

Stormwater Management Report

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Project summary

The following stormwater report has been prepared to support permitting applications and to illustrate compliance of the project with applicable stormwater regulations. The regulations include the Wetlands Protection Act Stormwater standards as required and referenced by the Massachusetts Department of Transportation (DOT) Access permit regulations.

Project description

The property currently contains a hotel, an out-building, and a parking lot. The facility was constructed in 1900±. The building is setback approximately 55 feet from Route 7 and is an “L” shaped building. There is a forested wetland to the west and commercial hotels to the north and south. The ground surface is a mix of pavement, sidewalk, and lawn. The topography is “rolling”, rising from Route 7 to the building area which is relatively flat. The existing building was constructed at the high point of the immediate watershed with the finish floor set at existing grade.

The proposed project is a replacement of the existing Knights Inn Hotel and owner’s residence to the rear (East). The project proposes a change of use to an automotive sales dealership. This results in an increase in impervious areas. The change of use will not have a significant traffic impact on the roadway network adjacent to the project site. The automobile dealership will generate less than 500 vehicle trips per day and therefore does not qualify a land use with higher pollutant loads. Further the site drainage patterns are not influenced by on-site wetlands or floodplains

Drainage areas: Currently the facility’s stormwater drains unmitigated toward the wetland resource area to the east, and to the catch basins and stormwater collection system in Route 7. The study evaluates three design points including the wetland to the east and two catch basin inlets along Route 7.

Most of the property is in a HSG “A’ Soil. It is described as follows:

Typical soil profile per the NRCS-

H1 - 0 to 9 inches: loam

H2 - 9 to 32 inches: fine sandy loam

H3 - 32 to 64 inches: gravelly sandy loam

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr) Depth to water table: More than 80 inches. Soil characteristics were field classified and verified by advancing soil borings.

The project proposes a new 14,500 S.F. building and construction of a new bituminous concrete parking lot. The parking area will drain away from the building and includes approximately 124 parking spaces. A review of traffic generation data provided by the Institute of Transportation Engineers (ITE) for the proposed use indicates the average daily traffic is approximately 37 vehicles per day.

As a mixed new and redevelopment project, the stormwater system was designed to comply with the Massachusetts Stormwater Management Policy to the maximum extent practicable. Existing drainage and grading patterns were maintained to the maximum extent possible. A decentralizing stormwater management plan was prepared for each site area and incorporates smaller stormwater management techniques into the design that will treat and improve water quality for each of the portion of the parking area. This facilitated a shallow design approach that accommodates the 1" water quality volume and the shallow groundwater.

Water Quality Control

Several different stormwater treatment strategies are employed within the proposed expansion areas to treat the one-inch water quality volume. Details of the stormwater water management water quality control system features are as follows:

Proposed BMPs:

Deep Sump Catch Basins-The initial collection of stormwater from impervious parking areas is deep sump catch basins. The CBs will collect and treat the initial flush of stormwater.

Hydro-dynamic separator-The design includes the use of a Hydro-dynamic separator- a stormwater treatment unit.

Infiltration chambers-a series of underground storage pipes are proposed to collect stormwater and provide infiltration. The system is designed at a minimum of 2 feet of separation to groundwater.

Hydrologic Analysis

The rainfall-runoff calculated for the Site under proposed conditions was evaluated for storm events with recurrence intervals of 2, 10, 25, and 100-years. Rainfall volumes used for this analysis were based on the Extreme precipitation tables prepared by the *Northeast Regional Climate Center* for Pittsfield, Massachusetts. The values used were:

2-year storm	2.80 inches,
10-year storm	4.11 inches,
25-year storm	5.12 inches
100-year storm	7.16 inches

Runoff coefficients for the post-development conditions were determined using NRCS Technical Release 55 (TR-55) methodology as provided in HydroCAD. The project's hydrological analysis was utilized for determining hydrological flows under each storm event for the design and evaluation of the proposed water quality best management practices. Drainage areas used in the analyses are shown on the post development watershed plan. The Hydro CAD model is based on the NRCS Technical Release 20 (TR-20) Model for Project Formulation Hydrology. Detailed printouts of the Hydro CAD analyses are included in herein.

Hydraulic Analysis

All proposed drainage piping system were designed for the 10-year storm event. Drainage pipes were sized using Hydro CAD software and the pipe manufacturers capacity data. Individual reaches were designed into the network for each section of trunk storm sewer pipe and sized to avoid surcharge conditions.

Stormwater Management Regulations

The purpose of the Stormwater Management Study is to provide long-term management of stormwater quantity and quality as it relates to discharge to surface and subsurface waters. This is achieved by implementing water quality and quantity control measures designed to decrease the number of pollutants discharged from the Site, increase the quality of stormwater recharged on the Site, and control discharge rates. The following sections describe the regulations pertinent to stormwater management and the specific components of the Study to be implemented. The stormwater regulations and guidelines promulgated under the Massachusetts State Stormwater Management Regulations and Performance Standards included in the Stormwater Handbook, (Department of Environmental Protection February 2008). Further the project is subject to the *National Pollution Discharge Elimination System* stormwater permitting.

Stormwater Management Standards and Guidelines

The methods for compliance with the ten stormwater performance standards developed by the MA DEP are summarized below.

- 1. No new stormwater conveyances may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.***

All stormwater discharges are designed to connect to the Mass DOT stormwater system which is piped under the adjacent roadway. There are no proposed discharges near or adjacent wetlands.

- 2. Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.***

The following summary provides compliance with Standard #2. The post development peak discharges are less than or equal to the pre- development rates for the required design storms. Slight increase in the two year storm (< 0.71 cfs Max.) are considered de minimis. The receiving pipe network is not impacted by the smaller two-year storm event in a negligible increase in discharge.

Peak Discharge comparison summary:

Design Points	Catch Basin North	Catch Basin South	Wetland East	Total site outflow
Existing Discharge				
2 Year	0.14	0.20	0.68	1.02
10 Year	0.33	1.28	1.72	3.33
25 Year	0.50	2.42	2.64	5.56
100 Year	0.85	5.15	4.66	10.66
Proposed Discharge				
2 Year	<u>0.15</u>	<u>0.91</u>	0.36	1.42
10 Year	0.3	1.13	0.91	2.34
25 Year	0.42	1.43	1.39	3.24
100 Year	0.66	5.25	2.46	8.37

Based upon a reduction in peak discharge for all the design storms, this standard has been met.

- 3. Loss of annual recharge to ground water shall be eliminated or minimized using infiltration measures including environmentally sensitive site design, low impact***

development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

For purposes of Standards 3, only the impervious areas on the project site are used for purposes of calculating the Required Recharge Volume and the Required Water Quality Volumes. The Required Recharge Volume equals a depth of runoff corresponding to the soil type times the impervious areas covering that soil type at the post-development site. The formula includes a target depth factor in the following formula. $R_v = F \times \text{impervious area}$. F is the target depth Factor.

The standards provide depth factors as follows:

NRCS HYDROLOGIC SOIL TYPE	APPROX.SOIL TEXTURE	TARGET DEPTH FACTOR (F)
A	sandy	0.6-inch
C	silty loam	0.25-inch

Recharge Target Depth by Hydrologic Soil Group

The BMPs have been evaluated at the appropriate volumes to evaluate available volumes in the BMPs. The project proposes approximately 44,305 sf of new impervious area and a total of 73,970 sf

$R_v = F \times \text{impervious area}$

R_v = Required Recharge Volume, expressed in Ft³, cubic yards, or acre-feet

F = Target Depth Factor associated with each Hydrologic Soil Group

Impervious Area = pavement and rooftop area on site

$$R_v = [(0.60\text{-in}/12)(1.37 \text{ acres})] + [(0.25\text{-in}/12)(0.33 \text{ acres})]$$

$$R_v = 0.0685 + .0068 = 0.075375 \text{ acre-feet}$$

$R_v = 0.075375 \text{ acre-feet} \times 43560 \text{ square feet/acre-feet} = 3283 \text{ cubic feet Total}$

The project includes an underground storage system with perforated pipes which are surrounded by crushed stone. The following summarizes the size and volume of the system provided.

Chamber Model = Cultec C-100HD (Cultec Contactor® 100HD)
 Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf
 Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
 Row Length Adjustment= +0.50' x 1.86 sf x 17 rows

 36.0" Wide + 4.0" Spacing = 40.0" C-C Row Spacing

 13 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 98.00' Row Length +12.0" End Stone x 2 = 100.00' Base Length
 17 Rows x 36.0" Wide + 4.0" Spacing x 16 + 12.0" Side Stone x 2 = 58.33' Base Width
 6.0" Base + 12.5" Chamber Height + 6.0" Cover = 2.04' Field Height

 221 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 17 Rows = 3,101.3 cf Chamber Storage

 11,909.7 cf Field - 3,101.3 cf Chambers = 8,808.5 cf Stone x 40.0% Voids = 3,523.4 cf Stone Storage

 Chamber Storage + Stone Storage = 6,624.6 cf = 0.152 af
 Overall Storage Efficiency = 55.6%
 Overall System Size = 100.00' x 58.33' x 2.04'

The volume of crushed stone exceeds the required recharge volume using the static method. The entire site is collected and routed through the system and thus a capture adjustment is not required.

DRAWDOWN

The detention basin provides infiltration The basin provides > 10,000 cf of storage below the primary outlet invert. The project requests relief from this standard under the redevelopment provisions.

$$Time_{drawdown} = \frac{6624 \text{ cubic feet}}{(1.02 \text{ inches/hour})(1 \text{ ft}/12 \text{ inches})(3101 \text{ square feet})}$$

$Time_{drawdown} = 25.1 \text{ hours} < 72 \text{ Hours}$ OK -- result is satisfactory for design purposes

The standards require the drawdown occur in 72 hours the BMPs for recharge are in the hydrologic soil group 'A' soils which provide adequate infiltration rates.

Mounding Analysis

Mounding analysis is required when the vertical separation from the bottom of an exfiltration system to seasonal high groundwater is less than four (4) feet *and* the recharge system is proposed to attenuate the peak discharge from a 10-year or higher 24-hour storm (e.g., 10-year, 25-year, 50-year, or 100-year 24-hour storm).

INPUT:

- The design uses the conservative Rawls method for infiltration rates. (Sandy Loam=1.02 in/hr)
- The depth to ground water is 6 feet
- The K value of HSG "A" soils is 20 feet/day
- Design storms are 24 hours thus duration is one day
- Depth to refusal is 8 feet.

RESULTS:

Input Values		use consistent units (e.g. feet & days or inches & hours)	Conversion Table	
			inch/hour	feet/day
2.0400	R	Recharge (infiltration) rate (feet/day)	0.67	1.33
0.270	Sy	Specific yield, Sy (dimensionless, between 0 and 1)		
20.00	K	Horizontal hydraulic conductivity, Kh (feet/day)*	2.00	4.00
41.500	x	1/2 length of basin (x direction, in feet)		
18.500	y	1/2 width of basin (y direction, in feet)	hours	days
1.000	t	duration of infiltration period (days)	36	1.50
8.000	hi(0)	initial thickness of saturated zone (feet)		
11.859	h(max)	maximum thickness of saturated zone (beneath center of basin at end of infiltration period)		
3.859	Δh(max)	maximum groundwater mounding (beneath center of basin at end of infiltration period)		

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
3.859	0
3.568	20
2.357	40
1.404	50
0.791	60
0.424	70
0.217	80
0.106	90
0.050	100
0.011	120

The mounded water table does not reach the basin bottom and thus does not interfere with storage or operation of the detention BMP. The mounded water table is <4 feet while water was encountered in the soil boring at 5-6' below existing grade.

- 4. Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when:**

Project BMP design must treat the Water Quality Volume. The WQV is routed through a hydro-dynamic separator unit. As a result, the WQV is converted to a flow rate. DEP policies provide a methodology that is acceptable for this situation.

Compute Q rate using the following equation:

$$Q = (q_u)(A)(WQV)$$

Where:

Q = flow rate associated with first 1/2 -inch of runoff

q_u = the unit peak discharge, in csm/in.

A = impervious surface drainage area (in square miles)

WQV = water quality volume in watershed inches (1 -inch in this case)

This contributing area is approximately 74,000 sf in size and has a RCN of 98. The time of concentration was calculated at 0.06 hours including sheet flow and overland flow over the paved surface. The provided Ia/P curve indicates the value of q_u is 800 CSM/in. the resulting flow is

$$Q = (800)(1.7 \text{ acres})(0.0015625 \text{ mi}^2/\text{acre})(0.5 \text{ inch})$$

$$Q = 1.06 \text{ cfs}$$

The design proposes a Cascade separator CS-4 unit to meet these design specifications. The predicted net annual removal rate is 89.07%

The Project has been designed to comply with Standard 4. The proposed stormwater management system implements a treatment train of BMPs that has been designed to provide a minimum of 80% TSS removal of stormwater runoff from proposed impervious surfaces. Infiltration is intended to capture roof top runoff only thus pretreatment is not required for the infiltration BMPS.

5. For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented

This project site area is not a LUHPPL due to the average daily traffic predicted at <500 trips per day which is less than the 1000 trips per day threshold. Therefore, this project has not been designed with BMPs sized to treat the 1-inch Water Quality Volume and provide the pretreatment requirement of 44% TSS removal. This standard has been met.

6. Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices.

There are no mapped Coldwater fisheries or other critical areas near or immediately downstream of this location. As a result, standard #6 is not applicable.

7. A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

The project is a redevelopment project. The design was completed to fully comply with the stormwater standards.

8. A plan to control construction related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

Recommended erosion and sedimentation control practices are included in the project plans. Specifically, the plan set includes an erosion control plan. A maintenance

checklist recommended for evaluating erosion control BMPs is also included in a written plan included in Appendix F.

9. An Operation and Maintenance Plan shall be developed and implemented to ensure that stormwater management systems function as designed in compliance with Standard 9.

A Post Construction Stormwater Operation and Maintenance (O&M) Plan has been developed for the Project. The O&M Plan is included herein.

10. All illicit discharges to the stormwater management system are prohibited.

Sanitary Sewer from the site is sent to the Pittsfield municipal sanitary sewer system. No illicit discharges to the stormwater management system are known to exist on site. An Illicit Discharge Compliance Statement signed by the property owner is included in this report.

Appendix A

Stormwater Management Checklist



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

Signature and Date

[Handwritten Signature] Sept. 22, 2012

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- ☐ New development
- ☐ Redevelopment
- ☒ Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☒ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
 - ☐ Credit 1
 - ☐ Credit 2
 - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☒ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): _____

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- ☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☒ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- ☒ Soil Analysis provided.
- ☒ Required Recharge Volume calculation provided.
- ☐ Required Recharge volume reduced through use of the LID site Design Credits.
- ☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - ☒ Static
 - ☐ Simple Dynamic
 - ☐ Dynamic Field¹
- ☒ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
 - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
 - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- ☒ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☒ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - ☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - ☐ is within the Zone II or Interim Wellhead Protection Area
 - ☐ is near or to other critical areas
 - ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - ☐ involves runoff from land uses with higher potential pollutant loads.
 - ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - ☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- ☒ The BMP is sized (and calculations provided) based on:
 - ☒ The $\frac{1}{2}$ " or 1" Water Quality Volume or
 - ☒ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☒ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted *prior to* the discharge of stormwater to the post-construction stormwater BMPs.
- ☐ The NPDES Multi-Sector General Permit does *not* cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☐ All exposure has *not* been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- ☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- ☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - ☐ Limited Project
 - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - ☐ Bike Path and/or Foot Path
- ☐ Redevelopment Project
- ☒ Redevelopment portion of mix of new and redevelopment.
- ☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- ☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- ☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☐ The project is **not** covered by a NPDES Construction General Permit.
- ☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted **BEFORE** land disturbance begins.

Standard 9: Operation and Maintenance Plan

- ☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - ☒ Name of the stormwater management system owners;
 - ☒ Party responsible for operation and maintenance;
 - ☒ Schedule for implementation of routine and non-routine maintenance tasks;
 - ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
 - ☐ Description and delineation of public safety features;
 - ☐ Estimated operation and maintenance budget; and
 - ☒ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- ☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☒ An Illicit Discharge Compliance Statement is attached;
- ☐ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

Appendix B

Rainfall Data

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	Massachusetts
Location	
Longitude	73.265 degrees West
Latitude	42.403 degrees North
Elevation	0 feet
Date/Time	Fri, 16 Sep 2022 07:34:22 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.31	0.47	0.58	0.76	0.96	1.18	1yr	0.82	1.07	1.35	1.65	1.99	2.41	2.70	1yr	2.13	2.59	3.02	3.60	4.12	1yr
2yr	0.36	0.55	0.69	0.91	1.14	1.42	2yr	0.99	1.27	1.61	1.95	2.34	2.80	3.15	2yr	2.48	3.03	3.53	4.22	4.82	2yr
5yr	0.43	0.67	0.85	1.13	1.45	1.80	5yr	1.25	1.59	2.06	2.48	2.95	3.48	3.94	5yr	3.08	3.79	4.42	5.14	5.89	5yr
10yr	0.49	0.78	0.98	1.33	1.73	2.17	10yr	1.49	1.87	2.48	2.98	3.52	4.11	4.67	10yr	3.64	4.49	5.23	5.97	6.86	10yr
25yr	0.59	0.93	1.19	1.65	2.20	2.77	25yr	1.89	2.34	3.16	3.78	4.44	5.12	5.85	25yr	4.54	5.63	6.55	7.28	8.41	25yr
50yr	0.68	1.09	1.40	1.96	2.64	3.33	50yr	2.27	2.77	3.81	4.53	5.28	6.06	6.95	50yr	5.36	6.68	7.77	8.48	9.81	50yr
100yr	0.79	1.27	1.64	2.32	3.17	4.01	100yr	2.73	3.28	4.58	5.44	6.30	7.16	8.26	100yr	6.34	7.94	9.23	9.87	11.45	100yr
200yr	0.91	1.48	1.92	2.75	3.80	4.83	200yr	3.28	3.89	5.51	6.52	7.50	8.47	9.81	200yr	7.50	9.43	10.96	11.50	13.37	200yr
500yr	1.12	1.84	2.40	3.48	4.86	6.19	500yr	4.19	4.87	7.05	8.28	9.46	10.59	12.34	500yr	9.37	11.86	13.76	14.09	16.43	500yr

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.48	0.65	0.80	0.95	1yr	0.69	0.93	1.05	1.22	1.44	2.16	2.43	1yr	1.91	2.34	2.73	3.23	3.46	1yr
2yr	0.35	0.54	0.66	0.89	1.10	1.24	2yr	0.95	1.22	1.40	1.77	2.23	2.72	3.05	2yr	2.40	2.93	3.45	4.14	4.66	2yr
5yr	0.39	0.61	0.76	1.04	1.32	1.50	5yr	1.14	1.46	1.67	2.09	2.65	3.27	3.68	5yr	2.89	3.53	4.12	4.83	5.55	5yr
10yr	0.40	0.61	0.76	1.06	1.37	1.72	10yr	1.18	1.68	1.69	2.37	2.97	3.67	4.16	10yr	3.25	4.00	4.67	5.42	6.21	10yr
25yr	0.42	0.63	0.79	1.12	1.48	2.07	25yr	1.28	2.02	1.86	2.78	3.39	4.27	4.90	25yr	3.78	4.71	5.46	6.34	7.22	25yr
50yr	0.42	0.64	0.79	1.14	1.54	2.39	50yr	1.33	2.34	1.99	3.15	3.74	4.80	5.56	50yr	4.25	5.35	6.12	7.13	8.08	50yr
100yr	0.41	0.63	0.78	1.13	1.55	2.75	100yr	1.34	2.69	2.09	3.58	4.15	5.40	6.32	100yr	4.78	6.08	6.88	8.05	8.86	100yr
200yr	0.74	1.11	1.41	2.04	2.85	3.20	200yr	2.46	3.13	2.18	4.12	4.58	6.05	7.19	200yr	5.35	6.91	7.75	9.12	9.79	200yr
500yr	0.36	0.53	0.68	0.99	1.41	3.93	500yr	1.21	3.84	2.22	4.68	5.25	7.04	8.53	500yr	6.23	8.21	9.07	10.78	11.22	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.36	0.56	0.69	0.92	1.13	1.26	1yr	0.98	1.23	1.40	1.61	2.19	2.61	2.93	1yr	2.31	2.82	3.28	3.86	4.44	1yr
2yr	0.38	0.59	0.72	0.98	1.21	1.40	2yr	1.04	1.37	1.55	1.97	2.53	2.93	3.30	2yr	2.60	3.17	3.70	4.31	5.02	2yr
5yr	0.48	0.73	0.91	1.25	1.59	1.74	5yr	1.37	1.70	1.96	2.49	3.01	3.74	4.25	5yr	3.31	4.09	4.74	5.49	6.27	5yr
10yr	0.58	0.89	1.11	1.55	2.00	2.11	10yr	1.72	2.06	2.48	3.01	3.53	4.58	5.25	10yr	4.05	5.05	5.81	6.60	7.52	10yr
25yr	0.75	1.14	1.42	2.03	2.67	2.71	25yr	2.31	2.65	3.30	3.90	4.47	5.99	6.89	25yr	5.30	6.63	7.64	8.43	9.59	25yr
50yr	0.91	1.39	1.73	2.48	3.34	3.29	50yr	2.88	3.22	4.11	4.75	5.33	7.37	8.52	50yr	6.52	8.19	9.44	10.12	11.54	50yr
100yr	1.12	1.69	2.12	3.06	4.19	3.96	100yr	3.62	3.87	5.14	5.78	6.34	9.06	10.54	100yr	8.02	10.13	11.67	12.17	13.88	100yr
200yr	1.26	1.90	2.41	3.49	4.86	4.79	200yr	4.20	4.68	6.43	7.01	7.54	11.15	13.02	200yr	9.87	12.52	14.37	14.64	16.73	200yr
500yr	1.82	2.70	3.48	5.05	7.19	6.13	500yr	6.20	5.99	8.71	8.77	9.46	14.72	17.25	500yr	13.03	16.58	19.00	18.67	21.45	500yr

Appendix C

NRCS Soil Survey



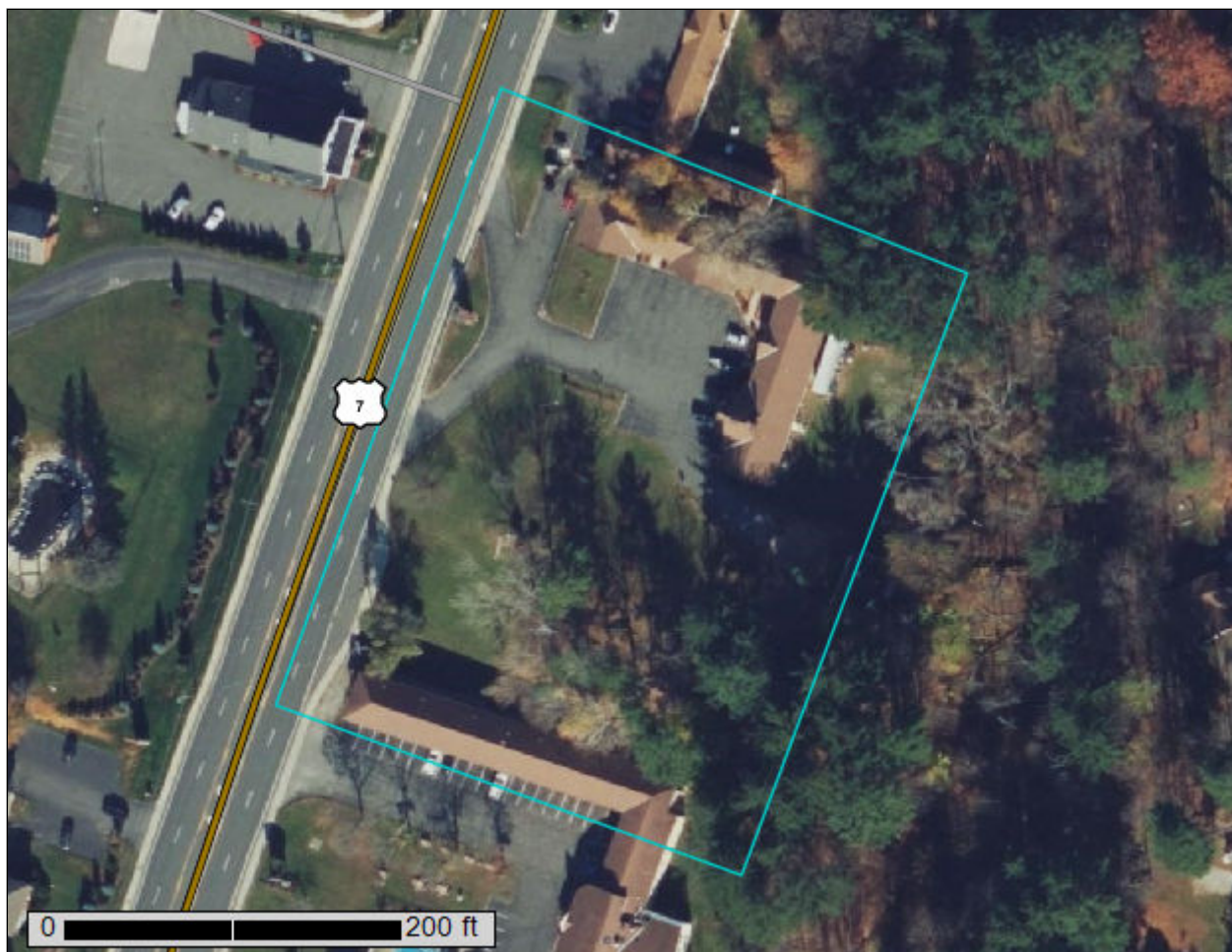
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Berkshire County, Massachusetts



September 17, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Berkshire County, Massachusetts

Survey Area Data: Version 16, Sep 2, 2021

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

Date(s) aerial images were photographed: Aug 15, 2021—Nov 8, 2021

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
76B	Kendaia silt loam, 3 to 8 percent slopes	0.5	19.5%
633C	Pittsfield-Urban land complex, 0 to 15 percent slopes	2.1	80.5%
Totals for Area of Interest		2.6	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Berkshire County, Massachusetts

76B—Kendaia silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 98tr
Elevation: 610 to 1,670 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Kendaia and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kendaia

Setting

Landform: Depressions
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Friable fine-loamy eolian deposits over dense fine-loamy lodgment till derived from phyllite

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 26 inches: silt loam
H3 - 26 to 64 inches: gravelly silt loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Amenia

Percent of map unit: 6 percent
Hydric soil rating: No

Lyons

Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

633C—Pittsfield-Urban land complex, 0 to 15 percent slopes

Map Unit Setting

National map unit symbol: 98w1
Elevation: 0 to 1,000 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Pittsfield and similar soils: 60 percent
Urban land: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pittsfield

Setting

Landform: Drumlinoid ridges
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Friable coarse-loamy eolian deposits over friable, calcareous coarse-loamy basal till derived from limestone

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 32 inches: fine sandy loam
H3 - 32 to 64 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Custom Soil Resource Report

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: A

Ecological site: F144BY506ME - Semi-rich Till Slope

Hydric soil rating: No

Description of Urban Land

Setting

Parent material: Excavated & filled land

Minor Components

Berkshire

Percent of map unit: 7 percent

Hydric soil rating: No

Marlow

Percent of map unit: 6 percent

Hydric soil rating: No

Kendaia

Percent of map unit: 2 percent

Landform: Depressions

Hydric soil rating: Yes

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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

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Appendix D

Hydro-dynamic Separator Calculations and Specifications

Hydrodynamic Separation Product Calculator

Berkshire MAZDA

parking area

CASCADE SEPARATOR CS-4

Project Information					
Project Name	Berkshire MAZDA			Option #	A
Country	UNITED_STATES	State	Massachusetts	City	Lenox

Contact Information			
First Name	James	Last Name	m Scalise
Company	SK Design Group, Inc	Phone #	413-443-3537
Email	jscalise@sk-dg.com		

Design Criteria					
Site Designation	parking area			Sizing Method	Net Annual
Screening Required?	No	Drainage Area (ac)	1.70	Peak Flow (cfs)	1.06
Groundwater Depth (ft)	5 - 10	Pipe Invert Depth (ft)	0 - 5	Bedrock Depth (ft)	5 - 10
Multiple Inlets?	No	Grate Inlet Required?	Yes	Pipe Size (in)	12.00
Required Particle Size Distribution?	No	90° between two inlets?	N/A	180° between inlet and outlet?	No
Runoff Coefficient	0.90	Rainfall Station	68 - Blue Hill, MA	TC (Min)	4

Treatment Selection					
Treatment Unit	CASCADE SEPARATOR	System Model	CS-4		
Target Removal	80%	Particle Size Distribution (PSD)	110	Predicted Net Annual Removal	89.07%

[illegible]

SECTION (____)
STORM WATER TREATMENT DEVICE

1.0 GENERAL

- 1.1 This item shall govern the furnishing and installation of the Cascade Separator™ by Contech Engineered Solutions LLC, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents.
- 1.2 The Contractor shall furnish all labor, equipment and materials necessary to install the storm water treatment device(s) (SWTD) and appurtenances specified in the Drawings and these specifications.
- 1.3 The manufacturer of the SWTD shall be one that is regularly engaged in the engineering design and production of systems deployed for the treatment of storm water runoff for at least five (5) years and which have a history of successful production, acceptable to the Engineer. In accordance with the Drawings, the SWTD(s) shall be a Cascade Separator™ device manufactured by:

Contech Engineered Solutions LLC
9025 Centre Pointe Drive
West Chester, OH, 45069
Tel: 1 800 338 1122

1.4 Related Sections

- 1.4.1 Section 02240: Dewatering
 - 1.4.2 Section 02260: Excavation Support and Protection
 - 1.4.3 Section 02315: Excavation and Fill
 - 1.4.4 Section 02340: Soil Stabilization
- 1.5 All components shall be subject to inspection by the engineer at the place of manufacture and/or installation. All components are subject to being rejected or identified for repair if the quality of materials and manufacturing do not comply with the requirements of this specification. Components which have been identified as defective may be subject for repair where final acceptance of the component is contingent on the discretion of the Engineer.
- 1.6 The manufacturer shall guarantee the SWTD components against all manufacturer originated defects in materials or workmanship for a period of twelve (12) months from the date the components are delivered to the owner for installation. The manufacturer shall upon its determination repair, correct or replace any manufacturer originated defects advised in writing to the manufacturer within the referenced warranty period. The use of SWTD components shall be limited to the application for which it was specifically designed.
- 1.7 The SWTD manufacturer shall submit to the Engineer of Record a "Manufacturer's Performance Certification" certifying that each SWTD is capable of achieving the specified removal efficiencies listed in these specifications. The certification shall be supported by independent third-party research

- 1.8 No product substitutions shall be accepted unless submitted 10 days prior to project bid date, or as directed by the Engineer of Record. Submissions for substitutions require review and approval by the Engineer of Record, for hydraulic performance, impact to project designs, equivalent treatment performance, and any required project plan and report (hydrology/hydraulic, water quality, stormwater pollution) modifications that would be required by the approving jurisdictions/agencies. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

2.0 MATERIALS

- 2.1 Housing unit of stormwater treatment device shall be constructed of pre-cast or cast-in-place concrete, no exceptions. Precast concrete components shall conform to applicable sections of ASTM C 478, ASTM C 857 and ASTM C 858 and the following:
- 2.1.1 Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square-inch (psi);
 - 2.1.2 Unless otherwise noted, the precast concrete sections shall be designed to withstand lateral earth and AASHTO H-20 traffic loads;
 - 2.1.3 Cement shall be Type III Portland Cement conforming to ASTM C 150;
 - 2.1.4 Aggregates shall conform to ASTM C 33;
 - 2.1.5 Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to ASTM A 615, A 185, or A 497.
 - 2.1.6 Joints shall be sealed with preformed joint sealing compound conforming to ASTM C 990.
 - 2.1.7 Shipping of components shall not be initiated until a minimum compressive strength of 4,000 psi is attained or five (5) calendar days after fabrication has expired, whichever occurs first.
- 2.2 Internal Components and appurtenances shall conform to the following:
- 2.2.1 Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
 - 2.2.2 Support brackets shall be manufactured of 5052 Aluminum
 - 2.2.3 Fiberglass components shall conform to applicable sections of ASTM D-4097
 - 2.2.4 Access system(s) conform to the following:
 - 2.2.5 Manhole castings shall be designed to withstand AASHTO H-20 loadings and manufactured of cast-iron conforming to ASTM A 48 Class 30.

3.0 PERFORMANCE

- 3.1 The SWTD shall be capable of achieving an annualized weighted reduction of at least 80% of the OK-110 particle distribution having particles ranging from 53 microns to 212 microns with a d_{50} of approximately 110 microns unless otherwise stated.
- 3.2 The SWTD shall be designed with a sump chamber for the storage of captured sediments and other negatively buoyant pollutants in between maintenance cycles. The minimum storage capacity provided by the sump chamber shall be in accordance with the volume listed in Table 1. The boundaries of the sump chamber shall be limited to that which do not degrade the

SWTD's treatment efficiency as captured pollutants accumulate. In order to not restrict the Owner's ability to maintain the SWTD, the minimum dimension providing access from the ground surface to the sump chamber shall be 16 inches in diameter.

- 3.3 The SWTD shall be designed to capture and retain Total Petroleum Hydrocarbons generated by wet-weather flow and dry-weather gross spills and have a capacity listed in Table 1 of the required unit.
- 3.4 The SWTD shall convey the flow from the peak storm event of the drainage network, in accordance with required hydraulic upstream conditions as defined by the Engineer. If a substitute SWTD is proposed, supporting documentation shall be submitted that demonstrates equal or better upstream hydraulic conditions compared to that specified herein. This documentation shall be signed and sealed by a Professional Engineer registered in the State of the work. All costs associated with preparing and certifying this documentation shall be born solely by the Contractor.

4.0 EXECUTION

- 4.1 The contractor shall exercise care in the storage and handling of the SWTD components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the contractor.
- 4.2 The SWTD shall be installed in accordance with the manufacturer's recommendations and related sections of the contract documents. The manufacturer shall provide the contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional expense. A minimum of 72 hours notice shall be provided to the manufacturer prior to their performance of the services included under this subsection.
- 4.3 The contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces. The contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner, which leaves no sharp points or edges.
- 4.4 The contractor shall removal all loose material and pooling water from the SWTD prior to the transfer of operational responsibility to the Owner.

TABLE 1: Storm Water Treatment Device Storage Capacities

Cascade Model	Minimum Sump Storage Capacity (yd ³)	Minimum Oil Storage Capacity (gal)
CS-4	0.70	141.0
CS-5	1.09	269.3
CS-6	1.57	475.9
CS-8	2.79	1128.0
CS-10	4.36	2203.2
CS-12	6.28	3807.1

END OF SECTION

CASCADE SEPARATOR DESIGN NOTES

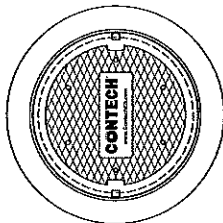
THE STANDARD CS-4 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION

- GRATED INLET ONLY (NO INLET PIPE)
- GRATED INLET WITH INLET PIPE OR PIPES
- CURB INLET ONLY (NO INLET PIPE)
- CURB INLET WITH INLET PIPE OR PIPES

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	
WATER QUALITY FLOW RATE (cfs [L/s])	
PEAK FLOW RATE (cfs [L/s])	
RETURN PERIOD OF PEAK FLOW (yr)	
RIM ELEVATION	
PIPE DATA:	
INLET PIPE 1	
INLET PIPE 2	
OUTLET PIPE	
NOTES/SPECIAL REQUIREMENTS:	



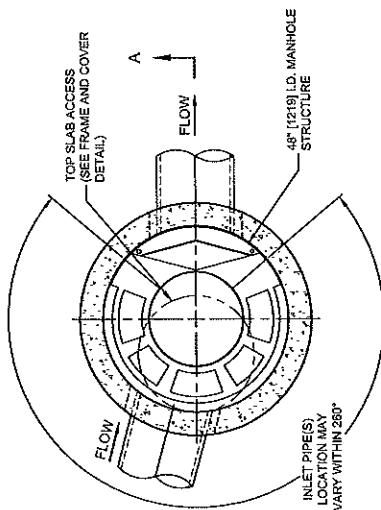
FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

GENERAL NOTES

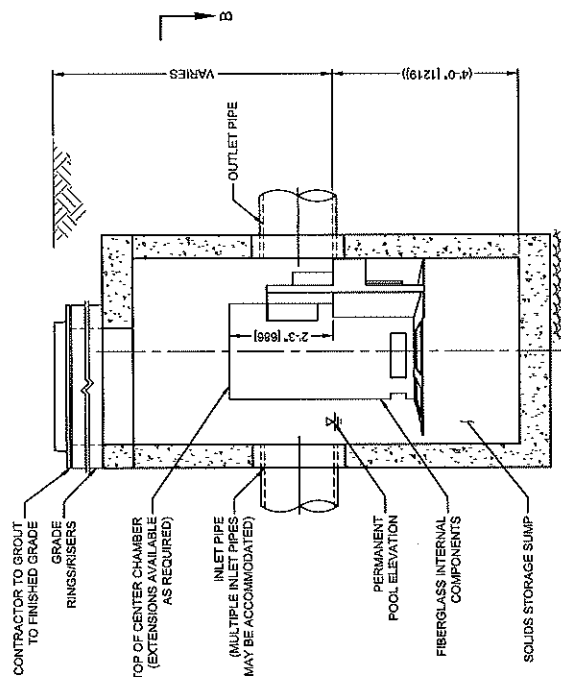
- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEER.
- THIS DRAWING IS FOR INFORMATION ONLY. THE CONTRACTOR SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THE CASCADE SEPARATOR WATER QUALITY STRUCTURES MANUAL.
- CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO H20-44 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' (610) AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
- CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
- ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

INSTALLATION NOTES

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE DETERMINED BY THE ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLY STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.



PLAN VIEW B-B
NOT TO SCALE



ELEVATION A-A
NOT TO SCALE

CASCADE
separator™

CONTECH
ENGINEERED SOLUTIONS LLC

www.conteches.com
8025 Centre Pointe Dr., Suite 400, West Chester, OH 45389
800-338-1122 513-645-7000 513-645-7993 FAX

CS-4
CASCADE SEPARATOR
STANDARD DETAIL

Appendix E
Operation and Maintenance Plan/
Illicit Discharge Statement

Stormwater Management System
Operation and Maintenance Plan (O&M)
And
Illicit Discharge Statement

This Stormwater Management System Operation and Maintenance Plan provides for the inspection and maintenance of structural Best Management Practices (BMPs) to prevent pollution associated with the proposed car dealership Project located at 474 Pittsfield Rd., Lenox, Massachusetts

This document has been prepared in accordance with the requirements of the Stormwater Regulations included in the Massachusetts Wetlands Protection Act Regulations (310 CMR 10).

Stormwater Management System Owner:

474 Pittsfield Rd. LLC
Lenox, MA

A complete and thorough inspection of the stormwater management system shall be performed once a month during the first six months of operation and then as prescribed below. The Inspection and Maintenance Forms provided in Attachment A shall be prepared by qualified personnel.

The stormwater management system will be maintained properly to assure its continued performance, as follows.

1. Bioretention cells (rain gardens)

Bioretention requires careful attention while plants are being established and seasonal landscaping maintenance thereafter. In many cases, maintenance tasks can be completed by a landscaping contractor working elsewhere on the site.

- a. Inspect pretreatment devices and bioretention cells regularly for sediment build-up, structural damage, and standing water.
- b. Inspect soil and repair eroded areas monthly. Re-mulch void areas as needed. Remove litter and debris monthly.
- c. Treat diseased vegetation as needed. Remove and replace dead vegetation twice per year (spring and fall.)
- d. Proper selection of plant species and support during establishment of vegetation should minimize—if not eliminate—the need for fertilizers and pesticides.

- e. Remove invasive species as needed to prevent these species from spreading into the bioretention area.
- f. Replace mulch every two years, in the early spring.
- g. Upon failure, excavate bioretention area, scarify bottom and sides, replace filter fabric and soil, replant, and mulch.

Maintenance

Activity	Frequency
Inspect and remove trash	Monthly
Mow	2 to 12 times per year
Mulch	Annually
Fertilize	Annually
Remove dead vegetation	Annually
Prune	Annually

2. Hydro-dynamic separator

The effectiveness of the hydro-dynamic separator units depends upon regular maintenance. Regular maintenance includes scheduled inspections and sediment removal. See attached plan and detail of separator unit.

- Inspect separator unit regularly for sediment (and debris) accumulation and integrity of structure(s).
- The units should be cleaned four times per year or if sediment accumulation is greater than 15% within sump.
- The sediment should be removed by means of a vacuum pump. Oil is removed through the 6" diameter inspection/oil port, while the sediment is removed from the 24" diameter drop outlet pipe.
- The removed waste shall be handled properly and disposed of in accordance with all local, state, and federal guidelines and regulations.

Prohibition of Illicit Discharges

The DEP Stormwater Management Standards prohibit illicit discharges to the storm water management system. Illicit discharges are discharges that do not entirely consist of stormwater, except for certain specified non-stormwater discharges.

Discharges from the following activities are not considered illicit discharges:

- firefighting foundation drains
- water line flushing footing drains
- landscape irrigation individual resident car washing
- uncontaminated groundwater flows from riparian habitats and wetlands
- potable water sources dechlorinated water from swimming pools
- water used to clean residential buildings
- without detergents
- water used for street washing
- air conditioning condensation
- Pool water will be dechlorinated and within a pH range of 7.2 to 7.8 prior to discharge to the stormwater infiltration system.

There are no known or proposed illicit connections associated with this project.

Record Keeping

An "Inspection and Maintenance Form" shall be filled out each time a stormwater management system inspectional or maintenance work is performed. A binder shall be kept by the Owner or designated representative that contains all the completed inspection forms and/or photographs and related material.

Additionally, all operation and maintenance records shall be retained for at least three (3) years and be provided to the Lenox Building Department upon request.

Car Dealership
474 Pittsfield Rd.
Lenox, MA

Stormwater Operations and Maintenance Agreement

474 Pittsfield Rd. LLC

By signing this statement, I confirm that 474 Pittsfield Rd. LLC is responsible for the operation and maintenance of the stormwater management facilities and associated stormwater management features located at 474 Pittsfield Rd., Lenox, Massachusetts. 474 Pittsfield Rd. LLC has read and understands the requirements of this Operation and Maintenance Plan. Maintenance will be conducted in accordance with this Operation and Maintenance Plan and with the MassDEP Stormwater Policy Manual.

This Agreement shall be binding upon 474 Pittsfield Rd. LLC and its successors and assigns. Written notice of the transfer of all its rights and obligations under this Agreement must be provided to the town of Lenox.

By the Owner:

474 Pittsfield Rd. LLC

By: _____ Date: ____/____/2022

G:\SK DESIGN GROUP\2022\220057 Sheehan-Ptsf Rd, Lenox-Auto Dealership\Documents\Word\Stormwater\O&M narrative.docx

Illicit Discharge Compliance Statement

Berkshire Mazda

Pittsfield, Massachusetts

Berkshire Mazda is/will be connected to the City of Pittsfield/Town of Lenox sanitary sewerage system and does not have any illicit discharges from the site. The design plans have been designed in full compliance with current standards. The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges.

By the Owner:

Berkshire Mazda

By: Jim Salvie Date: 11/07/2022

Appendix F

Erosion Control Plan

Erosion Control Plan

(Refer to erosion control drawing)

The following erosion and sedimentation controls are for use during the earthwork and construction phases of the project. The following controls are provided as recommendations for the site contractor and do not constitute or replace the final Stormwater Pollution Prevention Plan that must be fully implemented by the Contractor and owner in Compliance with EPA NPDES regulations.

Strawbale Barriers

Straw bale barriers will be placed to trap sediment transported by runoff before it reaches the drainage system or leaves the construction site. Bales will be set at least four inches into the existing ground to minimize undercutting by runoff.

Silt Fencing

In areas where high runoff velocities or high sediment loads are expected, straw bale barriers will be backed up with silt fencing. This semi-permeable barrier made of a synthetic porous fabric will provide additional protection. The silt fences and hay bale barrier will be replaced as determined by periodic field inspections.

Catch Basin Protection

Newly constructed and existing catch basins will be protected with straw bale barriers (where appropriate) or silt sacks throughout construction.

Tracking Pad- Entrance/Exit

A temporary crushed-stone construction entrance/exit will be constructed. A cross slope will be placed in the entrance to direct runoff to a protected catch basin inlet or settling area. If deemed necessary after construction begins, a wash pad may be included to wash off vehicle wheels before leaving the project site.

Diversion Channels

Diversion channels will be used to collect runoff from construction areas and discharge to either sedimentation basins or protected catch basin inlets.

Temporary Sediment Basins

Temporary sediment basins will be designed either as excavations or bermed stormwater detention structures (depending on grading) that will retain runoff for a sufficient period to allow suspended soil particles to settle out prior to discharge. These temporary basins will be located based on construction

needs as determined by the contractor and outlet devices will be designed to control velocity and sediment. Points of discharge from sediment basins will be stabilized to minimize erosion.

Vegetative Slope Stabilization

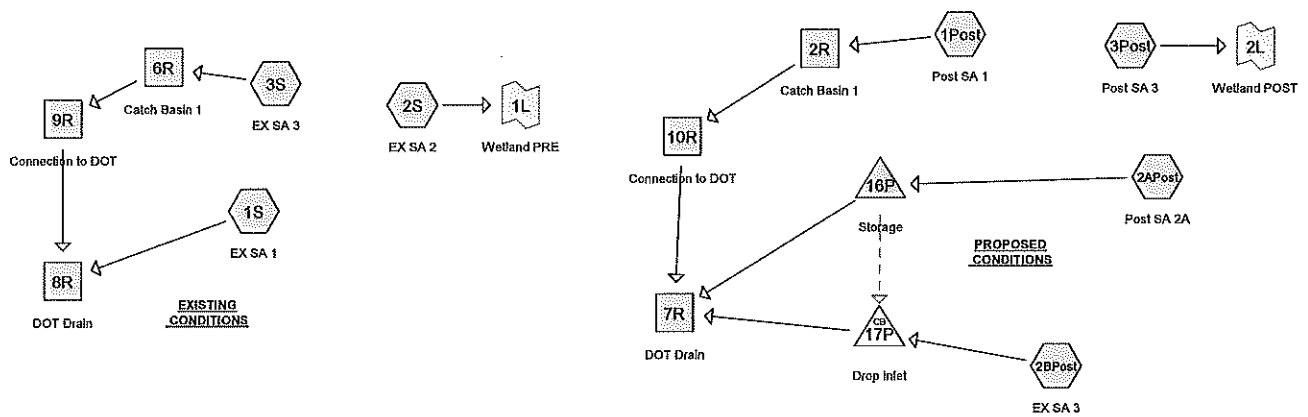
Stabilization of open soil surfaces will be implemented within 14 days after grading or construction activities have temporarily or permanently ceased unless there is sufficient snow cover to prohibit implementation. Vegetative slope stabilization will be used to minimize erosion on slopes of 3:1 or flatter. Annual grasses, such as annual rye, will be used to ensure rapid germination and production of root mass. Permanent stabilization will be completed with the planting of perennial grasses or legumes. Establishment of temporary and permanent vegetative cover may be established by hydro-seeding or sodding. A suitable topsoil, good seedbed preparation, and adequate lime, fertilizer and water will be provided for effective establishment of these vegetative stabilization methods. Mulch will also be used after permanent seeding to protect soil from the impact of falling rain and to increase the capacity of the soil to absorb water.

Maintenance

1. The contractor or subcontractor will be responsible for implementing each control shown on the Sedimentation and Erosion Control Plan. In accordance with EPA regulations, the contractor must sign a copy of a certification to verify that a plan has been prepared and that permit regulations are understood.
2. The on-site contractor will inspect all sediment and erosion control structures periodically and after each rainfall event. Records of the inspections will be prepared and maintained on-site by the contractor.
3. Silt shall be removed from behind barriers if greater than 6-inches deep or as needed.
4. Damaged or deteriorated items will be repaired immediately after identification.
5. The underside of hay bales should be kept in close contact with the earth and reset as necessary.
6. Sediment that is collected in structures shall be disposed of properly and covered if stored on-site.
7. Erosion control structures shall remain in place until all disturbed earth has been securely stabilized. After removal of structures, disturbed areas shall be regraded and stabilized as necessary.

Appendix G

Hydro Cad Calculations



Routing Diagram for Calcs Nov 22
 Prepared by SK Design Group, Inc. Printed 11/11/2022
 HydroCAD® 10.00-20 s/n 01869 © 2017 HydroCAD Software Solutions LLC

Calcs Nov 22

Prepared by SK Design Group, Inc

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

Printed 11/11/2022

Page 2

Summary for Subcatchment 1Post: Post SA 1

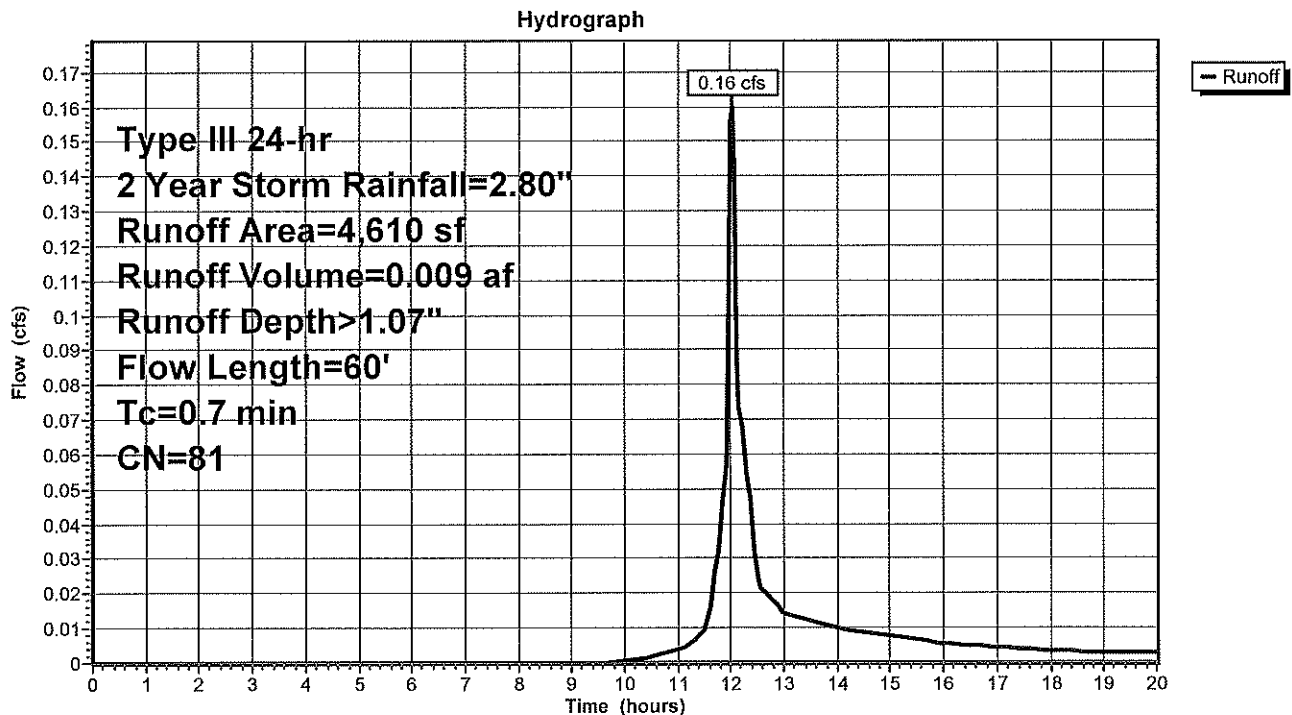
Runoff = 0.16 cfs @ 12.02 hrs, Volume= 0.009 af, Depth> 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=2.80"

	Area (sf)	CN	Description
*	3,250	98	Paved Drive,HSG A
	1,360	39	>75% Grass cover, Good, HSG A
	4,610	81	Weighted Average
	1,360		29.50% Pervious Area
	3,250		70.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	10	0.2500	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.1	50	0.0850	5.92		Shallow Concentrated Flow, sriveway Paved Kv= 20.3 fps
0.7	60	Total			

Subcatchment 1Post: Post SA 1



Calcs Nov 22

Prepared by SK Design Group, Inc

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

Printed 11/11/2022

Page 3

Hydrograph for Subcatchment 1Post: Post SA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	2.10	0.67	0.01
0.25	0.01	0.00	0.00	13.25	2.15	0.70	0.01
0.50	0.01	0.00	0.00	13.50	2.19	0.73	0.01
0.75	0.02	0.00	0.00	13.75	2.23	0.76	0.01
1.00	0.03	0.00	0.00	14.00	2.27	0.78	0.01
1.25	0.03	0.00	0.00	14.25	2.30	0.81	0.01
1.50	0.04	0.00	0.00	14.50	2.34	0.83	0.01
1.75	0.05	0.00	0.00	14.75	2.36	0.85	0.01
2.00	0.06	0.00	0.00	15.00	2.39	0.87	0.01
2.25	0.06	0.00	0.00	15.25	2.42	0.88	0.01
2.50	0.07	0.00	0.00	15.50	2.44	0.90	0.01
2.75	0.08	0.00	0.00	15.75	2.46	0.92	0.01
3.00	0.09	0.00	0.00	16.00	2.48	0.93	0.01
3.25	0.09	0.00	0.00	16.25	2.50	0.94	0.01
3.50	0.10	0.00	0.00	16.50	2.52	0.95	0.01
3.75	0.11	0.00	0.00	16.75	2.53	0.96	0.00
4.00	0.12	0.00	0.00	17.00	2.55	0.98	0.00
4.25	0.13	0.00	0.00	17.25	2.56	0.99	0.00
4.50	0.14	0.00	0.00	17.50	2.57	1.00	0.00
4.75	0.15	0.00	0.00	17.75	2.59	1.00	0.00
5.00	0.16	0.00	0.00	18.00	2.60	1.01	0.00
5.25	0.17	0.00	0.00	18.25	2.61	1.02	0.00
5.50	0.18	0.00	0.00	18.50	2.62	1.03	0.00
5.75	0.19	0.00	0.00	18.75	2.63	1.04	0.00
6.00	0.20	0.00	0.00	19.00	2.64	1.04	0.00
6.25	0.21	0.00	0.00	19.25	2.65	1.05	0.00
6.50	0.23	0.00	0.00	19.50	2.66	1.06	0.00
6.75	0.24	0.00	0.00	19.75	2.67	1.07	0.00
7.00	0.25	0.00	0.00	20.00	2.68	1.07	0.00
7.25	0.27	0.00	0.00				
7.50	0.28	0.00	0.00				
7.75	0.30	0.00	0.00				
8.00	0.32	0.00	0.00				
8.25	0.34	0.00	0.00				
8.50	0.36	0.00	0.00				
8.75	0.38	0.00	0.00				
9.00	0.41	0.00	0.00				
9.25	0.44	0.00	0.00				
9.50	0.46	0.00	0.00				
9.75	0.50	0.00	0.00				
10.00	0.53	0.00	0.00				
10.25	0.57	0.00	0.00				
10.50	0.61	0.01	0.00				
10.75	0.65	0.01	0.00				
11.00	0.70	0.02	0.00				
11.25	0.76	0.03	0.01				
11.50	0.83	0.05	0.01				
11.75	0.99	0.10	0.03				
12.00	1.40	0.26	0.16				
12.25	1.81	0.48	0.06				
12.50	1.97	0.58	0.02				
12.75	2.04	0.63	0.02				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Summary for Subcatchment 1S: EX SA 1

Runoff = 0.20 cfs @ 12.10 hrs, Volume= 0.029 af, Depth> 0.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=2.80"

Area (sf)	CN	Description
11,850	98	Paved parking, HSG A
1,810	96	Gravel surface, HSG A
1,430	96	Gravel surface, HSG C
6,570	98	Roofs, HSG A
* 3,105	98	sidewalk/Concrete, HSG A
33,525	39	>75% Grass cover, Good, HSG A
260	74	>75% Grass cover, Good, HSG C
7,750	30	Woods, Good, HSG A
430	70	Woods, Good, HSG C
66,730	60	Weighted Average
45,205		67.74% Pervious Area
21,525		32.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0500	1.62		Sheet Flow, Gravel Driveway Smooth surfaces n= 0.011 P2= 2.80"
0.4	64	0.0350	2.81		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
0.8	69	0.0739	1.36		Shallow Concentrated Flow, woods Woodland Kv= 5.0 fps
0.1	30	0.3300	8.62		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
1.2	119	0.0120	1.64		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
0.2	20	0.0100	2.03		Shallow Concentrated Flow, at Catch Basin Paved Kv= 20.3 fps
3.2	352	Total			

Calcs Nov 22

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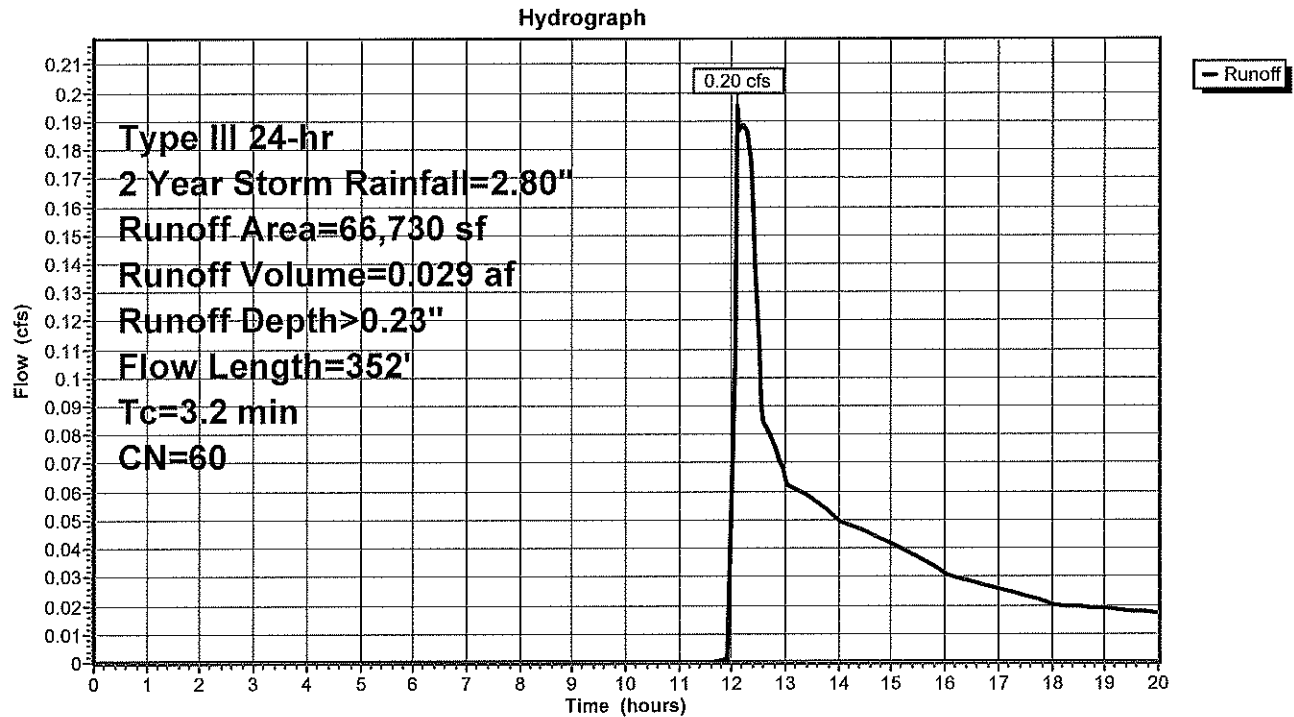
Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Subcatchment 1S: EX SA 1



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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Subcatchment 1S: EX SA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	2.10	0.08	0.06
0.25	0.01	0.00	0.00	13.25	2.15	0.09	0.06
0.50	0.01	0.00	0.00	13.50	2.19	0.10	0.06
0.75	0.02	0.00	0.00	13.75	2.23	0.11	0.05
1.00	0.03	0.00	0.00	14.00	2.27	0.12	0.05
1.25	0.03	0.00	0.00	14.25	2.30	0.12	0.05
1.50	0.04	0.00	0.00	14.50	2.34	0.13	0.05
1.75	0.05	0.00	0.00	14.75	2.36	0.14	0.04
2.00	0.06	0.00	0.00	15.00	2.39	0.15	0.04
2.25	0.06	0.00	0.00	15.25	2.42	0.15	0.04
2.50	0.07	0.00	0.00	15.50	2.44	0.16	0.04
2.75	0.08	0.00	0.00	15.75	2.46	0.16	0.03
3.00	0.09	0.00	0.00	16.00	2.48	0.17	0.03
3.25	0.09	0.00	0.00	16.25	2.50	0.17	0.03
3.50	0.10	0.00	0.00	16.50	2.52	0.18	0.03
3.75	0.11	0.00	0.00	16.75	2.53	0.18	0.03
4.00	0.12	0.00	0.00	17.00	2.55	0.19	0.03
4.25	0.13	0.00	0.00	17.25	2.56	0.19	0.02
4.50	0.14	0.00	0.00	17.50	2.57	0.19	0.02
4.75	0.15	0.00	0.00	17.75	2.59	0.20	0.02
5.00	0.16	0.00	0.00	18.00	2.60	0.20	0.02
5.25	0.17	0.00	0.00	18.25	2.61	0.21	0.02
5.50	0.18	0.00	0.00	18.50	2.62	0.21	0.02
5.75	0.19	0.00	0.00	18.75	2.63	0.21	0.02
6.00	0.20	0.00	0.00	19.00	2.64	0.21	0.02
6.25	0.21	0.00	0.00	19.25	2.65	0.22	0.02
6.50	0.23	0.00	0.00	19.50	2.66	0.22	0.02
6.75	0.24	0.00	0.00	19.75	2.67	0.22	0.02
7.00	0.25	0.00	0.00	20.00	2.68	0.23	0.02
7.25	0.27	0.00	0.00				
7.50	0.28	0.00	0.00				
7.75	0.30	0.00	0.00				
8.00	0.32	0.00	0.00				
8.25	0.34	0.00	0.00				
8.50	0.36	0.00	0.00				
8.75	0.38	0.00	0.00				
9.00	0.41	0.00	0.00				
9.25	0.44	0.00	0.00				
9.50	0.46	0.00	0.00				
9.75	0.50	0.00	0.00				
10.00	0.53	0.00	0.00				
10.25	0.57	0.00	0.00				
10.50	0.61	0.00	0.00				
10.75	0.65	0.00	0.00				
11.00	0.70	0.00	0.00				
11.25	0.76	0.00	0.00				
11.50	0.83	0.00	0.00				
11.75	0.99	0.00	0.00				
12.00	1.40	0.00	0.01				
12.25	1.81	0.03	0.19				
12.50	1.97	0.05	0.11				
12.75	2.04	0.07	0.08				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Summary for Subcatchment 2A Post: Post SA 2A

Runoff = 4.11 cfs @ 12.06 hrs, Volume= 0.275 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=2.80"

Area (sf)	CN	Description
35,600	98	Paved parking, HSG A
12,625	98	Paved parking, HSG C
12,810	98	Roofs, HSG A
1,615	98	Roofs, HSG C
* 1,545	98	Concrete/Sidewalk, HSG A
2,940	39	>75% Grass cover, Good, HSG A
3,270	74	>75% Grass cover, Good, HSG C
70,405	94	Weighted Average
6,210		8.82% Pervious Area
64,195		91.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.1000	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.9	153	0.0200	2.87		Shallow Concentrated Flow, Paving Lot Paved Kv= 20.3 fps
0.3	137	0.0200	6.95	5.46	Pipe Channel, Parking Lot Drain 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.3	150	0.0200	9.11	16.09	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
0.2	135	0.0300	11.15	19.71	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
4.2	612	Total			

Calcs Nov 22

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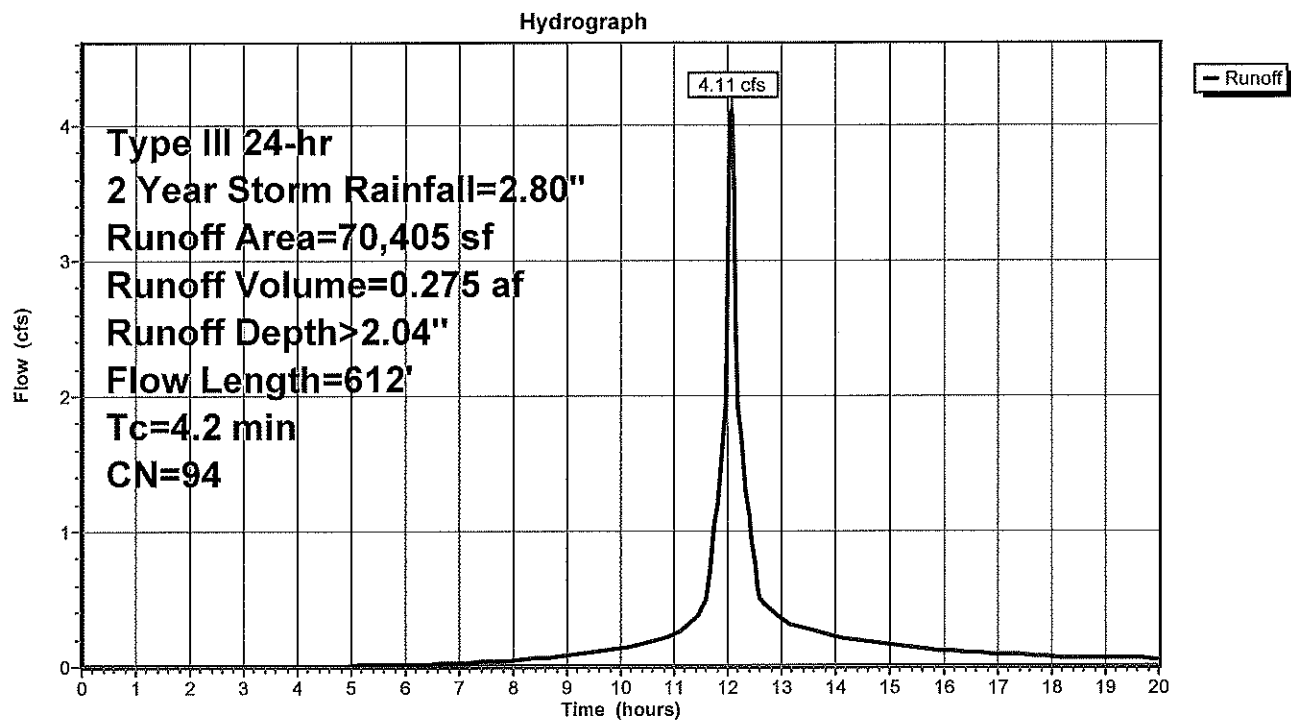
Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Subcatchment 2A Post: Post SA 2A



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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Subcatchment 2A Post: Post SA 2A

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	2.10	1.49	0.34
0.25	0.01	0.00	0.00	13.25	2.15	1.54	0.29
0.50	0.01	0.00	0.00	13.50	2.19	1.58	0.27
0.75	0.02	0.00	0.00	13.75	2.23	1.62	0.24
1.00	0.03	0.00	0.00	14.00	2.27	1.65	0.22
1.25	0.03	0.00	0.00	14.25	2.30	1.68	0.20
1.50	0.04	0.00	0.00	14.50	2.34	1.71	0.19
1.75	0.05	0.00	0.00	14.75	2.36	1.74	0.18
2.00	0.06	0.00	0.00	15.00	2.39	1.77	0.17
2.25	0.06	0.00	0.00	15.25	2.42	1.79	0.15
2.50	0.07	0.00	0.00	15.50	2.44	1.81	0.14
2.75	0.08	0.00	0.00	15.75	2.46	1.83	0.13
3.00	0.09	0.00	0.00	16.00	2.48	1.85	0.12
3.25	0.09	0.00	0.00	16.25	2.50	1.87	0.11
3.50	0.10	0.00	0.00	16.50	2.52	1.88	0.10
3.75	0.11	0.00	0.00	16.75	2.53	1.90	0.10
4.00	0.12	0.00	0.00	17.00	2.55	1.91	0.09
4.25	0.13	0.00	0.00	17.25	2.56	1.93	0.09
4.50	0.14	0.00	0.00	17.50	2.57	1.94	0.08
4.75	0.15	0.00	0.00	17.75	2.59	1.95	0.08
5.00	0.16	0.00	0.01	18.00	2.60	1.96	0.07
5.25	0.17	0.00	0.01	18.25	2.61	1.97	0.07
5.50	0.18	0.00	0.01	18.50	2.62	1.98	0.07
5.75	0.19	0.01	0.01	18.75	2.63	1.99	0.07
6.00	0.20	0.01	0.01	19.00	2.64	2.00	0.06
6.25	0.21	0.01	0.02	19.25	2.65	2.01	0.06
6.50	0.23	0.01	0.02	19.50	2.66	2.02	0.06
6.75	0.24	0.02	0.02	19.75	2.67	2.03	0.06
7.00	0.25	0.02	0.03	20.00	2.68	2.04	0.06
7.25	0.27	0.03	0.03				
7.50	0.28	0.03	0.04				
7.75	0.30	0.04	0.04				
8.00	0.32	0.04	0.05				
8.25	0.34	0.05	0.05				
8.50	0.36	0.06	0.06				
8.75	0.38	0.07	0.07				
9.00	0.41	0.09	0.09				
9.25	0.44	0.10	0.10				
9.50	0.46	0.12	0.11				
9.75	0.50	0.13	0.12				
10.00	0.53	0.16	0.14				
10.25	0.57	0.18	0.16				
10.50	0.61	0.21	0.18				
10.75	0.65	0.24	0.21				
11.00	0.70	0.27	0.23				
11.25	0.76	0.31	0.30				
11.50	0.83	0.37	0.40				
11.75	0.99	0.50	1.04				
12.00	1.40	0.85	2.99				
12.25	1.81	1.22	1.68				
12.50	1.97	1.36	0.75				
12.75	2.04	1.43	0.44				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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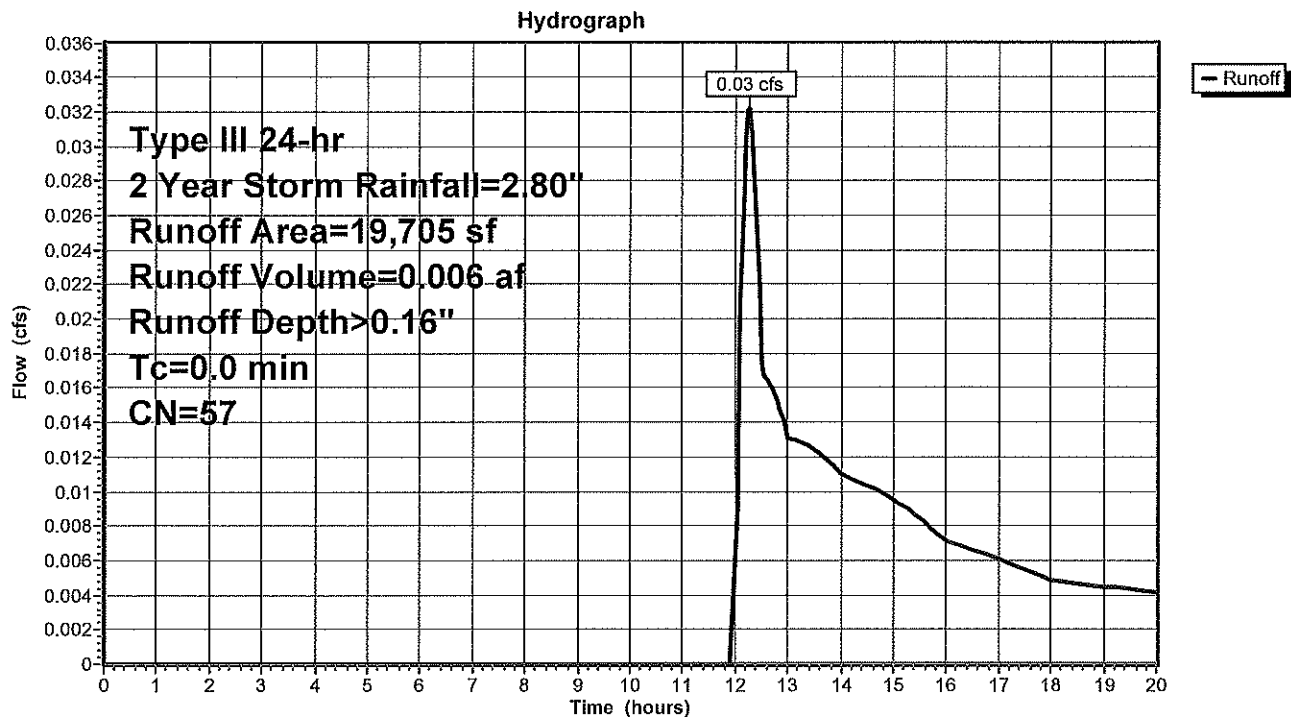
Summary for Subcatchment 2BPost: EX SA 3

Runoff = 0.03 cfs @ 12.27 hrs, Volume= 0.006 af, Depth> 0.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=2.80"

	Area (sf)	CN	Description
	4,000	98	Roofs, HSG A
*	2,095	98	Concrete/Sidewalk, HSG A
	12,640	39	>75% Grass cover, Good, HSG A
	970	30	Woods, Good, HSG A
	19,705	57	Weighted Average
	13,610		69.07% Pervious Area
	6,095		30.93% Impervious Area

Subcatchment 2BPost: EX SA 3



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Subcatchment 2BPost: EX SA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	2.10	0.04	0.01
0.25	0.01	0.00	0.00	13.25	2.15	0.05	0.01
0.50	0.01	0.00	0.00	13.50	2.19	0.06	0.01
0.75	0.02	0.00	0.00	13.75	2.23	0.06	0.01
1.00	0.03	0.00	0.00	14.00	2.27	0.07	0.01
1.25	0.03	0.00	0.00	14.25	2.30	0.08	0.01
1.50	0.04	0.00	0.00	14.50	2.34	0.08	0.01
1.75	0.05	0.00	0.00	14.75	2.36	0.09	0.01
2.00	0.06	0.00	0.00	15.00	2.39	0.09	0.01
2.25	0.06	0.00	0.00	15.25	2.42	0.10	0.01
2.50	0.07	0.00	0.00	15.50	2.44	0.10	0.01
2.75	0.08	0.00	0.00	15.75	2.46	0.11	0.01
3.00	0.09	0.00	0.00	16.00	2.48	0.11	0.01
3.25	0.09	0.00	0.00	16.25	2.50	0.11	0.01
3.50	0.10	0.00	0.00	16.50	2.52	0.12	0.01
3.75	0.11	0.00	0.00	16.75	2.53	0.12	0.01
4.00	0.12	0.00	0.00	17.00	2.55	0.13	0.01
4.25	0.13	0.00	0.00	17.25	2.56	0.13	0.01
4.50	0.14	0.00	0.00	17.50	2.57	0.13	0.01
4.75	0.15	0.00	0.00	17.75	2.59	0.13	0.01
5.00	0.16	0.00	0.00	18.00	2.60	0.14	0.00
5.25	0.17	0.00	0.00	18.25	2.61	0.14	0.00
5.50	0.18	0.00	0.00	18.50	2.62	0.14	0.00
5.75	0.19	0.00	0.00	18.75	2.63	0.15	0.00
6.00	0.20	0.00	0.00	19.00	2.64	0.15	0.00
6.25	0.21	0.00	0.00	19.25	2.65	0.15	0.00
6.50	0.23	0.00	0.00	19.50	2.66	0.15	0.00
6.75	0.24	0.00	0.00	19.75	2.67	0.15	0.00
7.00	0.25	0.00	0.00	20.00	2.68	0.16	0.00
7.25	0.27	0.00	0.00				
7.50	0.28	0.00	0.00				
7.75	0.30	0.00	0.00				
8.00	0.32	0.00	0.00				
8.25	0.34	0.00	0.00				
8.50	0.36	0.00	0.00				
8.75	0.38	0.00	0.00				
9.00	0.41	0.00	0.00				
9.25	0.44	0.00	0.00				
9.50	0.46	0.00	0.00				
9.75	0.50	0.00	0.00				
10.00	0.53	0.00	0.00				
10.25	0.57	0.00	0.00				
10.50	0.61	0.00	0.00				
10.75	0.65	0.00	0.00				
11.00	0.70	0.00	0.00				
11.25	0.76	0.00	0.00				
11.50	0.83	0.00	0.00				
11.75	0.99	0.00	0.00				
12.00	1.40	0.00	0.00				
12.25	1.81	0.01	0.03				
12.50	1.97	0.03	0.02				
12.75	2.04	0.04	0.02				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Summary for Subcatchment 2S: EX SA 2

Runoff = 0.68 cfs @ 12.11 hrs, Volume= 0.051 af, Depth> 0.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=2.80"

Area (sf)	CN	Description
235	96	Gravel surface, HSG C
2,955	98	Roofs, HSG A
1,190	98	Roofs, HSG C
*	35	sidewalk/Concrete HSG C
3,390	39	>75% Grass cover, Good, HSG A
12,785	74	>75% Grass cover, Good, HSG C
400	30	Woods, Good, HSG A
25,015	70	Woods, Good, HSG C
46,005	71	Weighted Average
41,825		90.91% Pervious Area
4,180		9.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0400	0.18		Sheet Flow, Lawn Behind building Grass: Short n= 0.150 P2= 2.80"
0.6	100	0.0400	3.00		Shallow Concentrated Flow, Lawn Behind Building Grassed Waterway Kv= 15.0 fps
0.8	108	0.0200	2.12		Shallow Concentrated Flow, Rear Lawn Grassed Waterway Kv= 15.0 fps
0.2	60	0.0916	4.54		Shallow Concentrated Flow, Woods Grassed Waterway Kv= 15.0 fps
6.2	318	Total			

Calcs Nov 22

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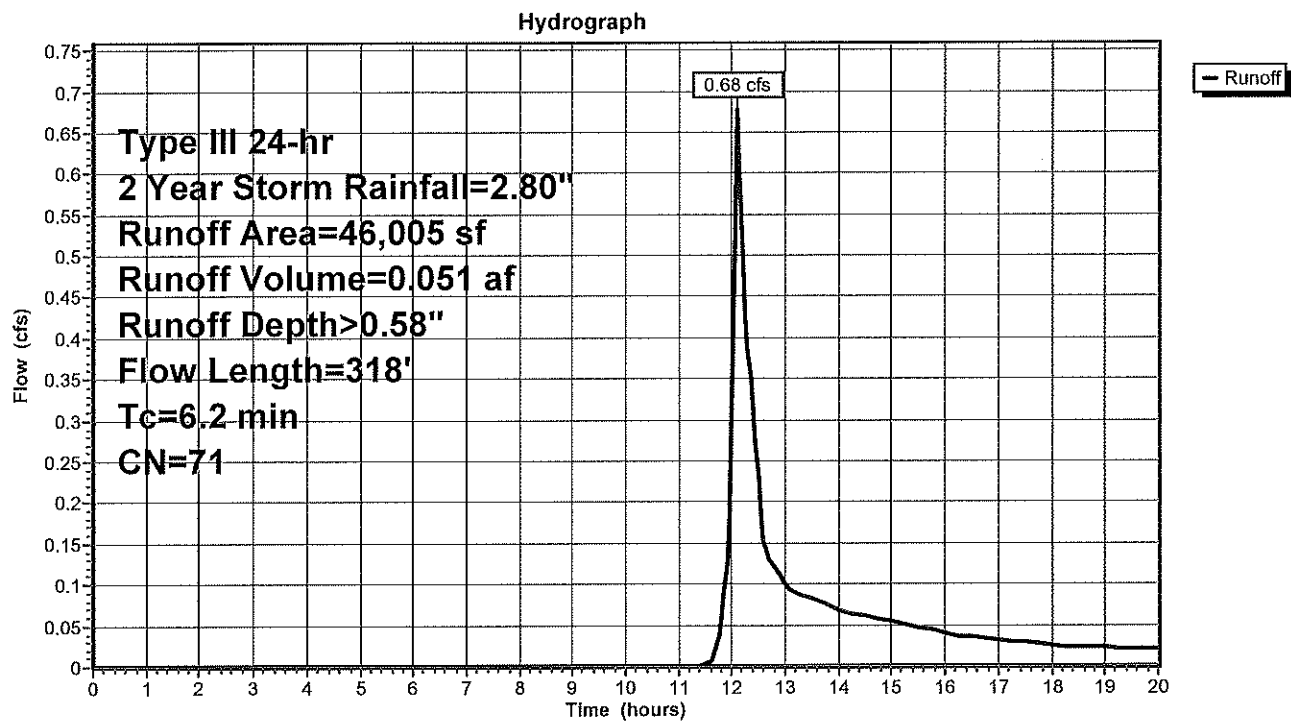
Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Subcatchment 2S: EX SA 2



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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Subcatchment 2S: EX SA 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	2.10	0.31	0.10
0.25	0.01	0.00	0.00	13.25	2.15	0.33	0.09
0.50	0.01	0.00	0.00	13.50	2.19	0.35	0.08
0.75	0.02	0.00	0.00	13.75	2.23	0.37	0.08
1.00	0.03	0.00	0.00	14.00	2.27	0.38	0.07
1.25	0.03	0.00	0.00	14.25	2.30	0.40	0.06
1.50	0.04	0.00	0.00	14.50	2.34	0.41	0.06
1.75	0.05	0.00	0.00	14.75	2.36	0.43	0.06
2.00	0.06	0.00	0.00	15.00	2.39	0.44	0.05
2.25	0.06	0.00	0.00	15.25	2.42	0.45	0.05
2.50	0.07	0.00	0.00	15.50	2.44	0.46	0.05
2.75	0.08	0.00	0.00	15.75	2.46	0.47	0.04
3.00	0.09	0.00	0.00	16.00	2.48	0.48	0.04
3.25	0.09	0.00	0.00	16.25	2.50	0.49	0.04
3.50	0.10	0.00	0.00	16.50	2.52	0.50	0.04
3.75	0.11	0.00	0.00	16.75	2.53	0.51	0.03
4.00	0.12	0.00	0.00	17.00	2.55	0.51	0.03
4.25	0.13	0.00	0.00	17.25	2.56	0.52	0.03
4.50	0.14	0.00	0.00	17.50	2.57	0.53	0.03
4.75	0.15	0.00	0.00	17.75	2.59	0.54	0.03
5.00	0.16	0.00	0.00	18.00	2.60	0.54	0.03
5.25	0.17	0.00	0.00	18.25	2.61	0.55	0.02
5.50	0.18	0.00	0.00	18.50	2.62	0.55	0.02
5.75	0.19	0.00	0.00	18.75	2.63	0.56	0.02
6.00	0.20	0.00	0.00	19.00	2.64	0.56	0.02
6.25	0.21	0.00	0.00	19.25	2.65	0.57	0.02
6.50	0.23	0.00	0.00	19.50	2.66	0.57	0.02
6.75	0.24	0.00	0.00	19.75	2.67	0.58	0.02
7.00	0.25	0.00	0.00	20.00	2.68	0.58	0.02
7.25	0.27	0.00	0.00				
7.50	0.28	0.00	0.00				
7.75	0.30	0.00	0.00				
8.00	0.32	0.00	0.00				
8.25	0.34	0.00	0.00				
8.50	0.36	0.00	0.00				
8.75	0.38	0.00	0.00				
9.00	0.41	0.00	0.00				
9.25	0.44	0.00	0.00				
9.50	0.46	0.00	0.00				
9.75	0.50	0.00	0.00				
10.00	0.53	0.00	0.00				
10.25	0.57	0.00	0.00				
10.50	0.61	0.00	0.00				
10.75	0.65	0.00	0.00				
11.00	0.70	0.00	0.00				
11.25	0.76	0.00	0.00				
11.50	0.83	0.00	0.00				
11.75	0.99	0.01	0.04				
12.00	1.40	0.07	0.30				
12.25	1.81	0.19	0.43				
12.50	1.97	0.25	0.23				
12.75	2.04	0.28	0.13				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Summary for Subcatchment 3Post: Post SA 3

Runoff = 0.36 cfs @ 12.12 hrs, Volume= 0.028 af, Depth> 0.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=2.80"

Area (sf)	CN	Description
125	98	Roofs, HSG A
305	98	Roofs, HSG C
50	39	>75% Grass cover, Good, HSG A
5,775	74	>75% Grass cover, Good, HSG C
75	30	Woods, Good, HSG A
18,390	70	Woods, Good, HSG C
24,720	71	Weighted Average
24,290		98.26% Pervious Area
430		1.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	32	0.0650	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.80"
0.2	22	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	72	0.0833	1.44		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
6.8	126	Total			

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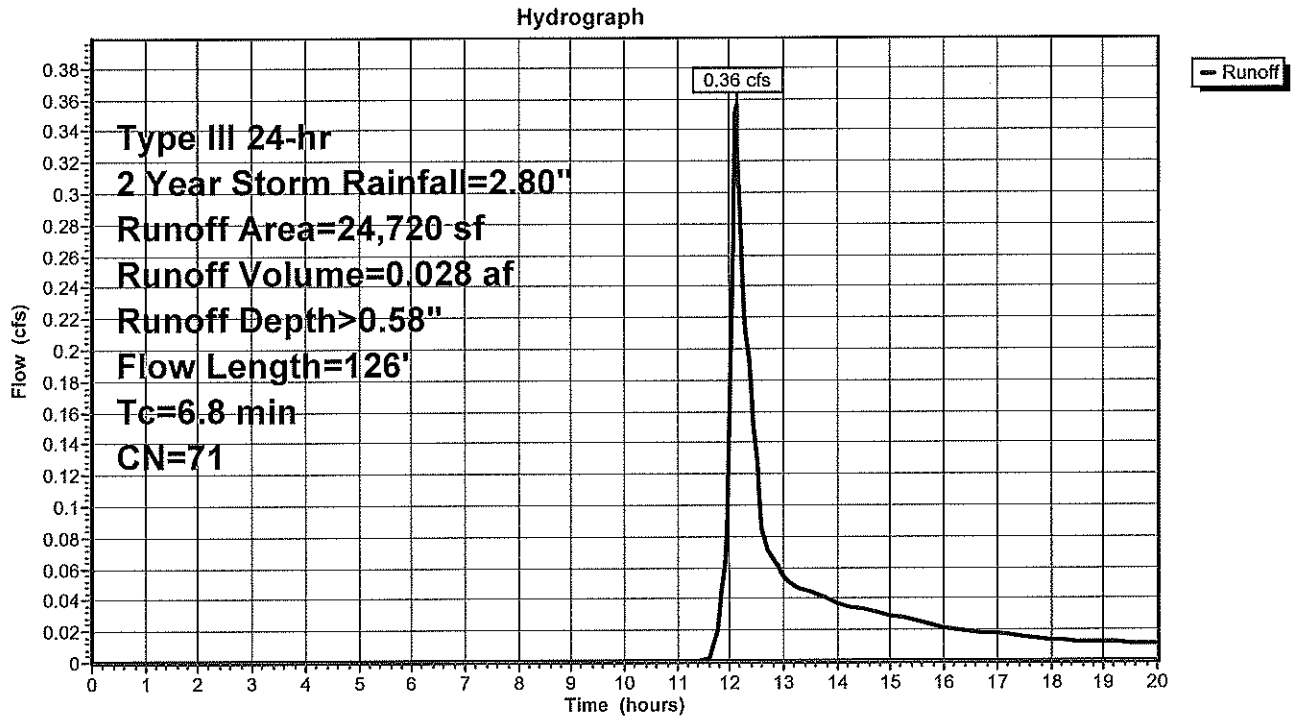
Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Subcatchment 3Post: Post SA 3



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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Subcatchment 3Post: Post SA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	2.10	0.31	0.06
0.25	0.01	0.00	0.00	13.25	2.15	0.33	0.05
0.50	0.01	0.00	0.00	13.50	2.19	0.35	0.04
0.75	0.02	0.00	0.00	13.75	2.23	0.37	0.04
1.00	0.03	0.00	0.00	14.00	2.27	0.38	0.04
1.25	0.03	0.00	0.00	14.25	2.30	0.40	0.03
1.50	0.04	0.00	0.00	14.50	2.34	0.41	0.03
1.75	0.05	0.00	0.00	14.75	2.36	0.43	0.03
2.00	0.06	0.00	0.00	15.00	2.39	0.44	0.03
2.25	0.06	0.00	0.00	15.25	2.42	0.45	0.03
2.50	0.07	0.00	0.00	15.50	2.44	0.46	0.03
2.75	0.08	0.00	0.00	15.75	2.46	0.47	0.02
3.00	0.09	0.00	0.00	16.00	2.48	0.48	0.02
3.25	0.09	0.00	0.00	16.25	2.50	0.49	0.02
3.50	0.10	0.00	0.00	16.50	2.52	0.50	0.02
3.75	0.11	0.00	0.00	16.75	2.53	0.51	0.02
4.00	0.12	0.00	0.00	17.00	2.55	0.51	0.02
4.25	0.13	0.00	0.00	17.25	2.56	0.52	0.02
4.50	0.14	0.00	0.00	17.50	2.57	0.53	0.02
4.75	0.15	0.00	0.00	17.75	2.59	0.54	0.01
5.00	0.16	0.00	0.00	18.00	2.60	0.54	0.01
5.25	0.17	0.00	0.00	18.25	2.61	0.55	0.01
5.50	0.18	0.00	0.00	18.50	2.62	0.55	0.01
5.75	0.19	0.00	0.00	18.75	2.63	0.56	0.01
6.00	0.20	0.00	0.00	19.00	2.64	0.56	0.01
6.25	0.21	0.00	0.00	19.25	2.65	0.57	0.01
6.50	0.23	0.00	0.00	19.50	2.66	0.57	0.01
6.75	0.24	0.00	0.00	19.75	2.67	0.58	0.01
7.00	0.25	0.00	0.00	20.00	2.68	0.58	0.01
7.25	0.27	0.00	0.00				
7.50	0.28	0.00	0.00				
7.75	0.30	0.00	0.00				
8.00	0.32	0.00	0.00				
8.25	0.34	0.00	0.00				
8.50	0.36	0.00	0.00				
8.75	0.38	0.00	0.00				
9.00	0.41	0.00	0.00				
9.25	0.44	0.00	0.00				
9.50	0.46	0.00	0.00				
9.75	0.50	0.00	0.00				
10.00	0.53	0.00	0.00				
10.25	0.57	0.00	0.00				
10.50	0.61	0.00	0.00				
10.75	0.65	0.00	0.00				
11.00	0.70	0.00	0.00				
11.25	0.76	0.00	0.00				
11.50	0.83	0.00	0.00				
11.75	0.99	0.01	0.02				
12.00	1.40	0.07	0.15				
12.25	1.81	0.19	0.23				
12.50	1.97	0.25	0.13				
12.75	2.04	0.28	0.07				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Summary for Subcatchment 3S: EX SA 3

Runoff = 0.14 cfs @ 12.02 hrs, Volume= 0.009 af, Depth> 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=2.80"

Area (sf)	CN	Description
2,990	98	Paved parking, HSG A
660	98	Roofs, HSG A
310	98	Concrete/Sidewalk, HSG A
2,745	39	>75% Grass cover, Good, HSG A
6,705	74	Weighted Average
2,745		40.94% Pervious Area
3,960		59.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	15	0.3300	2.70		Sheet Flow, Roof Smooth surfaces n= 0.011 P2= 2.80"
0.4	15	0.0100	0.67		Sheet Flow, Sidewalk Smooth surfaces n= 0.011 P2= 2.80"
0.1	51	0.1500	5.81		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
0.2	66	0.1130	6.82		Shallow Concentrated Flow, Driveway Paved Kv= 20.3 fps
0.8	147	Total			

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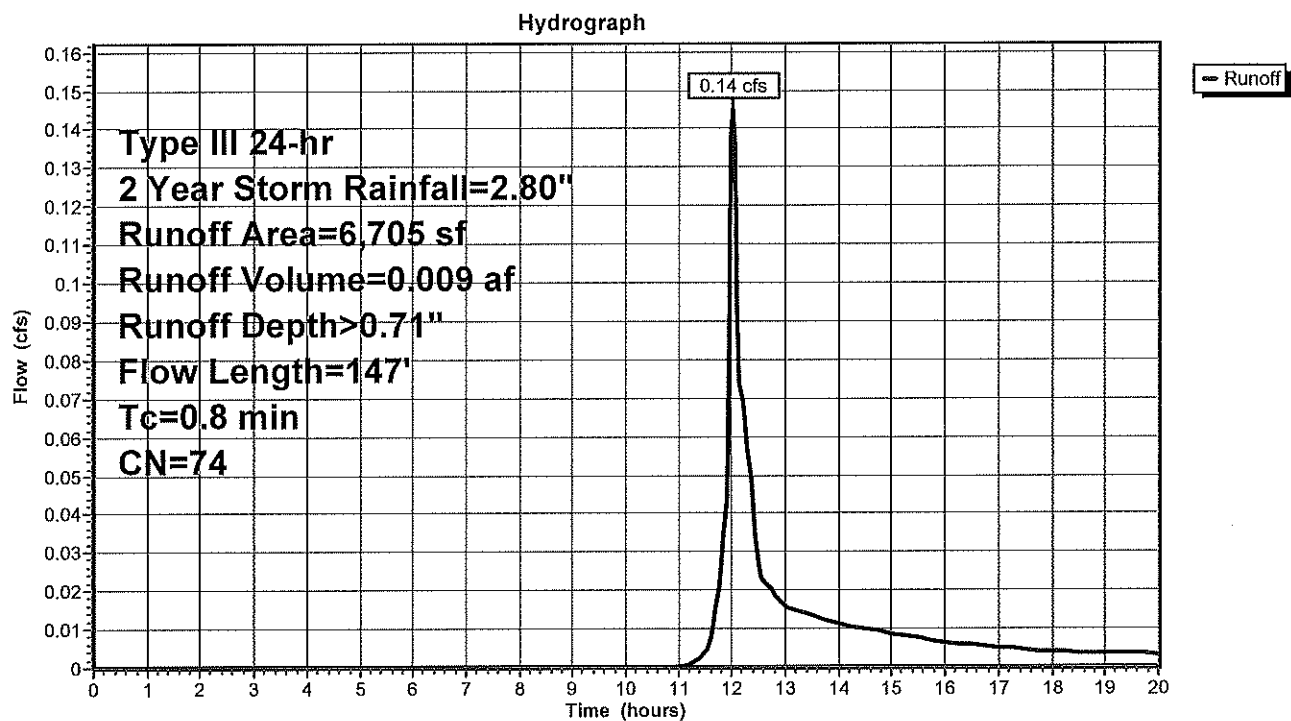
Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Subcatchment 3S: EX SA 3



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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Subcatchment 3S: EX SA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	2.10	0.40	0.02
0.25	0.01	0.00	0.00	13.25	2.15	0.42	0.01
0.50	0.01	0.00	0.00	13.50	2.19	0.44	0.01
0.75	0.02	0.00	0.00	13.75	2.23	0.47	0.01
1.00	0.03	0.00	0.00	14.00	2.27	0.48	0.01
1.25	0.03	0.00	0.00	14.25	2.30	0.50	0.01
1.50	0.04	0.00	0.00	14.50	2.34	0.52	0.01
1.75	0.05	0.00	0.00	14.75	2.36	0.53	0.01
2.00	0.06	0.00	0.00	15.00	2.39	0.55	0.01
2.25	0.06	0.00	0.00	15.25	2.42	0.56	0.01
2.50	0.07	0.00	0.00	15.50	2.44	0.58	0.01
2.75	0.08	0.00	0.00	15.75	2.46	0.59	0.01
3.00	0.09	0.00	0.00	16.00	2.48	0.60	0.01
3.25	0.09	0.00	0.00	16.25	2.50	0.61	0.01
3.50	0.10	0.00	0.00	16.50	2.52	0.62	0.01
3.75	0.11	0.00	0.00	16.75	2.53	0.63	0.01
4.00	0.12	0.00	0.00	17.00	2.55	0.63	0.01
4.25	0.13	0.00	0.00	17.25	2.56	0.64	0.00
4.50	0.14	0.00	0.00	17.50	2.57	0.65	0.00
4.75	0.15	0.00	0.00	17.75	2.59	0.66	0.00
5.00	0.16	0.00	0.00	18.00	2.60	0.66	0.00
5.25	0.17	0.00	0.00	18.25	2.61	0.67	0.00
5.50	0.18	0.00	0.00	18.50	2.62	0.68	0.00
5.75	0.19	0.00	0.00	18.75	2.63	0.68	0.00
6.00	0.20	0.00	0.00	19.00	2.64	0.69	0.00
6.25	0.21	0.00	0.00	19.25	2.65	0.70	0.00
6.50	0.23	0.00	0.00	19.50	2.66	0.70	0.00
6.75	0.24	0.00	0.00	19.75	2.67	0.71	0.00
7.00	0.25	0.00	0.00	20.00	2.68	0.71	0.00
7.25	0.27	0.00	0.00				
7.50	0.28	0.00	0.00				
7.75	0.30	0.00	0.00				
8.00	0.32	0.00	0.00				
8.25	0.34	0.00	0.00				
8.50	0.36	0.00	0.00				
8.75	0.38	0.00	0.00				
9.00	0.41	0.00	0.00				
9.25	0.44	0.00	0.00				
9.50	0.46	0.00	0.00				
9.75	0.50	0.00	0.00				
10.00	0.53	0.00	0.00				
10.25	0.57	0.00	0.00				
10.50	0.61	0.00	0.00				
10.75	0.65	0.00	0.00				
11.00	0.70	0.00	0.00				
11.25	0.76	0.00	0.00				
11.50	0.83	0.00	0.00				
11.75	0.99	0.02	0.02				
12.00	1.40	0.12	0.14				
12.25	1.81	0.26	0.06				
12.50	1.97	0.33	0.03				
12.75	2.04	0.37	0.02				

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Summary for Reach 2R: Catch Basin 1

Inflow Area = 0.106 ac, 70.50% Impervious, Inflow Depth > 1.07" for 2 Year Storm event
Inflow = 0.16 cfs @ 12.02 hrs, Volume= 0.009 af
Outflow = 0.15 cfs @ 12.03 hrs, Volume= 0.009 af, Atten= 5%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.25 fps, Min. Travel Time= 0.4 min

Avg. Velocity = 0.89 fps, Avg. Travel Time= 1.1 min

Peak Storage= 4 cf @ 12.02 hrs

Average Depth at Peak Storage= 0.14'

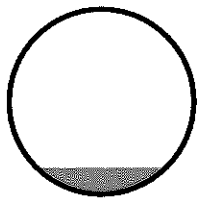
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe

n= 0.013 Concrete pipe, straight & clean

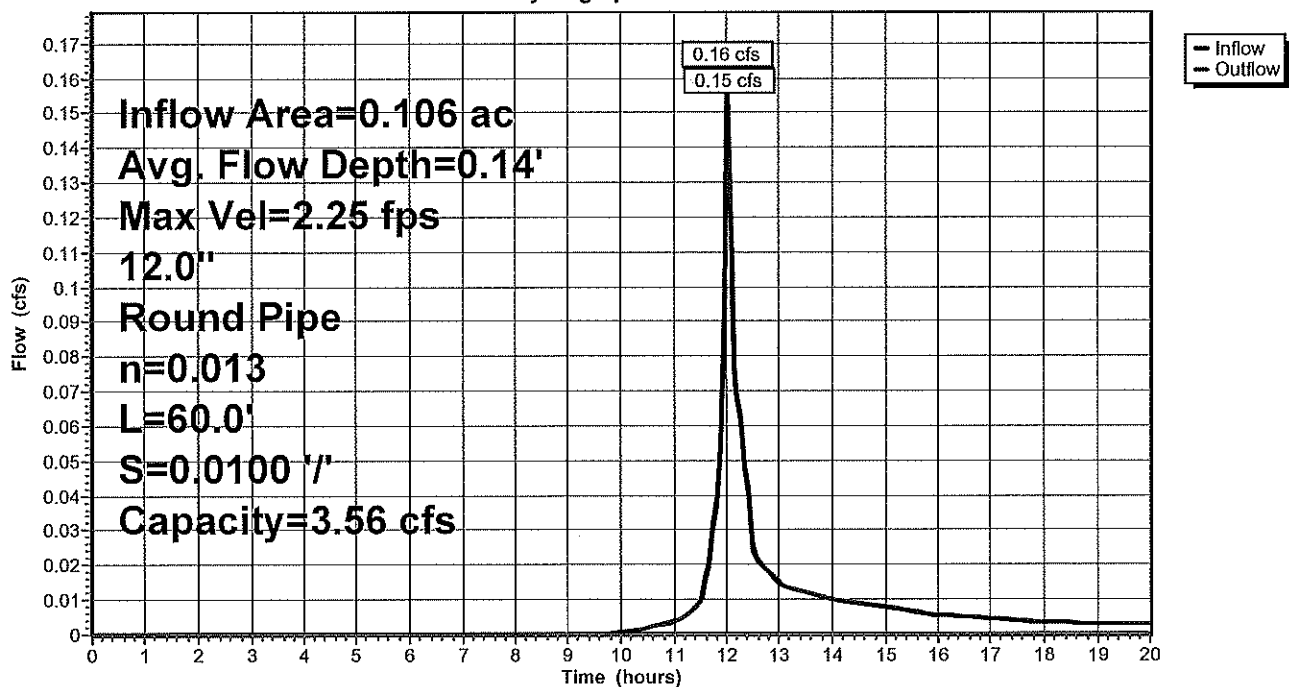
Length= 60.0' Slope= 0.0100 '/'

Inlet Invert= 1,125.00', Outlet Invert= 1,124.40'



Reach 2R: Catch Basin 1

Hydrograph



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Reach 2R: Catch Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,125.00	0.00
0.50	0.00	0	1,125.00	0.00
1.00	0.00	0	1,125.00	0.00
1.50	0.00	0	1,125.00	0.00
2.00	0.00	0	1,125.00	0.00
2.50	0.00	0	1,125.00	0.00
3.00	0.00	0	1,125.00	0.00
3.50	0.00	0	1,125.00	0.00
4.00	0.00	0	1,125.00	0.00
4.50	0.00	0	1,125.00	0.00
5.00	0.00	0	1,125.00	0.00
5.50	0.00	0	1,125.00	0.00
6.00	0.00	0	1,125.00	0.00
6.50	0.00	0	1,125.00	0.00
7.00	0.00	0	1,125.00	0.00
7.50	0.00	0	1,125.00	0.00
8.00	0.00	0	1,125.00	0.00
8.50	0.00	0	1,125.00	0.00
9.00	0.00	0	1,125.00	0.00
9.50	0.00	0	1,125.00	0.00
10.00	0.00	0	1,125.01	0.00
10.50	0.00	0	1,125.02	0.00
11.00	0.00	0	1,125.02	0.00
11.50	0.01	1	1,125.04	0.01
12.00	0.16	4	1,125.14	0.14
12.50	0.02	1	1,125.06	0.03
13.00	0.01	1	1,125.05	0.01
13.50	0.01	1	1,125.04	0.01
14.00	0.01	1	1,125.04	0.01
14.50	0.01	1	1,125.04	0.01
15.00	0.01	1	1,125.03	0.01
15.50	0.01	0	1,125.03	0.01
16.00	0.01	0	1,125.03	0.01
16.50	0.01	0	1,125.03	0.01
17.00	0.00	0	1,125.03	0.00
17.50	0.00	0	1,125.02	0.00
18.00	0.00	0	1,125.02	0.00
18.50	0.00	0	1,125.02	0.00
19.00	0.00	0	1,125.02	0.00
19.50	0.00	0	1,125.02	0.00
20.00	0.00	0	1,125.02	0.00

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Summary for Reach 6R: Catch Basin 1

Inflow Area = 0.154 ac, 59.06% Impervious, Inflow Depth > 0.71" for 2 Year Storm event
Inflow = 0.14 cfs @ 12.02 hrs, Volume= 0.009 af
Outflow = 0.14 cfs @ 12.04 hrs, Volume= 0.009 af, Atten= 3%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.21 fps, Min. Travel Time= 0.5 min

Avg. Velocity = 0.95 fps, Avg. Travel Time= 1.1 min

Peak Storage= 4 cf @ 12.03 hrs

Average Depth at Peak Storage= 0.14'

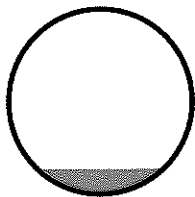
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe

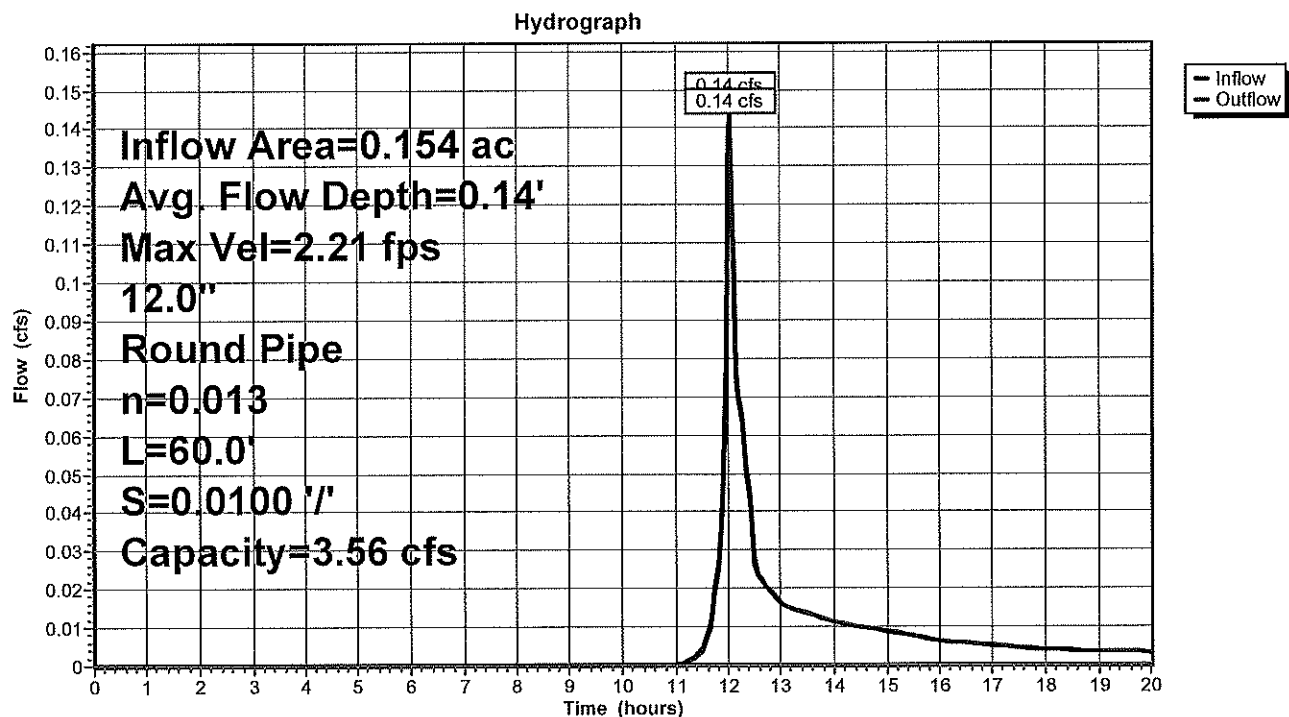
n= 0.013 Concrete pipe, straight & clean

Length= 60.0' Slope= 0.0100 '/'

Inlet Invert= 1,125.00', Outlet Invert= 1,124.40'



Reach 6R: Catch Basin 1



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Reach 6R: Catch Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,125.00	0.00
0.50	0.00	0	1,125.00	0.00
1.00	0.00	0	1,125.00	0.00
1.50	0.00	0	1,125.00	0.00
2.00	0.00	0	1,125.00	0.00
2.50	0.00	0	1,125.00	0.00
3.00	0.00	0	1,125.00	0.00
3.50	0.00	0	1,125.00	0.00
4.00	0.00	0	1,125.00	0.00
4.50	0.00	0	1,125.00	0.00
5.00	0.00	0	1,125.00	0.00
5.50	0.00	0	1,125.00	0.00
6.00	0.00	0	1,125.00	0.00
6.50	0.00	0	1,125.00	0.00
7.00	0.00	0	1,125.00	0.00
7.50	0.00	0	1,125.00	0.00
8.00	0.00	0	1,125.00	0.00
8.50	0.00	0	1,125.00	0.00
9.00	0.00	0	1,125.00	0.00
9.50	0.00	0	1,125.00	0.00
10.00	0.00	0	1,125.00	0.00
10.50	0.00	0	1,125.00	0.00
11.00	0.00	0	1,125.00	0.00
11.50	0.00	0	1,125.02	0.00
12.00	0.14	4	1,125.13	0.12
12.50	0.03	1	1,125.06	0.03
13.00	0.02	1	1,125.05	0.02
13.50	0.01	1	1,125.04	0.01
14.00	0.01	1	1,125.04	0.01
14.50	0.01	1	1,125.04	0.01
15.00	0.01	1	1,125.04	0.01
15.50	0.01	1	1,125.03	0.01
16.00	0.01	0	1,125.03	0.01
16.50	0.01	0	1,125.03	0.01
17.00	0.01	0	1,125.03	0.01
17.50	0.00	0	1,125.03	0.00
18.00	0.00	0	1,125.02	0.00
18.50	0.00	0	1,125.02	0.00
19.00	0.00	0	1,125.02	0.00
19.50	0.00	0	1,125.02	0.00
20.00	0.00	0	1,125.02	0.00

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Summary for Reach 7R: DOT Drain

Inflow Area = 2.174 ac, 77.64% Impervious, Inflow Depth > 0.08" for 2 Year Storm event
Inflow = 0.16 cfs @ 12.09 hrs, Volume= 0.015 af
Outflow = 0.15 cfs @ 12.10 hrs, Volume= 0.015 af, Atten= 3%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 2.34 fps, Min. Travel Time= 0.4 min

Avg. Velocity = 1.18 fps, Avg. Travel Time= 0.7 min

Peak Storage= 3 cf @ 12.10 hrs

Average Depth at Peak Storage= 0.10'

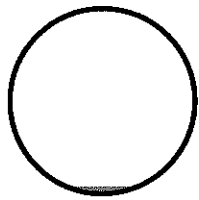
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 51.88 cfs

30.0" Round Pipe

n= 0.013

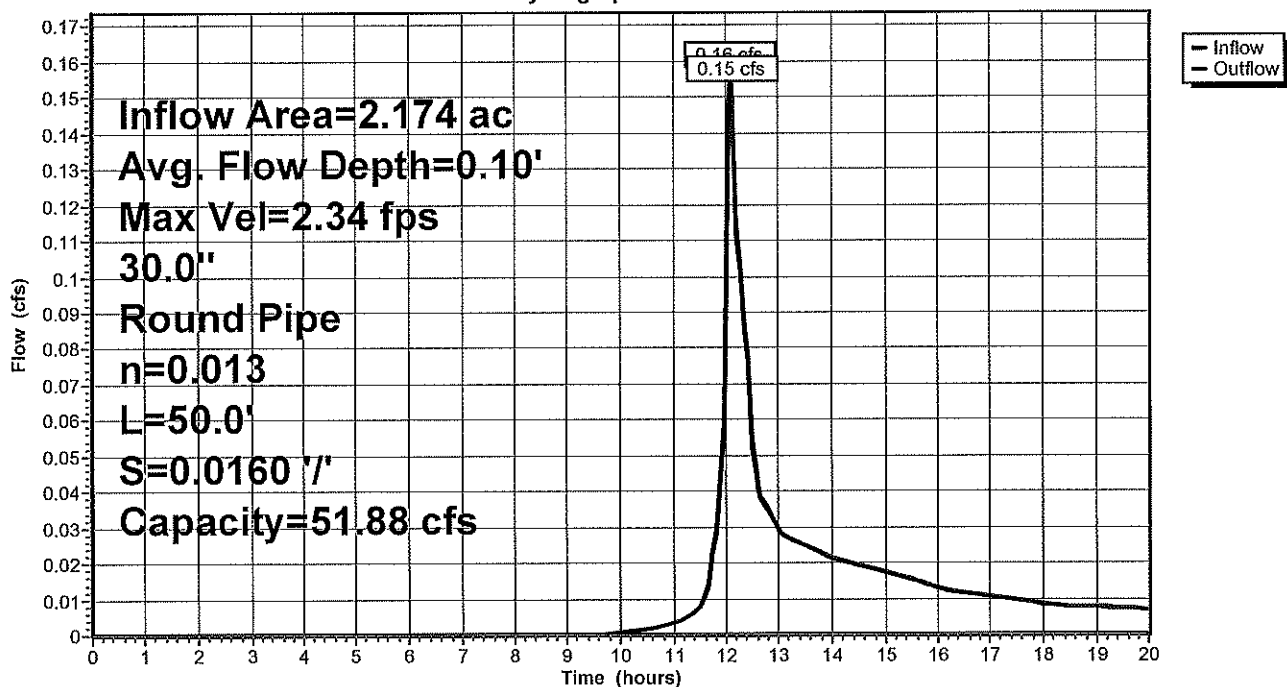
Length= 50.0' Slope= 0.0160 1'

Inlet Invert= 1,118.90', Outlet Invert= 1,118.10'



Reach 7R: DOT Drain

Hydrograph



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Reach 7R: DOT Drain

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,118.90	0.00
0.50	0.00	0	1,118.90	0.00
1.00	0.00	0	1,118.90	0.00
1.50	0.00	0	1,118.90	0.00
2.00	0.00	0	1,118.90	0.00
2.50	0.00	0	1,118.90	0.00
3.00	0.00	0	1,118.90	0.00
3.50	0.00	0	1,118.90	0.00
4.00	0.00	0	1,118.90	0.00
4.50	0.00	0	1,118.90	0.00
5.00	0.00	0	1,118.90	0.00
5.50	0.00	0	1,118.90	0.00
6.00	0.00	0	1,118.90	0.00
6.50	0.00	0	1,118.90	0.00
7.00	0.00	0	1,118.90	0.00
7.50	0.00	0	1,118.90	0.00
8.00	0.00	0	1,118.90	0.00
8.50	0.00	0	1,118.90	0.00
9.00	0.00	0	1,118.90	0.00
9.50	0.00	0	1,118.90	0.00
10.00	0.00	0	1,118.90	0.00
10.50	0.00	0	1,118.90	0.00
11.00	0.00	0	1,118.91	0.00
11.50	0.01	0	1,118.92	0.01
12.00	0.09	2	1,118.98	0.09
12.50	0.05	2	1,118.96	0.06
13.00	0.03	1	1,118.94	0.03
13.50	0.02	1	1,118.94	0.03
14.00	0.02	1	1,118.94	0.02
14.50	0.02	1	1,118.94	0.02
15.00	0.02	1	1,118.93	0.02
15.50	0.02	1	1,118.93	0.02
16.00	0.01	1	1,118.93	0.01
16.50	0.01	1	1,118.93	0.01
17.00	0.01	0	1,118.93	0.01
17.50	0.01	0	1,118.93	0.01
18.00	0.01	0	1,118.93	0.01
18.50	0.01	0	1,118.93	0.01
19.00	0.01	0	1,118.92	0.01
19.50	0.01	0	1,118.92	0.01
20.00	0.01	0	1,118.92	0.01

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Summary for Reach 8R: DOT Drain

Inflow Area = 1.686 ac, 34.70% Impervious, Inflow Depth > 0.27" for 2 Year Storm event
Inflow = 0.33 cfs @ 12.11 hrs, Volume= 0.038 af
Outflow = 0.31 cfs @ 12.12 hrs, Volume= 0.038 af, Atten= 4%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 2.92 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 1.61 fps, Avg. Travel Time= 0.5 min

Peak Storage= 5 cf @ 12.12 hrs

Average Depth at Peak Storage= 0.14'

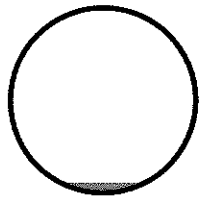
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 51.88 cfs

30.0" Round Pipe

n= 0.013

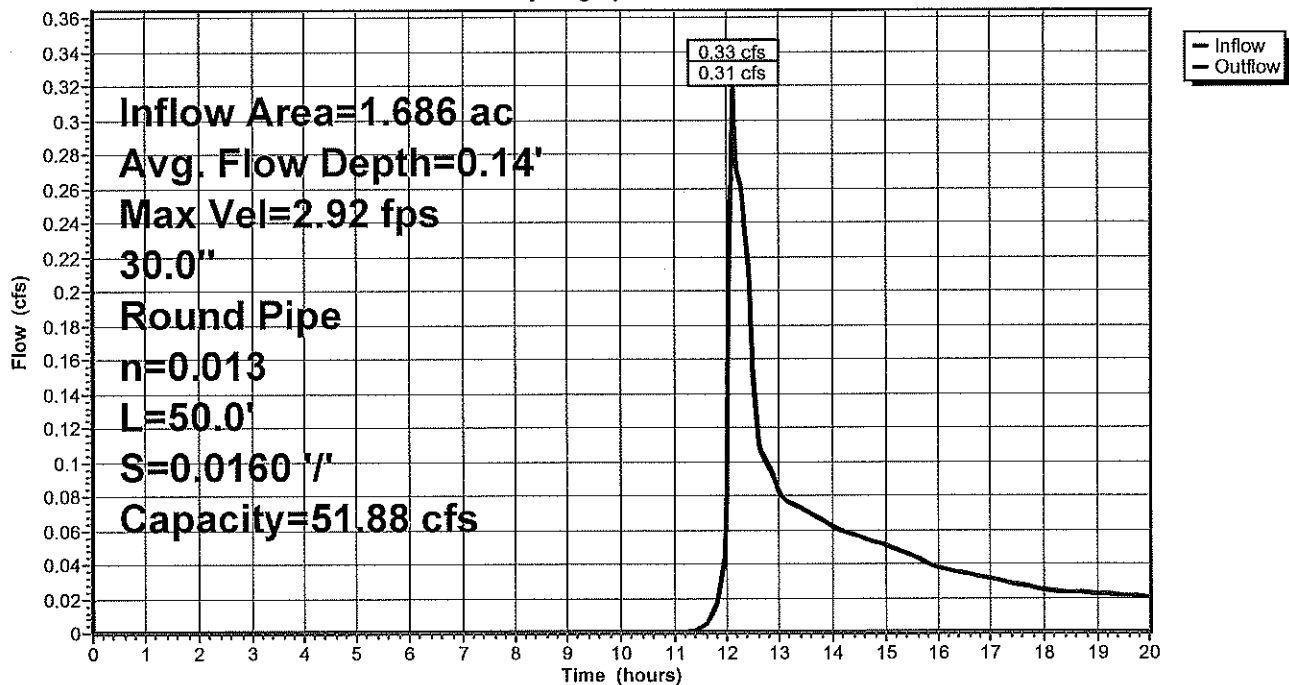
Length= 50.0' Slope= 0.0160 1/100'

Inlet Invert= 1,118.90', Outlet Invert= 1,118.10'



Reach 8R: DOT Drain

Hydrograph



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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Reach 8R: DOT Drain

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,118.90	0.00
0.50	0.00	0	1,118.90	0.00
1.00	0.00	0	1,118.90	0.00
1.50	0.00	0	1,118.90	0.00
2.00	0.00	0	1,118.90	0.00
2.50	0.00	0	1,118.90	0.00
3.00	0.00	0	1,118.90	0.00
3.50	0.00	0	1,118.90	0.00
4.00	0.00	0	1,118.90	0.00
4.50	0.00	0	1,118.90	0.00
5.00	0.00	0	1,118.90	0.00
5.50	0.00	0	1,118.90	0.00
6.00	0.00	0	1,118.90	0.00
6.50	0.00	0	1,118.90	0.00
7.00	0.00	0	1,118.90	0.00
7.50	0.00	0	1,118.90	0.00
8.00	0.00	0	1,118.90	0.00
8.50	0.00	0	1,118.90	0.00
9.00	0.00	0	1,118.90	0.00
9.50	0.00	0	1,118.90	0.00
10.00	0.00	0	1,118.90	0.00
10.50	0.00	0	1,118.90	0.00
11.00	0.00	0	1,118.90	0.00
11.50	0.00	0	1,118.91	0.00
12.00	0.08	2	1,118.97	0.08
12.50	0.15	3	1,119.00	0.16
13.00	0.08	2	1,118.97	0.08
13.50	0.07	2	1,118.97	0.07
14.00	0.06	2	1,118.96	0.06
14.50	0.06	2	1,118.96	0.06
15.00	0.05	1	1,118.96	0.05
15.50	0.04	1	1,118.96	0.04
16.00	0.04	1	1,118.95	0.04
16.50	0.03	1	1,118.95	0.03
17.00	0.03	1	1,118.95	0.03
17.50	0.03	1	1,118.94	0.03
18.00	0.02	1	1,118.94	0.02
18.50	0.02	1	1,118.94	0.02
19.00	0.02	1	1,118.94	0.02
19.50	0.02	1	1,118.94	0.02
20.00	0.02	1	1,118.94	0.02

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Summary for Reach 9R: Connection to DOT

Inflow Area = 0.154 ac, 59.06% Impervious, Inflow Depth > 0.71" for 2 Year Storm event
Inflow = 0.14 cfs @ 12.04 hrs, Volume= 0.009 af
Outflow = 0.13 cfs @ 12.09 hrs, Volume= 0.009 af, Atten= 11%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 2.37 fps, Min. Travel Time= 1.6 min

Avg. Velocity = 1.14 fps, Avg. Travel Time= 3.4 min

Peak Storage= 13 cf @ 12.06 hrs

Average Depth at Peak Storage= 0.09'

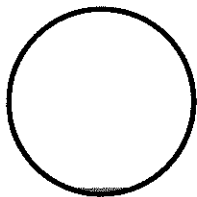
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 55.59 cfs

30.0" Round Pipe

n= 0.012

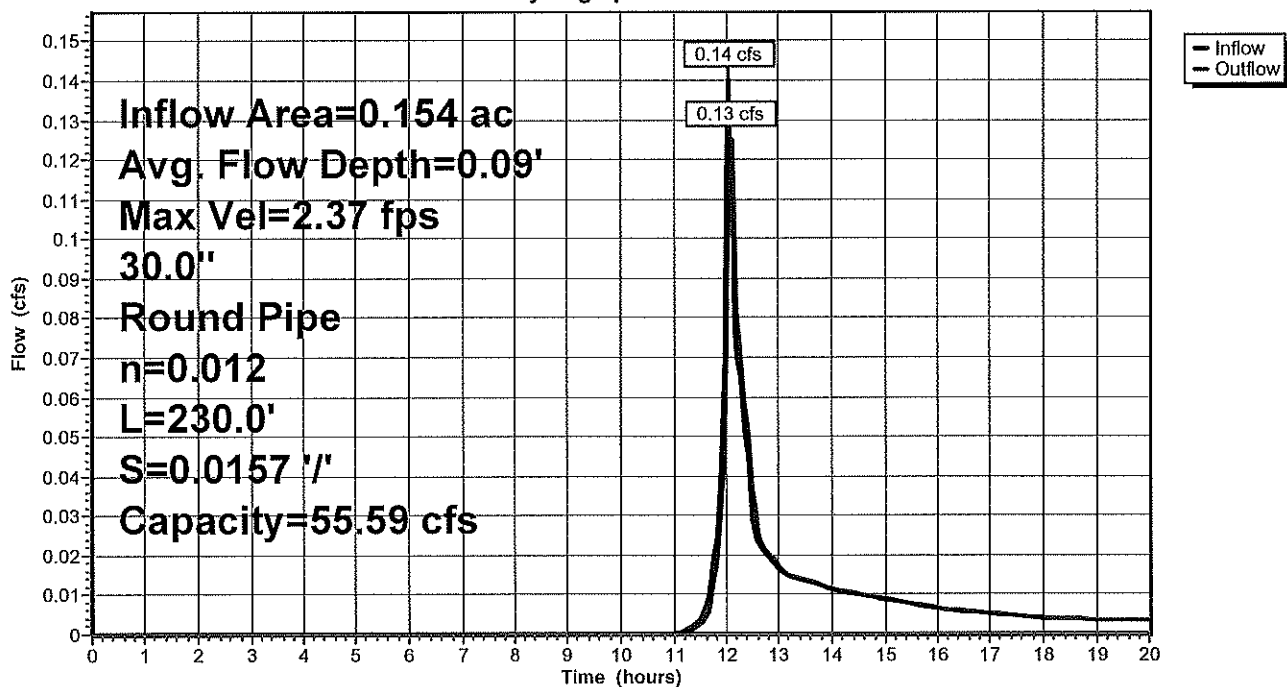
Length= 230.0' Slope= 0.0157 '/'

Inlet Invert= 1,122.50', Outlet Invert= 1,118.90'



Reach 9R: Connection to DOT

Hydrograph



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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Reach 9R: Connection to DOT

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,122.50	0.00
0.50	0.00	0	1,122.50	0.00
1.00	0.00	0	1,122.50	0.00
1.50	0.00	0	1,122.50	0.00
2.00	0.00	0	1,122.50	0.00
2.50	0.00	0	1,122.50	0.00
3.00	0.00	0	1,122.50	0.00
3.50	0.00	0	1,122.50	0.00
4.00	0.00	0	1,122.50	0.00
4.50	0.00	0	1,122.50	0.00
5.00	0.00	0	1,122.50	0.00
5.50	0.00	0	1,122.50	0.00
6.00	0.00	0	1,122.50	0.00
6.50	0.00	0	1,122.50	0.00
7.00	0.00	0	1,122.50	0.00
7.50	0.00	0	1,122.50	0.00
8.00	0.00	0	1,122.50	0.00
8.50	0.00	0	1,122.50	0.00
9.00	0.00	0	1,122.50	0.00
9.50	0.00	0	1,122.50	0.00
10.00	0.00	0	1,122.50	0.00
10.50	0.00	0	1,122.50	0.00
11.00	0.00	0	1,122.50	0.00
11.50	0.00	1	1,122.51	0.00
12.00	0.12	11	1,122.58	0.08
12.50	0.03	5	1,122.55	0.04
13.00	0.02	3	1,122.53	0.02
13.50	0.01	3	1,122.53	0.01
14.00	0.01	2	1,122.53	0.01
14.50	0.01	2	1,122.53	0.01
15.00	0.01	2	1,122.53	0.01
15.50	0.01	2	1,122.52	0.01
16.00	0.01	1	1,122.52	0.01
16.50	0.01	1	1,122.52	0.01
17.00	0.01	1	1,122.52	0.01
17.50	0.00	1	1,122.51	0.00
18.00	0.00	1	1,122.51	0.00
18.50	0.00	1	1,122.51	0.00
19.00	0.00	1	1,122.51	0.00
19.50	0.00	1	1,122.51	0.00
20.00	0.00	1	1,122.51	0.00

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Summary for Reach 10R: Connection to DOT

Inflow Area = 0.106 ac, 70.50% Impervious, Inflow Depth > 1.07" for 2 Year Storm event
Inflow = 0.15 cfs @ 12.03 hrs, Volume= 0.009 af
Outflow = 0.14 cfs @ 12.08 hrs, Volume= 0.009 af, Atten= 10%, Lag= 2.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 2.43 fps, Min. Travel Time= 1.6 min

Avg. Velocity = 1.12 fps, Avg. Travel Time= 3.4 min

Peak Storage= 14 cf @ 12.05 hrs

Average Depth at Peak Storage= 0.09'

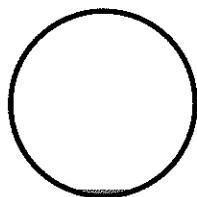
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 55.59 cfs

30.0" Round Pipe

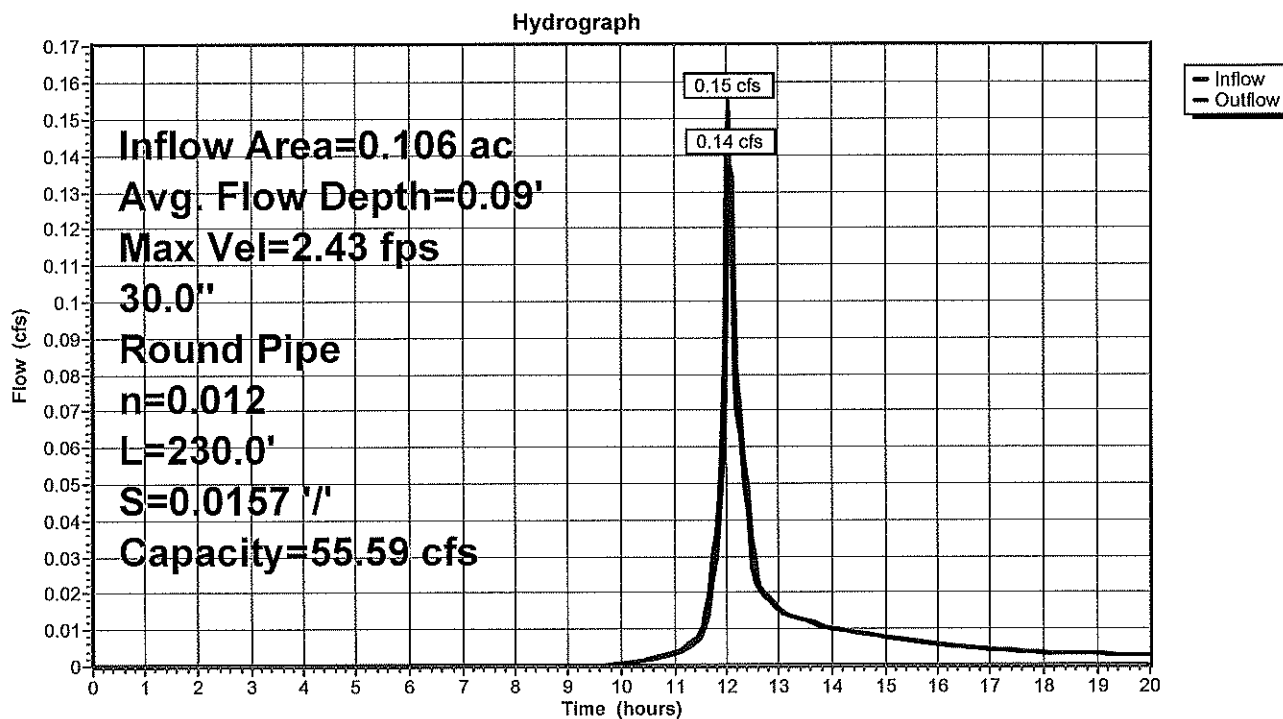
n= 0.012

Length= 230.0' Slope= 0.0157 '/'

Inlet Invert= 1,122.50', Outlet Invert= 1,118.90'



Reach 10R: Connection to DOT



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Reach 10R: Connection to DOT

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,122.50	0.00
0.50	0.00	0	1,122.50	0.00
1.00	0.00	0	1,122.50	0.00
1.50	0.00	0	1,122.50	0.00
2.00	0.00	0	1,122.50	0.00
2.50	0.00	0	1,122.50	0.00
3.00	0.00	0	1,122.50	0.00
3.50	0.00	0	1,122.50	0.00
4.00	0.00	0	1,122.50	0.00
4.50	0.00	0	1,122.50	0.00
5.00	0.00	0	1,122.50	0.00
5.50	0.00	0	1,122.50	0.00
6.00	0.00	0	1,122.50	0.00
6.50	0.00	0	1,122.50	0.00
7.00	0.00	0	1,122.50	0.00
7.50	0.00	0	1,122.50	0.00
8.00	0.00	0	1,122.50	0.00
8.50	0.00	0	1,122.50	0.00
9.00	0.00	0	1,122.50	0.00
9.50	0.00	0	1,122.50	0.00
10.00	0.00	0	1,122.50	0.00
10.50	0.00	0	1,122.50	0.00
11.00	0.00	1	1,122.51	0.00
11.50	0.01	2	1,122.52	0.01
12.00	0.14	12	1,122.58	0.09
12.50	0.03	5	1,122.54	0.04
13.00	0.01	3	1,122.53	0.02
13.50	0.01	2	1,122.53	0.01
14.00	0.01	2	1,122.53	0.01
14.50	0.01	2	1,122.53	0.01
15.00	0.01	2	1,122.52	0.01
15.50	0.01	2	1,122.52	0.01
16.00	0.01	1	1,122.52	0.01
16.50	0.01	1	1,122.52	0.01
17.00	0.00	1	1,122.51	0.00
17.50	0.00	1	1,122.51	0.00
18.00	0.00	1	1,122.51	0.00
18.50	0.00	1	1,122.51	0.00
19.00	0.00	1	1,122.51	0.00
19.50	0.00	1	1,122.51	0.00
20.00	0.00	1	1,122.51	0.00

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Summary for Pond 16P: Storage

Inflow Area = 1.616 ac, 91.18% Impervious, Inflow Depth > 2.04" for 2 Year Storm event
 Inflow = 4.11 cfs @ 12.06 hrs, Volume= 0.275 af
 Outflow = 0.46 cfs @ 12.68 hrs, Volume= 0.274 af, Atten= 89%, Lag= 37.3 min
 Discarded = 0.46 cfs @ 12.68 hrs, Volume= 0.274 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 3
 Peak Elev= 1,123.92' @ 12.68 hrs Surf.Area= 5,891 sf Storage= 4,535 cf

Plug-Flow detention time= 81.9 min calculated for 0.274 af (100% of inflow)
 Center-of-Mass det. time= 81.1 min (840.9 - 759.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,126.80'	2,460 cf	Custom Stage Data (Irregular) Listed below (Recalc)
#2A	1,122.50'	6,322 cf	51.00'W x 115.50'L x 3.50'H Field A 20,617 cf Overall - 4,811 cf Embedded = 15,806 cf x 40.0% Voids
#3A	1,123.46'	4,811 cf	Cultec R-150XLHD x 176 Inside #2 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 16 rows
		13,593 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,126.80	100	16.0	0	0	100
1,128.00	5,320	460.0	2,460	2,460	16,921

Device	Routing	Invert	Outlet Devices
#1	Secondary	1,127.30'	3.0' long 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
#2	Discarded	1,122.50'	2.410 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 1,118.00'
#3	Device 4	1,124.50'	6.0" Horiz. Orifice C= 0.600 Limited to weir flow at low heads
#4	Primary	1,120.50'	12.0" Round Culvert L= 80.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,120.50' / 1,119.50' S= 0.0125 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Discarded OutFlow Max=0.46 cfs @ 12.68 hrs HW=1,123.92' (Free Discharge)

↑**2=Exfiltration** (Controls 0.46 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,122.50' (Free Discharge)

↑**4=Culvert** (Passes 0.00 cfs of 4.09 cfs potential flow)

↑**3=Orifice** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,122.50' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Pond 16P: Storage - Chamber Wizard Field A

Chamber Model = Cultec R-150XLHD (Cultec Recharger® 150XLHD)

Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf

Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap

Row Length Adjustment= +0.75' x 2.65 sf x 16 rows

33.0" Wide + 4.0" Spacing = 37.0" C-C Row Spacing

11 Chambers/Row x 10.25' Long +0.75' Row Adjustment = 113.50' Row Length +12.0" End Stone x 2 =
115.50' Base Length

16 Rows x 33.0" Wide + 4.0" Spacing x 15 + 12.0" Side Stone x 2 = 51.00' Base Width

11.5" Base + 18.5" Chamber Height + 12.0" Cover = 3.50' Field Height

176 Chambers x 27.2 cf +0.75' Row Adjustment x 2.65 sf x 16 Rows = 4,810.6 cf Chamber Storage

20,616.8 cf Field - 4,810.6 cf Chambers = 15,806.2 cf Stone x 40.0% Voids = 6,322.5 cf Stone Storage

Chamber Storage + Stone Storage = 11,133.1 cf = 0.256 af

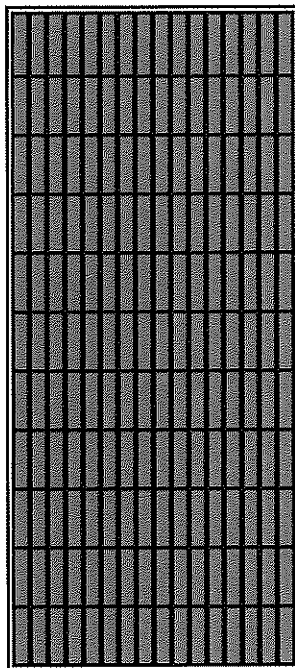
Overall Storage Efficiency = 54.0%

Overall System Size = 115.50' x 51.00' x 3.50'

176 Chambers

763.6 cy Field

585.4 cy Stone



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Proposed Berkshire Mazda

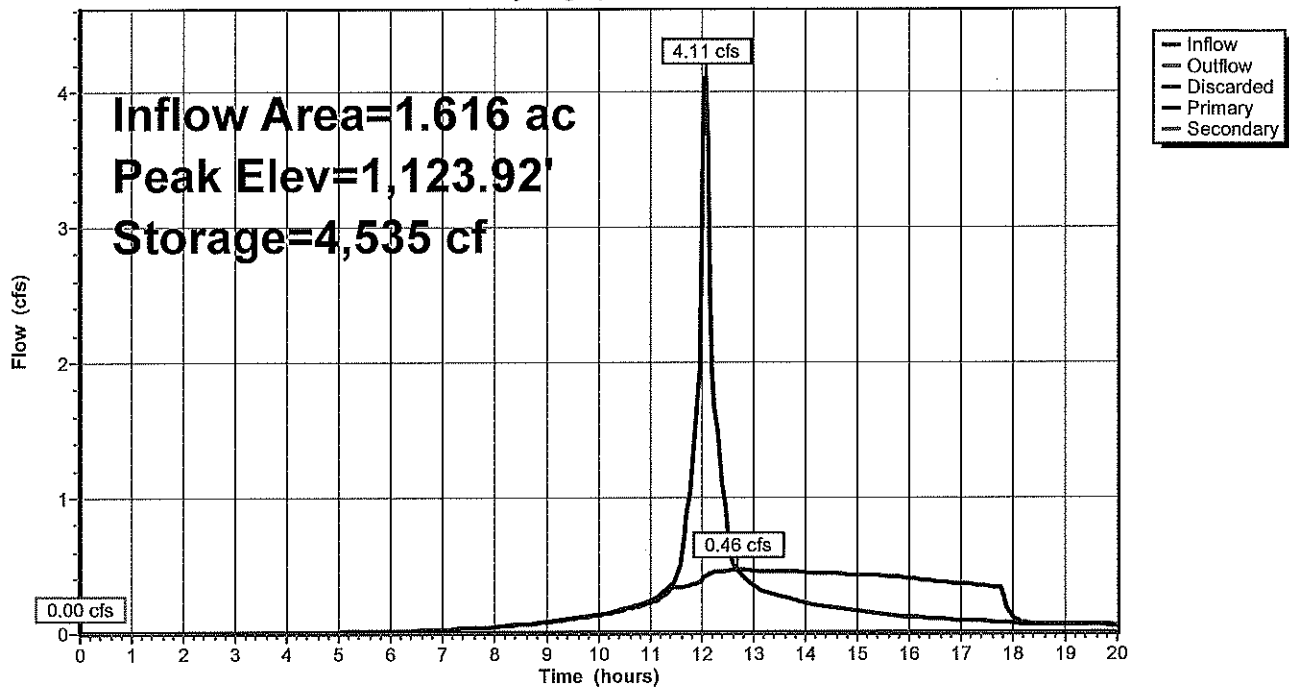
Type III 24-hr 2 Year Storm Rainfall=2.80"

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Pond 16P: Storage

Hydrograph



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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Pond 16P: Storage

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	1,122.50	0.00	0.00	0.00	0.00
0.50	0.00	0	1,122.50	0.00	0.00	0.00	0.00
1.00	0.00	0	1,122.50	0.00	0.00	0.00	0.00
1.50	0.00	0	1,122.50	0.00	0.00	0.00	0.00
2.00	0.00	0	1,122.50	0.00	0.00	0.00	0.00
2.50	0.00	0	1,122.50	0.00	0.00	0.00	0.00
3.00	0.00	0	1,122.50	0.00	0.00	0.00	0.00
3.50	0.00	0	1,122.50	0.00	0.00	0.00	0.00
4.00	0.00	0	1,122.50	0.00	0.00	0.00	0.00
4.50	0.00	0	1,122.50	0.00	0.00	0.00	0.00
5.00	0.01	2	1,122.50	0.00	0.00	0.00	0.00
5.50	0.01	3	1,122.50	0.01	0.01	0.00	0.00
6.00	0.01	5	1,122.50	0.01	0.01	0.00	0.00
6.50	0.02	7	1,122.50	0.02	0.02	0.00	0.00
7.00	0.03	10	1,122.50	0.03	0.03	0.00	0.00
7.50	0.04	14	1,122.51	0.03	0.03	0.00	0.00
8.00	0.05	17	1,122.51	0.04	0.04	0.00	0.00
8.50	0.06	23	1,122.51	0.06	0.06	0.00	0.00
9.00	0.09	31	1,122.51	0.08	0.08	0.00	0.00
9.50	0.11	40	1,122.52	0.10	0.10	0.00	0.00
10.00	0.14	50	1,122.52	0.13	0.13	0.00	0.00
10.50	0.18	66	1,122.53	0.17	0.17	0.00	0.00
11.00	0.23	86	1,122.54	0.22	0.22	0.00	0.00
11.50	0.40	141	1,122.56	0.33	0.33	0.00	0.00
12.00	2.99	1,565	1,123.16	0.39	0.39	0.00	0.00
12.50	0.75	4,477	1,123.91	0.46	0.46	0.00	0.00
13.00	0.34	4,464	1,123.91	0.46	0.46	0.00	0.00
13.50	0.27	4,173	1,123.85	0.46	0.46	0.00	0.00
14.00	0.22	3,799	1,123.77	0.45	0.45	0.00	0.00
14.50	0.19	3,366	1,123.68	0.44	0.44	0.00	0.00
15.00	0.17	2,904	1,123.59	0.43	0.43	0.00	0.00
15.50	0.14	2,415	1,123.49	0.42	0.42	0.00	0.00
16.00	0.12	1,902	1,123.31	0.40	0.40	0.00	0.00
16.50	0.10	1,391	1,123.09	0.38	0.38	0.00	0.00
17.00	0.09	896	1,122.88	0.36	0.36	0.00	0.00
17.50	0.08	416	1,122.68	0.34	0.34	0.00	0.00
18.00	0.07	45	1,122.52	0.12	0.12	0.00	0.00
18.50	0.07	27	1,122.51	0.07	0.07	0.00	0.00
19.00	0.06	25	1,122.51	0.06	0.06	0.00	0.00
19.50	0.06	24	1,122.51	0.06	0.06	0.00	0.00
20.00	0.06	23	1,122.51	0.06	0.06	0.00	0.00

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Summary for Pond 17P: Drop inlet

Inflow Area = 0.452 ac, 30.93% Impervious, Inflow Depth > 0.16" for 2 Year Storm event
Inflow = 0.03 cfs @ 12.27 hrs, Volume= 0.006 af
Outflow = 0.03 cfs @ 12.27 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min
Primary = 0.03 cfs @ 12.27 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

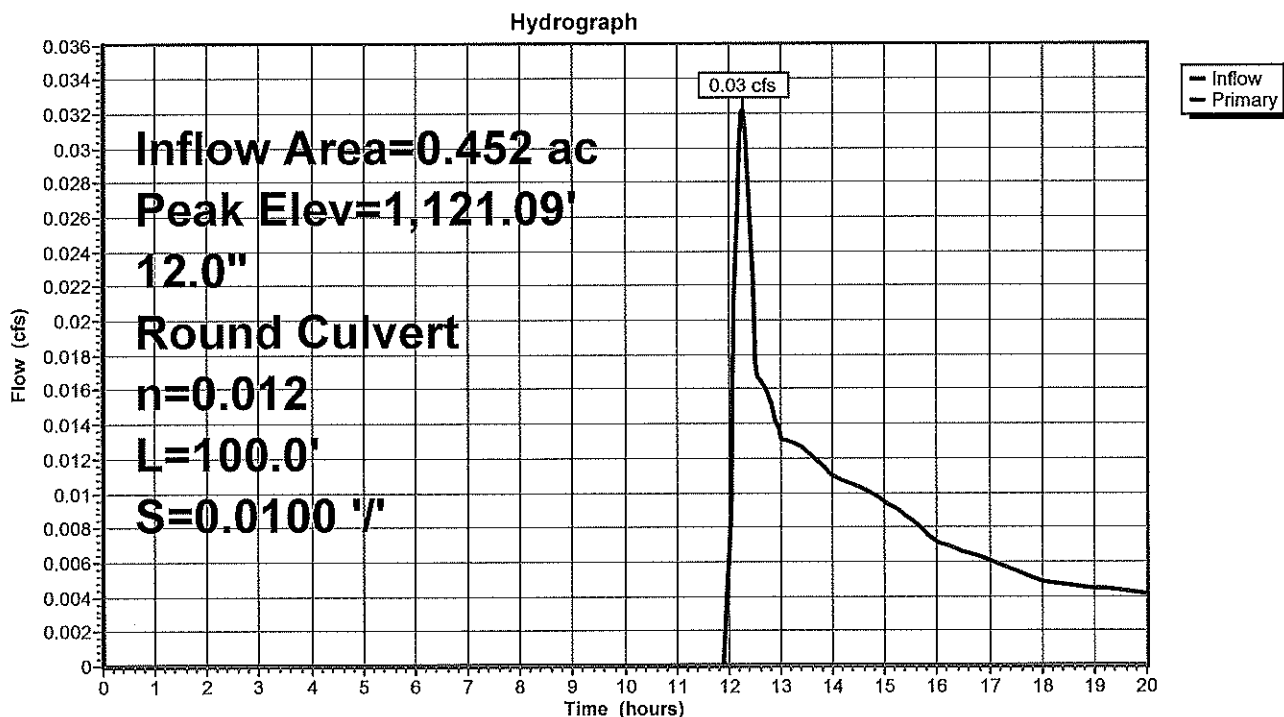
Peak Elev= 1,121.09' @ 12.27 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,121.00'	12.0" Round Culvert L= 100.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,121.00' / 1,120.00' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.03 cfs @ 12.27 hrs HW=1,121.09' (Free Discharge)

↑=Culvert (Inlet Controls 0.03 cfs @ 0.90 fps)

Pond 17P: Drop inlet



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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Pond 17P: Drop inlet

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	1,121.00	0.00	13.00	0.01	1,121.06	0.01
0.25	0.00	1,121.00	0.00	13.25	0.01	1,121.06	0.01
0.50	0.00	1,121.00	0.00	13.50	0.01	1,121.06	0.01
0.75	0.00	1,121.00	0.00	13.75	0.01	1,121.05	0.01
1.00	0.00	1,121.00	0.00	14.00	0.01	1,121.05	0.01
1.25	0.00	1,121.00	0.00	14.25	0.01	1,121.05	0.01
1.50	0.00	1,121.00	0.00	14.50	0.01	1,121.05	0.01
1.75	0.00	1,121.00	0.00	14.75	0.01	1,121.05	0.01
2.00	0.00	1,121.00	0.00	15.00	0.01	1,121.05	0.01
2.25	0.00	1,121.00	0.00	15.25	0.01	1,121.05	0.01
2.50	0.00	1,121.00	0.00	15.50	0.01	1,121.05	0.01
2.75	0.00	1,121.00	0.00	15.75	0.01	1,121.04	0.01
3.00	0.00	1,121.00	0.00	16.00	0.01	1,121.04	0.01
3.25	0.00	1,121.00	0.00	16.25	0.01	1,121.04	0.01
3.50	0.00	1,121.00	0.00	16.50	0.01	1,121.04	0.01
3.75	0.00	1,121.00	0.00	16.75	0.01	1,121.04	0.01
4.00	0.00	1,121.00	0.00	17.00	0.01	1,121.04	0.01
4.25	0.00	1,121.00	0.00	17.25	0.01	1,121.04	0.01
4.50	0.00	1,121.00	0.00	17.50	0.01	1,121.04	0.01
4.75	0.00	1,121.00	0.00	17.75	0.01	1,121.04	0.01
5.00	0.00	1,121.00	0.00	18.00	0.00	1,121.04	0.00
5.25	0.00	1,121.00	0.00	18.25	0.00	1,121.04	0.00
5.50	0.00	1,121.00	0.00	18.50	0.00	1,121.03	0.00
5.75	0.00	1,121.00	0.00	18.75	0.00	1,121.03	0.00
6.00	0.00	1,121.00	0.00	19.00	0.00	1,121.03	0.00
6.25	0.00	1,121.00	0.00	19.25	0.00	1,121.03	0.00
6.50	0.00	1,121.00	0.00	19.50	0.00	1,121.03	0.00
6.75	0.00	1,121.00	0.00	19.75	0.00	1,121.03	0.00
7.00	0.00	1,121.00	0.00	20.00	0.00	1,121.03	0.00
7.25	0.00	1,121.00	0.00				
7.50	0.00	1,121.00	0.00				
7.75	0.00	1,121.00	0.00				
8.00	0.00	1,121.00	0.00				
8.25	0.00	1,121.00	0.00				
8.50	0.00	1,121.00	0.00				
8.75	0.00	1,121.00	0.00				
9.00	0.00	1,121.00	0.00				
9.25	0.00	1,121.00	0.00				
9.50	0.00	1,121.00	0.00				
9.75	0.00	1,121.00	0.00				
10.00	0.00	1,121.00	0.00				
10.25	0.00	1,121.00	0.00				
10.50	0.00	1,121.00	0.00				
10.75	0.00	1,121.00	0.00				
11.00	0.00	1,121.00	0.00				
11.25	0.00	1,121.00	0.00				
11.50	0.00	1,121.00	0.00				
11.75	0.00	1,121.00	0.00				
12.00	0.00	1,121.00	0.00				
12.25	0.03	1,121.09	0.03				
12.50	0.02	1,121.07	0.02				
12.75	0.02	1,121.06	0.02				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

Printed 11/11/2022

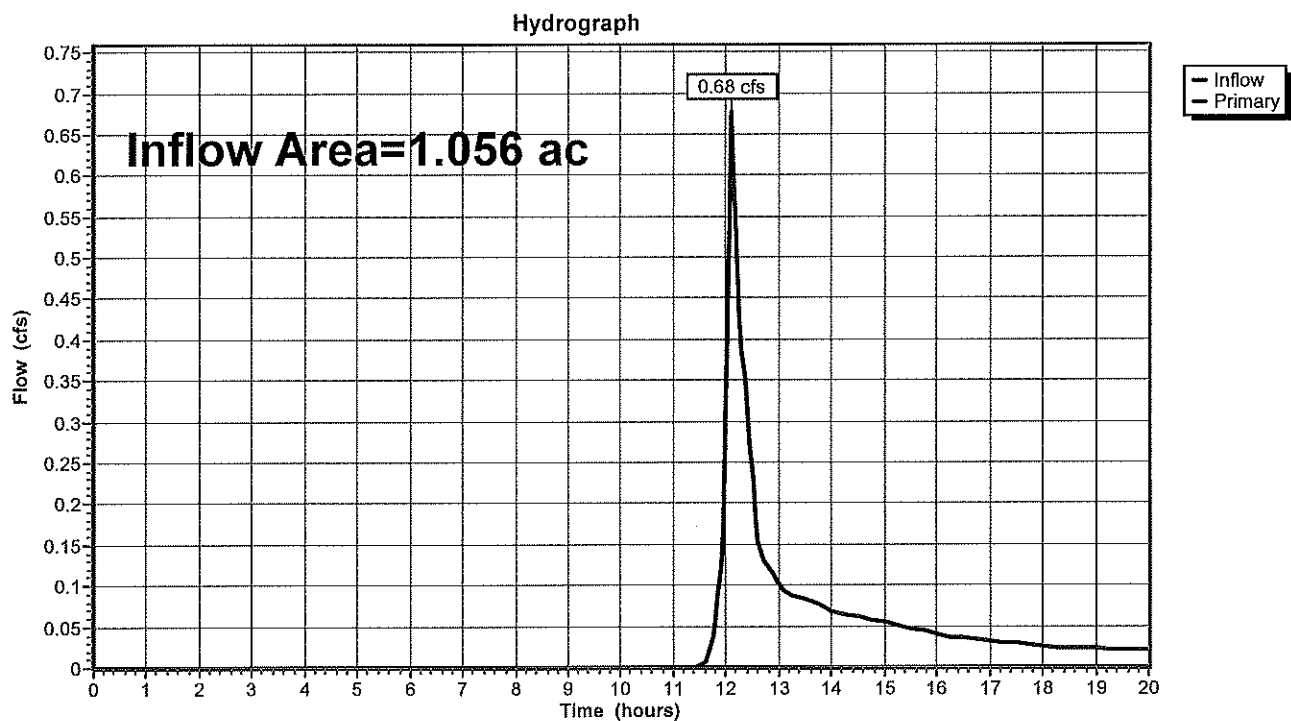
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Summary for Link 1L: Wetland PRE

Inflow Area = 1.056 ac, 9.09% Impervious, Inflow Depth > 0.58" for 2 Year Storm event
Inflow = 0.68 cfs @ 12.11 hrs, Volume= 0.051 af
Primary = 0.68 cfs @ 12.11 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Wetland PRE



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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Link 1L: Wetland PRE

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	13.00	0.10	0.00	0.10
0.25	0.00	0.00	0.00	13.25	0.09	0.00	0.09
0.50	0.00	0.00	0.00	13.50	0.08	0.00	0.08
0.75	0.00	0.00	0.00	13.75	0.08	0.00	0.08
1.00	0.00	0.00	0.00	14.00	0.07	0.00	0.07
1.25	0.00	0.00	0.00	14.25	0.06	0.00	0.06
1.50	0.00	0.00	0.00	14.50	0.06	0.00	0.06
1.75	0.00	0.00	0.00	14.75	0.06	0.00	0.06
2.00	0.00	0.00	0.00	15.00	0.05	0.00	0.05
2.25	0.00	0.00	0.00	15.25	0.05	0.00	0.05
2.50	0.00	0.00	0.00	15.50	0.05	0.00	0.05
2.75	0.00	0.00	0.00	15.75	0.04	0.00	0.04
3.00	0.00	0.00	0.00	16.00	0.04	0.00	0.04
3.25	0.00	0.00	0.00	16.25	0.04	0.00	0.04
3.50	0.00	0.00	0.00	16.50	0.04	0.00	0.04
3.75	0.00	0.00	0.00	16.75	0.03	0.00	0.03
4.00	0.00	0.00	0.00	17.00	0.03	0.00	0.03
4.25	0.00	0.00	0.00	17.25	0.03	0.00	0.03
4.50	0.00	0.00	0.00	17.50	0.03	0.00	0.03
4.75	0.00	0.00	0.00	17.75	0.03	0.00	0.03
5.00	0.00	0.00	0.00	18.00	0.03	0.00	0.03
5.25	0.00	0.00	0.00	18.25	0.02	0.00	0.02
5.50	0.00	0.00	0.00	18.50	0.02	0.00	0.02
5.75	0.00	0.00	0.00	18.75	0.02	0.00	0.02
6.00	0.00	0.00	0.00	19.00	0.02	0.00	0.02
6.25	0.00	0.00	0.00	19.25	0.02	0.00	0.02
6.50	0.00	0.00	0.00	19.50	0.02	0.00	0.02
6.75	0.00	0.00	0.00	19.75	0.02	0.00	0.02
7.00	0.00	0.00	0.00	20.00	0.02	0.00	0.02
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.00	0.00	0.00				
11.50	0.00	0.00	0.00				
11.75	0.04	0.00	0.04				
12.00	0.30	0.00	0.30				
12.25	0.43	0.00	0.43				
12.50	0.23	0.00	0.23				
12.75	0.13	0.00	0.13				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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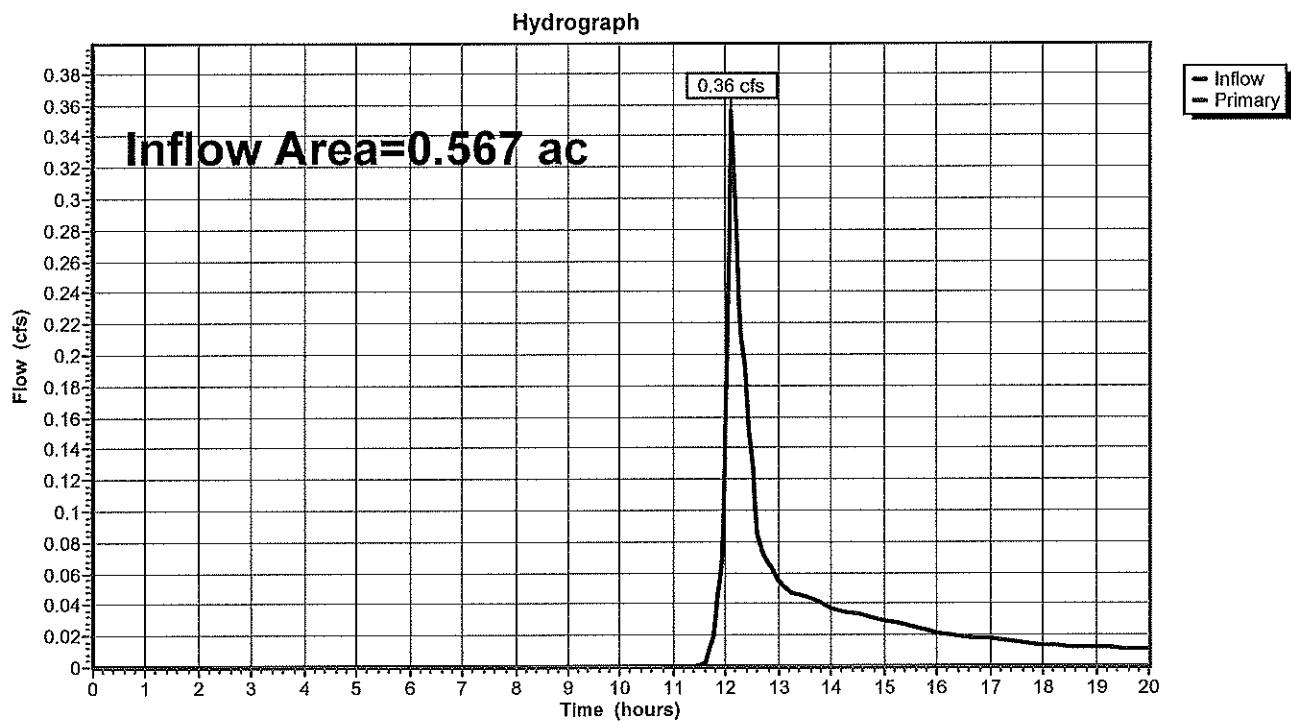
Page 42

Summary for Link 2L: Wetland POST

Inflow Area = 0.567 ac, 1.74% Impervious, Inflow Depth > 0.58" for 2 Year Storm event
Inflow = 0.36 cfs @ 12.12 hrs, Volume= 0.028 af
Primary = 0.36 cfs @ 12.12 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link 2L: Wetland POST



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Proposed Berkshire Mazda

Type III 24-hr 2 Year Storm Rainfall=2.80"

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Hydrograph for Link 2L: Wetland POST

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	13.00	0.06	0.00	0.06
0.25	0.00	0.00	0.00	13.25	0.05	0.00	0.05
0.50	0.00	0.00	0.00	13.50	0.04	0.00	0.04
0.75	0.00	0.00	0.00	13.75	0.04	0.00	0.04
1.00	0.00	0.00	0.00	14.00	0.04	0.00	0.04
1.25	0.00	0.00	0.00	14.25	0.03	0.00	0.03
1.50	0.00	0.00	0.00	14.50	0.03	0.00	0.03
1.75	0.00	0.00	0.00	14.75	0.03	0.00	0.03
2.00	0.00	0.00	0.00	15.00	0.03	0.00	0.03
2.25	0.00	0.00	0.00	15.25	0.03	0.00	0.03
2.50	0.00	0.00	0.00	15.50	0.03	0.00	0.03
2.75	0.00	0.00	0.00	15.75	0.02	0.00	0.02
3.00	0.00	0.00	0.00	16.00	0.02	0.00	0.02
3.25	0.00	0.00	0.00	16.25	0.02	0.00	0.02
3.50	0.00	0.00	0.00	16.50	0.02	0.00	0.02
3.75	0.00	0.00	0.00	16.75	0.02	0.00	0.02
4.00	0.00	0.00	0.00	17.00	0.02	0.00	0.02
4.25	0.00	0.00	0.00	17.25	0.02	0.00	0.02
4.50	0.00	0.00	0.00	17.50	0.02	0.00	0.02
4.75	0.00	0.00	0.00	17.75	0.01	0.00	0.01
5.00	0.00	0.00	0.00	18.00	0.01	0.00	0.01
5.25	0.00	0.00	0.00	18.25	0.01	0.00	0.01
5.50	0.00	0.00	0.00	18.50	0.01	0.00	0.01
5.75	0.00	0.00	0.00	18.75	0.01	0.00	0.01
6.00	0.00	0.00	0.00	19.00	0.01	0.00	0.01
6.25	0.00	0.00	0.00	19.25	0.01	0.00	0.01
6.50	0.00	0.00	0.00	19.50	0.01	0.00	0.01
6.75	0.00	0.00	0.00	19.75	0.01	0.00	0.01
7.00	0.00	0.00	0.00	20.00	0.01	0.00	0.01
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.00	0.00	0.00				
11.50	0.00	0.00	0.00				
11.75	0.02	0.00	0.02				
12.00	0.15	0.00	0.15				
12.25	0.23	0.00	0.23				
12.50	0.13	0.00	0.13				
12.75	0.07	0.00	0.07				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Summary for Subcatchment 1Post: Post SA 1

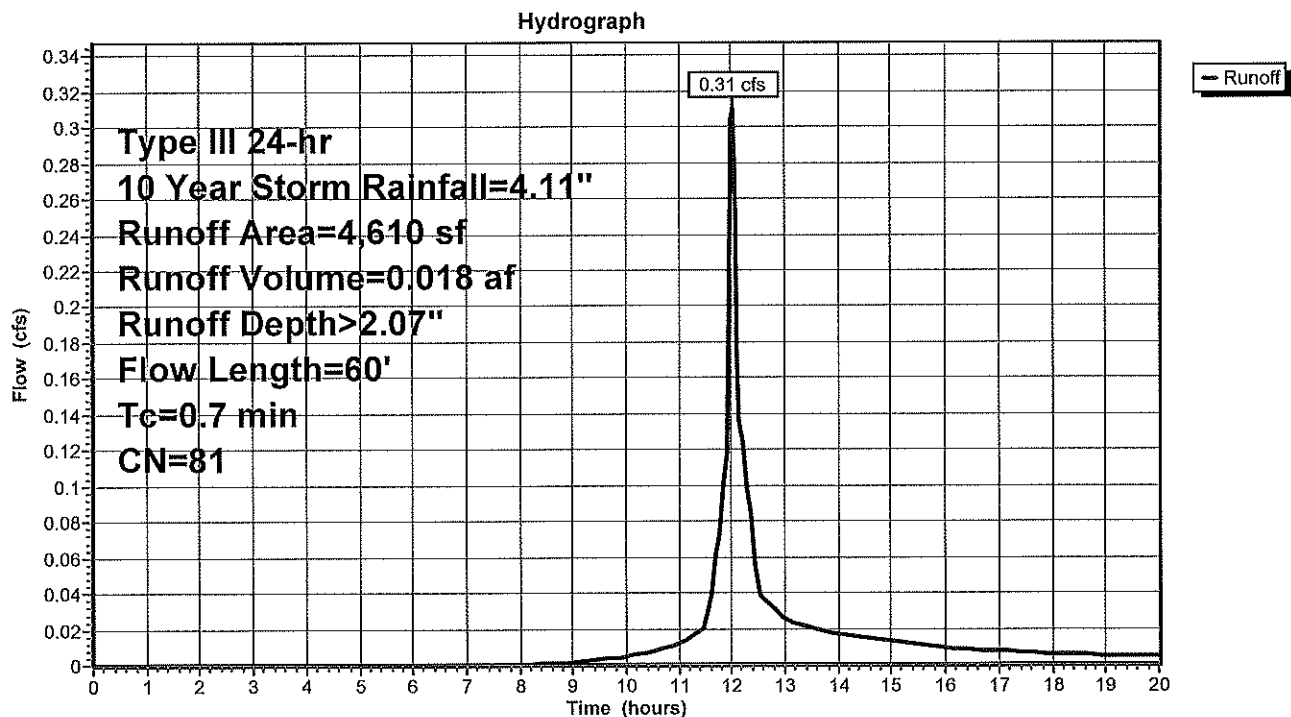
Runoff = 0.31 cfs @ 12.01 hrs, Volume= 0.018 af, Depth> 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.11"

	Area (sf)	CN	Description
*	3,250	98	Paved Drive,HSG A
	1,360	39	>75% Grass cover, Good, HSG A
	4,610	81	Weighted Average
	1,360		29.50% Pervious Area
	3,250		70.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	10	0.2500	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.1	50	0.0850	5.92		Shallow Concentrated Flow, sriveway Paved Kv= 20.3 fps
0.7	60	Total			

Subcatchment 1Post: Post SA 1



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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Subcatchment 1Post: Post SA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.08	1.38	0.03
0.25	0.01	0.00	0.00	13.25	3.15	1.43	0.02
0.50	0.02	0.00	0.00	13.50	3.22	1.48	0.02
0.75	0.03	0.00	0.00	13.75	3.28	1.53	0.02
1.00	0.04	0.00	0.00	14.00	3.33	1.57	0.02
1.25	0.05	0.00	0.00	14.25	3.38	1.61	0.02
1.50	0.06	0.00	0.00	14.50	3.43	1.65	0.02
1.75	0.07	0.00	0.00	14.75	3.47	1.69	0.01
2.00	0.08	0.00	0.00	15.00	3.51	1.72	0.01
2.25	0.09	0.00	0.00	15.25	3.55	1.75	0.01
2.50	0.10	0.00	0.00	15.50	3.58	1.78	0.01
2.75	0.11	0.00	0.00	15.75	3.61	1.80	0.01
3.00	0.13	0.00	0.00	16.00	3.64	1.82	0.01
3.25	0.14	0.00	0.00	16.25	3.67	1.85	0.01
3.50	0.15	0.00	0.00	16.50	3.69	1.87	0.01
3.75	0.16	0.00	0.00	16.75	3.72	1.88	0.01
4.00	0.18	0.00	0.00	17.00	3.74	1.90	0.01
4.25	0.19	0.00	0.00	17.25	3.76	1.92	0.01
4.50	0.20	0.00	0.00	17.50	3.78	1.94	0.01
4.75	0.22	0.00	0.00	17.75	3.80	1.95	0.01
5.00	0.23	0.00	0.00	18.00	3.81	1.97	0.01
5.25	0.25	0.00	0.00	18.25	3.83	1.98	0.01
5.50	0.26	0.00	0.00	18.50	3.85	1.99	0.01
5.75	0.28	0.00	0.00	18.75	3.86	2.01	0.01
6.00	0.30	0.00	0.00	19.00	3.88	2.02	0.01
6.25	0.31	0.00	0.00	19.25	3.89	2.03	0.01
6.50	0.33	0.00	0.00	19.50	3.91	2.04	0.01
6.75	0.35	0.00	0.00	19.75	3.92	2.05	0.00
7.00	0.37	0.00	0.00	20.00	3.93	2.07	0.00
7.25	0.39	0.00	0.00				
7.50	0.42	0.00	0.00				
7.75	0.44	0.00	0.00				
8.00	0.47	0.00	0.00				
8.25	0.50	0.00	0.00				
8.50	0.53	0.00	0.00				
8.75	0.56	0.00	0.00				
9.00	0.60	0.01	0.00				
9.25	0.64	0.01	0.00				
9.50	0.68	0.02	0.00				
9.75	0.73	0.03	0.00				
10.00	0.78	0.04	0.00				
10.25	0.83	0.05	0.01				
10.50	0.89	0.06	0.01				
10.75	0.96	0.08	0.01				
11.00	1.03	0.11	0.01				
11.25	1.11	0.14	0.02				
11.50	1.22	0.18	0.02				
11.75	1.46	0.29	0.07				
12.00	2.05	0.64	0.31				
12.25	2.65	1.05	0.11				
12.50	2.89	1.23	0.04				
12.75	3.00	1.31	0.03				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Summary for Subcatchment 1S: EX SA 1

Runoff = 1.28 cfs @ 12.07 hrs, Volume= 0.093 af, Depth> 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.11"

Area (sf)	CN	Description
11,850	98	Paved parking, HSG A
1,810	96	Gravel surface, HSG A
1,430	96	Gravel surface, HSG C
6,570	98	Roofs, HSG A
* 3,105	98	sidewalk/Concrete, HSG A
33,525	39	>75% Grass cover, Good, HSG A
260	74	>75% Grass cover, Good, HSG C
7,750	30	Woods, Good, HSG A
430	70	Woods, Good, HSG C
66,730	60	Weighted Average
45,205		67.74% Pervious Area
21,525		32.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0500	1.62		Sheet Flow, Gravel Driveway Smooth surfaces n= 0.011 P2= 2.80"
0.4	64	0.0350	2.81		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
0.8	69	0.0739	1.36		Shallow Concentrated Flow, woods Woodland Kv= 5.0 fps
0.1	30	0.3300	8.62		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
1.2	119	0.0120	1.64		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
0.2	20	0.0100	2.03		Shallow Concentrated Flow, at Catch Basin Paved Kv= 20.3 fps
3.2	352	Total			

Calcs Nov 22

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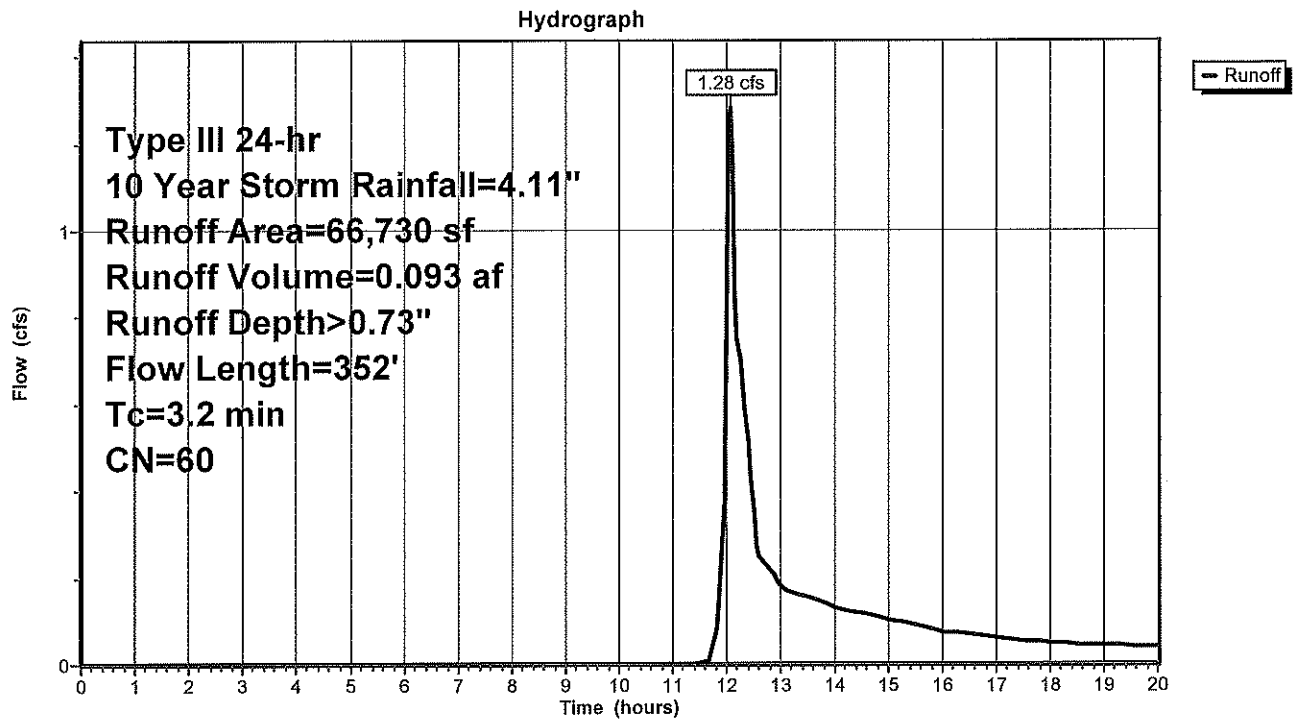
Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Subcatchment 1S: EX SA 1



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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Subcatchment 1S: EX SA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.08	0.36	0.18
0.25	0.01	0.00	0.00	13.25	3.15	0.39	0.16
0.50	0.02	0.00	0.00	13.50	3.22	0.42	0.15
0.75	0.03	0.00	0.00	13.75	3.28	0.44	0.14
1.00	0.04	0.00	0.00	14.00	3.33	0.46	0.13
1.25	0.05	0.00	0.00	14.25	3.38	0.48	0.12
1.50	0.06	0.00	0.00	14.50	3.43	0.50	0.12
1.75	0.07	0.00	0.00	14.75	3.47	0.52	0.11
2.00	0.08	0.00	0.00	15.00	3.51	0.54	0.10
2.25	0.09	0.00	0.00	15.25	3.55	0.55	0.10
2.50	0.10	0.00	0.00	15.50	3.58	0.57	0.09
2.75	0.11	0.00	0.00	15.75	3.61	0.58	0.08
3.00	0.13	0.00	0.00	16.00	3.64	0.59	0.08
3.25	0.14	0.00	0.00	16.25	3.67	0.61	0.07
3.50	0.15	0.00	0.00	16.50	3.69	0.62	0.07
3.75	0.16	0.00	0.00	16.75	3.72	0.63	0.07
4.00	0.18	0.00	0.00	17.00	3.74	0.64	0.06
4.25	0.19	0.00	0.00	17.25	3.76	0.65	0.06
4.50	0.20	0.00	0.00	17.50	3.78	0.66	0.06
4.75	0.22	0.00	0.00	17.75	3.80	0.66	0.05
5.00	0.23	0.00	0.00	18.00	3.81	0.67	0.05
5.25	0.25	0.00	0.00	18.25	3.83	0.68	0.05
5.50	0.26	0.00	0.00	18.50	3.85	0.69	0.05
5.75	0.28	0.00	0.00	18.75	3.86	0.70	0.04
6.00	0.30	0.00	0.00	19.00	3.88	0.70	0.04
6.25	0.31	0.00	0.00	19.25	3.89	0.71	0.04
6.50	0.33	0.00	0.00	19.50	3.91	0.72	0.04
6.75	0.35	0.00	0.00	19.75	3.92	0.72	0.04
7.00	0.37	0.00	0.00	20.00	3.93	0.73	0.04
7.25	0.39	0.00	0.00				
7.50	0.42	0.00	0.00				
7.75	0.44	0.00	0.00				
8.00	0.47	0.00	0.00				
8.25	0.50	0.00	0.00				
8.50	0.53	0.00	0.00				
8.75	0.56	0.00	0.00				
9.00	0.60	0.00	0.00				
9.25	0.64	0.00	0.00				
9.50	0.68	0.00	0.00				
9.75	0.73	0.00	0.00				
10.00	0.78	0.00	0.00				
10.25	0.83	0.00	0.00				
10.50	0.89	0.00	0.00				
10.75	0.96	0.00	0.00				
11.00	1.03	0.00	0.00				
11.25	1.11	0.00	0.00				
11.50	1.22	0.00	0.00				
11.75	1.46	0.00	0.04				
12.00	2.05	0.07	0.78				
12.25	2.65	0.22	0.70				
12.50	2.89	0.29	0.35				
12.75	3.00	0.33	0.23				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Summary for Subcatchment 2A Post: Post SA 2A

Runoff = 6.38 cfs @ 12.06 hrs, Volume= 0.439 af, Depth> 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.11"

Area (sf)	CN	Description
35,600	98	Paved parking, HSG A
12,625	98	Paved parking, HSG C
12,810	98	Roofs, HSG A
1,615	98	Roofs, HSG C
* 1,545	98	Concrete/Sidewalk, HSG A
2,940	39	>75% Grass cover, Good, HSG A
3,270	74	>75% Grass cover, Good, HSG C
70,405	94	Weighted Average
6,210		8.82% Pervious Area
64,195		91.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.1000	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.9	153	0.0200	2.87		Shallow Concentrated Flow, Paking Lot Paved Kv= 20.3 fps
0.3	137	0.0200	6.95	5.46	Pipe Channel, Parking Lot Drain 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.3	150	0.0200	9.11	16.09	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
0.2	135	0.0300	11.15	19.71	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
4.2	612	Total			

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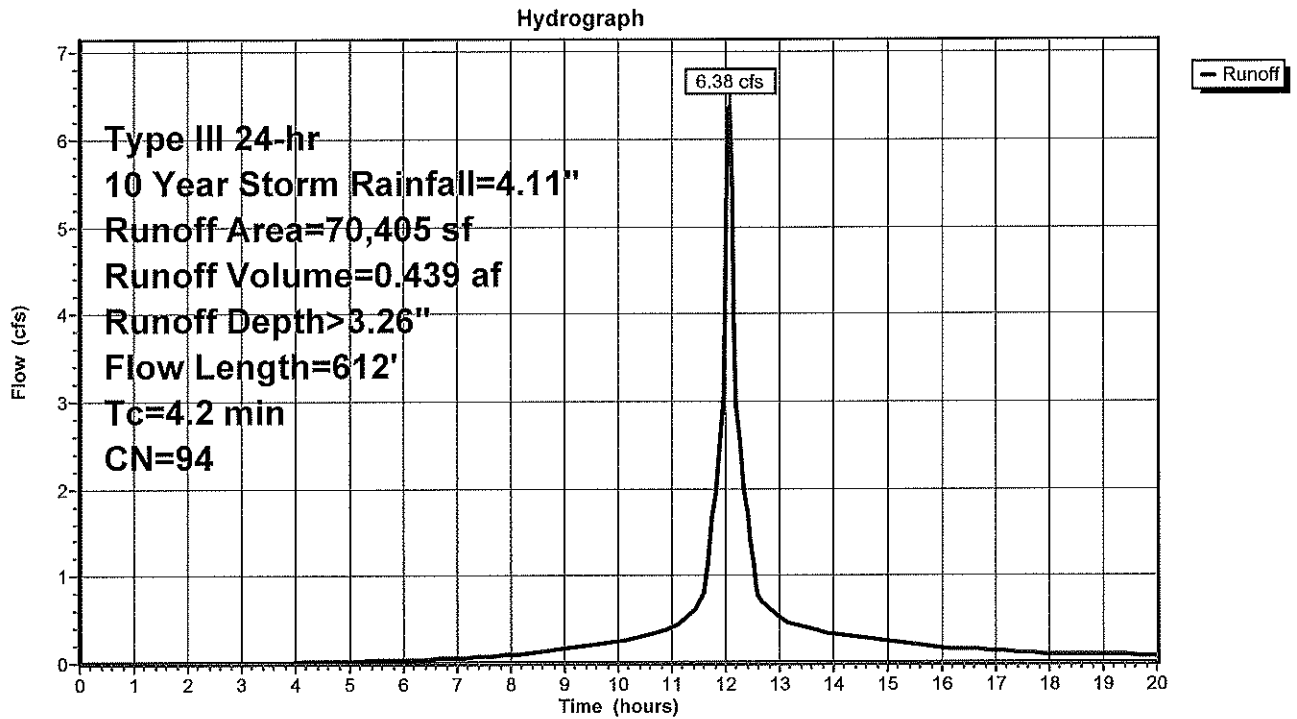
Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Subcatchment 2A Post: Post SA 2A



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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Subcatchment 2A Post: Post SA 2A

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.08	2.43	0.51
0.25	0.01	0.00	0.00	13.25	3.15	2.50	0.45
0.50	0.02	0.00	0.00	13.50	3.22	2.56	0.41
0.75	0.03	0.00	0.00	13.75	3.28	2.62	0.37
1.00	0.04	0.00	0.00	14.00	3.33	2.67	0.33
1.25	0.05	0.00	0.00	14.25	3.38	2.72	0.31
1.50	0.06	0.00	0.00	14.50	3.43	2.77	0.29
1.75	0.07	0.00	0.00	14.75	3.47	2.81	0.27
2.00	0.08	0.00	0.00	15.00	3.51	2.85	0.25
2.25	0.09	0.00	0.00	15.25	3.55	2.88	0.23
2.50	0.10	0.00	0.00	15.50	3.58	2.92	0.21
2.75	0.11	0.00	0.00	15.75	3.61	2.95	0.19
3.00	0.13	0.00	0.00	16.00	3.64	2.97	0.17
3.25	0.14	0.00	0.00	16.25	3.67	3.00	0.16
3.50	0.15	0.00	0.00	16.50	3.69	3.02	0.16
3.75	0.16	0.00	0.01	16.75	3.72	3.05	0.15
4.00	0.18	0.00	0.01	17.00	3.74	3.07	0.14
4.25	0.19	0.01	0.01	17.25	3.76	3.09	0.13
4.50	0.20	0.01	0.02	17.50	3.78	3.11	0.12
4.75	0.22	0.01	0.02	17.75	3.80	3.13	0.12
5.00	0.23	0.01	0.02	18.00	3.81	3.14	0.11
5.25	0.25	0.02	0.03	18.25	3.83	3.16	0.10
5.50	0.26	0.02	0.03	18.50	3.85	3.17	0.10
5.75	0.28	0.03	0.04	18.75	3.86	3.19	0.10
6.00	0.30	0.04	0.04	19.00	3.88	3.20	0.10
6.25	0.31	0.04	0.04	19.25	3.89	3.22	0.09
6.50	0.33	0.05	0.05	19.50	3.91	3.23	0.09
6.75	0.35	0.06	0.06	19.75	3.92	3.25	0.09
7.00	0.37	0.07	0.07	20.00	3.93	3.26	0.09
7.25	0.39	0.08	0.07				
7.50	0.42	0.09	0.08				
7.75	0.44	0.10	0.09				
8.00	0.47	0.12	0.10				
8.25	0.50	0.14	0.11				
8.50	0.53	0.15	0.13				
8.75	0.56	0.18	0.15				
9.00	0.60	0.20	0.16				
9.25	0.64	0.23	0.18				
9.50	0.68	0.26	0.20				
9.75	0.73	0.29	0.22				
10.00	0.78	0.33	0.24				
10.25	0.83	0.37	0.28				
10.50	0.89	0.41	0.31				
10.75	0.96	0.47	0.35				
11.00	1.03	0.53	0.39				
11.25	1.11	0.60	0.51				
11.50	1.22	0.69	0.65				
11.75	1.46	0.90	1.67				
12.00	2.05	1.45	4.68				
12.25	2.65	2.01	2.56				
12.50	2.89	2.24	1.14				
12.75	3.00	2.35	0.66				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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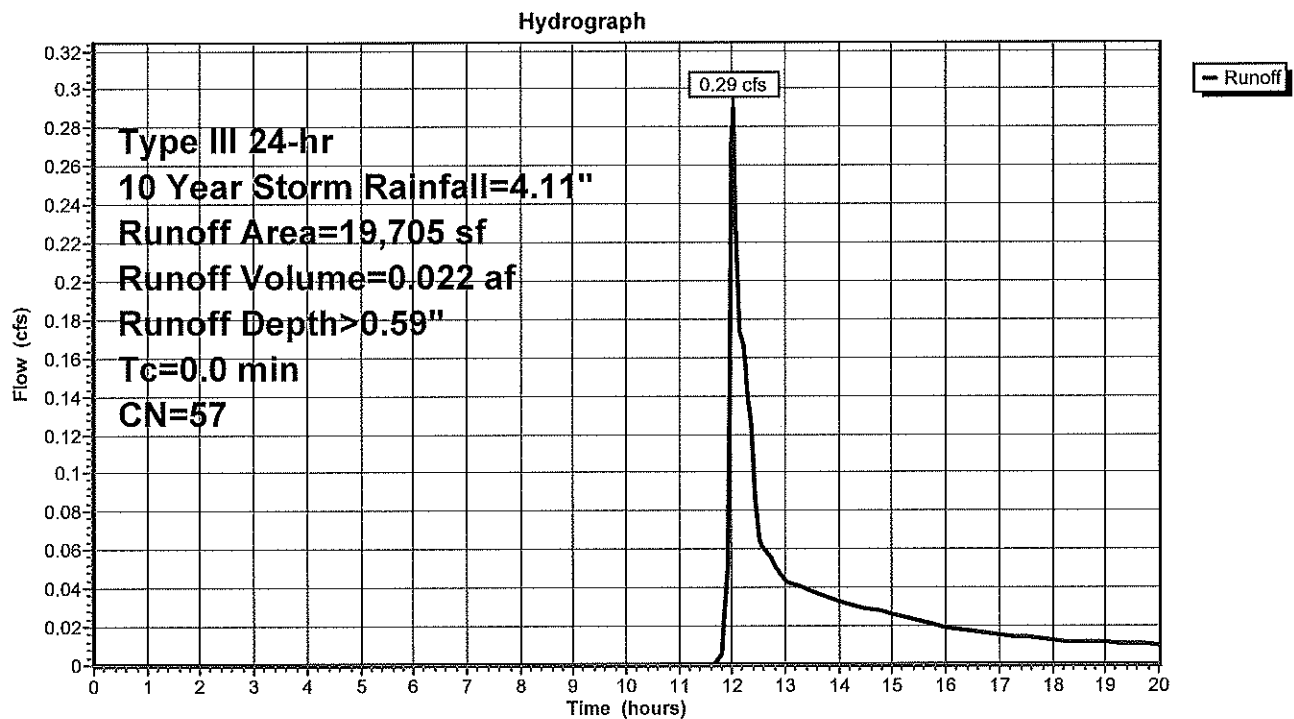
Summary for Subcatchment 2BPost: EX SA 3

Runoff = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Depth> 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.11"

	Area (sf)	CN	Description
*	4,000	98	Roofs, HSG A
	2,095	98	Concrete/Sidewalk, HSG A
	12,640	39	>75% Grass cover, Good, HSG A
	970	30	Woods, Good, HSG A
	19,705	57	Weighted Average
	13,610		69.07% Pervious Area
	6,095		30.93% Impervious Area

Subcatchment 2BPost: EX SA 3



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Subcatchment 2BPost: EX SA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.08	0.27	0.04
0.25	0.01	0.00	0.00	13.25	3.15	0.29	0.04
0.50	0.02	0.00	0.00	13.50	3.22	0.32	0.04
0.75	0.03	0.00	0.00	13.75	3.28	0.34	0.04
1.00	0.04	0.00	0.00	14.00	3.33	0.36	0.03
1.25	0.05	0.00	0.00	14.25	3.38	0.37	0.03
1.50	0.06	0.00	0.00	14.50	3.43	0.39	0.03
1.75	0.07	0.00	0.00	14.75	3.47	0.41	0.03
2.00	0.08	0.00	0.00	15.00	3.51	0.42	0.03
2.25	0.09	0.00	0.00	15.25	3.55	0.43	0.02
2.50	0.10	0.00	0.00	15.50	3.58	0.45	0.02
2.75	0.11	0.00	0.00	15.75	3.61	0.46	0.02
3.00	0.13	0.00	0.00	16.00	3.64	0.47	0.02
3.25	0.14	0.00	0.00	16.25	3.67	0.48	0.02
3.50	0.15	0.00	0.00	16.50	3.69	0.49	0.02
3.75	0.16	0.00	0.00	16.75	3.72	0.50	0.02
4.00	0.18	0.00	0.00	17.00	3.74	0.51	0.02
4.25	0.19	0.00	0.00	17.25	3.76	0.52	0.02
4.50	0.20	0.00	0.00	17.50	3.78	0.53	0.01
4.75	0.22	0.00	0.00	17.75	3.80	0.53	0.01
5.00	0.23	0.00	0.00	18.00	3.81	0.54	0.01
5.25	0.25	0.00	0.00	18.25	3.83	0.55	0.01
5.50	0.26	0.00	0.00	18.50	3.85	0.55	0.01
5.75	0.28	0.00	0.00	18.75	3.86	0.56	0.01
6.00	0.30	0.00	0.00	19.00	3.88	0.57	0.01
6.25	0.31	0.00	0.00	19.25	3.89	0.57	0.01
6.50	0.33	0.00	0.00	19.50	3.91	0.58	0.01
6.75	0.35	0.00	0.00	19.75	3.92	0.58	0.01
7.00	0.37	0.00	0.00	20.00	3.93	0.59	0.01
7.25	0.39	0.00	0.00				
7.50	0.42	0.00	0.00				
7.75	0.44	0.00	0.00				
8.00	0.47	0.00	0.00				
8.25	0.50	0.00	0.00				
8.50	0.53	0.00	0.00				
8.75	0.56	0.00	0.00				
9.00	0.60	0.00	0.00				
9.25	0.64	0.00	0.00				
9.50	0.68	0.00	0.00				
9.75	0.73	0.00	0.00				
10.00	0.78	0.00	0.00				
10.25	0.83	0.00	0.00				
10.50	0.89	0.00	0.00				
10.75	0.96	0.00	0.00				
11.00	1.03	0.00	0.00				
11.25	1.11	0.00	0.00				
11.50	1.22	0.00	0.00				
11.75	1.46	0.00	0.00				
12.00	2.05	0.04	0.27				
12.25	2.65	0.15	0.16				
12.50	2.89	0.21	0.07				
12.75	3.00	0.24	0.05				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Summary for Subcatchment 2S: EX SA 2

Runoff = 1.72 cfs @ 12.10 hrs, Volume= 0.118 af, Depth> 1.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.11"

Area (sf)	CN	Description
235	96	Gravel surface, HSG C
2,955	98	Roofs, HSG A
1,190	98	Roofs, HSG C
* 35	98	sidewalk/Concrete HSG C
3,390	39	>75% Grass cover, Good, HSG A
12,785	74	>75% Grass cover, Good, HSG C
400	30	Woods, Good, HSG A
25,015	70	Woods, Good, HSG C
46,005	71	Weighted Average
41,825		90.91% Pervious Area
4,180		9.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0400	0.18		Sheet Flow, Lawn Behind building Grass: Short n= 0.150 P2= 2.80"
0.6	100	0.0400	3.00		Shallow Concentrated Flow, Lawn Behind Building Grassed Waterway Kv= 15.0 fps
0.8	108	0.0200	2.12		Shallow Concentrated Flow, Rear Lawn Grassed Waterway Kv= 15.0 fps
0.2	60	0.0916	4.54		Shallow Concentrated Flow, Woods Grassed Waterway Kv= 15.0 fps
6.2	318	Total			

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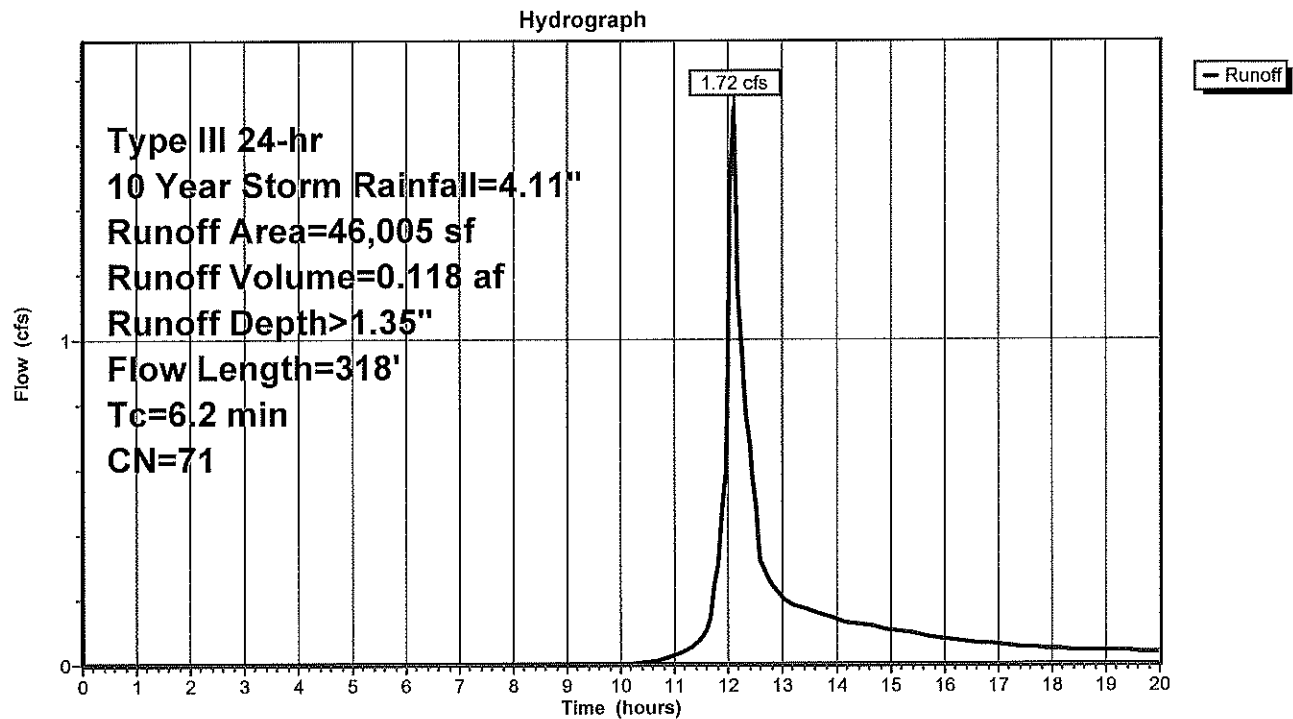
Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Subcatchment 2S: EX SA 2



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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Subcatchment 2S: EX SA 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.08	0.81	0.21
0.25	0.01	0.00	0.00	13.25	3.15	0.85	0.18
0.50	0.02	0.00	0.00	13.50	3.22	0.89	0.17
0.75	0.03	0.00	0.00	13.75	3.28	0.93	0.15
1.00	0.04	0.00	0.00	14.00	3.33	0.96	0.14
1.25	0.05	0.00	0.00	14.25	3.38	0.99	0.13
1.50	0.06	0.00	0.00	14.50	3.43	1.02	0.12
1.75	0.07	0.00	0.00	14.75	3.47	1.05	0.11
2.00	0.08	0.00	0.00	15.00	3.51	1.07	0.11
2.25	0.09	0.00	0.00	15.25	3.55	1.09	0.10
2.50	0.10	0.00	0.00	15.50	3.58	1.12	0.09
2.75	0.11	0.00	0.00	15.75	3.61	1.14	0.08
3.00	0.13	0.00	0.00	16.00	3.64	1.15	0.08
3.25	0.14	0.00	0.00	16.25	3.67	1.17	0.07
3.50	0.15	0.00	0.00	16.50	3.69	1.19	0.07
3.75	0.16	0.00	0.00	16.75	3.72	1.20	0.07
4.00	0.18	0.00	0.00	17.00	3.74	1.22	0.06
4.25	0.19	0.00	0.00	17.25	3.76	1.23	0.06
4.50	0.20	0.00	0.00	17.50	3.78	1.24	0.06
4.75	0.22	0.00	0.00	17.75	3.80	1.26	0.05
5.00	0.23	0.00	0.00	18.00	3.81	1.27	0.05
5.25	0.25	0.00	0.00	18.25	3.83	1.28	0.05
5.50	0.26	0.00	0.00	18.50	3.85	1.29	0.05
5.75	0.28	0.00	0.00	18.75	3.86	1.30	0.04
6.00	0.30	0.00	0.00	19.00	3.88	1.31	0.04
6.25	0.31	0.00	0.00	19.25	3.89	1.32	0.04
6.50	0.33	0.00	0.00	19.50	3.91	1.33	0.04
6.75	0.35	0.00	0.00	19.75	3.92	1.34	0.04
7.00	0.37	0.00	0.00	20.00	3.93	1.35	0.04
7.25	0.39	0.00	0.00				
7.50	0.42	0.00	0.00				
7.75	0.44	0.00	0.00				
8.00	0.47	0.00	0.00				
8.25	0.50	0.00	0.00				
8.50	0.53	0.00	0.00				
8.75	0.56	0.00	0.00				
9.00	0.60	0.00	0.00				
9.25	0.64	0.00	0.00				
9.50	0.68	0.00	0.00				
9.75	0.73	0.00	0.00				
10.00	0.78	0.00	0.00				
10.25	0.83	0.00	0.00				
10.50	0.89	0.00	0.01				
10.75	0.96	0.00	0.02				
11.00	1.03	0.01	0.03				
11.25	1.11	0.02	0.04				
11.50	1.22	0.04	0.08				
11.75	1.46	0.09	0.24				
12.00	2.05	0.29	0.91				
12.25	2.65	0.57	0.97				
12.50	2.89	0.70	0.49				
12.75	3.00	0.76	0.26				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

Printed 11/11/2022

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Summary for Subcatchment 3Post: Post SA 3

Runoff = 0.91 cfs @ 12.11 hrs, Volume= 0.064 af, Depth> 1.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.11"

Area (sf)	CN	Description
125	98	Roofs, HSG A
305	98	Roofs, HSG C
50	39	>75% Grass cover, Good, HSG A
5,775	74	>75% Grass cover, Good, HSG C
75	30	Woods, Good, HSG A
18,390	70	Woods, Good, HSG C
24,720	71	Weighted Average
24,290		98.26% Pervious Area
430		1.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	32	0.0650	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.80"
0.2	22	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	72	0.0833	1.44		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
6.8	126	Total			

Calcs Nov 22

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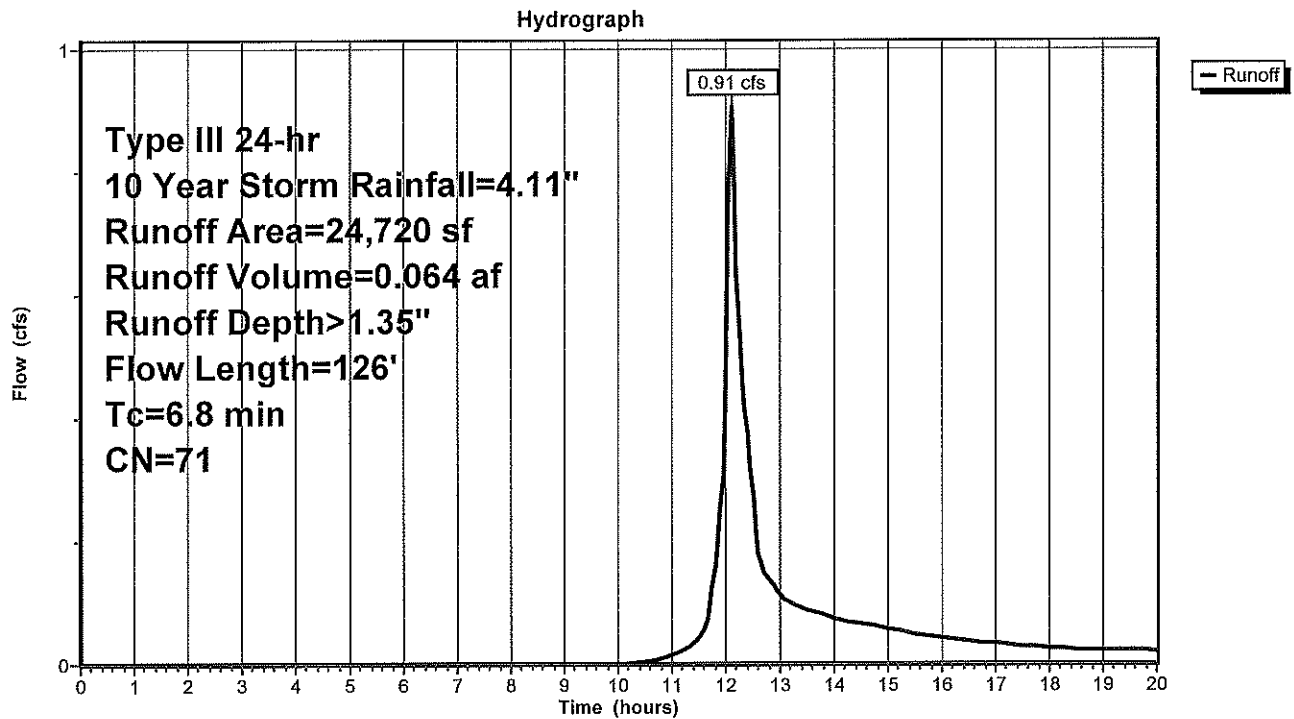
Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Subcatchment 3Post: Post SA 3



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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Subcatchment 3Post: Post SA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.08	0.81	0.11
0.25	0.01	0.00	0.00	13.25	3.15	0.85	0.10
0.50	0.02	0.00	0.00	13.50	3.22	0.89	0.09
0.75	0.03	0.00	0.00	13.75	3.28	0.93	0.08
1.00	0.04	0.00	0.00	14.00	3.33	0.96	0.07
1.25	0.05	0.00	0.00	14.25	3.38	0.99	0.07
1.50	0.06	0.00	0.00	14.50	3.43	1.02	0.07
1.75	0.07	0.00	0.00	14.75	3.47	1.05	0.06
2.00	0.08	0.00	0.00	15.00	3.51	1.07	0.06
2.25	0.09	0.00	0.00	15.25	3.55	1.09	0.05
2.50	0.10	0.00	0.00	15.50	3.58	1.12	0.05
2.75	0.11	0.00	0.00	15.75	3.61	1.14	0.05
3.00	0.13	0.00	0.00	16.00	3.64	1.15	0.04
3.25	0.14	0.00	0.00	16.25	3.67	1.17	0.04
3.50	0.15	0.00	0.00	16.50	3.69	1.19	0.04
3.75	0.16	0.00	0.00	16.75	3.72	1.20	0.04
4.00	0.18	0.00	0.00	17.00	3.74	1.22	0.03
4.25	0.19	0.00	0.00	17.25	3.76	1.23	0.03
4.50	0.20	0.00	0.00	17.50	3.78	1.24	0.03
4.75	0.22	0.00	0.00	17.75	3.80	1.26	0.03
5.00	0.23	0.00	0.00	18.00	3.81	1.27	0.03
5.25	0.25	0.00	0.00	18.25	3.83	1.28	0.02
5.50	0.26	0.00	0.00	18.50	3.85	1.29	0.02
5.75	0.28	0.00	0.00	18.75	3.86	1.30	0.02
6.00	0.30	0.00	0.00	19.00	3.88	1.31	0.02
6.25	0.31	0.00	0.00	19.25	3.89	1.32	0.02
6.50	0.33	0.00	0.00	19.50	3.91	1.33	0.02
6.75	0.35	0.00	0.00	19.75	3.92	1.34	0.02
7.00	0.37	0.00	0.00	20.00	3.93	1.35	0.02
7.25	0.39	0.00	0.00				
7.50	0.42	0.00	0.00				
7.75	0.44	0.00	0.00				
8.00	0.47	0.00	0.00				
8.25	0.50	0.00	0.00				
8.50	0.53	0.00	0.00				
8.75	0.56	0.00	0.00				
9.00	0.60	0.00	0.00				
9.25	0.64	0.00	0.00				
9.50	0.68	0.00	0.00				
9.75	0.73	0.00	0.00				
10.00	0.78	0.00	0.00				
10.25	0.83	0.00	0.00				
10.50	0.89	0.00	0.00				
10.75	0.96	0.00	0.01				
11.00	1.03	0.01	0.01				
11.25	1.11	0.02	0.02				
11.50	1.22	0.04	0.04				
11.75	1.46	0.09	0.13				
12.00	2.05	0.29	0.46				
12.25	2.65	0.57	0.54				
12.50	2.89	0.70	0.27				
12.75	3.00	0.76	0.14				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Summary for Subcatchment 3S: EX SA 3

Runoff = 0.33 cfs @ 12.02 hrs, Volume= 0.020 af, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.11"

Area (sf)	CN	Description
2,990	98	Paved parking, HSG A
660	98	Roofs, HSG A
310	98	Concrete/Sidewalk, HSG A
2,745	39	>75% Grass cover, Good, HSG A
6,705	74	Weighted Average
2,745		40.94% Pervious Area
3,960		59.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	15	0.3300	2.70		Sheet Flow, Roof Smooth surfaces n= 0.011 P2= 2.80"
0.4	15	0.0100	0.67		Sheet Flow, Sidewalk Smooth surfaces n= 0.011 P2= 2.80"
0.1	51	0.1500	5.81		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
0.2	66	0.1130	6.82		Shallow Concentrated Flow, Driveway Paved Kv= 20.3 fps
0.8	147	Total			

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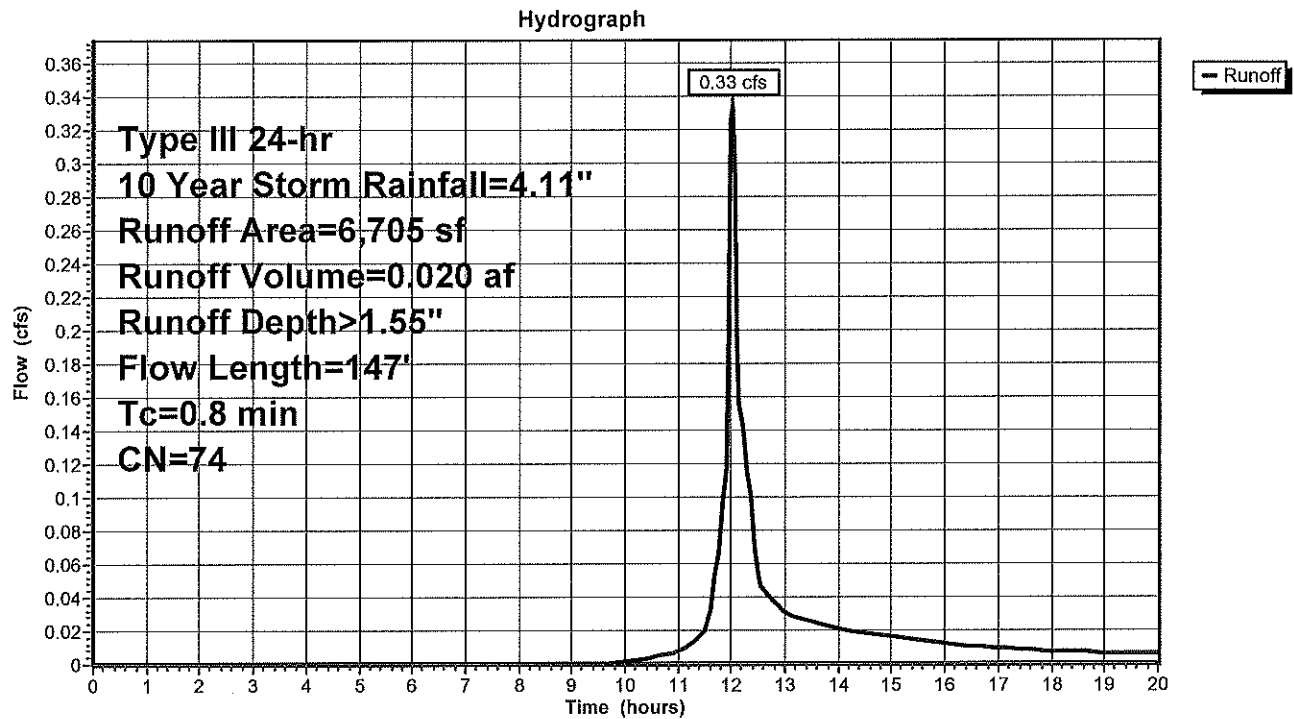
Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Subcatchment 3S: EX SA 3



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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Subcatchment 3S: EX SA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.08	0.96	0.03
0.25	0.01	0.00	0.00	13.25	3.15	1.01	0.03
0.50	0.02	0.00	0.00	13.50	3.22	1.05	0.03
0.75	0.03	0.00	0.00	13.75	3.28	1.09	0.02
1.00	0.04	0.00	0.00	14.00	3.33	1.13	0.02
1.25	0.05	0.00	0.00	14.25	3.38	1.16	0.02
1.50	0.06	0.00	0.00	14.50	3.43	1.19	0.02
1.75	0.07	0.00	0.00	14.75	3.47	1.22	0.02
2.00	0.08	0.00	0.00	15.00	3.51	1.25	0.02
2.25	0.09	0.00	0.00	15.25	3.55	1.27	0.02
2.50	0.10	0.00	0.00	15.50	3.58	1.30	0.01
2.75	0.11	0.00	0.00	15.75	3.61	1.32	0.01
3.00	0.13	0.00	0.00	16.00	3.64	1.34	0.01
3.25	0.14	0.00	0.00	16.25	3.67	1.36	0.01
3.50	0.15	0.00	0.00	16.50	3.69	1.37	0.01
3.75	0.16	0.00	0.00	16.75	3.72	1.39	0.01
4.00	0.18	0.00	0.00	17.00	3.74	1.41	0.01
4.25	0.19	0.00	0.00	17.25	3.76	1.42	0.01
4.50	0.20	0.00	0.00	17.50	3.78	1.44	0.01
4.75	0.22	0.00	0.00	17.75	3.80	1.45	0.01
5.00	0.23	0.00	0.00	18.00	3.81	1.46	0.01
5.25	0.25	0.00	0.00	18.25	3.83	1.47	0.01
5.50	0.26	0.00	0.00	18.50	3.85	1.48	0.01
5.75	0.28	0.00	0.00	18.75	3.86	1.50	0.01
6.00	0.30	0.00	0.00	19.00	3.88	1.51	0.01
6.25	0.31	0.00	0.00	19.25	3.89	1.52	0.01
6.50	0.33	0.00	0.00	19.50	3.91	1.53	0.01
6.75	0.35	0.00	0.00	19.75	3.92	1.54	0.01
7.00	0.37	0.00	0.00	20.00	3.93	1.55	0.01
7.25	0.39	0.00	0.00				
7.50	0.42	0.00	0.00				
7.75	0.44	0.00	0.00				
8.00	0.47	0.00	0.00				
8.25	0.50	0.00	0.00				
8.50	0.53	0.00	0.00				
8.75	0.56	0.00	0.00				
9.00	0.60	0.00	0.00				
9.25	0.64	0.00	0.00				
9.50	0.68	0.00	0.00				
9.75	0.73	0.00	0.00				
10.00	0.78	0.00	0.00				
10.25	0.83	0.00	0.00				
10.50	0.89	0.01	0.00				
10.75	0.96	0.02	0.01				
11.00	1.03	0.03	0.01				
11.25	1.11	0.04	0.01				
11.50	1.22	0.07	0.02				
11.75	1.46	0.13	0.07				
12.00	2.05	0.38	0.32				
12.25	2.65	0.69	0.13				
12.50	2.89	0.84	0.05				
12.75	3.00	0.91	0.04				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Summary for Reach 2R: Catch Basin 1

Inflow Area = 0.106 ac, 70.50% Impervious, Inflow Depth > 2.07" for 10 Year Storm event
Inflow = 0.31 cfs @ 12.01 hrs, Volume= 0.018 af
Outflow = 0.30 cfs @ 12.02 hrs, Volume= 0.018 af, Atten= 4%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.75 fps, Min. Travel Time= 0.4 min

Avg. Velocity = 1.02 fps, Avg. Travel Time= 1.0 min

Peak Storage= 7 cf @ 12.02 hrs

Average Depth at Peak Storage= 0.20'

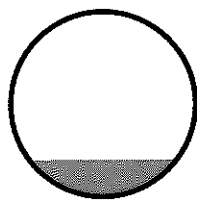
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe

n= 0.013 Concrete pipe, straight & clean

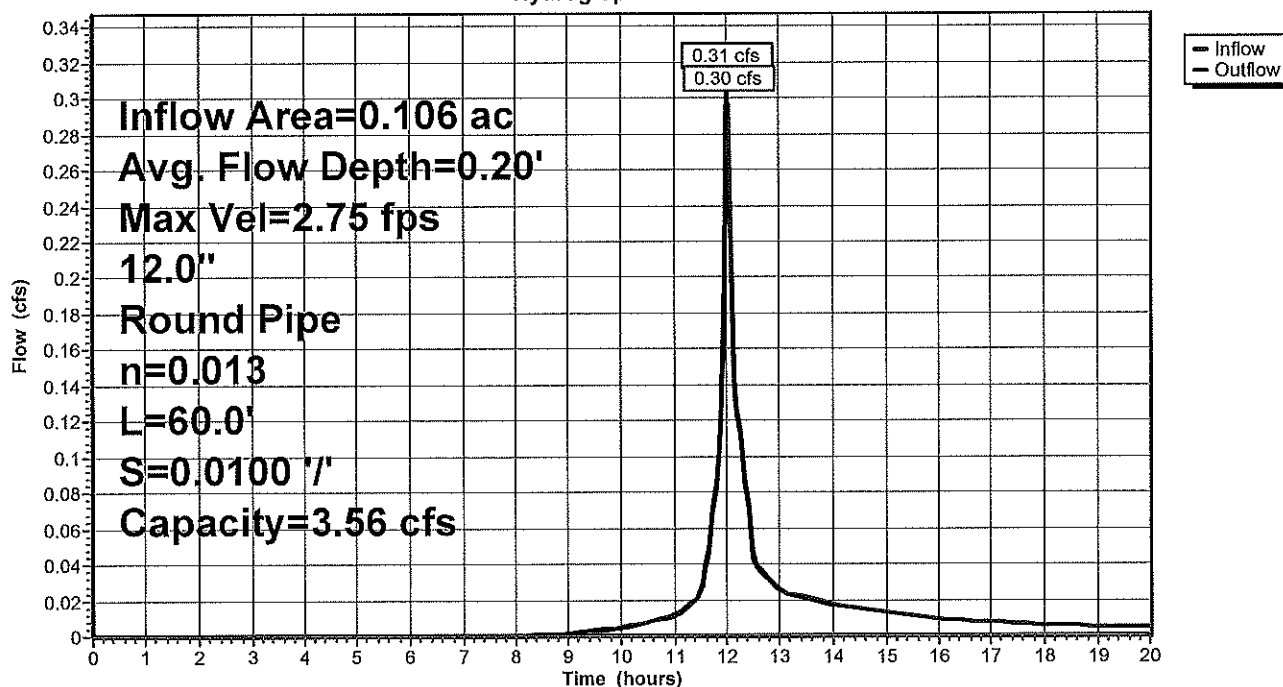
Length= 60.0' Slope= 0.0100 '/'

Inlet Invert= 1,125.00', Outlet Invert= 1,124.40'



Reach 2R: Catch Basin 1

Hydrograph



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Reach 2R: Catch Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,125.00	0.00
0.50	0.00	0	1,125.00	0.00
1.00	0.00	0	1,125.00	0.00
1.50	0.00	0	1,125.00	0.00
2.00	0.00	0	1,125.00	0.00
2.50	0.00	0	1,125.00	0.00
3.00	0.00	0	1,125.00	0.00
3.50	0.00	0	1,125.00	0.00
4.00	0.00	0	1,125.00	0.00
4.50	0.00	0	1,125.00	0.00
5.00	0.00	0	1,125.00	0.00
5.50	0.00	0	1,125.00	0.00
6.00	0.00	0	1,125.00	0.00
6.50	0.00	0	1,125.00	0.00
7.00	0.00	0	1,125.00	0.00
7.50	0.00	0	1,125.00	0.00
8.00	0.00	0	1,125.00	0.00
8.50	0.00	0	1,125.01	0.00
9.00	0.00	0	1,125.02	0.00
9.50	0.00	0	1,125.02	0.00
10.00	0.00	0	1,125.03	0.00
10.50	0.01	0	1,125.03	0.01
11.00	0.01	1	1,125.04	0.01
11.50	0.02	1	1,125.06	0.02
12.00	0.31	6	1,125.20	0.28
12.50	0.04	2	1,125.08	0.05
13.00	0.03	1	1,125.06	0.03
13.50	0.02	1	1,125.06	0.02
14.00	0.02	1	1,125.05	0.02
14.50	0.02	1	1,125.05	0.02
15.00	0.01	1	1,125.04	0.01
15.50	0.01	1	1,125.04	0.01
16.00	0.01	1	1,125.04	0.01
16.50	0.01	1	1,125.04	0.01
17.00	0.01	0	1,125.03	0.01
17.50	0.01	0	1,125.03	0.01
18.00	0.01	0	1,125.03	0.01
18.50	0.01	0	1,125.03	0.01
19.00	0.01	0	1,125.03	0.01
19.50	0.01	0	1,125.03	0.01
20.00	0.00	0	1,125.03	0.00

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Summary for Reach 6R: Catch Basin 1

Inflow Area = 0.154 ac, 59.06% Impervious, Inflow Depth > 1.55" for 10 Year Storm event
Inflow = 0.33 cfs @ 12.02 hrs, Volume= 0.020 af
Outflow = 0.32 cfs @ 12.03 hrs, Volume= 0.020 af, Atten= 4%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.80 fps, Min. Travel Time= 0.4 min

Avg. Velocity = 1.11 fps, Avg. Travel Time= 0.9 min

Peak Storage= 7 cf @ 12.02 hrs

Average Depth at Peak Storage= 0.21'

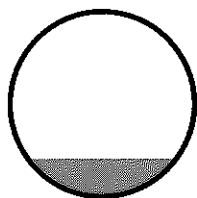
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe

n= 0.013 Concrete pipe, straight & clean

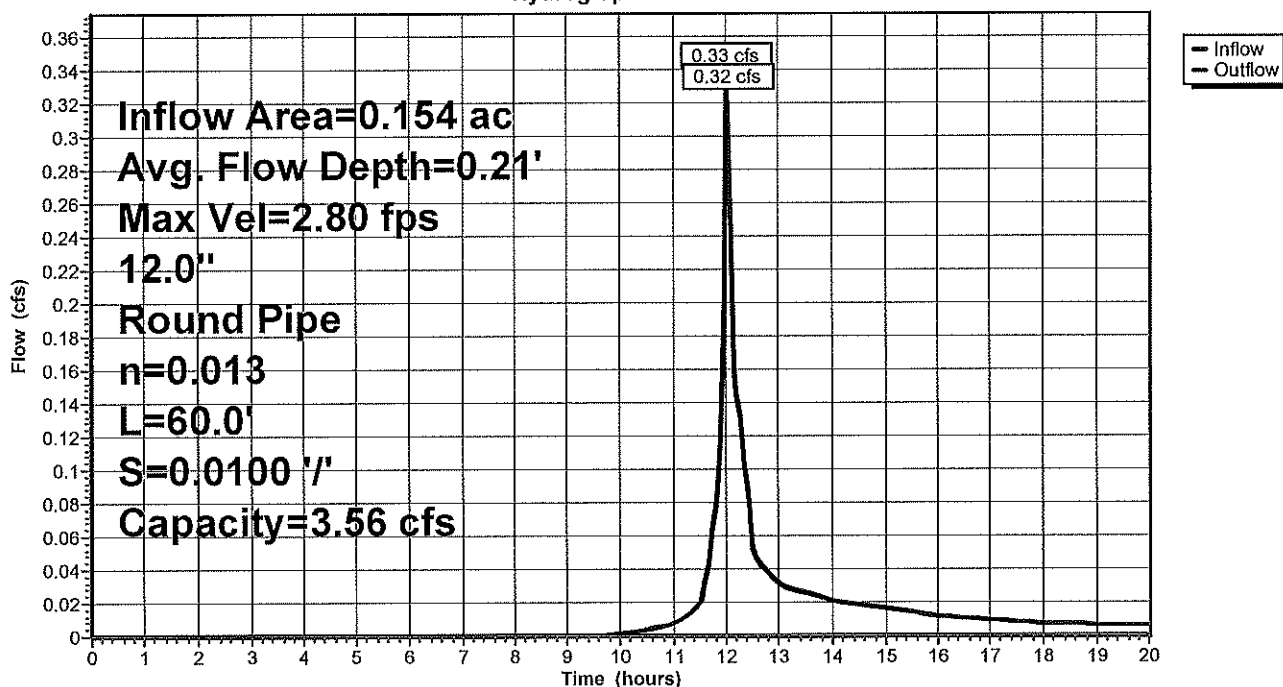
Length= 60.0' Slope= 0.0100 '/'

Inlet Invert= 1,125.00', Outlet Invert= 1,124.40'



Reach 6R: Catch Basin 1

Hydrograph



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Reach 6R: Catch Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,125.00	0.00
0.50	0.00	0	1,125.00	0.00
1.00	0.00	0	1,125.00	0.00
1.50	0.00	0	1,125.00	0.00
2.00	0.00	0	1,125.00	0.00
2.50	0.00	0	1,125.00	0.00
3.00	0.00	0	1,125.00	0.00
3.50	0.00	0	1,125.00	0.00
4.00	0.00	0	1,125.00	0.00
4.50	0.00	0	1,125.00	0.00
5.00	0.00	0	1,125.00	0.00
5.50	0.00	0	1,125.00	0.00
6.00	0.00	0	1,125.00	0.00
6.50	0.00	0	1,125.00	0.00
7.00	0.00	0	1,125.00	0.00
7.50	0.00	0	1,125.00	0.00
8.00	0.00	0	1,125.00	0.00
8.50	0.00	0	1,125.00	0.00
9.00	0.00	0	1,125.00	0.00
9.50	0.00	0	1,125.00	0.00
10.00	0.00	0	1,125.01	0.00
10.50	0.00	0	1,125.02	0.00
11.00	0.01	0	1,125.03	0.01
11.50	0.02	1	1,125.05	0.02
12.00	0.32	7	1,125.20	0.30
12.50	0.05	2	1,125.09	0.06
13.00	0.03	1	1,125.07	0.03
13.50	0.03	1	1,125.06	0.03
14.00	0.02	1	1,125.06	0.02
14.50	0.02	1	1,125.05	0.02
15.00	0.02	1	1,125.05	0.02
15.50	0.01	1	1,125.05	0.01
16.00	0.01	1	1,125.04	0.01
16.50	0.01	1	1,125.04	0.01
17.00	0.01	1	1,125.04	0.01
17.50	0.01	1	1,125.04	0.01
18.00	0.01	0	1,125.03	0.01
18.50	0.01	0	1,125.03	0.01
19.00	0.01	0	1,125.03	0.01
19.50	0.01	0	1,125.03	0.01
20.00	0.01	0	1,125.03	0.01

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

Printed 11/11/2022

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Summary for Reach 7R: DOT Drain

Inflow Area = 2.174 ac, 77.64% Impervious, Inflow Depth > 0.32" for 10 Year Storm event
Inflow = 0.54 cfs @ 12.04 hrs, Volume= 0.058 af
Outflow = 0.53 cfs @ 12.05 hrs, Volume= 0.058 af, Atten= 2%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 3.43 fps, Min. Travel Time= 0.2 min

Avg. Velocity = 1.50 fps, Avg. Travel Time= 0.6 min

Peak Storage= 8 cf @ 12.04 hrs

Average Depth at Peak Storage= 0.18'

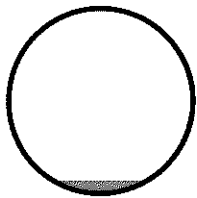
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 51.88 cfs

30.0" Round Pipe

n= 0.013

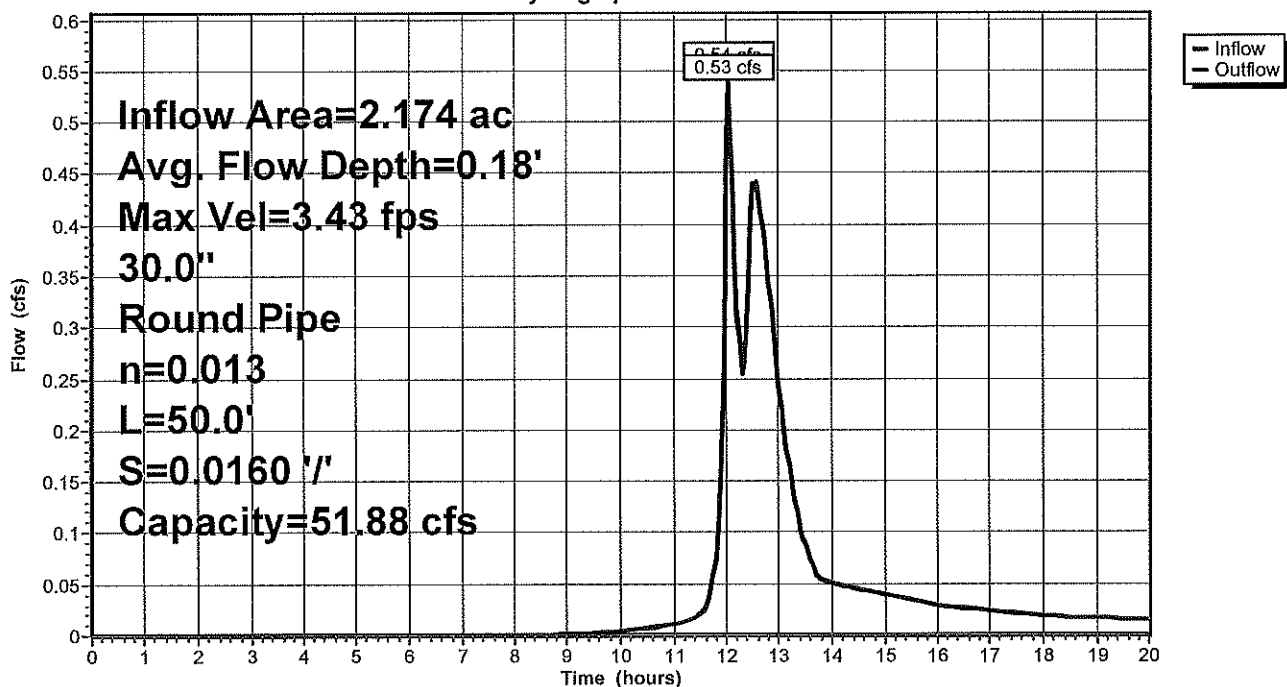
Length= 50.0' Slope= 0.0160 '/'

Inlet Invert= 1,118.90', Outlet Invert= 1,118.10'



Reach 7R: DOT Drain

Hydrograph



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Reach 7R: DOT Drain

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,118.90	0.00
0.50	0.00	0	1,118.90	0.00
1.00	0.00	0	1,118.90	0.00
1.50	0.00	0	1,118.90	0.00
2.00	0.00	0	1,118.90	0.00
2.50	0.00	0	1,118.90	0.00
3.00	0.00	0	1,118.90	0.00
3.50	0.00	0	1,118.90	0.00
4.00	0.00	0	1,118.90	0.00
4.50	0.00	0	1,118.90	0.00
5.00	0.00	0	1,118.90	0.00
5.50	0.00	0	1,118.90	0.00
6.00	0.00	0	1,118.90	0.00
6.50	0.00	0	1,118.90	0.00
7.00	0.00	0	1,118.90	0.00
7.50	0.00	0	1,118.90	0.00
8.00	0.00	0	1,118.90	0.00
8.50	0.00	0	1,118.90	0.00
9.00	0.00	0	1,118.90	0.00
9.50	0.00	0	1,118.91	0.00
10.00	0.00	0	1,118.91	0.00
10.50	0.01	0	1,118.92	0.01
11.00	0.01	0	1,118.93	0.01
11.50	0.02	1	1,118.94	0.02
12.00	0.48	7	1,119.07	0.45
12.50	0.44	7	1,119.06	0.44
13.00	0.24	5	1,119.02	0.25
13.50	0.09	2	1,118.98	0.09
14.00	0.05	1	1,118.96	0.05
14.50	0.05	1	1,118.96	0.05
15.00	0.04	1	1,118.95	0.04
15.50	0.03	1	1,118.95	0.03
16.00	0.03	1	1,118.94	0.03
16.50	0.03	1	1,118.94	0.03
17.00	0.02	1	1,118.94	0.02
17.50	0.02	1	1,118.94	0.02
18.00	0.02	1	1,118.93	0.02
18.50	0.02	1	1,118.93	0.02
19.00	0.02	1	1,118.93	0.02
19.50	0.02	1	1,118.93	0.02
20.00	0.02	1	1,118.93	0.02

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Summary for Reach 8R: DOT Drain

Inflow Area = 1.686 ac, 34.70% Impervious, Inflow Depth > 0.80" for 10 Year Storm event
Inflow = 1.58 cfs @ 12.07 hrs, Volume= 0.113 af
Outflow = 1.54 cfs @ 12.07 hrs, Volume= 0.113 af, Atten= 2%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 4.70 fps, Min. Travel Time= 0.2 min

Avg. Velocity = 1.97 fps, Avg. Travel Time= 0.4 min

Peak Storage= 17 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.30'

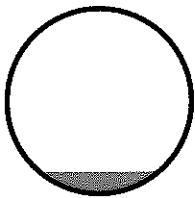
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 51.88 cfs

30.0" Round Pipe

n= 0.013

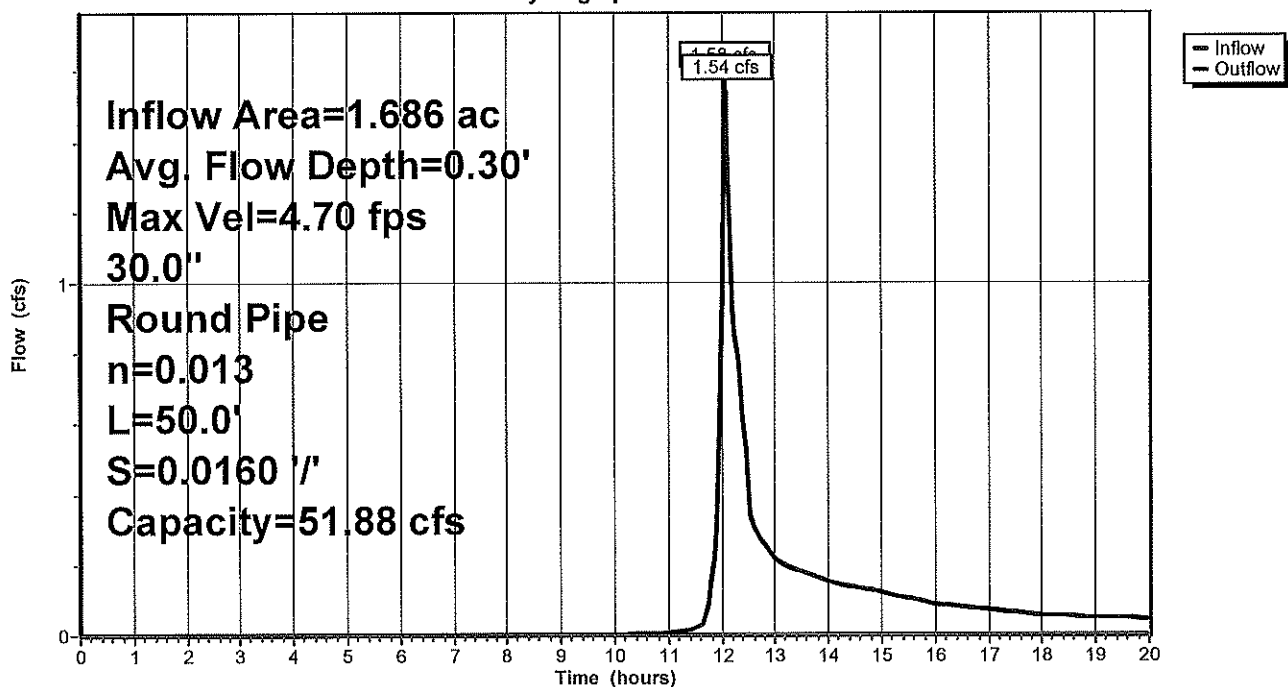
Length= 50.0' Slope= 0.0160 1'

Inlet Invert= 1,118.90', Outlet Invert= 1,118.10'



Reach 8R: DOT Drain

Hydrograph



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Reach 8R: DOT Drain

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,118.90	0.00
0.50	0.00	0	1,118.90	0.00
1.00	0.00	0	1,118.90	0.00
1.50	0.00	0	1,118.90	0.00
2.00	0.00	0	1,118.90	0.00
2.50	0.00	0	1,118.90	0.00
3.00	0.00	0	1,118.90	0.00
3.50	0.00	0	1,118.90	0.00
4.00	0.00	0	1,118.90	0.00
4.50	0.00	0	1,118.90	0.00
5.00	0.00	0	1,118.90	0.00
5.50	0.00	0	1,118.90	0.00
6.00	0.00	0	1,118.90	0.00
6.50	0.00	0	1,118.90	0.00
7.00	0.00	0	1,118.90	0.00
7.50	0.00	0	1,118.90	0.00
8.00	0.00	0	1,118.90	0.00
8.50	0.00	0	1,118.90	0.00
9.00	0.00	0	1,118.90	0.00
9.50	0.00	0	1,118.90	0.00
10.00	0.00	0	1,118.90	0.00
10.50	0.00	0	1,118.91	0.00
11.00	0.01	0	1,118.92	0.01
11.50	0.02	1	1,118.93	0.02
12.00	1.00	12	1,119.14	0.95
12.50	0.42	7	1,119.06	0.43
13.00	0.22	4	1,119.02	0.22
13.50	0.18	4	1,119.01	0.18
14.00	0.15	3	1,119.00	0.15
14.50	0.14	3	1,118.99	0.14
15.00	0.12	3	1,118.99	0.12
15.50	0.10	2	1,118.98	0.11
16.00	0.09	2	1,118.98	0.09
16.50	0.08	2	1,118.97	0.08
17.00	0.07	2	1,118.97	0.07
17.50	0.06	2	1,118.96	0.06
18.00	0.06	2	1,118.96	0.06
18.50	0.05	2	1,118.96	0.05
19.00	0.05	1	1,118.96	0.05
19.50	0.05	1	1,118.96	0.05
20.00	0.05	1	1,118.96	0.05

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

Printed 11/11/2022

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Summary for Reach 9R: Connection to DOT

Inflow Area = 0.154 ac, 59.06% Impervious, Inflow Depth > 1.55" for 10 Year Storm event
Inflow = 0.32 cfs @ 12.03 hrs, Volume= 0.020 af
Outflow = 0.29 cfs @ 12.07 hrs, Volume= 0.020 af, Atten= 8%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 3.05 fps, Min. Travel Time= 1.3 min

Avg. Velocity = 1.28 fps, Avg. Travel Time= 3.0 min

Peak Storage= 23 cf @ 12.05 hrs

Average Depth at Peak Storage= 0.13'

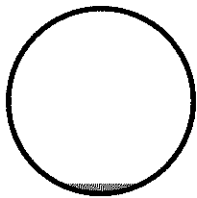
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 55.59 cfs

30.0" Round Pipe

n= 0.012

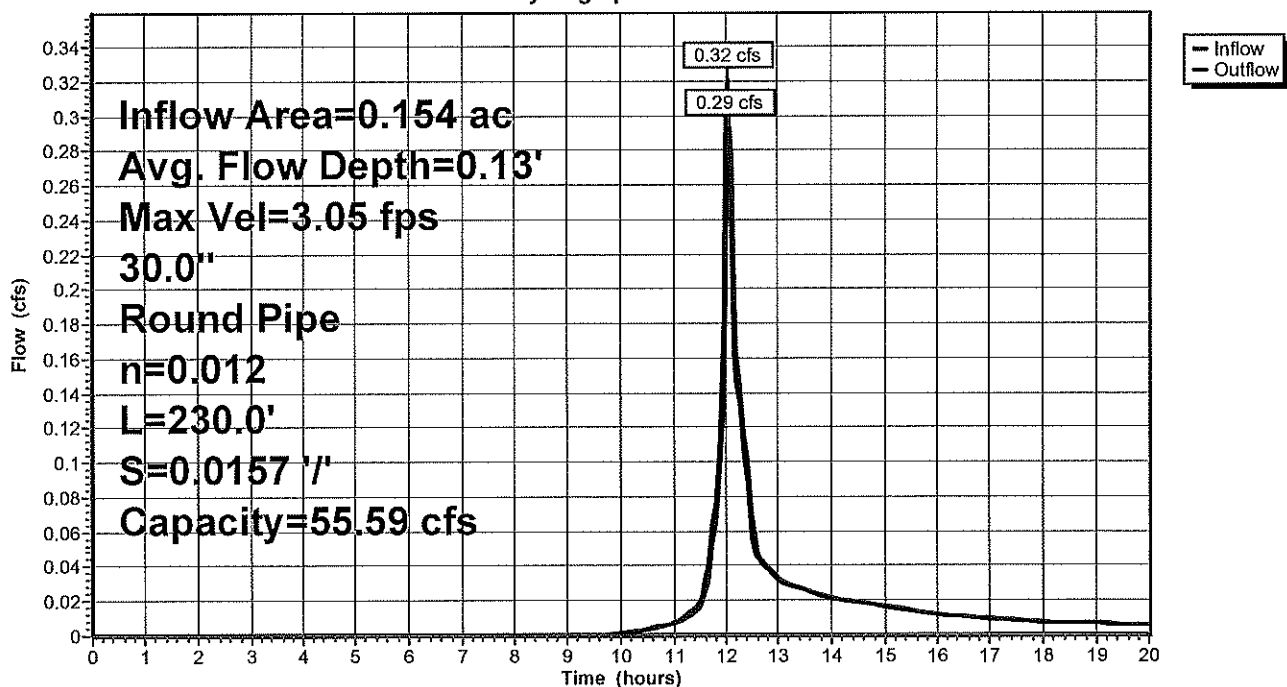
Length= 230.0' Slope= 0.0157 '/'

Inlet Invert= 1,122.50', Outlet Invert= 1,118.90'



Reach 9R: Connection to DOT

Hydrograph



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Reach 9R: Connection to DOT

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,122.50	0.00
0.50	0.00	0	1,122.50	0.00
1.00	0.00	0	1,122.50	0.00
1.50	0.00	0	1,122.50	0.00
2.00	0.00	0	1,122.50	0.00
2.50	0.00	0	1,122.50	0.00
3.00	0.00	0	1,122.50	0.00
3.50	0.00	0	1,122.50	0.00
4.00	0.00	0	1,122.50	0.00
4.50	0.00	0	1,122.50	0.00
5.00	0.00	0	1,122.50	0.00
5.50	0.00	0	1,122.50	0.00
6.00	0.00	0	1,122.50	0.00
6.50	0.00	0	1,122.50	0.00
7.00	0.00	0	1,122.50	0.00
7.50	0.00	0	1,122.50	0.00
8.00	0.00	0	1,122.50	0.00
8.50	0.00	0	1,122.50	0.00
9.00	0.00	0	1,122.50	0.00
9.50	0.00	0	1,122.50	0.00
10.00	0.00	0	1,122.50	0.00
10.50	0.00	1	1,122.51	0.00
11.00	0.01	2	1,122.52	0.01
11.50	0.02	3	1,122.53	0.02
12.00	0.30	21	1,122.62	0.22
12.50	0.06	8	1,122.56	0.07
13.00	0.03	5	1,122.55	0.03
13.50	0.03	4	1,122.54	0.03
14.00	0.02	4	1,122.54	0.02
14.50	0.02	3	1,122.53	0.02
15.00	0.02	3	1,122.53	0.02
15.50	0.01	3	1,122.53	0.01
16.00	0.01	2	1,122.53	0.01
16.50	0.01	2	1,122.53	0.01
17.00	0.01	2	1,122.53	0.01
17.50	0.01	2	1,122.53	0.01
18.00	0.01	2	1,122.52	0.01
18.50	0.01	2	1,122.52	0.01
19.00	0.01	2	1,122.52	0.01
19.50	0.01	1	1,122.52	0.01
20.00	0.01	1	1,122.52	0.01

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

Printed 11/11/2022

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Summary for Reach 10R: Connection to DOT

Inflow Area = 0.106 ac, 70.50% Impervious, Inflow Depth > 2.06" for 10 Year Storm event
Inflow = 0.30 cfs @ 12.02 hrs, Volume= 0.018 af
Outflow = 0.27 cfs @ 12.06 hrs, Volume= 0.018 af, Atten= 9%, Lag= 2.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 2.97 fps, Min. Travel Time= 1.3 min

Avg. Velocity = 1.21 fps, Avg. Travel Time= 3.2 min

Peak Storage= 22 cf @ 12.04 hrs

Average Depth at Peak Storage= 0.13'

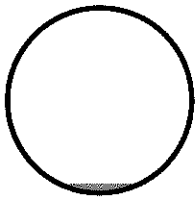
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 55.59 cfs

30.0" Round Pipe

n= 0.012

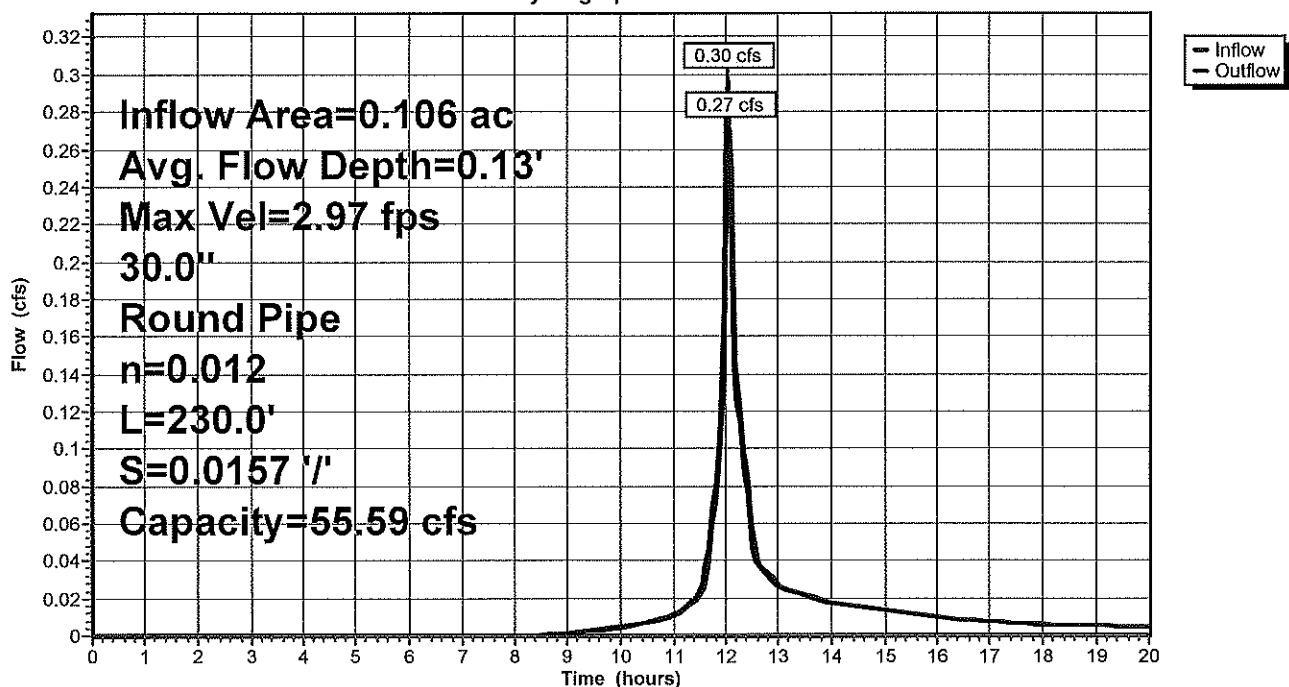
Length= 230.0' Slope= 0.0157 '/'

Inlet Invert= 1,122.50', Outlet Invert= 1,118.90'



Reach 10R: Connection to DOT

Hydrograph



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Reach 10R: Connection to DOT

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,122.50	0.00
0.50	0.00	0	1,122.50	0.00
1.00	0.00	0	1,122.50	0.00
1.50	0.00	0	1,122.50	0.00
2.00	0.00	0	1,122.50	0.00
2.50	0.00	0	1,122.50	0.00
3.00	0.00	0	1,122.50	0.00
3.50	0.00	0	1,122.50	0.00
4.00	0.00	0	1,122.50	0.00
4.50	0.00	0	1,122.50	0.00
5.00	0.00	0	1,122.50	0.00
5.50	0.00	0	1,122.50	0.00
6.00	0.00	0	1,122.50	0.00
6.50	0.00	0	1,122.50	0.00
7.00	0.00	0	1,122.50	0.00
7.50	0.00	0	1,122.50	0.00
8.00	0.00	0	1,122.50	0.00
8.50	0.00	0	1,122.50	0.00
9.00	0.00	0	1,122.50	0.00
9.50	0.00	1	1,122.51	0.00
10.00	0.00	1	1,122.51	0.00
10.50	0.01	2	1,122.52	0.01
11.00	0.01	2	1,122.53	0.01
11.50	0.02	3	1,122.54	0.02
12.00	0.28	20	1,122.62	0.21
12.50	0.05	7	1,122.56	0.06
13.00	0.03	4	1,122.54	0.03
13.50	0.02	3	1,122.54	0.02
14.00	0.02	3	1,122.53	0.02
14.50	0.02	3	1,122.53	0.02
15.00	0.01	3	1,122.53	0.01
15.50	0.01	2	1,122.53	0.01
16.00	0.01	2	1,122.53	0.01
16.50	0.01	2	1,122.53	0.01
17.00	0.01	2	1,122.52	0.01
17.50	0.01	2	1,122.52	0.01
18.00	0.01	1	1,122.52	0.01
18.50	0.01	1	1,122.52	0.01
19.00	0.01	1	1,122.52	0.01
19.50	0.01	1	1,122.52	0.01
20.00	0.00	1	1,122.51	0.00

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Summary for Pond 16P: Storage

Inflow Area = 1.616 ac, 91.18% Impervious, Inflow Depth > 3.26" for 10 Year Storm event
 Inflow = 6.38 cfs @ 12.06 hrs, Volume= 0.439 af
 Outflow = 0.87 cfs @ 12.56 hrs, Volume= 0.422 af, Atten= 86%, Lag= 30.2 min
 Discarded = 0.54 cfs @ 12.56 hrs, Volume= 0.404 af
 Primary = 0.33 cfs @ 12.56 hrs, Volume= 0.018 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 1,124.67' @ 12.56 hrs Surf.Area= 5,891 sf Storage= 7,795 cf

Plug-Flow detention time= 126.4 min calculated for 0.421 af (96% of inflow)

Center-of-Mass det. time= 110.8 min (859.5 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,126.80'	2,460 cf	Custom Stage Data (Irregular) Listed below (Recalc)
#2A	1,122.50'	6,322 cf	51.00'W x 115.50'L x 3.50'H Field A
			20,617 cf Overall - 4,811 cf Embedded = 15,806 cf x 40.0% Voids
#3A	1,123.46'	4,811 cf	Cultec R-150XLHD x 176 Inside #2
			Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf
			Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap
			Row Length Adjustment= +0.75' x 2.65 sf x 16 rows
		13,593 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,126.80	100	16.0	0	0	100
1,128.00	5,320	460.0	2,460	2,460	16,921

Device	Routing	Invert	Outlet Devices
#1	Secondary	1,127.30'	3.0' long 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
#2	Discarded	1,122.50'	2.410 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 1,118.00'
#3	Device 4	1,124.50'	6.0" Horiz. Orifice C= 0.600 Limited to weir flow at low heads
#4	Primary	1,120.50'	12.0" Round Culvert L= 80.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,120.50' / 1,119.50' S= 0.0125 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Discarded OutFlow Max=0.54 cfs @ 12.56 hrs HW=1,124.66' (Free Discharge)

└─2=Exfiltration (Controls 0.54 cfs)

Primary OutFlow Max=0.34 cfs @ 12.56 hrs HW=1,124.66' (Free Discharge)

└─4=Culvert (Passes 0.34 cfs of 6.39 cfs potential flow)

└─3=Orifice (Weir Controls 0.34 cfs @ 1.32 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,122.50' (Free Discharge)

└─1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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Type III 24-hr 10 Year Storm Rainfall=4.11"

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Pond 16P: Storage - Chamber Wizard Field A

Chamber Model = Cultec R-150XLHD (Cultec Recharger® 150XLHD)

Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf

Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap

Row Length Adjustment= +0.75' x 2.65 sf x 16 rows

33.0" Wide + 4.0" Spacing = 37.0" C-C Row Spacing

11 Chambers/Row x 10.25' Long +0.75' Row Adjustment = 113.50' Row Length +12.0" End Stone x 2 = 115.50' Base Length

16 Rows x 33.0" Wide + 4.0" Spacing x 15 + 12.0" Side Stone x 2 = 51.00' Base Width

11.5" Base + 18.5" Chamber Height + 12.0" Cover = 3.50' Field Height

176 Chambers x 27.2 cf +0.75' Row Adjustment x 2.65 sf x 16 Rows = 4,810.6 cf Chamber Storage

20,616.8 cf Field - 4,810.6 cf Chambers = 15,806.2 cf Stone x 40.0% Voids = 6,322.5 cf Stone Storage

Chamber Storage + Stone Storage = 11,133.1 cf = 0.256 af

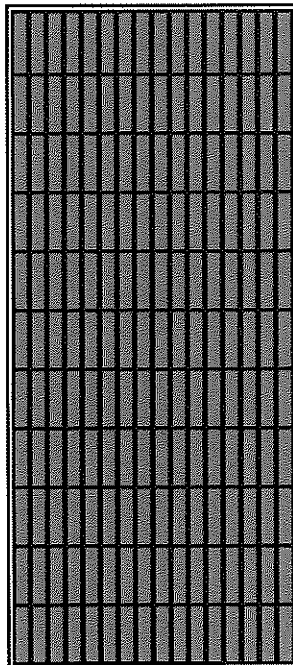
Overall Storage Efficiency = 54.0%

Overall System Size = 115.50' x 51.00' x 3.50'

176 Chambers

763.6 cy Field

585.4 cy Stone



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Proposed Berkshire Mazda

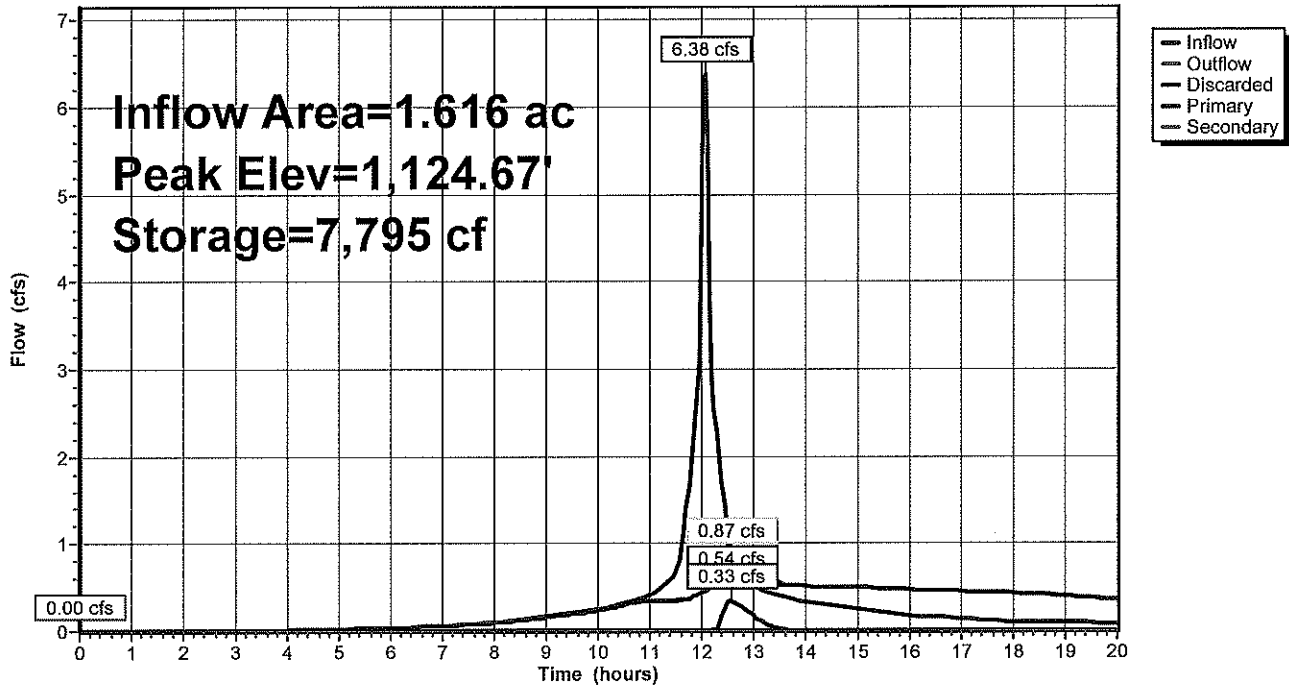
Type III 24-hr 10 Year Storm Rainfall=4.11"

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Pond 16P: Storage

Hydrograph



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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Pond 16P: Storage

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	1,122.50	0.00	0.00	0.00	0.00
0.50	0.00	0	1,122.50	0.00	0.00	0.00	0.00
1.00	0.00	0	1,122.50	0.00	0.00	0.00	0.00
1.50	0.00	0	1,122.50	0.00	0.00	0.00	0.00
2.00	0.00	0	1,122.50	0.00	0.00	0.00	0.00
2.50	0.00	0	1,122.50	0.00	0.00	0.00	0.00
3.00	0.00	0	1,122.50	0.00	0.00	0.00	0.00
3.50	0.00	1	1,122.50	0.00	0.00	0.00	0.00
4.00	0.01	4	1,122.50	0.01	0.01	0.00	0.00
4.50	0.02	6	1,122.50	0.02	0.02	0.00	0.00
5.00	0.02	9	1,122.50	0.02	0.02	0.00	0.00
5.50	0.03	12	1,122.50	0.03	0.03	0.00	0.00
6.00	0.04	15	1,122.51	0.04	0.04	0.00	0.00
6.50	0.05	19	1,122.51	0.05	0.05	0.00	0.00
7.00	0.07	24	1,122.51	0.06	0.06	0.00	0.00
7.50	0.08	30	1,122.51	0.08	0.08	0.00	0.00
8.00	0.10	37	1,122.52	0.09	0.09	0.00	0.00
8.50	0.13	47	1,122.52	0.12	0.12	0.00	0.00
9.00	0.16	60	1,122.53	0.16	0.16	0.00	0.00
9.50	0.20	75	1,122.53	0.19	0.19	0.00	0.00
10.00	0.24	91	1,122.54	0.23	0.23	0.00	0.00
10.50	0.31	115	1,122.55	0.30	0.30	0.00	0.00
11.00	0.39	166	1,122.57	0.34	0.34	0.00	0.00
11.50	0.65	474	1,122.70	0.35	0.35	0.00	0.00
12.00	4.68	3,073	1,123.62	0.43	0.43	0.00	0.00
12.50	1.14	7,766	1,124.66	0.85	0.53	0.31	0.00
13.00	0.51	7,561	1,124.60	0.70	0.53	0.17	0.00
13.50	0.41	7,266	1,124.53	0.55	0.52	0.03	0.00
14.00	0.33	6,984	1,124.46	0.51	0.51	0.00	0.00
14.50	0.29	6,615	1,124.37	0.51	0.51	0.00	0.00
15.00	0.25	6,195	1,124.28	0.50	0.50	0.00	0.00
15.50	0.21	5,725	1,124.17	0.49	0.49	0.00	0.00
16.00	0.17	5,207	1,124.06	0.48	0.48	0.00	0.00
16.50	0.16	4,656	1,123.95	0.46	0.46	0.00	0.00
17.00	0.14	4,095	1,123.83	0.45	0.45	0.00	0.00
17.50	0.12	3,525	1,123.71	0.44	0.44	0.00	0.00
18.00	0.11	2,946	1,123.60	0.43	0.43	0.00	0.00
18.50	0.10	2,366	1,123.48	0.42	0.42	0.00	0.00
19.00	0.10	1,803	1,123.27	0.40	0.40	0.00	0.00
19.50	0.09	1,271	1,123.04	0.38	0.38	0.00	0.00
20.00	0.09	766	1,122.83	0.36	0.36	0.00	0.00

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Summary for Pond 17P: Drop inlet

Inflow Area = 0.452 ac, 30.93% Impervious, Inflow Depth > 0.59" for 10 Year Storm event
Inflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af
Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

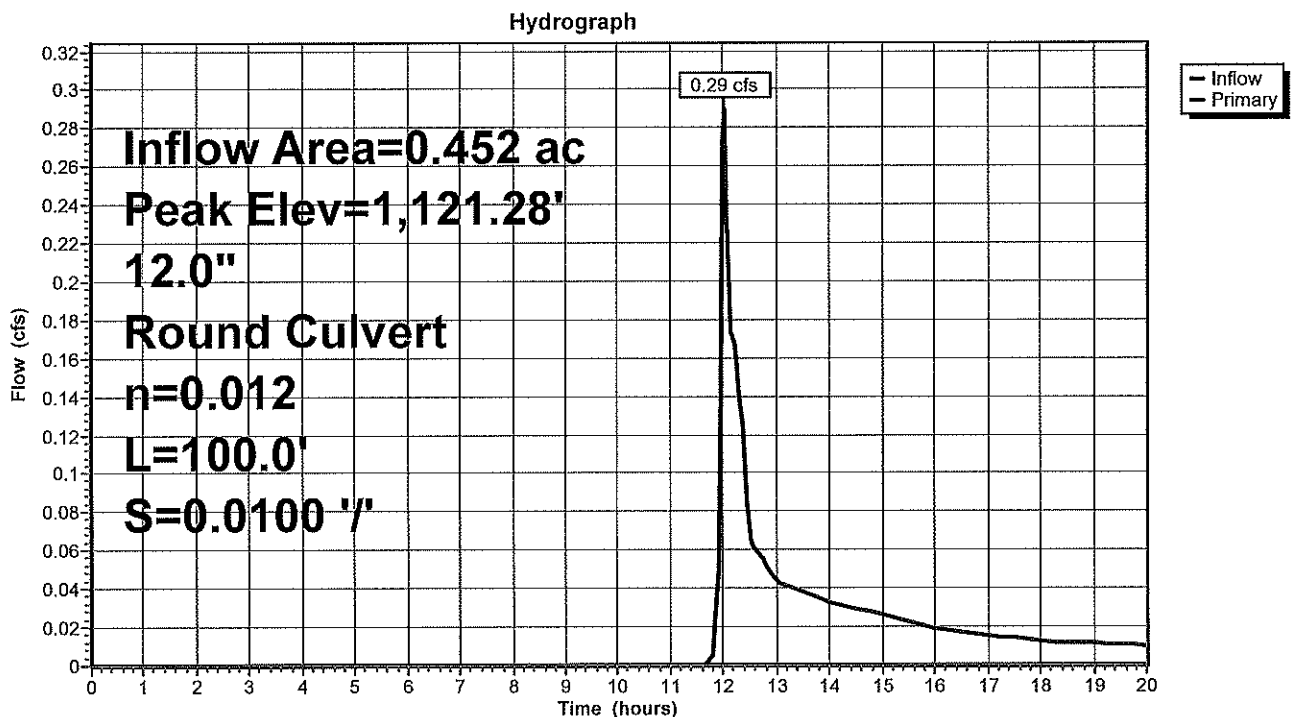
Peak Elev= 1,121.28' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,121.00'	12.0" Round Culvert L= 100.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,121.00' / 1,120.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.27 cfs @ 12.02 hrs HW=1,121.27' (Free Discharge)

1=Culvert (Inlet Controls 0.27 cfs @ 1.57 fps)

Pond 17P: Drop inlet



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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Pond 17P: Drop inlet

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	1,121.00	0.00	13.00	0.04	1,121.11	0.04
0.25	0.00	1,121.00	0.00	13.25	0.04	1,121.10	0.04
0.50	0.00	1,121.00	0.00	13.50	0.04	1,121.10	0.04
0.75	0.00	1,121.00	0.00	13.75	0.04	1,121.10	0.04
1.00	0.00	1,121.00	0.00	14.00	0.03	1,121.09	0.03
1.25	0.00	1,121.00	0.00	14.25	0.03	1,121.09	0.03
1.50	0.00	1,121.00	0.00	14.50	0.03	1,121.09	0.03
1.75	0.00	1,121.00	0.00	14.75	0.03	1,121.08	0.03
2.00	0.00	1,121.00	0.00	15.00	0.03	1,121.08	0.03
2.25	0.00	1,121.00	0.00	15.25	0.02	1,121.08	0.02
2.50	0.00	1,121.00	0.00	15.50	0.02	1,121.08	0.02
2.75	0.00	1,121.00	0.00	15.75	0.02	1,121.07	0.02
3.00	0.00	1,121.00	0.00	16.00	0.02	1,121.07	0.02
3.25	0.00	1,121.00	0.00	16.25	0.02	1,121.07	0.02
3.50	0.00	1,121.00	0.00	16.50	0.02	1,121.07	0.02
3.75	0.00	1,121.00	0.00	16.75	0.02	1,121.07	0.02
4.00	0.00	1,121.00	0.00	17.00	0.02	1,121.06	0.02
4.25	0.00	1,121.00	0.00	17.25	0.02	1,121.06	0.02
4.50	0.00	1,121.00	0.00	17.50	0.01	1,121.06	0.01
4.75	0.00	1,121.00	0.00	17.75	0.01	1,121.06	0.01
5.00	0.00	1,121.00	0.00	18.00	0.01	1,121.06	0.01
5.25	0.00	1,121.00	0.00	18.25	0.01	1,121.06	0.01
5.50	0.00	1,121.00	0.00	18.50	0.01	1,121.05	0.01
5.75	0.00	1,121.00	0.00	18.75	0.01	1,121.05	0.01
6.00	0.00	1,121.00	0.00	19.00	0.01	1,121.05	0.01
6.25	0.00	1,121.00	0.00	19.25	0.01	1,121.05	0.01
6.50	0.00	1,121.00	0.00	19.50	0.01	1,121.05	0.01
6.75	0.00	1,121.00	0.00	19.75	0.01	1,121.05	0.01
7.00	0.00	1,121.00	0.00	20.00	0.01	1,121.05	0.01
7.25	0.00	1,121.00	0.00				
7.50	0.00	1,121.00	0.00				
7.75	0.00	1,121.00	0.00				
8.00	0.00	1,121.00	0.00				
8.25	0.00	1,121.00	0.00				
8.50	0.00	1,121.00	0.00				
8.75	0.00	1,121.00	0.00				
9.00	0.00	1,121.00	0.00				
9.25	0.00	1,121.00	0.00				
9.50	0.00	1,121.00	0.00				
9.75	0.00	1,121.00	0.00				
10.00	0.00	1,121.00	0.00				
10.25	0.00	1,121.00	0.00				
10.50	0.00	1,121.00	0.00				
10.75	0.00	1,121.00	0.00				
11.00	0.00	1,121.00	0.00				
11.25	0.00	1,121.00	0.00				
11.50	0.00	1,121.00	0.00				
11.75	0.00	1,121.00	0.00				
12.00	0.27	1,121.27	0.27				
12.25	0.16	1,121.20	0.16				
12.50	0.07	1,121.13	0.07				
12.75	0.05	1,121.12	0.05				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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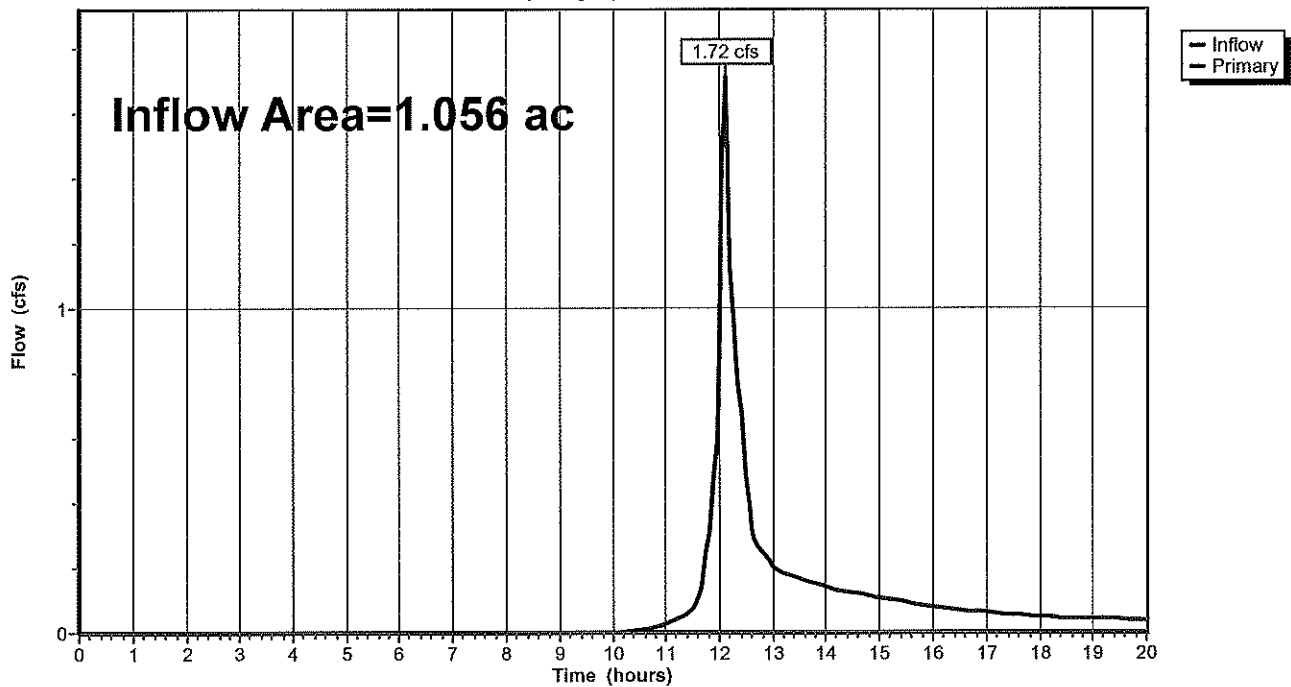
Summary for Link 1L: Wetland PRE

Inflow Area = 1.056 ac, 9.09% Impervious, Inflow Depth > 1.35" for 10 Year Storm event
Inflow = 1.72 cfs @ 12.10 hrs, Volume= 0.118 af
Primary = 1.72 cfs @ 12.10 hrs, Volume= 0.118 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Wetland PRE

Hydrograph



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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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Hydrograph for Link 1L: Wetland PRE

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	13.00	0.21	0.00	0.21
0.25	0.00	0.00	0.00	13.25	0.18	0.00	0.18
0.50	0.00	0.00	0.00	13.50	0.17	0.00	0.17
0.75	0.00	0.00	0.00	13.75	0.15	0.00	0.15
1.00	0.00	0.00	0.00	14.00	0.14	0.00	0.14
1.25	0.00	0.00	0.00	14.25	0.13	0.00	0.13
1.50	0.00	0.00	0.00	14.50	0.12	0.00	0.12
1.75	0.00	0.00	0.00	14.75	0.11	0.00	0.11
2.00	0.00	0.00	0.00	15.00	0.11	0.00	0.11
2.25	0.00	0.00	0.00	15.25	0.10	0.00	0.10
2.50	0.00	0.00	0.00	15.50	0.09	0.00	0.09
2.75	0.00	0.00	0.00	15.75	0.08	0.00	0.08
3.00	0.00	0.00	0.00	16.00	0.08	0.00	0.08
3.25	0.00	0.00	0.00	16.25	0.07	0.00	0.07
3.50	0.00	0.00	0.00	16.50	0.07	0.00	0.07
3.75	0.00	0.00	0.00	16.75	0.07	0.00	0.07
4.00	0.00	0.00	0.00	17.00	0.06	0.00	0.06
4.25	0.00	0.00	0.00	17.25	0.06	0.00	0.06
4.50	0.00	0.00	0.00	17.50	0.06	0.00	0.06
4.75	0.00	0.00	0.00	17.75	0.05	0.00	0.05
5.00	0.00	0.00	0.00	18.00	0.05	0.00	0.05
5.25	0.00	0.00	0.00	18.25	0.05	0.00	0.05
5.50	0.00	0.00	0.00	18.50	0.05	0.00	0.05
5.75	0.00	0.00	0.00	18.75	0.04	0.00	0.04
6.00	0.00	0.00	0.00	19.00	0.04	0.00	0.04
6.25	0.00	0.00	0.00	19.25	0.04	0.00	0.04
6.50	0.00	0.00	0.00	19.50	0.04	0.00	0.04
6.75	0.00	0.00	0.00	19.75	0.04	0.00	0.04
7.00	0.00	0.00	0.00	20.00	0.04	0.00	0.04
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.01	0.00	0.01				
10.75	0.02	0.00	0.02				
11.00	0.03	0.00	0.03				
11.25	0.04	0.00	0.04				
11.50	0.08	0.00	0.08				
11.75	0.24	0.00	0.24				
12.00	0.91	0.00	0.91				
12.25	0.97	0.00	0.97				
12.50	0.49	0.00	0.49				
12.75	0.26	0.00	0.26				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

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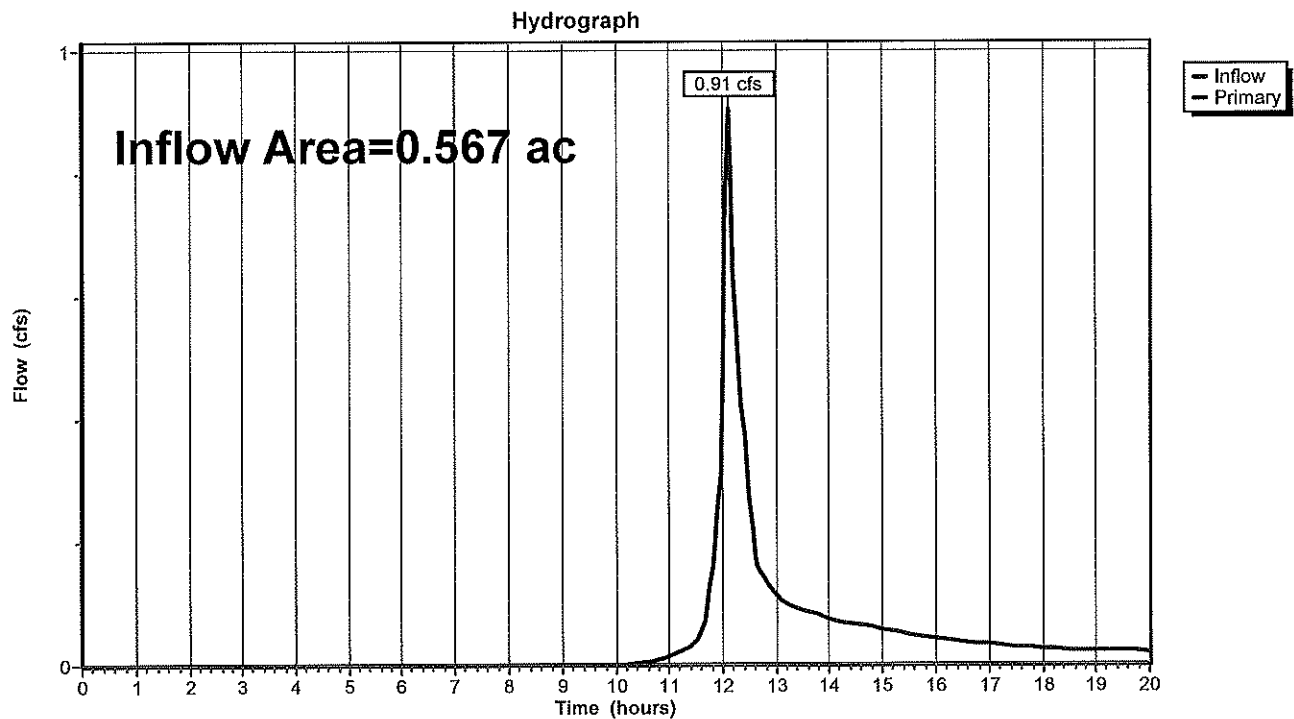
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Summary for Link 2L: Wetland POST

Inflow Area = 0.567 ac, 1.74% Impervious, Inflow Depth > 1.35" for 10 Year Storm event
Inflow = 0.91 cfs @ 12.11 hrs, Volume= 0.064 af
Primary = 0.91 cfs @ 12.11 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link 2L: Wetland POST



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Proposed Berkshire Mazda

Type III 24-hr 10 Year Storm Rainfall=4.11"

Printed 11/11/2022

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Hydrograph for Link 2L: Wetland POST

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	13.00	0.11	0.00	0.11
0.25	0.00	0.00	0.00	13.25	0.10	0.00	0.10
0.50	0.00	0.00	0.00	13.50	0.09	0.00	0.09
0.75	0.00	0.00	0.00	13.75	0.08	0.00	0.08
1.00	0.00	0.00	0.00	14.00	0.07	0.00	0.07
1.25	0.00	0.00	0.00	14.25	0.07	0.00	0.07
1.50	0.00	0.00	0.00	14.50	0.07	0.00	0.07
1.75	0.00	0.00	0.00	14.75	0.06	0.00	0.06
2.00	0.00	0.00	0.00	15.00	0.06	0.00	0.06
2.25	0.00	0.00	0.00	15.25	0.05	0.00	0.05
2.50	0.00	0.00	0.00	15.50	0.05	0.00	0.05
2.75	0.00	0.00	0.00	15.75	0.05	0.00	0.05
3.00	0.00	0.00	0.00	16.00	0.04	0.00	0.04
3.25	0.00	0.00	0.00	16.25	0.04	0.00	0.04
3.50	0.00	0.00	0.00	16.50	0.04	0.00	0.04
3.75	0.00	0.00	0.00	16.75	0.04	0.00	0.04
4.00	0.00	0.00	0.00	17.00	0.03	0.00	0.03
4.25	0.00	0.00	0.00	17.25	0.03	0.00	0.03
4.50	0.00	0.00	0.00	17.50	0.03	0.00	0.03
4.75	0.00	0.00	0.00	17.75	0.03	0.00	0.03
5.00	0.00	0.00	0.00	18.00	0.03	0.00	0.03
5.25	0.00	0.00	0.00	18.25	0.02	0.00	0.02
5.50	0.00	0.00	0.00	18.50	0.02	0.00	0.02
5.75	0.00	0.00	0.00	18.75	0.02	0.00	0.02
6.00	0.00	0.00	0.00	19.00	0.02	0.00	0.02
6.25	0.00	0.00	0.00	19.25	0.02	0.00	0.02
6.50	0.00	0.00	0.00	19.50	0.02	0.00	0.02
6.75	0.00	0.00	0.00	19.75	0.02	0.00	0.02
7.00	0.00	0.00	0.00	20.00	0.02	0.00	0.02
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.01	0.00	0.01				
11.00	0.01	0.00	0.01				
11.25	0.02	0.00	0.02				
11.50	0.04	0.00	0.04				
11.75	0.13	0.00	0.13				
12.00	0.46	0.00	0.46				
12.25	0.54	0.00	0.54				
12.50	0.27	0.00	0.27				
12.75	0.14	0.00	0.14				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Summary for Subcatchment 1Post: Post SA 1

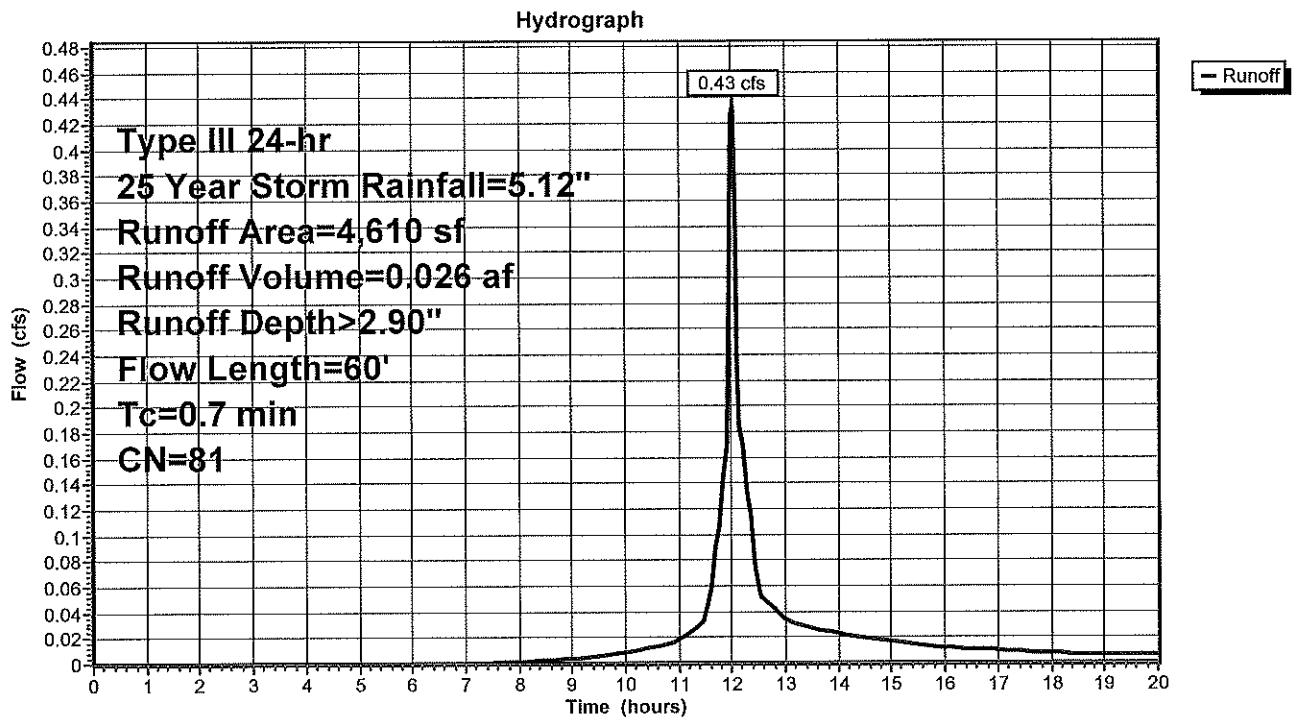
Runoff = 0.43 cfs @ 12.01 hrs, Volume= 0.026 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.12"

	Area (sf)	CN	Description
*	3,250	98	Paved Drive,HSG A
	1,360	39	>75% Grass cover, Good, HSG A
	4,610	81	Weighted Average
	1,360		29.50% Pervious Area
	3,250		70.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	10	0.2500	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.1	50	0.0850	5.92		Shallow Concentrated Flow, sriveway Paved Kv= 20.3 fps
0.7	60	Total			

Subcatchment 1Post: Post SA 1



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Hydrograph for Subcatchment 1Post: Post SA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.84	1.99	0.03
0.25	0.01	0.00	0.00	13.25	3.93	2.06	0.03
0.50	0.03	0.00	0.00	13.50	4.01	2.13	0.03
0.75	0.04	0.00	0.00	13.75	4.09	2.19	0.03
1.00	0.05	0.00	0.00	14.00	4.15	2.25	0.02
1.25	0.06	0.00	0.00	14.25	4.21	2.30	0.02
1.50	0.08	0.00	0.00	14.50	4.27	2.35	0.02
1.75	0.09	0.00	0.00	14.75	4.32	2.40	0.02
2.00	0.10	0.00	0.00	15.00	4.37	2.44	0.02
2.25	0.12	0.00	0.00	15.25	4.42	2.48	0.02
2.50	0.13	0.00	0.00	15.50	4.46	2.52	0.02
2.75	0.14	0.00	0.00	15.75	4.50	2.55	0.01
3.00	0.16	0.00	0.00	16.00	4.54	2.58	0.01
3.25	0.17	0.00	0.00	16.25	4.57	2.61	0.01
3.50	0.19	0.00	0.00	16.50	4.60	2.63	0.01
3.75	0.20	0.00	0.00	16.75	4.63	2.66	0.01
4.00	0.22	0.00	0.00	17.00	4.66	2.68	0.01
4.25	0.24	0.00	0.00	17.25	4.68	2.71	0.01
4.50	0.25	0.00	0.00	17.50	4.71	2.73	0.01
4.75	0.27	0.00	0.00	17.75	4.73	2.75	0.01
5.00	0.29	0.00	0.00	18.00	4.75	2.77	0.01
5.25	0.31	0.00	0.00	18.25	4.77	2.78	0.01
5.50	0.33	0.00	0.00	18.50	4.79	2.80	0.01
5.75	0.35	0.00	0.00	18.75	4.81	2.82	0.01
6.00	0.37	0.00	0.00	19.00	4.83	2.84	0.01
6.25	0.39	0.00	0.00	19.25	4.85	2.85	0.01
6.50	0.41	0.00	0.00	19.50	4.87	2.87	0.01
6.75	0.44	0.00	0.00	19.75	4.88	2.88	0.01
7.00	0.46	0.00	0.00	20.00	4.90	2.90	0.01
7.25	0.49	0.00	0.00				
7.50	0.52	0.00	0.00				
7.75	0.55	0.00	0.00				
8.00	0.58	0.01	0.00				
8.25	0.62	0.01	0.00				
8.50	0.66	0.01	0.00				
8.75	0.70	0.02	0.00				
9.00	0.75	0.03	0.00				
9.25	0.80	0.04	0.01				
9.50	0.85	0.05	0.01				
9.75	0.91	0.07	0.01				
10.00	0.97	0.09	0.01				
10.25	1.03	0.11	0.01				
10.50	1.11	0.14	0.01				
10.75	1.19	0.17	0.02				
11.00	1.28	0.21	0.02				
11.25	1.39	0.26	0.03				
11.50	1.53	0.33	0.03				
11.75	1.82	0.49	0.11				
12.00	2.56	0.99	0.43				
12.25	3.30	1.55	0.15				
12.50	3.59	1.79	0.06				
12.75	3.73	1.90	0.04				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Summary for Subcatchment 1S: EX SA 1

Runoff = 2.42 cfs @ 12.06 hrs, Volume= 0.159 af, Depth> 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.12"

Area (sf)	CN	Description
11,850	98	Paved parking, HSG A
1,810	96	Gravel surface, HSG A
1,430	96	Gravel surface, HSG C
6,570	98	Roofs, HSG A
* 3,105	98	sidewalk/Concrete, HSG A
33,525	39	>75% Grass cover, Good, HSG A
260	74	>75% Grass cover, Good, HSG C
7,750	30	Woods, Good, HSG A
430	70	Woods, Good, HSG C
66,730	60	Weighted Average
45,205		67.74% Pervious Area
21,525		32.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0500	1.62		Sheet Flow, Gravel Driveway Smooth surfaces n= 0.011 P2= 2.80"
0.4	64	0.0350	2.81		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
0.8	69	0.0739	1.36		Shallow Concentrated Flow, woods Woodland Kv= 5.0 fps
0.1	30	0.3300	8.62		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
1.2	119	0.0120	1.64		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
0.2	20	0.0100	2.03		Shallow Concentrated Flow, at Catch Basin Paved Kv= 20.3 fps
3.2	352	Total			

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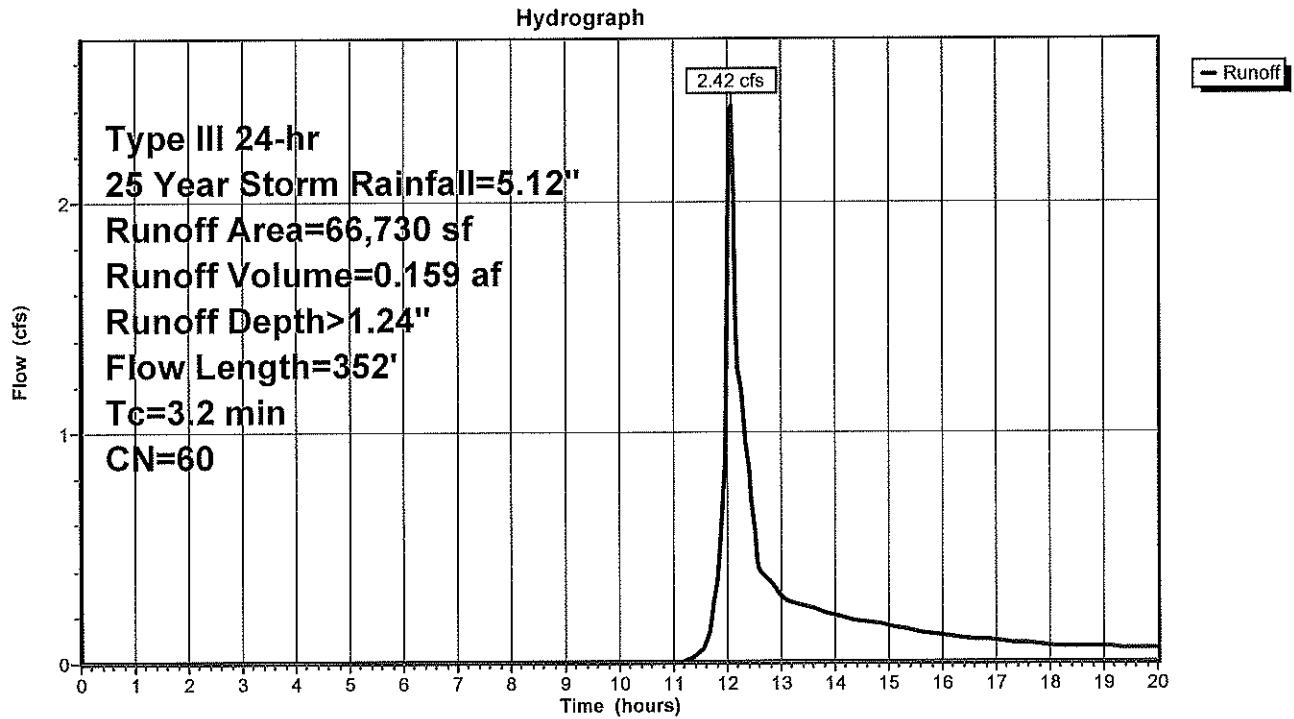
Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Subcatchment 1S: EX SA 1



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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Hydrograph for Subcatchment 1S: EX SA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.84	0.68	0.29
0.25	0.01	0.00	0.00	13.25	3.93	0.73	0.26
0.50	0.03	0.00	0.00	13.50	4.01	0.77	0.24
0.75	0.04	0.00	0.00	13.75	4.09	0.80	0.22
1.00	0.05	0.00	0.00	14.00	4.15	0.84	0.20
1.25	0.06	0.00	0.00	14.25	4.21	0.87	0.19
1.50	0.08	0.00	0.00	14.50	4.27	0.90	0.18
1.75	0.09	0.00	0.00	14.75	4.32	0.93	0.17
2.00	0.10	0.00	0.00	15.00	4.37	0.95	0.16
2.25	0.12	0.00	0.00	15.25	4.42	0.98	0.15
2.50	0.13	0.00	0.00	15.50	4.46	1.00	0.14
2.75	0.14	0.00	0.00	15.75	4.50	1.02	0.13
3.00	0.16	0.00	0.00	16.00	4.54	1.04	0.11
3.25	0.17	0.00	0.00	16.25	4.57	1.06	0.11
3.50	0.19	0.00	0.00	16.50	4.60	1.07	0.10
3.75	0.20	0.00	0.00	16.75	4.63	1.09	0.10
4.00	0.22	0.00	0.00	17.00	4.66	1.11	0.09
4.25	0.24	0.00	0.00	17.25	4.68	1.12	0.09
4.50	0.25	0.00	0.00	17.50	4.71	1.13	0.08
4.75	0.27	0.00	0.00	17.75	4.73	1.15	0.08
5.00	0.29	0.00	0.00	18.00	4.75	1.16	0.07
5.25	0.31	0.00	0.00	18.25	4.77	1.17	0.07
5.50	0.33	0.00	0.00	18.50	4.79	1.18	0.07
5.75	0.35	0.00	0.00	18.75	4.81	1.19	0.07
6.00	0.37	0.00	0.00	19.00	4.83	1.20	0.07
6.25	0.39	0.00	0.00	19.25	4.85	1.21	0.06
6.50	0.41	0.00	0.00	19.50	4.87	1.22	0.06
6.75	0.44	0.00	0.00	19.75	4.88	1.23	0.06
7.00	0.46	0.00	0.00	20.00	4.90	1.24	0.06
7.25	0.49	0.00	0.00				
7.50	0.52	0.00	0.00				
7.75	0.55	0.00	0.00				
8.00	0.58	0.00	0.00				
8.25	0.62	0.00	0.00				
8.50	0.66	0.00	0.00				
8.75	0.70	0.00	0.00				
9.00	0.75	0.00	0.00				
9.25	0.80	0.00	0.00				
9.50	0.85	0.00	0.00				
9.75	0.91	0.00	0.00				
10.00	0.97	0.00	0.00				
10.25	1.03	0.00	0.00				
10.50	1.11	0.00	0.00				
10.75	1.19	0.00	0.00				
11.00	1.28	0.00	0.00				
11.25	1.39	0.00	0.01				
11.50	1.53	0.01	0.04				
11.75	1.82	0.03	0.26				
12.00	2.56	0.19	1.64				
12.25	3.30	0.45	1.18				
12.50	3.59	0.57	0.56				
12.75	3.73	0.63	0.36				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Summary for Subcatchment 2A Post: Post SA 2A

Runoff = 8.11 cfs @ 12.06 hrs, Volume= 0.567 af, Depth> 4.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.12"

Area (sf)	CN	Description
35,600	98	Paved parking, HSG A
12,625	98	Paved parking, HSG C
12,810	98	Roofs, HSG A
1,615	98	Roofs, HSG C
* 1,545	98	Concrete/Sidewalk, HSG A
2,940	39	>75% Grass cover, Good, HSG A
3,270	74	>75% Grass cover, Good, HSG C
70,405	94	Weighted Average
6,210		8.82% Pervious Area
64,195		91.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.1000	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.9	153	0.0200	2.87		Shallow Concentrated Flow, Paving Lot Paved Kv= 20.3 fps
0.3	137	0.0200	6.95	5.46	Pipe Channel, Parking Lot Drain 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.3	150	0.0200	9.11	16.09	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
0.2	135	0.0300	11.15	19.71	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
4.2	612	Total			

Calcs Nov 22

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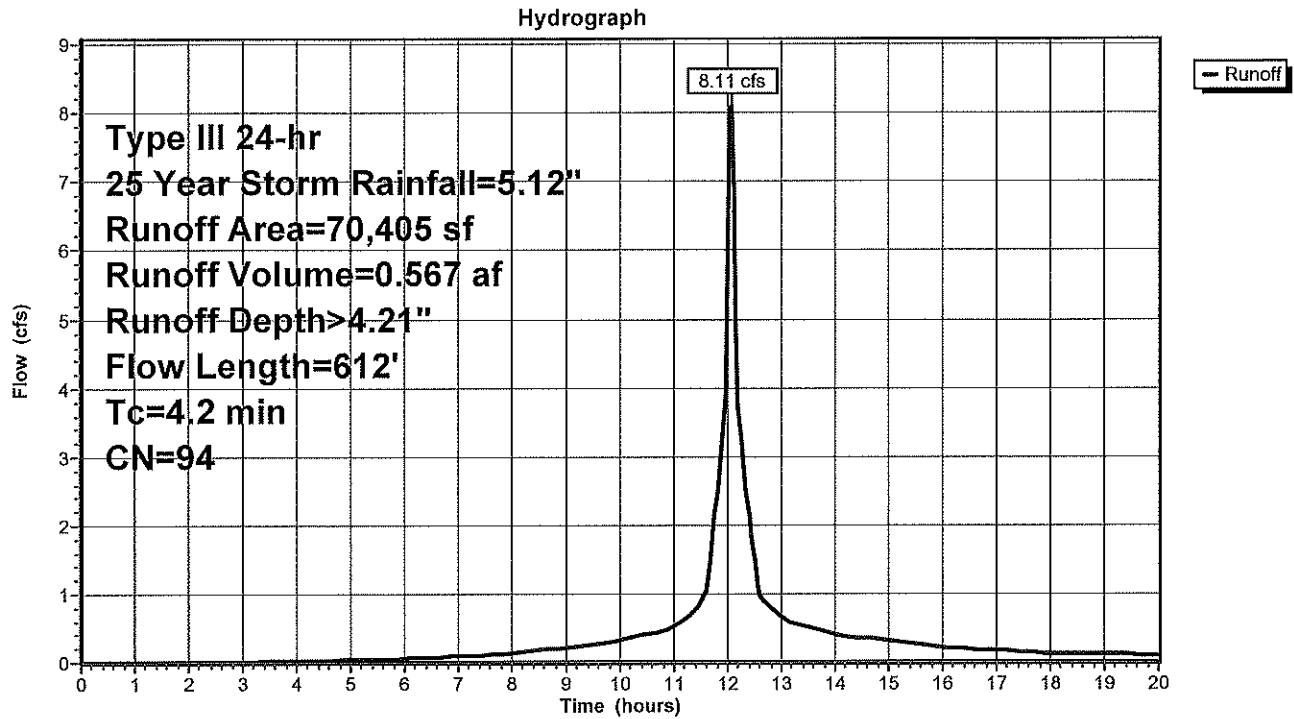
Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Subcatchment 2A Post: Post SA 2A



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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Hydrograph for Subcatchment 2A Post: Post SA 2A

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.84	3.17	0.64
0.25	0.01	0.00	0.00	13.25	3.93	3.26	0.56
0.50	0.03	0.00	0.00	13.50	4.01	3.34	0.51
0.75	0.04	0.00	0.00	13.75	4.09	3.41	0.46
1.00	0.05	0.00	0.00	14.00	4.15	3.47	0.41
1.25	0.06	0.00	0.00	14.25	4.21	3.53	0.38
1.50	0.08	0.00	0.00	14.50	4.27	3.59	0.36
1.75	0.09	0.00	0.00	14.75	4.32	3.64	0.34
2.00	0.10	0.00	0.00	15.00	4.37	3.69	0.31
2.25	0.12	0.00	0.00	15.25	4.42	3.74	0.29
2.50	0.13	0.00	0.00	15.50	4.46	3.78	0.27
2.75	0.14	0.00	0.00	15.75	4.50	3.82	0.24
3.00	0.16	0.00	0.01	16.00	4.54	3.85	0.22
3.25	0.17	0.00	0.01	16.25	4.57	3.88	0.21
3.50	0.19	0.01	0.02	16.50	4.60	3.91	0.20
3.75	0.20	0.01	0.02	16.75	4.63	3.94	0.19
4.00	0.22	0.01	0.02	17.00	4.66	3.97	0.18
4.25	0.24	0.02	0.03	17.25	4.68	4.00	0.16
4.50	0.25	0.02	0.03	17.50	4.71	4.02	0.15
4.75	0.27	0.03	0.04	17.75	4.73	4.04	0.14
5.00	0.29	0.03	0.04	18.00	4.75	4.06	0.13
5.25	0.31	0.04	0.05	18.25	4.77	4.08	0.13
5.50	0.33	0.05	0.05	18.50	4.79	4.10	0.13
5.75	0.35	0.06	0.06	18.75	4.81	4.12	0.12
6.00	0.37	0.07	0.06	19.00	4.83	4.14	0.12
6.25	0.39	0.08	0.07	19.25	4.85	4.16	0.12
6.50	0.41	0.09	0.08	19.50	4.87	4.18	0.11
6.75	0.44	0.10	0.09	19.75	4.88	4.19	0.11
7.00	0.46	0.12	0.10	20.00	4.90	4.21	0.11
7.25	0.49	0.13	0.11				
7.50	0.52	0.15	0.12				
7.75	0.55	0.17	0.13				
8.00	0.58	0.19	0.14				
8.25	0.62	0.21	0.16				
8.50	0.66	0.24	0.18				
8.75	0.70	0.27	0.20				
9.00	0.75	0.30	0.23				
9.25	0.80	0.34	0.25				
9.50	0.85	0.38	0.27				
9.75	0.91	0.43	0.30				
10.00	0.97	0.48	0.33				
10.25	1.03	0.53	0.37				
10.50	1.11	0.59	0.42				
10.75	1.19	0.66	0.47				
11.00	1.28	0.74	0.52				
11.25	1.39	0.84	0.66				
11.50	1.53	0.96	0.85				
11.75	1.82	1.23	2.16				
12.00	2.56	1.93	5.96				
12.25	3.30	2.64	3.23				
12.50	3.59	2.93	1.43				
12.75	3.73	3.06	0.83				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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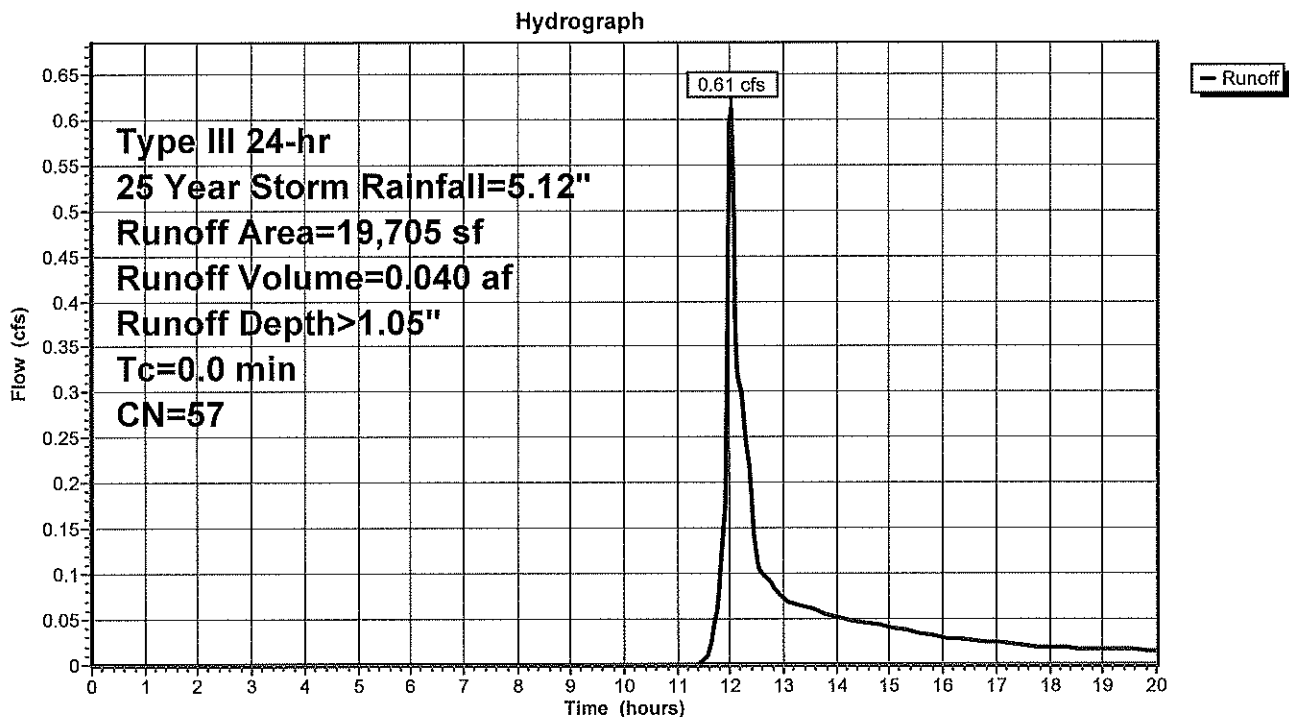
Summary for Subcatchment 2BPost: EX SA 3

Runoff = 0.61 cfs @ 12.01 hrs, Volume= 0.040 af, Depth> 1.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.12"

Area (sf)	CN	Description
4,000	98	Roofs, HSG A
2,095	98	Concrete/Sidewalk, HSG A
12,640	39	>75% Grass cover, Good, HSG A
970	30	Woods, Good, HSG A
19,705	57	Weighted Average
13,610		69.07% Pervious Area
6,095		30.93% Impervious Area

Subcatchment 2BPost: EX SA 3



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Hydrograph for Subcatchment 2BPost: EX SA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.84	0.55	0.07
0.25	0.01	0.00	0.00	13.25	3.93	0.59	0.07
0.50	0.03	0.00	0.00	13.50	4.01	0.62	0.06
0.75	0.04	0.00	0.00	13.75	4.09	0.66	0.06
1.00	0.05	0.00	0.00	14.00	4.15	0.69	0.05
1.25	0.06	0.00	0.00	14.25	4.21	0.71	0.05
1.50	0.08	0.00	0.00	14.50	4.27	0.74	0.05
1.75	0.09	0.00	0.00	14.75	4.32	0.77	0.04
2.00	0.10	0.00	0.00	15.00	4.37	0.79	0.04
2.25	0.12	0.00	0.00	15.25	4.42	0.81	0.04
2.50	0.13	0.00	0.00	15.50	4.46	0.83	0.04
2.75	0.14	0.00	0.00	15.75	4.50	0.85	0.03
3.00	0.16	0.00	0.00	16.00	4.54	0.87	0.03
3.25	0.17	0.00	0.00	16.25	4.57	0.88	0.03
3.50	0.19	0.00	0.00	16.50	4.60	0.90	0.03
3.75	0.20	0.00	0.00	16.75	4.63	0.91	0.03
4.00	0.22	0.00	0.00	17.00	4.66	0.93	0.02
4.25	0.24	0.00	0.00	17.25	4.68	0.94	0.02
4.50	0.25	0.00	0.00	17.50	4.71	0.95	0.02
4.75	0.27	0.00	0.00	17.75	4.73	0.96	0.02
5.00	0.29	0.00	0.00	18.00	4.75	0.97	0.02
5.25	0.31	0.00	0.00	18.25	4.77	0.99	0.02
5.50	0.33	0.00	0.00	18.50	4.79	1.00	0.02
5.75	0.35	0.00	0.00	18.75	4.81	1.01	0.02
6.00	0.37	0.00	0.00	19.00	4.83	1.01	0.02
6.25	0.39	0.00	0.00	19.25	4.85	1.02	0.02
6.50	0.41	0.00	0.00	19.50	4.87	1.03	0.02
6.75	0.44	0.00	0.00	19.75	4.88	1.04	0.02
7.00	0.46	0.00	0.00	20.00	4.90	1.05	0.02
7.25	0.49	0.00	0.00				
7.50	0.52	0.00	0.00				
7.75	0.55	0.00	0.00				
8.00	0.58	0.00	0.00				
8.25	0.62	0.00	0.00				
8.50	0.66	0.00	0.00				
8.75	0.70	0.00	0.00				
9.00	0.75	0.00	0.00				
9.25	0.80	0.00	0.00				
9.50	0.85	0.00	0.00				
9.75	0.91	0.00	0.00				
10.00	0.97	0.00	0.00				
10.25	1.03	0.00	0.00				
10.50	1.11	0.00	0.00				
10.75	1.19	0.00	0.00				
11.00	1.28	0.00	0.00				
11.25	1.39	0.00	0.00				
11.50	1.53	0.00	0.00				
11.75	1.82	0.01	0.06				
12.00	2.56	0.13	0.60				
12.25	3.30	0.34	0.27				
12.50	3.59	0.45	0.11				
12.75	3.73	0.51	0.09				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Summary for Subcatchment 2S: EX SA 2

Runoff = 2.64 cfs @ 12.10 hrs, Volume= 0.179 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.12"

Area (sf)	CN	Description
235	96	Gravel surface, HSG C
2,955	98	Roofs, HSG A
1,190	98	Roofs, HSG C
* 35	98	sidewalk/Concrete HSG C
3,390	39	>75% Grass cover, Good, HSG A
12,785	74	>75% Grass cover, Good, HSG C
400	30	Woods, Good, HSG A
25,015	70	Woods, Good, HSG C
46,005	71	Weighted Average
41,825		90.91% Pervious Area
4,180		9.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0400	0.18		Sheet Flow, Lawn Behind building Grass: Short n= 0.150 P2= 2.80"
0.6	100	0.0400	3.00		Shallow Concentrated Flow, Lawn Behind Building Grassed Waterway Kv= 15.0 fps
0.8	108	0.0200	2.12		Shallow Concentrated Flow, Rear Lawn Grassed Waterway Kv= 15.0 fps
0.2	60	0.0916	4.54		Shallow Concentrated Flow, Woods Grassed Waterway Kv= 15.0 fps
6.2	318	Total			

Calcs Nov 22

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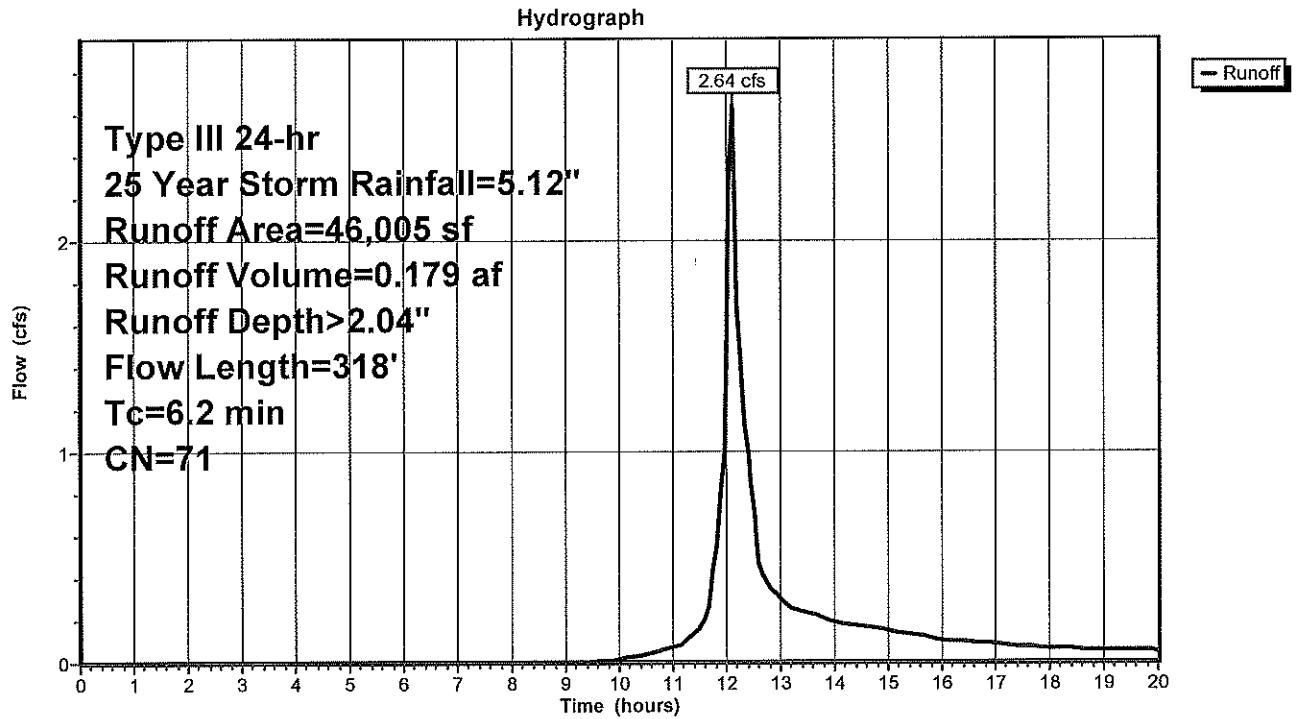
Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Subcatchment 2S: EX SA 2



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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Hydrograph for Subcatchment 2S: EX SA 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.84	1.29	0.30
0.25	0.01	0.00	0.00	13.25	3.93	1.35	0.26
0.50	0.03	0.00	0.00	13.50	4.01	1.40	0.24
0.75	0.04	0.00	0.00	13.75	4.09	1.45	0.22
1.00	0.05	0.00	0.00	14.00	4.15	1.50	0.19
1.25	0.06	0.00	0.00	14.25	4.21	1.54	0.18
1.50	0.08	0.00	0.00	14.50	4.27	1.58	0.17
1.75	0.09	0.00	0.00	14.75	4.32	1.62	0.16
2.00	0.10	0.00	0.00	15.00	4.37	1.66	0.15
2.25	0.12	0.00	0.00	15.25	4.42	1.69	0.14
2.50	0.13	0.00	0.00	15.50	4.46	1.72	0.13
2.75	0.14	0.00	0.00	15.75	4.50	1.75	0.12
3.00	0.16	0.00	0.00	16.00	4.54	1.77	0.11
3.25	0.17	0.00	0.00	16.25	4.57	1.80	0.10
3.50	0.19	0.00	0.00	16.50	4.60	1.82	0.10
3.75	0.20	0.00	0.00	16.75	4.63	1.84	0.09
4.00	0.22	0.00	0.00	17.00	4.66	1.86	0.09
4.25	0.24	0.00	0.00	17.25	4.68	1.88	0.08
4.50	0.25	0.00	0.00	17.50	4.71	1.90	0.08
4.75	0.27	0.00	0.00	17.75	4.73	1.91	0.07
5.00	0.29	0.00	0.00	18.00	4.75	1.93	0.07
5.25	0.31	0.00	0.00	18.25	4.77	1.95	0.06
5.50	0.33	0.00	0.00	18.50	4.79	1.96	0.06
5.75	0.35	0.00	0.00	18.75	4.81	1.97	0.06
6.00	0.37	0.00	0.00	19.00	4.83	1.99	0.06
6.25	0.39	0.00	0.00	19.25	4.85	2.00	0.06
6.50	0.41	0.00	0.00	19.50	4.87	2.02	0.06
6.75	0.44	0.00	0.00	19.75	4.88	2.03	0.06
7.00	0.46	0.00	0.00	20.00	4.90	2.04	0.05
7.25	0.49	0.00	0.00				
7.50	0.52	0.00	0.00				
7.75	0.55	0.00	0.00				
8.00	0.58	0.00	0.00				
8.25	0.62	0.00	0.00				
8.50	0.66	0.00	0.00				
8.75	0.70	0.00	0.00				
9.00	0.75	0.00	0.00				
9.25	0.80	0.00	0.00				
9.50	0.85	0.00	0.00				
9.75	0.91	0.00	0.01				
10.00	0.97	0.01	0.02				
10.25	1.03	0.01	0.03				
10.50	1.11	0.02	0.04				
10.75	1.19	0.03	0.05				
11.00	1.28	0.05	0.07				
11.25	1.39	0.07	0.10				
11.50	1.53	0.10	0.15				
11.75	1.82	0.20	0.45				
12.00	2.56	0.52	1.47				
12.25	3.30	0.94	1.43				
12.50	3.59	1.12	0.70				
12.75	3.73	1.21	0.37				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

Printed 11/11/2022

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Summary for Subcatchment 3Post: Post SA 3

Runoff = 1.39 cfs @ 12.11 hrs, Volume= 0.096 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.12"

Area (sf)	CN	Description
125	98	Roofs, HSG A
305	98	Roofs, HSG C
50	39	>75% Grass cover, Good, HSG A
5,775	74	>75% Grass cover, Good, HSG C
75	30	Woods, Good, HSG A
18,390	70	Woods, Good, HSG C
24,720	71	Weighted Average
24,290		98.26% Pervious Area
430		1.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	32	0.0650	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.80"
0.2	22	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	72	0.0833	1.44		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
6.8	126	Total			

Calcs Nov 22

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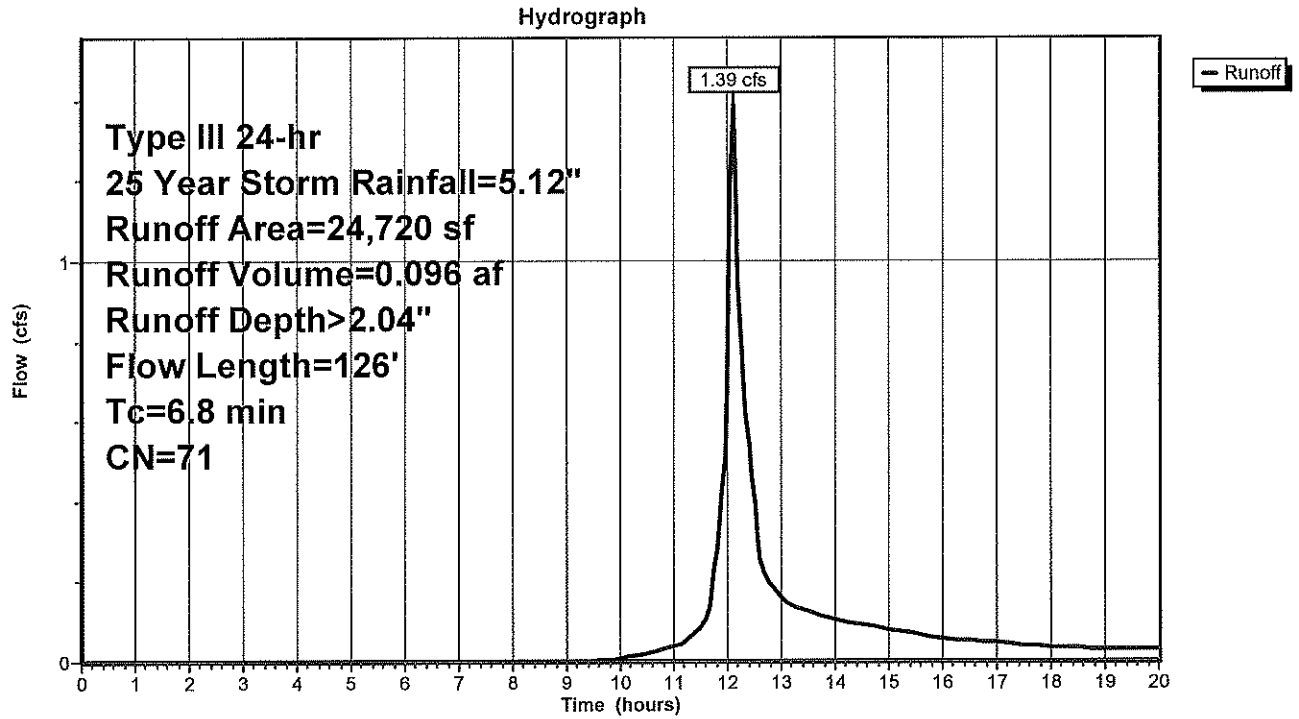
Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Subcatchment 3Post: Post SA 3



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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Hydrograph for Subcatchment 3Post: Post SA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.84	1.29	0.16
0.25	0.01	0.00	0.00	13.25	3.93	1.35	0.14
0.50	0.03	0.00	0.00	13.50	4.01	1.40	0.13
0.75	0.04	0.00	0.00	13.75	4.09	1.45	0.12
1.00	0.05	0.00	0.00	14.00	4.15	1.50	0.10
1.25	0.06	0.00	0.00	14.25	4.21	1.54	0.10
1.50	0.08	0.00	0.00	14.50	4.27	1.58	0.09
1.75	0.09	0.00	0.00	14.75	4.32	1.62	0.09
2.00	0.10	0.00	0.00	15.00	4.37	1.66	0.08
2.25	0.12	0.00	0.00	15.25	4.42	1.69	0.08
2.50	0.13	0.00	0.00	15.50	4.46	1.72	0.07
2.75	0.14	0.00	0.00	15.75	4.50	1.75	0.06
3.00	0.16	0.00	0.00	16.00	4.54	1.77	0.06
3.25	0.17	0.00	0.00	16.25	4.57	1.80	0.05
3.50	0.19	0.00	0.00	16.50	4.60	1.82	0.05
3.75	0.20	0.00	0.00	16.75	4.63	1.84	0.05
4.00	0.22	0.00	0.00	17.00	4.66	1.86	0.05
4.25	0.24	0.00	0.00	17.25	4.68	1.88	0.04
4.50	0.25	0.00	0.00	17.50	4.71	1.90	0.04
4.75	0.27	0.00	0.00	17.75	4.73	1.91	0.04
5.00	0.29	0.00	0.00	18.00	4.75	1.93	0.04
5.25	0.31	0.00	0.00	18.25	4.77	1.95	0.03
5.50	0.33	0.00	0.00	18.50	4.79	1.96	0.03
5.75	0.35	0.00	0.00	18.75	4.81	1.97	0.03
6.00	0.37	0.00	0.00	19.00	4.83	1.99	0.03
6.25	0.39	0.00	0.00	19.25	4.85	2.00	0.03
6.50	0.41	0.00	0.00	19.50	4.87	2.02	0.03
6.75	0.44	0.00	0.00	19.75	4.88	2.03	0.03
7.00	0.46	0.00	0.00	20.00	4.90	2.04	0.03
7.25	0.49	0.00	0.00				
7.50	0.52	0.00	0.00				
7.75	0.55	0.00	0.00				
8.00	0.58	0.00	0.00				
8.25	0.62	0.00	0.00				
8.50	0.66	0.00	0.00				
8.75	0.70	0.00	0.00				
9.00	0.75	0.00	0.00				
9.25	0.80	0.00	0.00				
9.50	0.85	0.00	0.00				
9.75	0.91	0.00	0.00				
10.00	0.97	0.01	0.01				
10.25	1.03	0.01	0.01				
10.50	1.11	0.02	0.02				
10.75	1.19	0.03	0.03				
11.00	1.28	0.05	0.04				
11.25	1.39	0.07	0.05				
11.50	1.53	0.10	0.08				
11.75	1.82	0.20	0.23				
12.00	2.56	0.52	0.74				
12.25	3.30	0.94	0.80				
12.50	3.59	1.12	0.39				
12.75	3.73	1.21	0.20				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Summary for Subcatchment 3S: EX SA 3

Runoff = 0.50 cfs @ 12.02 hrs, Volume= 0.029 af, Depth> 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.12"

Area (sf)	CN	Description
2,990	98	Paved parking, HSG A
660	98	Roofs, HSG A
* 310	98	Concrete/Sidewalk, HSG A
2,745	39	>75% Grass cover, Good, HSG A
6,705	74	Weighted Average
2,745		40.94% Pervious Area
3,960		59.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	15	0.3300	2.70		Sheet Flow, Roof Smooth surfaces n= 0.011 P2= 2.80"
0.4	15	0.0100	0.67		Sheet Flow, Sidewalk Smooth surfaces n= 0.011 P2= 2.80"
0.1	51	0.1500	5.81		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
0.2	66	0.1130	6.82		Shallow Concentrated Flow, Driveway Paved Kv= 20.3 fps
0.8	147	Total			

Calcs Nov 22

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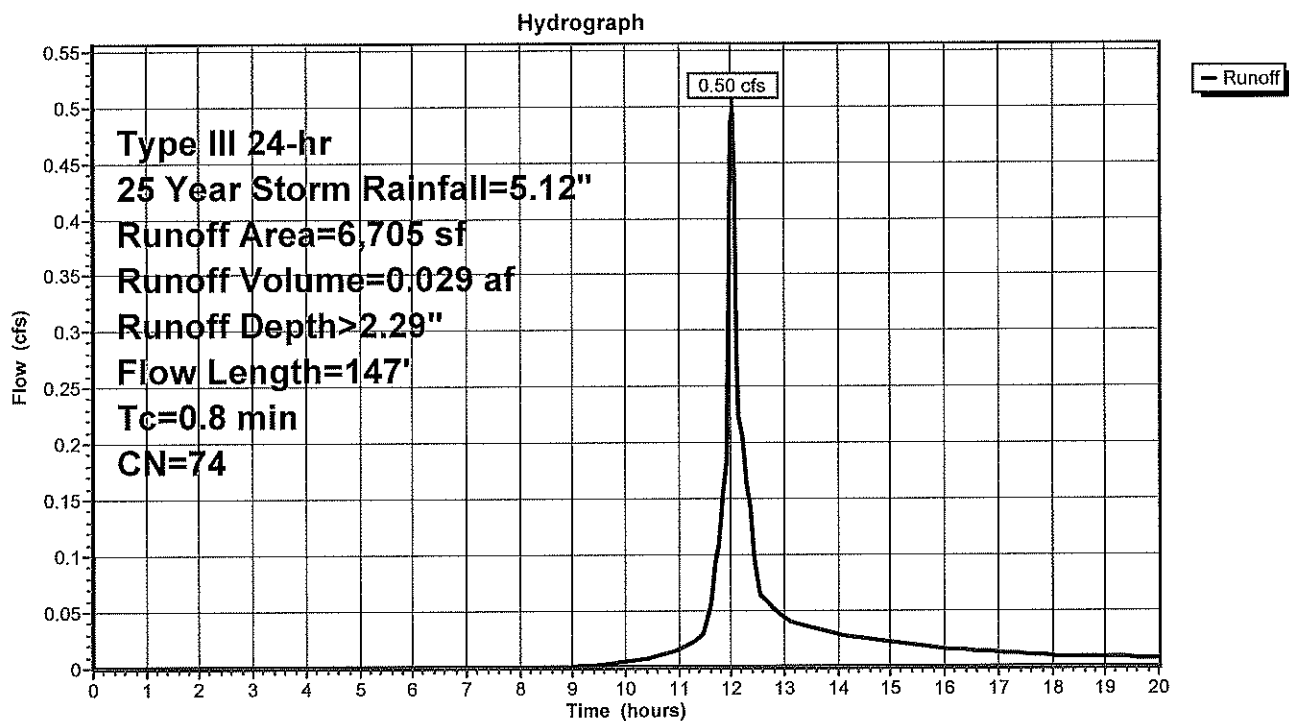
Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Subcatchment 3S: EX SA 3



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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Hydrograph for Subcatchment 3S: EX SA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.84	1.48	0.04
0.25	0.01	0.00	0.00	13.25	3.93	1.54	0.04
0.50	0.03	0.00	0.00	13.50	4.01	1.60	0.04
0.75	0.04	0.00	0.00	13.75	4.09	1.66	0.03
1.00	0.05	0.00	0.00	14.00	4.15	1.71	0.03
1.25	0.06	0.00	0.00	14.25	4.21	1.75	0.03
1.50	0.08	0.00	0.00	14.50	4.27	1.80	0.03
1.75	0.09	0.00	0.00	14.75	4.32	1.84	0.02
2.00	0.10	0.00	0.00	15.00	4.37	1.88	0.02
2.25	0.12	0.00	0.00	15.25	4.42	1.91	0.02
2.50	0.13	0.00	0.00	15.50	4.46	1.94	0.02
2.75	0.14	0.00	0.00	15.75	4.50	1.97	0.02
3.00	0.16	0.00	0.00	16.00	4.54	2.00	0.02
3.25	0.17	0.00	0.00	16.25	4.57	2.03	0.02
3.50	0.19	0.00	0.00	16.50	4.60	2.05	0.01
3.75	0.20	0.00	0.00	16.75	4.63	2.07	0.01
4.00	0.22	0.00	0.00	17.00	4.66	2.09	0.01
4.25	0.24	0.00	0.00	17.25	4.68	2.11	0.01
4.50	0.25	0.00	0.00	17.50	4.71	2.13	0.01
4.75	0.27	0.00	0.00	17.75	4.73	2.15	0.01
5.00	0.29	0.00	0.00	18.00	4.75	2.17	0.01
5.25	0.31	0.00	0.00	18.25	4.77	2.18	0.01
5.50	0.33	0.00	0.00	18.50	4.79	2.20	0.01
5.75	0.35	0.00	0.00	18.75	4.81	2.21	0.01
6.00	0.37	0.00	0.00	19.00	4.83	2.23	0.01
6.25	0.39	0.00	0.00	19.25	4.85	2.24	0.01
6.50	0.41	0.00	0.00	19.50	4.87	2.26	0.01
6.75	0.44	0.00	0.00	19.75	4.88	2.27	0.01
7.00	0.46	0.00	0.00	20.00	4.90	2.28	0.01
7.25	0.49	0.00	0.00				
7.50	0.52	0.00	0.00				
7.75	0.55	0.00	0.00				
8.00	0.58	0.00	0.00				
8.25	0.62	0.00	0.00				
8.50	0.66	0.00	0.00				
8.75	0.70	0.00	0.00				
9.00	0.75	0.00	0.00				
9.25	0.80	0.00	0.00				
9.50	0.85	0.01	0.00				
9.75	0.91	0.01	0.00				
10.00	0.97	0.02	0.01				
10.25	1.03	0.03	0.01				
10.50	1.11	0.04	0.01				
10.75	1.19	0.06	0.01				
11.00	1.28	0.08	0.02				
11.25	1.39	0.11	0.02				
11.50	1.53	0.16	0.03				
11.75	1.82	0.27	0.11				
12.00	2.56	0.64	0.49				
12.25	3.30	1.10	0.19				
12.50	3.59	1.31	0.07				
12.75	3.73	1.40	0.05				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

Printed 11/11/2022

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Summary for Reach 2R: Catch Basin 1

Inflow Area = 0.106 ac, 70.50% Impervious, Inflow Depth > 2.90" for 25 Year Storm event
Inflow = 0.43 cfs @ 12.01 hrs, Volume= 0.026 af
Outflow = 0.42 cfs @ 12.02 hrs, Volume= 0.026 af, Atten= 4%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.04 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 1.09 fps, Avg. Travel Time= 0.9 min

Peak Storage= 8 cf @ 12.02 hrs

Average Depth at Peak Storage= 0.23'

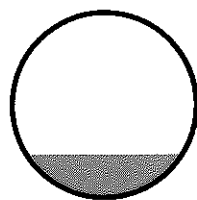
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe

n= 0.013 Concrete pipe, straight & clean

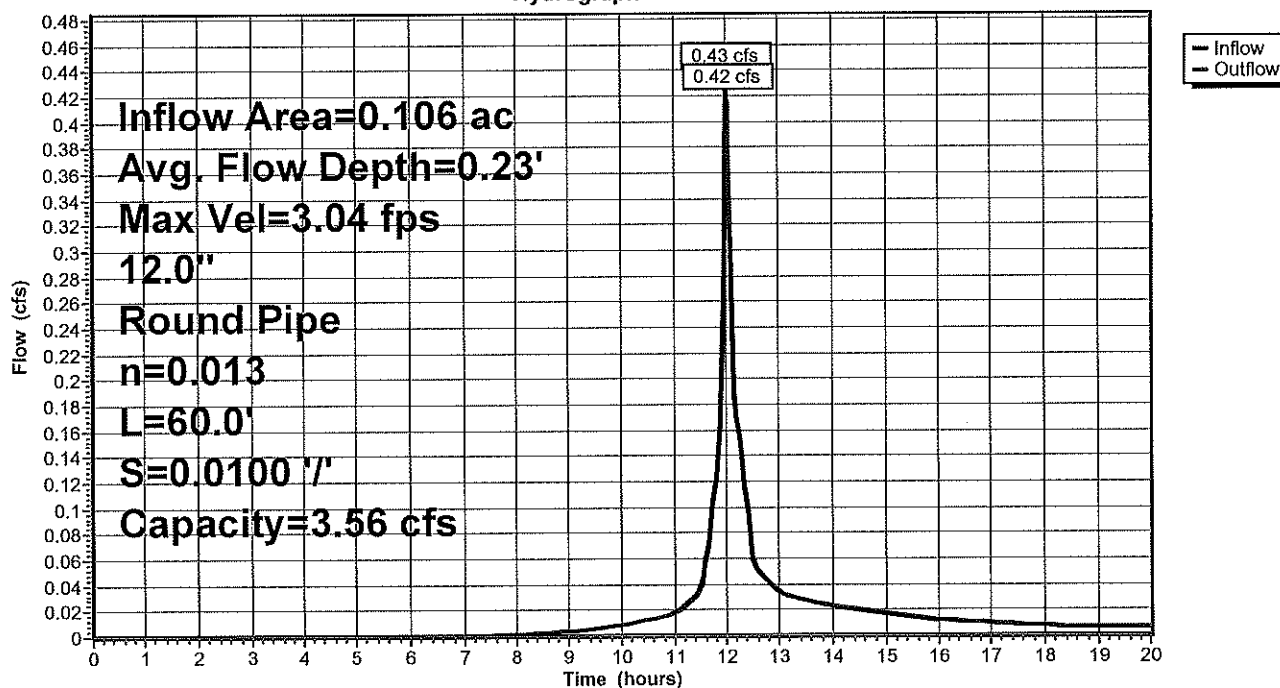
Length= 60.0' Slope= 0.0100 '/'

Inlet Invert= 1,125.00', Outlet Invert= 1,124.40'



Reach 2R: Catch Basin 1

Hydrograph



Calcs Nov 22

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Hydrograph for Reach 2R: Catch Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,125.00	0.00
0.50	0.00	0	1,125.00	0.00
1.00	0.00	0	1,125.00	0.00
1.50	0.00	0	1,125.00	0.00
2.00	0.00	0	1,125.00	0.00
2.50	0.00	0	1,125.00	0.00
3.00	0.00	0	1,125.00	0.00
3.50	0.00	0	1,125.00	0.00
4.00	0.00	0	1,125.00	0.00
4.50	0.00	0	1,125.00	0.00
5.00	0.00	0	1,125.00	0.00
5.50	0.00	0	1,125.00	0.00
6.00	0.00	0	1,125.00	0.00
6.50	0.00	0	1,125.00	0.00
7.00	0.00	0	1,125.00	0.00
7.50	0.00	0	1,125.01	0.00
8.00	0.00	0	1,125.01	0.00
8.50	0.00	0	1,125.02	0.00
9.00	0.00	0	1,125.02	0.00
9.50	0.01	0	1,125.03	0.01
10.00	0.01	1	1,125.04	0.01
10.50	0.01	1	1,125.04	0.01
11.00	0.02	1	1,125.05	0.02
11.50	0.03	1	1,125.07	0.03
12.00	0.43	8	1,125.23	0.40
12.50	0.06	2	1,125.09	0.06
13.00	0.03	1	1,125.07	0.03
13.50	0.03	1	1,125.06	0.03
14.00	0.02	1	1,125.06	0.02
14.50	0.02	1	1,125.05	0.02
15.00	0.02	1	1,125.05	0.02
15.50	0.02	1	1,125.05	0.02
16.00	0.01	1	1,125.04	0.01
16.50	0.01	1	1,125.04	0.01
17.00	0.01	1	1,125.04	0.01
17.50	0.01	1	1,125.04	0.01
18.00	0.01	1	1,125.03	0.01
18.50	0.01	0	1,125.03	0.01
19.00	0.01	0	1,125.03	0.01
19.50	0.01	0	1,125.03	0.01
20.00	0.01	0	1,125.03	0.01

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Summary for Reach 6R: Catch Basin 1

Inflow Area = 0.154 ac, 59.06% Impervious, Inflow Depth > 2.29" for 25 Year Storm event
Inflow = 0.50 cfs @ 12.02 hrs, Volume= 0.029 af
Outflow = 0.48 cfs @ 12.03 hrs, Volume= 0.029 af, Atten= 4%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.15 fps, Min. Travel Time= 0.3 min

Avg. Velocity= 1.21 fps, Avg. Travel Time= 0.8 min

Peak Storage= 9 cf @ 12.02 hrs

Average Depth at Peak Storage= 0.25'

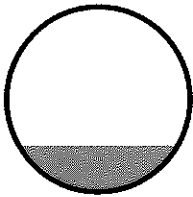
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe

n= 0.013 Concrete pipe, straight & clean

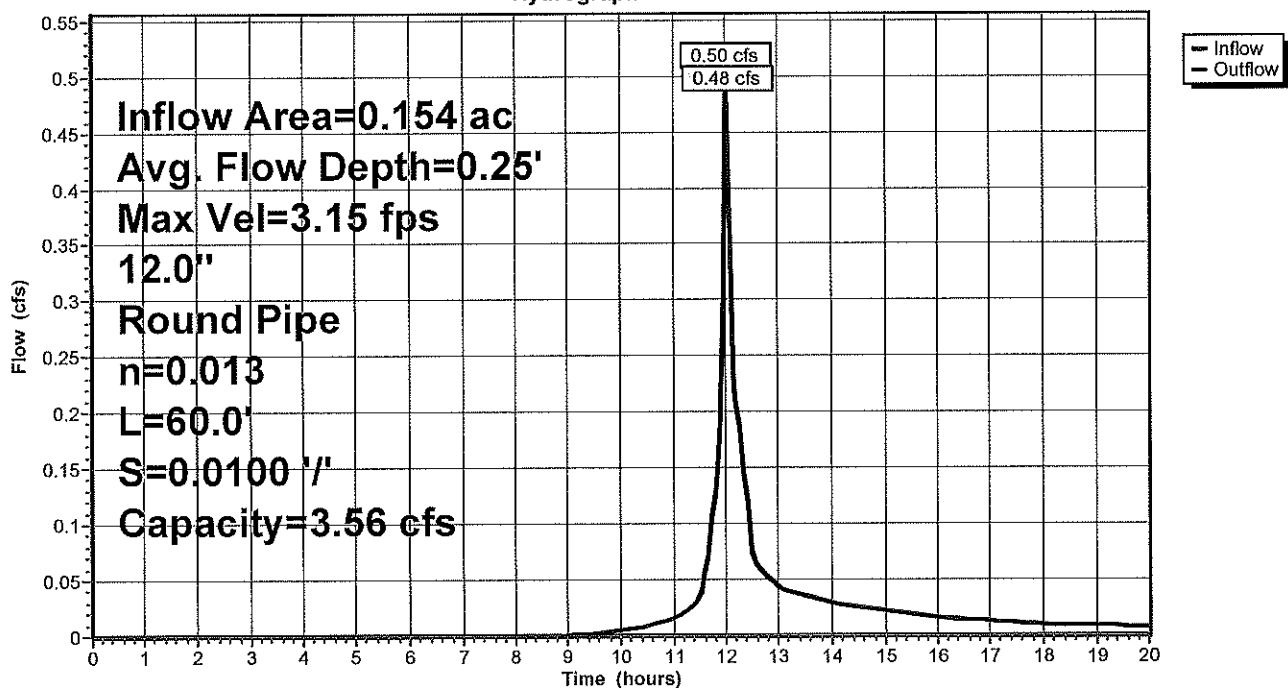
Length= 60.0' Slope= 0.0100 1'

Inlet Invert= 1,125.00', Outlet Invert= 1,124.40'



Reach 6R: Catch Basin 1

Hydrograph



Calcs Nov 22

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Hydrograph for Reach 6R: Catch Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,125.00	0.00
0.50	0.00	0	1,125.00	0.00
1.00	0.00	0	1,125.00	0.00
1.50	0.00	0	1,125.00	0.00
2.00	0.00	0	1,125.00	0.00
2.50	0.00	0	1,125.00	0.00
3.00	0.00	0	1,125.00	0.00
3.50	0.00	0	1,125.00	0.00
4.00	0.00	0	1,125.00	0.00
4.50	0.00	0	1,125.00	0.00
5.00	0.00	0	1,125.00	0.00
5.50	0.00	0	1,125.00	0.00
6.00	0.00	0	1,125.00	0.00
6.50	0.00	0	1,125.00	0.00
7.00	0.00	0	1,125.00	0.00
7.50	0.00	0	1,125.00	0.00
8.00	0.00	0	1,125.00	0.00
8.50	0.00	0	1,125.00	0.00
9.00	0.00	0	1,125.01	0.00
9.50	0.00	0	1,125.02	0.00
10.00	0.01	0	1,125.03	0.01
10.50	0.01	1	1,125.04	0.01
11.00	0.02	1	1,125.05	0.01
11.50	0.03	1	1,125.07	0.03
12.00	0.49	9	1,125.25	0.45
12.50	0.07	2	1,125.10	0.08
13.00	0.04	2	1,125.08	0.04
13.50	0.04	1	1,125.07	0.04
14.00	0.03	1	1,125.06	0.03
14.50	0.03	1	1,125.06	0.03
15.00	0.02	1	1,125.06	0.02
15.50	0.02	1	1,125.05	0.02
16.00	0.02	1	1,125.05	0.02
16.50	0.01	1	1,125.05	0.01
17.00	0.01	1	1,125.04	0.01
17.50	0.01	1	1,125.04	0.01
18.00	0.01	1	1,125.04	0.01
18.50	0.01	1	1,125.04	0.01
19.00	0.01	1	1,125.04	0.01
19.50	0.01	1	1,125.04	0.01
20.00	0.01	1	1,125.04	0.01

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

Printed 11/11/2022

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Summary for Reach 7R: DOT Drain

Inflow Area = 2.174 ac, 77.64% Impervious, Inflow Depth > 0.84" for 25 Year Storm event
Inflow = 1.18 cfs @ 12.34 hrs, Volume= 0.152 af
Outflow = 1.18 cfs @ 12.34 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 4.36 fps, Min. Travel Time= 0.2 min

Avg. Velocity = 1.75 fps, Avg. Travel Time= 0.5 min

Peak Storage= 14 cf @ 12.34 hrs

Average Depth at Peak Storage= 0.26'

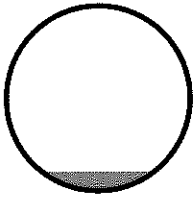
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 51.88 cfs

30.0" Round Pipe

n= 0.013

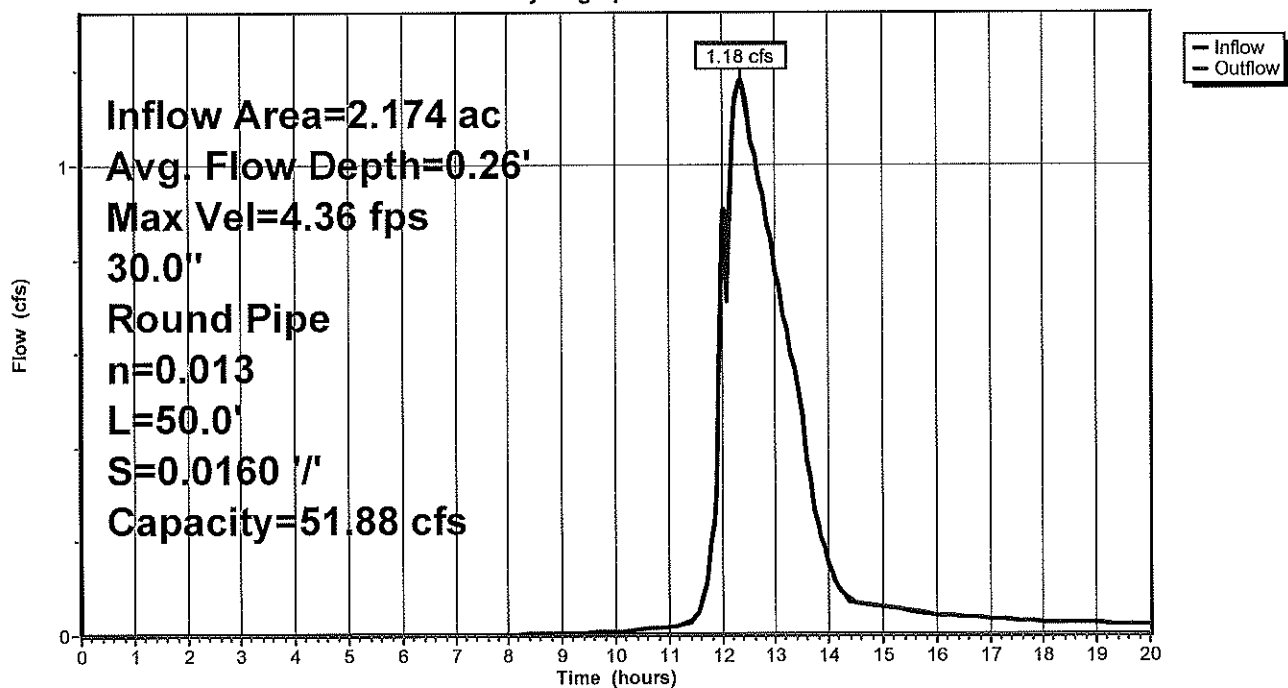
Length= 50.0' Slope= 0.0160 '/'

Inlet Invert= 1,118.90', Outlet Invert= 1,118.10'



Reach 7R: DOT Drain

Hydrograph



Calcs Nov 22

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Hydrograph for Reach 7R: DOT Drain

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,118.90	0.00
0.50	0.00	0	1,118.90	0.00
1.00	0.00	0	1,118.90	0.00
1.50	0.00	0	1,118.90	0.00
2.00	0.00	0	1,118.90	0.00
2.50	0.00	0	1,118.90	0.00
3.00	0.00	0	1,118.90	0.00
3.50	0.00	0	1,118.90	0.00
4.00	0.00	0	1,118.90	0.00
4.50	0.00	0	1,118.90	0.00
5.00	0.00	0	1,118.90	0.00
5.50	0.00	0	1,118.90	0.00
6.00	0.00	0	1,118.90	0.00
6.50	0.00	0	1,118.90	0.00
7.00	0.00	0	1,118.90	0.00
7.50	0.00	0	1,118.90	0.00
8.00	0.00	0	1,118.90	0.00
8.50	0.00	0	1,118.91	0.00
9.00	0.00	0	1,118.91	0.00
9.50	0.01	0	1,118.92	0.01
10.00	0.01	0	1,118.93	0.01
10.50	0.01	1	1,118.93	0.01
11.00	0.02	1	1,118.93	0.02
11.50	0.03	1	1,118.95	0.03
12.00	0.91	11	1,119.13	0.87
12.50	1.08	13	1,119.15	1.09
13.00	0.77	10	1,119.11	0.78
13.50	0.46	7	1,119.07	0.47
14.00	0.15	3	1,119.00	0.15
14.50	0.07	2	1,118.97	0.07
15.00	0.06	2	1,118.96	0.06
15.50	0.05	2	1,118.96	0.05
16.00	0.04	1	1,118.95	0.04
16.50	0.04	1	1,118.95	0.04
17.00	0.03	1	1,118.95	0.03
17.50	0.03	1	1,118.95	0.03
18.00	0.03	1	1,118.94	0.03
18.50	0.03	1	1,118.94	0.03
19.00	0.02	1	1,118.94	0.02
19.50	0.02	1	1,118.94	0.02
20.00	0.02	1	1,118.94	0.02

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

Printed 11/11/2022

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Summary for Reach 8R: DOT Drain

Inflow Area = 1.686 ac, 34.70% Impervious, Inflow Depth > 1.34" for 25 Year Storm event
Inflow = 2.86 cfs @ 12.06 hrs, Volume= 0.188 af
Outflow = 2.81 cfs @ 12.06 hrs, Volume= 0.188 af, Atten= 2%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 5.64 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 2.16 fps, Avg. Travel Time= 0.4 min

Peak Storage= 25 cf @ 12.06 hrs

Average Depth at Peak Storage= 0.40'

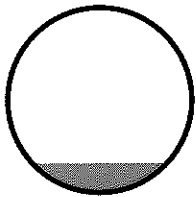
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 51.88 cfs

30.0" Round Pipe

n= 0.013

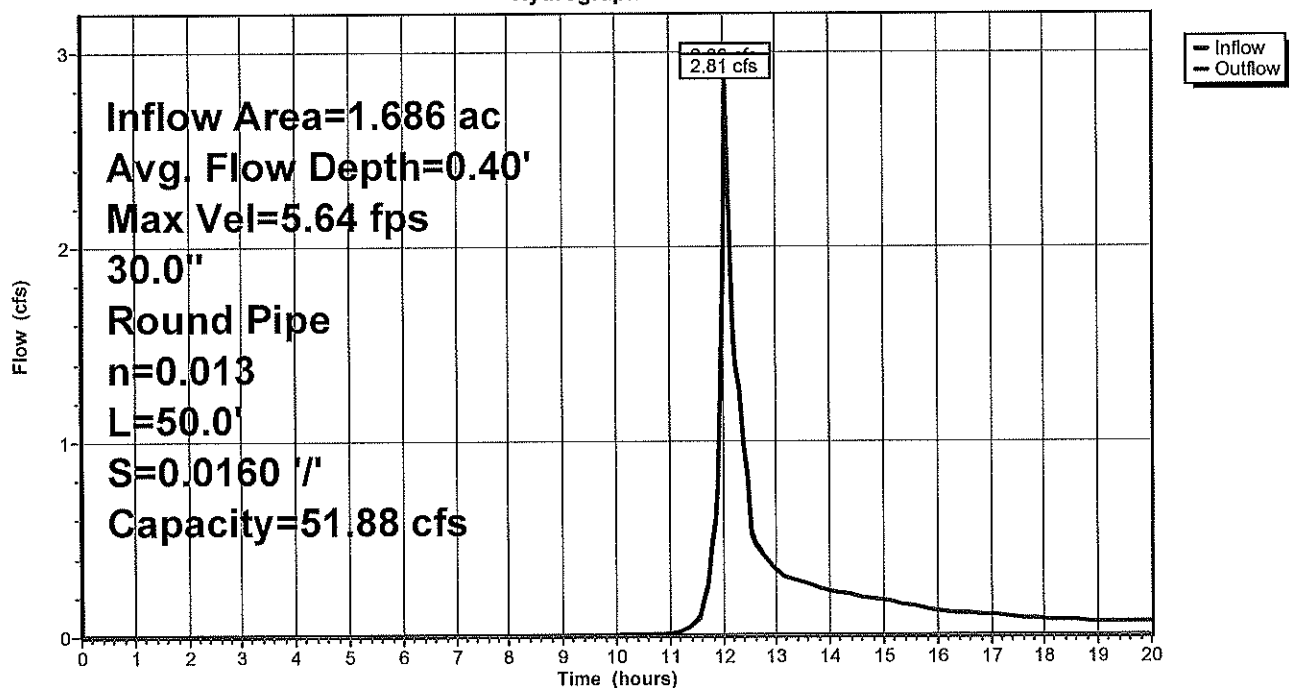
Length= 50.0' Slope= 0.0160 1'

Inlet Invert= 1,118.90', Outlet Invert= 1,118.10'



Reach 8R: DOT Drain

Hydrograph



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

Printed 11/11/2022

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Hydrograph for Reach 8R: DOT Drain

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,118.90	0.00
0.50	0.00	0	1,118.90	0.00
1.00	0.00	0	1,118.90	0.00
1.50	0.00	0	1,118.90	0.00
2.00	0.00	0	1,118.90	0.00
2.50	0.00	0	1,118.90	0.00
3.00	0.00	0	1,118.90	0.00
3.50	0.00	0	1,118.90	0.00
4.00	0.00	0	1,118.90	0.00
4.50	0.00	0	1,118.90	0.00
5.00	0.00	0	1,118.90	0.00
5.50	0.00	0	1,118.90	0.00
6.00	0.00	0	1,118.90	0.00
6.50	0.00	0	1,118.90	0.00
7.00	0.00	0	1,118.90	0.00
7.50	0.00	0	1,118.90	0.00
8.00	0.00	0	1,118.90	0.00
8.50	0.00	0	1,118.90	0.00
9.00	0.00	0	1,118.90	0.00
9.50	0.00	0	1,118.91	0.00
10.00	0.00	0	1,118.91	0.00
10.50	0.01	0	1,118.93	0.01
11.00	0.01	1	1,118.93	0.01
11.50	0.07	2	1,118.97	0.07
12.00	1.99	19	1,119.23	1.93
12.50	0.66	9	1,119.10	0.67
13.00	0.33	6	1,119.04	0.34
13.50	0.28	5	1,119.03	0.28
14.00	0.23	4	1,119.02	0.23
14.50	0.21	4	1,119.01	0.21
15.00	0.18	4	1,119.01	0.18
15.50	0.16	3	1,119.00	0.16
16.00	0.13	3	1,118.99	0.13
16.50	0.12	3	1,118.99	0.12
17.00	0.11	3	1,118.98	0.11
17.50	0.09	2	1,118.98	0.09
18.00	0.08	2	1,118.97	0.08
18.50	0.08	2	1,118.97	0.08
19.00	0.07	2	1,118.97	0.07
19.50	0.07	2	1,118.97	0.07
20.00	0.07	2	1,118.97	0.07

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

Printed 11/11/2022

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Summary for Reach 9R: Connection to DOT

Inflow Area = 0.154 ac, 59.06% Impervious, Inflow Depth > 2.28" for 25 Year Storm event
Inflow = 0.48 cfs @ 12.03 hrs, Volume= 0.029 af
Outflow = 0.44 cfs @ 12.06 hrs, Volume= 0.029 af, Atten= 7%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 3.44 fps, Min. Travel Time= 1.1 min

Avg. Velocity = 1.37 fps, Avg. Travel Time= 2.8 min

Peak Storage= 31 cf @ 12.04 hrs

Average Depth at Peak Storage= 0.16'

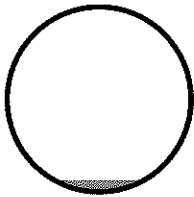
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 55.59 cfs

30.0" Round Pipe

n= 0.012

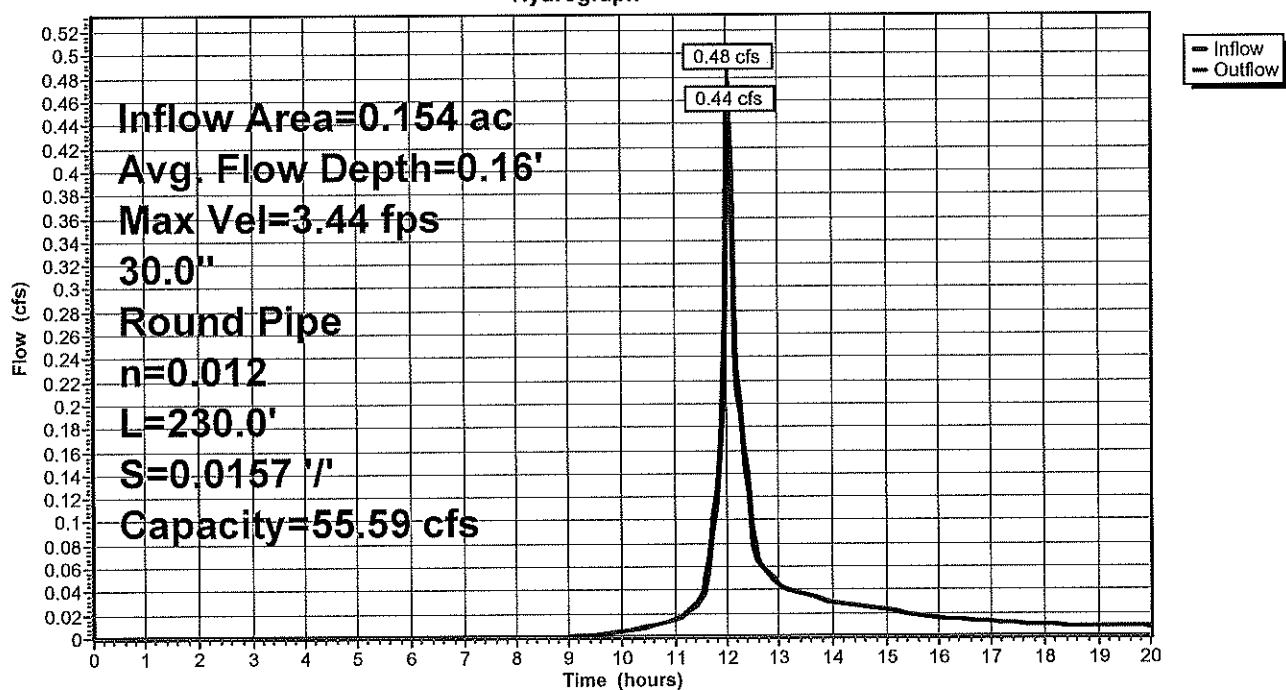
Length= 230.0' Slope= 0.0157 '/'

Inlet Invert= 1,122.50', Outlet Invert= 1,118.90'



Reach 9R: Connection to DOT

Hydrograph



Calcs Nov 22

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Hydrograph for Reach 9R: Connection to DOT

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,122.50	0.00
0.50	0.00	0	1,122.50	0.00
1.00	0.00	0	1,122.50	0.00
1.50	0.00	0	1,122.50	0.00
2.00	0.00	0	1,122.50	0.00
2.50	0.00	0	1,122.50	0.00
3.00	0.00	0	1,122.50	0.00
3.50	0.00	0	1,122.50	0.00
4.00	0.00	0	1,122.50	0.00
4.50	0.00	0	1,122.50	0.00
5.00	0.00	0	1,122.50	0.00
5.50	0.00	0	1,122.50	0.00
6.00	0.00	0	1,122.50	0.00
6.50	0.00	0	1,122.50	0.00
7.00	0.00	0	1,122.50	0.00
7.50	0.00	0	1,122.50	0.00
8.00	0.00	0	1,122.50	0.00
8.50	0.00	0	1,122.50	0.00
9.00	0.00	0	1,122.50	0.00
9.50	0.00	1	1,122.51	0.00
10.00	0.01	1	1,122.51	0.00
10.50	0.01	2	1,122.53	0.01
11.00	0.01	3	1,122.53	0.01
11.50	0.03	5	1,122.54	0.03
12.00	0.45	28	1,122.65	0.35
12.50	0.08	10	1,122.57	0.10
13.00	0.04	6	1,122.55	0.05
13.50	0.04	5	1,122.55	0.04
14.00	0.03	4	1,122.54	0.03
14.50	0.03	4	1,122.54	0.03
15.00	0.02	4	1,122.54	0.02
15.50	0.02	3	1,122.53	0.02
16.00	0.02	3	1,122.53	0.02
16.50	0.01	3	1,122.53	0.01
17.00	0.01	2	1,122.53	0.01
17.50	0.01	2	1,122.53	0.01
18.00	0.01	2	1,122.53	0.01
18.50	0.01	2	1,122.53	0.01
19.00	0.01	2	1,122.53	0.01
19.50	0.01	2	1,122.53	0.01
20.00	0.01	2	1,122.52	0.01

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Summary for Reach 10R: Connection to DOT

Inflow Area = 0.106 ac, 70.50% Impervious, Inflow Depth > 2.90" for 25 Year Storm event
Inflow = 0.42 cfs @ 12.02 hrs, Volume= 0.026 af
Outflow = 0.38 cfs @ 12.06 hrs, Volume= 0.026 af, Atten= 8%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 3.27 fps, Min. Travel Time= 1.2 min

Avg. Velocity = 1.28 fps, Avg. Travel Time= 3.0 min

Peak Storage= 28 cf @ 12.04 hrs

Average Depth at Peak Storage= 0.15'

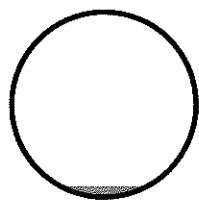
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 55.59 cfs

30.0" Round Pipe

n= 0.012

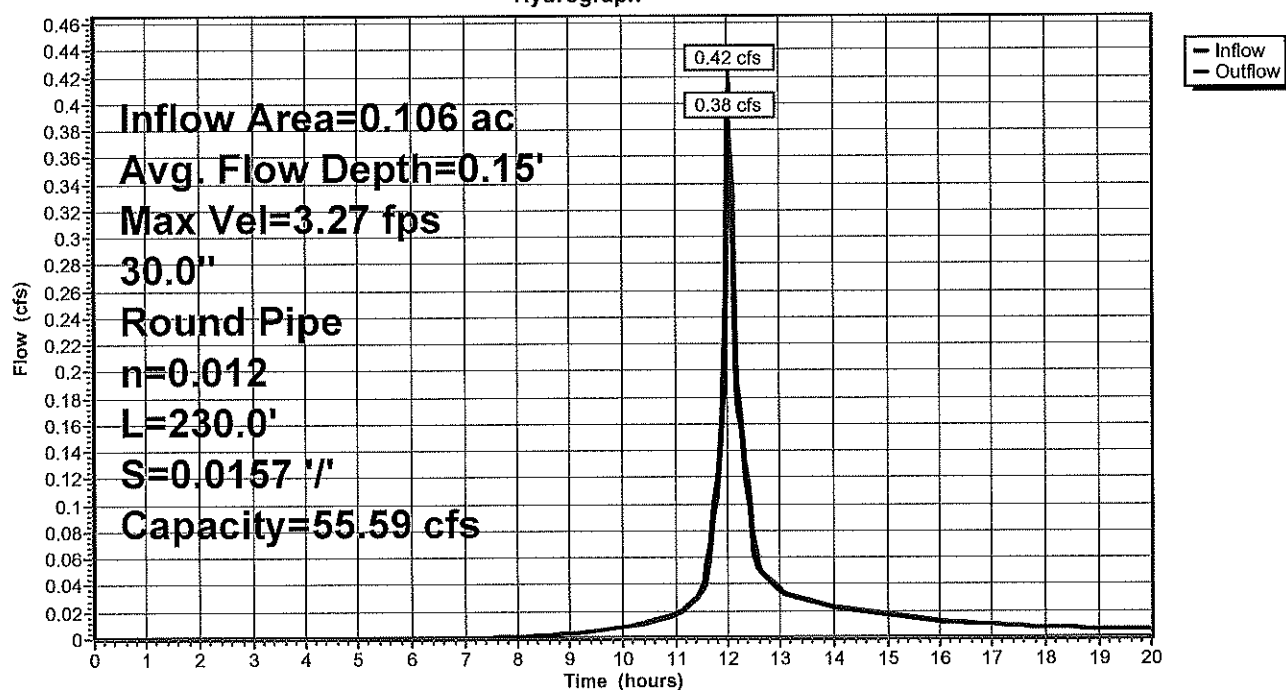
Length= 230.0' Slope= 0.0157 '/'

Inlet Invert= 1,122.50', Outlet Invert= 1,118.90'



Reach 10R: Connection to DOT

Hydrograph



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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Hydrograph for Reach 10R: Connection to DOT

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,122.50	0.00
0.50	0.00	0	1,122.50	0.00
1.00	0.00	0	1,122.50	0.00
1.50	0.00	0	1,122.50	0.00
2.00	0.00	0	1,122.50	0.00
2.50	0.00	0	1,122.50	0.00
3.00	0.00	0	1,122.50	0.00
3.50	0.00	0	1,122.50	0.00
4.00	0.00	0	1,122.50	0.00
4.50	0.00	0	1,122.50	0.00
5.00	0.00	0	1,122.50	0.00
5.50	0.00	0	1,122.50	0.00
6.00	0.00	0	1,122.50	0.00
6.50	0.00	0	1,122.50	0.00
7.00	0.00	0	1,122.50	0.00
7.50	0.00	0	1,122.50	0.00
8.00	0.00	0	1,122.50	0.00
8.50	0.00	1	1,122.51	0.00
9.00	0.00	1	1,122.51	0.00
9.50	0.01	1	1,122.52	0.01
10.00	0.01	2	1,122.52	0.01
10.50	0.01	2	1,122.53	0.01
11.00	0.02	3	1,122.53	0.02
11.50	0.03	5	1,122.55	0.03
12.00	0.40	26	1,122.64	0.31
12.50	0.06	8	1,122.57	0.08
13.00	0.03	5	1,122.55	0.04
13.50	0.03	4	1,122.54	0.03
14.00	0.02	4	1,122.54	0.02
14.50	0.02	3	1,122.54	0.02
15.00	0.02	3	1,122.53	0.02
15.50	0.02	3	1,122.53	0.02
16.00	0.01	2	1,122.53	0.01
16.50	0.01	2	1,122.53	0.01
17.00	0.01	2	1,122.53	0.01
17.50	0.01	2	1,122.53	0.01
18.00	0.01	2	1,122.52	0.01
18.50	0.01	2	1,122.52	0.01
19.00	0.01	2	1,122.52	0.01
19.50	0.01	2	1,122.52	0.01
20.00	0.01	1	1,122.52	0.01

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Summary for Pond 16P: Storage

Inflow Area = 1.616 ac, 91.18% Impervious, Inflow Depth > 4.21" for 25 Year Storm event
 Inflow = 8.11 cfs @ 12.06 hrs, Volume= 0.567 af
 Outflow = 1.50 cfs @ 12.49 hrs, Volume= 0.530 af, Atten= 81%, Lag= 25.9 min
 Discarded = 0.61 cfs @ 12.49 hrs, Volume= 0.444 af
 Primary = 0.89 cfs @ 12.49 hrs, Volume= 0.086 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 3
 Peak Elev= 1,125.39' @ 12.49 hrs Surf.Area= 5,891 sf Storage= 9,704 cf

Plug-Flow detention time= 115.2 min calculated for 0.529 af (93% of inflow)
 Center-of-Mass det. time= 91.3 min (834.0 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,126.80'	2,460 cf	Custom Stage Data (Irregular) Listed below (Recalc)
#2A	1,122.50'	6,322 cf	51.00'W x 115.50'L x 3.50'H Field A 20,617 cf Overall - 4,811 cf Embedded = 15,806 cf x 40.0% Voids
#3A	1,123.46'	4,811 cf	Cultec R-150XLHD x 176 Inside #2 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 16 rows
		13,593 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,126.80	100	16.0	0	0	100
1,128.00	5,320	460.0	2,460	2,460	16,921

Device	Routing	Invert	Outlet Devices
#1	Secondary	1,127.30'	3.0' long 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
#2	Discarded	1,122.50'	2.410 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 1,118.00'
#3	Device 4	1,124.50'	6.0" Horiz. Orifice C= 0.600 Limited to weir flow at low heads
#4	Primary	1,120.50'	12.0" Round Culvert L= 80.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,120.50' / 1,119.50' S= 0.0125 ' / ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Calcs Nov 22

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Discarded OutFlow Max=0.61 cfs @ 12.49 hrs HW=1,125.39' (Free Discharge)

↳ **2=Exfiltration** (Controls 0.61 cfs)

Primary OutFlow Max=0.89 cfs @ 12.49 hrs HW=1,125.39' (Free Discharge)

↳ **4=Culvert** (Passes 0.89 cfs of 6.99 cfs potential flow)

↳ **3=Orifice** (Orifice Controls 0.89 cfs @ 4.55 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,122.50' (Free Discharge)

↳ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Pond 16P: Storage - Chamber Wizard Field A

Chamber Model = Cultec R-150XLHD (Cultec Recharger® 150XLHD)

Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf

Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap

Row Length Adjustment= +0.75' x 2.65 sf x 16 rows

33.0" Wide + 4.0" Spacing = 37.0" C-C Row Spacing

11 Chambers/Row x 10.25' Long +0.75' Row Adjustment = 113.50' Row Length +12.0" End Stone x 2 = 115.50' Base Length

16 Rows x 33.0" Wide + 4.0" Spacing x 15 + 12.0" Side Stone x 2 = 51.00' Base Width

11.5" Base + 18.5" Chamber Height + 12.0" Cover = 3.50' Field Height

176 Chambers x 27.2 cf +0.75' Row Adjustment x 2.65 sf x 16 Rows = 4,810.6 cf Chamber Storage

20,616.8 cf Field - 4,810.6 cf Chambers = 15,806.2 cf Stone x 40.0% Voids = 6,322.5 cf Stone Storage

Chamber Storage + Stone Storage = 11,133.1 cf = 0.256 af

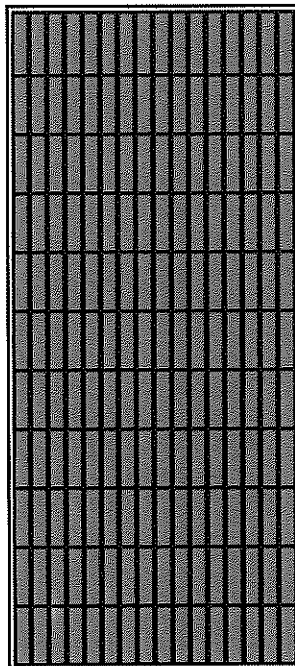
Overall Storage Efficiency = 54.0%

Overall System Size = 115.50' x 51.00' x 3.50'

176 Chambers

763.6 cy Field

585.4 cy Stone



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Proposed Berkshire Mazda

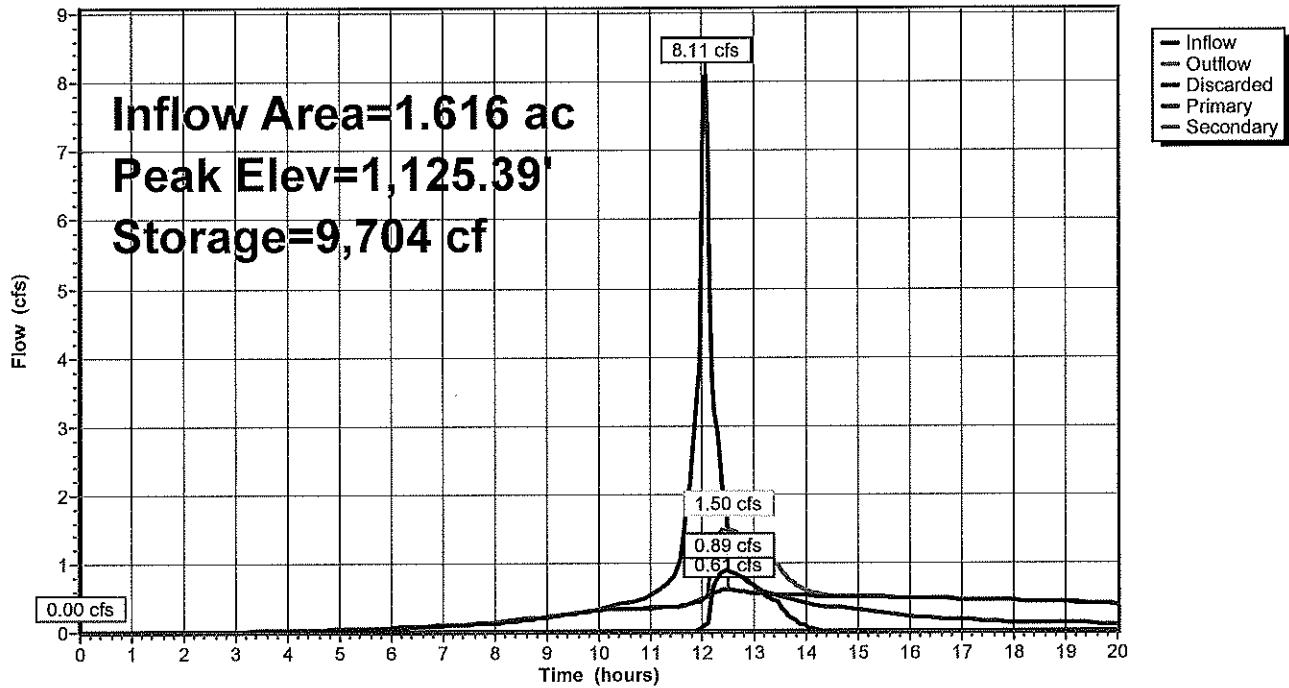
Type III 24-hr 25 Year Storm Rainfall=5.12"

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Pond 16P: Storage

Hydrograph



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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Hydrograph for Pond 16P: Storage

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	1,122.50	0.00	0.00	0.00	0.00
0.50	0.00	0	1,122.50	0.00	0.00	0.00	0.00
1.00	0.00	0	1,122.50	0.00	0.00	0.00	0.00
1.50	0.00	0	1,122.50	0.00	0.00	0.00	0.00
2.00	0.00	0	1,122.50	0.00	0.00	0.00	0.00
2.50	0.00	0	1,122.50	0.00	0.00	0.00	0.00
3.00	0.01	2	1,122.50	0.01	0.01	0.00	0.00
3.50	0.02	5	1,122.50	0.01	0.01	0.00	0.00
4.00	0.02	9	1,122.50	0.02	0.02	0.00	0.00
4.50	0.03	12	1,122.51	0.03	0.03	0.00	0.00
5.00	0.04	16	1,122.51	0.04	0.04	0.00	0.00
5.50	0.05	20	1,122.51	0.05	0.05	0.00	0.00
6.00	0.06	23	1,122.51	0.06	0.06	0.00	0.00
6.50	0.08	29	1,122.51	0.07	0.07	0.00	0.00
7.00	0.10	36	1,122.52	0.09	0.09	0.00	0.00
7.50	0.12	44	1,122.52	0.11	0.11	0.00	0.00
8.00	0.14	53	1,122.52	0.14	0.14	0.00	0.00
8.50	0.18	66	1,122.53	0.17	0.17	0.00	0.00
9.00	0.23	84	1,122.54	0.22	0.22	0.00	0.00
9.50	0.27	103	1,122.54	0.26	0.26	0.00	0.00
10.00	0.33	122	1,122.55	0.31	0.31	0.00	0.00
10.50	0.42	190	1,122.58	0.34	0.34	0.00	0.00
11.00	0.52	419	1,122.68	0.34	0.34	0.00	0.00
11.50	0.85	983	1,122.92	0.37	0.37	0.00	0.00
12.00	5.96	4,474	1,123.91	0.46	0.46	0.00	0.00
12.50	1.43	9,703	1,125.39	1.50	0.61	0.89	0.00
13.00	0.64	8,772	1,125.00	1.24	0.57	0.67	0.00
13.50	0.51	7,850	1,124.68	0.91	0.54	0.37	0.00
14.00	0.41	7,382	1,124.56	0.60	0.52	0.07	0.00
14.50	0.36	7,094	1,124.49	0.52	0.52	0.00	0.00
15.00	0.31	6,776	1,124.41	0.51	0.51	0.00	0.00
15.50	0.27	6,388	1,124.32	0.50	0.50	0.00	0.00
16.00	0.22	5,932	1,124.22	0.49	0.49	0.00	0.00
16.50	0.20	5,429	1,124.11	0.48	0.48	0.00	0.00
17.00	0.18	4,907	1,124.00	0.47	0.47	0.00	0.00
17.50	0.15	4,367	1,123.89	0.46	0.46	0.00	0.00
18.00	0.13	3,811	1,123.77	0.45	0.45	0.00	0.00
18.50	0.13	3,247	1,123.66	0.44	0.44	0.00	0.00
19.00	0.12	2,692	1,123.54	0.43	0.43	0.00	0.00
19.50	0.11	2,145	1,123.41	0.41	0.41	0.00	0.00
20.00	0.11	1,620	1,123.19	0.39	0.39	0.00	0.00

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Summary for Pond 17P: Drop inlet

Inflow Area = 0.452 ac, 30.93% Impervious, Inflow Depth > 1.05" for 25 Year Storm event
Inflow = 0.61 cfs @ 12.01 hrs, Volume= 0.040 af
Outflow = 0.61 cfs @ 12.01 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min
Primary = 0.61 cfs @ 12.01 hrs, Volume= 0.040 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 1,121.42' @ 12.02 hrs

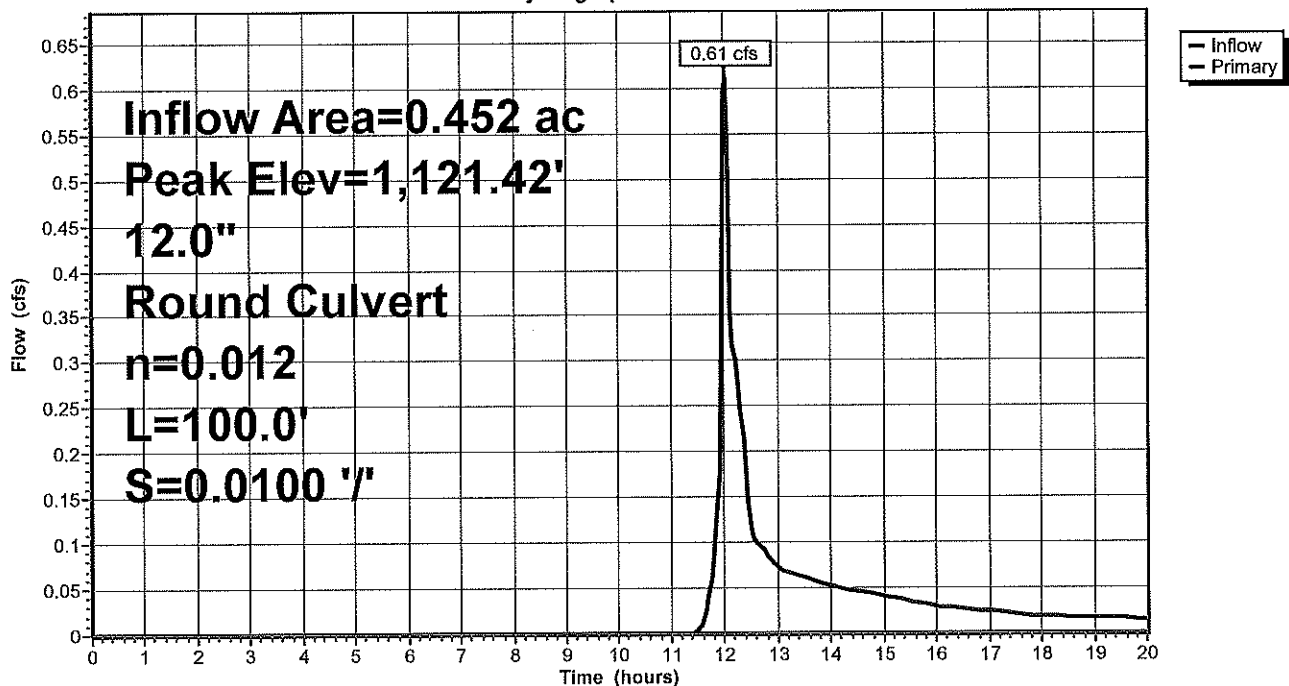
Device	Routing	Invert	Outlet Devices
#1	Primary	1,121.00'	12.0" Round Culvert L= 100.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,121.00' / 1,120.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.58 cfs @ 12.01 hrs HW=1,121.41' (Free Discharge)

1=Culvert (Inlet Controls 0.58 cfs @ 1.92 fps)

Pond 17P: Drop inlet

Hydrograph



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Hydrograph for Pond 17P: Drop inlet

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	1,121.00	0.00	13.00	0.07	1,121.14	0.07
0.25	0.00	1,121.00	0.00	13.25	0.07	1,121.13	0.07
0.50	0.00	1,121.00	0.00	13.50	0.06	1,121.13	0.06
0.75	0.00	1,121.00	0.00	13.75	0.06	1,121.12	0.06
1.00	0.00	1,121.00	0.00	14.00	0.05	1,121.12	0.05
1.25	0.00	1,121.00	0.00	14.25	0.05	1,121.11	0.05
1.50	0.00	1,121.00	0.00	14.50	0.05	1,121.11	0.05
1.75	0.00	1,121.00	0.00	14.75	0.04	1,121.11	0.04
2.00	0.00	1,121.00	0.00	15.00	0.04	1,121.10	0.04
2.25	0.00	1,121.00	0.00	15.25	0.04	1,121.10	0.04
2.50	0.00	1,121.00	0.00	15.50	0.04	1,121.10	0.04
2.75	0.00	1,121.00	0.00	15.75	0.03	1,121.09	0.03
3.00	0.00	1,121.00	0.00	16.00	0.03	1,121.09	0.03
3.25	0.00	1,121.00	0.00	16.25	0.03	1,121.09	0.03
3.50	0.00	1,121.00	0.00	16.50	0.03	1,121.08	0.03
3.75	0.00	1,121.00	0.00	16.75	0.03	1,121.08	0.03
4.00	0.00	1,121.00	0.00	17.00	0.02	1,121.08	0.02
4.25	0.00	1,121.00	0.00	17.25	0.02	1,121.08	0.02
4.50	0.00	1,121.00	0.00	17.50	0.02	1,121.07	0.02
4.75	0.00	1,121.00	0.00	17.75	0.02	1,121.07	0.02
5.00	0.00	1,121.00	0.00	18.00	0.02	1,121.07	0.02
5.25	0.00	1,121.00	0.00	18.25	0.02	1,121.07	0.02
5.50	0.00	1,121.00	0.00	18.50	0.02	1,121.07	0.02
5.75	0.00	1,121.00	0.00	18.75	0.02	1,121.07	0.02
6.00	0.00	1,121.00	0.00	19.00	0.02	1,121.07	0.02
6.25	0.00	1,121.00	0.00	19.25	0.02	1,121.07	0.02
6.50	0.00	1,121.00	0.00	19.50	0.02	1,121.07	0.02
6.75	0.00	1,121.00	0.00	19.75	0.02	1,121.06	0.02
7.00	0.00	1,121.00	0.00	20.00	0.02	1,121.06	0.02
7.25	0.00	1,121.00	0.00				
7.50	0.00	1,121.00	0.00				
7.75	0.00	1,121.00	0.00				
8.00	0.00	1,121.00	0.00				
8.25	0.00	1,121.00	0.00				
8.50	0.00	1,121.00	0.00				
8.75	0.00	1,121.00	0.00				
9.00	0.00	1,121.00	0.00				
9.25	0.00	1,121.00	0.00				
9.50	0.00	1,121.00	0.00				
9.75	0.00	1,121.00	0.00				
10.00	0.00	1,121.00	0.00				
10.25	0.00	1,121.00	0.00				
10.50	0.00	1,121.00	0.00				
10.75	0.00	1,121.00	0.00				
11.00	0.00	1,121.00	0.00				
11.25	0.00	1,121.00	0.00				
11.50	0.00	1,121.02	0.00				
11.75	0.06	1,121.13	0.06				
12.00	0.60	1,121.42	0.60				
12.25	0.27	1,121.27	0.27				
12.50	0.11	1,121.17	0.11				
12.75	0.09	1,121.15	0.09				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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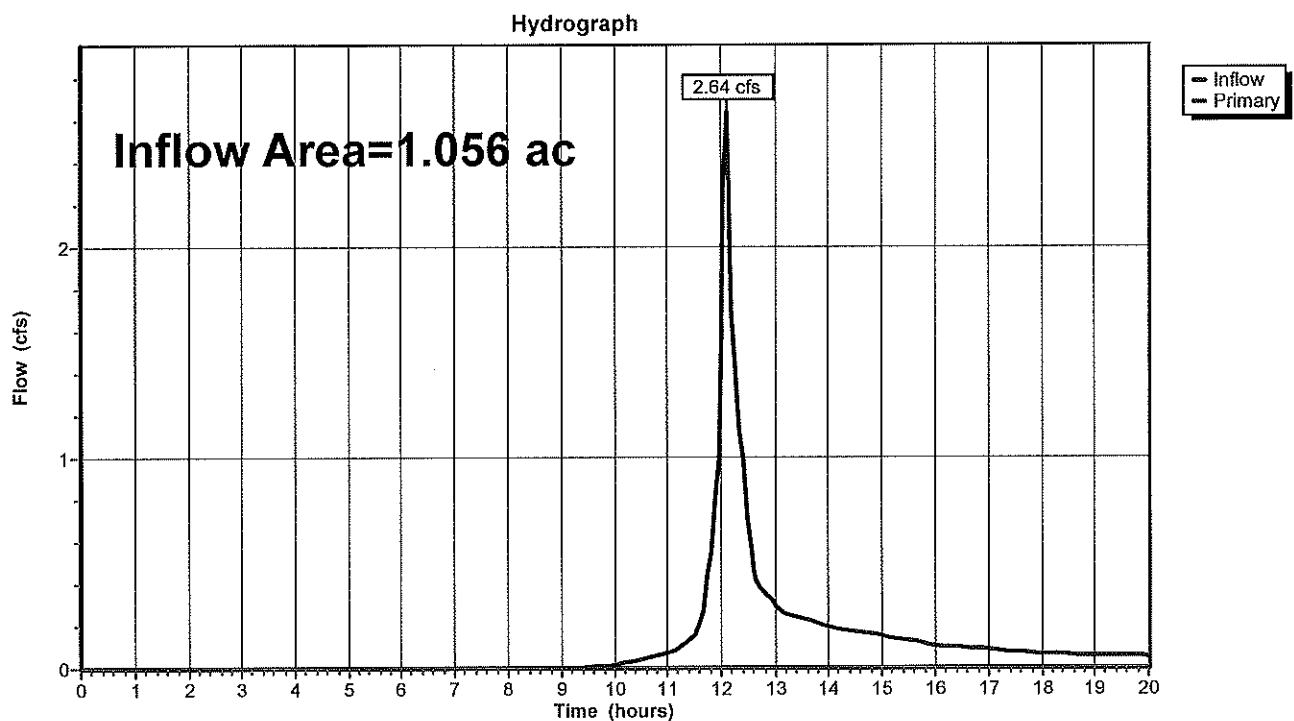
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Summary for Link 1L: Wetland PRE

Inflow Area = 1.056 ac, 9.09% Impervious, Inflow Depth > 2.04" for 25 Year Storm event
Inflow = 2.64 cfs @ 12.10 hrs, Volume= 0.179 af
Primary = 2.64 cfs @ 12.10 hrs, Volume= 0.179 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Wetland PRE



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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Hydrograph for Link 1L: Wetland PRE

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	13.00	0.30	0.00	0.30
0.25	0.00	0.00	0.00	13.25	0.26	0.00	0.26
0.50	0.00	0.00	0.00	13.50	0.24	0.00	0.24
0.75	0.00	0.00	0.00	13.75	0.22	0.00	0.22
1.00	0.00	0.00	0.00	14.00	0.19	0.00	0.19
1.25	0.00	0.00	0.00	14.25	0.18	0.00	0.18
1.50	0.00	0.00	0.00	14.50	0.17	0.00	0.17
1.75	0.00	0.00	0.00	14.75	0.16	0.00	0.16
2.00	0.00	0.00	0.00	15.00	0.15	0.00	0.15
2.25	0.00	0.00	0.00	15.25	0.14	0.00	0.14
2.50	0.00	0.00	0.00	15.50	0.13	0.00	0.13
2.75	0.00	0.00	0.00	15.75	0.12	0.00	0.12
3.00	0.00	0.00	0.00	16.00	0.11	0.00	0.11
3.25	0.00	0.00	0.00	16.25	0.10	0.00	0.10
3.50	0.00	0.00	0.00	16.50	0.10	0.00	0.10
3.75	0.00	0.00	0.00	16.75	0.09	0.00	0.09
4.00	0.00	0.00	0.00	17.00	0.09	0.00	0.09
4.25	0.00	0.00	0.00	17.25	0.08	0.00	0.08
4.50	0.00	0.00	0.00	17.50	0.08	0.00	0.08
4.75	0.00	0.00	0.00	17.75	0.07	0.00	0.07
5.00	0.00	0.00	0.00	18.00	0.07	0.00	0.07
5.25	0.00	0.00	0.00	18.25	0.06	0.00	0.06
5.50	0.00	0.00	0.00	18.50	0.06	0.00	0.06
5.75	0.00	0.00	0.00	18.75	0.06	0.00	0.06
6.00	0.00	0.00	0.00	19.00	0.06	0.00	0.06
6.25	0.00	0.00	0.00	19.25	0.06	0.00	0.06
6.50	0.00	0.00	0.00	19.50	0.06	0.00	0.06
6.75	0.00	0.00	0.00	19.75	0.06	0.00	0.06
7.00	0.00	0.00	0.00	20.00	0.05	0.00	0.05
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.01	0.00	0.01				
10.00	0.02	0.00	0.02				
10.25	0.03	0.00	0.03				
10.50	0.04	0.00	0.04				
10.75	0.05	0.00	0.05				
11.00	0.07	0.00	0.07				
11.25	0.10	0.00	0.10				
11.50	0.15	0.00	0.15				
11.75	0.45	0.00	0.45				
12.00	1.47	0.00	1.47				
12.25	1.43	0.00	1.43				
12.50	0.70	0.00	0.70				
12.75	0.37	0.00	0.37				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

Printed 11/11/2022

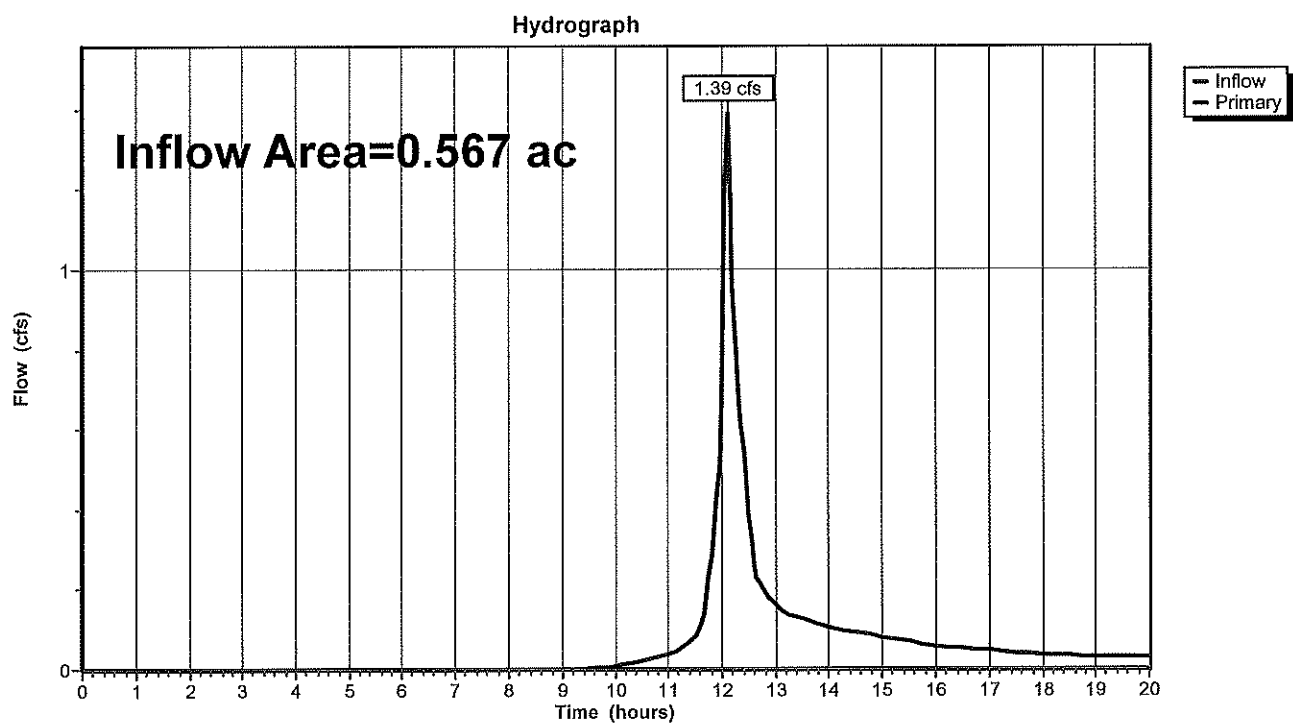
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Summary for Link 2L: Wetland POST

Inflow Area = 0.567 ac, 1.74% Impervious, Inflow Depth > 2.04" for 25 Year Storm event
Inflow = 1.39 cfs @ 12.11 hrs, Volume= 0.096 af
Primary = 1.39 cfs @ 12.11 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link 2L: Wetland POST



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 25 Year Storm Rainfall=5.12"

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Hydrograph for Link 2L: Wetland POST

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	13.00	0.16	0.00	0.16
0.25	0.00	0.00	0.00	13.25	0.14	0.00	0.14
0.50	0.00	0.00	0.00	13.50	0.13	0.00	0.13
0.75	0.00	0.00	0.00	13.75	0.12	0.00	0.12
1.00	0.00	0.00	0.00	14.00	0.10	0.00	0.10
1.25	0.00	0.00	0.00	14.25	0.10	0.00	0.10
1.50	0.00	0.00	0.00	14.50	0.09	0.00	0.09
1.75	0.00	0.00	0.00	14.75	0.09	0.00	0.09
2.00	0.00	0.00	0.00	15.00	0.08	0.00	0.08
2.25	0.00	0.00	0.00	15.25	0.08	0.00	0.08
2.50	0.00	0.00	0.00	15.50	0.07	0.00	0.07
2.75	0.00	0.00	0.00	15.75	0.06	0.00	0.06
3.00	0.00	0.00	0.00	16.00	0.06	0.00	0.06
3.25	0.00	0.00	0.00	16.25	0.05	0.00	0.05
3.50	0.00	0.00	0.00	16.50	0.05	0.00	0.05
3.75	0.00	0.00	0.00	16.75	0.05	0.00	0.05
4.00	0.00	0.00	0.00	17.00	0.05	0.00	0.05
4.25	0.00	0.00	0.00	17.25	0.04	0.00	0.04
4.50	0.00	0.00	0.00	17.50	0.04	0.00	0.04
4.75	0.00	0.00	0.00	17.75	0.04	0.00	0.04
5.00	0.00	0.00	0.00	18.00	0.04	0.00	0.04
5.25	0.00	0.00	0.00	18.25	0.03	0.00	0.03
5.50	0.00	0.00	0.00	18.50	0.03	0.00	0.03
5.75	0.00	0.00	0.00	18.75	0.03	0.00	0.03
6.00	0.00	0.00	0.00	19.00	0.03	0.00	0.03
6.25	0.00	0.00	0.00	19.25	0.03	0.00	0.03
6.50	0.00	0.00	0.00	19.50	0.03	0.00	0.03
6.75	0.00	0.00	0.00	19.75	0.03	0.00	0.03
7.00	0.00	0.00	0.00	20.00	0.03	0.00	0.03
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.01	0.00	0.01				
10.25	0.01	0.00	0.01				
10.50	0.02	0.00	0.02				
10.75	0.03	0.00	0.03				
11.00	0.04	0.00	0.04				
11.25	0.05	0.00	0.05				
11.50	0.08	0.00	0.08				
11.75	0.23	0.00	0.23				
12.00	0.74	0.00	0.74				
12.25	0.80	0.00	0.80				
12.50	0.39	0.00	0.39				
12.75	0.20	0.00	0.20				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

Printed 11/11/2022

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Summary for Subcatchment 1Post: Post SA 1

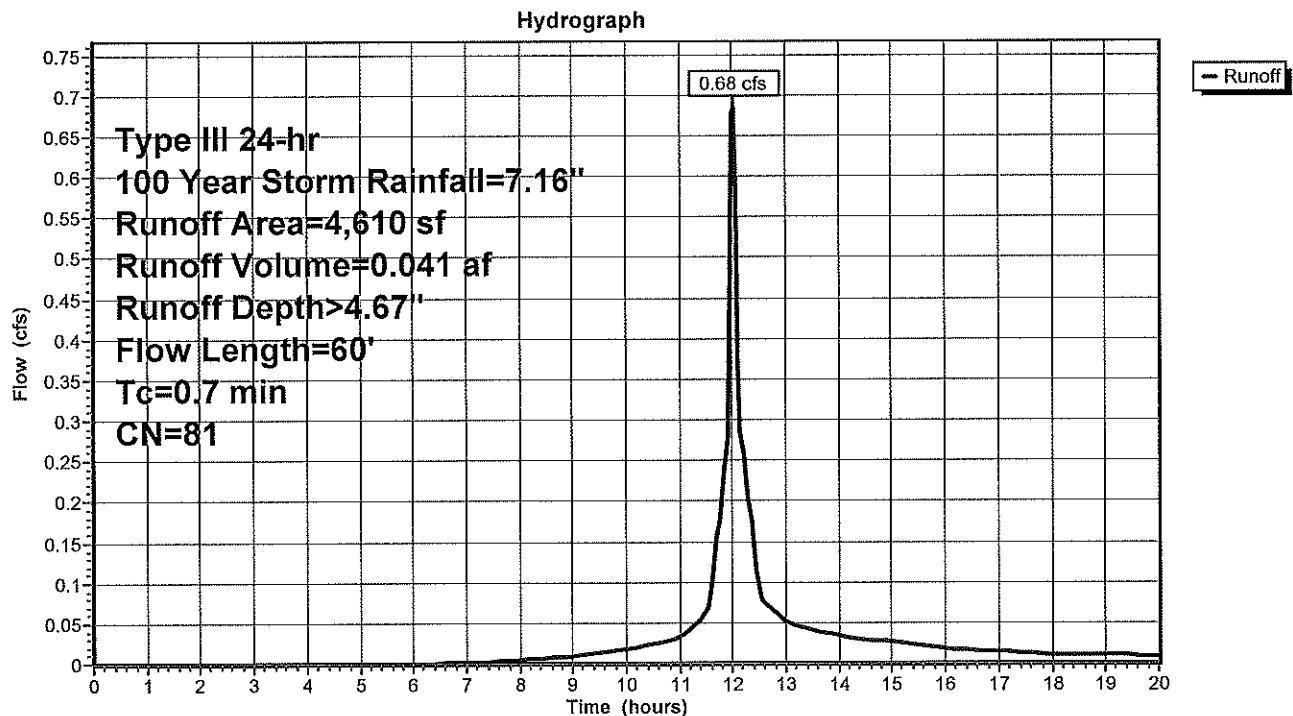
Runoff = 0.68 cfs @ 12.01 hrs, Volume= 0.041 af, Depth> 4.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=7.16"

	Area (sf)	CN	Description
*	3,250	98	Paved Drive,HSG A
	1,360	39	>75% Grass cover, Good, HSG A
	4,610	81	Weighted Average
	1,360		29.50% Pervious Area
	3,250		70.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	10	0.2500	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.1	50	0.0850	5.92		Shallow Concentrated Flow, sriveway Paved Kv= 20.3 fps
0.7	60	Total			

Subcatchment 1Post: Post SA 1



Calcs Nov 22

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Hydrograph for Subcatchment 1Post: Post SA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.37	3.31	0.05
0.25	0.02	0.00	0.00	13.25	5.50	3.43	0.05
0.50	0.04	0.00	0.00	13.50	5.61	3.53	0.04
0.75	0.05	0.00	0.00	13.75	5.71	3.62	0.04
1.00	0.07	0.00	0.00	14.00	5.81	3.71	0.03
1.25	0.09	0.00	0.00	14.25	5.89	3.79	0.03
1.50	0.11	0.00	0.00	14.50	5.97	3.86	0.03
1.75	0.13	0.00	0.00	14.75	6.05	3.93	0.03
2.00	0.14	0.00	0.00	15.00	6.12	3.99	0.03
2.25	0.16	0.00	0.00	15.25	6.18	4.05	0.02
2.50	0.18	0.00	0.00	15.50	6.24	4.10	0.02
2.75	0.20	0.00	0.00	15.75	6.29	4.15	0.02
3.00	0.22	0.00	0.00	16.00	6.34	4.20	0.02
3.25	0.24	0.00	0.00	16.25	6.39	4.24	0.02
3.50	0.26	0.00	0.00	16.50	6.43	4.28	0.02
3.75	0.28	0.00	0.00	16.75	6.47	4.32	0.02
4.00	0.31	0.00	0.00	17.00	6.51	4.35	0.01
4.25	0.33	0.00	0.00	17.25	6.55	4.39	0.01
4.50	0.36	0.00	0.00	17.50	6.58	4.42	0.01
4.75	0.38	0.00	0.00	17.75	6.61	4.45	0.01
5.00	0.41	0.00	0.00	18.00	6.64	4.48	0.01
5.25	0.43	0.00	0.00	18.25	6.67	4.50	0.01
5.50	0.46	0.00	0.00	18.50	6.70	4.53	0.01
5.75	0.49	0.00	0.00	18.75	6.73	4.55	0.01
6.00	0.52	0.00	0.00	19.00	6.75	4.58	0.01
6.25	0.55	0.00	0.00	19.25	6.78	4.60	0.01
6.50	0.58	0.00	0.00	19.50	6.80	4.62	0.01
6.75	0.61	0.01	0.00	19.75	6.83	4.65	0.01
7.00	0.65	0.01	0.00	20.00	6.85	4.67	0.01
7.25	0.69	0.02	0.00				
7.50	0.73	0.03	0.00				
7.75	0.77	0.03	0.00				
8.00	0.82	0.04	0.00				
8.25	0.87	0.06	0.01				
8.50	0.92	0.07	0.01				
8.75	0.98	0.09	0.01				
9.00	1.04	0.11	0.01				
9.25	1.11	0.14	0.01				
9.50	1.19	0.17	0.01				
9.75	1.27	0.20	0.02				
10.00	1.35	0.24	0.02				
10.25	1.45	0.29	0.02				
10.50	1.55	0.34	0.02				
10.75	1.66	0.40	0.03				
11.00	1.79	0.48	0.03				
11.25	1.94	0.57	0.05				
11.50	2.13	0.69	0.06				
11.75	2.54	0.97	0.18				
12.00	3.58	1.77	0.68				
12.25	4.62	2.65	0.23				
12.50	5.03	3.01	0.09				
12.75	5.22	3.18	0.07				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Summary for Subcatchment 1S: EX SA 1

Runoff = 5.15 cfs @ 12.06 hrs, Volume= 0.319 af, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=7.16"

Area (sf)	CN	Description
11,850	98	Paved parking, HSG A
1,810	96	Gravel surface, HSG A
1,430	96	Gravel surface, HSG C
6,570	98	Roofs, HSG A
* 3,105	98	sidewalk/Concrete, HSG A
33,525	39	>75% Grass cover, Good, HSG A
260	74	>75% Grass cover, Good, HSG C
7,750	30	Woods, Good, HSG A
430	70	Woods, Good, HSG C
66,730	60	Weighted Average
45,205		67.74% Pervious Area
21,525		32.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0500	1.62		Sheet Flow, Gravel Driveway Smooth surfaces n= 0.011 P2= 2.80"
0.4	64	0.0350	2.81		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
0.8	69	0.0739	1.36		Shallow Concentrated Flow, woods Woodland Kv= 5.0 fps
0.1	30	0.3300	8.62		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
1.2	119	0.0120	1.64		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
0.2	20	0.0100	2.03		Shallow Concentrated Flow, at Catch Basin Paved Kv= 20.3 fps
3.2	352	Total			

Calcs Nov 22

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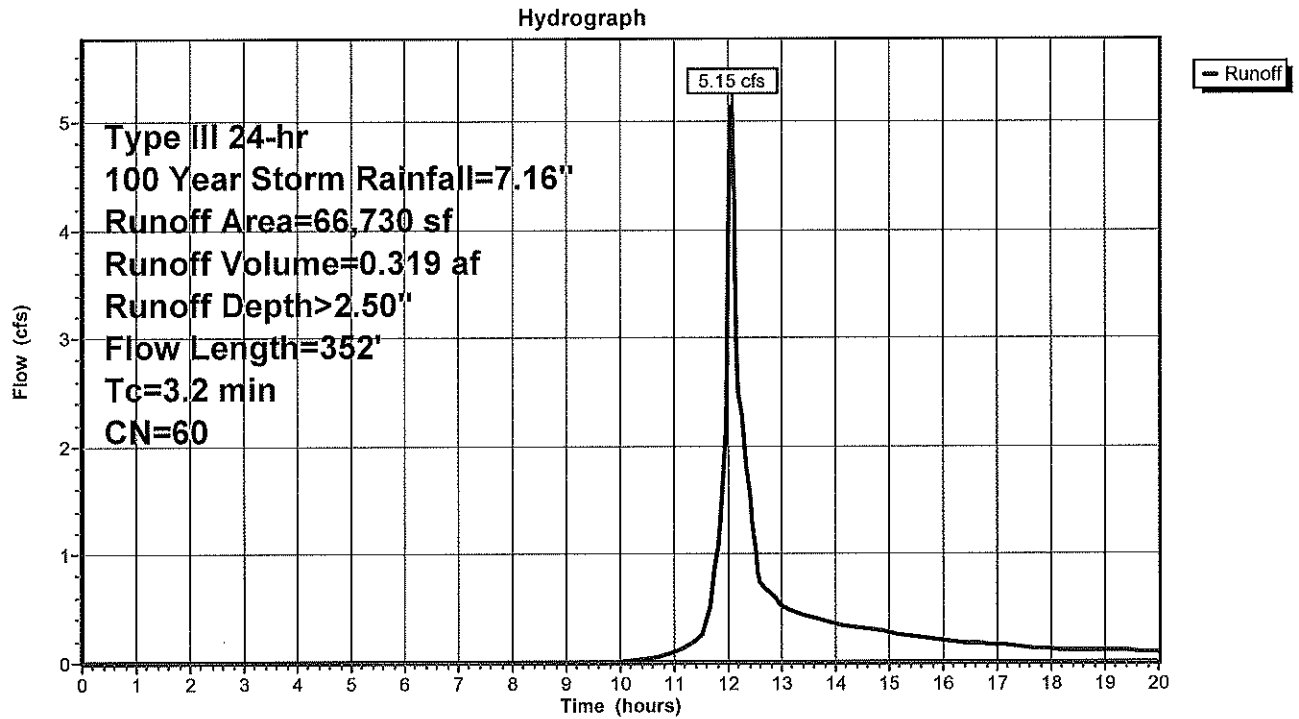
Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Subcatchment 1S: EX SA 1



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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Hydrograph for Subcatchment 1S: EX SA 1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.37	1.52	0.52
0.25	0.02	0.00	0.00	13.25	5.50	1.60	0.47
0.50	0.04	0.00	0.00	13.50	5.61	1.67	0.43
0.75	0.05	0.00	0.00	13.75	5.71	1.74	0.39
1.00	0.07	0.00	0.00	14.00	5.81	1.80	0.36
1.25	0.09	0.00	0.00	14.25	5.89	1.85	0.33
1.50	0.11	0.00	0.00	14.50	5.97	1.90	0.32
1.75	0.13	0.00	0.00	14.75	6.05	1.95	0.30
2.00	0.14	0.00	0.00	15.00	6.12	2.00	0.28
2.25	0.16	0.00	0.00	15.25	6.18	2.04	0.26
2.50	0.18	0.00	0.00	15.50	6.24	2.08	0.24
2.75	0.20	0.00	0.00	15.75	6.29	2.12	0.22
3.00	0.22	0.00	0.00	16.00	6.34	2.15	0.20
3.25	0.24	0.00	0.00	16.25	6.39	2.18	0.19
3.50	0.26	0.00	0.00	16.50	6.43	2.21	0.18
3.75	0.28	0.00	0.00	16.75	6.47	2.24	0.17
4.00	0.31	0.00	0.00	17.00	6.51	2.26	0.16
4.25	0.33	0.00	0.00	17.25	6.55	2.29	0.15
4.50	0.36	0.00	0.00	17.50	6.58	2.31	0.14
4.75	0.38	0.00	0.00	17.75	6.61	2.33	0.13
5.00	0.41	0.00	0.00	18.00	6.64	2.36	0.12
5.25	0.43	0.00	0.00	18.25	6.67	2.37	0.12
5.50	0.46	0.00	0.00	18.50	6.70	2.39	0.12
5.75	0.49	0.00	0.00	18.75	6.73	2.41	0.11
6.00	0.52	0.00	0.00	19.00	6.75	2.43	0.11
6.25	0.55	0.00	0.00	19.25	6.78	2.45	0.11
6.50	0.58	0.00	0.00	19.50	6.80	2.47	0.11
6.75	0.61	0.00	0.00	19.75	6.83	2.48	0.10
7.00	0.65	0.00	0.00	20.00	6.85	2.50	0.10
7.25	0.69	0.00	0.00				
7.50	0.73	0.00	0.00				
7.75	0.77	0.00	0.00				
8.00	0.82	0.00	0.00				
8.25	0.87	0.00	0.00				
8.50	0.92	0.00	0.00				
8.75	0.98	0.00	0.00				
9.00	1.04	0.00	0.00				
9.25	1.11	0.00	0.00				
9.50	1.19	0.00	0.00				
9.75	1.27	0.00	0.00				
10.00	1.35	0.00	0.00				
10.25	1.45	0.00	0.02				
10.50	1.55	0.01	0.04				
10.75	1.66	0.02	0.06				
11.00	1.79	0.03	0.09				
11.25	1.94	0.05	0.15				
11.50	2.13	0.09	0.25				
11.75	2.54	0.19	0.86				
12.00	3.58	0.57	3.75				
12.25	4.62	1.08	2.28				
12.50	5.03	1.32	1.05				
12.75	5.22	1.43	0.67				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Summary for Subcatchment 2A Post: Post SA 2A

Runoff = 11.57 cfs @ 12.06 hrs, Volume= 0.827 af, Depth> 6.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=7.16"

Area (sf)	CN	Description
35,600	98	Paved parking, HSG A
12,625	98	Paved parking, HSG C
12,810	98	Roofs, HSG A
1,615	98	Roofs, HSG C
* 1,545	98	Concrete/Sidewalk, HSG A
2,940	39	>75% Grass cover, Good, HSG A
3,270	74	>75% Grass cover, Good, HSG C
70,405	94	Weighted Average
6,210		8.82% Pervious Area
64,195		91.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.1000	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 2.80"
0.9	153	0.0200	2.87		Shallow Concentrated Flow, Paving Lot Paved Kv= 20.3 fps
0.3	137	0.0200	6.95	5.46	Pipe Channel, Parking Lot Drain 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.3	150	0.0200	9.11	16.09	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
0.2	135	0.0300	11.15	19.71	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
4.2	612	Total			

Calcs Nov 22

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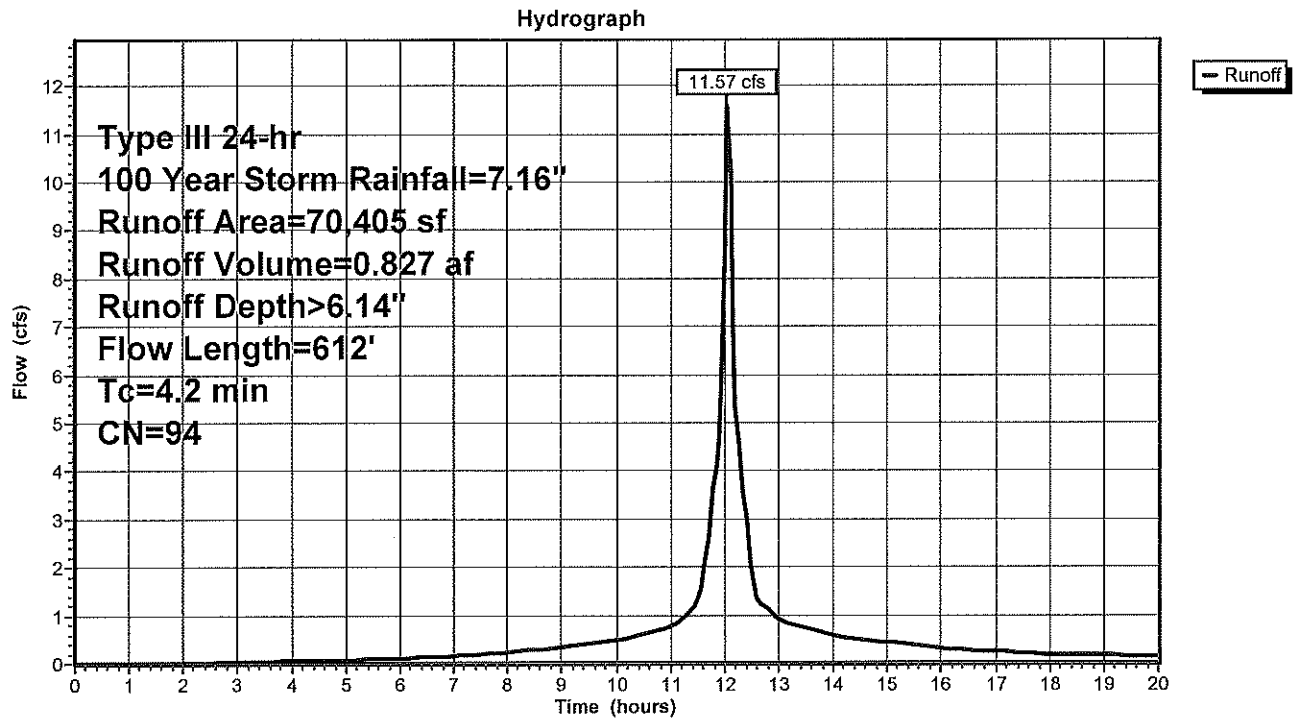
Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

Printed 11/11/2022

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Subcatchment 2A Post: Post SA 2A



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Hydrograph for Subcatchment 2A Post: Post SA 2A

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.37	4.67	0.91
0.25	0.02	0.00	0.00	13.25	5.50	4.80	0.79
0.50	0.04	0.00	0.00	13.50	5.61	4.91	0.72
0.75	0.05	0.00	0.00	13.75	5.71	5.01	0.65
1.00	0.07	0.00	0.00	14.00	5.81	5.11	0.58
1.25	0.09	0.00	0.00	14.25	5.89	5.19	0.54
1.50	0.11	0.00	0.00	14.50	5.97	5.27	0.51
1.75	0.13	0.00	0.00	14.75	6.05	5.34	0.48
2.00	0.14	0.00	0.00	15.00	6.12	5.41	0.44
2.25	0.16	0.00	0.01	15.25	6.18	5.48	0.41
2.50	0.18	0.00	0.02	15.50	6.24	5.53	0.38
2.75	0.20	0.01	0.02	15.75	6.29	5.59	0.34
3.00	0.22	0.01	0.03	16.00	6.34	5.64	0.31
3.25	0.24	0.02	0.04	16.25	6.39	5.68	0.29
3.50	0.26	0.02	0.04	16.50	6.43	5.73	0.28
3.75	0.28	0.03	0.05	16.75	6.47	5.77	0.26
4.00	0.31	0.04	0.06	17.00	6.51	5.80	0.25
4.25	0.33	0.05	0.06	17.25	6.55	5.84	0.23
4.50	0.36	0.06	0.07	17.50	6.58	5.87	0.22
4.75	0.38	0.07	0.08	17.75	6.61	5.91	0.20
5.00	0.41	0.08	0.09	18.00	6.64	5.94	0.19
5.25	0.43	0.10	0.09	18.25	6.67	5.96	0.18
5.50	0.46	0.11	0.10	18.50	6.70	5.99	0.18
5.75	0.49	0.13	0.11	18.75	6.73	6.02	0.17
6.00	0.52	0.15	0.11	19.00	6.75	6.04	0.17
6.25	0.55	0.17	0.12	19.25	6.78	6.07	0.16
6.50	0.58	0.19	0.14	19.50	6.80	6.09	0.16
6.75	0.61	0.21	0.15	19.75	6.83	6.12	0.16
7.00	0.65	0.23	0.17	20.00	6.85	6.14	0.15
7.25	0.69	0.26	0.18				
7.50	0.73	0.29	0.20				
7.75	0.77	0.32	0.21				
8.00	0.82	0.36	0.23				
8.25	0.87	0.40	0.26				
8.50	0.92	0.44	0.29				
8.75	0.98	0.49	0.32				
9.00	1.04	0.54	0.35				
9.25	1.11	0.60	0.39				
9.50	1.19	0.66	0.42				
9.75	1.27	0.73	0.46				
10.00	1.35	0.81	0.50				
10.25	1.45	0.89	0.56				
10.50	1.55	0.98	0.63				
10.75	1.66	1.09	0.70				
11.00	1.79	1.20	0.77				
11.25	1.94	1.34	0.98				
11.50	2.13	1.52	1.24				
11.75	2.54	1.91	3.13				
12.00	3.58	2.91	8.54				
12.25	4.62	3.93	4.59				
12.50	5.03	4.33	2.03				
12.75	5.22	4.52	1.17				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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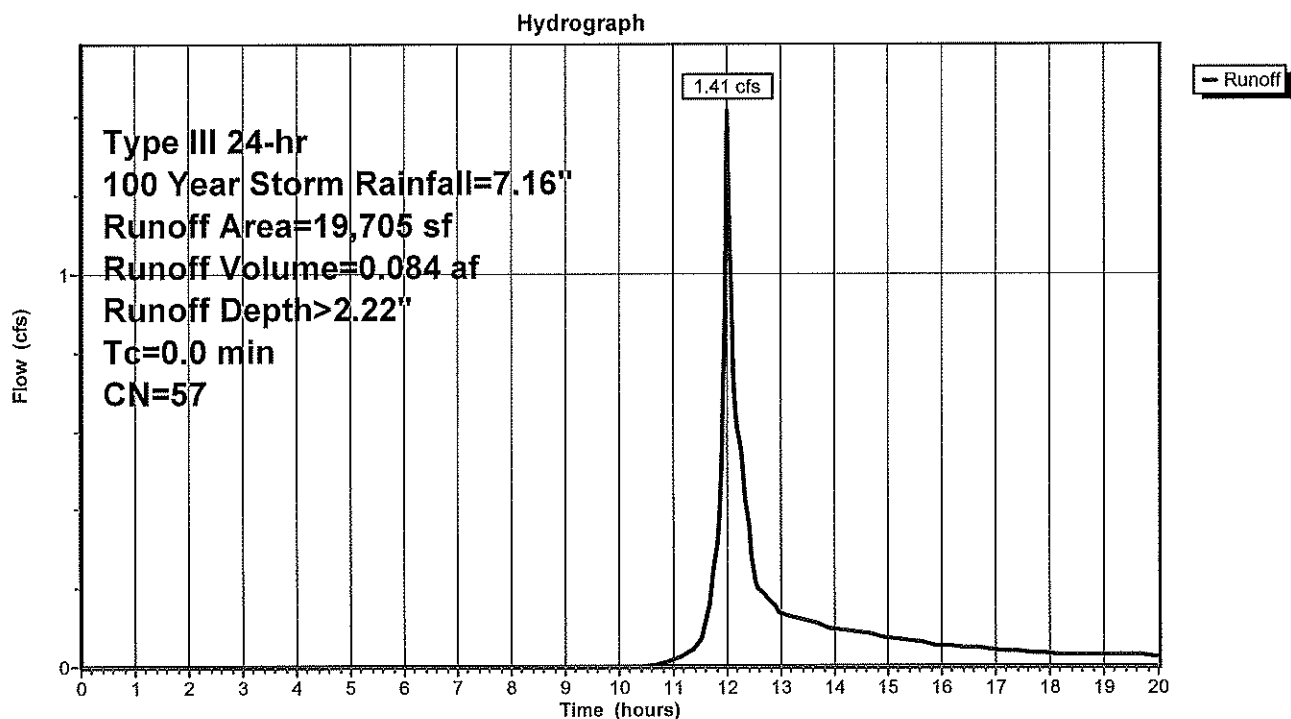
Summary for Subcatchment 2BPost: EX SA 3

Runoff = 1.41 cfs @ 12.01 hrs, Volume= 0.084 af, Depth> 2.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=7.16"

Area (sf)	CN	Description
4,000	98	Roofs, HSG A
* 2,095	98	Concrete/Sidewalk, HSG A
12,640	39	>75% Grass cover, Good, HSG A
970	30	Woods, Good, HSG A
19,705	57	Weighted Average
13,610		69.07% Pervious Area
6,095		30.93% Impervious Area

Subcatchment 2BPost: EX SA 3



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Hydrograph for Subcatchment 2BPost: EX SA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.37	1.31	0.13
0.25	0.02	0.00	0.00	13.25	5.50	1.38	0.13
0.50	0.04	0.00	0.00	13.50	5.61	1.44	0.12
0.75	0.05	0.00	0.00	13.75	5.71	1.50	0.11
1.00	0.07	0.00	0.00	14.00	5.81	1.56	0.10
1.25	0.09	0.00	0.00	14.25	5.89	1.61	0.09
1.50	0.11	0.00	0.00	14.50	5.97	1.66	0.09
1.75	0.13	0.00	0.00	14.75	6.05	1.70	0.08
2.00	0.14	0.00	0.00	15.00	6.12	1.75	0.08
2.25	0.16	0.00	0.00	15.25	6.18	1.79	0.07
2.50	0.18	0.00	0.00	15.50	6.24	1.82	0.06
2.75	0.20	0.00	0.00	15.75	6.29	1.86	0.06
3.00	0.22	0.00	0.00	16.00	6.34	1.89	0.05
3.25	0.24	0.00	0.00	16.25	6.39	1.92	0.05
3.50	0.26	0.00	0.00	16.50	6.43	1.94	0.05
3.75	0.28	0.00	0.00	16.75	6.47	1.97	0.05
4.00	0.31	0.00	0.00	17.00	6.51	2.00	0.04
4.25	0.33	0.00	0.00	17.25	6.55	2.02	0.04
4.50	0.36	0.00	0.00	17.50	6.58	2.04	0.04
4.75	0.38	0.00	0.00	17.75	6.61	2.06	0.04
5.00	0.41	0.00	0.00	18.00	6.64	2.08	0.03
5.25	0.43	0.00	0.00	18.25	6.67	2.10	0.03
5.50	0.46	0.00	0.00	18.50	6.70	2.12	0.03
5.75	0.49	0.00	0.00	18.75	6.73	2.13	0.03
6.00	0.52	0.00	0.00	19.00	6.75	2.15	0.03
6.25	0.55	0.00	0.00	19.25	6.78	2.17	0.03
6.50	0.58	0.00	0.00	19.50	6.80	2.18	0.03
6.75	0.61	0.00	0.00	19.75	6.83	2.20	0.03
7.00	0.65	0.00	0.00	20.00	6.85	2.22	0.03
7.25	0.69	0.00	0.00				
7.50	0.73	0.00	0.00				
7.75	0.77	0.00	0.00				
8.00	0.82	0.00	0.00				
8.25	0.87	0.00	0.00				
8.50	0.92	0.00	0.00				
8.75	0.98	0.00	0.00				
9.00	1.04	0.00	0.00				
9.25	1.11	0.00	0.00				
9.50	1.19	0.00	0.00				
9.75	1.27	0.00	0.00				
10.00	1.35	0.00	0.00				
10.25	1.45	0.00	0.00				
10.50	1.55	0.00	0.00				
10.75	1.66	0.00	0.01				
11.00	1.79	0.01	0.02				
11.25	1.94	0.02	0.03				
11.50	2.13	0.05	0.06				
11.75	2.54	0.12	0.25				
12.00	3.58	0.45	1.40				
12.25	4.62	0.91	0.55				
12.50	5.03	1.12	0.22				
12.75	5.22	1.22	0.17				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

Printed 11/11/2022

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Summary for Subcatchment 2S: EX SA 2

Runoff = 4.66 cfs @ 12.10 hrs, Volume= 0.316 af, Depth> 3.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=7.16"

Area (sf)	CN	Description
235	96	Gravel surface, HSG C
2,955	98	Roofs, HSG A
1,190	98	Roofs, HSG C
* 35	98	sidewalk/Concrete HSG C
3,390	39	>75% Grass cover, Good, HSG A
12,785	74	>75% Grass cover, Good, HSG C
400	30	Woods, Good, HSG A
25,015	70	Woods, Good, HSG C
46,005	71	Weighted Average
41,825		90.91% Pervious Area
4,180		9.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0400	0.18		Sheet Flow, Lawn Behind building Grass: Short n= 0.150 P2= 2.80"
0.6	100	0.0400	3.00		Shallow Concentrated Flow, Lawn Behind Building Grassed Waterway Kv= 15.0 fps
0.8	108	0.0200	2.12		Shallow Concentrated Flow, Rear Lawn Grassed Waterway Kv= 15.0 fps
0.2	60	0.0916	4.54		Shallow Concentrated Flow, Woods Grassed Waterway Kv= 15.0 fps
6.2	318	Total			

Calcs Nov 22

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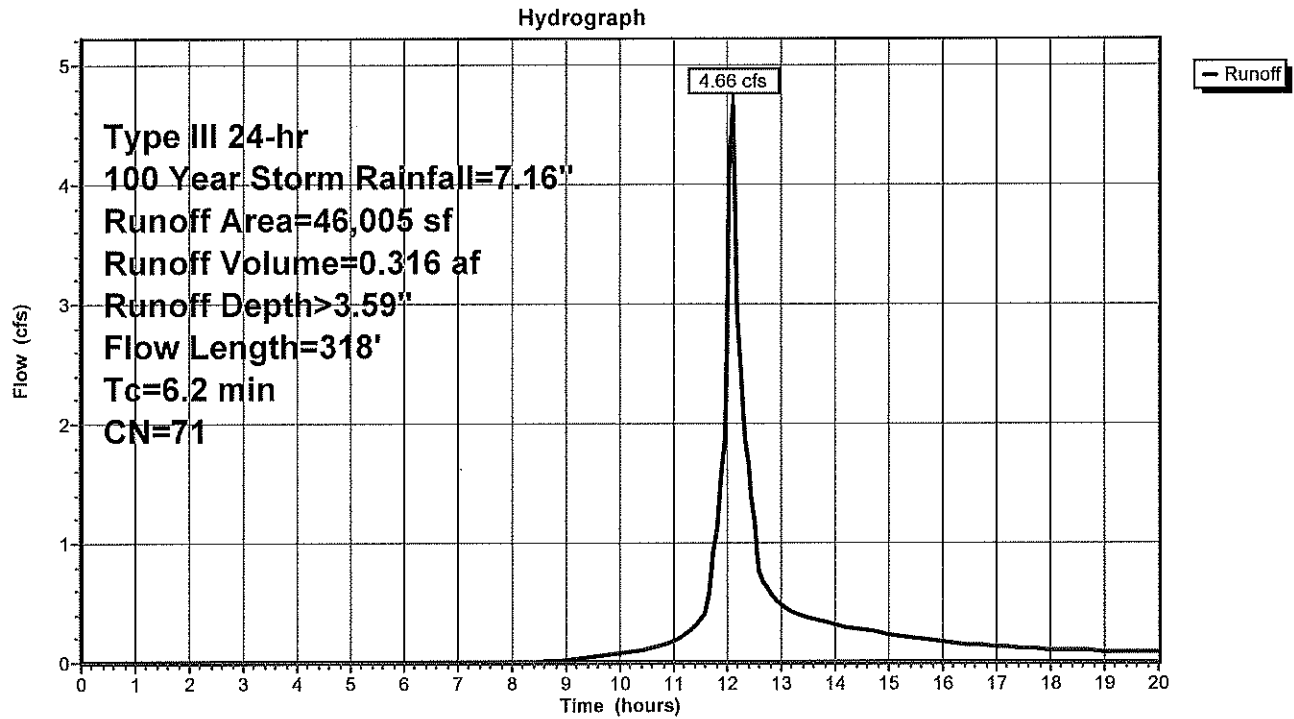
Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

Printed 11/11/2022

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Subcatchment 2S: EX SA 2



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Hydrograph for Subcatchment 2S: EX SA 2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.37	2.40	0.48
0.25	0.02	0.00	0.00	13.25	5.50	2.50	0.41
0.50	0.04	0.00	0.00	13.50	5.61	2.59	0.38
0.75	0.05	0.00	0.00	13.75	5.71	2.67	0.35
1.00	0.07	0.00	0.00	14.00	5.81	2.74	0.31
1.25	0.09	0.00	0.00	14.25	5.89	2.81	0.29
1.50	0.11	0.00	0.00	14.50	5.97	2.88	0.27
1.75	0.13	0.00	0.00	14.75	6.05	2.94	0.26
2.00	0.14	0.00	0.00	15.00	6.12	2.99	0.24
2.25	0.16	0.00	0.00	15.25	6.18	3.05	0.22
2.50	0.18	0.00	0.00	15.50	6.24	3.09	0.20
2.75	0.20	0.00	0.00	15.75	6.29	3.14	0.19
3.00	0.22	0.00	0.00	16.00	6.34	3.18	0.17
3.25	0.24	0.00	0.00	16.25	6.39	3.22	0.16
3.50	0.26	0.00	0.00	16.50	6.43	3.25	0.15
3.75	0.28	0.00	0.00	16.75	6.47	3.28	0.14
4.00	0.31	0.00	0.00	17.00	6.51	3.32	0.14
4.25	0.33	0.00	0.00	17.25	6.55	3.35	0.13
4.50	0.36	0.00	0.00	17.50	6.58	3.37	0.12
4.75	0.38	0.00	0.00	17.75	6.61	3.40	0.11
5.00	0.41	0.00	0.00	18.00	6.64	3.43	0.10
5.25	0.43	0.00	0.00	18.25	6.67	3.45	0.10
5.50	0.46	0.00	0.00	18.50	6.70	3.47	0.10
5.75	0.49	0.00	0.00	18.75	6.73	3.50	0.10
6.00	0.52	0.00	0.00	19.00	6.75	3.52	0.09
6.25	0.55	0.00	0.00	19.25	6.78	3.54	0.09
6.50	0.58	0.00	0.00	19.50	6.80	3.56	0.09
6.75	0.61	0.00	0.00	19.75	6.83	3.58	0.09
7.00	0.65	0.00	0.00	20.00	6.85	3.60	0.08
7.25	0.69	0.00	0.00				
7.50	0.73	0.00	0.00				
7.75	0.77	0.00	0.00				
8.00	0.82	0.00	0.00				
8.25	0.87	0.00	0.00				
8.50	0.92	0.00	0.01				
8.75	0.98	0.01	0.02				
9.00	1.04	0.01	0.03				
9.25	1.11	0.02	0.04				
9.50	1.19	0.03	0.05				
9.75	1.27	0.04	0.06				
10.00	1.35	0.06	0.08				
10.25	1.45	0.08	0.10				
10.50	1.55	0.11	0.12				
10.75	1.66	0.15	0.15				
11.00	1.79	0.19	0.18				
11.25	1.94	0.24	0.25				
11.50	2.13	0.32	0.35				
11.75	2.54	0.51	0.92				
12.00	3.58	1.11	2.72				
12.25	4.62	1.83	2.43				
12.50	5.03	2.14	1.16				
12.75	5.22	2.28	0.61				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

Printed 11/11/2022

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Summary for Subcatchment 3Post: Post SA 3

Runoff = 2.46 cfs @ 12.10 hrs, Volume= 0.170 af, Depth> 3.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=7.16"

Area (sf)	CN	Description
125	98	Roofs, HSG A
305	98	Roofs, HSG C
50	39	>75% Grass cover, Good, HSG A
5,775	74	>75% Grass cover, Good, HSG C
75	30	Woods, Good, HSG A
18,390	70	Woods, Good, HSG C
24,720	71	Weighted Average
24,290		98.26% Pervious Area
430		1.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	32	0.0650	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.80"
0.2	22	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	72	0.0833	1.44		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
6.8	126	Total			

Calcs Nov 22

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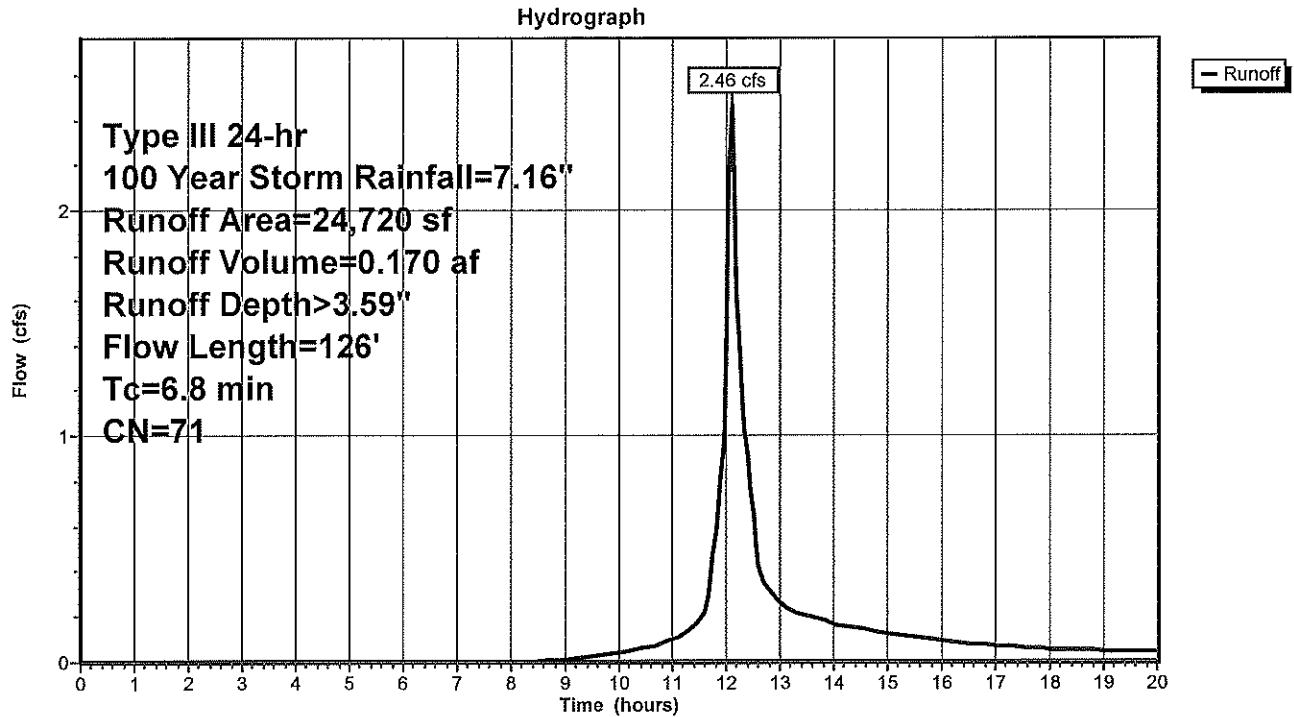
Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

Printed 11/11/2022

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Subcatchment 3Post: Post SA 3



Calcs Nov 22

Prepared by SK Design Group, Inc

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Hydrograph for Subcatchment 3Post: Post SA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.37	2.40	0.26
0.25	0.02	0.00	0.00	13.25	5.50	2.50	0.22
0.50	0.04	0.00	0.00	13.50	5.61	2.59	0.20
0.75	0.05	0.00	0.00	13.75	5.71	2.67	0.19
1.00	0.07	0.00	0.00	14.00	5.81	2.74	0.17
1.25	0.09	0.00	0.00	14.25	5.89	2.81	0.16
1.50	0.11	0.00	0.00	14.50	5.97	2.88	0.15
1.75	0.13	0.00	0.00	14.75	6.05	2.94	0.14
2.00	0.14	0.00	0.00	15.00	6.12	2.99	0.13
2.25	0.16	0.00	0.00	15.25	6.18	3.05	0.12
2.50	0.18	0.00	0.00	15.50	6.24	3.09	0.11
2.75	0.20	0.00	0.00	15.75	6.29	3.14	0.10
3.00	0.22	0.00	0.00	16.00	6.34	3.18	0.09
3.25	0.24	0.00	0.00	16.25	6.39	3.22	0.08
3.50	0.26	0.00	0.00	16.50	6.43	3.25	0.08
3.75	0.28	0.00	0.00	16.75	6.47	3.28	0.08
4.00	0.31	0.00	0.00	17.00	6.51	3.32	0.07
4.25	0.33	0.00	0.00	17.25	6.55	3.35	0.07
4.50	0.36	0.00	0.00	17.50	6.58	3.37	0.06
4.75	0.38	0.00	0.00	17.75	6.61	3.40	0.06
5.00	0.41	0.00	0.00	18.00	6.64	3.43	0.06
5.25	0.43	0.00	0.00	18.25	6.67	3.45	0.05
5.50	0.46	0.00	0.00	18.50	6.70	3.47	0.05
5.75	0.49	0.00	0.00	18.75	6.73	3.50	0.05
6.00	0.52	0.00	0.00	19.00	6.75	3.52	0.05
6.25	0.55	0.00	0.00	19.25	6.78	3.54	0.05
6.50	0.58	0.00	0.00	19.50	6.80	3.56	0.05
6.75	0.61	0.00	0.00	19.75	6.83	3.58	0.05
7.00	0.65	0.00	0.00	20.00	6.85	3.60	0.05
7.25	0.69	0.00	0.00				
7.50	0.73	0.00	0.00				
7.75	0.77	0.00	0.00				
8.00	0.82	0.00	0.00				
8.25	0.87	0.00	0.00				
8.50	0.92	0.00	0.00				
8.75	0.98	0.01	0.01				
9.00	1.04	0.01	0.01				
9.25	1.11	0.02	0.02				
9.50	1.19	0.03	0.03				
9.75	1.27	0.04	0.03				
10.00	1.35	0.06	0.04				
10.25	1.45	0.08	0.05				
10.50	1.55	0.11	0.06				
10.75	1.66	0.15	0.08				
11.00	1.79	0.19	0.10				
11.25	1.94	0.24	0.13				
11.50	2.13	0.32	0.18				
11.75	2.54	0.51	0.48				
12.00	3.58	1.11	1.37				
12.25	4.62	1.83	1.35				
12.50	5.03	2.14	0.65				
12.75	5.22	2.28	0.33				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Summary for Subcatchment 3S: EX SA 3

Runoff = 0.85 cfs @ 12.01 hrs, Volume= 0.050 af, Depth> 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=7.16"

Area (sf)	CN	Description
2,990	98	Paved parking, HSG A
660	98	Roofs, HSG A
* 310	98	Concrete/Sidewalk, HSG A
2,745	39	>75% Grass cover, Good, HSG A
6,705	74	Weighted Average
2,745		40.94% Pervious Area
3,960		59.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	15	0.3300	2.70		Sheet Flow, Roof Smooth surfaces n= 0.011 P2= 2.80"
0.4	15	0.0100	0.67		Sheet Flow, Sidewalk Smooth surfaces n= 0.011 P2= 2.80"
0.1	51	0.1500	5.81		Shallow Concentrated Flow, Lawn Grassed Waterway Kv= 15.0 fps
0.2	66	0.1130	6.82		Shallow Concentrated Flow, Driveway Paved Kv= 20.3 fps
0.8	147	Total			

Calcs Nov 22

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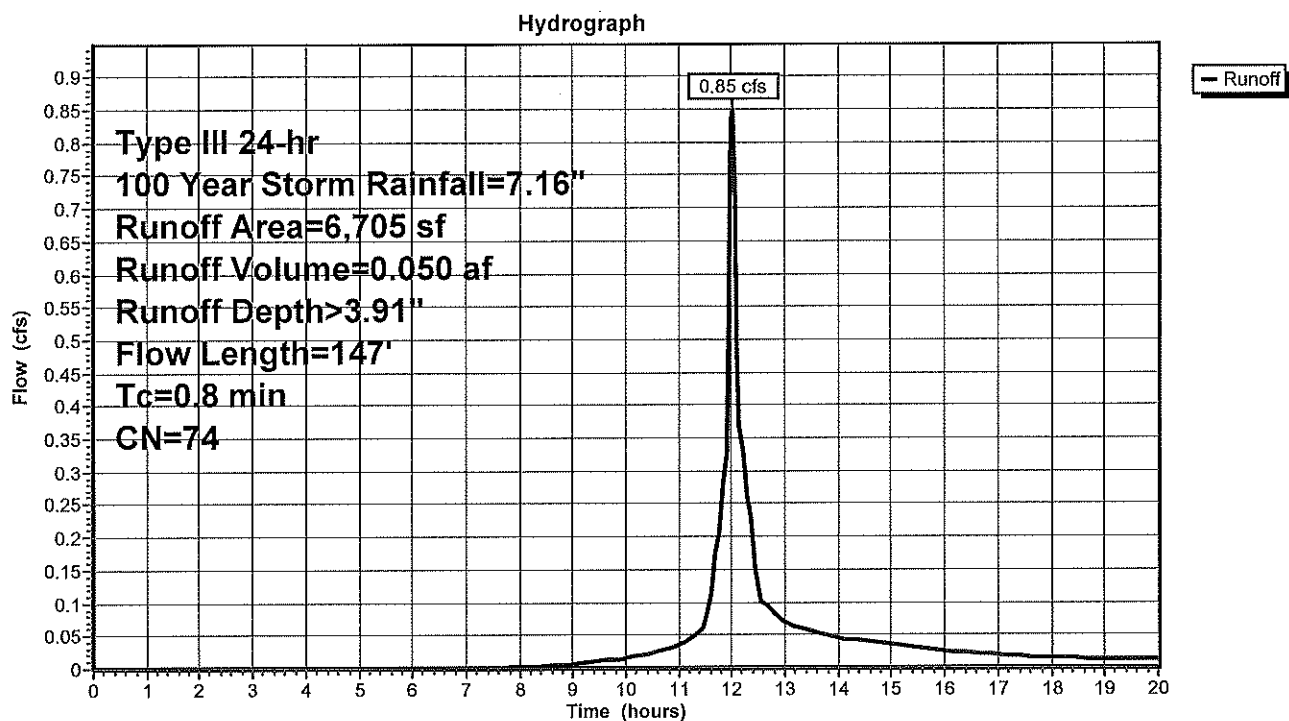
Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Subcatchment 3S: EX SA 3



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Type III 24-hr 100 Year Storm Rainfall=7.16"

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Hydrograph for Subcatchment 3S: EX SA 3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.37	2.66	0.07
0.25	0.02	0.00	0.00	13.25	5.50	2.77	0.06
0.50	0.04	0.00	0.00	13.50	5.61	2.86	0.06
0.75	0.05	0.00	0.00	13.75	5.71	2.95	0.05
1.00	0.07	0.00	0.00	14.00	5.81	3.02	0.05
1.25	0.09	0.00	0.00	14.25	5.89	3.09	0.04
1.50	0.11	0.00	0.00	14.50	5.97	3.16	0.04
1.75	0.13	0.00	0.00	14.75	6.05	3.22	0.04
2.00	0.14	0.00	0.00	15.00	6.12	3.28	0.04
2.25	0.16	0.00	0.00	15.25	6.18	3.34	0.03
2.50	0.18	0.00	0.00	15.50	6.24	3.39	0.03
2.75	0.20	0.00	0.00	15.75	6.29	3.43	0.03
3.00	0.22	0.00	0.00	16.00	6.34	3.48	0.02
3.25	0.24	0.00	0.00	16.25	6.39	3.51	0.02
3.50	0.26	0.00	0.00	16.50	6.43	3.55	0.02
3.75	0.28	0.00	0.00	16.75	6.47	3.59	0.02
4.00	0.31	0.00	0.00	17.00	6.51	3.62	0.02
4.25	0.33	0.00	0.00	17.25	6.55	3.65	0.02
4.50	0.36	0.00	0.00	17.50	6.58	3.68	0.02
4.75	0.38	0.00	0.00	17.75	6.61	3.71	0.02
5.00	0.41	0.00	0.00	18.00	6.64	3.73	0.02
5.25	0.43	0.00	0.00	18.25	6.67	3.76	0.01
5.50	0.46	0.00	0.00	18.50	6.70	3.78	0.01
5.75	0.49	0.00	0.00	18.75	6.73	3.81	0.01
6.00	0.52	0.00	0.00	19.00	6.75	3.83	0.01
6.25	0.55	0.00	0.00	19.25	6.78	3.85	0.01
6.50	0.58	0.00	0.00	19.50	6.80	3.87	0.01
6.75	0.61	0.00	0.00	19.75	6.83	3.89	0.01
7.00	0.65	0.00	0.00	20.00	6.85	3.91	0.01
7.25	0.69	0.00	0.00				
7.50	0.73	0.00	0.00				
7.75	0.77	0.00	0.00				
8.00	0.82	0.00	0.00				
8.25	0.87	0.01	0.00				
8.50	0.92	0.01	0.00				
8.75	0.98	0.02	0.01				
9.00	1.04	0.03	0.01				
9.25	1.11	0.04	0.01				
9.50	1.19	0.06	0.01				
9.75	1.27	0.08	0.01				
10.00	1.35	0.10	0.02				
10.25	1.45	0.13	0.02				
10.50	1.55	0.16	0.02				
10.75	1.66	0.21	0.03				
11.00	1.79	0.26	0.03				
11.25	1.94	0.32	0.05				
11.50	2.13	0.41	0.07				
11.75	2.54	0.63	0.21				
12.00	3.58	1.30	0.83				
12.25	4.62	2.06	0.30				
12.50	5.03	2.39	0.12				
12.75	5.22	2.54	0.09				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Summary for Reach 2R: Catch Basin 1

Inflow Area = 0.106 ac, 70.50% Impervious, Inflow Depth > 4.67" for 100 Year Storm event
Inflow = 0.68 cfs @ 12.01 hrs, Volume= 0.041 af
Outflow = 0.66 cfs @ 12.02 hrs, Volume= 0.041 af, Atten= 3%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.47 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 1.20 fps, Avg. Travel Time= 0.8 min

Peak Storage= 12 cf @ 12.02 hrs

Average Depth at Peak Storage= 0.30'

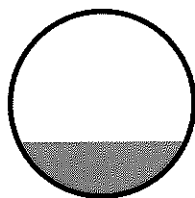
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe

n= 0.013 Concrete pipe, straight & clean

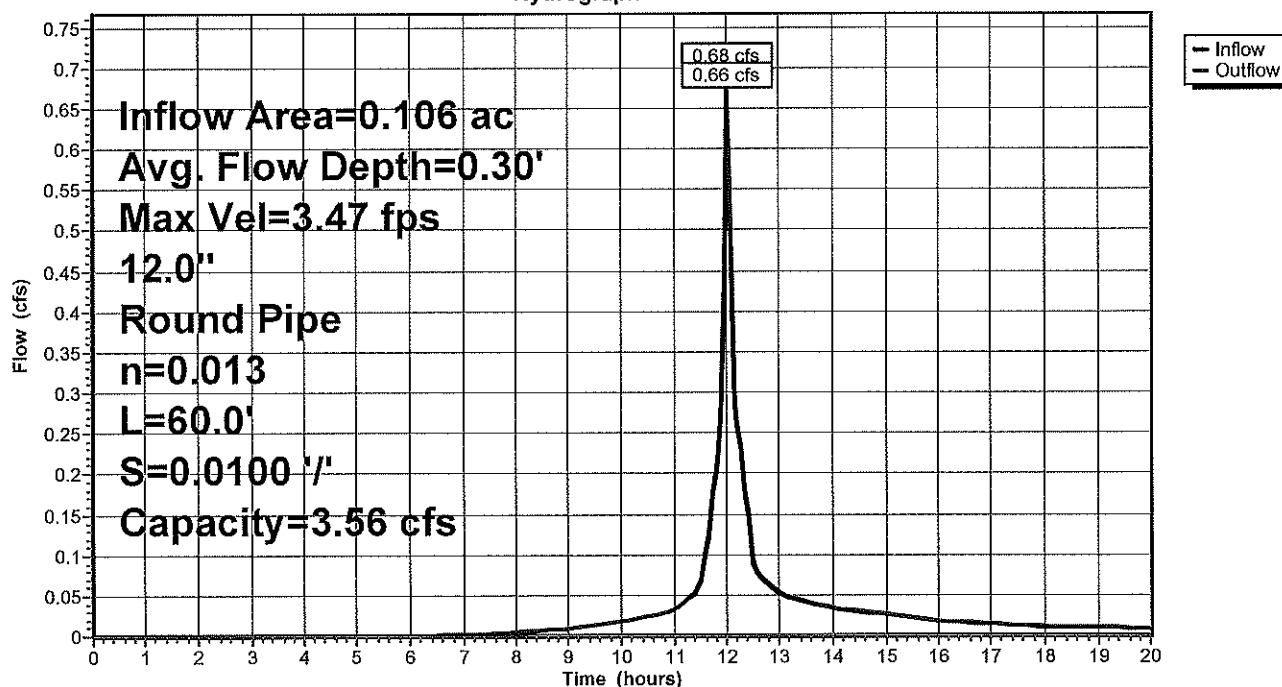
Length= 60.0' Slope= 0.0100 '/'

Inlet Invert= 1,125.00', Outlet Invert= 1,124.40'



Reach 2R: Catch Basin 1

Hydrograph



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Hydrograph for Reach 2R: Catch Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,125.00	0.00
0.50	0.00	0	1,125.00	0.00
1.00	0.00	0	1,125.00	0.00
1.50	0.00	0	1,125.00	0.00
2.00	0.00	0	1,125.00	0.00
2.50	0.00	0	1,125.00	0.00
3.00	0.00	0	1,125.00	0.00
3.50	0.00	0	1,125.00	0.00
4.00	0.00	0	1,125.00	0.00
4.50	0.00	0	1,125.00	0.00
5.00	0.00	0	1,125.00	0.00
5.50	0.00	0	1,125.00	0.00
6.00	0.00	0	1,125.01	0.00
6.50	0.00	0	1,125.01	0.00
7.00	0.00	0	1,125.02	0.00
7.50	0.00	0	1,125.02	0.00
8.00	0.00	0	1,125.03	0.00
8.50	0.01	0	1,125.03	0.01
9.00	0.01	1	1,125.04	0.01
9.50	0.01	1	1,125.04	0.01
10.00	0.02	1	1,125.05	0.02
10.50	0.02	1	1,125.06	0.02
11.00	0.03	1	1,125.07	0.03
11.50	0.06	2	1,125.09	0.06
12.00	0.68	11	1,125.29	0.64
12.50	0.09	3	1,125.11	0.09
13.00	0.05	2	1,125.08	0.05
13.50	0.04	2	1,125.08	0.04
14.00	0.03	1	1,125.07	0.03
14.50	0.03	1	1,125.07	0.03
15.00	0.03	1	1,125.06	0.03
15.50	0.02	1	1,125.06	0.02
16.00	0.02	1	1,125.05	0.02
16.50	0.02	1	1,125.05	0.02
17.00	0.01	1	1,125.05	0.01
17.50	0.01	1	1,125.04	0.01
18.00	0.01	1	1,125.04	0.01
18.50	0.01	1	1,125.04	0.01
19.00	0.01	1	1,125.04	0.01
19.50	0.01	1	1,125.04	0.01
20.00	0.01	1	1,125.04	0.01

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Summary for Reach 6R: Catch Basin 1

Inflow Area = 0.154 ac, 59.06% Impervious, Inflow Depth > 3.91" for 100 Year Storm event
Inflow = 0.85 cfs @ 12.01 hrs, Volume= 0.050 af
Outflow = 0.82 cfs @ 12.02 hrs, Volume= 0.050 af, Atten= 3%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 3.68 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 1.35 fps, Avg. Travel Time= 0.7 min

Peak Storage= 14 cf @ 12.02 hrs

Average Depth at Peak Storage= 0.33'

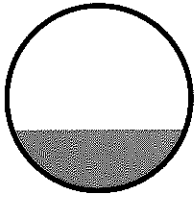
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe

n= 0.013 Concrete pipe, straight & clean

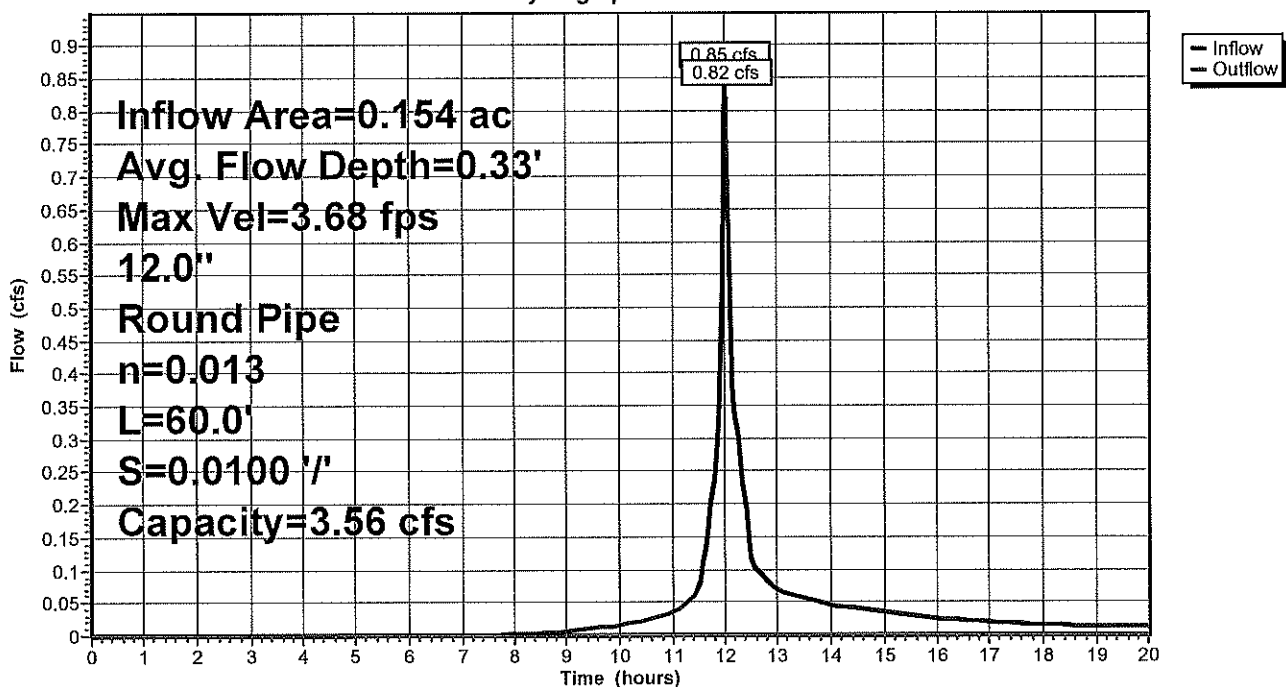
Length= 60.0' Slope= 0.0100 '/'

Inlet Invert= 1,125.00', Outlet Invert= 1,124.40'



Reach 6R: Catch Basin 1

Hydrograph



Calcs Nov 22

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Hydrograph for Reach 6R: Catch Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,125.00	0.00
0.50	0.00	0	1,125.00	0.00
1.00	0.00	0	1,125.00	0.00
1.50	0.00	0	1,125.00	0.00
2.00	0.00	0	1,125.00	0.00
2.50	0.00	0	1,125.00	0.00
3.00	0.00	0	1,125.00	0.00
3.50	0.00	0	1,125.00	0.00
4.00	0.00	0	1,125.00	0.00
4.50	0.00	0	1,125.00	0.00
5.00	0.00	0	1,125.00	0.00
5.50	0.00	0	1,125.00	0.00
6.00	0.00	0	1,125.00	0.00
6.50	0.00	0	1,125.00	0.00
7.00	0.00	0	1,125.00	0.00
7.50	0.00	0	1,125.00	0.00
8.00	0.00	0	1,125.02	0.00
8.50	0.00	0	1,125.02	0.00
9.00	0.01	0	1,125.03	0.01
9.50	0.01	1	1,125.04	0.01
10.00	0.02	1	1,125.05	0.02
10.50	0.02	1	1,125.06	0.02
11.00	0.03	1	1,125.07	0.03
11.50	0.07	2	1,125.09	0.06
12.00	0.83	13	1,125.33	0.79
12.50	0.12	3	1,125.13	0.12
13.00	0.07	2	1,125.10	0.07
13.50	0.06	2	1,125.09	0.06
14.00	0.05	2	1,125.08	0.05
14.50	0.04	2	1,125.07	0.04
15.00	0.04	1	1,125.07	0.04
15.50	0.03	1	1,125.07	0.03
16.00	0.02	1	1,125.06	0.02
16.50	0.02	1	1,125.06	0.02
17.00	0.02	1	1,125.05	0.02
17.50	0.02	1	1,125.05	0.02
18.00	0.02	1	1,125.05	0.02
18.50	0.01	1	1,125.05	0.01
19.00	0.01	1	1,125.05	0.01
19.50	0.01	1	1,125.04	0.01
20.00	0.01	1	1,125.04	0.01

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Summary for Reach 7R: DOT Drain

Inflow Area = 2.174 ac, 77.64% Impervious, Inflow Depth > 1.96" for 100 Year Storm event
Inflow = 4.46 cfs @ 12.22 hrs, Volume= 0.355 af
Outflow = 4.43 cfs @ 12.22 hrs, Volume= 0.355 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 6.44 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 2.05 fps, Avg. Travel Time= 0.4 min

Peak Storage= 34 cf @ 12.22 hrs

Average Depth at Peak Storage= 0.49'

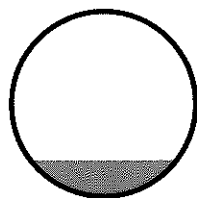
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 51.88 cfs

30.0" Round Pipe

n= 0.013

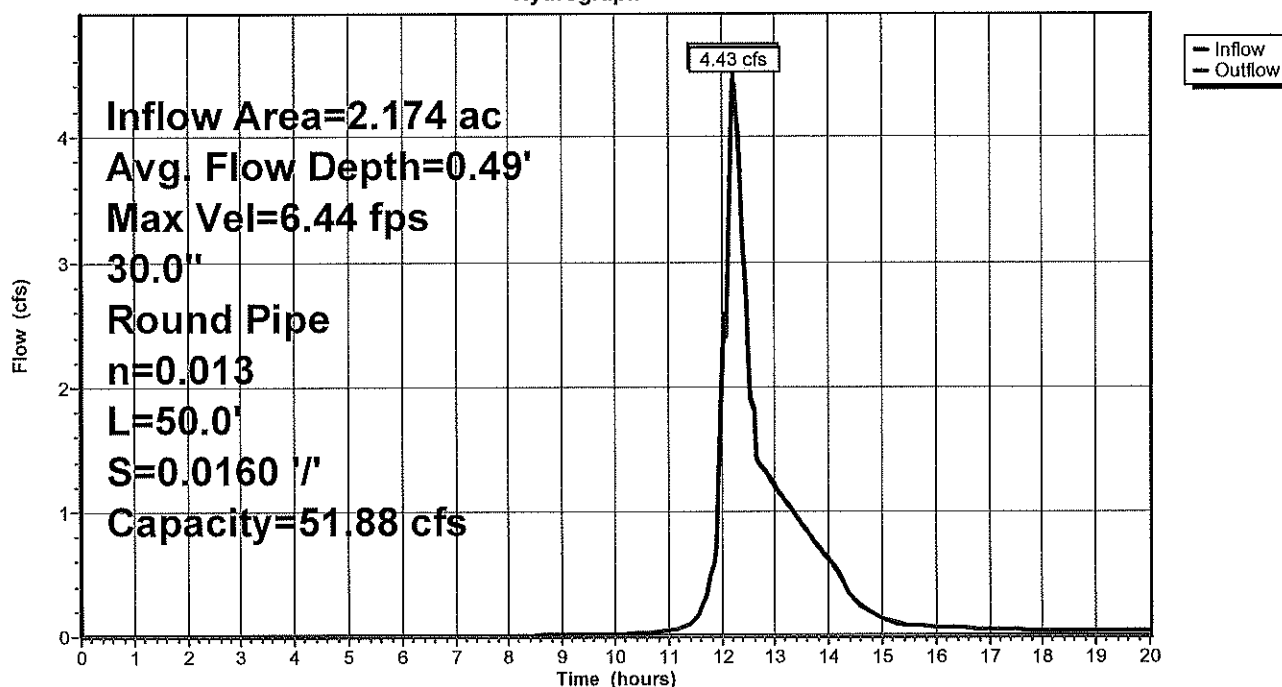
Length= 50.0' Slope= 0.0160 1'

Inlet Invert= 1,118.90', Outlet Invert= 1,118.10'



Reach 7R: DOT Drain

Hydrograph



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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Hydrograph for Reach 7R: DOT Drain

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,118.90	0.00
0.50	0.00	0	1,118.90	0.00
1.00	0.00	0	1,118.90	0.00
1.50	0.00	0	1,118.90	0.00
2.00	0.00	0	1,118.90	0.00
2.50	0.00	0	1,118.90	0.00
3.00	0.00	0	1,118.90	0.00
3.50	0.00	0	1,118.90	0.00
4.00	0.00	0	1,118.90	0.00
4.50	0.00	0	1,118.90	0.00
5.00	0.00	0	1,118.90	0.00
5.50	0.00	0	1,118.90	0.00
6.00	0.00	0	1,118.90	0.00
6.50	0.00	0	1,118.90	0.00
7.00	0.00	0	1,118.91	0.00
7.50	0.00	0	1,118.91	0.00
8.00	0.00	0	1,118.91	0.00
8.50	0.01	0	1,118.92	0.01
9.00	0.01	0	1,118.93	0.01
9.50	0.01	1	1,118.93	0.01
10.00	0.02	1	1,118.93	0.02
10.50	0.03	1	1,118.94	0.03
11.00	0.05	1	1,118.96	0.05
11.50	0.12	3	1,118.99	0.11
12.00	2.19	21	1,119.25	2.13
12.50	2.24	21	1,119.26	2.28
13.00	1.20	14	1,119.16	1.20
13.50	0.90	11	1,119.13	0.90
14.00	0.61	9	1,119.09	0.62
14.50	0.28	5	1,119.03	0.29
15.00	0.14	3	1,118.99	0.14
15.50	0.09	2	1,118.98	0.09
16.00	0.07	2	1,118.97	0.07
16.50	0.07	2	1,118.97	0.07
17.00	0.06	2	1,118.96	0.06
17.50	0.05	2	1,118.96	0.05
18.00	0.05	1	1,118.96	0.05
18.50	0.04	1	1,118.95	0.04
19.00	0.04	1	1,118.95	0.04
19.50	0.04	1	1,118.95	0.04
20.00	0.04	1	1,118.95	0.04

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Summary for Reach 8R: DOT Drain

Inflow Area = 1.686 ac, 34.70% Impervious, Inflow Depth > 2.63" for 100 Year Storm event
Inflow = 5.91 cfs @ 12.06 hrs, Volume= 0.369 af
Outflow = 5.83 cfs @ 12.06 hrs, Volume= 0.369 af, Atten= 1%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 7.00 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 2.47 fps, Avg. Travel Time= 0.3 min

Peak Storage= 42 cf @ 12.06 hrs

Average Depth at Peak Storage= 0.57'

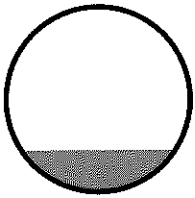
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 51.88 cfs

30.0" Round Pipe

n= 0.013

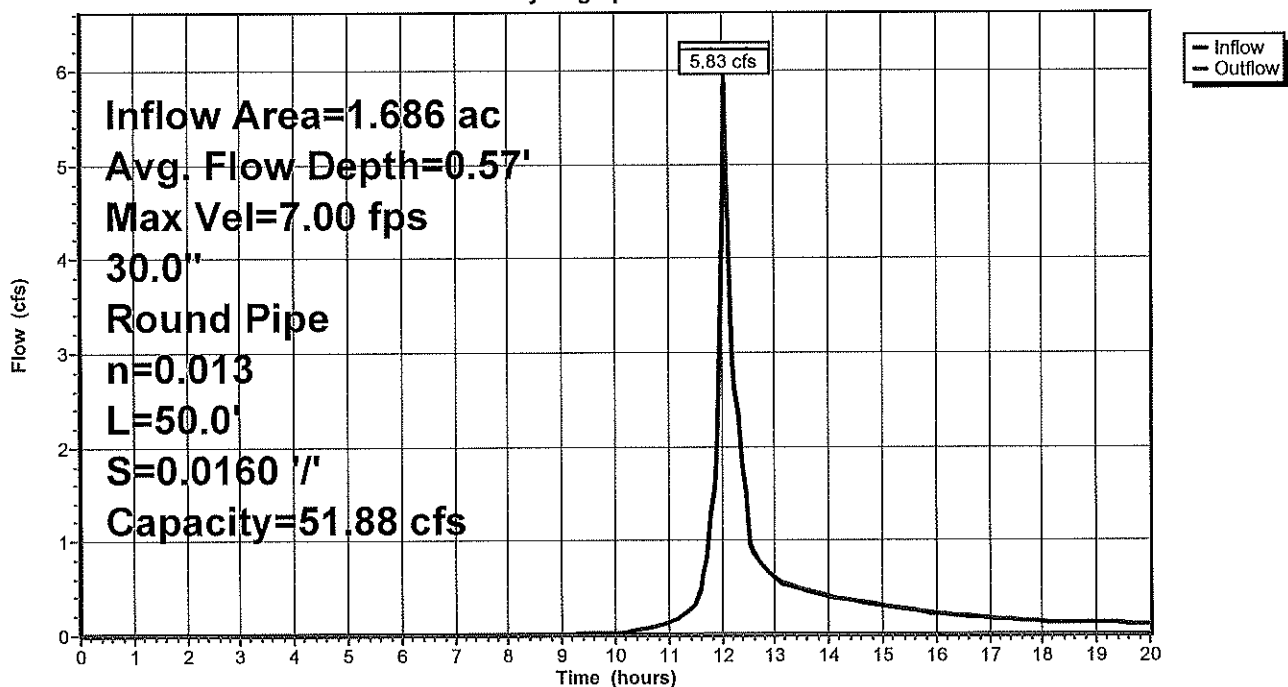
Length= 50.0' Slope= 0.0160 1'

Inlet Invert= 1,118.90', Outlet Invert= 1,118.10'



Reach 8R: DOT Drain

Hydrograph



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Hydrograph for Reach 8R: DOT Drain

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,118.90	0.00
0.50	0.00	0	1,118.90	0.00
1.00	0.00	0	1,118.90	0.00
1.50	0.00	0	1,118.90	0.00
2.00	0.00	0	1,118.90	0.00
2.50	0.00	0	1,118.90	0.00
3.00	0.00	0	1,118.90	0.00
3.50	0.00	0	1,118.90	0.00
4.00	0.00	0	1,118.90	0.00
4.50	0.00	0	1,118.90	0.00
5.00	0.00	0	1,118.90	0.00
5.50	0.00	0	1,118.90	0.00
6.00	0.00	0	1,118.90	0.00
6.50	0.00	0	1,118.90	0.00
7.00	0.00	0	1,118.90	0.00
7.50	0.00	0	1,118.90	0.00
8.00	0.00	0	1,118.90	0.00
8.50	0.00	0	1,118.91	0.00
9.00	0.01	0	1,118.92	0.01
9.50	0.01	0	1,118.93	0.01
10.00	0.02	1	1,118.93	0.02
10.50	0.06	2	1,118.96	0.06
11.00	0.13	3	1,118.99	0.12
11.50	0.31	5	1,119.04	0.30
12.00	4.39	34	1,119.39	4.29
12.50	1.19	14	1,119.16	1.22
13.00	0.59	8	1,119.09	0.60
13.50	0.49	7	1,119.07	0.49
14.00	0.40	6	1,119.06	0.40
14.50	0.36	6	1,119.05	0.36
15.00	0.31	5	1,119.04	0.31
15.50	0.27	5	1,119.03	0.27
16.00	0.22	4	1,119.02	0.22
16.50	0.20	4	1,119.01	0.20
17.00	0.18	4	1,119.01	0.18
17.50	0.16	3	1,119.00	0.16
18.00	0.14	3	1,118.99	0.14
18.50	0.13	3	1,118.99	0.13
19.00	0.13	3	1,118.99	0.13
19.50	0.12	3	1,118.99	0.12
20.00	0.11	3	1,118.99	0.11

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Summary for Reach 9R: Connection to DOT

Inflow Area = 0.154 ac, 59.06% Impervious, Inflow Depth > 3.91" for 100 Year Storm event
Inflow = 0.82 cfs @ 12.02 hrs, Volume= 0.050 af
Outflow = 0.76 cfs @ 12.05 hrs, Volume= 0.050 af, Atten= 7%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 4.03 fps, Min. Travel Time= 1.0 min

Avg. Velocity = 1.53 fps, Avg. Travel Time= 2.5 min

Peak Storage= 45 cf @ 12.04 hrs

Average Depth at Peak Storage= 0.21'

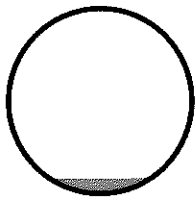
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 55.59 cfs

30.0" Round Pipe

n= 0.012

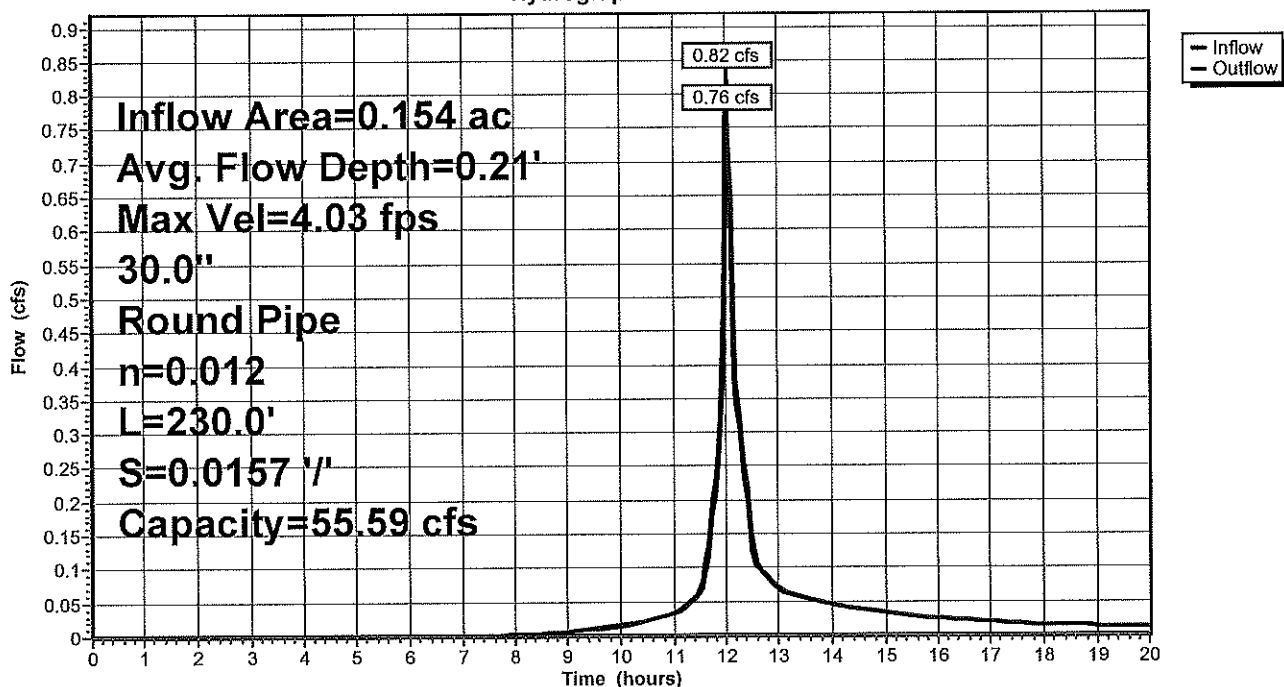
Length= 230.0' Slope= 0.0157 '/'

Inlet Invert= 1,122.50', Outlet Invert= 1,118.90'



Reach 9R: Connection to DOT

Hydrograph



Calcs Nov 22

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Hydrograph for Reach 9R: Connection to DOT

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,122.50	0.00
0.50	0.00	0	1,122.50	0.00
1.00	0.00	0	1,122.50	0.00
1.50	0.00	0	1,122.50	0.00
2.00	0.00	0	1,122.50	0.00
2.50	0.00	0	1,122.50	0.00
3.00	0.00	0	1,122.50	0.00
3.50	0.00	0	1,122.50	0.00
4.00	0.00	0	1,122.50	0.00
4.50	0.00	0	1,122.50	0.00
5.00	0.00	0	1,122.50	0.00
5.50	0.00	0	1,122.50	0.00
6.00	0.00	0	1,122.50	0.00
6.50	0.00	0	1,122.50	0.00
7.00	0.00	0	1,122.50	0.00
7.50	0.00	0	1,122.50	0.00
8.00	0.00	0	1,122.50	0.00
8.50	0.00	1	1,122.51	0.00
9.00	0.01	1	1,122.52	0.01
9.50	0.01	2	1,122.53	0.01
10.00	0.02	3	1,122.53	0.01
10.50	0.02	4	1,122.54	0.02
11.00	0.03	5	1,122.55	0.03
11.50	0.06	8	1,122.56	0.06
12.00	0.79	42	1,122.70	0.64
12.50	0.12	13	1,122.59	0.15
13.00	0.07	8	1,122.57	0.07
13.50	0.06	7	1,122.56	0.06
14.00	0.05	6	1,122.55	0.05
14.50	0.04	6	1,122.55	0.04
15.00	0.04	5	1,122.55	0.04
15.50	0.03	5	1,122.54	0.03
16.00	0.02	4	1,122.54	0.03
16.50	0.02	4	1,122.54	0.02
17.00	0.02	3	1,122.54	0.02
17.50	0.02	3	1,122.53	0.02
18.00	0.02	3	1,122.53	0.02
18.50	0.01	3	1,122.53	0.01
19.00	0.01	3	1,122.53	0.01
19.50	0.01	3	1,122.53	0.01
20.00	0.01	2	1,122.53	0.01

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Summary for Reach 10R: Connection to DOT

Inflow Area = 0.106 ac, 70.50% Impervious, Inflow Depth > 4.67" for 100 Year Storm event
Inflow = 0.66 cfs @ 12.02 hrs, Volume= 0.041 af
Outflow = 0.61 cfs @ 12.05 hrs, Volume= 0.041 af, Atten= 8%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 2

Max. Velocity= 3.76 fps, Min. Travel Time= 1.0 min

Avg. Velocity = 1.40 fps, Avg. Travel Time= 2.7 min

Peak Storage= 38 cf @ 12.03 hrs

Average Depth at Peak Storage= 0.19'

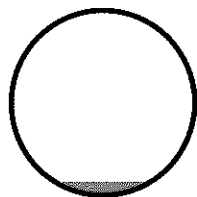
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 55.59 cfs

30.0" Round Pipe

n= 0.012

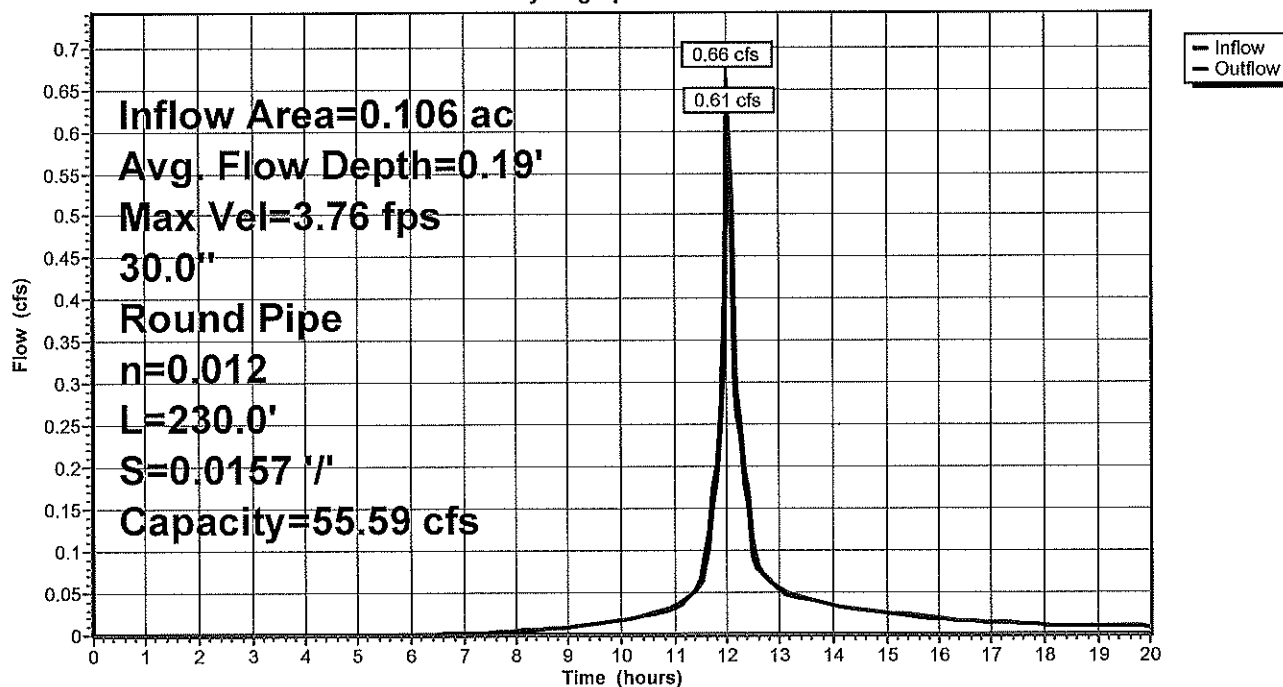
Length= 230.0' Slope= 0.0157 '/'

Inlet Invert= 1,122.50', Outlet Invert= 1,118.90'



Reach 10R: Connection to DOT

Hydrograph



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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Hydrograph for Reach 10R: Connection to DOT

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	1,122.50	0.00
0.50	0.00	0	1,122.50	0.00
1.00	0.00	0	1,122.50	0.00
1.50	0.00	0	1,122.50	0.00
2.00	0.00	0	1,122.50	0.00
2.50	0.00	0	1,122.50	0.00
3.00	0.00	0	1,122.50	0.00
3.50	0.00	0	1,122.50	0.00
4.00	0.00	0	1,122.50	0.00
4.50	0.00	0	1,122.50	0.00
5.00	0.00	0	1,122.50	0.00
5.50	0.00	0	1,122.50	0.00
6.00	0.00	0	1,122.50	0.00
6.50	0.00	0	1,122.50	0.00
7.00	0.00	0	1,122.51	0.00
7.50	0.00	1	1,122.51	0.00
8.00	0.00	1	1,122.51	0.00
8.50	0.01	2	1,122.52	0.01
9.00	0.01	2	1,122.53	0.01
9.50	0.01	2	1,122.53	0.01
10.00	0.02	3	1,122.53	0.02
10.50	0.02	4	1,122.54	0.02
11.00	0.03	5	1,122.55	0.03
11.50	0.06	7	1,122.56	0.06
12.00	0.64	36	1,122.68	0.52
12.50	0.09	11	1,122.58	0.11
13.00	0.05	7	1,122.56	0.05
13.50	0.04	6	1,122.55	0.04
14.00	0.03	5	1,122.55	0.04
14.50	0.03	5	1,122.54	0.03
15.00	0.03	4	1,122.54	0.03
15.50	0.02	4	1,122.54	0.02
16.00	0.02	3	1,122.53	0.02
16.50	0.02	3	1,122.53	0.02
17.00	0.01	3	1,122.53	0.02
17.50	0.01	2	1,122.53	0.01
18.00	0.01	2	1,122.53	0.01
18.50	0.01	2	1,122.53	0.01
19.00	0.01	2	1,122.53	0.01
19.50	0.01	2	1,122.53	0.01
20.00	0.01	2	1,122.53	0.01

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Summary for Pond 16P: Storage

Inflow Area = 1.616 ac, 91.18% Impervious, Inflow Depth > 6.14" for 100 Year Storm event
 Inflow = 11.57 cfs @ 12.06 hrs, Volume= 0.827 af
 Outflow = 4.91 cfs @ 12.23 hrs, Volume= 0.758 af, Atten= 58%, Lag= 10.2 min
 Discarded = 1.37 cfs @ 12.23 hrs, Volume= 0.528 af
 Primary = 1.69 cfs @ 12.23 hrs, Volume= 0.190 af
 Secondary = 1.86 cfs @ 12.23 hrs, Volume= 0.040 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs / 3
 Peak Elev= 1,127.69' @ 12.23 hrs Surf.Area= 9,126 sf Storage= 12,296 cf

Plug-Flow detention time= 96.1 min calculated for 0.758 af (92% of inflow)
 Center-of-Mass det. time= 66.1 min (800.6 - 734.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,126.80'	2,460 cf	Custom Stage Data (Irregular) Listed below (Recalc)
#2A	1,122.50'	6,322 cf	51.00'W x 115.50'L x 3.50'H Field A 20,617 cf Overall - 4,811 cf Embedded = 15,806 cf x 40.0% Voids
#3A	1,123.46'	4,811 cf	Cultec R-150XLHD x 176 Inside #2 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 16 rows
		13,593 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,126.80	100	16.0	0	0	100
1,128.00	5,320	460.0	2,460	2,460	16,921

Device	Routing	Invert	Outlet Devices
#1	Secondary	1,127.30'	3.0' long 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
#2	Discarded	1,122.50'	2.410 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 1,118.00'
#3	Device 4	1,124.50'	6.0" Horiz. Orifice C= 0.600 Limited to weir flow at low heads
#4	Primary	1,120.50'	12.0" Round Culvert L= 80.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,120.50' / 1,119.50' S= 0.0125 ' / ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Discarded OutFlow Max=1.36 cfs @ 12.23 hrs HW=1,127.69' (Free Discharge)
↳2=Exfiltration (Controls 1.36 cfs)

Primary OutFlow Max=1.69 cfs @ 12.23 hrs HW=1,127.69' (Free Discharge)
↳4=Culvert (Passes 1.69 cfs of 8.62 cfs potential flow)
↳3=Orifice (Orifice Controls 1.69 cfs @ 8.60 fps)

Secondary OutFlow Max=1.82 cfs @ 12.23 hrs HW=1,127.69' (Free Discharge)
↳1=Broad-Crested Rectangular Weir (Weir Controls 1.82 cfs @ 1.56 fps)

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Type III 24-hr 100 Year Storm Rainfall=7.16"

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Pond 16P: Storage - Chamber Wizard Field A

Chamber Model = Cultec R-150XLHD (Cultec Recharger® 150XLHD)

Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf

Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap

Row Length Adjustment= +0.75' x 2.65 sf x 16 rows

33.0" Wide + 4.0" Spacing = 37.0" C-C Row Spacing

11 Chambers/Row x 10.25' Long +0.75' Row Adjustment = 113.50' Row Length +12.0" End Stone x 2 =
115.50' Base Length

16 Rows x 33.0" Wide + 4.0" Spacing x 15 + 12.0" Side Stone x 2 = 51.00' Base Width

11.5" Base + 18.5" Chamber Height + 12.0" Cover = 3.50' Field Height

176 Chambers x 27.2 cf +0.75' Row Adjustment x 2.65 sf x 16 Rows = 4,810.6 cf Chamber Storage

20,616.8 cf Field - 4,810.6 cf Chambers = 15,806.2 cf Stone x 40.0% Voids = 6,322.5 cf Stone Storage

Chamber Storage + Stone Storage = 11,133.1 cf = 0.256 af

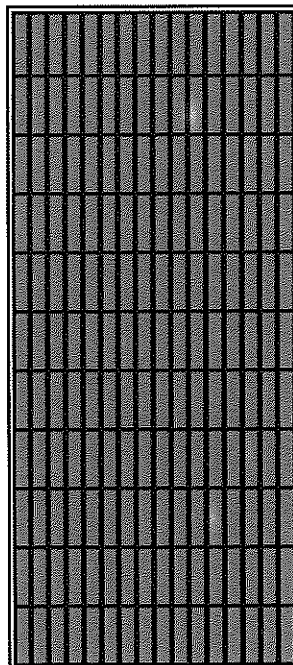
Overall Storage Efficiency = 54.0%

Overall System Size = 115.50' x 51.00' x 3.50'

176 Chambers

763.6 cy Field

585.4 cy Stone



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Proposed Berkshire Mazda

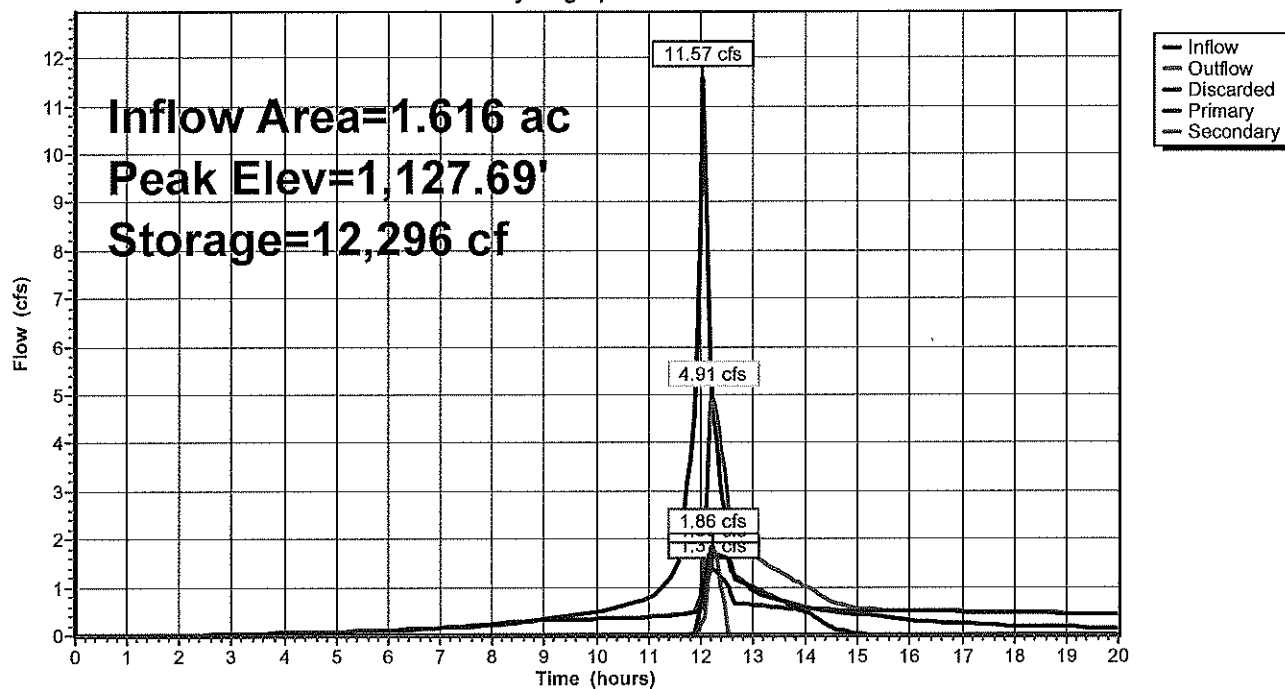
Type III 24-hr 100 Year Storm Rainfall=7.16"

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Pond 16P: Storage

Hydrograph



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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Hydrograph for Pond 16P: Storage

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	1,122.50	0.00	0.00	0.00	0.00
0.50	0.00	0	1,122.50	0.00	0.00	0.00	0.00
1.00	0.00	0	1,122.50	0.00	0.00	0.00	0.00
1.50	0.00	0	1,122.50	0.00	0.00	0.00	0.00
2.00	0.00	1	1,122.50	0.00	0.00	0.00	0.00
2.50	0.02	5	1,122.50	0.01	0.01	0.00	0.00
3.00	0.03	11	1,122.50	0.03	0.03	0.00	0.00
3.50	0.04	16	1,122.51	0.04	0.04	0.00	0.00
4.00	0.06	21	1,122.51	0.05	0.05	0.00	0.00
4.50	0.07	27	1,122.51	0.07	0.07	0.00	0.00
5.00	0.09	32	1,122.51	0.08	0.08	0.00	0.00
5.50	0.10	37	1,122.52	0.10	0.10	0.00	0.00
6.00	0.11	43	1,122.52	0.11	0.11	0.00	0.00
6.50	0.14	51	1,122.52	0.13	0.13	0.00	0.00
7.00	0.17	62	1,122.53	0.16	0.16	0.00	0.00
7.50	0.20	74	1,122.53	0.19	0.19	0.00	0.00
8.00	0.23	86	1,122.54	0.22	0.22	0.00	0.00
8.50	0.29	107	1,122.55	0.27	0.27	0.00	0.00
9.00	0.35	133	1,122.56	0.33	0.33	0.00	0.00
9.50	0.42	230	1,122.60	0.34	0.34	0.00	0.00
10.00	0.50	443	1,122.69	0.35	0.35	0.00	0.00
10.50	0.63	811	1,122.84	0.36	0.36	0.00	0.00
11.00	0.77	1,396	1,123.09	0.38	0.38	0.00	0.00
11.50	1.24	2,441	1,123.49	0.42	0.42	0.00	0.00
12.00	8.54	7,705	1,124.64	0.80	0.53	0.27	0.00
12.50	2.03	11,616	1,127.42	2.98	1.07	1.62	0.29
13.00	0.91	10,292	1,125.64	1.64	0.63	1.01	0.00
13.50	0.72	9,053	1,125.12	1.32	0.58	0.74	0.00
14.00	0.58	8,127	1,124.76	1.03	0.54	0.48	0.00
14.50	0.51	7,555	1,124.60	0.70	0.53	0.17	0.00
15.00	0.44	7,299	1,124.54	0.56	0.52	0.04	0.00
15.50	0.38	7,077	1,124.48	0.52	0.52	0.00	0.00
16.00	0.31	6,769	1,124.41	0.51	0.51	0.00	0.00
16.50	0.28	6,382	1,124.32	0.50	0.50	0.00	0.00
17.00	0.25	5,959	1,124.23	0.49	0.49	0.00	0.00
17.50	0.22	5,500	1,124.13	0.48	0.48	0.00	0.00
18.00	0.19	5,007	1,124.02	0.47	0.47	0.00	0.00
18.50	0.18	4,495	1,123.91	0.46	0.46	0.00	0.00
19.00	0.17	3,985	1,123.81	0.45	0.45	0.00	0.00
19.50	0.16	3,478	1,123.70	0.44	0.44	0.00	0.00
20.00	0.15	2,973	1,123.60	0.43	0.43	0.00	0.00

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Summary for Pond 17P: Drop inlet

Inflow Area = 0.452 ac, 30.93% Impervious, Inflow Depth > 3.28" for 100 Year Storm event
Inflow = 2.49 cfs @ 12.22 hrs, Volume= 0.124 af
Outflow = 2.49 cfs @ 12.22 hrs, Volume= 0.124 af, Atten= 0%, Lag= 0.0 min
Primary = 2.49 cfs @ 12.22 hrs, Volume= 0.124 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

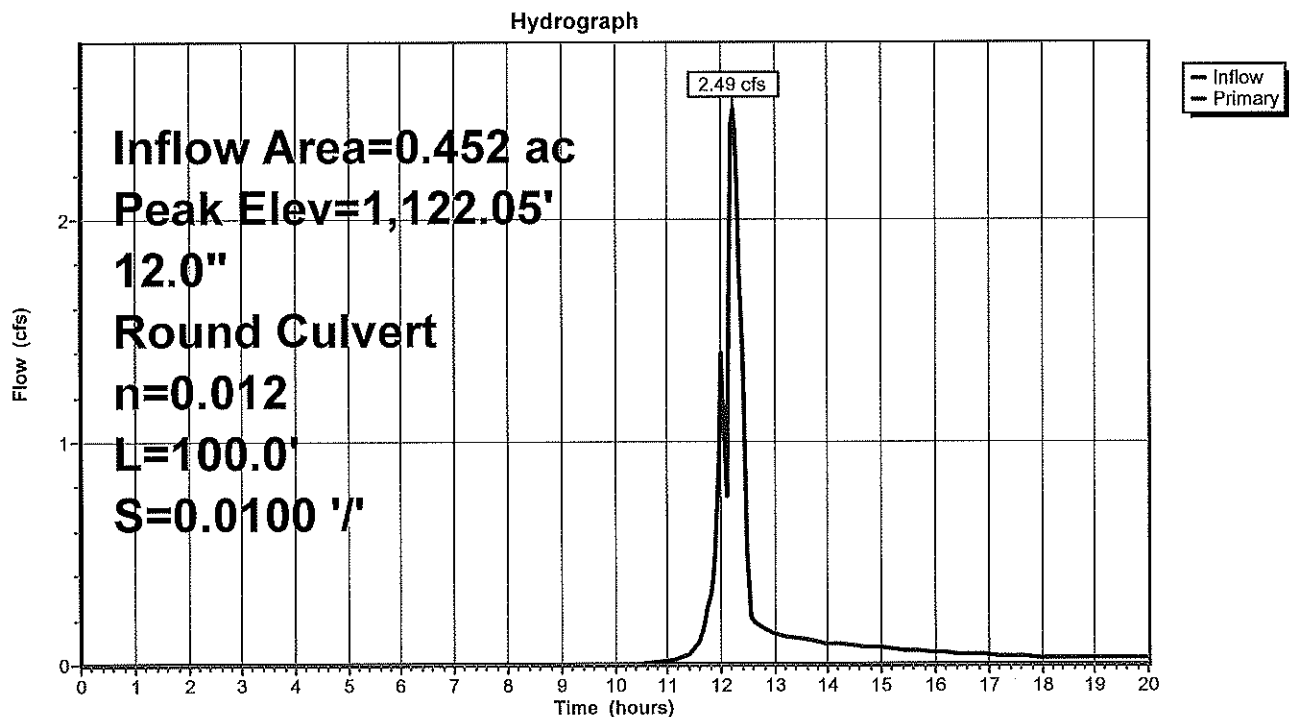
Peak Elev= 1,122.05' @ 12.22 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,121.00'	12.0" Round Culvert L= 100.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 1,121.00' / 1,120.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.41 cfs @ 12.22 hrs HW=1,122.02' (Free Discharge)

1=Culvert (Inlet Controls 2.41 cfs @ 3.07 fps)

Pond 17P: Drop inlet



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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

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Hydrograph for Pond 17P: Drop inlet

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	1,121.00	0.00	13.00	0.13	1,121.19	0.13
0.25	0.00	1,121.00	0.00	13.25	0.13	1,121.18	0.13
0.50	0.00	1,121.00	0.00	13.50	0.12	1,121.17	0.12
0.75	0.00	1,121.00	0.00	13.75	0.11	1,121.17	0.11
1.00	0.00	1,121.00	0.00	14.00	0.10	1,121.16	0.10
1.25	0.00	1,121.00	0.00	14.25	0.09	1,121.15	0.09
1.50	0.00	1,121.00	0.00	14.50	0.09	1,121.15	0.09
1.75	0.00	1,121.00	0.00	14.75	0.08	1,121.14	0.08
2.00	0.00	1,121.00	0.00	15.00	0.08	1,121.14	0.08
2.25	0.00	1,121.00	0.00	15.25	0.07	1,121.13	0.07
2.50	0.00	1,121.00	0.00	15.50	0.06	1,121.13	0.06
2.75	0.00	1,121.00	0.00	15.75	0.06	1,121.12	0.06
3.00	0.00	1,121.00	0.00	16.00	0.05	1,121.12	0.05
3.25	0.00	1,121.00	0.00	16.25	0.05	1,121.11	0.05
3.50	0.00	1,121.00	0.00	16.50	0.05	1,121.11	0.05
3.75	0.00	1,121.00	0.00	16.75	0.05	1,121.11	0.05
4.00	0.00	1,121.00	0.00	17.00	0.04	1,121.11	0.04
4.25	0.00	1,121.00	0.00	17.25	0.04	1,121.10	0.04
4.50	0.00	1,121.00	0.00	17.50	0.04	1,121.10	0.04
4.75	0.00	1,121.00	0.00	17.75	0.04	1,121.10	0.04
5.00	0.00	1,121.00	0.00	18.00	0.03	1,121.09	0.03
5.25	0.00	1,121.00	0.00	18.25	0.03	1,121.09	0.03
5.50	0.00	1,121.00	0.00	18.50	0.03	1,121.09	0.03
5.75	0.00	1,121.00	0.00	18.75	0.03	1,121.09	0.03
6.00	0.00	1,121.00	0.00	19.00	0.03	1,121.09	0.03
6.25	0.00	1,121.00	0.00	19.25	0.03	1,121.09	0.03
6.50	0.00	1,121.00	0.00	19.50	0.03	1,121.09	0.03
6.75	0.00	1,121.00	0.00	19.75	0.03	1,121.09	0.03
7.00	0.00	1,121.00	0.00	20.00	0.03	1,121.08	0.03
7.25	0.00	1,121.00	0.00				
7.50	0.00	1,121.00	0.00				
7.75	0.00	1,121.00	0.00				
8.00	0.00	1,121.00	0.00				
8.25	0.00	1,121.00	0.00				
8.50	0.00	1,121.00	0.00				
8.75	0.00	1,121.00	0.00				
9.00	0.00	1,121.00	0.00				
9.25	0.00	1,121.00	0.00				
9.50	0.00	1,121.00	0.00				
9.75	0.00	1,121.00	0.00				
10.00	0.00	1,121.00	0.00				
10.25	0.00	1,121.00	0.00				
10.50	0.00	1,121.02	0.00				
10.75	0.01	1,121.05	0.01				
11.00	0.02	1,121.07	0.02				
11.25	0.03	1,121.09	0.03				
11.50	0.06	1,121.12	0.06				
11.75	0.25	1,121.26	0.25				
12.00	1.40	1,121.68	1.40				
12.25	2.39	1,122.01	2.39				
12.50	0.51	1,121.38	0.51				
12.75	0.17	1,121.21	0.17				

Calcs Nov 22

Prepared by SK Design Group, Inc

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

Printed 11/11/2022

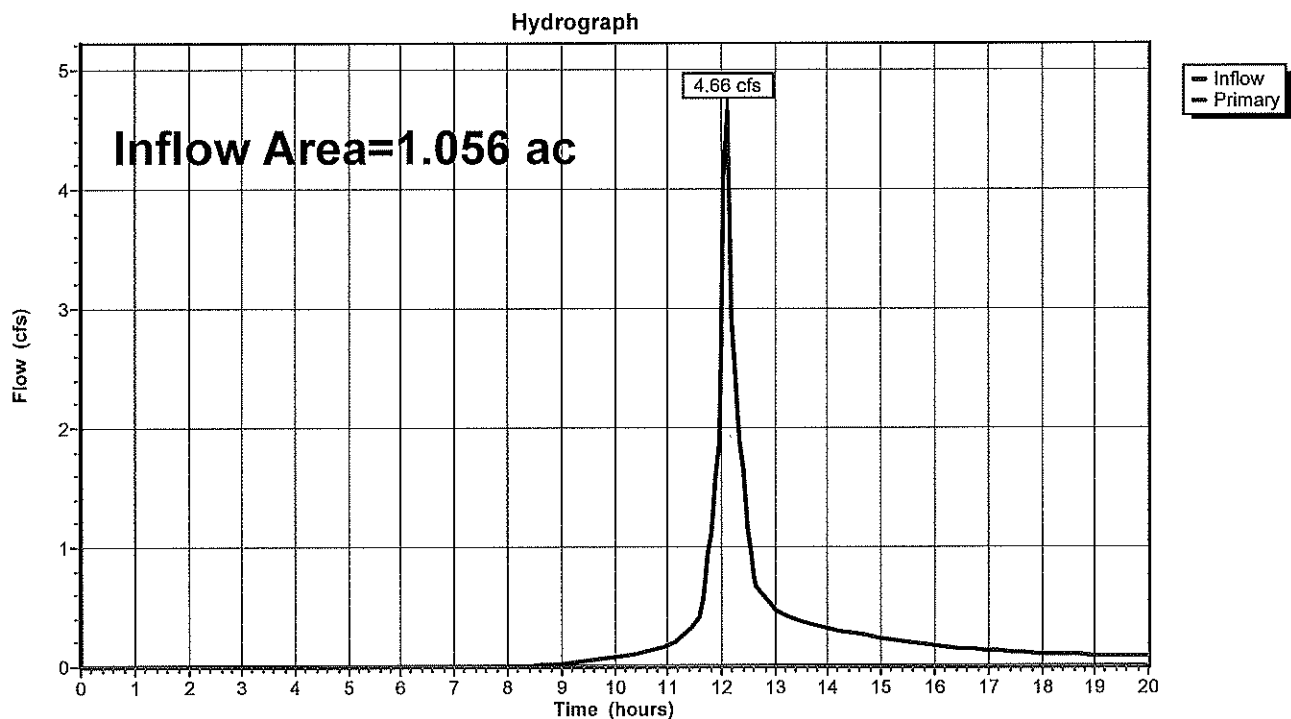
Page 166

Summary for Link 1L: Wetland PRE

Inflow Area = 1.056 ac, 9.09% Impervious, Inflow Depth > 3.59" for 100 Year Storm event
Inflow = 4.66 cfs @ 12.10 hrs, Volume= 0.316 af
Primary = 4.66 cfs @ 12.10 hrs, Volume= 0.316 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Wetland PRE



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

Printed 11/11/2022

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Hydrograph for Link 1L: Wetland PRE

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	13.00	0.48	0.00	0.48
0.25	0.00	0.00	0.00	13.25	0.41	0.00	0.41
0.50	0.00	0.00	0.00	13.50	0.38	0.00	0.38
0.75	0.00	0.00	0.00	13.75	0.35	0.00	0.35
1.00	0.00	0.00	0.00	14.00	0.31	0.00	0.31
1.25	0.00	0.00	0.00	14.25	0.29	0.00	0.29
1.50	0.00	0.00	0.00	14.50	0.27	0.00	0.27
1.75	0.00	0.00	0.00	14.75	0.26	0.00	0.26
2.00	0.00	0.00	0.00	15.00	0.24	0.00	0.24
2.25	0.00	0.00	0.00	15.25	0.22	0.00	0.22
2.50	0.00	0.00	0.00	15.50	0.20	0.00	0.20
2.75	0.00	0.00	0.00	15.75	0.19	0.00	0.19
3.00	0.00	0.00	0.00	16.00	0.17	0.00	0.17
3.25	0.00	0.00	0.00	16.25	0.16	0.00	0.16
3.50	0.00	0.00	0.00	16.50	0.15	0.00	0.15
3.75	0.00	0.00	0.00	16.75	0.14	0.00	0.14
4.00	0.00	0.00	0.00	17.00	0.14	0.00	0.14
4.25	0.00	0.00	0.00	17.25	0.13	0.00	0.13
4.50	0.00	0.00	0.00	17.50	0.12	0.00	0.12
4.75	0.00	0.00	0.00	17.75	0.11	0.00	0.11
5.00	0.00	0.00	0.00	18.00	0.10	0.00	0.10
5.25	0.00	0.00	0.00	18.25	0.10	0.00	0.10
5.50	0.00	0.00	0.00	18.50	0.10	0.00	0.10
5.75	0.00	0.00	0.00	18.75	0.10	0.00	0.10
6.00	0.00	0.00	0.00	19.00	0.09	0.00	0.09
6.25	0.00	0.00	0.00	19.25	0.09	0.00	0.09
6.50	0.00	0.00	0.00	19.50	0.09	0.00	0.09
6.75	0.00	0.00	0.00	19.75	0.09	0.00	0.09
7.00	0.00	0.00	0.00	20.00	0.08	0.00	0.08
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.01	0.00	0.01				
8.75	0.02	0.00	0.02				
9.00	0.03	0.00	0.03				
9.25	0.04	0.00	0.04				
9.50	0.05	0.00	0.05				
9.75	0.06	0.00	0.06				
10.00	0.08	0.00	0.08				
10.25	0.10	0.00	0.10				
10.50	0.12	0.00	0.12				
10.75	0.15	0.00	0.15				
11.00	0.18	0.00	0.18				
11.25	0.25	0.00	0.25				
11.50	0.35	0.00	0.35				
11.75	0.92	0.00	0.92				
12.00	2.72	0.00	2.72				
12.25	2.43	0.00	2.43				
12.50	1.16	0.00	1.16				
12.75	0.61	0.00	0.61				

Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

Printed 11/11/2022

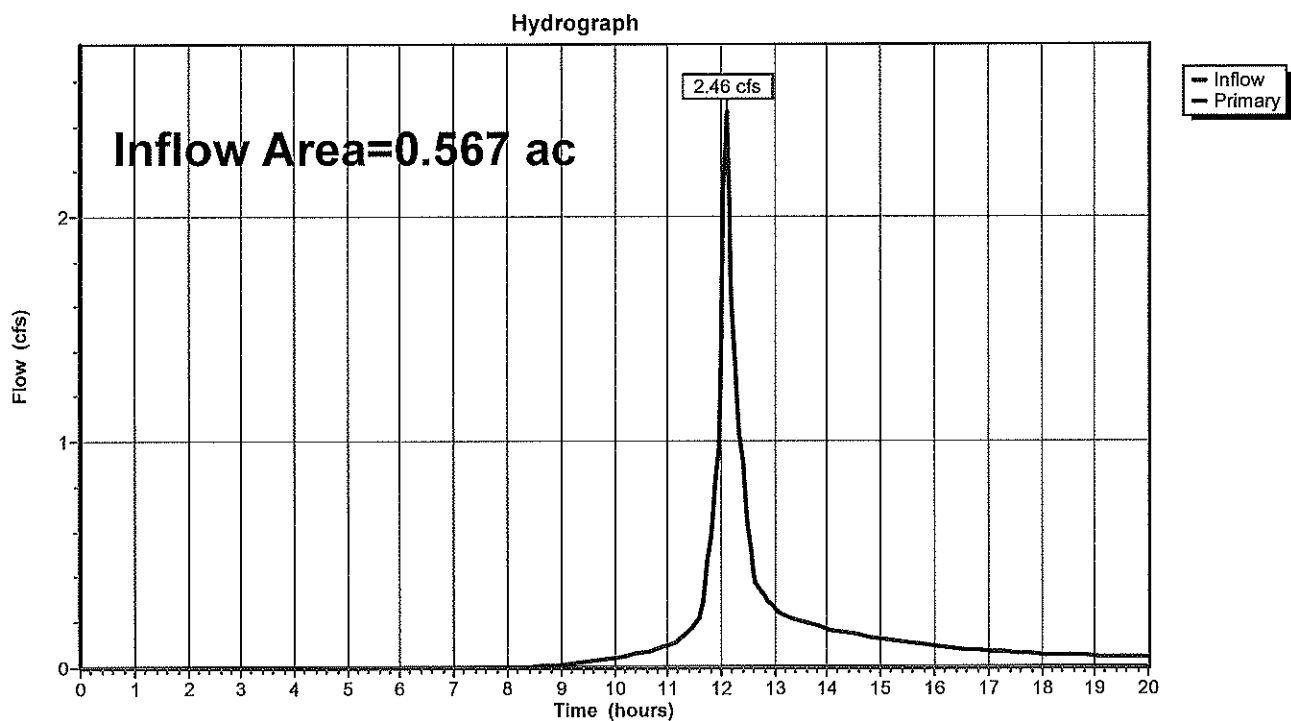
Page 168

Summary for Link 2L: Wetland POST

Inflow Area = 0.567 ac, 1.74% Impervious, Inflow Depth > 3.59" for 100 Year Storm event
Inflow = 2.46 cfs @ 12.10 hrs, Volume= 0.170 af
Primary = 2.46 cfs @ 12.10 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Link 2L: Wetland POST



Calcs Nov 22

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Proposed Berkshire Mazda

Type III 24-hr 100 Year Storm Rainfall=7.16"

Printed 11/11/2022

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Hydrograph for Link 2L: Wetland POST

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	13.00	0.26	0.00	0.26
0.25	0.00	0.00	0.00	13.25	0.22	0.00	0.22
0.50	0.00	0.00	0.00	13.50	0.20	0.00	0.20
0.75	0.00	0.00	0.00	13.75	0.19	0.00	0.19
1.00	0.00	0.00	0.00	14.00	0.17	0.00	0.17
1.25	0.00	0.00	0.00	14.25	0.16	0.00	0.16
1.50	0.00	0.00	0.00	14.50	0.15	0.00	0.15
1.75	0.00	0.00	0.00	14.75	0.14	0.00	0.14
2.00	0.00	0.00	0.00	15.00	0.13	0.00	0.13
2.25	0.00	0.00	0.00	15.25	0.12	0.00	0.12
2.50	0.00	0.00	0.00	15.50	0.11	0.00	0.11
2.75	0.00	0.00	0.00	15.75	0.10	0.00	0.10
3.00	0.00	0.00	0.00	16.00	0.09	0.00	0.09
3.25	0.00	0.00	0.00	16.25	0.08	0.00	0.08
3.50	0.00	0.00	0.00	16.50	0.08	0.00	0.08
3.75	0.00	0.00	0.00	16.75	0.08	0.00	0.08
4.00	0.00	0.00	0.00	17.00	0.07	0.00	0.07
4.25	0.00	0.00	0.00	17.25	0.07	0.00	0.07
4.50	0.00	0.00	0.00	17.50	0.06	0.00	0.06
4.75	0.00	0.00	0.00	17.75	0.06	0.00	0.06
5.00	0.00	0.00	0.00	18.00	0.06	0.00	0.06
5.25	0.00	0.00	0.00	18.25	0.05	0.00	0.05
5.50	0.00	0.00	0.00	18.50	0.05	0.00	0.05
5.75	0.00	0.00	0.00	18.75	0.05	0.00	0.05
6.00	0.00	0.00	0.00	19.00	0.05	0.00	0.05
6.25	0.00	0.00	0.00	19.25	0.05	0.00	0.05
6.50	0.00	0.00	0.00	19.50	0.05	0.00	0.05
6.75	0.00	0.00	0.00	19.75	0.05	0.00	0.05
7.00	0.00	0.00	0.00	20.00	0.05	0.00	0.05
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.01	0.00	0.01				
9.00	0.01	0.00	0.01				
9.25	0.02	0.00	0.02				
9.50	0.03	0.00	0.03				
9.75	0.03	0.00	0.03				
10.00	0.04	0.00	0.04				
10.25	0.05	0.00	0.05				
10.50	0.06	0.00	0.06				
10.75	0.08	0.00	0.08				
11.00	0.10	0.00	0.10				
11.25	0.13	0.00	0.13				
11.50	0.18	0.00	0.18				
11.75	0.48	0.00	0.48				
12.00	1.37	0.00	1.37				
12.25	1.35	0.00	1.35				
12.50	0.65	0.00	0.65				
12.75	0.33	0.00	0.33				

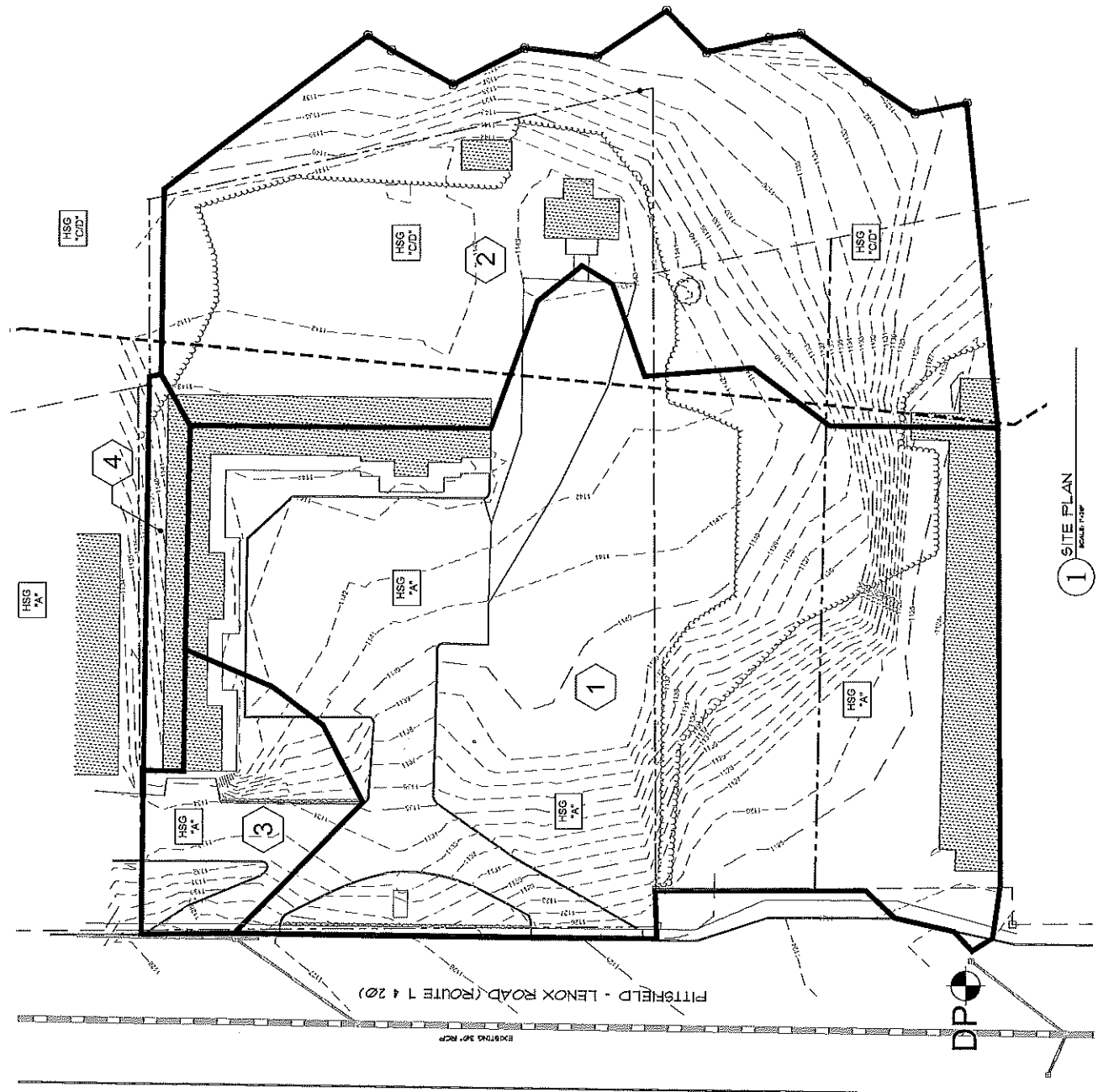
Appendix H

Watershed Plans

LEGEND

- WATERSHED BOUNDARY
- SOIL BOUNDARY
- DESIGN POINT
- TYPE OF CONCENTRATION
- OUTLETS

3



GRAPHIC SCALE
0 10 20 30 40
FEET
1" = 40'

THESE PLANS ARE FOR PERMITTING PURPOSES ONLY
NOT FOR CONSTRUCTION

PLANS TO ACCOMPANY PERMIT APPLICATIONS
PREPARED FOR:
SHEEHAN CAPITAL INVESTMENTS, LLC
LOCATED AT:
414 PITTSFIELD-LENOX ROAD
LENOX, MASSACHUSETTS

Design Group, Inc.
Civil Engineers, Surveyors, Consultants
REGISTERED PROFESSIONAL ENGINEERS
MASSACHUSETTS REG. NO. 10173
MASSACHUSETTS REG. NO. 10173

EXISTING WATERSHED PLAN

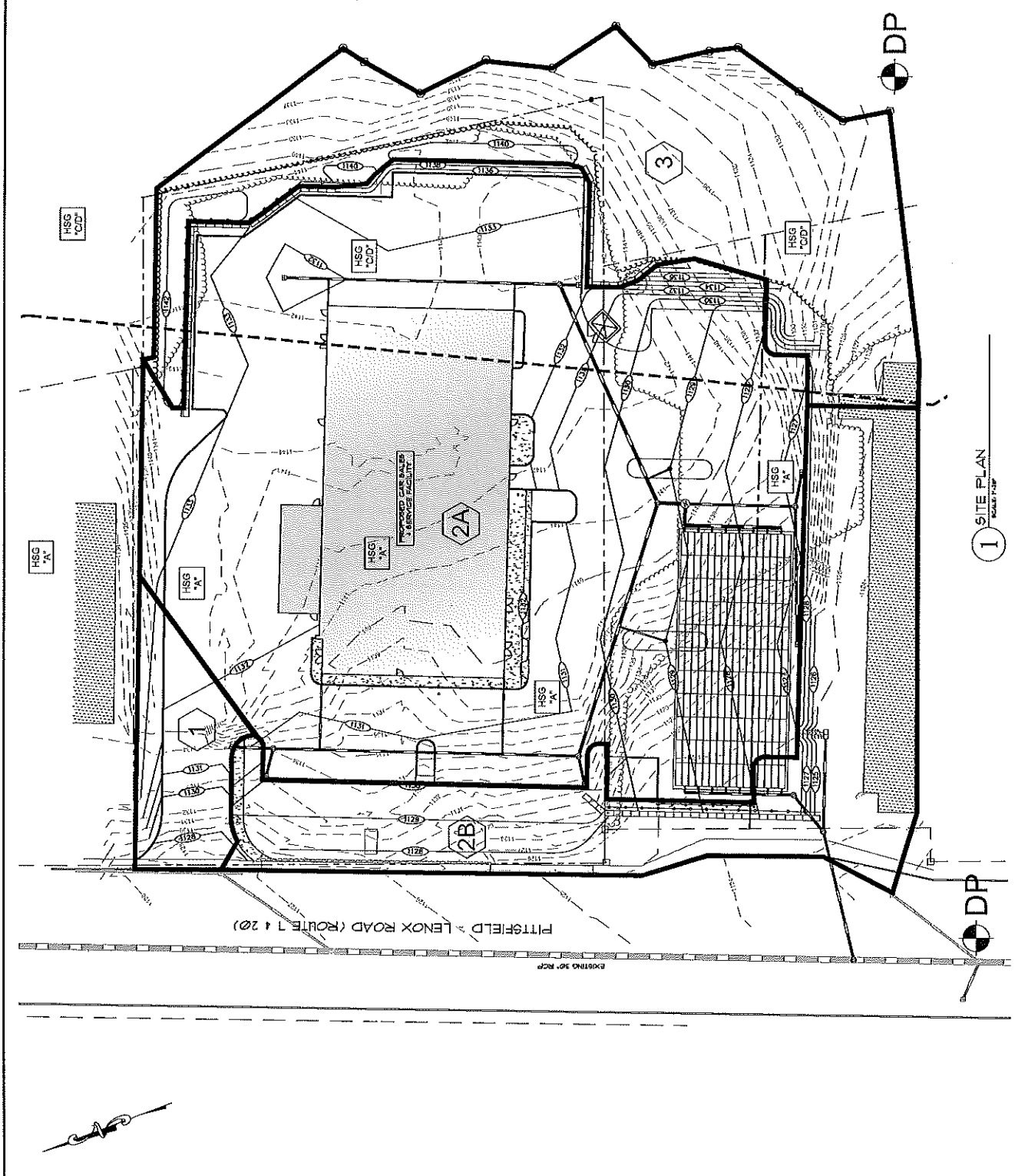
22055
MASSACHUSETTS
REGISTERED PROFESSIONAL ENGINEER
NO. 10173
DATE: 10/1/2010

DATE	BY	CHKD	DATE
10/1/2010	AKL	JAD	10/1/2010
NO. OF SHEETS	1	TOTAL NO. OF SHEETS	2
NO. OF SHEETS	1	TOTAL NO. OF SHEETS	2

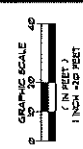
LEGEND

- WATERSHED BOUNDARY
- SOIL BOUNDARY
- DESIGN POINT
- TIME OF CONCENTRATION
- SUBAREA

3



THESE PLANS ARE FOR
PERMITTING PURPOSES
ONLY
NOT FOR CONSTRUCTION



PLANS TO ACCOMPANY PERMIT APPLICATIONS
PREPARED FOR:
SHEEHAN CAPITAL INVESTMENTS, LLC
LOCATED AT:
414 PITTSFIELD-LENOX ROAD
LENOX, MASSACHUSETTS

Design Group, Inc.
DESIGN GROUP, INC.
PROPOSED WATERSHED PLAN

PROJECT NO. 22051
SHEET NO. 2
DATE: 10/15/2011
DRAWN BY: [Signature]
CHECKED BY: [Signature]
APPROVED BY: [Signature]