STORMWATER MANAGEMENT REPORT

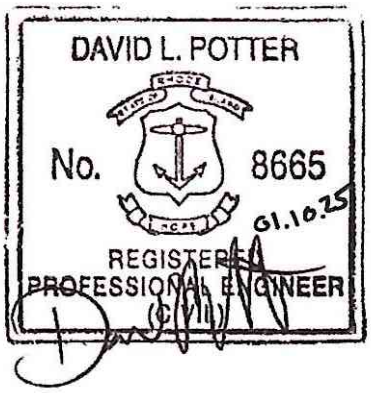
Pare Project No. 23099.01

Mt. Hope High School
199 Chestnut Street
Bristol, Rhode Island 02809

Assessors Map 117, Lot 3, 4, 5, 6, & 7

Prepared for:

Bristol Warren Regional School District
235 High Street
Bristol, RI 02809



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PROJECT DESCRIPTION

Bristol Warren Regional School District is proposing the construction of Mt. Hope High School at their existing high school facility located at 199 Chestnut St. The project area encompasses 29.80 acres and is located on the Bristol Assessor's Plat 117, Lot 3, 4, 5, 6, & 7. The parcel is owned by Bristol Warren Regional School District and is approximately 44.40 acres.

The existing site includes the existing high school building and athletic fields. The site also includes auxiliary buildings, parking lots and drive aisles, wetlands, and a portion of Silver Creek. The proposed project includes a new high school building, athletic fields, parking areas and drive aisles, utility connections, and stormwater management areas. With over 10,000 sf of existing impervious area being altered and less than 40% of the site as existing impervious surfaces, the project qualifies as a new development project per Section 3.2.6 of the RISDISM.

METHODOLOGY

Hydrologic calculations for existing and proposed conditions were performed using HydroCAD Version 10.10 software, which uses TR-55 methodology to calculate runoff and TR-20 methodology for storm routing through the stormwater detention facilities. Site hydrology was evaluated for the 1.2" storm event as well as the 1-year, 2-year, 10-year, 25-year and 100-year frequency storms in accordance with the Rhode Island Stormwater Design and Installation Standards Manual (RISDISM) and the Town of Bristol's Code of Ordinances. Existing and Proposed Watershed Maps, indicating the subwatersheds and associated stormwater flow paths may be found in Appendix D.

The hydraulic design calculations were completed using the Rational Method to calculate the accumulated flows to each structure. The stormwater conveyance system was designed using Manning's Equation. Autodesk Hydraflow Storm Sewer software was used to perform the design calculations. The stormwater conveyance system was designed to handle the runoff generated by a 25-year design storm.

The stormwater drainage design was developed in accordance with the State of Rhode Island Stormwater Design and Installations Standards Manual (RISDISM), which was amended March

2015. The Appendix A Checklist, revised September 2020, is applied to this project and included in Appendix C.

EXISTING CONDITIONS

The project area is bound by residential properties to the north, Naomi Street and residential properties to the west, Chestnut Street and an existing cemetery to the south, and a wetland complex and residential properties to the east. The watershed analyzed for the project has a total area of approximately 47.6 acres. The limit of disturbance for the project is 29.80 acres.

A delineation of freshwater wetlands within the vicinity of proposed building was completed on February 12 & 28, 2024 by LEC Environmental. The delineation was completed in accordance with the Rhode Island Fresh Water Wetlands Act (R.I.G.L. 2-1-18 et. Seq.), and consistent with Appendix 2 of the Rhode Island Department of Environmental Management (RIDEM) Rules and Regulations Governing the Administration and Enforcement of the Rhode Island Freshwater Wetlands Act (the Regulations). The wetland complex contains a wet meadow, a pond, and a forested swamp, which receive a 50-foot buffer area and a 100-foot jurisdictional area. Silver Creek East Branch extends from the wetland complex northeast of the existing school, beneath the existing school to a pond. Water from the pond flows over a dam and to a culvert beneath Chestnut Street. There are three dual 48" dia culverts between the pond and northeast wetland. Silver Creek receives a 100-foot buffer zone and a 200-foot jurisdictional area. The wetland areas are depicted on the proposed site plans.

Per available RIDEM mapping, the project site is located within a natural heritage area. Refer to the Freshwater Wetlands Application regarding the natural heritage assessment for the project site.

According to the FEMA Flood Insurance Rate Map for Bristol County, Rhode Island (Community-Panel 44001C0014H, effective date July 7, 2014), Silver Creek and the wetland northeast of the existing school are located within Zone AE. The rest of the site is located within Zone X.

Within the Silver Creek Watershed the project site has contributing drainage areas to both the East Branch and West Branch. The Silver Creek West Branch subwatershed (West subwatershed)

includes runoff that flows to the wetland in the southwest corner of the site. A portion of the stormwater runoff directed to the southwest wetland enters an existing detention basin through a piped drainage system and is discharged through an outlet control structure into the southwest wetland.

The Silver Creek East Branch subwatershed (East subwatershed) includes runoff that flows to Silver Creek and the culvert beneath Chestnut Street. The northeast wetland flows into Silver Creek which flows to an existing pond on campus with a controlled outlet dam and two culverts. Stormwater runoff from the East subwatershed enters the stream through overland flow and a piped drainage system. The effective FIRM established in 2014 is the regulatory floodplain information currently available for the project site. Based on this information, compensatory storage calculations and culvert hydrology were assessed using the available published data.

According to the Soil Survey of Rhode Island (US Department of Agriculture Soil Conservation Service 1981), the soils located at the site are a mix of primarily Udorthents-Urban land complex (UD), Urban Land (Ur) and Stissing silt loam (Se). There are less significant sections of Pittstown silt loam (PmA), and Pittstown silt loam (PmB). The soils on-site are in hydrologic soil group C and D and are generally poorly drained.

Ten test pits were excavated on July 18, 2024 to review below grade conditions at the site. Locations can be found on the plan and test pit logs found in Appendix A. The on-site soils generally consist of fill atop a layer of sandy loam atop a layer of silty loam. Fill material from previous grading and site development operations was observed at depths ranging from 6" to 70" throughout the site. Based upon the classification of soils surrounding the site and soil properties observed during the test pit excavations, the on-site soils are modeled within Hydrologic Group "C" in this analysis. The estimated seasonal high groundwater table varies across the site. Redoximorphic features were observed in all of the test pits with depths ranging from 10" to 38" below grade.

Additional test pits observed by Pare on October 9, 2020 were used as supplemental information for groundwater assessment. A total of six test pits were excavated and observations, including soil strata, redoximorphic features, and groundwater elevations, were logged. Test Pits 20-01, 20-02 and 20-03 have estimated seasonal high ground water tables (ESHGWT) at less than 2 feet

below existing grade. Test pits 20-04, 20-05, and 20-06 showed the ESHGWT between 2 feet and 4 feet below existing grade. Additional test pit information was used as supplemental information for groundwater assessment. Historic test pits were completed on November 17, 2008, and February 22, 2010. Based on the test pit data collected to date, the estimated season high ground water table is influenced by the presence of a poorly draining restrictive soil type that consists of loamy sand and silty loam. Refer to Appendix A for test pit logs and the plan set for test pit locations.

The existing topography of the eastern side of the site generally slopes toward the northeast wetland and Silver Creek. The existing topography of the western side of the site generally slopes west toward Naomi Street and a wetland in the southwest corner of the property.

The existing site contains approximately 10.54 acres of impervious area within the limit of disturbance, which consists of the existing high school, parking lots, drive aisles, sidewalks, track and softball infield mix. The remaining portions of the site are grass, woods, and wetlands. The existing surface covers were modeled as-is in the hydrologic analysis.

Stormwater from the existing site ultimately flows to 6 design points: “DP 1.1 Culvert 1”, “DP 1.2 Culvert 2”, “DP 1.3 Culvert 3”, “DP 1.4 Silver Creek East Branch”, “DP 2.1 West Wetland”, “DP 2.2 Silver Creek West Branch”.

Design point “DP 1.1 Culvert 1” is located to the east of the project area northeast of the existing school upstream of the northernmost culvert. Runoff reaches this design point via overland flow.

Design point “DP 1.2 Culvert 2” is located to the east of the project area within the footprint of the existing school building. The design point is located upstream of the second culvert. Runoff reaches this design point via overland flow.

Design point “DP 1.3 Culvert 3” is located to the center of the project area west of the school. The design point is located upstream of the third culvert. Runoff reaches this design point via a piped network and overland flow.

Design point "DP 1.4 Silver Creek East Branch" is located to the south of the project area at the entrance to the culvert beneath Chestnut Street. Runoff reaches this design point via a piped network and overland flow.

Design point "DP 2.1 West Wetland" is located within the wetland west of the project area. Runoff reaches this design point via a piped network and overland flow.

Design point "DP 2.2 Silver Creek West Branch" is located at the southwest corner of the property where the wetland outlets to the public drainage system. Runoff reaches this design point via a pipe network and overland flow.

Under existing conditions, 11 subwatersheds were analyzed, EDA-1.1A, EDA-1.2A, EDA-1.3A, EDA-1.4A, EDA-1.4B, EDA-1.4C, EDA-1.4D, EDA-2.1A, EDA-2.1B, EDA-2.2A, and EDA-2.2B. Sheet XBT-1 included in Appendix D depicts the limits of the existing conditions hydrology.

EDA-1.1A is comprised of grassed and wooded area and a wetland, at the northwest of the property. Runoff flows toward the wetland and Silver Creek. EDA-1.1A contributes to Design Point "DP-1.1 Culvert 1"

EDA-1.2A is comprised of roof cover, grassed area, and a portion of Silver Creek, at the east of the property. Runoff flows north toward the culvert. EDA-1.2A contributes to Design Point "DP-1.2 Culvert 2"

EDA-1.3A is comprised of roof cover, paved parking, grassed area and a portion of Silver Creek, at the center of the property, west of the existing school building. Runoff flows southwest toward the culvert. EDA-1.3A contributes to Design Point "DP-1.3 Culvert 3"

EDA-1.4A is comprised of roof cover, grassed area, and paved parking, at the southeast of the property. Runoff flows toward catch basins where it is piped toward Silver Creek. EDA-1.4A contributes to Design Point "DP-1.4 Silver Creek East Branch"

EDA-1.4 B, C, & D are comprised of roof cover, paved parking, and grass cover, at the center and southern end of the property. Runoff flows overland toward Silver Creek. EDA-1.4 B, C, & D contributes to Design Point "DP-1.4 Silver Creek East Branch"

EDA-2.1A is comprised of grass cover, an asphalt walkway and athletic facilities at the north of the property. Runoff flows are captured in a pipe network or flows overland to an existing detention basin. The detention basin is modeled as Pond1P. The dimensions modeled were based upon recent field survey and the 2015 stormwater report from the "Mt. Hope High School Athletic Fields Drainage Improvement" project, RIDEM application no.10-0119. EDA-2.1A contributes to Design Point "DP-2.1 West Wetland"

EDA-2.1B is comprised of grassed cover and impervious cover from the existing track, at the center of the property. Runoff flows west toward the existing football field where it is captured and piped to the design point. EDA-2.1B contributes to Design Point "DP-2.1 West Wetland"

EDA-2.2A is comprised of grassed area and paved roadway, at the west of the property. Runoff flows overland toward the existing drainage system in the road. EDA-2.2A contributes to Design Point "DP-2.2 Silver Creek West Branch"

EDA-2.2B is comprised of roof cover, paved parking, grassed and wooded area, and an existing wetland, at the southwest of the property. Runoff flows overland toward the design point. EDA-2.2B contributes to Design Point "DP-2.1 West Wetland"

PROPOSED CONDITIONS

The proposed improvements include the construction of a new high school building with a total GFS of approximately 168,364 square feet. Exterior site improvements include parking lots, paved walks, access drives, new athletic fields, utility connections, and stormwater management areas. The proposed condition has approximately 12.54 acres of impervious surface within the limit of disturbance, resulting in a net increase of 2.00 acres of impervious area. These impervious surfaces include the building, parking areas, drive aisles, track, synthetic turf. The project is also proposes softball and athletic fields that include an infield mix and warning tracks which is approximately 1.10 acres of compacted material.

The proposed building is located northwest of Silver Creek outside the 100-yr floodplain per the 2014 effective floodplain limits. The building finished floor elevation is set at elevation 62.9 with a small southern section set at elevation 60.9. These elevations are above the flood elevation depicted on available FEMA mapping.

Parking is located north, west, and east of the building. Athletic fields surround the school building to the north, west, and east. To the south of the building is Silver Creek.

The proposed project will require stormwater management systems to handle the increase in stormwater runoff and pollutant loading to the discharge points. Stormwater best management practices are located throughout the site to treat stormwater as close to the source as practicable. All new stormwater collection, storage, and treatment systems are designed in accordance with the Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8), *State of Rhode Island Storm Water Design and Installation Standards Manual* prepared by the Rhode Island Department of Environmental Management (RIDEM) dated December 2010 and amended March 2015. Pre-development runoff rates will be maintained and released into existing drainage paths downstream of proposed improvements. Runoff from proposed impervious areas will be treated prior to leaving the site.

The grading scheme is designed to shed water as in the existing conditions to the maximum extent possible. Grades generally slope away from the building to protect the building from

stormwater runoff. Stormwater management and grading schemes were also designed to minimize impacts to the floodplain to the maximum extents practicable.

The proposed stormwater management system utilizes a combination of low-impact development (LID) design strategies and stormwater best management practices (BMP's) for conveyance, treatment and recharge of stormwater. The stormwater management system captures overland flow with either yard drains, area drains, or catch basins and conveys runoff through a closed drainage network to BMP's. The stormwater best management practices include sediment forebays, bioretention areas, sand filters, a wet swale, an infiltration basin, an underground infiltration system, and detention basins. Where feasible, sidewalks and athletic site features were designed to sheet flow across grassed areas for treatment as a qualifying pervious area (QPA).

Grading within the 100-year floodplain was minimized and includes construction of a stormwater best management practice, removal of an existing building, and establishment of a natural vegetated area. The 100-year floodplain was assessed to avoid impacts to the floodplain. Compensatory storage volume calculations are depicted in the table below:

Table 1: Compensatory Storage Volumes (CY)

Stage Elevation	Existing Available Storage Volume	Proposed Available Storage Volume	Delta
58-59	85 CY	87 CY	+2 CY
59-60	1,343 CY	1,343 CY	0 CY
60-61	2,683 CY	3,677 CY	+994 CY

The application does not include work within wetlands or within Silver Creek to minimize impact to resource areas. Existing culverts along Silver Creek are designated to remain. Site features and portions of the existing building above the culverts will be demolished. Walls forming the bank of Silver Creek will remain. Site improvements over the existing culverts include a paved access drive, guardrail, walks, and fencing. These improvements are designed to avoid impacts on Silver Creek.

The existing upstream culvert will remain following removal of the school. The grades will be lowered slightly to reduce the potential to impact upstream areas. Riprap is proposed over this culvert and the channel sides to reduce the potential for erosion during large storm events.

Several 48" diameter reinforced concrete culvert pipes are proposed upstream of the second and third culverts along Silver Creek. The inlet invert of these pipes is set four feet above the invert of the existing 48" culverts (same elevation as the crown of existing 48" culverts). The proposed pipes are not designed to alter or impact flow through Silver Creek under normal conditions. During large storm events where flow within Silver Creek may exceed the capacity of the existing culverts, the proposed piping will provide a route for water to bypass the downstream culverts and Silver Creek and reduce potential for on-site flooding. The bypass pipes discharge to the pond downstream. Flared end sections and riprap level spreaders are provided to promote sheet flow at the outlets and reduce the potential for erosion. The bypass pipes are proposed to minimize impacts and reduce the potential for flooding over the new roadway and the walk proposed over the existing culverts.

Under proposed conditions, the site was divided into a total of 27 subwatersheds: PDA 1.1A, PDA 1.1B, PDA 1.2A, PDA 1.3A, PDA 1.3C, PDA 1.3D, PDA ROOF 1.3, PDA 1.4A, PDA 1.4B, PDA 1.4C, PDA 1.4D, PDA 1.4E, PDA 1.4F, PDA 1.4G, PDA 1.4H, PDA 1.4I, PDA 1.4J, PDA 1.4K, PDA 1.4L, PDA ROOF 1.4, PDA 2.1A, PDA 2.1B, PDA ROOF 2.1, PDA 2.2A, PDA 2.2B, PDA 2.2C.a, and PDA 2.2C.b. The subwatersheds are depicted in XBT-2 which is included in Appendix D.

PDA-1.1A consists of athletic site features, athletic track material, grass area, woods, wetlands, and a portion of Silver Creek. Runoff from this drainage area flows overland to Design Point "DP 1.1 Culvert 1."

PDA-1.1B consists of athletic track material and grass area. Runoff from this drainage area flows overland to Design Point "DP 1.2 Culvert 2."

PDA-1.2A consists of paved parking, grass cover, and a portion of Silver Creek. Runoff from this drainage area flows overland to Design Point "DP 1.3 Culvert 3."

PDA-1.3A consists of grass area and paved parking. Runoff from this drainage area flows overland to the Wet Swale where it is treated, then is piped to Detention Basin 2. PDA-1.3A contributes to Design Point "DP1.4 Silver Creek East Branch". The emergency riprap spillway for the Wet Swale contributes to Design Point "DP 1.1 Culvert 1."

PDA-1.3C & D consists of paved parking and grass area. Runoff from this drainage area flows overland to Bioretention areas 3 & 4 respectively. PDA-1.3C & D contributes to Design Point "DP1.4 Silver Creek East Branch".

PDA-ROOF 1.3 consists of roof cover. Runoff from this drainage area is piped into Bioretention area 3 and contributes to Design Point "DP1.4 Silver Creek East Branch."

PDA-1.4A consists of athletic site features, sidewalks, athletic track material and grass cover. Runoff from this drainage area flows overland to Sand Filter 4 and contributes to Design Point "DP 1.2 Culvert 2."

PDA-1.4B consists of paved parking and grass cover. Runoff from this drainage area is captured and piped to Diversion structure 2 and then to Sand filter 2. PDA-1.4B contributes to Design Point "DP1.4 Silver Creek East Branch."

PDA-1.4C consists of paved parking and grass cover. Runoff from this drainage area flows overland to Bioretention Area 2 and contributes to Design Point "DP1.4 Silver Creek East Branch."

PDA-1.4D consists of paved parking and grass cover. Runoff from this drainage area is captured and piped to Bioretention area 1 and contributes to Design Point "DP1.4 Silver Creek East Branch."

PDA-1.4E consists of paved parking and grass area. Runoff from this drainage area flows overland to Sand Filter 2 and contributes to Design Point "DP1.4 Silver Creek East Branch."

PDA-1F, J, & L consists of paved parking and grass cover. Runoff from this drainage area flows overland to Design Point "DP1.4 Silver Creek East Branch."

PDA-1.4G consists of paved parking and grass. Runoff from this drainage area flows overland to Sand Filter 3 and contributes to Design Point "DP1.4 Silver Creek East Branch."

PDA-1.4H consists of paved parking and grass cover. Runoff from this drainage area flows overland to Detention Basin 2 and contributes to Design Point "DP1.4 Silver Creek East Branch."

PDA-1.4I and PDA ROOF 1.4 of paved parking, foor cover, and grass area. Runoff from this drainage area is piped to Infiltration Basin 1 and contributes to Design Point "DP1.4 Silver Creek East Branch."

PDA-1.4K consists of paved parking and grass area. Runoff from this drainage area flows overland to Sand Filter 5 and contributes to Design Point "DP1.4 Silver Creek East Branch."

PDA-2.1A & PDA-ROOF 2.1 consists of athletic site features, athletic track materials, paved parking, roof cover, and grass area. Runoff from this drainage area is captured and piped to Sand Filter 1 and overflows toward Detention Basin 1. These PDAs contribute to Design Point "DP2.1 West Wetland."

PDA-2.1B consists of paved parking and grass cover. Runoff from this drainage area is captured and piped toward Detention Basin 1. PDA -2.1B contributes to Design Point "DP2.1 West Wetland."

PDA-2.2A consists of paved parking, grass area, and woods. Runoff from this drainage area flows overland to Design Point "DP2.2 Silver Creek West Branch."

PDA-2.2B consists of paved parking, grass area, and woods. Runoff from this drainage area flows overland to Design Point "DP2.1 West Wetland."

PDA-2.2C.a & PDA-2.2C.b consists of the synthetic turf athletic field and track. Runoff from this drainage area is captured and piped to UGIS-1 and contributes Design Point "DP2.1 West Wetland."

STORMWATER MANAGEMENT STANDARDS

The stormwater management system is designed to meet the 11 Minimum Standards of the RISDISM. The Stormwater Checklist has been completed and is included in Appendix C. The following sections describe the approach to meeting the requirements for each Minimum Standard.

Minimum Standard 1: LID Site Planning and Design Strategies

The use of Low Impact Development (LID) techniques to treat, infiltrate, and reduce the stormwater runoff at the site were incorporated wherever possible. Localized small BMPS such as bioretention areas, sand filters, infiltration basins and wet swales are provided along with QPAs at or as close to the source as practicable to provide recharge, filtration, and water quality treatment.

The QPAs are proposed adjacent to the new impervious areas to treat stormwater runoff. The width of the QPA is equivalent to the width of the contributing impervious area and the slope across the QPA is limited to less than 5%. This area is modeled in the hydrologic model as unconnected pavement.

Minimum Standard 2: Groundwater Recharge

Minimum Standard 2 is met by providing QPAs, two bioretention areas, and four sand filters, an infiltration basin and an underground infiltration system that infiltrate runoff. Refer to Recharge Calculation in Appendix C and description in Minimum Standard 3.

Minimum Standard 3: Water Quality

The proposed bioretention areas, sand filters, infiltration basins, underground infiltration system, wet swale, and QPAs are designed to provide water quality treatment to runoff collected from upstream impervious surfaces to the maximum extents practicable while maintaining existing drainage patterns. The stormwater BMP's were designed in accordance with the RISDISM requirements to remove total suspended solids and other pollutants from the stormwater runoff. See Appendix C for calculations for the stormwater facilities.

Bioretention Area with Underdrain

The bioretention areas have been designed in accordance with RIDEM Standards to promote water quality. The bioretention areas include filter media with a mulch upper layer, vegetated side slopes, a raised outlet, and spillway. Stormwater is piped to the sediment forebay, which provides pretreatment, prior to entering the bioretention area. An impermeable liner with a stone layer and perforated underdrain is placed under the filter media to discharge the treated water for Bioretention Area-02 and Bioretention Area-03. The liner is provided because the minimum separation to groundwater is not provided. The raised outlet is elevated to store the water quality volume for 24-hours while it slowly drains through the underdrain system following the storm event. Any excess stormwater that enters the bioretention area will overflow into the catch basin and discharge into the drainage network.

Bioretention Area with Exfiltration

The bioretention areas have been designed in accordance with RIDEM Standards to promote water quality. The bioretention areas include filter media with a mulch upper layer, vegetated side slopes, a raised catch basin, and spillway. Stormwater is piped to the sediment forebay, which provides pretreatment, prior to entering the bioretention area. The outlet is elevated to exfiltrate the entire water quality volume through the surrounding soils for Bioretention Area-01 and Bioretention Area-04. Excess stormwater that enters Bioretention-04 during larger storm events will overflow into the catch basin and discharge into the drainage network. Bioretention Area-01 is designed offline with diversion structures upstream for larger storm events to bypass the BMP.

Per the RISDISM, exfiltration through the soils observed on-site would be modeled with a Rawls Rate of 1.02 in/hr (C Soils) or 0.27 in/hr (D Soils). In an effort to be conservative, an infiltration rate of 0.27 in/hr was used to model exfiltration from all BMP's that exfiltrate to existing soils.

Sand Filters with Underdrain

The sand filters have been designed in accordance with RIDEM Standards to promote water quality, exfiltration, and recharge. The sand filter includes a vegetated bottom, 36" deep layer of ASTM C-33 sand, vegetated side slopes, a raised catch basin, and spillway. Stormwater is piped to the sediment forebay, which provides pretreatment, prior to entering the sand filter. An impermeable liner with a stone layer and perforated underdrain is placed under the filter media to

discharge the treated water for Sand Filter-04. The liner is provided because the minimum separation to groundwater is not provided. The catch basin outlet is elevated to store the water quality volume for 24-hours while it slowly drains through the underdrain system following the storm event. Any excess stormwater that enters Sand Filter-04 will overflow into the catch basin and discharge into the drainage network.

Sand Filters with Exfiltration

The sand filters have been designed in accordance with RIDEM Standards to promote water quality, exfiltration, and recharge. The sand filter includes a vegetated bottom, 36" deep layer of ASTM C-33 sand, vegetated side slopes, a raised catch basin, and spillway. Stormwater is piped to the sediment forebay, which provides pretreatment, prior to entering the sand filter. The catch basin outlet is elevated to exfiltrate the entire water quality volume through the surrounding soils for Sand Filters 1, 2, 3 and 5. Excess stormwater that enters Sand Filter-03, and Sand Filter-05 during larger storm events will overflow into the catch basin and discharge into the drainage network. Sand Filter-01 and Sand Filter-02 are designed offline with diversion structures upstream for larger storm events to bypass the BMP.

Design infiltration rate for ASTM C-33 sand is 8.27 in/hr. Considering the presence of silt loam in the "C" horizon soils, an infiltration rate of 0.27 in/hr was used for conservative measures.

Infiltration Basin

The infiltration basin has been designed in accordance with RIDEM Standards to promote water quality, exfiltration, and recharge. The infiltration basin is sized to infiltrate the water quality volume from upstream impervious areas. The outlet structure is elevated to exfiltrate the entire water quality volume through the surrounding soils. A 10' long subdrain with valve is provided within Infiltration Basin-01 for maintenance needs only. The valve will remain closed per section 5.3 of the RISDISM. A riprap spillway is provided for large storm events. The bottom of the infiltration basin is set in native soils and a minimum of 36" from the estimated seasonal high groundwater table or limiting layers. With the presence of silty loam soils, an infiltration rate of 0.27 in/hr was used for conservative measures.

Underground Infiltration System

The underground infiltration system (UGIS) has been designed in accordance with RIDEM Standards to promote water quality, and recharge. The UGIS is sized to infiltrate the water quality volume based on upstream impervious areas.

The bottom of the underground infiltration system is set in native soils, and a minimum of 36" from the estimated seasonal high groundwater table. Considering the presence of silt loam, an infiltration rate of 0.27 in/hr was used for conservative measures.

UGIS-01 has been designed to infiltrate the synthetic turf field impervious surface to provide water quality treatment. The synthetic turf field profile includes dual 15" HDPE pipes embedded within crushed stone reservoir to provide storage for the athletic field prior to entering the UGIS system. Larger stormwater events will bypass the UGIS system via a diversion structure upstream of the system. A pretreatment row is not provided for the UGIS system due to the UGIS's design intention to treat only the synthetic turf field with no other contributing drainage areas. Due to the infiltration practice being within 50 feet of a slope greater than 15%, a 40 mil PVC liner is proposed to limit potential for horizontal seepage. The liner will be installed along the southern and western boundaries of the underground system to prevent water seepage against the 3:1 slope.

Wet Swale

The wet swale along the east parking lot has been designed in accordance with the RISDISM to treat runoff for water quality requirements. The wet swale includes a 12" deep bioretention soil bed with a crushed stone sump. Soil media shall meet the specifications outlined for bioretention media to include a well-aged leaf compost per the RISDISM section 5.7.4. This wet swale also includes a sediment forebay and check dams along the length of the swale to pretreat runoff from the roadway prior to entering the wet swale. Due to the presence of high groundwater within the northeast portions of the site, a modified wet swale is proposed to allow for limited recharge during the dry seasons while still providing water quality treatment through surface water ponding via overflow structure to the maximum extent practicable.

Minimum Standard 4: Conveyance and Natural Channel Protection

The new stormwater conveyance system has been designed to convey the runoff from the 25-year design storm event in accordance with general engineering practice. Refer to Appendix B Hydraulic Design Calculations.

Extended Detention Basin

The extended detention basins include an outlet control structure within the berm and a riprap spillway. Generally, the riprap spillway will direct runoff from the extended detention basins during events greater than the 100-year design storm. The extended detention basins will be vegetated with a grass mix capable of withstanding temporarily wet environments. The proposed detention basin does not discharge to a watershed draining to a cold-water fishery. Detention Basin -02 is within 20ft of a roadway structure, however a technical justification is requested based on the detention basin being designed with adequate maintenance access and protected via the proposed fence limits.

Detention Basin-01 and Detention Basin-02 are designed to retain the water quality volume and release it over a 24-hour period through a low flow orifice where the inflow in the 1-year design storm is greater than 2 cfs per the RISDISM. The low-flow orifice was designed in accordance with the RISDISM. Refer to the Channel Protection Volume calculations included in Appendix C.

Minimum Standard 5: Overbank Flood Protection

The existing and proposed hydrology was evaluated to determine the distribution of stormwater runoff to the design points. Hydrologic calculations were completed to confirm that the post-development runoff conditions are similar to pre-development conditions and that there are no significant changes to runoff directed to the design points. Hydrologic calculations were also completed to evaluate the performance of the bioretention areas, sand filters, infiltration basins, underground infiltration systems, and wet swales during the design storm events. The hydrologic model shows a decrease in the peak flow rate and volumes discharged to the East and West Branches of the Silver Creek Watersheds for the 1-year, 2-year, 10-year, 25-year and 100-year storms. The table below provides a summary of the peak flow rates for the existing and proposed conditions at each design point.

Table 2: Peak Flow Rate (CFS)

DESIGN POINTS	1-YEAR	2-YEAR	10-YEAR	25-YEAR	100-YEAR
DP1.1 Silver Creek East-Culvert 1 Existing	8.83	12.03	23.08	31.76	50.14
DP1.1 Silver Creek East- Culvert 1 Proposed	7.45	10.49	21.30	29.98	48.60
Change	-1.38	-1.54	-1.78	-1.78	-1.54
DP1.2 Silver Creek East-Culvert 2 Existing	9.87	13.32	25.17	34.45	54.13
DP1.2 Silver Creek East- Culvert 2 Proposed	8.28	11.53	23.10	33.70	55.08
Change	-1.59	-1.79	-2.07	-0.75	0.95
DP1.3 Silver Creek East-Culvert 3 Existing	10.22	13.76	25.92	35.43	55.59
DP1.3 Silver Creek East- Culvert 3 Proposed	8.65	12.03	24.04	34.91	57.19
Change	-1.57	-1.73	-1.88	-0.52	1.60
DP1.4 Silver Creek East- Culvert 4 Existing	25.70	33.34	58.84	78.39	119.32
DP1.4 Silver Creek East- Culvert 4 Proposed	16.61	23.76	50.36	69.22	116.11
Change	-9.09	-9.58	-8.48	-9.17	-3.21
DP2.1 Silver Creek West Branch Existing	6.84	10.01	20.21	28.99	60.35
DP2.1 Silver Creek West Branch Proposed	3.26	7.34	20.08	28.72	59.90
Change	-3.58	-2.67	-0.13	-0.27	-0.45
DP2.2 Silver Creek West Branch Existing	10.53	15.28	30.43	43.16	78.59
DP2.2 Silver Creek West Branch Proposed	4.61	8.94	24.73	35.89	71.29
Change	-5.92	-6.34	-5.70	-7.27	-7.30

Table 3: Peak Volumes (CF)

DESIGN POINTS	1-YEAR	10-YEAR
DP1.4 Silver Creek East Branch Total Existing	130,468	300,035
DP1.4 Silver Creek East Branch Total Proposed	91,420	247,820
Change	-39,048	-49,067
Percent Reduction	30%	17%
DP2.2 Silver Creek West Branch Total Existing	68,970	194,326
DP2.2 Silver Creek West Branch Total Proposed	61,638	190,084
Change	-7,332	-4,242
Percent Reduction	10%	2%

While there is a slight increase in the peak flow rates at DP1.2- Silver Creek East -Culvert 2 and DP1.3- Silver Creek East -Culvert 3 for the 100-year storm, the increase in peak flows at this location is negligible due to the upstream and downstream flow rate reductions.

Minimum Standard 6: Redevelopment and Infill Projects

The Water Quality Volume Calculation worksheet provided in Appendix C identifies the project as a new development due to the property being slightly less than<40% for impervious area. Per the RISDISM regulations this project does not qualify as a Redevelopment Project per Section 3.2.6 of the RISDISM. However, the existing condition for the property includes significant impervious surface that is untreated that discharges to the natural resources. This project provides a significant improvement for water quality treatment, ground water recharge and peak flow rate reduction compared to the existing condition while maintaining the existing drainage patterns and providing water quality treatment to the maximum extents practicable for the proposed impervious areas.

Minimum Standard 7: Pollution Prevention

A Long Term Pollution Prevention Plan is included under separate cover.

Minimum Standard 8: Land Uses with a Higher Potential Pollutant Load (LUHPPL)

This minimum standard is not applicable to the project as land use is not considered a LUHPPL.

Minimum Standard 9: Illicit Discharges

There are no illicit discharges proposed to the stormwater management system in accordance with State regulations.

Minimum Standard 10: Construction Erosion and Sedimentation Control

A Soil Erosion and Sediment Control Plan (SESC) plan was prepared to demonstrate which practices will be used to minimize land disturbance and conveyance. This report is included under separate cover.

Minimum Standard 11: Stormwater Management System Operation and Maintenance (O&M)

A Stormwater Management Operation and Maintenance plan was prepared to address routine upkeep tasks for maintaining the stormwater management system per the RISDISM and the Town of Bristol's Code of Ordinances. This report is included under separate cover.

CONCLUSION

In conclusion, the proposed development meets the 11 Minimum Standards as required by RIDEM. The stormwater management system provides reductions in peak runoff rate within the hydrologic analysis area for the design storm events evaluated to improve existing conditions. The stormwater management system has also been designed to provide groundwater recharge and promote total suspended solids removal and to improve the overall water quality to downstream resources and offsite areas.

Impact to areas upstream from the removal of the existing school and installation of the new culverts is minimal. The project increases storage volume within the floodplain upstream of the school, provides bypass piping to route flow during large storm events to the pond below. Impact to downstream areas is improved through the reduction in stormwater volume and peak flow rate provided by the proposed stormwater management system.

Bristol Warren Regional School District

MT. HOPE HIGH SCHOOL

APPENDIX A

Site Location Map

Rainfall IDF Curve for RI

FEMA Firmette

Soils Map

Test Pit Logs

USGS TOPOGRAPHIC MAP FROM THE RHODE ISLAND GEOGRAPHIC INFORMATION SYSTEM (RIGIS)

PARE CORPORATION

MOUNT HOPE HIGH SCHOOL

199 CHESTNUT STREET
BRISTOL, RHODE ISLAND

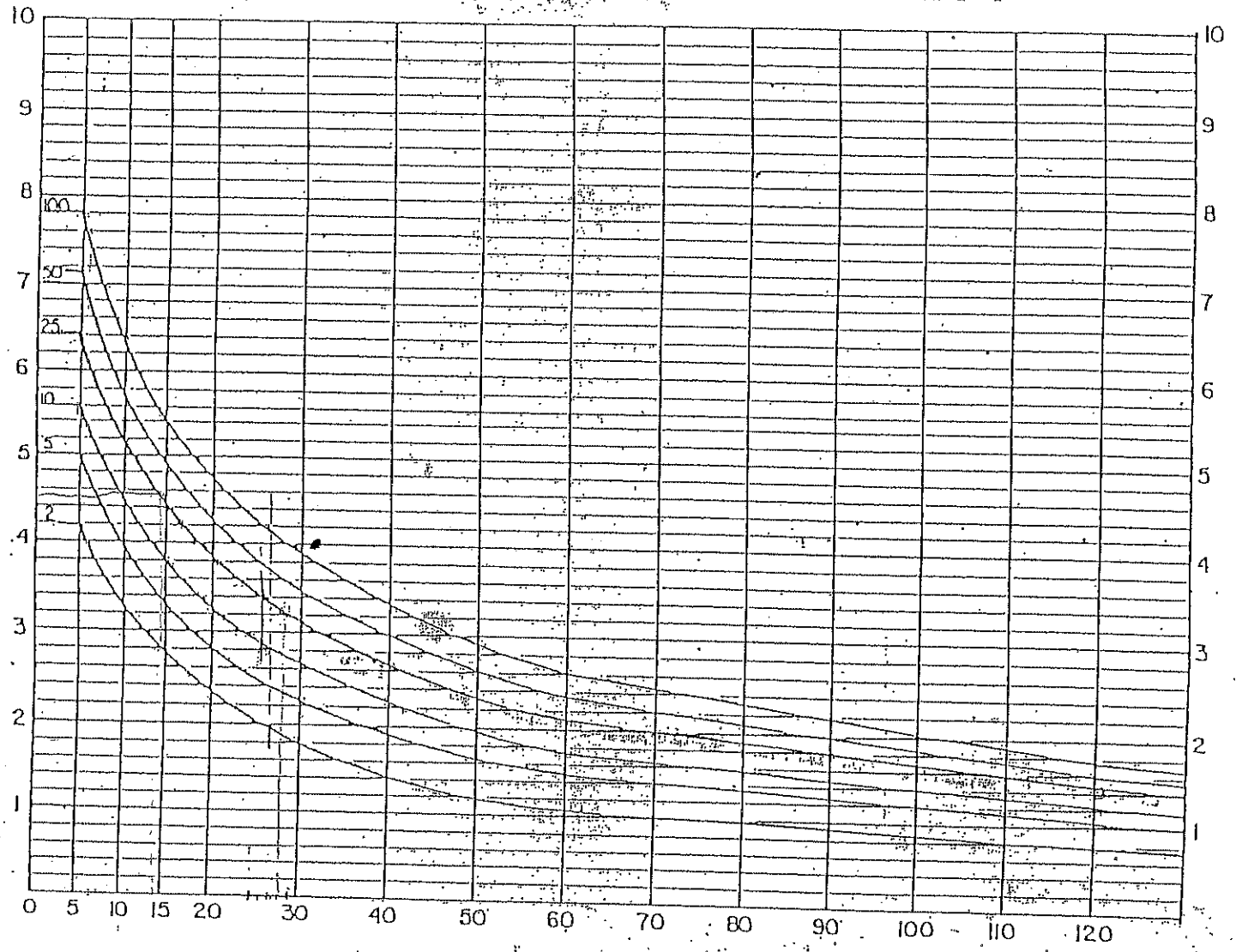
LOCUS PLAN

JULY 2024

FIGURE 1

INTENSITY CURVES FOR STORMS

PROVIDENCE R.I. AND VICINITY

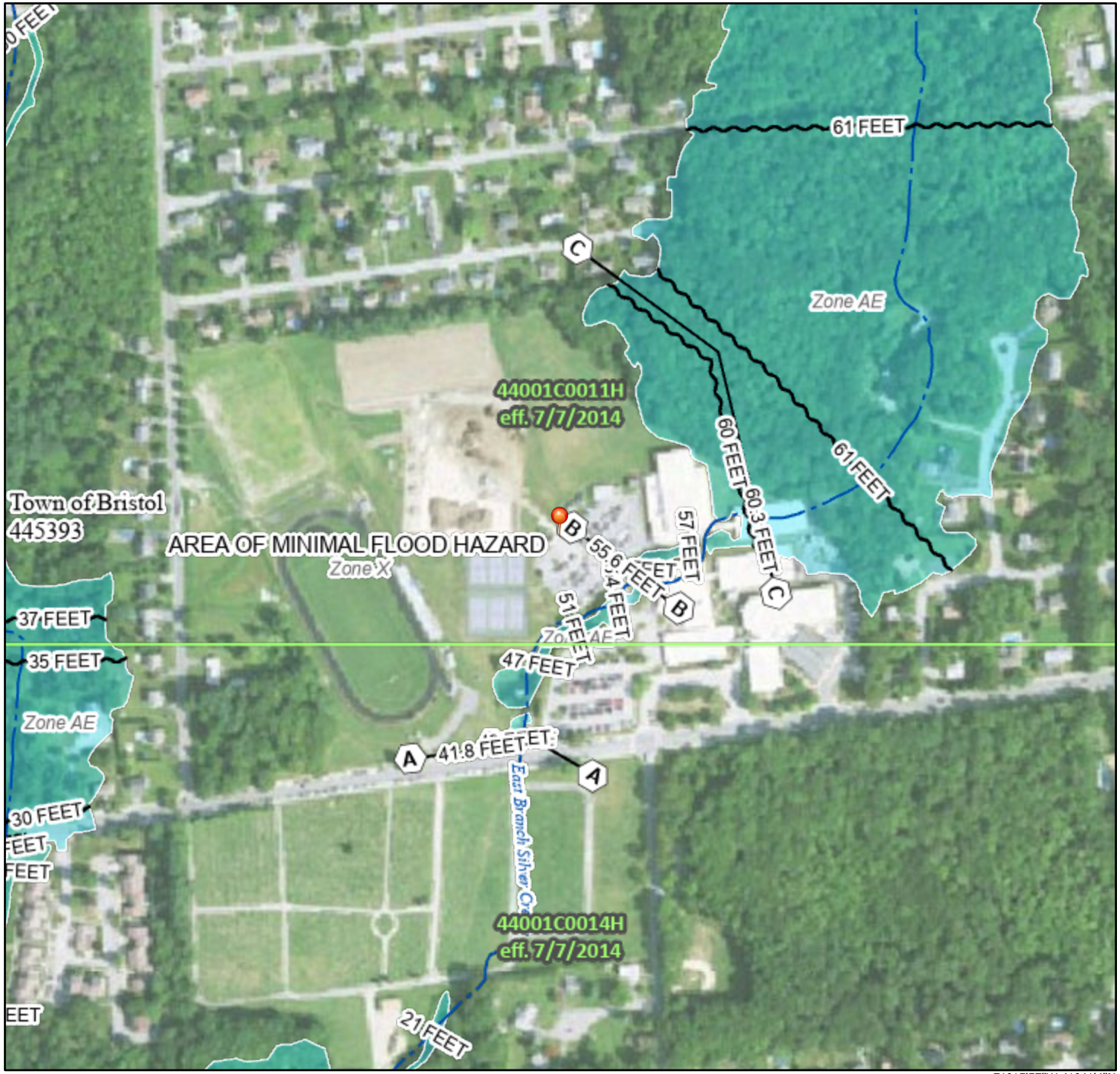


BASED ON NWS HYDRO 35
& TECH. PAPER NO. 40

National Flood Hazard Layer FIRMette

FEMA

71°16'35"W 41°41'31"N



71°15'57"W 41°41'4"N

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

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

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

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

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

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

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

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

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

N

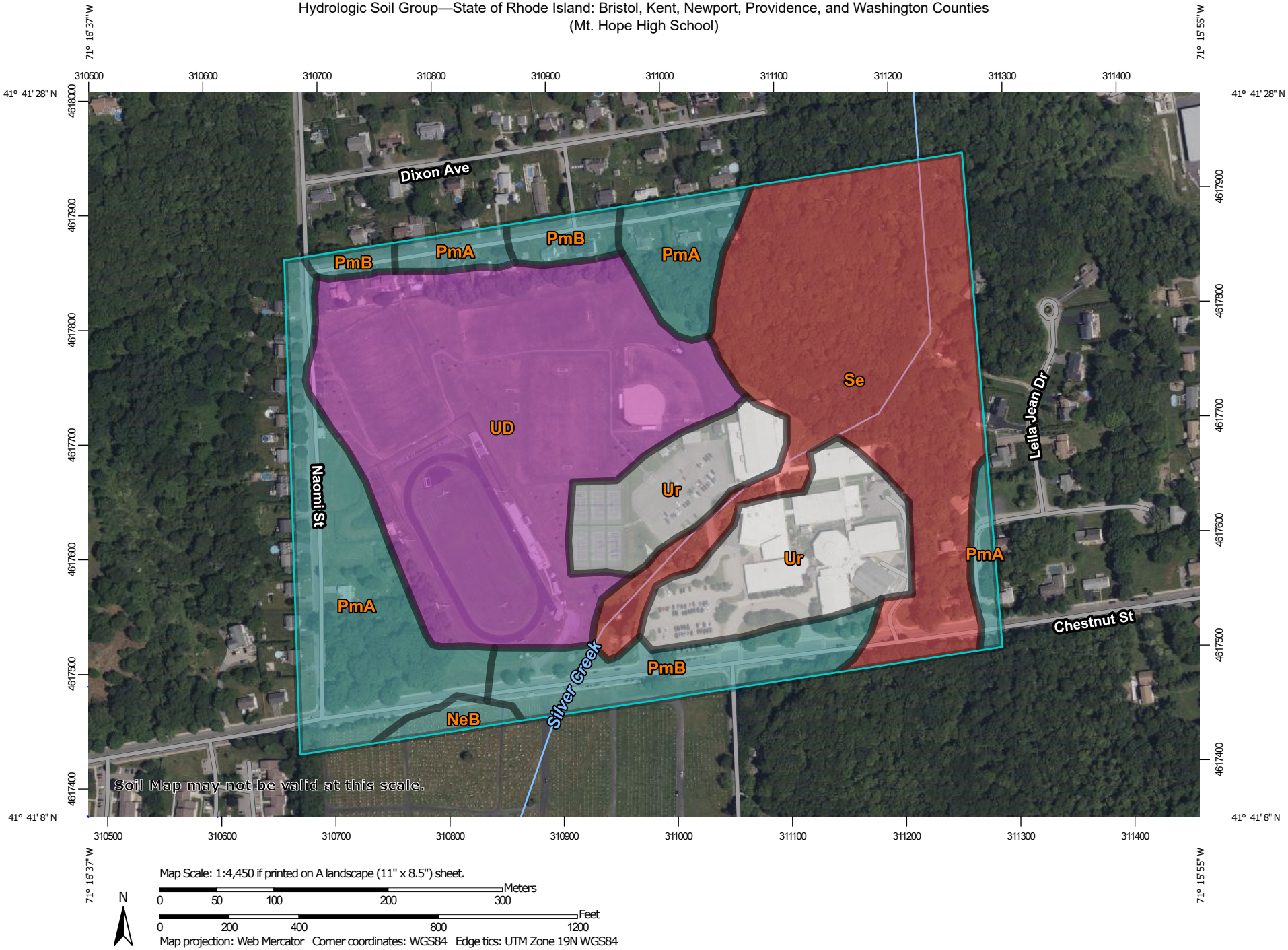
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/19/2024 at 10:22 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Hydrologic Soil Group—State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties
(Mt. Hope High School)



Map Scale: 1:4,450 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

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

Soils

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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: State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties
Survey Area Data: Version 22, Sep 12, 2022

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

Date(s) aerial images were photographed: Jun 14, 2022—Jul 1, 2022

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
NeB	Newport silt loam, 3 to 8 percent slopes	C	0.6	0.9%
PmA	Pittstown silt loam, 0 to 3 percent slopes	C	11.5	17.6%
PmB	Pittstown silt loam, 3 to 8 percent slopes	C	5.4	8.3%
Se	Stissing silt loam	D	17.6	27.0%
UD	Udorthents-Urban land complex	A	20.4	31.3%
Ur	Urban land		9.7	14.9%
Totals for Area of Interest			**65.3**	**100.0%**

Description

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

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

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

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

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

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

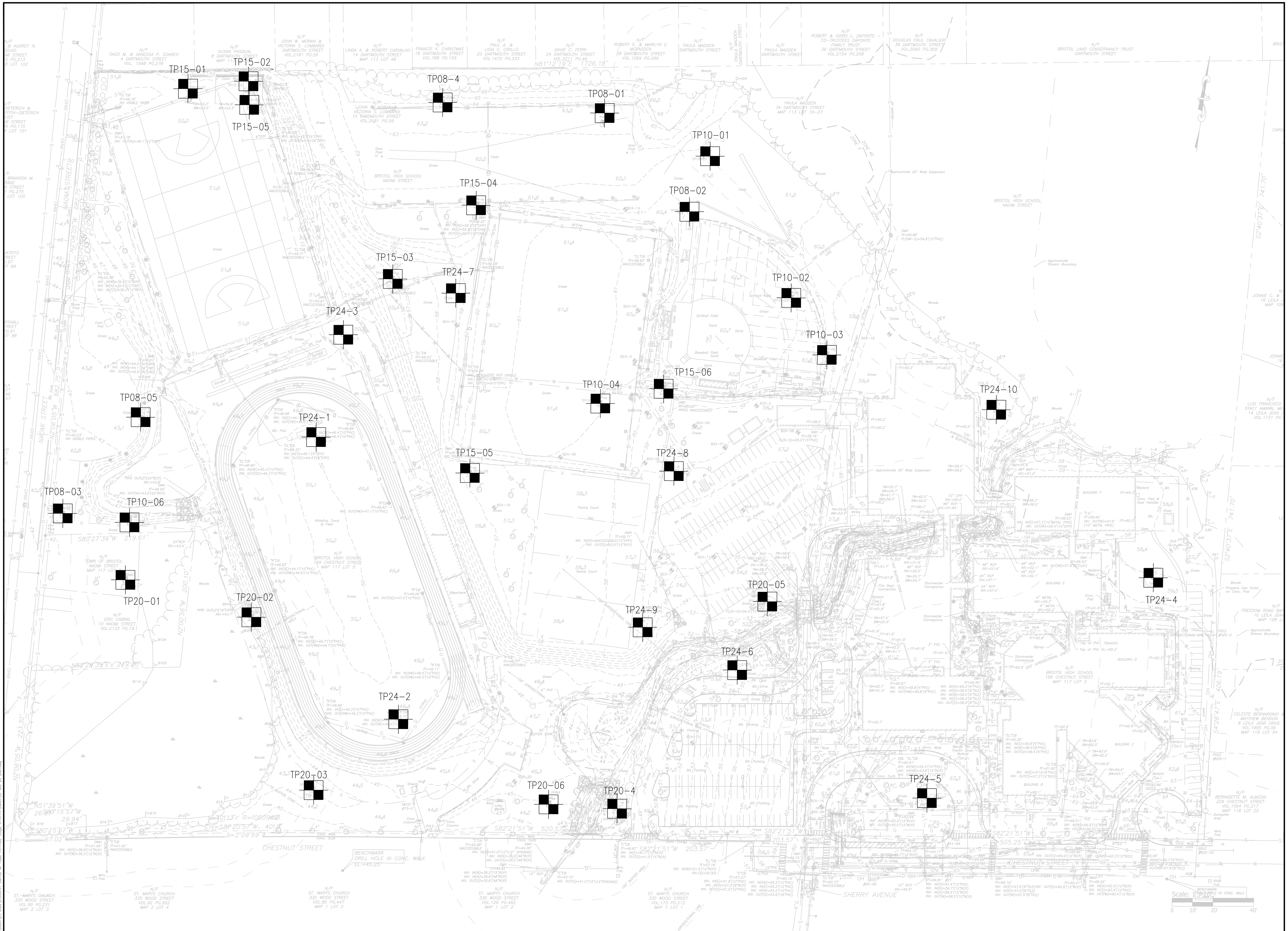
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



PARE

OWNER/APPLICANT:
BRISTOL WARREN REGIONAL SCHOOL DISTRICT
235 HIGH STREET
BRISTOL, RI 02809
401-253-4000

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

MT. HOPE HIGH SCHOOL
199 Chestnut Street
ASSESSOR'S PLAT 117, LOTS 3, 4, 5, 6, & 7
Bristol, Rhode Island

REVISIONS:

PROJECT NO.:	23099.01
DATE:	JANUARY 10, 2025
SCALE:	
DESIGNED BY:	ACB
CHECKED BY:	
DRAWN BY:	AKL
APPROVED BY:	

DRAWING TITLE:

TEST PIT PLAN

DRAWING NO.:

TP-1

SHEET NO. - OF -

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
Department of Environmental Management
Office of Water Resources

Site Evaluation Form
Part A - Soil Profile Description

Application Number _____

Property Owner: Mt. Hope High School
Property Location: 199 Chestnut Street, Bristol, RI
Date of Test Hole: 11-17-08
Soil Evaluator: B. King License Number: D4010
Weather: 46° Shaded: Yes ☐ No ☒ Time: 9:00-12:00

TH 1 Horizon	Depth (inches)	Horizon Boundaries Dist	Horizon Boundaries Topo	Soil Colors Matrix	Soil Colors Re-Dox Features	Re-Dox Description Ab. S. Con.	Texture	Structure	Consistence	Soil Category
Ap	0-3			10YR 3/3	---	---	fsl	gr	fr	---
C HTM	3-7	C	W	2.5Y 4/3	---	---	vfsl	Om	fr	---
Cd1	7-42	C	W	2.5Y 4/2	10YR 4/6	c f p	gsil/ gvfsl	Om	fi/vfi	9
Cd2	42-80	C	W	2.5Y 3/1	10YR 4/6	c f p	sil (some st)	Om	vfi	9

TH 2 Horizon	Depth (inches)	Horizon Boundaries Dist	Horizon Boundaries Topo	Soil Colors Matrix	Soil Colors Re-Dox Features	Re-Dox Description Ab. S. Con.	Texture	Structure	Consistence	Soil Category
Ap	0-3			10YR 3/3	---	---	fsl	gr	fr	---
C HTM	3-14	C	W	2.5Y 4/3	---	---	vfsl	Om	fr	---
Cd1	14-42	C	W	2.5Y 4/2	10YR 4/6	c f p	gsil/ gvfsl	Om	fi/vfi	9
Cd2	42-92	C	W	2.5Y 3/1	10YR 4/6	c f p	sil (some st)	Om	vfi	9

Soil Class: Lodgement Till
Total Depth of eachTest Hole: 80"/92"
Depth to Groundwater Seepage: 45"(31"isolated)/45"(26"isolated)
Depth to Impervious or Limiting Layer: NA / NA
Estimated Seasonal High Water Table: 31" (1) / 26" (2)
Comments:
Notes: (1) Perched GWT from 7"-31" / (2) Perched GWT from 14"-26"

Note: Redox features indicate soil remains wet due to ESHWT and perched condition.

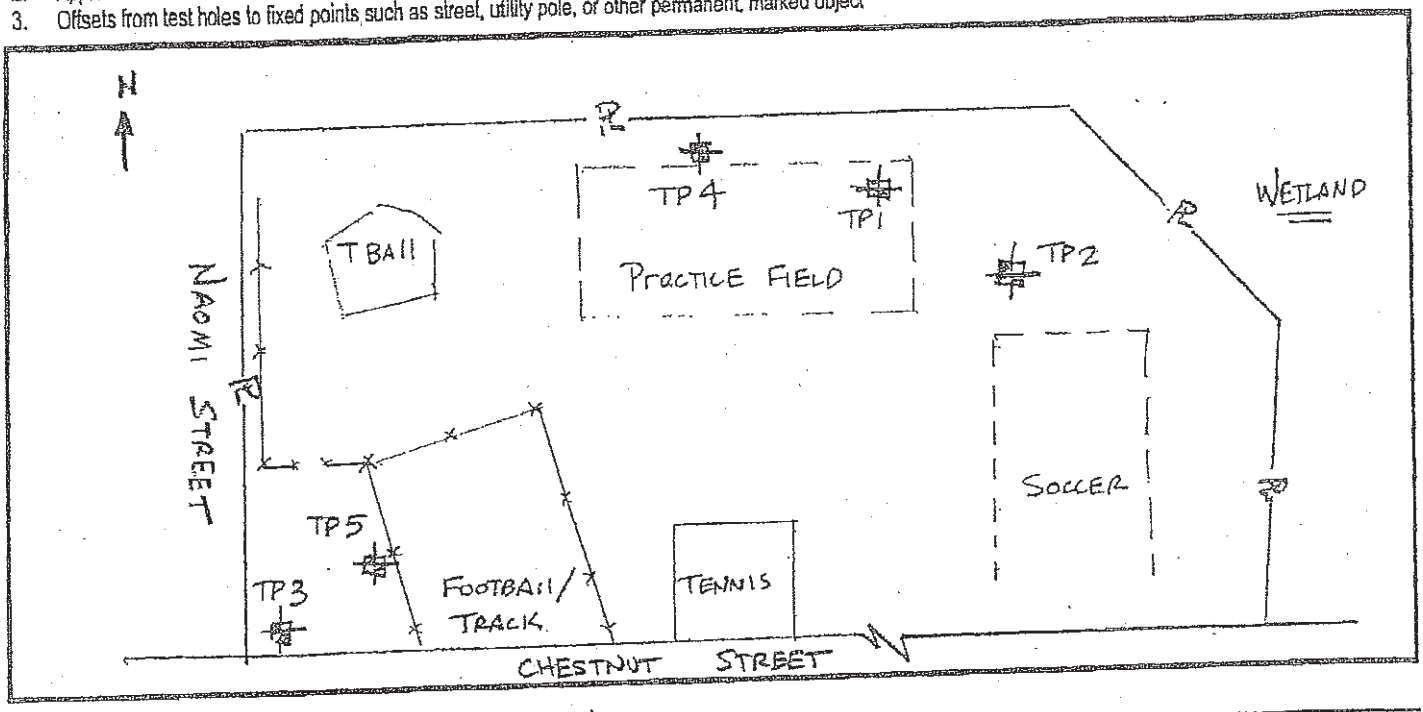
Part B

Site Evaluation - to be completed by Class II or III Designer or Soil Evaluator

Please use the area below to locate:

1. Test holes
2. Approximate direction of due north
3. Offsets from test holes to fixed points such as street, utility pole, or other permanent, marked object

Key:
- Approximate location of test holes
- x% Estimated gradient and direction of slope
- N Approximate direction of due north



Relief and Slope: Varies (1-2% in field areas)

2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes: YES☒ NO☐ If yes, locate on above sketch.
3. Presence of existing or proposed private drinking water wells within 200 feet of test holes: YES☐ NO☐ If yes, locate on above sketch.
4. Public drinking water wells within 500 feet of test holes: YES ☐ NO☐ If yes, locate on above sketch.
5. Is site within the watershed of a public drinking water reservoir or other critical area defined in SD 19.00? YES☐ NO☒
6. Has soil been excavated from or fill deposited on site? YES☒ NO☐ If yes, locate on above sketch. Field areas have been graded.
7. Site's potential for flooding or ponding: NONE☐ SLIGHT☐ MODERATE☒ SEVERE☐
8. Landscape position: Foot
9. Vegetation: Lawn
10. Indicate approximate location of property lines and roadways.
11. Additional comments, site constraints or additional information regarding site:

Certification

The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Part A prepared by: Brian R. Kay D4010
Signature License #

Part B prepared by: Brian R. Kay D4010
Signature License #

FOR OFFICE USE ONLY

Decision: Approved ☐ Disclaimed ☐

Comments:

Signature Authorized Agent Date

revised 5/8/01

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
Department of Environmental Management
Office of Water Resources

Site Evaluation Form
Part A - Soil Profile Description

Application Number _____

Property Owner: Mt. Hope High School
Property Location: 199 Chestnut Street, Bristol, RI
Date of Test Hole: 11-17-08
Soil Evaluator: B. King
License Number: D4010
Weather: 46°
Shaded: Yes ☐ No ☒
Time: 9:00-12:00

TH 3 Horizon	Depth (inches)	Horizon Boundaries Dist	Horizon Boundaries Topo	Soil Colors Matrix	Soil Colors Re-Dox Features	Re-Dox Description Ab. S. Con.	Texture	Structure	Consistence	Soil Category
Ap	0-8			10YR 3/1	---	---	fsl	gr	fr	---
C HTM	8-18	C	W	2.5Y 4.2	10YR 4/6	c f p	gsil/ gvfsl	Om	fi/fr	---
C1	18-60	C	W	2.5Y 5/4	2.5Y 5/2 10YR 5/6	m m p	vfsl	Om	fr/fi	8
Cd2	60-88	C	W	2.5Y 3/1	10YR 4/6	c f p	sil (some st)	Om	vfi	9

TH 4 Horizon	Depth (inches)	Horizon Boundaries Dist	Horizon Boundaries Topo	Soil Colors Matrix	Soil Colors Re-Dox Features	Re-Dox Description Ab. S. Con.	Texture	Structure	Consistence	Soil Category
Ap	0-3			10YR 3/3	---	---	fsl	gr	fr	---
C HTM	3-9	C	W	2.5Y 4/3	---	---	vfsl	Om	fr	---
C HTM	9-18	C	W	2.5Y 4/2	10YR 4/6	f f p	gsil/ gvfs	Om	fi	---
Cd1	18-60	C	W	2.5Y 4/3	10YR 4/6	c m p	sil (some st)	Om	fi	9
Cd2	60-100	C	W	2.5Y 4/2	10YR 4/6	c m p	gsil (some st)	Om	fi	9

Soil Class: Lodgement Till
Depth to Groundwater Seepage: 44"/30"
Estimated Seasonal High Water Table: 18" (3) / 18" (4)
Total Depth of each Test Hole: 88"/100"
Depth to Impervious or Limiting Layer: NA / NA
Comments:

Note: (3) Perched GWT from 8"-18" / (4) Perched GWT from 9"-18"

Note: Redox features indicate soil remains wet due to ESHWT and perched condition.

Part B

Site Evaluation - to be completed by Class II or III Designer or Soil Evaluator

Please use the area below to locate:

1. Test holes
2. Approximate direction of due north
3. Offsets from test holes to fixed points such as street, utility pole, or other permanent, marked object

Key:

- Approximate location of test holes
- x% Estimated gradient and direction of slope
- N Approximate direction of due north

FOR SKETCH, SEE PAGE 1 OF 3, PART B.

1. Relief and Slope: Varies (1-2% in field areas)

   Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes: YES☒ NO☐ If yes, locate on above sketch.

2. Presence of existing or proposed private drinking water wells within 200 feet of test holes: YES☐ NO☐ If yes, locate on above sketch.
3. Public drinking water wells within 500 feet of test holes: YES☐ NO☐ If yes, locate on above sketch.
4. Is site within the watershed of a public drinking water reservoir or other critical area defined in SD 19.00? YES☐ NO☒
5. Has soil been excavated from or fill deposited on site? YES☒ NO☐ If yes, locate on above sketch. Field areas have been graded.
6. Site's potential for flooding or ponding: NONE☐ SLIGHT☐ MODERATE☒ SEVERE☐
7. Landscape position: Foot
8. Vegetation: Lawn
9. Indicate approximate location of property lines and roadways.
10. Additional comments, site constraints or additional information regarding site:

Certification

The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Part A prepared by: Brian R. Kuj D4010
Signature License #

Part B prepared by: Brian R. Kuj D4010
Signature License #

FOR OFFICE USE ONLY

Decision: Approved ☐ Disclaimed ☐

Comments:

Signature Authorized Agent Date

revised 5/8/01

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
Department of Environmental Management
Office of Water Resources

Site Evaluation Form
Part A - Soil Profile Description

Application Number _____

Property Owner: Mt. Hope High School
Property Location: 199 Chestnut Street, Bristol, RI
Date of Test Hole: 11-17-08
Soil Evaluator: B. King License Number: D4010
Weather: 46° Shaded: Yes ☐ No ☒ Time: 9:00-12:00

TH 5 Horizon	Depth (inches)	Horizon Boundaries		Soil Colors		Re-Dox Description	Texture	Structure	Consistence	Soil Category
		Dist	Topo	Matrix	Re-Dox Features	Ab. S. Con.				
Ap	0-5			10YR 3/1	---	---	st fsl	gr	fr	---
C HTM	5-9	C	W	2.5Y 4/3	---	---	gvfsl	Om	fr	---
C1	9-31	C	W	2.5Y 5/4	2.5Y 5/2 10YR 5/6	m m p	vfsl/ sil	Om	fr/fi	8
Cd2	31-88	C	W	2.5Y 4/1	10YR 4/6	f f p	gvfsl gsil	Om	fi	9

TH Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description	Texture	Structure	Consistence	Soil Category
		Dist	Topo	Matrix	Re-Dox Features	Ab. S. Con.				

Soil Class: Lodgement Till
Depth to Groundwater Seepage: 50"
Estimated Seasonal High Water Table: 18" (5)
Total Depth of eachTest Hole: 88"
Depth to Impervious or Limiting Layer: NA
Comments:

Note: (5) Perched GWT from 9"-18" (Grade of TP 3 & TP 5 are same ±)

Note: Redox features indicate soil remains wet due to ESHWT and perched condition.

Part B

Site Evaluation - to be completed by Class II or III Designer or Soil Evaluator

Please use the area below to locate:

1. Test holes
2. Approximate direction of due north
3. Offsets from test holes to fixed points such as street, utility pole, or other permanent, marked object

Key:
- Approximate location of test holes
- x% — Estimated gradient and direction of slope
- N — Approximate direction of due north

FOR SKETCH, SEE PAGE 1 OF 3, PART B.

1. Relief and Slope: Varies (1-2% in field areas)
2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes: YES☒ NO☐ If yes, locate on above sketch.
3. Presence of existing or proposed private drinking water wells within 200 feet of test holes: YES☐ NO☐ If yes, locate on above sketch.
4. Public drinking water wells within 500 feet of test holes: YES NO☐ If yes, locate on above sketch.
5. Is site within the watershed of a public drinking water reservoir or other critical area defined in SD 19.00? YES☐ NO☒
6. Has soil been excavated from or fill deposited on site? YES☒ NO☐ If yes, locate on above sketch. Field areas have been graded.
7. Site's potential for flooding or ponding: NONE☐ SLIGHT☐ MODERATE☒ SEVERE☐
8. Landscape position: Foot
9. Vegetation: Lawn
10. Indicate approximate location of property lines and roadways.
11. Additional comments, site constraints or additional information regarding site:

Certification

The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Part A prepared by: Brian R. Ky (Signature) D4010 (License #)

Part B prepared by: Brian R. Ky (Signature) D4010 (License #)

FOR OFFICE USE ONLY

Decision: Approved ☐ Disclaimed ☐

Comments:

Signature Authorized Agent Date

revised 5/8/01

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
Department of Environmental Management
Office of Water Resources

Site Evaluation Form
Part A - Soil Profile Description

Application Number N/A

Property Owner: Town of Bristol, Rhode Island
Property Location: Mount Hope High School Chestnut Street & Naomi Street Bristol, RI
Date of Test Hole: February 22, 2010
Soil Evaluator: Site Evaluation – Robin E Dyer License Number: D3077
Weather: Sunny 45°F Shaded: Yes ☐ No ☒ Time: 9:00am

TH–01 Horizon	Depth	Horizon Boundaries Dist	Horizon Boundaries Topo	Soil Colors Matrix	Soil Colors Re-Dox Features	Re-Dox Description Ab. S. Con.	Texture	Structure	Consistence	Soil Category
A	4"	g	s	10yr3/2			sl	0–m	fr	6
B	9"	c	s	10yr4/2			sl	0–m	fi	8
Cd1	27"	a	s	10yr4/2	10yr7/8 5y7/2	c 2 d	cbsil	0–m	fi	9
Cd2	44"	a	s	N2.5/	10yr7/8 5y7/2	f 1 f	gsil	0–m	fi	9
Cd3	65"			5y3/2	10yr7/8 5y7/2	c 2 f	cbsil	0–m	vfi	9

TH–02 Horizon	Depth	Horizon Boundaries Dist	Horizon Boundaries Topo	Soil Colors Matrix	Soil Colors Re-Dox Features	Re-Dox Description Ab. S. Con.	Texture	Structure	Consistence	Soil Category
A	8"	g	s	2.5y3/3			sl	0–m	fr	6
B	16"	c	s	10yr5/3	10yr6/8 2.5y7/1	c 2 d	sl	0–m	fi	8
Cd1	40"	a	s	10yr4/4	10yr5/6 2.5y7/2	c 2 f	cbsil	0–m	fi	9
Cd2	74"			10yr4/4	10yr5/6 2.5y7/2	c 1 f	gsil	0–m	fi	9

Soil Class: Pittstown Silt Loam
Depth to Groundwater Seepage: TH–01 60" TH–02 57"
Estimated Seasonal High Water Table: TH–01 27" TH–02 27"
Total Depth of eachTest Hole: TH–01 65" TH–02 74"
Depth to Impervious or Limiting Layer: Not encountered
Comments: Redox features apparent in between 8" & 27" appear to be a result of slow downward movement of water through soil.

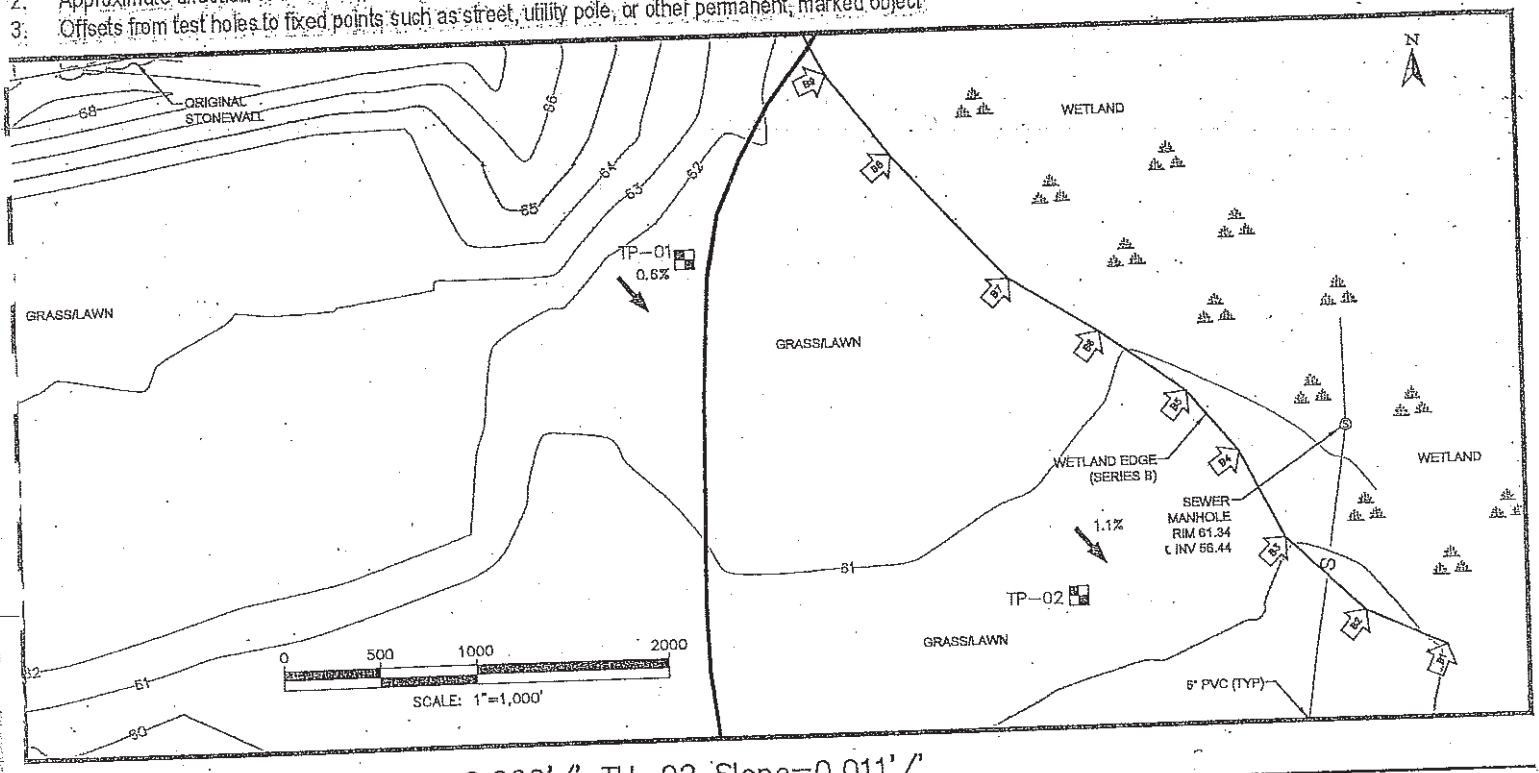
Part B

Site Evaluation - to be completed by Class II or III Designer or Soil Evaluator

Please use the area below to locate:

1. Test holes
2. Approximate direction of due north
3. Offsets from test holes to fixed points such as street, utility pole, or other permanent, marked object

Key:
- Approximate location of test holes
- Estimated gradient and direction of slope
- Approximate direction of due north



1. Relief and Slope: TH-01 Slope=0.006'/' TH-02 Slope=0.011'/'
2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes: YES☒ NO☐ If yes, locate on above sketch.
3. Presence of existing or proposed private drinking water wells within 200 feet of test holes: YES☐ NO☒ If yes, locate on above sketch.
4. Public drinking water wells within 500 feet of test holes: YES☐ NO☒ If yes, locate on above sketch.
5. Is site within the watershed of a public drinking water reservoir or other critical area defined in SD 19.00? YES☐ NO☒
6. Has soil been excavated from or fill deposited on site? YES☐ NO☒ If yes, locate on above sketch.
7. Site's potential for flooding or ponding: NONE☐ SLIGHT☐ MODERATE☒ SEVERE☐
8. Landscape position: Athletic field
9. Vegetation: Grass
10. Indicate approximate location of property lines and roadways.
11. Additional comments, site constraints or additional information regarding site: The westerly portion of the site adjacent to the existing wetlands falls within a Flood Zone AE with elevations established. Ponding occurs within the soil as a result of the poor surface soil conditions.

Certification

The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Part A prepared by: _____ License # _____ Signature: _____

Part B prepared by: Andrew F. Dugan D3077 License # Signature

FOR OFFICE USE ONLY

Decision: Approved ☐ Disclaimed ☐

Comments: _____

_____ _____

Signature Authorized Agent Date

revised 5/8/01

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
Department of Environmental Management
Office of Water Resources

Site Evaluation Form
Part A - Soil Profile Description

Application Number _____

Property Owner: Town of Bristol, Rhode Island
Property Location: Mount Hope High School Chestnut Street & Naomi Street Bristol, RI
Date of Test Hole: February 22, 2010
Soil Evaluator: Site Evaluation – Robin E Dyer License Number: D3077
Weather: Sunny 45°F Shaded: Yes ☐ No ☒ Time: 10:30am

TH–03 Horizon	Depth	Horizon Boundaries Dist	Horizon Boundaries Topo	Soil Colors Matrix	Soil Colors Re-Dox Features	Re-Dox Description Ab. S. Con.	Texture	Structure	Consistence	Soil Category
A	4"	g	s	10yr4/3			sl	0–m	fr	6
B	23"	c	s	10yr6/3	10yr6/8 2.5y7/2	c 2 d	sl	0–m	fi	8
Cd1	33"	a	s	10yr4/1	10yr6/8 2.5y7/2	c 2 d	cbsil	0–m	fi	9
Cd2	67"			N2.5/	10yr6/8 2.5y7/2	f 1 f	gsil	0–m	vfi	9

TH–04 Horizon	Depth	Horizon Boundaries Dist	Horizon Boundaries Topo	Soil Colors Matrix	Soil Colors Re-Dox Features	Re-Dox Description Ab. S. Con.	Texture	Structure	Consistence	Soil Category
A	4"	g	s	10yr4/3			sl	0–m	fr	6
B	12"	c	s	10yr6/3			sl	0–m	fi	8
Cd	69"			10yr6/1	10yr6/8 2.5y7/2	c 2 f	cbsl	0–m	vfi	9

Soil Class: Pittstown Silt Loam
Depth to Groundwater Seepage: TH–03 16" TH–04 52"
Estimated Seasonal High Water Table: TH–03 33" TH–04 30"
Total Depth of eachTest Hole: TH–03 67" TH–04 69"
Depth to Impervious or Limiting Layer: TH–04 Rippable ledge @24"
Comments: Redox features apparent in between 16" & [illegible] result of slow downward movement of water through soil. Existing pipe adjacent

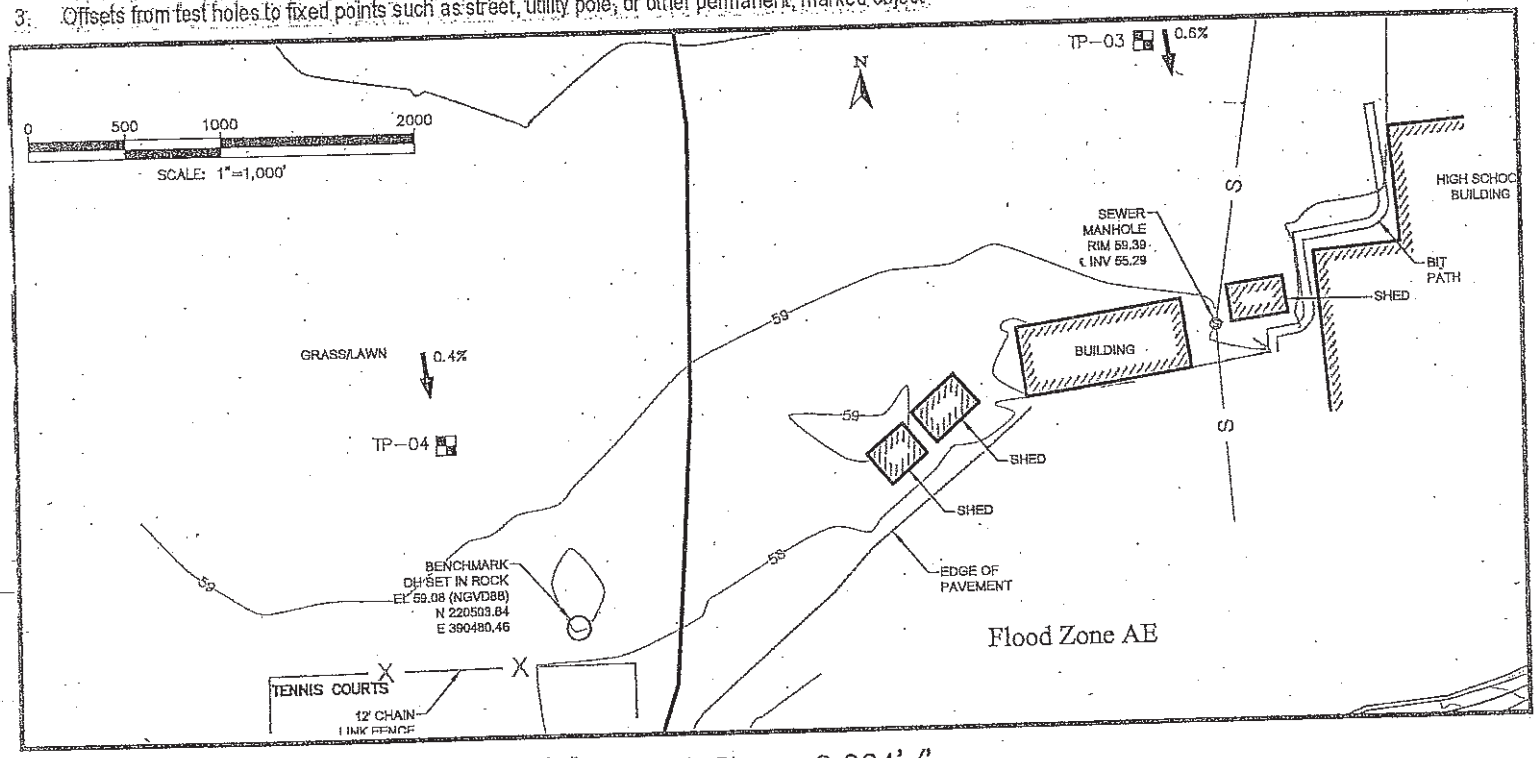
Part B

Site Evaluation - to be completed by Class II or III Designer or Soil Evaluator

Please use the area below to locate:

1. Test holes
2. Approximate direction of due north
3. Offsets from test holes to fixed points such as street, utility pole, or other permanent, marked object

Key:
- Approximate location of test holes
- Estimated gradient and direction of slope
- Approximate direction of due north



1. Relief and Slope: TH-03 Slope=0.006'/' TH-04 Slope=0.004'/'
2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes: YES☒ NO☐ If yes, locate on above sketch.
3. Presence of existing or proposed private drinking water wells within 200 feet of test holes: YES☐ NO☒ If yes, locate on above sketch.
4. Public drinking water wells within 500 feet of test holes: YES☐ NO☒ If yes, locate on above sketch.
5. Is site within the watershed of a public drinking water reservoir or other critical area defined in SD 19.00? YES☐ NO☒
6. Has soil been excavated from or fill deposited on site? YES☐ NO☒ If yes, locate on above sketch.
7. Site's potential for flooding or ponding: NONE☐ SLIGHT☐ MODERATE☒ SEVERE☐
8. Landscape position: Athletic field
9. Vegetation: Grass
10. Indicate approximate location of property lines and roadways.
11. Additional comments, site constraints or additional information regarding site: The westerly portion of the site adjacent to the existing wetlands falls within a Flood Zone AE with elevations established. Ponding occurs within the soil as a result of the poor surface soil conditions.

Certification

The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Part A prepared by: _____ License # _____
Signature

Part B prepared by: Robert C Dyer D3077
Signature License #

FOR OFFICE USE ONLY

Decision: Approved ☐ Disclaimed ☐

Comments: _____

_____ _____
Signature Authorized Agent Date

State of Rhode Island and Providence Plantations
Department of Environmental Management
Office of Water Resources

Site Evaluation Form
Part A - Soil Profile Description Application Number N/A

Property Owner: Town of Bristol, Rhode Island
Property Location: Mount Hope High School Chestnut Street & Naomi Street Bristol, RI
Date of Test Hole: February 22, 2010
Soil Evaluator: Site Evaluation – Robin E Dyer License Number: D3077
Weather: Sunny 45°F Shaded: Yes ☐ No ☒ Time: 11:15am

TH–05 Horizon	Depth	Horizon Boundaries Dist	Horizon Boundaries Topo	Soil Colors Matrix	Soil Colors Re-Dox Features	Re-Dox Description Ab. S. Con.	Texture	Structure	Consistence	Soil Category
A	12"	g	s	10yr4/2			sl	0–m	fr	6
B	24"	c	s	10yr6/3	10yr6/8 2.5y7/2	c 2 d	sl	0–m	fi	8
Cd	67"			2.5y4/3	10yr5/6 2.5y7/1	c 2 d	gsl	0–m	vfi	9

TH–06 Horizon	Depth	Horizon Boundaries Dist	Horizon Boundaries Topo	Soil Colors Matrix	Soil Colors Re-Dox Features	Re-Dox Description Ab. S. Con.	Texture	Structure	Consistence	Soil Category
A	5"	g	s	N2.5/			sl	0–m	fr	6
B	13"	c	s	10yr4/1	10yr4/3 2.5y7/2	c 1 f	sl	0–m	fri	6
C	38"	a	s	10yr7/3	10yr6/8 2.5y7/2	c 2 d	sil	0–m	fri	7
Cd1	57"			2.5y4/1	10yr6/8 2.5y7/2	c 2 d	gsl	0–m	vfi	9

Soil Class: Pittstown Silt Loam
Depth to Groundwater Seepage: TH–05 45" TH–06 33"
Estimated Seasonal High Water Table: TH–05 12" TH–02 12"
Total Depth of eachTest Hole: TH–05 67" TH–06 57"
Depth to Impervious or Limiting Layer: Not encountered
Comments:

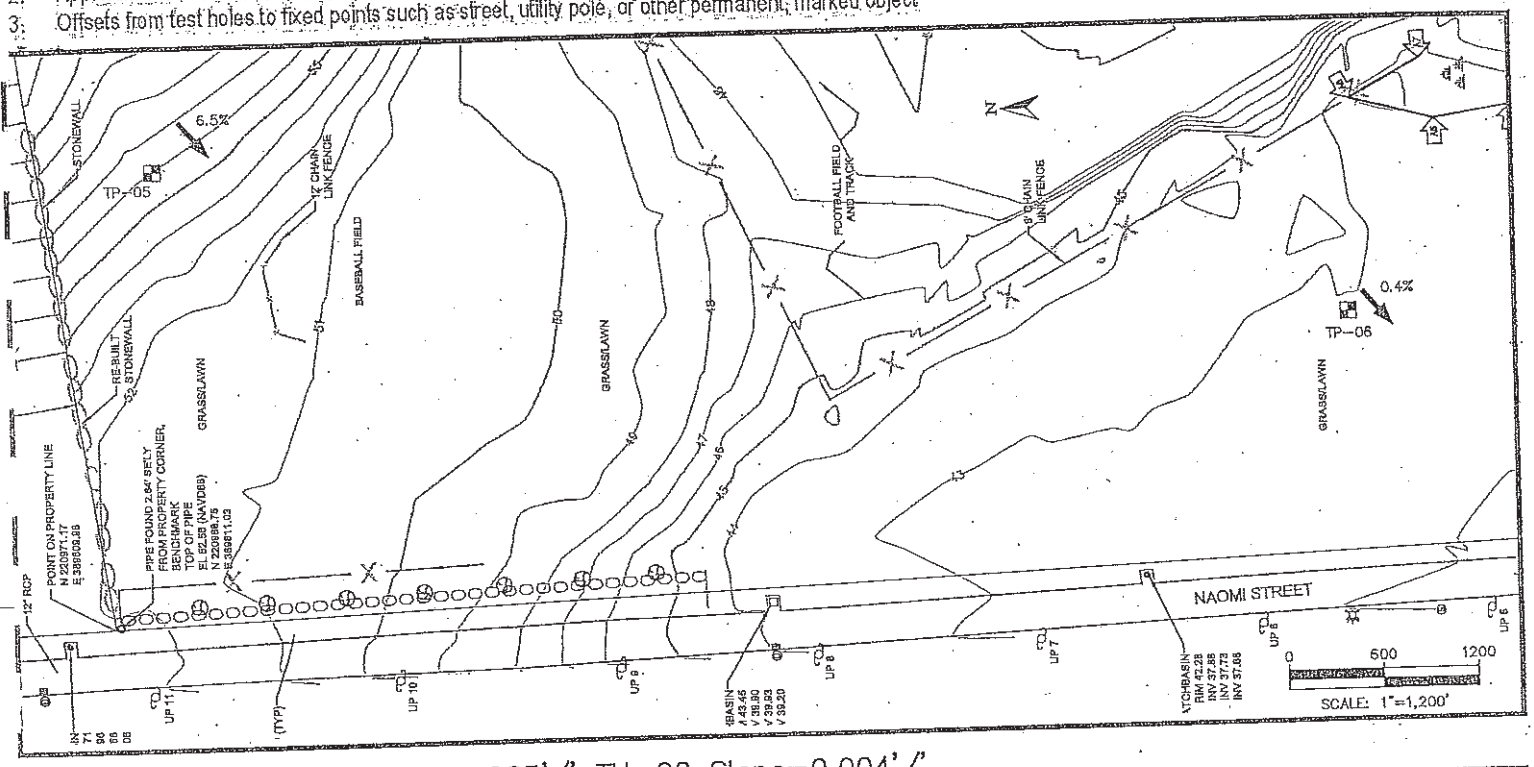
Part B

Key:
- Approximate location of test holes
- Estimated gradient and direction of slope
- Approximate direction of due north

Site Evaluation - to be completed by Class II or III Designer or Soil Evaluator

Please use the area below to locate:

1. Test holes
2. Approximate direction of due north
3. Offsets from test holes to fixed points such as street, utility pole, or other permanent, marked object



1. Relief and Slope: TH-05 Slope=0.065'/' TH-06 Slope=0.004'/'
2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes: YES☒ NO☐ If yes, locate on above sketch.
3. Presence of existing or proposed private drinking water wells within 200 feet of test holes: YES☐ NO☒ If yes, locate on above sketch.
4. Public drinking water wells within 500 feet of test holes: YES☐ NO☒ If yes, locate on above sketch.
5. Is site within the watershed of a public drinking water reservoir or other critical area defined in SD 19.00? YES☐ NO☒
6. Has soil been excavated from or fill deposited on site? YES☐ NO☒ If yes, locate on above sketch.
7. Site's potential for flooding or ponding: NONE☐ SLIGHT☐ MODERATE☒ SEVERE☐
8. Landscape position: Athletic field
9. Vegetation: Grass
10. Indicate approximate location of property lines and roadways.
11. Additional comments, site constraints or additional information regarding site: Ponding occurs within the soil as a result of the poor surface soil conditions.

Certification

The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Part A prepared by: _____ License # _____ Signature

Part B prepared by: _____ D3077 License # _____ Signature

FOR OFFICE USE ONLY

Decision: Approved ☐ Disclaimed ☐

Comments:

_____ _____

Signature Authorized Agent Date

revised 5/8/01

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP15-01**

SHEET 1 OF 1

Property Owner: Town of Bristol

Project: 14234.00 BWRSD - Mt Hope Athletic Fields Contractor: Bristol DPW

Property Location: 199 Chestnut Street, Bristol, RI Excavator: CAT 430E

Date of Test Hole: July 23, 2015

Soil Evaluator: Robert Sykes State / Date of Exam: MA 6/23/15

Weather: Sunny 85F Shaded: Yes ☐ No ☑

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
A_p	0"-12"	-	-	10YR 3/2					Sandy Loam	Weak Granular	Friable	2-5% Gravel <2% Cobbles <2% Stone
B_w	12"-28"	-	-	2.5Y 3/3	Redox @ 26" 7.5YR 5/6				Sandy Loam	Massive	Firm	2-5% Gravel <2% Cobbles <2% Stone
C_d	28"-92"	-	-	5Y 3/1					Sandy Loam	Massive	Very Firm	5-10% Gravel 2-5% Cobbles <2% Stone
C_{d2}	92"-105"	-	-	5Y 3/1					Silt Loam	Massive	Very Firm	<2% Gravel <2% Cobbles <2% Stone

Soil Class: N/A Total Depth of Test Hole: 105"

Depth to Groundwater or Seepage: No Seepage Observed Depth to Impervious or Limiting Layer: N/A

Estimated Seasonal High Water Table: Redox at 26"

COMMENTS:

Test Pit located at toe of slope, Redox observed from 15" to 26" - Dominant at 26" - C Horizon is very dense and Redox is present from slow downward movement

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP15-02**

SHEET 1 OF 1

Property Owner: Town of Bristol

Project: 14234.00 BWRSD - Mt Hope Athletic Fields Contractor: Bristol DPW

Property Location: 199 Chestnut Street, Bristol, RI Excavator: CAT 430E

Date of Test Hole: July 23, 2015

Soil Evaluator: Robert Sykes State / Date of Exam: MA 6/23/15

Weather: Sunny 85F Shaded: Yes ☐ No ☑

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
A_p	0"-9"	-	-	10YR 3/2					Sandy Loam	Ganular	Firm in Place Friable in Hand	<2% Gravel <2% Cobbles <2% Stone
B_w	9"-31"	-	-	2.5Y 4/2	Redox @ 20" 7.5YR 5/6				Sandy Loam	Massive	Firm	2-5% Gravel <2% Cobbles <2% Stone
C_d	31"-53"	-	-	5Y 4/1					Coarse Sandy Loam	Massive	Firm	5-10% Gravel 2-5% Cobbles <2% Stone
C_{d2}	53"-110"	-	-	5Y 3/1					Coarse Sandy Loam	Massive	Very Firm	5-10% Gravel 2-5% Cobbles <2% Stone
C_{d3}	110"-130"	-	-	5Y 3/1					Silt Loam	Massive	Very Firm	<2% Gravel <2% Cobbles <2% Stone

Soil Class: N/A Total Depth of Test Hole: 130"

Depth to Groundwater or Seepage: Seepage 85" Depth to Impervious or Limiting Layer: N/A

Estimated Seasonal High Water Table: Redox at 20"

COMMENTS:

Test Pit located at shoulder of slope, Redox observed from 8" to 20" - Ap Layer has been compacted from use as athletic fields and Redox is present from slow downward movement, Dense layers of silt loam excavated from bottom of pit, Cd2 is from the same parent material but has a higher percentage of coarser material

TEST HOLE NO. **TP15-02**

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP15-03**

SHEET 1 OF 1

Property Owner: Town of Bristol

Project: 14234.00 BWRSD - Mt Hope Athletic Fields Contractor: Bristol DPW

Property Location: 199 Chestnut Street, Bristol, RI Excavator: CAT 430E

Date of Test Hole: July 23, 2015

Soil Evaluator: Robert Sykes State / Date of Exam: MA 6/23/15

Weather: Sunny 85F Shaded: Yes ☐ No ☑

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
Fill	0"-21"											
A_p	21"-27"	-	-	10YR 3/2	Redox @ 23" 10YR 3/2				Sandy Loam	Massive	Firm	<2% Gravel <2% Cobbles <2% Stone
C	27"-52"	-	-	10YR 4/4					Very Fine Sand	Single Grain	Firm in Place Loose in Hand	<2% Gravel <2% Cobbles <2% Stone
C_d	52"-114"	-	-	5Y 4/1					Coarse Sandy Loam	Massive	Very Firm	10-15% Gravel 2-5% Cobbles <2% Stone

Soil Class: N/A Total Depth of Test Hole: 114"

Depth to Groundwater or Seepage: Seepage 98" Depth to Impervious or Limiting Layer: N/A

Estimated Seasonal High Water Table: Redox at 23"

COMMENTS:

Burried Ap Layer present, Very Dense Till Material in Cd - most restrictive layer slowing downward movement of groundwater creating Redox in Sand and Ap layers above

TEST HOLE NO. **TP15-03**

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP15-04**

SHEET 1 OF 1

Property Owner: Town of Bristol

Project: 14234.00 BWRSD - Mt Hope Athletic Fields Contractor: Bristol DPW

Property Location: 199 Chestnut Street, Bristol, RI Excavator: CAT 430E

Date of Test Hole: July 23, 2015

Soil Evaluator: Robert Sykes State / Date of Exam: MA 6/23/15

Weather: Sunny 85F Shaded: Yes ☐ No ☑

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
A_p	0"-12"	-	-	2.5Y 3/2					Sandy Loam	Granular	Very Friable	2-5% Gravel <2% Cobbles <2% Stone
B_w	12"-18"	-	-	2.5Y 4/2					Coarse Sandy Loam	Massive	Friable	5-10% Gravel <2% Cobbles <2% Stone
C	18"-31"	-	-	10YR 4/4	Redox @ 18" 7.5YR 5/8				Very Fine Sand	Single Grain	Firm in Place Loose in Hand	<2% Gravel <2% Cobbles <2% Stone
$2C_d$	31"-65"	-	-	2.5Y 4/2					Coarse Sandy Loam	Massive	Very Firm	5-10% Gravel 2-5% Cobbles 2-5% Stone
$2C_{d2}$	65"-137"	-	-	5Y 4/1					Silt Loam	Massive	Very Firm	2-5% Gravel <2% Cobbles <2% Stone

Soil Class: N/A

Total Depth of Test Hole: 137"

Depth to Groundwater or Seepage: Seepage at 68"

Depth to Impervious or Limiting Layer: N/A

Estimated Seasonal High Water Table: Redox at 18"

COMMENTS:

Redox very dominant in Sand Layer above dense till from slow downward movement through restrictive layer

TEST HOLE NO. **TP15-04**

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP15-05**

SHEET 1 OF 1

Property Owner: Town of Bristol

Project: 14234.00 BWRSD - Mt Hope Athletic Fields Contractor: Bristol DPW

Property Location: 199 Chestnut Street, Bristol, RI Excavator: CAT 430E

Date of Test Hole: July 23, 2015

Soil Evaluator: Robert Sykes State / Date of Exam: MA 6/23/15

Weather: Sunny 85F Shaded: Yes ☐ No ☑

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
A_p	0"-12"	-	-	2.5Y 3/2					Sandy Loam	Granular	Very Friable	<2% Gravel <2% Cobbles <2% Stone
B_w	12"-20"	-	-	2.5Y 5/6					Sandy Loam	Massive	Friable	<2% Gravel <2% Cobbles <2% Stone
C_d	20"-114"	-	-	5Y 4/1	Redox @ 35" 7.5YR 5/8				Coarse Sandy Loam	Massive	Firm	20-30% Gravel <2% Cobbles <2% Stone

Soil Class: N/A Total Depth of Test Hole: 114"

Depth to Groundwater or Seepage: No Seepage Observed Depth to Impervious or Limiting Layer: N/A

Estimated Seasonal High Water Table: Redox at 35"

COMMENTS:

Redox observed at 20" on top of dense till from slow downward movement, Redox observed uniformly at 35" in dense till layer
Pockets of Very Fine Sand observed in Bw Horizon.

TEST HOLE NO. **TP15-05**

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP15-06**

SHEET 1 OF 1

Property Owner: Town of Bristol

Project: 14234.00 BWRSD - Mt Hope Athletic Fields Contractor: Bristol DPW

Property Location: 199 Chestnut Street, Bristol, RI Excavator: CAT 430E

Date of Test Hole: July 23, 2015

Soil Evaluator: Robert Sykes State / Date of Exam: MA 6/23/15

Weather: Sunny 85F Shaded: Yes ☐ No ☑

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
A_p	0"-11"	-	-	10YR 3/3					Sandy Loam	Granular	Very Friable	<2% Gravel <2% Cobbles <2% Stone
C_d	11"-82"	-	-	5Y 4/1	Redox @ 41" 10Y 4/4				Very Coarse Sandy Loam	Massive	Very Firm	10-20% Gravel 5-10% Cobbles 5-10% Stone
C_{d2}	82"-113"	-	-	5Y 4/3					Coarse Sandy Loam	Massive	Very Firm	10-20% Gravel 2-5% Cobbles <2% Stone

Soil Class: N/A

Total Depth of Test Hole: 113"

Depth to Groundwater or Seepage: Seepage at 110"

Depth to Impervious or Limiting Layer: N/A

Estimated Seasonal High Water Table: Redox at 41"

COMMENTS:

Redox observed at 11" in Ap on top of dense till from slow downward movement, Redox observed uniformly at 41" in dense till layer

TEST HOLE NO. **TP15-06**

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. TP- 1

SHEET 1 OF 1

Property Owner: Town of Bristol

Project: Mt Hope HS Master Plan Contractor: Bistol DPW

Property Location: 199 Chestnut Street Bristol RI Excavator:

Date of Test Hole: October 9 ,2020 8:30 AM

Soil Evaluator: C. Webber State / Date of Exam: MA

Weather: Sunny Shaded: Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
Ap	0-15"			10yr 6/4					loamy sand	massive	friable	10 0 0
Bw	15-35"			10yr 7/4	10yr 6/8 C 10yr 7/3 D				loamy sand	massive	Firm in place friable in hand	15 10 5
Cd	35"-9'			10yr 4/2					stony silt loam	massive	firm in place friable in hand	30 20 10

Soil Class: 9km Glacial Till

Total Depth of Test Hole: 9'

Depth to Groundwater or Seepage: N/A

Depth to Impervious or Limiting Layer: N/A

Estimated Seasonal High Water Table: 40.83'

Surface Elevation of Test Pit (approximate): ~42.5'

COMMENTS: • Soil very dry. • Redox located @ 22", consistent throughout pit down to next horizon

TEST HOLE NO. TP- 1

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. TP- 2

SHEET 1 OF 1

Property Owner: Town of Bristol

Project: Mt Hope HS Master Plan Contractor: Bistol DPW

Property Location: 199 Chestnut Street Bristol RI Excavator:

Date of Test Hole: October 9 ,2020

Soil Evaluator: C. Webber State / Date of Exam: MA

Weather: Sunny Shaded: Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
Ap/fill	0-22"			10yr 5/2	\				loam/sand	massive	very friable	10 S 0
C	22"-63"		@25" ↘	10yr 6/4	E: 10yr 6/8 D: 10yr 7/2				sandy loam	massive	friable	5 S 0
C2	63"-9'			10yr 3/1	\				silt loam	massive	friable	5 S 0

Soil Class: Qkm Glacial Till

Total Depth of Test Hole: 9'

Depth to Groundwater or Seepage: N/A

Depth to Impervious or Limiting Layer: N/A

Estimated Seasonal High Water Table: 41.92'

Surface Elevation of Test Pit (approximate): 44.0'

COMMENTS:
- Redox located @ 25", consistent throughout pit walls and heavy
- Tree roots @ 12"-0" (trees to south)

TEST HOLE NO. TP- 2

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND
ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. TP- 3
SHEET 1 OF 1

Property Owner: Town of Bristol
Project: Mt Hope HS Master Plan — Contractor: Bistol DPW
Property Location: 199 Chestnut Street Bristol RI — Excavator:
Date of Test Hole: October 9 ,2020 10:15
Soil Evaluator: C. Webber — State / Date of Exam: MA
Weather: Sunny — Shaded: Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries: Dist	Horizon Boundaries: Topo	Soil Colors: Matrix	Soil Colors: Re-Dox Features	Re-Dox Description: Ab.	Re-Dox Description: S.	Re-Dox Description: Con.	Texture	Structure	Consistence	Percent Gravel Cobbles Stone
Ap	0-8"			10yr 5/3	/				loamy/sand	massive	friable	5 0 0
Bw	8-16"			10yr 5/3	/				loamy/sand	massive	friable	5 0 0
C	16"-36"			10yr 5/4	@20" 10yr 5/8 10yr 7/2				sandy/loam	massive	Firm in place Friable in hand	15 10 0
C2	36-9.5'			10yr 5/1	/				silt loam	massive	friable	5 5 0

Soil Class: Dkm Glacial Till
Depth to Groundwater or Seepage: N/A
Estimated Seasonal High Water Table: 42.08'
Total Depth of Test Hole: 9.5'
Depth to Impervious or Limiting Layer: N/A
Surface Elevation of Test Pit (approximate): 43.75'

COMMENTS: • minor redox features in B horizon • major redox starting @ 20" in C layer (conc & depletions around pits)
• some boulders @ ~ C-C2 horizon boundary

TEST HOLE NO. TP- 3

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. TP-4

SHEET 1 OF 1

Property Owner: Town of Bristol

Project: Mt Hope HS Master Plan Contractor: Bistol DPW

Property Location: 199 Chestnut Street Bristol RI Excavator: Mike D

Date of Test Hole: October 9 ,2020 11:35

Soil Evaluator: C. Webber State / Date of Exam: MA

Weather: Sunny Shaded: Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
Fill	0-48"			10yr 3/2	/				Sandy/ loam	massive	Very friable	5% b

Soil Class: Qtln Glacial Till

Total Depth of Test Hole: 48"

Depth to Groundwater or Seepage: 48"

Depth to Impervious or Limiting Layer: ← 48"

Estimated Seasonal High Water Table: 42.5' (water table, no mottles)

Surface Elevation of Test Pit (approximate): ~46.5'

COMMENTS:

- trash uncovered @ ~2' (piece of cup)
- trash uncovered @ ~4' (piece of tubing?)
- sticks/organics found throghout
- water in pit at 48", from east sidewall (high side)

TEST HOLE NO. TP- 4

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. TP- 5

SHEET 1 OF 1

Property Owner: Town of Bristol

Project: Mt Hope HS Master Plan — Contractor: Bistol DPW

Property Location: 199 Chestnut Street Bristol RI — Excavator: Mike

Date of Test Hole: October 9 ,2020 12:15

Soil Evaluator: C. Webber — State / Date of Exam: MA

Weather: Sunny — Shaded: Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries: Dist	Horizon Boundaries: Topo	Soil Colors: Matrix	Soil Colors: Re-Dox Features	Re-Dox Description: Ab.	Re-Dox Description: S.	Re-Dox Description: Con.	Texture	Structure	Consistence	Percent Gravel Cobbles Stone
Ap	0-6"			10yr 6/3	/				Sandy loam	massive	very friable	5 0 0
Bw	6"-25"			10yr 6/3	/				Stony Sandy loam	massive	very friable	30 20 10
C	25"-6'			10yr 5/1	@50" C: layer 5/6 D: layer 5/6				stony sandy loam	massive	firm in place very friable in hand	30 20 5

Soil Class: Qkm Glacial Till

Total Depth of Test Hole: 6'-0"

Depth to Groundwater or Seepage: 6'-0"

Depth to Impervious or Limiting Layer: N/A

Estimated Seasonal High Water Table: 49.83'

Surface Elevation of Test Pit (approximate): 54'

COMMENTS:

- very stony throughout
- layering atypical from rest of site; possible fill
- Redox features @ 50"
- seepage @ bottom of pit (6')

TEST HOLE NO. TP- 5

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. TP-6

SHEET 1 OF 1

Property Owner: Town of Bristol

Project: Mt Hope HS Master Plan — Contractor: Bistol DPW

Property Location: 199 Chestnut Street Bristol RI — Excavator: Mikr

Date of Test Hole: October 9 ,2020 1:00 pm

Soil Evaluator: C. Webber — State / Date of Exam: MA

Weather: Sunny — Shaded: Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries: Dist	Horizon Boundaries: Topo	Soil Colors: Matrix	Soil Colors: Re-Dox Features	Re-Dox Description: Ab.	Re-Dox Description: S.	Re-Dox Description: Con.	Texture	Structure	Consistence	Percent Gravel Cobbles Stone
Ap	0-6"			10yr 6/3	—				Sandy loam	massive	very friable	5-0
C	6"-46"			10yr 6/3	*see below				Sandy loam	massive	friable	10 5 0
C2	46"-84"			10yr 4/1	@98" 10yr 6/8				Sandy loam	massive	friable	10 5 0
C3	84"-9'			10yr 3/1	—				silt loam	massive	firm in place friable in hand	5 5 0

Soil Class: Qkm Glacial Till

Total Depth of Test Hole: 9'

Depth to Groundwater or Seepage: N/A

Depth to Impervious or Limiting Layer: N/A

Estimated Seasonal High Water Table: 41.0'

Surface Elevation of Test Pit (approximate): 45'

COMMENTS: *minor redox (<10%) features appear to be present starting @ ~20", inconsistant in pit
major redox @ 48', consistant throughout pit

TEST HOLE NO. TP-6

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP-1**

SHEET 1 OF 10

Property Owner:	Town of Bristol		
Project:	Mt. Hope HS	Contractor:	Bristol DPW
Property Location:	199 Chestnut Street, Bristol, RI	Excavator:	Backhoe
Date of Test Hole:	July 18, 2024		
Soil Evaluator:	Spencer Lynds SE#14275	State / SE Expiration:	MA / 6/30/2025
Weather:	Sunny	Shaded:	Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
Fill	0 - 16											
C1	16 - 33				28"				FSL	Massive	Firm in Place	15%
C2	33 - 70								SiL	Massive	Firm in Place	15%
R												

Soil Class:	CLASS A (RI) / CATEGORY 9 (OWTS)	Total Depth of Test Hole:	70"
Depth to Groundwater or Seepage:	N/A	Depth to Impervious or Limiting Layer:	70"
Estimated Seasonal High Water Table:	28"	Surface Elevation of Test Pit (approximate):	-

COMMENTS:

Fill layer was a light brown grading fill encountered very commonly across the site

No bedrock encountered, refusal considered to be highly restricitive natural soil layer

RI Stormwater Manual Rawls Rate = 0.27 in./hr.

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP-2**

SHEET 2 OF 10

Property Owner: Town of Bristol

Project: Mt. Hope HS — Contractor: Bristol DPW

Property Location: 199 Chestnut Street, Bristol, RI — Excavator: Backhoe

Date of Test Hole: July 18, 2024

Soil Evaluator: Spencer Lynds SE#14275 — State / SE Expiration: MA / 6/30/2025

Weather: Sunny — Shaded: Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
Fill A	0 - 16											
Fill B	16 - 48				32"							
Fill C	48 - 72											
C1	72 96								SiL	Massive	Firm in Place	15%
R												

Soil Class: CLASS A (RI) / CATEGORY 9 (OWTS)

Total Depth of Test Hole: 96"

Depth to Groundwater or Seepage: N/A

Depth to Impervious or Limiting Layer: 96"

Estimated Seasonal High Water Table: 32"

Surface Elevation of Test Pit (approximate): -

COMMENTS:

Fill A standard light brown grading fill, Fill B on-site common borrow from natural soil layers (mixed C1/C2 type soils), Fill C was organic fill also seen in TP-9

No bedrock encountered, refusal considered to be highly restricitive natural soil layer

Redox considered to have formed after placement of common borrow. Prior depletions in Fill B layer were noted but newly formed redox showed clear SHGW elev.

RI Stormwater Manual Rawls Rate = 0.27 in./hr.

TEST HOLE NO. **TP-2**

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP-3**

SHEET 3 OF 10

Property Owner:	Town of Bristol		
Project:	Mt. Hope HS	Contractor:	Bristol DPW
Property Location:	199 Chestnut Street, Bristol, RI	Excavator:	Backhoe
Date of Test Hole:	July 18, 2024		
Soil Evaluator:	Spencer Lynds SE#14275	State / SE Expiration:	MA / 6/30/2025
Weather:	Sunny	Shaded:	Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
Fill A	0 - 10											
Fill B	10 - 27				22"							
C1	27 46								SiL	Massive	Firm in Place	15%
R												

Soil Class:	CLASS A (RI) / CATEGORY 9 (OWTS)	Total Depth of Test Hole:	46"
Depth to Groundwater or Seepage:	N/A	Depth to Impervious or Limiting Layer:	46"
Estimated Seasonal High Water Table:	22"	Surface Elevation of Test Pit (approximate):	-

COMMENTS:

Fill A standard light brown grading fill, Fill B on-site common borrow from natural soil layers (mixed C1/C2 type soils)

No bedrock encountered, refusal considered to be highly restricitive natural soil layer

Redox considered to have formed after placement of common borrow. Prior depletions in Fill B layer were noted but newly formed redox showed clear SHGW elev.

RI Stormwater Manual Rawls Rate = 0.27 in./hr.

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP-4**

SHEET 4 OF 10

Property Owner: Town of Bristol

Project: Mt. Hope HS — Contractor: Bristol DPW

Property Location: 199 Chestnut Street, Bristol, RI — Excavator: Backhoe

Date of Test Hole: July 18, 2024

Soil Evaluator: Spencer Lynds SE#14275 — State / SE Expiration: MA / 6/30/2025

Weather: Sunny — Shaded: Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
Fill A	0 - 6											
C1	6 - 32				24"				FSL	Massive	Firm in Place	15%
C2	32 66								SiL	Massive	Firm in Place	15%
R												

Soil Class: CLASS A (RI) / CATEGORY 9 (OWTS)

Total Depth of Test Hole: 66"

Depth to Groundwater or Seepage: N/A

Depth to Impervious or Limiting Layer: 66"

Estimated Seasonal High Water Table: 24"

Surface Elevation of Test Pit (approximate): -

COMMENTS:

Fill A standard light brown grading fill and topsoil layer

No bedrock encountered, refusal considered to be highly restricitive natural soil layer

RI Stormwater Manual Rawls Rate = 0.27 in./hr.

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP-5**

SHEET 5 OF 10

Property Owner: Town of Bristol

Project: Mt. Hope HS — Contractor: Bristol DPW

Property Location: 199 Chestnut Street, Bristol, RI — Excavator: Backhoe

Date of Test Hole: July 18, 2024

Soil Evaluator: Spencer Lynds SE#14275 — State / SE Expiration: MA / 6/30/2025

Weather: Sunny — Shaded: Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
Fill A	0 - 32											
C1	32 - 39				35"				FSL	Massive	Firm in Place	15%
C2	39 54								SiL	Massive	Firm in Place	15%
R												

Soil Class: CLASS A (RI) / CATEGORY 9 (OWTS)

Total Depth of Test Hole: 54"

Depth to Groundwater or Seepage: N/A

Depth to Impervious or Limiting Layer: 54"

Estimated Seasonal High Water Table: 35"

Surface Elevation of Test Pit (approximate): -

COMMENTS:

Fill A standard light brown grading fill and topsoil layer

No bedrock encountered, refusal considered to be highly restricitive natural soil layer

RI Stormwater Manual Rawls Rate = 0.27 in./hr.

TEST HOLE NO. **TP-5**

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP-6**

SHEET 6 OF 10

Property Owner: Town of Bristol

Project: Mt. Hope HS — Contractor: Bristol DPW

Property Location: 199 Chestnut Street, Bristol, RI — Excavator: Backhoe

Date of Test Hole: July 18, 2024

Soil Evaluator: Spencer Lynds SE#14275 — State / SE Expiration: MA / 6/30/2025

Weather: Sunny — Shaded: Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
Fill A	0 - 18											
C1	18 - 42				38"				FSL	Massive	Firm in Place	15%
C2	42 - 68								SiL	Massive	Firm in Place	15%
R												

Soil Class: CLASS A (RI) / CATEGORY 9 (OWTS)

Total Depth of Test Hole: 68"

Depth to Groundwater or Seepage: N/A

Depth to Impervious or Limiting Layer: 68"

Estimated Seasonal High Water Table: 38"

Surface Elevation of Test Pit (approximate): -

COMMENTS:

Fill A standard light brown grading fill and topsoil layer

No bedrock encountered, refusal considered to be highly restricitive natural soil layer

RI Stormwater Manual Rawls Rate = 0.27 in./hr.

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP-7**

SHEET 7 OF 10

Property Owner:	Town of Bristol		
Project:	Mt. Hope HS	Contractor:	Bristol DPW
Property Location:	199 Chestnut Street, Bristol, RI	Excavator:	Backhoe
Date of Test Hole:	July 18, 2024		
Soil Evaluator:	Spencer Lynds SE#14275	State / SE Expiration:	MA / 6/30/2025
Weather:	Sunny	Shaded:	Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
Fill A	0 - 12				10"							
C1	12 - 52								LS	Massive	Friable	0%
C2	52 - 108								SiL	Massive	Firm in Place	15%

Soil Class:	CLASS A (RI) / CATEGORY 9 (OWTS)	Total Depth of Test Hole:	108"
Depth to Groundwater or Seepage:	104"	Depth to Impervious or Limiting Layer:	-
Estimated Seasonal High Water Table:	10"	Surface Elevation of Test Pit (approximate):	-

COMMENTS:

Fill A standard light brown grading fill and topsoil layer, contained significant redox features, TP downgradient and adjacent to drainage ditch
No bedrock encountered, no refusal

RI Stormwater Manual Rawls Rate = 0.27 in./hr.

TEST HOLE NO. **TP-7**

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP-8**

SHEET 8 OF 10

Property Owner:	Town of Bristol		
Project:	Mt. Hope HS	Contractor:	Bristol DPW
Property Location:	199 Chestnut Street, Bristol, RI	Excavator:	Backhoe
Date of Test Hole:	July 18, 2024		
Soil Evaluator:	Spencer Lynds SE#14275	State / SE Expiration:	MA / 6/30/2025
Weather:	Sunny	Shaded:	Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
Fill A	0 - 12											
C1	12 - 18				14"				FSL	Massive	Firm in Place	15%
C2	18 - 42								SiL	Massive	Firm in Place	15%
R												

Soil Class:	CLASS A (RI) / CATEGORY 9 (OWTS)	Total Depth of Test Hole:	42"
Depth to Groundwater or Seepage:	N/A	Depth to Impervious or Limiting Layer:	42"
Estimated Seasonal High Water Table:	14"	Surface Elevation of Test Pit (approximate):	-

COMMENTS:

Fill A standard light brown grading fill and topsoil layer

No bedrock encountered, refusal considered to be highly restricitive natural soil layer

RI Stormwater Manual Rawls Rate = 0.27 in./hr.

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP-9**

SHEET 9 OF 10

Property Owner: Town of Bristol

Project: Mt. Hope HS — Contractor: Bristol DPW

Property Location: 199 Chestnut Street, Bristol, RI — Excavator: Backhoe

Date of Test Hole: July 18, 2024

Soil Evaluator: Spencer Lynds SE#14275 — State / SE Expiration: MA / 6/30/2025

Weather: Sunny — Shaded: Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
Fill A	0 - 29											
Fill B	29 - 70				29"							
C1	70 - 90								FSL	Massive	Firm in Place	15%
C2	90 - 96								SiL	Massive	Firm in Place	15%

Soil Class: CLASS A (RI) / CATEGORY 9 (OWTS)

Total Depth of Test Hole: 96"

Depth to Groundwater or Seepage: N/A

Depth to Impervious or Limiting Layer: -

Estimated Seasonal High Water Table: 29"

Surface Elevation of Test Pit (approximate): -

COMMENTS:

Fill A standard light brown grading fill, Fill B was organic fill also seen in TP-2

No bedrock encountered, refusal considered to be highly restricitive natural soil layer

Redox considered to have formed after placement of Fill B; displays as clear band between Fill A/B horizon

RI Stormwater Manual Rawls Rate = 0.27 in./hr.

TEST HOLE NO. **TP-9**

PARE CORPORATION

8 BLACKSTONE VALLEY PLACE, LINCOLN, RHODE ISLAND

ENGINEERS *** PLANNERS *** CONSULTANTS

TEST HOLE NO. **TP-10**

SHEET 10 OF 10

Property Owner: Town of Bristol

Project: Mt. Hope HS — Contractor: Bristol DPW

Property Location: 199 Chestnut Street, Bristol, RI — Excavator: Backhoe

Date of Test Hole: July 18, 2024

Soil Evaluator: Spencer Lynds SE#14275 — State / SE Expiration: MA / 6/30/2025

Weather: Sunny — Shaded: Yes ☐ No ☐

SAMPLE DESCRIPTION

Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox Description			Texture	Structure	Consistence	Percent Gravel Cobbles Stone
		Dist	Topo	Matrix	Re-Dox Features	Ab.	S.	Con.				
Fill A	0 - 16											
Fill B	16 - 39				16"							
C1	39 - 64								LS	Massive	Friable	0%
C2	64 - 108								SiL	Massive	Firm in Place	15%

Soil Class: CLASS A (RI) / CATEGORY 9 (OWTS) — Total Depth of Test Hole: 108"

Depth to Groundwater or Seepage: N/A — Depth to Impervious or Limiting Layer: -

Estimated Seasonal High Water Table: 16" — Surface Elevation of Test Pit (approximate): -

COMMENTS:

Fill A standard light brown grading fill, Fill B on-site common borrow from natural soil layers (mixed C1/C2 type soils)
Redox considered to have formed after placement of common borrow. Prior depletions in Fill B layer were noted but newly formed redox showed clear SHGW elev.

RI Stormwater Manual Rawls Rate = 0.27 in./hr.

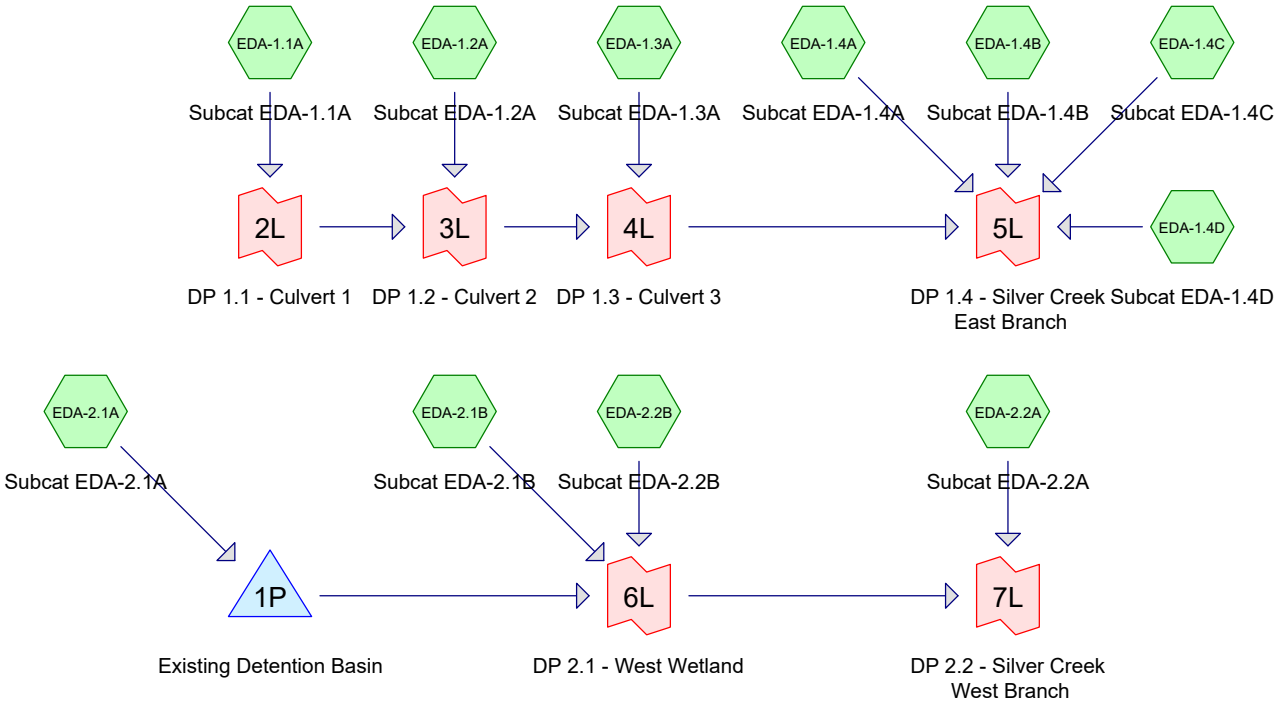
TEST HOLE NO. **TP-10**

Bristol Warren Regional School District

MT. HOPE HIGH SCHOOL

APPENDIX B

Hydrologic Calculations – Existing and Proposed Conditions
Hydraulic Calculations – Pipe Analysis



Subcat Reach Pond Link

Routing Diagram for Ex-Hydro
Prepared by Pare Corporation, Printed 1/9/2025

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EDA-1.1A: Subcat Runoff Area=499,398 sf 17.06% Impervious Runoff Depth=1.10"
Flow Length=407' Tc=25.0 min CN=80 Runoff=8.83 cfs 45,865 cf

Subcatchment EDA-1.2A: Subcat EDA-1.2A Runoff Area=57,549 sf 67.99% Impervious Runoff Depth=1.89"
Tc=6.0 min CN=91 Runoff=2.83 cfs 9,043 cf

Subcatchment EDA-1.3A: Subcat EDA-1.3A Runoff Area=21,734 sf 37.77% Impervious Runoff Depth=1.49"
Tc=6.0 min CN=86 Runoff=0.86 cfs 2,703 cf

Subcatchment EDA-1.4A: Subcat EDA-1.4A Runoff Area=72,753 sf 71.19% Impervious Runoff Depth=1.89"
Flow Length=178' Tc=10.3 min CN=91 Runoff=3.13 cfs 11,432 cf

Subcatchment EDA-1.4B: Subcat EDA-1.4B Runoff Area=91,355 sf 66.94% Impervious Runoff Depth=1.89"
Flow Length=247' Tc=7.7 min CN=91 Runoff=4.28 cfs 14,355 cf

Subcatchment EDA-1.4C: Subcat Runoff Area=281,058 sf 45.82% Impervious Runoff Depth=1.49"
Flow Length=509' Tc=16.3 min CN=86 Runoff=8.21 cfs 34,957 cf

Subcatchment EDA-1.4D: Subcat EDA-1.4D Runoff Area=88,558 sf 57.37% Impervious Runoff Depth=1.64"
Flow Length=361' Tc=12.7 min CN=88 Runoff=3.11 cfs 12,114 cf

Subcatchment EDA-2.1A: Subcat EDA-2.1A Runoff Area=398,430 sf 2.13% Impervious Runoff Depth=0.83"
Flow Length=317' Tc=13.4 min CN=75 Runoff=6.46 cfs 27,642 cf

Subcatchment EDA-2.1B: Subcat Runoff Area=218,209 sf 21.82% Impervious Runoff Depth=1.04"
Flow Length=274' Tc=13.3 min CN=79 Runoff=4.66 cfs 18,992 cf

Subcatchment EDA-2.2A: Subcat Runoff Area=182,415 sf 21.34% Impervious Runoff Depth=1.04"
Flow Length=160' Slope=0.0125 '/' Tc=12.9 min CN=79 Runoff=3.93 cfs 15,877 cf

Subcatchment EDA-2.2B: Subcat EDA-2.2B Runoff Area=164,751 sf 1.20% Impervious Runoff Depth=0.69"
Flow Length=565' Slope=0.0120 '/' Tc=40.0 min CN=72 Runoff=1.33 cfs 9,498 cf

Pond 1P: Existing Detention Basin Peak Elev=44.74' Storage=6,547 cf Inflow=6.46 cfs 27,642 cf
Discarded=0.08 cfs 3,038 cf Primary=2.98 cfs 24,604 cf Outflow=3.06 cfs 27,642 cf

Link 2L: DP 1.1 - Culvert 1 Inflow=8.83 cfs 45,865 cf
Primary=8.83 cfs 45,865 cf

Link 3L: DP 1.2 - Culvert 2 Inflow=9.87 cfs 54,907 cf
Primary=9.87 cfs 54,907 cf

Link 4L: DP 1.3 - Culvert 3 Inflow=10.22 cfs 57,611 cf
Primary=10.22 cfs 57,611 cf

Link 5L: DP 1.4 - Silver Creek East Branch Inflow=25.70 cfs 130,468 cf
Primary=25.70 cfs 130,468 cf

Link 6L: DP 2.1 - West Wetland Inflow=6.84 cfs 53,094 cf
Primary=6.84 cfs 53,094 cf

Link 7L: DP 2.2 - Silver Creek West Branch Inflow=10.53 cfs 68,970 cf
Primary=10.53 cfs 68,970 cf

Total Runoff Area = 2,076,210 sf Runoff Volume = 202,476 cf Average Runoff Depth = 1.17"
74.85% Pervious = 1,554,114 sf 25.15% Impervious = 522,096 sf

Summary for Subcatchment EDA-1.1A: Subcat EDA-1.1A

Runoff = 8.83 cfs @ 12.37 hrs, Volume= 45,865 cf, Depth= 1.10"
Routed to Link 2L : DP 1.1 - Culvert 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
51,477	74	>75% Grass cover, Good, HSG C
30,751	80	>75% Grass cover, Good, HSG D
26,444	98	Paved parking, HSG C
18,622	98	Paved parking, HSG D
35,980	98	Roofs, HSG C
4,167	98	Roofs, HSG D
33,738	70	Woods, Good, HSG C
298,218	77	Woods, Good, HSG D
499,398	80	Weighted Average
414,184	76	82.94% Pervious Area
85,213	98	17.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8	100	0.0050	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
8.2	307	0.0080	0.63		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
25.0	407	Total			

Summary for Subcatchment EDA-1.2A: Subcat EDA-1.2A

Runoff = 2.83 cfs @ 12.09 hrs, Volume= 9,043 cf, Depth= 1.89"
Routed to Link 3L : DP 1.2 - Culvert 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
13,576	74	>75% Grass cover, Good, HSG C
4,847	80	>75% Grass cover, Good, HSG D
37,725	98	Roofs, HSG C
1,401	98	Roofs, HSG D
57,549	91	Weighted Average
18,422	76	32.01% Pervious Area
39,126	98	67.99% Impervious Area

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

Summary for Subcatchment EDA-1.3A: Subcat EDA-1.3A

Runoff = 0.86 cfs @ 12.09 hrs, Volume= 2,703 cf, Depth= 1.49"
Routed to Link 4L : DP 1.3 - Culvert 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
3,120	74	>75% Grass cover, Good, HSG C
10,405	80	>75% Grass cover, Good, HSG D
3,378	98	Paved parking, HSG C
2,800	98	Paved parking, HSG D
1,460	98	Roofs, HSG C
572	98	Roofs, HSG D
21,734	86	Weighted Average
13,525	79	62.23% Pervious Area
8,210	98	37.77% Impervious Area

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

Summary for Subcatchment EDA-1.4A: Subcat EDA-1.4A

Runoff = 3.13 cfs @ 12.14 hrs, Volume= 11,432 cf, Depth= 1.89"
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
20,150	74	>75% Grass cover, Good, HSG C
811	80	>75% Grass cover, Good, HSG D
18,737	98	Paved parking, HSG C
138	98	Paved parking, HSG D
32,700	98	Roofs, HSG C
217	98	Roofs, HSG D
72,753	91	Weighted Average
20,961	74	28.81% Pervious Area
51,792	98	71.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	78	0.0128	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.4	25	0.0200	1.06		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.30"
0.4	75	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.3	178	Total			

Summary for Subcatchment EDA-1.4B: Subcat EDA-1.4B

Runoff = 4.28 cfs @ 12.11 hrs, Volume= 14,355 cf, Depth= 1.89"
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
15,693	74	>75% Grass cover, Good, HSG C
14,511	80	>75% Grass cover, Good, HSG D
50,003	98	Paved parking, HSG C
1,562	98	Paved parking, HSG D
9,586	98	Roofs, HSG C
91,355	91	Weighted Average
30,204	77	33.06% Pervious Area
61,151	98	66.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	100	0.0530	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.8	66	0.0379	1.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	56	0.0268	3.32		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	25	0.2800	3.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.7	247	Total			

Summary for Subcatchment EDA-1.4C: Subcat EDA-1.4C

Runoff = 8.21 cfs @ 12.23 hrs, Volume= 34,957 cf, Depth= 1.49"
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
122,034	74	>75% Grass cover, Good, HSG C
17,778	80	>75% Grass cover, Good, HSG D
12,467	87	Dirt roads, HSG C
103,345	98	Paved parking, HSG C
1,864	98	Paved parking, HSG D
23,487	98	Roofs, HSG C
83	98	Roofs, HSG D
281,058	86	Weighted Average
152,278	76	54.18% Pervious Area
128,779	98	45.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0120	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
2.8	150	0.0167	0.90		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	204	0.0211	2.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	50	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.0	5	0.8000	6.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.3	509	Total			

Summary for Subcatchment EDA-1.4D: Subcat EDA-1.4D

Runoff = 3.11 cfs @ 12.18 hrs, Volume= 12,114 cf, Depth= 1.64"
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
37,570	74	>75% Grass cover, Good, HSG C
178	80	>75% Grass cover, Good, HSG D
44,298	98	Paved parking, HSG C
4,723	98	Paved parking, HSG D
1,789	98	Roofs, HSG C
88,558	88	Weighted Average
37,748	74	42.63% Pervious Area
50,810	98	57.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0150	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.8	59	0.0339	1.29		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	202	0.0214	2.97		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.7	361	Total			

Summary for Subcatchment EDA-2.1A: Subcat EDA-2.1A

Runoff = 6.46 cfs @ 12.21 hrs, Volume= 27,642 cf, Depth= 0.83"
Routed to Pond 1P : Existing Detention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
389,936	74	>75% Grass cover, Good, HSG C
8,494	98	Paved parking, HSG C
398,430	75	Weighted Average
389,936	74	97.87% Pervious Area
8,494	98	2.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0170	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.8	46	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.0	5	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	56	0.0125	0.78		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	110	0.0545	1.63		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.4	317	Total			

Summary for Subcatchment EDA-2.1B: Subcat EDA-2.1B

Runoff = 4.66 cfs @ 12.20 hrs, Volume= 18,992 cf, Depth= 1.04"
Routed to Link 6L : DP 2.1 - West Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
170,595	74	>75% Grass cover, Good, HSG C
47,223	98	Paved parking, HSG C
391	98	Roofs, HSG C
218,209	79	Weighted Average
170,595	74	78.18% Pervious Area
47,614	98	21.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0120	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.5	60	0.0717	1.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	27	0.1852	3.01		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	30	0.3333	4.04		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	22	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	35	0.0350	1.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.3	274	Total			

Summary for Subcatchment EDA-2.2A: Subcat EDA-2.2A

Runoff = 3.93 cfs @ 12.19 hrs, Volume= 15,877 cf, Depth= 1.04"
Routed to Link 7L : DP 2.2 - Silver Creek West Branch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
143,212	74	>75% Grass cover, Good, HSG C
38,924	98	Paved parking, HSG C
279	70	Woods, Good, HSG C
182,415	79	Weighted Average
143,491	74	78.66% Pervious Area
38,924	98	21.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0125	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
1.3	60	0.0125	0.78		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.9	160	Total			

Summary for Subcatchment EDA-2.2B: Subcat EDA-2.2B

Runoff = 1.33 cfs @ 12.63 hrs, Volume= 9,498 cf, Depth= 0.69"
Routed to Link 6L : DP 2.1 - West Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
64,326	74	>75% Grass cover, Good, HSG C
1,982	98	Paved parking, HSG C
98,443	70	Woods, Good, HSG C
164,751	72	Weighted Average
162,769	72	98.80% Pervious Area
1,982	98	1.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	100	0.0120	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
14.1	465	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
40.0	565	Total			

Summary for Pond 1P: Existing Detention Basin

Inflow Area = 398,430 sf, 2.13% Impervious, Inflow Depth = 0.83" for 1-year event
Inflow = 6.46 cfs @ 12.21 hrs, Volume= 27,642 cf
Outflow = 3.06 cfs @ 12.55 hrs, Volume= 27,642 cf, Atten= 53%, Lag= 20.7 min
Discarded = 0.08 cfs @ 12.55 hrs, Volume= 3,038 cf
Primary = 2.98 cfs @ 12.55 hrs, Volume= 24,604 cf
Routed to Link 6L : DP 2.1 - West Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 44.74' @ 12.55 hrs Surf.Area= 9,725 sf Storage= 6,547 cf

Plug-Flow detention time= 48.1 min calculated for 27,623 cf (100% of inflow)
Center-of-Mass det. time= 48.2 min (922.4 - 874.2)

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	41,397 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	7,932	0	0
45.00	10,350	9,141	9,141
47.50	15,455	32,256	41,397

Device	Routing	Invert	Outlet Devices
#1	Discarded	44.00'	**0.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 42.00' Phase-In= 0.02'
#2	Primary	44.00'	**18.0" W x 8.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	45.20'	**1.0' long x 1.05' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Primary	46.25'	**2.0' long x 0.90' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Primary	47.00'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.08 cfs @ 12.55 hrs HW=44.74' (Free Discharge)
└**1=Exfiltration** (Controls 0.08 cfs)

Primary OutFlow Max=2.98 cfs @ 12.55 hrs HW=44.74' TW=0.00' (Dynamic Tailwater)
├**2=Orifice/Grate** (Orifice Controls 2.98 cfs @ 2.98 fps)
├**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
├**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 1P: Existing Detention Basin

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
44.00	0.00	0.00	0.00
44.05	0.11	0.05	0.05
44.10	0.21	0.05	0.15
44.15	0.34	0.06	0.28
44.20	0.49	0.06	0.43
44.25	0.66	0.06	0.60
44.30	0.85	0.06	0.79
44.35	1.06	0.06	1.00
44.40	1.28	0.07	1.22
44.45	1.52	0.07	1.45
44.50	1.77	0.07	1.70
44.55	2.04	0.07	1.96
44.60	2.31	0.07	2.24
44.65	2.60	0.08	2.52
44.70	2.87	0.08	2.79
44.75	3.09	0.08	3.01
44.80	3.29	0.08	3.21
44.85	3.48	0.09	3.40
44.90	3.66	0.09	3.57
44.95	3.82	0.09	3.73
45.00	3.98	0.09	3.89
45.05	4.13	0.09	4.04
45.10	4.28	0.10	4.18
45.15	4.42	0.10	4.32
45.20	4.56	0.10	4.45
45.25	4.72	0.10	4.62
45.30	4.92	0.11	4.81
45.35	5.13	0.11	5.02
45.40	5.34	0.11	5.23
45.45	5.57	0.11	5.46
45.50	5.80	0.11	5.69
45.55	6.04	0.12	5.92
45.60	6.28	0.12	6.16
45.65	6.53	0.12	6.41
45.70	6.78	0.12	6.66
45.75	7.03	0.13	6.90
45.80	7.28	0.13	7.16
45.85	7.54	0.13	7.41
45.90	7.80	0.13	7.66
45.95	8.05	0.14	7.92
46.00	8.31	0.14	8.17
46.05	8.57	0.14	8.43
46.10	8.82	0.14	8.68
46.15	9.08	0.15	8.93
46.20	9.33	0.15	9.19
46.25	9.59	0.15	9.44
46.30	9.92	0.15	9.77
46.35	10.29	0.15	10.14
46.40	10.69	0.16	10.53
46.45	11.11	0.16	10.95
46.50	11.55	0.16	11.38
46.55	12.00	0.16	11.83
46.60	12.46	0.17	12.29
46.65	12.94	0.17	12.77
46.70	13.42	0.17	13.25
46.75	13.92	0.17	13.75
46.80	14.43	0.18	14.25
46.85	14.94	0.18	14.76
46.90	15.47	0.18	15.29
46.95	16.00	0.18	15.81
47.00	16.53	0.19	16.35
47.05	17.44	0.19	17.25
47.10	18.66	0.19	18.47
47.15	20.07	0.19	19.88
47.20	21.62	0.20	21.42
47.25	23.25	0.20	23.05
47.30	24.97	0.20	24.77
47.35	26.78	0.20	26.58
47.40	28.68	0.21	28.47
47.45	30.66	0.21	30.45
47.50	**32.71**	**0.21**	**32.50**

Stage-Area-Storage for Pond 1P: Existing Detention Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
44.00	7,932	0
44.05	8,053	400
44.10	8,174	805
44.15	8,295	1,217
44.20	8,416	1,635
44.25	8,537	2,059
44.30	8,657	2,488
44.35	8,778	2,924
44.40	8,899	3,366
44.45	9,020	3,814
44.50	9,141	4,268
44.55	9,262	4,728
44.60	9,383	5,194
44.65	9,504	5,667
44.70	9,625	6,145
44.75	9,746	6,629
44.80	9,866	7,119
44.85	9,987	7,616
44.90	10,108	8,118
44.95	10,229	8,627
45.00	10,350	9,141
45.05	10,452	9,661
45.10	10,554	10,186
45.15	10,656	10,716
45.20	10,758	11,252
45.25	10,861	11,792
45.30	10,963	12,338
45.35	11,065	12,889
45.40	11,167	13,444
45.45	11,269	14,005
45.50	11,371	14,571
45.55	11,473	15,142
45.60	11,575	15,719
45.65	11,677	16,300
45.70	11,779	16,886
45.75	11,882	17,478
45.80	11,984	18,074
45.85	12,086	18,676
45.90	12,188	19,283
45.95	12,290	19,895
46.00	12,392	20,512
46.05	12,494	21,134
46.10	12,596	21,761
46.15	12,698	22,394
46.20	12,800	23,031
46.25	12,903	23,674
46.30	13,005	24,321
46.35	13,107	24,974
46.40	13,209	25,632
46.45	13,311	26,295
46.50	13,413	26,963
46.55	13,515	27,636
46.60	13,617	28,315
46.65	13,719	28,998
46.70	13,821	29,687
46.75	13,924	30,380
46.80	14,026	31,079
46.85	14,128	31,783
46.90	14,230	32,492
46.95	14,332	33,206
47.00	14,434	33,925
47.05	14,536	34,649
47.10	14,638	35,379
47.15	14,740	36,113
47.20	14,842	36,853
47.25	14,945	37,597
47.30	15,047	38,347
47.35	15,149	39,102
47.40	15,251	39,862
47.45	15,353	40,627
47.50	**15,455**	**41,397**

Summary for Link 2L: DP 1.1 - Culvert 1

Inflow Area = 499,398 sf, 17.06% Impervious, Inflow Depth = 1.10" for 1-year event
Inflow = 8.83 cfs @ 12.37 hrs, Volume= 45,865 cf
Primary = 8.83 cfs @ 12.37 hrs, Volume= 45,865 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : DP 1.2 - Culvert 2

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link 3L: DP 1.2 - Culvert 2

Inflow Area = 556,947 sf, 22.33% Impervious, Inflow Depth = 1.18" for 1-year event
Inflow = 9.87 cfs @ 12.35 hrs, Volume= 54,907 cf
Primary = 9.87 cfs @ 12.35 hrs, Volume= 54,907 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 4L : DP 1.3 - Culvert 3

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link 4L: DP 1.3 - Culvert 3

Inflow Area = 578,681 sf, 22.91% Impervious, Inflow Depth = 1.19" for 1-year event
Inflow = 10.22 cfs @ 12.34 hrs, Volume= 57,611 cf
Primary = 10.22 cfs @ 12.34 hrs, Volume= 57,611 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link 5L: DP 1.4 - Silver Creek East Branch

Inflow Area = 1,112,405 sf, 38.21% Impervious, Inflow Depth = 1.41" for 1-year event
Inflow = 25.70 cfs @ 12.19 hrs, Volume= 130,468 cf
Primary = 25.70 cfs @ 12.19 hrs, Volume= 130,468 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 8L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link 6L: DP 2.1 - West Wetland

Inflow Area = 781,390 sf, 7.43% Impervious, Inflow Depth = 0.82" for 1-year event
Inflow = 6.84 cfs @ 12.35 hrs, Volume= 53,094 cf
Primary = 6.84 cfs @ 12.35 hrs, Volume= 53,094 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 7L : DP 2.2 - Silver Creek West Branch

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link 7L: DP 2.2 - Silver Creek West Branch

Inflow Area = 963,805 sf, 10.07% Impervious, Inflow Depth = 0.86" for 1-year event
Inflow = 10.53 cfs @ 12.22 hrs, Volume= 68,970 cf
Primary = 10.53 cfs @ 12.22 hrs, Volume= 68,970 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 8L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EDA-1.1A: Subcat Runoff Area=499,398 sf 17.06% Impervious Runoff Depth=0.24"
Flow Length=407' Tc=25.0 min CN=76/98 Runoff=1.42 cfs 9,992 cf

Subcatchment EDA-1.2A: Subcat EDA-1.2A Runoff Area=57,549 sf 67.99% Impervious Runoff Depth=0.70"
Tc=6.0 min CN=76/98 Runoff=0.96 cfs 3,347 cf

Subcatchment EDA-1.3A: Subcat EDA-1.3A Runoff Area=21,734 sf 37.77% Impervious Runoff Depth=0.46"
Tc=6.0 min CN=79/98 Runoff=0.22 cfs 826 cf

Subcatchment EDA-1.4A: Subcat EDA-1.4A Runoff Area=72,753 sf 71.19% Impervious Runoff Depth=0.72"
Flow Length=178' Tc=10.3 min CN=74/98 Runoff=1.12 cfs 4,362 cf

Subcatchment EDA-1.4B: Subcat EDA-1.4B Runoff Area=91,355 sf 66.94% Impervious Runoff Depth=0.69"
Flow Length=247' Tc=7.7 min CN=77/98 Runoff=1.44 cfs 5,277 cf

Subcatchment EDA-1.4C: Subcat Runoff Area=281,058 sf 45.82% Impervious Runoff Depth=0.50"
Flow Length=509' Tc=16.3 min CN=76/98 Runoff=2.41 cfs 11,678 cf

Subcatchment EDA-1.4D: Subcat EDA-1.4D Runoff Area=88,558 sf 57.37% Impervious Runoff Depth=0.59"
Flow Length=361' Tc=12.7 min CN=74/98 Runoff=1.03 cfs 4,367 cf

Subcatchment EDA-2.1A: Subcat EDA-2.1A Runoff Area=398,430 sf 2.13% Impervious Runoff Depth=0.08"
Flow Length=317' Tc=13.4 min CN=74/98 Runoff=0.21 cfs 2,701 cf

Subcatchment EDA-2.1B: Subcat Runoff Area=218,209 sf 21.82% Impervious Runoff Depth=0.26"
Flow Length=274' Tc=13.3 min CN=74/98 Runoff=0.94 cfs 4,787 cf

Subcatchment EDA-2.2A: Subcat Runoff Area=182,415 sf 21.34% Impervious Runoff Depth=0.26"
Flow Length=160' Slope=0.0125 '/' Tc=12.9 min CN=74/98 Runoff=0.78 cfs 3,934 cf

Subcatchment EDA-2.2B: Subcat EDA-2.2B Runoff Area=164,751 sf 1.20% Impervious Runoff Depth=0.05"
Flow Length=565' Slope=0.0120 '/' Tc=40.0 min CN=72/98 Runoff=0.03 cfs 724 cf

Pond 1P: Existing Detention Basin Peak Elev=44.05' Storage=370 cf Inflow=0.21 cfs 2,701 cf
Discarded=0.05 cfs 1,875 cf Primary=0.05 cfs 827 cf Outflow=0.10 cfs 2,701 cf

Link 2L: DP 1.1 - Culvert 1 Inflow=1.42 cfs 9,992 cf
Primary=1.42 cfs 9,992 cf

Link 3L: DP 1.2 - Culvert 2 Inflow=1.79 cfs 13,339 cf
Primary=1.79 cfs 13,339 cf

Link 4L: DP 1.3 - Culvert 3 Inflow=1.94 cfs 14,165 cf
Primary=1.94 cfs 14,165 cf

Link 5L: DP 1.4 - Silver Creek East Branch Inflow=7.48 cfs 39,849 cf
Primary=7.48 cfs 39,849 cf

Link 6L: DP 2.1 - West Wetland Inflow=0.97 cfs 6,338 cf
Primary=0.97 cfs 6,338 cf

Link 7L: DP 2.2 - Silver Creek West Branch Inflow=1.75 cfs 10,272 cf
Primary=1.75 cfs 10,272 cf

Total Runoff Area = 2,076,210 sf Runoff Volume = 51,996 cf Average Runoff Depth = 0.30"
74.85% Pervious = 1,554,114 sf 25.15% Impervious = 522,096 sf

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EDA-1.1A: Subcat Runoff Area=499,398 sf 17.06% Impervious Runoff Depth=1.48"
Flow Length=407' Tc=25.0 min CN=80 Runoff=12.03 cfs 61,561 cf

Subcatchment EDA-1.2A: Subcat EDA-1.2A Runoff Area=57,549 sf 67.99% Impervious Runoff Depth=2.35"
Tc=6.0 min CN=91 Runoff=3.50 cfs 11,281 cf

Subcatchment EDA-1.3A: Subcat EDA-1.3A Runoff Area=21,734 sf 37.77% Impervious Runoff Depth=1.92"
Tc=6.0 min CN=86 Runoff=1.10 cfs 3,482 cf

Subcatchment EDA-1.4A: Subcat EDA-1.4A Runoff Area=72,753 sf 71.19% Impervious Runoff Depth=2.35"
Flow Length=178' Tc=10.3 min CN=91 Runoff=3.88 cfs 14,261 cf

Subcatchment EDA-1.4B: Subcat EDA-1.4B Runoff Area=91,355 sf 66.94% Impervious Runoff Depth=2.35"
Flow Length=247' Tc=7.7 min CN=91 Runoff=5.29 cfs 17,908 cf

Subcatchment EDA-1.4C: Subcat Runoff Area=281,058 sf 45.82% Impervious Runoff Depth=1.92"
Flow Length=509' Tc=16.3 min CN=86 Runoff=10.62 cfs 45,024 cf

Subcatchment EDA-1.4D: Subcat EDA-1.4D Runoff Area=88,558 sf 57.37% Impervious Runoff Depth=2.09"
Flow Length=361' Tc=12.7 min CN=88 Runoff=3.97 cfs 15,403 cf

Subcatchment EDA-2.1A: Subcat EDA-2.1A Runoff Area=398,430 sf 2.13% Impervious Runoff Depth=1.16"
Flow Length=317' Tc=13.4 min CN=75 Runoff=9.35 cfs 38,588 cf

Subcatchment EDA-2.1B: Subcat Runoff Area=218,209 sf 21.82% Impervious Runoff Depth=1.41"
Flow Length=274' Tc=13.3 min CN=79 Runoff=6.41 cfs 25,681 cf

Subcatchment EDA-2.2A: Subcat Runoff Area=182,415 sf 21.34% Impervious Runoff Depth=1.41"
Flow Length=160' Slope=0.0125 '/' Tc=12.9 min CN=79 Runoff=5.41 cfs 21,468 cf

Subcatchment EDA-2.2B: Subcat EDA-2.2B Runoff Area=164,751 sf 1.20% Impervious Runoff Depth=0.99"
Flow Length=565' Slope=0.0120 '/' Tc=40.0 min CN=72 Runoff=2.01 cfs 13,623 cf

Pond 1P: Existing Detention Basin Peak Elev=45.05' Storage=9,643 cf Inflow=9.35 cfs 38,588 cf
Discarded=0.09 cfs 3,301 cf Primary=4.03 cfs 35,287 cf Outflow=4.13 cfs 38,588 cf

Link 2L: DP 1.1 - Culvert 1 Inflow=12.03 cfs 61,561 cf
Primary=12.03 cfs 61,561 cf

Link 3L: DP 1.2 - Culvert 2 Inflow=13.32 cfs 72,842 cf
Primary=13.32 cfs 72,842 cf

Link 4L: DP 1.3 - Culvert 3 Inflow=13.76 cfs 76,324 cf
Primary=13.76 cfs 76,324 cf

Link 5L: DP 1.4 - Silver Creek East Branch Inflow=33.34 cfs 168,919 cf
Primary=33.34 cfs 168,919 cf

Link 6L: DP 2.1 - West Wetland Inflow=10.01 cfs 74,591 cf
Primary=10.01 cfs 74,591 cf

Link 7L: DP 2.2 - Silver Creek West Branch Inflow=15.28 cfs 96,059 cf
Primary=15.28 cfs 96,059 cf

Total Runoff Area = 2,076,210 sf Runoff Volume = 268,279 cf Average Runoff Depth = 1.55"
74.85% Pervious = 1,554,114 sf 25.15% Impervious = 522,096 sf

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EDA-1.1A: Subcat Runoff Area=499,398 sf 17.06% Impervious Runoff Depth=2.81"
Flow Length=407' Tc=25.0 min CN=80 Runoff=23.08 cfs 116,767 cf

Subcatchment EDA-1.2A: Subcat EDA-1.2A Runoff Area=57,549 sf 67.99% Impervious Runoff Depth=3.89"
Tc=6.0 min CN=91 Runoff=5.64 cfs 18,632 cf

Subcatchment EDA-1.3A: Subcat EDA-1.3A Runoff Area=21,734 sf 37.77% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=86 Runoff=1.91 cfs 6,111 cf

Subcatchment EDA-1.4A: Subcat EDA-1.4A Runoff Area=72,753 sf 71.19% Impervious Runoff Depth=3.89"
Flow Length=178' Tc=10.3 min CN=91 Runoff=6.26 cfs 23,554 cf

Subcatchment EDA-1.4B: Subcat EDA-1.4B Runoff Area=91,355 sf 66.94% Impervious Runoff Depth=3.89"
Flow Length=247' Tc=7.7 min CN=91 Runoff=8.54 cfs 29,576 cf

Subcatchment EDA-1.4C: Subcat Runoff Area=281,058 sf 45.82% Impervious Runoff Depth=3.37"
Flow Length=509' Tc=16.3 min CN=86 Runoff=18.46 cfs 79,019 cf

Subcatchment EDA-1.4D: Subcat EDA-1.4D Runoff Area=88,558 sf 57.37% Impervious Runoff Depth=3.57"
Flow Length=361' Tc=12.7 min CN=88 Runoff=6.69 cfs 26,376 cf

Subcatchment EDA-2.1A: Subcat EDA-2.1A Runoff Area=398,430 sf 2.13% Impervious Runoff Depth=2.37"
Flow Length=317' Tc=13.4 min CN=75 Runoff=19.78 cfs 78,638 cf

Subcatchment EDA-2.1B: Subcat Runoff Area=218,209 sf 21.82% Impervious Runoff Depth=2.72"
Flow Length=274' Tc=13.3 min CN=79 Runoff=12.51 cfs 49,384 cf

Subcatchment EDA-2.2A: Subcat Runoff Area=182,415 sf 21.34% Impervious Runoff Depth=2.72"
Flow Length=160' Slope=0.0125 '/' Tc=12.9 min CN=79 Runoff=10.56 cfs 41,283 cf

Subcatchment EDA-2.2B: Subcat EDA-2.2B Runoff Area=164,751 sf 1.20% Impervious Runoff Depth=2.12"
Flow Length=565' Slope=0.0120 '/' Tc=40.0 min CN=72 Runoff=4.56 cfs 29,122 cf

Pond 1P: Existing Detention Basin Peak Elev=46.06' Storage=21,202 cf Inflow=19.78 cfs 78,638 cf
Discarded=0.14 cfs 4,100 cf Primary=8.45 cfs 74,538 cf Outflow=8.59 cfs 78,638 cf

Link 2L: DP 1.1 - Culvert 1 Inflow=23.08 cfs 116,767 cf
Primary=23.08 cfs 116,767 cf

Link 3L: DP 1.2 - Culvert 2 Inflow=25.17 cfs 135,399 cf
Primary=25.17 cfs 135,399 cf

Link 4L: DP 1.3 - Culvert 3 Inflow=25.92 cfs 141,510 cf
Primary=25.92 cfs 141,510 cf

Link 5L: DP 1.4 - Silver Creek East Branch Inflow=58.84 cfs 300,035 cf
Primary=58.84 cfs 300,035 cf

Link 6L: DP 2.1 - West Wetland Inflow=20.21 cfs 153,043 cf
Primary=20.21 cfs 153,043 cf

Link 7L: DP 2.2 - Silver Creek West Branch Inflow=30.43 cfs 194,326 cf
Primary=30.43 cfs 194,326 cf

Total Runoff Area = 2,076,210 sf Runoff Volume = 498,461 cf Average Runoff Depth = 2.88"
74.85% Pervious = 1,554,114 sf 25.15% Impervious = 522,096 sf

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EDA-1.1A: Subcat Runoff Area=499,398 sf 17.06% Impervious Runoff Depth=3.87"
Flow Length=407' Tc=25.0 min CN=80 Runoff=31.76 cfs 161,123 cf

Subcatchment EDA-1.2A: Subcat EDA-1.2A Runoff Area=57,549 sf 67.99% Impervious Runoff Depth=5.06"
Tc=6.0 min CN=91 Runoff=7.23 cfs 24,243 cf

Subcatchment EDA-1.3A: Subcat EDA-1.3A Runoff Area=21,734 sf 37.77% Impervious Runoff Depth=4.50"
Tc=6.0 min CN=86 Runoff=2.51 cfs 8,159 cf

Subcatchment EDA-1.4A: Subcat EDA-1.4A Runoff Area=72,753 sf 71.19% Impervious Runoff Depth=5.06"
Flow Length=178' Tc=10.3 min CN=91 Runoff=8.03 cfs 30,648 cf

Subcatchment EDA-1.4B: Subcat EDA-1.4B Runoff Area=91,355 sf 66.94% Impervious Runoff Depth=5.06"
Flow Length=247' Tc=7.7 min CN=91 Runoff=10.95 cfs 38,484 cf

Subcatchment EDA-1.4C: Subcat Runoff Area=281,058 sf 45.82% Impervious Runoff Depth=4.50"
Flow Length=509' Tc=16.3 min CN=86 Runoff=24.40 cfs 105,502 cf

Subcatchment EDA-1.4D: Subcat EDA-1.4D Runoff Area=88,558 sf 57.37% Impervious Runoff Depth=4.72"
Flow Length=361' Tc=12.7 min CN=88 Runoff=8.73 cfs 34,849 cf

Subcatchment EDA-2.1A: Subcat EDA-2.1A Runoff Area=398,430 sf 2.13% Impervious Runoff Depth=3.37"
Flow Length=317' Tc=13.4 min CN=75 Runoff=28.26 cfs 111,807 cf

Subcatchment EDA-2.1B: Subcat Runoff Area=218,209 sf 21.82% Impervious Runoff Depth=3.77"
Flow Length=274' Tc=13.3 min CN=79 Runoff=17.33 cfs 68,537 cf

Subcatchment EDA-2.2A: Subcat Runoff Area=182,415 sf 21.34% Impervious Runoff Depth=3.77"
Flow Length=160' Slope=0.0125 '/' Tc=12.9 min CN=79 Runoff=14.62 cfs 57,295 cf

Subcatchment EDA-2.2B: Subcat EDA-2.2B Runoff Area=164,751 sf 1.20% Impervious Runoff Depth=3.08"
Flow Length=565' Slope=0.0120 '/' Tc=40.0 min CN=72 Runoff=6.69 cfs 42,220 cf

Pond 1P: Existing Detention Basin Peak Elev=46.70' Storage=29,661 cf Inflow=28.26 cfs 111,807 cf
Discarded=0.17 cfs 4,618 cf Primary=13.23 cfs 107,189 cf Outflow=13.41 cfs 111,807 cf

Link 2L: DP 1.1 - Culvert 1 Inflow=31.76 cfs 161,123 cf
Primary=31.76 cfs 161,123 cf

Link 3L: DP 1.2 - Culvert 2 Inflow=34.45 cfs 185,366 cf
Primary=34.45 cfs 185,366 cf

Link 4L: DP 1.3 - Culvert 3 Inflow=35.43 cfs 193,524 cf
Primary=35.43 cfs 193,524 cf

Link 5L: DP 1.4 - Silver Creek East Branch Inflow=78.39 cfs 403,008 cf
Primary=78.39 cfs 403,008 cf

Link 6L: DP 2.1 - West Wetland Inflow=28.99 cfs 217,946 cf
Primary=28.99 cfs 217,946 cf

Link 7L: DP 2.2 - Silver Creek West Branch Inflow=43.16 cfs 275,241 cf
Primary=43.16 cfs 275,241 cf

Total Runoff Area = 2,076,210 sf Runoff Volume = 682,867 cf Average Runoff Depth = 3.95"
74.85% Pervious = 1,554,114 sf 25.15% Impervious = 522,096 sf

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EDA-1.1A: Subcat Runoff Area=499,398 sf 17.06% Impervious Runoff Depth=6.19"
Flow Length=407' Tc=25.0 min CN=80 Runoff=50.14 cfs 257,590 cf

Subcatchment EDA-1.2A: Subcat EDA-1.2A Runoff Area=57,549 sf 67.99% Impervious Runoff Depth=7.52"
Tc=6.0 min CN=91 Runoff=10.50 cfs 36,051 cf

Subcatchment EDA-1.3A: Subcat EDA-1.3A Runoff Area=21,734 sf 37.77% Impervious Runoff Depth=6.91"
Tc=6.0 min CN=86 Runoff=3.77 cfs 12,523 cf

Subcatchment EDA-1.4A: Subcat EDA-1.4A Runoff Area=72,753 sf 71.19% Impervious Runoff Depth=7.52"
Flow Length=178' Tc=10.3 min CN=91 Runoff=11.67 cfs 45,576 cf

Subcatchment EDA-1.4B: Subcat EDA-1.4B Runoff Area=91,355 sf 66.94% Impervious Runoff Depth=7.52"
Flow Length=247' Tc=7.7 min CN=91 Runoff=15.92 cfs 57,229 cf

Subcatchment EDA-1.4C: Subcat Runoff Area=281,058 sf 45.82% Impervious Runoff Depth=6.91"
Flow Length=509' Tc=16.3 min CN=86 Runoff=36.71 cfs 161,939 cf

Subcatchment EDA-1.4D: Subcat EDA-1.4D Runoff Area=88,558 sf 57.37% Impervious Runoff Depth=7.16"
Flow Length=361' Tc=12.7 min CN=88 Runoff=12.94 cfs 52,807 cf

Subcatchment EDA-2.1A: Subcat EDA-2.1A Runoff Area=398,430 sf 2.13% Impervious Runoff Depth=5.59"
Flow Length=317' Tc=13.4 min CN=75 Runoff=46.65 cfs 185,476 cf

Subcatchment EDA-2.1B: Subcat Runoff Area=218,209 sf 21.82% Impervious Runoff Depth=6.07"
Flow Length=274' Tc=13.3 min CN=79 Runoff=27.57 cfs 110,357 cf

Subcatchment EDA-2.2A: Subcat Runoff Area=182,415 sf 21.34% Impervious Runoff Depth=6.07"
Flow Length=160' Slope=0.0125 '/' Tc=12.9 min CN=79 Runoff=23.39 cfs 92,255 cf

Subcatchment EDA-2.2B: Subcat EDA-2.2B Runoff Area=164,751 sf 1.20% Impervious Runoff Depth=5.22"
Flow Length=565' Slope=0.0120 '/' Tc=40.0 min CN=72 Runoff=11.39 cfs 71,732 cf

Pond 1P: Existing Detention Basin Peak Elev=47.49' Storage=41,230 cf Inflow=46.65 cfs 185,476 cf
Discarded=0.21 cfs 5,483 cf Primary=32.04 cfs 179,993 cf Outflow=32.26 cfs 185,476 cf

Link 2L: DP 1.1 - Culvert 1 Inflow=50.14 cfs 257,590 cf
Primary=50.14 cfs 257,590 cf

Link 3L: DP 1.2 - Culvert 2 Inflow=54.13 cfs 293,642 cf
Primary=54.13 cfs 293,642 cf

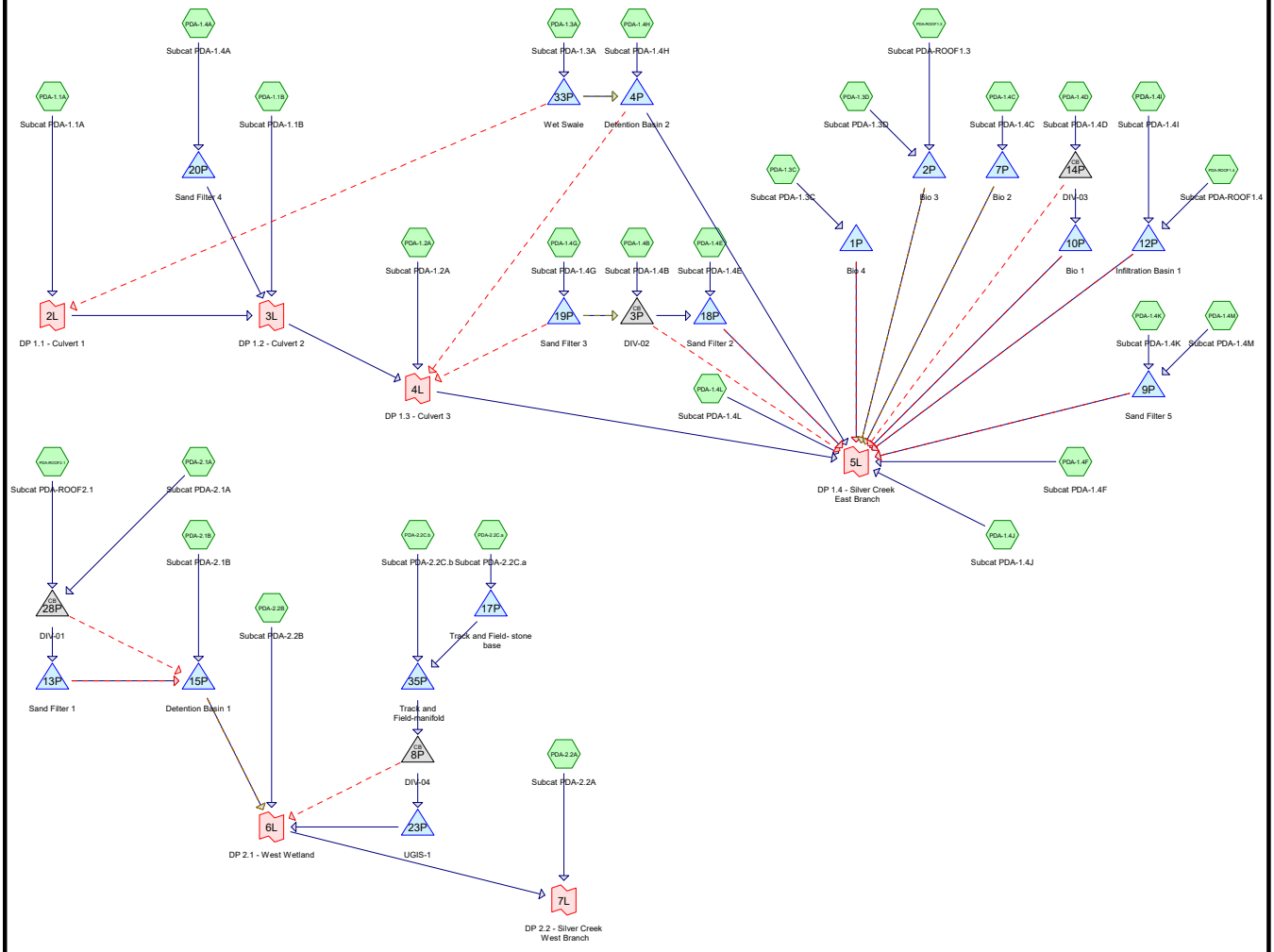
Link 4L: DP 1.3 - Culvert 3 Inflow=55.59 cfs 306,165 cf
Primary=55.59 cfs 306,165 cf

Link 5L: DP 1.4 - Silver Creek East Branch Inflow=119.32 cfs 623,715 cf
Primary=119.32 cfs 623,715 cf

Link 6L: DP 2.1 - West Wetland Inflow=60.35 cfs 362,081 cf
Primary=60.35 cfs 362,081 cf

Link 7L: DP 2.2 - Silver Creek West Branch Inflow=78.59 cfs 454,336 cf
Primary=78.59 cfs 454,336 cf

Total Runoff Area = 2,076,210 sf Runoff Volume = 1,083,533 cf Average Runoff Depth = 6.26"
74.85% Pervious = 1,554,114 sf 25.15% Impervious = 522,096 sf



Routing Diagram for Pro-Hydro
Prepared by Pare Corporation, Printed 1/9/2025
HydroCAD® 10.20-5b s/n 04883 © 2023 HydroCAD Software Solutions LLC

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PDA-1.1A: Subcat PDA-1.1A Runoff Area=475,005 sf 1.72% Impervious Runoff Depth=0.93"
Flow Length=451' Slope=0.0100 '/' Tc=21.1 min CN=77 Runoff=7.45 cfs 37,004 cf

Subcatchment PDA-1.1B: Subcat PDA-1.1B Runoff Area=32,995 sf 0.06% Impervious Runoff Depth=0.93"
Flow Length=126' Tc=13.1 min CN=77 Runoff=0.62 cfs 2,570 cf

Subcatchment PDA-1.2A: Subcat PDA-1.2A Runoff Area=25,858 sf 15.00% Impervious Runoff Depth=1.10"
Flow Length=73' Tc=7.3 min UI Adjusted CN=80 Runoff=0.71 cfs 2,375 cf

Subcatchment PDA-1.3A: Subcat PDA-1.3A Runoff Area=57,295 sf 71.89% Impervious Runoff Depth=1.97"
Flow Length=198' Slope=0.0100 '/' Tc=6.5 min CN=92 Runoff=2.89 cfs 9,419 cf

Subcatchment PDA-1.3C: Subcat PDA-1.3C Runoff Area=16,850 sf 41.68% Impervious Runoff Depth=1.35"
Flow Length=49' Tc=6.8 min CN=84 Runoff=0.59 cfs 1,900 cf

Subcatchment PDA-1.3D: Subcat PDA-1.3D Runoff Area=6,850 sf 40.75% Impervious Runoff Depth=1.35"
Tc=6.0 min CN=84 Runoff=0.24 cfs 773 cf

Subcatchment PDA-1.4A: Subcat PDA-1.4A Runoff Area=31,007 sf 23.95% Impervious Runoff Depth=1.29"
Flow Length=144' Tc=13.4 min CN=83 Runoff=0.83 cfs 3,326 cf

Subcatchment PDA-1.4B: Subcat PDA-1.4B Runoff Area=50,506 sf 38.51% Impervious Runoff Depth=1.42"
Flow Length=98' Tc=13.9 min CN=85 Runoff=1.49 cfs 5,984 cf

Subcatchment PDA-1.4C: Subcat PDA-1.4C Runoff Area=26,810 sf 65.14% Impervious Runoff Depth=1.80"
Tc=6.0 min CN=90 Runoff=1.27 cfs 4,024 cf

Subcatchment PDA-1.4D: Subcat PDA-1.4D Runoff Area=42,514 sf 58.56% Impervious Runoff Depth=1.64"
Tc=6.0 min CN=88 Runoff=1.84 cfs 5,816 cf

Subcatchment PDA-1.4E: Subcat PDA-1.4E Runoff Area=39,245 sf 61.68% Impervious Runoff Depth=1.72"
Tc=6.0 min CN=89 Runoff=1.77 cfs 5,625 cf

Subcatchment PDA-1.4F: Subcat PDA-1.4F Runoff Area=73,858 sf 54.96% Impervious Runoff Depth=1.57"
Flow Length=346' Tc=14.5 min CN=87 Runoff=2.37 cfs 9,637 cf

Subcatchment PDA-1.4G: Subcat PDA-1.4G Runoff Area=22,284 sf 62.39% Impervious Runoff Depth=1.72"
Tc=6.0 min CN=89 Runoff=1.01 cfs 3,194 cf

Subcatchment PDA-1.4H: Subcat PDA-1.4H Runoff Area=10,744 sf 5.59% Impervious Runoff Depth=0.83"
Tc=6.0 min CN=75 Runoff=0.22 cfs 745 cf

Subcatchment PDA-1.4I: Subcat PDA-1.4I Runoff Area=9,824 sf 27.06% Impervious Runoff Depth=1.16"
Tc=6.0 min CN=81 Runoff=0.30 cfs 951 cf

Subcatchment PDA-1.4J: Subcat PDA-1.4J Runoff Area=59,466 sf 8.43% Impervious Runoff Depth=1.04"
Tc=6.0 min CN=79 Runoff=1.60 cfs 5,176 cf

Subcatchment PDA-1.4K: Subcat PDA-1.4K Runoff Area=18,876 sf 80.13% Impervious Runoff Depth=2.06"
Tc=6.0 min CN=93 Runoff=1.00 cfs 3,246 cf

Subcatchment PDA-1.4L: Subcat PDA-1.4L Runoff Area=11,978 sf 23.00% Impervious Runoff Depth=1.10"
Flow Length=75' Tc=8.5 min CN=80 Runoff=0.31 cfs 1,100 cf

Subcatchment PDA-1.4M: Subcat PDA-1.4M Runoff Area=4,734 sf 3.38% Impervious Runoff Depth=0.83"
Flow Length=166' Slope=0.0100 '/' Tc=14.3 min CN=75 Runoff=0.08 cfs 328 cf

Subcatchment PDA-2.1A: Subcat Runoff Area=308,645 sf 26.49% Impervious Runoff Depth=1.16"
Flow Length=269' Tc=16.3 min CN=81 Runoff=6.88 cfs 29,880 cf

Subcatchment PDA-2.1B: Subcat PDA-2.1B Runoff Area=188,298 sf 8.27% Impervious Runoff Depth=0.88"
Flow Length=123' Tc=17.0 min UI Adjusted CN=76 Runoff=3.00 cfs 13,852 cf

Subcatchment PDA-2.2A: Subcat Runoff Area=159,283 sf 25.22% Impervious Runoff Depth=1.10"
Tc=12.9 min CN=80 Runoff=3.65 cfs 14,629 cf

Subcatchment PDA-2.2B: Subcat PDA-2.2B Runoff Area=152,260 sf 1.56% Impervious Runoff Depth=0.69"
Flow Length=565' Slope=0.0120 '/' Tc=40.0 min CN=72 Runoff=1.23 cfs 8,778 cf

Subcatchment PDA-2.2C.a: Subcat Runoff Area=90,671 sf 100.00% Impervious Runoff Depth=2.57"
Tc=6.0 min CN=98 Runoff=5.50 cfs 19,412 cf

Subcatchment PDA-2.2C.b: Subcat Runoff Area=61,186 sf 99.99% Impervious Runoff Depth=2.57"
Tc=6.0 min CN=98 Runoff=3.71 cfs 13,100 cf

Subcatchment PDA-ROOF1.3: Subcat Runoff Area=9,782 sf 100.00% Impervious Runoff Depth=2.57"
Tc=6.0 min CN=98 Runoff=0.59 cfs 2,094 cf

Subcatchment PDA-ROOF1.4: Subcat Runoff Area=58,210 sf 100.00% Impervious Runoff Depth=2.57"
Tc=6.0 min CN=98 Runoff=3.53 cfs 12,462 cf

Subcatchment PDA-ROOF2.1: Subcat Runoff Area=31,087 sf 100.00% Impervious Runoff Depth=2.57"
Tc=6.0 min CN=98 Runoff=1.89 cfs 6,656 cf

Pond 1P: Bio 4 Peak Elev=60.31' Storage=1,151 cf Inflow=0.59 cfs 1,900 cf
Discarded=0.01 cfs 1,140 cf Primary=0.04 cfs 455 cf Outflow=0.05 cfs 1,594 cf

Pond 2P: Bio 3 Peak Elev=59.77' Storage=1,126 cf Inflow=0.84 cfs 2,867 cf
Primary=0.50 cfs 738 cf Secondary=0.00 cfs 0 cf Tertiary=0.02 cfs 2,129 cf Outflow=0.52 cfs 2,867 cf

Pond 3P: DIV-02 Peak Elev=56.90' Inflow=1.49 cfs 5,984 cf
Primary=0.86 cfs 5,447 cf Secondary=0.63 cfs 537 cf Outflow=1.49 cfs 5,984 cf

Pond 4P: Detention Basin 2 Peak Elev=56.91' Storage=3,230 cf Inflow=1.44 cfs 5,314 cf
Primary=0.07 cfs 5,292 cf Secondary=0.00 cfs 0 cf Outflow=0.07 cfs 5,292 cf

Pond 7P: Bio 2 Peak Elev=56.51' Storage=2,119 cf Inflow=1.27 cfs 4,024 cf
Primary=0.11 cfs 612 cf Secondary=0.00 cfs 0 cf Tertiary=0.03 cfs 3,413 cf Outflow=0.14 cfs 4,024 cf

Pond 8P: DIV-04 Peak Elev=48.47' Inflow=4.72 cfs 12,676 cf
Primary=4.72 cfs 11,744 cf Secondary=0.35 cfs 932 cf Outflow=4.72 cfs 12,677 cf

Pond 9P: Sand Filter 5 Peak Elev=49.80' Storage=1,425 cf Inflow=1.05 cfs 3,574 cf
Discarded=0.01 cfs 1,278 cf Primary=0.89 cfs 1,821 cf Secondary=0.00 cfs 0 cf Outflow=0.90 cfs 3,099 cf

Pond 10P: Bio 1 Peak Elev=44.51' Storage=1,721 cf Inflow=1.17 cfs 5,506 cf
Discarded=0.00 cfs 1,045 cf Primary=1.05 cfs 3,667 cf Secondary=0.00 cfs 0 cf Outflow=1.05 cfs 4,711 cf

Pond 12P: Infiltration Basin 1 Peak Elev=57.91' Storage=5,960 cf Inflow=3.83 cfs 13,414 cf
Discarded=0.02 cfs 3,773 cf Primary=2.53 cfs 7,092 cf Secondary=0.00 cfs 0 cf Outflow=2.55 cfs 10,865 cf

Pond 13P: Sand Filter 1 Peak Elev=47.06' Storage=11,811 cf Inflow=1.95 cfs 13,096 cf
Discarded=0.03 cfs 6,385 cf Secondary=0.00 cfs 0 cf Outflow=0.03 cfs 6,385 cf

Pond 14P: DIV-03 Peak Elev=44.96' Inflow=1.84 cfs 5,816 cf
Primary=1.17 cfs 5,506 cf Secondary=0.67 cfs 310 cf Outflow=1.84 cfs 5,816 cf

Pond 15P: Detention Basin 1 Peak Elev=45.01' Storage=13,290 cf Inflow=8.84 cfs 37,293 cf
Primary=2.04 cfs 37,003 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=2.04 cfs 37,003 cf

Pond 17P: Track and Field- stone base Peak Elev=50.60' Storage=3,057 cf Inflow=5.50 cfs 19,412 cf
Discarded=0.59 cfs 13,451 cf Primary=3.02 cfs 5,962 cf Outflow=3.62 cfs 19,412 cf

Pond 18P: Sand Filter 2 Peak Elev=55.62' Storage=6,215 cf Inflow=2.59 cfs 11,072 cf
Discarded=0.01 cfs 3,117 cf Primary=0.37 cfs 4,167 cf Secondary=0.00 cfs 0 cf Outflow=0.38 cfs 7,284 cf

Pond 19P: Sand Filter 3 Peak Elev=60.19' Storage=2,500 cf Inflow=1.01 cfs 3,194 cf
Discarded=0.01 cfs 2,853 cf Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Outflow=0.01 cfs 2,853 cf

Pond 20P: Sand Filter 4 Peak Elev=59.87' Storage=512 cf Inflow=0.83 cfs 3,326 cf
Outflow=0.34 cfs 3,326 cf

Pond 23P: UGIS-1 Peak Elev=48.47' Storage=10,125 cf Inflow=4.72 cfs 11,744 cf
Discarded=0.07 cfs 11,449 cf Primary=0.11 cfs 296 cf Outflow=0.19 cfs 11,744 cf

Pond 28P: DIV-01 Peak Elev=47.40' Inflow=7.86 cfs 36,536 cf
Primary=1.95 cfs 13,096 cf Secondary=5.91 cfs 23,440 cf Outflow=7.86 cfs 36,536 cf

Pond 33P: Wet Swale Peak Elev=59.79' Storage=4,443 cf Inflow=2.89 cfs 9,419 cf
Discarded=0.01 cfs 2,229 cf Primary=1.33 cfs 4,568 cf Secondary=0.00 cfs 0 cf Outflow=1.34 cfs 6,797 cf

Pond 35P: Track and Field-manifold Peak Elev=49.31' Storage=2,280 cf Inflow=6.18 cfs 19,061 cf
Discarded=0.47 cfs 6,385 cf Primary=4.72 cfs 12,676 cf Outflow=5.19 cfs 19,061 cf

Link 2L: DP 1.1 - Culvert 1 Inflow=7.45 cfs 37,004 cf
Primary=7.45 cfs 37,004 cf

Link 3L: DP 1.2 - Culvert 2 Inflow=8.28 cfs 42,901 cf
Primary=8.28 cfs 42,901 cf

Link 4L: DP 1.3 - Culvert 3 Inflow=8.65 cfs 45,276 cf
Primary=8.65 cfs 45,276 cf

Link 5L: DP 1.4 - Silver Creek East Branch Inflow=16.61 cfs 91,420 cf
Primary=16.61 cfs 91,420 cf

Link 6L: DP 2.1 - West Wetland Inflow=3.26 cfs 47,009 cf
Primary=3.26 cfs 47,009 cf

Link 7L: DP 2.2 - Silver Creek West Branch Inflow=4.61 cfs 61,638 cf
Primary=4.61 cfs 61,638 cf

Total Runoff Area = 2,076,121 sf Runoff Volume = 224,058 cf Average Runoff Depth = 1.30"
69.74% Pervious = 1,447,959 sf 30.26% Impervious = 628,161 sf

Summary for Subcatchment PDA-1.1A: Subcat PDA-1.1A

Runoff = 7.45 cfs @ 12.32 hrs, Volume= 37,004 cf, Depth= 0.93"
Routed to Link 2L : DP 1.1 - Culvert 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
90,334	74	>75% Grass cover, Good, HSG C
38,424	80	>75% Grass cover, Good, HSG D
4,538	87	Dirt roads, HSG C
1,510	89	Dirt roads, HSG D
1,040	98	Paved parking, HSG D
6,366	98	Unconnected pavement, HSG C
776	98	Unconnected pavement, HSG D
33,631	70	Woods, Good, HSG C
298,387	77	Woods, Good, HSG D
475,005	77	Weighted Average
466,824	76	98.28% Pervious Area
8,181	98	1.72% Impervious Area
7,142		87.29% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	100	0.0100	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
8.4	351	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.1	451	Total			

Summary for Subcatchment PDA-1.1B: Subcat PDA-1.1B

Runoff = 0.62 cfs @ 12.20 hrs, Volume= 2,570 cf, Depth= 0.93"
Routed to Link 3L : DP 1.2 - Culvert 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
21,264	74	>75% Grass cover, Good, HSG C
5,415	80	>75% Grass cover, Good, HSG D
6,295	87	Dirt roads, HSG C
8	98	Paved parking, HSG C
7	98	Paved parking, HSG D
6	98	Unconnected pavement, HSG C
32,995	77	Weighted Average
32,974	77	99.94% Pervious Area
21	98	0.06% Impervious Area
6		28.24% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	100	0.0100	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.4	26	0.0270	1.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.1	126	Total			

Summary for Subcatchment PDA-1.2A: Subcat PDA-1.2A

Runoff = 0.71 cfs @ 12.11 hrs, Volume= 2,375 cf, Depth= 1.10"
Routed to Link 4L : DP 1.3 - Culvert 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Adj	Description
8,928	74		>75% Grass cover, Good, HSG C
13,051	80		>75% Grass cover, Good, HSG D
1,541	98		Paved parking, HSG C
1,771	98		Paved parking, HSG D
0	98		Roofs, HSG C
567	98		Unconnected pavement, HSG C
25,858	81	80	Weighted Average, UI Adjusted
21,979	78	78	85.00% Pervious Area
3,879	98	98	15.00% Impervious Area
567			14.63% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	54	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.3	6	0.3300	0.30		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.3	5	0.2000	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.8	8	0.5000	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
7.3	73	Total			

Summary for Subcatchment PDA-1.3A: Subcat PDA-1.3A

Runoff = 2.89 cfs @ 12.10 hrs, Volume= 9,419 cf, Depth= 1.97"
Routed to Pond 33P : Wet Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
10,911	74	>75% Grass cover, Good, HSG C
5,194	80	>75% Grass cover, Good, HSG D
41,056	98	Paved parking, HSG C
40	98	Paved parking, HSG D
0	98	Roofs, HSG C
94	98	Unconnected pavement, HSG C
57,295	92	Weighted Average
16,106	76	28.11% Pervious Area
41,189	98	71.89% Impervious Area
94		0.23% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	27	0.0100	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
1.2	73	0.0100	0.99		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.30"
0.8	98	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.5	198	Total			

Summary for Subcatchment PDA-1.3C: Subcat PDA-1.3C

Runoff = 0.59 cfs @ 12.10 hrs, Volume= 1,900 cf, Depth= 1.35"
Routed to Pond 1P : Bio 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
9,827	74	>75% Grass cover, Good, HSG C
6,906	98	Paved parking, HSG C
0	98	Roofs, HSG C
117	98	Unconnected pavement, HSG C
16,850	84	Weighted Average
9,827	74	58.32% Pervious Area
7,023	98	41.68% Impervious Area
117		1.66% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	39	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.8	10	0.1000	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
6.8	49	Total			

Summary for Subcatchment PDA-1.3D: Subcat PDA-1.3D

Runoff = 0.24 cfs @ 12.09 hrs, Volume= 773 cf, Depth= 1.35"
Routed to Pond 2P : Bio 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
4,059	74	>75% Grass cover, Good, HSG C
2,792	98	Paved parking, HSG C
0	98	Roofs, HSG C
6,850	84	Weighted Average
4,059	74	59.25% Pervious Area
2,792	98	40.75% Impervious Area

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

Summary for Subcatchment PDA-1.4A: Subcat PDA-1.4A

Runoff = 0.83 cfs @ 12.19 hrs, Volume= 3,326 cf, Depth= 1.29"
Routed to Pond 20P : Sand Filter 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
14,884	74	>75% Grass cover, Good, HSG C
2,931	80	>75% Grass cover, Good, HSG D
5,758	87	Dirt roads, HSG C
6	89	Dirt roads, HSG D
2,675	98	Paved parking, HSG C
4,570	98	Paved parking, HSG D
183	98	Unconnected pavement, HSG C
31,007	83	Weighted Average
23,579	78	76.05% Pervious Area
7,428	98	23.95% Impervious Area
183		2.46% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	100	0.0100	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.7	44	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.4	144	Total			

Summary for Subcatchment PDA-1.4B: Subcat PDA-1.4B

Runoff = 1.49 cfs @ 12.20 hrs, Volume= 5,984 cf, Depth= 1.42"
Routed to Pond 3P : DIV-02

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
24,049	74	>75% Grass cover, Good, HSG C
7,006	87	Dirt roads, HSG C
17,014	98	Paved parking, HSG C
2,437	98	Unconnected pavement, HSG C
50,506	85	Weighted Average
31,055	77	61.49% Pervious Area
19,451	98	38.51% Impervious Area
2,437		12.53% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	58	0.0100	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
5.7	40	0.0120	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
13.9	98	Total			

Summary for Subcatchment PDA-1.4C: Subcat PDA-1.4C

Runoff = 1.27 cfs @ 12.09 hrs, Volume= 4,024 cf, Depth= 1.80"
Routed to Pond 7P : Bio 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
9,346	74	>75% Grass cover, Good, HSG C
17,464	98	Paved parking, HSG C
26,810	90	Weighted Average
9,346	74	34.86% Pervious Area
17,464	98	65.14% Impervious Area

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

Summary for Subcatchment PDA-1.4D: Subcat PDA-1.4D

Runoff = 1.84 cfs @ 12.09 hrs, Volume= 5,816 cf, Depth= 1.64"
Routed to Pond 14P : DIV-03

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
15,475	74	>75% Grass cover, Good, HSG C
2,143	80	>75% Grass cover, Good, HSG D
24,896	98	Paved parking, HSG C
42,514	88	Weighted Average
17,618	75	41.44% Pervious Area
24,896	98	58.56% Impervious Area

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

Summary for Subcatchment PDA-1.4E: Subcat PDA-1.4E

Runoff = 1.77 cfs @ 12.09 hrs, Volume= 5,625 cf, Depth= 1.72"
Routed to Pond 18P : Sand Filter 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
15,030	74	>75% Grass cover, Good, HSG C
7	80	>75% Grass cover, Good, HSG D
24,208	98	Paved parking, HSG C
39,245	89	Weighted Average
15,038	74	38.32% Pervious Area
24,208	98	61.68% Impervious Area

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

Summary for Subcatchment PDA-1.4F: Subcat PDA-1.4F

Runoff = 2.37 cfs @ 12.20 hrs, Volume= 9,637 cf, Depth= 1.57"
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
33,264	74	>75% Grass cover, Good, HSG C
3	80	>75% Grass cover, Good, HSG D
36,167	98	Paved parking, HSG C
4,425	98	Paved parking, HSG D
73,858	87	Weighted Average
33,267	74	45.04% Pervious Area
40,591	98	54.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0105	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.2	42	0.3300	4.02		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.8	204	0.0090	1.93		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
14.5	346	Total			

Summary for Subcatchment PDA-1.4G: Subcat PDA-1.4G

Runoff = 1.01 cfs @ 12.09 hrs, Volume= 3,194 cf, Depth= 1.72"
Routed to Pond 19P : Sand Filter 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
8,221	74	>75% Grass cover, Good, HSG C
160	80	>75% Grass cover, Good, HSG D
13,903	98	Paved parking, HSG C
22,284	89	Weighted Average
8,381	74	37.61% Pervious Area
13,903	98	62.39% Impervious Area

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

Summary for Subcatchment PDA-1.4H: Subcat PDA-1.4H

Runoff = 0.22 cfs @ 12.10 hrs, Volume= 745 cf, Depth= 0.83"
Routed to Pond 4P : Detention Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
9,974	74	>75% Grass cover, Good, HSG C
169	80	>75% Grass cover, Good, HSG D
600	98	Paved parking, HSG C
10,744	75	Weighted Average
10,143	74	94.41% Pervious Area
600	98	5.59% Impervious Area

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

Summary for Subcatchment PDA-1.4l: Subcat PDA-1.4l

Runoff = 0.30 cfs @ 12.10 hrs, Volume= 951 cf, Depth= 1.16"
Routed to Pond 12P : Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
6,972	74	>75% Grass cover, Good, HSG C
194	80	>75% Grass cover, Good, HSG D
2,658	98	Paved parking, HSG C
0	98	Roofs, HSG C
9,824	81	Weighted Average
7,166	74	72.94% Pervious Area
2,658	98	27.06% Impervious Area

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

Summary for Subcatchment PDA-1.4J: Subcat PDA-1.4J

Runoff = 1.60 cfs @ 12.10 hrs, Volume= 5,176 cf, Depth= 1.04"
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
22,085	74	>75% Grass cover, Good, HSG C
32,367	80	>75% Grass cover, Good, HSG D
4,308	98	Paved parking, HSG C
392	98	Paved parking, HSG D
314	98	Unconnected pavement, HSG D
59,466	79	Weighted Average
54,452	78	91.57% Pervious Area
5,014	98	8.43% Impervious Area
314		6.27% Unconnected

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

Summary for Subcatchment PDA-1.4K: Subcat PDA-1.4K

Runoff = 1.00 cfs @ 12.09 hrs, Volume= 3,246 cf, Depth= 2.06"
Routed to Pond 9P : Sand Filter 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
3,577	74	>75% Grass cover, Good, HSG C
173	80	>75% Grass cover, Good, HSG D
15,126	98	Paved parking, HSG C
18,876	93	Weighted Average
3,751	74	19.87% Pervious Area
15,126	98	80.13% Impervious Area

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

Summary for Subcatchment PDA-1.4L: Subcat PDA-1.4L

Runoff = 0.31 cfs @ 12.13 hrs, Volume= 1,100 cf, Depth= 1.10"
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
9,223	74	>75% Grass cover, Good, HSG C
2,754	98	Paved parking, HSG C
1	98	Roofs, HSG C
11,978	80	Weighted Average
9,223	74	77.00% Pervious Area
2,755	98	23.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	32	0.0120	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
3.7	43	0.0400	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
8.5	75	Total			

Summary for Subcatchment PDA-1.4M: Subcat PDA-1.4M

Runoff = 0.08 cfs @ 12.22 hrs, Volume= 328 cf, Depth= 0.83"
Routed to Pond 9P : Sand Filter 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
4,574	74	>75% Grass cover, Good, HSG C
160	98	Paved parking, HSG C
4,734	75	Weighted Average
4,574	74	96.62% Pervious Area
160	98	3.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	100	0.0100	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
1.6	66	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.3	166	Total			

Summary for Subcatchment PDA-2.1A: Subcat PDA-2.1A

Runoff = 6.88 cfs @ 12.24 hrs, Volume= 29,880 cf, Depth= 1.16"
Routed to Pond 28P : DIV-01

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
219,117	74	>75% Grass cover, Good, HSG C
65	80	>75% Grass cover, Good, HSG D
7,583	87	Dirt roads, HSG C
79,397	98	Paved parking, HSG C
2,376	98	Unconnected pavement, HSG C
107	70	Woods, Good, HSG C
308,645	81	Weighted Average
226,872	74	73.51% Pervious Area
81,772	98	26.49% Impervious Area
2,376		2.91% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	100	0.0100	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
2.5	103	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	66	0.0189	0.96		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.3	269	Total			

Summary for Subcatchment PDA-2.1B: Subcat PDA-2.1B

Runoff = 3.00 cfs @ 12.26 hrs, Volume= 13,852 cf, Depth= 0.88"
Routed to Pond 15P : Detention Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Adj	Description
163,174	74		>75% Grass cover, Good, HSG C
9,554	87		Dirt roads, HSG C
11,969	98		Paved parking, HSG C
3,601	98		Unconnected pavement, HSG C
188,298	77	76	Weighted Average, UI Adjusted
172,728	75	75	91.73% Pervious Area
15,570	98	98	8.27% Impervious Area
3,601			23.13% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8	100	0.0050	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.2	23	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
17.0	123	Total			

Summary for Subcatchment PDA-2.2A: Subcat PDA-2.2A

Runoff = 3.65 cfs @ 12.19 hrs, Volume= 14,629 cf, Depth= 1.10"
Routed to Link 7L : DP 2.2 - Silver Creek West Branch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
118,833	74	>75% Grass cover, Good, HSG C
36,719	98	Paved parking, HSG C
3,452	98	Unconnected pavement, HSG C
279	70	Woods, Good, HSG C
159,283	80	Weighted Average
119,112	74	74.78% Pervious Area
40,171	98	25.22% Impervious Area
3,452		8.59% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9					**Direct Entry, PER EDA-2.2A**

Summary for Subcatchment PDA-2.2B: Subcat PDA-2.2B

Runoff = 1.23 cfs @ 12.63 hrs, Volume= 8,778 cf, Depth= 0.69"
Routed to Link 6L : DP 2.1 - West Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
51,438	74	>75% Grass cover, Good, HSG C
2,379	98	Paved parking, HSG C
98,443	70	Woods, Good, HSG C
152,260	72	Weighted Average
149,881	71	98.44% Pervious Area
2,379	98	1.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	100	0.0120	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
14.1	465	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
40.0	565	Total			

Summary for Subcatchment PDA-2.2C.a: Subcat PDA-2.2C.a

Runoff = 5.50 cfs @ 12.09 hrs, Volume= 19,412 cf, Depth= 2.57"
Routed to Pond 17P : Track and Field- stone base

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
0	74	>75% Grass cover, Good, HSG C
90,671	98	Paved parking, HSG C
90,671	98	Weighted Average
0	74	0.00% Pervious Area
90,671	98	100.00% Impervious Area

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

Summary for Subcatchment PDA-2.2C.b: Subcat PDA-2.2C.b

Runoff = 3.71 cfs @ 12.09 hrs, Volume= 13,100 cf, Depth= 2.57"
Routed to Pond 35P : Track and Field-manifold

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
4	74	>75% Grass cover, Good, HSG C
61,181	98	Paved parking, HSG C
61,186	98	Weighted Average
4	74	0.01% Pervious Area
61,181	98	99.99% Impervious Area

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

Summary for Subcatchment PDA-ROOF1.3: Subcat PDA-ROOF1.3

Runoff = 0.59 cfs @ 12.09 hrs, Volume= 2,094 cf, Depth= 2.57"
Routed to Pond 2P : Bio 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
0	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
9,782	98	Roofs, HSG C
9,782	98	Weighted Average
0	74	0.00% Pervious Area
9,782	98	100.00% Impervious Area

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

Summary for Subcatchment PDA-ROOF1.4: Subcat PDA-ROOF1.4

Runoff = 3.53 cfs @ 12.09 hrs, Volume= 12,462 cf, Depth= 2.57"
Routed to Pond 12P : Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
0	74	>75% Grass cover, Good, HSG C
1	98	Paved parking, HSG C
58,209	98	Roofs, HSG C
58,210	98	Weighted Average
0	74	0.00% Pervious Area
58,210	98	100.00% Impervious Area

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

Summary for Subcatchment PDA-ROOF2.1: Subcat PDA-ROOF2.1

Runoff = 1.89 cfs @ 12.09 hrs, Volume= 6,656 cf, Depth= 2.57"
Routed to Pond 28P : DIV-01

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
0	74	>75% Grass cover, Good, HSG C
31,087	98	Roofs, HSG C
31,087	98	Weighted Average
0	74	0.00% Pervious Area
31,087	98	100.00% Impervious Area

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

Summary for Pond 1P: Bio 4

Inflow Area = 16,850 sf, 41.68% Impervious, Inflow Depth = 1.35" for 1-year event
Inflow = 0.59 cfs @ 12.10 hrs, Volume= 1,900 cf
Outflow = 0.05 cfs @ 13.55 hrs, Volume= 1,594 cf, Atten= 92%, Lag= 86.8 min
Discarded = 0.01 cfs @ 13.55 hrs, Volume= 1,140 cf
Primary = 0.04 cfs @ 13.55 hrs, Volume= 455 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 60.31' @ 13.55 hrs Surf.Area= 974 sf Storage= 1,151 cf

Plug-Flow detention time= 1,185.3 min calculated for 1,594 cf (84% of inflow)
Center-of-Mass det. time= 1,116.5 min (1,953.1 - 836.6)

Volume	Invert	Avail.Storage	Storage Description
#1	56.79'	3,573 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.79	724	0.0	0	0
56.80	724	33.0	2	2
59.79	724	33.0	714	717
59.80	724	100.0	7	724
60.00	809	100.0	153	877
61.00	1,346	100.0	1,078	1,955
62.00	1,891	100.0	1,619	3,573

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.79'	**0.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#2	Primary	60.30'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 13.55 hrs HW=60.31' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.04 cfs @ 13.55 hrs HW=60.31' TW=0.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.04 cfs @ 0.27 fps)

Stage-Discharge for Pond 1P: Bio 4

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
56.79	0.00	0.00	0.00
56.89	0.00	0.00	0.00
56.99	0.00	0.00	0.00
57.09	0.00	0.00	0.00
57.19	0.00	0.00	0.00
57.29	0.00	0.00	0.00
57.39	0.00	0.00	0.00
57.49	0.00	0.00	0.00
57.59	0.00	0.00	0.00
57.69	0.00	0.00	0.00
57.79	0.00	0.00	0.00
57.89	0.00	0.00	0.00
57.99	0.00	0.00	0.00
58.09	0.00	0.00	0.00
58.19	0.00	0.00	0.00
58.29	0.00	0.00	0.00
58.39	0.00	0.00	0.00
58.49	0.00	0.00	0.00
58.59	0.00	0.00	0.00
58.69	0.00	0.00	0.00
58.79	0.00	0.00	0.00
58.89	0.00	0.00	0.00
58.99	0.00	0.00	0.00
59.09	0.00	0.00	0.00
59.19	0.00	0.00	0.00
59.29	0.00	0.00	0.00
59.39	0.00	0.00	0.00
59.49	0.00	0.00	0.00
59.59	0.00	0.00	0.00
59.69	0.00	0.00	0.00
59.79	0.00	0.00	0.00
59.89	0.00	0.00	0.00
59.99	0.01	0.01	0.00
60.09	0.01	0.01	0.00
60.19	0.01	0.01	0.00
60.29	0.01	0.01	0.00
60.39	1.45	0.01	1.44
60.49	2.11	0.01	2.10
60.59	2.60	0.01	2.59
60.69	3.01	0.01	3.01
60.79	3.38	0.01	3.37
60.89	3.71	0.01	3.70
60.99	4.01	0.01	4.00
61.09	4.29	0.01	4.28
61.19	4.55	0.01	4.54
61.29	4.80	0.01	4.79
61.39	5.04	0.01	5.03
61.49	5.26	0.01	5.25
61.59	5.48	0.01	5.47
61.69	5.69	0.01	5.68
61.79	5.89	0.01	5.88
61.89	6.08	0.01	6.07
61.99	**6.27**	**0.01**	**6.26**

Stage-Area-Storage for Pond 1P: Bio 4

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
56.79	724	0
56.89	724	24
56.99	724	48
57.09	724	72
57.19	724	96
57.29	724	119
57.39	724	143
57.49	724	167
57.59	724	191
57.69	724	215
57.79	724	239
57.89	724	263
57.99	724	287
58.09	724	311
58.19	724	334
58.29	724	358
58.39	724	382
58.49	724	406
58.59	724	430
58.69	724	454
58.79	724	478
58.89	724	502
58.99	724	526
59.09	724	550
59.19	724	573
59.29	724	597
59.39	724	621
59.49	724	645
59.59	724	669
59.69	724	693
59.79	724	717
59.89	762	791
59.99	805	869
60.09	857	952
60.19	911	1,041
60.29	965	1,134
60.39	1,018	1,234
60.49	1,072	1,338
60.59	1,126	1,448
60.69	1,180	1,563
60.79	1,233	1,684
60.89	1,287	1,810
60.99	1,341	1,941
61.09	1,395	2,078
61.19	1,450	2,220
61.29	1,504	2,368
61.39	1,559	2,521
61.49	1,613	2,680
61.59	1,668	2,844
61.69	1,722	3,013
61.79	1,777	3,188
61.89	1,831	3,369
61.99	**1,886**	**3,554**

Summary for Pond 2P: Bio 3

Inflow Area = 16,632 sf, 75.60% Impervious, Inflow Depth = 2.07" for 1-year event
Inflow = 0.84 cfs @ 12.09 hrs, Volume= 2,867 cf
Outflow = 0.52 cfs @ 12.26 hrs, Volume= 2,867 cf, Atten= 38%, Lag= 10.3 min
Primary = 0.50 cfs @ 12.26 hrs, Volume= 738 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch
Tertiary = 0.02 cfs @ 12.25 hrs, Volume= 2,129 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 59.77' @ 12.25 hrs Surf.Area= 872 sf Storage= 1,126 cf

Plug-Flow detention time= 437.2 min calculated for 2,865 cf (100% of inflow)
Center-of-Mass det. time= 437.6 min (1,217.5 - 779.9)

Volume	Invert	Avail.Storage	Storage Description
#1	56.24'	3,220 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.24	606	0.0	0	0
56.25	606	33.0	2	2
58.99	606	33.0	548	550
59.00	606	100.0	6	556
60.00	951	100.0	779	1,335
61.00	1,354	100.0	1,153	2,487
61.50	1,576	100.0	733	3,220

Device	Routing	Invert	Outlet Devices
#1	Device 4	56.24'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#2	Primary	59.75'	**2.0" x 2.0" Horiz. Orifice/Grate X 12.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads
#3	Secondary	61.40'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Tertiary	55.50'	**6.0" Round 6" SUBDRAIN** L= 35.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.50' / 55.20' S= 0.0086 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.44 cfs @ 12.26 hrs HW=59.77' TW=0.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Weir Controls 0.44 cfs @ 0.46 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.24' TW=0.00' (Dynamic Tailwater)
↑—**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.02 cfs @ 12.25 hrs HW=59.77' TW=0.00' (Dynamic Tailwater)
↑—**4=6" SUBDRAIN** (Passes 0.02 cfs of 1.50 cfs potential flow)
↑—**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Stage-Discharge for Pond 2P: Bio 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
56.24	0.00	0.00	0.00	0.00
56.44	0.01	0.00	0.00	0.01
56.64	0.01	0.00	0.00	0.01
56.84	0.01	0.00	0.00	0.01
57.04	0.01	0.00	0.00	0.01
57.24	0.01	0.00	0.00	0.01
57.44	0.01	0.00	0.00	0.01
57.64	0.01	0.00	0.00	0.01
57.84	0.01	0.00	0.00	0.01
58.04	0.01	0.00	0.00	0.01
58.24	0.01	0.00	0.00	0.01
58.44	0.01	0.00	0.00	0.01
58.64	0.01	0.00	0.00	0.01
58.84	0.01	0.00	0.00	0.01
59.04	0.01	0.00	0.00	0.01
59.24	0.02	0.00	0.00	0.02
59.44	0.02	0.00	0.00	0.02
59.64	0.02	0.00	0.00	0.02
59.84	2.91	2.89	0.00	0.02
60.04	5.21	5.19	0.00	0.02
60.24	6.77	6.74	0.00	0.02
60.44	8.03	8.00	0.00	0.03
60.64	9.11	9.08	0.00	0.03
60.84	10.08	10.05	0.00	0.03
61.04	10.97	10.94	0.00	0.03
61.24	11.79	11.75	0.00	0.03
61.44	**12.69**	**12.52**	**0.13**	**0.04**

Stage-Area-Storage for Pond 2P: Bio 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
56.24	606	0
56.34	606	20
56.44	606	40
56.54	606	60
56.64	606	80
56.74	606	100
56.84	606	120
56.94	606	140
57.04	606	160
57.14	606	180
57.24	606	200
57.34	606	220
57.44	606	240
57.54	606	260
57.64	606	280
57.74	606	300
57.84	606	320
57.94	606	340
58.04	606	360
58.14	606	380
58.24	606	400
58.34	606	420
58.44	606	440
58.54	606	460
58.64	606	480
58.74	606	500
58.84	606	520
58.94	606	540
59.04	620	581
59.14	654	644
59.24	689	711
59.34	723	782
59.44	758	856
59.54	792	934
59.64	827	1,015
59.74	861	1,099
59.84	896	1,187
59.94	930	1,278
60.04	967	1,373
60.14	1,007	1,472
60.24	1,048	1,574
60.34	1,088	1,681
60.44	1,128	1,792
60.54	1,169	1,907
60.64	1,209	2,026
60.74	1,249	2,149
60.84	1,290	2,276
60.94	1,330	2,406
61.04	1,372	2,542
61.14	1,416	2,681
61.24	1,461	2,825
61.34	1,505	2,973
61.44	**1,549**	**3,126**

Summary for Pond 3P: DIV-02

Inflow Area = 72,790 sf, 45.82% Impervious, Inflow Depth = 0.99" for 1-year event
Inflow = 1.49 cfs @ 12.20 hrs, Volume= 5,984 cf
Outflow = 1.49 cfs @ 12.20 hrs, Volume= 5,984 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.86 cfs @ 12.20 hrs, Volume= 5,447 cf
Routed to Pond 18P : Sand Filter 2
Secondary = 0.63 cfs @ 12.20 hrs, Volume= 537 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 56.90' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	56.15'	**8.0" Round Culvert** L= 13.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 56.15' / 54.85' S= 0.1000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.35 sf
#2	Device 3	56.80'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Secondary	56.15'	**15.0" Round Culvert** L= 19.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 56.15' / 55.00' S= 0.0605 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf

Primary OutFlow Max=0.86 cfs @ 12.20 hrs HW=56.90' TW=55.14' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.86 cfs @ 2.46 fps)

Secondary OutFlow Max=0.63 cfs @ 12.20 hrs HW=56.90' TW=0.00' (Dynamic Tailwater)
└**3=Culvert** (Passes 0.63 cfs of 1.79 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.63 cfs @ 1.04 fps)

Stage-Discharge for Pond 3P: DIV-02

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
56.15	0.00	0.00	0.00
56.17	0.00	0.00	0.00
56.19	0.00	0.00	0.00
56.21	0.01	0.01	0.00
56.23	0.02	0.02	0.00
56.25	0.03	0.03	0.00
56.27	0.04	0.04	0.00
56.29	0.05	0.05	0.00
56.31	0.07	0.07	0.00
56.33	0.09	0.09	0.00
56.35	0.11	0.11	0.00
56.37	0.13	0.13	0.00
56.39	0.15	0.15	0.00
56.41	0.17	0.17	0.00
56.43	0.20	0.20	0.00
56.45	0.22	0.22	0.00
56.47	0.25	0.25	0.00
56.49	0.28	0.28	0.00
56.51	0.31	0.31	0.00
56.53	0.34	0.34	0.00
56.55	0.37	0.37	0.00
56.57	0.40	0.40	0.00
56.59	0.44	0.44	0.00
56.61	0.47	0.47	0.00
56.63	0.50	0.50	0.00
56.65	0.53	0.53	0.00
56.67	0.57	0.57	0.00
56.69	0.60	0.60	0.00
56.71	0.63	0.63	0.00
56.73	0.66	0.66	0.00
56.75	0.69	0.69	0.00
56.77	0.72	0.72	0.00
56.79	0.74	0.74	0.00
56.81	0.78	0.76	0.02
56.83	0.88	0.78	0.10
56.85	1.02	0.80	0.22
56.87	1.19	0.83	0.36
56.89	1.37	0.85	0.53
56.91	1.58	0.87	0.71
56.93	1.80	0.89	0.92
56.95	2.04	0.91	1.13
56.97	2.29	0.93	1.37
56.99	2.56	0.94	1.61
57.01	2.84	0.96	1.87
57.03	3.13	0.98	2.15
57.05	3.41	1.00	2.41
57.07	3.51	1.02	2.50
57.09	3.61	1.03	2.58
57.11	3.71	1.05	2.66
57.13	3.81	1.07	2.75
57.15	3.91	1.08	2.83
57.17	4.01	1.10	2.91
57.19	4.11	1.12	2.99
57.21	4.20	1.13	3.07
57.23	4.29	1.15	3.15
57.25	4.39	1.16	3.22
57.27	4.48	1.18	3.30
57.29	4.56	1.19	3.37
57.31	4.65	1.21	3.44
57.33	4.72	1.22	3.50
57.35	4.80	1.24	3.56
57.37	4.87	1.25	3.62
57.39	**4.93**	**1.26**	**3.67**

Stage-Area-Storage for Pond 3P: DIV-02

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
56.15	**0**	56.66	0	57.17	0
56.16	0	56.67	0	57.18	0
56.17	0	56.68	0	57.19	0
56.18	0	56.69	0	57.20	0
56.19	0	56.70	0	57.21	0
56.20	0	56.71	0	57.22	0
56.21	0	56.72	0	57.23	0
56.22	0	56.73	0	57.24	0
56.23	0	56.74	0	57.25	0
56.24	0	56.75	0	57.26	0
56.25	0	56.76	0	57.27	0
56.26	0	56.77	0	57.28	0
56.27	0	56.78	0	57.29	0
56.28	0	56.79	0	57.30	0
56.29	0	56.80	0	57.31	0
56.30	0	56.81	0	57.32	0
56.31	0	56.82	0	57.33	0
56.32	0	56.83	0	57.34	0
56.33	0	56.84	0	57.35	0
56.34	0	56.85	0	57.36	0
56.35	0	56.86	0	57.37	0
56.36	0	56.87	0	57.38	0
56.37	0	56.88	0	57.39	0
56.38	0	56.89	0	57.40	0
56.39	0	56.90	0		
56.40	0	56.91	0		
56.41	0	56.92	0		
56.42	0	56.93	0		
56.43	0	56.94	0		
56.44	0	56.95	0		
56.45	0	56.96	0		
56.46	0	56.97	0		
56.47	0	56.98	0		
56.48	0	56.99	0		
56.49	0	57.00	0		
56.50	0	57.01	0		
56.51	0	57.02	0		
56.52	0	57.03	0		
56.53	0	57.04	0		
56.54	0	57.05	0		
56.55	0	57.06	0		
56.56	0	57.07	0		
56.57	0	57.08	0		
56.58	0	57.09	0		
56.59	0	57.10	0		
56.60	0	57.11	0		
56.61	0	57.12	0		
56.62	0	57.13	0		
56.63	0	57.14	0		
56.64	0	57.15	0		
56.65	0	57.16	0		

Summary for Pond 4P: Detention Basin 2

Inflow Area = 68,038 sf, 61.42% Impervious, Inflow Depth = 0.94" for 1-year event
Inflow = 1.44 cfs @ 12.32 hrs, Volume= 5,314 cf
Outflow = 0.07 cfs @ 17.47 hrs, Volume= 5,292 cf, Atten= 95%, Lag= 308.9 min
Primary = 0.07 cfs @ 17.47 hrs, Volume= 5,292 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 4L : DP 1.3 - Culvert 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 56.91' @ 17.47 hrs Surf.Area= 2,957 sf Storage= 3,230 cf

Plug-Flow detention time= 632.7 min calculated for 5,292 cf (100% of inflow)
Center-of-Mass det. time= 630.4 min (1,520.5 - 890.1)

Volume	Invert	Avail.Storage	Storage Description
#1	55.60'	88,526 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
55.60	1,952	0	0
56.00	2,295	849	849
57.00	3,025	2,660	3,509
58.00	3,843	3,434	6,943
59.00	4,717	4,280	11,223
60.00	55,662	30,190	41,413
61.50	7,155	47,113	88,526

Device	Routing	Invert	Outlet Devices
#1	Primary	55.60'	**24.0" Round Culvert** L= 12.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.60' / 52.60' S= 0.2500 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Device 1	55.60'	**1.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	57.50'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	58.25'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Secondary	60.10'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.07 cfs @ 17.47 hrs HW=56.91' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.07 cfs of 6.68 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.07 cfs @ 5.37 fps)
  ├─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=55.60' TW=0.00' (Dynamic Tailwater)
└─**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 4P: Detention Basin 2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
55.60	0.00	0.00	0.00
55.70	0.01	0.01	0.00
55.80	0.02	0.02	0.00
55.90	0.03	0.03	0.00
56.00	0.03	0.03	0.00
56.10	0.04	0.04	0.00
56.20	0.04	0.04	0.00
56.30	0.05	0.05	0.00
56.40	0.05	0.05	0.00
56.50	0.05	0.05	0.00
56.60	0.06	0.06	0.00
56.70	0.06	0.06	0.00
56.80	0.06	0.06	0.00
56.90	0.07	0.07	0.00
57.00	0.07	0.07	0.00
57.10	0.07	0.07	0.00
57.20	0.07	0.07	0.00
57.30	0.08	0.08	0.00
57.40	0.08	0.08	0.00
57.50	0.08	0.08	0.00
57.60	0.18	0.18	0.00
57.70	0.37	0.37	0.00
57.80	0.59	0.59	0.00
57.90	0.85	0.85	0.00
58.00	1.13	1.13	0.00
58.10	1.43	1.43	0.00
58.20	1.74	1.74	0.00
58.30	2.24	2.24	0.00
58.40	3.33	3.33	0.00
58.50	4.74	4.74	0.00
58.60	6.38	6.38	0.00
58.70	8.22	8.22	0.00
58.80	10.21	10.21	0.00
58.90	12.35	12.35	0.00
59.00	14.61	14.61	0.00
59.10	16.99	16.99	0.00
59.20	19.26	19.26	0.00
59.30	19.62	19.62	0.00
59.40	19.98	19.98	0.00
59.50	20.34	20.34	0.00
59.60	20.68	20.68	0.00
59.70	21.03	21.03	0.00
59.80	21.36	21.36	0.00
59.90	21.69	21.69	0.00
60.00	22.02	22.02	0.00
60.10	22.34	22.34	0.00
60.20	23.69	22.66	1.03
60.30	25.88	22.97	2.91
60.40	28.62	23.28	5.34
60.50	31.79	23.58	8.21
60.60	35.33	23.88	11.45
60.70	39.20	24.18	15.02
60.80	43.36	24.47	18.88
60.90	47.79	24.76	23.02
61.00	52.47	25.05	27.42
61.10	57.38	25.33	32.05
61.20	62.51	25.61	36.90
61.30	67.84	25.89	41.95
61.40	73.37	26.16	47.21
61.50	**79.09**	**26.44**	**52.65**

Pro-Hydro
Prepared by Pare Corporation

Stage-Area-Storage for Pond 4P: Detention Basin 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
55.60	1,952	0
55.70	2,038	199
55.80	2,124	408
55.90	2,209	624
56.00	2,295	849
56.10	2,368	1,083
56.20	2,441	1,323
56.30	2,514	1,571
56.40	2,587	1,826
56.50	2,660	2,088
56.60	2,733	2,358
56.70	2,806	2,635
56.80	2,879	2,919
56.90	2,952	3,211
57.00	3,025	3,509
57.10	3,107	3,816
57.20	3,189	4,131
57.30	3,270	4,454
57.40	3,352	4,785
57.50	3,434	5,124
57.60	3,516	5,472
57.70	3,598	5,827
57.80	3,679	6,191
57.90	3,761	6,563
58.00	3,843	6,943
58.10	3,930	7,332
58.20	4,018	7,729
58.30	4,105	8,136
58.40	4,193	8,551
58.50	4,280	8,974
58.60	4,367	9,407
58.70	4,455	9,848
58.80	4,542	10,297
58.90	4,630	10,756
59.00	4,717	11,223
59.10	9,812	11,950
59.20	14,906	13,186
59.30	20,001	14,931
59.40	25,095	17,186
59.50	30,190	19,950
59.60	35,284	23,224
59.70	40,379	27,007
59.80	45,473	31,299
59.90	50,567	36,101
60.00	**55,662**	41,413
60.10	52,428	46,817
60.20	49,194	51,899
60.30	45,961	56,656
60.40	42,727	61,091
60.50	39,493	65,202
60.60	36,259	68,989
60.70	33,025	72,453
60.80	29,792	75,594
60.90	26,558	78,412
61.00	23,324	80,906
61.10	20,090	83,077
61.20	16,856	84,924
61.30	13,623	86,448
61.40	10,389	87,648
61.50	7,155	**88,526**

Summary for Pond 7P: Bio 2

Inflow Area = 26,810 sf, 65.14% Impervious, Inflow Depth = 1.80" for 1-year event
Inflow = 1.27 cfs @ 12.09 hrs, Volume= 4,024 cf
Outflow = 0.14 cfs @ 12.92 hrs, Volume= 4,024 cf, Atten= 89%, Lag= 49.6 min
Primary = 0.11 cfs @ 12.92 hrs, Volume= 612 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch
Tertiary = 0.03 cfs @ 10.40 hrs, Volume= 3,413 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 56.51' @ 12.92 hrs Surf.Area= 2,146 sf Storage= 2,119 cf

Plug-Flow detention time= 663.2 min calculated for 4,024 cf (100% of inflow)
Center-of-Mass det. time= 663.2 min (1,475.4 - 812.2)

Volume	Invert	Avail.Storage	Storage Description
#1	52.99'	8,230 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
52.99	1,128	0.0	0	0
53.00	1,128	33.0	4	4
55.99	1,128	33.0	1,113	1,117
56.00	1,742	100.0	14	1,131
57.00	2,537	100.0	2,140	3,271
58.00	3,569	100.0	3,053	6,324
58.50	4,058	100.0	1,907	8,230

Device	Routing	Invert	Outlet Devices
#1	Primary	56.50'	**2.0" x 2.0" Horiz. Orifice/Grate X 12.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads
#2	Device 3	52.99'	**1.020 in/hr Exfiltration over Surface area from 52.98' - 55.99'** Excluded Surface area = 0 sf Phase-In= 0.02'
#3	Tertiary	52.25'	**6.0" Vert. subdrain** C= 0.600 Limited to weir flow at low heads
#4	Secondary	57.60'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.11 cfs @ 12.92 hrs HW=56.51' TW=0.00' (Dynamic Tailwater)
└**1=Orifice/Grate** (Weir Controls 0.11 cfs @ 0.29 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=52.99' TW=0.00' (Dynamic Tailwater)
└**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.03 cfs @ 10.40 hrs HW=53.05' TW=0.00' (Dynamic Tailwater)
└**3=subdrain** (Passes 0.03 cfs of 0.70 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Stage-Discharge for Pond 7P: Bio 2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
52.99	0.00	0.00	0.00	**0.00**
53.19	0.03	0.00	0.00	**0.03**
53.39	0.03	0.00	0.00	0.03
53.59	0.03	0.00	0.00	0.03
53.79	0.03	0.00	0.00	0.03
53.99	0.03	0.00	0.00	0.03
54.19	0.03	0.00	0.00	0.03
54.39	0.03	0.00	0.00	0.03
54.59	0.03	0.00	0.00	0.03
54.79	0.03	0.00	0.00	0.03
54.99	0.03	0.00	0.00	0.03
55.19	0.03	0.00	0.00	0.03
55.39	0.03	0.00	0.00	0.03
55.59	0.03	0.00	0.00	0.03
55.79	0.03	0.00	0.00	0.03
55.99	0.03	0.00	0.00	0.03
56.19	0.03	0.00	0.00	0.03
56.39	0.03	0.00	0.00	0.03
56.59	2.92	2.89	0.00	0.03
56.79	5.21	5.19	0.00	0.03
56.99	6.77	6.74	0.00	0.03
57.19	8.03	8.00	0.00	0.03
57.39	9.11	9.08	0.00	0.03
57.59	10.08	10.05	0.00	0.03
57.79	13.66	10.94	2.70	0.03
57.99	19.68	11.75	7.90	0.03
58.19	27.19	12.52	14.64	0.03
58.39	**35.86**	**13.24**	**22.60**	0.03

Stage-Area-Storage for Pond 7P: Bio 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
52.99	1,128	0
53.09	1,128	37
53.19	1,128	74
53.29	1,128	112
53.39	1,128	149
53.49	1,128	186
53.59	1,128	223
53.69	1,128	261
53.79	1,128	298
53.89	1,128	335
53.99	1,128	372
54.09	1,128	409
54.19	1,128	447
54.29	1,128	484
54.39	1,128	521
54.49	1,128	558
54.59	1,128	596
54.69	1,128	633
54.79	1,128	670
54.89	1,128	707
54.99	1,128	744
55.09	1,128	782
55.19	1,128	819
55.29	1,128	856
55.39	1,128	893
55.49	1,128	931
55.59	1,128	968
55.69	1,128	1,005
55.79	1,128	1,042
55.89	1,128	1,079
55.99	1,128	1,117
56.09	1,814	1,291
56.19	1,893	1,476
56.29	1,973	1,670
56.39	2,052	1,871
56.49	2,132	2,080
56.59	2,211	2,297
56.69	2,291	2,522
56.79	2,370	2,755
56.89	2,450	2,996
56.99	2,529	3,245
57.09	2,630	3,503
57.19	2,733	3,771
57.29	2,836	4,050
57.39	2,939	4,338
57.49	3,043	4,638
57.59	3,146	4,947
57.69	3,249	5,267
57.79	3,352	5,597
57.89	3,455	5,937
57.99	3,559	6,288
58.09	3,657	6,649
58.19	3,755	7,019
58.29	3,853	7,400
58.39	3,950	7,790
58.49	**4,048**	**8,190**

Summary for Pond 8P: DIV-04

Inflow Area = 151,857 sf,100.00% Impervious, Inflow Depth = 1.00" for 1-year event
Inflow = 4.72 cfs @ 12.21 hrs, Volume= 12,676 cf
Outflow = 4.72 cfs @ 12.21 hrs, Volume= 12,677 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.72 cfs @ 12.21 hrs, Volume= 11,744 cf
Routed to Pond 23P : UGIS-1
Secondary = 0.35 cfs @ 13.02 hrs, Volume= 932 cf
Routed to Link 6L : DP 2.1 - West Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 48.47' @ 13.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.90'	**18.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.90' / 46.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 3	48.40'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Secondary	46.90'	**24.0" Round Culvert** L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.90' / 46.70' S= 0.0067 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=4.70 cfs @ 12.21 hrs HW=48.25' TW=47.31' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 4.70 cfs @ 3.71 fps)

Secondary OutFlow Max=0.35 cfs @ 13.02 hrs HW=48.47' TW=0.00' (Dynamic Tailwater)
└**3=Culvert** (Passes 0.35 cfs of 7.94 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.35 cfs @ 0.85 fps)

Stage-Discharge for Pond 8P: DIV-04

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
46.90	0.00	0.00	0.00
46.92	0.00	0.00	0.00
46.94	0.01	0.01	0.00
46.96	0.02	0.02	0.00
46.98	0.03	0.03	0.00
47.00	0.04	0.04	0.00
47.02	0.06	0.06	0.00
47.04	0.08	0.08	0.00
47.06	0.11	0.11	0.00
47.08	0.13	0.13	0.00
47.10	0.16	0.16	0.00
47.12	0.20	0.20	0.00
47.14	0.23	0.23	0.00
47.16	0.27	0.27	0.00
47.18	0.31	0.31	0.00
47.20	0.35	0.35	0.00
47.22	0.39	0.39	0.00
47.24	0.44	0.44	0.00
47.26	0.48	0.48	0.00
47.28	0.53	0.53	0.00
47.30	0.58	0.58	0.00
47.32	0.64	0.64	0.00
47.34	0.69	0.69	0.00
47.36	0.75	0.75	0.00
47.38	0.81	0.81	0.00
47.40	0.87	0.87	0.00
47.42	0.94	0.94	0.00
47.44	1.00	1.00	0.00
47.46	1.07	1.07	0.00
47.48	1.14	1.14	0.00
47.50	1.21	1.21	0.00
47.52	1.28	1.28	0.00
47.54	1.35	1.35	0.00
47.56	1.42	1.42	0.00
47.58	1.50	1.50	0.00
47.60	1.58	1.58	0.00
47.62	1.66	1.66	0.00
47.64	1.74	1.74	0.00
47.66	1.82	1.82	0.00
47.68	1.91	1.91	0.00
47.70	1.99	1.99	0.00
47.72	2.08	2.08	0.00
47.74	2.16	2.16	0.00
47.76	2.25	2.25	0.00
47.78	2.34	2.34	0.00
47.80	2.43	2.43	0.00
47.82	2.53	2.53	0.00
47.84	2.62	2.62	0.00
47.86	2.71	2.71	0.00
47.88	2.81	2.81	0.00
47.90	2.91	2.91	0.00
47.92	3.00	3.00	0.00
47.94	3.10	3.10	0.00
47.96	3.20	3.20	0.00
47.98	3.30	3.30	0.00
48.00	3.40	3.40	0.00
48.02	3.50	3.50	0.00
48.04	3.61	3.61	0.00
48.06	3.71	3.71	0.00
48.08	3.81	3.81	0.00
48.10	3.92	3.92	0.00
48.12	4.02	4.02	0.00
48.14	4.12	4.12	0.00
48.16	4.23	4.23	0.00
48.18	4.34	4.34	0.00
48.20	4.44	4.44	0.00
48.22	4.55	4.55	0.00
48.24	4.65	4.65	0.00
48.26	4.76	4.76	0.00
48.28	4.87	4.87	0.00
48.30	4.97	4.97	0.00
48.32	5.08	5.08	0.00
48.34	5.19	5.19	0.00
48.36	5.29	5.29	0.00
48.38	5.40	5.40	0.00
48.40	5.50	5.50	0.00
48.42	5.66	5.61	0.06
48.44	5.87	5.71	0.16
48.46	6.10	5.81	0.29
48.48	6.36	5.92	0.44
48.50	6.64	6.02	0.62
48.52	6.93	6.12	0.81
48.54	7.24	6.22	1.02
48.56	7.57	6.32	1.25
48.58	7.91	6.42	1.49
48.60	8.26	6.52	1.74
48.62	8.62	6.61	2.01
48.64	8.97	6.68	2.29
48.66	9.33	6.75	2.58
48.68	9.70	6.82	2.88
48.70	10.07	6.88	3.19
48.72	10.46	6.95	3.51
48.74	10.86	7.01	3.85
48.76	11.26	7.08	4.19
48.78	11.68	7.14	4.54
48.80	12.10	7.20	4.90
48.82	12.53	7.27	5.27
48.84	12.97	7.33	5.64
48.86	13.42	7.39	6.03
48.88	13.87	7.45	6.42
48.90	**14.33**	**7.51**	**6.82**

Pro-Hydro
Prepared by Pare Corporation

Stage-Area-Storage for Pond 8P: DIV-04

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
46.90	**0**	47.92	0
46.92	0	47.94	0
46.94	0	47.96	0
46.96	0	47.98	0
46.98	0	48.00	0
47.00	0	48.02	0
47.02	0	48.04	0
47.04	0	48.06	0
47.06	0	48.08	0
47.08	0	48.10	0
47.10	0	48.12	0
47.12	0	48.14	0
47.14	0	48.16	0
47.16	0	48.18	0
47.18	0	48.20	0
47.20	0	48.22	0
47.22	0	48.24	0
47.24	0	48.26	0
47.26	0	48.28	0
47.28	0	48.30	0
47.30	0	48.32	0
47.32	0	48.34	0
47.34	0	48.36	0
47.36	0	48.38	0
47.38	0	48.40	0
47.40	0	48.42	0
47.42	0	48.44	0
47.44	0	48.46	0
47.46	0	48.48	0
47.48	0	48.50	0
47.50	0	48.52	0
47.52	0	48.54	0
47.54	0	48.56	0
47.56	0	48.58	0
47.58	0	48.60	0
47.60	0	48.62	0
47.62	0	48.64	0
47.64	0	48.66	0
47.66	0	48.68	0
47.68	0	48.70	0
47.70	0	48.72	0
47.72	0	48.74	0
47.74	0	48.76	0
47.76	0	48.78	0
47.78	0	48.80	0
47.80	0	48.82	0
47.82	0	48.84	0
47.84	0	48.86	0
47.86	0	48.88	0
47.88	0	48.90	0
47.90	0		

Summary for Pond 9P: Sand Filter 5

Inflow Area = 23,611 sf, 64.74% Impervious, Inflow Depth = 1.82" for 1-year event
Inflow = 1.05 cfs @ 12.09 hrs, Volume= 3,574 cf
Outflow = 0.90 cfs @ 12.21 hrs, Volume= 3,099 cf, Atten= 14%, Lag= 7.1 min
Discarded = 0.01 cfs @ 12.21 hrs, Volume= 1,278 cf
Primary = 0.89 cfs @ 12.21 hrs, Volume= 1,821 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 49.80' @ 12.21 hrs Surf.Area= 1,089 sf Storage= 1,425 cf

Plug-Flow detention time= 677.5 min calculated for 3,097 cf (87% of inflow)
Center-of-Mass det. time= 619.6 min (1,424.1 - 804.5)

Volume	Invert	Avail.Storage	Storage Description
#1	45.99'	4,039 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.99	705	0.0	0	0
46.00	705	33.0	2	2
48.99	705	33.0	696	698
49.00	705	100.0	7	705
50.00	1,184	100.0	945	1,649
51.00	1,725	100.0	1,455	3,104
51.50	2,016	100.0	935	4,039

Device	Routing	Invert	Outlet Devices
#1	Discarded	45.99'	**0.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#2	Primary	49.75'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads
#3	Secondary	50.20'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.01 cfs @ 12.21 hrs HW=49.80' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.79 cfs @ 12.21 hrs HW=49.80' TW=0.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Weir Controls 0.79 cfs @ 0.71 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.99' TW=0.00' (Dynamic Tailwater)
↑—**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 9P: Sand Filter 5

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
45.99	0.00	0.00	0.00	0.00
46.19	0.00	0.00	0.00	0.00
46.39	0.00	0.00	0.00	0.00
46.59	0.00	0.00	0.00	0.00
46.79	0.00	0.00	0.00	0.00
46.99	0.00	0.00	0.00	0.00
47.19	0.00	0.00	0.00	0.00
47.39	0.00	0.00	0.00	0.00
47.59	0.00	0.00	0.00	0.00
47.79	0.00	0.00	0.00	0.00
47.99	0.00	0.00	0.00	0.00
48.19	0.00	0.00	0.00	0.00
48.39	0.00	0.00	0.00	0.00
48.59	0.00	0.00	0.00	0.00
48.79	0.00	0.00	0.00	0.00
48.99	0.00	0.00	0.00	0.00
49.19	0.00	0.00	0.00	0.00
49.39	0.01	0.01	0.00	0.00
49.59	0.01	0.01	0.00	0.00
49.79	0.63	0.01	0.63	0.00
49.99	2.37	0.01	2.36	0.00
50.19	3.20	0.01	3.19	0.00
50.39	6.56	0.01	3.85	2.70
50.59	12.32	0.01	4.41	7.90
50.79	19.56	0.01	4.91	14.64
50.99	27.97	0.01	5.36	22.60
51.19	37.36	0.01	5.78	31.57
51.39	**47.62**	**0.01**	**6.17**	**41.44**

Stage-Area-Storage for Pond 9P: Sand Filter 5

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
45.99	705	0
46.09	705	23
46.19	705	47
46.29	705	70
46.39	705	93
46.49	705	116
46.59	705	140
46.69	705	163
46.79	705	186
46.89	705	209
46.99	705	233
47.09	705	256
47.19	705	279
47.29	705	302
47.39	705	326
47.49	705	349
47.59	705	372
47.69	705	396
47.79	705	419
47.89	705	442
47.99	705	465
48.09	705	489
48.19	705	512
48.29	705	535
48.39	705	558
48.49	705	582
48.59	705	605
48.69	705	628
48.79	705	651
48.89	705	675
48.99	705	698
49.09	748	770
49.19	796	848
49.29	844	930
49.39	892	1,016
49.49	940	1,108
49.59	988	1,204
49.69	1,036	1,305
49.79	1,083	1,411
49.89	1,131	1,522
49.99	1,179	1,638
50.09	1,233	1,758
50.19	1,287	1,884
50.29	1,341	2,016
50.39	1,395	2,152
50.49	1,449	2,295
50.59	1,503	2,442
50.69	1,557	2,595
50.79	1,611	2,754
50.89	1,665	2,918
50.99	1,720	3,087
51.09	1,777	3,262
51.19	1,836	3,442
51.29	1,894	3,629
51.39	1,952	3,821
51.49	**2,010**	**4,019**

Summary for Pond 10P: Bio 1

Inflow Area = 42,514 sf, 58.56% Impervious, Inflow Depth = 1.55" for 1-year event
Inflow = 1.17 cfs @ 12.09 hrs, Volume= 5,506 cf
Outflow = 1.05 cfs @ 12.20 hrs, Volume= 4,711 cf, Atten= 10%, Lag= 6.6 min
Discarded = 0.00 cfs @ 8.75 hrs, Volume= 1,045 cf
Primary = 1.05 cfs @ 12.20 hrs, Volume= 3,667 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 44.51' @ 12.20 hrs Surf.Area= 2,683 sf Storage= 1,721 cf

Plug-Flow detention time= 451.7 min calculated for 4,708 cf (86% of inflow)
Center-of-Mass det. time= 389.8 min (1,215.7 - 826.0)

Volume	Invert	Avail.Storage	Storage Description
#1	41.99'	6,712 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.99	725	0.0	0	0
42.00	725	33.0	2	2
43.99	725	33.0	476	479
44.00	2,167	100.0	14	493
45.00	3,187	100.0	2,677	3,170
46.00	3,897	100.0	3,542	6,712

Device	Routing	Invert	Outlet Devices
#1	Primary	44.45'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads
#2	Discarded	41.99'	**0.270 in/hr Exfiltration over Surface area from 41.98' - 43.99'** Excluded Surface area = 0 sf Phase-In= 0.02'
#3	Secondary	45.75'	**Asymmetrical Weir, C= 3.27** Offset (feet) 0.00 0.01 5.00 5.01 5.50 6.00 6.01 10.00 10.01 Height (feet) 1.00 0.00 0.25 1.00 1.00 1.00 0.30 0.50 1.00

Discarded OutFlow Max=0.00 cfs @ 8.75 hrs HW=42.04' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=1.04 cfs @ 12.20 hrs HW=44.51' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Weir Controls 1.04 cfs @ 0.77 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=41.99' TW=0.00' (Dynamic Tailwater)
3=Asymmetrical Weir (Controls 0.00 cfs)

Stage-Discharge for Pond 10P: Bio 1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
41.99	0.00	**0.00**	0.00	0.00
42.09	0.00	**0.00**	0.00	0.00
42.19	0.00	0.00	0.00	0.00
42.29	0.00	0.00	0.00	0.00
42.39	0.00	0.00	0.00	0.00
42.49	0.00	0.00	0.00	0.00
42.59	0.00	0.00	0.00	0.00
42.69	0.00	0.00	0.00	0.00
42.79	0.00	0.00	0.00	0.00
42.89	0.00	0.00	0.00	0.00
42.99	0.00	0.00	0.00	0.00
43.09	0.00	0.00	0.00	0.00
43.19	0.00	0.00	0.00	0.00
43.29	0.00	0.00	0.00	0.00
43.39	0.00	0.00	0.00	0.00
43.49	0.00	0.00	0.00	0.00
43.59	0.00	0.00	0.00	0.00
43.69	0.00	0.00	0.00	0.00
43.79	0.00	0.00	0.00	0.00
43.89	0.00	0.00	0.00	0.00
43.99	0.00	0.00	0.00	0.00
44.09	0.00	0.00	0.00	0.00
44.19	0.00	0.00	0.00	0.00
44.29	0.00	0.00	0.00	0.00
44.39	0.00	0.00	0.00	0.00
44.49	0.63	0.00	0.63	0.00
44.59	1.81	0.00	1.80	0.00
44.69	2.36	0.00	2.36	0.00
44.79	2.81	0.00	2.81	0.00
44.89	3.20	0.00	3.19	0.00
44.99	3.54	0.00	3.54	0.00
45.09	3.86	0.00	3.85	0.00
45.19	4.15	0.00	4.14	0.00
45.29	4.42	0.00	4.41	0.00
45.39	4.67	0.00	4.67	0.00
45.49	4.91	0.00	4.91	0.00
45.59	5.15	0.00	5.14	0.00
45.69	5.37	0.00	5.36	0.00
45.79	5.59	0.00	5.57	0.01
45.89	5.97	0.00	5.78	0.19
45.99	6.72	0.00	5.98	0.74
46.09	7.88	0.00	6.17	1.71
46.19	9.49	0.00	6.35	3.14
46.29	11.68	0.00	6.53	5.14
46.39	14.36	0.00	6.71	7.65
46.49	17.42	0.00	6.88	10.54
46.59	20.80	0.00	7.04	13.75
46.69	**24.48**	0.00	**7.21**	**17.27**

Stage-Area-Storage for Pond 10P: Bio 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
41.99	725	0
42.04	725	12
42.09	725	24
42.14	725	36
42.19	725	48
42.24	725	60
42.29	725	72
42.34	725	84
42.39	725	96
42.44	725	108
42.49	725	120
42.54	725	132
42.59	725	144
42.64	725	156
42.69	725	167
42.74	725	179
42.79	725	191
42.84	725	203
42.89	725	215
42.94	725	227
42.99	725	239
43.04	725	251
43.09	725	263
43.14	725	275
43.19	725	287
43.24	725	299
43.29	725	311
43.34	725	323
43.39	725	335
43.44	725	347
43.49	725	359
43.54	725	371
43.59	725	383
43.64	725	395
43.69	725	407
43.74	725	419
43.79	725	431
43.84	725	443
43.89	725	455
43.94	725	467
43.99	725	479
44.04	2,208	580
44.09	2,259	692
44.14	2,310	806
44.19	2,361	923
44.24	2,412	1,042
44.29	2,463	1,164
44.34	2,514	1,289
44.39	2,565	1,416
44.44	2,616	1,545
44.49	2,667	1,677
44.54	2,718	1,812
44.59	2,769	1,949
44.64	2,820	2,089
44.69	2,871	2,231
44.74	2,922	2,376
44.79	2,973	2,523
44.84	3,024	2,673
44.89	3,075	2,826
44.94	3,126	2,981
44.99	3,177	3,138
45.04	3,215	3,298
45.09	3,251	3,460
45.14	3,286	3,623
45.19	3,322	3,788
45.24	3,357	3,955
45.29	3,393	4,124
45.34	3,428	4,295
45.39	3,464	4,467
45.44	3,499	4,641
45.49	3,535	4,817
45.54	3,570	4,994
45.59	3,606	5,174
45.64	3,641	5,355
45.69	3,677	5,538
45.74	3,712	5,723
45.79	3,748	5,909
45.84	3,783	6,098
45.89	3,819	6,288
45.94	3,854	6,479
45.99	**3,890**	**6,673**
46.04	**3,897**	**6,712**
46.09	3,897	6,712
46.14	3,897	6,712
46.19	3,897	6,712
46.24	3,897	6,712
46.29	3,897	6,712
46.34	3,897	6,712
46.39	3,897	6,712
46.44	3,897	6,712
46.49	3,897	6,712
46.54	3,897	6,712
46.59	3,897	6,712
46.64	3,897	6,712
46.69	3,897	6,712
46.74	3,897	6,712

Summary for Pond 12P: Infiltration Basin 1

Inflow Area = 68,033 sf, 89.47% Impervious, Inflow Depth = 2.37" for 1-year event
Inflow = 3.83 cfs @ 12.09 hrs, Volume= 13,414 cf
Outflow = 2.55 cfs @ 12.19 hrs, Volume= 10,865 cf, Atten= 33%, Lag= 6.0 min
Discarded = 0.02 cfs @ 12.19 hrs, Volume= 3,773 cf
Primary = 2.53 cfs @ 12.19 hrs, Volume= 7,092 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 57.91' @ 12.19 hrs Surf.Area= 3,038 sf Storage= 5,960 cf

Plug-Flow detention time= 647.4 min calculated for 10,865 cf (81% of inflow)
Center-of-Mass det. time= 572.7 min (1,338.2 - 765.5)

Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	10,931 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
55.00	1,125	0	0
56.00	1,739	1,432	1,432
57.00	2,393	2,066	3,498
58.00	3,104	2,749	6,247
59.00	3,870	3,487	9,734
59.30	4,111	1,197	10,931

Device	Routing	Invert	Outlet Devices
#1	Primary	51.75'	**24.0" Round Culvert** L= 9.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 51.75' / 51.55' S= 0.0222 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Discarded	55.00'	**0.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Secondary	58.40'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	57.65'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.02 cfs @ 12.19 hrs HW=57.90' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=2.49 cfs @ 12.19 hrs HW=57.90' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 2.49 cfs of 27.11 cfs potential flow)
└**4=Sharp-Crested Rectangular Weir** (Weir Controls 2.49 cfs @ 1.65 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=55.00' TW=0.00' (Dynamic Tailwater)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 12P: Infiltration Basin 1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
55.00	0.00	0.00	0.00	0.00
55.10	0.01	0.01	0.00	0.00
55.20	0.01	0.01	0.00	0.00
55.30	0.01	0.01	0.00	0.00
55.40	0.01	0.01	0.00	0.00
55.50	0.01	0.01	0.00	0.00
55.60	0.01	0.01	0.00	0.00
55.70	0.01	0.01	0.00	0.00
55.80	0.01	0.01	0.00	0.00
55.90	0.01	0.01	0.00	0.00
56.00	0.01	0.01	0.00	0.00
56.10	0.01	0.01	0.00	0.00
56.20	0.01	0.01	0.00	0.00
56.30	0.01	0.01	0.00	0.00
56.40	0.01	0.01	0.00	0.00
56.50	0.01	0.01	0.00	0.00
56.60	0.01	0.01	0.00	0.00
56.70	0.01	0.01	0.00	0.00
56.80	0.01	0.01	0.00	0.00
56.90	0.01	0.01	0.00	0.00
57.00	0.01	0.01	0.00	0.00
57.10	0.02	0.02	0.00	0.00
57.20	0.02	0.02	0.00	0.00
57.30	0.02	0.02	0.00	0.00
57.40	0.02	0.02	0.00	0.00
57.50	0.02	0.02	0.00	0.00
57.60	0.02	0.02	0.00	0.00
57.70	0.24	0.02	0.22	0.00
57.80	1.15	0.02	1.13	0.00
57.90	2.45	0.02	2.43	0.00
58.00	4.03	0.02	4.02	0.00
58.10	5.85	0.02	5.83	0.00
58.20	7.88	0.02	7.86	0.00
58.30	10.08	0.02	10.06	0.00
58.40	12.45	0.02	12.42	0.00
58.50	15.99	0.02	14.94	1.03
58.60	20.53	0.02	17.59	2.91
58.70	25.73	0.02	20.37	5.34
58.80	31.50	0.02	23.27	8.21
58.90	37.75	0.02	26.28	11.45
59.00	44.43	0.02	29.39	15.02
59.10	49.00	0.02	30.09	18.88
59.20	53.38	0.03	30.33	23.02
59.30	**58.01**	**0.03**	**30.56**	**27.42**

Stage-Area-Storage for Pond 12P: Infiltration Basin 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
55.00	1,125	0
55.05	1,156	57
55.10	1,186	116
55.15	1,217	176
55.20	1,248	237
55.25	1,279	300
55.30	1,309	365
55.35	1,340	431
55.40	1,371	499
55.45	1,401	568
55.50	1,432	639
55.55	1,463	712
55.60	1,493	786
55.65	1,524	861
55.70	1,555	938
55.75	1,586	1,016
55.80	1,616	1,096
55.85	1,647	1,178
55.90	1,678	1,261
55.95	1,708	1,346
56.00	1,739	1,432
56.05	1,772	1,520
56.10	1,804	1,609
56.15	1,837	1,700
56.20	1,870	1,793
56.25	1,903	1,887
56.30	1,935	1,983
56.35	1,968	2,081
56.40	2,001	2,180
56.45	2,033	2,281
56.50	2,066	2,383
56.55	2,099	2,487
56.60	2,131	2,593
56.65	2,164	2,701
56.70	2,197	2,810
56.75	2,230	2,920
56.80	2,262	3,032
56.85	2,295	3,146
56.90	2,328	3,262
56.95	2,360	3,379
57.00	2,393	3,498
57.05	2,429	3,619
57.10	2,464	3,741
57.15	2,500	3,865
57.20	2,535	3,991
57.25	2,571	4,118
57.30	2,606	4,248
57.35	2,642	4,379
57.40	2,677	4,512
57.45	2,713	4,647
57.50	2,749	4,783
57.55	2,784	4,922
57.60	2,820	5,062
57.65	2,855	5,204
57.70	2,891	5,347
57.75	2,926	5,493
57.80	2,962	5,640
57.85	2,997	5,789
57.90	3,033	5,940
57.95	3,068	6,092
58.00	3,104	6,247
58.05	3,142	6,403
58.10	3,181	6,561
58.15	3,219	6,721
58.20	3,257	6,883
58.25	3,296	7,046
58.30	3,334	7,212
58.35	3,372	7,380
58.40	3,410	7,549
58.45	3,449	7,721
58.50	3,487	7,894
58.55	3,525	8,070
58.60	3,564	8,247
58.65	3,602	8,426
58.70	3,640	8,607
58.75	3,679	8,790
58.80	3,717	8,975
58.85	3,755	9,162
58.90	3,793	9,350
58.95	3,832	9,541
59.00	3,870	9,734
59.05	3,910	9,928
59.10	3,950	10,125
59.15	3,991	10,323
59.20	4,031	10,524
59.25	4,071	10,726
59.30	**4,111**	**10,931**

Summary for Pond 13P: Sand Filter 1

Inflow Area = 339,731 sf, 33.22% Impervious, Inflow Depth = 0.46" for 1-year event
Inflow = 1.95 cfs @ 12.22 hrs, Volume= 13,096 cf
Outflow = 0.03 cfs @ 8.25 hrs, Volume= 6,385 cf, Atten= 99%, Lag= 0.0 min
Discarded = 0.03 cfs @ 8.25 hrs, Volume= 6,385 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond 15P : Detention Basin 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 47.06' @ 14.58 hrs Surf.Area= 7,987 sf Storage= 11,811 cf

Plug-Flow detention time= 1,624.4 min calculated for 6,380 cf (49% of inflow)
Center-of-Mass det. time= 1,557.7 min (2,293.6 - 735.9)

Volume	Invert	Avail.Storage	Storage Description
#1	42.99'	30,005 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
42.99	4,200	0.0	0	0
43.00	4,200	33.0	14	14
45.99	4,200	33.0	4,144	4,158
46.00	6,399	100.0	53	4,211
48.00	9,404	100.0	15,803	20,014
49.00	10,578	100.0	9,991	30,005

Device	Routing	Invert	Outlet Devices
#1	Discarded	42.99'	**0.270 in/hr Exfiltration over Surface area from 42.98' - 45.99'** Excluded Surface area = 0 sf Phase-In= 0.02'
#2	Secondary	48.10'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.03 cfs @ 8.25 hrs HW=43.05' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=42.99' TW=44.00' (Dynamic Tailwater)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Stage-Discharge for Pond 13P: Sand Filter 1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Secondary (cfs)
42.99	0.00	**0.00**	0.00
43.09	0.03	**0.03**	0.00
43.19	0.03	0.03	0.00
43.29	0.03	0.03	0.00
43.39	0.03	0.03	0.00
43.49	0.03	0.03	0.00
43.59	0.03	0.03	0.00
43.69	0.03	0.03	0.00
43.79	0.03	0.03	0.00
43.89	0.03	0.03	0.00
43.99	0.03	0.03	0.00
44.09	0.03	0.03	0.00
44.19	0.03	0.03	0.00
44.29	0.03	0.03	0.00
44.39	0.03	0.03	0.00
44.49	0.03	0.03	0.00
44.59	0.03	0.03	0.00
44.69	0.03	0.03	0.00
44.79	0.03	0.03	0.00
44.89	0.03	0.03	0.00
44.99	0.03	0.03	0.00
45.09	0.03	0.03	0.00
45.19	0.03	0.03	0.00
45.29	0.03	0.03	0.00
45.39	0.03	0.03	0.00
45.49	0.03	0.03	0.00
45.59	0.03	0.03	0.00
45.69	0.03	0.03	0.00
45.79	0.03	0.03	0.00
45.89	0.03	0.03	0.00
45.99	0.03	0.03	0.00
46.09	0.03	0.03	0.00
46.19	0.03	0.03	0.00
46.29	0.03	0.03	0.00
46.39	0.03	0.03	0.00
46.49	0.03	0.03	0.00
46.59	0.03	0.03	0.00
46.69	0.03	0.03	0.00
46.79	0.03	0.03	0.00
46.89	0.03	0.03	0.00
46.99	0.03	0.03	0.00
47.09	0.03	0.03	0.00
47.19	0.03	0.03	0.00
47.29	0.03	0.03	0.00
47.39	0.03	0.03	0.00
47.49	0.03	0.03	0.00
47.59	0.03	0.03	0.00
47.69	0.03	0.03	0.00
47.79	0.03	0.03	0.00
47.89	0.03	0.03	0.00
47.99	0.03	0.03	0.00
48.09	0.03	0.03	0.00
48.19	0.91	0.03	0.88
48.29	2.72	0.03	2.70
48.39	5.10	0.03	5.08
48.49	7.93	0.03	7.90
48.59	11.13	0.03	11.11
48.69	14.67	0.03	14.64
48.79	18.51	0.03	18.48
48.89	22.62	0.03	22.60
48.99	**26.99**	0.03	**26.97**

Stage-Area-Storage for Pond 13P: Sand Filter 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
42.99	4,200	0
43.09	4,200	139
43.19	4,200	277
43.29	4,200	416
43.39	4,200	554
43.49	4,200	693
43.59	4,200	832
43.69	4,200	970
43.79	4,200	1,109
43.89	4,200	1,247
43.99	4,200	1,386
44.09	4,200	1,525
44.19	4,200	1,663
44.29	4,200	1,802
44.39	4,200	1,940
44.49	4,200	2,079
44.59	4,200	2,218
44.69	4,200	2,356
44.79	4,200	2,495
44.89	4,200	2,633
44.99	4,200	2,772
45.09	4,200	2,911
45.19	4,200	3,049
45.29	4,200	3,188
45.39	4,200	3,326
45.49	4,200	3,465
45.59	4,200	3,604
45.69	4,200	3,742
45.79	4,200	3,881
45.89	4,200	4,019
45.99	4,200	4,158
46.09	6,534	4,793
46.19	6,684	5,454
46.29	6,835	6,130
46.39	6,985	6,821
46.49	7,135	7,527
46.59	7,285	8,248
46.69	7,436	8,984
46.79	7,586	9,735
46.89	7,736	10,501
46.99	7,886	11,282
47.09	8,037	12,078
47.19	8,187	12,890
47.29	8,337	13,716
47.39	8,487	14,557
47.49	8,638	15,413
47.59	8,788	16,285
47.69	8,938	17,171
47.79	9,088	18,072
47.89	9,239	18,989
47.99	9,389	19,920
48.09	9,510	20,865
48.19	9,627	21,822
48.29	9,744	22,791
48.39	9,862	23,771
48.49	9,979	24,763
48.59	10,097	25,767
48.69	10,214	26,782
48.79	10,331	27,810
48.89	10,449	28,849
48.99	**10,566**	**29,899**

Summary for Pond 14P: DIV-03

Inflow Area = 42,514 sf, 58.56% Impervious, Inflow Depth = 1.64" for 1-year event
Inflow = 1.84 cfs @ 12.09 hrs, Volume= 5,816 cf
Outflow = 1.84 cfs @ 12.09 hrs, Volume= 5,816 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.17 cfs @ 12.09 hrs, Volume= 5,506 cf
Routed to Pond 10P : Bio 1
Secondary = 0.67 cfs @ 12.09 hrs, Volume= 310 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 44.96' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	44.10'	**9.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 44.10' / 44.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.44 sf
#2	Device 3	44.85'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Secondary	44.10'	**15.0" Round Culvert** L= 55.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 44.10' / 42.25' S= 0.0336 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.16 cfs @ 12.09 hrs HW=44.95' TW=44.45' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 1.16 cfs @ 2.62 fps)

Secondary OutFlow Max=0.65 cfs @ 12.09 hrs HW=44.95' TW=0.00' (Dynamic Tailwater)
↑**3=Culvert** (Passes 0.65 cfs of 2.22 cfs potential flow)
↑**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.65 cfs @ 1.05 fps)

Stage-Discharge for Pond 14P: DIV-03

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
44.10	0.00	0.00	0.00
44.12	0.00	0.00	0.00
44.14	0.00	0.00	0.00
44.16	0.01	0.01	0.00
44.18	0.02	0.02	0.00
44.20	0.03	0.03	0.00
44.22	0.04	0.04	0.00
44.24	0.06	0.06	0.00
44.26	0.07	0.07	0.00
44.28	0.09	0.09	0.00
44.30	0.11	0.11	0.00
44.32	0.13	0.13	0.00
44.34	0.15	0.15	0.00
44.36	0.18	0.18	0.00
44.38	0.20	0.20	0.00
44.40	0.23	0.23	0.00
44.42	0.26	0.26	0.00
44.44	0.29	0.29	0.00
44.46	0.31	0.31	0.00
44.48	0.35	0.35	0.00
44.50	0.38	0.38	0.00
44.52	0.41	0.41	0.00
44.54	0.44	0.44	0.00
44.56	0.48	0.48	0.00
44.58	0.51	0.51	0.00
44.60	0.55	0.55	0.00
44.62	0.58	0.58	0.00
44.64	0.62	0.62	0.00
44.66	0.66	0.66	0.00
44.68	0.69	0.69	0.00
44.70	0.73	0.73	0.00
44.72	0.77	0.77	0.00
44.74	0.81	0.81	0.00
44.76	0.85	0.85	0.00
44.78	0.88	0.88	0.00
44.80	0.92	0.92	0.00
44.82	0.96	0.96	0.00
44.84	1.00	1.00	0.00
44.86	1.06	1.04	0.02
44.88	1.17	1.07	0.10
44.90	1.31	1.09	0.22
44.92	1.48	1.12	0.36
44.94	1.67	1.15	0.53
44.96	1.88	1.17	0.71
44.98	2.11	1.19	0.92
45.00	2.35	1.22	1.13
45.02	2.61	1.24	1.37
45.04	2.88	1.26	1.61
45.06	3.16	1.28	1.87
45.08	3.45	1.31	2.15
45.10	3.76	1.33	2.43
45.12	4.08	1.35	2.73
45.14	4.36	1.37	2.99
45.16	4.46	1.39	3.07
45.18	4.56	1.41	3.15
45.20	4.65	1.43	3.22
45.22	4.75	1.45	3.30
45.24	4.84	1.47	3.37
45.26	4.93	1.49	3.44
45.28	5.01	1.51	3.50
45.30	5.09	1.53	3.56
45.32	5.16	1.54	3.62
45.34	**5.23**	**1.56**	**3.67**

Stage-Area-Storage for Pond 14P: DIV-03

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
44.10	**0**	44.61	0	45.12	0
44.11	0	44.62	0	45.13	0
44.12	0	44.63	0	45.14	0
44.13	0	44.64	0	45.15	0
44.14	0	44.65	0	45.16	0
44.15	0	44.66	0	45.17	0
44.16	0	44.67	0	45.18	0
44.17	0	44.68	0	45.19	0
44.18	0	44.69	0	45.20	0
44.19	0	44.70	0	45.21	0
44.20	0	44.71	0	45.22	0
44.21	0	44.72	0	45.23	0
44.22	0	44.73	0	45.24	0
44.23	0	44.74	0	45.25	0
44.24	0	44.75	0	45.26	0
44.25	0	44.76	0	45.27	0
44.26	0	44.77	0	45.28	0
44.27	0	44.78	0	45.29	0
44.28	0	44.79	0	45.30	0
44.29	0	44.80	0	45.31	0
44.30	0	44.81	0	45.32	0
44.31	0	44.82	0	45.33	0
44.32	0	44.83	0	45.34	0
44.33	0	44.84	0	45.35	0
44.34	0	44.85	0		
44.35	0	44.86	0		
44.36	0	44.87	0		
44.37	0	44.88	0		
44.38	0	44.89	0		
44.39	0	44.90	0		
44.40	0	44.91	0		
44.41	0	44.92	0		
44.42	0	44.93	0		
44.43	0	44.94	0		
44.44	0	44.95	0		
44.45	0	44.96	0		
44.46	0	44.97	0		
44.47	0	44.98	0		
44.48	0	44.99	0		
44.49	0	45.00	0		
44.50	0	45.01	0		
44.51	0	45.02	0		
44.52	0	45.03	0		
44.53	0	45.04	0		
44.54	0	45.05	0		
44.55	0	45.06	0		
44.56	0	45.07	0		
44.57	0	45.08	0		
44.58	0	45.09	0		
44.59	0	45.10	0		
44.60	0	45.11	0		

Summary for Pond 15P: Detention Basin 1

Inflow Area = 528,030 sf, 24.32% Impervious, Inflow Depth = 0.85" for 1-year event
Inflow = 8.84 cfs @ 12.23 hrs, Volume= 37,293 cf
Outflow = 2.04 cfs @ 12.72 hrs, Volume= 37,003 cf, Atten= 77%, Lag= 29.0 min
Primary = 2.04 cfs @ 12.72 hrs, Volume= 37,003 cf
Routed to Link 6L : DP 2.1 - West Wetland
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 6L : DP 2.1 - West Wetland
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 6L : DP 2.1 - West Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 45.01' @ 12.72 hrs Surf.Area= 14,294 sf Storage= 13,290 cf

Plug-Flow detention time= 220.1 min calculated for 37,003 cf (99% of inflow)
Center-of-Mass det. time= 215.7 min (1,103.3 - 887.6)

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	89,712 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	11,920	0	0
45.00	14,261	13,091	13,091
46.00	16,659	15,460	28,551
47.00	19,113	17,886	46,437
48.00	21,623	20,368	66,805
49.00	24,191	22,907	89,712

Device	Routing	Invert	Outlet Devices
#1	Primary	44.00'	**24.0" Round Culvert** L= 15.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 44.00' / 43.40' S= 0.0400 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Device 1	44.00'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	44.55'	**1.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Device 1	47.30'	**6.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Tertiary	48.10'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#6	Secondary	45.10'	**24.0" Round Culvert** L= 212.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 45.10' / 43.70' S= 0.0066 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#7	Device 6	47.15'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.04 cfs @ 12.72 hrs HW=45.01' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 2.04 cfs of 4.32 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.59 cfs @ 4.32 fps)
  ├─**3=Sharp-Crested Rectangular Weir** (Weir Controls 1.45 cfs @ 2.23 fps)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' TW=0.00' (Dynamic Tailwater)
└─**6=Culvert** (Controls 0.00 cfs)
  └─**7=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' TW=0.00' (Dynamic Tailwater)
└─**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 15P: Detention Basin 1

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)
44.00	0.00	0.00	0.00	0.00
44.10	0.03	0.03	0.00	0.00
44.20	0.10	0.10	0.00	0.00
44.30	0.20	0.20	0.00	0.00
44.40	0.29	0.29	0.00	0.00
44.50	0.35	0.35	0.00	0.00
44.60	0.47	0.47	0.00	0.00
44.70	0.74	0.74	0.00	0.00
44.80	1.10	1.10	0.00	0.00
44.90	1.51	1.51	0.00	0.00
45.00	1.98	1.98	0.00	0.00
45.10	2.47	2.47	0.00	0.00
45.20	3.00	3.00	0.00	0.00
45.30	3.55	3.55	0.00	0.00
45.40	4.12	4.12	0.00	0.00
45.50	4.71	4.71	0.00	0.00
45.60	5.31	5.31	0.00	0.00
45.70	5.92	5.92	0.00	0.00
45.80	6.54	6.54	0.00	0.00
45.90	7.16	7.16	0.00	0.00
46.00	7.79	7.79	0.00	0.00
46.10	8.41	8.41	0.00	0.00
46.20	9.04	9.04	0.00	0.00
46.30	9.66	9.66	0.00	0.00
46.40	10.27	10.27	0.00	0.00
46.50	10.88	10.88	0.00	0.00
46.60	11.48	11.48	0.00	0.00
46.70	12.07	12.07	0.00	0.00
46.80	12.65	12.65	0.00	0.00
46.90	13.21	13.21	0.00	0.00
47.00	13.76	13.76	0.00	0.00
47.10	14.30	14.30	0.00	0.00
47.20	15.04	14.82	0.22	0.00
47.30	16.46	15.32	1.13	0.00
47.40	18.91	16.47	2.43	0.00
47.50	22.17	18.16	4.02	0.00
47.60	25.09	19.26	5.83	0.00
47.70	27.48	19.62	7.86	0.00
47.80	30.04	19.98	10.06	0.00
47.90	32.76	20.34	12.42	0.00
48.00	35.62	20.68	14.94	0.00
48.10	37.92	21.03	16.89	0.00
48.20	39.70	21.36	17.31	1.03
48.30	42.32	21.69	17.71	2.91
48.40	45.47	22.02	18.11	5.34
48.50	49.05	22.34	18.50	8.21
48.60	52.99	22.66	18.88	11.45
48.70	57.24	22.97	19.26	15.02
48.80	61.79	23.28	19.62	18.88
48.90	66.59	23.58	19.98	23.02
49.00	**71.64**	**23.88**	**20.34**	**27.42**

Stage-Area-Storage for Pond 15P: Detention Basin 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
44.00	11,920	0	46.55	18,009	38,084
44.05	12,037	599	46.60	18,131	38,988
44.10	12,154	1,204	46.65	18,254	39,897
44.15	12,271	1,814	46.70	18,377	40,813
44.20	12,388	2,431	46.75	18,500	41,735
44.25	12,505	3,053	46.80	18,622	42,663
44.30	12,622	3,681	46.85	18,745	43,597
44.35	12,739	4,315	46.90	18,868	44,537
44.40	12,856	4,955	46.95	18,990	45,484
44.45	12,973	5,601	47.00	19,113	46,437
44.50	13,091	6,253	47.05	19,238	47,395
44.55	13,208	6,910	47.10	19,364	48,360
44.60	13,325	7,573	47.15	19,489	49,332
44.65	13,442	8,243	47.20	19,615	50,309
44.70	13,559	8,918	47.25	19,741	51,293
44.75	13,676	9,598	47.30	19,866	52,283
44.80	13,793	10,285	47.35	19,992	53,280
44.85	13,910	10,978	47.40	20,117	54,282
44.90	14,027	11,676	47.45	20,243	55,291
44.95	14,144	12,380	47.50	20,368	56,307
45.00	14,261	13,091	47.55	20,493	57,328
45.05	14,381	13,807	47.60	20,619	58,356
45.10	14,501	14,529	47.65	20,744	59,390
45.15	14,621	15,257	47.70	20,870	60,431
45.20	14,741	15,991	47.75	20,996	61,477
45.25	14,861	16,731	47.80	21,121	62,530
45.30	14,980	17,477	47.85	21,247	63,589
45.35	15,100	18,229	47.90	21,372	64,655
45.40	15,220	18,987	47.95	21,498	65,726
45.45	15,340	19,751	48.00	21,623	66,805
45.50	15,460	20,521	48.05	21,751	67,889
45.55	15,580	21,297	48.10	21,880	68,980
45.60	15,700	22,079	48.15	22,008	70,077
45.65	15,820	22,867	48.20	22,137	71,180
45.70	15,940	23,661	48.25	22,265	72,291
45.75	16,060	24,461	48.30	22,393	73,407
45.80	16,179	25,267	48.35	22,522	74,530
45.85	16,299	26,079	48.40	22,650	75,659
45.90	16,419	26,897	48.45	22,779	76,795
45.95	16,539	27,721	48.50	22,907	77,937
46.00	16,659	28,551	48.55	23,035	79,086
46.05	16,782	29,387	48.60	23,164	80,241
46.10	16,904	30,229	48.65	23,292	81,402
46.15	17,027	31,077	48.70	23,421	82,570
46.20	17,150	31,931	48.75	23,549	83,744
46.25	17,273	32,792	48.80	23,677	84,925
46.30	17,395	33,659	48.85	23,806	86,112
46.35	17,518	34,531	48.90	23,934	87,305
46.40	17,641	35,410	48.95	24,063	88,505
46.45	17,763	36,296	49.00	**24,191**	**89,712**
46.50	17,886	37,187			

Summary for Pond 17P: Track and Field- stone base

Inflow Area = 90,671 sf,100.00% Impervious, Inflow Depth = 2.57" for 1-year event
Inflow = 5.50 cfs @ 12.09 hrs, Volume= 19,412 cf
Outflow = 3.62 cfs @ 12.18 hrs, Volume= 19,412 cf, Atten= 34%, Lag= 5.9 min
Discarded = 0.59 cfs @ 12.18 hrs, Volume= 13,451 cf
Primary = 3.02 cfs @ 12.18 hrs, Volume= 5,962 cf
Routed to Pond 35P : Track and Field-manifold

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 50.60' @ 12.18 hrs Surf.Area= 90,671 sf Storage= 3,057 cf

Plug-Flow detention time= 17.3 min calculated for 19,399 cf (100% of inflow)
Center-of-Mass det. time= 17.4 min (776.7 - 759.3)

Volume	Invert	Avail.Storage	Storage Description
#1	50.50'	37,271 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 113,339 cf Overall - 397 cf Embedded = 112,942 cf x 33.0% Voids
#2	50.52'	274 cf	**12.0" W x 1.0" H Ellipse 1" flat drains** x 44 Inside #1 L= 95.2' 397 cf Overall - 0.2" Wall Thickness = 274 cf
		37,545 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.50	90,671	0	0
51.58	90,671	97,925	97,925
51.59	90,671	907	98,831
51.75	90,671	14,507	113,339

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.50'	**0.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 48.40' Phase-In= 0.02'
#2	Primary	50.52'	**12.0" W x 1.0" H Vert. Orifice/Grate X 44.00** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.59 cfs @ 12.18 hrs HW=50.60' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.59 cfs)

Primary OutFlow Max=2.99 cfs @ 12.18 hrs HW=50.60' TW=49.30' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Orifice Controls 2.99 cfs @ 0.89 fps)

Stage-Discharge for Pond 17P: Track and Field- stone base

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
50.50	0.00	0.00	0.00
50.52	0.57	0.57	0.00
50.54	0.98	0.58	0.40
50.56	1.71	0.58	1.13
50.58	2.66	0.59	2.08
50.60	3.79	0.59	3.20
50.62	4.76	0.60	4.16
50.64	5.48	0.60	4.88
50.66	6.10	0.61	5.49
50.68	6.66	0.62	6.04
50.70	7.16	0.62	6.54
50.72	7.63	0.63	7.00
50.74	8.07	0.63	7.44
50.76	8.48	0.64	7.85
50.78	8.88	0.64	8.24
50.80	9.26	0.65	8.61
50.82	9.62	0.65	8.96
50.84	9.96	0.66	9.31
50.86	10.30	0.66	9.64
50.88	10.62	0.67	9.95
50.90	10.94	0.67	10.26
50.92	11.24	0.68	10.56
50.94	11.54	0.69	10.85
50.96	11.83	0.69	11.14
50.98	12.11	0.70	11.41
51.00	12.39	0.70	11.68
51.02	12.66	0.71	11.95
51.04	12.92	0.71	12.21
51.06	13.18	0.72	12.46
51.08	13.43	0.72	12.71
51.10	13.68	0.73	12.95
51.12	13.92	0.73	13.19
51.14	14.16	0.74	13.42
51.16	14.40	0.74	13.65
51.18	14.63	0.75	13.88
51.20	14.86	0.76	14.10
51.22	15.08	0.76	14.32
51.24	15.30	0.77	14.54
51.26	15.52	0.77	14.75
51.28	15.74	0.78	14.96
51.30	15.95	0.78	15.17
51.32	16.16	0.79	15.37
51.34	16.37	0.79	15.57
51.36	16.57	0.80	15.77
51.38	16.77	0.80	15.97
51.40	16.97	0.81	16.16
51.42	17.17	0.81	16.36
51.44	17.36	0.82	16.54
51.46	17.56	0.83	16.73
51.48	17.75	0.83	16.92
51.50	17.94	0.84	17.10
51.52	18.12	0.84	17.28
51.54	18.31	0.85	17.46
51.56	18.49	0.85	17.64
51.58	18.67	0.86	17.81
51.60	18.85	0.86	17.99
51.62	19.03	0.87	18.16
51.64	19.21	0.87	18.33
51.66	19.38	0.88	18.50
51.68	19.55	0.89	18.67
51.70	19.73	0.89	18.84
51.72	19.90	0.90	19.00
51.74	**20.06**	**0.90**	**19.16**

Stage-Area-Storage for Pond 17P: Track and Field- stone base

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
50.50	**90,671**	0
50.52	90,671	587
50.54	90,671	1,212
50.56	90,671	1,862
50.58	90,671	2,514
50.60	90,671	3,147
50.62	90,671	3,734
50.64	90,671	4,332
50.66	90,671	4,931
50.68	90,671	5,529
50.70	90,671	6,128
50.72	90,671	6,726
50.74	90,671	7,324
50.76	90,671	7,923
50.78	90,671	8,521
50.80	90,671	9,120
50.82	90,671	9,718
50.84	90,671	10,317
50.86	90,671	10,915
50.88	90,671	11,513
50.90	90,671	12,112
50.92	90,671	12,710
50.94	90,671	13,309
50.96	90,671	13,907
50.98	90,671	14,506
51.00	90,671	15,104
51.02	90,671	15,702
51.04	90,671	16,301
51.06	90,671	16,899
51.08	90,671	17,498
51.10	90,671	18,096
51.12	90,671	18,695
51.14	90,671	19,293
51.16	90,671	19,891
51.18	90,671	20,490
51.20	90,671	21,088
51.22	90,671	21,687
51.24	90,671	22,285
51.26	90,671	22,884
51.28	90,671	23,482
51.30	90,671	24,080
51.32	90,671	24,679
51.34	90,671	25,277
51.36	90,671	25,876
51.38	90,671	26,474
51.40	90,671	27,073
51.42	90,671	27,671
51.44	90,671	28,269
51.46	90,671	28,868
51.48	90,671	29,466
51.50	90,671	30,065
51.52	90,671	30,663
51.54	90,671	31,262
51.56	90,671	31,860
51.58	90,671	32,458
51.60	90,671	33,057
51.62	90,671	33,655
51.64	90,671	34,254
51.66	90,671	34,852
51.68	90,671	35,451
51.70	90,671	36,049
51.72	90,671	36,647
51.74	90,671	**37,246**

Summary for Pond 18P: Sand Filter 2

Inflow Area = 112,035 sf, 51.38% Impervious, Inflow Depth = 1.19" for 1-year event
Inflow = 2.59 cfs @ 12.10 hrs, Volume= 11,072 cf
Outflow = 0.38 cfs @ 13.06 hrs, Volume= 7,284 cf, Atten= 85%, Lag= 58.0 min
Discarded = 0.01 cfs @ 9.35 hrs, Volume= 3,117 cf
Primary = 0.37 cfs @ 13.06 hrs, Volume= 4,167 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 55.62' @ 13.06 hrs Surf.Area= 5,784 sf Storage= 6,215 cf

Plug-Flow detention time= 860.6 min calculated for 7,284 cf (66% of inflow)
Center-of-Mass det. time= 755.3 min (1,588.3 - 833.0)

Volume	Invert	Avail.Storage	Storage Description
#1	51.84'	15,389 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
51.84	2,171	0.0	0	0
51.85	2,171	33.0	7	7
54.84	2,171	33.0	2,142	2,149
54.85	4,561	100.0	34	2,183
55.00	4,959	100.0	714	2,897
56.00	6,294	100.0	5,627	8,523
57.00	7,438	100.0	6,866	15,389

Device	Routing	Invert	Outlet Devices
#1	Discarded	51.84'	**0.270 in/hr Exfiltration over Surface area from 51.83' - 54.84'** Excluded Surface area = 0 sf Phase-In= 0.02'
#2	Primary	55.60'	**2.0" x 2.0" Horiz. Orifice/Grate X 12.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads
#3	Secondary	56.00'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.01 cfs @ 9.35 hrs HW=51.89' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.37 cfs @ 13.06 hrs HW=55.62' TW=0.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Weir Controls 0.37 cfs @ 0.43 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=51.84' TW=0.00' (Dynamic Tailwater)
↑—**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 18P: Sand Filter 2

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
51.84	0.00	**0.00**	0.00	0.00
52.04	0.01	**0.01**	0.00	0.00
52.24	0.01	0.01	0.00	0.00
52.44	0.01	0.01	0.00	0.00
52.64	0.01	0.01	0.00	0.00
52.84	0.01	0.01	0.00	0.00
53.04	0.01	0.01	0.00	0.00
53.24	0.01	0.01	0.00	0.00
53.44	0.01	0.01	0.00	0.00
53.64	0.01	0.01	0.00	0.00
53.84	0.01	0.01	0.00	0.00
54.04	0.01	0.01	0.00	0.00
54.24	0.01	0.01	0.00	0.00
54.44	0.01	0.01	0.00	0.00
54.64	0.01	0.01	0.00	0.00
54.84	0.01	0.01	0.00	0.00
55.04	0.01	0.01	0.00	0.00
55.24	0.01	0.01	0.00	0.00
55.44	0.01	0.01	0.00	0.00
55.64	1.27	0.01	1.26	0.00
55.84	4.73	0.01	4.72	0.00
56.04	6.66	0.01	6.39	0.26
56.24	11.54	0.01	7.70	3.83
56.44	18.30	0.01	8.83	9.46
56.64	26.36	0.01	9.82	16.53
56.84	**35.49**	0.01	**10.72**	**24.75**

Stage-Area-Storage for Pond 18P: Sand Filter 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
51.84	2,171	0
51.94	2,171	72
52.04	2,171	143
52.14	2,171	215
52.24	2,171	287
52.34	2,171	358
52.44	2,171	430
52.54	2,171	502
52.64	2,171	573
52.74	2,171	645
52.84	2,171	716
52.94	2,171	788
53.04	2,171	860
53.14	2,171	931
53.24	2,171	1,003
53.34	2,171	1,075
53.44	2,171	1,146
53.54	2,171	1,218
53.64	2,171	1,290
53.74	2,171	1,361
53.84	2,171	1,433
53.94	2,171	1,505
54.04	2,171	1,576
54.14	2,171	1,648
54.24	2,171	1,719
54.34	2,171	1,791
54.44	2,171	1,863
54.54	2,171	1,934
54.64	2,171	2,006
54.74	2,171	2,078
54.84	2,171	2,149
54.94	4,800	2,604
55.04	5,012	3,096
55.14	5,146	3,604
55.24	5,279	4,126
55.34	5,413	4,660
55.44	5,546	5,208
55.54	5,680	5,769
55.64	5,813	6,344
55.74	5,947	6,932
55.84	6,080	7,533
55.94	6,214	8,148
56.04	6,340	8,776
56.14	6,454	9,416
56.24	6,569	10,067
56.34	6,683	10,730
56.44	6,797	11,404
56.54	6,912	12,089
56.64	7,026	12,786
56.74	7,141	13,494
56.84	7,255	14,214
56.94	**7,369**	**14,945**

Summary for Pond 19P: Sand Filter 3

Inflow Area = 22,284 sf, 62.39% Impervious, Inflow Depth = 1.72" for 1-year event
Inflow = 1.01 cfs @ 12.09 hrs, Volume= 3,194 cf
Outflow = 0.01 cfs @ 10.20 hrs, Volume= 2,853 cf, Atten= 99%, Lag= 0.0 min
Discarded = 0.01 cfs @ 10.20 hrs, Volume= 2,853 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond 3P : DIV-02
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 4L : DP 1.3 - Culvert 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 60.19' @ 23.03 hrs Surf.Area= 2,773 sf Storage= 2,500 cf

Plug-Flow detention time= 1,651.7 min calculated for 2,851 cf (89% of inflow)
Center-of-Mass det. time= 1,601.8 min (2,418.3 - 816.5)

Volume	Invert	Avail.Storage	Storage Description
#1	56.99'	10,312 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.99	1,999	0.0	0	0
57.00	1,999	33.0	7	7
59.99	1,999	33.0	1,972	1,979
60.00	2,449	100.0	22	2,001
61.00	4,147	100.0	3,298	5,299
62.00	5,878	100.0	5,013	10,312

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.99'	**0.270 in/hr Exfiltration over Surface area from 56.98' - 59.99'** Excluded Surface area = 0 sf Phase-In= 0.02'
#2	Primary	60.75'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads
#3	Secondary	61.10'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.01 cfs @ 10.20 hrs HW=57.04' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.99' TW=56.15' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.99' TW=0.00' (Dynamic Tailwater)
↑—**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 19P: Sand Filter 3

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
56.99	0.00	**0.00**	0.00	0.00
57.09	0.01	**0.01**	0.00	0.00
57.19	0.01	0.01	0.00	0.00
57.29	0.01	0.01	0.00	0.00
57.39	0.01	0.01	0.00	0.00
57.49	0.01	0.01	0.00	0.00
57.59	0.01	0.01	0.00	0.00
57.69	0.01	0.01	0.00	0.00
57.79	0.01	0.01	0.00	0.00
57.89	0.01	0.01	0.00	0.00
57.99	0.01	0.01	0.00	0.00
58.09	0.01	0.01	0.00	0.00
58.19	0.01	0.01	0.00	0.00
58.29	0.01	0.01	0.00	0.00
58.39	0.01	0.01	0.00	0.00
58.49	0.01	0.01	0.00	0.00
58.59	0.01	0.01	0.00	0.00
58.69	0.01	0.01	0.00	0.00
58.79	0.01	0.01	0.00	0.00
58.89	0.01	0.01	0.00	0.00
58.99	0.01	0.01	0.00	0.00
59.09	0.01	0.01	0.00	0.00
59.19	0.01	0.01	0.00	0.00
59.29	0.01	0.01	0.00	0.00
59.39	0.01	0.01	0.00	0.00
59.49	0.01	0.01	0.00	0.00
59.59	0.01	0.01	0.00	0.00
59.69	0.01	0.01	0.00	0.00
59.79	0.01	0.01	0.00	0.00
59.89	0.01	0.01	0.00	0.00
59.99	0.01	0.01	0.00	0.00
60.09	0.01	0.01	0.00	0.00
60.19	0.01	0.01	0.00	0.00
60.29	0.01	0.01	0.00	0.00
60.39	0.01	0.01	0.00	0.00
60.49	0.01	0.01	0.00	0.00
60.59	0.01	0.01	0.00	0.00
60.69	0.01	0.01	0.00	0.00
60.79	0.64	0.01	0.63	0.00
60.89	1.81	0.01	1.80	0.00
60.99	2.37	0.01	2.36	0.00
61.09	2.82	0.01	2.81	0.00
61.19	4.09	0.01	3.19	0.88
61.29	6.25	0.01	3.54	2.70
61.39	8.94	0.01	3.85	5.08
61.49	12.06	0.01	4.14	7.90
61.59	15.53	0.01	4.41	11.11
61.69	19.33	0.01	4.67	14.64
61.79	23.41	0.01	4.91	18.48
61.89	27.75	0.01	5.14	22.60
61.99	**32.34**	0.01	**5.36**	**26.97**

Stage-Area-Storage for Pond 19P: Sand Filter 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
56.99	1,999	0	59.54	1,999	1,682
57.04	1,999	33	59.59	1,999	1,715
57.09	1,999	66	59.64	1,999	1,748
57.14	1,999	99	59.69	1,999	1,781
57.19	1,999	132	59.74	1,999	1,814
57.24	1,999	165	59.79	1,999	1,847
57.29	1,999	198	59.84	1,999	1,880
57.34	1,999	231	59.89	1,999	1,913
57.39	1,999	264	59.94	1,999	1,946
57.44	1,999	297	59.99	1,999	1,979
57.49	1,999	330	60.04	2,517	2,101
57.54	1,999	363	60.09	2,602	2,229
57.59	1,999	396	60.14	2,687	2,361
57.64	1,999	429	60.19	2,772	2,497
57.69	1,999	462	60.24	2,857	2,638
57.74	1,999	495	60.29	2,941	2,783
57.79	1,999	528	60.34	3,026	2,932
57.84	1,999	561	60.39	3,111	3,085
57.89	1,999	594	60.44	3,196	3,243
57.94	1,999	627	60.49	3,281	3,405
57.99	1,999	660	60.54	3,366	3,571
58.04	1,999	693	60.59	3,451	3,742
58.09	1,999	726	60.64	3,536	3,916
58.14	1,999	759	60.69	3,621	4,095
58.19	1,999	792	60.74	3,706	4,278
58.24	1,999	825	60.79	3,790	4,466
58.29	1,999	858	60.84	3,875	4,657
58.34	1,999	891	60.89	3,960	4,853
58.39	1,999	924	60.94	4,045	5,053
58.44	1,999	957	60.99	4,130	5,258
58.49	1,999	990	61.04	4,216	5,467
58.54	1,999	1,022	61.09	4,303	5,679
58.59	1,999	1,055	61.14	4,389	5,897
58.64	1,999	1,088	61.19	4,476	6,118
58.69	1,999	1,121	61.24	4,562	6,344
58.74	1,999	1,154	61.29	4,649	6,575
58.79	1,999	1,187	61.34	4,736	6,809
58.84	1,999	1,220	61.39	4,822	7,048
58.89	1,999	1,253	61.44	4,909	7,291
58.94	1,999	1,286	61.49	4,995	7,539
58.99	1,999	1,319	61.54	5,082	7,791
59.04	1,999	1,352	61.59	5,168	8,047
59.09	1,999	1,385	61.64	5,255	8,308
59.14	1,999	1,418	61.69	5,341	8,573
59.19	1,999	1,451	61.74	5,428	8,842
59.24	1,999	1,484	61.79	5,514	9,116
59.29	1,999	1,517	61.84	5,601	9,393
59.34	1,999	1,550	61.89	5,688	9,676
59.39	1,999	1,583	61.94	5,774	9,962
59.44	1,999	1,616	61.99	**5,861**	**10,253**
59.49	1,999	1,649			

Summary for Pond 20P: Sand Filter 4

Inflow Area = 31,007 sf, 23.95% Impervious, Inflow Depth = 1.29" for 1-year event
Inflow = 0.83 cfs @ 12.19 hrs, Volume= 3,326 cf
Outflow = 0.34 cfs @ 12.05 hrs, Volume= 3,326 cf, Atten= 59%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.05 hrs, Volume= 3,326 cf
Routed to Link 3L : DP 1.2 - Culvert 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 59.87' @ 12.56 hrs Surf.Area= 1,767 sf Storage= 512 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 7.5 min (853.8 - 846.3)

Volume	Invert	Avail.Storage	Storage Description
#1	58.99'	3,395 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.99	1,767	0.0	0	0
59.00	1,767	33.0	6	6
60.99	1,767	33.0	1,160	1,166
61.00	1,767	100.0	18	1,184
62.00	2,656	100.0	2,212	3,395

Device	Routing	Invert	Outlet Devices
#1	Primary	61.50'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads
#2	Device 3	58.99'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Primary	58.25'	**6.0" Round subdrain** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 58.25' / 56.90' S= 0.0270 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.34 cfs @ 12.05 hrs HW=59.03' TW=0.00' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Controls 0.00 cfs)
└─**3=subdrain** (Passes 0.34 cfs of 0.54 cfs potential flow)
└─**2=Exfiltration** (Exfiltration Controls 0.34 cfs)

Stage-Discharge for Pond 20P: Sand Filter 4

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
58.99	0.00	60.01	0.34	61.03	0.34
59.01	0.34	60.03	0.34	61.05	0.35
59.03	0.34	60.05	0.34	61.07	0.35
59.05	0.34	60.07	0.34	61.09	0.35
59.07	0.34	60.09	0.34	61.11	0.36
59.09	0.34	60.11	0.34	61.13	0.36
59.11	0.34	60.13	0.34	61.15	0.36
59.13	0.34	60.15	0.34	61.17	0.37
59.15	0.34	60.17	0.34	61.19	0.37
59.17	0.34	60.19	0.34	61.21	0.37
59.19	0.34	60.21	0.34	61.23	0.38
59.21	0.34	60.23	0.34	61.25	0.38
59.23	0.34	60.25	0.34	61.27	0.38
59.25	0.34	60.27	0.34	61.29	0.39
59.27	0.34	60.29	0.34	61.31	0.39
59.29	0.34	60.31	0.34	61.33	0.39
59.31	0.34	60.33	0.34	61.35	0.40
59.33	0.34	60.35	0.34	61.37	0.40
59.35	0.34	60.37	0.34	61.39	0.40
59.37	0.34	60.39	0.34	61.41	0.41
59.39	0.34	60.41	0.34	61.43	0.41
59.41	0.34	60.43	0.34	61.45	0.41
59.43	0.34	60.45	0.34	61.47	0.42
59.45	0.34	60.47	0.34	61.49	0.42
59.47	0.34	60.49	0.34	61.51	0.50
59.49	0.34	60.51	0.34	61.53	0.84
59.51	0.34	60.53	0.34	61.55	1.31
59.53	0.34	60.55	0.34	61.57	1.71
59.55	0.34	60.57	0.34	61.59	1.88
59.57	0.34	60.59	0.34	61.61	2.04
59.59	0.34	60.61	0.34	61.63	2.18
59.61	0.34	60.63	0.34	61.65	2.31
59.63	0.34	60.65	0.34	61.67	2.44
59.65	0.34	60.67	0.34	61.69	2.55
59.67	0.34	60.69	0.34	61.71	2.67
59.69	0.34	60.71	0.34	61.73	2.77
59.71	0.34	60.73	0.34	61.75	2.87
59.73	0.34	60.75	0.34	61.77	2.97
59.75	0.34	60.77	0.34	61.79	3.07
59.77	0.34	60.79	0.34	61.81	3.16
59.79	0.34	60.81	0.34	61.83	3.25
59.81	0.34	60.83	0.34	61.85	3.33
59.83	0.34	60.85	0.34	61.87	3.42
59.85	0.34	60.87	0.34	61.89	3.50
59.87	0.34	60.89	0.34	61.91	3.58
59.89	0.34	60.91	0.34	61.93	3.65
59.91	0.34	60.93	0.34	61.95	3.73
59.93	0.34	60.95	0.34	61.97	3.80
59.95	0.34	60.97	0.34	61.99	**3.88**
59.97	0.34	60.99	0.34		
59.99	0.34	61.01	0.34		

Stage-Area-Storage for Pond 20P: Sand Filter 4

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
58.99	1,767	0
59.04	1,767	29
59.09	1,767	58
59.14	1,767	87
59.19	1,767	117
59.24	1,767	146
59.29	1,767	175
59.34	1,767	204
59.39	1,767	233
59.44	1,767	262
59.49	1,767	292
59.54	1,767	321
59.59	1,767	350
59.64	1,767	379
59.69	1,767	408
59.74	1,767	437
59.79	1,767	466
59.84	1,767	496
59.89	1,767	525
59.94	1,767	554
59.99	1,767	583
60.04	1,767	612
60.09	1,767	641
60.14	1,767	671
60.19	1,767	700
60.24	1,767	729
60.29	1,767	758
60.34	1,767	787
60.39	1,767	816
60.44	1,767	846
60.49	1,767	875
60.54	1,767	904
60.59	1,767	933
60.64	1,767	962
60.69	1,767	991
60.74	1,767	1,020
60.79	1,767	1,050
60.84	1,767	1,079
60.89	1,767	1,108
60.94	1,767	1,137
60.99	1,767	1,166
61.04	1,803	1,255
61.09	1,847	1,347
61.14	1,891	1,440
61.19	1,936	1,536
61.24	1,980	1,634
61.29	2,025	1,734
61.34	2,069	1,836
61.39	2,114	1,941
61.44	2,158	2,047
61.49	2,203	2,156
61.54	2,247	2,268
61.59	2,292	2,381
61.64	2,336	2,497
61.69	2,380	2,615
61.74	2,425	2,735
61.79	2,469	2,857
61.84	2,514	2,982
61.89	2,558	3,109
61.94	2,603	3,238
61.99	**2,647**	**3,369**

Summary for Pond 23P: UGIS-1

Inflow Area = 151,857 sf,100.00% Impervious, Inflow Depth = 0.93" for 1-year event
Inflow = 4.72 cfs @ 12.21 hrs, Volume= 11,744 cf
Outflow = 0.19 cfs @ 13.04 hrs, Volume= 11,744 cf, Atten= 96%, Lag= 50.0 min
Discarded = 0.07 cfs @ 13.04 hrs, Volume= 11,449 cf
Primary = 0.11 cfs @ 13.04 hrs, Volume= 296 cf
Routed to Link 6L : DP 2.1 - West Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 48.47' @ 13.04 hrs Surf.Area= 6,719 sf Storage= 10,125 cf

Plug-Flow detention time= 1,323.3 min calculated for 11,736 cf (100% of inflow)
Center-of-Mass det. time= 1,324.1 min (2,066.1 - 742.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	46.30'	3,295 cf	**66.58'W x 80.00'L x 3.21'H Field A** 17,090 cf Overall - 7,104 cf Embedded = 9,986 cf x 33.0% Voids
#2A	46.80'	7,104 cf	**Cultec R-280HD** x 165 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 15 rows
#3B	46.30'	893 cf	**44.92'W x 31.00'L x 3.21'H Field B** 4,467 cf Overall - 1,761 cf Embedded = 2,707 cf x 33.0% Voids
#4B	46.80'	1,761 cf	**Cultec R-280HD** x 40 Inside #3 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 10 rows
		13,053 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	46.80'	**24.0" Round Culvert** L= 60.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.80' / 43.50' S= 0.0550 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Primary	48.40'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	49.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Discarded	46.30'	**0.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 43.30' Phase-In= 0.02'

Discarded OutFlow Max=0.07 cfs @ 13.04 hrs HW=48.47' (Free Discharge)
└**4=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=0.11 cfs @ 13.04 hrs HW=48.47' TW=0.00' (Dynamic Tailwater)
├**1=Culvert** (Passes 0.00 cfs of 9.71 cfs potential flow)
│└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.11 cfs @ 0.85 fps)

Pond 23P: UGIS-1 - Chamber Wizard Field A

Chamber Model = Cultec R-280HD (Cultec Recharger® 280HD)
Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf
Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap
Row Length Adjustment= +1.00' x 6.07 sf x 15 rows

47.0" Wide + 5.0" Spacing = 52.0" C-C Row Spacing

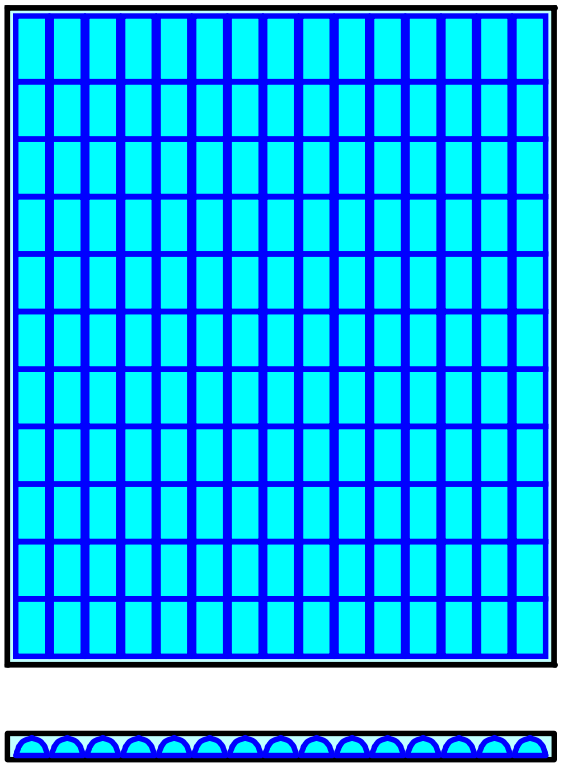
11 Chambers/Row x 7.00' Long +1.00' Row Adjustment = 78.00' Row Length +12.0" End Stone x 2 = 80.00' Base Length
15 Rows x 47.0" Wide + 5.0" Spacing x 14 + 12.0" Side Stone x 2 = 66.58' Base Width
6.0" Stone Base + 26.5" Chamber Height + 6.0" Stone Cover = 3.21' Field Height

165 Chambers x 42.5 cf +1.00' Row Adjustment x 6.07 sf x 15 Rows = 7,103.9 cf Chamber Storage

17,089.7 cf Field - 7,103.9 cf Chambers = 9,985.8 cf Stone x 33.0% Voids = 3,295.3 cf Stone Storage

Chamber Storage + Stone Storage = 10,399.3 cf = 0.239 af
Overall Storage Efficiency = 60.9%
Overall System Size = 80.00' x 66.58' x 3.21'

165 Chambers
633.0 cy Field
369.8 cy Stone



Pond 23P: UGIS-1 - Chamber Wizard Field B

Chamber Model = Cultec R-280HD (Cultec Recharger® 280HD)
Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf
Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap
Row Length Adjustment= +1.00' x 6.07 sf x 10 rows

47.0" Wide + 5.0" Spacing = 52.0" C-C Row Spacing

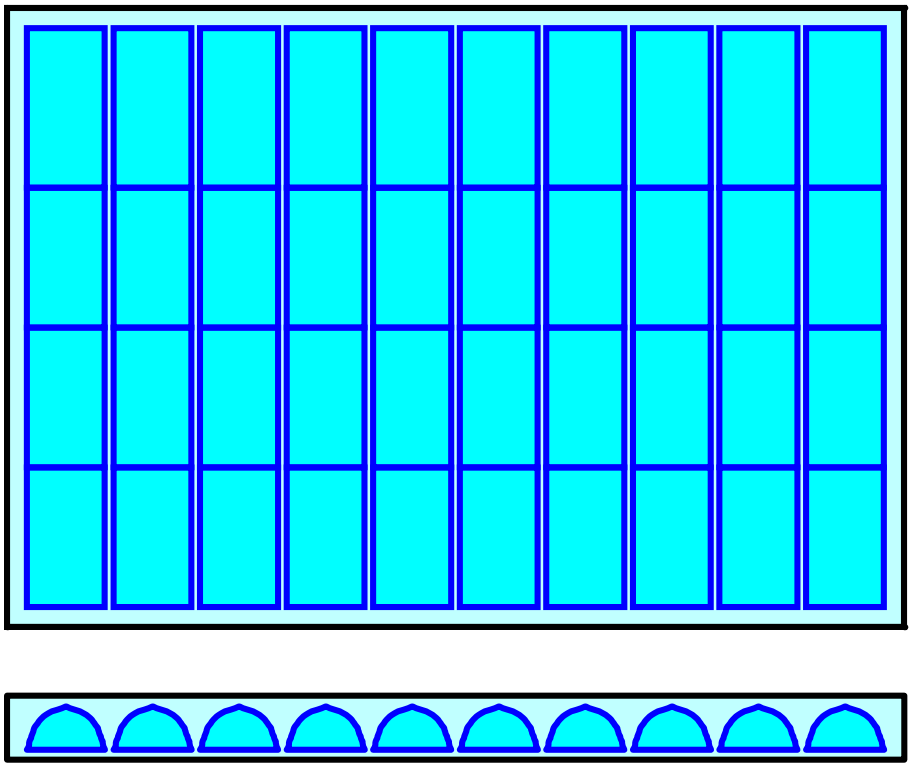
4 Chambers/Row x 7.00' Long +1.00' Row Adjustment = 29.00' Row Length +12.0" End Stone x 2 = 31.00' Base Length
10 Rows x 47.0" Wide + 5.0" Spacing x 9 + 12.0" Side Stone x 2 = 44.92' Base Width
6.0" Stone Base + 26.5" Chamber Height + 6.0" Stone Cover = 3.21' Field Height

40 Chambers x 42.5 cf +1.00' Row Adjustment x 6.07 sf x 10 Rows = 1,760.8 cf Chamber Storage

4,467.3 cf Field - 1,760.8 cf Chambers = 2,706.5 cf Stone x 33.0% Voids = 893.2 cf Stone Storage

Chamber Storage + Stone Storage = 2,654.0 cf = 0.061 af
Overall Storage Efficiency = 59.4%
Overall System Size = 31.00' x 44.92' x 3.21'

40 Chambers
165.5 cy Field
100.2 cy Stone



Stage-Discharge for Pond 23P: UGIS-1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
46.30	0.00	0.00	0.00
46.35	0.04	0.04	0.00
46.40	0.04	0.04	0.00
46.45	0.04	0.04	0.00
46.50	0.04	0.04	0.00
46.55	0.05	0.05	0.00
46.60	0.05	0.05	0.00
46.65	0.05	0.05	0.00
46.70	0.05	0.05	0.00
46.75	0.05	0.05	0.00
46.80	0.05	0.05	0.00
46.85	0.05	0.05	0.00
46.90	0.05	0.05	0.00
46.95	0.05	0.05	0.00
47.00	0.05	0.05	0.00
47.05	0.05	0.05	0.00
47.10	0.05	0.05	0.00
47.15	0.05	0.05	0.00
47.20	0.05	0.05	0.00
47.25	0.06	0.06	0.00
47.30	0.06	0.06	0.00
47.35	0.06	0.06	0.00
47.40	0.06	0.06	0.00
47.45	0.06	0.06	0.00
47.50	0.06	0.06	0.00
47.55	0.06	0.06	0.00
47.60	0.06	0.06	0.00
47.65	0.06	0.06	0.00
47.70	0.06	0.06	0.00
47.75	0.06	0.06	0.00
47.80	0.06	0.06	0.00
47.85	0.06	0.06	0.00
47.90	0.06	0.06	0.00
47.95	0.07	0.07	0.00
48.00	0.07	0.07	0.00
48.05	0.07	0.07	0.00
48.10	0.07	0.07	0.00
48.15	0.07	0.07	0.00
48.20	0.07	0.07	0.00
48.25	0.07	0.07	0.00
48.30	0.07	0.07	0.00
48.35	0.07	0.07	0.00
48.40	0.07	0.07	0.00
48.45	0.14	0.07	0.07
48.50	0.28	0.07	0.20
48.55	0.45	0.07	0.37
48.60	0.65	0.07	0.57
48.65	0.87	0.07	0.80
48.70	1.12	0.08	1.04
48.75	1.38	0.08	1.31
48.80	1.67	0.08	1.59
48.85	1.96	0.08	1.89
48.90	2.28	0.08	2.20
48.95	2.60	0.08	2.52
49.00	2.94	0.08	2.86
49.05	3.43	0.08	3.35
49.10	4.05	0.08	3.97
49.15	4.77	0.08	4.68
49.20	5.55	0.08	5.46
49.25	6.39	0.08	6.30
49.30	7.28	0.08	7.20
49.35	8.23	0.08	8.14
49.40	9.21	0.09	9.13
49.45	10.24	0.09	10.16
49.50	**11.31**	**0.09**	**11.22**

Stage-Area-Storage for Pond 23P: UGIS-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
46.30	**6,719**	0
46.35	6,719	111
46.40	6,719	222
46.45	6,719	333
46.50	6,719	443
46.55	6,719	554
46.60	6,719	665
46.65	6,719	776
46.70	6,719	887
46.75	6,719	998
46.80	6,719	1,109
46.85	6,719	1,410
46.90	6,719	1,708
46.95	6,719	2,004
47.00	6,719	2,297
47.05	6,719	2,590
47.10	6,719	2,882
47.15	6,719	3,173
47.20	6,719	3,463
47.25	6,719	3,753
47.30	6,719	4,041
47.35	6,719	4,326
47.40	6,719	4,610
47.45	6,719	4,891
47.50	6,719	5,172
47.55	6,719	5,450
47.60	6,719	5,726
47.65	6,719	6,000
47.70	6,719	6,272
47.75	6,719	6,543
47.80	6,719	6,812
47.85	6,719	7,080
47.90	6,719	7,347
47.95	6,719	7,611
48.00	6,719	7,871
48.05	6,719	8,128
48.10	6,719	8,381
48.15	6,719	8,631
48.20	6,719	8,878
48.25	6,719	9,121
48.30	6,719	9,360
48.35	6,719	9,595
48.40	6,719	9,825
48.45	6,719	10,050
48.50	6,719	10,269
48.55	6,719	10,482
48.60	6,719	10,689
48.65	6,719	10,887
48.70	6,719	11,075
48.75	6,719	11,252
48.80	6,719	11,413
48.85	6,719	11,560
48.90	6,719	11,693
48.95	6,719	11,814
49.00	6,719	11,926
49.05	6,719	12,037
49.10	6,719	12,148
49.15	6,719	12,259
49.20	6,719	12,370
49.25	6,719	12,480
49.30	6,719	12,591
49.35	6,719	12,702
49.40	6,719	12,813
49.45	6,719	12,924
49.50	6,719	**13,035**

Summary for Pond 28P: DIV-01

Inflow Area = 339,731 sf, 33.22% Impervious, Inflow Depth = 1.29" for 1-year event
Inflow = 7.86 cfs @ 12.22 hrs, Volume= 36,536 cf
Outflow = 7.86 cfs @ 12.22 hrs, Volume= 36,536 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.95 cfs @ 12.22 hrs, Volume= 13,096 cf
Routed to Pond 13P : Sand Filter 1
Secondary = 5.91 cfs @ 12.22 hrs, Volume= 23,440 cf
Routed to Pond 15P : Detention Basin 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 47.40' @ 12.22 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.10'	**10.0" Round Culvert** L= 14.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.10' / 46.00' S= 0.0071 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.55 sf
#2	Device 3	46.95'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Secondary	46.10'	**36.0" Round Culvert** L= 56.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.10' / 44.00' S= 0.0375 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 7.07 sf

Primary OutFlow Max=1.95 cfs @ 12.22 hrs HW=47.40' TW=46.16' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.95 cfs @ 3.57 fps)

Secondary OutFlow Max=5.84 cfs @ 12.22 hrs HW=47.40' TW=44.49' (Dynamic Tailwater)
└**3=Culvert** (Passes 5.84 cfs of 9.00 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 5.84 cfs @ 2.19 fps)

Stage-Discharge for Pond 28P: DIV-01

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
46.10	0.00	0.00	0.00
46.15	0.01	0.01	0.00
46.20	0.03	0.03	0.00
46.25	0.06	0.06	0.00
46.30	0.11	0.11	0.00
46.35	0.17	0.17	0.00
46.40	0.23	0.23	0.00
46.45	0.31	0.31	0.00
46.50	0.39	0.39	0.00
46.55	0.48	0.48	0.00
46.60	0.57	0.57	0.00
46.65	0.67	0.67	0.00
46.70	0.77	0.77	0.00
46.75	0.88	0.88	0.00
46.80	0.99	0.99	0.00
46.85	1.10	1.10	0.00
46.90	1.21	1.21	0.00
46.95	1.31	1.31	0.00
47.00	1.64	1.42	0.22
47.05	2.13	1.51	0.62
47.10	2.72	1.58	1.13
47.15	3.39	1.65	1.74
47.20	4.15	1.71	2.43
47.25	4.97	1.78	3.19
47.30	5.85	1.83	4.02
47.35	6.79	1.89	4.90
47.40	7.78	1.95	5.83
47.45	8.82	2.00	6.82
47.50	9.91	2.06	7.86
47.55	11.04	2.11	8.94
47.60	12.22	2.16	10.06
47.65	13.43	2.21	11.22
47.70	14.68	2.26	12.42
47.75	15.97	2.30	13.66
47.80	16.83	2.35	14.48
47.85	17.62	2.39	15.22
47.90	18.41	2.44	15.97
47.95	19.21	2.48	16.72
48.00	20.01	2.53	17.49
48.05	20.82	2.57	18.26
48.10	21.64	2.61	19.03
48.15	22.46	2.65	19.81
48.20	23.28	2.69	20.59
48.25	24.10	2.73	21.37
48.30	24.92	2.77	22.15
48.35	25.74	2.81	22.93
48.40	26.55	2.85	23.70
48.45	27.36	2.88	24.48
48.50	28.16	2.92	25.24
48.55	28.96	2.96	26.00
48.60	29.74	2.99	26.75
48.65	30.51	3.03	27.49
48.70	31.27	3.06	28.21
48.75	32.01	3.10	28.91
48.80	32.73	3.13	29.60
48.85	33.42	3.17	30.25
48.90	34.08	3.20	30.88
48.95	34.71	3.23	31.48
49.00	35.29	3.27	32.02
49.05	35.81	3.30	32.51
49.10	**36.24**	**3.33**	**32.91**

Stage-Area-Storage for Pond 28P: DIV-01

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
46.10	**0**	47.12	0	48.14	0
46.12	0	47.14	0	48.16	0
46.14	0	47.16	0	48.18	0
46.16	0	47.18	0	48.20	0
46.18	0	47.20	0	48.22	0
46.20	0	47.22	0	48.24	0
46.22	0	47.24	0	48.26	0
46.24	0	47.26	0	48.28	0
46.26	0	47.28	0	48.30	0
46.28	0	47.30	0	48.32	0
46.30	0	47.32	0	48.34	0
46.32	0	47.34	0	48.36	0
46.34	0	47.36	0	48.38	0
46.36	0	47.38	0	48.40	0
46.38	0	47.40	0	48.42	0
46.40	0	47.42	0	48.44	0
46.42	0	47.44	0	48.46	0
46.44	0	47.46	0	48.48	0
46.46	0	47.48	0	48.50	0
46.48	0	47.50	0	48.52	0
46.50	0	47.52	0	48.54	0
46.52	0	47.54	0	48.56	0
46.54	0	47.56	0	48.58	0
46.56	0	47.58	0	48.60	0
46.58	0	47.60	0	48.62	0
46.60	0	47.62	0	48.64	0
46.62	0	47.64	0	48.66	0
46.64	0	47.66	0	48.68	0
46.66	0	47.68	0	48.70	0
46.68	0	47.70	0	48.72	0
46.70	0	47.72	0	48.74	0
46.72	0	47.74	0	48.76	0
46.74	0	47.76	0	48.78	0
46.76	0	47.78	0	48.80	0
46.78	0	47.80	0	48.82	0
46.80	0	47.82	0	48.84	0
46.82	0	47.84	0	48.86	0
46.84	0	47.86	0	48.88	0
46.86	0	47.88	0	48.90	0
46.88	0	47.90	0	48.92	0
46.90	0	47.92	0	48.94	0
46.92	0	47.94	0	48.96	0
46.94	0	47.96	0	48.98	0
46.96	0	47.98	0	49.00	0
46.98	0	48.00	0	49.02	0
47.00	0	48.02	0	49.04	0
47.02	0	48.04	0	49.06	0
47.04	0	48.06	0	49.08	0
47.06	0	48.08	0	49.10	0
47.08	0	48.10	0		
47.10	0	48.12	0		

Summary for Pond 33P: Wet Swale

Inflow Area = 57,295 sf, 71.89% Impervious, Inflow Depth = 1.97" for 1-year event
Inflow = 2.89 cfs @ 12.10 hrs, Volume= 9,419 cf
Outflow = 1.34 cfs @ 12.32 hrs, Volume= 6,797 cf, Atten= 54%, Lag= 13.5 min
Discarded = 0.01 cfs @ 7.45 hrs, Volume= 2,229 cf
Primary = 1.33 cfs @ 12.32 hrs, Volume= 4,568 cf
Routed to Pond 4P : Detention Basin 2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 2L : DP 1.1 - Culvert 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 59.79' @ 12.32 hrs Surf.Area= 4,809 sf Storage= 4,443 cf

Plug-Flow detention time= 657.7 min calculated for 6,792 cf (72% of inflow)
Center-of-Mass det. time= 569.7 min (1,372.8 - 803.1)

Volume	Invert	Avail.Storage	Storage Description
#1	57.69'	11,649 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
57.69	1,511	0.0	0	0
57.70	1,511	33.0	5	5
58.69	1,511	33.0	494	499
58.70	1,801	100.0	17	515
59.00	3,213	100.0	752	1,267
60.00	5,228	100.0	4,221	5,488
61.00	7,094	100.0	6,161	11,649

Device	Routing	Invert	Outlet Devices
#1	Discarded	57.69'	**0.270 in/hr Exfiltration over Surface area from 57.68' - 58.69'** Excluded Surface area = 0 sf Phase-In= 0.02'
#2	Primary	56.20'	**18.0" Round Culvert** L= 62.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 56.20' / 55.60' S= 0.0097 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	59.75'	**2.0" x 2.0" Horiz. Orifice/Grate X 12.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads
#4	Secondary	60.50'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.01 cfs @ 7.45 hrs HW=57.72' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=1.24 cfs @ 12.32 hrs HW=59.79' TW=55.86' (Dynamic Tailwater)
└**2=Culvert** (Passes 1.24 cfs of 11.32 cfs potential flow)
└**3=Orifice/Grate** (Weir Controls 1.24 cfs @ 0.65 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=57.69' TW=0.00' (Dynamic Tailwater)
└**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Discharge for Pond 33P: Wet Swale

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
57.69	0.00	**0.00**	0.00	0.00
57.79	0.01	**0.01**	0.00	0.00
57.89	0.01	0.01	0.00	0.00
57.99	0.01	0.01	0.00	0.00
58.09	0.01	0.01	0.00	0.00
58.19	0.01	0.01	0.00	0.00
58.29	0.01	0.01	0.00	0.00
58.39	0.01	0.01	0.00	0.00
58.49	0.01	0.01	0.00	0.00
58.59	0.01	0.01	0.00	0.00
58.69	0.01	0.01	0.00	0.00
58.79	0.01	0.01	0.00	0.00
58.89	0.01	0.01	0.00	0.00
58.99	0.01	0.01	0.00	0.00
59.09	0.01	0.01	0.00	0.00
59.19	0.01	0.01	0.00	0.00
59.29	0.01	0.01	0.00	0.00
59.39	0.01	0.01	0.00	0.00
59.49	0.01	0.01	0.00	0.00
59.59	0.01	0.01	0.00	0.00
59.69	0.01	0.01	0.00	0.00
59.79	1.27	0.01	1.26	0.00
59.89	3.61	0.01	3.60	0.00
59.99	4.73	0.01	4.72	0.00
60.09	5.62	0.01	5.62	0.00
60.19	6.40	0.01	6.39	0.00
60.29	7.09	0.01	7.08	0.00
60.39	7.71	0.01	7.70	0.00
60.49	8.29	0.01	8.28	0.00
60.59	9.72	0.01	8.83	0.88
60.69	12.04	0.01	9.34	2.70
60.79	14.91	0.01	9.82	5.08
60.89	18.19	0.01	10.28	7.90
60.99	**21.84**	0.01	**10.72**	**11.11**

Stage-Area-Storage for Pond 33P: Wet Swale

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
57.69	1,511	0
57.74	1,511	25
57.79	1,511	50
57.84	1,511	75
57.89	1,511	100
57.94	1,511	125
57.99	1,511	150
58.04	1,511	175
58.09	1,511	199
58.14	1,511	224
58.19	1,511	249
58.24	1,511	274
58.29	1,511	299
58.34	1,511	324
58.39	1,511	349
58.44	1,511	374
58.49	1,511	399
58.54	1,511	424
58.59	1,511	449
58.64	1,511	474
58.69	1,511	499
58.74	1,989	591
58.79	2,225	696
58.84	2,460	813
58.89	2,695	942
58.94	2,931	1,083
58.99	3,166	1,235
59.04	3,294	1,397
59.09	3,394	1,565
59.14	3,495	1,737
59.19	3,596	1,914
59.24	3,697	2,096
59.29	3,797	2,284
59.34	3,898	2,476
59.39	3,999	2,674
59.44	4,100	2,876
59.49	4,200	3,084
59.54	4,301	3,296
59.59	4,402	3,514
59.64	4,503	3,736
59.69	4,603	3,964
59.74	4,704	4,197
59.79	4,805	4,434
59.84	4,906	4,677
59.89	5,006	4,925
59.94	5,107	5,178
59.99	5,208	5,436
60.04	5,303	5,698
60.09	5,396	5,966
60.14	5,489	6,238
60.19	5,583	6,515
60.24	5,676	6,796
60.29	5,769	7,082
60.34	5,862	7,373
60.39	5,956	7,669
60.44	6,049	7,969
60.49	6,142	8,274
60.54	6,236	8,583
60.59	6,329	8,897
60.64	6,422	9,216
60.69	6,516	9,539
60.74	6,609	9,867
60.79	6,702	10,200
60.84	6,795	10,538
60.89	6,889	10,880
60.94	6,982	11,227
60.99	**7,075**	**11,578**

Summary for Pond 35P: Track and Field-manifold

Inflow Area = 151,857 sf,100.00% Impervious, Inflow Depth = 1.51" for 1-year event
Inflow = 6.18 cfs @ 12.11 hrs, Volume= 19,061 cf
Outflow = 5.19 cfs @ 12.21 hrs, Volume= 19,061 cf, Atten= 16%, Lag= 5.4 min
Discarded = 0.47 cfs @ 12.21 hrs, Volume= 6,385 cf
Primary = 4.72 cfs @ 12.21 hrs, Volume= 12,676 cf
Routed to Pond 8P : DIV-04

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 49.31' @ 12.21 hrs Surf.Area= 8,273 sf Storage= 2,280 cf

Plug-Flow detention time= 14.3 min calculated for 19,061 cf (100% of inflow)
Center-of-Mass det. time= 14.2 min (767.4 - 753.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	48.50'	4,898 cf	**7.00'W x 1,182.00'L x 2.25'H Field A** 18,608 cf Overall - 3,767 cf Embedded = 14,841 cf x 33.0% Voids
#2A	49.00'	2,832 cf	**ADS N-12 15"** x 118 Inside #1 Inside= 14.8"W x 14.8"H => 1.20 sf x 20.00'L = 24.0 cf Outside= 18.0"W x 18.0"H => 1.60 sf x 20.00'L = 31.9 cf 118 Chambers in 2 Rows
		7,730 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**0.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 48.40' Phase-In= 0.02'
#2	Primary	48.50'	**18.0" Round Culvert X 2.00** L= 54.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 48.50' / 46.80' S= 0.0315 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Discarded OutFlow Max=0.47 cfs @ 12.21 hrs HW=49.31' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.47 cfs)

Primary OutFlow Max=4.70 cfs @ 12.21 hrs HW=49.31' TW=48.25' (Dynamic Tailwater)
↑—**2=Culvert** (Inlet Controls 4.70 cfs @ 2.42 fps)

Pond 35P: Track and Field-manifold - Chamber Wizard Field A

Chamber Model = ADS N-12 15" (ADS N-12® Pipe)
Inside= 14.8"W x 14.8"H => 1.20 sf x 20.00'L = 24.0 cf
Outside= 18.0"W x 18.0"H => 1.60 sf x 20.00'L = 31.9 cf

18.0" Wide + 24.0" Spacing = 42.0" C-C Row Spacing

59 Chambers/Row x 20.00' Long = 1,180.00' Row Length +12.0" End Stone x 2 = 1,182.00' Base Length
2 Rows x 18.0" Wide + 24.0" Spacing x 1 + 12.0" Side Stone x 2 = 7.00' Base Width
6.0" Stone Base + 18.0" Chamber Height + 3.0" Stone Cover = 2.25' Field Height

118 Chambers x 24.0 cf = 2,832.0 cf Chamber Storage
118 Chambers x 31.9 cf = 3,767.1 cf Displacement

18,608.5 cf Field - 3,767.1 cf Chambers = 14,841.3 cf Stone x 33.0% Voids = 4,897.6 cf Stone Storage

Chamber Storage + Stone Storage = 7,729.6 cf = 0.177 af
Overall Storage Efficiency = 41.5%
Overall System Size = 1,182.00' x 7.00' x 2.25'

118 Chambers
689.2 cy Field
549.7 cy Stone

Stage-Discharge for Pond 35P: Track and Field-manifold

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
48.50	0.00	0.00	0.00
48.55	0.10	0.08	0.02
48.60	0.19	0.10	0.09
48.65	0.32	0.13	0.19
48.70	0.49	0.16	0.34
48.75	0.70	0.18	0.52
48.80	0.95	0.21	0.74
48.85	1.23	0.23	1.00
48.90	1.54	0.26	1.29
48.95	1.89	0.28	1.61
49.00	2.27	0.31	1.96
49.05	2.68	0.34	2.34
49.10	3.11	0.36	2.75
49.15	3.57	0.39	3.18
49.20	4.05	0.41	3.64
49.25	4.55	0.44	4.11
49.30	5.07	0.47	4.61
49.35	5.61	0.49	5.12
49.40	6.16	0.52	5.65
49.45	6.73	0.54	6.18
49.50	7.30	0.57	6.73
49.55	7.87	0.59	7.28
49.60	8.45	0.62	7.83
49.65	9.03	0.65	8.38
49.70	9.60	0.67	8.92
49.75	10.16	0.70	9.46
49.80	10.70	0.72	9.97
49.85	11.21	0.75	10.46
49.90	11.69	0.78	10.92
49.95	12.12	0.80	11.32
50.00	12.46	0.83	11.63
50.05	12.87	0.85	12.02
50.10	13.27	0.88	12.39
50.15	13.65	0.90	12.75
50.20	14.03	0.93	13.09
50.25	14.39	0.96	13.43
50.30	14.75	0.98	13.77
50.35	15.10	1.01	14.09
50.40	15.44	1.03	14.41
50.45	15.78	1.06	14.72
50.50	16.11	1.09	15.02
50.55	16.43	1.11	15.32
50.60	16.75	1.14	15.61
50.65	17.06	1.16	15.90
50.70	17.37	1.19	16.18
50.75	**17.67**	**1.22**	**16.45**

Stage-Area-Storage for Pond 35P: Track and Field-manifold

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
48.50	**8,273**	0
48.55	8,273	136
48.60	8,273	273
48.65	8,273	409
48.70	8,273	546
48.75	8,273	682
48.80	8,273	819
48.85	8,273	955
48.90	8,273	1,092
48.95	8,273	1,228
49.00	8,273	1,365
49.05	8,273	1,489
49.10	8,273	1,602
49.15	8,273	1,718
49.20	8,273	1,874
49.25	8,273	2,049
49.30	8,273	2,238
49.35	8,273	2,437
49.40	8,273	2,644
49.45	8,273	2,857
49.50	8,273	3,075
49.55	8,273	3,297
49.60	8,273	3,522
49.65	8,273	3,749
49.70	8,273	3,978
49.75	8,273	4,207
49.80	8,273	4,437
49.85	8,273	4,666
49.90	8,273	4,893
49.95	8,273	5,118
50.00	8,273	5,340
50.05	8,273	5,558
50.10	8,273	5,771
50.15	8,273	5,977
50.20	8,273	6,176
50.25	8,273	6,365
50.30	8,273	6,540
50.35	8,273	6,695
50.40	8,273	6,811
50.45	8,273	6,925
50.50	8,273	7,049
50.55	8,273	7,185
50.60	8,273	7,322
50.65	8,273	7,458
50.70	8,273	7,595
50.75	8,273	**7,730**

Summary for Link 2L: DP 1.1 - Culvert 1

Inflow Area = 475,005 sf, 1.72% Impervious, Inflow Depth = 0.93" for 1-year event
Inflow = 7.45 cfs @ 12.32 hrs, Volume= 37,004 cf
Primary = 7.45 cfs @ 12.32 hrs, Volume= 37,004 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 3L : DP 1.2 - Culvert 2

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link 3L: DP 1.2 - Culvert 2

Inflow Area = 539,007 sf, 2.90% Impervious, Inflow Depth = 0.96" for 1-year event
Inflow = 8.28 cfs @ 12.31 hrs, Volume= 42,901 cf
Primary = 8.28 cfs @ 12.31 hrs, Volume= 42,901 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 4L : DP 1.3 - Culvert 3

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link 4L: DP 1.3 - Culvert 3

Inflow Area = 564,865 sf, 3.45% Impervious, Inflow Depth = 0.96" for 1-year event
Inflow = 8.65 cfs @ 12.30 hrs, Volume= 45,276 cf
Primary = 8.65 cfs @ 12.30 hrs, Volume= 45,276 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : DP 1.4 - Silver Creek East Branch

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link 5L: DP 1.4 - Silver Creek East Branch

Inflow Area = 1,084,691 sf, 28.15% Impervious, Inflow Depth = 1.01" for 1-year event
Inflow = 16.61 cfs @ 12.23 hrs, Volume= 91,420 cf
Primary = 16.61 cfs @ 12.23 hrs, Volume= 91,420 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link 6L: DP 2.1 - West Wetland

Inflow Area = 832,147 sf, 33.97% Impervious, Inflow Depth > 0.68" for 1-year event
Inflow = 3.26 cfs @ 12.88 hrs, Volume= 47,009 cf
Primary = 3.26 cfs @ 12.88 hrs, Volume= 47,009 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 7L : DP 2.2 - Silver Creek West Branch

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link 7L: DP 2.2 - Silver Creek West Branch

Inflow Area = 991,430 sf, 32.56% Impervious, Inflow Depth > 0.75" for 1-year event
Inflow = 4.61 cfs @ 12.50 hrs, Volume= 61,638 cf
Primary = 4.61 cfs @ 12.50 hrs, Volume= 61,638 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PDA-1.1A: Subcat PDA-1.1A Runoff Area=475,005 sf 0.22% Impervious Runoff Depth=0.10"
Flow Length=451' Slope=0.0100 '/' Tc=21.1 min CN=77/98 Runoff=0.41 cfs 4,081 cf

Subcatchment PDA-1.1B: Subcat PDA-1.1B Runoff Area=32,995 sf 0.05% Impervious Runoff Depth=0.10"
Flow Length=126' Tc=13.1 min CN=77/98 Runoff=0.03 cfs 279 cf

Subcatchment PDA-1.2A: Subcat PDA-1.2A Runoff Area=25,858 sf 12.81% Impervious Runoff Depth=0.23"
Flow Length=73' Tc=7.3 min CN=78/98 Runoff=0.10 cfs 492 cf

Subcatchment PDA-1.3A: Subcat PDA-1.3A Runoff Area=57,295 sf 71.73% Impervious Runoff Depth=0.73"
Flow Length=198' Slope=0.0100 '/' Tc=6.5 min CN=76/98 Runoff=1.00 cfs 3,493 cf

Subcatchment PDA-1.3C: Subcat PDA-1.3C Runoff Area=16,850 sf 40.99% Impervious Runoff Depth=0.44"
Flow Length=49' Tc=6.8 min CN=74/98 Runoff=0.17 cfs 618 cf

Subcatchment PDA-1.3D: Subcat PDA-1.3D Runoff Area=6,850 sf 40.75% Impervious Runoff Depth=0.44"
Tc=6.0 min CN=74/98 Runoff=0.07 cfs 250 cf

Subcatchment PDA-1.4A: Subcat PDA-1.4A Runoff Area=31,007 sf 23.36% Impervious Runoff Depth=0.32"
Flow Length=144' Tc=13.4 min CN=78/98 Runoff=0.16 cfs 827 cf

Subcatchment PDA-1.4B: Subcat PDA-1.4B Runoff Area=50,506 sf 33.69% Impervious Runoff Depth=0.41"
Flow Length=98' Tc=13.9 min CN=78/98 Runoff=0.36 cfs 1,724 cf

Subcatchment PDA-1.4C: Subcat PDA-1.4C Runoff Area=26,810 sf 65.14% Impervious Runoff Depth=0.66"
Tc=6.0 min CN=74/98 Runoff=0.43 cfs 1,482 cf

Subcatchment PDA-1.4D: Subcat PDA-1.4D Runoff Area=42,514 sf 58.56% Impervious Runoff Depth=0.61"
Tc=6.0 min CN=75/98 Runoff=0.61 cfs 2,153 cf

Subcatchment PDA-1.4E: Subcat PDA-1.4E Runoff Area=39,245 sf 61.68% Impervious Runoff Depth=0.63"
Tc=6.0 min CN=74/98 Runoff=0.59 cfs 2,066 cf

Subcatchment PDA-1.4F: Subcat PDA-1.4F Runoff Area=73,858 sf 54.96% Impervious Runoff Depth=0.57"
Flow Length=346' Tc=14.5 min CN=74/98 Runoff=0.78 cfs 3,505 cf

Subcatchment PDA-1.4G: Subcat PDA-1.4G Runoff Area=22,284 sf 62.39% Impervious Runoff Depth=0.64"
Tc=6.0 min CN=74/98 Runoff=0.34 cfs 1,185 cf

Subcatchment PDA-1.4H: Subcat PDA-1.4H Runoff Area=10,744 sf 5.59% Impervious Runoff Depth=0.11"
Tc=6.0 min CN=74/98 Runoff=0.01 cfs 101 cf

Subcatchment PDA-1.4I: Subcat PDA-1.4I Runoff Area=9,824 sf 27.06% Impervious Runoff Depth=0.31"
Tc=6.0 min CN=74/98 Runoff=0.07 cfs 255 cf

Subcatchment PDA-1.4J: Subcat PDA-1.4J Runoff Area=59,466 sf 7.90% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=78/98 Runoff=0.17 cfs 920 cf

Subcatchment PDA-1.4K: Subcat PDA-1.4K Runoff Area=18,876 sf 80.13% Impervious Runoff Depth=0.80"
Tc=6.0 min CN=74/98 Runoff=0.37 cfs 1,262 cf

Subcatchment PDA-1.4L: Subcat PDA-1.4L Runoff Area=11,978 sf 23.00% Impervious Runoff Depth=0.27"
Flow Length=75' Tc=8.5 min CN=74/98 Runoff=0.06 cfs 274 cf

Subcatchment PDA-1.4M: Subcat PDA-1.4M Runoff Area=4,734 sf 3.38% Impervious Runoff Depth=0.09"
Flow Length=166' Slope=0.0100 '/' Tc=14.3 min CN=74/98 Runoff=0.00 cfs 37 cf

Subcatchment PDA-2.1A: Subcat Runoff Area=308,645 sf 25.72% Impervious Runoff Depth=0.31"
Flow Length=269' Tc=16.3 min CN=75/98 Runoff=1.48 cfs 7,927 cf

Subcatchment PDA-2.1B: Subcat PDA-2.1B Runoff Area=188,298 sf 6.36% Impervious Runoff Depth=0.13"
Flow Length=123' Tc=17.0 min CN=75/98 Runoff=0.23 cfs 2,064 cf

Subcatchment PDA-2.2A: Subcat Runoff Area=159,283 sf 23.05% Impervious Runoff Depth=0.28"
Tc=12.9 min CN=75/98 Runoff=0.74 cfs 3,767 cf

Subcatchment PDA-2.2B: Subcat PDA-2.2B Runoff Area=152,260 sf 1.56% Impervious Runoff Depth=0.05"
Flow Length=565' Slope=0.0120 '/' Tc=40.0 min CN=71/98 Runoff=0.03 cfs 606 cf

Subcatchment PDA-2.2C.a: Subcat Runoff Area=90,671 sf 100.00% Impervious Runoff Depth=0.99"
Tc=6.0 min CN=74/98 Runoff=2.23 cfs 7,448 cf

Subcatchment PDA-2.2C.b: Subcat Runoff Area=61,186 sf 99.99% Impervious Runoff Depth=0.99"
Tc=6.0 min CN=74/98 Runoff=1.50 cfs 5,025 cf

Subcatchment PDA-ROOF1.3: Subcat Runoff Area=9,782 sf 100.00% Impervious Runoff Depth=0.99"
Tc=6.0 min CN=74/98 Runoff=0.24 cfs 803 cf

Subcatchment PDA-ROOF1.4: Subcat Runoff Area=58,210 sf 100.00% Impervious Runoff Depth=0.99"
Tc=6.0 min CN=74/98 Runoff=1.43 cfs 4,781 cf

Subcatchment PDA-ROOF2.1: Subcat Runoff Area=31,087 sf 100.00% Impervious Runoff Depth=0.99"
Tc=6.0 min CN=74/98 Runoff=0.76 cfs 2,553 cf

Pond 1P: Bio 4 Peak Elev=58.39' Storage=382 cf Inflow=0.17 cfs 618 cf
Discarded=0.00 cfs 618 cf Primary=0.00 cfs 0 cf Outflow=0.00 cfs 618 cf

Pond 2P: Bio 3 Peak Elev=58.83' Storage=518 cf Inflow=0.31 cfs 1,054 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Tertiary=0.01 cfs 1,054 cf Outflow=0.01 cfs 1,054 cf

Pond 3P: DIV-02 Peak Elev=56.54' Inflow=0.36 cfs 1,724 cf
Primary=0.36 cfs 1,724 cf Secondary=0.00 cfs 0 cf Outflow=0.36 cfs 1,724 cf

Pond 4P: Detention Basin 2 Peak Elev=55.63' Storage=59 cf Inflow=0.01 cfs 101 cf
Primary=0.00 cfs 90 cf Secondary=0.00 cfs 0 cf Outflow=0.00 cfs 90 cf

Pond 7P: Bio 2 Peak Elev=54.70' Storage=638 cf Inflow=0.43 cfs 1,482 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Tertiary=0.03 cfs 1,482 cf Outflow=0.03 cfs 1,482 cf

Pond 8P: DIV-04 Peak Elev=47.46' Inflow=1.08 cfs 2,788 cf
Primary=1.08 cfs 2,788 cf Secondary=0.00 cfs 0 cf Outflow=1.08 cfs 2,788 cf

Pond 9P: Sand Filter 5 Peak Elev=49.35' Storage=982 cf Inflow=0.37 cfs 1,298 cf
Discarded=0.01 cfs 1,112 cf Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Outflow=0.01 cfs 1,112 cf

Pond 10P: Bio 1 Peak Elev=44.45' Storage=1,583 cf Inflow=0.61 cfs 2,153 cf
Discarded=0.00 cfs 1,088 cf Primary=0.02 cfs 273 cf Secondary=0.00 cfs 0 cf Outflow=0.03 cfs 1,361 cf

Pond 12P: Infiltration Basin 1 Peak Elev=57.27' Storage=4,168 cf Inflow=1.50 cfs 5,036 cf
Discarded=0.02 cfs 3,263 cf Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Outflow=0.02 cfs 3,263 cf

Pond 13P: Sand Filter 1 Peak Elev=46.60' Storage=8,356 cf Inflow=1.48 cfs 10,099 cf
Discarded=0.03 cfs 6,255 cf Secondary=0.00 cfs 0 cf Outflow=0.03 cfs 6,255 cf

Pond 14P: DIV-03 Peak Elev=44.64' Inflow=0.61 cfs 2,153 cf
Primary=0.61 cfs 2,153 cf Secondary=0.00 cfs 0 cf Outflow=0.61 cfs 2,153 cf

Pond 15P: Detention Basin 1 Peak Elev=44.12' Storage=1,404 cf Inflow=0.66 cfs 2,445 cf
Primary=0.04 cfs 2,213 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=0.04 cfs 2,213 cf

Pond 17P: Track and Field- stone base Peak Elev=50.55' Storage=1,383 cf Inflow=2.23 cfs 7,448 cf
Discarded=0.58 cfs 6,543 cf Primary=0.57 cfs 904 cf Outflow=1.15 cfs 7,448 cf

Pond 18P: Sand Filter 2 Peak Elev=55.00' Storage=2,918 cf Inflow=0.87 cfs 3,790 cf
Discarded=0.01 cfs 3,211 cf Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Outflow=0.01 cfs 3,211 cf

Pond 19P: Sand Filter 3 Peak Elev=57.98' Storage=652 cf Inflow=0.34 cfs 1,185 cf
Discarded=0.01 cfs 1,185 cf Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Outflow=0.01 cfs 1,185 cf

Pond 20P: Sand Filter 4 Peak Elev=59.00' Storage=6 cf Inflow=0.16 cfs 827 cf
Outflow=0.16 cfs 827 cf

Pond 23P: UGIS-1 Peak Elev=46.99' Storage=2,250 cf Inflow=1.08 cfs 2,788 cf
Discarded=0.05 cfs 2,788 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 2,788 cf

Pond 28P: DIV-01 Peak Elev=47.03' Inflow=1.94 cfs 10,480 cf
Primary=1.48 cfs 10,099 cf Secondary=0.46 cfs 381 cf Outflow=1.94 cfs 10,480 cf

Pond 33P: Wet Swale Peak Elev=59.44' Storage=2,866 cf Inflow=1.00 cfs 3,493 cf
Discarded=0.01 cfs 2,256 cf Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Outflow=0.01 cfs 2,256 cf

Pond 35P: Track and Field-manifold Peak Elev=48.86' Storage=995 cf Inflow=1.81 cfs 5,929 cf
Discarded=0.24 cfs 3,142 cf Primary=1.08 cfs 2,788 cf Outflow=1.32 cfs 5,929 cf

Link 2L: DP 1.1 - Culvert 1 Inflow=0.41 cfs 4,081 cf
Primary=0.41 cfs 4,081 cf

Link 3L: DP 1.2 - Culvert 2 Inflow=0.52 cfs 5,187 cf
Primary=0.52 cfs 5,187 cf

Link 4L: DP 1.3 - Culvert 3 Inflow=0.57 cfs 5,679 cf
Primary=0.57 cfs 5,679 cf

Link 5L: DP 1.4 - Silver Creek East Branch Inflow=1.35 cfs 13,277 cf
Primary=1.35 cfs 13,277 cf

Link 6L: DP 2.1 - West Wetland Inflow=0.05 cfs 2,818 cf
Primary=0.05 cfs 2,818 cf

Link 7L: DP 2.2 - Silver Creek West Branch Inflow=0.76 cfs 6,586 cf
Primary=0.76 cfs 6,586 cf

Total Runoff Area = 2,076,121 sf Runoff Volume = 59,978 cf Average Runoff Depth = 0.35"
70.72% Pervious = 1,468,248 sf 29.28% Impervious = 607,873 sf

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PDA-1.1A: Subcat PDA-1.1A Runoff Area=475,005 sf 1.72% Impervious Runoff Depth=1.28"
Flow Length=451' Slope=0.0100 '/' Tc=21.1 min CN=77 Runoff=10.49 cfs 50,816 cf

Subcatchment PDA-1.1B: Subcat PDA-1.1B Runoff Area=32,995 sf 0.06% Impervious Runoff Depth=1.28"
Flow Length=126' Tc=13.1 min CN=77 Runoff=0.87 cfs 3,530 cf

Subcatchment PDA-1.2A: Subcat PDA-1.2A Runoff Area=25,858 sf 15.00% Impervious Runoff Depth=1.48"
Flow Length=73' Tc=7.3 min UI Adjusted CN=80 Runoff=0.96 cfs 3,188 cf

Subcatchment PDA-1.3A: Subcat PDA-1.3A Runoff Area=57,295 sf 71.89% Impervious Runoff Depth=2.45"
Flow Length=198' Slope=0.0100 '/' Tc=6.5 min CN=92 Runoff=3.55 cfs 11,677 cf

Subcatchment PDA-1.3C: Subcat PDA-1.3C Runoff Area=16,850 sf 41.68% Impervious Runoff Depth=1.77"
Flow Length=49' Tc=6.8 min CN=84 Runoff=0.77 cfs 2,480 cf

Subcatchment PDA-1.3D: Subcat PDA-1.3D Runoff Area=6,850 sf 40.75% Impervious Runoff Depth=1.77"
Tc=6.0 min CN=84 Runoff=0.32 cfs 1,008 cf

Subcatchment PDA-1.4A: Subcat PDA-1.4A Runoff Area=31,007 sf 23.95% Impervious Runoff Depth=1.69"
Flow Length=144' Tc=13.4 min CN=83 Runoff=1.10 cfs 4,371 cf

Subcatchment PDA-1.4B: Subcat PDA-1.4B Runoff Area=50,506 sf 38.51% Impervious Runoff Depth=1.84"
Flow Length=98' Tc=13.9 min CN=85 Runoff=1.94 cfs 7,758 cf

Subcatchment PDA-1.4C: Subcat PDA-1.4C Runoff Area=26,810 sf 65.14% Impervious Runoff Depth=2.26"
Tc=6.0 min CN=90 Runoff=1.58 cfs 5,052 cf

Subcatchment PDA-1.4D: Subcat PDA-1.4D Runoff Area=42,514 sf 58.56% Impervious Runoff Depth=2.09"
Tc=6.0 min CN=88 Runoff=2.33 cfs 7,394 cf

Subcatchment PDA-1.4E: Subcat PDA-1.4E Runoff Area=39,245 sf 61.68% Impervious Runoff Depth=2.17"
Tc=6.0 min CN=89 Runoff=2.23 cfs 7,107 cf

Subcatchment PDA-1.4F: Subcat PDA-1.4F Runoff Area=73,858 sf 54.96% Impervious Runoff Depth=2.00"
Flow Length=346' Tc=14.5 min CN=87 Runoff=3.03 cfs 12,332 cf

Subcatchment PDA-1.4G: Subcat PDA-1.4G Runoff Area=22,284 sf 62.39% Impervious Runoff Depth=2.17"
Tc=6.0 min CN=89 Runoff=1.27 cfs 4,035 cf

Subcatchment PDA-1.4H: Subcat PDA-1.4H Runoff Area=10,744 sf 5.59% Impervious Runoff Depth=1.16"
Tc=6.0 min CN=75 Runoff=0.32 cfs 1,041 cf

Subcatchment PDA-1.4I: Subcat PDA-1.4I Runoff Area=9,824 sf 27.06% Impervious Runoff Depth=1.55"
Tc=6.0 min CN=81 Runoff=0.40 cfs 1,267 cf

Subcatchment PDA-1.4J: Subcat PDA-1.4J Runoff Area=59,466 sf 8.43% Impervious Runoff Depth=1.41"
Tc=6.0 min CN=79 Runoff=2.19 cfs 6,998 cf

Subcatchment PDA-1.4K: Subcat PDA-1.4K Runoff Area=18,876 sf 80.13% Impervious Runoff Depth=2.54"
Tc=6.0 min CN=93 Runoff=1.22 cfs 3,999 cf

Subcatchment PDA-1.4L: Subcat PDA-1.4L Runoff Area=11,978 sf 23.00% Impervious Runoff Depth=1.48"
Flow Length=75' Tc=8.5 min CN=80 Runoff=0.42 cfs 1,476 cf

Subcatchment PDA-1.4M: Subcat PDA-1.4M Runoff Area=4,734 sf 3.38% Impervious Runoff Depth=1.16"
Flow Length=166' Slope=0.0100 '/' Tc=14.3 min CN=75 Runoff=0.11 cfs 459 cf

Subcatchment PDA-2.1A: Subcat Runoff Area=308,645 sf 26.49% Impervious Runoff Depth=1.55"
Flow Length=269' Tc=16.3 min CN=81 Runoff=9.28 cfs 39,818 cf

Subcatchment PDA-2.1B: Subcat PDA-2.1B Runoff Area=188,298 sf 8.27% Impervious Runoff Depth=1.22"
Flow Length=123' Tc=17.0 min UI Adjusted CN=76 Runoff=4.28 cfs 19,177 cf

Subcatchment PDA-2.2A: Subcat Runoff Area=159,283 sf 25.22% Impervious Runoff Depth=1.48"
Tc=12.9 min CN=80 Runoff=4.97 cfs 19,635 cf

Subcatchment PDA-2.2B: Subcat PDA-2.2B Runoff Area=152,260 sf 1.56% Impervious Runoff Depth=0.99"
Flow Length=565' Slope=0.0120 '/' Tc=40.0 min CN=72 Runoff=1.86 cfs 12,590 cf

Subcatchment PDA-2.2C.a: Subcat Runoff Area=90,671 sf 100.00% Impervious Runoff Depth=3.07"
Tc=6.0 min CN=98 Runoff=6.52 cfs 23,175 cf

Subcatchment PDA-2.2C.b: Subcat Runoff Area=61,186 sf 99.99% Impervious Runoff Depth=3.07"
Tc=6.0 min CN=98 Runoff=4.40 cfs 15,639 cf

Subcatchment PDA-ROOF1.3: Subcat Runoff Area=9,782 sf 100.00% Impervious Runoff Depth=3.07"
Tc=6.0 min CN=98 Runoff=0.70 cfs 2,500 cf

Subcatchment PDA-ROOF1.4: Subcat Runoff Area=58,210 sf 100.00% Impervious Runoff Depth=3.07"
Tc=6.0 min CN=98 Runoff=4.18 cfs 14,878 cf

Subcatchment PDA-ROOF2.1: Subcat Runoff Area=31,087 sf 100.00% Impervious Runoff Depth=3.07"
Tc=6.0 min CN=98 Runoff=2.23 cfs 7,946 cf

Pond 1P: Bio 4 Peak Elev=60.32' Storage=1,168 cf Inflow=0.77 cfs 2,480 cf
Discarded=0.01 cfs 1,153 cf Primary=0.29 cfs 1,021 cf Outflow=0.30 cfs 2,174 cf

Pond 2P: Bio 3 Peak Elev=59.79' Storage=1,145 cf Inflow=1.02 cfs 3,509 cf
Primary=1.37 cfs 1,282 cf Secondary=0.00 cfs 0 cf Tertiary=0.02 cfs 2,227 cf Outflow=1.39 cfs 3,509 cf

Pond 3P: DIV-02 Peak Elev=56.94' Inflow=1.94 cfs 7,758 cf
Primary=0.90 cfs 6,692 cf Secondary=1.04 cfs 1,066 cf Outflow=1.94 cfs 7,758 cf

Pond 4P: Detention Basin 2 Peak Elev=57.52' Storage=5,180 cf Inflow=3.16 cfs 7,842 cf
Primary=0.09 cfs 7,813 cf Secondary=0.00 cfs 0 cf Outflow=0.09 cfs 7,813 cf

Pond 7P: Bio 2 Peak Elev=56.53' Storage=2,157 cf Inflow=1.58 cfs 5,052 cf
Primary=0.65 cfs 1,503 cf Secondary=0.00 cfs 0 cf Tertiary=0.03 cfs 3,550 cf Outflow=0.68 cfs 5,052 cf

Pond 8P: DIV-04 Peak Elev=48.56' Inflow=5.82 cfs 16,220 cf
Primary=5.69 cfs 12,621 cf Secondary=1.27 cfs 3,598 cf Outflow=5.82 cfs 16,218 cf

Pond 9P: Sand Filter 5 Peak Elev=49.83' Storage=1,453 cf Inflow=1.29 cfs 4,457 cf
Discarded=0.01 cfs 1,291 cf Primary=1.39 cfs 2,691 cf Secondary=0.00 cfs 0 cf Outflow=1.40 cfs 3,982 cf

Pond 10P: Bio 1 Peak Elev=44.51' Storage=1,732 cf Inflow=1.18 cfs 6,744 cf
Discarded=0.00 cfs 1,056 cf Primary=1.17 cfs 4,893 cf Secondary=0.00 cfs 0 cf Outflow=1.17 cfs 5,949 cf

Pond 12P: Infiltration Basin 1 Peak Elev=57.99' Storage=6,225 cf Inflow=4.58 cfs 16,145 cf
Discarded=0.02 cfs 3,803 cf Primary=3.90 cfs 9,792 cf Secondary=0.00 cfs 0 cf Outflow=3.91 cfs 13,595 cf

Pond 13P: Sand Filter 1 Peak Elev=47.09' Storage=12,082 cf Inflow=2.08 cfs 13,214 cf
Discarded=0.03 cfs 6,453 cf Secondary=0.00 cfs 0 cf Outflow=0.03 cfs 6,453 cf

Pond 14P: DIV-03 Peak Elev=45.00' Inflow=2.33 cfs 7,394 cf
Primary=1.18 cfs 6,744 cf Secondary=1.15 cfs 651 cf Outflow=2.33 cfs 7,394 cf

Pond 15P: Detention Basin 1 Peak Elev=45.36' Storage=18,313 cf Inflow=12.58 cfs 53,726 cf
Primary=3.87 cfs 53,432 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=3.87 cfs 53,432 cf

Pond 17P: Track and Field- stone base Peak Elev=50.61' Storage=3,486 cf Inflow=6.52 cfs 23,175 cf
Discarded=0.60 cfs 15,388 cf Primary=3.81 cfs 7,787 cf Outflow=4.41 cfs 23,175 cf

Pond 18P: Sand Filter 2 Peak Elev=55.64' Storage=6,350 cf Inflow=3.08 cfs 13,799 cf
Discarded=0.01 cfs 3,151 cf Primary=1.30 cfs 6,859 cf Secondary=0.00 cfs 0 cf Outflow=1.31 cfs 10,010 cf

Pond 19P: Sand Filter 3 Peak Elev=60.46' Storage=3,309 cf Inflow=1.27 cfs 4,035 cf
Discarded=0.01 cfs 2,882 cf Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Outflow=0.01 cfs 2,882 cf

Pond 20P: Sand Filter 4 Peak Elev=60.56' Storage=914 cf Inflow=1.10 cfs 4,371 cf
Outflow=0.34 cfs 4,371 cf

Pond 23P: UGIS-1 Peak Elev=48.55' Storage=10,490 cf Inflow=5.69 cfs 12,621 cf
Discarded=0.07 cfs 11,706 cf Primary=0.38 cfs 914 cf Outflow=0.45 cfs 12,621 cf

Pond 28P: DIV-01 Peak Elev=47.52' Inflow=10.46 cfs 47,763 cf
Primary=2.08 cfs 13,214 cf Secondary=8.38 cfs 34,549 cf Outflow=10.46 cfs 47,763 cf

Pond 33P: Wet Swale Peak Elev=59.83' Storage=4,637 cf Inflow=3.55 cfs 11,677 cf
Discarded=0.01 cfs 2,253 cf Primary=2.92 cfs 6,801 cf Secondary=0.00 cfs 0 cf Outflow=2.93 cfs 9,055 cf

Pond 35P: Track and Field-manifold Peak Elev=49.42' Storage=2,712 cf Inflow=7.64 cfs 23,426 cf
Discarded=0.53 cfs 7,205 cf Primary=5.82 cfs 16,220 cf Outflow=6.34 cfs 23,426 cf

Link 2L: DP 1.1 - Culvert 1 Inflow=10.49 cfs 50,816 cf
Primary=10.49 cfs 50,816 cf

Link 3L: DP 1.2 - Culvert 2 Inflow=11.53 cfs 58,716 cf
Primary=11.53 cfs 58,716 cf

Link 4L: DP 1.3 - Culvert 3 Inflow=12.03 cfs 61,904 cf
Primary=12.03 cfs 61,904 cf

Link 5L: DP 1.4 - Silver Creek East Branch Inflow=23.76 cfs 126,057 cf
Primary=23.76 cfs 126,057 cf

Link 6L: DP 2.1 - West Wetland Inflow=7.34 cfs 70,534 cf
Primary=7.34 cfs 70,534 cf

Link 7L: DP 2.2 - Silver Creek West Branch Inflow=8.94 cfs 90,169 cf
Primary=8.94 cfs 90,169 cf

Total Runoff Area = 2,076,121 sf Runoff Volume = 291,346 cf Average Runoff Depth = 1.68"
69.74% Pervious = 1,447,959 sf 30.26% Impervious = 628,161 sf

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PDA-1.1A: Subcat PDA-1.1A Runoff Area=475,005 sf 1.72% Impervious Runoff Depth=2.54"
Flow Length=451' Slope=0.0100 '/' Tc=21.1 min CN=77 Runoff=21.30 cfs 100,525 cf

Subcatchment PDA-1.1B: Subcat PDA-1.1B Runoff Area=32,995 sf 0.06% Impervious Runoff Depth=2.54"
Flow Length=126' Tc=13.1 min CN=77 Runoff=1.78 cfs 6,983 cf

Subcatchment PDA-1.2A: Subcat PDA-1.2A Runoff Area=25,858 sf 15.00% Impervious Runoff Depth=2.81"
Flow Length=73' Tc=7.3 min UI Adjusted CN=80 Runoff=1.84 cfs 6,046 cf

Subcatchment PDA-1.3A: Subcat PDA-1.3A Runoff Area=57,295 sf 71.89% Impervious Runoff Depth=3.99"
Flow Length=198' Slope=0.0100 '/' Tc=6.5 min CN=92 Runoff=5.65 cfs 19,058 cf

Subcatchment PDA-1.3C: Subcat PDA-1.3C Runoff Area=16,850 sf 41.68% Impervious Runoff Depth=3.18"
Flow Length=49' Tc=6.8 min CN=84 Runoff=1.37 cfs 4,464 cf

Subcatchment PDA-1.3D: Subcat PDA-1.3D Runoff Area=6,850 sf 40.75% Impervious Runoff Depth=3.18"
Tc=6.0 min CN=84 Runoff=0.57 cfs 1,815 cf

Subcatchment PDA-1.4A: Subcat PDA-1.4A Runoff Area=31,007 sf 23.95% Impervious Runoff Depth=3.08"
Flow Length=144' Tc=13.4 min CN=83 Runoff=2.01 cfs 7,968 cf

Subcatchment PDA-1.4B: Subcat PDA-1.4B Runoff Area=50,506 sf 38.51% Impervious Runoff Depth=3.28"
Flow Length=98' Tc=13.9 min CN=85 Runoff=3.42 cfs 13,787 cf

Subcatchment PDA-1.4C: Subcat PDA-1.4C Runoff Area=26,810 sf 65.14% Impervious Runoff Depth=3.78"
Tc=6.0 min CN=90 Runoff=2.58 cfs 8,445 cf

Subcatchment PDA-1.4D: Subcat PDA-1.4D Runoff Area=42,514 sf 58.56% Impervious Runoff Depth=3.57"
Tc=6.0 min CN=88 Runoff=3.91 cfs 12,662 cf

Subcatchment PDA-1.4E: Subcat PDA-1.4E Runoff Area=39,245 sf 61.68% Impervious Runoff Depth=3.68"
Tc=6.0 min CN=89 Runoff=3.69 cfs 12,023 cf

Subcatchment PDA-1.4F: Subcat PDA-1.4F Runoff Area=73,858 sf 54.96% Impervious Runoff Depth=3.47"
Flow Length=346' Tc=14.5 min CN=87 Runoff=5.19 cfs 21,377 cf

Subcatchment PDA-1.4G: Subcat PDA-1.4G Runoff Area=22,284 sf 62.39% Impervious Runoff Depth=3.68"
Tc=6.0 min CN=89 Runoff=2.10 cfs 6,827 cf

Subcatchment PDA-1.4H: Subcat PDA-1.4H Runoff Area=10,744 sf 5.59% Impervious Runoff Depth=2.37"
Tc=6.0 min CN=75 Runoff=0.67 cfs 2,120 cf

Subcatchment PDA-1.4I: Subcat PDA-1.4I Runoff Area=9,824 sf 27.06% Impervious Runoff Depth=2.90"
Tc=6.0 min CN=81 Runoff=0.75 cfs 2,372 cf

Subcatchment PDA-1.4J: Subcat PDA-1.4J Runoff Area=59,466 sf 8.43% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=79 Runoff=4.26 cfs 13,458 cf

Subcatchment PDA-1.4K: Subcat PDA-1.4K Runoff Area=18,876 sf 80.13% Impervious Runoff Depth=4.10"
Tc=6.0 min CN=93 Runoff=1.92 cfs 6,449 cf

Subcatchment PDA-1.4L: Subcat PDA-1.4L Runoff Area=11,978 sf 23.00% Impervious Runoff Depth=2.81"
Flow Length=75' Tc=8.5 min CN=80 Runoff=0.82 cfs 2,801 cf

Subcatchment PDA-1.4M: Subcat PDA-1.4M Runoff Area=4,734 sf 3.38% Impervious Runoff Depth=2.37"
Flow Length=166' Slope=0.0100 '/' Tc=14.3 min CN=75 Runoff=0.23 cfs 934 cf

Subcatchment PDA-2.1A: Subcat Runoff Area=308,645 sf 26.49% Impervious Runoff Depth=2.90"
Flow Length=269' Tc=16.3 min CN=81 Runoff=17.58 cfs 74,515 cf

Subcatchment PDA-2.1B: Subcat PDA-2.1B Runoff Area=188,298 sf 8.27% Impervious Runoff Depth=2.45"
Flow Length=123' Tc=17.0 min UI Adjusted CN=76 Runoff=8.88 cfs 38,497 cf

Subcatchment PDA-2.2A: Subcat Runoff Area=159,283 sf 25.22% Impervious Runoff Depth=2.81"
Tc=12.9 min CN=80 Runoff=9.52 cfs 37,243 cf

Subcatchment PDA-2.2B: Subcat PDA-2.2B Runoff Area=152,260 sf 1.56% Impervious Runoff Depth=2.12"
Flow Length=565' Slope=0.0120 '/' Tc=40.0 min CN=72 Runoff=4.21 cfs 26,914 cf

Subcatchment PDA-2.2C.a: Subcat Runoff Area=90,671 sf 100.00% Impervious Runoff Depth=4.66"
Tc=6.0 min CN=98 Runoff=9.74 cfs 35,236 cf

Subcatchment PDA-2.2C.b: Subcat Runoff Area=61,186 sf 99.99% Impervious Runoff Depth=4.66"
Tc=6.0 min CN=98 Runoff=6.57 cfs 23,777 cf

Subcatchment PDA-ROOF1.3: Subcat Runoff Area=9,782 sf 100.00% Impervious Runoff Depth=4.66"
Tc=6.0 min CN=98 Runoff=1.05 cfs 3,801 cf

Subcatchment PDA-ROOF1.4: Subcat Runoff Area=58,210 sf 100.00% Impervious Runoff Depth=4.66"
Tc=6.0 min CN=98 Runoff=6.25 cfs 22,621 cf

Subcatchment PDA-ROOF2.1: Subcat Runoff Area=31,087 sf 100.00% Impervious Runoff Depth=4.66"
Tc=6.0 min CN=98 Runoff=3.34 cfs 12,081 cf

Pond 1P: Bio 4 Peak Elev=60.40' Storage=1,240 cf Inflow=1.37 cfs 4,464 cf
Discarded=0.01 cfs 1,182 cf Primary=1.56 cfs 2,975 cf Outflow=1.57 cfs 4,157 cf

Pond 2P: Bio 3 Peak Elev=59.80' Storage=1,149 cf Inflow=1.62 cfs 5,616 cf
Primary=1.63 cfs 3,177 cf Secondary=0.00 cfs 0 cf Tertiary=0.02 cfs 2,440 cf Outflow=1.66 cfs 5,616 cf

Pond 3P: DIV-02 Peak Elev=57.05' Inflow=3.42 cfs 15,489 cf
Primary=1.00 cfs 12,206 cf Secondary=2.42 cfs 3,283 cf Outflow=3.42 cfs 15,489 cf

Pond 4P: Detention Basin 2 Peak Elev=58.09' Storage=7,295 cf Inflow=4.97 cfs 16,248 cf
Primary=1.40 cfs 16,217 cf Secondary=0.00 cfs 0 cf Outflow=1.40 cfs 16,217 cf

Pond 7P: Bio 2 Peak Elev=56.57' Storage=2,245 cf Inflow=2.58 cfs 8,445 cf
Primary=2.48 cfs 4,648 cf Secondary=0.00 cfs 0 cf Tertiary=0.03 cfs 3,797 cf Outflow=2.51 cfs 8,445 cf

Pond 8P: DIV-04 Peak Elev=48.81' Inflow=8.84 cfs 28,730 cf
Primary=5.84 cfs 15,464 cf Secondary=5.06 cfs 13,262 cf Outflow=8.84 cfs 28,726 cf

Pond 9P: Sand Filter 5 Peak Elev=49.90' Storage=1,538 cf Inflow=2.08 cfs 7,383 cf
Discarded=0.01 cfs 1,322 cf Primary=1.89 cfs 5,586 cf Secondary=0.00 cfs 0 cf Outflow=1.90 cfs 6,908 cf

Pond 10P: Bio 1 Peak Elev=44.52' Storage=1,752 cf Inflow=1.30 cfs 10,430 cf
Discarded=0.00 cfs 1,084 cf Primary=1.25 cfs 8,550 cf Secondary=0.00 cfs 0 cf Outflow=1.26 cfs 9,635 cf

Pond 12P: Infiltration Basin 1 Peak Elev=58.12' Storage=6,634 cf Inflow=7.00 cfs 24,993 cf
Discarded=0.02 cfs 3,881 cf Primary=6.27 cfs 18,557 cf Secondary=0.00 cfs 0 cf Outflow=6.29 cfs 22,438 cf

Pond 13P: Sand Filter 1 Peak Elev=47.33' Storage=14,090 cf Inflow=2.00 cfs 15,079 cf
Discarded=0.03 cfs 6,586 cf Secondary=0.00 cfs 0 cf Outflow=0.03 cfs 6,586 cf

Pond 14P: DIV-03 Peak Elev=45.11' Inflow=3.91 cfs 12,662 cf
Primary=1.30 cfs 10,430 cf Secondary=2.61 cfs 2,232 cf Outflow=3.91 cfs 12,662 cf

Pond 15P: Detention Basin 1 Peak Elev=46.44' Storage=36,115 cf Inflow=26.16 cfs 110,014 cf
Primary=10.51 cfs 109,713 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=10.51 cfs 109,713 cf

Pond 17P: Track and Field- stone base Peak Elev=50.66' Storage=5,025 cf Inflow=9.74 cfs 35,236 cf
Discarded=0.61 cfs 20,879 cf Primary=5.58 cfs 14,357 cf Outflow=6.19 cfs 35,236 cf

Pond 18P: Sand Filter 2 Peak Elev=55.74' Storage=6,931 cf Inflow=4.64 cfs 24,229 cf
Discarded=0.01 cfs 3,235 cf Primary=3.60 cfs 17,202 cf Secondary=0.00 cfs 0 cf Outflow=3.62 cfs 20,437 cf

Pond 19P: Sand Filter 3 Peak Elev=60.77' Storage=4,373 cf Inflow=2.10 cfs 6,827 cf
Discarded=0.01 cfs 2,958 cf Primary=0.15 cfs 1,702 cf Secondary=0.00 cfs 0 cf Outflow=0.16 cfs 4,660 cf

Pond 20P: Sand Filter 4 Peak Elev=61.53' Storage=2,240 cf Inflow=2.01 cfs 7,968 cf
Outflow=0.78 cfs 7,968 cf

Pond 23P: UGIS-1 Peak Elev=48.74' Storage=11,219 cf Inflow=5.84 cfs 15,464 cf
Discarded=0.08 cfs 12,512 cf Primary=1.25 cfs 2,952 cf Outflow=1.33 cfs 15,464 cf

Pond 28P: DIV-01 Peak Elev=47.99' Inflow=19.32 cfs 86,596 cf
Primary=2.00 cfs 15,079 cf Secondary=17.33 cfs 71,517 cf Outflow=19.32 cfs 86,596 cf

Pond 33P: Wet Swale Peak Elev=59.96' Storage=5,292 cf Inflow=5.65 cfs 19,058 cf
Discarded=0.01 cfs 2,307 cf Primary=4.44 cfs 14,127 cf Secondary=0.00 cfs 0 cf Outflow=4.45 cfs 16,434 cf

Pond 35P: Track and Field-manifold Peak Elev=49.69' Storage=3,941 cf Inflow=11.52 cfs 38,134 cf
Discarded=0.67 cfs 9,404 cf Primary=8.84 cfs 28,730 cf Outflow=9.51 cfs 38,134 cf

Link 2L: DP 1.1 - Culvert 1 Inflow=21.30 cfs 100,525 cf
Primary=21.30 cfs 100,525 cf

Link 3L: DP 1.2 - Culvert 2 Inflow=23.10 cfs 115,476 cf
Primary=23.10 cfs 115,476 cf

Link 4L: DP 1.3 - Culvert 3 Inflow=24.04 cfs 121,522 cf
Primary=24.04 cfs 121,522 cf

Link 5L: DP 1.4 - Silver Creek East Branch Inflow=50.36 cfs 247,820 cf
Primary=50.36 cfs 247,820 cf

Link 6L: DP 2.1 - West Wetland Inflow=20.08 cfs 152,841 cf
Primary=20.08 cfs 152,841 cf

Link 7L: DP 2.2 - Silver Creek West Branch Inflow=24.73 cfs 190,084 cf
Primary=24.73 cfs 190,084 cf

Total Runoff Area = 2,076,121 sf Runoff Volume = 524,799 cf Average Runoff Depth = 3.03"
69.74% Pervious = 1,447,959 sf 30.26% Impervious = 628,161 sf

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PDA-1.1A: Subcat PDA-1.1A Runoff Area=475,005 sf 1.72% Impervious Runoff Depth=3.57"
Flow Length=451' Slope=0.0100 '/' Tc=21.1 min CN=77 Runoff=29.98 cfs 141,177 cf

Subcatchment PDA-1.1B: Subcat PDA-1.1B Runoff Area=32,995 sf 0.06% Impervious Runoff Depth=3.57"
Flow Length=126' Tc=13.1 min CN=77 Runoff=2.50 cfs 9,807 cf

Subcatchment PDA-1.2A: Subcat PDA-1.2A Runoff Area=25,858 sf 15.00% Impervious Runoff Depth=3.87"
Flow Length=73' Tc=7.3 min UI Adjusted CN=80 Runoff=2.53 cfs 8,343 cf

Subcatchment PDA-1.3A: Subcat PDA-1.3A Runoff Area=57,295 sf 71.89% Impervious Runoff Depth=5.17"
Flow Length=198' Slope=0.0100 '/' Tc=6.5 min CN=92 Runoff=7.21 cfs 24,674 cf

Subcatchment PDA-1.3C: Subcat PDA-1.3C Runoff Area=16,850 sf 41.68% Impervious Runoff Depth=4.29"
Flow Length=49' Tc=6.8 min CN=84 Runoff=1.84 cfs 6,024 cf

Subcatchment PDA-1.3D: Subcat PDA-1.3D Runoff Area=6,850 sf 40.75% Impervious Runoff Depth=4.29"
Tc=6.0 min CN=84 Runoff=0.76 cfs 2,449 cf

Subcatchment PDA-1.4A: Subcat PDA-1.4A Runoff Area=31,007 sf 23.95% Impervious Runoff Depth=4.18"
Flow Length=144' Tc=13.4 min CN=83 Runoff=2.70 cfs 10,812 cf

Subcatchment PDA-1.4B: Subcat PDA-1.4B Runoff Area=50,506 sf 38.51% Impervious Runoff Depth=4.40"
Flow Length=98' Tc=13.9 min CN=85 Runoff=4.55 cfs 18,506 cf

Subcatchment PDA-1.4C: Subcat PDA-1.4C Runoff Area=26,810 sf 65.14% Impervious Runoff Depth=4.94"
Tc=6.0 min CN=90 Runoff=3.32 cfs 11,044 cf

Subcatchment PDA-1.4D: Subcat PDA-1.4D Runoff Area=42,514 sf 58.56% Impervious Runoff Depth=4.72"
Tc=6.0 min CN=88 Runoff=5.10 cfs 16,730 cf

Subcatchment PDA-1.4E: Subcat PDA-1.4E Runoff Area=39,245 sf 61.68% Impervious Runoff Depth=4.83"
Tc=6.0 min CN=89 Runoff=4.78 cfs 15,804 cf

Subcatchment PDA-1.4F: Subcat PDA-1.4F Runoff Area=73,858 sf 54.96% Impervious Runoff Depth=4.61"
Flow Length=346' Tc=14.5 min CN=87 Runoff=6.82 cfs 28,392 cf

Subcatchment PDA-1.4G: Subcat PDA-1.4G Runoff Area=22,284 sf 62.39% Impervious Runoff Depth=4.83"
Tc=6.0 min CN=89 Runoff=2.72 cfs 8,974 cf

Subcatchment PDA-1.4H: Subcat PDA-1.4H Runoff Area=10,744 sf 5.59% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=75 Runoff=0.95 cfs 3,015 cf

Subcatchment PDA-1.4I: Subcat PDA-1.4I Runoff Area=9,824 sf 27.06% Impervious Runoff Depth=3.97"
Tc=6.0 min CN=81 Runoff=1.02 cfs 3,254 cf

Subcatchment PDA-1.4J: Subcat PDA-1.4J Runoff Area=59,466 sf 8.43% Impervious Runoff Depth=3.77"
Tc=6.0 min CN=79 Runoff=5.89 cfs 18,678 cf

Subcatchment PDA-1.4K: Subcat PDA-1.4K Runoff Area=18,876 sf 80.13% Impervious Runoff Depth=5.28"
Tc=6.0 min CN=93 Runoff=2.43 cfs 8,308 cf

Subcatchment PDA-1.4L: Subcat PDA-1.4L Runoff Area=11,978 sf 23.00% Impervious Runoff Depth=3.87"
Flow Length=75' Tc=8.5 min CN=80 Runoff=1.13 cfs 3,864 cf

Subcatchment PDA-1.4M: Subcat PDA-1.4M Runoff Area=4,734 sf 3.38% Impervious Runoff Depth=3.37"
Flow Length=166' Slope=0.0100 '/' Tc=14.3 min CN=75 Runoff=0.33 cfs 1,329 cf

Subcatchment PDA-2.1A: Subcat Runoff Area=308,645 sf 26.49% Impervious Runoff Depth=3.97"
Flow Length=269' Tc=16.3 min CN=81 Runoff=24.01 cfs 102,238 cf

Subcatchment PDA-2.1B: Subcat PDA-2.1B Runoff Area=188,298 sf 8.27% Impervious Runoff Depth=3.47"
Flow Length=123' Tc=17.0 min UI Adjusted CN=76 Runoff=12.59 cfs 54,396 cf

Subcatchment PDA-2.2A: Subcat Runoff Area=159,283 sf 25.22% Impervious Runoff Depth=3.87"
Tc=12.9 min CN=80 Runoff=13.10 cfs 51,390 cf

Subcatchment PDA-2.2B: Subcat PDA-2.2B Runoff Area=152,260 sf 1.56% Impervious Runoff Depth=3.08"
Flow Length=565' Slope=0.0120 '/' Tc=40.0 min CN=72 Runoff=6.18 cfs 39,019 cf

Subcatchment PDA-2.2C.a: Subcat Runoff Area=90,671 sf 100.00% Impervious Runoff Depth=5.86"
Tc=6.0 min CN=98 Runoff=12.15 cfs 44,291 cf

Subcatchment PDA-2.2C.b: Subcat Runoff Area=61,186 sf 99.99% Impervious Runoff Depth=5.86"
Tc=6.0 min CN=98 Runoff=8.20 cfs 29,888 cf

Subcatchment PDA-ROOF1.3: Subcat Runoff Area=9,782 sf 100.00% Impervious Runoff Depth=5.86"
Tc=6.0 min CN=98 Runoff=1.31 cfs 4,778 cf

Subcatchment PDA-ROOF1.4: Subcat Runoff Area=58,210 sf 100.00% Impervious Runoff Depth=5.86"
Tc=6.0 min CN=98 Runoff=7.80 cfs 28,434 cf

Subcatchment PDA-ROOF2.1: Subcat Runoff Area=31,087 sf 100.00% Impervious Runoff Depth=5.86"
Tc=6.0 min CN=98 Runoff=4.17 cfs 15,185 cf

Pond 1P: Bio 4 Peak Elev=60.42' Storage=1,269 cf Inflow=1.84 cfs 6,024 cf
Discarded=0.01 cfs 1,199 cf Primary=1.70 cfs 4,518 cf Outflow=1.71 cfs 5,717 cf

Pond 2P: Bio 3 Peak Elev=59.81' Storage=1,156 cf Inflow=2.07 cfs 7,227 cf
Primary=2.06 cfs 4,710 cf Secondary=0.00 cfs 0 cf Tertiary=0.02 cfs 2,518 cf Outflow=2.08 cfs 7,227 cf

Pond 3P: DIV-02 Peak Elev=57.28' Inflow=4.53 cfs 22,310 cf
Primary=1.19 cfs 15,908 cf Secondary=3.35 cfs 6,401 cf Outflow=4.53 cfs 22,310 cf

Pond 4P: Detention Basin 2 Peak Elev=58.45' Storage=8,743 cf Inflow=6.12 cfs 22,733 cf
Primary=3.94 cfs 22,701 cf Secondary=0.00 cfs 0 cf Outflow=3.94 cfs 22,701 cf

Pond 7P: Bio 2 Peak Elev=56.60' Storage=2,322 cf Inflow=3.32 cfs 11,044 cf
Primary=3.07 cfs 7,152 cf Secondary=0.00 cfs 0 cf Tertiary=0.03 cfs 3,892 cf Outflow=3.10 cfs 11,044 cf

Pond 8P: DIV-04 Peak Elev=48.94' Inflow=10.79 cfs 39,057 cf
Primary=4.97 cfs 18,058 cf Secondary=7.74 cfs 20,998 cf Outflow=10.79 cfs 39,057 cf

Pond 9P: Sand Filter 5 Peak Elev=49.99' Storage=1,640 cf Inflow=2.67 cfs 9,636 cf
Discarded=0.01 cfs 1,340 cf Primary=2.37 cfs 7,820 cf Secondary=0.00 cfs 0 cf Outflow=2.38 cfs 9,160 cf

Pond 10P: Bio 1 Peak Elev=44.53' Storage=1,784 cf Inflow=1.49 cfs 13,067 cf
Discarded=0.00 cfs 1,099 cf Primary=1.36 cfs 11,173 cf Secondary=0.00 cfs 0 cf Outflow=1.36 cfs 12,271 cf

Pond 12P: Infiltration Basin 1 Peak Elev=58.21' Storage=6,907 cf Inflow=8.82 cfs 31,688 cf
Discarded=0.02 cfs 3,926 cf Primary=8.01 cfs 25,206 cf Secondary=0.00 cfs 0 cf Outflow=8.03 cfs 29,132 cf

Pond 13P: Sand Filter 1 Peak Elev=47.60' Storage=16,399 cf Inflow=2.15 cfs 17,430 cf
Discarded=0.03 cfs 6,639 cf Secondary=0.00 cfs 0 cf Outflow=0.03 cfs 6,639 cf

Pond 14P: DIV-03 Peak Elev=45.31' Inflow=5.10 cfs 16,730 cf
Primary=1.49 cfs 13,067 cf Secondary=3.61 cfs 3,663 cf Outflow=5.10 cfs 16,730 cf

Pond 15P: Detention Basin 1 Peak Elev=47.23' Storage=50,894 cf Inflow=36.61 cfs 154,388 cf
Primary=14.97 cfs 153,822 cf Secondary=0.44 cfs 263 cf Tertiary=0.00 cfs 0 cf Outflow=15.41 cfs 154,085 cf

Pond 17P: Track and Field- stone base Peak Elev=50.71' Storage=6,315 cf Inflow=12.15 cfs 44,291 cf
Discarded=0.62 cfs 24,299 cf Primary=6.69 cfs 19,992 cf Outflow=7.31 cfs 44,291 cf

Pond 18P: Sand Filter 2 Peak Elev=55.82' Storage=7,420 cf Inflow=5.80 cfs 31,712 cf
Discarded=0.01 cfs 3,280 cf Primary=4.53 cfs 24,638 cf Secondary=0.00 cfs 0 cf Outflow=4.55 cfs 27,918 cf

Pond 19P: Sand Filter 3 Peak Elev=60.81' Storage=4,523 cf Inflow=2.72 cfs 8,974 cf
Discarded=0.01 cfs 3,001 cf Primary=1.01 cfs 3,804 cf Secondary=0.00 cfs 0 cf Outflow=1.03 cfs 6,805 cf

Pond 20P: Sand Filter 4 Peak Elev=61.59' Storage=2,380 cf Inflow=2.70 cfs 10,812 cf
Outflow=1.88 cfs 10,812 cf

Pond 23P: UGIS-1 Peak Elev=48.84' Storage=11,524 cf Inflow=4.97 cfs 18,058 cf
Discarded=0.08 cfs 13,090 cf Primary=1.81 cfs 4,968 cf Outflow=1.89 cfs 18,058 cf

Pond 28P: DIV-01 Peak Elev=48.42' Inflow=26.21 cfs 117,423 cf
Primary=2.15 cfs 17,430 cf Secondary=24.07 cfs 99,993 cf Outflow=26.21 cfs 117,423 cf

Pond 33P: Wet Swale Peak Elev=60.06' Storage=5,815 cf Inflow=7.21 cfs 24,674 cf
Discarded=0.01 cfs 2,331 cf Primary=5.38 cfs 19,718 cf Secondary=0.00 cfs 0 cf Outflow=5.39 cfs 22,049 cf

Pond 35P: Track and Field-manifold Peak Elev=49.88' Storage=4,825 cf Inflow=14.09 cfs 49,880 cf
Discarded=0.77 cfs 10,824 cf Primary=10.79 cfs 39,057 cf Outflow=11.55 cfs 49,880 cf

Link 2L: DP 1.1 - Culvert 1 Inflow=29.98 cfs 141,177 cf
Primary=29.98 cfs 141,177 cf

Link 3L: DP 1.2 - Culvert 2 Inflow=33.70 cfs 161,796 cf
Primary=33.70 cfs 161,796 cf

Link 4L: DP 1.3 - Culvert 3 Inflow=34.91 cfs 170,138 cf
Primary=34.91 cfs 170,138 cf

Link 5L: DP 1.4 - Silver Creek East Branch Inflow=69.22 cfs 345,464 cf
Primary=69.22 cfs 345,464 cf

Link 6L: DP 2.1 - West Wetland Inflow=28.72 cfs 219,071 cf
Primary=28.72 cfs 219,071 cf

Link 7L: DP 2.2 - Silver Creek West Branch Inflow=35.89 cfs 270,462 cf
Primary=35.89 cfs 270,462 cf

Total Runoff Area = 2,076,121 sf Runoff Volume = 710,802 cf Average Runoff Depth = 4.11"
69.74% Pervious = 1,447,959 sf 30.26% Impervious = 628,161 sf

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PDA-1.1A: Subcat PDA-1.1A Runoff Area=475,005 sf 1.72% Impervious Runoff Depth=5.83"
Flow Length=451' Slope=0.0100 '/' Tc=21.1 min CN=77 Runoff=48.60 cfs 230,673 cf

Subcatchment PDA-1.1B: Subcat PDA-1.1B Runoff Area=32,995 sf 0.06% Impervious Runoff Depth=5.83"
Flow Length=126' Tc=13.1 min CN=77 Runoff=4.04 cfs 16,023 cf

Subcatchment PDA-1.2A: Subcat PDA-1.2A Runoff Area=25,858 sf 15.00% Impervious Runoff Depth=6.19"
Flow Length=73' Tc=7.3 min UI Adjusted CN=80 Runoff=3.99 cfs 13,338 cf

Subcatchment PDA-1.3A: Subcat PDA-1.3A Runoff Area=57,295 sf 71.89% Impervious Runoff Depth=7.64"
Flow Length=198' Slope=0.0100 '/' Tc=6.5 min CN=92 Runoff=10.42 cfs 36,468 cf

Subcatchment PDA-1.3C: Subcat PDA-1.3C Runoff Area=16,850 sf 41.68% Impervious Runoff Depth=6.67"
Flow Length=49' Tc=6.8 min CN=84 Runoff=2.80 cfs 9,370 cf

Subcatchment PDA-1.3D: Subcat PDA-1.3D Runoff Area=6,850 sf 40.75% Impervious Runoff Depth=6.67"
Tc=6.0 min CN=84 Runoff=1.16 cfs 3,809 cf

Subcatchment PDA-1.4A: Subcat PDA-1.4A Runoff Area=31,007 sf 23.95% Impervious Runoff Depth=6.55"
Flow Length=144' Tc=13.4 min CN=83 Runoff=4.16 cfs 16,930 cf

Subcatchment PDA-1.4B: Subcat PDA-1.4B Runoff Area=50,506 sf 38.51% Impervious Runoff Depth=6.79"
Flow Length=98' Tc=13.9 min CN=85 Runoff=6.89 cfs 28,592 cf

Subcatchment PDA-1.4C: Subcat PDA-1.4C Runoff Area=26,810 sf 65.14% Impervious Runoff Depth=7.40"
Tc=6.0 min CN=90 Runoff=4.85 cfs 16,525 cf

Subcatchment PDA-1.4D: Subcat PDA-1.4D Runoff Area=42,514 sf 58.56% Impervious Runoff Depth=7.16"
Tc=6.0 min CN=88 Runoff=7.55 cfs 25,351 cf

Subcatchment PDA-1.4E: Subcat PDA-1.4E Runoff Area=39,245 sf 61.68% Impervious Runoff Depth=7.28"
Tc=6.0 min CN=89 Runoff=7.04 cfs 23,796 cf

Subcatchment PDA-1.4F: Subcat PDA-1.4F Runoff Area=73,858 sf 54.96% Impervious Runoff Depth=7.03"
Flow Length=346' Tc=14.5 min CN=87 Runoff=10.18 cfs 43,298 cf

Subcatchment PDA-1.4G: Subcat PDA-1.4G Runoff Area=22,284 sf 62.39% Impervious Runoff Depth=7.28"
Tc=6.0 min CN=89 Runoff=4.00 cfs 13,512 cf

Subcatchment PDA-1.4H: Subcat PDA-1.4H Runoff Area=10,744 sf 5.59% Impervious Runoff Depth=5.59"
Tc=6.0 min CN=75 Runoff=1.57 cfs 5,001 cf

Subcatchment PDA-1.4I: Subcat PDA-1.4I Runoff Area=9,824 sf 27.06% Impervious Runoff Depth=6.31"
Tc=6.0 min CN=81 Runoff=1.59 cfs 5,166 cf

Subcatchment PDA-1.4J: Subcat PDA-1.4J Runoff Area=59,466 sf 8.43% Impervious Runoff Depth=6.07"
Tc=6.0 min CN=79 Runoff=9.35 cfs 30,074 cf

Subcatchment PDA-1.4K: Subcat PDA-1.4K Runoff Area=18,876 sf 80.13% Impervious Runoff Depth=7.76"
Tc=6.0 min CN=93 Runoff=3.50 cfs 12,204 cf

Subcatchment PDA-1.4L: Subcat PDA-1.4L Runoff Area=11,978 sf 23.00% Impervious Runoff Depth=6.19"
Flow Length=75' Tc=8.5 min CN=80 Runoff=1.77 cfs 6,178 cf

Subcatchment PDA-1.4M: Subcat PDA-1.4M Runoff Area=4,734 sf 3.38% Impervious Runoff Depth=5.59"
Flow Length=166' Slope=0.0100 '/' Tc=14.3 min CN=75 Runoff=0.54 cfs 2,204 cf

Subcatchment PDA-2.1A: Subcat Runoff Area=308,645 sf 26.49% Impervious Runoff Depth=6.31"
Flow Length=269' Tc=16.3 min CN=81 Runoff=37.58 cfs 162,305 cf

Subcatchment PDA-2.1B: Subcat PDA-2.1B Runoff Area=188,298 sf 8.27% Impervious Runoff Depth=5.71"
Flow Length=123' Tc=17.0 min UI Adjusted CN=76 Runoff=20.59 cfs 89,549 cf

Subcatchment PDA-2.2A: Subcat Runoff Area=159,283 sf 25.22% Impervious Runoff Depth=6.19"
Tc=12.9 min CN=80 Runoff=20.77 cfs 82,159 cf

Subcatchment PDA-2.2B: Subcat PDA-2.2B Runoff Area=152,260 sf 1.56% Impervious Runoff Depth=5.22"
Flow Length=565' Slope=0.0120 '/' Tc=40.0 min CN=72 Runoff=10.52 cfs 66,293 cf

Subcatchment PDA-2.2C.a: Subcat Runoff Area=90,671 sf 100.00% Impervious Runoff Depth=8.36"
Tc=6.0 min CN=98 Runoff=17.17 cfs 63,166 cf

Subcatchment PDA-2.2C.b: Subcat Runoff Area=61,186 sf 99.99% Impervious Runoff Depth=8.36"
Tc=6.0 min CN=98 Runoff=11.58 cfs 42,625 cf

Subcatchment PDA-ROOF1.3: Subcat Runoff Area=9,782 sf 100.00% Impervious Runoff Depth=8.36"
Tc=6.0 min CN=98 Runoff=1.85 cfs 6,815 cf

Subcatchment PDA-ROOF1.4: Subcat Runoff Area=58,210 sf 100.00% Impervious Runoff Depth=8.36"
Tc=6.0 min CN=98 Runoff=11.02 cfs 40,552 cf

Subcatchment PDA-ROOF2.1: Subcat Runoff Area=31,087 sf 100.00% Impervious Runoff Depth=8.36"
Tc=6.0 min CN=98 Runoff=5.89 cfs 21,657 cf

Pond 1P: Bio 4 Peak Elev=60.57' Storage=1,420 cf Inflow=2.80 cfs 9,370 cf
Discarded=0.01 cfs 1,229 cf Primary=2.48 cfs 7,833 cf Outflow=2.49 cfs 9,062 cf

Pond 2P: Bio 3 Peak Elev=59.84' Storage=1,189 cf Inflow=3.01 cfs 10,624 cf
Primary=2.93 cfs 8,024 cf Secondary=0.00 cfs 0 cf Tertiary=0.02 cfs 2,599 cf Outflow=2.95 cfs 10,624 cf

Pond 3P: DIV-02 Peak Elev=59.14' Inflow=9.34 cfs 36,870 cf
Primary=2.16 cfs 23,180 cf Secondary=7.18 cfs 13,690 cf Outflow=9.34 cfs 36,870 cf

Pond 4P: Detention Basin 2 Peak Elev=58.67' Storage=9,716 cf Inflow=8.27 cfs 36,480 cf
Primary=7.65 cfs 36,448 cf Secondary=0.00 cfs 0 cf Outflow=7.65 cfs 36,448 cf

Pond 7P: Bio 2 Peak Elev=56.70' Storage=2,547 cf Inflow=4.85 cfs 16,525 cf
Primary=4.32 cfs 12,489 cf Secondary=0.00 cfs 0 cf Tertiary=0.03 cfs 4,036 cf Outflow=4.35 cfs 16,525 cf

Pond 8P: DIV-04 Peak Elev=49.11' Inflow=14.35 cfs 62,243 cf
Primary=3.11 cfs 23,765 cf Secondary=11.57 cfs 38,479 cf Outflow=14.35 cfs 62,243 cf

Pond 9P: Sand Filter 5 Peak Elev=50.21' Storage=1,913 cf Inflow=3.90 cfs 14,408 cf
Discarded=0.01 cfs 1,366 cf Primary=3.27 cfs 12,558 cf Secondary=0.04 cfs 8 cf Outflow=3.32 cfs 13,931 cf

Pond 10P: Bio 1 Peak Elev=44.58' Storage=1,922 cf Inflow=2.08 cfs 18,573 cf
Discarded=0.00 cfs 1,118 cf Primary=1.74 cfs 16,660 cf Secondary=0.00 cfs 0 cf Outflow=1.74 cfs 17,777 cf

Pond 12P: Infiltration Basin 1 Peak Elev=58.37' Storage=7,433 cf Inflow=12.61 cfs 45,718 cf
Discarded=0.02 cfs 3,993 cf Primary=11.58 cfs 39,165 cf Secondary=0.00 cfs 0 cf Outflow=11.61 cfs 43,158 cf

Pond 13P: Sand Filter 1 Peak Elev=48.01' Storage=20,147 cf Inflow=2.89 cfs 21,241 cf
Discarded=0.03 cfs 6,698 cf Secondary=0.00 cfs 0 cf Outflow=0.03 cfs 6,698 cf

Pond 14P: DIV-03 Peak Elev=46.09' Inflow=7.55 cfs 25,351 cf
Primary=2.08 cfs 18,573 cf Secondary=5.47 cfs 6,777 cf Outflow=7.55 cfs 25,351 cf

Pond 15P: Detention Basin 1 Peak Elev=48.08' Storage=68,454 cf Inflow=58.37 cfs 252,270 cf
Primary=20.94 cfs 224,899 cf Secondary=16.87 cfs 27,065 cf Tertiary=0.00 cfs 0 cf Outflow=37.82 cfs 251,964 cf

Pond 17P: Track and Field- stone base Peak Elev=50.81' Storage=9,321 cf Inflow=17.17 cfs 63,166 cf
Discarded=0.65 cfs 29,957 cf Primary=8.73 cfs 33,209 cf Outflow=9.38 cfs 63,166 cf

Pond 18P: Sand Filter 2 Peak Elev=56.02' Storage=8,642 cf Inflow=8.80 cfs 46,977 cf
Discarded=0.01 cfs 3,341 cf Primary=6.23 cfs 39,822 cf Secondary=0.08 cfs 18 cf Outflow=6.33 cfs 43,181 cf

Pond 19P: Sand Filter 3 Peak Elev=61.01' Storage=5,343 cf Inflow=4.00 cfs 13,512 cf
Discarded=0.01 cfs 3,063 cf Primary=2.46 cfs 8,278 cf Secondary=0.00 cfs 0 cf Outflow=2.47 cfs 11,341 cf

Pond 20P: Sand Filter 4 Peak Elev=61.83' Storage=2,958 cf Inflow=4.16 cfs 16,930 cf
Outflow=3.25 cfs 16,930 cf

Pond 23P: UGIS-1 Peak Elev=48.95' Storage=11,811 cf Inflow=3.11 cfs 23,765 cf
Discarded=0.08 cfs 14,054 cf Primary=2.51 cfs 9,710 cf Outflow=2.59 cfs 23,764 cf

Pond 28P: DIV-01 Peak Elev=49.60' Inflow=40.71 cfs 183,962 cf
Primary=2.89 cfs 21,241 cf Secondary=37.82 cfs 162,721 cf Outflow=40.71 cfs 183,962 cf

Pond 33P: Wet Swale Peak Elev=60.29' Storage=7,104 cf Inflow=10.42 cfs 36,468 cf
Discarded=0.01 cfs 2,363 cf Primary=7.10 cfs 31,479 cf Secondary=0.00 cfs 0 cf Outflow=7.11 cfs 33,842 cf

Pond 35P: Track and Field-manifold Peak Elev=50.39' Storage=6,792 cf Inflow=19.17 cfs 75,834 cf
Discarded=1.03 cfs 13,591 cf Primary=14.35 cfs 62,243 cf Outflow=15.38 cfs 75,834 cf

Link 2L: DP 1.1 - Culvert 1 Inflow=48.60 cfs 230,673 cf
Primary=48.60 cfs 230,673 cf

Link 3L: DP 1.2 - Culvert 2 Inflow=55.08 cfs 263,626 cf
Primary=55.08 cfs 263,626 cf

Link 4L: DP 1.3 - Culvert 3 Inflow=57.19 cfs 276,963 cf
Primary=57.19 cfs 276,963 cf

Link 5L: DP 1.4 - Silver Creek East Branch Inflow=116.11 cfs 556,642 cf
Primary=116.11 cfs 556,642 cf

Link 6L: DP 2.1 - West Wetland Inflow=59.90 cfs 366,446 cf
Primary=59.90 cfs 366,446 cf

Link 7L: DP 2.2 - Silver Creek West Branch Inflow=71.29 cfs 448,605 cf
Primary=71.29 cfs 448,605 cf

Total Runoff Area = 2,076,121 sf Runoff Volume = 1,113,633 cf Average Runoff Depth = 6.44"
69.74% Pervious = 1,447,959 sf 30.26% Impervious = 628,161 sf

Hydraulic Design Table (25-year Design Storm)

Date 1/9/2025
Initials AJM

From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Total Drop	Average Slope	Pipe Diameter or Height	Manning's Roughness	Peak Flow	Max Flow Velocity	Design Flow Capacity	Max Flow / Design Flow Ratio
Column1	Column2	(ft)	(ft)3	(ft)5	(ft)7	(%)	(inches)	Column10	(cfs)16	(ft/sec)	(cfs)17	Column18
ROOF-3	DMH-102	5.00	56.50	56.25	0.25	5.0000	18.000	0.0120	1.24	3.43	25.45	0.05
ROOF-2	DMH-406	11.67	57.75	57.60	0.15	1.2900	12.000	0.0120	1.13	2.75	4.38	0.26
ROOF-1	DMH-401	51.64	58.75	57.50	1.25	2.4200	12.000	0.0120	3.78	6.47	6.01	0.63
ROOF-4	Bio-03	12.16	59.40	59.00	0.40	3.2900	12.000	0.0120	1.19	5.22	7.00	0.17
TrenchDrainLoading	DMH-301(OWS)	6.00	54.30	54.15	0.15	2.5000	12.000	0.0150	0.60	2.69	4.88	0.12
AD-208	SF-05	103.00	49.70	49.00	0.70	0.6800	12.000	0.0120	0.21	2.23	3.18	0.07
TrenchDrainWest	SandFilter-02	48.00	55.35	54.85	0.50	1.0400	12.000	0.0150	2.61	4.05	3.15	0.83
DMH-104	DMH-102	132.00	57.35	56.25	1.10	0.8300	12.000	0.0150	1.08	2.75	2.82	0.38
DIV-04	DMH-106	31.00	46.90	46.60	0.30	0.9700	24.000	0.0150	10.14	5.30	19.29	0.53
DIV-03	DMH-101	57.00	42.75	42.40	0.35	0.6100	15.000	0.0120	3.22	3.07	5.48	0.59
AD-101	AD-104	116.00	49.00	48.40	0.60	0.5200	12.000	0.0120	1.30	3.40	2.78	0.47
CB-406	CB-402	52.00	57.40	57.10	0.30	0.5800	12.000	0.0120	0.46	1.64	2.93	0.16
TrenchDrainEast	Sandfilter-05	24.00	50.00	49.00	1.00	4.1700	12.000	0.0120	1.94	6.90	7.88	0.25
AD-207	WetlandEast_DP1.4.4	25.00	47.25	47.10	0.15	0.6000	12.000	0.0120	2.21	3.60	2.99	0.74
ROOF-5	IB-1.1	40.00	55.25	55.00	0.25	0.6300	15.000	0.0120	4.77	4.38	5.53	0.86
DMH-308	DMH-309	65.00	51.25	50.90	0.35	0.5400	30.000	0.0130	16.58	5.24	30.10	0.55
DMH-309	DMH-108	77.00	50.90	50.50	0.40	0.5200	30.000	0.0130	16.57	6.02	29.56	0.56
DMH-108	CB-107	98.00	50.50	50.00	0.50	0.5100	30.000	0.0130	16.57	4.87	29.30	0.57
DMH-402	DMH-403	181.00	48.30	47.25	1.05	0.5800	24.000	0.0120	14.80	6.06	18.67	0.79
DIV-01	EX-DMH	33.60	46.10	44.10	2.00	5.9500	36.000	0.0130	41.04	8.35	162.73	0.25
EX-DMH	DB-01	18.00	44.10	44.00	0.10	0.5600	36.000	0.0130	41.04	6.43	49.71	0.83
DMH-107	WESTWETLAND1	25.00	44.20	44.05	0.15	0.6000	24.000	0.0130	7.82	4.31	17.52	0.45
AD-302	DMH-310	29.00	53.80	53.65	0.15	0.5200	15.000	0.0120	2.92	3.16	5.03	0.58
DMH-302	DMH-310	36.00	53.85	53.65	0.20	0.5600	15.000	0.0120	1.20	1.92	5.22	0.23
DMH-310	CB-302	55.00	53.65	53.35	0.30	0.5500	15.000	0.0120	3.28	4.07	5.17	0.64
AD-103	DMH-101	7.00	42.45	42.40	0.05	0.7100	12.000	0.0120	2.06	5.63	3.26	0.63
64	AD-204	83.43	58.45	58.00	0.45	0.5400	12.000	0.0120	0.32	2.37	2.83	0.11
AD-209	SF-5	160.00	50.60	49.00	1.60	1.0000	12.000	0.0120	0.00	0.00	3.86	0.00
AD-306	DMH-305	84.01	54.80	54.35	0.45	0.5400	12.000	0.0120	2.16	3.59	2.82	0.76

Hydraulic Design Table (25-year Design Storm)

Date 1/9/2025
Initials AJM

From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Total Drop	Average Slope	Pipe Diameter or Height	Manning's Roughness	Peak Flow	Max Flow Velocity	Design Flow Capacity	Max Flow / Design Flow Ratio
Column1	Column2	(ft)	(ft)3	(ft)5	(ft)7	(%)	(inches)	Column10	(cfs)16	(ft/sec)	(cfs)17	Column18
CB-102	CB-103	59.00	47.75	45.50	2.25	3.8100	12.000	0.0120	1.57	6.39	7.54	0.21
Synthetic-Turf	DIV-04	54.00	47.20	46.90	0.30	0.5600	18.000	0.0120	13.98	5.57	16.96	0.82
AD-205	CB-201	86.75	57.95	57.40	0.55	0.6300	12.000	0.0120	0.17	0.45	3.07	0.05
AD-204	CB-201	34.54	58.00	57.10	0.90	2.6100	12.000	0.0120	0.99	3.30	5.09	0.19
AD-203	64	37.52	58.65	58.45	0.20	0.5300	12.000	0.0120	0.97	2.83	2.82	0.35
AD-202	AD-203	80.97	59.05	58.60	0.45	0.5600	12.000	0.0120	0.48	1.59	2.88	0.17
AD-201	DMH-201	188.45	57.90	56.90	1.00	0.5300	12.000	0.0120	2.22	4.77	2.81	0.79
CB-201	CB-202	60.00	57.40	57.10	0.30	0.5000	15.000	0.0120	2.02	2.63	4.95	0.41
DIV-2	WetlandEast_DP1.4.1	23.00	56.15	55.00	1.15	5.0000	15.000	0.0120	3.67	8.18	15.65	0.23
DMH-201	DMH-202	187.50	56.90	55.95	0.95	0.5100	12.000	0.0120	2.04	4.02	2.75	0.74
DMH-203	WetlandEast_DP1.2.1	28.00	55.60	55.45	0.15	0.5400	15.000	0.0120	2.04	3.41	5.12	0.40
DMH-202	DMH-203	51.00	55.95	55.60	0.35	0.6900	15.000	0.0120	2.04	3.13	5.80	0.35
CB-202	AD-206	49.00	57.10	56.85	0.25	0.5100	15.000	0.0120	3.68	3.34	5.00	0.74
AD-206	DIV-2	35.60	56.85	56.65	0.20	0.5600	15.000	0.0120	3.67	3.86	5.25	0.70
CB-306	DMH-304	41.00	55.20	54.95	0.25	0.6100	12.000	0.0120	2.78	4.80	3.01	0.92
OCS-2	DMH-307	18.62	54.35	53.95	0.40	2.1500	24.000	0.0120	4.07	5.49	35.92	0.11
AD-304	DMH-306	22.66	53.20	53.00	0.20	0.8800	12.000	0.0120	0.33	1.22	3.63	0.09
DMH-305	DMH-306	22.82	52.85	52.65	0.20	0.8800	15.000	0.0120	3.90	4.27	6.55	0.60
CB-307	DMH-303	34.44	56.20	55.90	0.30	0.8700	18.000	0.0120	5.67	5.04	10.62	0.53
DMH-303	DB-02	33.63	55.80	55.60	0.20	0.5900	24.000	0.0120	10.99	5.21	18.90	0.58
AD-303	DMH-305	152.02	53.65	52.85	0.80	0.5300	12.000	0.0120	1.90	4.09	2.80	0.68
AD-305	AD-303	33.73	53.85	53.65	0.20	0.5900	12.000	0.0120	0.49	1.51	2.97	0.17
DMH-306	DMH-307	68.19	52.40	52.05	0.35	0.5100	18.000	0.0130	4.17	2.80	7.53	0.55
DMH-307	DMH-308	148.00	52.05	51.25	0.80	0.5400	24.000	0.0130	8.09	2.94	16.63	0.49
DMH-304	AD-306	24.95	54.95	54.80	0.15	0.6000	12.000	0.0120	2.53	4.86	2.99	0.85
CB-106	CB-104	48.02	44.50	44.25	0.25	0.5200	12.000	0.0120	1.13	1.98	2.79	0.40
CB-105	CB-106	39.00	44.70	44.50	0.20	0.5100	12.000	0.0120	0.76	1.87	2.76	0.28
CB-303	CB-304	70.64	56.85	56.50	0.35	0.5000	12.000	0.0120	2.31	2.94	2.72	0.85
CB-304	CB-305	56.15	56.50	56.20	0.30	0.5300	15.000	0.0120	3.88	3.16	5.12	0.76

Hydraulic Design Table (25-year Design Storm)

Date 1/9/2025
Initials AJM

From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Total Drop	Average Slope	Pipe Diameter or Height	Manning's Roughness	Peak Flow	Max Flow Velocity	Design Flow Capacity	Max Flow / Design Flow Ratio
Column1	Column2	(ft)	(ft)3	(ft)5	(ft)7	(%)	(inches)	Column10	(cfs)16	(ft/sec)	(cfs)17	Column18
CB-305	DMH-303	74.33	56.20	55.80	0.40	0.5400	18.000	0.0120	5.67	3.26	8.35	0.68
DMH-301(OWS)	DMH-302	52.22	54.15	53.85	0.30	0.5700	12.000	0.0120	0.55	1.72	2.93	0.19
CB-301	DMH-302	30.43	55.00	53.85	1.15	3.7800	12.000	0.0120	0.76	3.84	7.50	0.10
CB-302	CB-401	198.28	53.35	52.35	1.00	0.5000	18.000	0.0120	4.04	3.06	8.08	0.50
AD-301	AD-302	200.27	54.80	53.80	1.00	0.5000	12.000	0.0120	1.10	2.31	2.73	0.40
CB-104	DIV-03	22.00	44.25	44.10	0.15	0.6800	15.000	0.0120	3.23	4.01	5.78	0.56
CB-403	CB-404	55.49	57.00	56.30	0.70	1.2600	12.000	0.0120	0.80	3.07	4.33	0.19
CB-404	CB-405	100.14	56.30	51.50	4.80	4.7900	15.000	0.0120	3.64	5.85	15.32	0.24
CB-402	CB-404	155.39	57.10	56.30	0.80	0.5100	15.000	0.0120	1.49	3.66	5.02	0.30
AD-102	AD-404	110.00	49.50	48.95	0.55	0.5000	12.000	0.0120	0.19	1.17	2.73	0.07
AD-404	DMH-405	151.00	48.95	48.20	0.75	0.5000	12.000	0.0120	0.64	2.95	2.72	0.23
CB-101	CB-402	74.04	57.50	57.10	0.40	0.5400	12.000	0.0120	0.53	1.82	2.84	0.19
CB-405	DMH-402	70.00	51.50	48.30	3.20	4.5700	24.000	0.0120	14.89	7.29	52.40	0.28
DMH-405	DMH-403	181.55	48.20	47.25	0.95	0.5200	15.000	0.0130	0.70	0.82	4.67	0.15
CB-401	DMH-401	75.40	52.35	51.95	0.40	0.5300	24.000	0.0120	9.01	3.86	17.85	0.50
AD-403	CB-401	61.70	52.70	52.35	0.35	0.5700	18.000	0.0120	4.65	2.87	8.57	0.54
AD-402	AD-403	194.53	53.70	52.70	1.00	0.5100	12.000	0.0120	2.41	3.23	2.77	0.87
AD-401	AD-402	51.65	54.00	53.70	0.30	0.5800	12.000	0.0120	1.33	2.37	2.94	0.45
DMH-404	DMH-401	96.75	52.50	52.00	0.50	0.5200	18.000	0.0120	0.51	0.84	8.18	0.06
DMH-401	CB-405	85.49	51.95	51.50	0.45	0.5300	24.000	0.0120	11.35	6.14	17.78	0.64
DMH-403	DIV-01	139.00	47.25	46.10	1.15	0.8300	30.000	0.0130	14.86	4.34	37.31	0.40
DMH-106	WESTWETLAND2	49.00	45.50	44.00	1.50	3.0600	24.000	0.0120	10.28	9.28	42.88	0.24
DMH-406	DMH-104	40.00	57.60	57.35	0.25	0.6300	12.000	0.0120	1.12	3.16	3.05	0.37
OCS-4	DMH-308	9.00	51.75	51.55	0.20	2.2200	24.000	0.0120	8.64	6.12	36.53	0.24
CB-107	WetlandEast_DP1.4.3	78.00	50.00	49.00	1.00	1.2800	30.000	0.0130	19.62	7.32	46.44	0.42
AD-104	CB-102	47.00	48.40	47.75	0.65	1.3800	12.000	0.0120	1.37	4.62	4.54	0.30
DMH-101	WetlandEast_DP1.4.5	27.00	42.40	42.25	0.15	0.5600	18.000	0.0130	4.59	3.96	7.83	0.59
DMH-102	DMH-103	45.72	56.25	55.80	0.45	0.9800	18.000	0.0120	2.24	3.63	11.29	0.20
DMH-103	IB-1.2	151.88	55.80	55.00	0.80	0.5300	18.000	0.0120	2.23	3.77	8.26	0.27

Hydraulic Design Table (25-year Design Storm)

Date 1/9/2025
Initials AJM

From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Total Drop	Average Slope	Pipe Diameter or Height	Manning's Roughness	Peak Flow	Max Flow Velocity	Design Flow Capacity	Max Flow / Design Flow Ratio
Column1	**Column2**	**(ft)**	**(ft)3**	**(ft)5**	**(ft)7**	**(%)**	**(inches)**	**Column10**	**(cfs)16**	**(ft/sec)**	**(cfs)17**	**Column18**
CB-103	CB-104	34.00	45.50	44.25	1.25	3.6800	12.000	0.0120	1.86	3.60	7.40	0.25
CB-203	WetlandEast_DP1.4.2	35.74	51.85	51.45	0.40	1.1200	15.000	0.0120	5.01	5.56	7.40	0.68
OCS-1	DMH-107	163.00	45.10	44.20	0.90	0.5500	24.000	0.0130	9.72	5.87	16.81	0.58

Bristol Warren Regional School District

MT. HOPE HIGH SCHOOL

APPENDIX C

RIDEM Pre-Application Minutes

Appendix A Checklist

Water Quality Volume Calculation Worksheet

Stormwater Treatment Area Calculation

Recharge Calculation Worksheet

Bioretention Area Calculations

Sand Filter Area Calculations

Infiltration Basin Calculations

Wet Swale Calculations

Channel Protection Calculations

Groundwater Mounding Analysis

FHWA Riprap Spreader Calculations

Diversion Calculations

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 401-222-4700

Meeting Minutes – Mt. Hope High School, Bristol

September 29, 2023

Meeting held via Teams on July 18, 2023

Meeting Participants

Claire Hoogeboom, LEC Environmental	**Joseph Antonio, DEM/OCTA**
Jenna Rioux, Pare Corp.	**Martin Wencek, DEM/Freshwater Wetlands**
Nel Daws, Perkins Eastman	**Nicholas Pisani, DEM/Stormwater Mgmt.**
Lisa Pecora, Perkins Eastman	**Ed Tanner, Town of Bristol**
Mark McCarthy, Perkins Eastman	**Kris Bradner, Traverse**
Joe Drown, Perkins Eastman	**Chad Crittenden, Walter Hartley, Nicholas**
Robert Santos, Perkins Eastman	**Hull, PMA**

Purpose of the Meeting

Per the consultant, the purpose of this meeting was "to discuss a project at Mt. Hope High School associated with a Necessity of School Construction Evaluation for the Bristol Warren Regional School District. The project team is working through some conceptual designs, and as RIDEM staff may be aware, the school is unique in that a stream flows through the network of buildings. We'd like to review a preferred conceptual design with permitting staff to gain an understanding of the buffer zone standards that will apply and the appropriate permitting pathway. We'd also appreciate if someone from engineering could join so we can discuss the stormwater components to consider in the design/permitting." (*Note: Silver Creek flows through the school, and there are 2 corridor crossings and one driveway crossing over the Creek. It was mentioned that one of the building corridors may be converted to a driveway. It was also mentioned that the river daylights south to a nearby cemetery*).

Athletic fields are also being proposed as part of this project.

The consultant informed the Department that the schedule submissions to the RI Department of Education for this project are as follows: Sept 15, 2023 Stage II Submission; January 2024 Final SD Submission; May 2024 Design Development Submission, and; September 2024 Construction Document Submission.

Below are notes from this meeting.

1. The school is in a National Heritage area and a floodplain area. As such, the consultant asked what level of survey the Department is looking for, and conversely, the Department strongly advised that the consultant avoid the Natural Heritage area.

2. There appears to be a 100' buffer zone associated with Silver Creek. It was stated that a pond that the stream flows into and out of likely has a 50' buffer zone. Water flows from the pond to a culvert. In addition, there is likely a 50' buffer zone and likely a 75' buffer zone associated with a swamp at the site. Rip rap and stone line the bank of the stream channel. An area subject to storm flowage (ASSF) is located in the school courtyard.

3. The Department recommended that the consultants move the impervious area away from the stream channels and away from the buffer zone, as well as use the existing impervious area(s) currently within the buffer zones. Also, the Department will want the consultants to model the floodwaters.

   In addition, the Department recommended a setback distance for primary and secondary structures (typically 20' minimum), as well as for buffers and buffer zones. Also, the Department advised that parking and pavement setbacks be checked.

   The designer should evaluate the area below the 60' contour elevation in the area that is located to the northwest of the school. The concern is that given the 60' elevation of the floodplain up-gradient of the culvert, the field area may act as a secondary spillover floodplain area, accommodating flow that does not pass through the culvert but may bypass north of it. This reviewer questions whether this area within the existing athletic field may also need to be considered as floodplain.

4. The Department advised that whatever is to be proposed should not encroach into the buffer. The consultants informed the Department that the whole site is developed and that there is no buffer.

5. The Department advised the consultants not to disturb the stream. Based on a checking of the RIGIS map of the stream at the site, it does not have impairments. The consultants informed the Department that the watercourse is staying the same. It was mentioned that any culvert and crossing improvements could trigger a variance application.

   Also, the Department recommended that the consultant check Freshwater Wetland Rule 3.7.1 B. 4, "Creation of New Buffer on Existing Disturbed Property" to see how the Rule can be applied. The Department advised that the consultant not re-route or work in the stream.

6. The Department informed the consultant that daylighting the stream within the building is at the option of the School Department, as the stream may offer an educational

component for the students. In addition, the consultant informed the Department that a new structure along the water's edge is planned for educational purposes, and that no fill is being brought in for the structure. The Department advised that the consultant keep the structure out of the floodway.

7. As of this meeting, it was mentioned that the consultant may file a "Request to Verify Freshwater Wetland Edges." The Department indicated that this submittal is not required and would be totally up to the project proponents.

8. If drainage swales are to be used, the Department will want the consultant to address where the water is draining to. Also, since storms are getting larger, the consultant asked if they could open the culverts up. The Department expressed concern that this could exacerbate downstream flow.

9. It was mentioned that there are two sub watersheds associated with this site. In addition, it was mentioned that soils at the site are not ideal for infiltration, due to high groundwater. Low impact development, sand filters, and bio-retention areas were mentioned as part of stormwater management. The consultants were advised to include water quality improvements as part of their stormwater design for this project. Nitrogen-enhanced bio-retention systems were mentioned, along with underground anaerobic treatment when infiltration is not possible due to bacteria.

10. Lastly, it was mentioned that It appears that the design will need to meet the Stormwater Rules pertaining to new development.

This concludes the Department's understanding of the issues raised during the meeting. Please be aware that this letter is not to be construed as a permit or an approval to undertake work or any indication that any permit for this project will ultimately be granted. This meeting summary does not relieve the property owner form his/her obligation to obtain any local, state, or federal approvals or permits required by ordinance or law.

APPENDIX A: STORMWATER MANAGEMENT PLAN CHECKLIST AND LID PLANNING REPORT – STORMWATER DESIGN SUMMARY

PROJECT NAME **Mt. Hope High School**	**(RIDEM USE ONLY)**
TOWN **Bristol**	**STW/WQC File #:**
BRIEF PROJECT DESCRIPTION: The project includes the demolition of the existing Mt. Hope High School and the construction of a new high school at 199 Chestnut Street in Bristol, RI. The project will include a new building, site improvements, new utility connections, and new stormwater management systems.	**Date Received:**

Stormwater Management Plan (SMP) Elements – Minimum Standards

When submitting a SMP,[1] submit four separately bound documents: Appendix A Checklist; Stormwater Site Planning, Analysis and Design Report with Plan Set/Drawings; Soil Erosion and Sediment Control (SESC) Plan, and Post Construction Operations and Maintenance (O&M) Plan. Please refer to Suggestions to Promote Brevity.

Note: **All stormwater construction projects must create a Stormwater Management Plan (SMP). However, not every element listed below is required per the RIDEM Stormwater Rules and the RIPDES Construction General Permit (CGP). This checklist will help identify the required elements to be submitted with an Application for Stormwater Construction Permit & Water Quality Certification.**

PART 1. PROJECT AND SITE INFORMATION

PROJECT TYPE (Check all that apply)

☐ Residential	☐ Commercial	☐ Federal	☐ Retrofit	☐ Restoration
☐ Road	☐ Utility	☐ Fill	☐ Dredge	☐ Mine
☒ Other (specify): Institutional: High School				

SITE INFORMATION

☒ Vicinity Map: Appendix A

INITIAL DISCHARGE LOCATION(S): The WQv discharges to: (You may choose more than one answer if several discharge points are associated with the project.)

☒ **Groundwater**	☒ **Surface Water**	☒ **MS4**
☐ GAA	☐ Isolated Wetland	☐ RIDOT
☒ GA	☒ Named Waterbody	☐ RIDOT Alteration Permit is Approved
☐ GB	☐ Unnamed Waterbody Connected to Named Waterbody	☒ Town
		☐ Other (specify):

ULTIMATE RECEIVING WATERBODY LOCATION(S): Include pertinent information that applies to both WQ_v and flow from larger storm events including overflows. Choose all that apply, and repeat table for each waterbody.

☐ Groundwater or Disconnected Wetland	☐ SRWP		
☒ Waterbody Name: Silver Creek	☐ Coldwater	☒ Warmwater	☐ Unassessed
☒ Waterbody ID: RI0007026R-01	☐ 4th order stream of pond 50 acres or more		
☐ TMDL for:	☐ Watershed of flood prone river (e.g., Pocasset River)		
☐ Contributes to a priority outfall listed in the TMDL	☐ Contributes stormwater to a public beach		
☐ 303(d) list – Impairment(s) for:	☐ Contributes to shellfishing grounds		

[1] Applications for a Construction General Permit that do not require any other permits from RIDEM and will disturb less than 5 acres over the entire course of the project do not need to submit a SMP. The Appendix A checklist must still be submitted.

PROJECT HISTORY		
☒ RIDEM Pre- Application Meeting	Meeting Date: 7-18-23, 01-07-2025	☒ Minutes Attached
☒ Municipal Master Plan Approval	Approval Date: 10-10-2024	☐ Minutes Attached
☐ Subdivision Suitability Required	Approval #:	
☐ Previous Enforcement Action has been taken on the property	Enforcement #:	

FLOODPLAIN & FLOODWAY See Guidance Pertaining to Floodplain and Floodways	
☒ Riverine 100-year floodplain: **FEMA FLOODPLAIN FIRMETTE** has been reviewed and the 100-year floodplain is on site	
☒ Delineated from FEMA Maps: See Appendix A	
NOTE: Per Rule 250-RICR-150-10-8-1.1(B)(5)(d)(3), provide volumetric floodplain compensation calculations for cut and fill/displacement calculated by qualified professional	
☒ Calculated by Professional Engineer	
☒ Calculations are provided for cut vs. fill/displacement volumes proposed within the 100-year floodplain	Amount of Fill (CY): 0 Amount of Cut (CY): 996
☐ Restrictions or modifications are proposed to the flow path or velocities in a floodway	
☐ Floodplain storage capacity is impacted	
☐ Project area is not within 100-year floodplain as defined by RIDEM	

CRMC JURISDICTION
☐ CRMC Assent required
☐ Property subject to a Special Area Management Plan (SAMP). If so, specify which SAMP:
☐ Sea level rise mitigation has been designed into this project

LUHPPL IDENTIFICATION - MINIMUM STANDARD 8:			
1. OFFICE OF Land Revitalization and Sustainable Materials Management (OLRSMM)			
	☐ Known or suspected releases of HAZARDOUS MATERIAL are present at the site (Hazardous Material is defined in Rule 1.4(A)(33) of 250-140-30-1 of the RIDEM Rules and Regulations for Investigation and Remediation of Hazardous Materials (the Remediation Regulations))		**RIDEM CONTACT:**
	☐ Known or suspected releases of PETROLEUM PRODUCT are present at the site (Petroleum Product as defined in Rule 1.5(A)(84) of 250-140-25-1 of the RIDEM Rules and Regulations for Underground Storage Facilities Used for Regulated Substances and Hazardous Materials)		
	☐ This site is identified on the RIDEM Environmental Resources Map as one of the following regulated facilities		**SITE ID#**:
		☐ CERCLIS/Superfund (NPL)	
		☐ State Hazardous Waste Site (SHWS)	
		☐ Environmental Land Usage Restriction (ELUR)	
		☐ Leaking Underground Storage Tank (LUST)	
		☐ Closed Landfill	
Note: If any boxes in 1 above are checked, the applicant must contact the RIDEM OLRSMM Project Manager associated with the Site to determine if subsurface infiltration of stormwater is allowable for the project. Indicate if the infiltration corresponds to "Red," "Yellow" or "Green" as described in Section 3.2.8 of the RISDISM Guidance (Subsurface Contamination Guidance). Also, note and reference approval in PART 3, Minimum Standard 2: Groundwater Recharge/Infiltration**.**			
2. PER MINIMUM STANDARD 8 of RICR 8.14.C.1-6 "LUHPPLS," THE SITE IS/HAS:			
	☐ Industrial Site with RIPDES MSGP, except where No Exposure Certification exists. http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/status.php		
	☐ Auto Fueling Facility (e.g., gas station)		
	☐ Exterior Vehicles Service, Maintenance, or Equipment Cleaning Area		

	☐ Road Salt Storage and Loading Areas (exposed to rainwater)	
	☐ Outdoor Storage and Loading/Unloading of Hazardous Substances	
3.	**STORMWATER INDUSTRIAL PERMITTING**	
	☐ The site is associated with existing or proposed activities that are considered Land Uses with Higher Potential Pollutant Loads (LUHPPLS) (see RICR 8.14.C)	Activities: Sector:
	☐ Construction is proposed on a site that is subject to THE MULTI-SECTOR GENERAL PERMIT (MSGP) UNDER RULE 31(B)15 OF THE RIPDES REGULATIONS.	MSGP permit #
	☐ Additional stormwater treatment is required by the MSGP Explain:	

REDEVELOPMENT STANDARD – MINIMUM STANDARD 6		
☒ Pre Construction Impervious Area		
10.54	☒ Total Pre-Construction Impervious Area (**TIA**)	
44.41	☒ Total Site Area (**TSA**)	
18.63	☒ Jurisdictional Wetlands (**JW**)	
0.00	☒ Conservation Land (**CL**)	
☒ Calculate the Site Size (defined as contiguous properties under same ownership)		
28.74	☒ Site Size (**SS**) = (**TSA**) – (**JW**) – (**CL**)	
	☒ (**TIA**) / (**SS**) = 0.37	☐ (**TIA**) / (**SS**) >**0.4**?
☐ YES, Redevelopment		

PART 2. LOW IMPACT DEVELOPMENT ASSESSMENT – MINIMUM STANDARD 1

(NOT REQUIRED FOR REDEVELOPMENT OR RETROFITS)

This section may be deleted if not required.

Note: A written description must be provided specifying why each method is not being used or is not applicable at the Site. Appropriate answers may include:

- Town requires … (state the specific local requirement)
- Meets Town's dimensional requirement of …
- Not practical for site because …
- Applying for waiver/variance to achieve this (pending/approved/denied)
- Applying for wavier/variance to seek relief from this (pending/approved/denied)

A) PRESERVATION OF UNDISTURBED AREAS, BUFFERS, AND FLOODPLAINS	**IF NOT IMPLEMENTED, EXPLAIN HERE**
☒ Sensitive resource areas and site constraints are identified (required) ☒ Local development regulations have been reviewed (required) ☐ All vegetated buffers and coastal and freshwater wetlands will be protected during and after construction ☒ Conservation Development or another site design technique has been incorporated to protect open space and pre-development hydrology. **Note:** If Conservation Development has been used, check box and skip to Subpart C ☒ As much natural vegetation and pre-development hydrology as possible has been maintained	Vegetated buffers are protected to the maximum extent practicable

B) LOCATE DEVELOPMENT IN LESS SENSITIVE AREAS AND WORK WITH THE NATURAL LANDSCAPE CONDITIONS, HYDROLOGY, AND SOILS ☒ Development sites and building envelopes have been appropriately distanced from wetlands and waterbodies ☐ Development and stormwater systems have been located in areas with greatest infiltration capacity (e.g., soil groups A and B) ☒ Plans show measures to prevent soil compaction in areas designated as Qualified Pervious Areas (QPA's) ☐ Development sites and building envelopes have been positioned outside of floodplains ☒ Site design positions buildings, roadways and parking areas in a manner that avoids impacts to surface water features ☒ Development sites and building envelopes have been located to minimize impacts to steep slopes (≥15%) ☐ Other (describe):	No class A or B soils are on-site, infiltration is proposed in C soils and to the maximum extent practicable. Site features have been move outside of the flood plain to the maximum extent practicable.
C) MINIMIZE CLEARING AND GRADING ☒ Site clearing has been restricted to <u>minimum area needed</u> for building footprints, development activities, construction access, and safety. ☒ Site has been designed to position buildings, roadways, and parking areas in a manner that minimizes grading (cut and fill quantities) ☒ Protection for stands of trees and individual trees and their root zones to be preserved has been specified, and such protection extends at least to the tree canopy drip line(s) ☒ Plan notes specify that public trees removed or damaged during construction shall be replaced with equivalent	The Site has been graded to avoid fill within the floodplain.
D) REDUCE IMPERVIOUS COVER ☐ Reduced roadway widths (≤22 feet for ADT ≤ 400; ≤ 26 feet for ADT 400 - 2,000) ☐ Reduced driveway areas (length minimized via reduced ROW width (≤ 45 ft.) and/or reduced (or absolute minimum) front yard setback; width minimized to ≤ 9 ft. wide one lane; ≤ 18 ft. wide two lanes; shared driveways; pervious surface) ☒ Reduced building footprint: Explain approach: ☐ Reduced sidewalk area (≤ 4 ft. wide; one side of the street; unpaved path; pervious surface) ☐ Reduced cul-de-sacs (radius < 45 ft; vegetated island; alternative turn-around) ☒ Reduced parking lot area: Explain approach ☐ Use of pervious surfaces for driveways, sidewalks, parking areas/overflow parking areas, etc. ☒ Minimized impervious surfaces (project meets or is less than maximum specified by Zoning Ordinance) ☐ Other (describe):	Building footprint is the minimum possible to facilitate the required number of students. Parking has been minimized to limit impacts to resource areas. Drive aisles have been reduced to 20' where possible and compact spaces have been used to reduce impervious surface.
E) DISCONNECT IMPERVIOUS AREA ☒ Impervious surfaces have been disconnected, and runoff has been diverted to QPAs to the maximum extent possible ☐ Residential street edges allow side-of-the-road drainage into vegetated open swales ☐ Parking lot landscaping breaks up impervious expanse AND accepts runoff ☐ Other (describe):	
F) MITIGATE RUNOFF AT THE POINT OF GENERATION ☒ Small-scale BMPs have been designated to treat runoff as close as possible to the source	

G) PROVIDE LOW-MAINTENANCE NATIVE VEGETATION ☒ Low-maintenance landscaping has been proposed using native species and cultivars ☒ Plantings of native trees and shrubs in areas previously cleared of native vegetation are shown on site plan ☒ Lawn areas have been limited/minimized, and yards have been kept undisturbed to the maximum extent practicable on residential lots	
H) RESTORE STREAMS/WETLANDS ☐ Historic drainage patterns have been restored by removing closed drainage systems, daylighting buried streams, and/or restoring degraded stream channels and/or wetlands ☐ Removal of invasive species ☐ Other	

PART 3. SUMMARY OF REMAINING STANDARDS

GROUNDWATER RECHARGE – MINIMUM STANDARD 2		
YES	**NO**	
☒	☐	The project has been designed to meet the groundwater recharge standard.
☐	☐	If "No," the justification for groundwater recharge criterion waiver has been explained in the Narrative (e.g., threat of groundwater contamination or physical limitation), if applicable (see RICR 8.8.D);
☐	☐	Your waiver request has been explained in the Narrative, if applicable.
☐	☒	Is this site identified as a Regulated Facility in Part 1, Minimum Standard 8: LUHPPL Identification?
☐	☐	If "Yes," has approval for infiltration by the OLRSMM Site Project Manager, per Part 1, Minimum Standard 8, been requested?

TABLE 2-1: Summary of Recharge (see RISDISM Section 3.3.2)
(Add or Subtract Rows as Necessary)

Design Point	**Impervious Area Treated (sq ft)**	**Total Re_v Required (cu ft)**	**LID Stormwater Credits (see RISDISM Section 4.6.1)**	**Recharge Required by Remaining BMPs (cu ft)**	**Recharge Provided by BMPs (cu ft)**
			Portion of Re_v directed to a QPA (cu ft)		
Silver Creek	543,156	11,316	241	11,075	41,522

Notes:
1. Only BMPs listed in RISDISM Table 3-5 "List of BMPs Acceptable for Recharge" may be used to meet the recharge requirement.
2. Recharge requirement must be satisfied for each waterbody ID.

☒ Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.): See appendix C

WATER QUALITY – MINIMUM STANDARD 3		
YES	**NO**	
☐	☒	Does this project meet or exceed the required water quality volume WQv (see RICR 8.9.E-I)?
☒	☐	Is the proposed final impervious cover greater than 20% of the disturbed area (see RICR 8.9.E-I)?
☒	☐	If "Yes," either the Modified Curve Number Method or the Split Pervious/Impervious method in Hydro-CAD was used to calculate WQv; or,
☐	☐	If "Yes," either TR-55 or TR-20 was used to calculate WQv; and,
☐	☐	If "No," the project meets the minimum WQv of 0.2 watershed inches over the entire disturbed area.
☐	☐	Not Applicable
☒	☐	Does this project meet or exceed the ability to treat required water quality flow WQf (see RICR 8.9.I.1-3)?
☐	☒	Does this project propose an increase of impervious cover to a receiving water body with impairments? If "Yes," please indicate below the method that was used to address the water quality requirements of no further degradation to a low-quality water.
☐	☒	RICR 8.36. A Pollutant Loading Analysis is needed and has been completed.
☐	☐	The Water Quality Guidance Document (Water Quality Goals and Pollutant Loading Analysis Guidance for Discharges to Impaired Waters) has been followed as applicable.
☐	☐	BMPs are proposed that are on the approved technology list . If "Yes," please provide all required worksheets from the manufacturer.
☐	☒	Additional pollutant-specific requirements and/or pollutant removal efficiencies are applicable to the site as the result of a TMDL, SAMP, or other watershed-specific requirements. If "Yes," please describe:

TABLE 3-1: Summary of Water Quality (see RICR 8.9)

Design Point and WB ID	**Impervious area treated (sq ft)**	**Total WQ_v Required (cu ft)**	**LID Stormwater Credits** (see RICR 8.18) **WQv directed to a QPA (cu ft)**	**Water Quality Treatment Remaining (cu ft)**	**Water Quality Provided by BMPs (cu ft)**
Silver Creek	543,156	45,263	964	44,299	42,219

Notes:
1. Only BMPs listed in RICR 8.20 and 8.25 or the Approved Technologies List of BMPs is Acceptable for Water Quality treatment.
2. For each Design Point, the Water Quality Volume Standard must be met for each Waterbody ID.

☐ YES ☒ NO	This project has met the setback requirements for each BMP. If "No," please explain: Please see the Stormwater narrative for technical justifications requested.

☒ Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.): Water quality treatment is provided to the maximum extents practicable with significant water quality improvements compared to the existing condition. Refer to appendix C for BMP calculations.

CONVEYANCE AND NATURAL CHANNEL PROTECTION (RICR 8.10) – MINIMUM STANDARD 4			
YES	**NO**		
☐	☒	Is this standard waived? If "Yes," please indicate one or more of the reasons below:	
		☐	The project directs discharge to a large river (i.e., 4th-order stream or larger. See RISDISM Appendix I for State-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.
		☐	The project is a small facility with impervious cover of less than or equal to 1 acre.
		☐	The project has a post-development peak discharge rate from the facility that is less than 2 cfs for the 1-year, 24-hour Type III design storm event (prior to any attenuation). (Note: LID design strategies can greatly reduce the peak discharge rate).
☒	☐	Conveyance and natural channel protection for the site have been met. If "No,' explain why:	

TABLE 4-1: Summary of Channel Protection Volumes (see RICR 8.10)					
Design Point	**Receiving Water Body Name**	**Coldwater Fishery? (Y/N)**	**Total CPv Required (cu ft)**	**Total CPv Provided (cu ft)**	**Average Release Rate Modeled in the 1-yr storm (cfs)**
Silver Creek	Silver Creek	N	93,529	102,351	21.05
Note: The Channel Protection Volume Standard must be met in each waterbody ID.					
☒ YES ☐ NO	The CPv is released at roughly a uniform rate over a 24-hour duration (see examples of sizing calculations in Appendix D of the RISDISM).				
☐ YES ☒ NO	Do additional design restrictions apply resulting from any discharge to cold-water fisheries; If "Yes," please indicate restrictions and solutions below.				
☒ Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.). Refer to appendix C for channel protection calculations.					

OVERBANK FLOOD PROTECTION (RICR 8.11) AND OTHER POTENTIAL HIGH FLOWS – MINIMUM STANDARD 5			
YES	**NO**		
☐	☒	Is this standard waived? If yes, please indicate one or more of the reasons below:	
		☐	The project directs discharge to a large river (i.e., 4th-order stream or larger. See Appendix I for state-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.
		☐	A Downstream Analysis (see RICR 8.11.D and E) indicates that peak discharge control would not be beneficial or would exacerbate peak flows in a downstream tributary of a particular site (e.g., through coincident peaks).

☒	☐	Does the project flow to an MS4 system or subject to other stormwater requirements? If "Yes," indicate as follows:	
		☐	RIDOT
		☒	Other (specify): Town MS4, no other requirements
Note:		The project could be approved by RIDEM but not meet RIDOT or Town standards. RIDOT's regulations indicate that post-volumes must be **less** than pre-volumes for the 10-yr storm at the design point entering the RIDOT system. If you have not already received approval for the discharge to an MS4, please explain below your strategy to comply with RIDEM and the MS4.	
		Indicate below which model was used for your analysis. ☐ TR-55 ☐ TR-20 ☒ HydroCAD ☐ Bentley/Haestad ☐ Intellisolve ☐ Other (Specify):	
YES	**NO**		
☒	☐	Does the drainage design demonstrate that flows from the 100-year storm event through a BMP will safely manage and convey the 100-year storm? If "No," please explain briefly below and reference where in the application further documentation can be found (i.e., name of report/document, page numbers, appendices, etc.):	
☒	☐	Do off-site areas contribute to the sub-watersheds and design points? If "Yes,"	
☒	☐	Are the areas modeled as "present condition" for both pre- and post-development analysis?	
☒	☐	Are the off-site areas shown on the subwatershed maps?	
☒	☐	Does the drainage design confirm safe passage of the 100-year flow through the site for off-site runoff?	
☐	☒	Is a Downstream Analysis required (see RICR 8.11.E.1)?	
☐	☐	Calculate the following:	
		☐	Area of disturbance within the sub-watershed (areas): 29.80
		☐	Impervious cover (%) 30.26%
☐	☒	Is a dam breach analysis required (earthen embankments over six (6) feet in height, or a capacity of 15 acre-feet or more, and contributes to a significant or high hazard dam)?	
☒	☐	Does this project meet the overbank flood protection standard?	

Table 5-1 Hydraulic Analysis Summary								
Subwatershed (Design Point)	**1.2" Peak Flow** (cfs) **		**1-yr Peak Flow** (cfs)		**10-yr Peak Flow** (cfs)		**100-yr Peak Flow** (cfs)	
	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
DP-1.1: Culvert 1	1.42	0.41	8.83	7.45	23.08	21.30	50.14	48.60
DP-1.2: Culvert 2	1.79	0.52	9.87	8.28	25.17	23.10	54.13	55.08
DP-1.3: Culvert 3	1.94	0.57	10.22	8.65	25.92	24.04	55.59	57.19
DP-1.4: Silver Creek East Branch	7.48	1.35	25.70	16.61	58.84	50.36	119.32	116.11
DP-2.1: West Wetland	0.97	0.05	6.84	3.26	20.21	20.08	60.35	59.90
DP-2.2: Silver Creek West Branch	1.75	0.76	10.53	4.61	30.43	24.73	78.59	71.29

** Utilize modified curve number method or split pervious /impervious method in HydroCAD.

Note: The hydraulic analysis must demonstrate no impact to each individual subwatershed DP unless each DP discharges to the same wetland or water resource.

Indicate as follows where the pertinent calculations and/or information for the items above are provided	**Name of report/document, page numbers, appendices, etc.**
Existing conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, and water surface elevations showing methodologies used and supporting calculations.	See appendix B and D
Proposed conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, water surface elevations, and routing showing the methodologies used and supporting calculations.	See appendix B and D
Final sizing calculations for structural stormwater BMPs, including contributing drainage area, storage, and outlet configuration.	See appendix B and C
Stage-storage, inflow and outflow hydrographs for storage facilities (e.g., detention, retention, or infiltration facilities).	See appendix B

Table 5-2 Summary of Best Management Practices											
BMP ID	**DP #**	**BMP Type** (e.g., bioretention, tree filter)	**BMP Functions**					**Bypass Type**	**Horizontal Setback Criteria are met per RICR 8.21.B.10, 8.22.D.11, and 8.35.B.4**		
			Pre-Treatment (Y/N/NA)	Re_v	WQ_v	CP_v (Y/N/NA)	Overbank Flood Reduction (Y/N/NA)	External (E) Internal (I) or NA	Yes/ No	Technical Justification (Design Report page number)	Distance Provided
Bio-1	DP1.4	Bioretention Area	Y	Y	Y	Y	N	E	Y		
Bio-2	DP1.4	Bioretention Area	Y	Y	Y	Y	N	I	Y		
Bio-3	DP1.4	Bioretention Area	N	Y	Y	Y	N	I	Y		
Bio-4	DP1.4	Bioretention Area	N	Y	Y	Y	N	I	Y		
SF-1	DP2.1	Sand Filter	Y	Y	Y	Y	N	E	Y		

Table 5-2 Summary of Best Management Practices											
BMP ID	**DP #**	**BMP Type** (e.g., bioretention, tree filter)	**BMP Functions**					**Bypass Type**	**Horizontal Setback Criteria are met per RICR 8.21.B.10, 8.22.D.11, and 8.35.B.4**		
			Pre-Treatment (Y/N/NA)	Re_v	WQ_v	CP_v (Y/N/NA)	Overbank Flood Reduction (Y/N/NA)	External (E) Internal (I) or NA	Yes/No	Technical Justification (Design Report page number)	Distance Provided
SF-2	DP1.4	Sand Filter	Y	Y	Y	Y	N	E	Y		
SF-3	DP1.4	Sand Filter	Y	N	Y	Y	N	I	Y		
SF-4	DP1.2	Sand Filter	N	N	Y	Y	N	I	Y		
IB-1	DP1.4	Infiltration Basin	N	Y	Y	Y	Y	I	Y		
WS-1	DP1.4	Wet Swale	Y	Y	Y	N	N	I	Y		
UGIS-1	DP2.2	Underground Infiltration	N	Y	Y	Y	Y	I	N	See page 15 of the Stormwater Report Narrative	6 FT
		TOTALS:									

Table 5.3 Summary of Soils to Evaluate Each BMP									
DP #	**BMP ID**	**BMP Type** (e.g., bioretention, tree filter)	**Soils Analysis for Each BMP**						
			Test Pit ID# and Ground Elevation		SHWT Elevation (ft)	Bottom of Practice Elevation* (ft)	Separation Distance Provided (ft)	Hydrologic Soil Group (A, B, C, D)	Exfiltration Rate Applied (in/hr)
			Primary	Secondary					
DP1.2	SF-4	Sand Filter	TP 24-5	TP 24-4	63.40	61.00	-3.00	C	N/A
DP1.4	Bio-1	Bioretention	TP 20-6	TP 20-3	41.00	44.00	3.00	C	0.27
DP1.4	Bio-2	Bioretention	TP 24-9	TP 20-5	54.58	56.50	1.92	C	N/A
DP1.4	Bio-3	Bioretention	TP 24-8	TP 15-6	56.37	59.00	2.63	C	N/A
DP1.4	Bio-4	Bioretention	TP 10-3	TP 15-6	56.68	59.80	3.12	C	0.27
DP1.4	SF-2	Sand Filter	TP 24-6	TP 24-5	51.83	54.85	3.02	C	0.27
DP1.4	SF-3	Sand Filter	B24-2	TP 24-5	53.30	60.00	6.70	C	N/A
DP1.4	Inf-1	Infiltration Basin	TP 20-5	TP 24-9	50.72	55.00	4.28	C	0.27
DP1.4	WS-1	Wet Swale	TP 24-10	TP 10-3	57.70	56.70	-1.00	C	N/A
DP2.1	SF-1	Sand Filter	TP 08-5	TP 10-6	42.50	46.00	3.50	C	0.27
DP2.2	UGIS-1	Underground Infiltration	TP 20-3	N/A	43.30	46.30	3.00	C	0.27

* For underground infiltration systems (UICs) bottom equals bottom of stone, for surface infiltration basins bottom equals bottom of basin, for filters bottom equals interface of storage and top of filter layer

LAND USES WITH HIGHER POTENTIAL POLLUTANTS LOADS (LUHPPLs) – MINIMUM STANDARD 8			
YES	**NO**	**N/A**	
☐	☐	☒	Describe any LUHPPLs identified in Part 1, Minimum Standard 8, Section 2. If not applicable, continue to Minimum Standard 9.
☐	☐	☒	Are these activities already covered under an MSGP? If "No," please explain if you have applied for an MSGP or intend to do so?
☐	☐	☒	List the specific BMPs that are proposed for this project that receive stormwater from LUHPPL drainage areas. These BMP types must be listed in RISDISM Table 3-3, "Acceptable BMPs for Use at LUHPPLs." Please list BMPs:
☐	☐	☒	Additional BMPs, or additional pretreatment BMP's if any, that meet RIPDES MSGP requirements; Please list BMPs:
			Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.).

ILLICIT DISCHARGES – MINIMUM STANDARD 9			
Illicit discharges are defined as unpermitted discharges to Waters of the State that do not consist entirely of stormwater or uncontaminated groundwater, except for certain discharges identified in the RIPDES Phase II Stormwater General Permit.			
YES	**NO**	**N/A**	
☒	☐	☐	Have you checked for illicit discharges?
☐	☒	☐	Have any been found and/or corrected? If "Yes," please identify.
☐	☐	☒	Does your report explain preventative measures that keep non-stormwater discharges out of the Waters of the State (during and after construction)?

SOIL EROSION AND SEDIMENT CONTROL (SESC) – MINIMUM STANDARD 10				
YES	**NO**	**N/A**		
☒	☐	☐	Have you included a Soil Erosion and Sediment Control Plan Set and/or Complete Construction Plan Set?	
☒	☐	☐	Have you provided a **separately-bound** document based upon the SESC Template? If yes, proceed to Minimum Standard 11 (the following items can be assumed to be addressed).	
			If "No," include a document with your submittal that addresses the following elements of an SESC Plan:	
			☐	Soil Erosion and Sediment Control Plan Project Narrative, including a description of how the fifteen (15) Performance Criteria have been met:
			☐	Provide Natural Buffers and Maintain Existing Vegetation
			☐	Minimize Area of Disturbance
			☐	Minimize the Disturbance of Steep Slopes
			☐	Preserve Topsoil
			☐	Stabilize Soils
			☐	Protect Storm Drain Inlets
			☐	Protect Storm Drain Outlets
			☐	Establish Temporary Controls for the Protection of Post-Construction Stormwater Control Measures
			☐	Establish Perimeter Controls and Sediment Barriers
			☐	Divert or Manage Run-On from Up-Gradient Areas

	☐	Properly Design Constructed Stormwater Conveyance Channels
	☐	Retain Sediment On-Site
	☐	Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows
	☐	Apply Construction Activity Pollution Prevention Control Measures
	☐	Install, Inspect, and Maintain Control Measures and Take Corrective Actions
	☐	Qualified SESC Plan Preparer's Information and Certification
	☐	Operator's Information and Certification; if not known at the time of application, the Operator must certify the SESC Plan upon selection and prior to initiating site activities
	☐	Description of Control Measures, such as Temporary Sediment Trapping and Conveyance Practices, including design calculations and supporting documentation, as required

STORMWATER MANAGEMENT SYSTEM OPERATION, MAINTENANCE, AND POLLUTION PREVENTION PLAN – MINIMUM STANDARDS 7 AND 9		
Operation and Maintenance Section		
YES	**NO**	
☒	☐	Have you minimized all sources of pollutant contact with stormwater runoff, to the maximum extent practicable?
☒	☐	Have you provided a **separately-bound** Operation and Maintenance Plan for the site and for all of the BMPs, and does it address each element of RICR 8.17 and RISDISM Appendix C and E?
☒	☐	Lawn, Garden, and Landscape Management meet the requirements of RISDISM Section G.7? If "No," why not?
☒	☐	Is the property owner or homeowner's association responsible for the stormwater maintenance of all BMP's? If "No," you must provide a legally binding and enforceable maintenance agreement (see RISDISM Appendix E, page 26) that identifies the entity that will be responsible for maintenance of the stormwater. Indicate where this agreement can be found in your report (i.e., name of report/document, page numbers, appendices, etc.).
☐	☒	Do you anticipate that you will need legal agreements related to the stormwater structures? (e.g. off-site easements, deed restrictions, covenants, or ELUR per the Remediation Regulations). If "Yes," have you obtained them? Or please explain your plan to obtain them:
☐	☒	Is stormwater being directed from public areas to private property? If "Yes," note the following: Note: This is not allowed unless a funding mechanism is in place to provide the finances for the long-term maintenance of the BMP and drainage, or a funding mechanism is demonstrated that can guarantee the long-term maintenance of a stormwater BMP by an individual homeowner.
Pollution Prevention Section		
☒	☐	Designated snow stockpile locations?
☐	☒	Trash racks to prevent floatables, trash, and debris from discharging to Waters of the State?
☒	☐	Asphalt-only based sealants?
☐	☒	Pet waste stations? (Note: If a receiving water has a bacterial impairment, and the project involves housing units, then this could be an important part of your pollution prevention plan).
☒	☐	Regular sweeping? Please describe:
☒	☐	De-icing specifications, in accordance with RISDISM Appendix G. (NOTE: If the groundwater is GAA, or this area contributes to a drinking water supply, then this could be an important part of your pollution prevention plan).
☒	☐	A prohibition of phosphate-based fertilizers? (Note: If the site discharges to a phosphorus impaired waterbody, then this could be an important part of your pollution prevention plan).

PART 4. SUBWATERSHED MAPPING AND SITE-PLAN DETAILS

Existing and Proposed Subwatershed Mapping (REQUIRED)			
YES	**NO**		
☒	☐	Existing and proposed drainage area delineations	
☒	☐	Locations of all streams and drainage swales	
☒	☐	Drainage flow paths, mapped according to the DEM *Guidance for Preparation of Drainage Area Maps* (included in RISDISM Appendix K)	
☒	☐	Complete drainage area boundaries; include off-site areas in both mapping and analyses, as applicable	
☒	☐	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report	
☒	☐	Mapped seasonal high-water-table test pit locations	
☒	☐	Mapped locations of the site-specific borings and/or test pits and soils information from the test pits at the locations of the BMPs	
☒	☐	Mapped locations of the BMPs, with the BMPs consistently identified on the Site Construction Plans	
☒	☐	Mapped bedrock outcrops adjacent to any infiltration BMP	
☒	☐	Soils were logged by a:	
		☐	DEM-licensed Class IV soil evaluator Name: Spencer Lynds SE# 14275
		☐	RI-registered P.E. Name:

Subwatershed and Impervious Area Summary				
Subwatershed (area to each design point)	**First Receiving Water ID or MS4**	**Area Disturbed (units)**	**Existing Impervious (units)**	**Proposed Impervious (units)**
DP-1.4: Silver Creek East Branch	RI0007026R-01	1,112,405 SF	424,049 SF	305,340 SF
DP-2.2: Silver Creek West Branch	RI0007026R-01	963,805 SF	97, 055 SF	322,809 SF
TOTALS:		2,076,210 SF	521,104 SF	628,149 SF

Site Construction Plans (Indicate that the following applicable specifications are provided)		
YES	**NO**	
☒	☐	Existing and proposed plans (scale not greater than 1" = 40') with North arrow
☒	☐	Existing and proposed site topography (with 1 or 2-foot contours); 10-foot contours accepted for off-site areas
☒	☐	Boundaries of existing predominant vegetation and proposed limits of clearing
☒	☐	Site Location clarification
☒	☐	Location and field-verified boundaries of resource protection areas such as: ► freshwater and coastal wetlands, including lakes and ponds ► coastal shoreline features Perennial and intermittent streams, in addition to Areas Subject to Storm Flowage (ASSFs)
☒	☐	All required setbacks (e.g., buffers, water-supply wells, septic systems)
☒	☐	Representative cross-section and profile drawings, and notes and details of structural stormwater management practices and conveyances (i.e., storm drains, open channels, swales, etc.), which include: ► Location and size of the stormwater treatment practices (type of practice, depth, area). Stormwater treatment practices (BMPs) must have labels that correspond to RISDISM Table 5-2; ► Design water surface elevations (applicable storms); ► Structural details of outlet structures, embankments, spillways, stilling basins, grade-control structures, conveyance channels, etc.; ► Existing and proposed structural elevations (e.g., inverts of pipes, manholes, etc.); ► Location of floodplain and, if applicable, floodway limits and relationship of site to upstream and downstream properties or drainage that could be affected by work in the floodplain; ► Planting plans for structural stormwater BMPs, including species, size, planting methods, and maintenance requirements of proposed planting
☒	☐	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report and corresponding water tables
☐	☒	Mapping of any OLRSMM-approved remedial actions/systems (including ELURs)
☒	☐	Location of existing and proposed roads, buildings, and other structures including limits of disturbance; ► Existing and proposed utilities (e.g., water, sewer, gas, electric) and easements; ► Location of existing and proposed conveyance systems, such as grass channels, swales, and storm drains, and location(s) of final discharge point(s) (wetland, waterbody, etc.); ► Cross sections of roadways, with edge details such as curbs and sidewalks; ► Location and dimensions of channel modifications, such as bridge or culvert crossings
☐	☒	Locations, cross sections, and profiles of all stream or wetland crossings and their method of stabilization

Version: 4/2015

Project Name: Mt. Hope High School

Date: 1/8/2025

Water Quality Volume Calculation WorkSheet

This worksheet is designed to assist the project engineer with a determination of the required water quality treatment area. The worksheet leads the designer through redevelopment applicability first and then receiving water requirements. This tool is intended to compliment to the Redevelopment Criteria Guidance and the Water Quality Guidance and assist both the designer and the permit application reviewer towards consistent results. Enter information into only the YELLOW Boxes.

Redevelopment Criteria Guidance

Water Quality Goals "Stormwater Compensation Method"

Step 1 - Determine which office in OWR you are applying to: Application Guidance

Step 2 - Site Information		value/calculation	units
Total Site Area (total area of project parcels)	TS	44.41	acres
Total Jurisdictional Wetlands and/or floodplain within the above TSA	JW1	18.63	acres
Existing impervious also within the Jurisdictonal Wetlands	-JW2	2.96	acres
Conservation Land within the TSA		0.00	acres
Site Size = (TSA)-(JW1-JW2)-CL	**SS=**	**28.74**	acres

Step 3 - Redevelopment Applicability			
Total Impervious Area (pre-construction)	TIA=	10.54	acres
% Impervious (if ≥40% - redevelopment standard 3.2.6 applies)		**0.37**	

REPEAT IF NECESSARY Steps 4, 5 and 6 for EACH Waterbody ID (RIVER-ID as found in the GIS Map Server)

Step 4 - Receiving waterbody information

Waterbody ID or RIVER ID from GIS Map Server	
Waterbody Name from GIS Map Server	
Name the sub-watersheds (design-points) contributing to this Waterbody ID	
Is this Waterbody Impaired/TMDL for any Phosphorus, Metals or Bacteria?	NO
Is this Waterbody Impaired for Nitrogen?	NO

Step 5 - Pre-Post Construction Conditions to the Waterbody

Total Pre-Construction Impervious Surface to this Waterbody ID	10.54	acres
Total Disturbed Existing Impervious (DI)	10.47	acres
Total Post-Construction Impervious to this Waterbody ID	12.54	acres
Net Increased Impervious (NII)	2.00	acres

Step 6 - Infiltration and BMP information - Note: Increasing infiltration will likely decrease stormwater treatment area for Metals, Bacteria and Phosporus

I am proposing to infiltrate this percentage WQv to this WBID	75%	%
I am proposing this number of BMP's	12	#

RESULTS - Select the Larger Number of the 2 numbers provided

Applicable Condition	**Min Water Quality Treatment Area**	**Min Treatment w/o WQ consideration**
No Impairement or TMDL - New Development	12.47	12.47
No Impairment or TMDL - Redevelopment		
Only Phosphorus, Metals or Bacteria Impairment - New Development		
Only Phosphorus, Metals or Bacteria Impairment - Redevelopment		
Nitrogen Impairment - New Development		
Nitrogen Impairment - Redevelopment		
REQUIRED STORMWATER TREATMENT AREA	**12.5** acres	

* Enter the name of the STP (both type and label) which has been designed to treat this particular Rev or Rea.

PARE CORPORATION

PROJECT	Mt. Hope High School	PROJECT NUMBER	23099.01
SUBJECT	Stormwater Treatment Area		
COMPUTATIONS BY	AJM	DATE	1/8/2025
		REVISED	
CHECK BY		DATE	

Stormwater Treatment Area(STA)

Existing Impervious area	459,128	SF
Disturbed Impervious Area (DI)	456,119	SF
Proposed Impervious area		
Site Impervious Area	387,952	SF
Athletic Impervious Area		
Synthetic Turf Area	158,213	SF
Infield Mix/Warning Track	49,394	SF
Total Impervious Surface	595,559	SF
Total Impervious Surface Requiring Water Quality Treatment	546,165	SF
Net Impervious Area	90,046	SF
STA required =	**543,156**	**SF**
	12.47	acres

Impervious Areas Treated

Bio-01	24,896	SF		
Bio-02	17,464	SF		
Bio-03	12,574	SF		
Bio-04	7,023	SF		
IB-01	60,869	SF		
SF-01	110,484	SF		
SF-02	43,659	SF		
SF-03	13,903	SF		
SF-04	7,428	SF		
SF-05	15,286	SF		
Wet Swale-01	41,189	SF		
UGIS-01	151,857	SF		
QPA	11,570	SF		
Total	518,202	SF	<	543,156 SF
	11.90	Acres	<	12.47 Acres

PROJECT Mt.Hope High School		PROJECT NUMBER	23099.01
SUBJECT Groundwater Recharge			
COMPUTATIONS BY	ACB	DATE	1/8/2025
CHECK BY		DATE	

Recharge Volume Calculations

Required Recharge Volume

The Required Recharge Volume equals the depth of runoff, corresponding to the soil type, times the impervious areas covering that soil type at the post-development site per the Rhode Island Stormwater Design and Installation Standards Manual.

Required Recharge Volume = Target Depth Factor (F) x Impervious Area

Impervious Area within Hydrologic Group "**C**" Soils =	543,156	SF
F (from RISDISM) =	0.25	inches
Recharge Volume Required for Hydrologic Group "C" Soils =	11,316	CF
Required Recharge Volume Required =	**11,316**	**CF**
QPA Volume =	**241**	
Required Recharge Volume Required =	**11,075**	**CF**
Required Recharge Volume Required =	**0.254**	**ac-ft**

Proposed BMP's

The site design incorporates bioretention areas, sand filters, infiltration basins and a underground infiltration system.

BMP's Area Volume

	WQV Volume (cf)
Bio-01	1571
Bio-04	1144
IB-01	4922
SF-01	9433
SF-02	6113
SF-03	4316
SF-05	1368
UGIS-01	12,655
	41,522

Total Provided Recharge Volume =	**41,522**	**CF**
Total Provided Recharge Volume =	**0.953**	**ac-ft**
Required Recharge Volume =	0.254	ac-ft

PARE CORPORATION

PROJECT NAME:	Mt. Hope High School	PROJECT NUMBER:	23099.01
SUBJECT:	Bioretention Area Calculations		
COMPUTATIONS BY:	ACB	DATE:	1/8/2025
CHECK BY:		DATE:	

Bioretention Area Calculations

Refer to the RI Stormwater & Installation Standards Manual

Bioretention Area (BIO-1)

Total Area to BIO-1 =	42,514	SF
Total Impervious Area =	24,896	SF

Cell Volume shall be larger of Recharge Volume and Water Quality Volume

Recharge Volume (Re_V)

Hydrologic Soil Group (HSG) =	C	
Impervious Area within HSG =	24,896	SF
Recharge Factor (From Table 3-4) =	0.25	Inches
Required Re_V Volume =	**519**	**CF**

Water Quality Volume (WQ_V)

WQ_V = Impervious Area x 1.0 inches =	2,075	CF
75% WQ_V (including pretreatment) =	1,556	CF
Required WQ_V Volume =	**1,556**	**CF**
Volume provided in Bioretention Media =	480	CF in filter media with a 0.33 Void Ratio
Volume provided in Bioretention (above filter media) =	581	CF from HydroCAD Model
Volume provided in Sediment Forebay =	520	CF
Total WQ_V Volume Provided =	**1,571**	**CF**

Area

$Af=WQ_V (d_f)/[(k)(h_f+d_f)(t_f)]$	*(From 5.5.4)*	SF, Surface area of filter bed
d_f =	2.00	ft, Filter bed depth
k =	1.00	ft/day, Coefficient of permeability of filter media
h_f =	0.23	ft, Average height of water above surface of practice
t_f =	2	days, Design filter bed drain time
Area Required =	706	SF, Surface Area of filter bed
Area Provided =	**725**	**SF**

Pretreatment (Sediment Forebay)

Required Pretreatment Volume = 25% WQV =	519	CF
Volume Provided =	**520**	**CF**

Drawdown within 48 hours

Drawdown Time = (Provided Volume) / (K x Bottom Area)

Provided Volume =	1,571	CF
K = saturated hydraulic conductivity =	1.00	FT/DAY (from Section 5.5.4)
Bottom Area (Average) =	725	SF
Drawdown Time =	**47**	**HRS** **< 48 hrs**

PARE CORPORATION

PROJECT NAME:	Mt. Hope High School	PROJECT NUMBER:	23099.01
SUBJECT:	Bioretention Area Calculations		
COMPUTATIONS BY:	acb	DATE:	1/8/2025
CHECK BY:		DATE:	

Bioretention Area Calculations

Refer to the RI Stormwater & Installation Standards Manual
Bioretention Area (BIO-2)

Total Area to BIO-2 =	26,810	SF
Total Impervious Area =	17,464	SF

Cell Volume shall be larger of Recharge Volume and Water Quality Volume

Recharge Volume (Re_V)

Hydrologic Soil Group (HSG) =	C	
Impervious Area within HSG =	17,464	SF
Recharge Factor (From Table 3-4) =	0.25	Inches
Required Re_V Volume =	**364**	**CF**

Water Quality Volume (WQ_V)

WQ_V = Impervious Area x 1.0 inches =	1,455	CF
75% WQ_V (including pretreatment) =	1,092	CF
Required WQ_V Volume =	**1,092**	**CF**
Volume provided in Bioretention Media =	1,131	CF in filter media with a 0.33 Void Ratio
Volume provided in Bioretention (above filter media) =	440	CF from HydroCAD Model
Volume provided in Sediment Forebay =	460	CF
Total WQ_V Volume Provided =	**2,031**	**CF**

Area

$Af=WQ_V (d_f)/[(k)(h_f+d_f)(t_f)]$	*(From 5.5.4)*	SF, Surface area of filter bed
d_f =	3.00	ft, Filter bed depth
k =	1.00	ft/day, Coefficient of permeability of filter media
h_f =	0.25	ft, Average height of water above surface of practice
t_f =	2	days, Design filter bed drain time
Area Required =	937	SF, Surface Area of filter bed
Area Provided =	**1,128**	**SF**

Pretreatment (Sediment Forebay)

Required Pretreatment Volume = 25% WQV =	364	CF
Volume Provided =	**460**	**CF**

Drawdown within 48 hours

Drawdown Time = (Provided Volume) / (K x Bottom Area)		
Provided Volume =	2,031	CF
K = saturated hydraulic conductivity =	1.00	FT/DAY (from Section 5.5.4)
Bottom Area (Average) =	1,128	SF
Drawdown Time =	**40**	**HRS** **< 48 hrs**

PARE CORPORATION

PROJECT NAME:	Mt. Hope High School	PROJECT NUMBER:	23099.01
SUBJECT:	Bioretention Area Calculations		
COMPUTATIONS BY:	ACB	DATE:	1/8/2025
CHECK BY:		DATE:	

Bioretention Area Calculations

Refer to the RI Stormwater & Installation Standards Manual
Bioretention Area (BIO-3)

Total Area to BIO-3 =	16,632	SF
Total Impervious Area =	12,574	SF

Cell Volume shall be larger of Recharge Volume and Water Quality Volume

Recharge Volume (Re_V)

Hydrologic Soil Group (HSG) =	C	
Impervious Area within HSG =	12,574	SF
Recharge Factor (From Table 3-4) =	0.25	Inches
Required Re_V Volume =	**262**	**CF**

Water Quality Volume (WQ_V)

WQ_V = Impervious Area x 1.0 inches =	1,048	CF
Required WQ_V Volume =	**1,048**	**CF**
Volume provided in Bioretention Media =	556	CF in filter media with a 0.33 Void Ratio
Volume provided in Bioretention (above filter media) =	552	CF from HydroCAD Model
Total WQ_V Volume Provided =	**1,108**	**CF**

Area

$Af=WQ_V (d_f)/[(k)(h_f+d_f)(t_f)]$	*(From 5.5.4)*	SF, Surface area of filter bed
d_f =	2.75	ft, Filter bed depth
k =	1.00	ft/day, Coefficient of permeability of filter media
h_f =	0.38	ft, Average height of water above surface of practice
t_f =	2	days, Design filter bed drain time
Area Required =	488	SF, Surface Area of filter bed
Area Provided =	**606**	**SF**

Drawdown within 48 hours

Drawdown Time = (Provided Volume) / (K x Bottom Area)

Provided Volume =	1,108	CF	
K = saturated hydraulic conductivity =	1.00	FT/DAY (from Section 5.5.4)	
Bottom Area (Average) =	606	SF	
Drawdown Time =	**39**	**HRS**	**< 48 hrs**

PARE CORPORATION

PROJECT NAME:	Mt. Hope High School	PROJECT NUMBER:	23099.01
SUBJECT:	Bioretention Area Calculations		
COMPUTATIONS BY:	ACB	DATE:	1/8/2025
CHECK BY:		DATE:	

Bioretention Area Calculations

Refer to the RI Stormwater & Installation Standards Manual
Bioretention Area (BIO-4)

Total Area to BIO-4 =	16,850	SF
Total Impervious Area =	7,023	SF

Cell Volume shall be larger of Recharge Volume and Water Quality Volume

Recharge Volume (Re_V)

Hydrologic Soil Group (HSG) =	C	
Impervious Area within HSG =	7,023	SF
Recharge Factor (From Table 3-4) =	0.25	Inches
Required Re_V Volume =	**146**	**CF**

Water Quality Volume (WQ_V)

WQ_V = Impervious Area x 1.0 inches =	585	CF
Required WQ_V Volume =	**585**	**CF**
Volume provided in Bioretention Media =	724	CF in filter media with a 0.33 Void Ratio
Volume provided in Bioretention (above filter media) =	420	CF from HydroCAD Model
Total WQ_V Volume Provided =	**1,144**	**CF**

Area

$Af=WQ_V (d_f)/[(k)(h_f+d_f)(t_f)]$	*(From 5.5.4)*	SF, Surface area of filter bed
d_f =	3.00	ft, Filter bed depth
k =	1.00	ft/day, Coefficient of permeability of filter media
h_f =	0.25	ft, Average height of water above surface of practice
t_f =	2	days, Design filter bed drain time
Area Required =	528	SF, Surface Area of filter bed
Area Provided =	**601**	**SF**

Drawdown within 48 hours

Drawdown Time = (Provided Volume) / (K x Bottom Area)

Provided Volume =	1,144	CF	
K = saturated hydraulic conductivity =	1.00	FT/DAY (from Section 5.5.4)	
Bottom Area (Average) =	601	SF	
Drawdown Time =	**42**	**HRS**	**< 48 hrs**

PARE CORPORATION

PROJECT NAME:	Mt. Hope High School	PROJECT NUMBER:	23099.01
SUBJECT:	Sand Filter Area Calculations		
COMPUTATIONS BY:	ACB	DATE:	1/8/2025
CHECK BY:		DATE:	

Sand Filter Calculations

Refer to the RI Stormwater & Installation Standards Manual

Sand Filter (SF-1)

Total Area to SF-1 =	339,731	SF
Total Impervious Area =	110,484	SF
Pavement areas	76,199	SF

Cell Volume shall be larger of Recharge Volume and Water Quality Volume

Recharge Volume (Re_V)

Hydrologic Soil Group (HSG) =	C	
Impervious Area within HSG =	110,484	SF
Recharge Factor (From Table 3-4) =	0.25	Inches
Required Re_V Volume =	**2,302**	**CF**

Water Quality Volume (WQ_V)

WQ_V = Impervious Area x 1.0 inches =	9,207	CF
75% WQ_V (including pretreatment) =	6,905	CF
Required WQ_V Volume =	**6,905**	**CF**
Volume provided in Sand Filter Media =	4,158	CF in filter media with a 0.33 Void Ratio
Volume provided in Sand Filter (above filter media) =	3,625	CF from HydroCAD Model
Volume provided in Sediment Forebay =	1,650	CF
Total WQ_V Volume Provided =	**9,433**	**CF**

Area

$Af=WQ_V (d_f)/[(k)(h_f+d_f)(t_f)]$	*(From 5.5.4)*	SF, Surface area of filter bed
d_f =	3.00	ft, Filter bed depth
k =	3.50	ft/day, Coefficient of permeability of filter media
h_f =	0.38	ft, Average height of water above surface of practice
t_f =	2	days, Design filter bed drain time
Area Required =	1,198	SF, Surface Area of filter bed
Area Provided =	**4,200**	**SF**

Pretreatment (Sediment Forebay)

Required Pretreatment Volume = 25% WQV =	1,587	CF*	*Pretreatment is for pavement areas only . Does not icluded pretreatment for roof runoff or athletic infield mix
Volume Provided =	**1,650**	**CF**	

Drawdown within 48 hours

Drawdown Time = (Provided Volume) / (K x Bottom Area)

Provided Volume =	9,433	CF
K = saturated hydraulic conductivity =	3.50	FT/DAY (from Section 5.5.4)
Bottom Area (Average) =	4,200	SF
Drawdown Time =	**14**	**HRS** **< 48 hrs**

PARE CORPORATION

PROJECT NAME:	Mt. Hope High School	PROJECT NUMBER:	23099.01
SUBJECT:	Sand Filter Area Calculations		
COMPUTATIONS BY:	ACB	DATE:	1/8/2025
CHECK BY:		DATE:	

Sand Filter Calculations

Refer to the RI Stormwater & Installation Standards Manual

Sand Filter (SF-2)

Total Area to SF-2 =	89,751	SF
Total Impervious Area =	43,659	SF

Cell Volume shall be larger of Recharge Volume and Water Quality Volume

Recharge Volume (Re_V)

Hydrologic Soil Group (HSG) =	C	
Impervious Area within HSG =	43,659	SF
Recharge Factor (From Table 3-4) =	0.25	Inches
Required Re_V Volume =	**910**	**CF**

Water Quality Volume (WQ_V)

WQ_V = Impervious Area x 1.0 inches =	3,638	CF
75% WQ_V (including pretreatment) =	2,729	CF
Required WQ_V Volume =	**2,729**	**CF**
Volume provided in Sand Filter Media =	2,149	CF in filter media with a 0.33 Void Ratio
Volume provided in Sand Filter (above filter media) =	2,172	CF from HydroCAD Model
Volume provided in Sediment Forebay =	1,792	CF
Total WQ_V Volume Provided =	**6,113**	**CF**

Area

$Af=WQ_V (d_f)/[(k)(h_f+d_f)(t_f)]$	*(From 5.5.4)*	SF, Surface area of filter bed
d_f =	3.00	ft, Filter bed depth
k =	3.50	ft/day, Coefficient of permeability of filter media
h_f =	0.38	ft, Average height of water above surface of practice
t_f =	2	days, Design filter bed drain time
Area Required =	776	SF, Surface Area of filter bed
Area Provided =	**2,171**	**SF**

Pretreatment (Sediment Forebay)

Required Pretreatment Volume = 25% WQV =	910	CF
Volume Provided =	**1,792**	**CF**

Drawdown within 48 hours

Drawdown Time = (Provided Volume) / (K x Bottom Area)

Provided Volume =	6,113	CF	
K = saturated hydraulic conductivity =	3.50	FT/DAY (from Section 5.5.4)	
Bottom Area (Average) =	2,171	SF	
Drawdown Time =	**17**	**HRS**	**< 48 hrs**

PARE CORPORATION

PROJECT NAME:	Mt. Hope High School	PROJECT NUMBER:	23099.01
SUBJECT:	Sand Filter Area Calculations		
COMPUTATIONS BY:	ACB	DATE:	1/8/2025
CHECK BY:		DATE:	

Sand Filter Calculations

Refer to the RI Stormwater & Installation Standards Manual

Sand Filter (SF-3)

Total Area to SF-3 =	22,284	SF
Total Impervious Area =	13,903	SF

Cell Volume shall be larger of Recharge Volume and Water Quality Volume

Recharge Volume (Re_V)

Hydrologic Soil Group (HSG) =	C	
Impervious Area within HSG =	13,903	SF
Recharge Factor (From Table 3-4) =	0.25	Inches
Required Re_V Volume =	**290**	**CF**

Water Quality Volume (WQ_V)

WQ_V = Impervious Area x 1.0 inches =	1,159	CF
75% WQ_V (including pretreatment) =	869	CF
Required WQ_V Volume =	**869**	**CF**
Volume provided in Sand Filter Media =	1,979	CF in filter media with a 0.33 Void Ratio
Volume provided in Sand Filter (above filter media) =	1,999	CF from HydroCAD Model
Volume provided in Sediment Forebay =	338	CF
Total WQ_V Volume Provided =	**4,316**	**CF**

Area

$Af=WQ_V (d_f)/[(k)(h_f+d_f)(t_f)]$	*(From 5.5.4)*	SF, Surface area of filter bed
d_f =	3.00	ft, Filter bed depth
k =	3.50	ft/day, Coefficient of permeability of filter media
h_f =	0.38	ft, Average height of water above surface of practice
t_f =	2	days, Design filter bed drain time
Area Required =	547	SF, Surface Area of filter bed
Area Provided =	**2,011**	**SF**

Pretreatment (Sediment Forebay)

Required Pretreatment Volume = 25% WQV =	290	CF
Volume Provided =	**338**	**CF**

Drawdown within 48 hours

Drawdown Time = (Provided Volume) / (K x Bottom Area)

Provided Volume =	4,316	CF
K = saturated hydraulic conductivity =	3.50	FT/DAY (from Section 5.5.4)
Bottom Area (Average) =	2,011	SF
Drawdown Time =	**13**	**HRS** **< 48 hrs**

PARE CORPORATION

PROJECT NAME:	Mt. Hope High School	PROJECT NUMBER:	23099.01
SUBJECT:	Sand Filter Area Calculations		
COMPUTATIONS BY:	ACB	DATE:	1/8/2025
CHECK BY:		DATE:	

Sand Filter Calculations

Refer to the RI Stormwater & Installation Standards Manual

Sand Filter (SF-4)

Total Area to SF-4 =	31,007	SF
Total Impervious Area =	7,428	SF

Cell Volume shall be larger of Recharge Volume and Water Quality Volume

Recharge Volume (Re_V)

Hydrologic Soil Group (HSG) =	C	
Impervious Area within HSG =	7,428	SF
Recharge Factor (From Table 3-4) =	0.25	Inches
Required Re_V Volume =	**155**	**CF**

Water Quality Volume (WQ_V)

WQ_V = Impervious Area x 1.0 inches =	619	CF
Required WQ_V Volume =	**619**	**CF**
Volume provided in Sand Filter Media =	1,166	CF in filter media with a 0.33 Void Ratio
Volume provided in Sand Filter (above filter media) =	1,013	CF from HydroCAD Model
Total WQ_V Volume Provided =	**2,179**	**CF**

Area

$Af=WQ_V (d_f)/[(k)(h_f+d_f)(t_f)]$	*(From 5.5.4)*	SF, Surface area of filter bed
d_f =	2.00	ft, Filter bed depth
k =	3.50	ft/day, Coefficient of permeability of filter media
h_f =	0.25	ft, Average height of water above surface of practice
t_f =	2	days, Design filter bed drain time
Area Required =	277	SF, Surface Area of filter bed
Area Provided =	**1,767**	**SF**

Drawdown within 48 hours

Drawdown Time = (Provided Volume) / (K x Bottom Area)

Provided Volume =	2,179	CF	
K = saturated hydraulic conductivity =	3.50	FT/DAY (from Section 5.5.4)	
Bottom Area (Average) =	1,767	SF	
Drawdown Time =	**8**	**HRS**	**< 48 hrs**

PARE CORPORATION

PROJECT NAME:	Mt. Hope High School	PROJECT NUMBER:	23099.01
SUBJECT:	Sand Filter Area Calculations		
COMPUTATIONS BY:	ACB	DATE:	1/8/2025
CHECK BY:		DATE:	

Sand Filter Calculations

Refer to the RI Stormwater & Installation Standards Manual

Sand Filter (SF-5) Tennis court - West

Total Area to SF-5 =	23,611	SF
Total Impervious Area =	15,286	SF

Cell Volume shall be larger of Recharge Volume and Water Quality Volume

Recharge Volume (Re_V)

Hydrologic Soil Group (HSG) =	C	
Impervious Area within HSG =	15,286	SF
Recharge Factor (From Table 3-4) =	0.25	Inches
Required Re_V Volume =	**318**	**CF**

Water Quality Volume (WQ_V)

WQ_V = Impervious Area x 1.0 inches =	1,274	CF
Required WQ_V Volume =	**1,274**	**CF**
Volume provided in Sand Filter Media =	705	CF in filter media with a 0.33 Void Ratio
Volume provided in Sand Filter (above filter media) =	663	CF from HydroCAD Model
Total WQ_V Volume Provided =	**1,368**	**CF**

Area

$Af=WQ_V (d_f)/[(k)(h_f+d_f)(t_f)]$	*(From 5.5.4)*	SF, Surface area of filter bed
d_f =	3.00	ft, Filter bed depth
k =	3.50	ft/day, Coefficient of permeability of filter media
h_f =	0.38	ft, Average height of water above surface of practice
t_f =	2	days, Design filter bed drain time
Area Required =	174	SF, Surface Area of filter bed
Area Provided =	**705**	**SF**

Drawdown within 48 hours

Drawdown Time = (Provided Volume) / (K x Bottom Area)

Provided Volume =	1,368	CF	
K = saturated hydraulic conductivity =	3.50	FT/DAY (from Section 5.5.4)	
Bottom Area (Average) =	705	SF	
Drawdown Time =	**12**	**HRS**	**< 48 hrs**

PARE CORPORATION

PROJECT Mt. Hope High School PROJECT NUMBER 23099.01

SUBJECT Infiltration Basin

COMPUTATIONS BY ACB DATE 1/8/2025

CHECK BY DATE

Infiltration Basin Calculations

Infiltration Basin -01

Total Area to Infiltration Basin =	68,033	SF
Total Impervious Area =	60,869	SF

Cell Volume shall be larger of Recharge Volume and Water Quality Volume

Recharge Volume

Impervious Area within Hydrologic Group "C" Soils =	60,869	SF
F (from RISDISM Table 3-4) =	0.25	inches
Recharge Volume Required for Hydrologic Group "C" Soils =	1,268	CF

Water Quality Volume (WQV)

WQV = Impervious Area x 1.0 inches =	5,072	CF
Required WQV Volume (including pretreatment) =	**5,072**	**CF**
WQ Volume Infiltrated in 1.2" Storm =	**5,204**	**CF @ elevation 57.65 from HydroCAD**
Surface Area Provided =	**1,125**	**SF**

Drawdown within 48 hours

Time = (Provided Volume) / (K x Bottom Area)

Provided Volume =	**5,204**	**CF**	
K = saturated hydraulic conductivity =	**3.50**	**FT/DAY (from Section 5.5.4 of the RISDISM)**	
Bottom Area (Average) =	**1,125**	**SF**	
Time (hrs) =	**32**	**hrs**	**< 48 hrs**

PARE CORPORATION

PROJECT Mt. Hope High School PROJECT NUMBER 23099.01

SUBJECT Wet Swale

COMPUTATIONS BY ACB DATE 1/8/2025

CHECK BY DATE

Wet Swale Calculations

Wet Swale -01

Total Area to Wet Swale =	57,295	SF
Total Impervious Area =	41,189	SF

Cell Volume shall be larger of Recharge Volume and Water Quality Volume

Water Quality Volume (WQV)

WQV = Impervious Area x 1.0 inches =	3,432	CF
Required WQV Volume (including pretreatment) =	**3,432**	**CF**
WQ Volume Infiltrated in 1.2" Storm =	**4,244**	**CF @ elevation 59.75 from HydroCAD**

Pretreatment

Sediment Forebay		
10% WQV =	343	CF
Required Pretreatment Volume =	343	CF
Volume Provided =	**374**	**CF**

PARE CORPORATION

PROJECT	Mt. Hope High School	PROJECT NUMBER	23099.01
SUBJECT	Channel Protection Volume		
COMPUTATIONS BY	ACB	DATE	1/8/2025
CHECK BY		DATE	

CHANNEL PROTECTION VOLUME (CPv)

Runoff Volume for the 1-year storm proposed condition Silver Creek (Vr)= 143,890 CF From HydroCAD

Method 1
CPv = 0.65 x Runoff Volume from 1-year storm(Vr)

CPv Required MIN = 93,529 CF

CPv Provided

Bio-01	1,045	CF (recharge for the 1-year Storm)
Bio-02	3,413	CF (Subdrain for the 1-year Storm)
Bio-03	2,129	CF (subdrain for the 1-year Storm)
Bio-04	1,140	CF (recharge for the 1-year Storm)
SF-01	6,385	CF (recharge for the 1-year Storm)
SF-02	3,117	CF (recharge for the 1-year Storm)
SF-03	2,853	CF (recharge for the 1-year Storm)
SF-04	3,326	CF (Subdrain for the 1-year Storm)
SF-05	1,278	CF (recharge for the 1-year Storm)
IB-01	3,773	CF (recharge for the 1-year Storm)
UGIS	11,449	CF (recharge for the 1-year Storm)
Synthetic Field Manifold	19,836	CF (recharge for the 1-year Storm)
Total CPv Provided =	**59,744**	CF
Total CPv Remaining =	**33,785**	**CF**

Detention Basin-01

Average Release Flow Rate over 24 hours

Vr Detention Basin 1= 37293 CF (1 yr volume entering detention basin-01)
Qcpv = 0.432 CFS

Area of Orifice
A = Qcpv / [Cx(2xgxh)^(1/2)]; A = pi() x r^2

C = 0.60
g = 32.2 ft/s^2
h = average height above orifice = 0.275 ft

A = 0.1709 sf

Therefore Diameter is:

D = 0.47 ft
D = 5.60 inches
D provided = 5.00 inches

Detention Basin -02

Average Release Flow Rate over 24 hours

Vr DB-02= 5314 CF (1 yr volume entering detention basin-02
Qcpv = 0.062 CFS

Area of Orifice
A = Qcpv / [Cx(2xgxh)^(1/2)]; A = pi() x r^2

C = 0.60
g = 32.2 ft/s^2
h = average height above orifice = 0.95 ft

A = 0.013 sf

Therefore Diameter is:

D = 0.13 ft
D = 1.55 inches
D provided = 1.50 inches

CPv Required MIN = 93,529 CF
CPv Provided = 102,351 CF

10-yr Mounding Analysis for Underground Infiltration System -01

Date: 01/08/2025

Reviewer: DLP

This spreadsheet will calculate the height of a groundwater mound beneath a stormwater infiltration basin. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.

Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

use consistent units (e.g. feet & days **or** inches & hours)

Input Values		
0.9400	***R***	**Recharge (infiltration) rate (feet/day)**
0.240	**Sy**	**Specific yield, Sy (dimensionless, between 0 and 1]**
5.40	**K**	**Horizontal hydraulic conductivity, Kh (feet/day)***
40.000	**x**	**1/2 length of basin (x direction, in feet)**
55.000	**y**	**1/2 width of basin (y direction, in feet)**
2.000	**t**	**duration of infiltration period (days)**
10.600	**hi(0)**	**initial thickness of saturated zone (feet)**

Conversion Table

inch/hour	feet/day
0.67	1.33
2.00	4.00

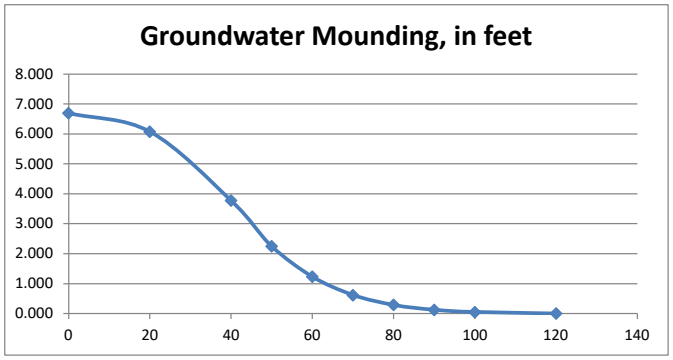
hours	days
36	1.50

In the report accompanying this spreadsheet (USGS SIR 2010-5102), vertical soil permeability (ft/d) is assumed to be one-tenth horizontal hydraulic conductivity (ft/d).

17.299	**h(max)**	**maximum thickness of saturated zone (beneath center of basin at end of infiltration period)**
6.699	**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**
6.699	**0**
6.082	**20**
3.781	**40**
2.255	**50**
1.236	**60**
0.625	**70**
0.294	**80**
0.129	**90**
0.054	**100**
0.009	**120**

Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

10-yr Mounding Analysis for Infiltration Basin -01

Date: 01/08/2025

Reviewer: DLP

This spreadsheet will calculate the height of a groundwater mound beneath a stormwater infiltration basin. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.

Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

use consistent units (e.g. feet & days **or** inches & hours)

Input Values		
1.6800	***R***	**Recharge (infiltration) rate (feet/day)**
0.160	**Sy**	**Specific yield, Sy (dimensionless, between 0 and 1]**
5.40	**K**	**Horizontal hydraulic conductivity, Kh (feet/day)***
40.000	**x**	**1/2 length of basin (x direction, in feet)**
7.500	**y**	**1/2 width of basin (y direction, in feet)**
2.000	**t**	**duration of infiltration period (days)**
13.700	**hi(0)**	**initial thickness of saturated zone (feet)**

Conversion Table

inch/hour	feet/day
0.67	1.33
2.00	4.00

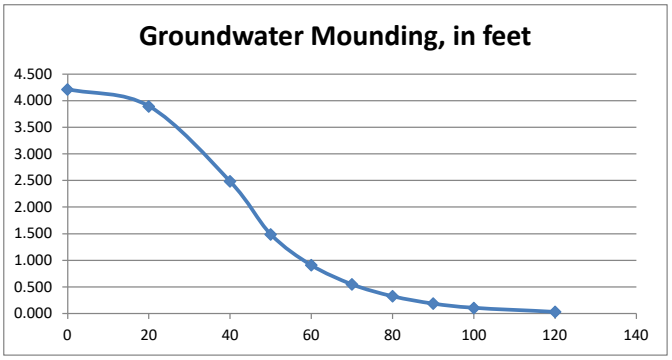
hours	days
36	1.50

In the report accompanying this spreadsheet (USGS SIR 2010-5102), vertical soil permeability (ft/d) is assumed to be one-tenth horizontal hydraulic conductivity (ft/d).

17.916	**h(max)**	**maximum thickness of saturated zone (beneath center of basin at end of infiltration period)**
4.216	**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**
4.216	**0**
3.899	**20**
2.487	**40**
1.493	**50**
0.913	**60**
0.553	**70**
0.329	**80**
0.191	**90**
0.109	**100**
0.036	**120**

Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

PARE CORPORATION

PROJECT Mt. Hope High School | PROJECT NUMBER 23099.01

SUBJECT Riprap Apron

COMPUTATIONS BY AJM | DATE 1/8/2025

CHECK BY | DATE

RIPRAP APRON CALCULATIONS

A. Resources:

Based on Section 10.2 Riprap Apron of the FHWA HEC-14 (Publication No. FHWA-NIH-06-086).

B. Equations:

$$D_{50} = 0.2\,D\left(\frac{Q}{\sqrt{g}D^{2.5}}\right)^{4/3}\left(\frac{D}{TW}\right) \qquad (10.4)$$

Where,

D_{50} = riprap size, ft
Q = design discharge, cfs
D = culvert diameter, ft
TW = tailwater depth, ft
g = acceleration due to gravity, 32.2 ft/s^2

Note:
Tailwater depth should be limited to between 0.4D and 1.0D. If tailwater is unknown, use 0.4D.
Based on rock specific gravity of 2.65.

Table 10.1 Riprap Classes and Apron Dimensions

FHWA		RIDOT M.10.03.2		Apron	
Class	D_{50} (in)	NSA No.	D_{50} (in)	Length[1]	Depth
1	5	R-3	4	4*D	3.5*D_{50}
2	6	R-4	7	4*D	3.3*D_{50}
3	10	R-5	10	5*D	2.4*D_{50}
4	14	R-6	13	6*D	2.2*D_{50}
5	20	R-7	18	7*D	2.0*D_{50}
6	22	R-8	24	8*D	2.0*D_{50}

[1]D is the culvert rise.

Width (at apron end) = 3*D + (2/3)*Length
Width based on 1:3 flare

C. Calculations:

Pipe	D (in)	D (ft)	Q_{25} (cfs)	TW (ft)	Calculated		Select		Length (ft)	Width (ft)	Depth (in)
					D_{50} (ft)	D_{50} (in)	FHWA	D_{50} (in)			
UGIS -> FES	24	2.00	9.55	0.80	0.20	2.38	1.00	5	8.0	11.3	18
BIO-01 -> FES	12	1.00	1.49	0.40	0.08	1.01	1.00	5	4.0	5.7	18
DMH-101 -> FES	18	1.50	4.97	0.60	0.16	1.95	1.00	5	6.0	8.5	18
DMH-103 -> FES	18	1.50	7.80	0.60	0.30	3.56	1.00	5	6.0	8.5	18
DIV-02 -> SF-2	12	1.00	1.19	0.40	0.06	0.75	1.00	5	4.0	5.7	18
DIV-02 -> FES	18	1.50	3.35	0.60	0.10	1.15	1.00	5	6.0	8.5	18
Trench Drain at East Tennis court - RRA	12	1.00	4.78	0.40	0.40	4.77	1.00	5	4.0	5.7	18
DIV-01 -> DB-01	36	3.00	24.07	1.20	0.26	3.17	1.00	5	12.0	17.0	18
DIV-01 -> SF-01	12	1.00	2.15	0.40	0.14	1.64	1.00	5	4.0	5.7	18
DMH-303 -> FES	24	2.00	6.12	0.80	0.11	1.32	1.00	5	8.0	11.3	18
Bio-03 -> FES	12	1.00	2.07	0.40	0.13	1.56	1.00	5	4.0	5.7	18
DMH-107 -> FES	24	2.00	15.41	0.80	0.38	4.51	1.00	5	8.0	11.3	18
DMH-203 -> FES	15	1.25	1.88	0.50	0.07	0.82	1.00	5	5.0	7.1	18
CB-107 -> FES	24	2.00	18.78	0.80	0.49	5.87	2.00	6	8.0	11.3	20
Trench Drain at West Tennis Court -> RRA	12	1.00	2.43	0.40	0.16	1.94	1.00	5	4.0	5.7	18
SF-05 -> FES	12	1.00	2.37	0.40	0.16	1.87	1.00	5	4.0	5.7	18

Note: Level spreaders entering the Sedient Forebays and Infiltration System were sized using **Figure 6. Minimum Dimensions for Level Spreaders** in Section Five: Runoff Control Measures in the Rhode Island Soil Erosion & Sediment Control Handbook.

PARE CORPORATION

PROJECT	Mt. Hope High School	PROJECT NUMBER	23099.01
SUBJECT	Flow Diversion Design		
COMPUTATIONS BY	ACB	DATE	1/8/2025
CHECK BY		DATE	

FLOW DIVERSION DESIGN (DIV-1)

DIV-1 directs the WQF to the sand filter area

Contributing Area

Total Area in Contributing Watershed = 339,731 Square Feet
7.80 Acres

Impervious Area

	Area (SF)	Area (acres)
ROOF2.1 and PDA 2.1A	**112,859**	**2.591**

Water Quality Volume

Water Quality Volume (WQV) = 1" x Impervious Area = 9,405 CF

Water Quality Flow (WQF)

Q = WQV / Total Contributing Area = 0.028 FT
Q = 0.33 INCHES

P = 1.2 INCHES

CN = [1000] / [10 + 5xP + 10xQ - 10x(Q^2 + 1.25xQxP)^(1/2)]

CN = 87

Ia = 200/CN - 2

Ia = 0.304 INCHES

Time of Concentration (Tc) =

Tc = 16.3 minutes From HydroCAD
Tc = 0.27 hours

Ia / P = 0.253

Using TR-55 Exhibit 4-III

qu = 425 CSM / INCH

WQF = qu (CSM/INCH) x A (sq. miles) x Q (INCH)

WQF = 1.72 CFS

Area of Orifice

A = WQF / [Cx(2xgxh)^(1/2)]; A = pi() x r^2

C = 0.60
g = 32.2 ft/s^2
h = average height above orifice
h= **0.43**
A = 0.548 sf

Therefore Diameter is:

D = 0.84 ft
D min. = 10 inches
Provided D 10 inches

References:

-Rhode Island Storm Water Design and Installation Standards Manual, Amended March 2015, (Section 3.3.3.2)
-TR-55 Urban Hydrology for Small Watersheds, SCS, June 1986
-Civil Engineering Reference Manual 10th Edition, Lindeburg, Michael, 2006

PARE CORPORATION

PROJECT	Mt. Hope High School	PROJECT NUMBER	23099.01
SUBJECT	Flow Diversion Design		
COMPUTATIONS BY	ACB	DATE	1/8/2025
CHECK BY		DATE	

FLOW DIVERSION DESIGN (DIV-2)

DIV-2 directs the WQF to the sand filter area

Contributing Area

Total Area in Contributing Watershed = 72,790 Square Feet
1.67 Acres

Impervious Area

	Area (SF)	Area (acres)
PDA 1.4B	**33,352**	**0.766**

Water Quality Volume

Water Quality Volume (WQV) = 1" x Impervious Area = 2,779 CF

Water Quality Flow (WQF)

Q = WQV / Total Contributing Area = 0.038 FT
Q = 0.46 INCHES

P = 1.2 INCHES

CN = [1000] / [10 + 5xP + 10xQ - 10x(Q^2 + 1.25xQxP)^(1/2)]

CN = 90

Ia = 200/CN - 2

Ia = 0.222 INCHES

Time of Concentration (Tc) =

Tc = 13.9 minutes From HydroCAD
Tc = 0.23 hours

Ia / P = 0.185

Using TR-55 Exhibit 4-III

qu = 525 CSM / INCH

WQF = qu (CSM/INCH) x A (sq. miles) x Q (INCH)

WQF = 0.63 CFS

Area of Orifice

A = WQF / [Cx(2xgxh)^(1/2)]; A = pi() x r^2

C = 0.60
g = 32.2 ft/s^2
h = average height above orifice
h= **0.25**
A = 0.261 sf

Therefore Diameter is:

D = 0.58 ft
D min. = 7 inches
Provided D 8 inches

References:

-Rhode Island Storm Water Design and Installation Standards Manual, Amended March 2015, (Section 3.3.3.2)
-TR-55 Urban Hydrology for Small Watersheds, SCS, June 1986
-Civil Engineering Reference Manual 10th Edition, Lindeburg, Michael, 2006

PARE CORPORATION

PROJECT	Mt. Hope High School	PROJECT NUMBER	23099.01
SUBJECT	Flow Diversion Design		
COMPUTATIONS BY	ACB	DATE	12/24/2024
CHECK BY		DATE	

FLOW DIVERSION DESIGN (DIV-3)

DIV-3 directs the WQF to the sand filter area

Contributing Area

Total Area in Contributing Watershed = 42,514 Square Feet
0.98 Acres

Impervious Area

	Area (SF)	Area (acres)
PDA 1.4D	**24,896**	**0.572**

Water Quality Volume

Water Quality Volume (WQV) = 1" x Impervious Area = 2,075 CF

Water Quality Flow (WQF)

Q = WQV / Total Contributing Area = 0.049 FT
Q = 0.59 INCHES

P = 1.2 INCHES

CN = [1000] / [10 + 5xP + 10xQ - 10x(Q^2 + 1.25xQxP)^(1/2)]

CN = 93

Ia = 200/CN - 2

Ia = 0.161 INCHES

Time of Concentration (Tc) =

Tc = 6 minutes From HydroCAD
Tc = 0.10 hours

Ia / P = 0.134

Using TR-55 Exhibit 4-III

qu = 625 CSM / INCH

WQF = qu (CSM/INCH) x A (sq. miles) x Q (INCH)

WQF = 0.56 CFS

Area of Orifice

A = WQF / [Cx(2xgxh)^(1/2)]; A = pi() x r^2

C = 0.60
g = 32.2 ft/s^2
h = average height above orifice
h= **0.38**
A = 0.189 sf

Therefore Diameter is:

D = 0.49 ft
D min. = 6 inches
Provided D 9 inches

References:

-Rhode Island Storm Water Design and Installation Standards Manual, Amended March 2015, (Section 3.3.3.2)
-TR-55 Urban Hydrology for Small Watersheds, SCS, June 1986
-Civil Engineering Reference Manual 10th Edition, Lindeburg, Michael, 2006

PARE CORPORATION

PROJECT	Mt. Hope High School	PROJECT NUMBER	23099.01
SUBJECT	Flow Diversion Design		
COMPUTATIONS BY	ACB	DATE	1/8/2025
CHECK BY		DATE	

FLOW DIVERSION DESIGN (DIV-4)

DIV-4 directs the WQF to the sand filter area

Contributing Area

Total Area in Contributing Watershed = 151,857 Square Feet
3.49 Acres

Impervious Area

	Area (SF)	Area (acres)
PDA 2.2C.a and PDA2.2C.b	**151,857**	**3.486**

Water Quality Volume

Water Quality Volume (WQV) = 1" x Impervious Area = 12,655 CF

Water Quality Flow (WQF)

Q = WQV / Total Contributing Area = 0.083 FT
Q = 1.00 INCHES

P = 1.2 INCHES

CN = [1000] / [10 + 5xP + 10xQ - 10x(Q^2 + 1.25xQxP)^(1/2)]

CN = 98

Ia = 200/CN - 2

Ia = 0.038 INCHES

Time of Concentration (Tc) =

Tc = 6 minutes From HydroCAD
Tc = 0.10 hours

Ia / P = 0.031

Using TR-55 Exhibit 4-III

qu = 700 CSM / INCH

WQF = qu (CSM/INCH) x A (sq. miles) x Q (INCH)

WQF = 3.81 CFS

Area of Orifice

A = WQF / [Cx(2xgxh)^(1/2)]; A = pi() x r^2

C = 0.60
g = 32.2 ft/s^2
h = average height above orifice
h= **0.63**
A = 1.002 sf

Therefore Diameter is:

D = 1.13 ft
D min. = 14 inches
Provided D 18 inches

References:

-Rhode Island Storm Water Design and Installation Standards Manual, Amended March 2015, (Section 3.3.3.2)
-TR-55 Urban Hydrology for Small Watersheds, SCS, June 1986
-Civil Engineering Reference Manual 10th Edition, Lindeburg, Michael, 2006

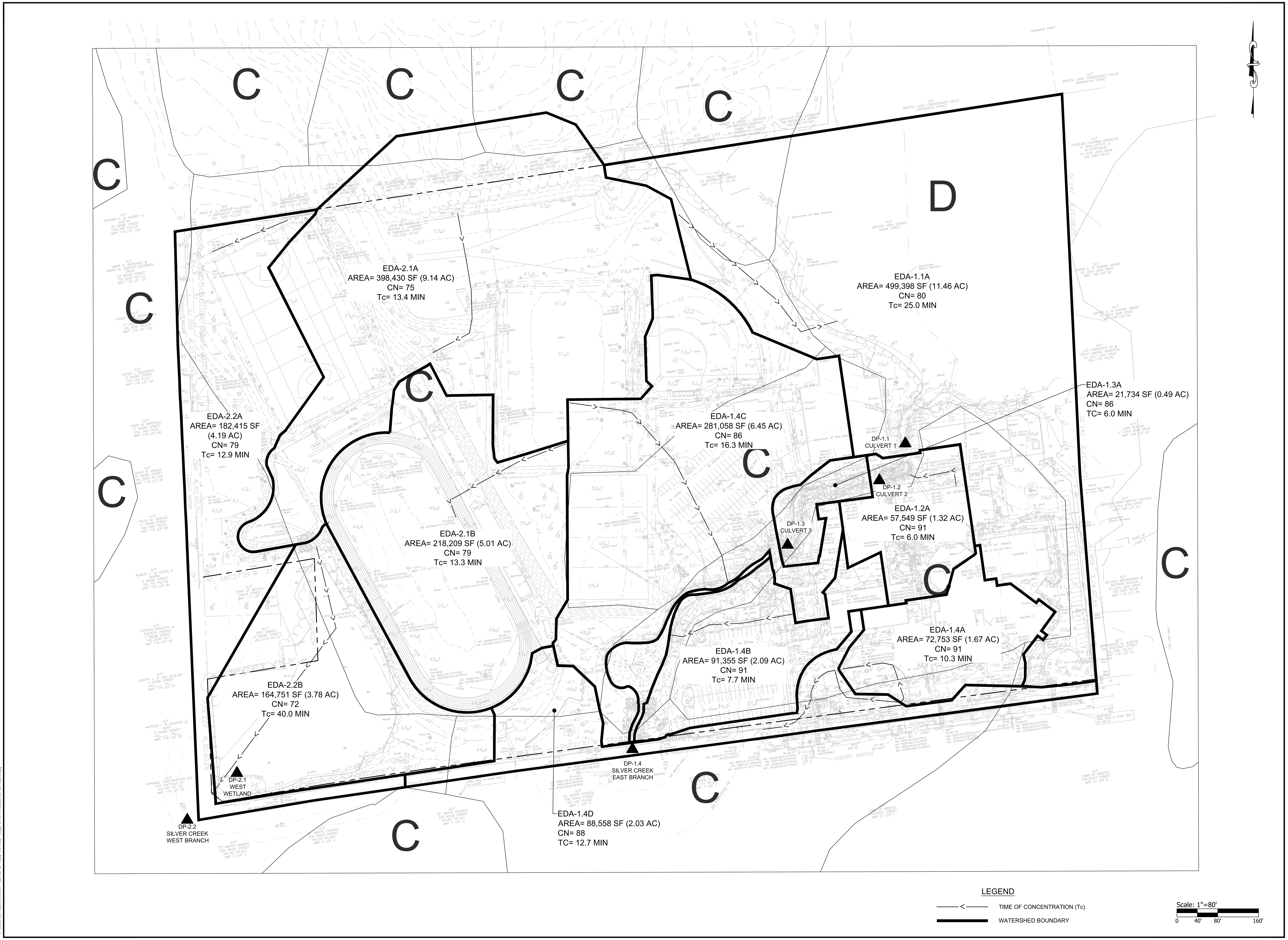
Bristol Warren Regional School District

MT. HOPE HIGH SCHOOL

APPENDIX D

XBT-1 Existing Hydrology

XBT-2 Proposed Hydrology



PARE

OWNER/APPLICANT:
BRISTOL WARREN REGIONAL SCHOOL DISTRICT
235 HIGH STREET
BRISTOL, RI 02809
401-253-4000

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

MT. HOPE HIGH SCHOOL
199 Chestnut Street
ASSESSOR'S PLAT 117, LOTS 3, 4, 5, 6, & 7
Bristol, Rhode Island

REVISIONS:

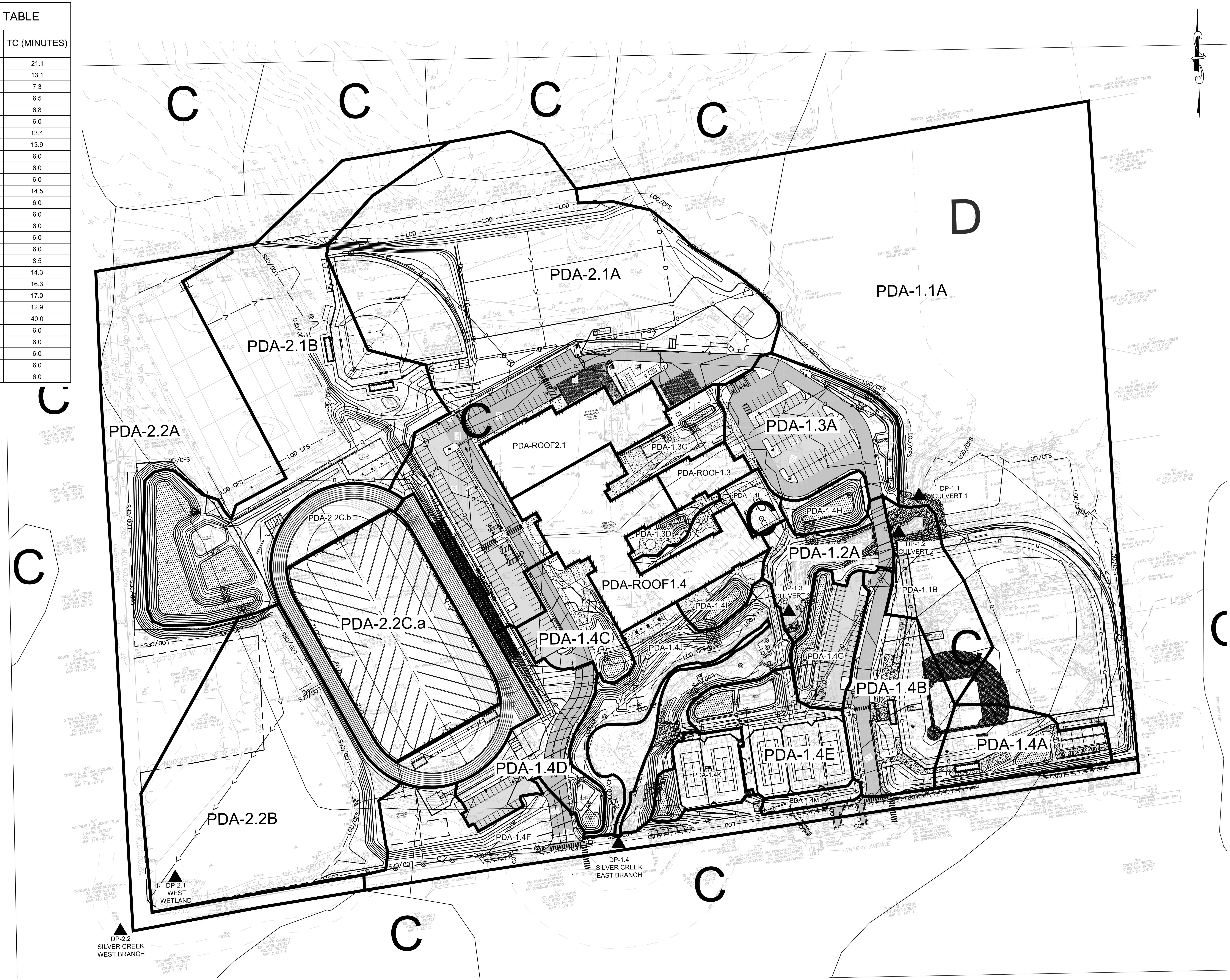
PROJECT NO.:	23099.01
DATE:	JANUARY 10, 2025
SCALE:	1"=80'
DESIGNED BY:	ACB
CHECKED BY:	DLP
DRAWN BY:	AKL
APPROVED BY:	DLP

DRAWING TITLE:
EXISTING HYDROLOGY PLAN

DRAWING NO.:
XBT-1

SHEET NO. ---- OF ----

DRAINAGE AREA SUMMARY TABLE			
DRAINAGE AREA	AREA (SF)	CN	TC (MINUTES)
PDA-1.1A	475,005	77	21.1
PDA-1.1B	32,995	77	13.1
PDA-1.2A	25,858	80	7.3
PDA-1.3A	57,295	92	6.5
PDA-1.3C	16,850	84	6.8
PDA-1.3D	6,850	84	6.0
PDA-1.4A	31,007	83	13.4
PDA-1.4B	50,506	85	13.9
PDA-1.4C	26,810	90	6.0
PDA-1.4D	42,514	88	6.0
PDA-1.4E	39,245	89	6.0
PDA-1.4F	73,858	87	14.5
PDA-1.4G	22,284	89	6.0
PDA-1.4H	10,744	75	6.0
PDA-1.4I	9,824	81	6.0
PDA-1.4J	59,466	79	6.0
PDA-1.4K	18,876	93	6.0
PDA-1.4L	11,978	80	8.5
PDA-1.4M	4,734	75	14.3
PDA-2.1A	308,645	81	16.3
PDA-2.1B	188,298	76	17.0
PDA-2.2A	159,283	80	12.9
PDA-2.2B	152,260	72	40.0
PDA-2.2C.a	90,671	98	6.0
PDA-2.2C.b	61,186	98	6.0
PDA-ROOF 1.3	9,782	98	6.0
PDA-ROOF 1.4	58,210	98	6.0
PDA-ROOF 2.1	31,087	98	6.0



LEGEND

TIME OF CONCENTRATION (Tc)

WATERSHED BOUNDARY

Scale: 1"=80'

0 40' 80' 160'

PARE

OWNER/APPLICANT:
BRISTOL WARREN REGIONAL SCHOOL DISTRICT
235 HIGH STREET
BRISTOL, RI 02809
401-253-4000

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

MT. HOPE HIGH SCHOOL
199 Chestnut Street
ASSESSOR'S PLAT 117, LOTS 3, 4, 5, 6, & 7
Bristol, Rhode Island

REVISIONS:

PROJECT NO.:	23099.01
DATE:	JANUARY 10, 2025
SCALE:	1"=80'
DESIGNED BY:	ACB
CHECKED BY:	DLP
DRAWN BY:	AKL
APPROVED BY:	DLP

DRAWING TITLE:

PROPOSED HYDROLOGY PLAN

DRAWING NO.:

XBT-2

SHEET NO. ---- OF ----