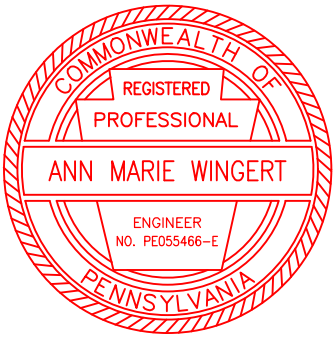
STORMWATER REPORT

FOR THE

JOSEPH WIDMER LAND DEVELOPMENT

Smithfield Township
Monroe County, PA

August 30, 2024



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Project No. 10842.004

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TABLE OF CONTENTS

PROJECT SUMMARY

Joseph L Widmer is proposing to construct a 1,008 SF building on an approximate 0.53-acre parcel located just west of the Joel Street and SR 209 intersection in Smithfield Township, Monroe County, PA. The project consists of the proposed building, parking area, stormwater conveyance and management facilities, landscaping, utilities and other associated improvements. The property is located in the ED – Economic Development District.

The area of the property proposed for development is currently cleared and consists of a stone area utilized for staging and storage of vehicles of the Applicant's tree clearing business. The total area of the property is approximately 0.53 acre.

The site has no wetlands. See report in submission. Therefore, no Chapter 105 permits are required as part of this project.

The site drains to the Sambo Creek with a Chapter 93 classification of Cold-Water Fisheries, Migratory Fisheries (CWF-MF). Sambo Creek is a naturally reproducing trout stream.

The proposed limit of earth disturbance is approximately 0.60 acres with utility line connections, driveway and revegetation on adjoining property. As the LED in under 1 acre an NPDES permit application is not required. However, a submission to the MCCD will be performed for review of the ESC plan. Chapter 102 riparian buffers do not apply as the Sambo Creek is not a special protection stream and the LED is under 1 acre. No known streams or wetlands are within 150 feet of the site.

The site currently has an existing PennDOT HOP (PennDOT Permit No. 05005187).

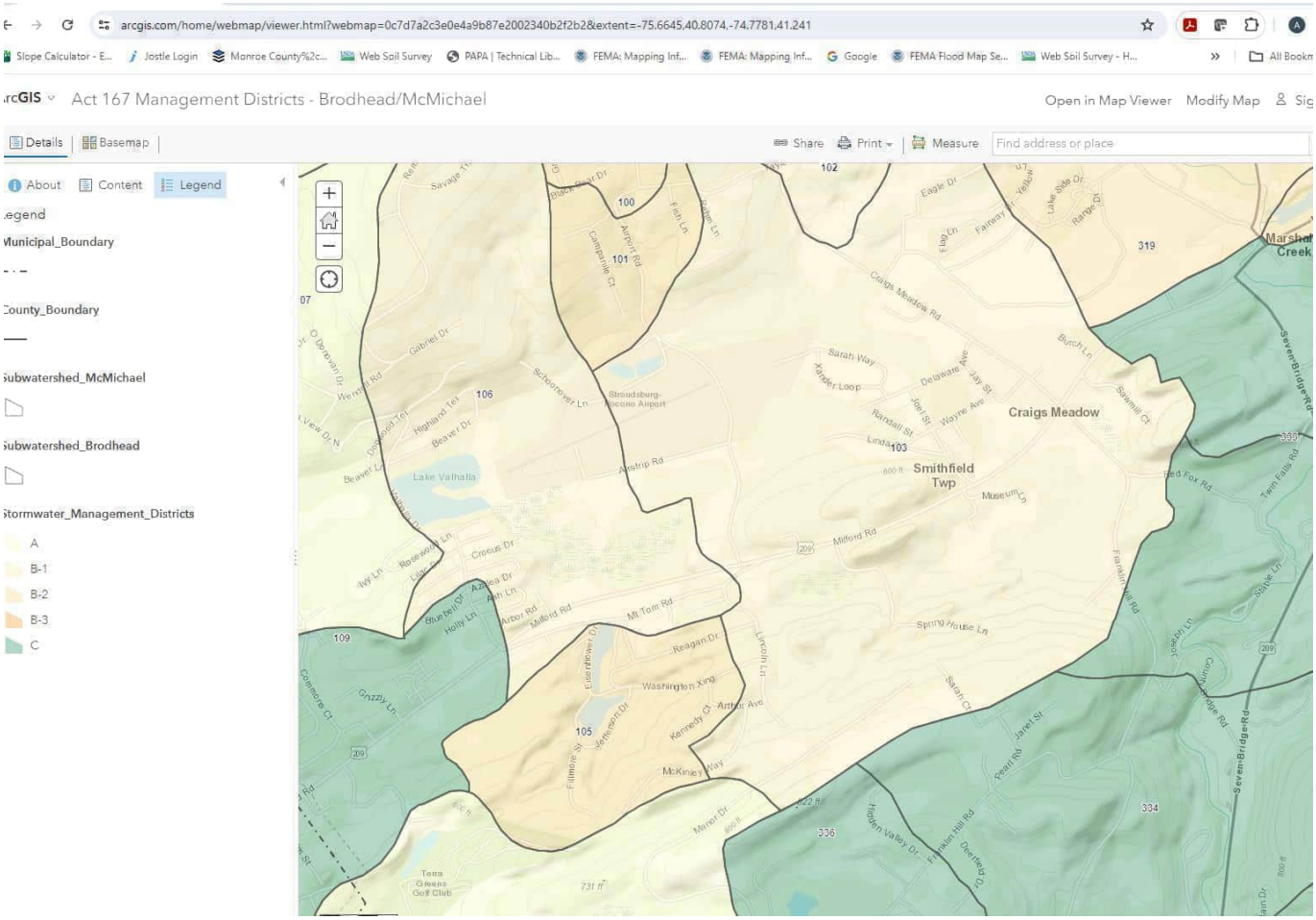
The proposed development was previously granted four (4) variances from the Smithfield Township Zoning Ordinance.

VARIANCE REQUESTS:

SALDO ORDINANCE SECTION	DESCRIPTION	DATE GRANTED
ZO 403.1.B.4	OFF STREET LOADING SHALL BE LOCATED AT THE SIDE OR REAR OF THE PROPERTY AND SHALL BE SCREEN FROM VIEW BY FENCING OR LANDSCAPING	6/4/2024
ZO 403.1.L	PARKING WITHIN REAR AND SIDE YARDS MAY NOT BE LOCATED CLOSER THAN 15 FEET TO LOT LINE	6/4/2024
ZO 403.1.M	PARKING AREAS MAY BE LOCATED AT THE FRONT OF THE BUILDING BUT NOT CLOSER TO THE FRONT LOT LINE THAN INDICATED IN PARKING SETBACK SCHEDULE IN THE ORDINANCE. ZONING DISTRICT ED - MINIMUM PARKING AREA DISTANCE FROM FRONT LOT LINE 50'	6/4/2024
ZO 502.7.C	NON RESIDENTIAL OFFSTREET PARKING LOCATED IN FRONT OF BUILDING SHALL BE SEPARATED FROM THE ULTIMATE RIGHT OF WAY LINE BY A BUFFER YARD NOT LESS THEN 25 FEET IN WIDTH	6/4/2024

ACT 167 DISTRICT AND RELEASE RATES

The proposed site is located in District 'B-1' Subarea 103 of the Brodhead Creek Watershed. See reduction chart on the summary page in this report.



DISCHARGE POINT AND DOWNSTREAM ANALYSIS NARRATIVE

The site, drains towards Joel Street to a depression then to Stroudsburg Pocono Airport then to Lake Valhalla then to Sambo Creek.

The site is split by a ridge running from southwest to northeast. The eastern portion drains to a saddle to Joel Street. The western portion drains to a similar saddle west of the ridge. The disturbed area will drain to an infiltration basin in the eastern saddle. The reduced western portion will bypass the basin.

The proposed improvements maintain the discharge points to the maximum extent practical.

Volume, Water Quality and Rate Control: The water quality criteria is met by infiltrating the difference in the 2 year pre to post volume and planting native species in the offsite pass through and undetained area. The on site 1 year volume is infiltrated in the basin. The volume draining to the bypass area is a decrease from the predevelopment volume by reducing the area. All developed area drains to the infiltration basin. A sump with hood / snout will pre treat the stormwater prior to discharge to the basin.

Note that existing state highway 2012 drains onto the site. Space does not allow an offsite conveyance around the site. The basin rate calculations were adjusted to pass the off site contribution through the basin. The required reduction for the total site is met. See Summary chart.

As required by the ordinance, the 100 year water surface elevation is below the top of grate of the infiltration basin. The berm is 6-feet wide and 10-feet wide at the emergency spillway.

Infiltration Testing: The infiltration test showed a rate of 1.75 inch per hour 1.5 ft below the soil surface. The rate 2 feet below the soil surface was 7.5" / hour. The bottom of the infiltration basin was lowered to the faster soil 2 foot below the surface. The requirement to contain the 1 year storm in the basin for the on site area is met with an infiltration rate of 1.25" / hour. The lowest orifice is set to infiltrate the two year volume difference using woods since this was the cover type prior to the site disturbance.
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Infiltration tests were performed June 27, 2024 by RKR Hess, a Division of UTRS, Inc.

Downstream Analysis: The existing areas of concentrated discharge remain with the required reduced rates. Therefore, the downstream analysis has been met.

METHODOLOGY

The stormwater runoff peak flows and volumes were calculated using the SCS Unit Hydrograph method. HydroCAD 10.20.5a computer program was used for the pre and post-developed analysis.

The conveyance system was calculated using Stormwater Studio 2024 v 3.0.0.34

POST-CONSTRUCTION STORMWATER MANAGEMENT (PCSM) NARRATIVE

The project is being submitted to the Monroe County Conservation District (MCCD) for an ESC permit. The project has been designed to comply with DEP's guidelines as indicated in the Pennsylvania Stormwater Best Management Practices Manual, dated December 2006, and recent discussions with MCCD Personnel.

Pre-Developed versus Post-Developed Analysis

For the design, Control Guideline 1 (CG-1), as detailed in the PA DEP BMP Manual was used to determine the minimum stormwater runoff volumes to infiltrate. CG-1 recommends the volume difference between the 2-year pre-developed and post-developed design storms be infiltrated back into the soil. This guideline also requires 20% of the existing impervious area to be considered as meadow. The onsite area and offsite disturbed area was considered woods. The existing impervious in the Stormwater Management area is the offsite pass through from Route 2012.

Drainage Area Maps for predevelopment and post develop conditions are included.

A professional will be on site to observe the construction of the infiltration facilities and berm construction. Refer to PCSM Plans for critical stages of construction. berms.

Rainfall depths were taken from the NOAA Atlas 14. Both the pre-development and post development models are found within this report.

See Section 3 for the soil test results.

Non-structural BMP's were considered in the planning and layout of the site. For example,

The following Non-Structural BMP's, referenced to the DEP BMP Manual, that are proposed are listed below:

- BMP 5.4.3. Protect / Utilize natural Flow Pathways in Overall Stormwater Planning and Design – All discharge points drain to undisturbed drainage pathways leaving the site.
- BMP 5.6.3: Revegetate with Native Species – A Native Steep Slope Mix was chosen as most appropriate for the areas along the basins, parking lots, and driveways. An infiltration basin seeding mix was chosen for the bottoms of the proposed infiltration facility.

The following Structural BMP's, referenced to the DEP BMP Manual, that are proposed are listed below:

- BMP 6.4.2: Infiltration Basin: The basin was designed to be controlled with infiltration, a low level orifice and a weir to the outlet control structure. The volume beneath these controls will infiltrate into the ground. The basin will also provide rate water quality benefits with the native infiltration basin seeding mix proposed. Infiltration tests have been conducted and the results showed the soils were favorable for infiltration. Additional information and the calculations for these basins are included in this report.
- BMP 6.6.4: Water Quality Filters: A water quality unit (sump inlets, etc.) is added in the last high manhole upstream of the basin.
- BMP 6.7.2: Landscape Restoration – All disturbed areas will be revegetated with a commercial conservation seed mix and meadow type seed mixture, where appropriate. We believe that this meets the definition of Landscape Restoration

In summary, this project used a combination of BMP's to address NPDES requirements on the site.

Drainage Area Maps for predevelopment and post develop conditions are included.

ESC – SOIL DESCRIPTIONS AND LIMITATION.

Soil descriptions are included on the plan. Other than the limitations noted in this report and on the plans, no known geologic formations or other soil conditions are known to cause pollution to surface waters.

The NRCS Custom Monroe County Soil Survey identified the soil types and others within the limit of project limit. The soil map is included at the end of this report.

The recommended resolutions to soil use restrictions are as follows:

Acidic Soils – A seed mix suitable for acidic soil shall be supplemented with the proper soil amendments. Where proper cover cannot be established, soil tests shall be performed to determine the proper seed mix for the given conditions and proposed use.

Depth to rock – Proper excavation methods shall be used to remove rock.

Erosion – Erosion and Sediment Control measures shall be used as specified.

Large stones – Large stones shall be removed or broken up.

Low natural fertility – A seed mix suitable for this soil shall be supplemented with the proper soil amendments. Where proper cover cannot be established, soil tests shall be performed to determine the proper seed mix for the given conditions and proposed use.
Low moisture holding capacity – Soils with low moisture holding capacity shall be irrigated as part of the maintenance program.

Slow permeability and high-water table – When necessary, temporary dewatering facilities shall be required.

Slope – The site shall be graded to provide manageable slopes as specified in the plans.

Stoniness – Stones shall be removed and disposed of or used elsewhere in filling operation.

HISTORY OF SITE.

The project area is currently cleared and stone and used for staging and storage of vehicles of the Applicant's tree clearing business. Previously, the property consisted of woods. The proposed use will consist of the proposed building, parking area, stormwater conveyance and management facilities, landscaping, utilities and other associated improvements.

SITE DESIGN

Temporary Erosion and Sedimentation Control facilities will include construction entrance, compost filter socks, erosion control matting, and other related methods. A construction sequence is included to limit site disturbance as work progresses and provide a sequence for installation of the temporary and permanent measures. Disturbed area was minimized as much as practical. Erosion and Sedimentation Control facilities were designed using the PA DEP ESPC Manual dated March 2012.

As the slope distances are short and nearly all the disturbed areas will drain to the proposed basin, 12"" CFS should be adequate. For this small site that will be graded flat, this option was considered the most practical. Pipe and outfall calculations are included. A pumped bypass detail was added to the plans to provide sediment control if channel and pipe work will occur during wet conditions.

The proposed culverts will convey the 50 year storm with 1 foot of freeboard. The 100 year storm will discharge along the existing low area to Joel Street.

The following list outlines the proposed E&S BMP's along with their intended use:

- Rock Construction Entrance – Rock construction entrance is proposed at the connection point of proposed driveway and existing pavement area.
- Dewatering facilities – The dewatering facilities, if needed, include the Pumped Water Filter Bag

detailed on the plans. This shall be used to filter water pumped from disturbed areas before the water is discharged to waters of the Commonwealth.

- Erosion Control Blankets – Erosion control blankets shall be used as a temporary lining for disturbed steep slopes and waterbars that are impacted during construction. The blankets will hold soil particles in place and retain soil moisture and aid in seed germination.
- Temporary and Permanent seeding and mulching – Seeding and mulching specifications are included to provide stabilization requirements for the proposed vegetated areas. The permanent seed mix contains only native species.
- Compost Filter Sock – Filter socks will be placed downhill of disturbed areas.
- Stilling Basin – A stilling basin will be placed downstream of the pipes discharging into the proposed basin and outfall from the basin.
- Pumped bypass as needed for wet conditions.

ESC OPERATION AND MAINTENANCE PROGRAM

1. The Contractor shall be responsible for the Operation and Maintenance of all Erosion and Sedimentation Control Facilities during construction.

2. Until site is stabilized, all erosion and sedimentation measures must be maintained properly. Maintenance must include inspections of all erosion and sedimentation control measures after each runoff event and on a weekly basis. All preventative and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching, and renetting, must be performed immediately. If erosion and sediment control measures fail to perform as expected, replacement measures or modifications of those installed will be required.

3. Upon permanent stabilization of the site, temporary BMP's shall be removed from the site. Any fill removed from the site must be taken to a site with an approved erosion and sedimentation control plan. Filter fabric fence removed shall be reused or properly disposed of in accordance with DEP standards.

4. Individual facility operation and maintenance requirements are included in the facility's detail.

5. The Contractor shall monitor and maintain seeded and mulched areas on a daily basis until proper stabilization, as intended is achieved. Where stabilization is deficient, seed and mulch shall be reapplied. If necessary, soil shall be tested to determine the proper seed mix and soil amendments to be applied.

6. Structures shall be cleaned of sediment as indicated in the applicable detail. Sediment removed from structures shall be disposed of in landscaped areas, outside of steep slopes, wetlands, floodplains, or drainage swales, and immediately stabilized or placed in topsoil stockpiles. Proper soil erosion and sedimentation control measures shall be taken until stabilization is established.

7. The Contractor shall check on a daily basis, to ensure that no exposed area is allowed to drain freely without some type of erosion and sedimentation control. If exposed areas are found, control measures shall be established according to the attached plans immediately.

8. Once construction is complete and the owner accepts the work, the responsibility for keeping control facilities (including seeding and mulching) in repair shall shift from the contractor to the owner.

EARTH MOVING ACTIVITIES

Topsoil shall be removed from the area contained within the limits of grading, stockpiled in the location shown on the plan, according to detail, and replaced in areas to be seeded as stated in the construction sequence. Compost Filter Sock shall be placed as shown on the plan.

Land grading shall take place in accordance with approved methods to ensure proper site drainage to reduce the sedimentation and erosion potential. Fill areas shall be compacted sufficiently for their intended purposes and as required to reduce slipping, erosion, or excess saturation. When the final grading is complete, stabilization of side slopes and disturbed areas with seeding and/or mulch, dependent upon soil conditions and the season, shall be carried out.

All areas of steep slopes (3:1 and steeper) shall be protected by erosion control matting.

CONSTRUCTION SCHEDULE

The applicant wishes to start construction immediately upon receipt of the permit. Final construction and stabilization will take place immediately. Erosion and Sedimentation Control facilities include erosion control matting, operation and maintenance requirements, a construction sequence, and other related measures indicated in this report and on the plans.

A detailed construction sequence has been included on the plans.

DISPOSAL OF REFUSE

This project involves the installation of the proposed self- storage units, grading, stormwater management conveyance and management facilities, and associated work. An area adjacent to the gantry foundation will be enlarged to provide storm water storage. Disposal items may consist of packaging materials (boxes, cans, crates, etc.), excess fill, cleared vegetation, lumber, and other building materials. Brick, cement, concrete blocks, and other non-degradable ridged materials deemed to be clean fill might be used as back fill, as specified. All material not suitable for backfill such as lumber, plastic, rubber, steel, etc. shall be removed from the site and disposed of in accordance with the plans and federal, state, and local regulations. All existing vegetation that is to be removed shall be cleared and grubbed prior to construction. Cutting only is acceptable under elevated portions of the ride.

All excess soil, if any, shall be disposed of at a site with an approved erosion and sediment pollution control plan.

Recycling or disposal of materials
Anticipated construction waste includes temporary BMP's after removal.

Compost from BMP's may be utilized onsite. Sediment removed from BMP's shall be utilized in landscaped areas onsite. All other building materials and wastes shall be removed from the site and recycled or disposed of in accordance with the Department's Solid Waste Management Regulations at 25 Pa. Code 260.1 et seq., 271.1, and 287.1 et. seq. No building materials or wastes or unused building materials shall be burned, buried, dumped, or discharged at this site.

QUALIFICATIONS OF PLAN PREPARER

These plans have been prepared by Ann M. Wingert, P.E. Mrs. Wingert has over 15 years' experience in civil engineering design for subdivisions and land developments, including the preparation of many Post Construction Stormwater Management Plans in Monroe, Pike, Northampton and Carbon Counties. She received her Bachelor of Science in Agricultural Engineering from South Dakota State University in May of 1986. Mrs. Wingert is a Professional Engineer Licensed in Pennsylvania and Connecticut.

The most recent PCSM plans that Mrs. Wingert has developed among others are the Bartonsville Plaza and Cross Roads Mall of the Pocono in Stroud Township, Monroe County, PA; and the Industrial Parks in Coolbaugh and Tobyhanna, Townships in Monroe County, PA. R.K.R. Hess, as an engineering firm, has over 70 years' experience designing and preparing construction plans for roadways, residential subdivisions and commercial land development.

Recent ESPC Plans developed at RKR Hess include Camelback Zipflyer Upgrade, Camelback Lodge and Waterpark, Cameltop Paver Sidewalk and Ride removal, and Sunbowl Lift, located in Pocono Township, Monroe County. RKR Hess, as an engineering firm, has over 70 years' experience designing and preparing construction plans for residential subdivisions and commercial land development.

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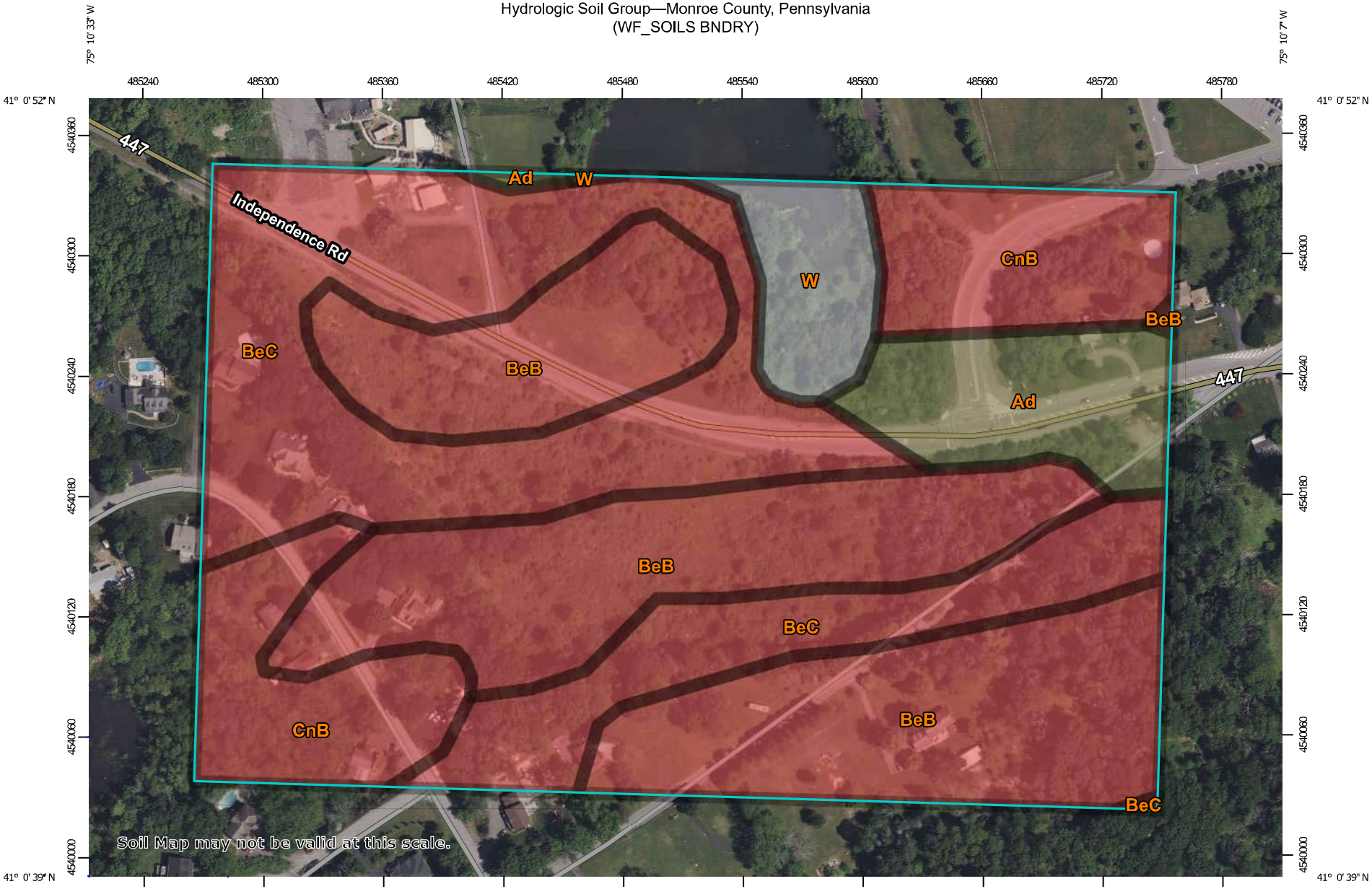
Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
3—Unnamed Tributaries to Brodhead Creek	Basins, LR 45060 Bridge to Mouth	Monroe	TSF, MF	None
3—Sambo Creek	Basin	Monroe	CWF, MF	None
3—McMichael Creek	Basin, Source to T434	Monroe	EV, MF	None
3—McMichael Creek	Basin, T434 to Pocono Creek	Monroe	HQ-CWF, MF	None
4—Pocono Creek				
5—Dry Sawmill Run	Basin, Source to Sand Spring Run	Monroe	HQ-CWF, MF	None
6—Sand Spring Run	Basin	Monroe	EV, MF	None
5—Dry Sawmill Run	Basin, Sand Spring Run to confluence with Wolf Swamp Run	Monroe	HQ-CWF, MF	None
5—Wolf Swamp Run	Basin, Source to a Confluence Point (41°3′35.2″N; 75°22′2.4″W) approximately 185 meters upstream of the mouth	Monroe	EV, MF	None
5—Wolf Swamp Run	Basin, Point of Confluence (41°3′35.2″N; 75°22′2.4″W) Downstream to Confluence with Dry Sawmill Run	Monroe	HQ-CWF, MF	None
4—Pocono Creek	Basin, Confluence of Dry Sawmill Run and Wolf Swamp Run to Mouth	Monroe	HQ-CWF, MF	None
3—McMichael Creek	Basin, Pocono Creek to Mouth	Monroe	TSF, MF	None
3—Marshall Creek	Basin	Monroe	HQ-CWF, MF	None
2—Unnamed Tributaries to Delaware River	Basins, Brodhead Creek to Lehigh River	Monroe-Northampton	CWF, MF	None

Hydrologic Soil Group—Monroe County, Pennsylvania
(WF_SOILS BNDRY)



Map Scale: 1:2,730 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Monroe County, Pennsylvania
Survey Area Data: Version 17, Sep 6, 2022

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

Date(s) aerial images were photographed: May 21, 2022—Jun 5, 2022

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ad	Alden mucky silt loam	C/D	2.7	7.4%
BeB	Benson-Rock outcrop complex, 0 to 8 percent slopes	D	14.7	39.9%
BeC	Benson-Rock outcrop complex, 8 to 25 percent slopes	D	12.4	33.7%
CnB	Chippewa and Norwich soils, 0 to 8 percent slopes, extremely stony	D	5.4	14.5%
W	Water		1.6	4.5%
Totals for Area of Interest			**36.9**	**100.0%**

Description

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

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

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

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

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

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

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

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A DIVISION OF UTRS
Civil Engineers • Environmental Engineers •Surveyors

BY A.W.
DATE 8/13/24 10:39 AM
CHECKED
DATE
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Project # 10842.004

Reduction Zone B1 requirements	Post	2yr	5 yr	10 yr	25 yr	50 yr	100 yr
	Pre	1 yr	2 yr	5 yr	10 yr	25 yr	100 yr

	Predevelopment Q (cfs)						
Subarea	1 yr	2 yr	5 yr	10 yr	25 yr	50 yr	100 yr
On site pre N - 1S	0.42	0.60	0.88	1.14	1.55	1.94	2.41
On site post N - 17S	0.21	0.29	0.42	0.55	0.74	0.92	1.14
flow rate change	-0.21	-0.31	-0.46	-0.59	-0.81	-1.02	-1.27
On site pre S - 1S	0.53	0.76	1.12	1.44	1.97	2.46	3.05
Pre development - Onsite Only-3L	0.94	1.35	2.00	2.58	3.52	4.40	5.46
Required		0.94	1.35	2.00	2.58	3.52	5.46
flow rate change required		-0.41	-0.65	-0.58	-0.94	-0.88	0.00
Total Area Analyzed							
Off site Pass through N -4S	0.45	0.58	0.77	0.94	1.22	1.47	1.77
Off site Pass through S - 5S	0.43	0.53	0.68	0.81	1.02	1.20	1.43
Pre development - total 6L	1.85	2.46	3.45	4.33	5.75	7.07	8.65
flow rate required		2.05	2.80	3.75	4.81	6.19	8.65
Post Development - total - 20L	1.00	1.79	2.70	3.33	4.62	6.02	7.61
flow rate change	-0.82	-0.64	-0.73	-0.97	-1.07	-0.98	-0.98

Total Site	2 yr on site predevelopment	2,635 cf	0.06 Acre-ft
VOLUME DIFFERENCE	2 yr on site post development	3,936 cf	0.09 Acre-ft
difference to infiltrate		1,302 cf	0.03 Acre-ft
difference infiltrated			
Basin		2,751 cf	0.06 Acre-ft
Difference		-1,449 cf	-0.03 Acre-ft

NOAA Atlas 14, Volume 2, Version 3
Location name: East Stroudsburg, Pennsylvania, USA*
Latitude: 41.0337°, Longitude: -75.1431°
Elevation: 504 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.328** (0.292-0.368)	**0.393** (0.350-0.441)	**0.474** (0.420-0.532)	**0.540** (0.477-0.604)	**0.632** (0.553-0.706)	**0.711** (0.617-0.795)	**0.799** (0.687-0.894)	**0.897** (0.761-1.01)	**1.05** (0.874-1.18)	**1.17** (0.965-1.34)
10-min	**0.516** (0.460-0.578)	**0.619** (0.552-0.696)	**0.745** (0.661-0.836)	**0.846** (0.748-0.947)	**0.983** (0.860-1.10)	**1.10** (0.955-1.23)	**1.23** (1.06-1.37)	**1.37** (1.16-1.54)	**1.58** (1.32-1.79)	**1.76** (1.45-2.01)
15-min	**0.637** (0.568-0.714)	**0.766** (0.682-0.860)	**0.926** (0.822-1.04)	**1.05** (0.931-1.18)	**1.23** (1.08-1.37)	**1.38** (1.20-1.54)	**1.54** (1.32-1.72)	**1.72** (1.46-1.93)	**1.98** (1.66-2.24)	**2.21** (1.82-2.52)
30-min	**0.856** (0.762-0.959)	**1.04** (0.926-1.17)	**1.29** (1.14-1.45)	**1.49** (1.32-1.67)	**1.77** (1.55-1.98)	**2.01** (1.75-2.25)	**2.28** (1.96-2.55)	**2.57** (2.18-2.89)	**3.03** (2.53-3.43)	**3.42** (2.81-3.90)
60-min	**1.06** (0.940-1.18)	**1.29** (1.15-1.45)	**1.63** (1.45-1.83)	**1.91** (1.69-2.14)	**2.32** (2.03-2.60)	**2.68** (2.33-3.00)	**3.08** (2.65-3.45)	**3.54** (3.01-3.98)	**4.25** (3.55-4.81)	**4.89** (4.02-5.57)
2-hr	**1.28** (1.15-1.42)	**1.55** (1.40-1.74)	**1.97** (1.77-2.20)	**2.31** (2.06-2.58)	**2.84** (2.52-3.16)	**3.32** (2.92-3.71)	**3.88** (3.39-4.33)	**4.54** (3.92-5.09)	**5.59** (4.74-6.31)	**6.57** (5.48-7.46)
3-hr	**1.42** (1.28-1.58)	**1.72** (1.55-1.91)	**2.14** (1.93-2.38)	**2.50** (2.25-2.78)	**3.07** (2.73-3.39)	**3.58** (3.16-3.96)	**4.16** (3.63-4.63)	**4.86** (4.19-5.42)	**5.97** (5.04-6.71)	**6.99** (5.82-7.91)
6-hr	**1.84** (1.67-2.05)	**2.21** (2.01-2.46)	**2.72** (2.47-3.02)	**3.17** (2.86-3.51)	**3.87** (3.46-4.29)	**4.52** (4.00-5.02)	**5.28** (4.61-5.87)	**6.19** (5.33-6.91)	**7.65** (6.46-8.59)	**9.01** (7.47-10.2)
12-hr	**2.30** (2.08-2.56)	**2.77** (2.51-3.08)	**3.43** (3.10-3.81)	**4.01** (3.61-4.46)	**4.94** (4.39-5.47)	**5.79** (5.09-6.43)	**6.80** (5.91-7.56)	**8.00** (6.86-8.94)	**9.94** (8.36-11.2)	**11.8** (9.70-13.3)
24-hr	**2.75** (2.54-3.02)	**3.30** (3.05-3.62)	**4.11** (3.78-4.50)	**4.81** (4.41-5.25)	**5.91** (5.37-6.43)	**6.92** (6.24-7.52)	**8.12** (7.26-8.79)	**9.54** (8.42-10.3)	**11.8** (10.3-12.7)	**13.9** (11.9-15.0)
2-day	**3.23** (2.99-3.53)	**3.88** (3.59-4.25)	**4.81** (4.44-5.26)	**5.62** (5.16-6.13)	**6.89** (6.29-7.49)	**8.05** (7.29-8.74)	**9.42** (8.44-10.2)	**11.0** (9.78-11.9)	**13.6** (11.9-14.7)	**16.0** (13.8-17.3)
3-day	**3.40** (3.15-3.70)	**4.07** (3.77-4.44)	**5.02** (4.65-5.47)	**5.86** (5.40-6.36)	**7.16** (6.55-7.75)	**8.35** (7.59-9.03)	**9.74** (8.77-10.5)	**11.4** (10.2-12.3)	**14.1** (12.3-15.1)	**16.5** (14.3-17.7)
4-day	**3.56** (3.30-3.86)	**4.26** (3.96-4.63)	**5.24** (4.86-5.68)	**6.09** (5.63-6.59)	**7.43** (6.82-8.01)	**8.65** (7.89-9.31)	**10.1** (9.10-10.8)	**11.8** (10.5-12.6)	**14.5** (12.8-15.5)	**17.0** (14.8-18.2)
7-day	**4.21** (3.91-4.58)	**5.03** (4.67-5.47)	**6.14** (5.69-6.66)	**7.10** (6.56-7.70)	**8.60** (7.90-9.29)	**9.96** (9.09-10.7)	**11.5** (10.4-12.4)	**13.4** (12.0-14.3)	**16.3** (14.4-17.4)	**18.9** (16.5-20.2)
10-day	**4.87** (4.54-5.26)	**5.79** (5.40-6.26)	**6.99** (6.50-7.54)	**8.01** (7.43-8.63)	**9.56** (8.83-10.3)	**10.9** (10.1-11.8)	**12.5** (11.4-13.4)	**14.4** (13.0-15.4)	**17.2** (15.4-18.4)	**19.7** (17.5-21.1)
20-day	**6.58** (6.20-7.05)	**7.77** (7.31-8.31)	**9.12** (8.58-9.75)	**10.3** (9.62-11.0)	**12.0** (11.2-12.7)	**13.4** (12.5-14.3)	**15.1** (13.9-16.0)	**16.9** (15.5-18.0)	**19.7** (17.9-20.9)	**22.1** (19.9-23.5)
30-day	**8.19** (7.73-8.71)	**9.63** (9.08-10.2)	**11.1** (10.5-11.8)	**12.3** (11.6-13.1)	**14.1** (13.3-15.0)	**15.7** (14.7-16.6)	**17.4** (16.2-18.4)	**19.2** (17.8-20.3)	**22.0** (20.2-23.2)	**24.3** (22.2-25.7)
45-day	**10.4** (9.91-11.0)	**12.2** (11.6-12.9)	**13.8** (13.1-14.6)	**15.2** (14.4-16.0)	**17.1** (16.2-18.1)	**18.8** (17.7-19.8)	**20.5** (19.3-21.7)	**22.4** (21.0-23.7)	**25.2** (23.5-26.6)	**27.5** (25.4-29.1)
60-day	**12.5** (11.9-13.2)	**14.6** (13.9-15.4)	**16.5** (15.7-17.3)	**18.0** (17.1-18.9)	**20.2** (19.2-21.2)	**22.0** (20.8-23.1)	**23.9** (22.6-25.1)	**26.0** (24.5-27.3)	**29.0** (27.1-30.5)	**31.5** (29.3-33.1)

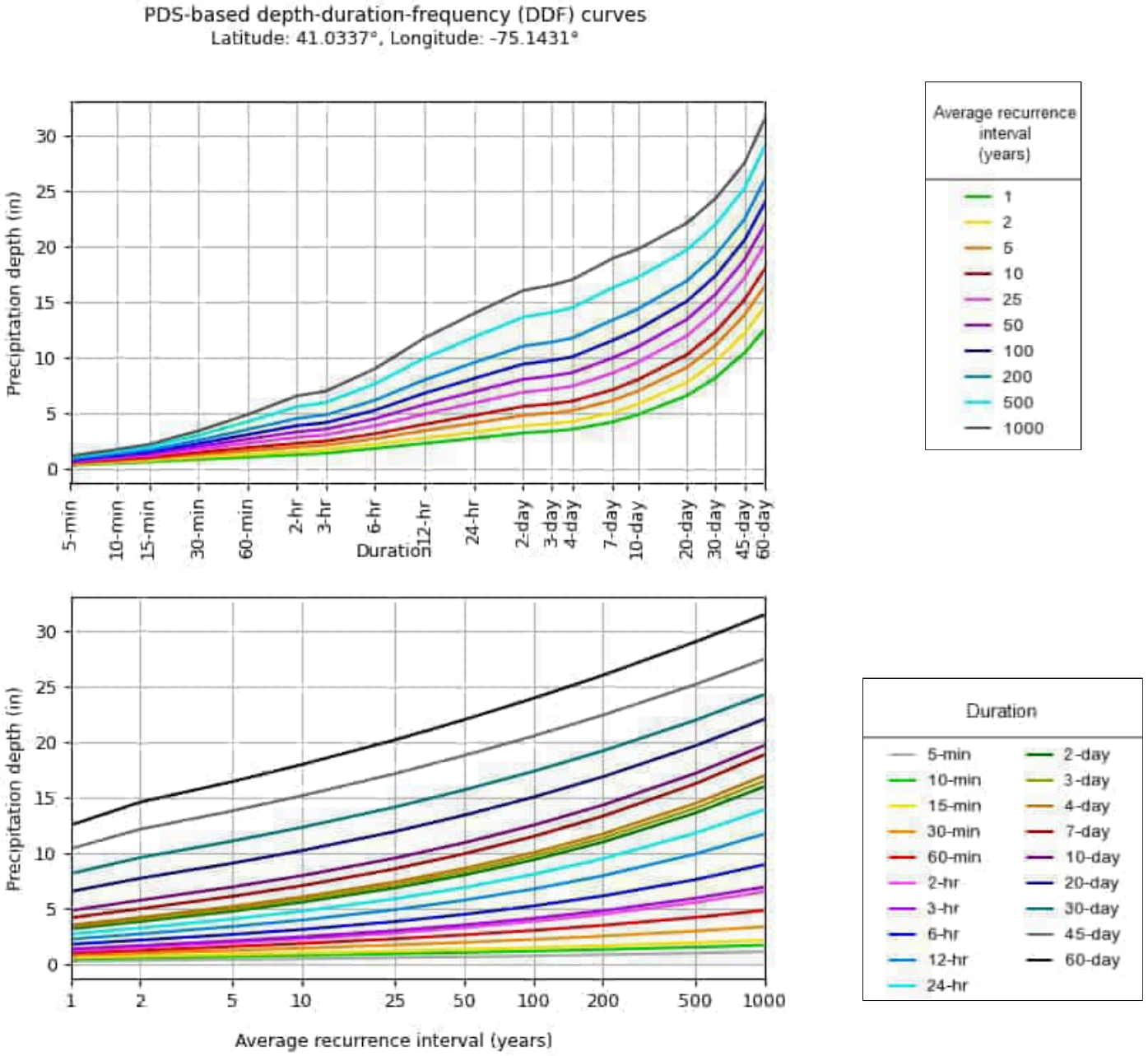
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

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

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical



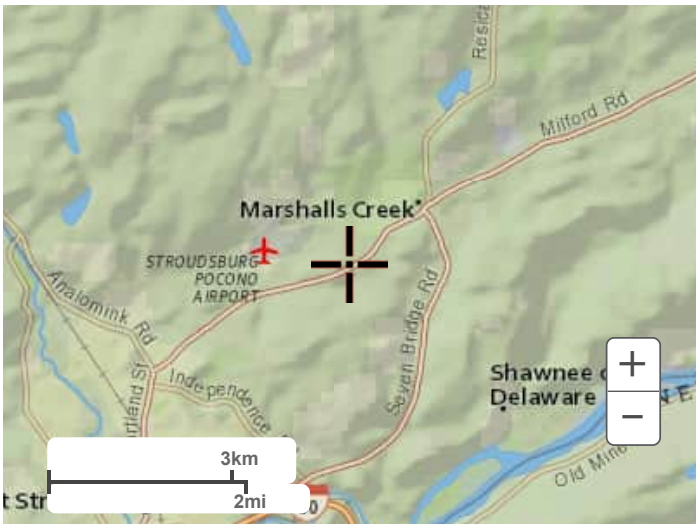
NOAA Atlas 14, Volume 2, Version 3

Created (GMT): Tue Aug 13 14:17:51 2024

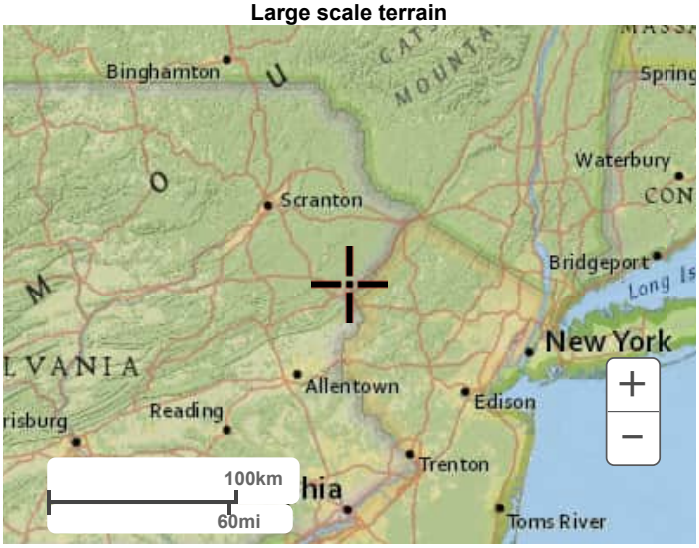
Back to Top

Maps & aerials

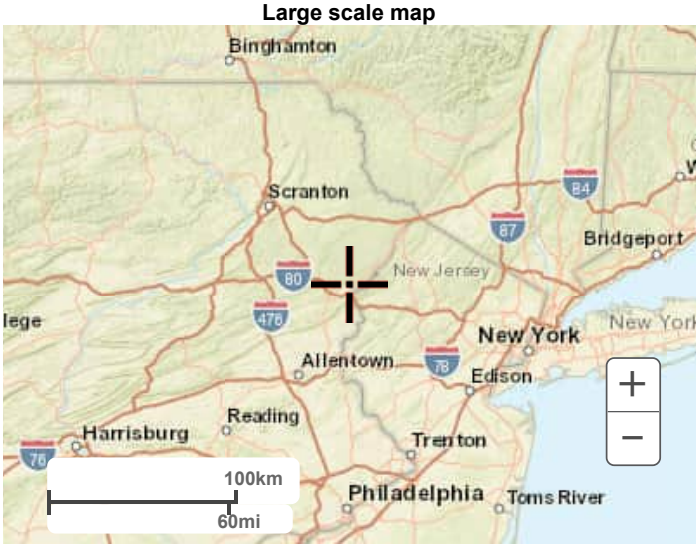
Small scale terrain



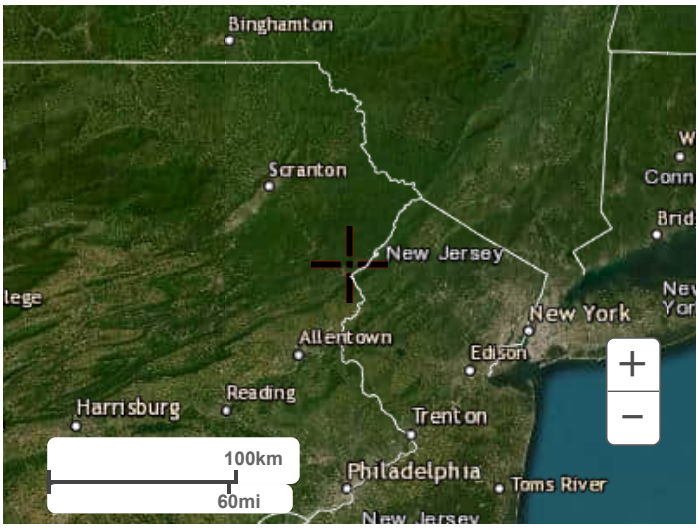
Large scale terrain



Large scale map



Large scale aerial



Back to Top

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Widmer
Smithfield Township, Monroe County
Subarea 103 - B-1 - Low Area to Stroudsburg Pocono Airport to Lake Vahalla to Sambo Creek
Project # 10842.004
8/13/24 10:45

CURVE NUMBER CALCULATIONS
Weighted CN = Total CN*area/Total Area
check by
by Ann Wingert

Basin	Area SF	Area Acre	Soil Type	Cover	CN	CN * Area (Acre)	Tc (min.)
Existing Conditions							
Northern DP							
Offsite	3,341	0.077	D	Pave	98.0	7.52	
Offsite	844	0.019	D	Meadow	78.0	1.51	
Onsite	8,706	0.200	D	Woods	77.0	15.39	
Offsite - dist	2,153	0.049	D	Woods	77.0	3.81	
Offsite	2,984	0.069	D	Woods	77.0	5.27	
TOTAL	18,028	0.414				33.50	5
					80.9	Weighted CN	
Southern DP							
Offsite	4,163	0.096	D	Pave	98.0	9.37	
Offsite	1,267	0.029	D	Meadow	78.0	2.27	
Onsite	203	0.005	D	Meadow	78.0	0.36	
Onsite	13,560	0.311	D	Woods	77.0	23.97	
Offsite	0	0.000	D	Woods	77.0	0.00	
TOTAL	19,193	0.441				35.97	5
					81.6	Weighted CN	

Total Existing Areas by Cover							%
	27,403	0.63	D	Woods	77.0		73.62%
	2,314	0.05	D	Meadow	78.0		6.22%
	7,504	0.17	D	Pave	98.0		
Total Areas	37,221	0.85					
Check	37,221						
Total Impervious							0.00%
Total Onsite	24,622	0.57					

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Widmer — CURVE NUMBER CALCULATIONS
Smithfield Township, Monroe County — Weighted CN = Total CN*area/Total Area
Subarea 103 - B-1 - Low Area to Stroudsburg Pocono Airport to Lake Vahalla to Sambo Creek
Project # 10842.004 — check by
8/13/24 10:45 — by Ann Wingert

Basin	Area SF	Area Acre	Soil Type	Cover	CN	CN * Area (Acre)	Tc (min.)
Proposed to Basin							
offsite	4,622	0.106	D	Pave	98.0	10.40	
On site	5,023	0.115	D	Meadow	78.0	8.99	
On site	1,008	0.023	D	Building	98.0	2.27	
On site	6,528	0.150	D	Pave	98.0	14.69	
On site	4,084	0.094	D	Lawn	82.0	7.69	
Offsite	1,476	0.034	D	Meadow	78.0	2.64	
TOTAL	22,741	0.522				46.68	5
					89.4	Weighted CN	
Total Imp.	7,536	0.173					
total on site	16,643	0.382					
Bypass							
North- On	2,893	0.066	D	Meadow	78.0		
North - Off	3,573	0.082	D	Woods	77.0		
North - Off - d	2,153	0.049	D	Meadow	78.0		
North - off	2,660	0.061	D	Pave	98.0		
South - on	2,932	0.067	D	Meadow	78.0		
South - off	46	0.001	D	Meadow	78.0		
offsite	223	0.005	D	Pave	98.0	0.50	
TOTAL	14,480	0.332				0.50	5
						Weighted CN	
Total Imp.							

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Widmer — CURVE NUMBER CALCULATIONS
Smithfield Township, Monroe County — Weighted CN = Total CN*area/Total Area
Subarea 103 - B-1 - Low Area to Stroudsburg Pocono Airport to Lake Vahalla to Sambo Creek
Project # 10842.004 — check by
8/13/24 10:45 — by Ann Wingert

Basin	Area SF	Area Acre	Soil Type	Cover	CN	CN * Area (Acre)	Tc (min.)
Total Proposed Areas by Cover							%
	3,573	0.08	D	Woods	77.0		9.60%
	14,523	0.33	D	Meadow	78.0		
	4,084	0.094	D	Lawn	82.0		10.97%
	14,033	0.32	D	Pave	98.0		37.70%
	1,008	0.02	D	Building	98.0		
Total Areas	37,221	0.85					
Check	37,221						
	0						
Total Impervious	15,041	0.35					40.41%

Chapters 2 & 6 of TR-55

PROJECT: **Widmer** by Ann Wingert

Drainage Area: **total site disturbed area** 8/13/24 10:39 AM

Type II 24 hr. storm - 2 Yr. Rainfall **3.3** **in** checked by:

Project # 10842.004 Ordinance requirement

Total LED Area - Existing - Onsite & disturbed off site.

Off Site											
Woods	D	2,153	0.049	0.00008	77.0	0.005947	3.0	0.6	1.28	0.00529	230
On Site											
Woods	D	22,266	0.511	0.00080	77.0	0.061499	3.0	0.6	1.28	0.05468	2,382
Meadow	D	203	0.005	0.00001	78.0	0.000568	2.8	0.6	1.35	0.00052	23
TOTAL:		24,622	0.565	0.00088	77.01	0.06801				0.06049	2,635
Proposed Onsite Area and disturbed offsite											
Meadow	D	13,002	0.298	0.00047	78.0	0.036378	2.8	0.6	1.35	0.03351	1,460
Lawn	D	4,084	0.094	0.00015	82.0	0.012012	2.2	0.4	1.62	0.01265	551
Pave	D	6,528	0.150	0.00023	98.0	0.022948	0.2	0.0	3.07	0.03830	1,668
Building	D	1,008	0.023	0.00004	98.0	0.003543	0.2	0.0	3.07	0.00591	258
TOTAL:		24,622	0.565	0.00088		0.07488				0.09037	3,936

Volume Increase 1,302

2-Year volume Increase = Developed Conditions Runoff Volume - Existing Conditions Runoff Volume

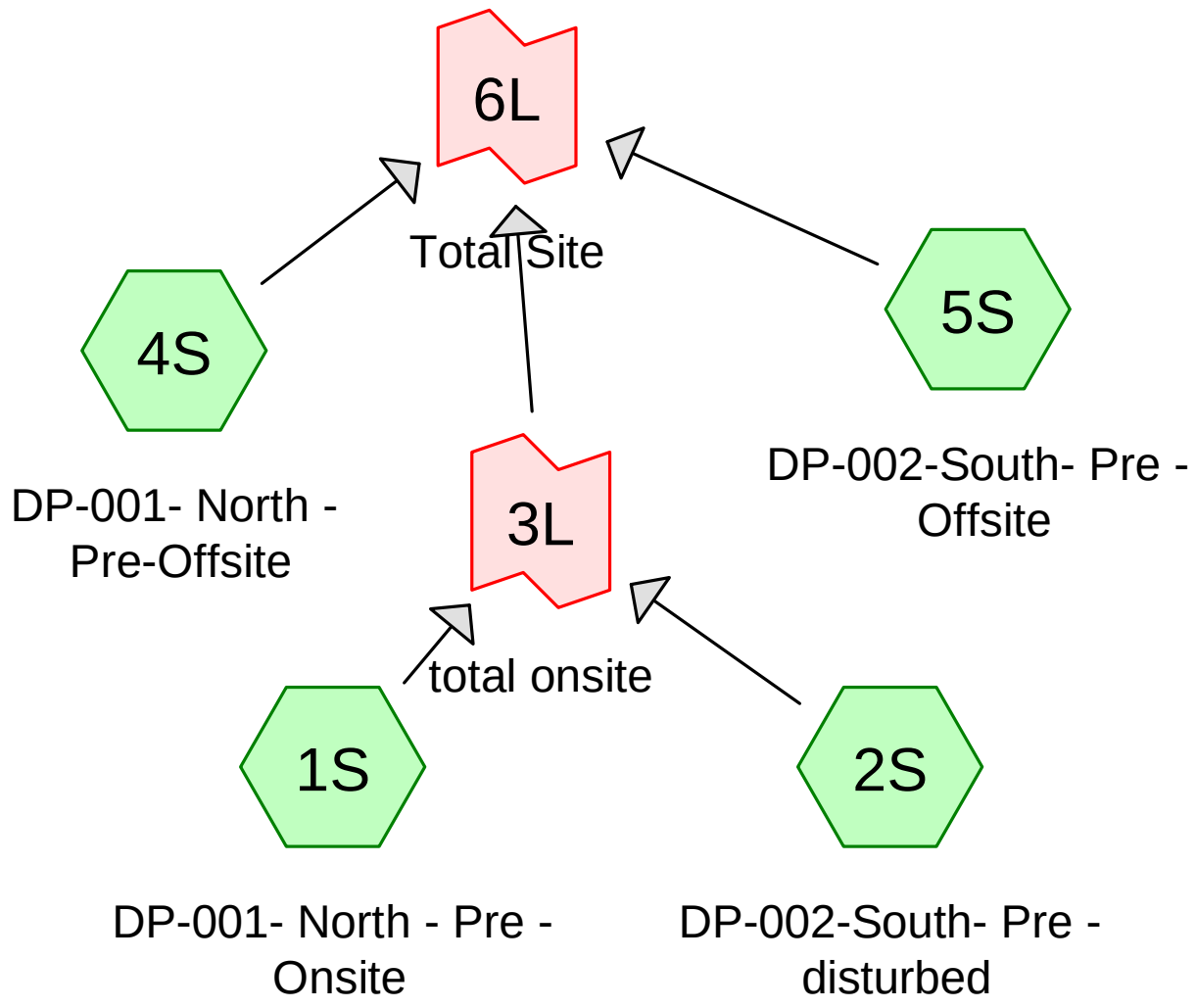
*Indicates grass areas that drain onto pervious pavement and rain gardens

1. Runoff (in) = $Q = (P - 0.2S)^2 / (P + 0.8S)$ where
   P = 2-Year Rainfall (in)
   S = (1000/ CN)-10

2. Runoff Volume (CF) = Q x Area x 1/12
   Q = Runoff (in)
   Area = Land use area (sq. ft.)

Note: Runoff Volume must be calculated for EACH land use type/condition and HSGI.
The use of a weighted CN value for volume calculations is not acceptable.

S=(25400/CN-254)/254
Vr (acre-feet) = Q(in)*A(SM)*53.33(acre-ft./in-SM)



Subcat Reach Pond Link

Routing Diagram for Widmer-pre
Prepared by RKR Hess, Divn Of UTRS Inc, Printed 8/13/2024

Summary for Subcatchment 1S: DP-001- North - Pre - Onsite

Runoff = 0.42 cfs @ 11.97 hrs, Volume= 816 cf, Depth= 0.90"
Routed to Link 3L : total onsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.75"

	Area (sf)	CN	Description
*	8,706	77	D Woods
*	1,855	77	D Woods - Offstie gravel
*	298	77	D-Woods - Offsite gravel
	10,859		Weighted Average
	10,859		100.00% Pervious Area

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

Summary for Subcatchment 2S: DP-002-South- Pre - disturbed

Runoff = 0.53 cfs @ 11.97 hrs, Volume= 1,035 cf, Depth= 0.90"
Routed to Link 3L : total onsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.75"

	Area (sf)	CN	Description
*	13,560	77	D Woods
*	203	78	D Meadow
	13,763		Weighted Average
	13,763		100.00% Pervious Area

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

Summary for Link 3L: total onsite

Inflow Area = 24,622 sf, 0.00% Impervious, Inflow Depth = 0.90" for 1-yr event
Inflow = 0.94 cfs @ 11.97 hrs, Volume= 1,851 cf
Primary = 0.94 cfs @ 11.97 hrs, Volume= 1,851 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 6L : Total Site

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 4S: DP-001- North - Pre-Offsite

Runoff = 0.45 cfs @ 11.96 hrs, Volume= 993 cf, Depth= 1.66"
Routed to Link 6L : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.75"

	Area (sf)	CN	Description
*	844	78	D Meadow - Offsite
*	3,341	98	SR 2012
*	2,984	77	D Woods
	7,169		Weighted Average
	3,828		53.40% Pervious Area
	3,341		46.60% Impervious Area

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

Summary for Subcatchment 5S: DP-002-South- Pre - Offsite

Runoff = 0.43 cfs @ 11.96 hrs, Volume= 975 cf, Depth= 2.15"
Routed to Link 6L : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.75"

	Area (sf)	CN	Description
*	1,267	78	D Meadow - Offsite
*	4,163	98	SR 2012
	5,430		Weighted Average
	1,267		23.33% Pervious Area
	4,163		76.67% Impervious Area

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

Summary for Link 6L: Total Site

Inflow Area = 37,221 sf, 20.16% Impervious, Inflow Depth = 1.23" for 1-yr event
Inflow = 1.83 cfs @ 11.96 hrs, Volume= 3,818 cf
Primary = 1.83 cfs @ 11.96 hrs, Volume= 3,818 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 1S: DP-001- North - Pre - Onsite

Runoff = 0.60 cfs @ 11.97 hrs, Volume= 1,162 cf, Depth= 1.28"
Routed to Link 3L : total onsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	8,706	77	D Woods
*	1,855	77	D Woods - Offstie gravel
*	298	77	D-Woods - Offsite gravel
	10,859		Weighted Average
	10,859		100.00% Pervious Area

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

Summary for Subcatchment 2S: DP-002-South- Pre - disturbed

Runoff = 0.76 cfs @ 11.97 hrs, Volume= 1,473 cf, Depth= 1.28"
Routed to Link 3L : total onsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	13,560	77	D Woods
*	203	78	D Meadow
	13,763		Weighted Average
	13,763		100.00% Pervious Area

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

Summary for Link 3L: total onsite

Inflow Area = 24,622 sf, 0.00% Impervious, Inflow Depth = 1.28" for 2-yr event
Inflow = 1.35 cfs @ 11.97 hrs, Volume= 2,635 cf
Primary = 1.35 cfs @ 11.97 hrs, Volume= 2,635 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 6L : Total Site

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 4S: DP-001- North - Pre-Offsite

Runoff = 0.58 cfs @ 11.96 hrs, Volume= 1,268 cf, Depth= 2.12"
Routed to Link 6L : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	844	78	D Meadow - Offsite
*	3,341	98	SR 2012
*	2,984	77	D Woods
	7,169		Weighted Average
	3,828		53.40% Pervious Area
	3,341		46.60% Impervious Area

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

Summary for Subcatchment 5S: DP-002-South- Pre - Offsite

Runoff = 0.53 cfs @ 11.96 hrs, Volume= 1,206 cf, Depth= 2.67"
Routed to Link 6L : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	1,267	78	D Meadow - Offsite
*	4,163	98	SR 2012
	5,430		Weighted Average
	1,267		23.33% Pervious Area
	4,163		76.67% Impervious Area

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

Summary for Link 6L: Total Site

Inflow Area = 37,221 sf, 20.16% Impervious, Inflow Depth = 1.65" for 2-yr event
Inflow = 2.46 cfs @ 11.96 hrs, Volume= 5,109 cf
Primary = 2.46 cfs @ 11.96 hrs, Volume= 5,109 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 1S: DP-001- North - Pre - Onsite

Runoff = 0.88 cfs @ 11.96 hrs, Volume= 1,718 cf, Depth= 1.90"
Routed to Link 3L : total onsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.11"

	Area (sf)	CN	Description
*	8,706	77	D Woods
*	1,855	77	D Woods - Offstie gravel
*	298	77	D-Woods - Offsite gravel
	10,859		Weighted Average
	10,859		100.00% Pervious Area

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

Summary for Subcatchment 2S: DP-002-South- Pre - disturbed

Runoff = 1.12 cfs @ 11.96 hrs, Volume= 2,179 cf, Depth= 1.90"
Routed to Link 3L : total onsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.11"

	Area (sf)	CN	Description
*	13,560	77	D Woods
*	203	78	D Meadow
	13,763		Weighted Average
	13,763		100.00% Pervious Area

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

Summary for Link 3L: total onsite

Inflow Area = 24,622 sf, 0.00% Impervious, Inflow Depth = 1.90" for 5-yr event
Inflow = 2.00 cfs @ 11.96 hrs, Volume= 3,896 cf
Primary = 2.00 cfs @ 11.96 hrs, Volume= 3,896 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 6L : Total Site

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 4S: DP-001- North - Pre-Offsite

Runoff = 0.77 cfs @ 11.96 hrs, Volume= 1,690 cf, Depth= 2.83"
Routed to Link 6L : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.11"

	Area (sf)	CN	Description
*	844	78	D Meadow - Offsite
*	3,341	98	SR 2012
*	2,984	77	D Woods
	7,169		Weighted Average
	3,828		53.40% Pervious Area
	3,341		46.60% Impervious Area

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

Summary for Subcatchment 5S: DP-002-South- Pre - Offsite

Runoff = 0.68 cfs @ 11.96 hrs, Volume= 1,553 cf, Depth= 3.43"
Routed to Link 6L : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.11"

	Area (sf)	CN	Description
*	1,267	78	D Meadow - Offsite
*	4,163	98	SR 2012
	5,430		Weighted Average
	1,267		23.33% Pervious Area
	4,163		76.67% Impervious Area

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

Summary for Link 6L: Total Site

Inflow Area = 37,221 sf, 20.16% Impervious, Inflow Depth = 2.30" for 5-yr event
Inflow = 3.45 cfs @ 11.96 hrs, Volume= 7,139 cf
Primary = 3.45 cfs @ 11.96 hrs, Volume= 7,139 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 1S: DP-001- North - Pre - Onsite

Runoff = 1.14 cfs @ 11.96 hrs, Volume= 2,230 cf, Depth= 2.46"
Routed to Link 3L : total onsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.81"

	Area (sf)	CN	Description
*	8,706	77	D Woods
*	1,855	77	D Woods - Offstie gravel
*	298	77	D-Woods - Offsite gravel
	10,859		Weighted Average
	10,859		100.00% Pervious Area

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

Summary for Subcatchment 2S: DP-002-South- Pre - disturbed

Runoff = 1.44 cfs @ 11.96 hrs, Volume= 2,828 cf, Depth= 2.47"
Routed to Link 3L : total onsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.81"

	Area (sf)	CN	Description
*	13,560	77	D Woods
*	203	78	D Meadow
	13,763		Weighted Average
	13,763		100.00% Pervious Area

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

Summary for Link 3L: total onsite

Inflow Area = 24,622 sf, 0.00% Impervious, Inflow Depth = 2.47" for 10-yr event
Inflow = 2.58 cfs @ 11.96 hrs, Volume= 5,059 cf
Primary = 2.58 cfs @ 11.96 hrs, Volume= 5,059 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 6L : Total Site

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 4S: DP-001- North - Pre-Offsite

Runoff = 0.94 cfs @ 11.96 hrs, Volume= 2,066 cf, Depth= 3.46"
Routed to Link 6L : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.81"

	Area (sf)	CN	Description
*	844	78	D Meadow - Offsite
*	3,341	98	SR 2012
*	2,984	77	D Woods
	7,169		Weighted Average
	3,828		53.40% Pervious Area
	3,341		46.60% Impervious Area

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

Summary for Subcatchment 5S: DP-002-South- Pre - Offsite

Runoff = 0.81 cfs @ 11.96 hrs, Volume= 1,856 cf, Depth= 4.10"
Routed to Link 6L : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.81"

	Area (sf)	CN	Description
*	1,267	78	D Meadow - Offsite
*	4,163	98	SR 2012
	5,430		Weighted Average
	1,267		23.33% Pervious Area
	4,163		76.67% Impervious Area

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

Summary for Link 6L: Total Site

Inflow Area = 37,221 sf, 20.16% Impervious, Inflow Depth = 2.90" for 10-yr event
Inflow = 4.33 cfs @ 11.96 hrs, Volume= 8,981 cf
Primary = 4.33 cfs @ 11.96 hrs, Volume= 8,981 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 1S: DP-001- North - Pre - Onsite

Runoff = 1.55 cfs @ 11.96 hrs, Volume= 3,077 cf, Depth= 3.40"
Routed to Link 3L : total onsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.91"

	Area (sf)	CN	Description
*	8,706	77	D Woods
*	1,855	77	D Woods - Offstie gravel
*	298	77	D-Woods - Offsite gravel
	10,859		Weighted Average
	10,859		100.00% Pervious Area

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

Summary for Subcatchment 2S: DP-002-South- Pre - disturbed

Runoff = 1.97 cfs @ 11.96 hrs, Volume= 3,902 cf, Depth= 3.40"
Routed to Link 3L : total onsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.91"

	Area (sf)	CN	Description
*	13,560	77	D Woods
*	203	78	D Meadow
	13,763		Weighted Average
	13,763		100.00% Pervious Area

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

Summary for Link 3L: total onsite

Inflow Area = 24,622 sf, 0.00% Impervious, Inflow Depth = 3.40" for 25-yr event
Inflow = 3.52 cfs @ 11.96 hrs, Volume= 6,979 cf
Primary = 3.52 cfs @ 11.96 hrs, Volume= 6,979 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 6L : Total Site

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 4S: DP-001- North - Pre-Offsite

Runoff = 1.22 cfs @ 11.96 hrs, Volume= 2,671 cf, Depth= 4.47"
Routed to Link 6L : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.91"

	Area (sf)	CN	Description
*	844	78	D Meadow - Offsite
*	3,341	98	SR 2012
*	2,984	77	D Woods
	7,169		Weighted Average
	3,828		53.40% Pervious Area
	3,341		46.60% Impervious Area

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

Summary for Subcatchment 5S: DP-002-South- Pre - Offsite

Runoff = 1.02 cfs @ 11.96 hrs, Volume= 2,337 cf, Depth= 5.17"
Routed to Link 6L : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.91"

	Area (sf)	CN	Description
*	1,267	78	D Meadow - Offsite
*	4,163	98	SR 2012
	5,430		Weighted Average
	1,267		23.33% Pervious Area
	4,163		76.67% Impervious Area

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

Summary for Link 6L: Total Site

Inflow Area = 37,221 sf, 20.16% Impervious, Inflow Depth = 3.86" for 25-yr event
Inflow = 5.75 cfs @ 11.96 hrs, Volume= 11,987 cf
Primary = 5.75 cfs @ 11.96 hrs, Volume= 11,987 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 1S: DP-001- North - Pre - Onsite

Runoff = 1.94 cfs @ 11.96 hrs, Volume= 3,886 cf, Depth= 4.29"
Routed to Link 3L : total onsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.92"

	Area (sf)	CN	Description
*	8,706	77	D Woods
*	1,855	77	D Woods - Offstie gravel
*	298	77	D-Woods - Offsite gravel
	10,859		Weighted Average
	10,859		100.00% Pervious Area

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

Summary for Subcatchment 2S: DP-002-South- Pre - disturbed

Runoff = 2.46 cfs @ 11.96 hrs, Volume= 4,927 cf, Depth= 4.30"
Routed to Link 3L : total onsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.92"

	Area (sf)	CN	Description
*	13,560	77	D Woods
*	203	78	D Meadow
	13,763		Weighted Average
	13,763		100.00% Pervious Area

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

Summary for Link 3L: total onsite

Inflow Area = 24,622 sf, 0.00% Impervious, Inflow Depth = 4.29" for 50-yr event
Inflow = 4.40 cfs @ 11.96 hrs, Volume= 8,812 cf
Primary = 4.40 cfs @ 11.96 hrs, Volume= 8,812 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 6L : Total Site

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 4S: DP-001- North - Pre-Offsite

Runoff = 1.47 cfs @ 11.96 hrs, Volume= 3,237 cf, Depth= 5.42"
Routed to Link 6L : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.92"

	Area (sf)	CN	Description
*	844	78	D Meadow - Offsite
*	3,341	98	SR 2012
*	2,984	77	D Woods
	7,169		Weighted Average
	3,828		53.40% Pervious Area
	3,341		46.60% Impervious Area

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

Summary for Subcatchment 5S: DP-002-South- Pre - Offsite

Runoff = 1.20 cfs @ 11.96 hrs, Volume= 2,783 cf, Depth= 6.15"
Routed to Link 6L : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.92"

	Area (sf)	CN	Description
*	1,267	78	D Meadow - Offsite
*	4,163	98	SR 2012
	5,430		Weighted Average
	1,267		23.33% Pervious Area
	4,163		76.67% Impervious Area

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

Summary for Link 6L: Total Site

Inflow Area = 37,221 sf, 20.16% Impervious, Inflow Depth = 4.78" for 50-yr event
Inflow = 7.07 cfs @ 11.96 hrs, Volume= 14,832 cf
Primary = 7.07 cfs @ 11.96 hrs, Volume= 14,832 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 1S: DP-001- North - Pre - Onsite

Runoff = 2.41 cfs @ 11.96 hrs, Volume= 4,873 cf, Depth= 5.38"
Routed to Link 3L : total onsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=8.12"

	Area (sf)	CN	Description
*	8,706	77	D Woods
*	1,855	77	D Woods - Offstie gravel
*	298	77	D-Woods - Offsite gravel
	10,859		Weighted Average
	10,859		100.00% Pervious Area

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

Summary for Subcatchment 2S: DP-002-South- Pre - disturbed

Runoff = 3.05 cfs @ 11.96 hrs, Volume= 6,178 cf, Depth= 5.39"
Routed to Link 3L : total onsite

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=8.12"

	Area (sf)	CN	Description
*	13,560	77	D Woods
*	203	78	D Meadow
	13,763		Weighted Average
	13,763		100.00% Pervious Area

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

Summary for Link 3L: total onsite

Inflow Area = 24,622 sf, 0.00% Impervious, Inflow Depth = 5.39" for 100-yr event
Inflow = 5.46 cfs @ 11.96 hrs, Volume= 11,050 cf
Primary = 5.46 cfs @ 11.96 hrs, Volume= 11,050 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 6L : Total Site

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 4S: DP-001- North - Pre-Offsite

Runoff = 1.77 cfs @ 11.96 hrs, Volume= 3,920 cf, Depth= 6.56"
Routed to Link 6L : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=8.12"

	Area (sf)	CN	Description
*	844	78	D Meadow - Offsite
*	3,341	98	SR 2012
*	2,984	77	D Woods
	7,169		Weighted Average
	3,828		53.40% Pervious Area
	3,341		46.60% Impervious Area

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

Summary for Subcatchment 5S: DP-002-South- Pre - Offsite

Runoff = 1.43 cfs @ 11.96 hrs, Volume= 3,315 cf, Depth= 7.33"
Routed to Link 6L : Total Site

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=8.12"

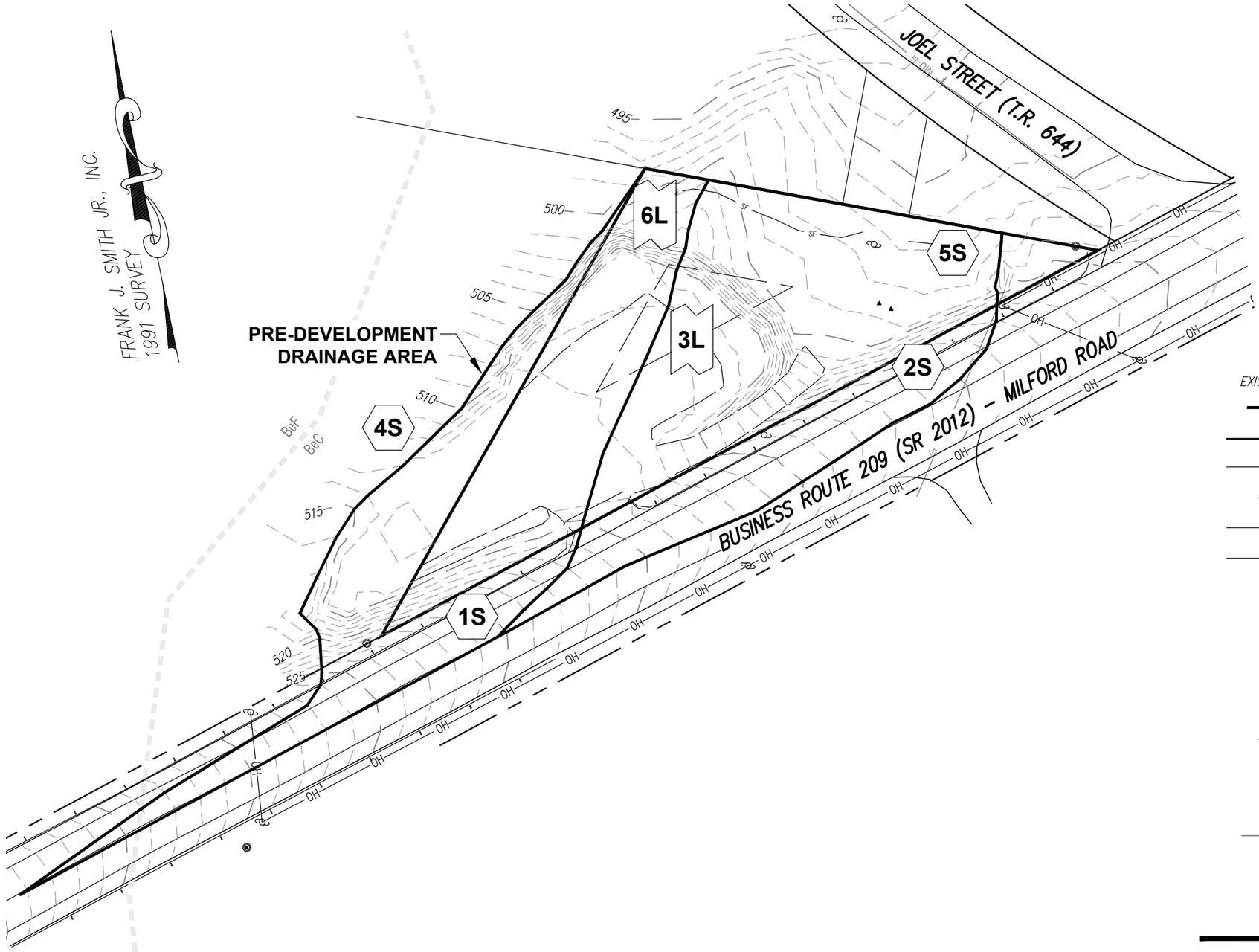
	Area (sf)	CN	Description
*	1,267	78	D Meadow - Offsite
*	4,163	98	SR 2012
	5,430		Weighted Average
	1,267		23.33% Pervious Area
	4,163		76.67% Impervious Area

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

Summary for Link 6L: Total Site

Inflow Area = 37,221 sf, 20.16% Impervious, Inflow Depth = 5.89" for 100-yr event
Inflow = 8.65 cfs @ 11.96 hrs, Volume= 18,285 cf
Primary = 8.65 cfs @ 11.96 hrs, Volume= 18,285 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs



LEGEND

EXISTING FEATURES LABELED WITH SLANTED TEXT

- PROPERTY LINE
- RIGHT OF WAY
- ADJOINING PROPERTY LINE
- EXISTING CONTOUR
- EXISTING STONE
- EXISTING PAVEMENT
- EXISTING GUIDE RAIL
- EXISTING UTILITY POLE
- EXISTING GUY WIRE
- EXISTING OVERHEAD UTILITY LINE
- ST — EXISTING STORM SEWER
- SF — EXISTING SILT FENCE
- SwC / WxB — SOILS BOUNDARY & DESIGNATION
- MO-G — EXISTING SANITARY SEWER GREEN P.A ONE CALL MARK OUT

DRAINAGE AREA LEGEND

- PRE-DEVELOPMENT DRAINAGE AREA
- 17S — DRAINAGE AREA/SUBCATCHMENT FROM HYDROCAD ROUTING
- 18L — LINK/HYDROGRAPH COMBINATION FROM HYDROCAD ROUTING

GRAPHIC SCALE

50 0 25 50

(IN FEET)

1 INCH = 50 FT.

REVISIONS

AUTHORIZED USE: PERMITTING

RKR HESS
A DIVISION OF UTRS

Civil Engineers • Environmental Engineers • Surveyors
112 North Courtland Street, East Stroudsburg, Pa. 18301
Telephone (570) 421-1550, Fax (570) 421-6720

Website: www.rkrhess.com Email: info@rkrhess.com

PRE-DEVELOPEMENT DRAINAGE AREA
LAND DEVELOPMENT PLAN JOSEPH WIDMER

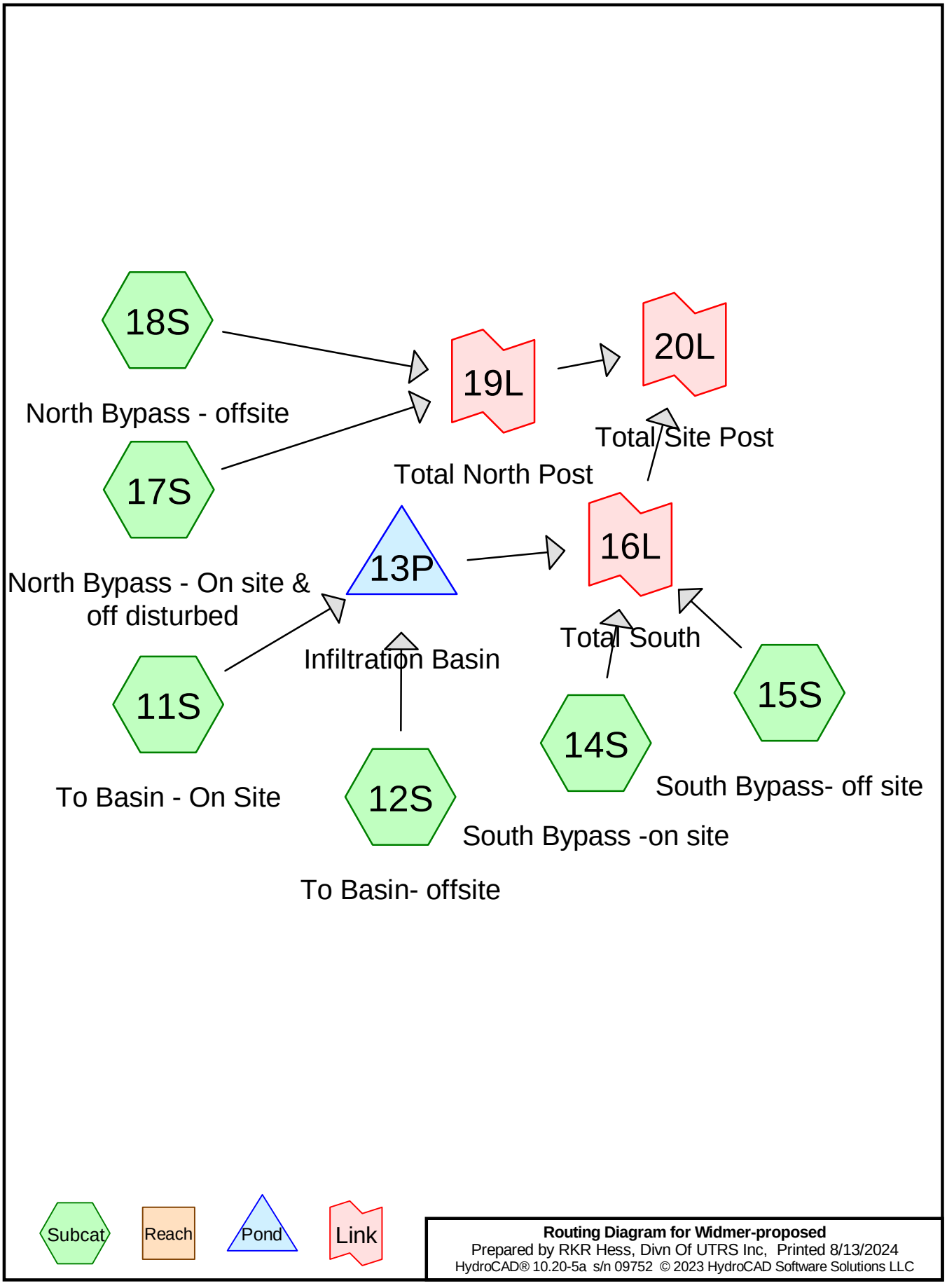
JOSEPH L. WIDMER
158 SMITHFIELD TRAILER COURT
EAST STROUDSBURG, PA 18301

SMITHFIELD TOWNSHIP MONROE COUNTY, PA

PROJECT MANAGER	DESIGNED BY
NMD	AMW
DRAWN BY	CHECKED BY
AMW/SG	
DATE	CHECKED DATE
8-19-2024	
SCALE	PROJECT NO.
AS SHOWN	10842.004

1 OF 2

Aug 14,24-2:37pm
P:\PA\Monroe Co\Smithfield Twp\Widmer Joseph\10842.004 Strmwtr Tests-LDP-ESC Apps Tasks 4-6\Engineering\Drawings\JWidmer_Layout_DA.dwg


18S
North Bypass - offsite
17S
North Bypass - On site &
off disturbed
11S
To Basin - On Site
19L
Total North Post
20L
Total Site Post
13P
Infiltration Basin
16L
Total South
12S
To Basin- offsite
South Bypass -on site
14S
15S
South Bypass- off site
Subcat
Reach
Pond
Link

Summary for Subcatchment 11S: To Basin - On Site

Runoff = 1.10 cfs @ 11.96 hrs, Volume= 2,385 cf, Depth= 1.72"
Routed to Pond 13P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.75"

	Area (sf)	CN	Description
*	5,023	78	D Meadow -
*	1,008	98	Building
*	6,528	98	Pave - Onsite
*	4,084	82	Lawn
	16,643		Weighted Average
	9,107		54.72% Pervious Area
	7,536		45.28% Impervious Area

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

Summary for Subcatchment 12S: To Basin- offsite

Runoff = 0.48 cfs @ 11.96 hrs, Volume= 1,088 cf, Depth= 2.14"
Routed to Pond 13P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.75"

	Area (sf)	CN	Description
*	1,476	78	D Meadow - Offsite
*	4,622	98	SR 2012
	6,098		Weighted Average
	1,476		24.20% Pervious Area
	4,622		75.80% Impervious Area

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

Summary for Pond 13P: Infiltration Basin

Inflow Area = 22,741 sf, 53.46% Impervious, Inflow Depth = 1.83" for 1-yr event
Inflow = 1.58 cfs @ 11.96 hrs, Volume= 3,473 cf
Outflow = 0.60 cfs @ 12.06 hrs, Volume= 2,925 cf, Atten= 62%, Lag= 6.1 min
Discarded = 0.05 cfs @ 12.06 hrs, Volume= 1,981 cf
Primary = 0.55 cfs @ 12.06 hrs, Volume= 945 cf
Routed to Link 16L : Total South

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 499.41' @ 12.06 hrs Surf.Area= 1,075 sf Storage= 1,480 cf

Plug-Flow detention time= 203.8 min calculated for 2,925 cf (84% of inflow)
Center-of-Mass det. time= 131.1 min (910.5 - 779.5)

Volume	Invert	Avail.Storage	Storage Description
#1	497.00'	5,992 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
497.00	252	0	0
498.00	508	380	380
499.00	883	696	1,076
500.00	1,348	1,116	2,191
501.00	1,889	1,619	3,810
502.00	2,476	2,183	5,992

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**15.0" Round Culvert** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 497.00' / 496.72' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Discarded	497.00'	**1.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 495.00'
#3	Device 1	499.00'	**9.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	500.10'	**1.9' long x 0.60' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	500.70'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	501.00'	**5.0' long + 2.0 '/' SideZ x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.05 cfs @ 12.06 hrs HW=499.41' (Free Discharge)
└**2=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=0.55 cfs @ 12.06 hrs HW=499.41' (Free Discharge)
└**1=Culvert** (Passes 0.55 cfs of 7.90 cfs potential flow)
  └**3=Orifice/Grate** (Orifice Controls 0.55 cfs @ 2.19 fps)
  └**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**5=Orifice/Grate** (Controls 0.00 cfs)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 14S: South Bypass -on site

Runoff = 0.12 cfs @ 11.97 hrs, Volume= 233 cf, Depth= 0.95"
Routed to Link 16L : Total South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.75"

	Area (sf)	CN	Description
*	2,932	78	D Meadow - Offsite
	2,932		100.00% Pervious Area

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

Summary for Subcatchment 15S: South Bypass- off site

Runoff = 0.02 cfs @ 11.96 hrs, Volume= 50 cf, Depth= 2.25"
Routed to Link 16L : Total South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.75"

	Area (sf)	CN	Description
*	46	78	D Meadow - Offsite
*	223	98	Pave - Rte 2012
	269		Weighted Average
	46		17.10% Pervious Area
	223		82.90% Impervious Area

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

Summary for Link 16L: Total South

Inflow Area = 25,942 sf, 47.73% Impervious, Inflow Depth = 0.57" for 1-yr event
Inflow = 0.61 cfs @ 12.05 hrs, Volume= 1,228 cf
Primary = 0.61 cfs @ 12.05 hrs, Volume= 1,228 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 20L : Total Site Post

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 17S: North Bypass - On site & off disturbed

Runoff = 0.21 cfs @ 11.97 hrs, Volume= 401 cf, Depth= 0.95"
Routed to Link 19L : Total North Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.75"

	Area (sf)	CN	Description
*	2,153	78	D Meadow - Offsite
*	2,893	78	D Meadow
	5,046		Weighted Average
	5,046		100.00% Pervious Area

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

Summary for Subcatchment 18S: North Bypass - offsite

Runoff = 0.38 cfs @ 11.96 hrs, Volume= 827 cf, Depth= 1.59"
Routed to Link 19L : Total North Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.75"

	Area (sf)	CN	Description
*	3,573	77	D Woods
*	2,660	98	S.R. 2012
	6,233		Weighted Average
	3,573		57.32% Pervious Area
	2,660		42.68% Impervious Area

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

Summary for Link 19L: Total North Post

Inflow Area = 11,279 sf, 23.58% Impervious, Inflow Depth = 1.31" for 1-yr event
Inflow = 0.58 cfs @ 11.96 hrs, Volume= 1,228 cf
Primary = 0.58 cfs @ 11.96 hrs, Volume= 1,228 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 20L : Total Site Post

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Link 20L: Total Site Post

Inflow Area = 37,221 sf, 40.41% Impervious, Inflow Depth = 0.79" for 1-yr event
Inflow = 1.00 cfs @ 12.01 hrs, Volume= 2,457 cf
Primary = 1.00 cfs @ 12.01 hrs, Volume= 2,457 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 11S: To Basin - On Site

Runoff = 1.40 cfs @ 11.96 hrs, Volume= 3,041 cf, Depth= 2.19"
Routed to Pond 13P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	5,023	78	D Meadow -
*	1,008	98	Building
*	6,528	98	Pave - Onsite
*	4,084	82	Lawn
	16,643		Weighted Average
	9,107		54.72% Pervious Area
	7,536		45.28% Impervious Area

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

Summary for Subcatchment 12S: To Basin- offsite

Runoff = 0.60 cfs @ 11.96 hrs, Volume= 1,347 cf, Depth= 2.65"
Routed to Pond 13P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	1,476	78	D Meadow - Offsite
*	4,622	98	SR 2012
	6,098		Weighted Average
	1,476		24.20% Pervious Area
	4,622		75.80% Impervious Area

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

Summary for Pond 13P: Infiltration Basin

Inflow Area = 22,741 sf, 53.46% Impervious, Inflow Depth = 2.32" for 2-yr event
Inflow = 2.00 cfs @ 11.96 hrs, Volume= 4,388 cf
Outflow = 1.09 cfs @ 12.04 hrs, Volume= 3,752 cf, Atten= 45%, Lag= 4.7 min
Discarded = 0.05 cfs @ 12.04 hrs, Volume= 2,114 cf
Primary = 1.04 cfs @ 12.04 hrs, Volume= 1,638 cf
Routed to Link 16L : Total South

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 499.62' @ 12.04 hrs Surf.Area= 1,170 sf Storage= 1,709 cf

Plug-Flow detention time= 172.0 min calculated for 3,752 cf (86% of inflow)
Center-of-Mass det. time= 103.3 min (879.5 - 776.3)

Volume	Invert	Avail.Storage	Storage Description
#1	497.00'	5,992 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
497.00	252	0	0
498.00	508	380	380
499.00	883	696	1,076
500.00	1,348	1,116	2,191
501.00	1,889	1,619	3,810
502.00	2,476	2,183	5,992

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**15.0" Round Culvert** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 497.00' / 496.72' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Discarded	497.00'	**1.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 495.00'
#3	Device 1	499.00'	**9.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	500.10'	**1.9' long x 0.60' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	500.70'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	501.00'	**5.0' long + 2.0 '/' SideZ x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.05 cfs @ 12.04 hrs HW=499.62' (Free Discharge)
└**2=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=1.04 cfs @ 12.04 hrs HW=499.62' (Free Discharge)
└**1=Culvert** (Passes 1.04 cfs of 8.34 cfs potential flow)
  └**3=Orifice/Grate** (Orifice Controls 1.04 cfs @ 2.67 fps)
  └**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**5=Orifice/Grate** (Controls 0.00 cfs)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 14S: South Bypass -on site

Runoff = 0.17 cfs @ 11.96 hrs, Volume= 329 cf, Depth= 1.35"
Routed to Link 16L : Total South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	2,932	78	D Meadow - Offsite
	2,932		100.00% Pervious Area

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

Summary for Subcatchment 15S: South Bypass- off site

Runoff = 0.03 cfs @ 11.96 hrs, Volume= 62 cf, Depth= 2.77"
Routed to Link 16L : Total South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	46	78	D Meadow - Offsite
*	223	98	Pave - Rte 2012
	269		Weighted Average
	46		17.10% Pervious Area
	223		82.90% Impervious Area

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

Summary for Link 16L: Total South

Inflow Area = 25,942 sf, 47.73% Impervious, Inflow Depth = 0.94" for 2-yr event
Inflow = 1.16 cfs @ 12.02 hrs, Volume= 2,029 cf
Primary = 1.16 cfs @ 12.02 hrs, Volume= 2,029 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 20L : Total Site Post

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 17S: North Bypass - On site & off disturbed

Runoff = 0.29 cfs @ 11.96 hrs, Volume= 566 cf, Depth= 1.35"
Routed to Link 19L : Total North Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	2,153	78	D Meadow - Offsite
*	2,893	78	D Meadow
	5,046		Weighted Average
	5,046		100.00% Pervious Area

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

Summary for Subcatchment 18S: North Bypass - offsite

Runoff = 0.49 cfs @ 11.96 hrs, Volume= 1,062 cf, Depth= 2.04"
Routed to Link 19L : Total North Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	3,573	77	D Woods
*	2,660	98	S.R. 2012
	6,233		Weighted Average
	3,573		57.32% Pervious Area
	2,660		42.68% Impervious Area

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

Summary for Link 19L: Total North Post

Inflow Area = 11,279 sf, 23.58% Impervious, Inflow Depth = 1.73" for 2-yr event
Inflow = 0.78 cfs @ 11.96 hrs, Volume= 1,629 cf
Primary = 0.78 cfs @ 11.96 hrs, Volume= 1,629 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 20L : Total Site Post

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Link 20L: Total Site Post

Inflow Area = 37,221 sf, 40.41% Impervious, Inflow Depth = 1.18" for 2-yr event
Inflow = 1.79 cfs @ 12.00 hrs, Volume= 3,658 cf
Primary = 1.79 cfs @ 12.00 hrs, Volume= 3,658 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 11S: To Basin - On Site

Runoff = 1.86 cfs @ 11.96 hrs, Volume= 4,042 cf, Depth= 2.91"
Routed to Pond 13P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.11"

	Area (sf)	CN	Description
*	5,023	78	D Meadow -
*	1,008	98	Building
*	6,528	98	Pave - Onsite
*	4,084	82	Lawn
	16,643		Weighted Average
	9,107		54.72% Pervious Area
	7,536		45.28% Impervious Area

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

Summary for Subcatchment 12S: To Basin- offsite

Runoff = 0.76 cfs @ 11.96 hrs, Volume= 1,735 cf, Depth= 3.41"
Routed to Pond 13P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.11"

	Area (sf)	CN	Description
*	1,476	78	D Meadow - Offsite
*	4,622	98	SR 2012
	6,098		Weighted Average
	1,476		24.20% Pervious Area
	4,622		75.80% Impervious Area

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

Summary for Pond 13P: Infiltration Basin

Inflow Area = 22,741 sf, 53.46% Impervious, Inflow Depth = 3.05" for 5-yr event
Inflow = 2.62 cfs @ 11.96 hrs, Volume= 5,777 cf
Outflow = 1.57 cfs @ 12.03 hrs, Volume= 5,030 cf, Atten= 40%, Lag= 4.3 min
Discarded = 0.06 cfs @ 12.03 hrs, Volume= 2,281 cf
Primary = 1.51 cfs @ 12.03 hrs, Volume= 2,749 cf
Routed to Link 16L : Total South

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 499.88' @ 12.03 hrs Surf.Area= 1,292 sf Storage= 2,033 cf

Plug-Flow detention time= 141.7 min calculated for 5,028 cf (87% of inflow)
Center-of-Mass det. time= 78.5 min (850.8 - 772.4)

Volume	Invert	Avail.Storage	Storage Description
#1	497.00'	5,992 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
497.00	252	0	0
498.00	508	380	380
499.00	883	696	1,076
500.00	1,348	1,116	2,191
501.00	1,889	1,619	3,810
502.00	2,476	2,183	5,992

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**15.0" Round Culvert** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 497.00' / 496.72' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Discarded	497.00'	**1.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 495.00'
#3	Device 1	499.00'	**9.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	500.10'	**1.9' long x 0.60' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	500.70'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	501.00'	**5.0' long + 2.0 '/' SideZ x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.06 cfs @ 12.03 hrs HW=499.88' (Free Discharge)
└**2=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=1.51 cfs @ 12.03 hrs HW=499.88' (Free Discharge)
- **1=Culvert** (Passes 1.51 cfs of 8.87 cfs potential flow)
  - **3=Orifice/Grate** (Orifice Controls 1.51 cfs @ 3.42 fps)
  - **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  - **5=Orifice/Grate** (Controls 0.00 cfs)
- **6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 14S: South Bypass -on site

Runoff = 0.25 cfs @ 11.96 hrs, Volume= 483 cf, Depth= 1.97"
Routed to Link 16L : Total South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.11"

	Area (sf)	CN	Description
*	2,932	78	D Meadow - Offsite
	2,932		100.00% Pervious Area

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

Summary for Subcatchment 15S: South Bypass- off site

Runoff = 0.03 cfs @ 11.96 hrs, Volume= 80 cf, Depth= 3.55"
Routed to Link 16L : Total South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.11"

	Area (sf)	CN	Description
*	46	78	D Meadow - Offsite
*	223	98	Pave - Rte 2012
	269		Weighted Average
	46		17.10% Pervious Area
	223		82.90% Impervious Area

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

Summary for Link 16L: Total South

Inflow Area = 25,942 sf, 47.73% Impervious, Inflow Depth = 1.53" for 5-yr event
Inflow = 1.71 cfs @ 12.01 hrs, Volume= 3,311 cf
Primary = 1.71 cfs @ 12.01 hrs, Volume= 3,311 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 20L : Total Site Post

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 17S: North Bypass - On site & off disturbed

Runoff = 0.42 cfs @ 11.96 hrs, Volume= 830 cf, Depth= 1.97"
Routed to Link 19L : Total North Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.11"

	Area (sf)	CN	Description
*	2,153	78	D Meadow - Offsite
*	2,893	78	D Meadow
	5,046		Weighted Average
	5,046		100.00% Pervious Area

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

Summary for Subcatchment 18S: North Bypass - offsite

Runoff = 0.66 cfs @ 11.96 hrs, Volume= 1,424 cf, Depth= 2.74"
Routed to Link 19L : Total North Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.11"

	Area (sf)	CN	Description
*	3,573	77	D Woods
*	2,660	98	S.R. 2012
	6,233		Weighted Average
	3,573		57.32% Pervious Area
	2,660		42.68% Impervious Area

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

Summary for Link 19L: Total North Post

Inflow Area = 11,279 sf, 23.58% Impervious, Inflow Depth = 2.40" for 5-yr event
Inflow = 1.08 cfs @ 11.96 hrs, Volume= 2,255 cf
Primary = 1.08 cfs @ 11.96 hrs, Volume= 2,255 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 20L : Total Site Post

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Link 20L: Total Site Post

Inflow Area = 37,221 sf, 40.41% Impervious, Inflow Depth = 1.79" for 5-yr event
Inflow = 2.70 cfs @ 11.98 hrs, Volume= 5,566 cf
Primary = 2.70 cfs @ 11.98 hrs, Volume= 5,566 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 11S: To Basin - On Site

Runoff = 2.26 cfs @ 11.96 hrs, Volume= 4,930 cf, Depth= 3.55"
Routed to Pond 13P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.81"

	Area (sf)	CN	Description
*	5,023	78	D Meadow -
*	1,008	98	Building
*	6,528	98	Pave - Onsite
*	4,084	82	Lawn
	16,643		Weighted Average
	9,107		54.72% Pervious Area
	7,536		45.28% Impervious Area

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

Summary for Subcatchment 12S: To Basin- offsite

Runoff = 0.91 cfs @ 11.96 hrs, Volume= 2,075 cf, Depth= 4.08"
Routed to Pond 13P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.81"

	Area (sf)	CN	Description
*	1,476	78	D Meadow - Offsite
*	4,622	98	SR 2012
	6,098		Weighted Average
	1,476		24.20% Pervious Area
	4,622		75.80% Impervious Area

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

Summary for Pond 13P: Infiltration Basin

Inflow Area = 22,741 sf, 53.46% Impervious, Inflow Depth = 3.70" for 10-yr event
Inflow = 3.17 cfs @ 11.96 hrs, Volume= 7,006 cf
Outflow = 1.87 cfs @ 12.03 hrs, Volume= 6,181 cf, Atten= 41%, Lag= 4.4 min
Discarded = 0.07 cfs @ 12.03 hrs, Volume= 2,406 cf
Primary = 1.80 cfs @ 12.03 hrs, Volume= 3,775 cf
Routed to Link 16L : Total South

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 500.09' @ 12.03 hrs Surf.Area= 1,398 sf Storage= 2,318 cf

Plug-Flow detention time= 125.0 min calculated for 6,181 cf (88% of inflow)
Center-of-Mass det. time= 65.7 min (835.3 - 769.6)

Volume	Invert	Avail.Storage	Storage Description
#1	497.00'	5,992 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
497.00	252	0	0
498.00	508	380	380
499.00	883	696	1,076
500.00	1,348	1,116	2,191
501.00	1,889	1,619	3,810
502.00	2,476	2,183	5,992

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**15.0" Round Culvert** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 497.00' / 496.72' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Discarded	497.00'	**1.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 495.00'
#3	Device 1	499.00'	**9.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	500.10'	**1.9' long x 0.60' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	500.70'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	501.00'	**5.0' long + 2.0 '/' SideZ x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.07 cfs @ 12.03 hrs HW=500.09' (Free Discharge)
└**2=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=1.80 cfs @ 12.03 hrs HW=500.09' (Free Discharge)
- **1=Culvert** (Passes 1.80 cfs of 9.28 cfs potential flow)
  - **3=Orifice/Grate** (Orifice Controls 1.80 cfs @ 4.08 fps)
  - **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  - **5=Orifice/Grate** (Controls 0.00 cfs)
- **6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 14S: South Bypass -on site

Runoff = 0.32 cfs @ 11.96 hrs, Volume= 623 cf, Depth= 2.55"
Routed to Link 16L : Total South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.81"

	Area (sf)	CN	Description
*	2,932	78	D Meadow - Offsite
	2,932		100.00% Pervious Area

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

Summary for Subcatchment 15S: South Bypass- off site

Runoff = 0.04 cfs @ 11.96 hrs, Volume= 95 cf, Depth= 4.23"
Routed to Link 16L : Total South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.81"

	Area (sf)	CN	Description
*	46	78	D Meadow - Offsite
*	223	98	Pave - Rte 2012
	269		Weighted Average
	46		17.10% Pervious Area
	223		82.90% Impervious Area

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

Summary for Link 16L: Total South

Inflow Area = 25,942 sf, 47.73% Impervious, Inflow Depth = 2.08" for 10-yr event
Inflow = 2.07 cfs @ 12.00 hrs, Volume= 4,494 cf
Primary = 2.07 cfs @ 12.00 hrs, Volume= 4,494 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 20L : Total Site Post

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 17S: North Bypass - On site & off disturbed

Runoff = 0.55 cfs @ 11.96 hrs, Volume= 1,073 cf, Depth= 2.55"
Routed to Link 19L : Total North Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.81"

	Area (sf)	CN	Description
*	2,153	78	D Meadow - Offsite
*	2,893	78	D Meadow
	5,046		Weighted Average
	5,046		100.00% Pervious Area

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

Summary for Subcatchment 18S: North Bypass - offsite

Runoff = 0.80 cfs @ 11.96 hrs, Volume= 1,748 cf, Depth= 3.36"
Routed to Link 19L : Total North Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.81"

	Area (sf)	CN	Description
*	3,573	77	D Woods
*	2,660	98	S.R. 2012
	6,233		Weighted Average
	3,573		57.32% Pervious Area
	2,660		42.68% Impervious Area

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

Summary for Link 19L: Total North Post

Inflow Area = 11,279 sf, 23.58% Impervious, Inflow Depth = 3.00" for 10-yr event
Inflow = 1.35 cfs @ 11.96 hrs, Volume= 2,820 cf
Primary = 1.35 cfs @ 11.96 hrs, Volume= 2,820 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 20L : Total Site Post

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Link 20L: Total Site Post

Inflow Area = 37,221 sf, 40.41% Impervious, Inflow Depth = 2.36" for 10-yr event
Inflow = 3.33 cfs @ 11.97 hrs, Volume= 7,314 cf
Primary = 3.33 cfs @ 11.97 hrs, Volume= 7,314 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 11S: To Basin - On Site

Runoff = 2.90 cfs @ 11.96 hrs, Volume= 6,356 cf, Depth= 4.58"
Routed to Pond 13P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.91"

	Area (sf)	CN	Description
*	5,023	78	D Meadow -
*	1,008	98	Building
*	6,528	98	Pave - Onsite
*	4,084	82	Lawn
	16,643		Weighted Average
	9,107		54.72% Pervious Area
	7,536		45.28% Impervious Area

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

Summary for Subcatchment 12S: To Basin- offsite

Runoff = 1.14 cfs @ 11.96 hrs, Volume= 2,615 cf, Depth= 5.15"
Routed to Pond 13P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.91"

	Area (sf)	CN	Description
*	1,476	78	D Meadow - Offsite
*	4,622	98	SR 2012
	6,098		Weighted Average
	1,476		24.20% Pervious Area
	4,622		75.80% Impervious Area

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

Summary for Pond 13P: Infiltration Basin

Inflow Area = 22,741 sf, 53.46% Impervious, Inflow Depth = 4.73" for 25-yr event
Inflow = 4.03 cfs @ 11.96 hrs, Volume= 8,971 cf
Outflow = 2.81 cfs @ 12.02 hrs, Volume= 8,054 cf, Atten= 30%, Lag= 3.6 min
Discarded = 0.07 cfs @ 12.02 hrs, Volume= 2,576 cf
Primary = 2.74 cfs @ 12.02 hrs, Volume= 5,478 cf
Routed to Link 16L : Total South

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 500.33' @ 12.02 hrs Surf.Area= 1,525 sf Storage= 2,662 cf

Plug-Flow detention time= 107.1 min calculated for 8,054 cf (90% of inflow)
Center-of-Mass det. time= 53.6 min (819.5 - 765.9)

Volume	Invert	Avail.Storage	Storage Description
#1	497.00'	5,992 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
497.00	252	0	0
498.00	508	380	380
499.00	883	696	1,076
500.00	1,348	1,116	2,191
501.00	1,889	1,619	3,810
502.00	2,476	2,183	5,992

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**15.0" Round Culvert** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 497.00' / 496.72' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Discarded	497.00'	**1.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 495.00'
#3	Device 1	499.00'	**9.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	500.10'	**1.9' long x 0.60' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	500.70'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	501.00'	**5.0' long + 2.0 '/' SideZ x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.07 cfs @ 12.02 hrs HW=500.33' (Free Discharge)
└**2=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=2.73 cfs @ 12.02 hrs HW=500.33' (Free Discharge)
├**1=Culvert** (Passes 2.73 cfs of 9.71 cfs potential flow)
│ ├**3=Orifice/Grate** (Orifice Controls 2.08 cfs @ 4.70 fps)
│ ├**4=Sharp-Crested Rectangular Weir** (Weir Controls 0.66 cfs @ 1.56 fps)
│ └**5=Orifice/Grate** (Controls 0.00 cfs)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 14S: South Bypass -on site

Runoff = 0.43 cfs @ 11.96 hrs, Volume= 855 cf, Depth= 3.50"
Routed to Link 16L : Total South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.91"

	Area (sf)	CN	Description
*	2,932	78	D Meadow - Offsite
	2,932		100.00% Pervious Area

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

Summary for Subcatchment 15S: South Bypass- off site

Runoff = 0.05 cfs @ 11.96 hrs, Volume= 119 cf, Depth= 5.30"
Routed to Link 16L : Total South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.91"

	Area (sf)	CN	Description
*	46	78	D Meadow - Offsite
*	223	98	Pave - Rte 2012
	269		Weighted Average
	46		17.10% Pervious Area
	223		82.90% Impervious Area

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

Summary for Link 16L: Total South

Inflow Area = 25,942 sf, 47.73% Impervious, Inflow Depth = 2.98" for 25-yr event
Inflow = 3.10 cfs @ 12.01 hrs, Volume= 6,452 cf
Primary = 3.10 cfs @ 12.01 hrs, Volume= 6,452 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 20L : Total Site Post

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 17S: North Bypass - On site & off disturbed

Runoff = 0.74 cfs @ 11.96 hrs, Volume= 1,472 cf, Depth= 3.50"
Routed to Link 19L : Total North Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.91"

	Area (sf)	CN	Description
*	2,153	78	D Meadow - Offsite
*	2,893	78	D Meadow
	5,046		Weighted Average
	5,046		100.00% Pervious Area

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

Summary for Subcatchment 18S: North Bypass - offsite

Runoff = 1.04 cfs @ 11.96 hrs, Volume= 2,270 cf, Depth= 4.37"
Routed to Link 19L : Total North Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.91"

	Area (sf)	CN	Description
*	3,573	77	D Woods
*	2,660	98	S.R. 2012
	6,233		Weighted Average
	3,573		57.32% Pervious Area
	2,660		42.68% Impervious Area

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

Summary for Link 19L: Total North Post

Inflow Area = 11,279 sf, 23.58% Impervious, Inflow Depth = 3.98" for 25-yr event
Inflow = 1.78 cfs @ 11.96 hrs, Volume= 3,741 cf
Primary = 1.78 cfs @ 11.96 hrs, Volume= 3,741 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 20L : Total Site Post

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Link 20L: Total Site Post

Inflow Area = 37,221 sf, 40.41% Impervious, Inflow Depth = 3.29" for 25-yr event
Inflow = 4.62 cfs @ 11.99 hrs, Volume= 10,194 cf
Primary = 4.62 cfs @ 11.99 hrs, Volume= 10,194 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 11S: To Basin - On Site

Runoff = 3.48 cfs @ 11.96 hrs, Volume= 7,686 cf, Depth= 5.54"
Routed to Pond 13P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.92"

	Area (sf)	CN	Description
*	5,023	78	D Meadow -
*	1,008	98	Building
*	6,528	98	Pave - Onsite
*	4,084	82	Lawn
	16,643		Weighted Average
	9,107		54.72% Pervious Area
	7,536		45.28% Impervious Area

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

Summary for Subcatchment 12S: To Basin- offsite

Runoff = 1.35 cfs @ 11.96 hrs, Volume= 3,115 cf, Depth= 6.13"
Routed to Pond 13P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.92"

	Area (sf)	CN	Description
*	1,476	78	D Meadow - Offsite
*	4,622	98	SR 2012
	6,098		Weighted Average
	1,476		24.20% Pervious Area
	4,622		75.80% Impervious Area

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

Summary for Pond 13P: Infiltration Basin

Inflow Area = 22,741 sf, 53.46% Impervious, Inflow Depth = 5.70" for 50-yr event
Inflow = 4.83 cfs @ 11.96 hrs, Volume= 10,801 cf
Outflow = 3.67 cfs @ 12.01 hrs, Volume= 9,844 cf, Atten= 24%, Lag= 3.2 min
Discarded = 0.08 cfs @ 12.01 hrs, Volume= 2,706 cf
Primary = 3.60 cfs @ 12.01 hrs, Volume= 7,138 cf
Routed to Link 16L : Total South

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 500.47' @ 12.01 hrs Surf.Area= 1,604 sf Storage= 2,891 cf

Plug-Flow detention time= 96.3 min calculated for 9,844 cf (91% of inflow)
Center-of-Mass det. time= 48.2 min (811.3 - 763.1)

Volume	Invert	Avail.Storage	Storage Description
#1	497.00'	5,992 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
497.00	252	0	0
498.00	508	380	380
499.00	883	696	1,076
500.00	1,348	1,116	2,191
501.00	1,889	1,619	3,810
502.00	2,476	2,183	5,992

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**15.0" Round Culvert** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 497.00' / 496.72' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Discarded	497.00'	**1.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 495.00'
#3	Device 1	499.00'	**9.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	500.10'	**1.9' long x 0.60' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	500.70'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	501.00'	**5.0' long + 2.0 '/' SideZ x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.08 cfs @ 12.01 hrs HW=500.47' (Free Discharge)
└**2=Exfiltration** (Controls 0.08 cfs)

Primary OutFlow Max=3.60 cfs @ 12.01 hrs HW=500.47' (Free Discharge)
- **1=Culvert** (Passes 3.60 cfs of 9.97 cfs potential flow)
  - **3=Orifice/Grate** (Orifice Controls 2.23 cfs @ 5.05 fps)
  - **4=Sharp-Crested Rectangular Weir** (Weir Controls 1.37 cfs @ 2.00 fps)
  - **5=Orifice/Grate** (Controls 0.00 cfs)
- **6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 14S: South Bypass -on site

Runoff = 0.54 cfs @ 11.96 hrs, Volume= 1,076 cf, Depth= 4.40"
Routed to Link 16L : Total South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.92"

	Area (sf)	CN	Description
*	2,932	78	D Meadow - Offsite
	2,932		100.00% Pervious Area

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

Summary for Subcatchment 15S: South Bypass- off site

Runoff = 0.06 cfs @ 11.96 hrs, Volume= 141 cf, Depth= 6.29"
Routed to Link 16L : Total South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.92"

	Area (sf)	CN	Description
*	46	78	D Meadow - Offsite
*	223	98	Pave - Rte 2012
	269		Weighted Average
	46		17.10% Pervious Area
	223		82.90% Impervious Area

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

Summary for Link 16L: Total South

Inflow Area = 25,942 sf, 47.73% Impervious, Inflow Depth = 3.86" for 50-yr event
Inflow = 4.08 cfs @ 12.00 hrs, Volume= 8,354 cf
Primary = 4.08 cfs @ 12.00 hrs, Volume= 8,354 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 20L : Total Site Post

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 17S: North Bypass - On site & off disturbed

Runoff = 0.92 cfs @ 11.96 hrs, Volume= 1,851 cf, Depth= 4.40"
Routed to Link 19L : Total North Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.92"

	Area (sf)	CN	Description
*	2,153	78	D Meadow - Offsite
*	2,893	78	D Meadow
	5,046		Weighted Average
	5,046		100.00% Pervious Area

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

Summary for Subcatchment 18S: North Bypass - offsite

Runoff = 1.26 cfs @ 11.96 hrs, Volume= 2,759 cf, Depth= 5.31"
Routed to Link 19L : Total North Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.92"

	Area (sf)	CN	Description
*	3,573	77	D Woods
*	2,660	98	S.R. 2012
	6,233		Weighted Average
	3,573		57.32% Pervious Area
	2,660		42.68% Impervious Area

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

Summary for Link 19L: Total North Post

Inflow Area = 11,279 sf, 23.58% Impervious, Inflow Depth = 4.91" for 50-yr event
Inflow = 2.18 cfs @ 11.96 hrs, Volume= 4,611 cf
Primary = 2.18 cfs @ 11.96 hrs, Volume= 4,611 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 20L : Total Site Post

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Link 20L: Total Site Post

Inflow Area = 37,221 sf, 40.41% Impervious, Inflow Depth = 4.18" for 50-yr event
Inflow = 6.02 cfs @ 11.98 hrs, Volume= 12,965 cf
Primary = 6.02 cfs @ 11.98 hrs, Volume= 12,965 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 11S: To Basin - On Site

Runoff = 4.18 cfs @ 11.96 hrs, Volume= 9,285 cf, Depth= 6.69"
Routed to Pond 13P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=8.12"

	Area (sf)	CN	Description
*	5,023	78	D Meadow -
*	1,008	98	Building
*	6,528	98	Pave - Onsite
*	4,084	82	Lawn
	16,643		Weighted Average
	9,107		54.72% Pervious Area
	7,536		45.28% Impervious Area

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

Summary for Subcatchment 12S: To Basin- offsite

Runoff = 1.60 cfs @ 11.96 hrs, Volume= 3,712 cf, Depth= 7.30"
Routed to Pond 13P : Infiltration Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=8.12"

	Area (sf)	CN	Description
*	1,476	78	D Meadow - Offsite
*	4,622	98	SR 2012
	6,098		Weighted Average
	1,476		24.20% Pervious Area
	4,622		75.80% Impervious Area

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

Summary for Pond 13P: Infiltration Basin

Inflow Area = 22,741 sf, 53.46% Impervious, Inflow Depth = 6.86" for 100-yr event
Inflow = 5.78 cfs @ 11.96 hrs, Volume= 12,997 cf
Outflow = 4.64 cfs @ 12.00 hrs, Volume= 12,016 cf, Atten= 20%, Lag= 2.8 min
Discarded = 0.08 cfs @ 12.00 hrs, Volume= 2,842 cf
Primary = 4.56 cfs @ 12.00 hrs, Volume= 9,174 cf
Routed to Link 16L : Total South

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 500.62' @ 12.00 hrs Surf.Area= 1,682 sf Storage= 3,127 cf

Plug-Flow detention time= 86.9 min calculated for 12,016 cf (92% of inflow)
Center-of-Mass det. time= 44.5 min (804.7 - 760.2)

Volume	Invert	Avail.Storage	Storage Description
#1	497.00'	5,992 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
497.00	252	0	0
498.00	508	380	380
499.00	883	696	1,076
500.00	1,348	1,116	2,191
501.00	1,889	1,619	3,810
502.00	2,476	2,183	5,992

Device	Routing	Invert	Outlet Devices
#1	Primary	497.00'	**15.0" Round Culvert** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 497.00' / 496.72' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Discarded	497.00'	**1.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 495.00'
#3	Device 1	499.00'	**9.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	500.10'	**1.9' long x 0.60' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Device 1	500.70'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	501.00'	**5.0' long + 2.0 '/' SideZ x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.08 cfs @ 12.00 hrs HW=500.62' (Free Discharge)
└**2=Exfiltration** (Controls 0.08 cfs)

Primary OutFlow Max=4.55 cfs @ 12.00 hrs HW=500.62' (Free Discharge)
├**1=Culvert** (Passes 4.55 cfs of 10.22 cfs potential flow)
│ ├**3=Orifice/Grate** (Orifice Controls 2.37 cfs @ 5.37 fps)
│ ├**4=Sharp-Crested Rectangular Weir** (Weir Controls 2.18 cfs @ 2.35 fps)
│ └**5=Orifice/Grate** (Controls 0.00 cfs)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 14S: South Bypass -on site

Runoff = 0.66 cfs @ 11.96 hrs, Volume= 1,344 cf, Depth= 5.50"
Routed to Link 16L : Total South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=8.12"

	Area (sf)	CN	Description
*	2,932	78	D Meadow - Offsite
	2,932		100.00% Pervious Area

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

Summary for Subcatchment 15S: South Bypass- off site

Runoff = 0.07 cfs @ 11.96 hrs, Volume= 168 cf, Depth= 7.47"
Routed to Link 16L : Total South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=8.12"

	Area (sf)	CN	Description
*	46	78	D Meadow - Offsite
*	223	98	Pave - Rte 2012
	269		Weighted Average
	46		17.10% Pervious Area
	223		82.90% Impervious Area

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

Summary for Link 16L: Total South

Inflow Area = 25,942 sf, 47.73% Impervious, Inflow Depth = 4.94" for 100-yr event
Inflow = 5.18 cfs @ 12.00 hrs, Volume= 10,686 cf
Primary = 5.18 cfs @ 12.00 hrs, Volume= 10,686 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 20L : Total Site Post

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 17S: North Bypass - On site & off disturbed

Runoff = 1.14 cfs @ 11.96 hrs, Volume= 2,314 cf, Depth= 5.50"
Routed to Link 19L : Total North Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=8.12"

	Area (sf)	CN	Description
*	2,153	78	D Meadow - Offsite
*	2,893	78	D Meadow
	5,046		Weighted Average
	5,046		100.00% Pervious Area

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

Summary for Subcatchment 18S: North Bypass - offsite

Runoff = 1.52 cfs @ 11.96 hrs, Volume= 3,350 cf, Depth= 6.45"
Routed to Link 19L : Total North Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=8.12"

	Area (sf)	CN	Description
*	3,573	77	D Woods
*	2,660	98	S.R. 2012
	6,233		Weighted Average
	3,573		57.32% Pervious Area
	2,660		42.68% Impervious Area

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

Summary for Link 19L: Total North Post

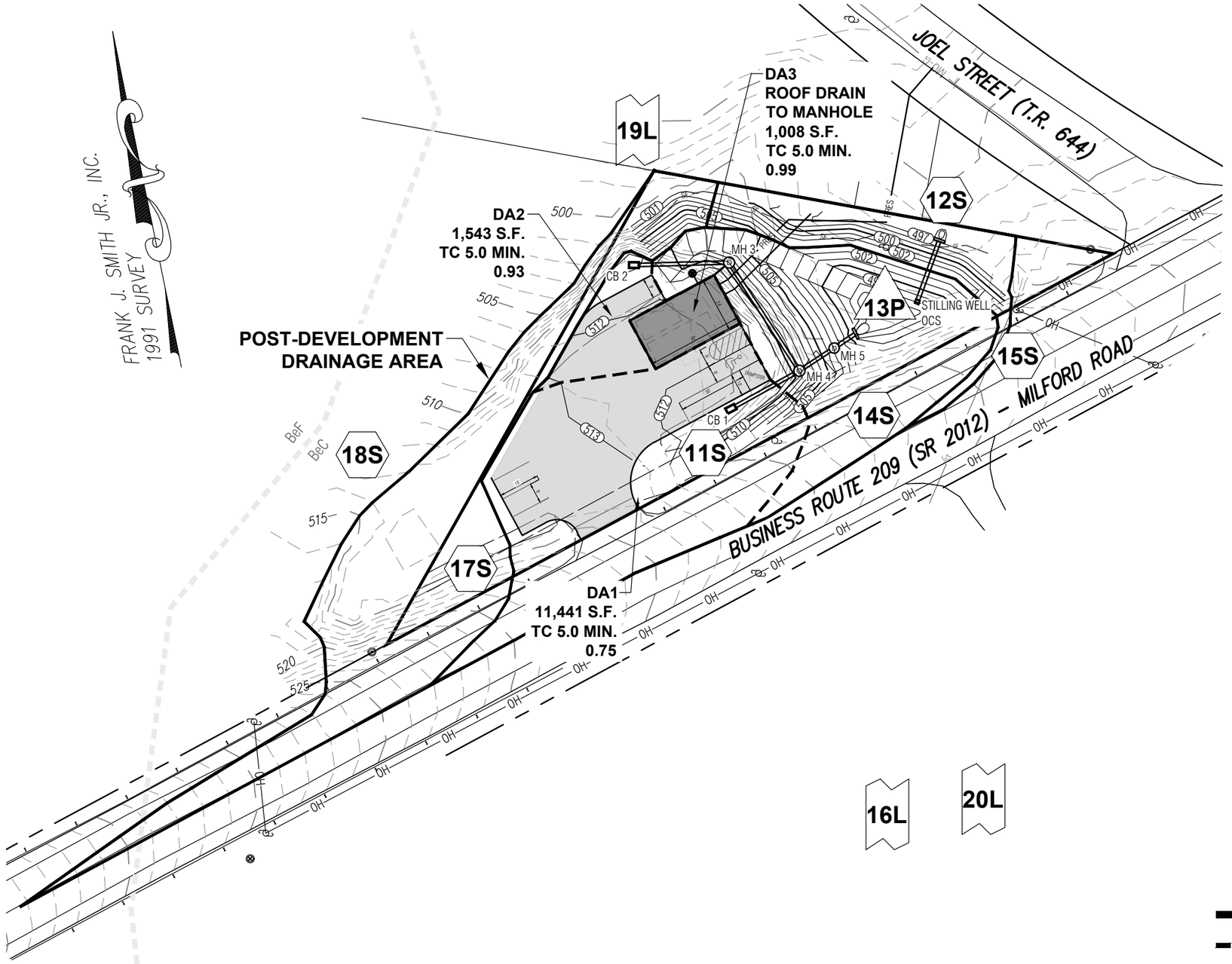
Inflow Area = 11,279 sf, 23.58% Impervious, Inflow Depth = 6.03" for 100-yr event
Inflow = 2.66 cfs @ 11.96 hrs, Volume= 5,664 cf
Primary = 2.66 cfs @ 11.96 hrs, Volume= 5,664 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 20L : Total Site Post

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Summary for Link 20L: Total Site Post

Inflow Area = 37,221 sf, 40.41% Impervious, Inflow Depth = 5.27" for 100-yr event
Inflow = 7.61 cfs @ 11.98 hrs, Volume= 16,349 cf
Primary = 7.61 cfs @ 11.98 hrs, Volume= 16,349 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs



GRAPHIC SCALE

50 0 25 50

(IN FEET)

1 INCH = 50 FT.

LEGEND

EXISTING FEATURES LABELED WITH SLANTED TEXT

- PROPERTY LINE
- RIGHT OF WAY
- ADJOINING PROPERTY LINE
- EXISTING CONTOUR
- EXISTING STONE
- EXISTING PAVEMENT
- EXISTING GUIDE RAIL
- EXISTING UTILITY POLE
- EXISTING GUY WIRE
- EXISTING OVERHEAD UTILITY LINE
- EXISTING STORM SEWER (ST)
- EXISTING SILT FENCE (SF)
- SOILS BOUNDARY & DESIGNATION (SwC / WxB)
- EXISTING SANITARY SEWER GREEN PA ONE CALL MARK OUT (MO-G)

LEGEND

PROPOSED FEATURES LABELED WITH STRAIGHT TEXT

- PAVEMENT
- RETAINING WALL (DESIGN BY OTHERS)
- HANDICAP PARKING SPACE PER DETAIL
- STORMSEWER (INLET, MANHOLE, ENDWALL, STORM PIPE) (D)
- PRESSURE SEWER (PRES)
- WELL (W)

DRAINAGE AREA LEGEND

- POST DEVELOPMENT DRAINAGE AREA
- POST INLET DRAINAGE AREA
- 17S — DRAINAGE AREA/SUBCATCHMENT FROM HYDROCAD ROUTING
- 18L — LINK/HYDROGRAPH COMBINATION FROM HYDROCAD ROUTING
- 12P — POND FROM HYDROCAD ROUTING

REVISIONS

AUTHORIZED USE: PERMITTING

RKRHESS
A DIVISION OF UTRS
Civil Engineers • Environmental Engineers • Surveyors
112 North Courtland Street, East Stroudsburg, Pa. 18301
Telephone (570) 421-1550, Fax (570) 421-6720
Website: www.rkrhess.com Email: info@rkrhess.com

POST-DEVELOPEMENT DRAINAGE AREA
LAND DEVELOPMENT PLAN JOSEPH WIDMER

JOSEPH L. WIDMER
158 SMITHFIELD TRAILER COURT
EAST STROUDSBURG, PA 18301

SMITHFIELD TOWNSHIP MONROE COUNTY, PA

PROJECT MANAGER	NMD	DESIGNED BY	AMW
DRAWN BY	AMW/SG	CHECKED BY	
DATE	8-19-2024	CHECKED DATE	
SCALE	AS SHOWN	PROJECT NO.	10842.004

2 OF 2

Aug 14,24-2:38pm
P:\PA\Monroe Co\Smithfield Twp\Widmer Joseph\10842.004 Strmwtr Tests-LDP-ESC Apps Tasks 4-6\Engineering\Drawings\JWidmer_Layout_DA.dwg

112 North Courtland Street
East Stroudsburg, PA 18301
Telephone (570) 421-1550
Fax (570) 421-6720
PROJECT NO. 10842.004

Wdimer
Smithfield Township, Monroe County
Lake Valhalla to Sambo Creek

BY A.W. CHECKED
DATE 8/13/24 10:48 DATE

WEIR FLOW = Q=CLH ^ 1.5

Weir Coefficient - RR	2.65

Basin Number	1
Crest of Spillway Elevation	501
Spillway Width (Ft)	5.0
Top of Berm Elevation	502.0
Top of Berm Width - ft.	10.0
Outlet Side Slopes (2:1) min	2
WEIR FLOW = Q=CLH^1.5 H = (Q/CL)^1/1.5 =	0.59

Discharge cfs	5.82
Max Water Surface	501.59
Free Board	0.41

Max Water Surface - routed	500.62
Free Board - routed	1.38

Smithfield Township - 100 year water surface to be below the riser - Freeboard = 1 ft from 100 year water surface elevation.

Widmer
Smithfield Township
Project No. 10842.004
By A.W DATE 8/13/2024 11:19
Checked DATE

Infiltration Rates - inches/hour

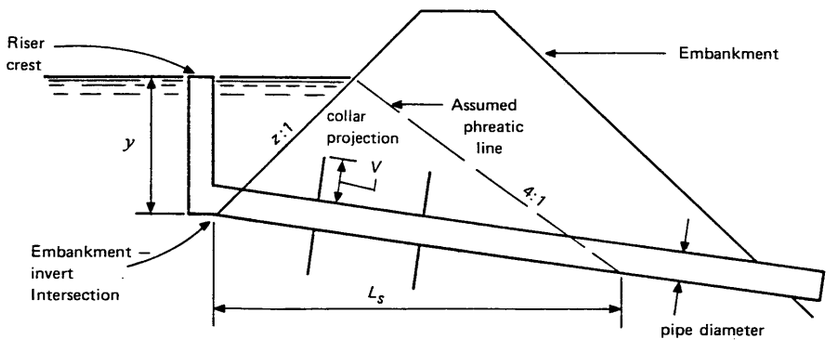
	Lowest	Highest	average	safety factor	final rate	Rate used in
Basin	1.75	7.5	4.63	2	2.31	1.25

Basin Name	Bottom Elevation	Lowest Orifice	Difference	Infiltration Rate - minimum needed	Draw Down Times	Infiltration Rate - tested with FS. 2
	FT	FT	Inches	"/hr	HR	"/hr
Basin	497.00	499.00	24.00	0.33	72.00	3.75

RKR a division of UTRS
Surveyors, Planners, Engineers,
112 North Courtland Street
East Stroudsburg, PA 18301
Telephone 570.421.1550 Fax 570.421.6720

Project Name: Widmer -Smithfield Township - Monroe County PA
Project # 10842.004 By: A.W. Date: 8/13/2024 13:05

ANTI-SEEP COLLAR DESIGN



$$L_s = y(z+4)\left[1+\frac{pipeslope(ft/ft)}{0.25-pipeslope}\right]$$

Ls = Length of pipe in saturated zone (ft)
y = distance from upstream invert to maximum water surface elevation
z = horizontal component of upstream embankment slope
n = number of collars
V = collar projection minimum collar projection = 1.5'
collars to be located at least 2 ft from nearest pipe joint
ratio of line of seepage (Ls + 2nV) to Ls must range from 1.10 to 1.30

Required increase in flow path = 10% for temporary basins, 15% for permanent = Lf
Number of collars = (Lf-Ls)/2V

V min for 1 collar = 1/2 * Increase in flow length =

Increase in creep distance = 2*V*n/Pipe Length = min. 10% temporary 15% perm.
maximum spacing = 14 V
minimum spacing = 5 V

Basin	Ls	Lf	y	100 yr ws elev.	upstream invert	z	Pipe Slope	Pipe Diameter Inches	V min	Projection of collar (ft) design	Number of collars	Line of seepage ratio	5V (ft)	14 V (ft)	Spacing (ft)	Pipe Length min. ft within emb.	Increase in creep distance %
1	23.0	26.5	3.62	500.6	497.00	3.0	1.00%	15	1.73	1.75	2	1.30	8.8	24.5	pl	28.0	25%

3850-FM-BCW0290A 4/2016

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

STORMWATER TESTING

SITE INVESTIGATION AND PERCOLATION TEST REPORT FOR ONLOT DISPOSAL OF SEWAGE

INSTRUCTIONS FOR COMPLETION OF THIS FORM ARE LOCATED ON THE REVERSE SIDE

Application No. _____ Municipality SMITHFIELD TWP County MONROE

Site Location JOSEPH WIDMER PROPERTY Subdivision Name RT 209

☒ SUITABLE Soil Type _____ Slope _____ % Depth to Limiting Zone NONE Ave. Perc. Rate _____

☐ UNSUITABLE ☐ Mottling ☐ Seeps or Ponded Water ☐ Bedrock ☐ Fractures ☐ Coarse Fragments

STORM WATER ☐ Perc. Rate ☐ Slope ☐ Unstabilized Fill ☐ Floodway ☐ Other _____

SOILS DESCRIPTION:

Soils Description Completed by: WAYNE GROSS, RICK HESS, UTRS Date: 6/27/2024

Inches		Description of Horizon
0	TO 2	10YR 3/2 SILT LOAM, MODERATE SBK, GRAVELLY (10%), FRI
2	TO 18	10YR 5/3 LOAM, WSBK, (NO ROCKS), FRI
18	TO 55	10YR 5/6 SILT LOAM, WSBK, GRAVELLY (10%), FRI
55	TO _____	BOTTOM
_____	TO _____	
_____	TO _____	

PERCOLATION TEST:

Percolation Test Completed by: _____ Date: _____

Weather Conditions: ☐ Below 40°F ☐ 40°F or above ☐ Dry ☐ Rain, Sleet, Snow (last 24 hours)

Soil Conditions: ☐ Wet ☐ Dry ☐ Frozen

Hole No.	*** Yes	*** No	Reading Interval	Reading No. 1: Inches of drop	Reading No. 2: Inches of drop	Reading No. 3: Inches of drop	Reading No. 4: Inches of drop	Reading No. 5: Inches of drop	Reading No. 6: Inches of drop	Reading No. 7 Inches of drop	Reading No. 8: Inches of drop
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								
			10 / 30								

***Water remaining in the hole at the end of the final 30-minute presoak? Yes, use 30-minute interval; No, use 10-minute interval.

Calculation of Average Percolation Rate:

Hole No.	Drop during final period	Perc. Rate as Minutes/Inch	Depth of Hole	
_____	_____ "	_____	_____ "	
_____	_____ "	_____	_____ "	
_____	_____ "	_____	_____ "	
_____	_____ "	_____	_____ "	
_____	_____ "	_____	_____ "	
_____	_____ "	_____	_____ "	Min / Inch
TOTAL OF MIN / IN →		_____	= _____	
TOTAL NO. OF HOLES→		_____		

The information provided is the true and correct result of tests conducted by me, performed under my personal supervision, or verified in a manner approved by the Department of Environmental Protection (DEP).

(S)_____
Sewage Enforcement Officer (SEO)

☐ White - Local Agency ☐ Pink - Local DEP Office ☐ Yellow - Applicant

INFILTRATION TESTING SHEET

PROJECT NAME: WIDMER 18842.004 **Test Completed By:** WILL GROSS **DATE:** 2024-06-27

WEATHER 81° Sunny

Hole No	Interval	Presoak 1 (in. drop)	Presoak 2 (in. drop)
1	30	—	1 1/2
2	30	—	—

Hole No	Interval	Reading 1 (in. drop)	Reading 2 (in. drop)	Reading 3 (in. drop)	Reading 4 (in. drop)	Reading5 (in. drop)	Reading 6 (in. drop)	Reading 7 (in. drop)	Reading 8 (in. drop)
1	30	1 7/8	1 5/8	7/8	7/8	7/8	7/8	—	—
2	10	2	1 3/8	1 1/4	1 1/4	1 1/4	—	—	—

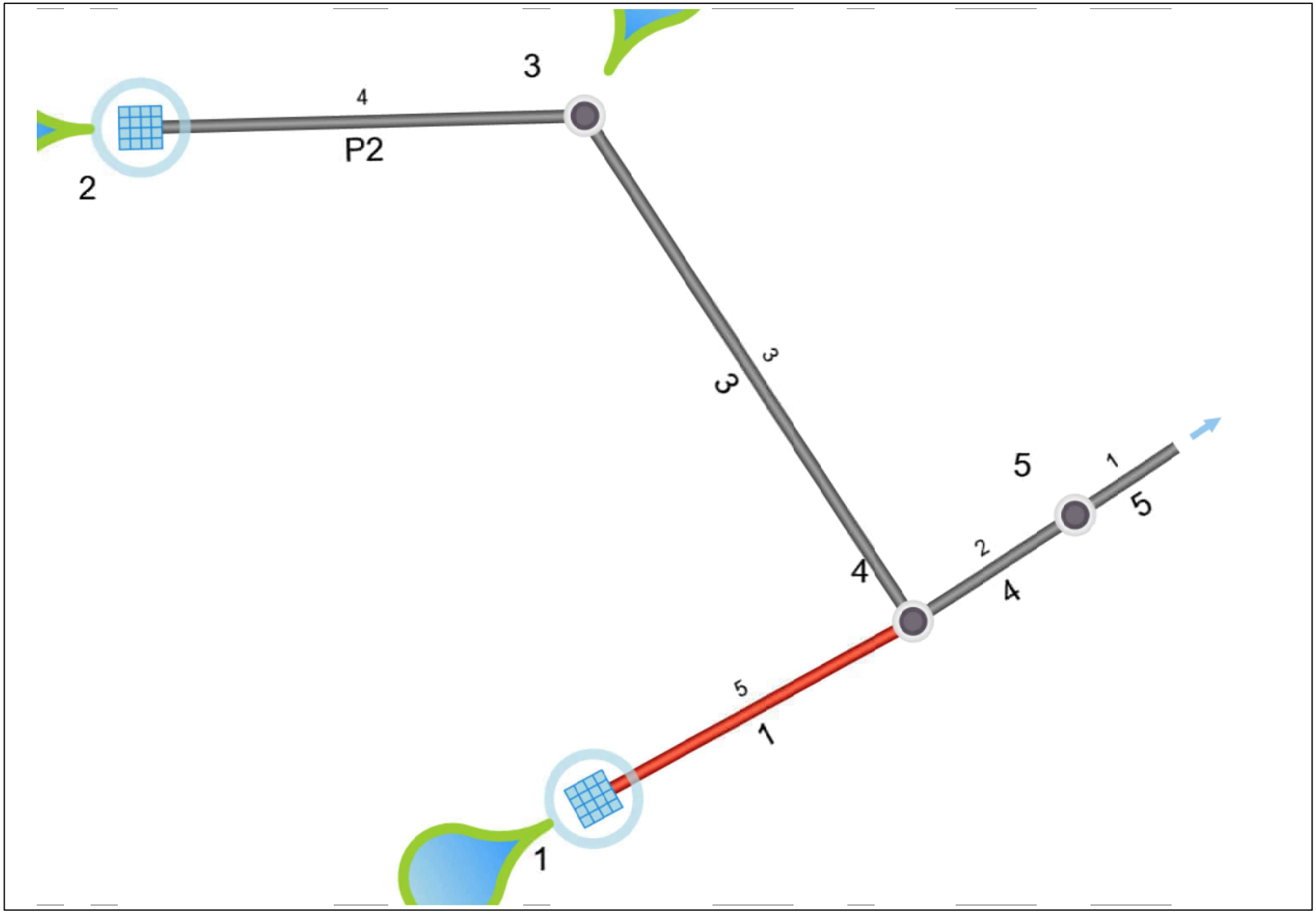
Hole No.	Drop during final period	Decimal Equivalent	Depth Of Test	SURFACE
1	7/8 30 min	0.875	497.00	498.56
2	1 1/4 10 min	1.25	496.42	498.56

Plan View

Stormwater Studio 2024 v 3.0.0.34

Project Name: STRM

08-13-2024



Project File: widmer.sws

Storm Sewer Tabulation

Project Name: STRM

Stormwater Studio 2024 v 3.0.0.34

08-13-2024

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
5	11.33	0.000	0.320	0.00	0.00	0.25	0.0	5.82	8.16	2.06	10.87	1.80	15	2.03	498.73	498.50	499.74	499.75	502.95	500.53	1
4	18.16	0.000	0.320	0.00	0.00	0.25	0.0	5.73	8.20	2.07	30.55	6.79	15	16.02	501.91	499.00	502.49	499.28	508.94	502.95	2
3	56.49	0.020	0.060	0.99	0.02	0.06	5.0	5.33	8.37	0.48	10.79	3.18	15	2.00	505.50	504.37	505.78	504.56	509.00	508.94	3
P2	41.68	0.040	0.040	0.93	0.04	0.04	5.0	5.00	8.52	0.32	18.20	3.52	15	5.69	508.04	505.67	508.27	505.80	510.90	509.00	4
1	34.27	0.260	0.260	0.75	0.20	0.20	5.0	5.00	8.52	1.66	24.63	6.33	15	10.42	508.57	505.00	509.09	505.26	511.43	508.94	5

Notes: IDF File = NOAA.idf, Return Period = 50-yrs.

Project File: widmer.sws

Surveyors, Planners, Engineers,
112 North Courtland Street,
East Stroudsburg, PA 18301
Telephone 570.421.1550 Fax 570.421.6720

Widmer — RATIONAL AI/ CA CALCULAT
Smithfield Township, Monroe County — CA = AREA IN ACRES * C
Subarea 103 - B-1 - Low Area to Stroudsburg Pocono Airport to Lake Vahalla to Sambo Creek
Project # 10842.004 — check by
8/13/24 10:45 — by Ann Wingert

Basin	Area SF	Area Acre	Soil Type	Cover	C	CA	Tc (min.)
Inlet 1							
	3,436	0.08	D	Pave	0.99	0.08	
	8,005	0.18	D	Lawn	0.65	0.12	
TOTAL	11,441	0.26				0.20	5
					0.75	Weighted Average	
Inlet 2							
	1,250	0.03	D	Pave	0.99	0.03	5
	293	0.01	D	Lawn	0.65	0.00	
TOTAL	1,543	0.04				0.03	
					0.93	Weighted Average	

NOAA Atlas 14, Volume 2, Version 3
Location name: East Stroudsburg, Pennsylvania, USA*
Latitude: 41.0337°, Longitude: -75.1431°
Elevation: 504 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**3.94** (3.50-4.42)	**4.72** (4.20-5.29)	**5.69** (5.04-6.38)	**6.48** (5.72-7.25)	**7.58** (6.64-8.47)	**8.53** (7.40-9.54)	**9.59** (8.24-10.7)	**10.8** (9.13-12.1)	**12.6** (10.5-14.2)	**14.1** (11.6-16.0)
10-min	**3.10** (2.76-3.47)	**3.71** (3.31-4.18)	**4.47** (3.97-5.02)	**5.08** (4.49-5.68)	**5.90** (5.16-6.59)	**6.60** (5.73-7.38)	**7.36** (6.33-8.24)	**8.23** (6.98-9.25)	**9.49** (7.93-10.7)	**10.6** (8.71-12.1)
15-min	**2.55** (2.27-2.86)	**3.06** (2.73-3.44)	**3.70** (3.29-4.16)	**4.21** (3.72-4.71)	**4.92** (4.30-5.49)	**5.50** (4.78-6.15)	**6.16** (5.29-6.89)	**6.86** (5.82-7.71)	**7.92** (6.62-8.97)	**8.84** (7.27-10.1)
30-min	**1.71** (1.52-1.92)	**2.08** (1.85-2.33)	**2.58** (2.29-2.89)	**2.98** (2.63-3.33)	**3.54** (3.10-3.96)	**4.02** (3.50-4.50)	**4.55** (3.91-5.10)	**5.15** (4.37-5.78)	**6.05** (5.06-6.85)	**6.84** (5.63-7.80)
60-min	**1.06** (0.940-1.18)	**1.29** (1.15-1.45)	**1.63** (1.45-1.83)	**1.91** (1.69-2.14)	**2.32** (2.03-2.60)	**2.68** (2.33-3.00)	**3.08** (2.65-3.45)	**3.54** (3.01-3.98)	**4.25** (3.55-4.81)	**4.89** (4.02-5.57)
2-hr	**0.637** (0.573-0.711)	**0.776** (0.699-0.867)	**0.984** (0.883-1.10)	**1.16** (1.03-1.29)	**1.42** (1.26-1.58)	**1.66** (1.46-1.85)	**1.94** (1.69-2.17)	**2.27** (1.96-2.54)	**2.80** (2.37-3.16)	**3.28** (2.74-3.73)
3-hr	**0.472** (0.427-0.524)	**0.571** (0.516-0.635)	**0.713** (0.644-0.792)	**0.833** (0.749-0.924)	**1.02** (0.909-1.13)	**1.19** (1.05-1.32)	**1.39** (1.21-1.54)	**1.62** (1.39-1.80)	**1.99** (1.68-2.23)	**2.33** (1.94-2.64)
6-hr	**0.307** (0.279-0.341)	**0.369** (0.335-0.410)	**0.454** (0.411-0.504)	**0.528** (0.477-0.586)	**0.646** (0.577-0.716)	**0.754** (0.667-0.837)	**0.881** (0.770-0.980)	**1.03** (0.890-1.15)	**1.28** (1.08-1.43)	**1.50** (1.25-1.70)
12-hr	**0.190** (0.172-0.212)	**0.229** (0.208-0.255)	**0.284** (0.257-0.316)	**0.333** (0.299-0.369)	**0.409** (0.364-0.454)	**0.480** (0.422-0.533)	**0.564** (0.490-0.627)	**0.664** (0.569-0.741)	**0.825** (0.693-0.927)	**0.976** (0.804-1.10)
24-hr	**0.114** (0.105-0.125)	**0.137** (0.127-0.151)	**0.171** (0.157-0.187)	**0.200** (0.183-0.218)	**0.246** (0.223-0.267)	**0.288** (0.260-0.313)	**0.338** (0.302-0.366)	**0.397** (0.350-0.428)	**0.492** (0.427-0.529)	**0.581** (0.497-0.623)
2-day	**0.067** (0.062-0.073)	**0.080** (0.074-0.088)	**0.100** (0.092-0.109)	**0.117** (0.107-0.127)	**0.143** (0.130-0.156)	**0.167** (0.151-0.182)	**0.196** (0.175-0.212)	**0.229** (0.203-0.248)	**0.283** (0.247-0.305)	**0.333** (0.287-0.359)
3-day	**0.047** (0.043-0.051)	**0.056** (0.052-0.061)	**0.069** (0.064-0.076)	**0.081** (0.074-0.088)	**0.099** (0.090-0.107)	**0.116** (0.105-0.125)	**0.135** (0.121-0.145)	**0.158** (0.141-0.170)	**0.195** (0.171-0.209)	**0.229** (0.198-0.246)
4-day	**0.037** (0.034-0.040)	**0.044** (0.041-0.048)	**0.054** (0.050-0.059)	**0.063** (0.058-0.068)	**0.077** (0.070-0.083)	**0.090** (0.082-0.097)	**0.104** (0.094-0.112)	**0.122** (0.109-0.131)	**0.150** (0.133-0.161)	**0.177** (0.154-0.189)
7-day	**0.025** (0.023-0.027)	**0.029** (0.027-0.032)	**0.036** (0.033-0.039)	**0.042** (0.039-0.045)	**0.051** (0.047-0.055)	**0.059** (0.054-0.063)	**0.068** (0.062-0.073)	**0.079** (0.071-0.085)	**0.096** (0.085-0.103)	**0.112** (0.098-0.120)
10-day	**0.020** (0.018-0.021)	**0.024** (0.022-0.026)	**0.029** (0.027-0.031)	**0.033** (0.030-0.035)	**0.039** (0.036-0.042)	**0.045** (0.041-0.048)	**0.052** (0.047-0.055)	**0.059** (0.054-0.064)	**0.071** (0.064-0.076)	**0.082** (0.072-0.087)
20-day	**0.013** (0.012-0.014)	**0.016** (0.015-0.017)	**0.018** (0.017-0.020)	**0.021** (0.020-0.022)	**0.024** (0.023-0.026)	**0.027** (0.025-0.029)	**0.031** (0.029-0.033)	**0.035** (0.032-0.037)	**0.040** (0.037-0.043)	**0.046** (0.041-0.048)
30-day	**0.011** (0.010-0.012)	**0.013** (0.012-0.014)	**0.015** (0.014-0.016)	**0.017** (0.016-0.018)	**0.019** (0.018-0.020)	**0.021** (0.020-0.023)	**0.024** (0.022-0.025)	**0.026** (0.024-0.028)	**0.030** (0.028-0.032)	**0.033** (0.030-0.035)
45-day	**0.009** (0.009-0.010)	**0.011** (0.010-0.011)	**0.012** (0.012-0.013)	**0.014** (0.013-0.014)	**0.015** (0.015-0.016)	**0.017** (0.016-0.018)	**0.019** (0.017-0.020)	**0.020** (0.019-0.021)	**0.023** (0.021-0.024)	**0.025** (0.023-0.026)
60-day	**0.008** (0.008-0.009)	**0.010** (0.009-0.010)	**0.011** (0.010-0.012)	**0.012** (0.011-0.013)	**0.014** (0.013-0.014)	**0.015** (0.014-0.016)	**0.016** (0.015-0.017)	**0.018** (0.016-0.018)	**0.020** (0.018-0.021)	**0.021** (0.020-0.022)

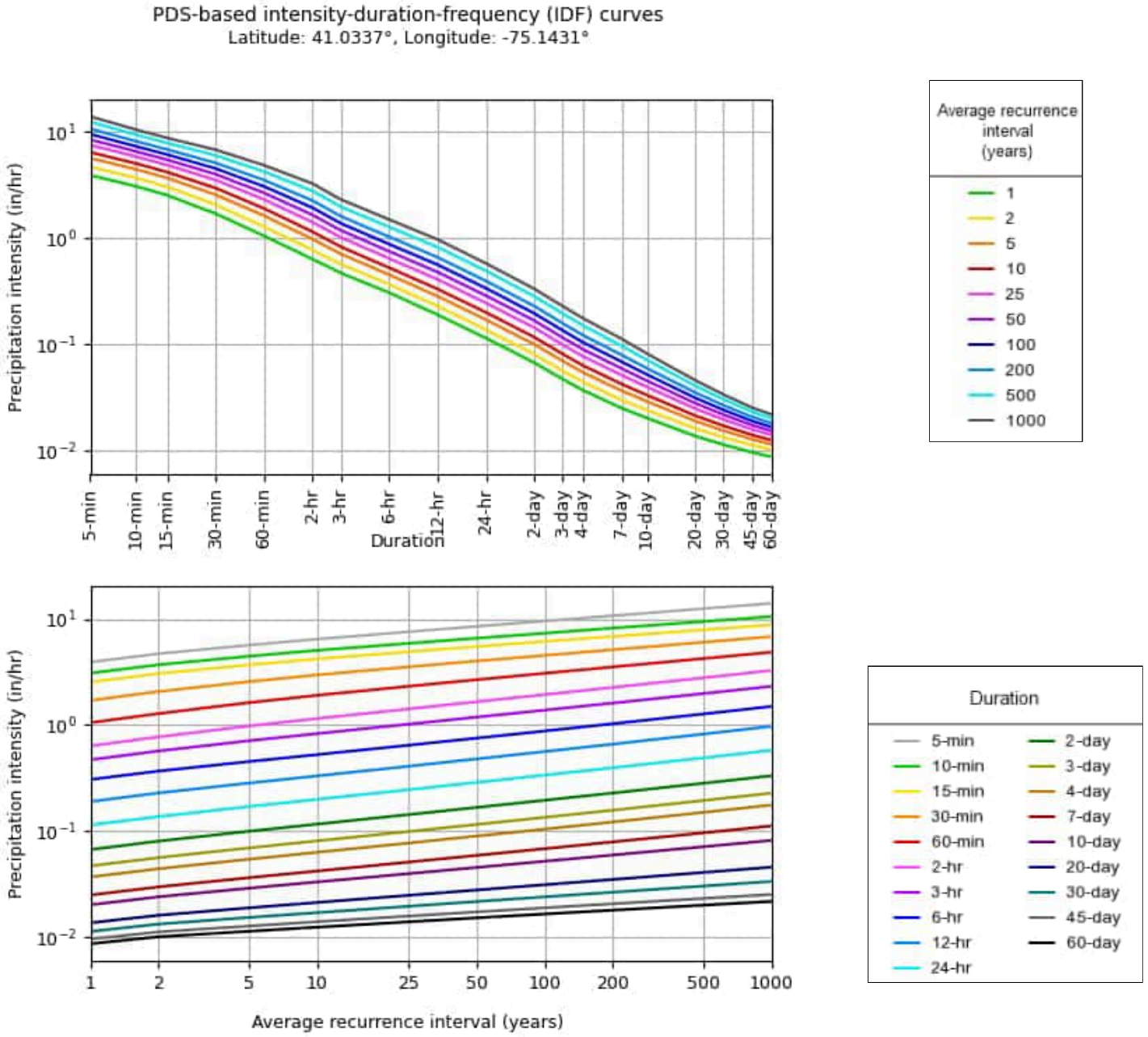
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

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

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical



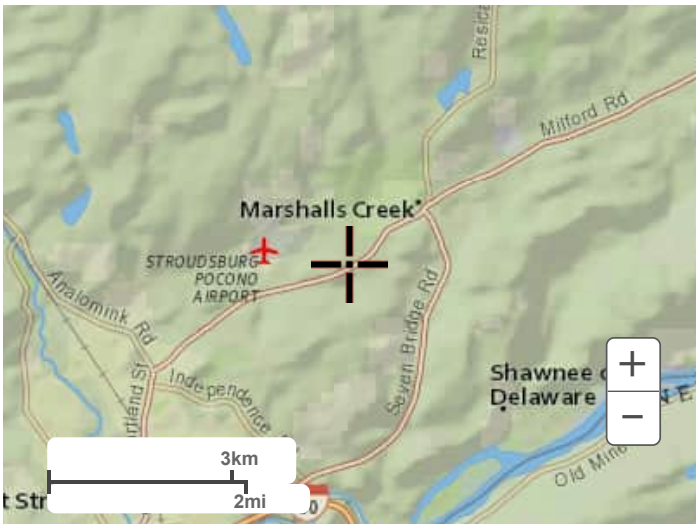
NOAA Atlas 14, Volume 2, Version 3

Created (GMT): Tue Aug 13 14:08:30 2024

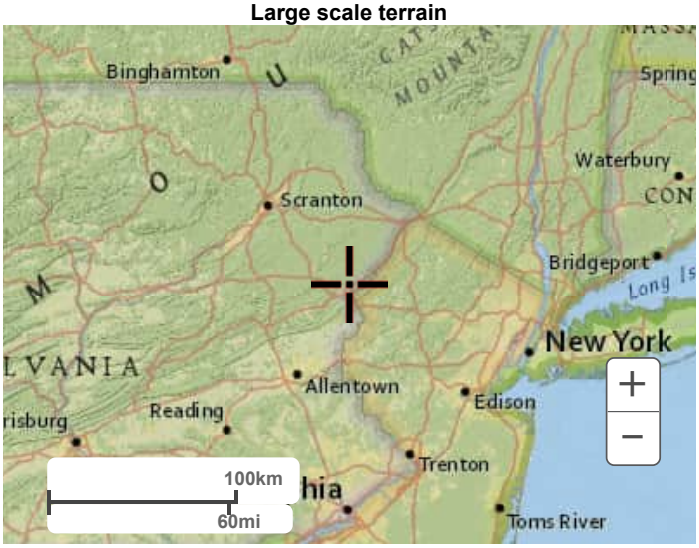
Back to Top

Maps & aerials

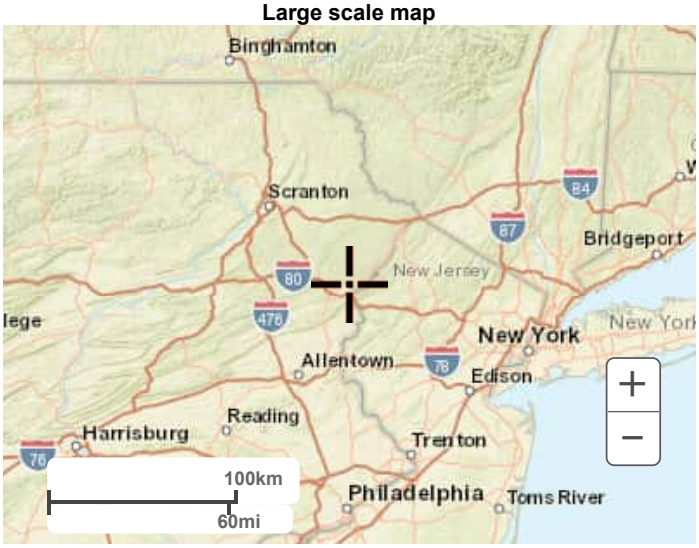
Small scale terrain



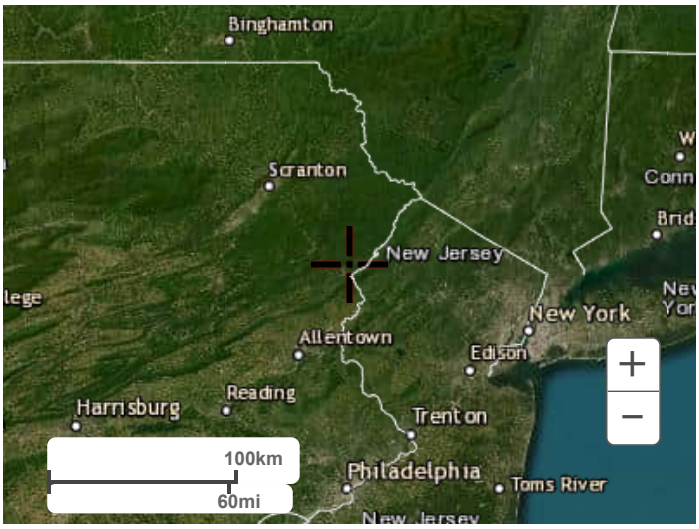
Large scale terrain



Large scale map



Large scale aerial



Back to Top

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National Oceanic and Atmospheric Administration
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National Water Center
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Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

RKR a division of UTRS
Surveyors, Planners, Engineers,
112 North Courtland Street
East Stroudsburg, PA 18301
Telephone 570.421.1550 Fax 570.421.6720

PROJECT # 10842.004 DATE 8/18/24 11:13 STILLING BASIN DESIGN
BY A.W. DATE
CHECKED
PROJECT NAME: Widmer
LOCATION: Smithfield Township - Monroe County - Sambo Creek

Per pages 245-247 in the March 2012 Erosion & Sediment Pollution Control Program Manual

h= D^.33(.148*Q/D/d^.5-1.82*d)^.66
h=basin depth (ft)
D=inside pipe diameter (ft)
d = d50 riprap size (ft) = off scale Figure 24 - see outfall calcs
Q = design discharge (cfs)

d50 < .0625 ft.	R-1
.0625 < d50 < .125 ft.	R-2
.125 < d50 < .25 ft.	R-3
.25 < d50 < .5 ft.	R-4
.5 < d50 < .75 ft.	R-5
.75 < d50 < 1 ft.	R-6
d50 > 1 ft.	R-7

x=(V^2/2/g)^.5*((1+m/p)^.5+1+m/2/p)*p^.5
V = maximum potential pipe discharge velocity (fps)
g = acceleration of gravity (32.2 ft/sec^2)
m = depth of water in basin during maximum pipe discharge
h+ channel flow depth
p = vertical distance from inside crown of pipe to the maximum water surface = 1+D

x= 2h/3+4h
x=14h/3
h=x*3/14
y=h/3+2*h = length ahead of x
total length = x + y

Use Scour Stop if total width is less than 2 ft

width = h*2/3+4*h

Location	Year Storm	h (ft) formula	h (ft) by x	difference	x (ft)	Pipe Dia. (ft)	Average Rock size d50 (ft)	Rip Rap size	Rip Rap size by velocity	Max Rip Rap Size	Q (cfs)	V (ft/s)	channel depth (ft)	m (ft)	p (ft)	y (ft)	total length (ft)	total width (ft)
Design Flow Pipe Capacity																		
Basin - out	capacity	0.52	0.52	0.00	2.41	1.25	0.45	R-4	R-3	R-4	6.5	5.3	0.5	1.02	2.25	1.20	3.6	2.4
Basin in	capacity	0.85	0.84	-0.01	3.91	1.25	0.52	R-5	R-4	R-4	10.0	8.2	0.5	1.35	2.25	1.98	5.9	4.0

The standard design procedure is to size stilling basins based on the full pipe capacity when possible.