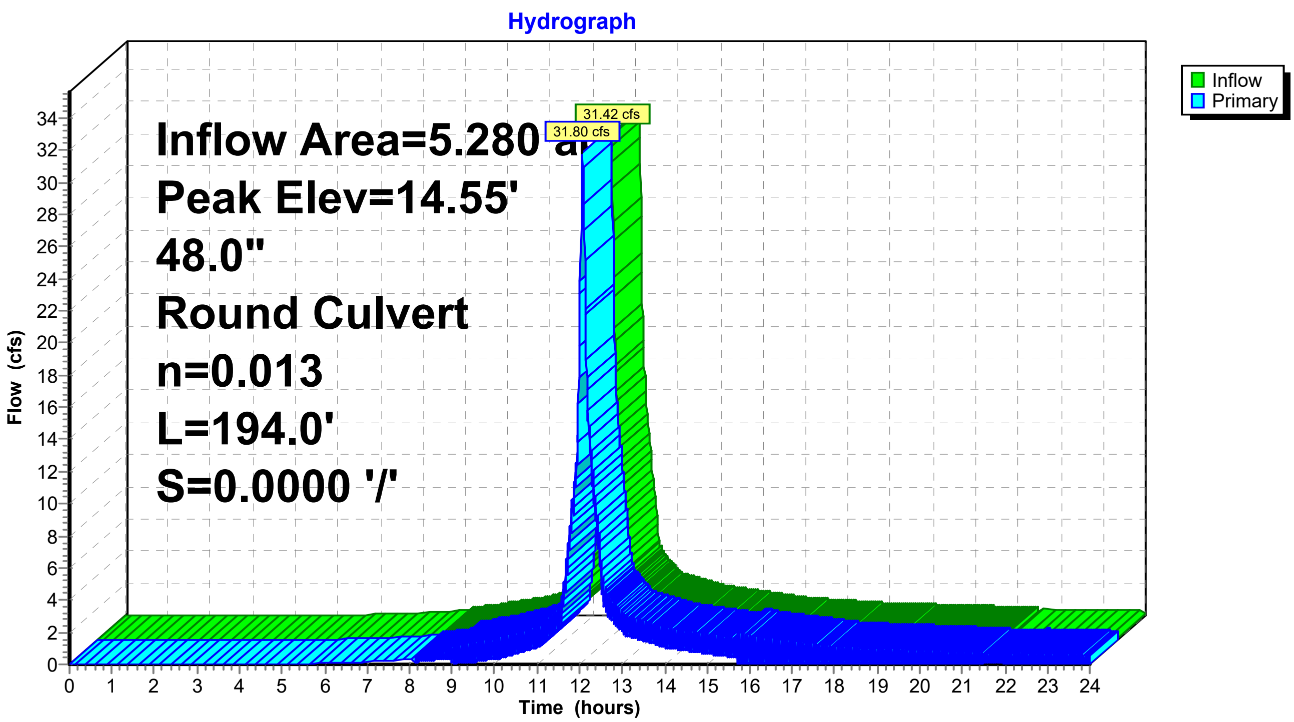
Inflow Area = 5.280 ac, 0.00% Impervious, Inflow Depth > 4.98" for 10 event
Inflow = 31.42 cfs @ 12.07 hrs, Volume= 2.191 af
Outflow = 31.80 cfs @ 12.07 hrs, Volume= 2.191 af, Atten= 0%, Lag= 0.0 min
Primary = 31.80 cfs @ 12.07 hrs, Volume= 2.191 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.55' @ 12.15 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.00'	**48.0" Round RCP_Round 48"** L= 194.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.00' / 9.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 12.57 sf

Primary OutFlow Max=28.15 cfs @ 12.07 hrs HW=14.37' TW=14.21' (Dynamic Tailwater)
└─**1=RCP_Round 48"** (Outlet Controls 28.15 cfs @ 2.24 fps)

Pond CI 03-PH5: CI03-PH5



Summary for Pond CI 04-PH5: CI04-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=816)

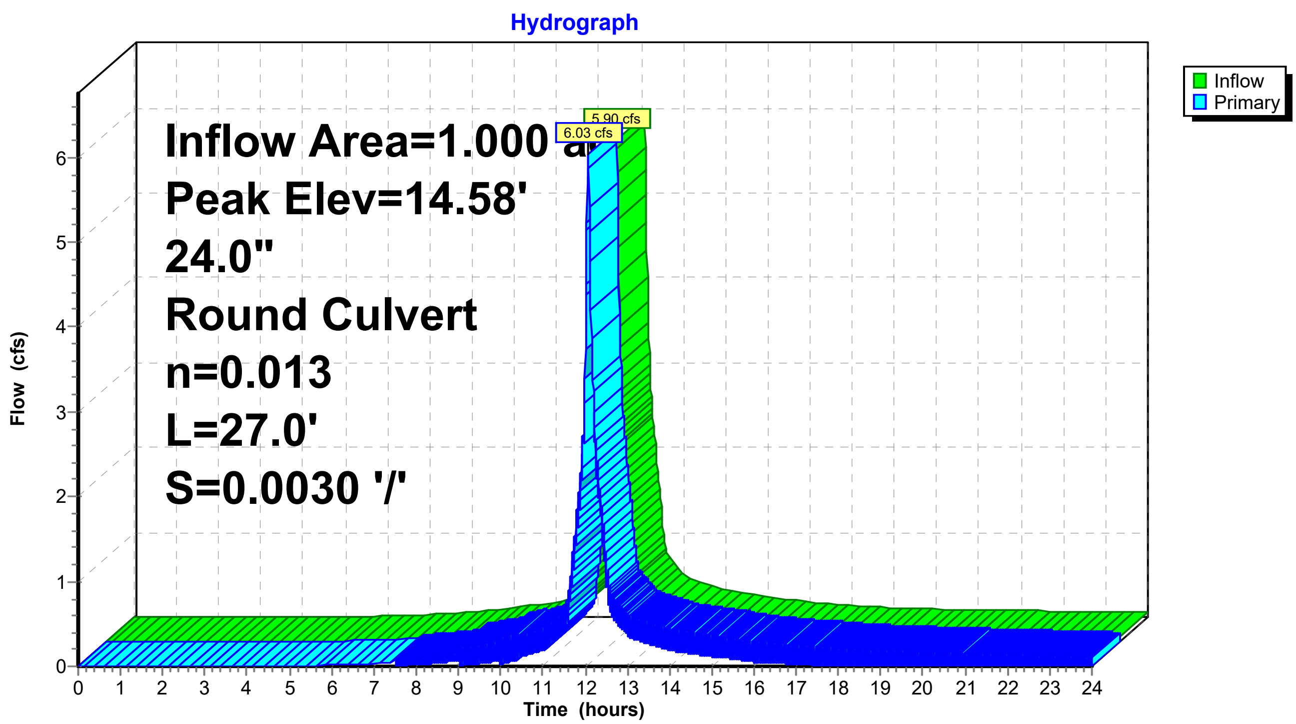
Inflow Area = 1.000 ac, 0.00% Impervious, Inflow Depth > 4.98" for 10 event
Inflow = 5.90 cfs @ 12.07 hrs, Volume= 0.415 af
Outflow = 6.03 cfs @ 12.07 hrs, Volume= 0.415 af, Atten= 0%, Lag= 0.0 min
Primary = 6.03 cfs @ 12.07 hrs, Volume= 0.415 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.58' @ 12.14 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.06'	**24.0" Round RCP_Round 24"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 11.06' / 10.98' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=3.31 cfs @ 12.07 hrs HW=14.41' TW=14.37' (Dynamic Tailwater)
└**1=RCP_Round 24"** (Inlet Controls 3.31 cfs @ 1.05 fps)

Pond CI 04-PH5: CI04-PH5



Summary for Pond CI 05-PH5: CI05-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=585)
[80] Warning: Exceeded Pond CI 06-PH5 by 2.19' @ 21.85 hrs (18.24 cfs 7.551 af)

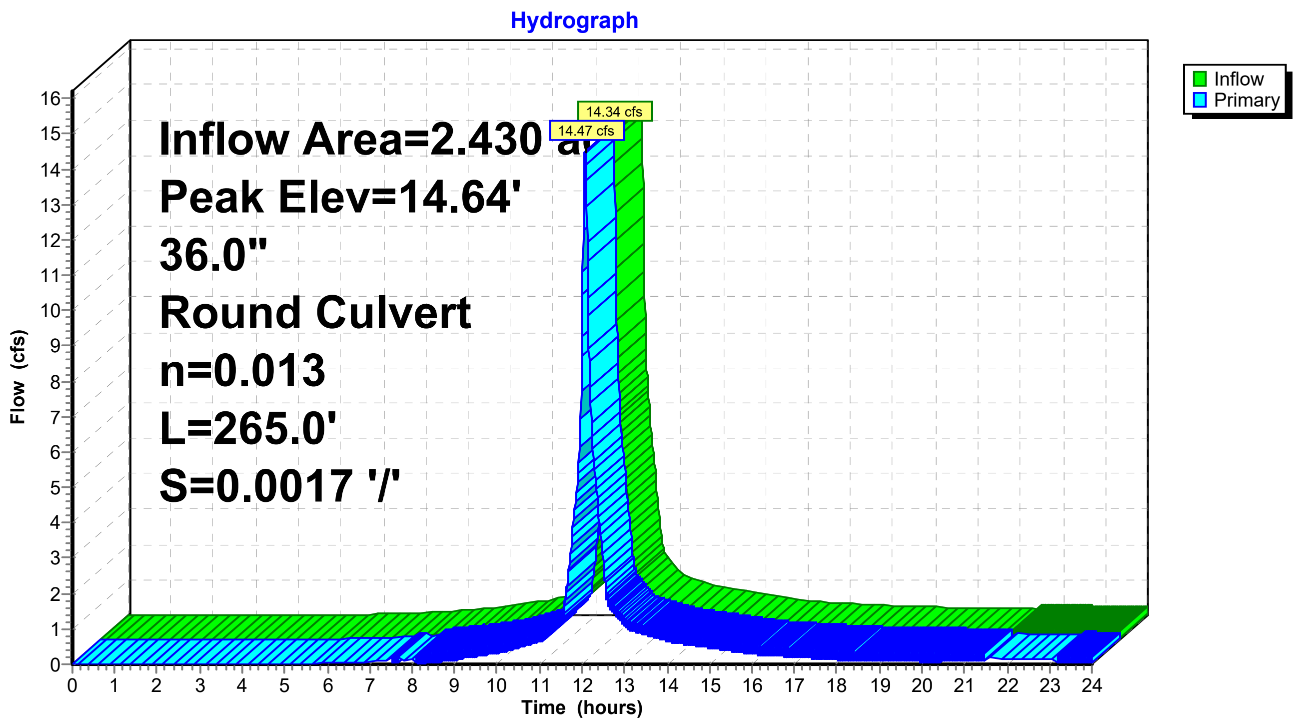
Inflow Area =	2.430 ac,	0.00% Impervious,	Inflow Depth > 4.98"	for 10 event
Inflow =	14.34 cfs @	12.07 hrs, Volume=	1.009 af	
Outflow =	14.47 cfs @	12.07 hrs, Volume=	1.008 af,	Atten= 0%, Lag= 0.0 min
Primary =	14.47 cfs @	12.07 hrs, Volume=	1.008 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.64' @ 12.12 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.44'	**36.0" Round RCP_Round 36"** L= 265.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.44' / 9.98' S= 0.0017 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 7.07 sf

Primary OutFlow Max=11.72 cfs @ 12.07 hrs HW=14.51' TW=14.38' (Dynamic Tailwater)
1=RCP_Round 36" (Outlet Controls 11.72 cfs @ 1.66 fps)

Pond CI 05-PH5: CI05-PH5



Summary for Pond CI 06-PH5: CI06-PH5

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=195)

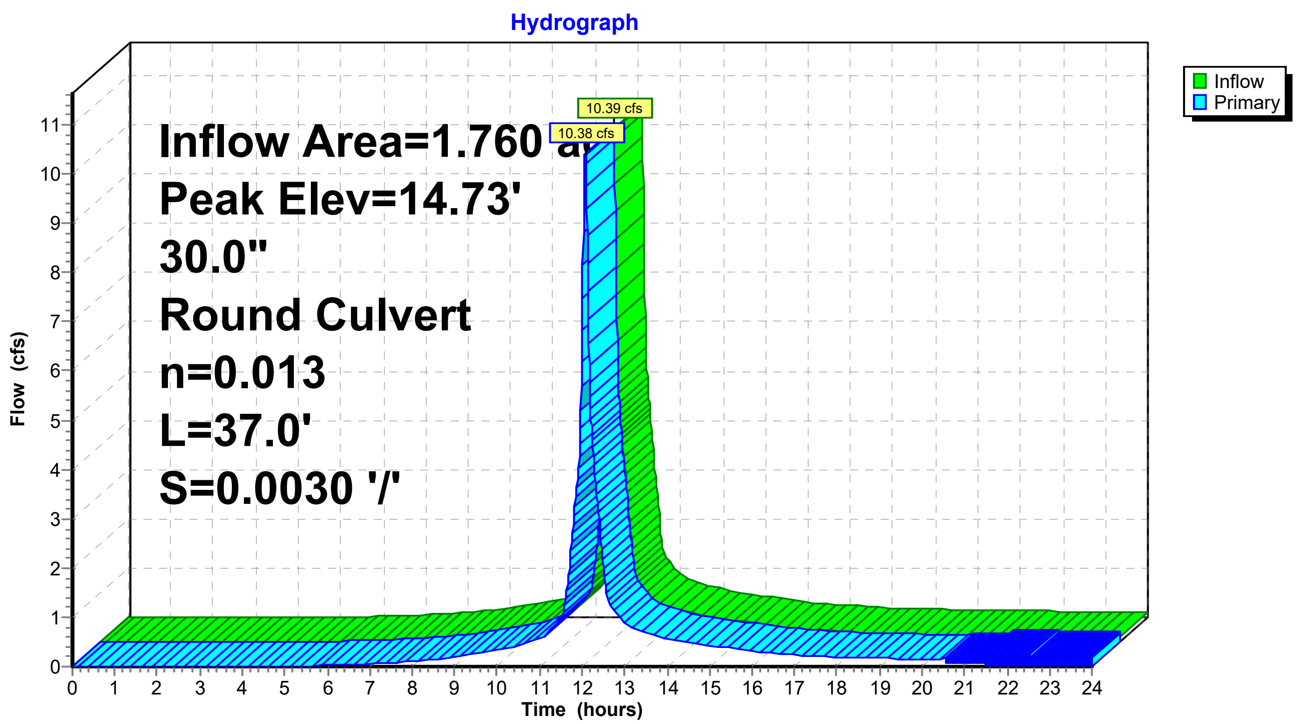
Inflow Area =	1.760 ac,	0.00% Impervious, Inflow Depth > 4.98"	for 10 event	
Inflow =	10.39 cfs @	12.07 hrs, Volume=	0.731 af	
Outflow =	10.38 cfs @	12.07 hrs, Volume=	0.731 af,	Atten= 0%, Lag= 0.0 min
Primary =	10.38 cfs @	12.07 hrs, Volume=	0.731 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.73' @ 12.11 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.89'	**30.0" Round RCP_Round 30"** L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.89' / 10.78' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=7.65 cfs @ 12.07 hrs HW=14.59' TW=14.52' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Inlet Controls 7.65 cfs @ 1.56 fps)

Pond CI 06-PH5: CI06-PH5



Summary for Pond POST-2PA: POND 2A

[80] Warning: Exceeded Pond CI 03-PH5 by 4.24' @ 15.88 hrs (63.49 cfs 23.428 af)

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 4.98" for 10 event
Inflow = 87.79 cfs @ 12.09 hrs, Volume= 6.474 af
Outflow = 58.75 cfs @ 12.18 hrs, Volume= 6.358 af, Atten= 33%, Lag= 5.3 min
Primary = 58.75 cfs @ 12.18 hrs, Volume= 6.358 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.47' @ 12.18 hrs Surf.Area= 35,930 sf Storage= 162,342 cf (53,620 cf above start)

Plug-Flow detention time= 210.8 min calculated for 3.862 af (60% of inflow)
Center-of-Mass det. time= 27.0 min (823.1 - 796.1)

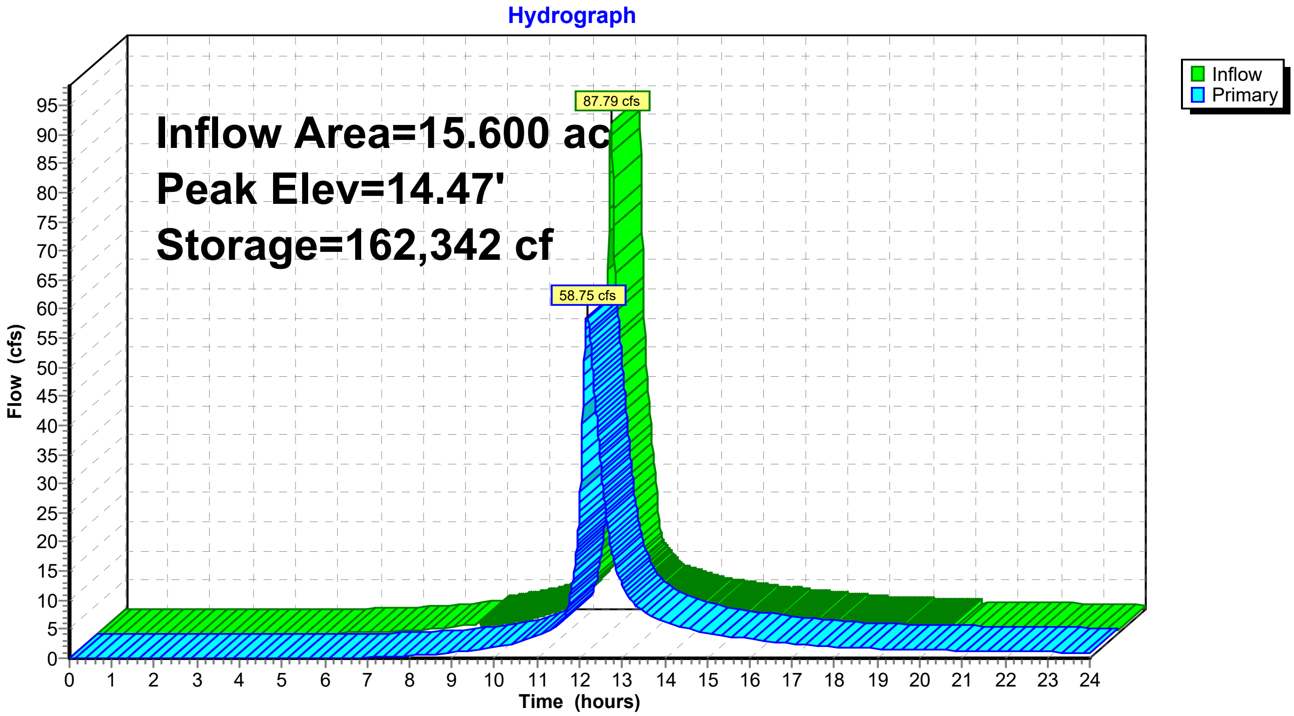
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=58.73 cfs @ 12.18 hrs HW=14.47' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 58.73 cfs @ 3.64 fps)

Pond POST-2PA: POND 2A



Summary for Subcatchment CI01-PH5: CI01-PH5

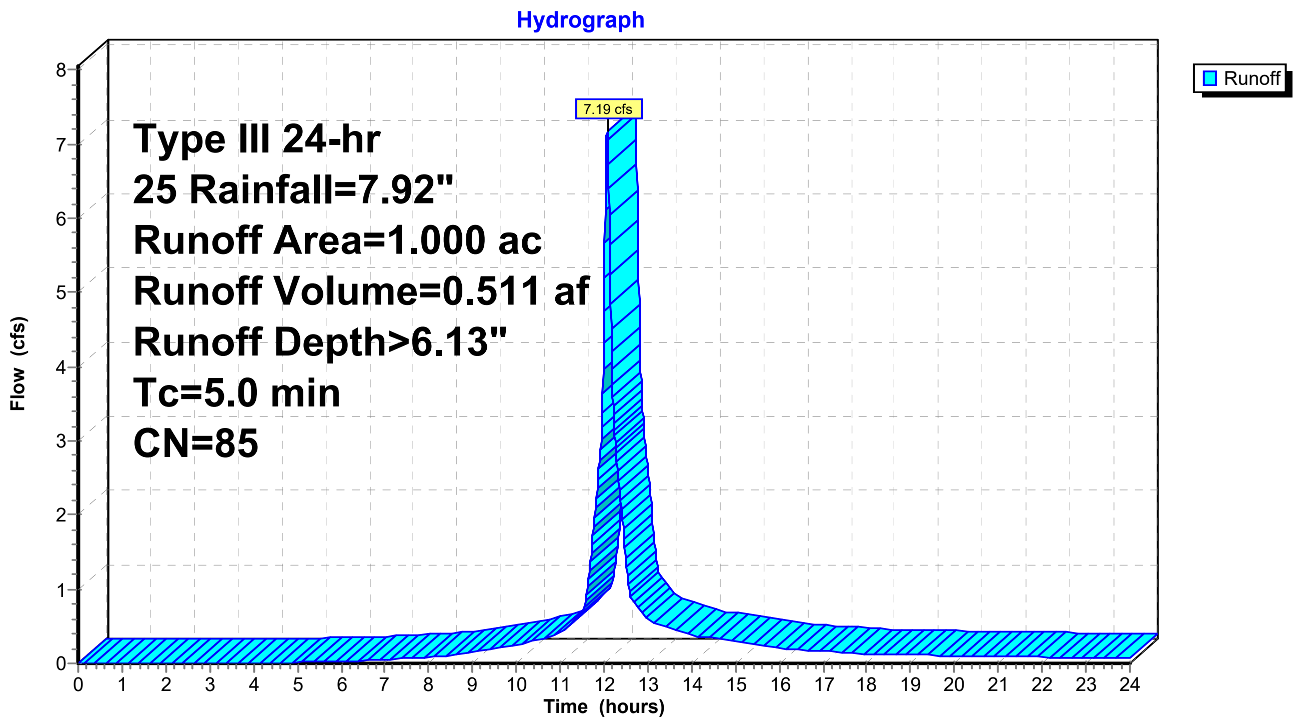
Runoff = 7.19 cfs @ 12.07 hrs, Volume= 0.511 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI01-PH5: CI01-PH5



Summary for Subcatchment CI02-PH5: CI02-PH5

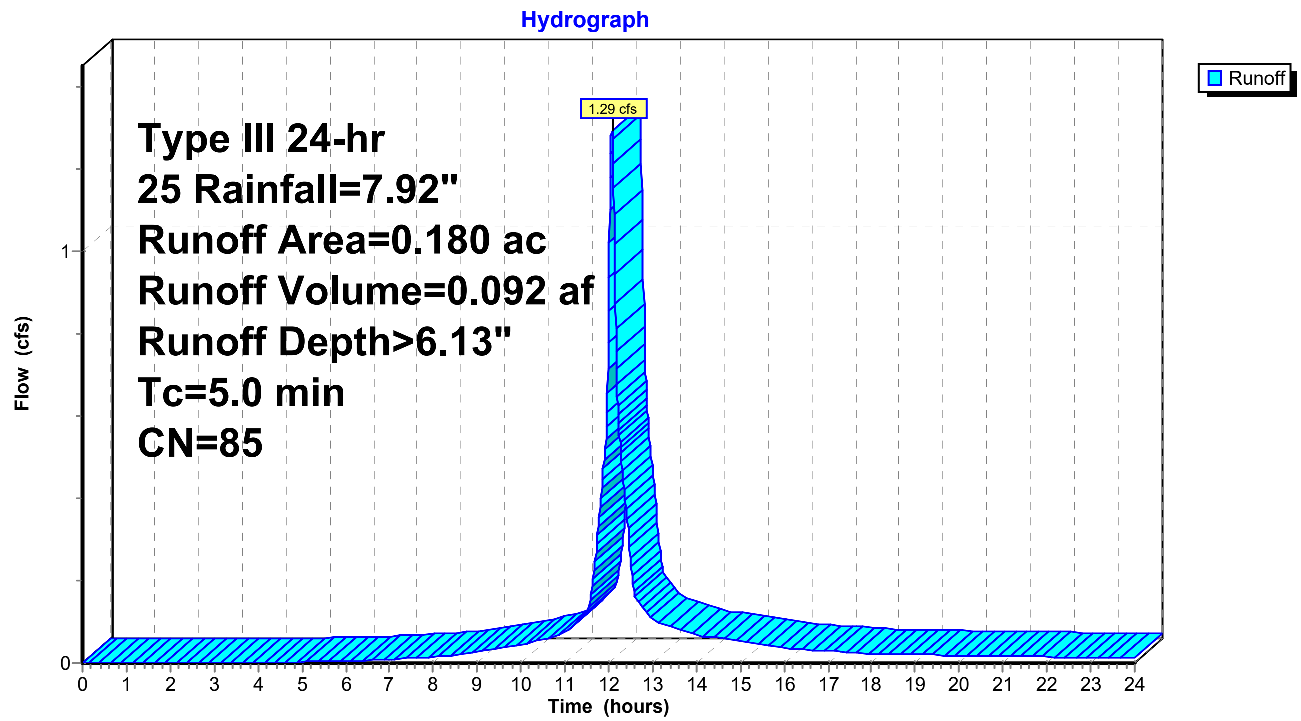
Runoff = 1.29 cfs @ 12.07 hrs, Volume= 0.092 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	0.180	85	
	0.180		100.00% Pervious Area

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

Subcatchment CI02-PH5: CI02-PH5



Summary for Subcatchment CI03-PH5: CI03-PH5

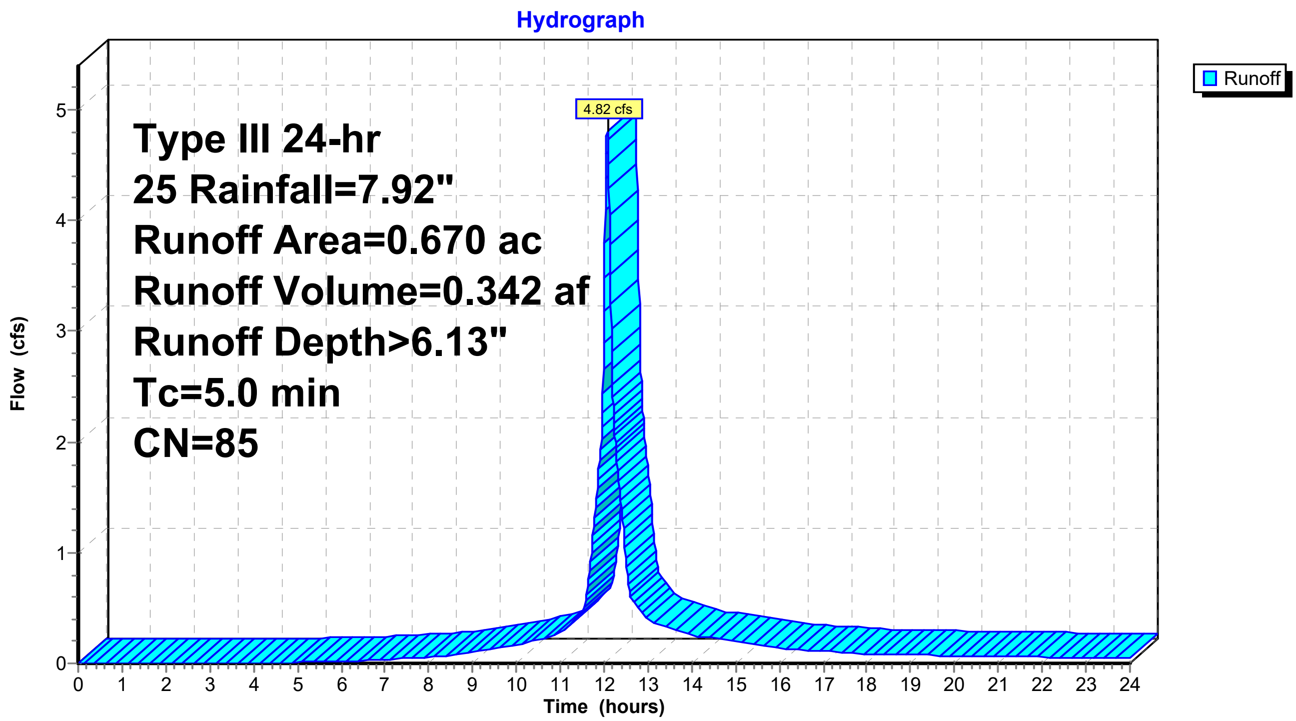
Runoff = 4.82 cfs @ 12.07 hrs, Volume= 0.342 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI03-PH5: CI03-PH5



Summary for Subcatchment CI04-PH5: CI04-PH5

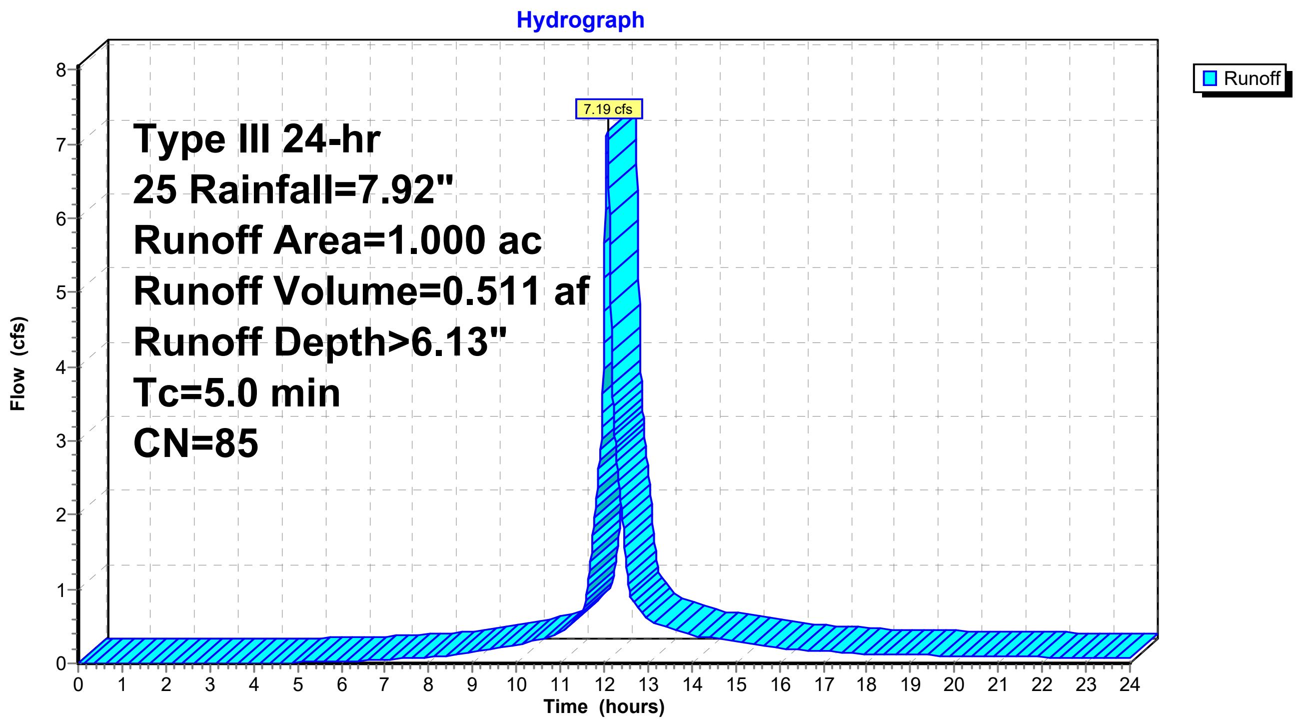
Runoff = 7.19 cfs @ 12.07 hrs, Volume= 0.511 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI04-PH5: CI04-PH5



Summary for Subcatchment CI05-PH5: CI05-PH5

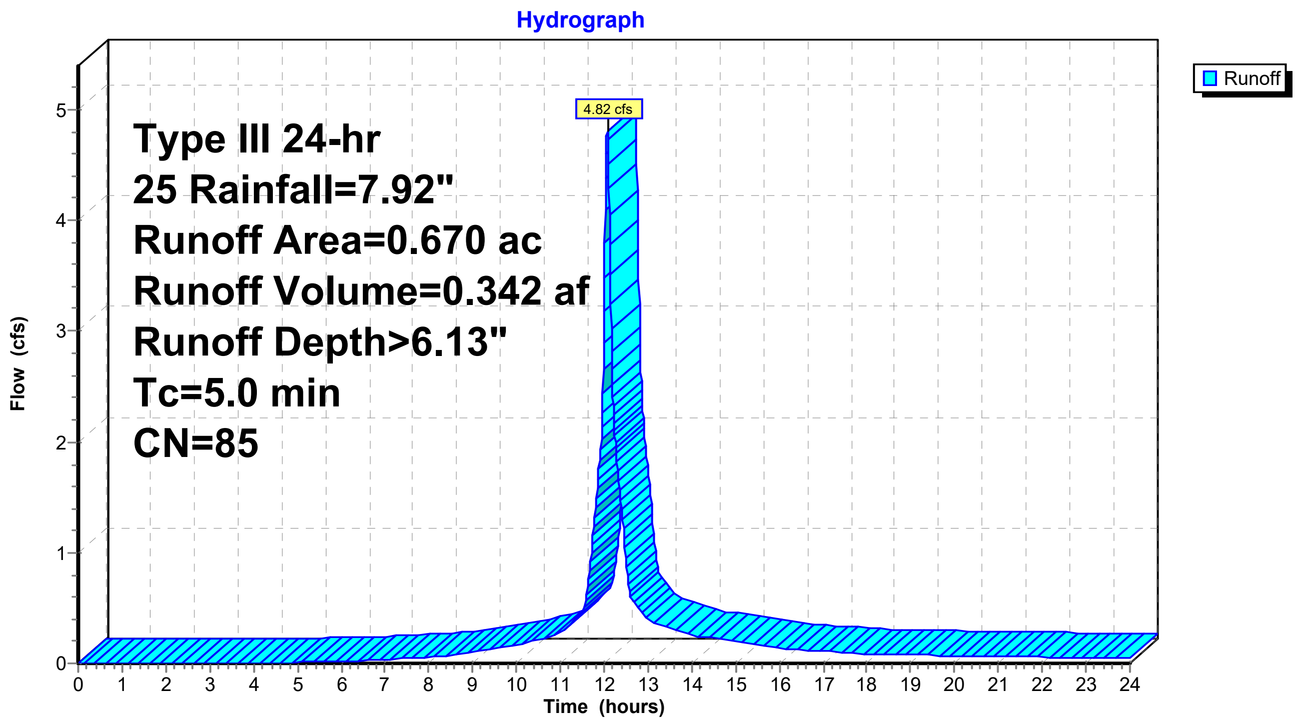
Runoff = 4.82 cfs @ 12.07 hrs, Volume= 0.342 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI05-PH5: CI05-PH5



Summary for Subcatchment CI06-PH5: CI06-PH5

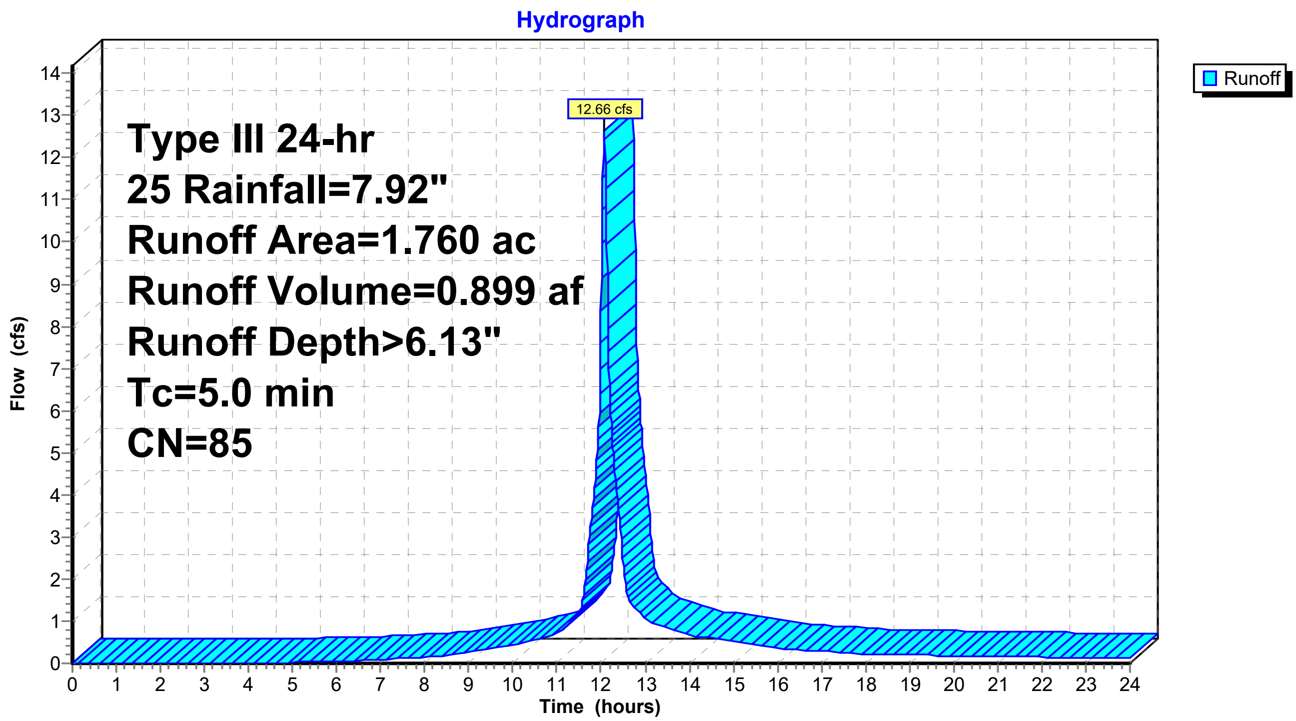
Runoff = 12.66 cfs @ 12.07 hrs, Volume= 0.899 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	1.760	85	
	1.760		100.00% Pervious Area

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

Subcatchment CI06-PH5: CI06-PH5



Summary for Pond CI 01-PH5: CI01-PH5

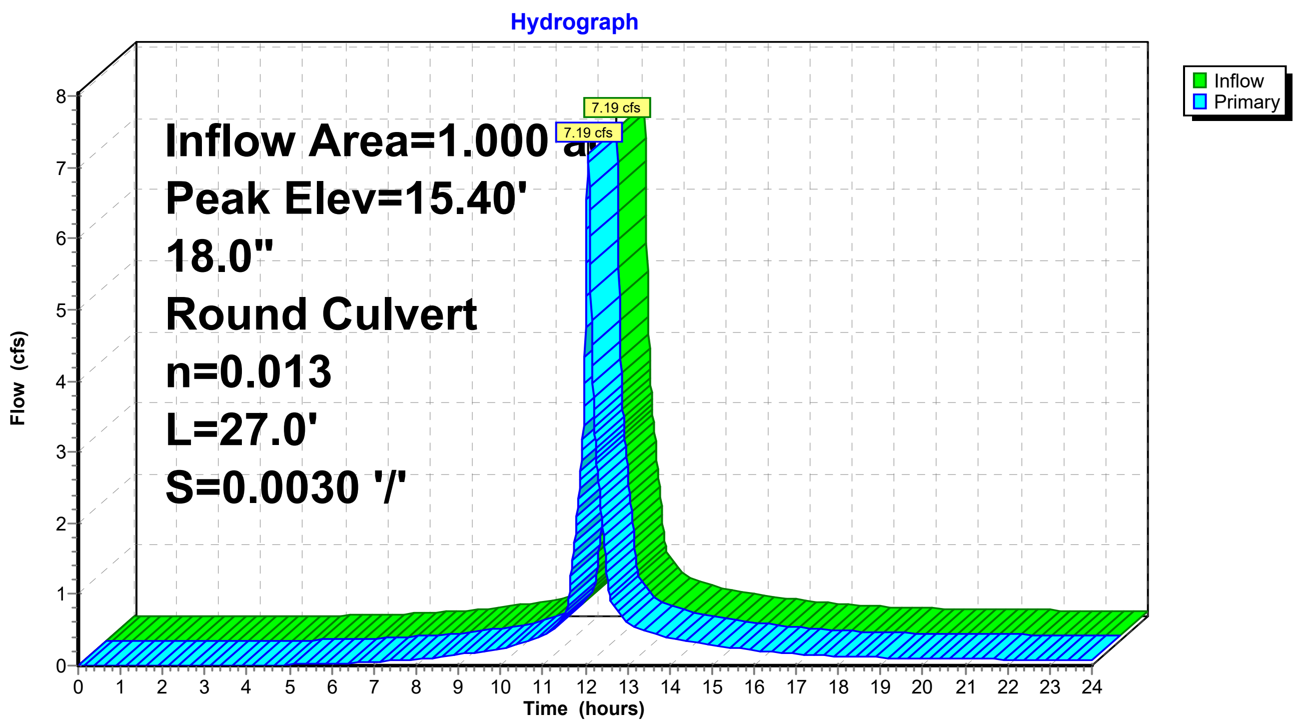
Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth > 6.13"	for 25 event	
Inflow =	7.19 cfs @	12.07 hrs, Volume=	0.511 af	
Outflow =	7.19 cfs @	12.07 hrs, Volume=	0.511 af,	Atten= 0%, Lag= 0.0 min
Primary =	7.19 cfs @	12.07 hrs, Volume=	0.511 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.40' @ 12.09 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.84'	**18.0" Round RCP_Round 18"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.84' / 12.76' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=6.78 cfs @ 12.07 hrs HW=15.30' TW=14.90' (Dynamic Tailwater)
↑—**1=RCP_Round 18"** (Inlet Controls 6.78 cfs @ 3.84 fps)

Pond CI 01-PH5: CI01-PH5



Summary for Pond CI 02-PH5: CI02-PH5

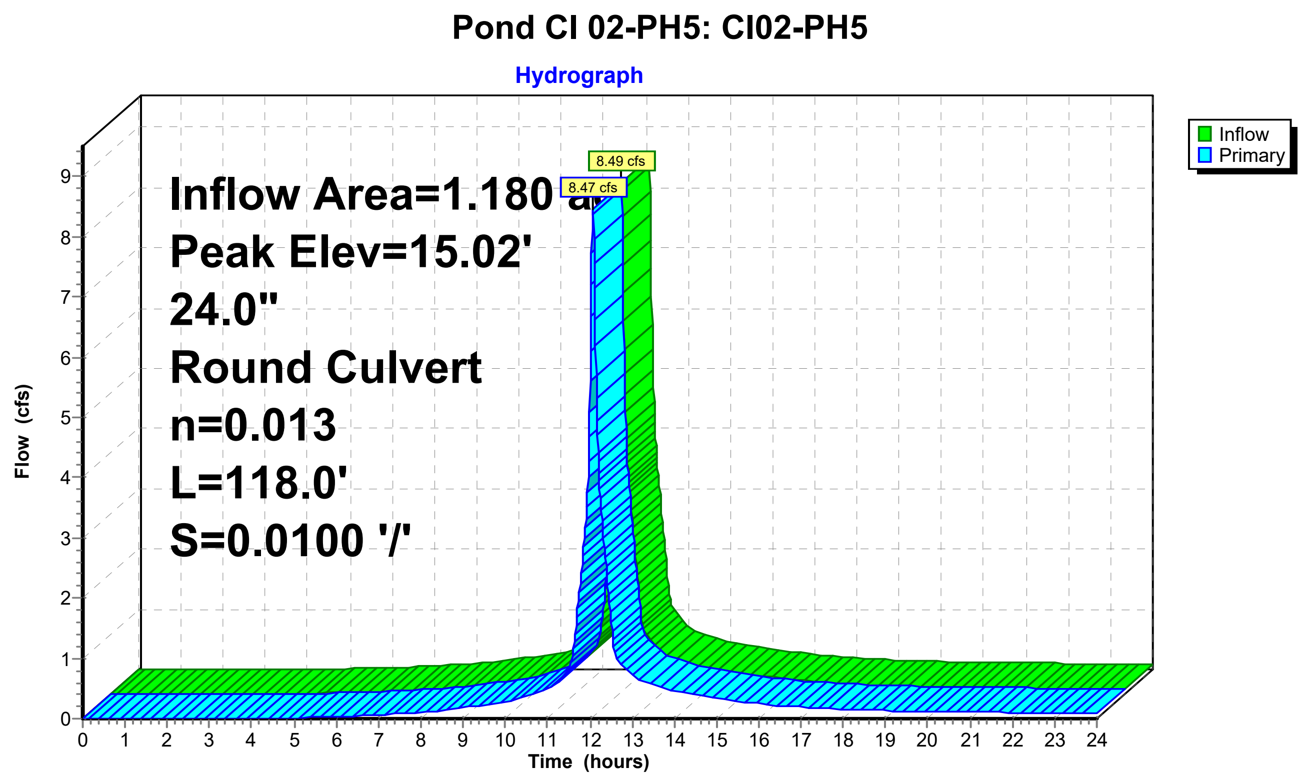
[80] Warning: Exceeded Pond CI 01-PH5 by 0.18' @ 16.00 hrs (0.61 cfs 0.089 af)

Inflow Area = 1.180 ac, 0.00% Impervious, Inflow Depth > 6.13" for 25 event
Inflow = 8.49 cfs @ 12.07 hrs, Volume= 0.603 af
Outflow = 8.47 cfs @ 12.07 hrs, Volume= 0.603 af, Atten= 0%, Lag= 0.1 min
Primary = 8.47 cfs @ 12.07 hrs, Volume= 0.603 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.02' @ 12.10 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.16'	**24.0" Round RCP_Round 24"** L= 118.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.16' / 10.98' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=7.41 cfs @ 12.07 hrs HW=14.90' TW=14.67' (Dynamic Tailwater)
└─**1=RCP_Round 24"** (Outlet Controls 7.41 cfs @ 2.36 fps)



Summary for Pond CI 03-PH5: CI03-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=795)
[80] Warning: Exceeded Pond CI 02-PH5 by 0.91' @ 15.99 hrs (5.51 cfs 1.630 af)
[80] Warning: Exceeded Pond CI 04-PH5 by 2.01' @ 15.99 hrs (14.67 cfs 5.941 af)
[80] Warning: Exceeded Pond CI 05-PH5 by 2.47' @ 6.00 hrs (22.58 cfs 9.907 af)

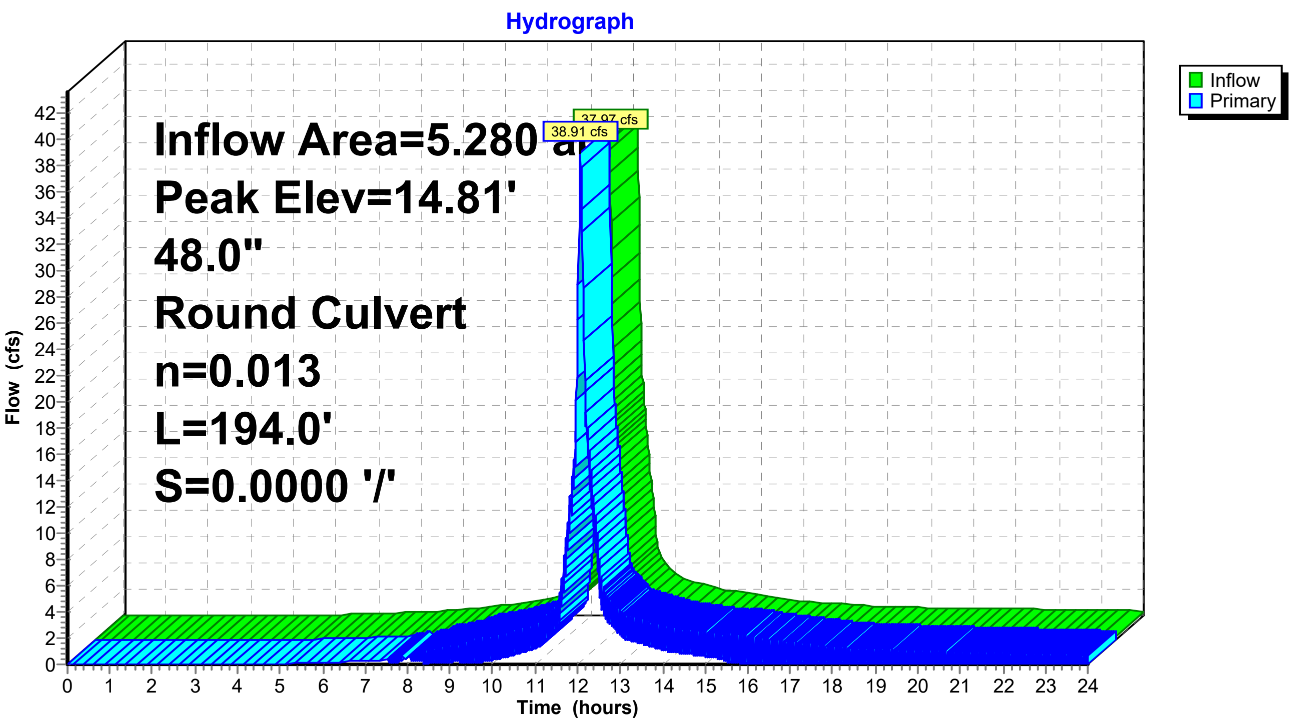
Inflow Area = 5.280 ac, 0.00% Impervious, Inflow Depth > 6.13" for 25 event
Inflow = 37.97 cfs @ 12.07 hrs, Volume= 2.698 af
Outflow = 38.91 cfs @ 12.07 hrs, Volume= 2.697 af, Atten= 0%, Lag= 0.0 min
Primary = 38.91 cfs @ 12.07 hrs, Volume= 2.697 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.81' @ 12.13 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.00'	**48.0" Round RCP_Round 48"** L= 194.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.00' / 9.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 12.57 sf

Primary OutFlow Max=35.62 cfs @ 12.07 hrs HW=14.67' TW=14.40' (Dynamic Tailwater)
1=RCP_Round 48" (Outlet Controls 35.62 cfs @ 2.83 fps)

Pond CI 03-PH5: CI03-PH5



Summary for Pond CI 04-PH5: CI04-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=869)

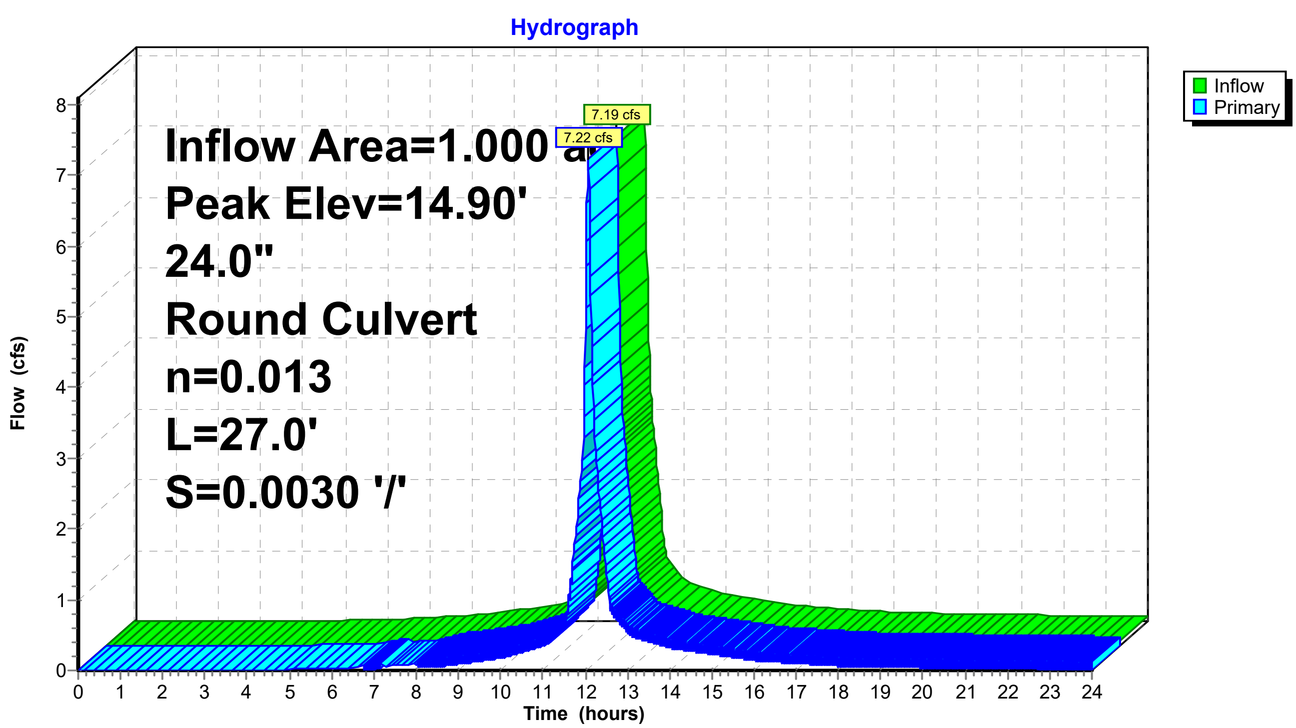
Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth > 6.13"	for 25 event
Inflow =	7.19 cfs @	12.07 hrs, Volume=	0.511 af
Outflow =	7.22 cfs @	12.08 hrs, Volume=	0.511 af, Atten= 0%, Lag= 0.3 min
Primary =	7.22 cfs @	12.08 hrs, Volume=	0.511 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.90' @ 12.12 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.06'	**24.0" Round RCP_Round 24"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 11.06' / 10.98' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=6.21 cfs @ 12.08 hrs HW=14.79' TW=14.68' (Dynamic Tailwater)
└─1=RCP_Round 24" (Inlet Controls 6.21 cfs @ 1.98 fps)

Pond CI 04-PH5: CI04-PH5



Summary for Pond CI 05-PH5: CI05-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=46)
[80] Warning: Exceeded Pond CI 06-PH5 by 2.11' @ 16.00 hrs (20.78 cfs 7.227 af)

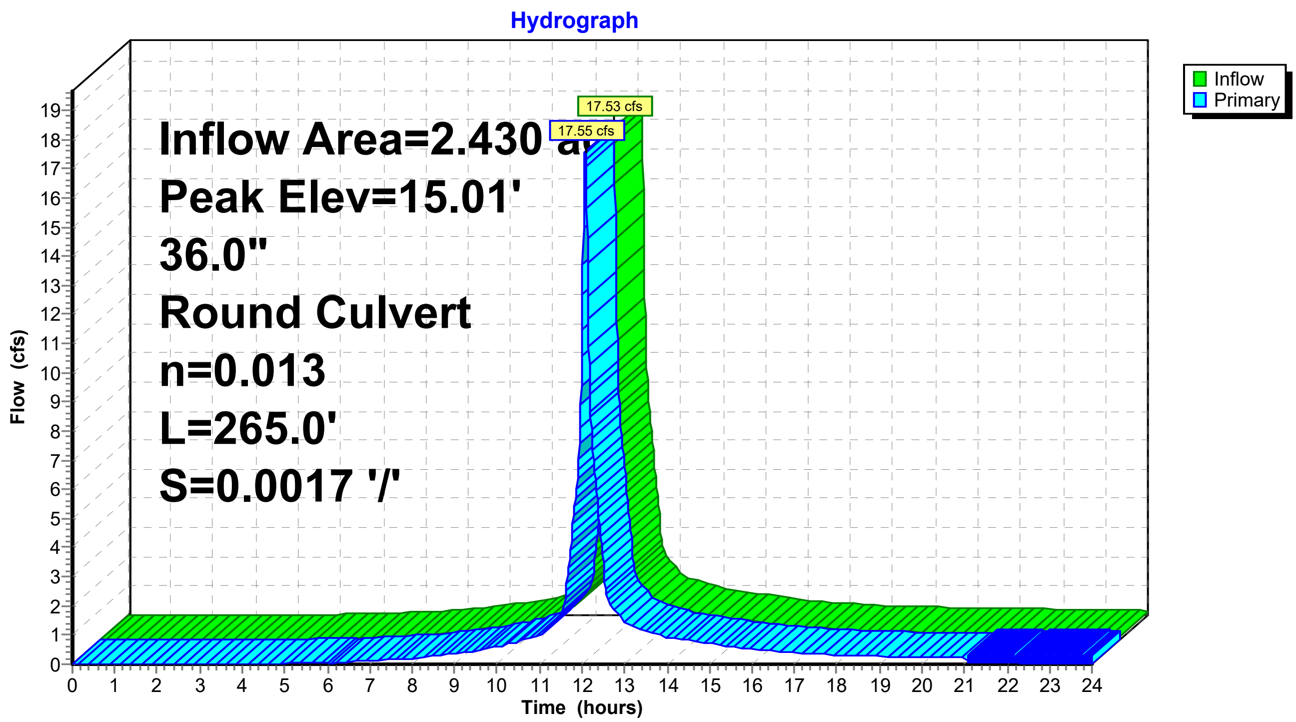
Inflow Area =	2.430 ac,	0.00% Impervious, Inflow Depth > 6.13"	for 25 event	
Inflow =	17.53 cfs @	12.07 hrs, Volume=	1.242 af	
Outflow =	17.55 cfs @	12.07 hrs, Volume=	1.241 af,	Atten= 0%, Lag= 0.0 min
Primary =	17.55 cfs @	12.07 hrs, Volume=	1.241 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.01' @ 12.10 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.44'	**36.0" Round RCP_Round 36"** L= 265.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.44' / 9.98' S= 0.0017 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 7.07 sf

Primary OutFlow Max=14.90 cfs @ 12.07 hrs HW=14.89' TW=14.67' (Dynamic Tailwater)
└─1=RCP_Round 36" (Outlet Controls 14.90 cfs @ 2.11 fps)

Pond CI 05-PH5: CI05-PH5



Summary for Pond CI 06-PH5: CI06-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=846)

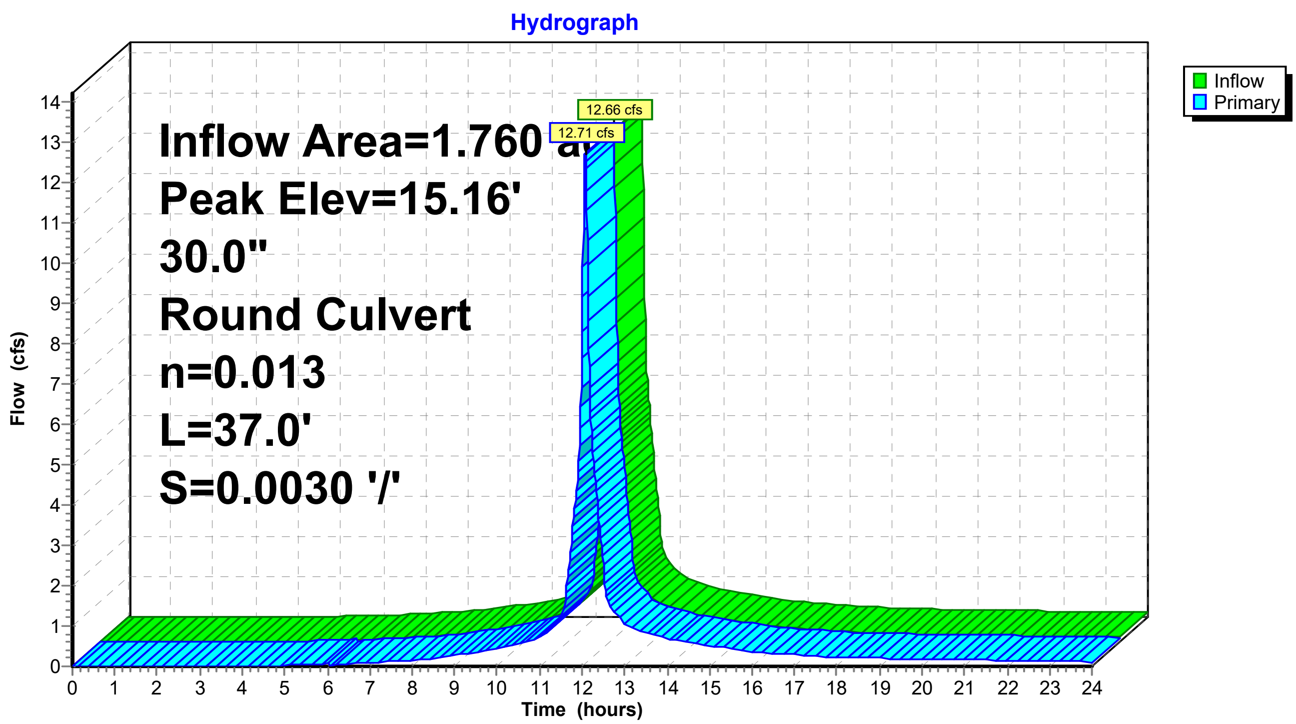
Inflow Area =	1.760 ac,	0.00% Impervious,	Inflow Depth > 6.13"	for 25 event
Inflow =	12.66 cfs @	12.07 hrs, Volume=	0.899 af	
Outflow =	12.71 cfs @	12.07 hrs, Volume=	0.899 af, Atten= 0%, Lag= 0.0 min	
Primary =	12.71 cfs @	12.07 hrs, Volume=	0.899 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.16' @ 12.11 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.89'	**30.0" Round RCP_Round 30"** L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.89' / 10.78' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=10.74 cfs @ 12.07 hrs HW=15.02' TW=14.89' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Inlet Controls 10.74 cfs @ 2.19 fps)

Pond CI 06-PH5: CI06-PH5



Summary for Pond POST-2PA: POND 2A

[80] Warning: Exceeded Pond CI 03-PH5 by 4.26' @ 15.98 hrs (64.10 cfs 27.577 af)

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 6.13" for 25 event
Inflow = 107.11 cfs @ 12.09 hrs, Volume= 7.969 af
Outflow = 75.09 cfs @ 12.17 hrs, Volume= 7.840 af, Atten= 30%, Lag= 4.8 min
Primary = 75.09 cfs @ 12.17 hrs, Volume= 7.840 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.68' @ 12.17 hrs Surf.Area= 36,415 sf Storage= 169,705 cf (60,983 cf above start)

Plug-Flow detention time= 184.1 min calculated for 5.344 af (67% of inflow)
Center-of-Mass det. time= 25.2 min (815.6 - 790.4)

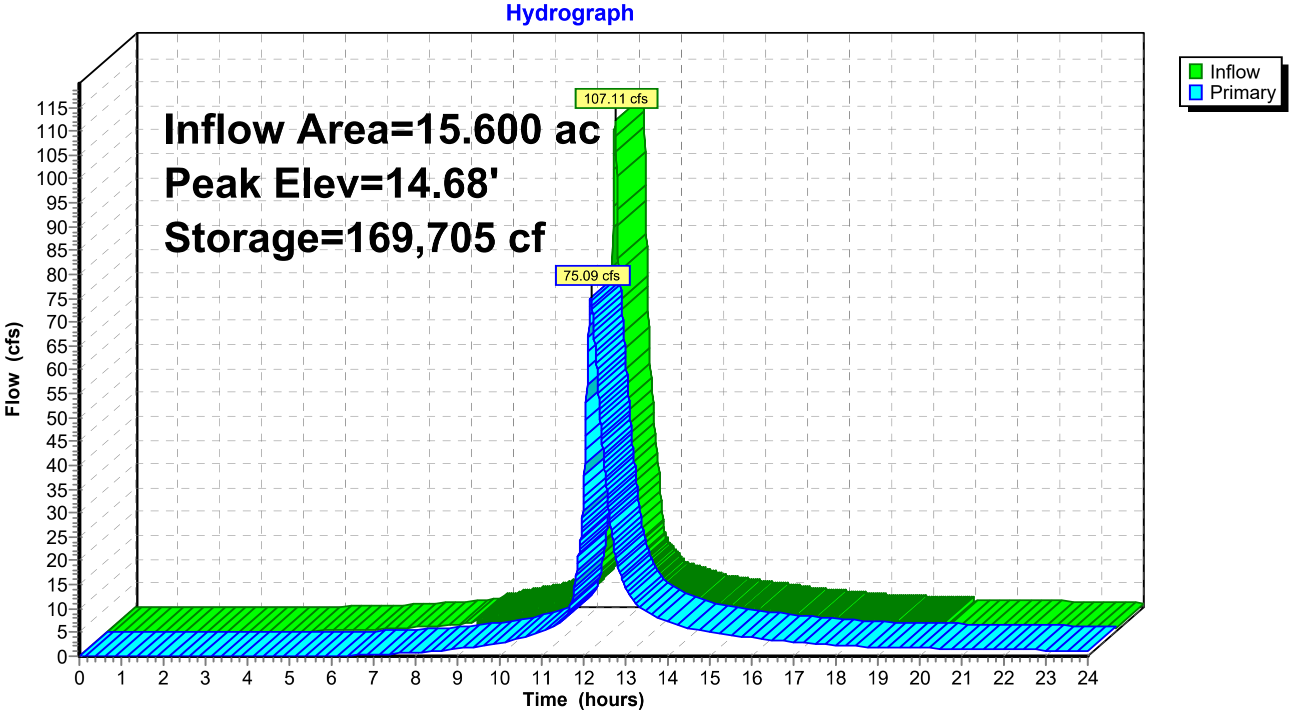
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=75.07 cfs @ 12.17 hrs HW=14.68' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 75.07 cfs @ 3.85 fps)

Pond POST-2PA: POND 2A



Summary for Subcatchment CI01-PH5: CI01-PH5

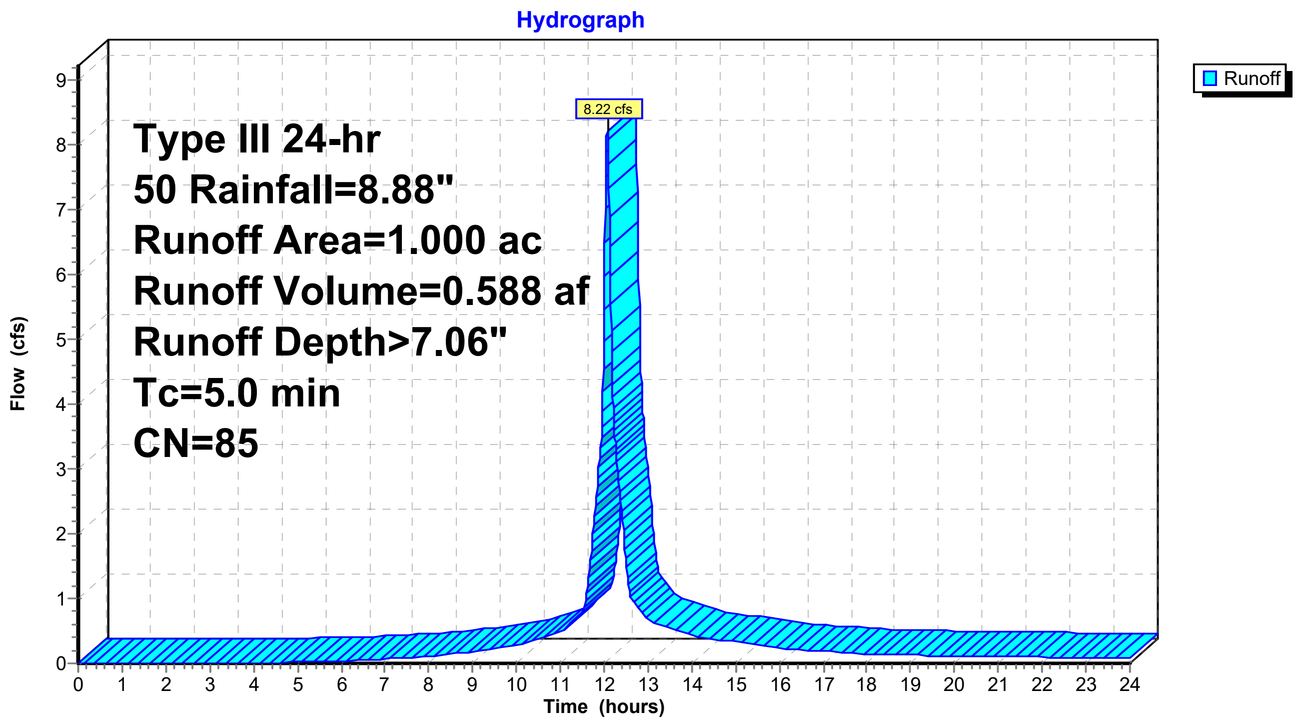
Runoff = 8.22 cfs @ 12.07 hrs, Volume= 0.588 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI01-PH5: CI01-PH5



Summary for Subcatchment CI02-PH5: CI02-PH5

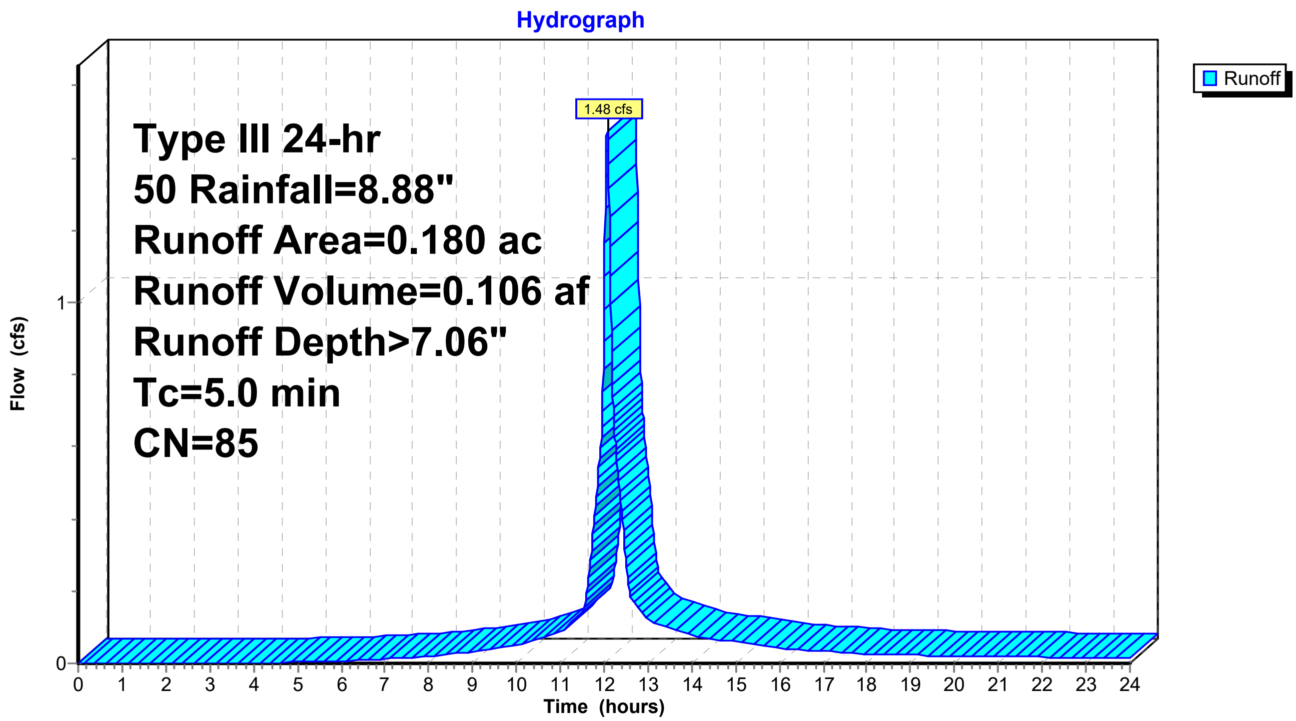
Runoff = 1.48 cfs @ 12.07 hrs, Volume= 0.106 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	0.180	85	
	0.180		100.00% Pervious Area

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

Subcatchment CI02-PH5: CI02-PH5



Summary for Subcatchment CI03-PH5: CI03-PH5

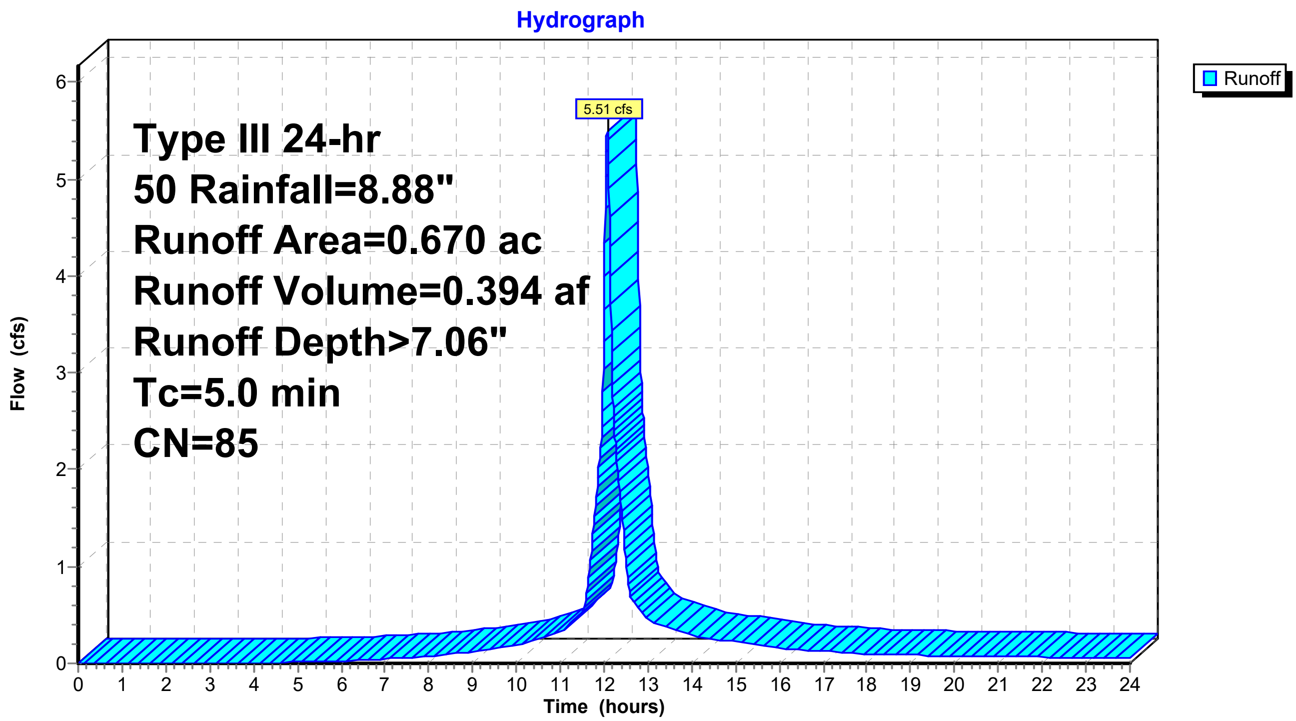
Runoff = 5.51 cfs @ 12.07 hrs, Volume= 0.394 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI03-PH5: CI03-PH5



Summary for Subcatchment CI04-PH5: CI04-PH5

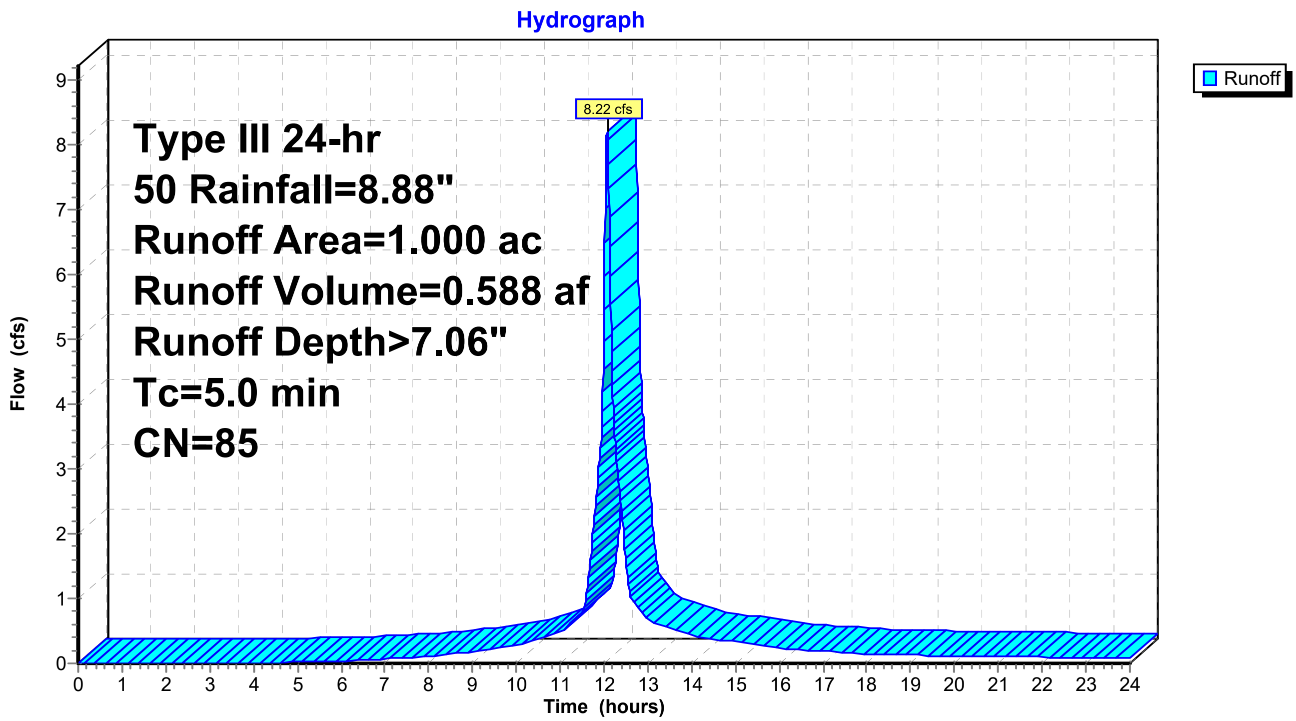
Runoff = 8.22 cfs @ 12.07 hrs, Volume= 0.588 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI04-PH5: CI04-PH5



Summary for Subcatchment CI05-PH5: CI05-PH5

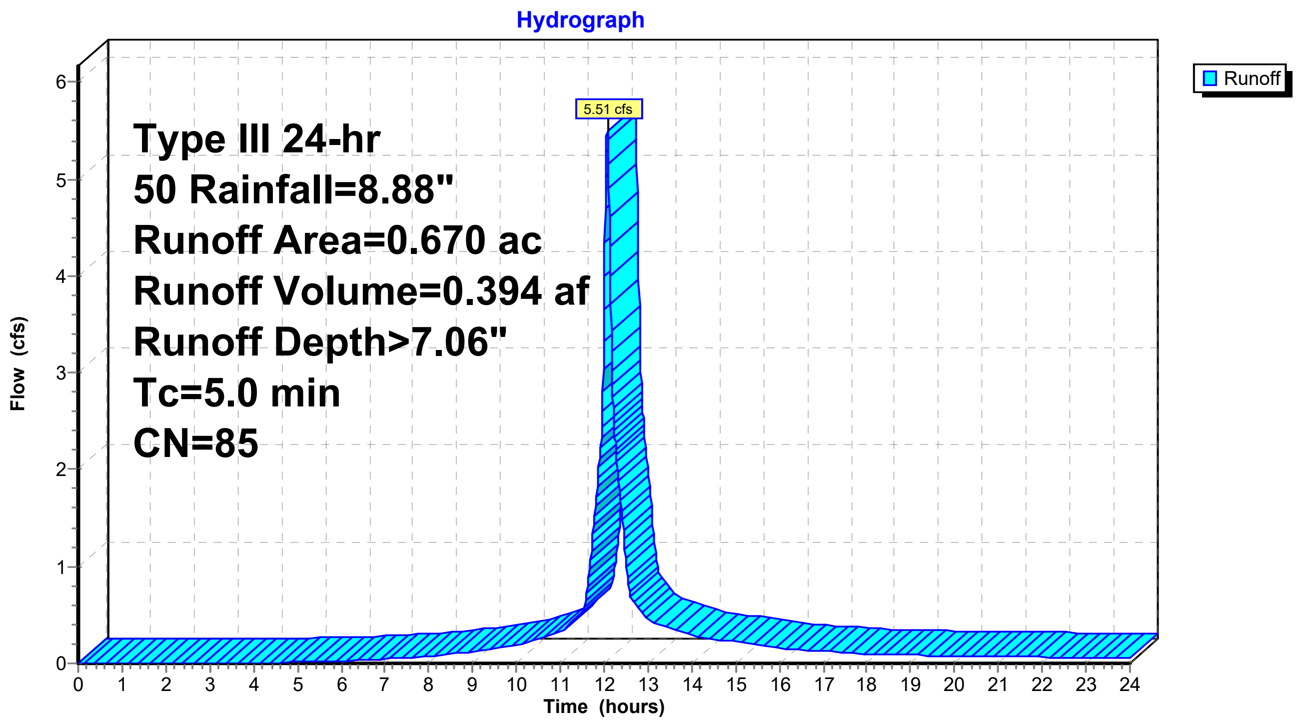
Runoff = 5.51 cfs @ 12.07 hrs, Volume= 0.394 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI05-PH5: CI05-PH5



Summary for Subcatchment CI06-PH5: CI06-PH5

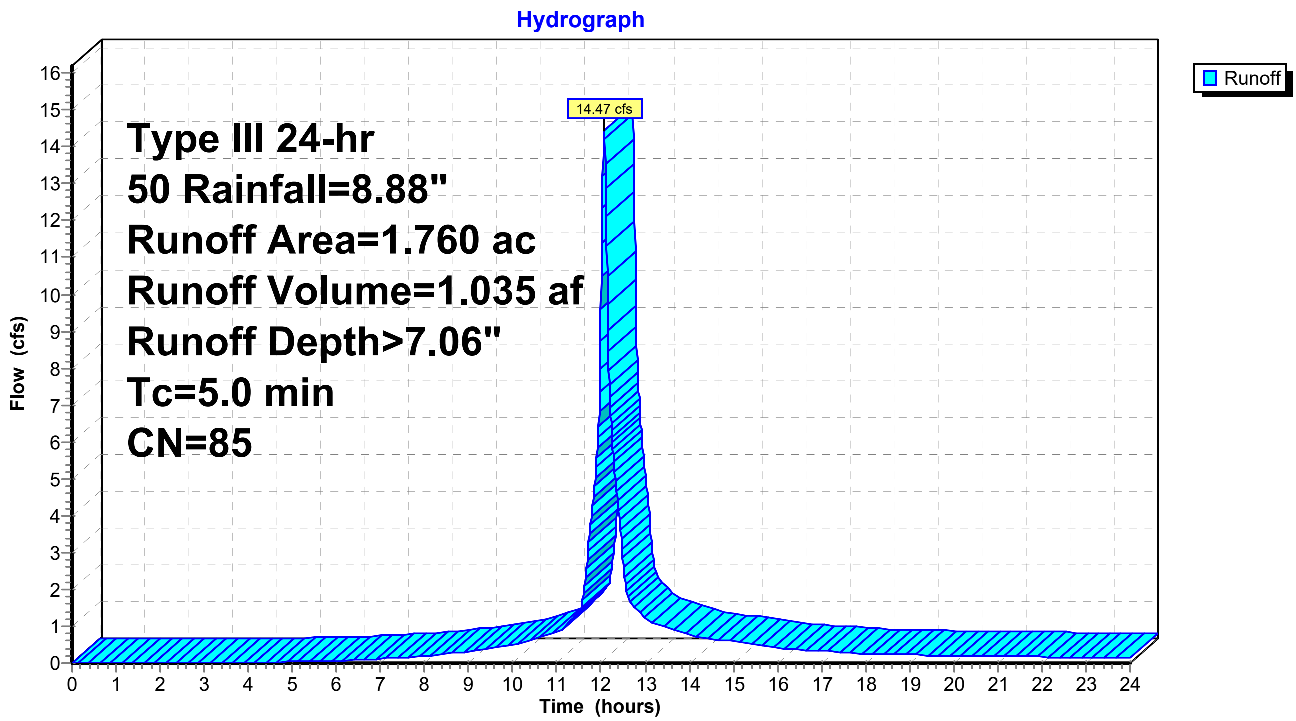
Runoff = 14.47 cfs @ 12.07 hrs, Volume= 1.035 af, Depth> 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	1.760	85	
	1.760		100.00% Pervious Area

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

Subcatchment CI06-PH5: CI06-PH5



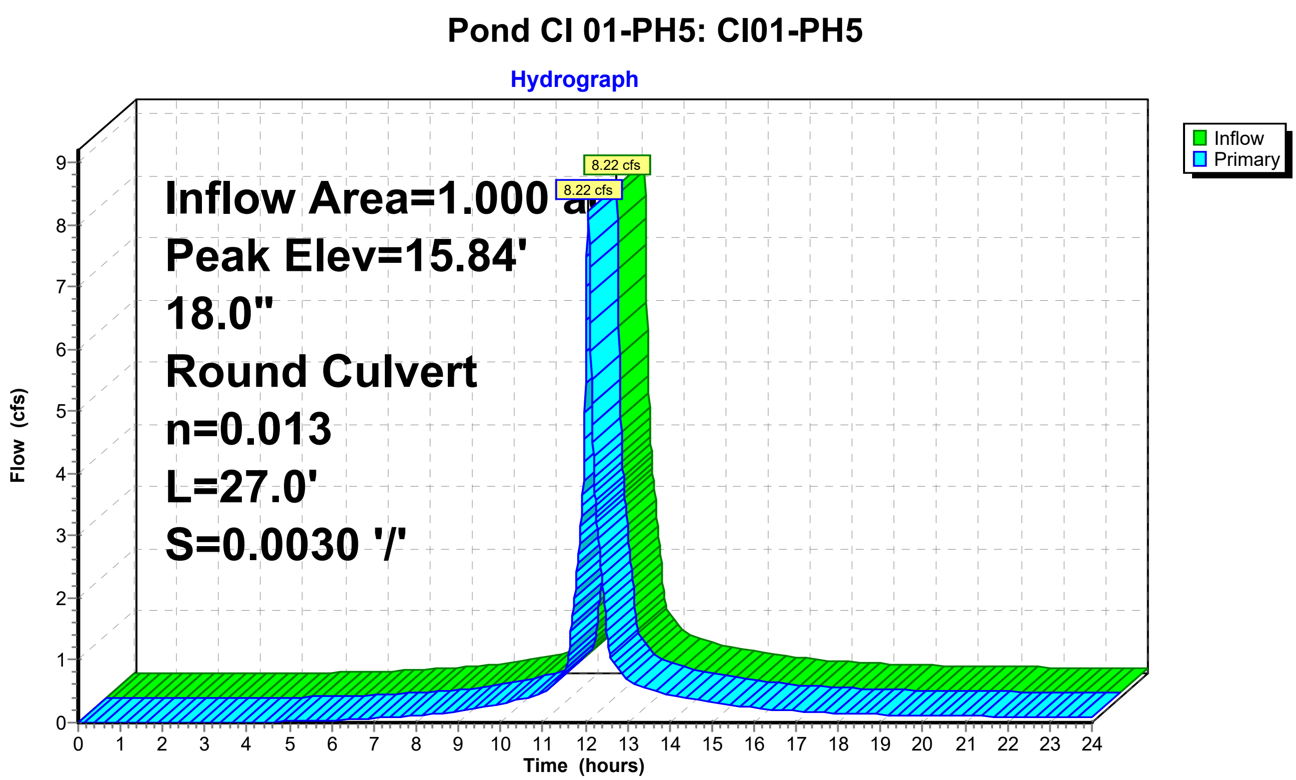
Summary for Pond CI 01-PH5: CI01-PH5

Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth > 7.06"	for 50 event
Inflow =	8.22 cfs @	12.07 hrs, Volume=	0.588 af
Outflow =	8.22 cfs @	12.07 hrs, Volume=	0.588 af, Atten= 0%, Lag= 0.0 min
Primary =	8.22 cfs @	12.07 hrs, Volume=	0.588 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.84' @ 12.09 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.84'	**18.0" Round RCP_Round 18"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.84' / 12.76' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=7.64 cfs @ 12.07 hrs HW=15.74' TW=15.22' (Dynamic Tailwater)
└─**1=RCP_Round 18"** (Inlet Controls 7.64 cfs @ 4.32 fps)



Summary for Pond CI 02-PH5: CI02-PH5

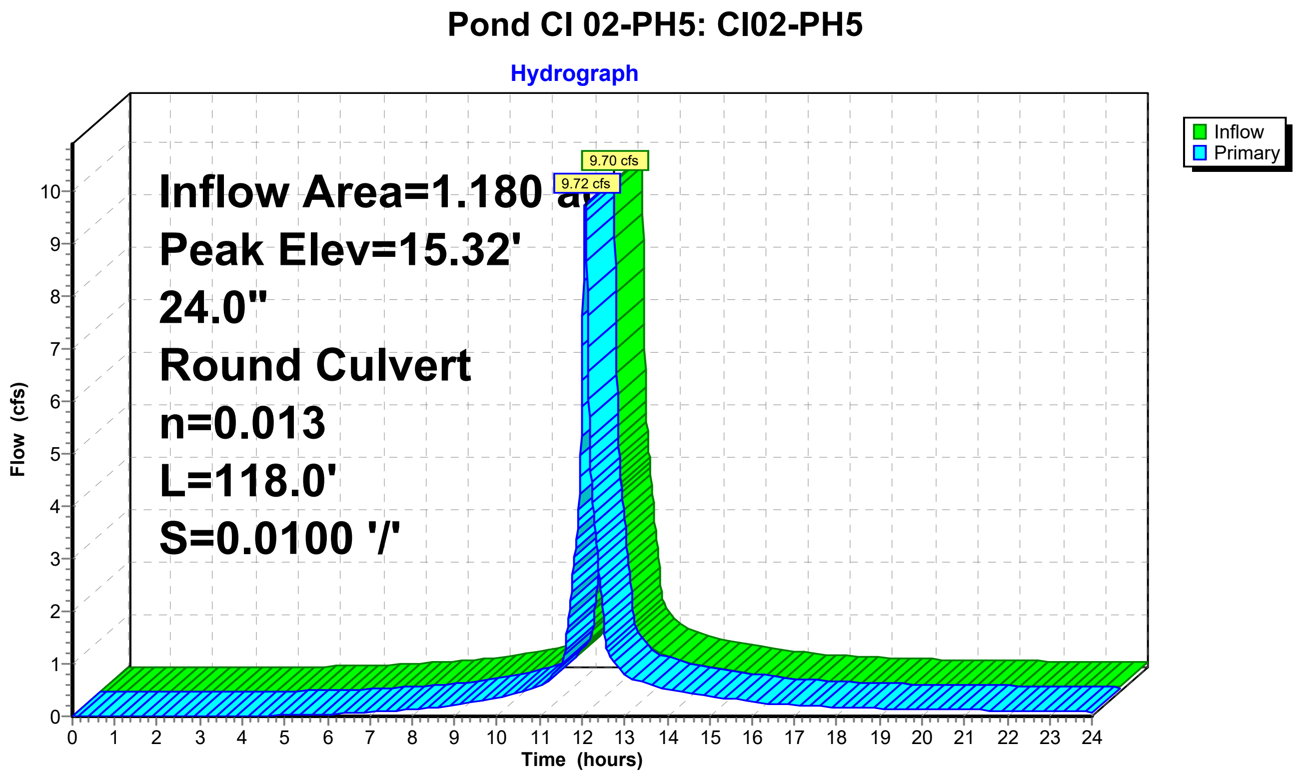
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=310)
[80] Warning: Exceeded Pond CI 01-PH5 by 0.03' @ 0.70 hrs (0.00 cfs 0.000 af)

Inflow Area =	1.180 ac,	0.00% Impervious, Inflow Depth > 7.06"	for 50 event
Inflow =	9.70 cfs @	12.07 hrs, Volume=	0.694 af
Outflow =	9.72 cfs @	12.07 hrs, Volume=	0.694 af, Atten= 0%, Lag= 0.0 min
Primary =	9.72 cfs @	12.07 hrs, Volume=	0.694 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.32' @ 12.10 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.16'	**24.0" Round RCP_Round 24"** L= 118.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.16' / 10.98' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=8.83 cfs @ 12.07 hrs HW=15.22' TW=14.89' (Dynamic Tailwater)
└─**1=RCP_Round 24"** (Outlet Controls 8.83 cfs @ 2.81 fps)



Summary for Pond CI 03-PH5: CI03-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=476)
[80] Warning: Exceeded Pond CI 02-PH5 by 0.33' @ 0.62 hrs (1.59 cfs 0.204 af)
[80] Warning: Exceeded Pond CI 04-PH5 by 2.25' @ 15.69 hrs (15.08 cfs 6.008 af)
[80] Warning: Exceeded Pond CI 05-PH5 by 2.71' @ 19.34 hrs (26.28 cfs 6.451 af)

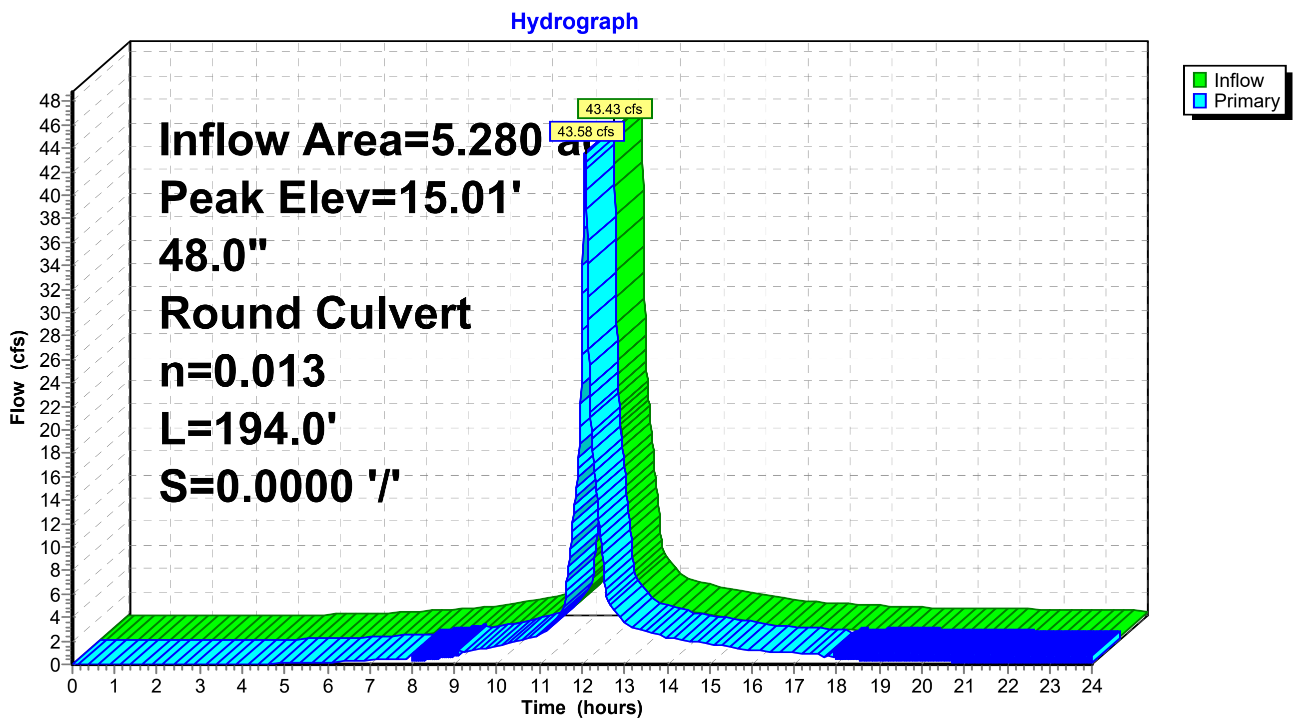
Inflow Area = 5.280 ac, 0.00% Impervious, Inflow Depth > 7.06" for 50 event
Inflow = 43.43 cfs @ 12.07 hrs, Volume= 3.106 af
Outflow = 43.58 cfs @ 12.07 hrs, Volume= 3.106 af, Atten= 0%, Lag= 0.0 min
Primary = 43.58 cfs @ 12.07 hrs, Volume= 3.106 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.01' @ 12.13 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.00'	**48.0" Round RCP_Round 48"** L= 194.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.00' / 9.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 12.57 sf

Primary OutFlow Max=40.44 cfs @ 12.07 hrs HW=14.89' TW=14.55' (Dynamic Tailwater)
1=RCP_Round 48" (Outlet Controls 40.44 cfs @ 3.22 fps)

Pond CI 03-PH5: CI03-PH5



Summary for Pond CI 04-PH5: CI04-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=846)

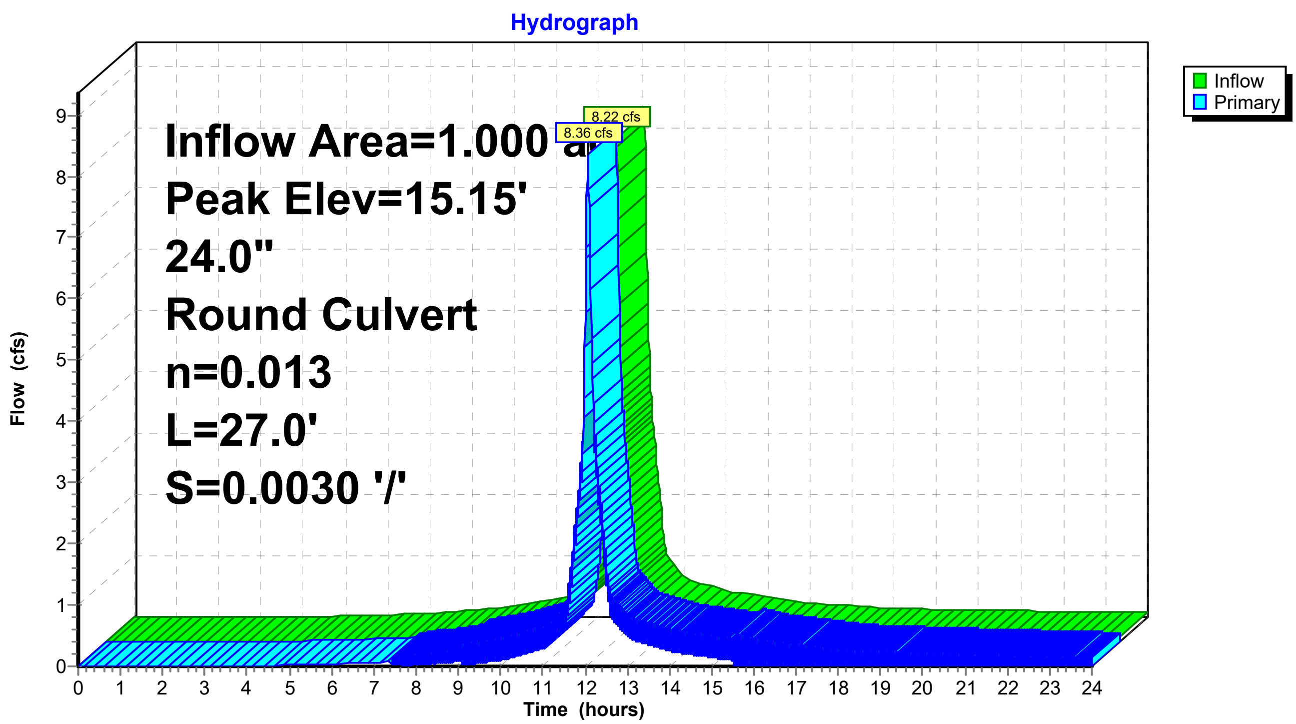
Inflow Area = 1.000 ac, 0.00% Impervious, Inflow Depth > 7.06" for 50 event
Inflow = 8.22 cfs @ 12.07 hrs, Volume= 0.588 af
Outflow = 8.36 cfs @ 12.08 hrs, Volume= 0.588 af, Atten= 0%, Lag= 0.4 min
Primary = 8.36 cfs @ 12.08 hrs, Volume= 0.588 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.15' @ 12.12 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.06'	**24.0" Round RCP_Round 24"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 11.06' / 10.98' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=7.22 cfs @ 12.08 hrs HW=15.07' TW=14.93' (Dynamic Tailwater)
└─**1=RCP_Round 24"** (Inlet Controls 7.22 cfs @ 2.30 fps)

Pond CI 04-PH5: CI04-PH5



Summary for Pond CI 05-PH5: CI05-PH5

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=130)
[80] Warning: Exceeded Pond CI 06-PH5 by 1.99' @ 19.35 hrs (19.24 cfs 5.586 af)

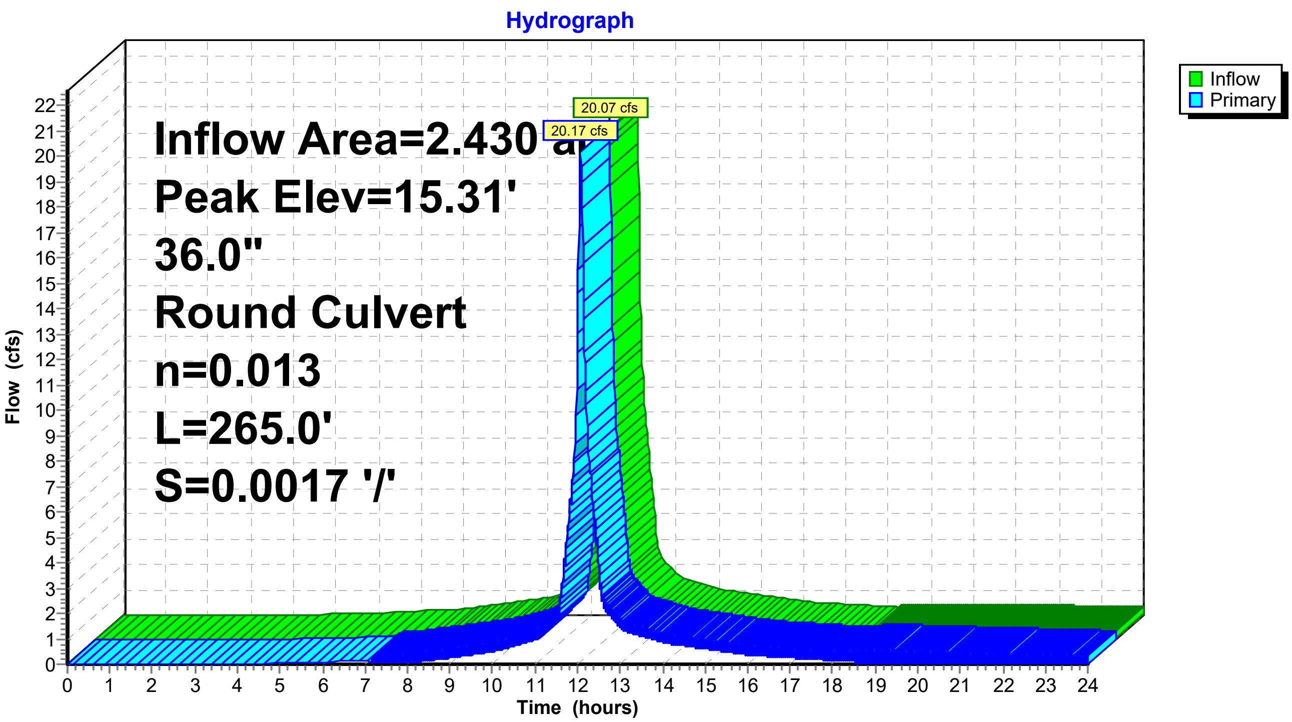
Inflow Area =	2.430 ac,	0.00% Impervious,	Inflow Depth > 7.06"	for 50 event
Inflow =	20.07 cfs @	12.07 hrs, Volume=	1.429 af	
Outflow =	20.17 cfs @	12.07 hrs, Volume=	1.429 af,	Atten= 0%, Lag= 0.0 min
Primary =	20.17 cfs @	12.07 hrs, Volume=	1.429 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.31' @ 12.10 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.44'	**36.0" Round RCP_Round 36"** L= 265.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.44' / 9.98' S= 0.0017 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 7.07 sf

Primary OutFlow Max=18.27 cfs @ 12.07 hrs HW=15.22' TW=14.89' (Dynamic Tailwater)
↑—**1=RCP_Round 36"** (Outlet Controls 18.27 cfs @ 2.58 fps)

Pond CI 05-PH5: CI05-PH5



Summary for Pond CI 06-PH5: CI06-PH5

[58] Hint: Peaked 0.19' above defined flood level
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=881)

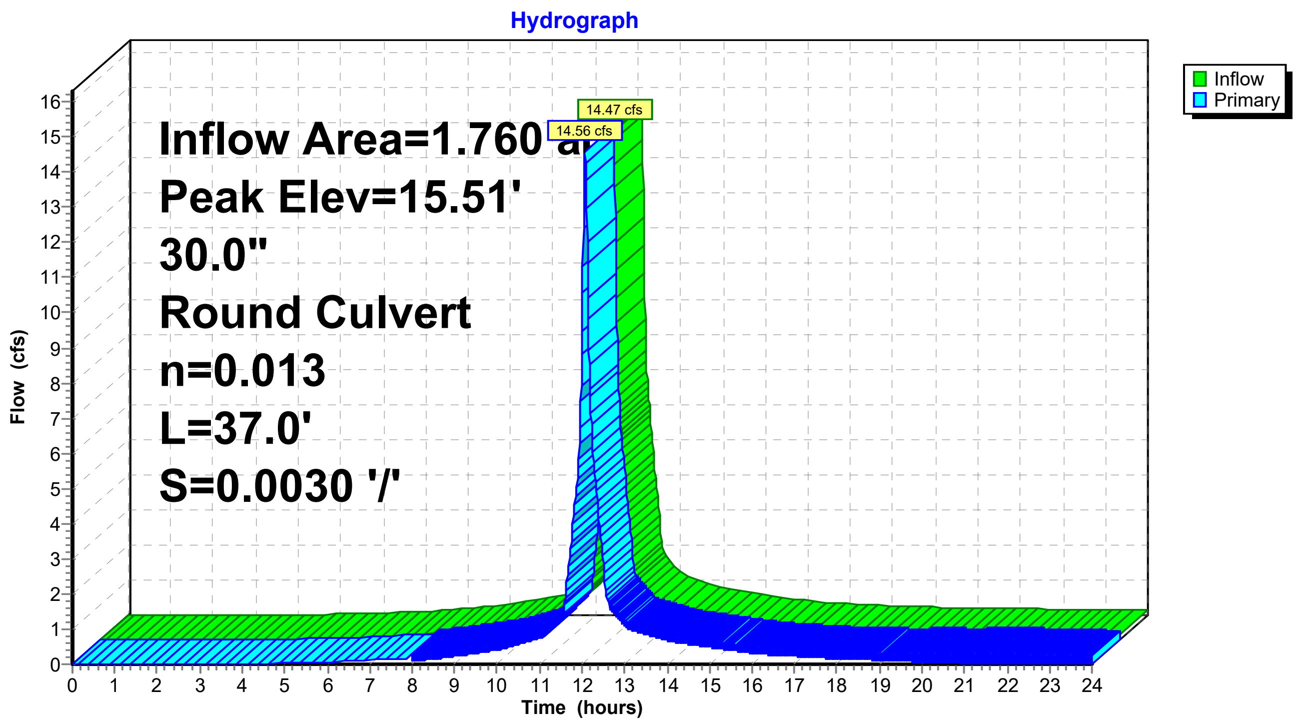
Inflow Area = 1.760 ac, 0.00% Impervious, Inflow Depth > 7.06" for 50 event
Inflow = 14.47 cfs @ 12.07 hrs, Volume= 1.035 af
Outflow = 14.56 cfs @ 12.07 hrs, Volume= 1.035 af, Atten= 0%, Lag= 0.0 min
Primary = 14.56 cfs @ 12.07 hrs, Volume= 1.035 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.51' @ 12.10 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.89'	**30.0" Round RCP_Round 30"** L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.89' / 10.78' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=11.47 cfs @ 12.07 hrs HW=15.37' TW=15.22' (Dynamic Tailwater)
1=RCP_Round 30" (Inlet Controls 11.47 cfs @ 2.34 fps)

Pond CI 06-PH5: CI06-PH5



Summary for Pond POST-2PA: POND 2A

[80] Warning: Exceeded Pond CI 03-PH5 by 3.90' @ 0.00 hrs (55.84 cfs 7.423 af)

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 7.06" for 50 event
Inflow = 121.56 cfs @ 12.09 hrs, Volume= 9.175 af
Outflow = 88.37 cfs @ 12.16 hrs, Volume= 9.036 af, Atten= 27%, Lag= 4.6 min
Primary = 88.37 cfs @ 12.16 hrs, Volume= 9.036 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.83' @ 12.16 hrs Surf.Area= 36,768 sf Storage= 175,122 cf (66,400 cf above start)

Plug-Flow detention time= 169.8 min calculated for 6.541 af (71% of inflow)
Center-of-Mass det. time= 24.0 min (810.6 - 786.6)

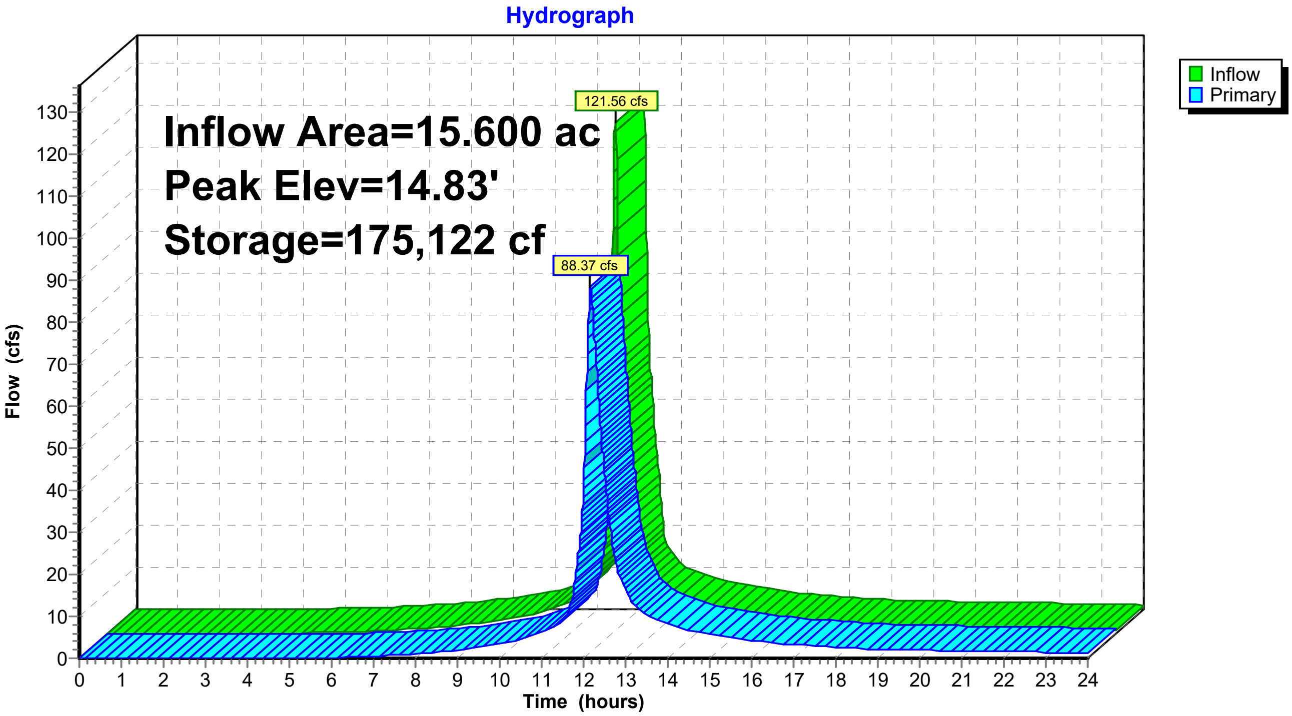
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=88.31 cfs @ 12.16 hrs HW=14.83' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 88.31 cfs @ 3.99 fps)

Pond POST-2PA: POND 2A



Summary for Subcatchment CI01-PH5: CI01-PH5

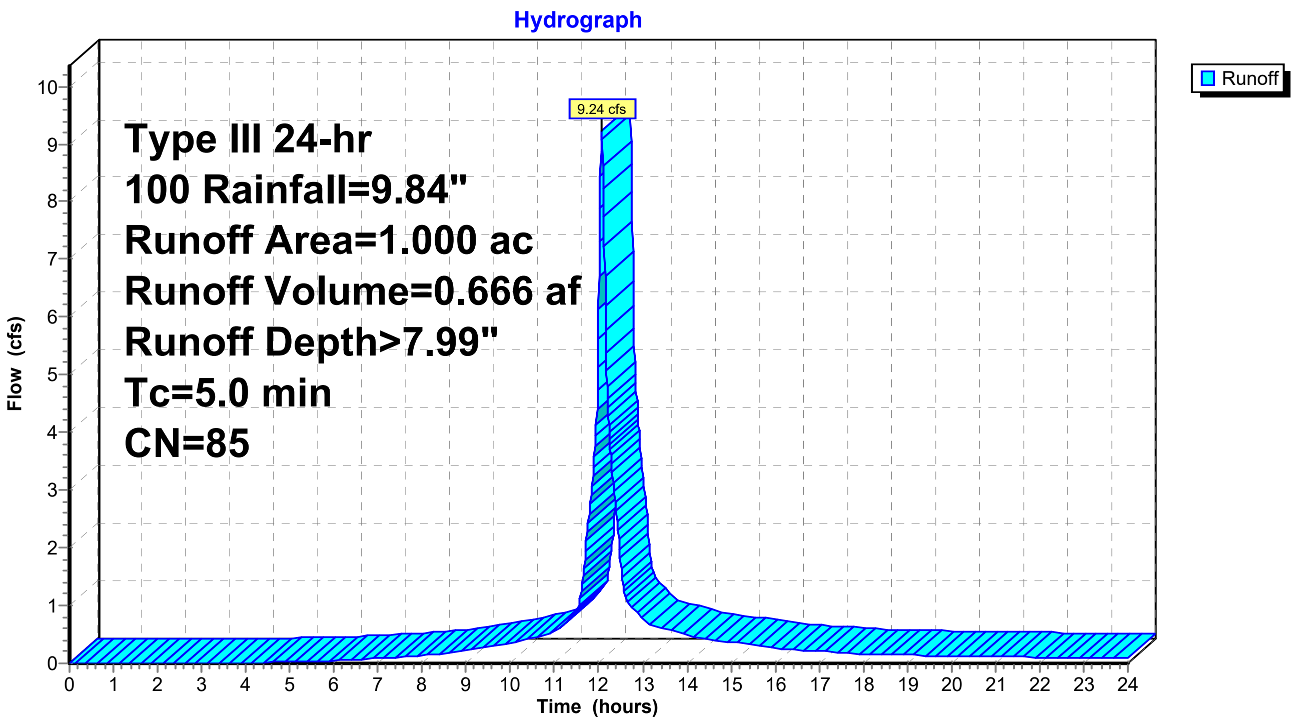
Runoff = 9.24 cfs @ 12.07 hrs, Volume= 0.666 af, Depth> 7.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI01-PH5: CI01-PH5



Summary for Subcatchment CI02-PH5: CI02-PH5

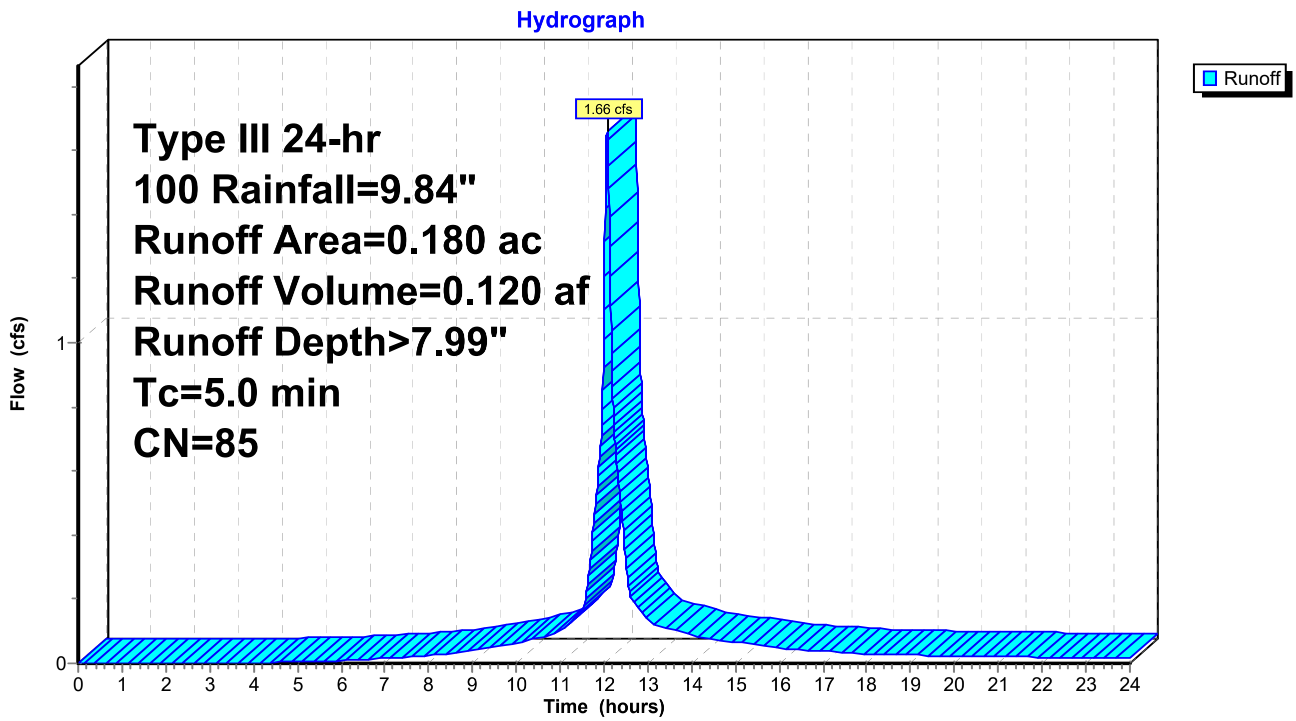
Runoff = 1.66 cfs @ 12.07 hrs, Volume= 0.120 af, Depth> 7.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	0.180	85	
	0.180		100.00% Pervious Area

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

Subcatchment CI02-PH5: CI02-PH5



Summary for Subcatchment CI03-PH5: CI03-PH5

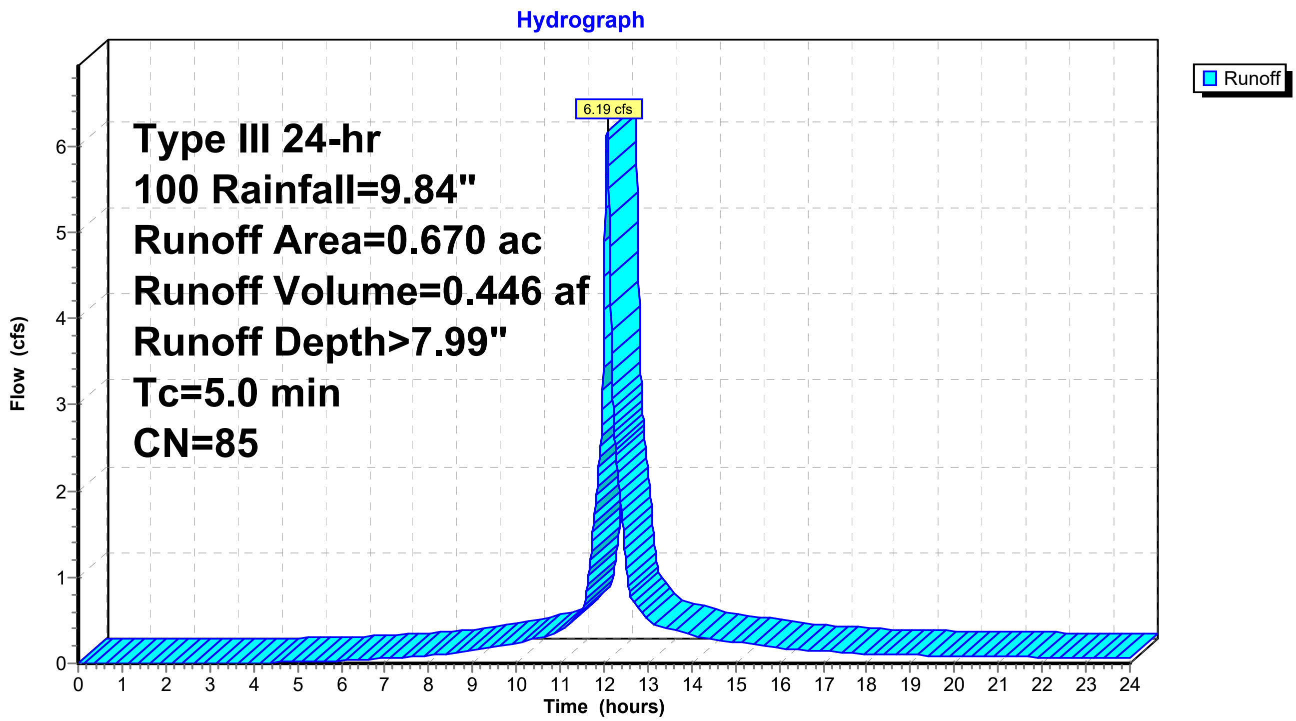
Runoff = 6.19 cfs @ 12.07 hrs, Volume= 0.446 af, Depth> 7.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI03-PH5: CI03-PH5



Summary for Subcatchment CI04-PH5: CI04-PH5

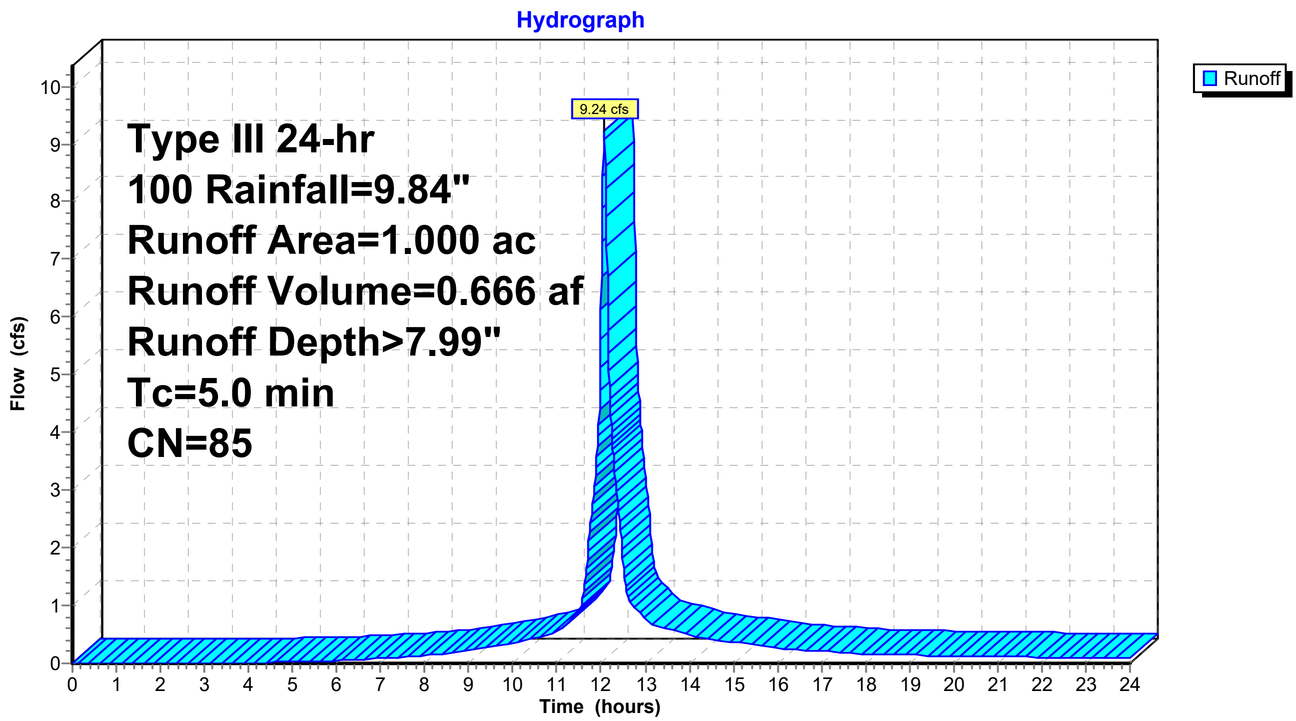
Runoff = 9.24 cfs @ 12.07 hrs, Volume= 0.666 af, Depth> 7.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	1.000	85	
	1.000		100.00% Pervious Area

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

Subcatchment CI04-PH5: CI04-PH5



Summary for Subcatchment CI05-PH5: CI05-PH5

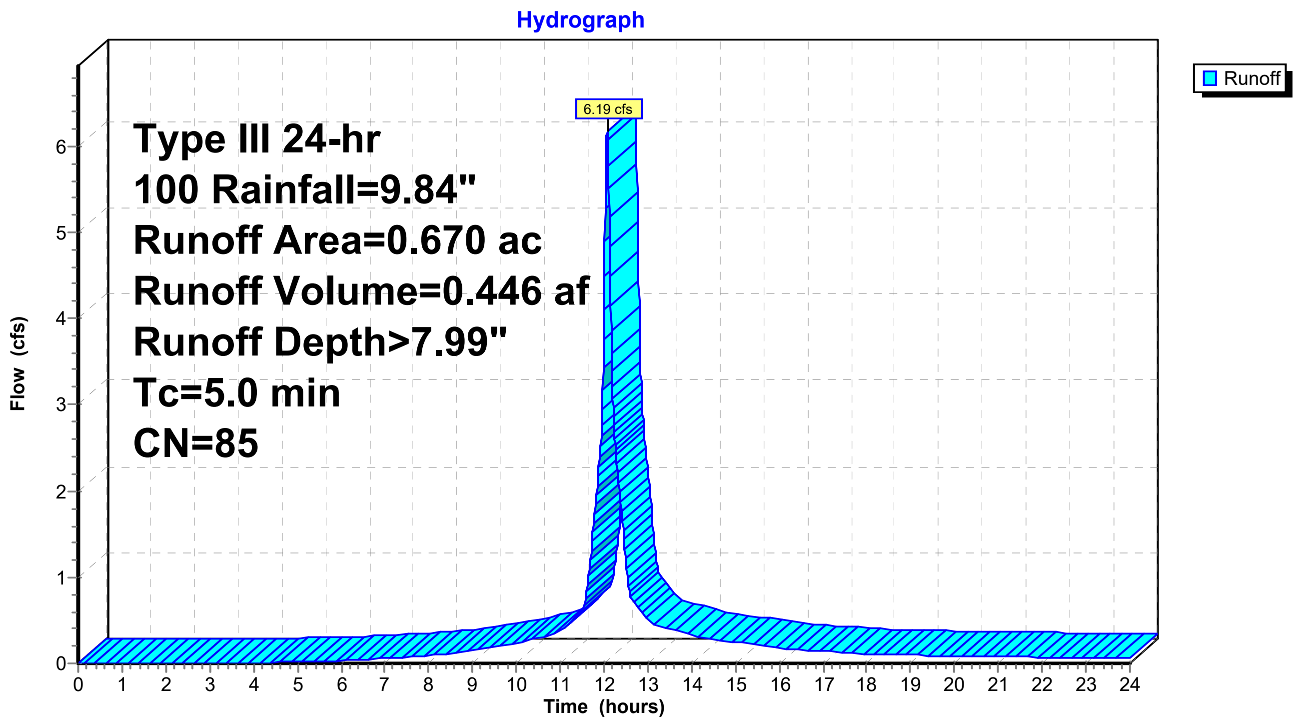
Runoff = 6.19 cfs @ 12.07 hrs, Volume= 0.446 af, Depth> 7.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	0.670	85	
	0.670		100.00% Pervious Area

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

Subcatchment CI05-PH5: CI05-PH5



Summary for Subcatchment CI06-PH5: CI06-PH5

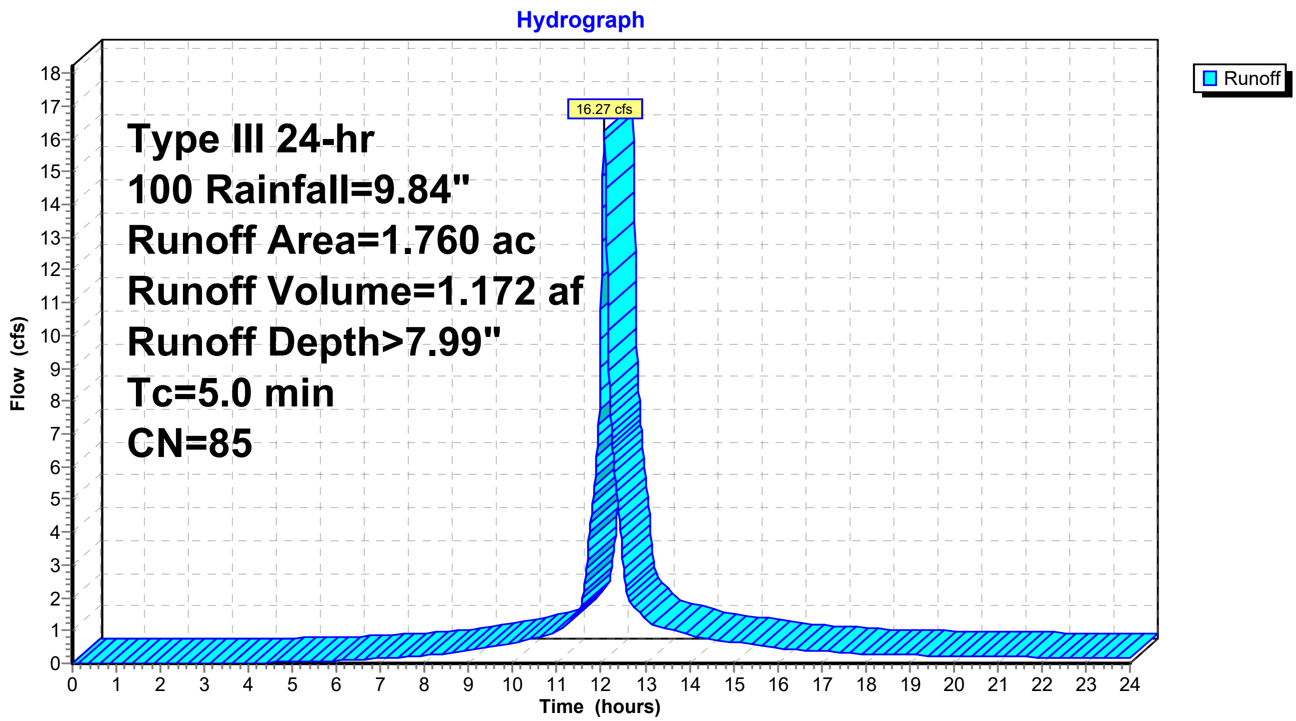
Runoff = 16.27 cfs @ 12.07 hrs, Volume= 1.172 af, Depth> 7.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	1.760	85	
	1.760		100.00% Pervious Area

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

Subcatchment CI06-PH5: CI06-PH5



Summary for Pond CI 01-PH5: CI01-PH5

[58] Hint: Peaked 0.26' above defined flood level

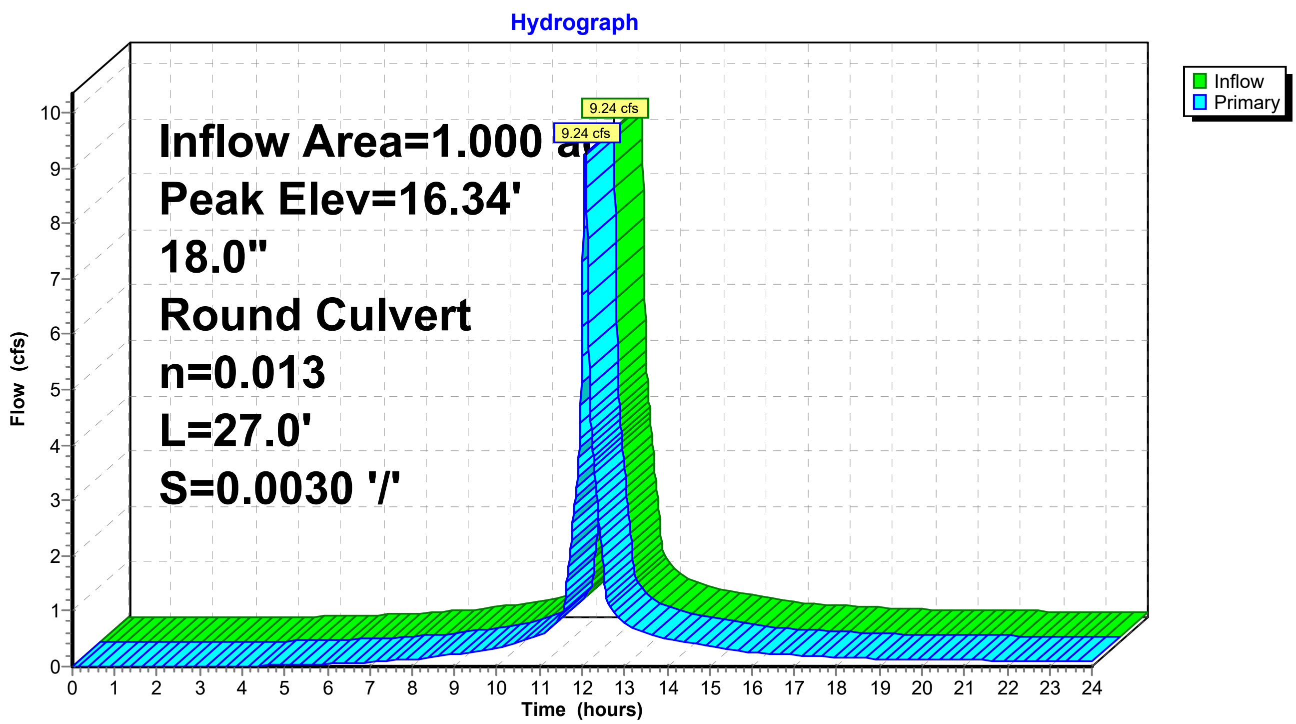
Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth > 7.99"	for 100 event
Inflow =	9.24 cfs @	12.07 hrs, Volume=	0.666 af
Outflow =	9.24 cfs @	12.07 hrs, Volume=	0.666 af, Atten= 0%, Lag= 0.0 min
Primary =	9.24 cfs @	12.07 hrs, Volume=	0.666 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 16.34' @ 12.09 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.84'	**18.0" Round RCP_Round 18"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.84' / 12.76' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=8.85 cfs @ 12.07 hrs HW=16.23' TW=15.54' (Dynamic Tailwater)
↑—**1=RCP_Round 18"** (Inlet Controls 8.85 cfs @ 5.01 fps)

Pond CI 01-PH5: CI01-PH5



Summary for Pond CI 02-PH5: CI02-PH5

[80] Warning: Exceeded Pond CI 01-PH5 by 0.19' @ 16.30 hrs (0.69 cfs 0.101 af)

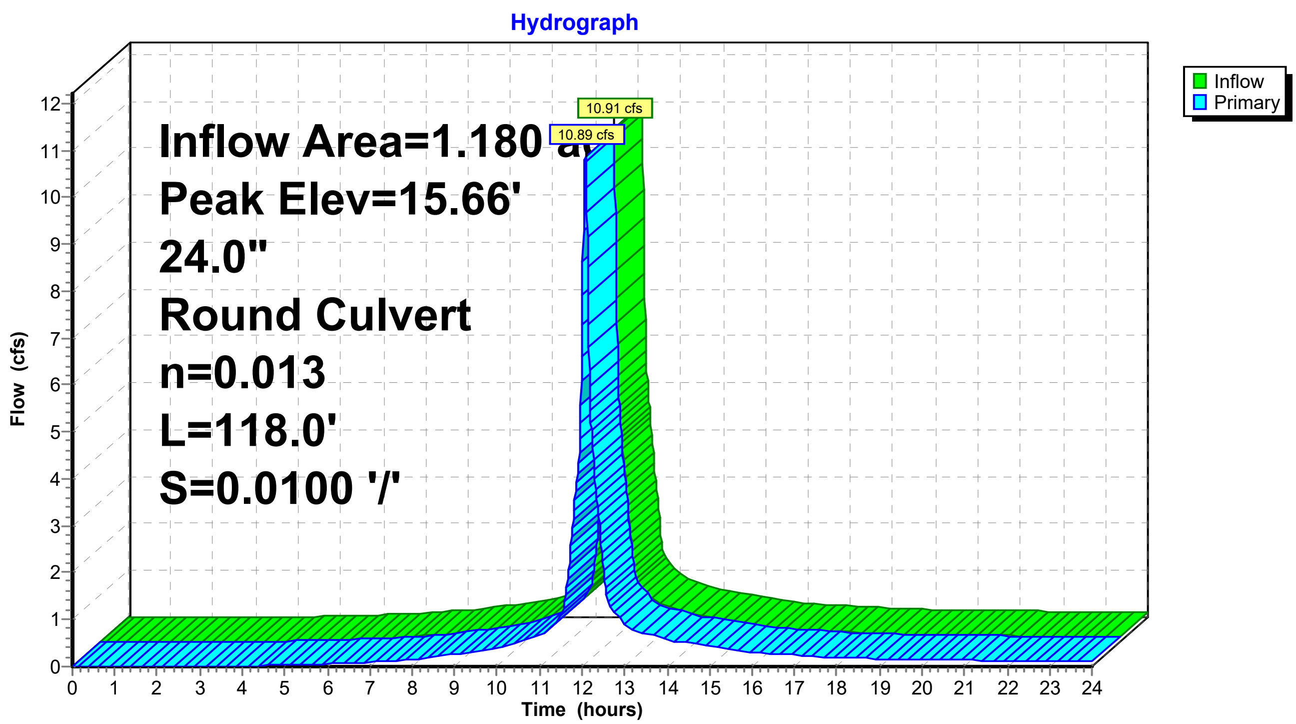
Inflow Area =	1.180 ac,	0.00% Impervious, Inflow Depth > 7.99"	for 100 event
Inflow =	10.91 cfs @	12.07 hrs, Volume=	0.786 af
Outflow =	10.89 cfs @	12.07 hrs, Volume=	0.786 af, Atten= 0%, Lag= 0.0 min
Primary =	10.89 cfs @	12.07 hrs, Volume=	0.786 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.66' @ 12.10 hrs
Flood Elev= 16.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.16'	**24.0" Round RCP_Round 24"** L= 118.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.16' / 10.98' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=9.81 cfs @ 12.07 hrs HW=15.55' TW=15.14' (Dynamic Tailwater)
1=RCP_Round 24" (Outlet Controls 9.81 cfs @ 3.12 fps)

Pond CI 02-PH5: CI02-PH5



Summary for Pond CI 03-PH5: CI03-PH5

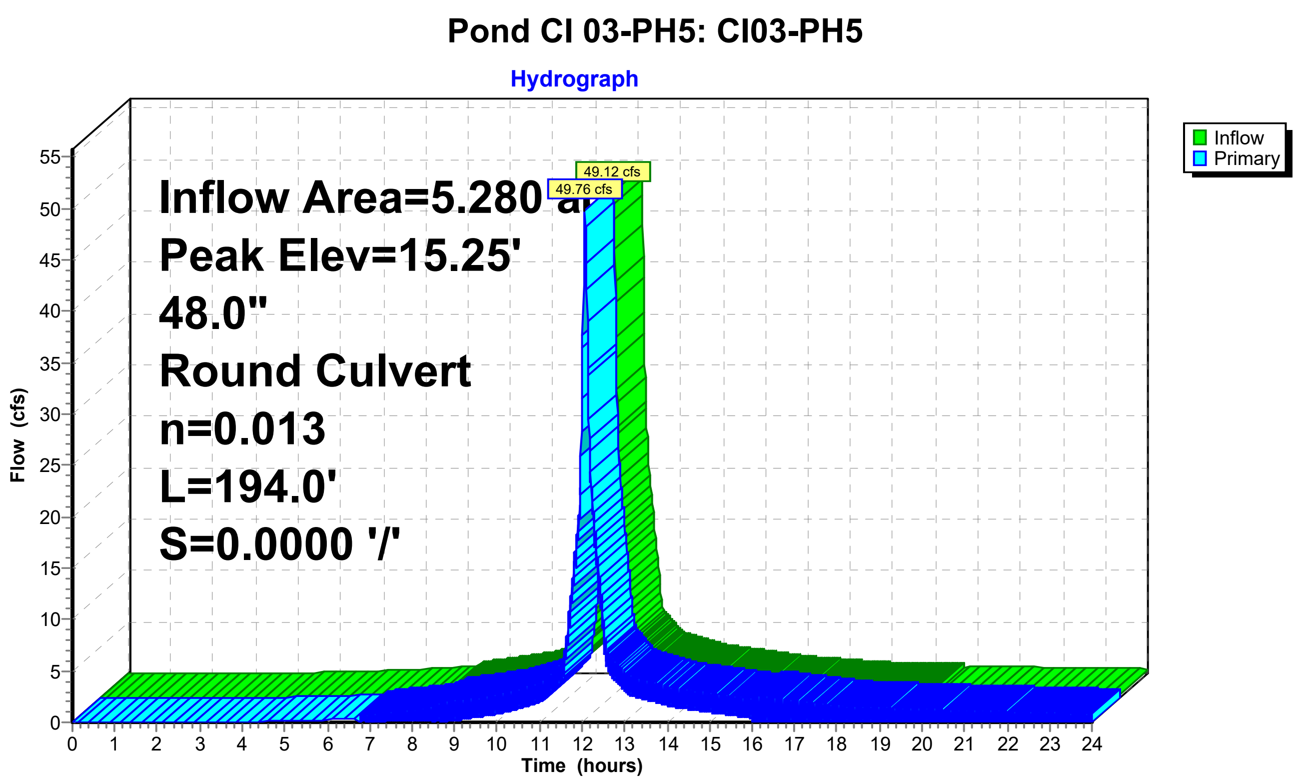
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=118)
[80] Warning: Exceeded Pond CI 02-PH5 by 0.93' @ 16.29 hrs (5.76 cfs 1.589 af)
[80] Warning: Exceeded Pond CI 04-PH5 by 2.01' @ 16.29 hrs (14.90 cfs 5.648 af)
[80] Warning: Exceeded Pond CI 05-PH5 by 2.66' @ 8.22 hrs (25.47 cfs 9.495 af)

Inflow Area = 5.280 ac, 0.00% Impervious, Inflow Depth > 7.99" for 100 event
Inflow = 49.12 cfs @ 12.07 hrs, Volume= 3.517 af
Outflow = 49.76 cfs @ 12.07 hrs, Volume= 3.516 af, Atten= 0%, Lag= 0.0 min
Primary = 49.76 cfs @ 12.07 hrs, Volume= 3.516 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.25' @ 12.11 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.00'	**48.0" Round RCP_Round 48"** L= 194.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 9.00' / 9.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 12.57 sf

Primary OutFlow Max=46.84 cfs @ 12.07 hrs HW=15.14' TW=14.67' (Dynamic Tailwater)
└─**1=RCP_Round 48"** (Outlet Controls 46.84 cfs @ 3.73 fps)



Summary for Pond CI 04-PH5: CI04-PH5

[58] Hint: Peaked 0.18' above defined flood level
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=859)

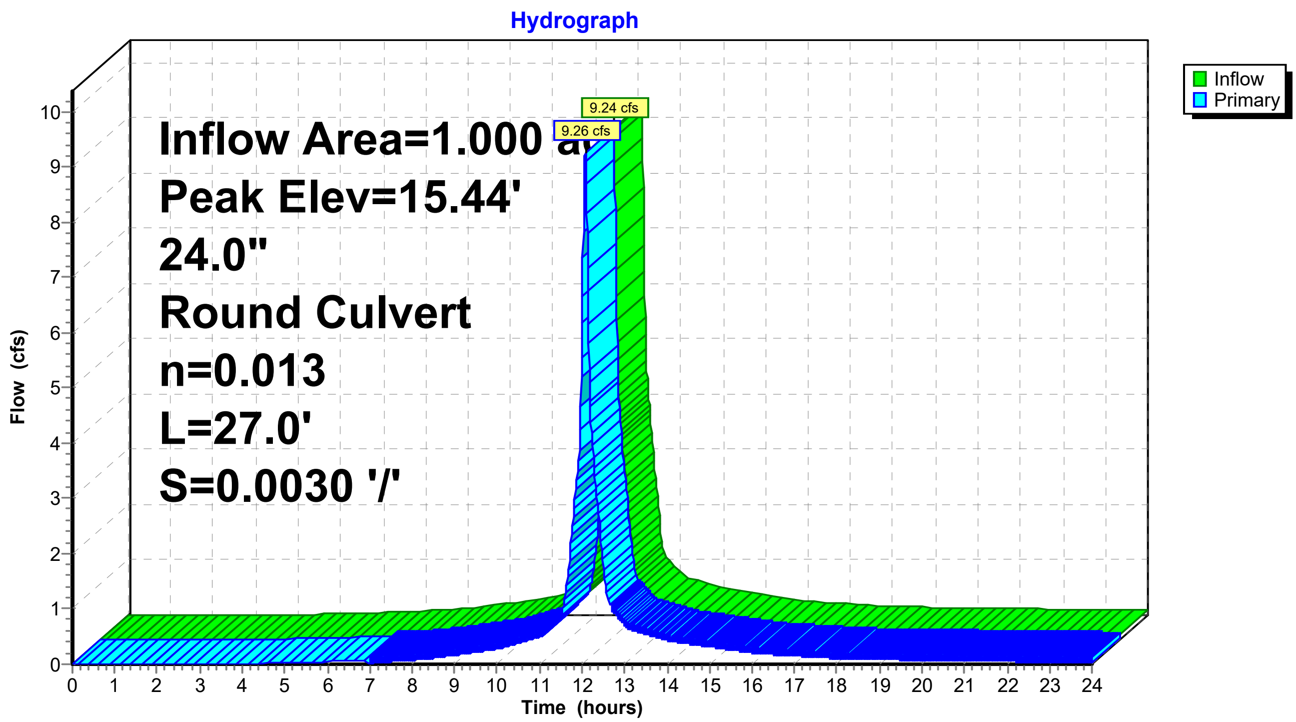
Inflow Area =	1.000 ac,	0.00% Impervious, Inflow Depth > 7.99"	for 100 event
Inflow =	9.24 cfs @	12.07 hrs, Volume=	0.666 af
Outflow =	9.26 cfs @	12.08 hrs, Volume=	0.666 af, Atten= 0%, Lag= 0.3 min
Primary =	9.26 cfs @	12.08 hrs, Volume=	0.666 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.44' @ 12.10 hrs
Flood Elev= 15.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.06'	**24.0" Round RCP_Round 24"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 11.06' / 10.98' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=8.21 cfs @ 12.08 hrs HW=15.34' TW=15.15' (Dynamic Tailwater)
↑—**1=RCP_Round 24"** (Inlet Controls 8.21 cfs @ 2.61 fps)

Pond CI 04-PH5: CI04-PH5



Summary for Pond CI 05-PH5: CI05-PH5

[58] Hint: Peaked 0.32' above defined flood level
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[80] Warning: Exceeded Pond CI 06-PH5 by 2.26' @ 18.82 hrs (19.61 cfs 3.849 af)

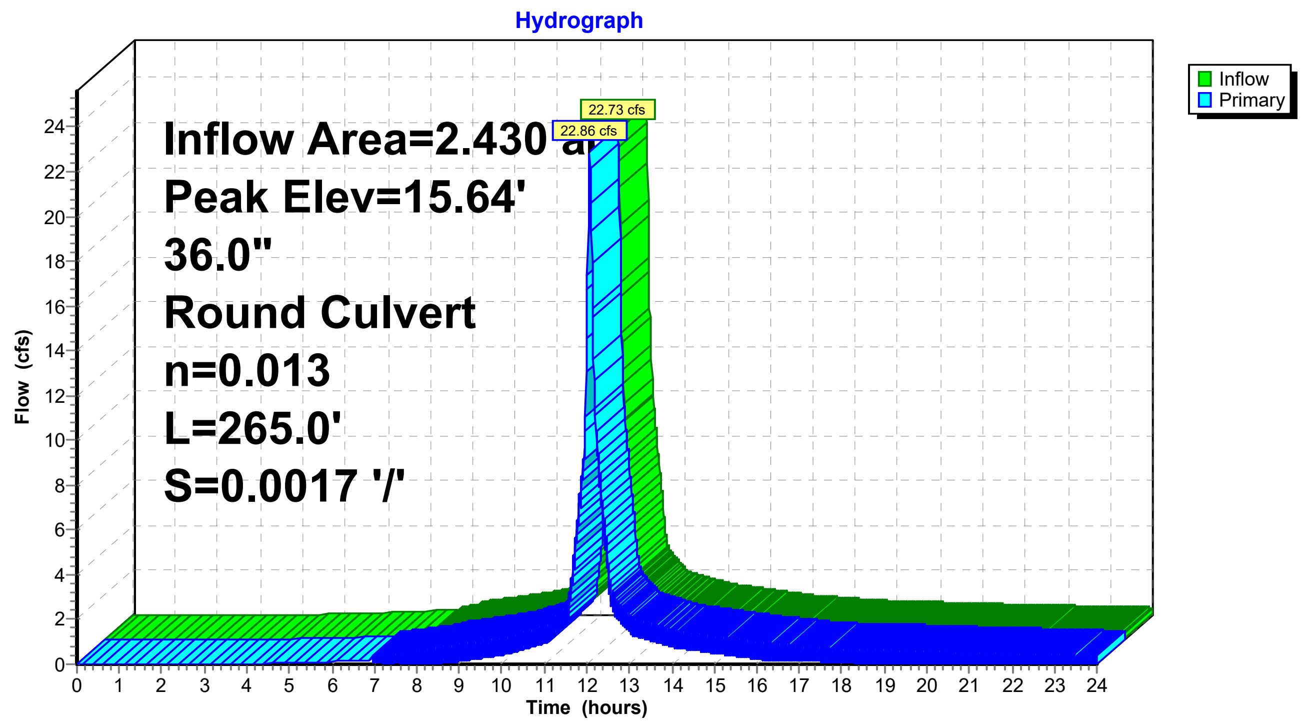
Inflow Area =	2.430 ac,	0.00% Impervious, Inflow Depth > 7.99"	for 100 event	
Inflow =	22.73 cfs @	12.07 hrs, Volume=	1.618 af	
Outflow =	22.86 cfs @	12.07 hrs, Volume=	1.618 af,	Atten= 0%, Lag= 0.0 min
Primary =	22.86 cfs @	12.07 hrs, Volume=	1.618 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.64' @ 12.10 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.44'	**36.0" Round RCP_Round 36"** L= 265.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.44' / 9.98' S= 0.0017 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 7.07 sf

Primary OutFlow Max=20.26 cfs @ 12.07 hrs HW=15.54' TW=15.14' (Dynamic Tailwater)
1=RCP_Round 36" (Outlet Controls 20.26 cfs @ 2.87 fps)

Pond CI 05-PH5: CI05-PH5



Summary for Pond CI 06-PH5: CI06-PH5

[58] Hint: Peaked 0.59' above defined flood level
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=905)

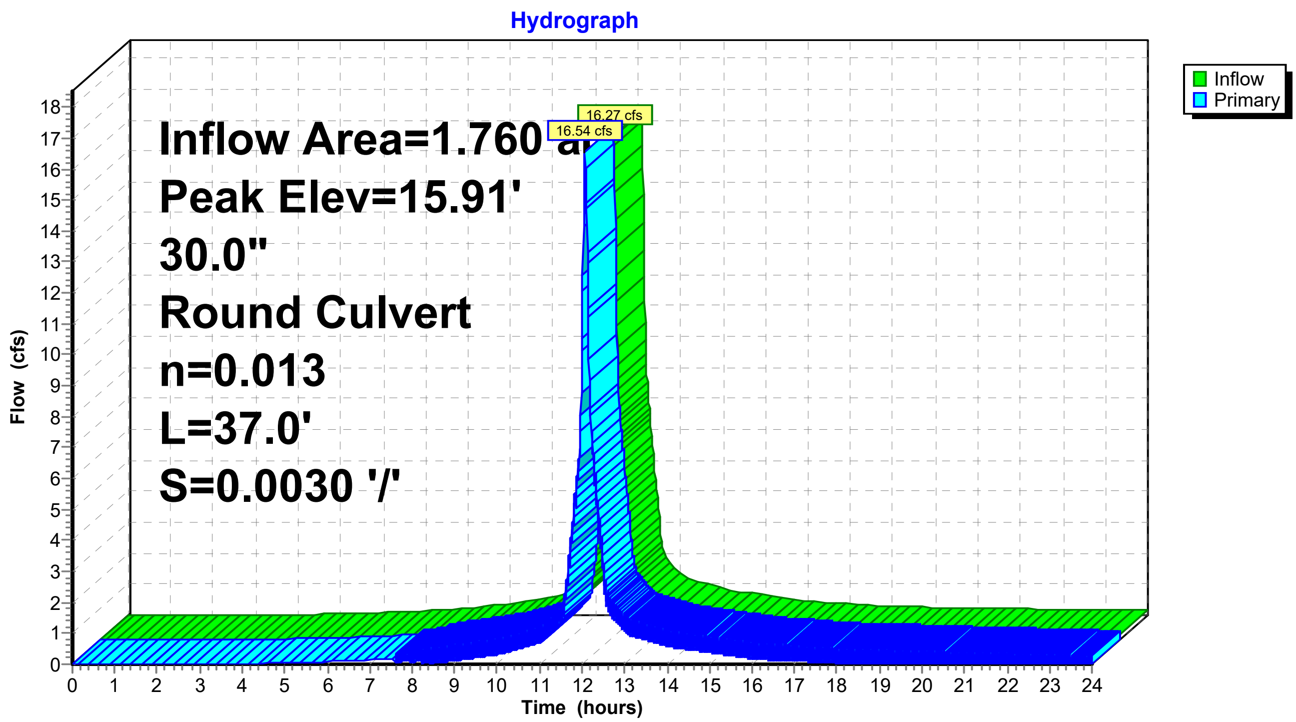
Inflow Area =	1.760 ac,	0.00% Impervious, Inflow Depth >	7.99"	for 100 event
Inflow =	16.27 cfs @	12.07 hrs, Volume=	1.172 af	
Outflow =	16.54 cfs @	12.07 hrs, Volume=	1.172 af,	Atten= 0%, Lag= 0.0 min
Primary =	16.54 cfs @	12.07 hrs, Volume=	1.172 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.91' @ 12.09 hrs
Flood Elev= 15.32'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.89'	**30.0" Round RCP_Round 30"** L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.89' / 10.78' S= 0.0030 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=13.87 cfs @ 12.07 hrs HW=15.76' TW=15.54' (Dynamic Tailwater)
└─1=RCP_Round 30" (Inlet Controls 13.87 cfs @ 2.82 fps)

Pond CI 06-PH5: CI06-PH5



Summary for Pond POST-2PA: POND 2A

[95] Warning: Outlet Device #1 rise exceeded
[80] Warning: Exceeded Pond CI 03-PH5 by 4.29' @ 16.28 hrs (64.67 cfs 25.948 af)

Inflow Area = 15.600 ac, 0.00% Impervious, Inflow Depth > 7.99" for 100 event
Inflow = 137.40 cfs @ 12.09 hrs, Volume= 10.389 af
Outflow = 100.90 cfs @ 12.16 hrs, Volume= 10.241 af, Atten= 27%, Lag= 4.3 min
Primary = 100.90 cfs @ 12.16 hrs, Volume= 10.241 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 12.90' Surf.Area= 32,194 sf Storage= 108,722 cf
Peak Elev= 14.97' @ 12.16 hrs Surf.Area= 37,100 sf Storage= 180,276 cf (71,554 cf above start)

Plug-Flow detention time= 159.0 min calculated for 7.745 af (75% of inflow)
Center-of-Mass det. time= 23.0 min (806.3 - 783.3)

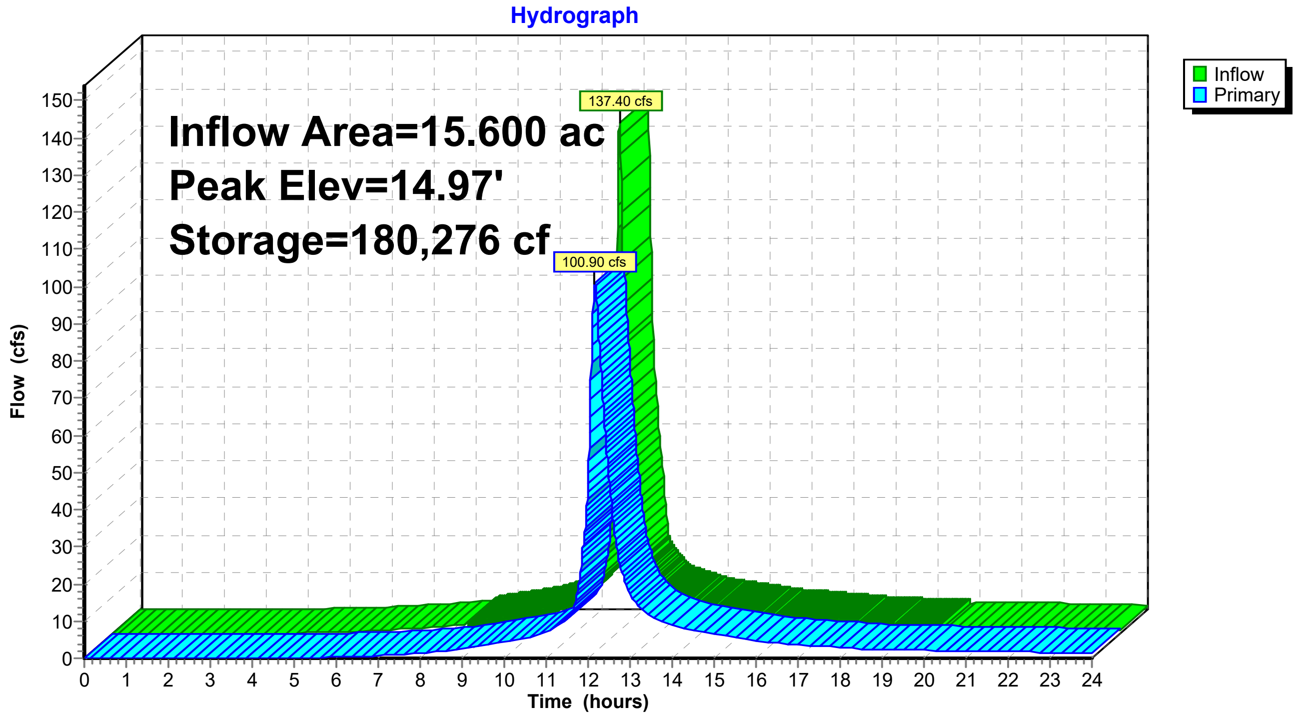
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	524,504 cf	**POND 2A (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	23,561	0	0
13.00	32,415	111,952	111,952
15.00	37,182	69,597	181,549
20.00	100,000	342,955	524,504

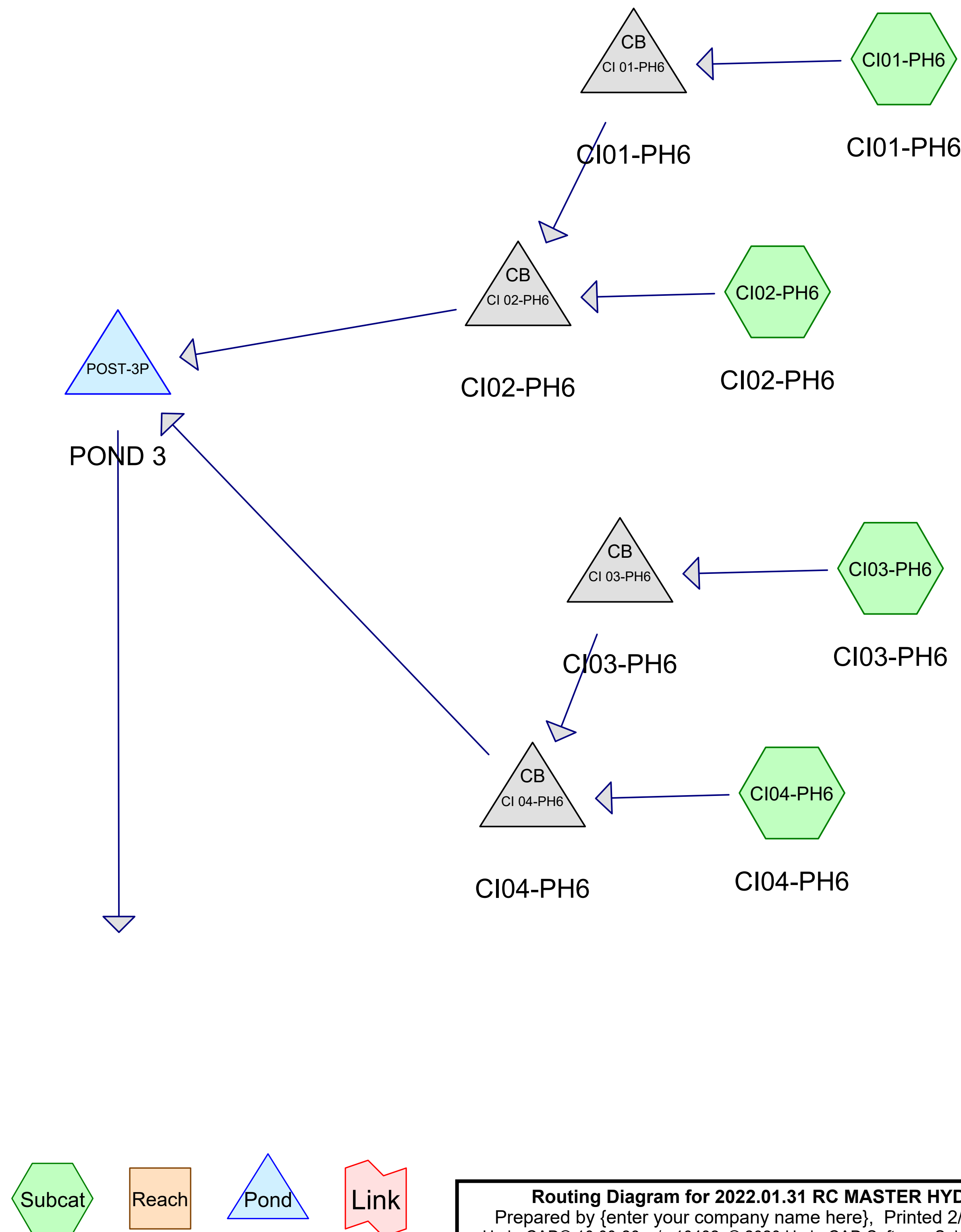
Device	Routing	Invert	Outlet Devices
#1	Primary	12.90'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.10 2.00 Width (feet) 4.30 12.70 18.70

Primary OutFlow Max=100.93 cfs @ 12.16 hrs HW=14.97' (Free Discharge)
└─**1=Custom Weir/Orifice** (Orifice Controls 100.93 cfs @ 4.30 fps)

Pond POST-2PA: POND 2A



Appendix H: PH VI Storm Sewer HydroCAD Output



Routing Diagram for 2022.01.31 RC MASTER HYDRO
Prepared by {enter your company name here}, Printed 2/1/2022
HydroCAD® 10.00-26 s/n 10482 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment CI01-PH6: CI01-PH6

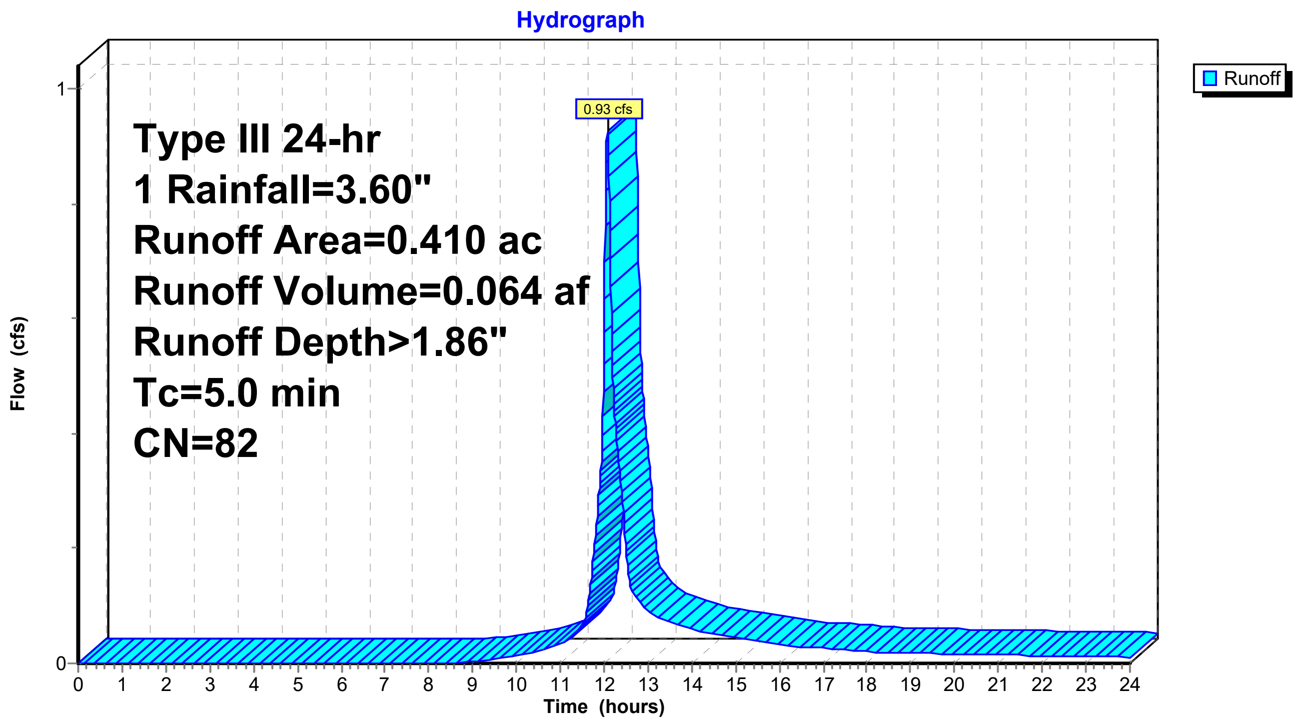
Runoff = 0.93 cfs @ 12.08 hrs, Volume= 0.064 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	0.410	82	
	0.410		100.00% Pervious Area

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

Subcatchment CI01-PH6: CI01-PH6



Summary for Subcatchment CI02-PH6: CI02-PH6

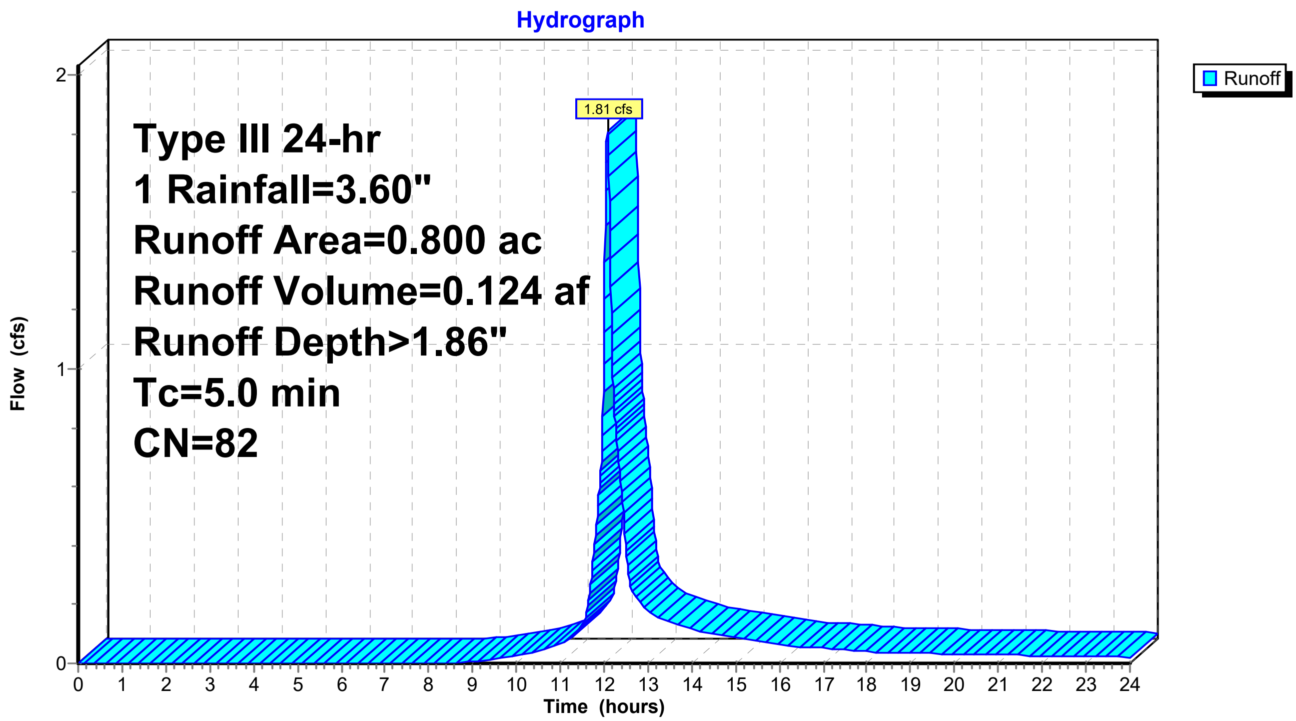
Runoff = 1.81 cfs @ 12.08 hrs, Volume= 0.124 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI02-PH6: CI02-PH6



Summary for Subcatchment CI03-PH6: CI03-PH6

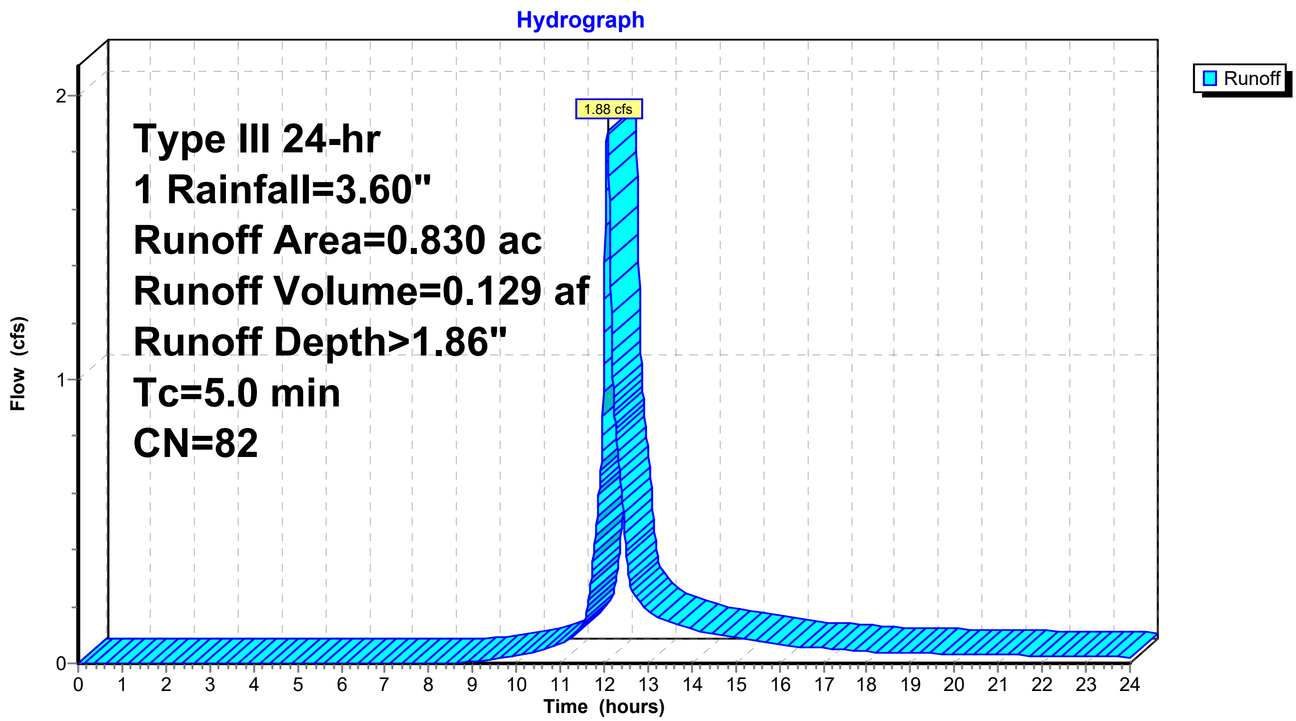
Runoff = 1.88 cfs @ 12.08 hrs, Volume= 0.129 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	0.830	82	
	0.830		100.00% Pervious Area

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

Subcatchment CI03-PH6: CI03-PH6



Summary for Subcatchment CI04-PH6: CI04-PH6

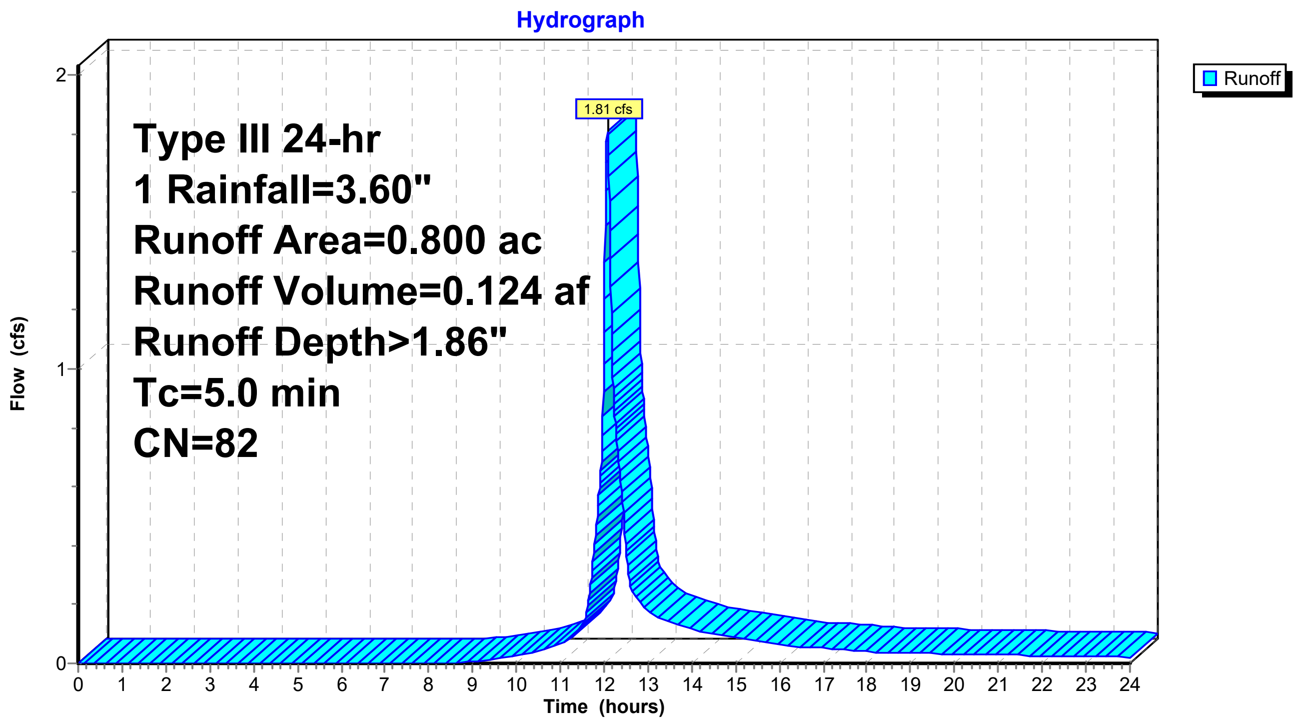
Runoff = 1.81 cfs @ 12.08 hrs, Volume= 0.124 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Rainfall=3.60"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI04-PH6: CI04-PH6



Summary for Pond CI 01-PH6: CI01-PH6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=434)

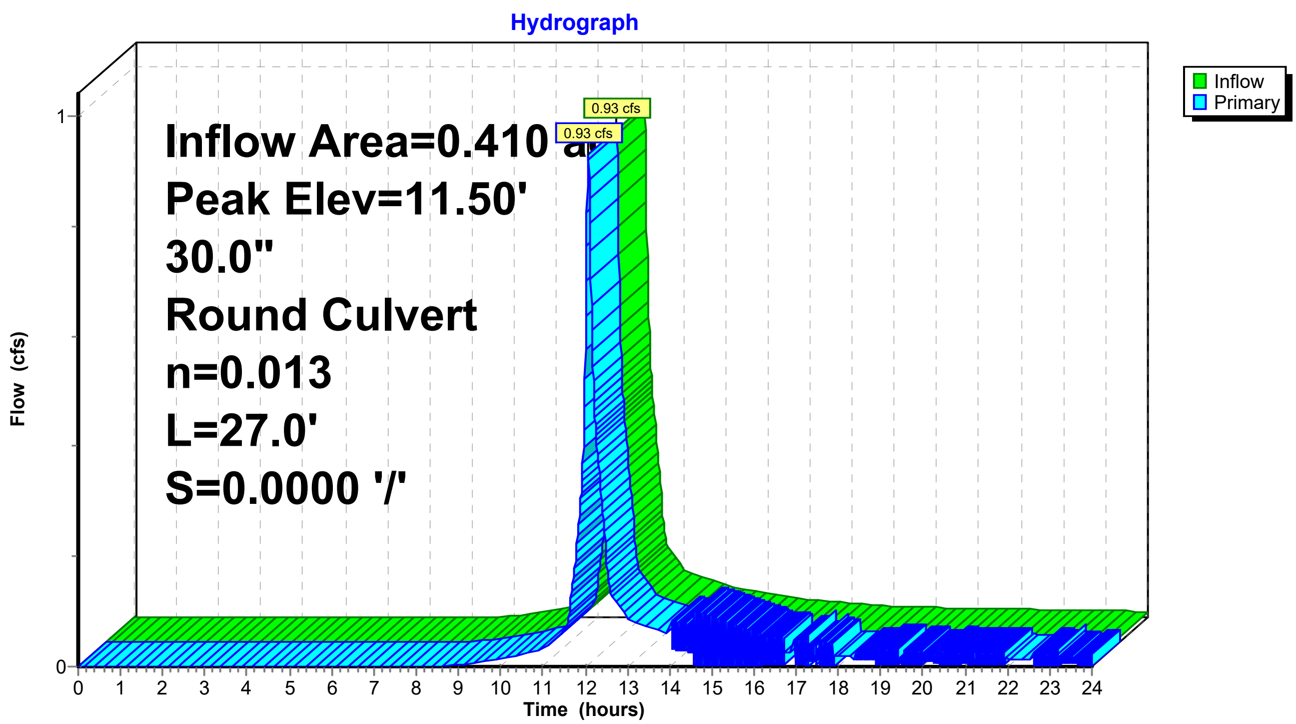
Inflow Area =	0.410 ac,	0.00% Impervious, Inflow Depth > 1.86"	for 1 event
Inflow =	0.93 cfs @	12.08 hrs, Volume=	0.064 af
Outflow =	0.93 cfs @	12.08 hrs, Volume=	0.064 af, Atten= 0%, Lag= 0.0 min
Primary =	0.93 cfs @	12.08 hrs, Volume=	0.064 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.50' @ 12.78 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=0.75 cfs @ 12.08 hrs HW=11.19' TW=11.19' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 0.75 cfs @ 0.57 fps)

Pond CI 01-PH6: CI01-PH6



Summary for Pond CI 02-PH6: CI02-PH6

[80] Warning: Exceeded Pond CI 01-PH6 by 1.28' @ 14.76 hrs (6.36 cfs 0.751 af)

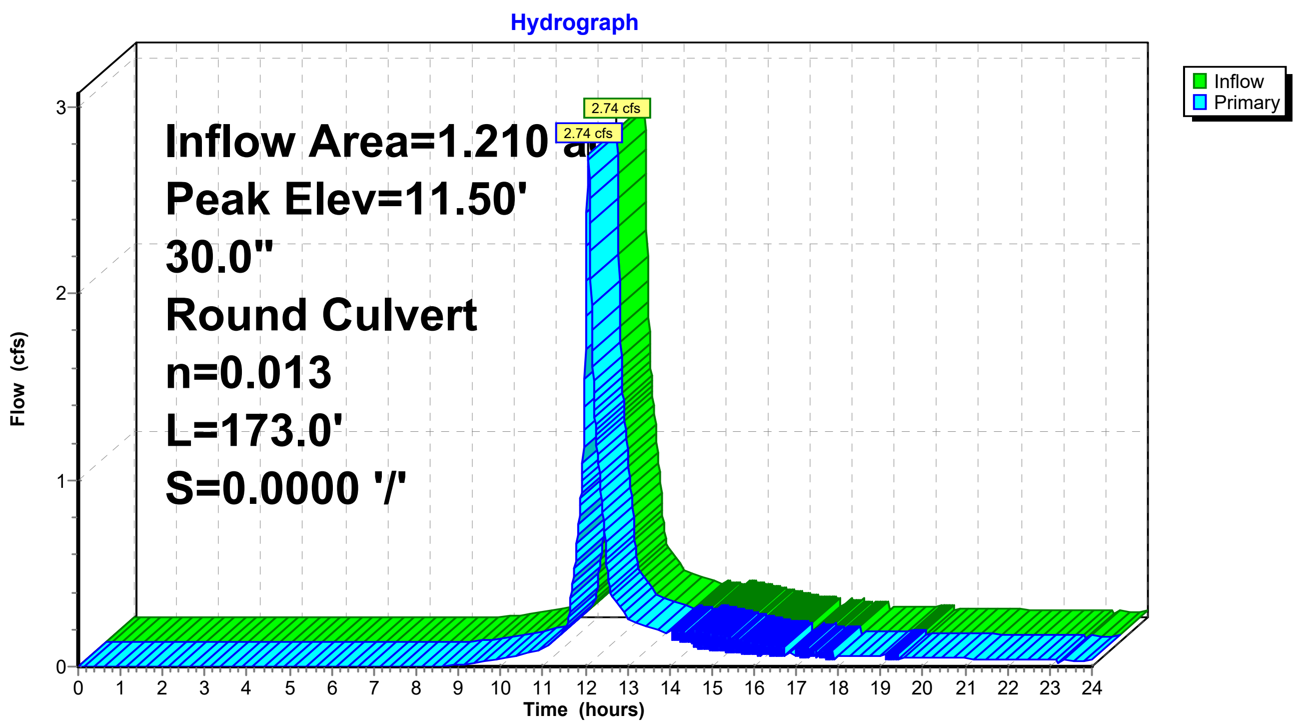
Inflow Area =	1.210 ac,	0.00% Impervious,	Inflow Depth > 1.86"	for 1 event
Inflow =	2.74 cfs @	12.08 hrs, Volume=	0.188 af	
Outflow =	2.74 cfs @	12.08 hrs, Volume=	0.188 af, Atten= 0%, Lag= 0.0 min	
Primary =	2.74 cfs @	12.08 hrs, Volume=	0.188 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.50' @ 12.77 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=2.74 cfs @ 12.08 hrs HW=11.19' TW=10.64' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Barrel Controls 2.74 cfs @ 2.11 fps)

Pond CI 02-PH6: CI02-PH6



Summary for Pond CI 03-PH6: CI03-PH6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=350)

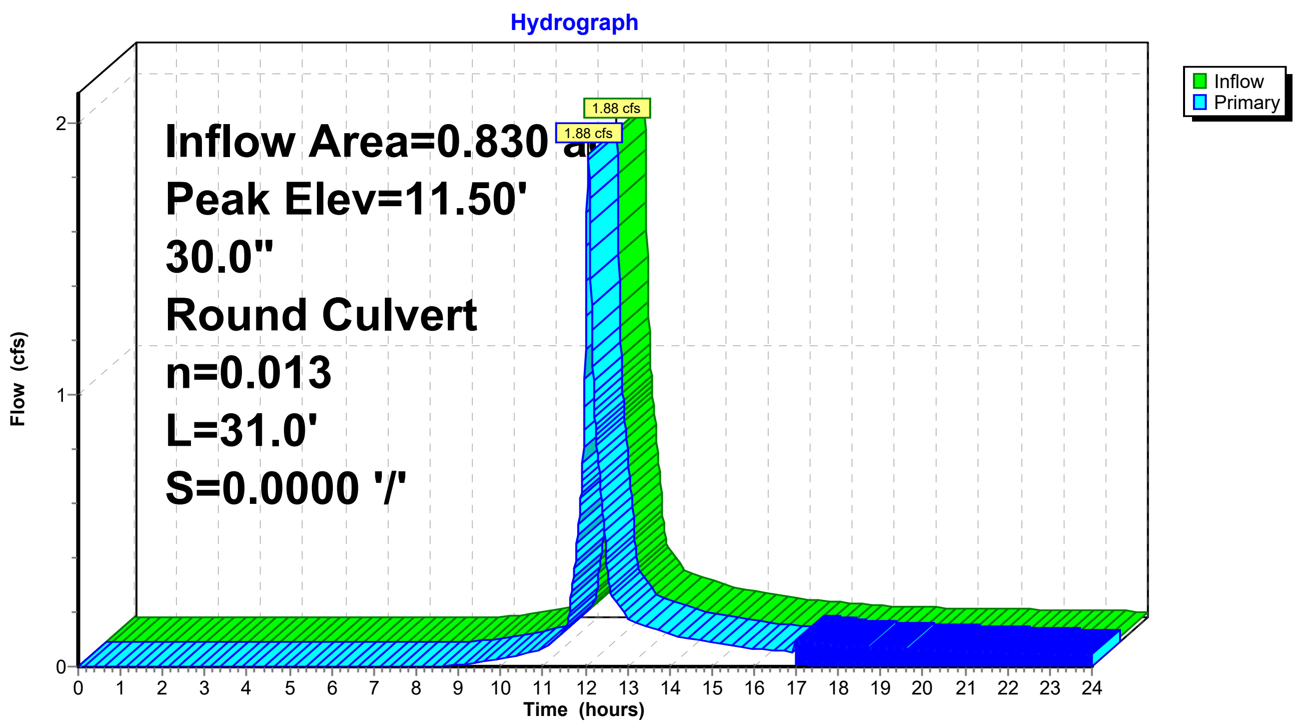
Inflow Area =	0.830 ac,	0.00% Impervious,	Inflow Depth > 1.86"	for 1 event
Inflow =	1.88 cfs @	12.08 hrs, Volume=	0.129 af	
Outflow =	1.88 cfs @	12.08 hrs, Volume=	0.129 af, Atten= 0%, Lag= 0.0 min	
Primary =	1.88 cfs @	12.08 hrs, Volume=	0.129 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.50' @ 12.78 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 31.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=1.74 cfs @ 12.08 hrs HW=11.35' TW=11.32' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 1.74 cfs @ 1.09 fps)

Pond CI 03-PH6: CI03-PH6



Summary for Pond CI 04-PH6: CI04-PH6

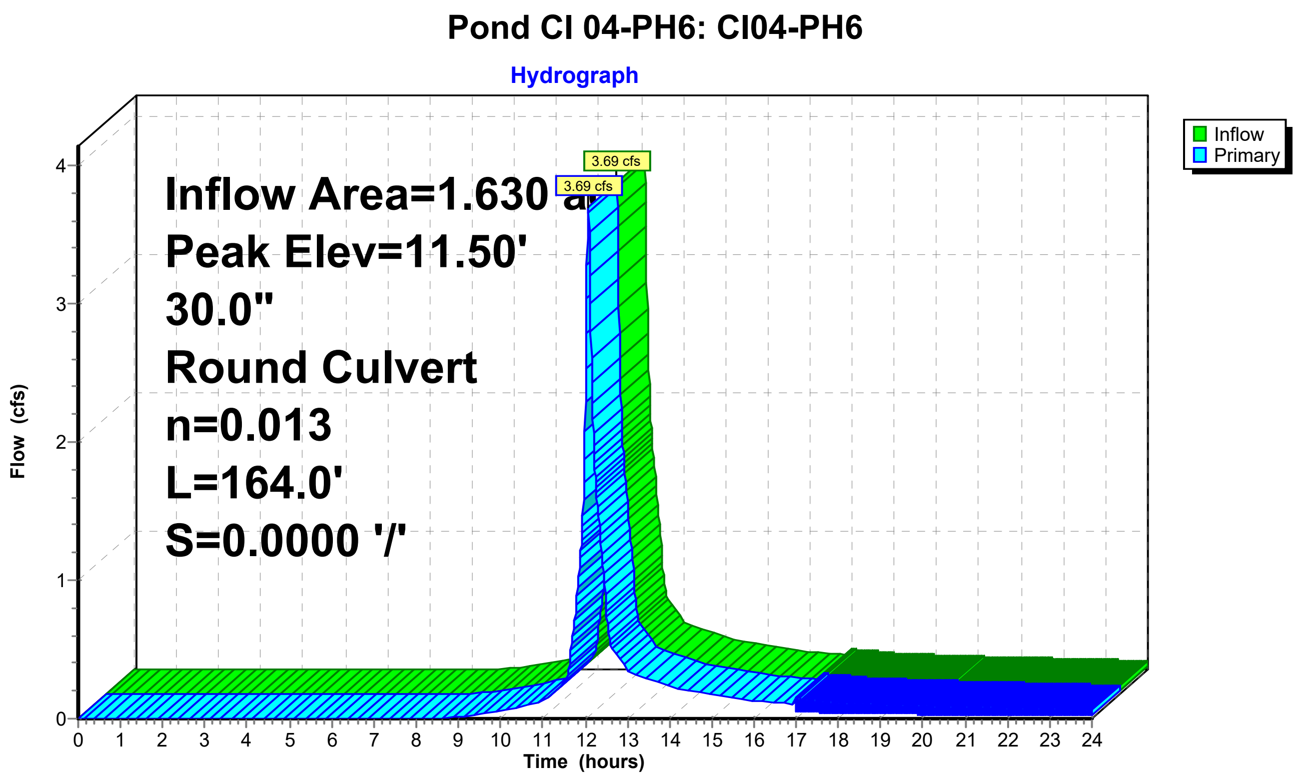
[80] Warning: Exceeded Pond CI 03-PH6 by 1.04' @ 17.54 hrs (4.19 cfs 0.775 af)

Inflow Area = 1.630 ac, 0.00% Impervious, Inflow Depth > 1.86" for 1 event
Inflow = 3.69 cfs @ 12.08 hrs, Volume= 0.253 af
Outflow = 3.69 cfs @ 12.08 hrs, Volume= 0.253 af, Atten= 0%, Lag= 0.0 min
Primary = 3.69 cfs @ 12.08 hrs, Volume= 0.253 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.50' @ 12.77 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 164.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=3.69 cfs @ 12.08 hrs HW=11.32' TW=10.64' (Dynamic Tailwater)
↑**1=RCP_Round 30"** (Barrel Controls 3.69 cfs @ 2.39 fps)



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.12' @ 12.54 hrs (39.85 cfs 2.995 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 1.59" for 1 event
Inflow = 48.68 cfs @ 12.11 hrs, Volume= 9.749 af
Outflow = 14.96 cfs @ 13.43 hrs, Volume= 8.529 af, Atten= 69%, Lag= 78.9 min
Primary = 14.96 cfs @ 13.43 hrs, Volume= 8.529 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 11.49' @ 12.76 hrs Surf.Area= 69,909 sf Storage= 281,549 cf (98,104 cf above start)

Plug-Flow detention time= 411.5 min calculated for 4.316 af (44% of inflow)
Center-of-Mass det. time= 77.0 min (1,016.8 - 939.8)

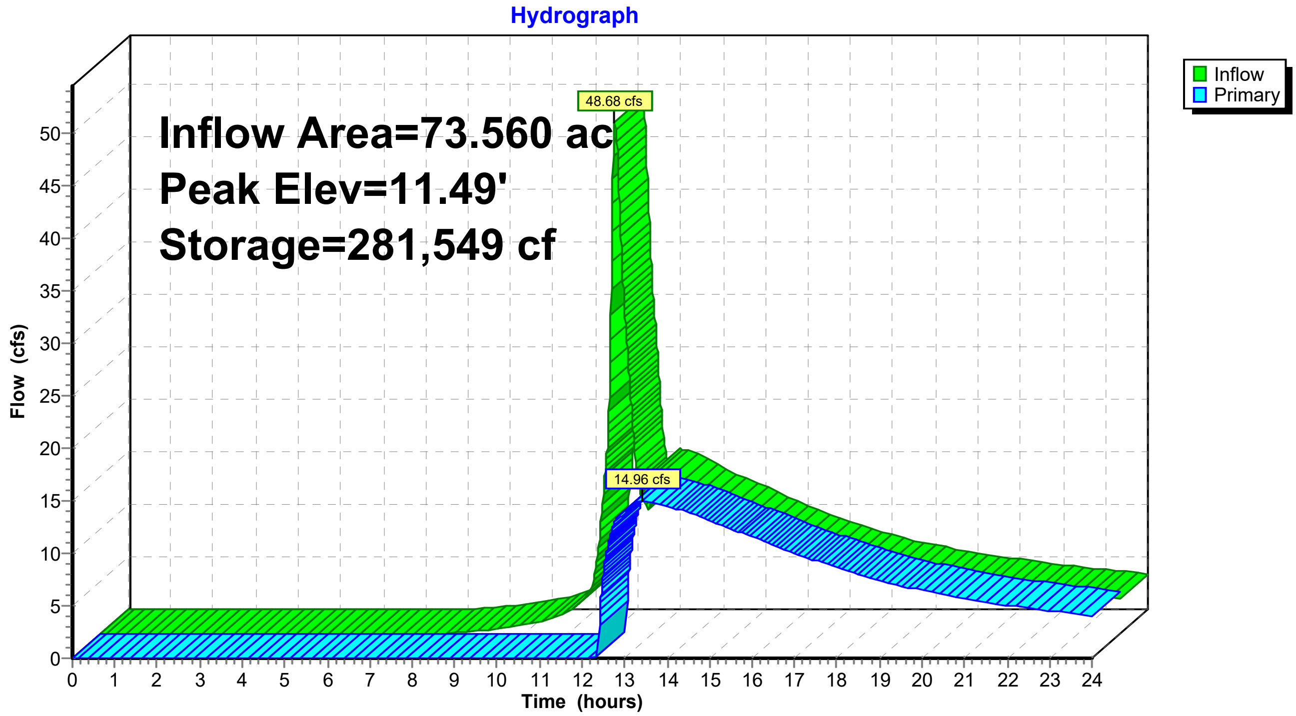
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=14.97 cfs @ 13.43 hrs HW=11.49' TW=11.29' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 4.88 cfs @ 2.35 fps)
├─**2=RCP_Round 36"** (Outlet Controls 6.00 cfs @ 2.43 fps)
└─**3=RCP_Round 36"** (Outlet Controls 4.09 cfs @ 1.95 fps)

Pond POST-3P: POND 3



Summary for Subcatchment CI01-PH6: CI01-PH6

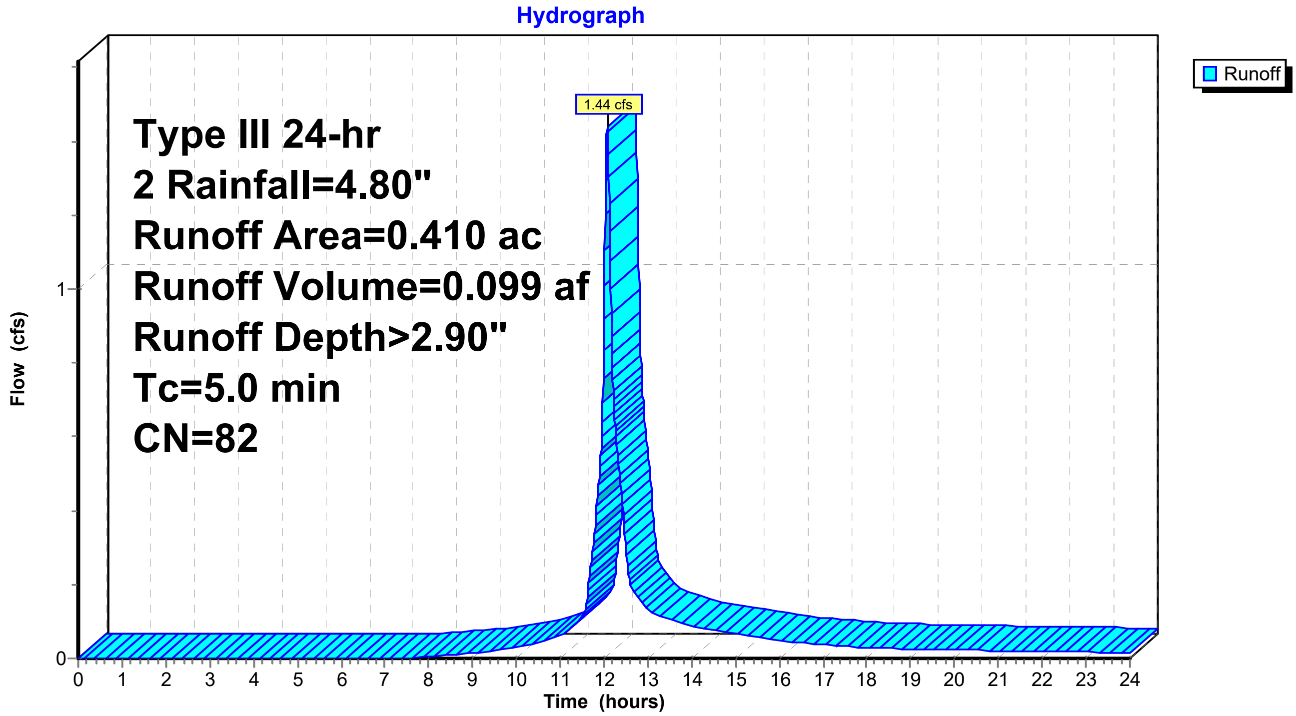
Runoff = 1.44 cfs @ 12.07 hrs, Volume= 0.099 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	0.410	82	
	0.410		100.00% Pervious Area

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

Subcatchment CI01-PH6: CI01-PH6



Summary for Subcatchment CI02-PH6: CI02-PH6

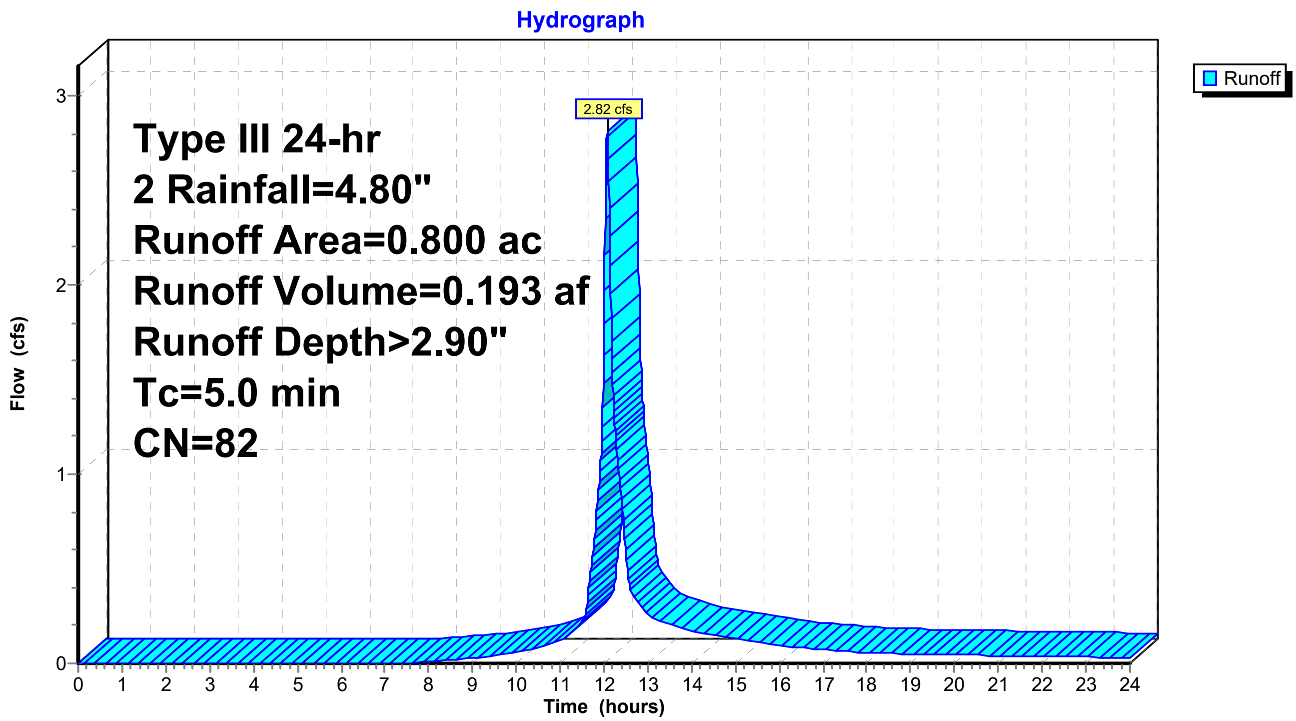
Runoff = 2.82 cfs @ 12.07 hrs, Volume= 0.193 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI02-PH6: CI02-PH6



Summary for Subcatchment CI03-PH6: CI03-PH6

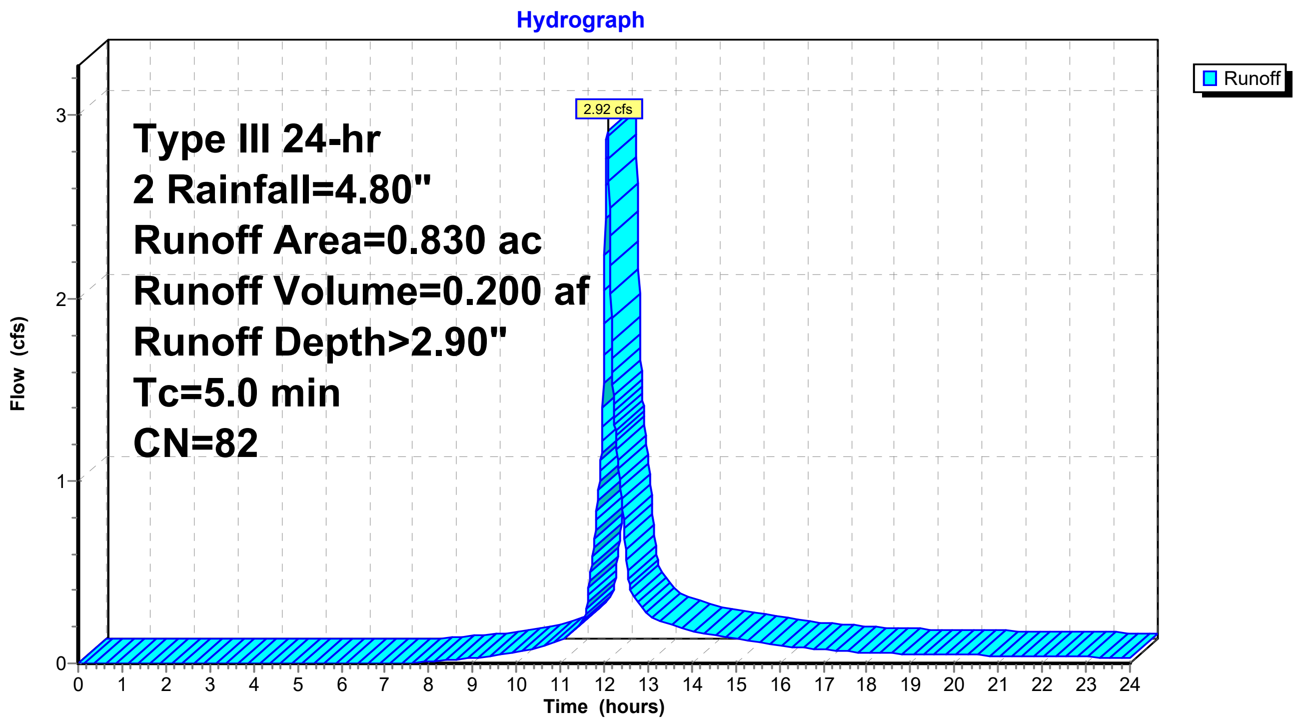
Runoff = 2.92 cfs @ 12.07 hrs, Volume= 0.200 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	0.830	82	
	0.830		100.00% Pervious Area

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

Subcatchment CI03-PH6: CI03-PH6



Summary for Subcatchment CI04-PH6: CI04-PH6

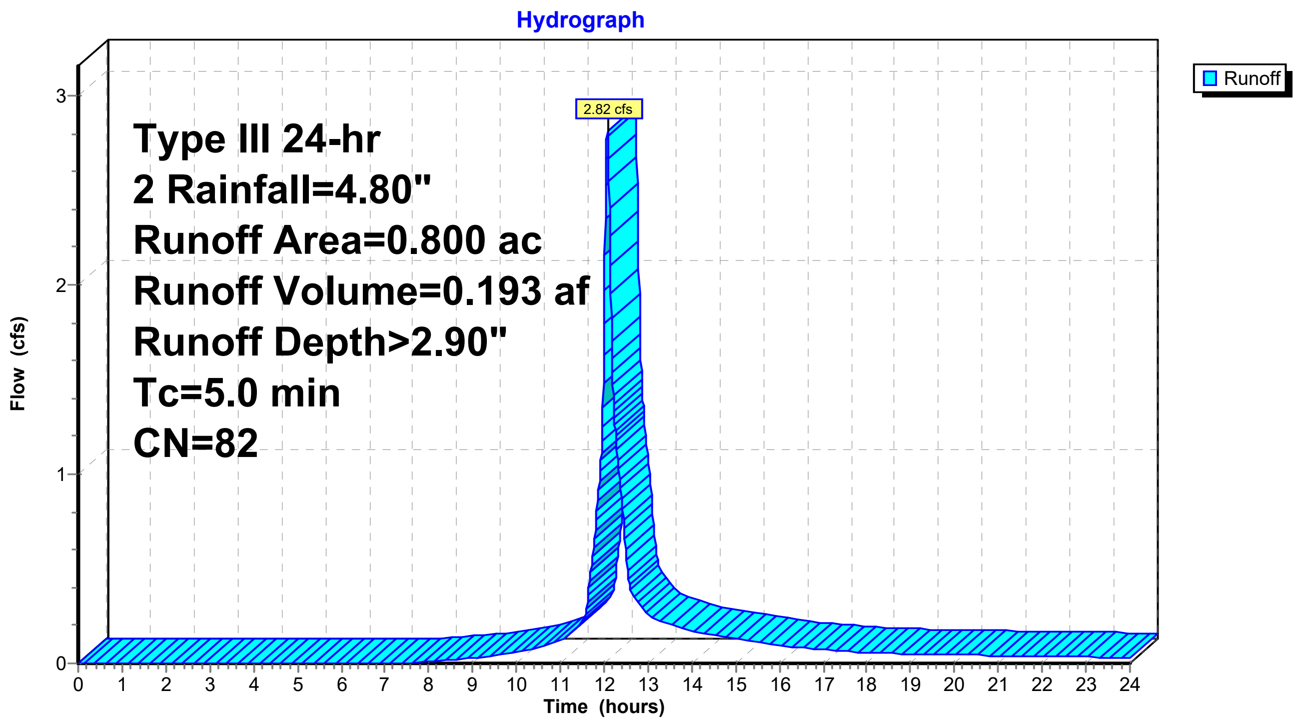
Runoff = 2.82 cfs @ 12.07 hrs, Volume= 0.193 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=4.80"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI04-PH6: CI04-PH6



Summary for Pond CI 01-PH6: CI01-PH6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=489)

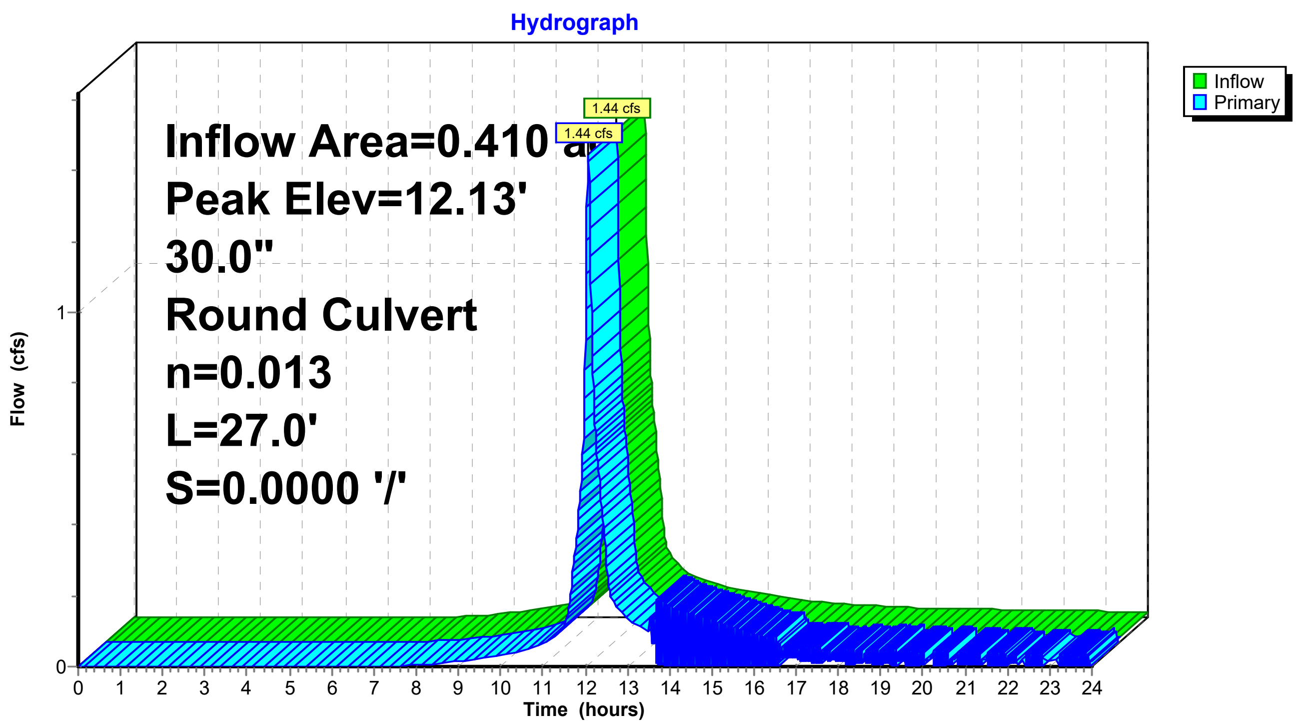
Inflow Area = 0.410 ac, 0.00% Impervious, Inflow Depth > 2.90" for 2 event
Inflow = 1.44 cfs @ 12.07 hrs, Volume= 0.099 af
Outflow = 1.44 cfs @ 12.07 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min
Primary = 1.44 cfs @ 12.07 hrs, Volume= 0.099 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 12.13' @ 12.94 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=0.75 cfs @ 12.07 hrs HW=11.42' TW=11.42' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 0.75 cfs @ 0.44 fps)

Pond CI 01-PH6: CI01-PH6



Summary for Pond CI 02-PH6: CI02-PH6

[80] Warning: Exceeded Pond CI 01-PH6 by 1.88' @ 13.91 hrs (13.12 cfs 1.600 af)

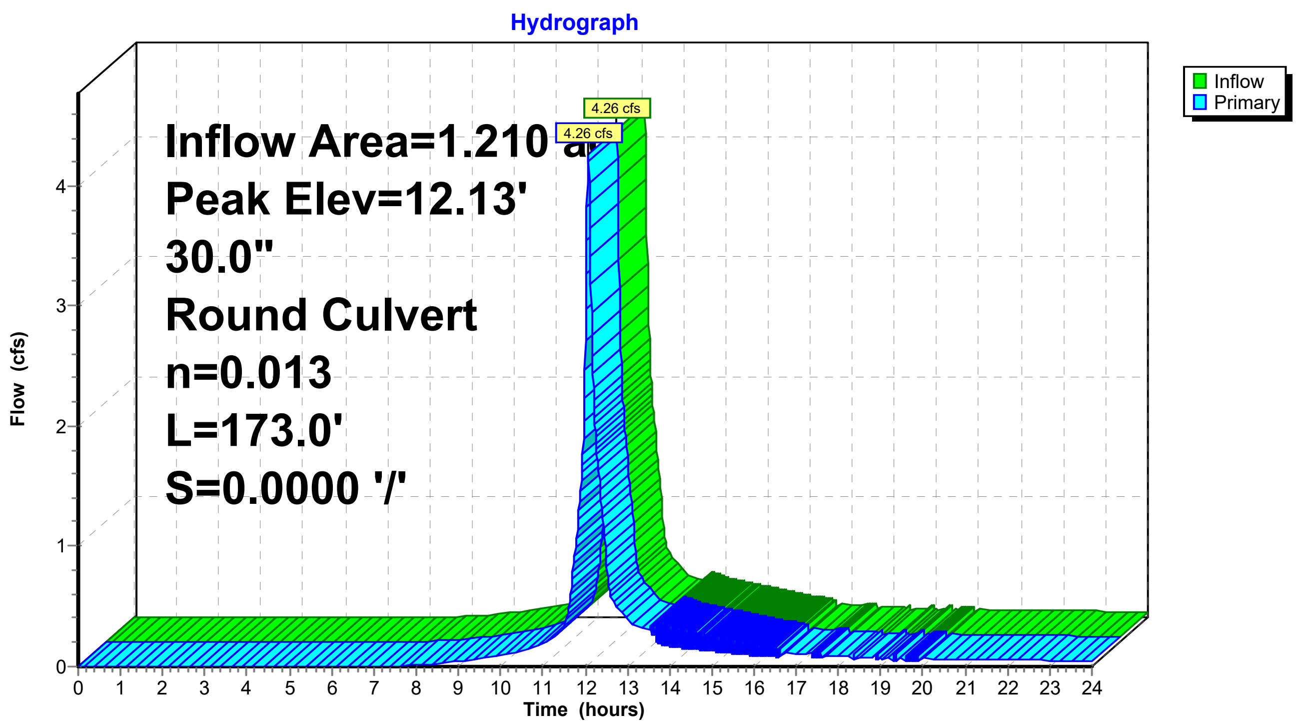
Inflow Area =	1.210 ac,	0.00% Impervious, Inflow Depth > 2.89"	for 2 event	
Inflow =	4.26 cfs @	12.07 hrs, Volume=	0.292 af	
Outflow =	4.26 cfs @	12.07 hrs, Volume=	0.292 af,	Atten= 0%, Lag= 0.0 min
Primary =	4.26 cfs @	12.07 hrs, Volume=	0.292 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 12.13' @ 12.93 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=4.03 cfs @ 12.07 hrs HW=11.42' TW=11.14' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 4.03 cfs @ 2.35 fps)

Pond CI 02-PH6: CI02-PH6



Summary for Pond CI 03-PH6: CI03-PH6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=333)

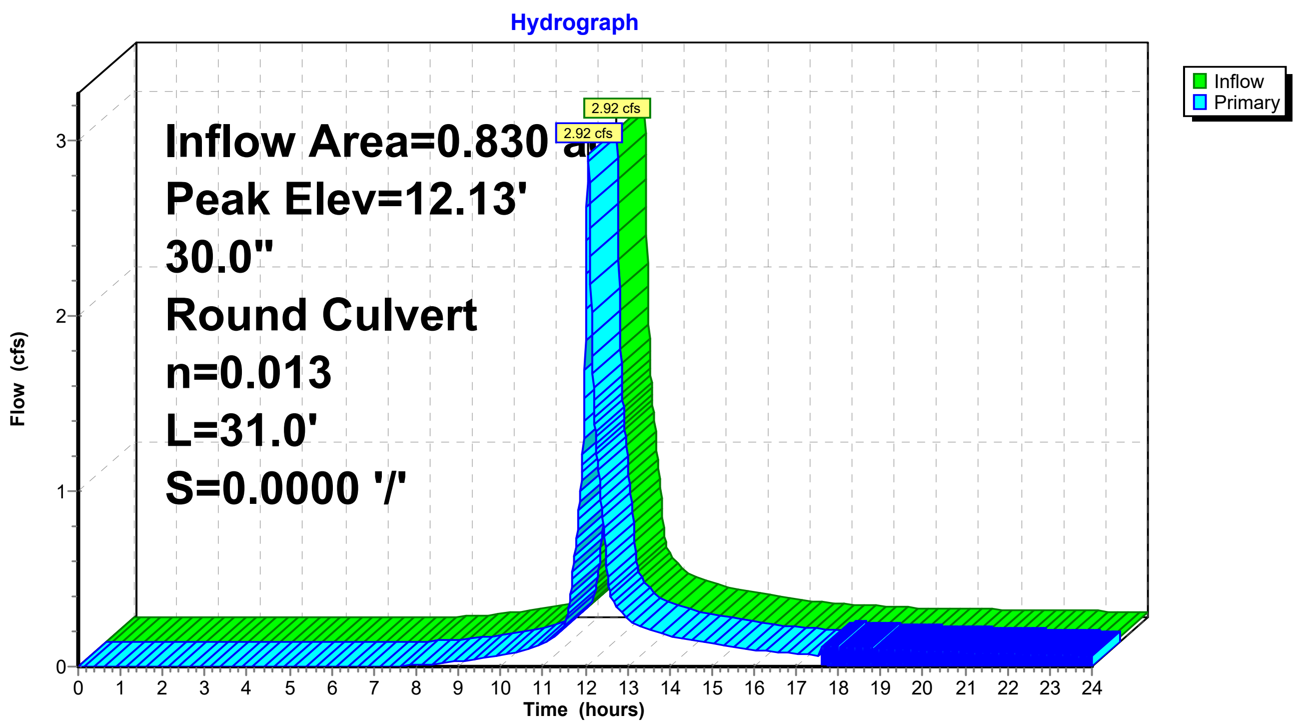
Inflow Area =	0.830 ac,	0.00% Impervious,	Inflow Depth > 2.90"	for 2 event
Inflow =	2.92 cfs @	12.07 hrs, Volume=	0.200 af	
Outflow =	2.92 cfs @	12.07 hrs, Volume=	0.200 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.92 cfs @	12.07 hrs, Volume=	0.200 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 12.13' @ 12.93 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 31.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=2.70 cfs @ 12.07 hrs HW=11.63' TW=11.59' (Dynamic Tailwater)
1=RCP_Round 30" (Outlet Controls 2.70 cfs @ 1.28 fps)

Pond CI 03-PH6: CI03-PH6



Summary for Pond CI 04-PH6: CI04-PH6

[80] Warning: Exceeded Pond CI 03-PH6 by 1.30' @ 17.77 hrs (6.49 cfs 1.097 af)

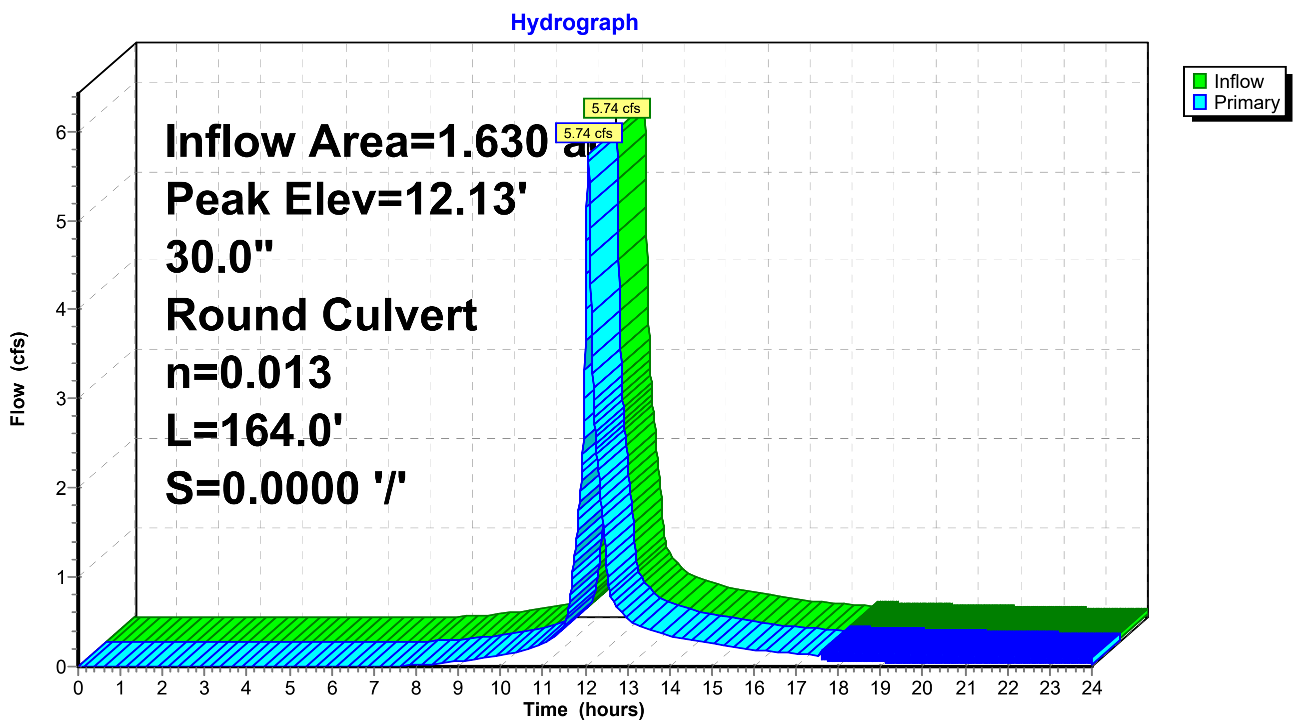
Inflow Area = 1.630 ac, 0.00% Impervious, Inflow Depth > 2.90" for 2 event
Inflow = 5.74 cfs @ 12.07 hrs, Volume= 0.394 af
Outflow = 5.74 cfs @ 12.07 hrs, Volume= 0.394 af, Atten= 0%, Lag= 0.0 min
Primary = 5.74 cfs @ 12.07 hrs, Volume= 0.394 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 12.13' @ 12.92 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 164.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=5.73 cfs @ 12.07 hrs HW=11.59' TW=11.14' (Dynamic Tailwater)
1=RCP_Round 30" (Barrel Controls 5.73 cfs @ 2.81 fps)

Pond CI 04-PH6: CI04-PH6



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond POST-2P by 0.11' @ 12.41 hrs (37.70 cfs 3.359 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 2.58" for 2 event
Inflow = 78.74 cfs @ 12.12 hrs, Volume= 15.791 af
Outflow = 28.89 cfs @ 13.07 hrs, Volume= 14.386 af, Atten= 63%, Lag= 57.3 min
Primary = 28.89 cfs @ 13.07 hrs, Volume= 14.386 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 12.13' @ 12.92 hrs Surf.Area= 74,532 sf Storage= 327,367 cf (143,922 cf above start)

Plug-Flow detention time= 274.2 min calculated for 10.175 af (64% of inflow)
Center-of-Mass det. time= 66.1 min (990.6 - 924.5)

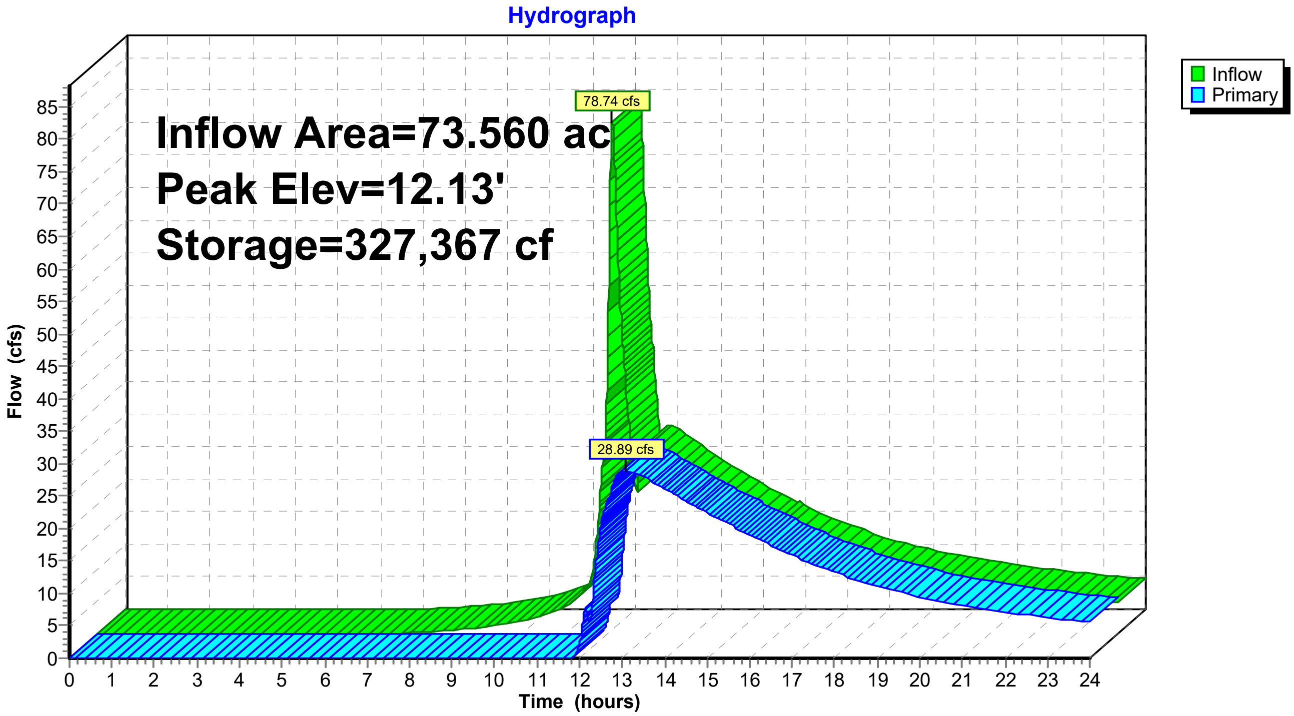
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=28.95 cfs @ 13.07 hrs HW=12.12' TW=11.88' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 9.68 cfs @ 2.79 fps)
├─**2=RCP_Round 36"** (Outlet Controls 10.98 cfs @ 2.83 fps)
└─**3=RCP_Round 36"** (Outlet Controls 8.29 cfs @ 2.37 fps)

Pond POST-3P: POND 3



Summary for Subcatchment CI01-PH6: CI01-PH6

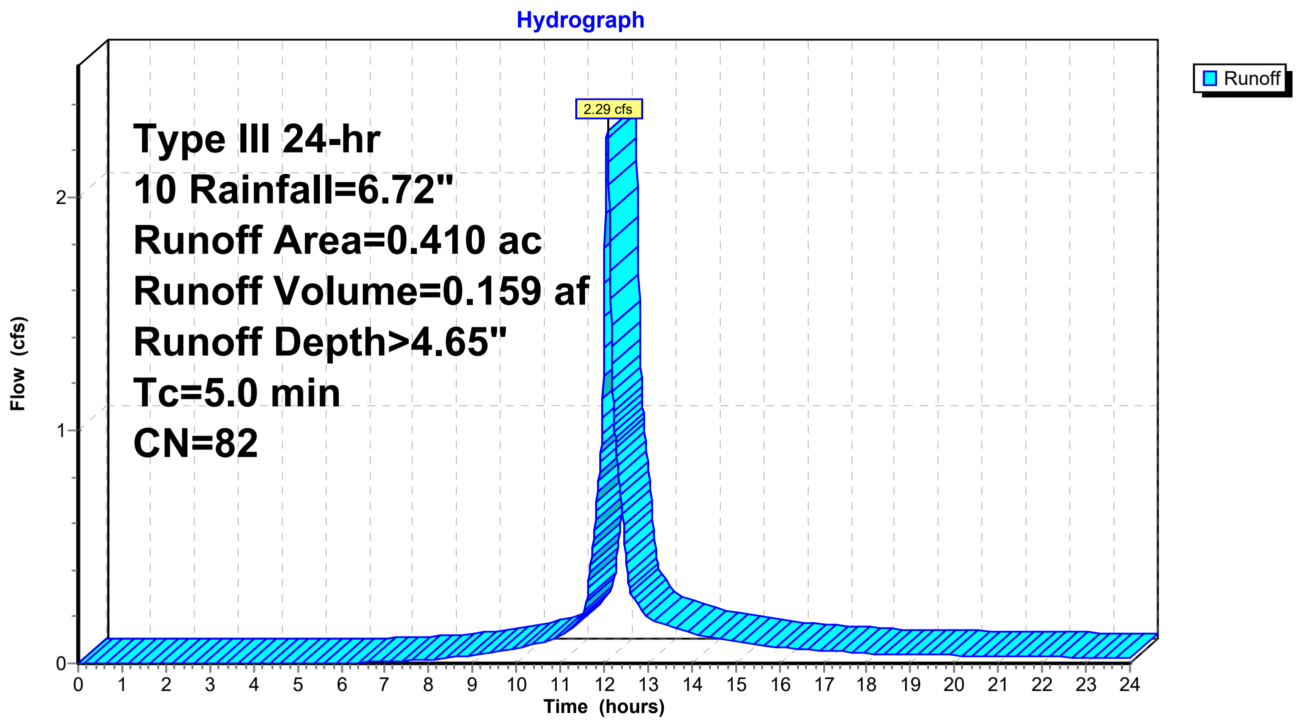
Runoff = 2.29 cfs @ 12.07 hrs, Volume= 0.159 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	0.410	82	
	0.410		100.00% Pervious Area

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

Subcatchment CI01-PH6: CI01-PH6



Summary for Subcatchment CI02-PH6: CI02-PH6

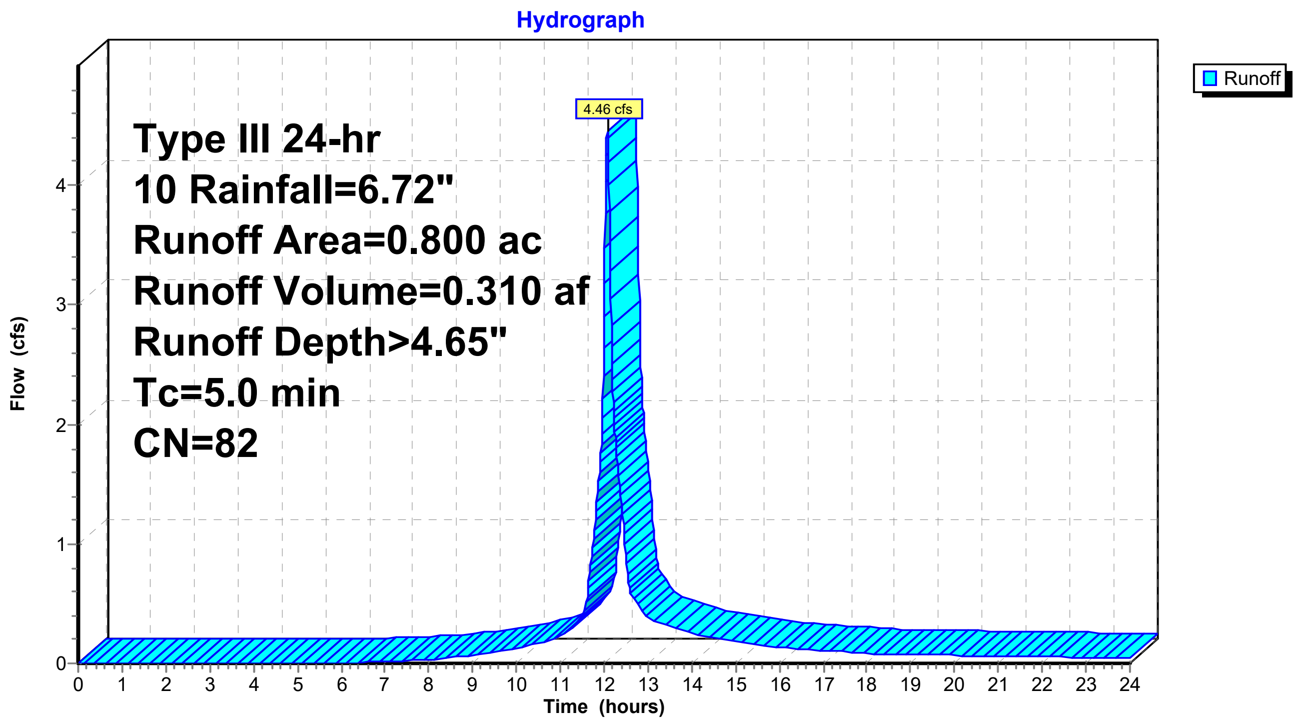
Runoff = 4.46 cfs @ 12.07 hrs, Volume= 0.310 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI02-PH6: CI02-PH6



Summary for Subcatchment CI03-PH6: CI03-PH6

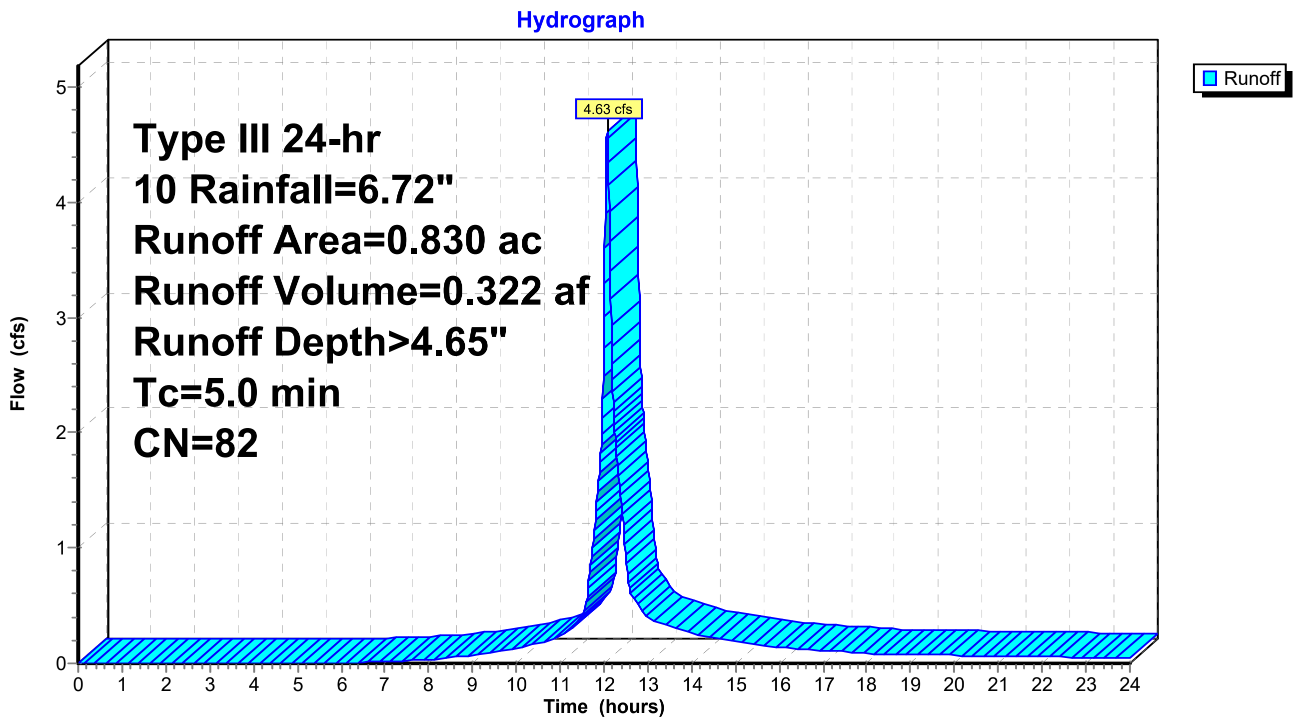
Runoff = 4.63 cfs @ 12.07 hrs, Volume= 0.322 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	0.830	82	
	0.830		100.00% Pervious Area

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

Subcatchment CI03-PH6: CI03-PH6



Summary for Subcatchment CI04-PH6: CI04-PH6

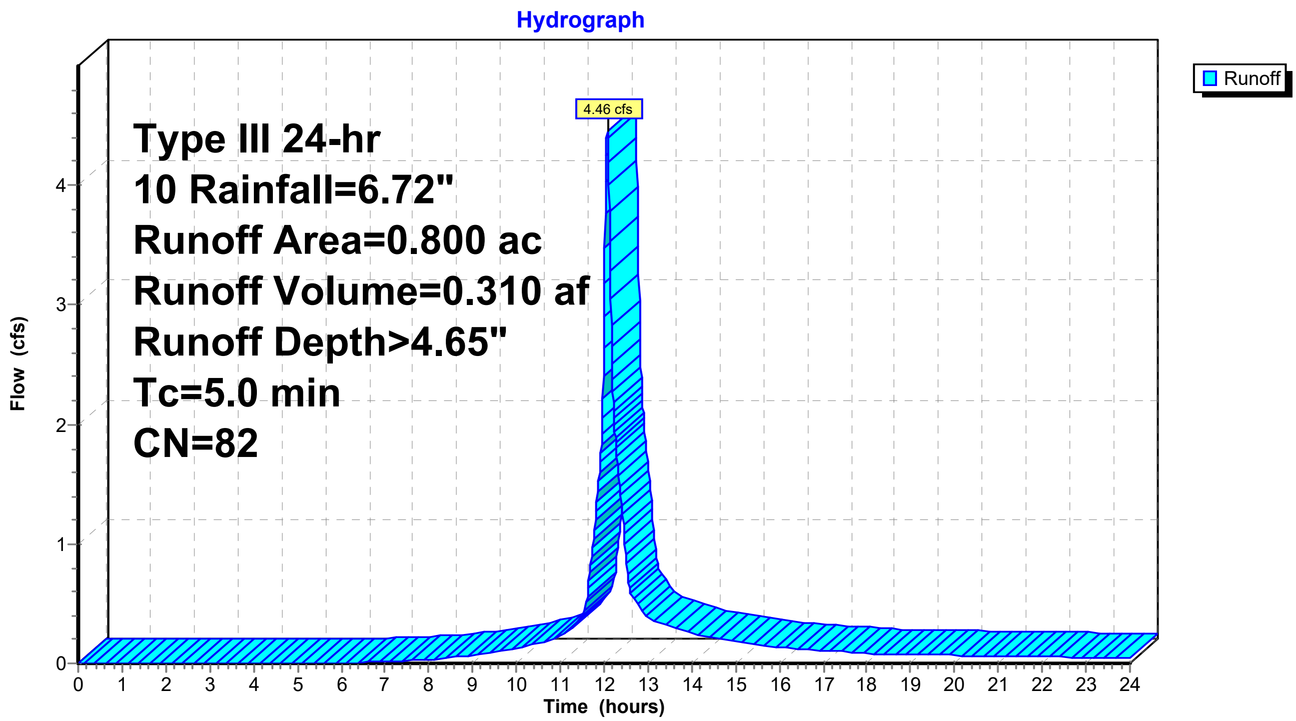
Runoff = 4.46 cfs @ 12.07 hrs, Volume= 0.310 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=6.72"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI04-PH6: CI04-PH6



Summary for Pond CI 01-PH6: CI01-PH6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=512)

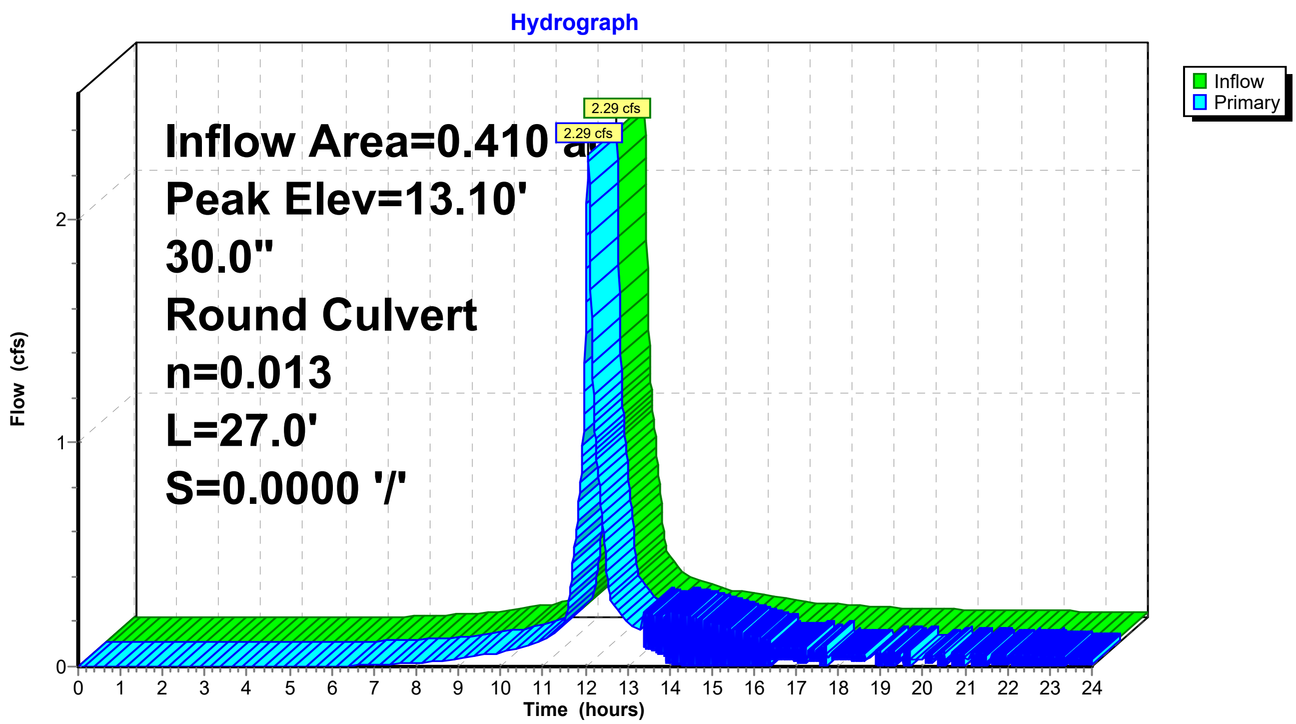
Inflow Area =	0.410 ac,	0.00% Impervious, Inflow Depth > 4.65"	for 10 event	
Inflow =	2.29 cfs @	12.07 hrs, Volume=	0.159 af	
Outflow =	2.29 cfs @	12.07 hrs, Volume=	0.158 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.29 cfs @	12.07 hrs, Volume=	0.158 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.10' @ 12.76 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=12.02' TW=12.05' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Controls 0.00 cfs)

Pond CI 01-PH6: CI01-PH6



Summary for Pond CI 02-PH6: CI02-PH6

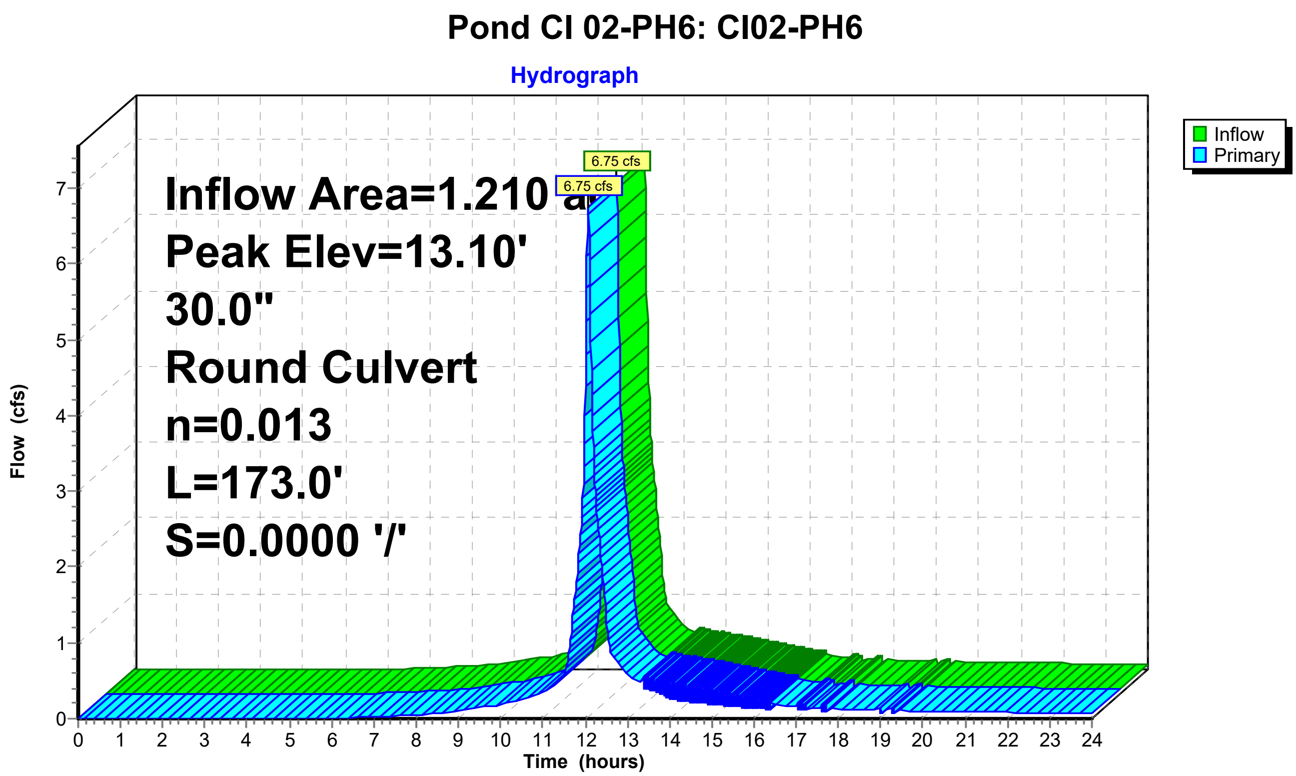
[80] Warning: Exceeded Pond CI 01-PH6 by 2.56' @ 14.45 hrs (21.99 cfs 2.190 af)

Inflow Area = 1.210 ac, 0.00% Impervious, Inflow Depth > 4.65" for 10 event
Inflow = 6.75 cfs @ 12.07 hrs, Volume= 0.468 af
Outflow = 6.75 cfs @ 12.07 hrs, Volume= 0.468 af, Atten= 0%, Lag= 0.0 min
Primary = 6.75 cfs @ 12.07 hrs, Volume= 0.468 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.10' @ 12.75 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=6.00 cfs @ 12.07 hrs HW=12.05' TW=11.87' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 6.00 cfs @ 2.08 fps)



Summary for Pond CI 03-PH6: CI03-PH6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=371)

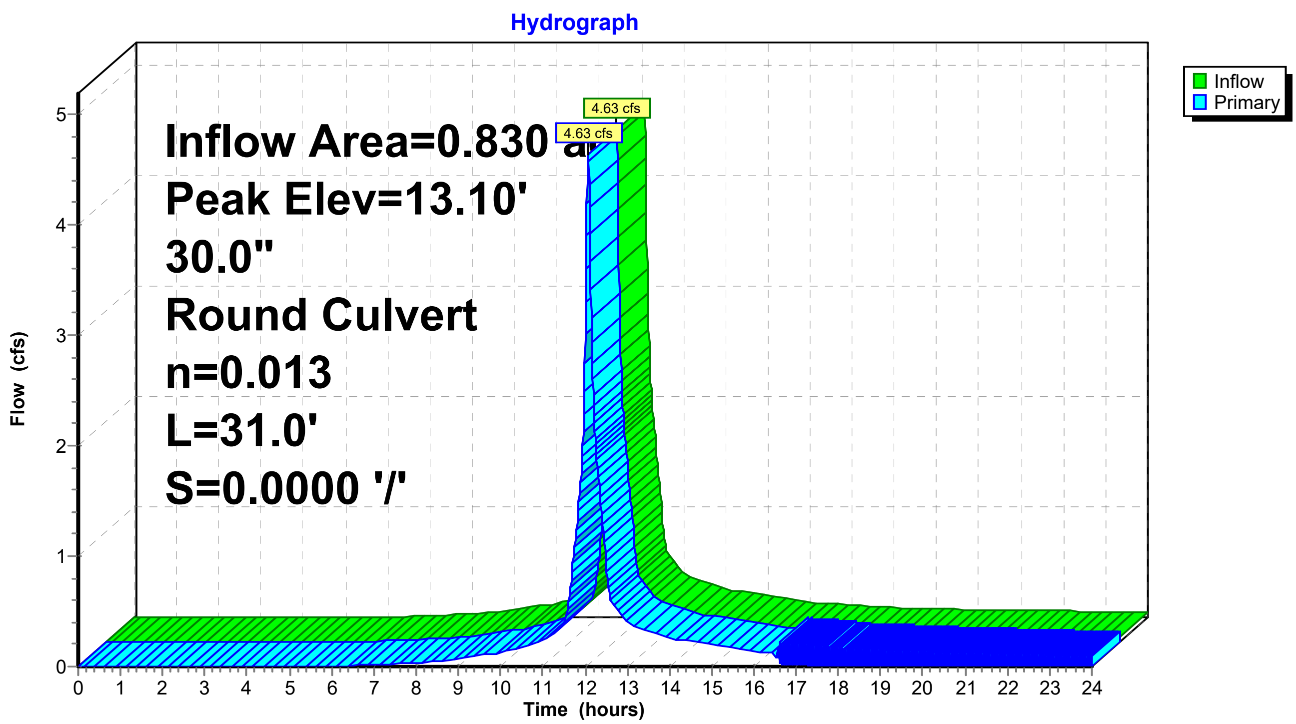
Inflow Area =	0.830 ac,	0.00% Impervious,	Inflow Depth > 4.65"	for 10 event
Inflow =	4.63 cfs @	12.07 hrs, Volume=	0.322 af	
Outflow =	4.63 cfs @	12.07 hrs, Volume=	0.322 af,	Atten= 0%, Lag= 0.0 min
Primary =	4.63 cfs @	12.07 hrs, Volume=	0.322 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.10' @ 12.76 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 31.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=2.55 cfs @ 12.07 hrs HW=12.17' TW=12.16' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 2.55 cfs @ 0.82 fps)

Pond CI 03-PH6: CI03-PH6



Summary for Pond CI 04-PH6: CI04-PH6

[80] Warning: Exceeded Pond CI 03-PH6 by 1.74' @ 17.62 hrs (11.25 cfs 1.887 af)

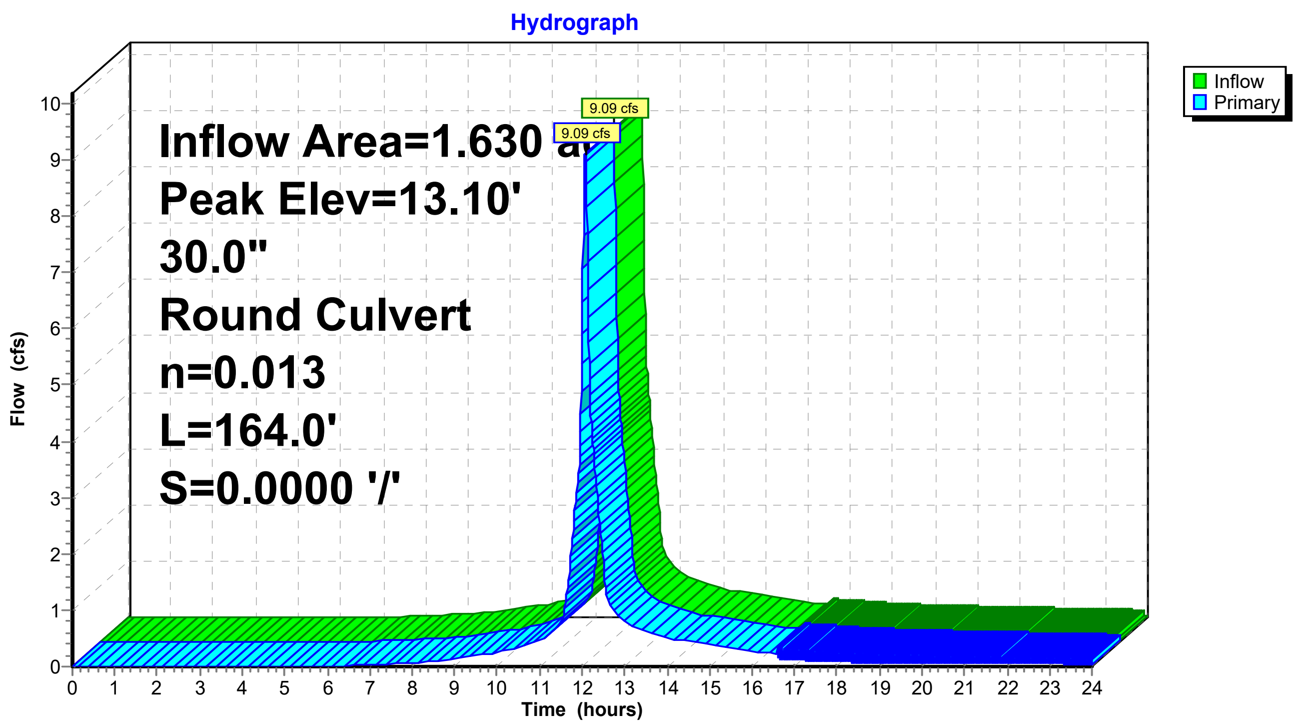
Inflow Area =	1.630 ac,	0.00% Impervious, Inflow Depth > 4.65"	for 10 event	
Inflow =	9.09 cfs @	12.07 hrs, Volume=	0.632 af	
Outflow =	9.09 cfs @	12.07 hrs, Volume=	0.632 af,	Atten= 0%, Lag= 0.0 min
Primary =	9.09 cfs @	12.07 hrs, Volume=	0.632 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.10' @ 12.75 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 164.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=8.43 cfs @ 12.07 hrs HW=12.16' TW=11.87' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 8.43 cfs @ 2.73 fps)

Pond CI 04-PH6: CI04-PH6



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond CI 02-PH6 by 0.01' @ 12.26 hrs (2.21 cfs 0.052 af)
[80] Warning: Exceeded Pond POST-2P by 0.12' @ 12.36 hrs (39.75 cfs 5.104 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 4.26" for 10 event
Inflow = 128.78 cfs @ 12.12 hrs, Volume= 26.094 af
Outflow = 50.37 cfs @ 13.00 hrs, Volume= 24.439 af, Atten= 61%, Lag= 52.7 min
Primary = 50.37 cfs @ 13.00 hrs, Volume= 24.439 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 13.09' @ 12.75 hrs Surf.Area= 81,567 sf Storage= 402,725 cf (219,281 cf above start)

Plug-Flow detention time= 193.1 min calculated for 20.228 af (78% of inflow)
Center-of-Mass det. time= 59.9 min (971.5 - 911.6)

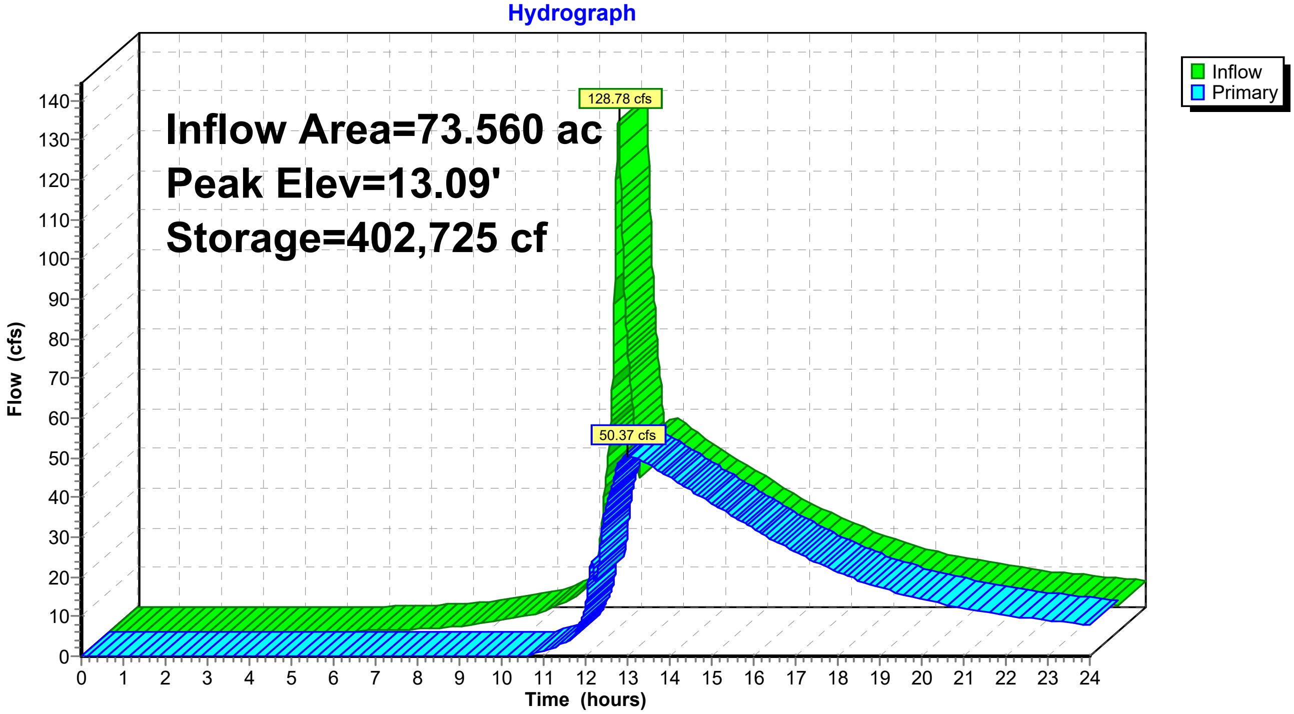
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=50.55 cfs @ 13.00 hrs HW=13.07' TW=12.80' (Dynamic Tailwater)
1=RCP_Round 36" (Outlet Controls 17.21 cfs @ 3.11 fps)
2=RCP_Round 36" (Outlet Controls 18.35 cfs @ 3.12 fps)
3=RCP_Round 36" (Outlet Controls 14.98 cfs @ 2.70 fps)

Pond POST-3P: POND 3



Summary for Subcatchment CI01-PH6: CI01-PH6

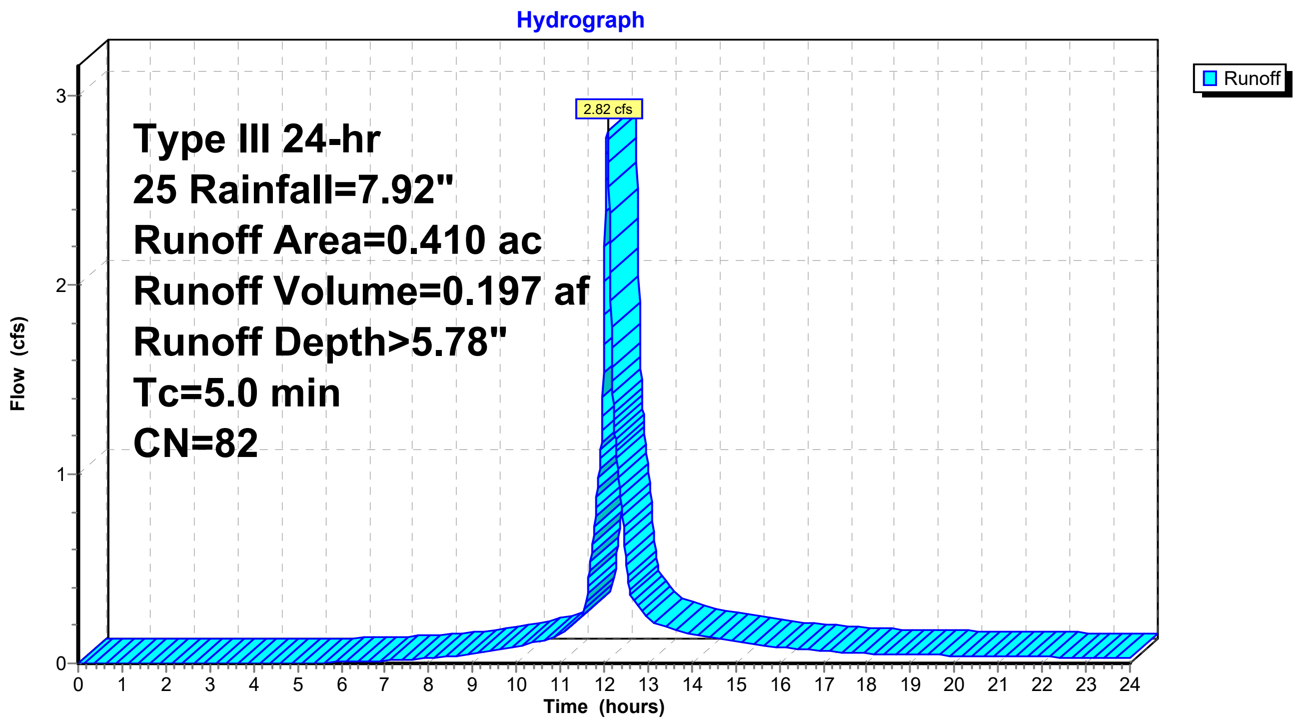
Runoff = 2.82 cfs @ 12.07 hrs, Volume= 0.197 af, Depth> 5.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	0.410	82	
	0.410		100.00% Pervious Area

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

Subcatchment CI01-PH6: CI01-PH6



Summary for Subcatchment CI02-PH6: CI02-PH6

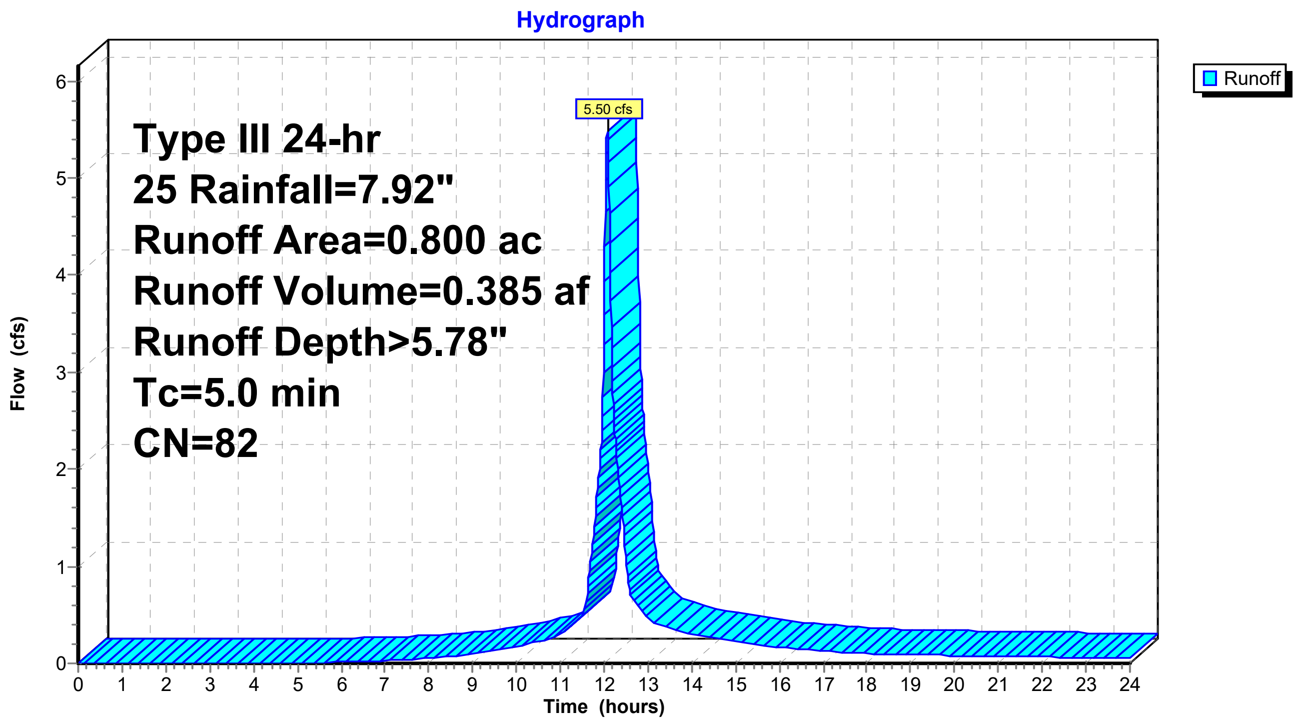
Runoff = 5.50 cfs @ 12.07 hrs, Volume= 0.385 af, Depth> 5.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI02-PH6: CI02-PH6



Summary for Subcatchment CI03-PH6: CI03-PH6

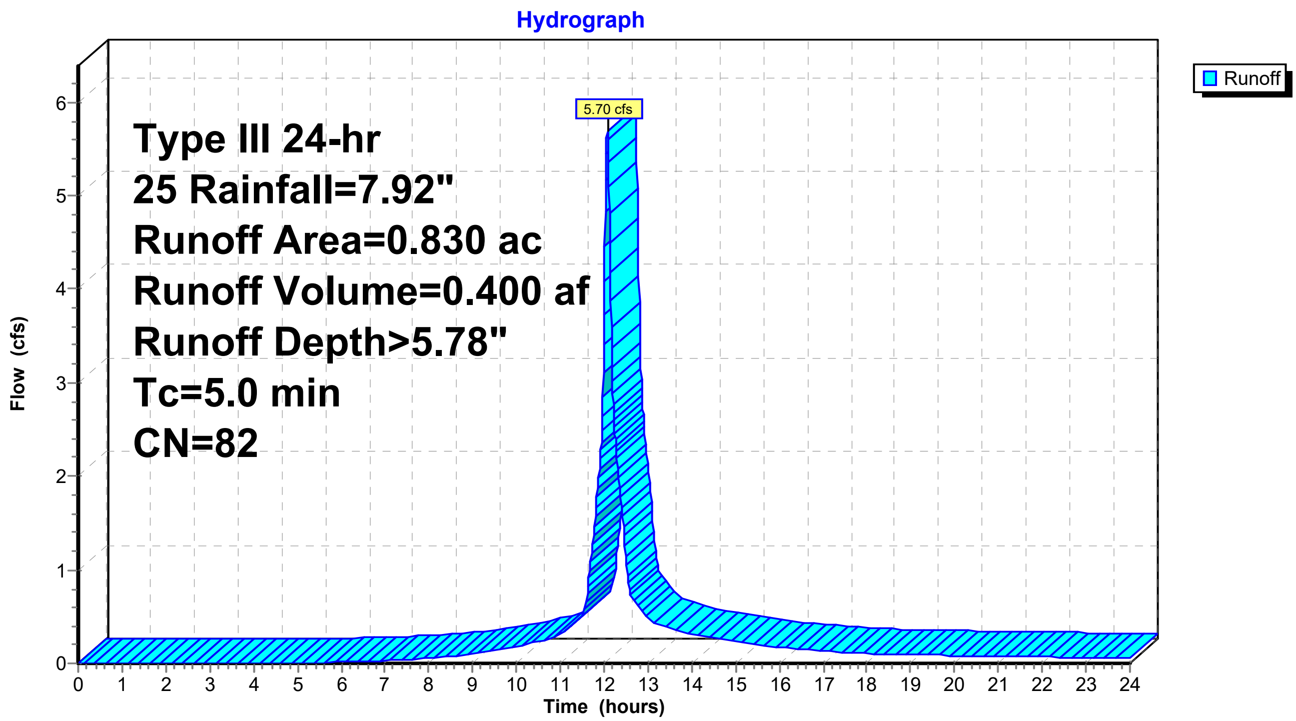
Runoff = 5.70 cfs @ 12.07 hrs, Volume= 0.400 af, Depth> 5.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	0.830	82	
	0.830		100.00% Pervious Area

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

Subcatchment CI03-PH6: CI03-PH6



Summary for Subcatchment CI04-PH6: CI04-PH6

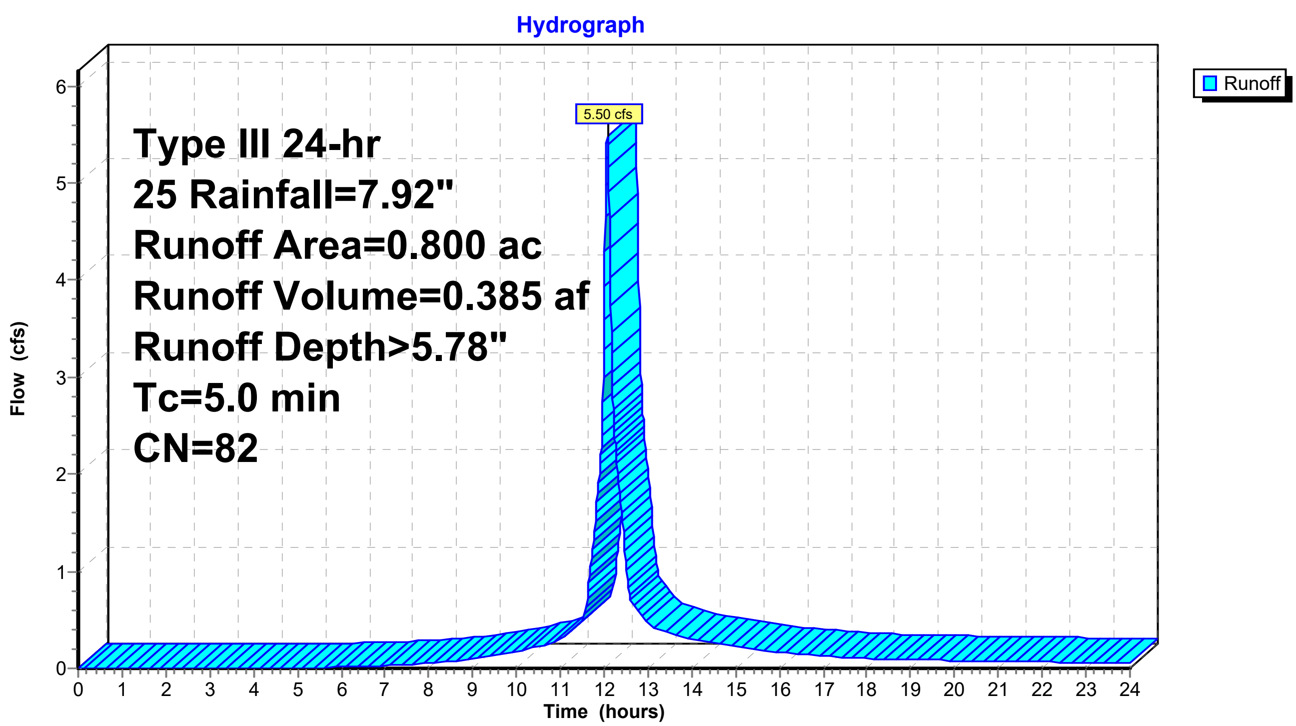
Runoff = 5.50 cfs @ 12.07 hrs, Volume= 0.385 af, Depth> 5.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=7.92"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI04-PH6: CI04-PH6



Summary for Pond CI 01-PH6: CI01-PH6

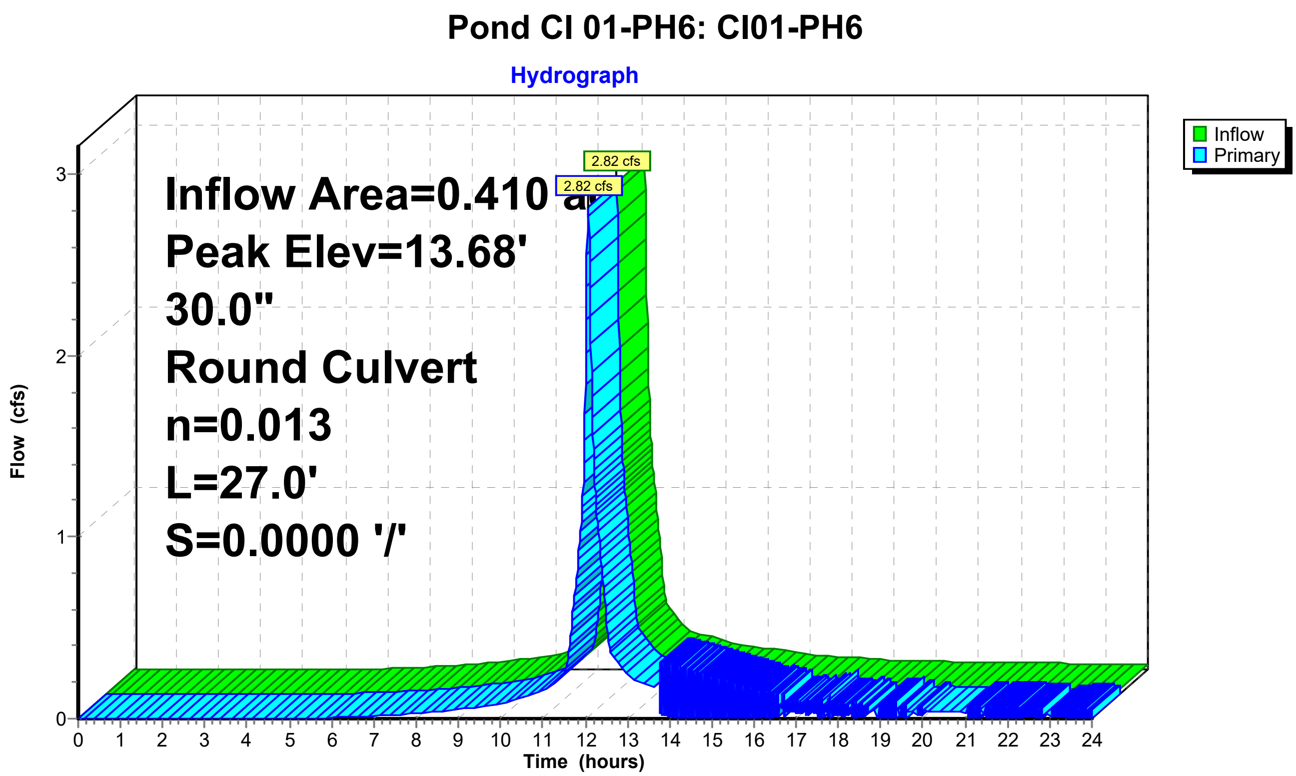
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=465)

Inflow Area =	0.410 ac,	0.00% Impervious,	Inflow Depth > 5.78"	for 25 event
Inflow =	2.82 cfs @	12.07 hrs, Volume=	0.197 af	
Outflow =	2.82 cfs @	12.07 hrs, Volume=	0.197 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.82 cfs @	12.07 hrs, Volume=	0.197 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.68' @ 12.61 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=12.40' TW=12.43' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Controls 0.00 cfs)



Summary for Pond CI 02-PH6: CI02-PH6

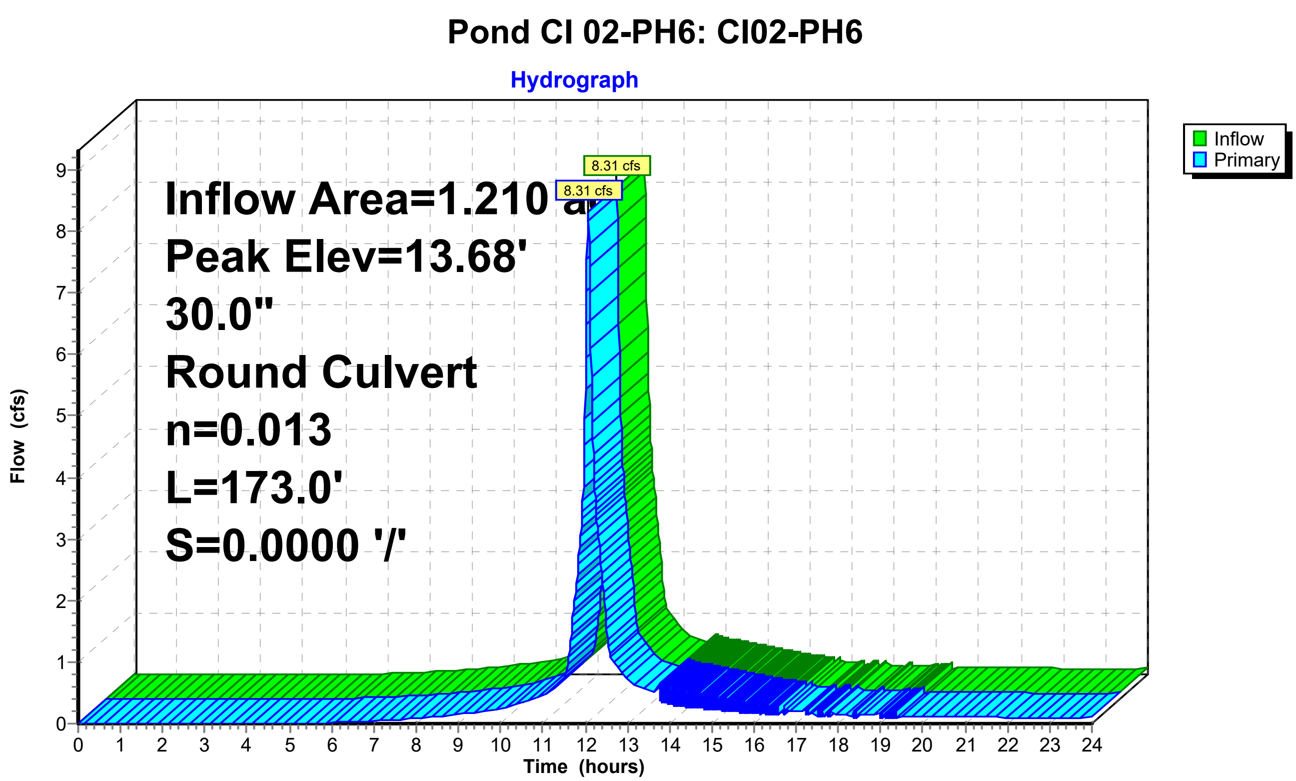
[80] Warning: Exceeded Pond CI 01-PH6 by 3.13' @ 14.27 hrs (28.69 cfs 2.916 af)

Inflow Area =	1.210 ac,	0.00% Impervious,	Inflow Depth > 5.78"	for 25 event
Inflow =	8.31 cfs @	12.07 hrs, Volume=	0.582 af	
Outflow =	8.31 cfs @	12.07 hrs, Volume=	0.582 af,	Atten= 0%, Lag= 0.0 min
Primary =	8.31 cfs @	12.07 hrs, Volume=	0.582 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.68' @ 12.60 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=7.17 cfs @ 12.07 hrs HW=12.43' TW=12.28' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 7.17 cfs @ 2.00 fps)



Summary for Pond CI 03-PH6: CI03-PH6

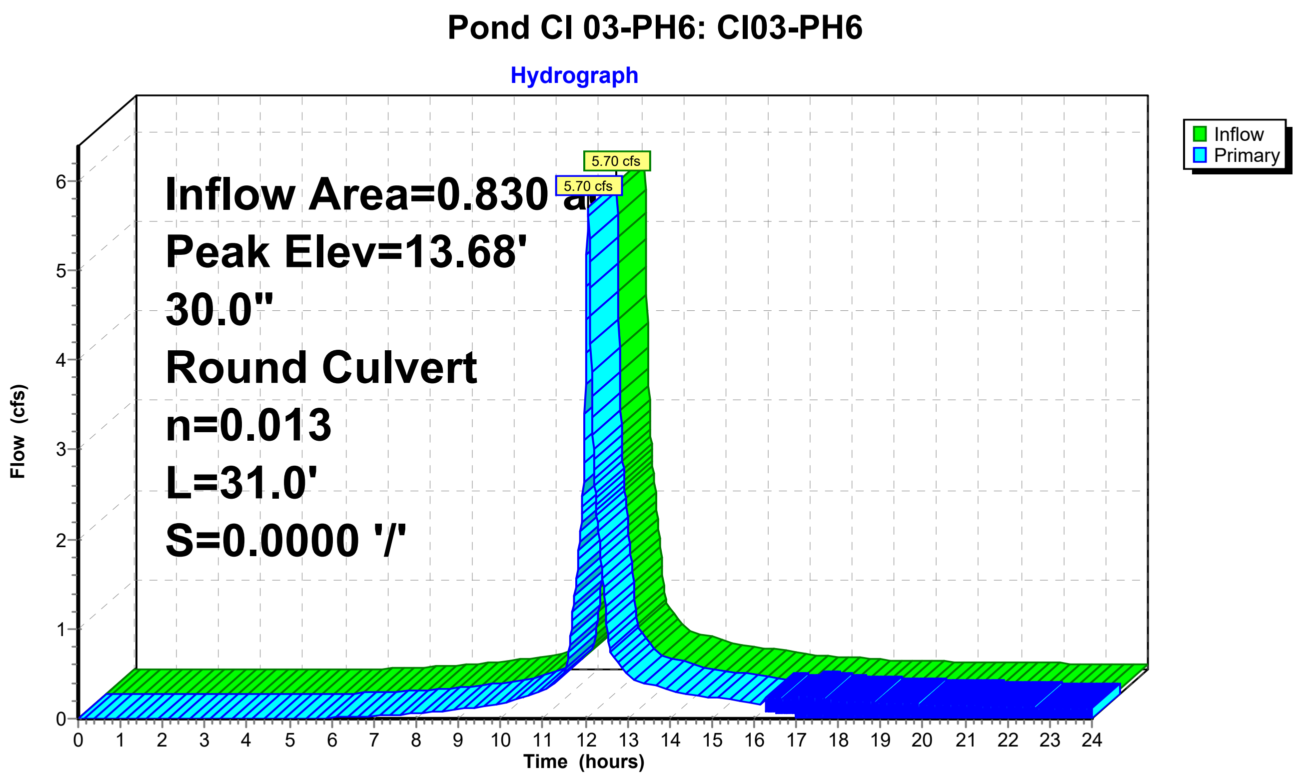
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=384)

Inflow Area =	0.830 ac,	0.00% Impervious, Inflow Depth > 5.78"	for 25 event
Inflow =	5.70 cfs @	12.07 hrs, Volume=	0.400 af
Outflow =	5.70 cfs @	12.07 hrs, Volume=	0.400 af, Atten= 0%, Lag= 0.0 min
Primary =	5.70 cfs @	12.07 hrs, Volume=	0.400 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.68' @ 12.61 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 31.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=2.16 cfs @ 12.07 hrs HW=12.56' TW=12.55' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 2.16 cfs @ 0.57 fps)



Summary for Pond CI 04-PH6: CI04-PH6

[80] Warning: Exceeded Pond CI 03-PH6 by 2.17' @ 17.12 hrs (16.69 cfs 2.693 af)

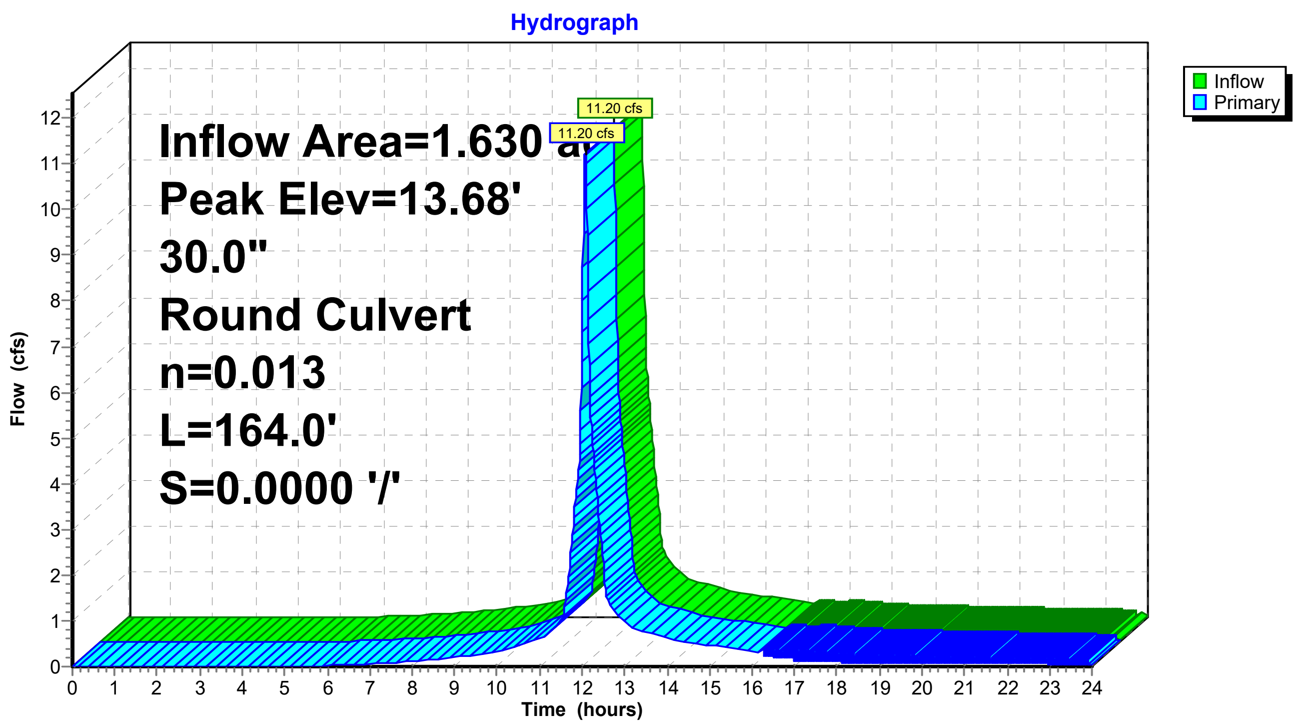
Inflow Area = 1.630 ac, 0.00% Impervious, Inflow Depth > 5.78" for 25 event
Inflow = 11.20 cfs @ 12.07 hrs, Volume= 0.785 af
Outflow = 11.20 cfs @ 12.07 hrs, Volume= 0.785 af, Atten= 0%, Lag= 0.0 min
Primary = 11.20 cfs @ 12.07 hrs, Volume= 0.785 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 13.68' @ 12.60 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 164.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=10.23 cfs @ 12.07 hrs HW=12.55' TW=12.28' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 10.23 cfs @ 2.71 fps)

Pond CI 04-PH6: CI04-PH6



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond CI 02-PH6 by 0.01' @ 12.24 hrs (2.89 cfs 0.060 af)
[80] Warning: Exceeded Pond POST-2P by 0.15' @ 12.36 hrs (44.19 cfs 5.967 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 5.34" for 25 event
Inflow = 159.47 cfs @ 12.12 hrs, Volume= 32.728 af
Outflow = 59.84 cfs @ 13.18 hrs, Volume= 30.922 af, Atten= 62%, Lag= 63.5 min
Primary = 59.84 cfs @ 13.18 hrs, Volume= 30.922 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 13.67' @ 12.59 hrs Surf.Area= 85,791 sf Storage= 451,232 cf (267,787 cf above start)

Plug-Flow detention time= 170.6 min calculated for 26.699 af (82% of inflow)
Center-of-Mass det. time= 59.4 min (968.9 - 909.5)

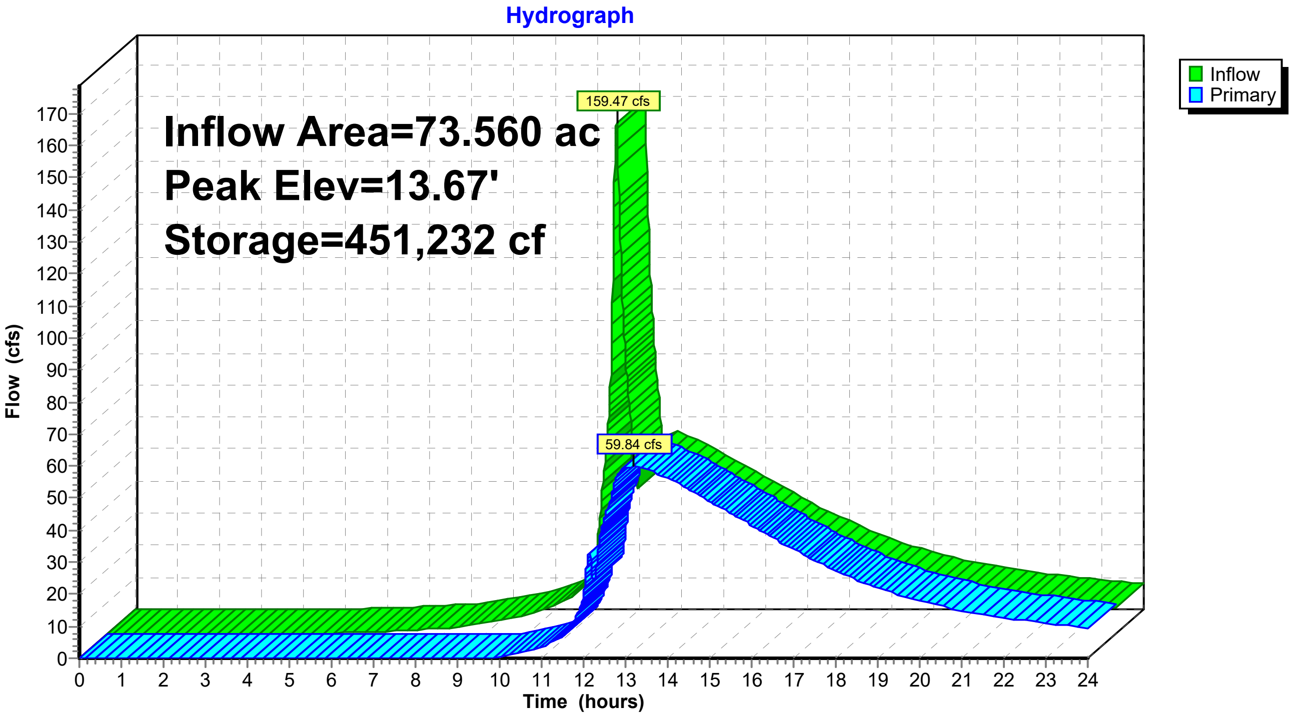
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=60.14 cfs @ 13.18 hrs HW=13.61' TW=13.33' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 20.71 cfs @ 3.19 fps)
├─**2=RCP_Round 36"** (Outlet Controls 21.42 cfs @ 3.17 fps)
└─**3=RCP_Round 36"** (Outlet Controls 18.01 cfs @ 2.76 fps)

Pond POST-3P: POND 3



Summary for Subcatchment CI01-PH6: CI01-PH6

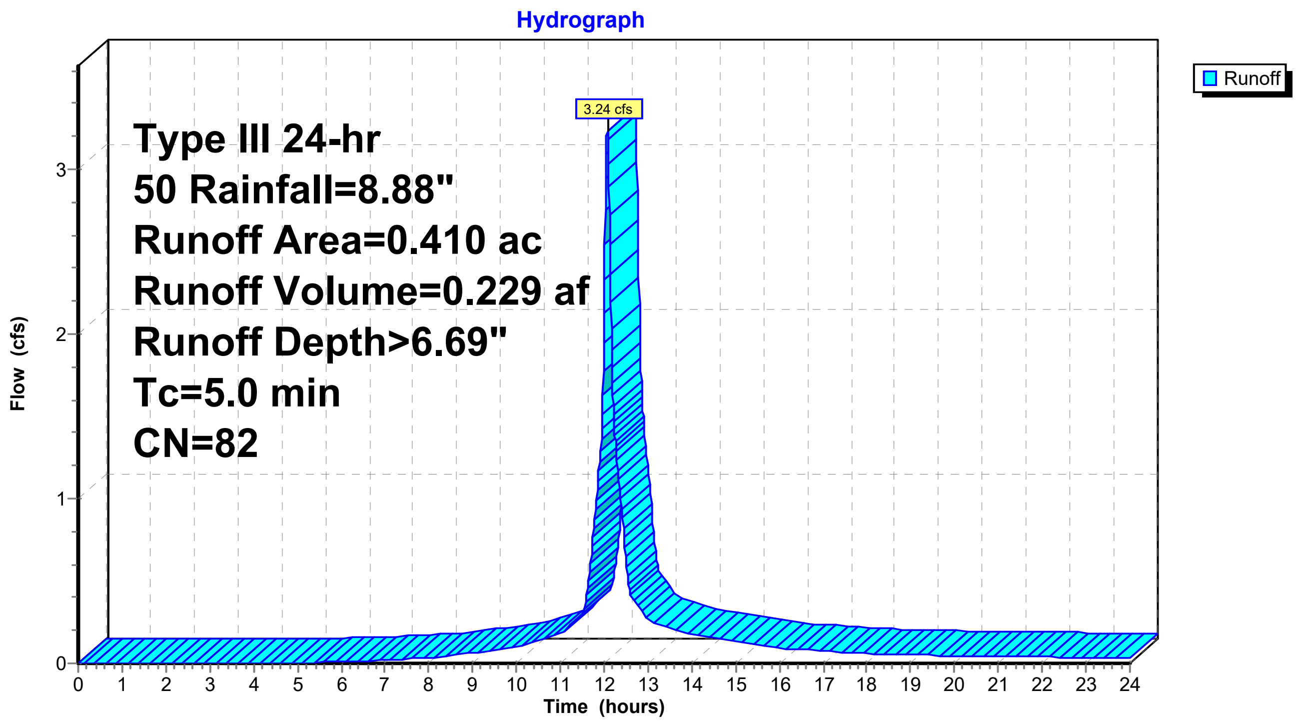
Runoff = 3.24 cfs @ 12.07 hrs, Volume= 0.229 af, Depth> 6.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	0.410	82	
	0.410		100.00% Pervious Area

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

Subcatchment CI01-PH6: CI01-PH6



Summary for Subcatchment CI02-PH6: CI02-PH6

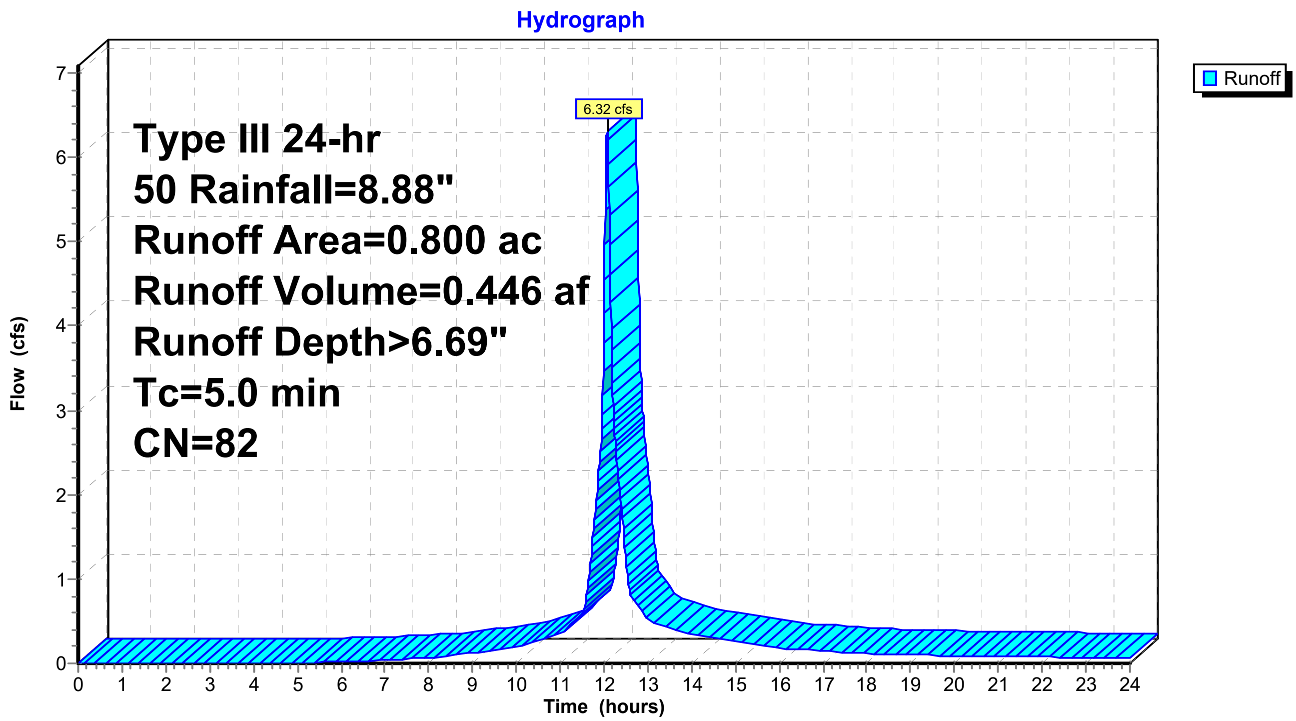
Runoff = 6.32 cfs @ 12.07 hrs, Volume= 0.446 af, Depth> 6.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI02-PH6: CI02-PH6



Summary for Subcatchment CI03-PH6: CI03-PH6

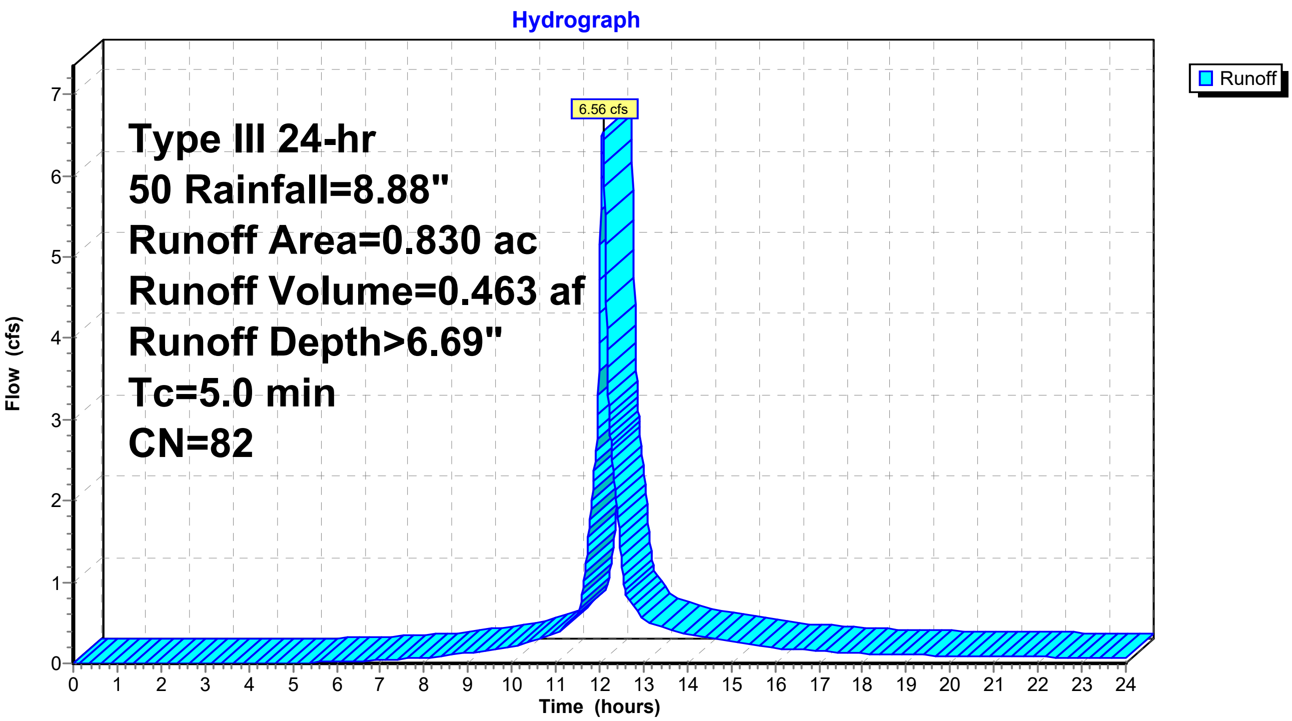
Runoff = 6.56 cfs @ 12.07 hrs, Volume= 0.463 af, Depth> 6.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	0.830	82	
	0.830		100.00% Pervious Area

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

Subcatchment CI03-PH6: CI03-PH6



Summary for Subcatchment CI04-PH6: CI04-PH6

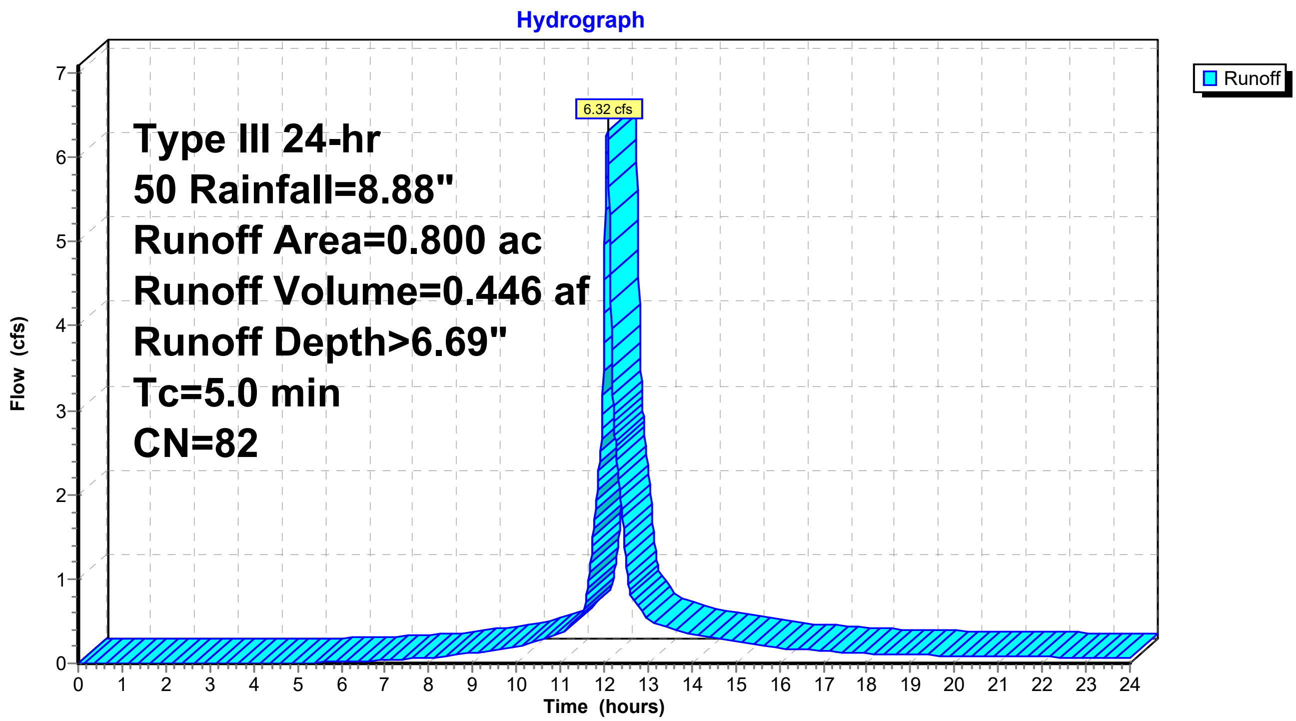
Runoff = 6.32 cfs @ 12.07 hrs, Volume= 0.446 af, Depth> 6.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50 Rainfall=8.88"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI04-PH6: CI04-PH6



Summary for Pond CI 01-PH6: CI01-PH6

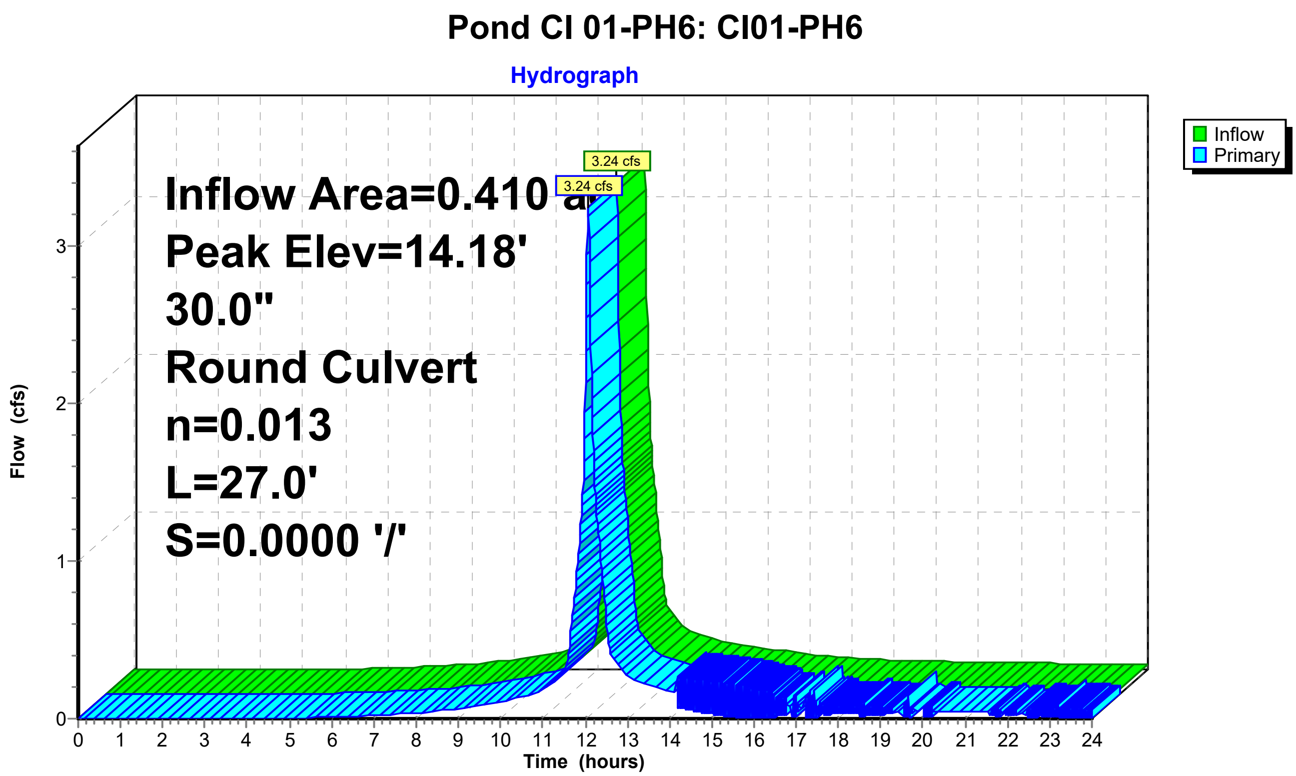
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=466)

Inflow Area = 0.410 ac, 0.00% Impervious, Inflow Depth > 6.69" for 50 event
Inflow = 3.24 cfs @ 12.07 hrs, Volume= 0.229 af
Outflow = 3.24 cfs @ 12.07 hrs, Volume= 0.228 af, Atten= 0%, Lag= 0.0 min
Primary = 3.24 cfs @ 12.07 hrs, Volume= 0.228 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.18' @ 12.63 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=12.69' TW=12.73' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Controls 0.00 cfs)



Summary for Pond CI 02-PH6: CI02-PH6

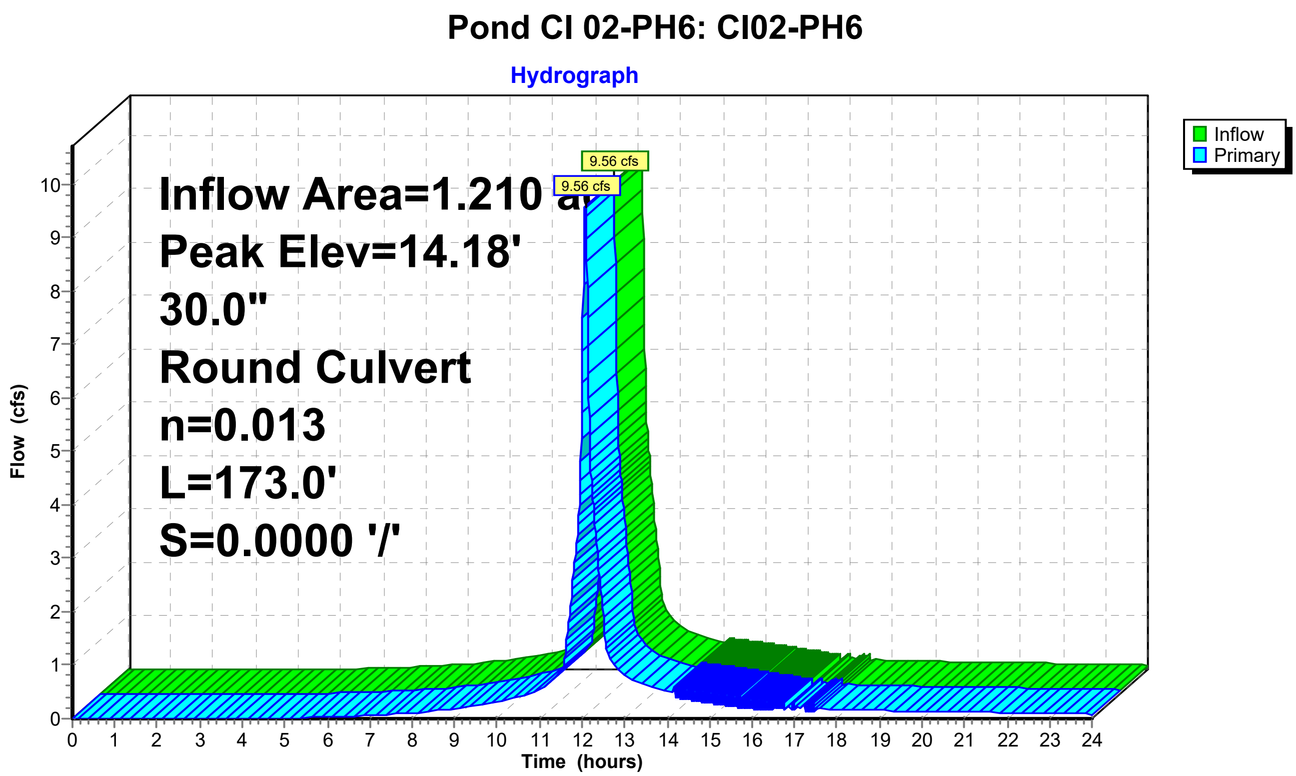
[80] Warning: Exceeded Pond CI 01-PH6 by 2.99' @ 15.71 hrs (27.27 cfs 1.956 af)

Inflow Area =	1.210 ac,	0.00% Impervious, Inflow Depth > 6.69"	for 50 event
Inflow =	9.56 cfs @	12.07 hrs, Volume=	0.675 af
Outflow =	9.56 cfs @	12.07 hrs, Volume=	0.675 af, Atten= 0%, Lag= 0.0 min
Primary =	9.56 cfs @	12.07 hrs, Volume=	0.675 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.18' @ 12.62 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=8.10 cfs @ 12.07 hrs HW=12.73' TW=12.58' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 8.10 cfs @ 1.99 fps)



Summary for Pond CI 03-PH6: CI03-PH6

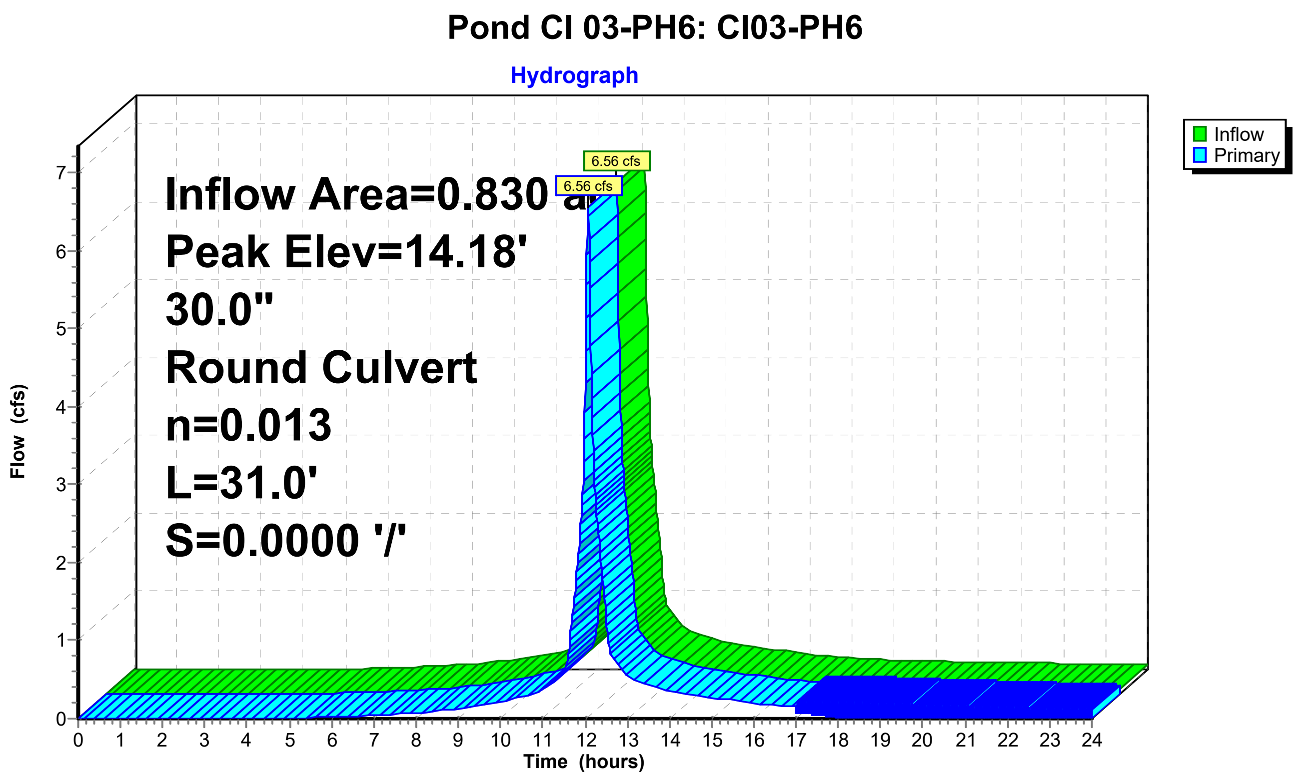
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=361)

Inflow Area = 0.830 ac, 0.00% Impervious, Inflow Depth > 6.69" for 50 event
Inflow = 6.56 cfs @ 12.07 hrs, Volume= 0.463 af
Outflow = 6.56 cfs @ 12.07 hrs, Volume= 0.463 af, Atten= 0%, Lag= 0.0 min
Primary = 6.56 cfs @ 12.07 hrs, Volume= 0.463 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.18' @ 12.63 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 31.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=1.34 cfs @ 12.07 hrs HW=12.86' TW=12.86' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 1.34 cfs @ 0.31 fps)



Summary for Pond CI 04-PH6: CI04-PH6

[80] Warning: Exceeded Pond CI 03-PH6 by 1.98' @ 18.61 hrs (14.19 cfs 2.258 af)

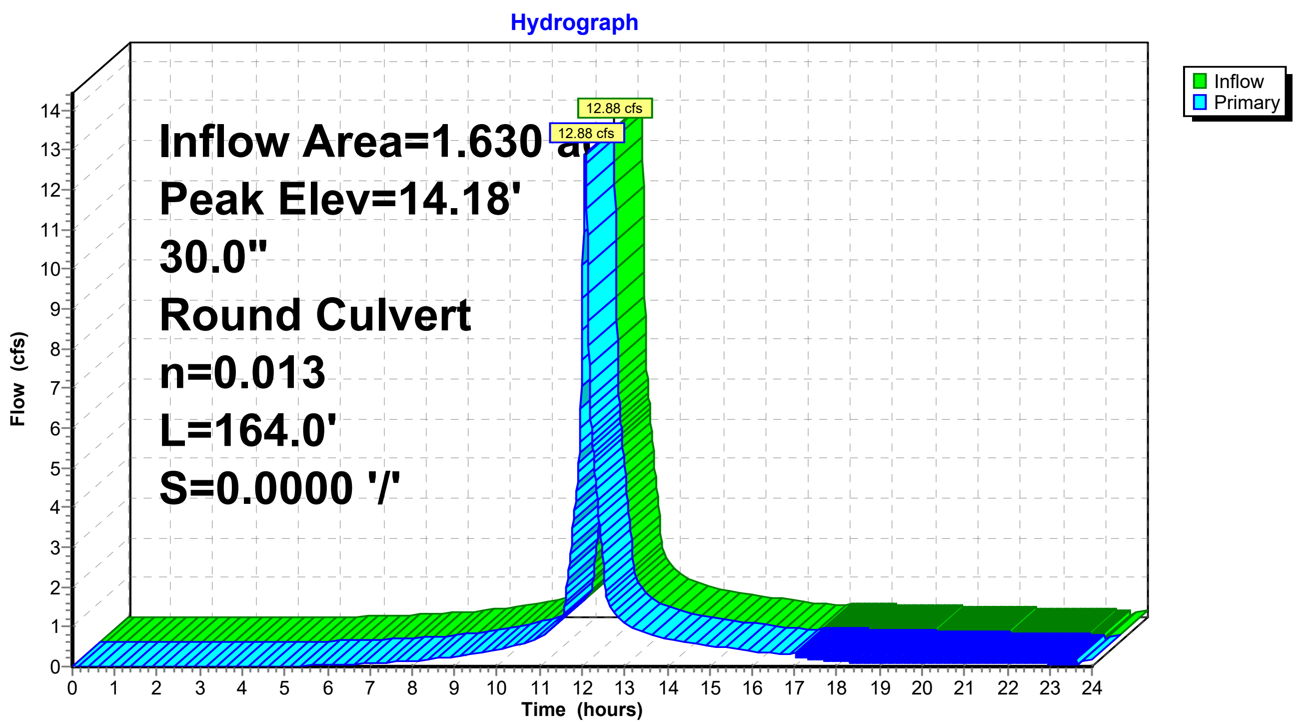
Inflow Area =	1.630 ac,	0.00% Impervious, Inflow Depth > 6.69"	for 50 event	
Inflow =	12.88 cfs @	12.07 hrs, Volume=	0.909 af	
Outflow =	12.88 cfs @	12.07 hrs, Volume=	0.909 af,	Atten= 0%, Lag= 0.0 min
Primary =	12.88 cfs @	12.07 hrs, Volume=	0.909 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.18' @ 12.62 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 164.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=11.69 cfs @ 12.07 hrs HW=12.86' TW=12.58' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 11.69 cfs @ 2.74 fps)

Pond CI 04-PH6: CI04-PH6



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond CI 02-PH6 by 0.01' @ 12.22 hrs (2.74 cfs 0.059 af)
[80] Warning: Exceeded Pond POST-2P by 0.19' @ 12.39 hrs (50.41 cfs 6.802 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 6.21" for 50 event
Inflow = 183.23 cfs @ 12.12 hrs, Volume= 38.096 af
Outflow = 66.76 cfs @ 13.41 hrs, Volume= 36.169 af, Atten= 64%, Lag= 77.6 min
Primary = 66.76 cfs @ 13.41 hrs, Volume= 36.169 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 14.17' @ 12.62 hrs Surf.Area= 89,433 sf Storage= 495,035 cf (311,590 cf above start)

Plug-Flow detention time= 159.2 min calculated for 31.945 af (84% of inflow)
Center-of-Mass det. time= 59.9 min (969.4 - 909.5)

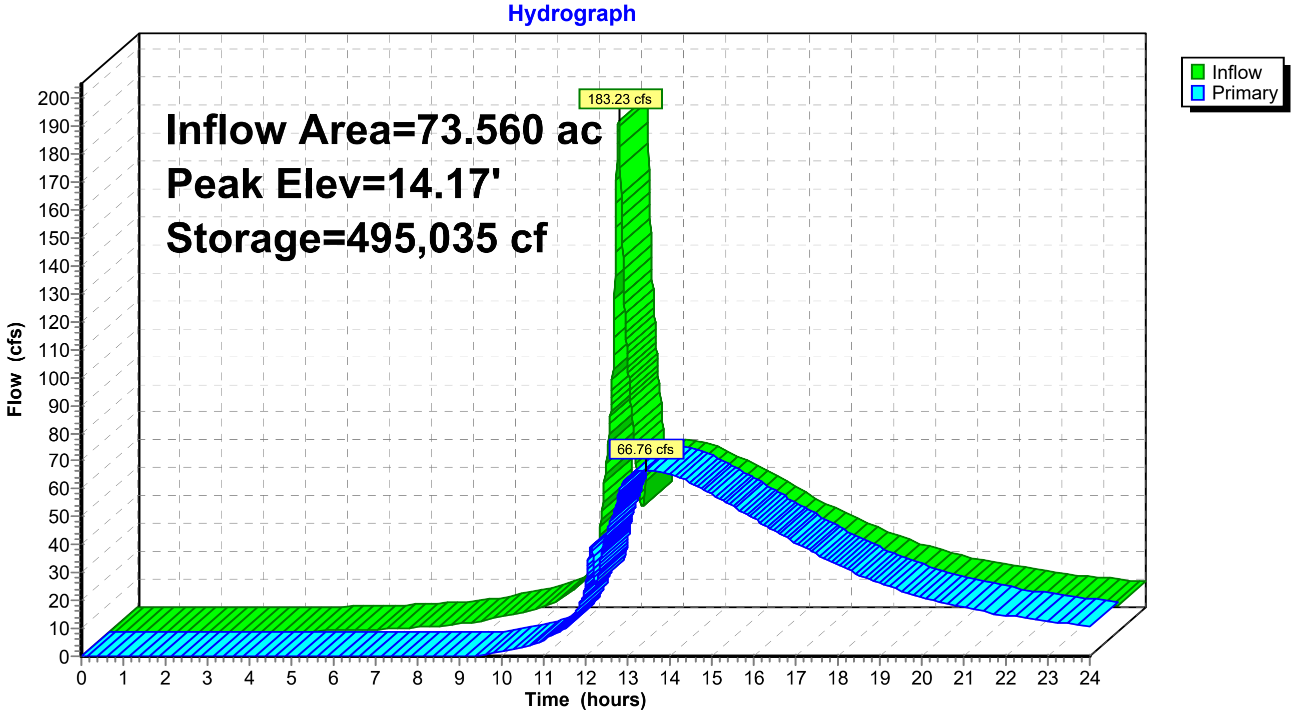
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=67.06 cfs @ 13.41 hrs HW=14.02' TW=13.69' (Dynamic Tailwater)
├─**1=RCP_Round 36"** (Outlet Controls 23.63 cfs @ 3.38 fps)
├─**2=RCP_Round 36"** (Outlet Controls 23.11 cfs @ 3.27 fps)
└─**3=RCP_Round 36"** (Outlet Controls 20.33 cfs @ 2.90 fps)

Pond POST-3P: POND 3



Summary for Subcatchment CI01-PH6: CI01-PH6

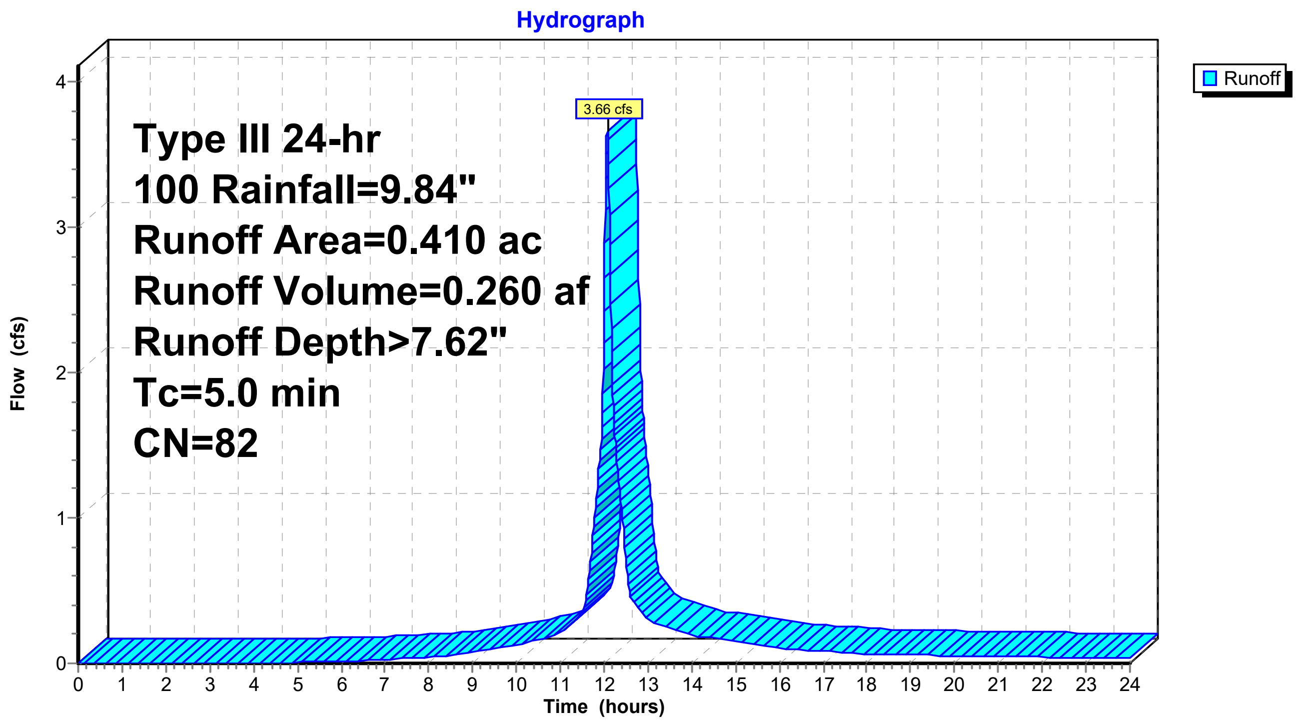
Runoff = 3.66 cfs @ 12.07 hrs, Volume= 0.260 af, Depth> 7.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	0.410	82	
	0.410		100.00% Pervious Area

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

Subcatchment CI01-PH6: CI01-PH6



Summary for Subcatchment CI02-PH6: CI02-PH6

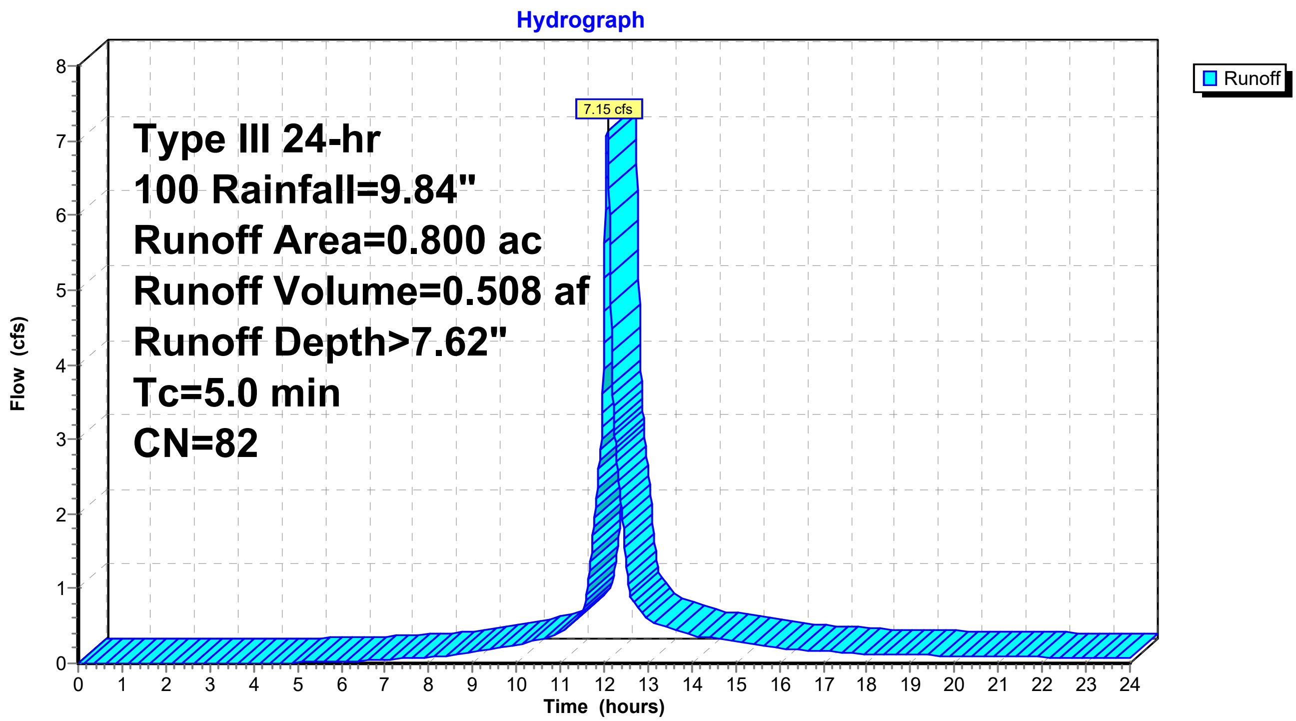
Runoff = 7.15 cfs @ 12.07 hrs, Volume= 0.508 af, Depth> 7.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI02-PH6: CI02-PH6



Summary for Subcatchment CI03-PH6: CI03-PH6

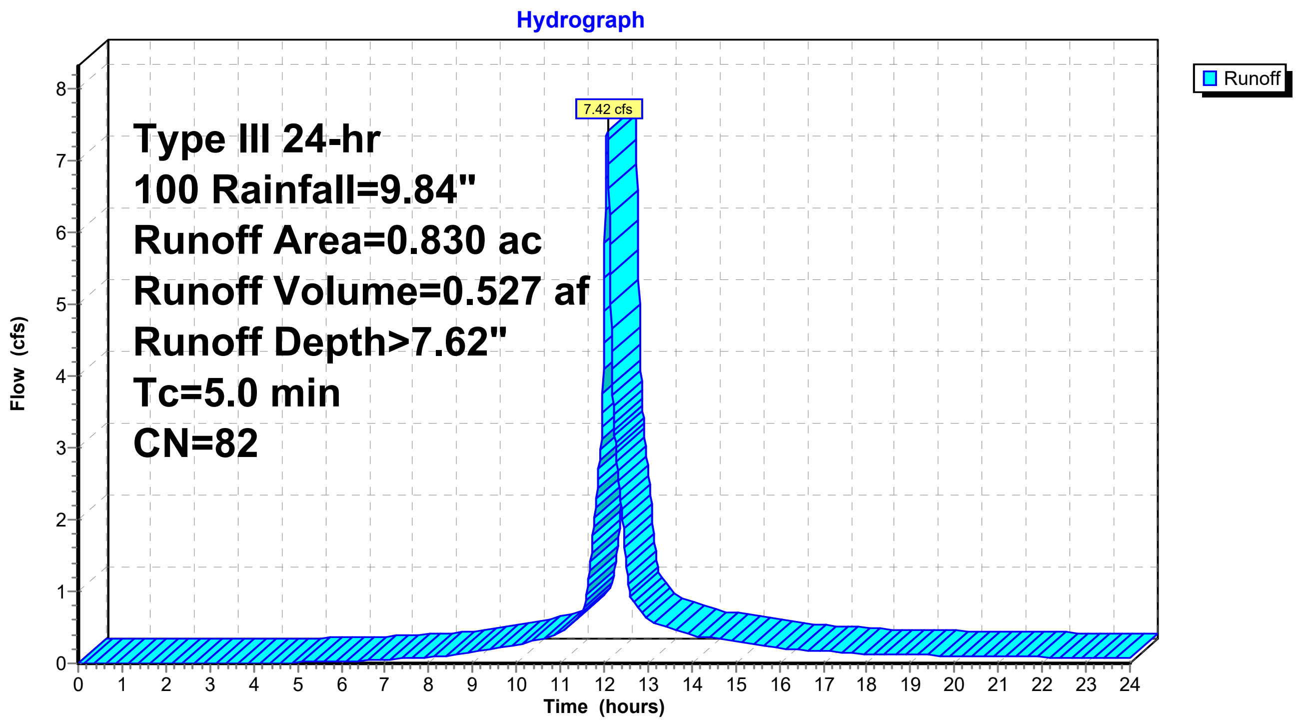
Runoff = 7.42 cfs @ 12.07 hrs, Volume= 0.527 af, Depth> 7.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	0.830	82	
	0.830		100.00% Pervious Area

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

Subcatchment CI03-PH6: CI03-PH6



Summary for Subcatchment CI04-PH6: CI04-PH6

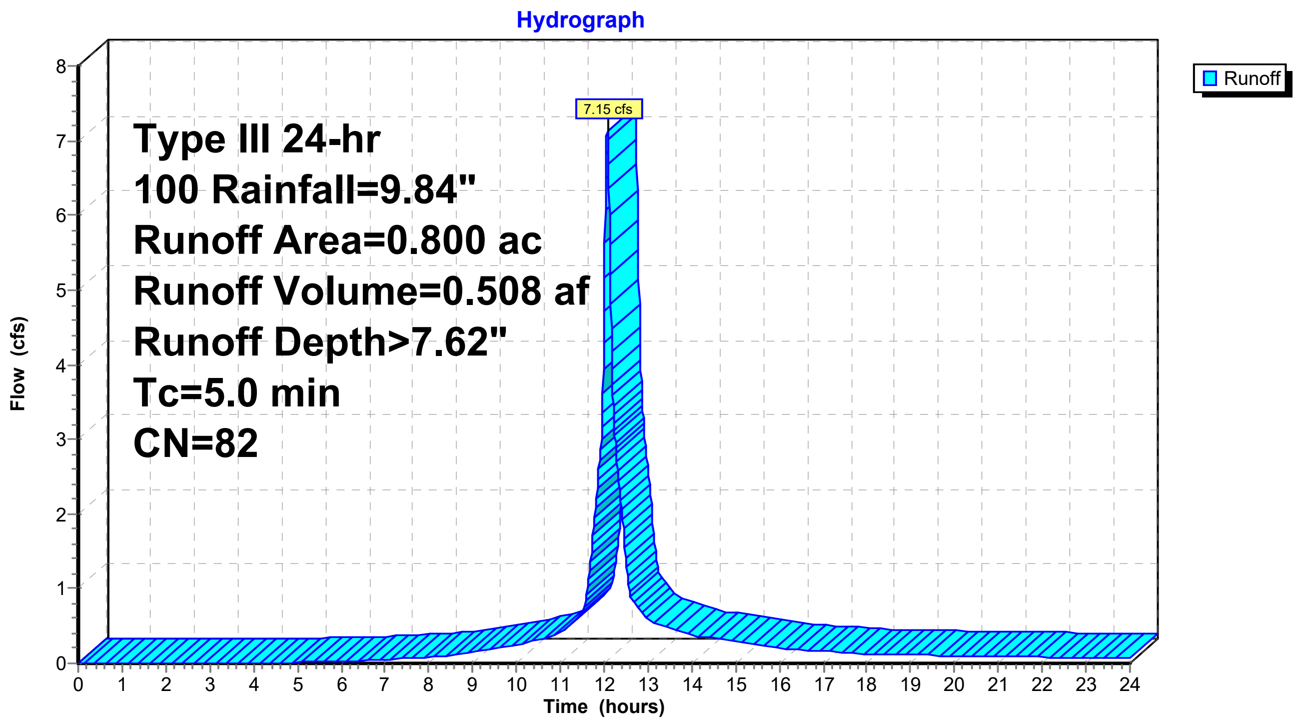
Runoff = 7.15 cfs @ 12.07 hrs, Volume= 0.508 af, Depth> 7.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Rainfall=9.84"

	Area (ac)	CN	Description
*	0.800	82	
	0.800		100.00% Pervious Area

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

Subcatchment CI04-PH6: CI04-PH6



Summary for Pond CI 01-PH6: CI01-PH6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=439)

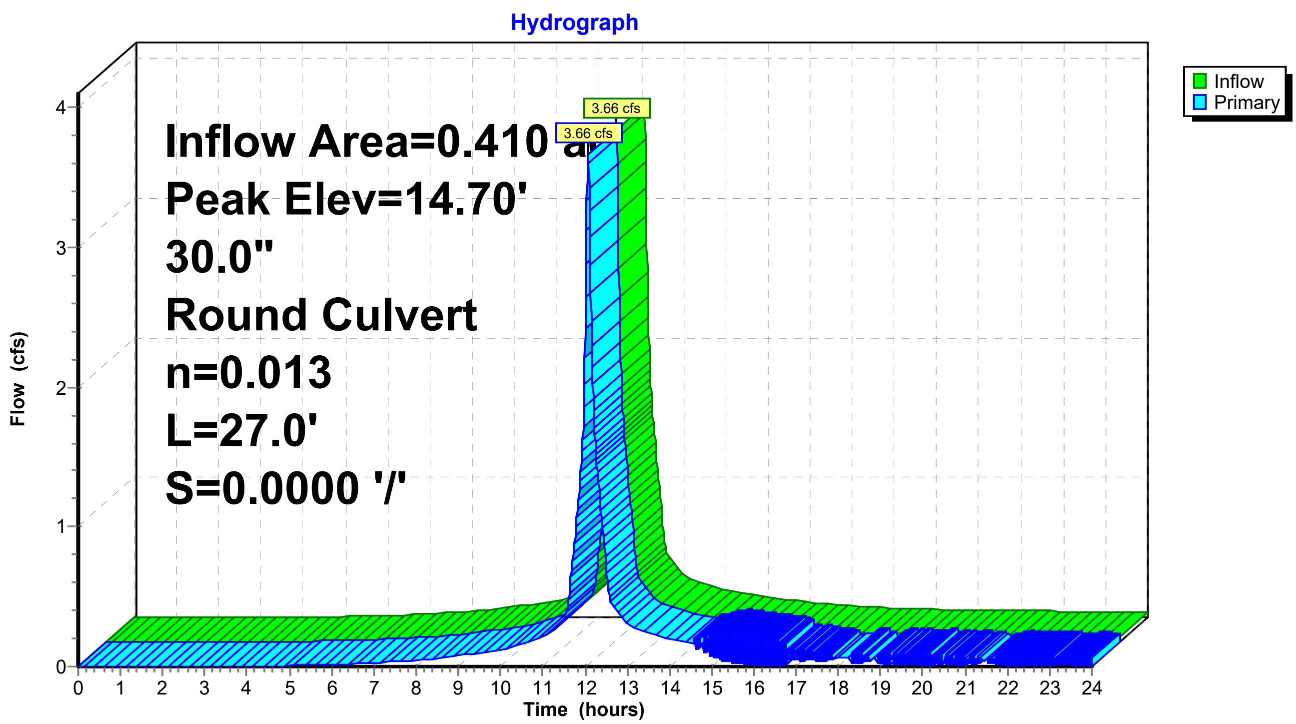
Inflow Area = 0.410 ac, 0.00% Impervious, Inflow Depth > 7.62" for 100 event
Inflow = 3.66 cfs @ 12.07 hrs, Volume= 0.260 af
Outflow = 3.66 cfs @ 12.07 hrs, Volume= 0.260 af, Atten= 0%, Lag= 0.0 min
Primary = 3.66 cfs @ 12.07 hrs, Volume= 0.260 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.70' @ 12.66 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 27.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=12.99' TW=13.03' (Dynamic Tailwater)
└**1=RCP_Round 30"** (Controls 0.00 cfs)

Pond CI 01-PH6: CI01-PH6



Summary for Pond CI 02-PH6: CI02-PH6

[80] Warning: Exceeded Pond CI 01-PH6 by 3.09' @ 16.34 hrs (28.31 cfs 1.626 af)

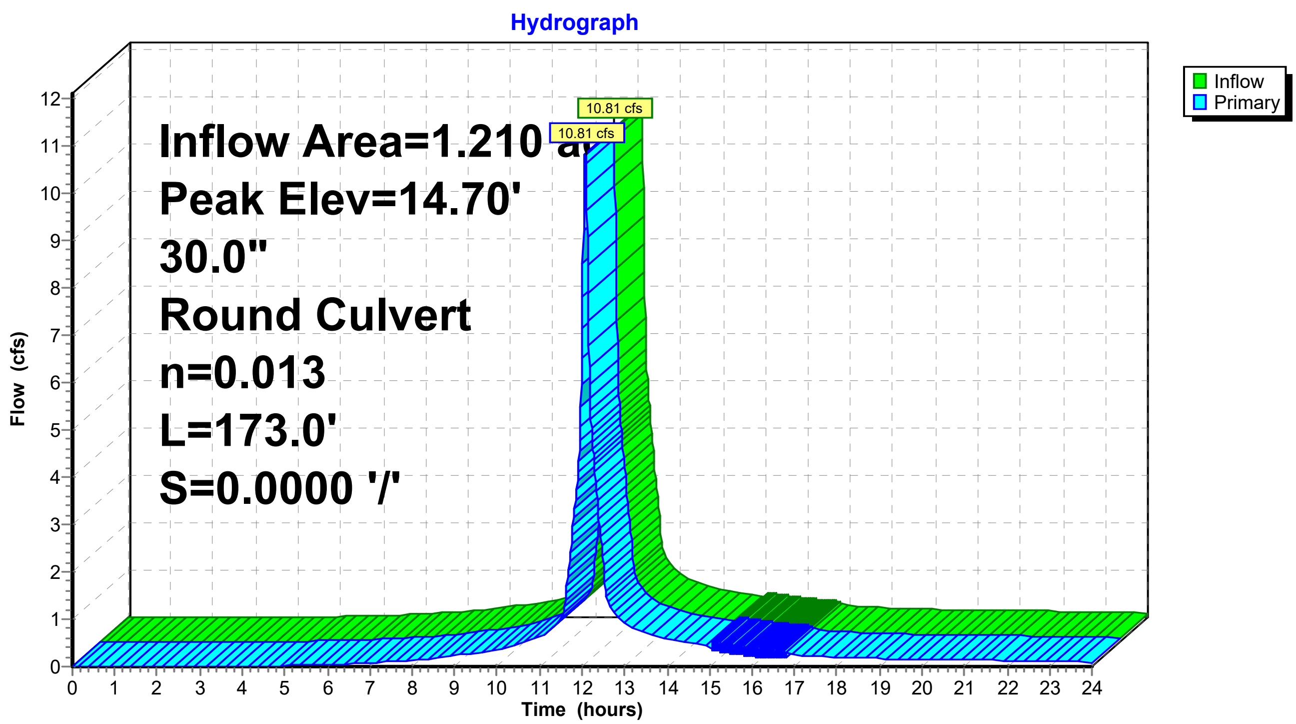
Inflow Area =	1.210 ac,	0.00% Impervious,	Inflow Depth > 7.61"	for 100 event
Inflow =	10.81 cfs @	12.07 hrs, Volume=	0.767 af	
Outflow =	10.81 cfs @	12.07 hrs, Volume=	0.767 af,	Atten= 0%, Lag= 0.0 min
Primary =	10.81 cfs @	12.07 hrs, Volume=	0.767 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.70' @ 12.65 hrs
Flood Elev= 15.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 173.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=9.10 cfs @ 12.07 hrs HW=13.03' TW=12.87' (Dynamic Tailwater)
1=RCP_Round 30" (Outlet Controls 9.10 cfs @ 2.02 fps)

Pond CI 02-PH6: CI02-PH6



Summary for Pond CI 03-PH6: CI03-PH6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=346)

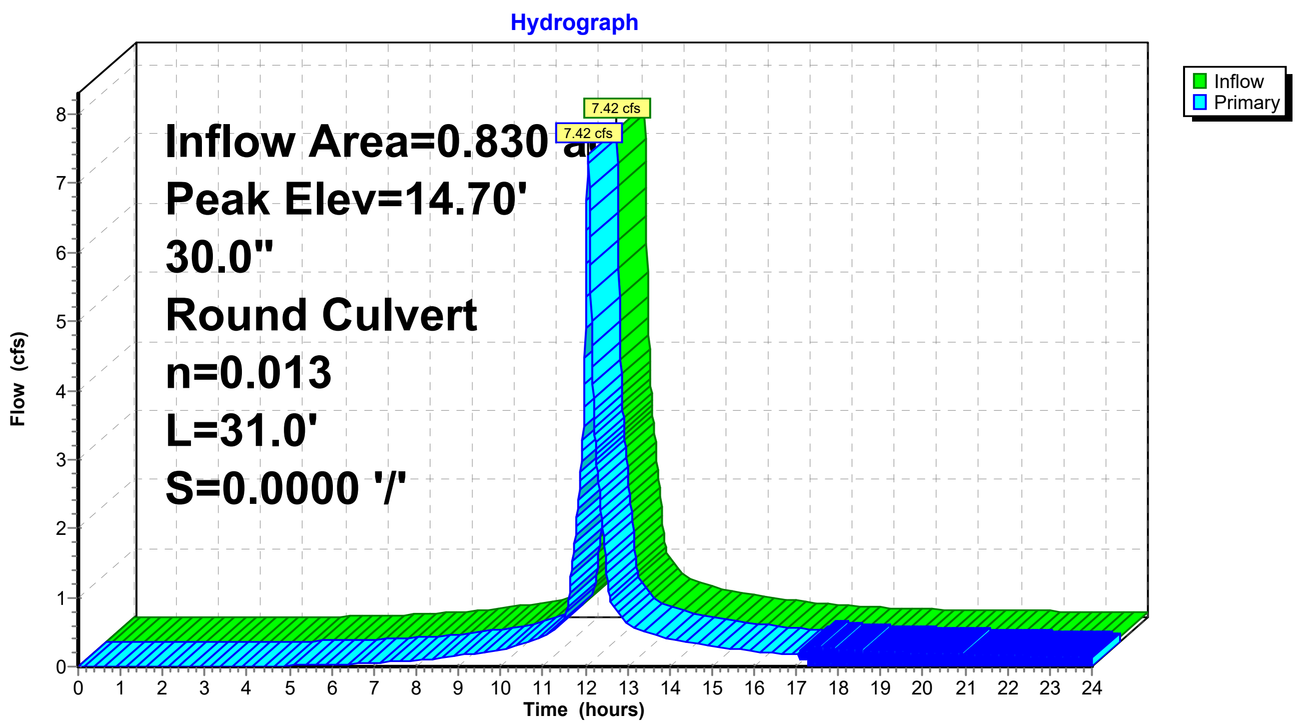
Inflow Area =	0.830 ac,	0.00% Impervious,	Inflow Depth > 7.62"	for 100 event
Inflow =	7.42 cfs @	12.07 hrs, Volume=	0.527 af	
Outflow =	7.42 cfs @	12.07 hrs, Volume=	0.527 af, Atten= 0%, Lag= 0.0 min	
Primary =	7.42 cfs @	12.07 hrs, Volume=	0.527 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.70' @ 12.66 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 31.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=1.95 cfs @ 12.07 hrs HW=13.18' TW=13.17' (Dynamic Tailwater)
1=RCP_Round 30" (Inlet Controls 1.95 cfs @ 0.40 fps)

Pond CI 03-PH6: CI03-PH6



Summary for Pond CI 04-PH6: CI04-PH6

[80] Warning: Exceeded Pond CI 03-PH6 by 2.58' @ 17.55 hrs (22.09 cfs 3.417 af)

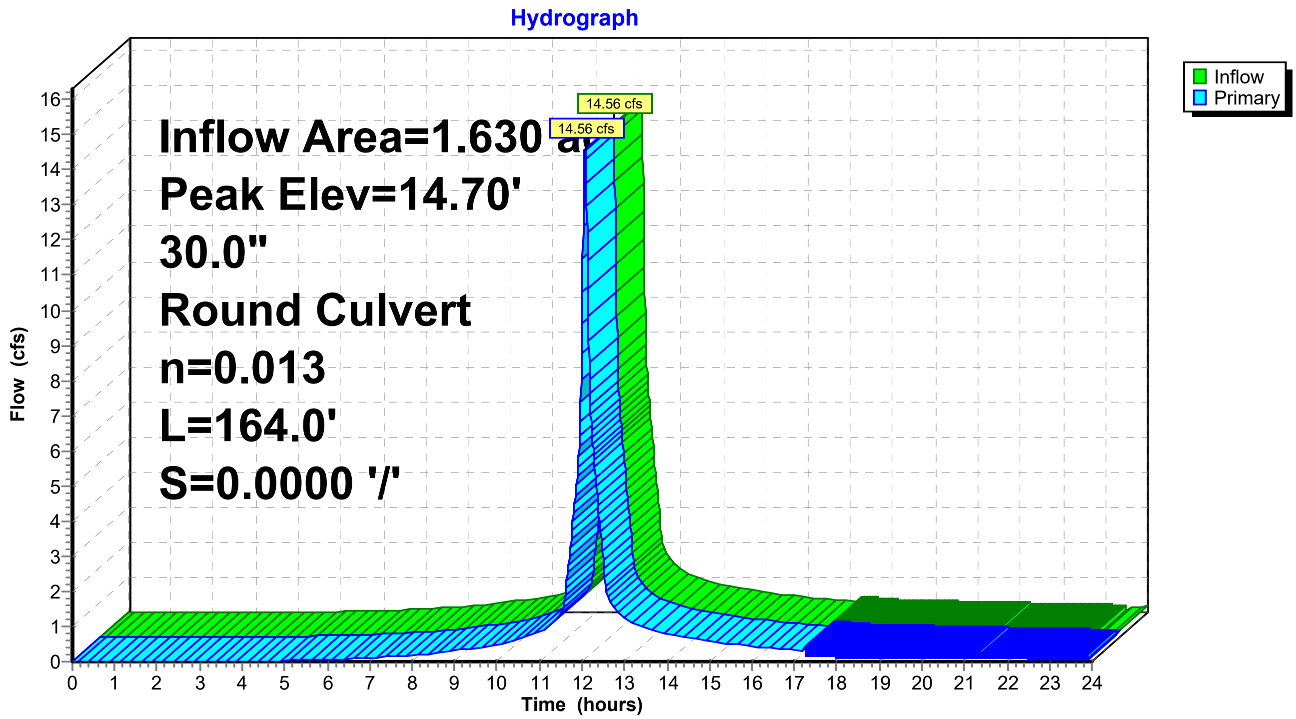
Inflow Area =	1.630 ac,	0.00% Impervious,	Inflow Depth > 7.62"	for 100 event	
Inflow =	14.56 cfs @	12.07 hrs,	Volume=	1.034 af	
Outflow =	14.56 cfs @	12.07 hrs,	Volume=	1.034 af,	Atten= 0%, Lag= 0.0 min
Primary =	14.56 cfs @	12.07 hrs,	Volume=	1.034 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 14.70' @ 12.65 hrs
Flood Elev= 15.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**30.0" Round RCP_Round 30"** L= 164.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 10.15' / 10.15' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 4.91 sf

Primary OutFlow Max=13.22 cfs @ 12.07 hrs HW=13.17' TW=12.87' (Dynamic Tailwater)
└─**1=RCP_Round 30"** (Outlet Controls 13.22 cfs @ 2.83 fps)

Pond CI 04-PH6: CI04-PH6



Summary for Pond POST-3P: POND 3

[80] Warning: Exceeded Pond CI 02-PH6 by 0.01' @ 12.26 hrs (2.26 cfs 0.056 af)
[80] Warning: Exceeded Pond POST-2P by 0.28' @ 12.44 hrs (60.57 cfs 7.895 af)

Inflow Area = 73.560 ac, 31.30% Impervious, Inflow Depth > 7.09" for 100 event
Inflow = 205.97 cfs @ 12.12 hrs, Volume= 43.492 af
Outflow = 72.34 cfs @ 13.99 hrs, Volume= 41.440 af, Atten= 65%, Lag= 112.2 min
Primary = 72.34 cfs @ 13.99 hrs, Volume= 41.440 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Starting Elev= 9.97' Surf.Area= 58,802 sf Storage= 183,444 cf
Peak Elev= 14.70' @ 12.64 hrs Surf.Area= 93,240 sf Storage= 542,747 cf (359,303 cf above start)

Plug-Flow detention time= 151.8 min calculated for 37.228 af (86% of inflow)
Center-of-Mass det. time= 61.3 min (972.6 - 911.4)

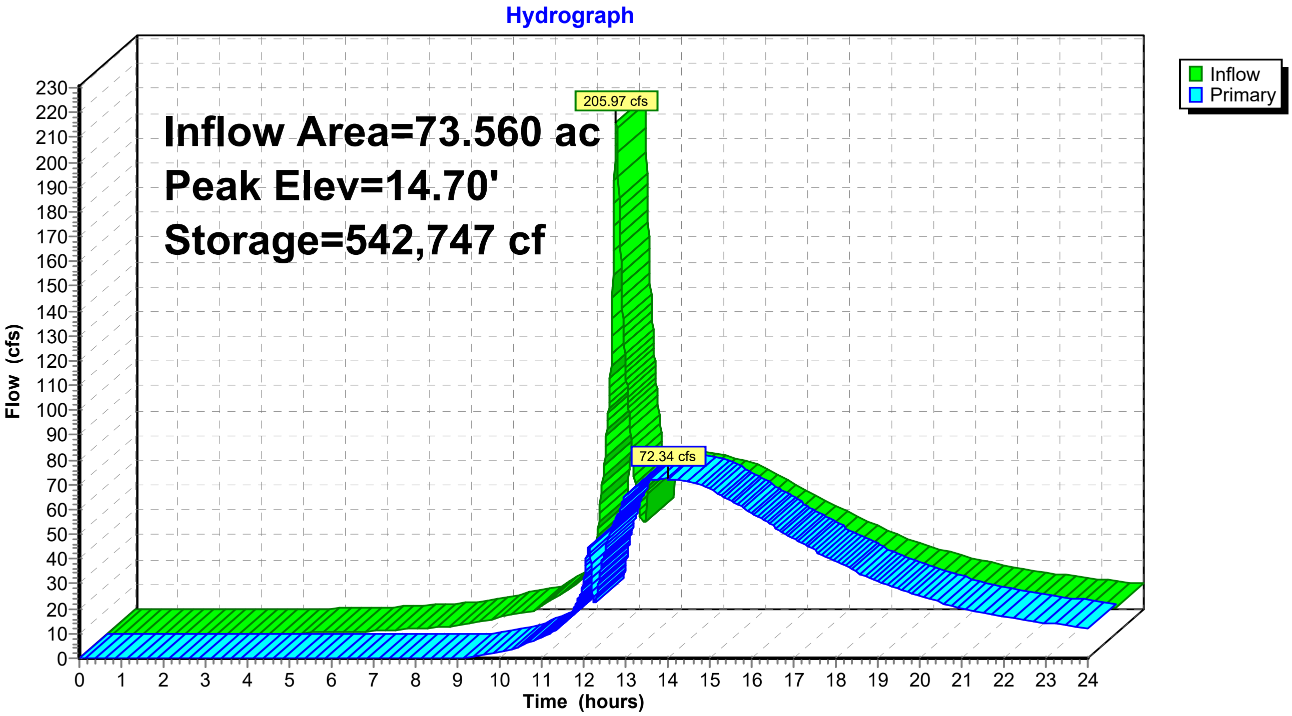
Volume	Invert	Avail.Storage	Storage Description
#1	6.40'	1,060,023 cf	**POND 3 (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.40	43,968	0	0
9.97	58,802	183,444	183,444
15.00	95,452	387,949	571,393
20.00	100,000	488,630	1,060,023

Device	Routing	Invert	Outlet Devices
#1	Primary	10.15'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.15' / 8.16' S= 0.0118 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#2	Primary	9.97'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 9.97' / 8.19' S= 0.0105 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf
#3	Primary	10.14'	**36.0" Round RCP_Round 36"** L= 169.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 10.14' / 8.34' S= 0.0107 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 7.07 sf

Primary OutFlow Max=72.71 cfs @ 13.99 hrs HW=14.31' TW=13.91' (Dynamic Tailwater)
1=RCP_Round 36" (Outlet Controls 25.51 cfs @ 3.61 fps)
2=RCP_Round 36" (Outlet Controls 25.51 cfs @ 3.61 fps)
3=RCP_Round 36" (Outlet Controls 21.70 cfs @ 3.07 fps)

Pond POST-3P: POND 3



Appendix I: NRCS Soils Report and Maps

Soil Map—Bryan and Chatham Counties, Georgia, and Effingham County, Georgia
(Rice Creek Master Hydrology)

Map Scale: 1:10,900 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 150, 300, 600, 900

Feet: 0, 500, 1000, 2000, 3000

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Apr 22, 2020—May 1, 2020

MAP LEGEND

MAP INFORMATION

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Cc	Cape Fear soils	110.3	33.1%
Oj	Ocilla complex	13.3	4.0%
Ok	Ogeechee loamy fine sand	10.3	3.1%
Pl	Pelham loamy sand, 0 to 2 percent slopes, frequently flooded	41.7	12.5%
Pn	Pooler fine sandy loam	129.5	38.8%
W	Water	9.1	2.7%
Subtotals for Soil Survey Area		**314.3**	**94.2%**
Totals for Area of Interest		**333.6**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BdA	Bladen fine sandy loam, 0 to 2 percent slopes	12.6	3.8%
PeA	Pelham loamy sand, 0 to 2 percent slopes	1.9	0.6%
SuA	Surrency mucky sand, 0 to 1 percent slopes, frequently flooded	4.7	1.4%
Subtotals for Soil Survey Area		**19.3**	**5.8%**
Totals for Area of Interest		**333.6**	**100.0%**

Map Unit Description

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Most of the soils similar to the major components have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Some minor components, however, have properties and behavior characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Effingham County, Georgia

BdA—Bladen fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1v33t
Elevation: 20 to 130 feet
Mean annual precipitation: 49 to 52 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 237 to 245 days

Farmland classification: Not prime farmland

Map Unit Composition

Bladen and similar soils: 80 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bladen

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear, convex, concave
Across-slope shape: Linear
Parent material: Clayey fluviomarine deposits

Typical profile

A - 0 to 7 inches: fine sandy loam
E - 7 to 14 inches: fine sandy loam
Btg - 14 to 80 inches: clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named, soils that are similar to the named components, and some minor components that differ in use and management from the major soils.

Most of the soils similar to the major components have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Some minor components, however, have properties and behavior characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

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Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Bryan and Chatham Counties, Georgia

Cc—Cape Fear soils

Map Unit Setting

National map unit symbol: 46g5
Elevation: 0 to 50 feet
Mean annual precipitation: 44 to 52 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 230 to 290 days

Farmland classification: Not prime farmland

Map Unit Composition

Cape fear and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cape Fear

Setting

Landform: Drainageways, depressions
Down-slope shape: Linear, concave
Across-slope shape: Concave
Parent material: Marine deposits

Typical profile

H1 - 0 to 16 inches: loam
H2 - 16 to 52 inches: clay
H3 - 52 to 62 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water capacity: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Map Unit Description

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Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Bryan and Chatham Counties, Georgia

Oj—Ocilla complex

Map Unit Setting

National map unit symbol: 46gt
Elevation: 10 to 450 feet
Mean annual precipitation: 44 to 52 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 230 to 290 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Ocilla and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ocilla

Setting

Landform: Interfluves
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Marine deposits

Typical profile

H1 - 0 to 28 inches: loamy fine sand
H2 - 28 to 59 inches: sandy clay loam
H3 - 59 to 67 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 12 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: R153AY001GA - Loamy Rise, Moderately Wet
Hydric soil rating: No

Minor Components

Ellabelle

Percent of map unit: 3 percent
Landform: Depressions, drainageways
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Pelham

Percent of map unit: 2 percent
Landform: Depressions, flats
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

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Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

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Bryan and Chatham Counties, Georgia

Ok—Ogeechee loamy fine sand

Map Unit Setting

National map unit symbol: 46gw
Elevation: 10 to 50 feet
Mean annual precipitation: 44 to 52 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 230 to 290 days

Farmland classification: Not prime farmland

Map Unit Composition

Ogeechee and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ogeechee

Setting

Landform: Flats, depressions, drainageways
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Marine deposits

Typical profile

H1 - 0 to 8 inches: loamy fine sand
H2 - 8 to 23 inches: sandy clay loam
H3 - 23 to 42 inches: sandy clay
H4 - 42 to 60 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Available water capacity: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

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Most of the soils similar to the major components have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Some minor components, however, have properties and behavior characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

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Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Effingham County, Georgia

PeA—Pelham loamy sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tzk8
Elevation: 0 to 180 feet
Mean annual precipitation: 40 to 62 inches
Mean annual air temperature: 51 to 78 degrees F
Frost-free period: 189 to 272 days

Farmland classification: Not prime farmland

Map Unit Composition

Pelham and similar soils: 95 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pelham

Setting

Landform: Flatwoods
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 6 inches: loamy sand
Eg - 6 to 33 inches: loamy sand
Btg1 - 33 to 41 inches: sandy loam
Btg2 - 41 to 66 inches: sandy clay loam
Cg - 66 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Surrency

Percent of map unit: 2 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G153AA245FL)

Hydric soil rating: Yes

Rains

Percent of map unit: 1 percent
Landform: Flatwoods
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pickney

Percent of map unit: 1 percent
Landform: Depressions, drainageways
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Map Unit Description

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An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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Bryan and Chatham Counties, Georgia

Pl—Pelham loamy sand, 0 to 2 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2tg59
Elevation: 0 to 300 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 54 to 78 degrees F

Frost-free period: 209 to 317 days
Farmland classification: Not prime farmland

Map Unit Composition

Pelham, frequently flooded, and similar soils: 95 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pelham, Frequently Flooded

Setting

Landform: Drainageways, depressions, flatwoods
Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 6 inches: loamy sand
Eg - 6 to 33 inches: loamy sand
Btg1 - 33 to 41 inches: sandy loam
Btg2 - 41 to 66 inches: sandy clay loam
Cg - 66 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Surrency, frequently ponded

Percent of map unit: 2 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave

Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G153AA245FL)
Hydric soil rating: Yes

Rains

Percent of map unit: 1 percent
Landform: Flatwoods
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pickney, frequently ponded

Percent of map unit: 1 percent
Landform: Depressions, drainageways
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

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The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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Bryan and Chatham Counties, Georgia

Pn—Pooler fine sandy loam

Map Unit Setting

National map unit symbol: 46h1
Elevation: 20 to 100 feet
Mean annual precipitation: 44 to 52 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 230 to 290 days

Farmland classification: Not prime farmland

Map Unit Composition

Pooler and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pooler

Setting

Landform: Depressions, flats
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Marine deposits

Typical profile

H1 - 0 to 6 inches: fine sandy loam
H2 - 6 to 12 inches: sandy clay loam
H3 - 12 to 52 inches: clay
H4 - 52 to 72 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Map Unit Description

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Effingham County, Georgia

SuA—Surrency mucky sand, 0 to 1 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 1v34l
Elevation: 20 to 50 feet
Mean annual precipitation: 49 to 52 inches
Mean annual air temperature: 64 to 66 degrees F

Frost-free period: 237 to 245 days
Farmland classification: Not prime farmland

Map Unit Composition

Surrency and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Surrency

Setting

Landform: Depressions, drainageways
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Loamy marine deposits over sandy marine deposits

Typical profile

A - 0 to 22 inches: mucky sand
Btg1 - 22 to 35 inches: sandy loam
Btg2 - 35 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: FrequentNone
Frequency of ponding: Frequent
Available water capacity: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 15, Jun 12, 2020

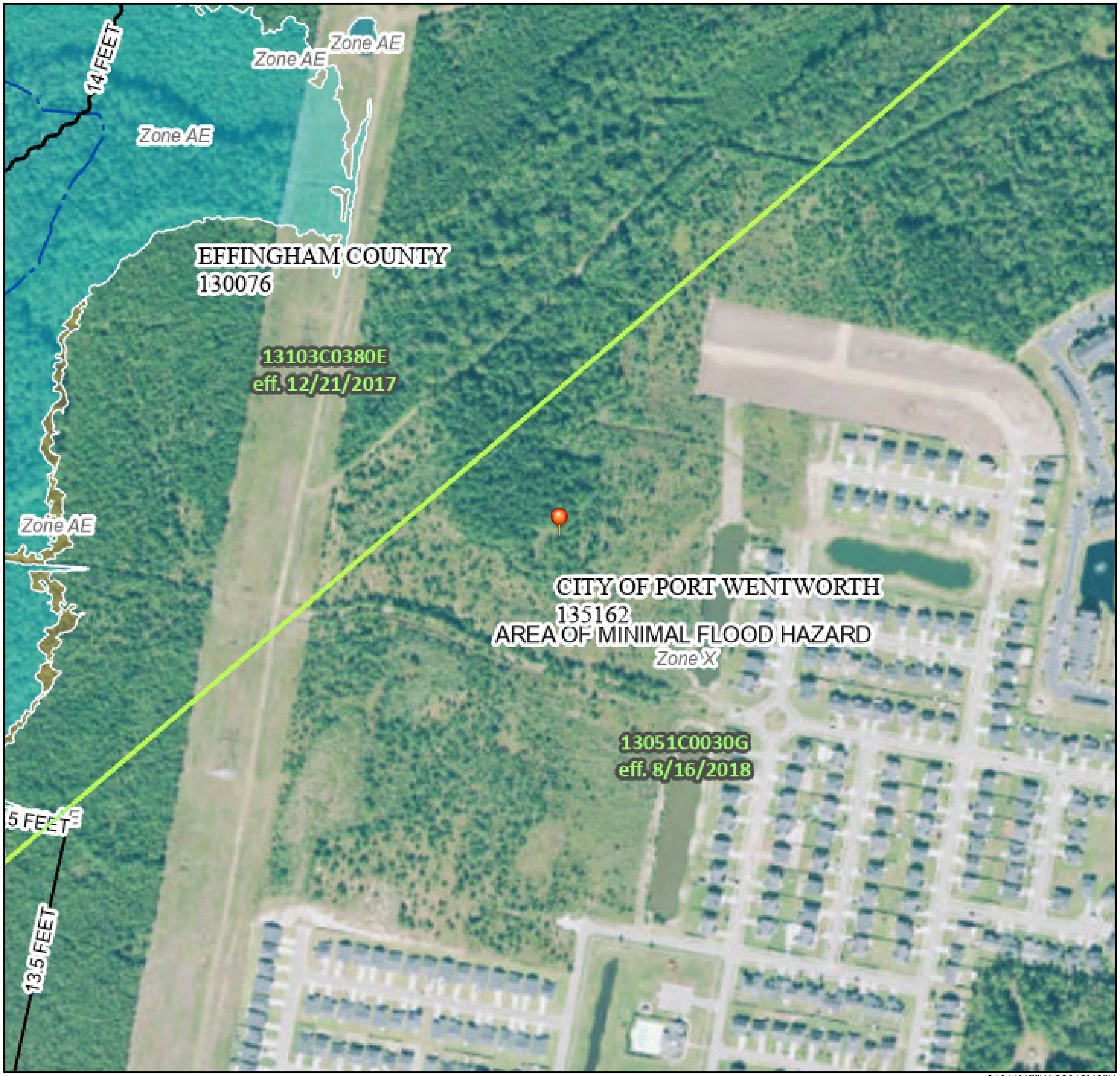
Soil Survey Area: Effingham County, Georgia
Survey Area Data: Version 15, Jun 8, 2020

Appendix J: FEMA Firmette Flood Zone Map

National Flood Hazard Layer FIRMette

FEMA

81°12'23"W 32°14'11"N



81°11'45"W 32°13'40"N

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

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

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	B 20.2 / 17.5	Cross Sections with 1% Annual Chance Water Surface Elevation
	8	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 2/26/2021 at 4:33 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.