DRAINAGE REPORT

ALLEN & MAJOR
ASSOCIATES, INC.

Cranston Print Works
1381 Cranston Street
Cranston, RI

APPLICANT:
CPW True Storage LLC
670 N. Commercial Street
Manchester, NH 03101

PREPARED BY:
Allen & Major Associates, Inc.
400 Harvey Road
Manchester, NH 03103

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01-21-2025

ISSUED:
June 16, 2023

REVISED:
October 16, 2023
November 29, 2023

A&M PROJECT NO.:
2038-08

RIDEM NO.:
23 0147

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SECTION 1.0 -
DRAINAGE REPORT

Introduction

The purpose of this drainage report is to provide an overview of the proposed stormwater management system (SMS) for the Cranston Print Works project located at 1381 Cranston Street in Cranston. The report will show by means of narrative, calculations and exhibits that the proposed stormwater management system will meet or exceed the standards of the Rhode Island Stormwater Management, Design and Installation Rules (250-RICR-150-10-8), and applicable local stormwater management regulations.

Existing Conditions

The site is located on the northwest quadrant of the intersection of Cranston Street and Dyer Avenue. It is comprised of three parcels, identified on the Tax Map 8 as Lots 195, 1617, and 2711. The site was formerly used for industrial activities and currently has three industrial/commercial buildings with much of the surrounding area being paved for parking. The currently undeveloped portions of the site were once occupied by mill buildings that have since been razed.

Elevations on site range from a high point of 82 at the northeast corner of the site, to a low point of 49 at the southwest corner of the site. Slopes range from steep in the northeast, north and central areas of the site, to very flat within the southern, northwest, and north-northeast areas of the site.

The existing site has drainage infrastructure which has been neglected and is no longer performing as designed. The stormwater flows on site are routed to two outlet points that discharge into the Pocasset River. The southern half of the site flows downstream over the paved driveway and/or through the existing pipe network along Cranston Street prior to discharging through two 12" CMP outfall pipes into the Pocasset River. The northern half of the site utilizes a separate pipe network, discharging through an existing outfall located to the north of the existing three-story building. The stormwater that is not captured within the existing catch basins on-site flows downhill from east to west until reaching the Pocasset River. The centralized portion of the site contains three wetland bodies, flagged by "Applied Bio-Systems, Inc." that also collect runoff from the eastern portion of the site, adjacent to Dyer Avenue. For the drainage analysis, the Pocasset River is utilized as the "Study Point".

A review of the NRCS soil report for Providence County indicates that the soils on site/in the project's vicinity, are Udorthents-Urban land complex (classified as Hydrologic Soil Group Type "A"), Merrimac-Urban land complex (classified as Hydrologic Soil Group Type "A"), Urban land (not classified), and Water (not classified). For purposes of the stormwater analysis, soils on-site have all been assumed to be Hydrologic Soil Type "A".

FEMA Floodplain

The Pocasset River flows from north to south along the western side of the site. As shown on the Flood Insurance Rate Map (FIRM), with an effective date of October 2, 2015, on community panel 44007C0312H, there are portions of the site located within the FEMA Zone "AE" Special Flood Hazard Area Subject to Inundation by the 1% Annual Chance Flood (100-year floodplain). These elevations vary along the length of the river and range from elevation 55 to elevation 51. A FIRMette printout is included in the appendix of this report.

Environmentally Sensitive Zones

The Cranston Print Works property has been utilized as an industrial manufacturing center since the late 1800's. Throughout the 19th and early 20th century the buildout of the facility included the construction of the original mill structures along Cranston Street as well as several additional mill buildings. Many of these structures remain, but many buildings, including several on the northern end of the property closest to Print Works Pond have been removed. This long history of industrial use has left an environmental legacy which requires management to return the property to compliance with State and Federal environmental regulations. The applicant has enrolled the property in the site remediation program under the jurisdiction of the RIDEM Office of Land Revitalization and Sustainable Materials Management (OLRSMM). In February 2022, RIDEM OLRSMM issued a "Voluntary Procedure Letter" to the applicant laying out the requirements and expectations to bring the property into regulatory compliance. The necessary steps include supplemental investigation activities and implementation of site cleanup activities, to be conducted concurrently with site development. The applicant has aggressively moved forward with the agreed upon plan and is continuing to work collaboratively with RIDEM in a voluntary manner to complete the necessary activities.

Drainage Analysis Methodology

A peak rate of runoff will be determined using techniques and data found in the following:

1. Urban Hydrology for Small Watersheds – Technical Release 55 by the United States Department of Agriculture Soils Conservation Service, June 1986. Runoff curve numbers and 24-hour precipitation values were obtained from this reference.
2. HydroCAD © Stormwater Modeling System by HydroCAD Software Solutions LLC, version 10.20-2g. The HydroCAD program was used to generate the runoff hydrographs for the watershed areas, to determine discharge/ stage/storage characteristics for the stormwater BMPs, to perform drainage routing and to combine the results of the runoff hydrographs. HydroCAD uses the TR-20 methodology of the SCS Unit Hydrograph procedure (SCS-UH).

Proposed Conditions – Peak Rate of Runoff

The proposed site improvements to the Cranston Print Works parcel include the conversion of the existing buildings on site to multi-family residential/mixed-use space and climate controlled self-storage. The proposed buildings include eight (8) self-storage buildings of various sizes. The total impervious area (i.e. roof, pavement, and concrete surfaces) on site in the proposed condition is **396,930 square feet**, an increase of **34,026 square feet** over existing conditions. Necessary utilities will be brought into the site and stormwater management infrastructure will be installed to mitigate the additional runoff caused by the development. The proposed stormwater infrastructure is depicted on the Grading & Drainage Plan.

Due to the additional impervious area proposed on-site, the proposed stormwater best management practices have been designed to ensure that the rates of runoff in the proposed conditions do not exceed the rates of runoff experienced in the existing conditions, for all design storm events. The project proposes to replace all the stormwater management infrastructure on the site, utilizing infiltration techniques and pipe conveyance. Stormwater generated in the southern portion of the site will be captured within deep sump catch basins and conveyed downstream to the existing southern outlet location, discharging to the Pocasset River. Proprietary separators will be utilized to attain adequate treatment prior to discharge. Stormwater generated in the eastern portion of the site will be captured within a series of deep sump catch basins and routed to one of two Stormtech MC-3500 chamber systems (Infiltration System #1 and #2) and infiltrated to the ground. Runoff from large storm events will overflow from these systems and discharge to the Pocasset River. Pretreatment prior to infiltration is attained using proprietary separators and an isolator row within the infiltration systems. Stormwater in the northwestern portion of the development will be captured within the proposed pipe network and discharge to the existing northern outlet location into the Pocasset River. Proprietary separators will be used for treatment prior to discharge. The combination of pretreatment and infiltration ensures that the designed stormwater system will exceed the standards within the Rhode Island Stormwater Management, Design and Installation Rules (250-RICR-150-10-8).

Runoff flows were estimated for both the existing and proposed conditions using HydroCAD 10.20-3c software. One Study Point was considered, flow to the Pocasset River. As shown in the following table, the project provides for sufficient stormwater storage and infiltration so that the rate and volume of runoff is significantly reduced for all design storm events. The HydroCAD worksheets are included in Section 3 and 4 of this report.

STUDY POINT #1 (Flow to Pocasset River)			
	2-Year	10-Year	100-Year
Existing Flow (CFS)	17.81	35.70	85.49
Proposed Flow (CFS)	14.20	19.60	77.88
Decrease (CFS)	**-3.61**	**-16.10**	**-7.61**
Existing Volume (CF)	64,034	120,529	279,874
Proposed Volume (CF)	51,419	99,504	243,323
Change (CF)	**-12,615**	**-21,025**	**-36,551**

RIDEM Stormwater Performance Standards

The Rhode Island Department of Environmental Management (RIDEM) has implemented a set of stormwater management standards and performance criteria which are outlined in the Rhode Island Stormwater Management, Design and Installation Rules (250-RICR-150-10-8). Accompanying this report is the RIDEM Application for Stormwater Construction Permit and Water Quality Certification and the corresponding Appendix A: Stormwater Management Plan Checklist and LID Planning Report. Please reference the Checklist for additional relevant project information and calculations supporting the project's compliance with the relevant RIDEM performance standards.

SECTION 2.0 -
OPERATION & MAINTENANCE PLAN

General Information

Allen & Major Associates, Inc. has prepared the following Operation and Maintenance Plan for the Cranston Print Works project located at #1381 Cranston Street in Cranston, RI. This first section provides general information about ownership and responsibility. The second section describes the Construction Period erosion and sediment control measures. The third section describes the long-term Operation and Maintenance (O&M) Plan.

Owner Contact Information:

CPW True Storage LLC
670 N. Commercial Street, Suite 303
Manchester, NH 03101
Phone: 508-728-9208

Notification Procedures for Change of Responsibility for O&M

The Stormwater Management System (SMS) for this project is owned by CPW True Storage LLC. The owner shall be responsible for the long-term operation and maintenance of this SMS as outlined in this Operation and Maintenance (O&M) Plan. Should ownership of the SMS change, the owner will continue to be responsible until the succeeding owner shall notify the City's Engineering Division that the succeeding owner has assumed such responsibility. Upon subsequent transfers, the responsibility shall continue to be that of transferring owner until the transferee owner notifies the City of its assumption of responsibility.

Construction Period

1. The contractor shall comply with all erosion control notes shown on the Site Preparation Plans.
2. Perimeter controls (tubular sediment barriers) shall be installed prior to earth moving operations as shown on the Site Preparation Plan.
3. Site access shall be achieved only from the stabilized construction entrance as shown on the Site Preparation Plan.
4. All cut and fill slopes shall be seeded/loamed within 72 hours of achieving finished grade.
5. The Contractor shall inspect all temporary erosion control measures at least once per week and within twenty-four (24) hours of the end of all storms with rainfall amounts greater than 0.5 inches. The inspections shall verify that the structural BMPs shown and described on the plans are in good condition and are minimizing erosion. A maintenance and inspection report shall be made with each inspection. Completed inspection forms shall be kept on-site for the duration of the project.
6. The smallest practical area shall be disturbed during construction.
7. An area shall be considered stable if one of the following has occurred:
   A. Base course gravel has been installed in areas to be paved.
   B. A minimum of 85 percent vegetated growth has been established.
   C. A minimum of 3 inches of non-erosive material such as stone or rip rap has been installed, or erosion control blankets have been properly installed.
8. All areas shall be stabilized within 45 days of initial disturbance.
9. If, during construction, it becomes apparent that additional erosion control measures are required to stop any erosion on the construction site, the property owner shall be required to install the necessary erosion protection at no expense to the City.
10. Stage construction equipment and activities from existing paved areas to the extent practicable.
11. Stockpile areas shall be surrounded with tubular sediment barrier.
12. Following completion of construction and stabilization of the site, the contractor shall sweep and/or vacuum paved surfaces that have been impacted during construction.

CIVIL ENGINEER CONTACT:

Allen & Major Associates, Inc.
Attn: Michael Malynowski, P.E.
400 Harvey Road, Suite D
Manchester, NH 03103
Phone: (603) 627-5500

Long Term Operation and Maintenance Plan

Upon completion of all terrain alteration activities that direct stormwater to a particular practice, the responsible party shall initiate O&M procedures outlined below. A log sheet is included at the end of the O&M Plan and shall be used to document all O&M activities within the site. All sediments removed from the site shall be disposed of properly and in accordance with applicable local and state regulations.

1) Infiltration Systems:

a) The infiltration systems shall be cleaned of sediment build-up when accumulation of more than 3" of sediment covers the base of the chamber.

b) Inspection of infiltration components annually and following any rainfall event exceeding 2.5 inches in a 24-hour period, with maintenance or rehabilitation conducted as warranted by such inspection.

c) Consult a qualified professional if the basin does not drain within 72-hours following a rainfall event.

2) Pavement Areas:

a) Salt for de-icing on the paved areas during the winter months shall be limited to the minimum amount practicable.

b) Sand containing the minimum amount of calcium chloride (or approved equivalent) may be applied as part of the routine winter maintenance activities.

c) Surfaces shall be vacuumed a minimum of once per year, preferably in the spring. Regenerative air vacuum sweeping equipment is recommended.

3) Catch basins:

a) Inspect annually. Skim floatables and remove sediment when it has accumulated to within 2 feet of the outlet invert.

4) Outlet Control Structure:

a) Inspect the outlet control structure to ensure that it is working in its intended fashion and that it is free of debris.

b) Structures will be skimmed of floatable debris at each inspection and sediment will be removed at a minimum once per year (typically after snow season) or when sediment has accumulated to a point where it is impacting the outlet.

5) Proprietary Separators:

a) Separators shall be operated in strict accordance with the manufacturer's recommended practices. Available manufacturer specific O&M plans area included with manual.

b) Separators shall be inspected to ensure that they are working in their intended fashion and that they are free of debris.

c) Structures shall be cleaned with a vacuum truck at least once annually (typically after snow season) or when sediment has accumulated to a depth of six inches (6"), whichever is more frequent.

6) Storing of Materials and Waste Products:

a) Pickup of waste and recyclables will be coordinated by the responsible party through a waste removal contractor.

7) Landscape Areas

a) All landscape areas on the site shall be stabilized with vegetation to control erosion. Any disturbed areas shall be re-seeded as soon as practicable. Additional guidance for lawn, garden, and landscape management is included in Appendix G, see following supplemental pages.

8) Vehicle Washing

a) Outdoor vehicle washing has the potential to result in high loads of nutrients, metals, and hydrocarbons during dry weather conditions, as the detergent-rich water used to wash the grime off the vehicle enters the stormwater drainage system. No outdoor vehicle washing is proposed or anticipated to occur at this facility.

9) Snow Management and Winter Maintenance

a) Snow shall be stockpiled within the site. If the stockpiles of snow do not fit within the site and begin to impede general operations, then snow will be disposed off-site. It will be the responsibility of the snow removal contractor to properly dispose of transported snow in accordance with local and state requirements. It will be the responsibility of the snow removal contractor to follow these guidelines and all applicable laws and regulations.

b) The owner (or its designee) will be responsible for clearing snow around the building entrances. The Owner may be required to use a de-icing agent such as potassium chloride to maintain a safe walking surface; however, these are to be used at the minimum amount practicable. The de-icing agent for the walkways and building entrances will be kept within the storage rooms located within the buildings. De-icing agents will not be stored outside. Additional guidance for winter maintenance is included in Appendix G, see following supplemental pages.

Supplemental Information

1. Operation and Maintenance Log Form
2. Isolator Row O&M Manual
3. Appendix G Pollution Prevention and Source Controls
4. Stormwater BMP Map 1 & 2

Self-Storage Facility – Operation & Maintenance Log Form

Structure or Task	Maintenance Activity	Notes	Schedule	Performed By	
				Date:	By:
Standard Pavement	Sweeping	Perform vacuum sweeping once per year. Distribute de-icing agents and inspect according to narrative.	Vacuum once per year, preferably in the Spring.		
Infiltration Systems	Inspection / Repairs	• Inspect annually and after rainfall events exceeding 2.5 inches in 24 hours. • Remove sediment once sediment reaches depth of 3" • Contact qualified professional if basin does not drain within 72 hours following rainfall event	Inspect annually Repairs as needed		
Proprietary Stormwater Separator	Inspection / Cleaning	• Inspect in accordance with manufacturers requirements, but no less than monthly for the first year following installation, and no less than four times per year thereafter. • Remove sediment and other trapped pollutants at frequency or level specified by manufacturer or when the sediment depth in the chamber reaches 6 inches.	Annually		
Catch Basins	Inspection / Cleaning	• Skim floatables and remove sediment when it exceeds 60% of the sump capacity.	Annually		

MC-3500 & MC-7200
Design Manual

StormTech® Chamber Systems for Stormwater Management

ADS StormTech™

8.0 General Notes

1. StormTech requires installing contractors to use and understand the latest StormTech **MC-3500 and MC-7200 Construction Guides** prior to beginning system installation.
2. StormTech offers installation consultations to installing contractors. Contact our Technical Service Department or local StormTech representative at least 30 days prior to system installation to arrange a pre-installation consultation. Our representatives can then answer questions or address comments on the StormTech chamber system and inform the installing contractor of the minimum installation requirements before beginning the system's construction. Call 860-529-8188 to speak to a Technical Service Representative or visit www.stormtech.com to receive a copy of our Construction Guide.
3. StormTech requirements for systems with pavement design (asphalt, concrete pavers, etc.): Minimum cover is 18" (450mm) for the MC-3500 and 24"(600mm) for the MC-7200 not including pavement; MC-3500 maximum cover is 8.0' (1.98 m) and MC-7200 maximum cover is 7.0' (2.43 m) both including pavement. For designs with cover depths deeper than these maximums, please contact Stormtech. For installations that do not include pavement, where rutting from vehicles may occur, minimum required cover is increased to 30" (762 mm).
4. The contractor must report any discrepancies with the bearing capacity of the subgrade materials to the design engineer.
5. AASHTO M288 Class 2 non-woven geotextile (ADS601 or equal) (filter fabric) must be used as indicated in the project plans.
6. Stone placement between chamber rows and around perimeter must follow instructions as indicated in the most current version of StormTech MC-3500 / MC-7200 Construction Guides.
7. Backfilling over the chambers must follow requirements as indicated in the most current version of StormTech MC-3500 / MC-7200 Construction Guides.
8. The contractor must refer to StormTech MC-3500 / MC-7200 Construction Guides for a Table of Acceptable Vehicle Loads at various depths of cover. This information is also available at the StormTech website: www.stormtech.com. The contractor is responsible for preventing vehicles that exceed StormTech requirements from traveling across or parking over the stormwater system. Temporary fencing, warning tape and appropriately located signs are commonly used to prevent unauthorized vehicles from entering sensitive construction areas.
9. The contractor must apply erosion and sediment control measures to protect the stormwater system during all phases of site construction per local codes and design engineer's specifications.
10. STORMTECH PRODUCT WARRANTY IS LIMITED. Contact StormTech for warranty information.

9.0 Inspection and Maintenance

9.1 Isolator Row Plus Inspection

Regular inspection and maintenance are essential to assure a properly functioning stormwater system. Inspection is easily accomplished through the manhole or optional inspection ports of an Isolator Row Plus. Please follow local and OSHA rules for a confined space entry.

Inspection ports can allow inspection to be accomplished completely from the surface without the need for a con- fined space entry. Inspection ports provide visual access to the system with the use of a flashlight. A stadia rod may be inserted to determine the depth of sediment. If upon visual inspection it is found that sediment has accumulated to an average depth exceeding 3" (76 mm), cleanout is required.

A StormTech Isolator Row Plus should initially be inspected immediately after completion of the site's construction. While every effort should be made to prevent sediment from entering the system during construction, it is during this time that excess amounts of sediments are most likely to enter any stormwater system. Inspection and maintenance, if necessary, should be performed prior to passing responsibility over to the site's owner. Once in normal service, a StormTech Isolator Row Plus should be inspected bi-annually until an understanding of the sites characteristics is developed. The site's maintenance manager can then revise the inspection schedule based on experience or local requirements.

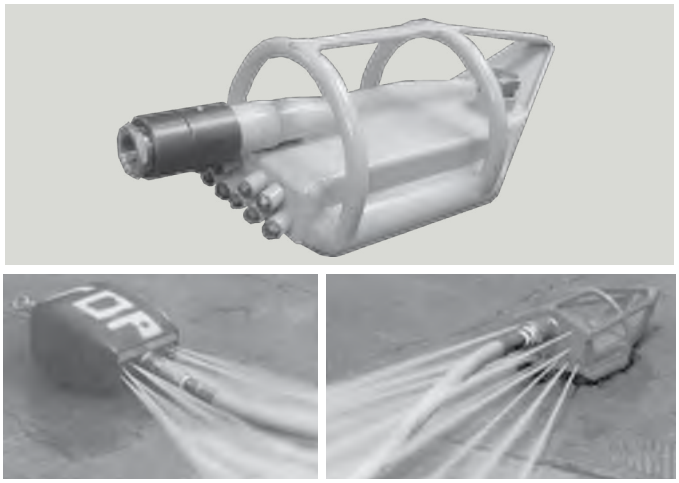
9.2 Isolator Row Plus Maintenance

JetVac maintenance is recommended if sediment has been collected to an average depth of 3" (76 mm) inside the Isolator Row Plus. More frequent maintenance may be required to maintain minimum flow rates through the Isolator Row Plus. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row Plus while scouring and suspending sediments. As the nozzle is retrieved, a wave of suspended sediments is flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/ JetVac combi- nation vehicles. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" (1143 mm) are best. StormTech recommends a maximum nozzle pressure of 2000 psi be utilized during cleaning. The JetVac process shall only be performed on StormTech Rows that have ADS Plus fabric over the foundation stone.

A Flamp (flared end ramp) is attached to the inlet pipe on the inside of the chamber end cap to provide a smooth transition from pipe invert to fabric bottom. It is configured to improve chamber function performance over time by distributing sediment and debris that would otherwise collect at the inlet. It also serves to improve the fluid and solid flow back into the inlet pipe during maintenance and cleaning, and to guide cleaning and inspection equipment back into the inlet pipe when complete.

Flamp (Flared End Ramp)

A typical JetVac truck (This is not a StormTech product.)



Examples of culvert cleaning nozzles appropriate for Isolator Row Plus maintenance. (These are not StormTech products).

MC-7200 MC-3500 DC-780 SC-740 SC-310 SC-160LP

A Family of Products and Services for the Stormwater Industry:

MC-3500 and MC-7200 Chambers and End Caps

SC-160LP, SC-310 and SC-740 Chambers & End Caps

DC-780 Chambers and End Caps

Fabricated End Caps

Fabricated Manifold Fittings

Patented Isolator Row PLUS for Maintenance and Water Quality

Chamber Separation Spacers

In-House System Layout Assistance

On-Site Educational Seminars

Worldwide Technical Sales Group

Centralized Product Applications Department

Research and Development Team

Technical Literature, O&M Manuals and Detailed CAD drawings all downloadable via our Website

StormTech provides state-of-the-art products and services that meet or exceed industry performance standards and expectations. We offer designers, regulators, owners and contractors the highest quality products and services for stormwater management that Saves Valuable Land and Protects Water Resources.

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APPENDIX G: POLLUTION PREVENTION AND SOURCE CONTROLS

G.1 Overview

Pollution prevention techniques must, to the extent practicable, be incorporated into all site designs, especially at commercial and light industrial sites, to minimize the potential impact those activities may have on stormwater runoff quality. Preventative source controls must also be applied in residential development, particularly in preventing floatables (trash and debris) from entering storm sewer drainage systems.

G.2 General Pollution Prevention Design Features

Inlets to stormwater management systems should incorporate trash racks wherever practicable. Storm drain marking (e.g., stenciling) to discourage dumping must also be provided at each inlet. Maintenance plans must include a schedule for regular maintenance and inspection of trash racks.

G.3 Solid Waste Containment

Proper containment of solid waste will prevent it from entering drainage systems and polluting waterways. At a minimum, apply the following pollution prevention practices:

- Trash and recycling receptacles must be provided with regular collection at all sites;
- Industrial and commercial sites must include regular street sweeping (at least annually) in their maintenance plans; and
- Pet waste stations that provide bags and waste containers are recommended at all residential developments and must be provided at multiunit dwellings, such as apartments, town houses, and condominiums.

G.4 Roads and Parking Area Management

Roads and parking areas constitute a large portion of Rhode Island's impervious surfaces and are often directly connected to storm drain systems. These impervious areas contribute relatively high concentrations of a wide variety of pollutants, including sediment, nutrients, metals, and volatile organic compounds (VOCs), among other constituents. The discussion below addresses guidance requirements related to road and parking area management:

G.4.1 Street and Parking Lot Sweeping

Street sweeping helps to remove sediment and debris from paved surfaces, reducing potential pollutant transport to waterbodies. Street and parking lot sweeping may also reduce the need for maintenance of pretreatment devices, such catch basins and forebays that precede WVTSs or bioretention areas.

Street sweeping is a requirement for municipalities pursuant to Phase II of the RIPDES Stormwater Regulations and is also recommended for private entities. Currently, available street sweeping technology is not considered to meet the water quality treatment standard and should not be relied on for TSS removal, but does help as a pretreatment practice.

Debris collected from some streets and parking lots (e.g., LUHPPLs) may be regulated as a hazardous waste. For these cases, debris must be disposed of in accordance with appropriate practice and applicable regulatory standards. Appendix A of the *Rules and Regulations for Composting Facilities and Solid Waste Management Facilities,* which is entitled "Management of Street Sweepings in Rhode Island," should be reviewed. For further information, contact the DEM Office of Waste Management.

G.4.2 Deicing and Salt Storage

Deicing and sanding operations are often necessary for safety during winter storms; however, the materials used create water quality problems. Use deicing chemicals and sand judiciously. Consider the information in Table G-1 when selecting a deicer.

Table G-1 Comparison of Environmental Effects of Common Roadway Deicers

Media	Sodium Chloride ($NaCl$)	Calcium Chloride ($CaCl_2$)	Calcium magnesium acetate (CMA) ($CaMgC_2H_3O_2$)	Sand (SiO_2)
Soils	Cl complexes release heavy metals; Na can breakdown soil structure and reduce permeability	Ca can exchange with heavy metals, increase soil aeration and permeability.	Ca and Mg can exchange with heavy metals.	Gradually will accumulate on soil.
Vegetation	Salt spray/splash can cause leaf scorch and browning or dieback of new plant growth up to 50 feet from road; osmotic stress can result from salt uptake; grass is more tolerant than trees and woody plants.		Little effect.	Accumulates on and around low vegetation.
Groundwater	Mobile Na and Cl ions readily reach groundwater, and concentration levels can temporarily increase in areas of low flow during spring thaws. Ca and Mg can release heavy metals from soil.			No known effect.
Surface Water	Can cause density stratification in small lakes having closed basins, potentially leading to anoxia in lake bottoms; often contain nitrogen, phosphorus, and trace metals as impurities, often in concentrations greater than 5 ppm.		Depletes dissolved oxygen in small lakes and streams when degrading.	Accumulated sand alters stream geometry and habitat

Media	Sodium Chloride (NaCl)	Calcium Chloride ($CaCl_2$)	Calcium magnesium acetate (CMA) ($CaMgC_2H_3O_2$)	Sand (SiO_2)
Aquatic Biota	Little effect in large or flowing bodies at current road salting amounts; small streams that are end points for runoff can receive harmful concentrations of Cl; Cl from NaCl generally not toxic until it reaches levels of 1,000-36,000 ppm.		Can cause oxygen depletion.	Accumulation of particles to stream bottoms degrades habitat, clogs gills.

Source: Adapted from Ohrel, 2000

Sand and deicing chemicals should be stored under cover so as to prevent their exposure to stormwater; the DEM Groundwater Quality Rules require that deicer materials be covered in areas where the groundwater is classified GAA or GA. Table G-2 provides recommendations appropriate for storage and use of deicers. Storage of these materials may be regulated as an industrial activity. Contact DEM's Stormwater Program in the Office of Water Resources for further information.

Table G-2 Recommendations to Reduce Deicer Impacts

Activity	Recommendation
Storage	• Salt storage piles should be completely covered, ideally by a roof, and at a minimum, by a weighted tarp, and stored on impervious surfaces. The DEM Groundwater Quality Rules require that deicer materials be covered in areas where the groundwater is classified GAA or GA. • Runoff should be contained in appropriate areas. • Spills should be cleaned up after loading operations. The material may be directed to a sand pile or returned to salt piles. • Avoid storage in drinking water supply areas, water supply aquifer recharge areas, and public wellhead protection areas.
Application	• Application rate of deicing materials should be tailored to road conditions (i.e., high versus low volume roads). • Trucks should be equipped with sensors that automatically control the deicer spread rate. • Drivers and handlers of salt and other deicers should receive training to improve efficiency, reduce losses, and raise awareness of environmental impacts.

Activity	Recommendation
Other	• Identify ecosystems such as wetlands that may be sensitive to salt. • Use calcium chloride and CMA in sensitive ecosystem areas. • To avoid over-application and excessive expense, choose deicing agents that perform most efficiently according to pavement temperature. • Monitor the deicer market for new products and technology.

Source: Adapted from Ohrel, 2000.

G.4.3 Snow Disposal

Improper snow disposal can be a threat to public health and the environment. Disposal should consider site selection, site preparation and maintenance, and emergency snow disposal locations and procedures. Refer to DEM's Snow Disposal Policy for more details on these topics, which are summarized below.

G.4.3.1 Site Selection

The key to selecting effective snow disposal sites is to locate them adjacent to or on pervious surfaces in upland areas away from water resources and wells. At these locations, snow meltwater can filter in to the soil, leaving behind sand and debris, which can be removed in the springtime. When selecting a site for snow disposal, adhere to the following guidelines:

- Avoid dumping snow into any waterbody, including rivers, reservoirs, ponds, lakes, wetlands, bays, or the ocean. In addition to water quality impacts and flooding, snow disposed of in open water can cause navigational hazards when it freezes.
- Do not dump snow within a Wellhead Protection Area (WHPA) of a public water supply well, or within 200 feet of a private well, where road salt may contaminate water supplies.
- Avoid dumping snow in sanitary landfills and gravel pits. Snow meltwater will create more contaminated leachate in landfills posing a greater risk to groundwater. In gravel pits, there is little opportunity for pollutants to be filtered out of the meltwater because groundwater is close to the land surface.
- Avoid disposing of snow on top of storm drain catch basins or in stormwater drainage swales or ditches. Snow combined with sand and debris may block a storm drainage system, causing localized flooding. In addition, a high volume of sand, sediment, and litter released from melting snow may be quickly transported through the drainage system into surface water.

G.4.3.2 Site Selection Procedures

It is important that the municipal Department of Public Works or Highway Department, and other appropriate municipal offices work together to select appropriate snow disposal sites. The following steps should be taken:

- Estimate how much snow disposal capacity is needed for the season so that an adequate number of disposal sites can be selected and prepared;
- Identify sites that could potentially be used for snow disposal such as municipal open space (e.g., parking lots or parks);
- Sites located in upland locations that are not likely to impact sensitive environmental resources should be selected first; and
- If more storage space is needed, prioritize the sites with the least environmental impact (using the site selection criteria and the online Environmental Resource Map as a guide).

Environmental Resource Map

An interactive map containing a wide variety of GIS data layers of interest to local planning or zoning board members, consultants, or anyone else needing a general mapping of soils, wetlands, land use patterns, regulatory overlay districts and other environmental information can be accessed via the internet at the following address: http://www.state.ri.us/dem/maps/index.htm.

This interactive map can be used to identify publicly owned open spaces and approximate locations of sensitive environmental resources (locations should be field verified where possible).

G.4.3.3 Site Preparation and Maintenance

In addition to carefully selecting disposal sites before the winter begins, it is important to prepare and maintain these sites to maximize their effectiveness. The following maintenance measures should be undertaken for all snow disposal sites:

- A silt fence or equivalent barrier should be placed securely on the down-gradient side of the snow disposal site;
- To filter pollutants out of the meltwater, a 50-foot vegetative buffer strip should be maintained during the growth season between the disposal site and adjacent waterbodies;
- Debris should be cleared from the site prior to using the site for snow disposal; and
- Debris should be cleared from the site and properly disposed of at the end of the snow season.

G.4.3.4 Emergency Snow Disposal

Under normal winter conditions, storage, and disposal of snow should be done

exclusively in upland areas, not in or adjacent to waterbodies or wetlands. However, under extraordinary conditions when upland snow storage options are exhausted, it may be necessary to dispose of snow near or in certain waterbodies. The following guidance does not constitute a Clean Water Act permit for such disposal. However, in an emergency situation, DEM is unlikely to pursue an enforcement action for snow disposal by governmental entities into or near certain waters if conducted in accordance with the conditions identified below.

As mentioned earlier, it is important to estimate the amount of snow disposal capacity you will need so that an adequate number of upland disposal sites can be selected and prepared. If despite your planning, designated upland disposal sites have been exhausted, snow may be disposed of at other locations that meet the criteria in Section G.4.3.2.

Under extraordinary conditions, when all upland snow disposal options are exhausted, disposal of snow that is not obviously contaminated with road salt, sand, and other pollutants may be allowed near (within 50 feet of) or in certain waterbodies under certain conditions. In these dire situations, notify the DEM – Office of Water Resources, RIPDES Program at 222-4700 (or 222-3070 after normal business hours) before disposing of snow in a waterbody. If upland disposal is not available, and snow needs to be removed/relocated for safety reasons, then as a last resort waterways may be used in accordance with the following conditions:

- Dispose of snow in open water with adequate flow and mixing to prevent ice dams from forming;
- Do not dispose of snow in coastal or freshwater wetlands, eelgrass beds, vegetated shallows, vernal pools, shellfish beds, mudflats, outstanding resource waters, drinking water reservoirs and their tributaries, Wellhead Protection Areas (WHPAs), or other areas designated by the State as being environmentally sensitive;
- In coastal communities, preference should be given to disposal in salt water if it is available;
- Do not dispose of snow where trucks may cause shoreline damage or streambank damage or erosion; and
- Consult with appropriate municipal officials to ensure that snow disposal in water complies with local ordinances and bylaws.

G.4.4 Driveway and Parking Lot Sealants

Driveway and parking lot sealants are a major source of polycyclic aromatic hydrocarbons (PAHs) in our environment. There are two types of sealant: asphalt based and coal-tar based. Both types of sealant contain PAHs, but the coal-tar based sealants have a far higher concentration of PAHs (as much as 70 times higher than asphalt based). As the sealants wear down, small particles of sealant are washed off by stormwater into surface waters. PAHs have been found to be toxic to aquatic life, with bottom dwelling organisms most at risk since PAHs tend to attach to sediment

rather than dissolve in water. Also, in recognition of the human health effects of PAHs, DEM has adopted the US EPA water column human health criteria for PAHs in the DEM Water Quality Regulations. Because of the high concentrations of PAHs in coal-tar based sealants, DEM recommends that coal-tar based sealants not be used. For more information, see: US Geological Survey Fact Sheet 2005-3147, "Parking Lot Sealcoat: A Major Source of Polycyclic Aromatic Hydrocarbons (PAHs) in Urban and Suburban Environments."

G.5 Hazardous Materials Containment

As applicable, project proponents must provide a completed Stormwater Pollution Prevention Plan in accordance with the Rhode Island Pollution Discharge Elimination System Regulations. At a minimum, the following practices should be incorporated as part of site design:

- Site designs must incorporate adequate indoor storage of hazardous materials as the primary method for preventing problems related to stormwater;
- Diversion through devices such as curbing and berms should be incorporated wherever stormwater has the potential to runoff into hazardous materials storage areas; and
- Secondary containment must be included wherever spills might occur (e.g., fueling and hazardous materials transfer and loading areas). Oil/grit separators and other manufactured treatment devices may temporarily contain certain spills and contaminated stormwater. However, these devices should be used as backup for tighter containment practices.

G.6 Septic System Management

Approximately one-third of Rhode Islanders use some form of onsite wastewater treatment system (i.e., septic system, cesspool, etc.). When septic systems fail, they may become a major source of pollution to surface and groundwater. Discharge from failed systems is often carried to surface water via stormwater runoff. Stormwater management plans must discuss appropriate operation and management for all onsite wastewater treatment systems (OWTSs) on the project site. Use of regular inspections in accordance with the procedures of *Septic System Checkup: The Rhode Island Manual for Inspections* is recommended.

G.7 Lawn, Garden, and Landscape Management

Lawns are a significant feature of urban landscapes. Estimates of turf and lawn coverage in the United States are as high as 30 million acres, which, if lawns were classified as a crop, would rank as the fifth largest in the country after corn, soybeans, wheat, and hay (Swann and Schueler, 2000). This large area of managed landscape has the potential to contribute to urban runoff pollution due to overfertilization, overwatering, overapplication of pesticides, and direct disposal of lawn clippings, leaves, and trimmings. Also, erosion from bare patches of poorly managed lawns

contribute sediment to watercourses, and disposal of lawn clippings in landfills can reduce the capacity of these facilities to handle other types of waste.

The following standards for grounds management must be incorporated into stormwater management plans:

Lawn conversion - Grasses require more water and attention than alternative groundcovers, flowers, shrubs, or trees. Alternatives to turf are especially recommended for problem areas such as lawn edges, frost pockets, shady spots, steep slopes, and soggy areas. Vegetation that is best suited to the local conditions should be selected.

Soil building - Grounds operation and maintenance should incorporate soil evaluation every 1 to 3 years to determine suitability for supporting a lawn, and to determine how to optimize growing conditions. Consider testing soil characteristics such as pH, fertility, compaction, texture, and earthworm content.

Grass selection - Grass seed is available in a wide range of cultivated varieties, so homeowners, landscapers, and grounds managers are able to choose the grass type that grows well in their particular climate, matches site conditions, and is consistent with the property owner's desired level of maintenance. When choosing ground cover, consideration should be given to seasonal variations in rainfall and temperature. Table G-3 lists turfgrass types and their level of tolerance to drought:

Table G-3 Drought Tolerance of Turfgrass Types

Turfgrass Type	Drought Tolerance
Fine-leaved Fescues Tall Fescue Kentucky Bluegrass Perennial Ryegrass Bentgrasses	High ↓ Low

Mowing and thatch management - To prevent insects and weed problems, property owners should mow high, mow frequently, and keep mower blades sharp. Lawns should not be cut shorter than 2 to 3 inches, because weeds can grow more easily in short grasses. Grass can be cut lower in the spring and fall to stimulate root growth, but not shorter than 1 ½ inches.

Fertilization - If fertilizing is desired, consider the following points:

- Most lawns require little or no fertilizer to remain healthy. Fertilize no more than twice a year - once in May-June, and once in September-October;
- Fertilizers are rated on their labeling by three numbers (e.g., 10-10-10 or

12-4-8), which refer to their Nitrogen (N) – Phosphorus (P) – Potassium (K) concentrations. Fertilize at a rate of no more than ½ pound of nitrogen per 1000 square feet, which can be determined by dividing 50 by the percentage of nitrogen in the fertilizer;

- Apply fertilizer carefully to avoid spreading on impervious surfaces such as paved walkways, patios, driveways, etc., where the nutrient can be easily washed into stormdrains or directly into surface waters;
- To encourage more complete uptake, use slow-release fertilizers that is those that contain 50 percent or more water-insoluble nitrogen (WIN);
- Grass blades retain 30-40 percent of nutrients applied in fertilizers. Reduce fertilizer applications by 30 percent, or eliminate the spring application of fertilizer and leave clippings on the lawn where they will degrade and release stored nutrients back to the soil; and
- Fertilizer should not be applied when rain is expected. Not only does the rain decrease fertilizer effectiveness, it also increases the risk of surface and ground water contamination.

Weed management - A property owner must decide how many weeds can be tolerated before action is taken to eradicate them. To the extent practicable, weeds should be dug or pulled out. If patches of weeds are present, they can be covered for a few days with a black plastic sheet; a technique called solarization. Solarization kills the weeds while leaving the grass intact. If weeds blanket a large enough area, the patch can be covered with clear plastic for several weeks, effectively "cooking" the weeds and their seeds. The bare area left behind after weeding should be reseeded to prevent weeds from growing back. As a last resort, homeowners can use chemical herbicides to spot-treat weeds.

Pest management - Effective pest management begins with maintenance of a healthy, vigorous lawn that is naturally disease resistant. Property owners should monitor plants for obvious damage and check for the presence of pest organisms. Learn to distinguish beneficial insects and arachnids, such as green lacewings, ladybugs, and most spiders, from ones that will damage plants.

When damage is detected or when harmful organisms are present, property owners should determine the level of damage the plant is able to tolerate. No action should be taken if the plant can maintain growth and fertility. If controls are needed, there are a variety of low-impact pest management controls and practices to choose from, including the following:

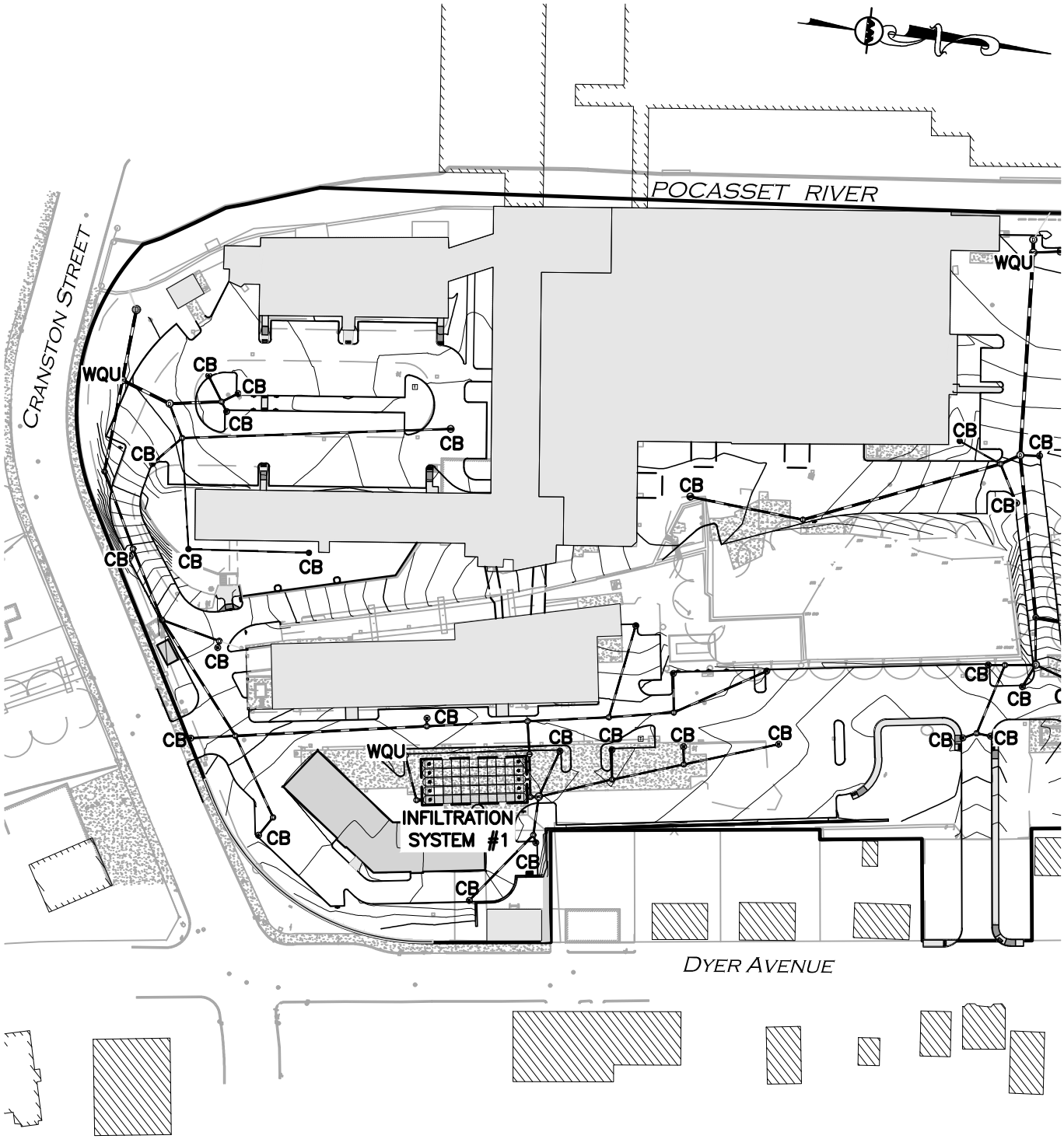
- Visible insects can be removed by hand (with gloves or tweezers) and placed in soapy water or vegetable oil. Alternatively, insects can be sprayed off a plant with water, or in some cases vacuumed off of larger plants;
- Store-bought traps, such as species-specific, pheromone-based traps or colored sticky cards, can be used;

- Sprinkling the ground surface with abrasive diatomaceous earth can prevent infestations by soft-bodied insects and slugs. Slugs can also be trapped by falling or crawling into small cups set in the ground flush with the surface and filled with beer;
- In cases where microscopic parasites, such as bacteria and fungi, are causing damage to plants, the affected plant material can be removed and disposed of. (Pruning equipment should be disinfected with bleach to prevent spreading the disease organism);
- Small mammals and birds can be excluded using fences, netting, tree trunk guards, and, as a last resort, trapping. (In some areas trapping is illegal. Property owners should check local codes if this type of action is desired); and
- Property owners can encourage/attract beneficial organisms, such as bats, birds, green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seedhead weevils, and spiders that prey on detrimental pest species. These desirable organisms can be introduced directly or can be attracted to the area by providing food and/or habitat.

If chemical pesticides are used, property owners should try to select the least toxic, water soluble, and volatile pesticides possible. All selected pesticides should be screened for their potential to harm water resources. Although organophosphate pesticides, such as diazinon and chlorpyrifos, are popular because they target a broad range of pests and are less expensive than newer, less toxic pesticides, they rank among the worst killers of wildlife, and often pose the greatest health risk. Synthetic pyrethroids are more selective, and typically much less toxic than organophosphates, yet they can harm beneficial insects. When possible, pesticides that pose the least risk to human health and the environment should be chosen. A list of popular pesticides, along with their uses, their toxicity to humans and wildlife, EPA's toxicity rating, and alternatives to the listed chemicals, is available from *The Audubon Guide to Home Pesticides*, (http://www.audubon.org/bird/pesticides/).

Sensible irrigation - Most New England lawns will survive without irrigation. Grasses will normally go dormant in warm, dry periods (June-September) and resume growth when moister is more plentiful. However, if watering is desired, consider the following points:

Established lawns need no more than one inch of water per week (including precipitation) to prevent dormancy in dry periods. Watering at this rate should wet soil to approximately 4-6 inches and will encourage analogous root growth. If possible, use timers to water before 9:00 a.m., preferably in the early morning to avoid evaporative loss. Use drought-resistant grasses (see "grass selection" above) and cut grass at 2-3 inches to encourage deeper rooting and heartier lawns.



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PROJECT:

CRANSTON PRINT WORKS
1381 CRANSTON STREET
CRANSTON, RI

STORMWATER BMP MAP

PROJECT NO.	2038-08	DATE:	10-16-23
SCALE:	1"=120'	DWG. NAME:	FIGURE
DESIGNED BY:	SM	CHECKED BY:	MAM

APPLICANT/OWNER: CPW TRUE STORAGE LLC

FIGURE No.

1

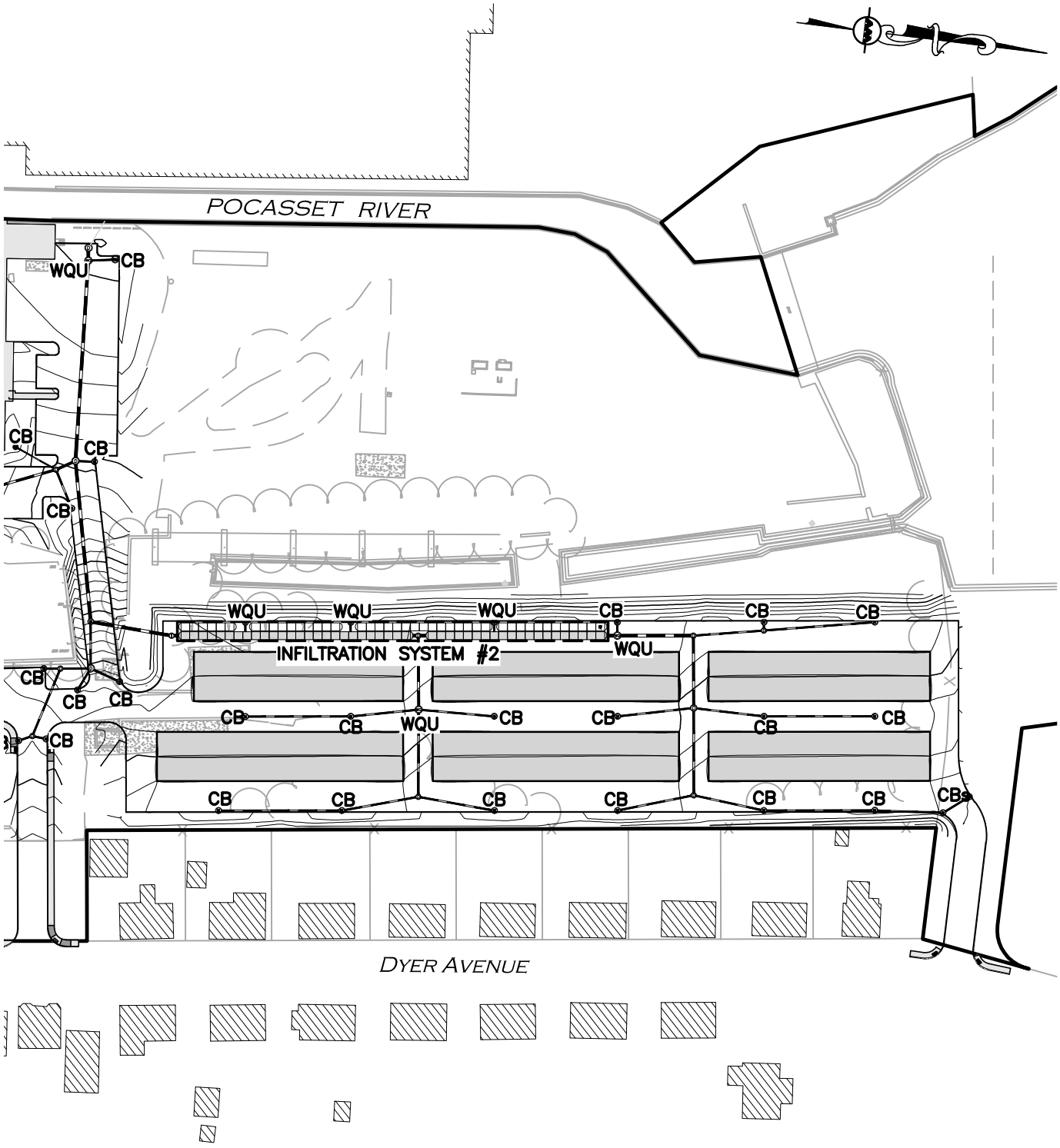

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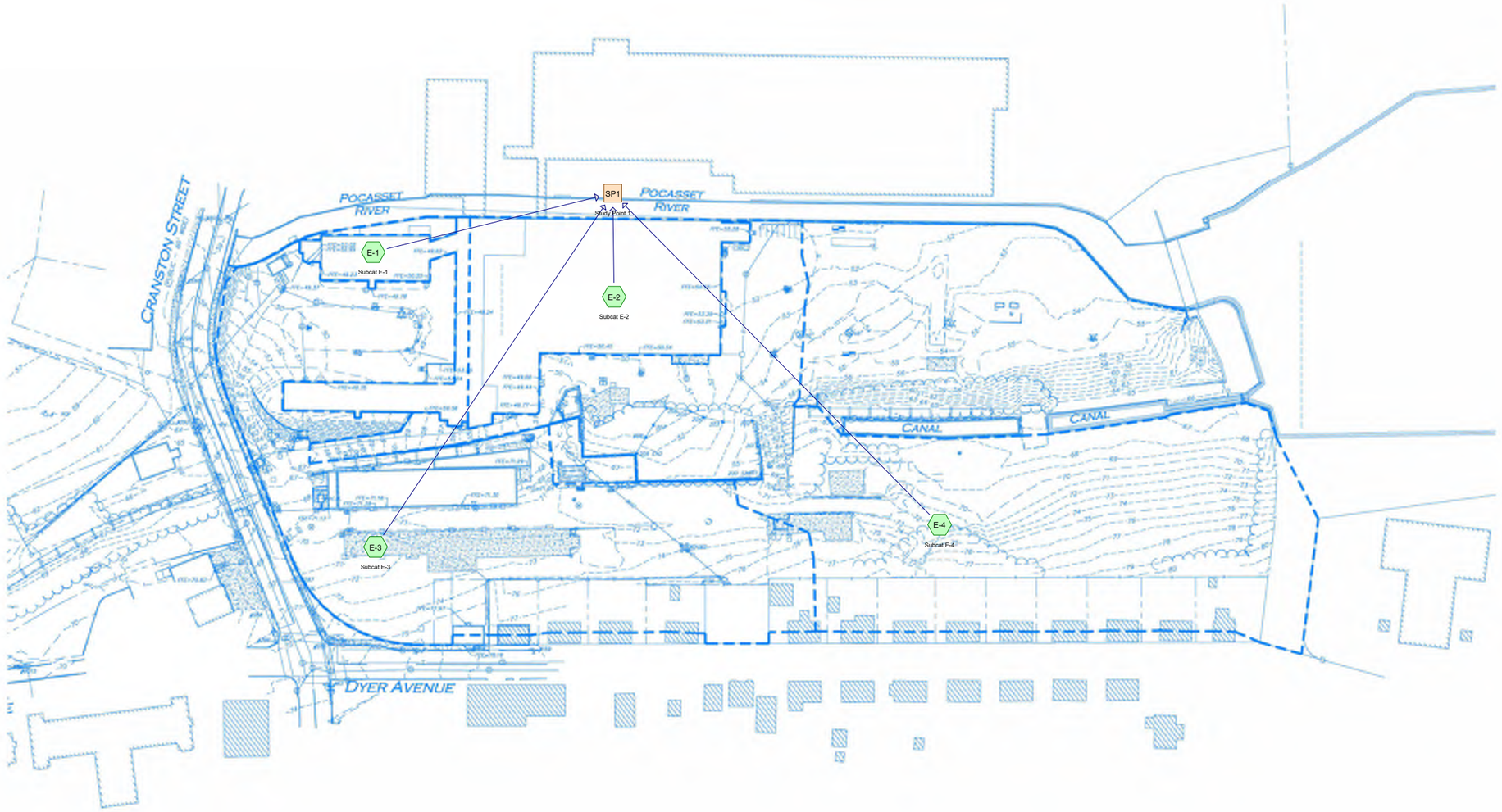
FIGURE No.
2

SECTION 3.0 -
EXISTING DRAINAGE ANALYSIS

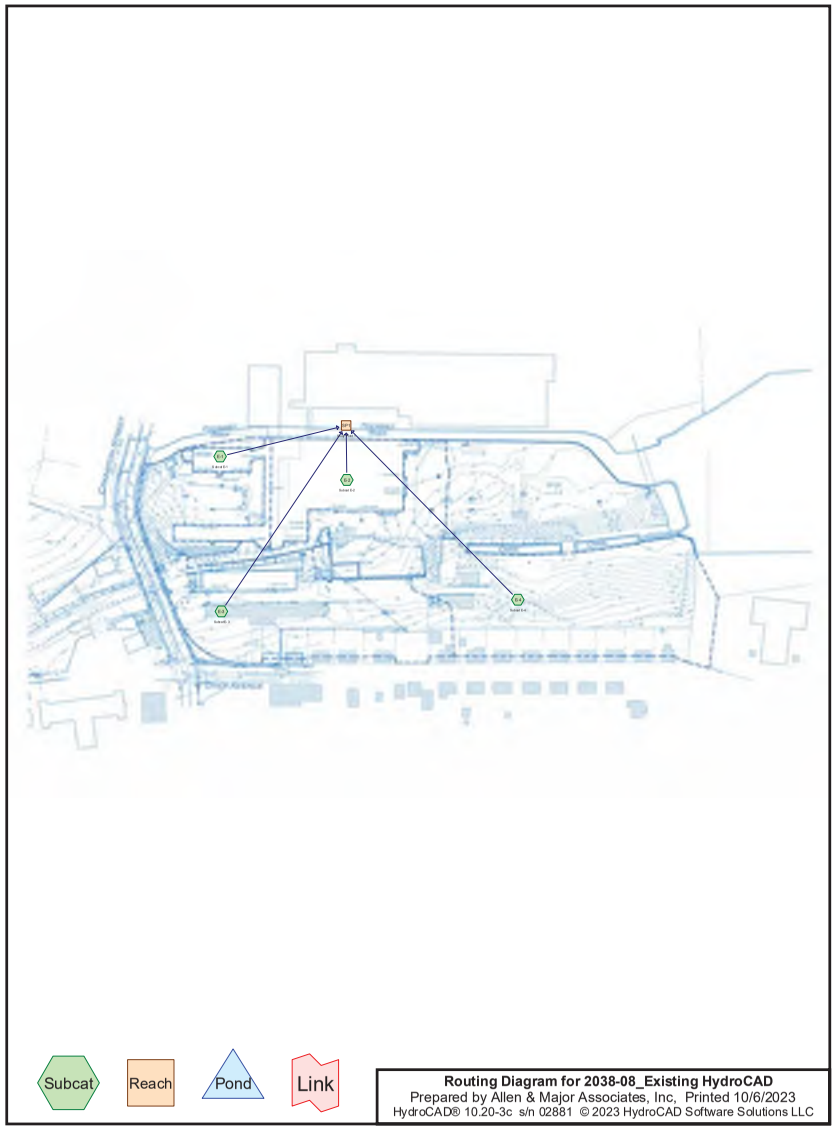
Existing HydroCAD Worksheets



Subcat Reach Pond Link

Routing Diagram for 2038-08_Existing HydroCAD

Prepared by Allen & Major Associates, Inc, Printed 10/6/2023



Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type III 24-hr		Default	24.00	1	2.70	2
2	2-Year	Type III 24-hr		Default	24.00	1	3.30	2
3	10-Year	Type III 24-hr		Default	24.00	1	4.90	2
4	25-Year	Type III 24-hr		Default	24.00	1	6.10	2
5	100-Year	Type III 24-hr		Default	24.00	1	8.70	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
187,888	39	>75% Grass cover, Good, HSG A (E-3, E-4)
49,044	30	Brush, Good, HSG A (E-3, E-4)
231,280	98	Paved parking, HSG A (E-3, E-4)
131,624	98	Roofs, HSG A (E-1, E-2, E-3, E-4)
28,969	30	Woods, Good, HSG A (E-4)
628,805	**72**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
628,805	HSG A	E-1, E-2, E-3, E-4
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
628,805		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Nun
187,888	0	0	0	0	187,888	>75% Grass cover, Good	
49,044	0	0	0	0	49,044	Brush, Good	
231,280	0	0	0	0	231,280	Paved parking	
131,624	0	0	0	0	131,624	Roofs	
28,969	0	0	0	0	28,969	Woods, Good	
628,805	**0**	**0**	**0**	**0**	**628,805**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points x 3
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 E-1: Subcat E-1 Runoff Area=26,895 sf 100.00% Impervious Runoff Depth=2.47"
Tc=6.0 min CN=98 Runoff=1.61 cfs 5,535 cf

Subcatchment E-2: Subcat E-2 Runoff Area=75,790 sf 100.00% Impervious Runoff Depth=2.47"
Tc=6.0 min CN=98 Runoff=4.54 cfs 15,598 cf

Subcatchment E-3: Subcat E-3 Runoff Area=234,115 sf 71.62% Impervious Runoff Depth=1.09"
Tc=6.0 min CN=81 Runoff=6.72 cfs 21,216 cf

Subcatchment E-4: Subcat E-4 Runoff Area=292,005 sf 31.70% Impervious Runoff Depth=0.14"
Tc=6.0 min CN=56 Runoff=0.27 cfs 3,449 cf

Reach SP1: Study Point 1 Inflow=12.85 cfs 45,798 cf
Outflow=12.85 cfs 45,798 cf

Total Runoff Area = 628,805 sf Runoff Volume = 45,798 cf Average Runoff Depth = 0.87"
42.29% Pervious = 265,901 sf 57.71% Impervious = 362,904 sf

Summary for Subcatchment E-1: Subcat E-1

Runoff = 1.61 cfs @ 12.08 hrs, Volume= 5,535 cf, Depth= 2.47"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
26,895	98	Roofs, HSG A
26,895	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-2: Subcat E-2

Runoff = 4.54 cfs @ 12.08 hrs, Volume= 15,598 cf, Depth= 2.47"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
75,790	98	Roofs, HSG A
75,790	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-3: Subcat E-3

Runoff = 6.72 cfs @ 12.09 hrs, Volume= 21,216 cf, Depth= 1.09"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
144,702	98	Paved parking, HSG A
12,938	30	Brush, Good, HSG A
53,510	39	>75% Grass cover, Good, HSG A
22,964	98	Roofs, HSG A
234,115	81	Weighted Average
66,449	37	28.38% Pervious Area
167,666	98	71.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-4: Subcat E-4

Runoff = 0.27 cfs @ 12.42 hrs, Volume= 3,449 cf, Depth= 0.14"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
86,578	98	Paved parking, HSG A
28,969	30	Woods, Good, HSG A
36,106	30	Brush, Good, HSG A
134,377	39	>75% Grass cover, Good, HSG A
5,974	98	Roofs, HSG A
292,005	56	Weighted Average
199,452	36	68.30% Pervious Area
92,552	98	31.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Reach SP1: Study Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 628,805 sf, 57.71% Impervious, Inflow Depth = 0.87" for 1-Year event
Inflow = 12.85 cfs @ 12.09 hrs, Volume= 45,798 cf
Outflow = 12.85 cfs @ 12.09 hrs, Volume= 45,798 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points x 3
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 E-1: Subcat E-1 Runoff Area=26,895 sf 100.00% Impervious Runoff Depth=3.07"
Tc=6.0 min CN=98 Runoff=1.98 cfs 6,874 cf

Subcatchment E-2: Subcat E-2 Runoff Area=75,790 sf 100.00% Impervious Runoff Depth=3.07"
Tc=6.0 min CN=98 Runoff=5.58 cfs 19,372 cf

Subcatchment E-3: Subcat E-3 Runoff Area=234,115 sf 71.62% Impervious Runoff Depth=1.55"
Tc=6.0 min CN=81 Runoff=9.71 cfs 30,203 cf

Subcatchment E-4: Subcat E-4 Runoff Area=292,005 sf 31.70% Impervious Runoff Depth=0.31"
Tc=6.0 min CN=56 Runoff=0.97 cfs 7,585 cf

Reach SP1: Study Point 1 Inflow=17.81 cfs 64,034 cf
Outflow=17.81 cfs 64,034 cf

Total Runoff Area = 628,805 sf Runoff Volume = 64,034 cf Average Runoff Depth = 1.22"
42.29% Pervious = 265,901 sf 57.71% Impervious = 362,904 sf

Summary for Subcatchment E-1: Subcat E-1

Runoff = 1.98 cfs @ 12.08 hrs, Volume= 6,874 cf, Depth= 3.07"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
26,895	98	Roofs, HSG A
26,895	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-2: Subcat E-2

Runoff = 5.58 cfs @ 12.08 hrs, Volume= 19,372 cf, Depth= 3.07"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
75,790	98	Roofs, HSG A
75,790	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-3: Subcat E-3

Runoff = 9.71 cfs @ 12.09 hrs, Volume= 30,203 cf, Depth= 1.55"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
144,702	98	Paved parking, HSG A
12,938	30	Brush, Good, HSG A
53,510	39	>75% Grass cover, Good, HSG A
22,964	98	Roofs, HSG A
234,115	81	Weighted Average
66,449	37	28.38% Pervious Area
167,666	98	71.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-4: Subcat E-4

Runoff = 0.97 cfs @ 12.29 hrs, Volume= 7,585 cf, Depth= 0.31"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
86,578	98	Paved parking, HSG A
28,969	30	Woods, Good, HSG A
36,106	30	Brush, Good, HSG A
134,377	39	>75% Grass cover, Good, HSG A
5,974	98	Roofs, HSG A
292,005	56	Weighted Average
199,452	36	68.30% Pervious Area
92,552	98	31.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Reach SP1: Study Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 628,805 sf, 57.71% Impervious, Inflow Depth = 1.22" for 2-Year event
Inflow = 17.81 cfs @ 12.09 hrs, Volume= 64,034 cf
Outflow = 17.81 cfs @ 12.09 hrs, Volume= 64,034 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points x 3
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 E-1: Subcat E-1 Runoff Area=26,895 sf 100.00% Impervious Runoff Depth=4.66"
Tc=6.0 min CN=98 Runoff=2.96 cfs 10,452 cf

Subcatchment E-2: Subcat E-2 Runoff Area=75,790 sf 100.00% Impervious Runoff Depth=4.66"
Tc=6.0 min CN=98 Runoff=8.34 cfs 29,453 cf

Subcatchment E-3: Subcat E-3 Runoff Area=234,115 sf 71.62% Impervious Runoff Depth=2.90"
Tc=6.0 min CN=81 Runoff=18.25 cfs 56,522 cf

Subcatchment E-4: Subcat E-4 Runoff Area=292,005 sf 31.70% Impervious Runoff Depth=0.99"
Tc=6.0 min CN=56 Runoff=6.32 cfs 24,102 cf

Reach SP1: Study Point 1 Inflow=35.70 cfs 120,529 cf
Outflow=35.70 cfs 120,529 cf

Total Runoff Area = 628,805 sf Runoff Volume = 120,529 cf Average Runoff Depth = 2.30"
42.29% Pervious = 265,901 sf 57.71% Impervious = 362,904 sf

Summary for Subcatchment E-1: Subcat E-1

Runoff = 2.96 cfs @ 12.08 hrs, Volume= 10,452 cf, Depth= 4.66"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
26,895	98	Roofs, HSG A
26,895	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-2: Subcat E-2

Runoff = 8.34 cfs @ 12.08 hrs, Volume= 29,453 cf, Depth= 4.66"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
75,790	98	Roofs, HSG A
75,790	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-3: Subcat E-3

Runoff = 18.25 cfs @ 12.09 hrs, Volume= 56,522 cf, Depth= 2.90"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
144,702	98	Paved parking, HSG A
12,938	30	Brush, Good, HSG A
53,510	39	>75% Grass cover, Good, HSG A
22,964	98	Roofs, HSG A
234,115	81	Weighted Average
66,449	37	28.38% Pervious Area
167,666	98	71.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-4: Subcat E-4

Runoff = 6.32 cfs @ 12.11 hrs, Volume= 24,102 cf, Depth= 0.99"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
86,578	98	Paved parking, HSG A
28,969	30	Woods, Good, HSG A
36,106	30	Brush, Good, HSG A
134,377	39	>75% Grass cover, Good, HSG A
5,974	98	Roofs, HSG A
292,005	56	Weighted Average
199,452	36	68.30% Pervious Area
92,552	98	31.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Reach SP1: Study Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 628,805 sf, 57.71% Impervious, Inflow Depth = 2.30" for 10-Year event
Inflow = 35.70 cfs @ 12.09 hrs, Volume= 120,529 cf
Outflow = 35.70 cfs @ 12.09 hrs, Volume= 120,529 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points x 3
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 E-1: Subcat E-1 Runoff Area=26,895 sf 100.00% Impervious Runoff Depth=5.86"
Tc=6.0 min CN=98 Runoff=3.69 cfs 13,138 cf

Subcatchment E-2: Subcat E-2 Runoff Area=75,790 sf 100.00% Impervious Runoff Depth=5.86"
Tc=6.0 min CN=98 Runoff=10.40 cfs 37,022 cf

Subcatchment E-3: Subcat E-3 Runoff Area=234,115 sf 71.62% Impervious Runoff Depth=3.97"
Tc=6.0 min CN=81 Runoff=24.88 cfs 77,550 cf

Subcatchment E-4: Subcat E-4 Runoff Area=292,005 sf 31.70% Impervious Runoff Depth=1.66"
Tc=6.0 min CN=56 Runoff=11.81 cfs 40,291 cf

Reach SP1: Study Point 1 Inflow=50.66 cfs 168,001 cf
Outflow=50.66 cfs 168,001 cf

Total Runoff Area = 628,805 sf Runoff Volume = 168,001 cf Average Runoff Depth = 3.21"
42.29% Pervious = 265,901 sf 57.71% Impervious = 362,904 sf

Summary for Subcatchment E-1: Subcat E-1

Runoff = 3.69 cfs @ 12.08 hrs, Volume= 13,138 cf, Depth= 5.86"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
26,895	98	Roofs, HSG A
26,895	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-2: Subcat E-2

Runoff = 10.40 cfs @ 12.08 hrs, Volume= 37,022 cf, Depth= 5.86"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
75,790	98	Roofs, HSG A
75,790	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-3: Subcat E-3

Runoff = 24.88 cfs @ 12.09 hrs, Volume= 77,550 cf, Depth= 3.97"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
144,702	98	Paved parking, HSG A
12,938	30	Brush, Good, HSG A
53,510	39	>75% Grass cover, Good, HSG A
22,964	98	Roofs, HSG A
234,115	81	Weighted Average
66,449	37	28.38% Pervious Area
167,666	98	71.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-4: Subcat E-4

Runoff = 11.81 cfs @ 12.10 hrs, Volume= 40,291 cf, Depth= 1.66"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
86,578	98	Paved parking, HSG A
28,969	30	Woods, Good, HSG A
36,106	30	Brush, Good, HSG A
134,377	39	>75% Grass cover, Good, HSG A
5,974	98	Roofs, HSG A
292,005	56	Weighted Average
199,452	36	68.30% Pervious Area
92,552	98	31.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Reach SP1: Study Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 628,805 sf, 57.71% Impervious, Inflow Depth = 3.21" for 25-Year event
Inflow = 50.66 cfs @ 12.09 hrs, Volume= 168,001 cf
Outflow = 50.66 cfs @ 12.09 hrs, Volume= 168,001 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points x 3
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 E-1: Subcat E-1 Runoff Area=26,895 sf 100.00% Impervious Runoff Depth=8.46"
Tc=6.0 min CN=98 Runoff=5.28 cfs 18,961 cf

Subcatchment E-2: Subcat E-2 Runoff Area=75,790 sf 100.00% Impervious Runoff Depth=8.46"
Tc=6.0 min CN=98 Runoff=14.87 cfs 53,431 cf

Subcatchment E-3: Subcat E-3 Runoff Area=234,115 sf 71.62% Impervious Runoff Depth=6.41"
Tc=6.0 min CN=81 Runoff=39.40 cfs 124,967 cf

Subcatchment E-4: Subcat E-4 Runoff Area=292,005 sf 31.70% Impervious Runoff Depth=3.39"
Tc=6.0 min CN=56 Runoff=26.05 cfs 82,516 cf

Reach SP1: Study Point 1 Inflow=85.49 cfs 279,874 cf
Outflow=85.49 cfs 279,874 cf

Total Runoff Area = 628,805 sf Runoff Volume = 279,874 cf Average Runoff Depth = 5.34"
42.29% Pervious = 265,901 sf 57.71% Impervious = 362,904 sf

Summary for Subcatchment E-1: Subcat E-1

Runoff = 5.28 cfs @ 12.08 hrs, Volume= 18,961 cf, Depth= 8.46"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
26,895	98	Roofs, HSG A
26,895	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-2: Subcat E-2

Runoff = 14.87 cfs @ 12.08 hrs, Volume= 53,431 cf, Depth= 8.46"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
75,790	98	Roofs, HSG A
75,790	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-3: Subcat E-3

Runoff = 39.40 cfs @ 12.09 hrs, Volume= 124,967 cf, Depth= 6.41"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
144,702	98	Paved parking, HSG A
12,938	30	Brush, Good, HSG A
53,510	39	>75% Grass cover, Good, HSG A
22,964	98	Roofs, HSG A
234,115	81	Weighted Average
66,449	37	28.38% Pervious Area
167,666	98	71.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-4: Subcat E-4

Runoff = 26.05 cfs @ 12.09 hrs, Volume= 82,516 cf, Depth= 3.39"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
86,578	98	Paved parking, HSG A
28,969	30	Woods, Good, HSG A
36,106	30	Brush, Good, HSG A
134,377	39	>75% Grass cover, Good, HSG A
5,974	98	Roofs, HSG A
292,005	56	Weighted Average
199,452	36	68.30% Pervious Area
92,552	98	31.70% Impervious Area

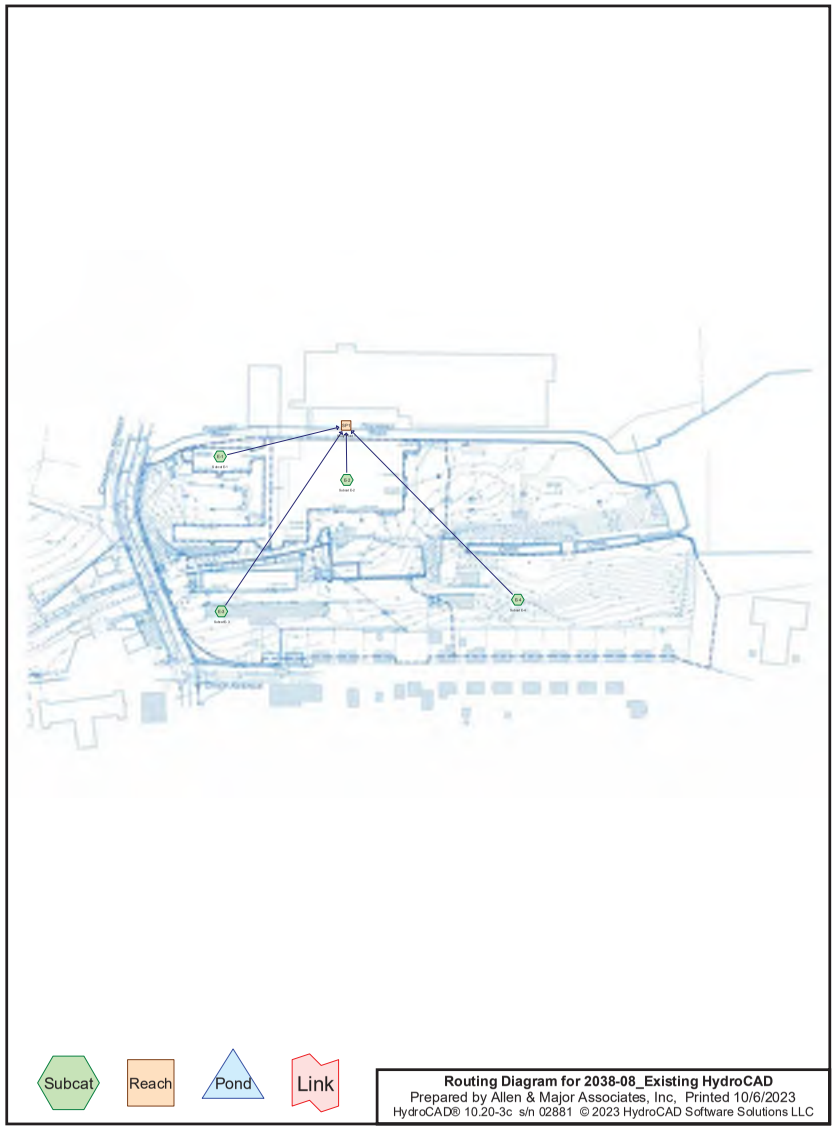
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Reach SP1: Study Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 628,805 sf, 57.71% Impervious, Inflow Depth = 5.34" for 100-Year event
Inflow = 85.49 cfs @ 12.09 hrs, Volume= 279,874 cf
Outflow = 85.49 cfs @ 12.09 hrs, Volume= 279,874 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3



Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
187,888	39	>75% Grass cover, Good, HSG A (E-3, E-4)
49,044	30	Brush, Good, HSG A (E-3, E-4)
231,280	98	Paved parking, HSG A (E-3, E-4)
131,624	98	Roofs, HSG A (E-1, E-2, E-3, E-4)
28,969	30	Woods, Good, HSG A (E-4)
628,805	**72**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
628,805	HSG A	E-1, E-2, E-3, E-4
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
628,805		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
187,888	0	0	0	0	187,888	>75% Grass cover, Good	
49,044	0	0	0	0	49,044	Brush, Good	
231,280	0	0	0	0	231,280	Paved parking	
131,624	0	0	0	0	131,624	Roofs	
28,969	0	0	0	0	28,969	Woods, Good	
628,805	**0**	**0**	**0**	**0**	**628,805**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E-1: Subcat E-1 Runoff Area=26,895 sf 100.00% Impervious Runoff Depth=0.99"
Tc=6.0 min CN=0/98 Runoff=0.68 cfs 2,209 cf

Subcatchment E-2: Subcat E-2 Runoff Area=75,790 sf 100.00% Impervious Runoff Depth=0.99"
Tc=6.0 min CN=0/98 Runoff=1.91 cfs 6,225 cf

Subcatchment E-3: Subcat E-3 Runoff Area=234,115 sf 71.62% Impervious Runoff Depth=0.71"
Tc=6.0 min CN=37/98 Runoff=4.22 cfs 13,772 cf

Subcatchment E-4: Subcat E-4 Runoff Area=292,005 sf 31.70% Impervious Runoff Depth=0.31"
Tc=6.0 min CN=36/98 Runoff=2.33 cfs 7,602 cf

Reach SP1: Study Point 1 Inflow=9.12 cfs 29,808 cf
Outflow=9.12 cfs 29,808 cf

Total Runoff Area = 628,805 sf Runoff Volume = 29,808 cf Average Runoff Depth = 0.57"
42.29% Pervious = 265,901 sf 57.71% Impervious = 362,904 sf

Summary for Subcatchment E-1: Subcat E-1

Runoff = 0.68 cfs @ 12.08 hrs, Volume= 2,209 cf, Depth= 0.99"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1.2" Peak Rainfall=1.20"

Area (sf)	CN	Description
26,895	98	Roofs, HSG A
26,895	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-2: Subcat E-2

Runoff = 1.91 cfs @ 12.08 hrs, Volume= 6,225 cf, Depth= 0.99"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1.2" Peak Rainfall=1.20"

Area (sf)	CN	Description
75,790	98	Roofs, HSG A
75,790	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-3: Subcat E-3

Runoff = 4.22 cfs @ 12.08 hrs, Volume= 13,772 cf, Depth= 0.71"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1.2" Peak Rainfall=1.20"

Area (sf)	CN	Description
144,702	98	Paved parking, HSG A
12,938	30	Brush, Good, HSG A
53,510	39	>75% Grass cover, Good, HSG A
22,964	98	Roofs, HSG A
234,115	81	Weighted Average
66,449	37	28.38% Pervious Area
167,666	98	71.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment E-4: Subcat E-4

Runoff = 2.33 cfs @ 12.08 hrs, Volume= 7,602 cf, Depth= 0.31"
Routed to Reach SP1 : Study Point 1

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1.2" Peak Rainfall=1.20"

Area (sf)	CN	Description
86,578	98	Paved parking, HSG A
28,969	30	Woods, Good, HSG A
36,106	30	Brush, Good, HSG A
134,377	39	>75% Grass cover, Good, HSG A
5,974	98	Roofs, HSG A
292,005	56	Weighted Average
199,452	36	68.30% Pervious Area
92,552	98	31.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Reach SP1: Study Point 1

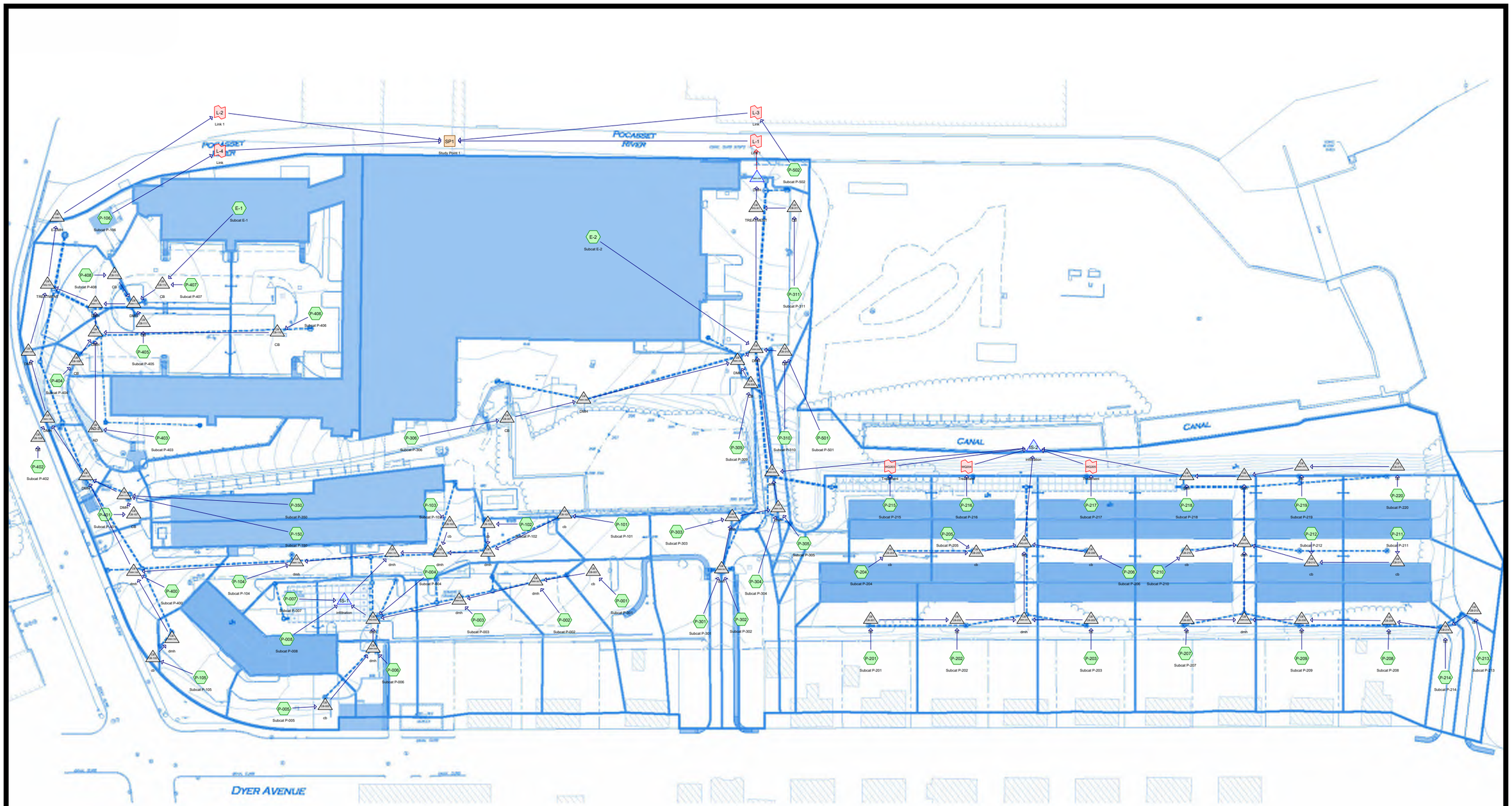
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 628,805 sf, 57.71% Impervious, Inflow Depth = 0.57" for 1.2" Peak event
Inflow = 9.12 cfs @ 12.08 hrs, Volume= 29,808 cf
Outflow = 9.12 cfs @ 12.08 hrs, Volume= 29,808 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 3

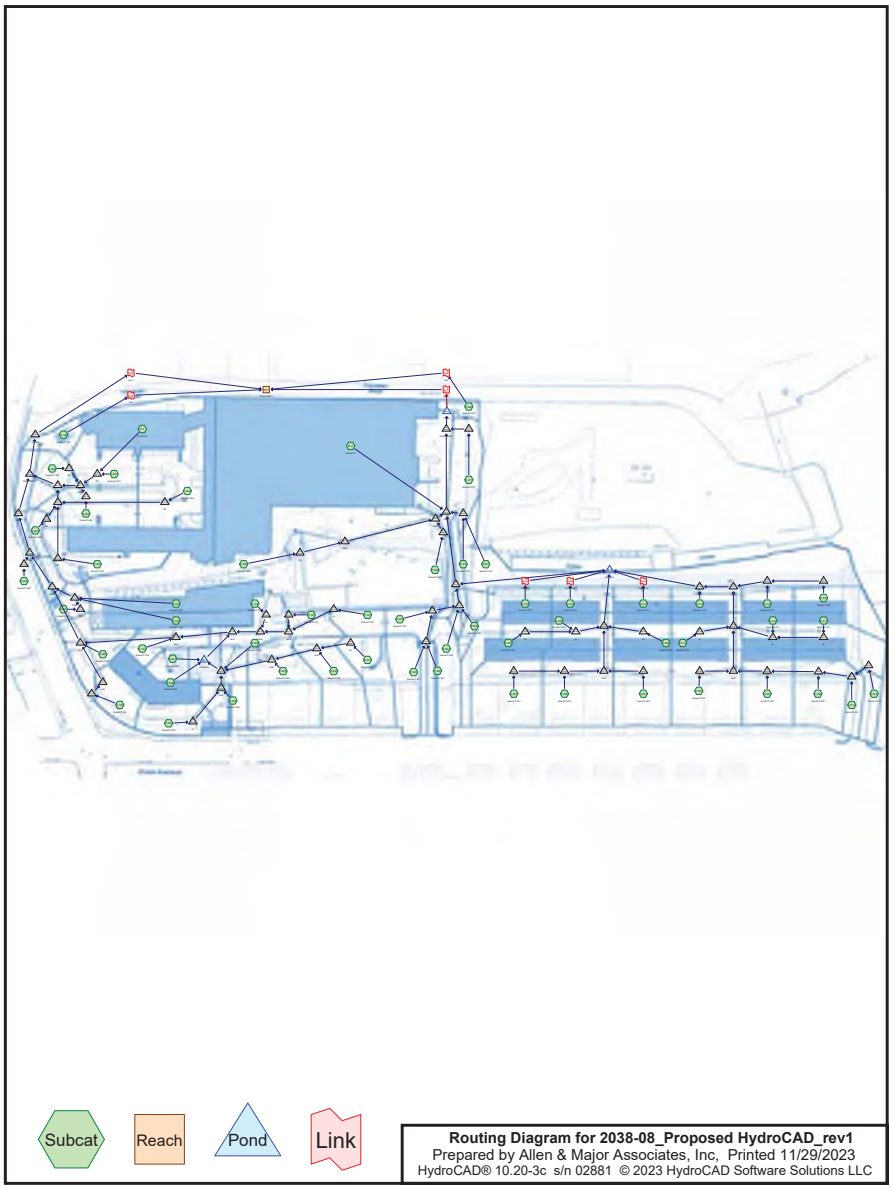
SECTION 4.0 -
PROPOSED DRAINAGE ANALYSIS

Proposed HydroCAD Worksheets



Routing Diagram for 2038-08_Proposed HydroCAD

Prepared by Allen & Major Associates, Inc, Printed 10/6/2023



Routing Diagram for 2038-08_Proposed HydroCAD_rev1
Prepared by Allen & Major Associates, Inc, Printed 11/29/2023
HydroCAD® 10.20-3c s/n 02881 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
182,840	39	>75% Grass cover, Good, HSG A (P-001, P-002, P-003, P-004, P-005, P-006, P-007, P-101, P-102, P-103, P-104, P-105, P-106, P-201, P-202, P-203, P-207, P-208, P-209, P-211, P-213, P-214, P-215, P-216, P-217, P-220, P-302, P-303, P-304, P-305, P-306, P-309, P-311, P-400, P-401, P-402, P-403, P-404, P-405, P-406, P-407, P-408, P-501, P-502)
34,310	30	Brush, Good, HSG A (P-001, P-002, P-003, P-004, P-006, P-201, P-202, P-203, P-207, P-209, P-306)
213,148	98	Paved parking, HSG A (P-001, P-002, P-003, P-004, P-005, P-006, P-007, P-008, P-101, P-102, P-103, P-104, P-105, P-106, P-201, P-202, P-203, P-204, P-205, P-206, P-207, P-208, P-209, P-210, P-211, P-212, P-213, P-214, P-215, P-216, P-217, P-218, P-219, P-220, P-301, P-302, P-303, P-304, P-305, P-306, P-309, P-310, P-311, P-400, P-401, P-402, P-403, P-404, P-405, P-406, P-407, P-408, P-501)
183,782	98	Roofs, HSG A (E-1, E-2, P-001, P-002, P-003, P-004, P-005, P-006, P-008, P-106, P-150, P-201, P-202, P-203, P-204, P-205, P-206, P-207, P-208, P-209, P-210, P-211, P-212, P-215, P-216, P-217, P-218, P-219, P-220, P-303, P-304, P-350, P-402, P-407)
14,726	30	Woods, Good, HSG A (P-306)
628,805	**76**	**TOTAL AREA**

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	AD-3	45.58	45.13	89.4	0.0050	0.013	0.0	8.0	0.0	AD
2	CB-001	69.09	68.31	78.0	0.0100	0.013	0.0	12.0	0.0	cb
3	CB-005	68.16	67.43	73.0	0.0100	0.013	0.0	12.0	0.0	cb
4	CB-101	66.00	65.18	82.0	0.0100	0.013	0.0	12.0	0.0	cb
5	CB-102	66.76	66.45	31.0	0.0100	0.013	0.0	12.0	0.0	cb
6	CB-103	64.94	64.55	77.0	0.0051	0.013	0.0	12.0	0.0	cb
7	CB-105	67.91	67.72	19.0	0.0100	0.013	0.0	12.0	0.0	cb
8	CB-107	61.79	61.74	5.5	0.0091	0.013	0.0	12.0	0.0	CB
9	CB-108	57.36	56.98	6.4	0.0592	0.013	0.0	12.0	0.0	CB
10	CB-109	47.47	44.90	31.5	0.0815	0.013	0.0	12.0	0.0	CB
11	CB-110	46.41	44.90	215.7	0.0070	0.013	0.0	12.0	0.0	CB
12	CB-111	45.26	45.17	8.8	0.0103	0.013	0.0	12.0	0.0	CB
13	CB-112	45.26	45.17	14.7	0.0061	0.013	0.0	12.0	0.0	CB
14	CB-113	45.40	45.17	23.3	0.0099	0.013	0.0	12.0	0.0	CB
15	CB-201	71.74	70.74	100.0	0.0100	0.013	0.0	12.0	0.0	cb
16	CB-202	70.64	70.00	63.0	0.0102	0.013	0.0	12.0	0.0	cb
17	CB-203	72.74	72.11	63.0	0.0100	0.013	0.0	12.0	0.0	cb
18	CB-204	70.20	69.34	85.0	0.0101	0.013	0.0	12.0	0.0	cb
19	CB-205	69.24	68.69	56.0	0.0098	0.013	0.0	12.0	0.0	cb
20	CB-206	71.13	70.52	62.0	0.0098	0.013	0.0	12.0	0.0	cb
21	CB-207	72.74	72.10	63.0	0.0102	0.013	0.0	12.0	0.0	cb
22	CB-208	73.61	62.71	90.0	0.1211	0.013	0.0	12.0	0.0	cb
23	CB-209	72.61	72.03	58.0	0.0100	0.013	0.0	12.0	0.0	cb
24	CB-210	70.03	69.41	62.0	0.0100	0.013	0.0	12.0	0.0	cb
25	CB-211	72.13	71.23	90.0	0.0100	0.013	0.0	12.0	0.0	cb
26	CB-212	71.13	70.56	57.0	0.0100	0.013	0.0	12.0	0.0	cb
27	CB-213	75.70	74.60	25.0	0.0440	0.013	0.0	12.0	0.0	cb
28	CB-214	74.50	73.71	55.0	0.0144	0.013	0.0	12.0	0.0	cb
29	CB-215	70.00	69.10	90.0	0.0100	0.013	0.0	12.0	0.0	cb
30	CB-307	48.64	48.37	92.4	0.0029	0.013	0.0	15.0	0.0	CB
31	CB-309	52.89	51.64	34.1	0.0367	0.013	0.0	12.0	0.0	CB
32	CB-310	51.43	51.16	15.0	0.0180	0.013	0.0	12.0	0.0	CB
33	CB-311	45.90	45.79	21.8	0.0050	0.013	0.0	12.0	0.0	CB
34	DMH-001	68.05	67.46	59.0	0.0100	0.013	0.0	12.0	0.0	dmh
35	DMH-002	66.97	66.37	61.0	0.0098	0.013	0.0	12.0	0.0	dmh
36	DMH-005	67.33	67.02	31.0	0.0100	0.013	0.0	12.0	0.0	dmh
37	DMH-006	46.35	46.11	25.4	0.0094	0.013	0.0	12.0	0.0	DMH
38	DMH-101	65.09	64.57	52.0	0.0100	0.013	0.0	12.0	0.0	dmh
39	DMH-102	64.47	63.82	65.0	0.0100	0.013	0.0	12.0	0.0	dmh
40	DMH-103	63.71	62.90	81.0	0.0100	0.013	0.0	12.0	0.0	dmh
41	DMH-104	62.80	61.26	154.0	0.0100	0.013	0.0	15.0	0.0	dmh
42	DMH-105	67.62	65.98	72.0	0.0228	0.013	0.0	12.0	0.0	dmh
43	DMH-106	61.16	57.86	110.0	0.0300	0.013	0.0	15.0	0.0	dmh
44	DMH-107	57.75	56.52	61.5	0.0200	0.013	0.0	15.0	0.0	DMH
45	DMH-107A	59.89	57.85	49.1	0.0415	0.013	0.0	12.0	0.0	DMH
46	DMH-108	54.20	50.89	66.3	0.0499	0.013	0.0	15.0	0.0	DMH
47	DMH-109	48.83	44.34	74.8	0.0600	0.013	0.0	18.0	0.0	DMH
48	DMH-111	44.80	44.65	29.3	0.0051	0.013	0.0	12.0	0.0	DMH
49	DMH-112	45.07	44.65	41.9	0.0100	0.013	0.0	18.0	0.0	DMH
50	DMH-113	44.15	43.94	42.2	0.0050	0.013	0.0	24.0	0.0	DMH
51	DMH-201	69.75	69.04	71.0	0.0100	0.013	0.0	15.0	0.0	dmh
52	DMH-202	71.78	71.07	71.0	0.0100	0.013	0.0	15.0	0.0	dmh
53	DMH-204	67.42	66.19	62.0	0.0198	0.013	0.0	24.0	0.0	dmh
54	DMH-206	68.91	67.92	59.0	0.0168	0.013	0.0	18.0	0.0	dmh
55	DMH-207	69.00	68.42	57.0	0.0102	0.013	0.0	12.0	0.0	cb

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Pipe Listing (all nodes) (continued)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
56	DMH-301	70.20	68.98	59.0	0.0207	0.013	0.0	12.0	0.0	dmh
57	DMH-302	68.88	66.92	25.0	0.0784	0.013	0.0	12.0	0.0	dmh
58	DMH-303	65.60	62.58	38.0	0.0795	0.013	0.0	12.0	0.0	dmh
59	DMH-304	58.84	48.34	131.0	0.0802	0.013	0.0	24.0	0.0	dmh
60	DMH-306	48.27	47.79	165.0	0.0029	0.013	0.0	18.0	0.0	DMH
61	DMH-307	47.69	47.64	17.3	0.0029	0.013	0.0	18.0	0.0	DMH
62	DMH-308	47.54	47.07	163.2	0.0029	0.013	0.0	24.0	0.0	DMH
63	E-DMH 1	44.80	44.64	16.3	0.0098	0.013	0.0	12.0	0.0	E-DMH
64	IS-1	67.35	67.08	27.0	0.0100	0.013	0.0	12.0	0.0	infiltration
65	IS-2	65.64	60.30	67.0	0.0797	0.013	0.0	24.0	0.0	infiltration
66	WQ-002	65.87	65.80	7.0	0.0100	0.013	0.0	18.0	0.0	dmh
67	WQ-101	44.13	43.55	58.0	0.0100	0.013	0.0	24.0	0.0	TREATMENT
68	WQ-201	68.19	67.58	60.0	0.0102	0.013	0.0	18.0	0.0	wq
69	WQ-202	66.09	65.92	8.0	0.0213	0.013	0.0	24.0	0.0	dmh
70	WQ-301	46.97	46.94	10.4	0.0029	0.013	0.0	24.0	0.0	TREATMENT

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Pond AD-3: AD Peak Elev=45.58' Inflow=0.00 cfs 0 cf
8.0" Round Culvert n=0.013 L=89.4' S=0.0050 '/' Outflow=0.00 cfs 0 cf

Pond CB-001: cb Peak Elev=69.23' Inflow=0.08 cfs 347 cf
12.0" Round Culvert n=0.013 L=78.0' S=0.0100 '/' Outflow=0.08 cfs 347 cf

Pond CB-005: cb Peak Elev=68.25' Inflow=0.04 cfs 195 cf
12.0" Round Culvert n=0.013 L=73.0' S=0.0100 '/' Outflow=0.04 cfs 195 cf

Pond CB-101: cb Peak Elev=66.24' Inflow=0.23 cfs 802 cf
12.0" Round Culvert n=0.013 L=82.0' S=0.0100 '/' Outflow=0.23 cfs 802 cf

Pond CB-102: cb Peak Elev=66.99' Inflow=0.21 cfs 670 cf
12.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=0.21 cfs 670 cf

Pond CB-103: cb Peak Elev=65.28' Inflow=0.35 cfs 1,094 cf
12.0" Round Culvert n=0.013 L=77.0' S=0.0051 '/' Outflow=0.35 cfs 1,094 cf

Pond CB-105: cb Peak Elev=68.11' Inflow=0.15 cfs 482 cf
12.0" Round Culvert n=0.013 L=19.0' S=0.0100 '/' Outflow=0.15 cfs 482 cf

Pond CB-107: CB Peak Elev=61.98' Inflow=0.11 cfs 349 cf
12.0" Round Culvert n=0.013 L=5.5' S=0.0091 '/' Outflow=0.11 cfs 349 cf

Pond CB-108: CB Peak Elev=57.48' Inflow=0.07 cfs 215 cf
12.0" Round Culvert n=0.013 L=6.4' S=0.0592 '/' Outflow=0.07 cfs 215 cf

Pond CB-109: CB Peak Elev=47.59' Inflow=0.07 cfs 222 cf
12.0" Round Culvert n=0.013 L=31.5' S=0.0815 '/' Outflow=0.07 cfs 222 cf

Pond CB-110: CB Peak Elev=46.77' Inflow=0.47 cfs 1,492 cf
12.0" Round Culvert n=0.013 L=215.7' S=0.0070 '/' Outflow=0.47 cfs 1,492 cf

Pond CB-111: CB Peak Elev=45.63' Inflow=0.44 cfs 1,359 cf
12.0" Round Culvert n=0.013 L=8.8' S=0.0103 '/' Outflow=0.44 cfs 1,359 cf

Pond CB-112: CB Peak Elev=46.20' Inflow=1.99 cfs 6,720 cf
12.0" Round Culvert n=0.013 L=14.7' S=0.0061 '/' Outflow=1.99 cfs 6,720 cf

Pond CB-113: CB Peak Elev=45.55' Inflow=0.08 cfs 333 cf
12.0" Round Culvert n=0.013 L=23.3' S=0.0099 '/' Outflow=0.08 cfs 333 cf

Pond CB-201: cb Peak Elev=71.86' Inflow=0.06 cfs 378 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=0.06 cfs 378 cf

Pond CB-202: cb Peak Elev=70.79' Inflow=0.10 cfs 735 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0102 '/' Outflow=0.10 cfs 735 cf

Pond CB-203: cb Peak Elev=72.84' Inflow=0.04 cfs 287 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0100 '/' Outflow=0.04 cfs 287 cf

Pond CB-204: cb Peak Elev=70.50' Inflow=0.37 cfs 1,257 cf
12.0" Round Culvert n=0.013 L=85.0' S=0.0101 '/' Outflow=0.37 cfs 1,257 cf

Pond CB-205: cb Peak Elev=69.70' Inflow=0.79 cfs 2,719 cf
12.0" Round Culvert n=0.013 L=56.0' S=0.0098 '/' Outflow=0.79 cfs 2,719 cf

Pond CB-206: cb Peak Elev=71.44' Inflow=0.39 cfs 1,338 cf
12.0" Round Culvert n=0.013 L=62.0' S=0.0098 '/' Outflow=0.39 cfs 1,338 cf

Pond CB-207: cb Peak Elev=72.85' Inflow=0.05 cfs 355 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0102 '/' Outflow=0.05 cfs 355 cf

Pond CB-208: cb Peak Elev=73.76' Inflow=0.10 cfs 560 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.1211 '/' Outflow=0.10 cfs 560 cf

Pond CB-209: cb Peak Elev=72.80' Inflow=0.14 cfs 844 cf
12.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=0.14 cfs 844 cf

Pond CB-210: cb Peak Elev=70.38' Inflow=0.48 cfs 1,659 cf
12.0" Round Culvert n=0.013 L=62.0' S=0.0100 '/' Outflow=0.48 cfs 1,659 cf

Pond CB-211: cb Peak Elev=72.41' Inflow=0.32 cfs 1,008 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.0100 '/' Outflow=0.32 cfs 1,008 cf

Pond CB-212: cb Peak Elev=71.55' Inflow=0.67 cfs 2,212 cf
12.0" Round Culvert n=0.013 L=57.0' S=0.0100 '/' Outflow=0.67 cfs 2,212 cf

Pond CB-213: cb Peak Elev=75.76' Inflow=0.02 cfs 95 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0440 '/' Outflow=0.02 cfs 95 cf

Pond CB-214: cb Peak Elev=74.59' Inflow=0.04 cfs 194 cf
12.0" Round Culvert n=0.013 L=55.0' S=0.0144 '/' Outflow=0.04 cfs 194 cf

Pond CB-215: cb Peak Elev=70.23' Inflow=0.22 cfs 698 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.0100 '/' Outflow=0.22 cfs 698 cf

Pond CB-307: CB Peak Elev=48.84' Inflow=0.11 cfs 1,076 cf
15.0" Round Culvert n=0.013 L=92.4' S=0.0029 '/' Outflow=0.11 cfs 1,076 cf

Pond CB-309: CB Peak Elev=53.03' Inflow=0.08 cfs 263 cf
12.0" Round Culvert n=0.013 L=34.1' S=0.0367 '/' Outflow=0.08 cfs 263 cf

Pond CB-310: CB Peak Elev=51.60' Inflow=0.13 cfs 451 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0180 '/' Outflow=0.13 cfs 451 cf

Pond CB-311: CB Peak Elev=46.33' Inflow=0.51 cfs 1,645 cf
12.0" Round Culvert n=0.013 L=21.8' S=0.0050 '/' Outflow=0.51 cfs 1,645 cf

Pond DMH-001: dmh Peak Elev=68.26' Inflow=0.18 cfs 797 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0100 '/' Outflow=0.18 cfs 797 cf

Pond DMH-002: dmh Peak Elev=67.21' Inflow=0.23 cfs 1,169 cf
12.0" Round Culvert n=0.013 L=61.0' S=0.0098 '/' Outflow=0.23 cfs 1,169 cf

Pond DMH-005: dmh Peak Elev=67.47' Inflow=0.08 cfs 367 cf
12.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=0.08 cfs 367 cf

Pond DMH-006: DMH Peak Elev=49.01' Storage=33 cf Inflow=5.56 cfs 20,315 cf
12.0" Round Culvert n=0.013 L=25.4' S=0.0094 '/' Primary=5.56 cfs 20,315 cf Secondary=0.00 cfs 0 cf Outflow=5.56 cfs 20,315 cf

Pond DMH-101: dmh Peak Elev=65.42' Inflow=0.44 cfs 1,472 cf
12.0" Round Culvert n=0.013 L=52.0' S=0.0100 '/' Outflow=0.44 cfs 1,472 cf

Pond DMH-102: dmh Peak Elev=64.93' Inflow=0.79 cfs 2,566 cf
12.0" Round Culvert n=0.013 L=65.0' S=0.0100 '/' Outflow=0.79 cfs 2,566 cf

Pond DMH-103: dmh Peak Elev=64.16' Inflow=0.79 cfs 2,566 cf
12.0" Round Culvert n=0.013 L=81.0' S=0.0100 '/' Outflow=0.79 cfs 2,566 cf

Pond DMH-104: dmh Peak Elev=63.29' Inflow=1.06 cfs 3,408 cf
15.0" Round Culvert n=0.013 L=154.0' S=0.0100 '/' Outflow=1.06 cfs 3,408 cf

Pond DMH-105: dmh Peak Elev=67.81' Inflow=0.15 cfs 482 cf
12.0" Round Culvert n=0.013 L=72.0' S=0.0228 '/' Outflow=0.15 cfs 482 cf

Pond DMH-106: dmh Peak Elev=61.73' Inflow=1.42 cfs 4,557 cf
15.0" Round Culvert n=0.013 L=110.0' S=0.0300 '/' Outflow=1.42 cfs 4,557 cf

Pond DMH-107: DMH Peak Elev=58.56' Inflow=2.57 cfs 8,475 cf
15.0" Round Culvert n=0.013 L=61.5' S=0.0200 '/' Outflow=2.57 cfs 8,475 cf

Pond DMH-107A: DMH Peak Elev=60.45' Inflow=1.15 cfs 3,918 cf
12.0" Round Culvert n=0.013 L=49.1' S=0.0415 '/' Outflow=1.15 cfs 3,918 cf

Pond DMH-108: DMH Peak Elev=55.02' Inflow=2.63 cfs 8,690 cf
15.0" Round Culvert n=0.013 L=66.3' S=0.0499 '/' Outflow=2.63 cfs 8,690 cf

Pond DMH-109: DMH Peak Elev=49.58' Inflow=2.63 cfs 8,690 cf
18.0" Round Culvert n=0.013 L=74.8' S=0.0600 '/' Outflow=2.63 cfs 8,690 cf

Pond DMH-111: DMH Peak Elev=45.24' Inflow=0.54 cfs 1,714 cf
12.0" Round Culvert n=0.013 L=29.3' S=0.0051 '/' Outflow=0.54 cfs 1,714 cf

Pond DMH-112: DMH Peak Elev=45.84' Inflow=2.51 cfs 8,411 cf
18.0" Round Culvert n=0.013 L=41.9' S=0.0100 '/' Outflow=2.51 cfs 8,411 cf

Pond DMH-113: DMH Peak Elev=45.01' Inflow=3.04 cfs 10,125 cf
24.0" Round Culvert n=0.013 L=42.2' S=0.0050 '/' Outflow=3.04 cfs 10,125 cf

Pond DMH-201: dmh Peak Elev=69.92' Inflow=0.14 cfs 1,022 cf
15.0" Round Culvert n=0.013 L=71.0' S=0.0100 '/' Outflow=0.14 cfs 1,022 cf

Pond DMH-202: dmh Peak Elev=71.98' Inflow=0.19 cfs 1,199 cf
15.0" Round Culvert n=0.013 L=71.0' S=0.0100 '/' Outflow=0.19 cfs 1,199 cf

Pond DMH-204: dmh Peak Elev=67.97' Inflow=1.76 cfs 6,601 cf
24.0" Round Culvert n=0.013 L=62.0' S=0.0198 '/' Outflow=1.76 cfs 6,601 cf

Pond DMH-206: dmh Peak Elev=69.42' Inflow=1.30 cfs 5,070 cf
18.0" Round Culvert n=0.013 L=59.0' S=0.0168 '/' Outflow=1.30 cfs 5,070 cf

Pond DMH-207: cb Peak Elev=69.34' Inflow=0.46 cfs 1,531 cf
12.0" Round Culvert n=0.013 L=57.0' S=0.0102 '/' Outflow=0.46 cfs 1,531 cf

Pond DMH-301: dmh Peak Elev=70.46' Inflow=0.28 cfs 965 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0207 '/' Outflow=0.28 cfs 965 cf

Pond DMH-302: dmh Peak Elev=69.14' Inflow=0.28 cfs 1,181 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0784 '/' Outflow=0.28 cfs 1,181 cf

Pond DMH-303: dmh Peak Elev=65.87' Inflow=0.30 cfs 1,281 cf
12.0" Round Culvert n=0.013 L=38.0' S=0.0795 '/' Outflow=0.30 cfs 1,281 cf

Pond DMH-304: dmh Peak Elev=59.06' Inflow=0.30 cfs 1,281 cf
24.0" Round Culvert n=0.013 L=131.0' S=0.0802 '/' Outflow=0.30 cfs 1,281 cf

Pond DMH-306: DMH Peak Elev=48.46' Inflow=0.11 cfs 1,076 cf
18.0" Round Culvert n=0.013 L=165.0' S=0.0029 '/' Outflow=0.11 cfs 1,076 cf

Pond DMH-307: DMH Peak Elev=47.90' Inflow=0.15 cfs 1,339 cf
18.0" Round Culvert n=0.013 L=17.3' S=0.0029 '/' Outflow=0.15 cfs 1,339 cf

Pond DMH-308: DMH Peak Elev=48.75' Inflow=5.05 cfs 18,670 cf
24.0" Round Culvert n=0.013 L=163.2' S=0.0029 '/' Outflow=5.05 cfs 18,670 cf

Pond E-DMH 1: E-DMH Peak Elev=45.96' Inflow=5.67 cfs 18,815 cf
12.0" Round Culvert x 2.00 n=0.013 L=16.3' S=0.0098 '/' Outflow=5.67 cfs 18,815 cf

Pond IS-1: infiltration Peak Elev=64.71' Storage=263 cf Inflow=1.07 cfs 4,185 cf
Discarded=0.62 cfs 4,185 cf Primary=0.00 cfs 0 cf Outflow=0.62 cfs 4,185 cf

Pond IS-2: infiltration Peak Elev=67.42' Storage=8,493 cf Inflow=4.38 cfs 16,173 cf
Discarded=0.19 cfs 13,727 cf Primary=0.00 cfs 0 cf Outflow=0.19 cfs 13,727 cf

Pond WQ-002: dmh Peak Elev=66.22' Inflow=0.47 cfs 2,102 cf
18.0" Round Culvert n=0.013 L=7.0' S=0.0100 '/' Outflow=0.47 cfs 2,102 cf

Pond WQ-101: TREATMENT Peak Elev=45.20' Inflow=5.67 cfs 18,815 cf
24.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=5.67 cfs 18,815 cf

Pond WQ-201: wq Peak Elev=68.70' Inflow=1.27 cfs 5,079 cf
18.0" Round Culvert n=0.013 L=60.0' S=0.0102 '/' Outflow=1.27 cfs 5,079 cf

Pond WQ-202: dmh Peak Elev=66.74' Inflow=2.10 cfs 7,749 cf
24.0" Round Culvert n=0.013 L=8.0' S=0.0213 '/' Outflow=2.10 cfs 7,749 cf

Pond WQ-301: TREATMENT Peak Elev=48.25' Inflow=5.56 cfs 20,315 cf
24.0" Round Culvert n=0.013 L=10.4' S=0.0029 '/' Outflow=5.56 cfs 20,315 cf

Summary for Pond AD-3: AD

Inflow Area = 9,685 sf, 2.51% Impervious, Inflow Depth = 0.00" for 1-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.58' @ 0.00 hrs
Flood Elev= 51.61'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.58'	**8.0" Round Culvert** L= 89.4' Ke= 0.500 Inlet / Outlet Invert= 45.58' / 45.13' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.58' (Free Discharge)
1=Culvert (Controls 0.00 cfs)

Summary for Pond CB-001: cb

Inflow Area = 9,415 sf, 48.58% Impervious, Inflow Depth = 0.44" for 1-Year event
Inflow = 0.08 cfs @ 12.11 hrs, Volume= 347 cf
Outflow = 0.08 cfs @ 12.11 hrs, Volume= 347 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.08 cfs @ 12.11 hrs, Volume= 347 cf
Routed to Pond DMH-001 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.23' @ 12.11 hrs
Flood Elev= 72.39'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.09'	**12.0" Round Culvert** L= 78.0' Ke= 0.500 Inlet / Outlet Invert= 69.09' / 68.31' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.08 cfs @ 12.11 hrs HW=69.23' (Free Discharge)
1=Culvert (Barrel Controls 0.08 cfs @ 1.82 fps)

Summary for Pond CB-005: cb

Inflow Area = 6,798 sf, 42.20% Impervious, Inflow Depth = 0.34" for 1-Year event
Inflow = 0.04 cfs @ 12.13 hrs, Volume= 195 cf
Outflow = 0.04 cfs @ 12.13 hrs, Volume= 195 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.13 hrs, Volume= 195 cf
Routed to Pond DMH-005 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.25' @ 12.13 hrs
Flood Elev= 71.47'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.16'	**12.0" Round Culvert** L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 68.16' / 67.43' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.04 cfs @ 12.13 hrs HW=68.25' (Free Discharge)
1=Culvert (Barrel Controls 0.04 cfs @ 1.44 fps)

Summary for Pond CB-101: cb

Inflow Area = 3,896 sf, 99.56% Impervious, Inflow Depth = 2.47" for 1-Year event
Inflow = 0.23 cfs @ 12.08 hrs, Volume= 802 cf
Outflow = 0.23 cfs @ 12.08 hrs, Volume= 802 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.08 hrs, Volume= 802 cf
Routed to Pond DMH-101 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.24' @ 12.08 hrs
Flood Elev= 71.46'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**12.0" Round Culvert** L= 82.0' Ke= 0.500 Inlet / Outlet Invert= 66.00' / 65.18' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.23 cfs @ 12.08 hrs HW=66.24' (Free Discharge)
1=Culvert (Barrel Controls 0.23 cfs @ 2.46 fps)

Summary for Pond CB-102: cb

Inflow Area = 3,726 sf, 95.76% Impervious, Inflow Depth = 2.16" for 1-Year event
Inflow = 0.21 cfs @ 12.08 hrs, Volume= 670 cf
Outflow = 0.21 cfs @ 12.08 hrs, Volume= 670 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 12.08 hrs, Volume= 670 cf
Routed to Pond DMH-101 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.99' @ 12.08 hrs
Flood Elev= 70.07'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.76'	**12.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 66.76' / 66.45' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.21 cfs @ 12.08 hrs HW=66.99' (Free Discharge)
1=Culvert (Barrel Controls 0.21 cfs @ 2.28 fps)

Summary for Pond CB-103: cb

Inflow Area = 7,676 sf, 86.47% Impervious, Inflow Depth = 1.71" for 1-Year event
Inflow = 0.35 cfs @ 12.09 hrs, Volume= 1,094 cf
Outflow = 0.35 cfs @ 12.09 hrs, Volume= 1,094 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.09 hrs, Volume= 1,094 cf
Routed to Pond DMH-102 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.28' @ 12.09 hrs
Flood Elev= 67.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.94'	**12.0" Round Culvert** L= 77.0' Ke= 0.500 Inlet / Outlet Invert= 64.94' / 64.55' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.35 cfs @ 12.09 hrs HW=65.28' (Free Discharge)
1=Culvert (Barrel Controls 0.35 cfs @ 2.21 fps)

Summary for Pond CB-105: cb

Inflow Area = 5,616 sf, 69.72% Impervious, Inflow Depth = 1.03" for 1-Year event
Inflow = 0.15 cfs @ 12.09 hrs, Volume= 482 cf
Outflow = 0.15 cfs @ 12.09 hrs, Volume= 482 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.15 cfs @ 12.09 hrs, Volume= 482 cf
Routed to Pond DMH-105 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.11' @ 12.09 hrs
Flood Elev= 71.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.91'	**12.0" Round Culvert** L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 67.91' / 67.72' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.15 cfs @ 12.09 hrs HW=68.11' (Free Discharge)
1=Culvert (Barrel Controls 0.15 cfs @ 2.04 fps)

Summary for Pond CB-107: CB

Inflow Area = 3,461 sf, 73.85% Impervious, Inflow Depth = 1.21" for 1-Year event
Inflow = 0.11 cfs @ 12.09 hrs, Volume= 349 cf
Outflow = 0.11 cfs @ 12.09 hrs, Volume= 349 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.09 hrs, Volume= 349 cf
Routed to Pond DMH-107A : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 61.98' @ 12.09 hrs
Flood Elev= 65.74'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.79'	**12.0" Round Culvert** L= 5.5' Ke= 0.500 Inlet / Outlet Invert= 61.79' / 61.74' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.11 cfs @ 12.09 hrs HW=61.98' (Free Discharge)
1=Culvert (Barrel Controls 0.11 cfs @ 1.68 fps)

Summary for Pond CB-108: CB

Inflow Area = 2,798 sf, 65.43% Impervious, Inflow Depth = 0.92" for 1-Year event
Inflow = 0.07 cfs @ 12.09 hrs, Volume= 215 cf
Outflow = 0.07 cfs @ 12.09 hrs, Volume= 215 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.07 cfs @ 12.09 hrs, Volume= 215 cf
Routed to Pond DMH-108 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 57.48' @ 12.09 hrs
Flood Elev= 59.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.36'	**12.0" Round Culvert** L= 6.4' Ke= 0.500 Inlet / Outlet Invert= 57.36' / 56.98' S= 0.0592 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.07 cfs @ 12.09 hrs HW=57.48' (Free Discharge)
1=Culvert (Inlet Controls 0.07 cfs @ 1.19 fps)

Summary for Pond CB-109: CB

Inflow Area = 3,259 sf, 62.16% Impervious, Inflow Depth = 0.82" for 1-Year event
Inflow = 0.07 cfs @ 12.10 hrs, Volume= 222 cf
Outflow = 0.07 cfs @ 12.10 hrs, Volume= 222 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.07 cfs @ 12.10 hrs, Volume= 222 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.59' @ 12.10 hrs
Flood Elev= 51.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.47'	**12.0" Round Culvert** L= 31.5' Ke= 0.500 Inlet / Outlet Invert= 47.47' / 44.90' S= 0.0815 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.07 cfs @ 12.10 hrs HW=47.59' (Free Discharge)
1=Culvert (Inlet Controls 0.07 cfs @ 1.20 fps)

Summary for Pond CB-110: CB

Inflow Area = 17,384 sf, 68.99% Impervious, Inflow Depth = 1.03" for 1-Year event
Inflow = 0.47 cfs @ 12.09 hrs, Volume= 1,492 cf
Outflow = 0.47 cfs @ 12.09 hrs, Volume= 1,492 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.09 hrs, Volume= 1,492 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.77' @ 12.09 hrs
Flood Elev= 49.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.41'	**12.0" Round Culvert** L= 215.7' Ke= 0.500 Inlet / Outlet Invert= 46.41' / 44.90' S= 0.0070 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.47 cfs @ 12.09 hrs HW=46.77' (Free Discharge)
1=Culvert (Barrel Controls 0.47 cfs @ 2.71 fps)

Summary for Pond CB-111: CB

Inflow Area = 11,014 sf, 81.48% Impervious, Inflow Depth = 1.48" for 1-Year event
Inflow = 0.44 cfs @ 12.09 hrs, Volume= 1,359 cf
Outflow = 0.44 cfs @ 12.09 hrs, Volume= 1,359 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.44 cfs @ 12.09 hrs, Volume= 1,359 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.63' @ 12.09 hrs
Flood Elev= 47.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.26'	**12.0" Round Culvert** L= 8.8' Ke= 0.500 Inlet / Outlet Invert= 45.26' / 45.17' S= 0.0103 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.44 cfs @ 12.09 hrs HW=45.63' (Free Discharge)
1=Culvert (Barrel Controls 0.44 cfs @ 2.43 fps)

Summary for Pond CB-112: CB

Inflow Area = 35,612 sf, 96.36% Impervious, Inflow Depth = 2.26" for 1-Year event
Inflow = 1.99 cfs @ 12.08 hrs, Volume= 6,720 cf
Outflow = 1.99 cfs @ 12.08 hrs, Volume= 6,720 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.99 cfs @ 12.08 hrs, Volume= 6,720 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.20' @ 12.08 hrs
Flood Elev= 47.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.26'	**12.0" Round Culvert** L= 14.7' Ke= 0.500 Inlet / Outlet Invert= 45.26' / 45.17' S= 0.0061 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.99 cfs @ 12.08 hrs HW=46.20' (Free Discharge)
1=Culvert (Barrel Controls 1.99 cfs @ 3.35 fps)

Summary for Pond CB-113: CB

Inflow Area = 8,340 sf, 48.71% Impervious, Inflow Depth = 0.48" for 1-Year event
Inflow = 0.08 cfs @ 12.11 hrs, Volume= 333 cf
Outflow = 0.08 cfs @ 12.11 hrs, Volume= 333 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.08 cfs @ 12.11 hrs, Volume= 333 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.55' @ 12.11 hrs
Flood Elev= 48.28'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.40'	**12.0" Round Culvert** L= 23.3' Ke= 0.500 Inlet / Outlet Invert= 45.40' / 45.17' S= 0.0099 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.08 cfs @ 12.11 hrs HW=45.55' (Free Discharge)
1=Culvert (Barrel Controls 0.08 cfs @ 1.75 fps)

Summary for Pond CB-201: cb

Inflow Area = 15,873 sf, 42.70% Impervious, Inflow Depth = 0.29" for 1-Year event
Inflow = 0.06 cfs @ 12.15 hrs, Volume= 378 cf
Outflow = 0.06 cfs @ 12.15 hrs, Volume= 378 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.15 hrs, Volume= 378 cf
Routed to Pond CB-202 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.86' @ 12.15 hrs
Flood Elev= 75.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.74'	**12.0" Round Culvert** L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 71.74' / 70.74' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 12.15 hrs HW=71.86' (Free Discharge)
1=Culvert (Barrel Controls 0.05 cfs @ 1.63 fps)

Summary for Pond CB-202: cb

[79] Warning: Submerged Pond CB-201 Primary device # 1 OUTLET by 0.05'

Inflow Area = 32,444 sf, 41.56% Impervious, Inflow Depth = 0.27" for 1-Year event
Inflow = 0.10 cfs @ 12.15 hrs, Volume= 735 cf
Outflow = 0.10 cfs @ 12.15 hrs, Volume= 735 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.15 hrs, Volume= 735 cf
Routed to Pond DMH-201 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.79' @ 12.15 hrs
Flood Elev= 75.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.64'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 70.64' / 70.00' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.10 cfs @ 12.15 hrs HW=70.79' (Free Discharge)
1=Culvert (Barrel Controls 0.10 cfs @ 1.93 fps)

Summary for Pond CB-203: cb

Inflow Area = 13,330 sf, 39.38% Impervious, Inflow Depth = 0.26" for 1-Year event
Inflow = 0.04 cfs @ 12.28 hrs, Volume= 287 cf
Outflow = 0.04 cfs @ 12.28 hrs, Volume= 287 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.28 hrs, Volume= 287 cf
Routed to Pond DMH-201 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.84' @ 12.28 hrs
Flood Elev= 76.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.74'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 72.74' / 72.11' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.04 cfs @ 12.28 hrs HW=72.84' (Free Discharge)
1=Culvert (Barrel Controls 0.04 cfs @ 1.45 fps)

Summary for Pond CB-204: cb

Inflow Area = 6,109 sf,100.00% Impervious, Inflow Depth = 2.47" for 1-Year event
Inflow = 0.37 cfs @ 12.08 hrs, Volume= 1,257 cf
Outflow = 0.37 cfs @ 12.08 hrs, Volume= 1,257 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.37 cfs @ 12.08 hrs, Volume= 1,257 cf
Routed to Pond CB-205 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.50' @ 12.08 hrs
Flood Elev= 73.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.20'	**12.0" Round Culvert** L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 70.20' / 69.34' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.37 cfs @ 12.08 hrs HW=70.50' (Free Discharge)
1=Culvert (Inlet Controls 0.37 cfs @ 1.86 fps)

Summary for Pond CB-205: cb

[79] Warning: Submerged Pond CB-204 Primary device # 1 OUTLET by 0.36'

Inflow Area = 13,210 sf,100.00% Impervious, Inflow Depth = 2.47" for 1-Year event
Inflow = 0.79 cfs @ 12.08 hrs, Volume= 2,719 cf
Outflow = 0.79 cfs @ 12.08 hrs, Volume= 2,719 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.79 cfs @ 12.08 hrs, Volume= 2,719 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.70' @ 12.08 hrs
Flood Elev= 73.11'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.24'	**12.0" Round Culvert** L= 56.0' Ke= 0.500 Inlet / Outlet Invert= 69.24' / 68.69' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.79 cfs @ 12.08 hrs HW=69.70' (Free Discharge)
1=Culvert (Barrel Controls 0.79 cfs @ 3.27 fps)

Summary for Pond CB-206: cb

Inflow Area = 6,500 sf,100.00% Impervious, Inflow Depth = 2.47" for 1-Year event
Inflow = 0.39 cfs @ 12.08 hrs, Volume= 1,338 cf
Outflow = 0.39 cfs @ 12.08 hrs, Volume= 1,338 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.39 cfs @ 12.08 hrs, Volume= 1,338 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.44' @ 12.08 hrs
Flood Elev= 74.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.13'	**12.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 71.13' / 70.52' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.39 cfs @ 12.08 hrs HW=71.44' (Free Discharge)
1=Culvert (Barrel Controls 0.39 cfs @ 2.77 fps)

Summary for Pond CB-207: cb

Inflow Area = 16,473 sf, 41.23% Impervious, Inflow Depth = 0.26" for 1-Year event
Inflow = 0.05 cfs @ 12.28 hrs, Volume= 355 cf
Outflow = 0.05 cfs @ 12.28 hrs, Volume= 355 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.28 hrs, Volume= 355 cf
Routed to Pond DMH-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.85' @ 12.28 hrs
Flood Elev= 76.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.74'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 72.74' / 72.10' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 12.28 hrs HW=72.85' (Free Discharge)
1=Culvert (Barrel Controls 0.05 cfs @ 1.55 fps)

Summary for Pond CB-208: cb

[79] Warning: Submerged Pond CB-214 Primary device # 1 OUTLET by 0.05'

Inflow Area = 19,530 sf, 41.92% Impervious, Inflow Depth = 0.34" for 1-Year event
Inflow = 0.10 cfs @ 12.13 hrs, Volume= 560 cf
Outflow = 0.10 cfs @ 12.13 hrs, Volume= 560 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.13 hrs, Volume= 560 cf
Routed to Pond CB-209 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 73.76' @ 12.13 hrs
Flood Elev= 77.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.61'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 73.61' / 62.71' S= 0.1211 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.10 cfs @ 12.13 hrs HW=73.76' (Free Discharge)
1=Culvert (Inlet Controls 0.10 cfs @ 1.34 fps)

Summary for Pond CB-209: cb

[79] Warning: Submerged Pond CB-208 Primary device # 1 OUTLET by 10.09'

Inflow Area = 31,464 sf, 41.07% Impervious, Inflow Depth = 0.32" for 1-Year event
Inflow = 0.14 cfs @ 12.13 hrs, Volume= 844 cf
Outflow = 0.14 cfs @ 12.13 hrs, Volume= 844 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.13 hrs, Volume= 844 cf
Routed to Pond DMH-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.80' @ 12.13 hrs
Flood Elev= 77.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.61'	**12.0" Round Culvert** L= 58.0' Ke= 0.500 Inlet / Outlet Invert= 72.61' / 72.03' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.14 cfs @ 12.13 hrs HW=72.80' (Free Discharge)
1=Culvert (Barrel Controls 0.14 cfs @ 2.13 fps)

Summary for Pond CB-210: cb

Inflow Area = 8,060 sf,100.00% Impervious, Inflow Depth = 2.47" for 1-Year event
Inflow = 0.48 cfs @ 12.08 hrs, Volume= 1,659 cf
Outflow = 0.48 cfs @ 12.08 hrs, Volume= 1,659 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.48 cfs @ 12.08 hrs, Volume= 1,659 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.38' @ 12.08 hrs
Flood Elev= 74.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.03'	**12.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 70.03' / 69.41' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.48 cfs @ 12.08 hrs HW=70.38' (Free Discharge)
1=Culvert (Barrel Controls 0.48 cfs @ 2.94 fps)

Summary for Pond CB-211: cb

Inflow Area = 10,543 sf, 72.18% Impervious, Inflow Depth = 1.15" for 1-Year event
Inflow = 0.32 cfs @ 12.09 hrs, Volume= 1,008 cf
Outflow = 0.32 cfs @ 12.09 hrs, Volume= 1,008 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.32 cfs @ 12.09 hrs, Volume= 1,008 cf
Routed to Pond CB-212 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.41' @ 12.09 hrs
Flood Elev= 75.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.13'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 72.13' / 71.23' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.32 cfs @ 12.09 hrs HW=72.41' (Free Discharge)
1=Culvert (Barrel Controls 0.32 cfs @ 2.69 fps)

Summary for Pond CB-212: cb

[79] Warning: Submerged Pond CB-211 Primary device # 1 OUTLET by 0.32'

Inflow Area = 16,393 sf, 82.11% Impervious, Inflow Depth = 1.62" for 1-Year event
Inflow = 0.67 cfs @ 12.09 hrs, Volume= 2,212 cf
Outflow = 0.67 cfs @ 12.09 hrs, Volume= 2,212 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.09 hrs, Volume= 2,212 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.55' @ 12.09 hrs
Flood Elev= 75.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.13'	**12.0" Round Culvert** L= 57.0' Ke= 0.500 Inlet / Outlet Invert= 71.13' / 70.56' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.67 cfs @ 12.09 hrs HW=71.55' (Free Discharge)
1=Culvert (Barrel Controls 0.67 cfs @ 3.17 fps)

Summary for Pond CB-213: cb

Inflow Area = 3,633 sf, 40.06% Impervious, Inflow Depth = 0.31" for 1-Year event
Inflow = 0.02 cfs @ 12.14 hrs, Volume= 95 cf
Outflow = 0.02 cfs @ 12.14 hrs, Volume= 95 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.14 hrs, Volume= 95 cf
Routed to Pond CB-214 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 75.76' @ 12.14 hrs
Flood Elev= 79.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.70'	**12.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 75.70' / 74.60' S= 0.0440 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 12.14 hrs HW=75.76' (Free Discharge)
1=Culvert (Inlet Controls 0.01 cfs @ 0.82 fps)

Summary for Pond CB-214: cb

Inflow Area = 6,778 sf, 42.27% Impervious, Inflow Depth = 0.34" for 1-Year event
Inflow = 0.04 cfs @ 12.13 hrs, Volume= 194 cf
Outflow = 0.04 cfs @ 12.13 hrs, Volume= 194 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.13 hrs, Volume= 194 cf
Routed to Pond CB-208 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 74.59' @ 12.13 hrs
Flood Elev= 78.07'

Device	Routing	Invert	Outlet Devices
#1	Primary	74.50'	**12.0" Round Culvert** L= 55.0' Ke= 0.500 Inlet / Outlet Invert= 74.50' / 73.71' S= 0.0144 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.03 cfs @ 12.13 hrs HW=74.59' (Free Discharge)
1=Culvert (Inlet Controls 0.03 cfs @ 1.01 fps)

Summary for Pond CB-215: cb

Inflow Area = 8,130 sf, 69.66% Impervious, Inflow Depth = 1.03" for 1-Year event
Inflow = 0.22 cfs @ 12.09 hrs, Volume= 698 cf
Outflow = 0.22 cfs @ 12.09 hrs, Volume= 698 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 12.09 hrs, Volume= 698 cf
Routed to Pond DMH-207 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.23' @ 12.09 hrs
Flood Elev= 73.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.00'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 70.00' / 69.10' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 12.09 hrs HW=70.23' (Free Discharge)
1=Culvert (Barrel Controls 0.22 cfs @ 2.43 fps)

Summary for Pond CB-307: CB

Inflow Area = 69,993 sf, 37.98% Impervious, Inflow Depth = 0.18" for 1-Year event
Inflow = 0.11 cfs @ 12.36 hrs, Volume= 1,076 cf
Outflow = 0.11 cfs @ 12.36 hrs, Volume= 1,076 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.36 hrs, Volume= 1,076 cf
Routed to Pond DMH-306 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 48.84' @ 12.36 hrs
Flood Elev= 50.19'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.64'	**15.0" Round Culvert** L= 92.4' Ke= 0.500 Inlet / Outlet Invert= 48.64' / 48.37' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.11 cfs @ 12.36 hrs HW=48.84' (Free Discharge)
1=Culvert (Barrel Controls 0.11 cfs @ 1.31 fps)

Summary for Pond CB-309: CB

Inflow Area = 3,243 sf, 68.42% Impervious, Inflow Depth = 0.97" for 1-Year event
Inflow = 0.08 cfs @ 12.09 hrs, Volume= 263 cf
Outflow = 0.08 cfs @ 12.09 hrs, Volume= 263 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.08 cfs @ 12.09 hrs, Volume= 263 cf
Routed to Pond DMH-307 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 53.03' @ 12.09 hrs
Flood Elev= 56.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.89'	**12.0" Round Culvert** L= 34.1' Ke= 0.500 Inlet / Outlet Invert= 52.89' / 51.64' S= 0.0367 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.08 cfs @ 12.09 hrs HW=53.03' (Free Discharge)
1=Culvert (Inlet Controls 0.08 cfs @ 1.26 fps)

Summary for Pond CB-310: CB

Inflow Area = 34,760 sf, 6.31% Impervious, Inflow Depth = 0.16" for 1-Year event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 451 cf
Outflow = 0.13 cfs @ 12.08 hrs, Volume= 451 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.13 cfs @ 12.08 hrs, Volume= 451 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 51.60' @ 12.08 hrs
Flood Elev= 53.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.43'	**12.0" Round Culvert** L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 51.43' / 51.16' S= 0.0180 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.13 cfs @ 12.08 hrs HW=51.60' (Free Discharge)
1=Culvert (Inlet Controls 0.13 cfs @ 1.42 fps)

Summary for Pond CB-311: CB

Inflow Area = 20,260 sf, 67.28% Impervious, Inflow Depth = 0.97" for 1-Year event
Inflow = 0.51 cfs @ 12.09 hrs, Volume= 1,645 cf
Outflow = 0.51 cfs @ 12.09 hrs, Volume= 1,645 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.51 cfs @ 12.09 hrs, Volume= 1,645 cf
Routed to Pond WQ-301 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.33' @ 12.09 hrs
Flood Elev= 47.83'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.90'	**12.0" Round Culvert** L= 21.8' Ke= 0.500 Inlet / Outlet Invert= 45.90' / 45.79' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.51 cfs @ 12.09 hrs HW=46.33' (Free Discharge)
1=Culvert (Barrel Controls 0.51 cfs @ 2.34 fps)

Summary for Pond DMH-001: dmh

Inflow Area = 21,598 sf, 50.19% Impervious, Inflow Depth = 0.44" for 1-Year event
Inflow = 0.18 cfs @ 12.11 hrs, Volume= 797 cf
Outflow = 0.18 cfs @ 12.11 hrs, Volume= 797 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.18 cfs @ 12.11 hrs, Volume= 797 cf
Routed to Pond DMH-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.26' @ 12.11 hrs
Flood Elev= 71.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.05'	**12.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 68.05' / 67.46' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.18 cfs @ 12.11 hrs HW=68.26' (Free Discharge)
1=Culvert (Barrel Controls 0.18 cfs @ 2.28 fps)

Summary for Pond DMH-002: dmh

Inflow Area = 38,859 sf, 47.20% Impervious, Inflow Depth = 0.36" for 1-Year event
Inflow = 0.23 cfs @ 12.12 hrs, Volume= 1,169 cf
Outflow = 0.23 cfs @ 12.12 hrs, Volume= 1,169 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.12 hrs, Volume= 1,169 cf
Routed to Pond WQ-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.21' @ 12.12 hrs
Flood Elev= 70.94'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.97'	**12.0" Round Culvert** L= 61.0' Ke= 0.500 Inlet / Outlet Invert= 66.97' / 66.37' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.23 cfs @ 12.12 hrs HW=67.21' (Free Discharge)
1=Culvert (Barrel Controls 0.23 cfs @ 2.40 fps)

Summary for Pond DMH-005: dmh

[79] Warning: Submerged Pond CB-005 Primary device # 1 OUTLET by 0.04'

Inflow Area = 10,274 sf, 46.43% Impervious, Inflow Depth = 0.43" for 1-Year event
Inflow = 0.08 cfs @ 12.11 hrs, Volume= 367 cf
Outflow = 0.08 cfs @ 12.11 hrs, Volume= 367 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.08 cfs @ 12.11 hrs, Volume= 367 cf
Routed to Pond WQ-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.47' @ 12.11 hrs
Flood Elev= 71.77'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.33'	**12.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 67.33' / 67.02' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.08 cfs @ 12.11 hrs HW=67.47' (Free Discharge)
1=Culvert (Barrel Controls 0.08 cfs @ 1.78 fps)

Summary for Pond DMH-006: DMH

[81] Warning: Exceeded Pond WQ-301 by 0.76' @ 12.09 hrs

Inflow Area = 406,222 sf, 60.26% Impervious, Inflow Depth = 0.60" for 1-Year event
Inflow = 5.56 cfs @ 12.09 hrs, Volume= 20,315 cf
Outflow = 5.56 cfs @ 12.09 hrs, Volume= 20,315 cf, Atten= 0%, Lag= 0.2 min
Primary = 5.56 cfs @ 12.09 hrs, Volume= 20,315 cf
Routed to Link L-1 : Link 1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link L-1 : Link 1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.01' @ 12.09 hrs Surf.Area= 13 sf Storage= 33 cf
Flood Elev= 49.93' Surf.Area= 13 sf Storage= 45 cf

Plug-Flow detention time= 0.2 min calculated for 20,315 cf (100% of inflow)
Center-of-Mass det. time= 0.2 min (783.3 - 783.1)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	4,416 cf	**Flood storage in parking area (Irregular)** Listed below (Recalc)
#2	46.35'	50 cf	**4.00'D x 4.00'H Precast structure**
		4,467 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
50.00	950	168.4	0	0	950
51.00	9,323	601.9	4,416	4,416	27,526

Device	Routing	Invert	Outlet Devices
#0	Secondary	51.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	46.35'	**12.0" Round Culvert** L= 25.4' Ke= 0.500 Inlet / Outlet Invert= 46.35' / 46.11' S= 0.0094 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=5.55 cfs @ 12.09 hrs HW=49.01' (Free Discharge)
1=Culvert (Inlet Controls 5.55 cfs @ 7.07 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=46.35' (Free Discharge)

Summary for Pond DMH-101: dmh

[79] Warning: Submerged Pond CB-101 Primary device # 1 OUTLET by 0.24'

Inflow Area = 7,622 sf, 97.70% Impervious, Inflow Depth = 2.32" for 1-Year event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 1,472 cf
Outflow = 0.44 cfs @ 12.08 hrs, Volume= 1,472 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.44 cfs @ 12.08 hrs, Volume= 1,472 cf
Routed to Pond DMH-102 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.42' @ 12.08 hrs
Flood Elev= 71.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.09'	**12.0" Round Culvert** L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 65.09' / 64.57' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.44 cfs @ 12.08 hrs HW=65.42' (Free Discharge)
1=Culvert (Barrel Controls 0.44 cfs @ 2.84 fps)

Summary for Pond DMH-102: dmh

[79] Warning: Submerged Pond CB-103 Primary device # 1 OUTLET by 0.38'
[79] Warning: Submerged Pond DMH-101 Primary device # 1 OUTLET by 0.36'

Inflow Area = 15,298 sf, 92.06% Impervious, Inflow Depth = 2.01" for 1-Year event
Inflow = 0.79 cfs @ 12.09 hrs, Volume= 2,566 cf
Outflow = 0.79 cfs @ 12.09 hrs, Volume= 2,566 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.79 cfs @ 12.09 hrs, Volume= 2,566 cf
Routed to Pond DMH-103 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 64.93' @ 12.09 hrs
Flood Elev= 70.48'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.47'	**12.0" Round Culvert** L= 65.0' Ke= 0.500 Inlet / Outlet Invert= 64.47' / 63.82' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.79 cfs @ 12.09 hrs HW=64.93' (Free Discharge)
1=Culvert (Barrel Controls 0.79 cfs @ 3.33 fps)

Summary for Pond DMH-103: dmh

[79] Warning: Submerged Pond DMH-102 Primary device # 1 OUTLET by 0.34'

Inflow Area = 83,660 sf, 63.35% Impervious, Inflow Depth = 0.37" for 1-Year event
Inflow = 0.79 cfs @ 12.09 hrs, Volume= 2,566 cf
Outflow = 0.79 cfs @ 12.09 hrs, Volume= 2,566 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.79 cfs @ 12.09 hrs, Volume= 2,566 cf
Routed to Pond DMH-104 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 64.16' @ 12.09 hrs
Flood Elev= 71.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.71'	**12.0" Round Culvert** L= 81.0' Ke= 0.500 Inlet / Outlet Invert= 63.71' / 62.90' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.79 cfs @ 12.09 hrs HW=64.16' (Free Discharge)
1=Culvert (Inlet Controls 0.79 cfs @ 2.29 fps)

Summary for Pond DMH-104: dmh

[79] Warning: Submerged Pond DMH-103 Primary device # 1 OUTLET by 0.39'

Inflow Area = 89,855 sf, 64.87% Impervious, Inflow Depth = 0.46" for 1-Year event
Inflow = 1.06 cfs @ 12.09 hrs, Volume= 3,408 cf
Outflow = 1.06 cfs @ 12.09 hrs, Volume= 3,408 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.06 cfs @ 12.09 hrs, Volume= 3,408 cf
Routed to Pond DMH-106 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 63.29' @ 12.09 hrs
Flood Elev= 70.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.80'	**15.0" Round Culvert** L= 154.0' Ke= 0.500 Inlet / Outlet Invert= 62.80' / 61.26' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.06 cfs @ 12.09 hrs HW=63.29' (Free Discharge)
1=Culvert (Inlet Controls 1.06 cfs @ 2.38 fps)

Summary for Pond DMH-105: dmh

[79] Warning: Submerged Pond CB-105 Primary device # 1 OUTLET by 0.09'

Inflow Area = 5,616 sf, 69.72% Impervious, Inflow Depth = 1.03" for 1-Year event
Inflow = 0.15 cfs @ 12.09 hrs, Volume= 482 cf
Outflow = 0.15 cfs @ 12.09 hrs, Volume= 482 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.15 cfs @ 12.09 hrs, Volume= 482 cf
Routed to Pond DMH-106 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.81' @ 12.09 hrs
Flood Elev= 71.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.62'	**12.0" Round Culvert** L= 72.0' Ke= 0.500 Inlet / Outlet Invert= 67.62' / 65.98' S= 0.0228 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.15 cfs @ 12.09 hrs HW=67.81' (Free Discharge)
1=Culvert (Inlet Controls 0.15 cfs @ 1.47 fps)

Summary for Pond DMH-106: dmh

[79] Warning: Submerged Pond DMH-104 Primary device # 1 OUTLET by 0.47'

Inflow Area = 104,686 sf, 65.09% Impervious, Inflow Depth = 0.52" for 1-Year event
Inflow = 1.42 cfs @ 12.09 hrs, Volume= 4,557 cf
Outflow = 1.42 cfs @ 12.09 hrs, Volume= 4,557 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.42 cfs @ 12.09 hrs, Volume= 4,557 cf
Routed to Pond DMH-107 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 61.73' @ 12.09 hrs
Flood Elev= 69.28'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.16'	**15.0" Round Culvert** L= 110.0' Ke= 0.500 Inlet / Outlet Invert= 61.16' / 57.86' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.42 cfs @ 12.09 hrs HW=61.73' (Free Discharge)
1=Culvert (Inlet Controls 1.42 cfs @ 2.58 fps)

Summary for Pond DMH-107: DMH

[79] Warning: Submerged Pond DMH-106 Primary device # 1 OUTLET by 0.70'
[79] Warning: Submerged Pond DMH-107A Primary device # 1 OUTLET by 0.71'

Inflow Area = 125,491 sf, 70.16% Impervious, Inflow Depth = 0.81" for 1-Year event
Inflow = 2.57 cfs @ 12.09 hrs, Volume= 8,475 cf
Outflow = 2.57 cfs @ 12.09 hrs, Volume= 8,475 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.57 cfs @ 12.09 hrs, Volume= 8,475 cf
Routed to Pond DMH-108 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 58.56' @ 12.09 hrs
Flood Elev= 64.16'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.75'	**15.0" Round Culvert** L= 61.5' Ke= 0.500 Inlet / Outlet Invert= 57.75' / 56.52' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.56 cfs @ 12.09 hrs HW=58.56' (Free Discharge)
1=Culvert (Inlet Controls 2.56 cfs @ 3.06 fps)

Summary for Pond DMH-107A: DMH

Inflow Area = 20,805 sf, 95.65% Impervious, Inflow Depth = 2.26" for 1-Year event
Inflow = 1.15 cfs @ 12.08 hrs, Volume= 3,918 cf
Outflow = 1.15 cfs @ 12.08 hrs, Volume= 3,918 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.15 cfs @ 12.08 hrs, Volume= 3,918 cf
Routed to Pond DMH-107 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 60.45' @ 12.08 hrs
Flood Elev= 67.88'

Device	Routing	Invert	Outlet Devices
#1	Primary	59.89'	**12.0" Round Culvert** L= 49.1' Ke= 0.500 Inlet / Outlet Invert= 59.89' / 57.85' S= 0.0415 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.15 cfs @ 12.08 hrs HW=60.45' (Free Discharge)
1=Culvert (Inlet Controls 1.15 cfs @ 2.54 fps)

Summary for Pond DMH-108: DMH

Inflow Area = 128,289 sf, 70.05% Impervious, Inflow Depth = 0.81" for 1-Year event
Inflow = 2.63 cfs @ 12.09 hrs, Volume= 8,690 cf
Outflow = 2.63 cfs @ 12.09 hrs, Volume= 8,690 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.63 cfs @ 12.09 hrs, Volume= 8,690 cf
Routed to Pond DMH-109 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 55.02' @ 12.09 hrs
Flood Elev= 61.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.20'	**15.0" Round Culvert** L= 66.3' Ke= 0.500 Inlet / Outlet Invert= 54.20' / 50.89' S= 0.0499 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.63 cfs @ 12.09 hrs HW=55.02' (Free Discharge)
1=Culvert (Inlet Controls 2.63 cfs @ 3.08 fps)

Summary for Pond DMH-109: DMH

Inflow Area = 128,289 sf, 70.05% Impervious, Inflow Depth = 0.81" for 1-Year event
Inflow = 2.63 cfs @ 12.09 hrs, Volume= 8,690 cf
Outflow = 2.63 cfs @ 12.09 hrs, Volume= 8,690 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.63 cfs @ 12.09 hrs, Volume= 8,690 cf
Routed to Pond WQ-101 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.58' @ 12.09 hrs
Flood Elev= 55.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.83'	**18.0" Round Culvert** L= 74.8' Ke= 0.500 Inlet / Outlet Invert= 48.83' / 44.34' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.63 cfs @ 12.09 hrs HW=49.58' (Free Discharge)
1=Culvert (Inlet Controls 2.63 cfs @ 2.96 fps)

Summary for Pond DMH-111: DMH

[79] Warning: Submerged Pond AD-3 Primary device # 1 OUTLET by 0.11'
[79] Warning: Submerged Pond CB-109 Primary device # 1 OUTLET by 0.34'
[79] Warning: Submerged Pond CB-110 Primary device # 1 OUTLET by 0.34'

Inflow Area = 30,327 sf, 47.03% Impervious, Inflow Depth = 0.68" for 1-Year event
Inflow = 0.54 cfs @ 12.09 hrs, Volume= 1,714 cf
Outflow = 0.54 cfs @ 12.09 hrs, Volume= 1,714 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.54 cfs @ 12.09 hrs, Volume= 1,714 cf
Routed to Pond DMH-113 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.24' @ 12.09 hrs
Flood Elev= 49.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.80'	**12.0" Round Culvert** L= 29.3' Ke= 0.500 Inlet / Outlet Invert= 44.80' / 44.65' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.54 cfs @ 12.09 hrs HW=45.24' (Free Discharge)
1=Culvert (Barrel Controls 0.54 cfs @ 2.40 fps)

Summary for Pond DMH-112: DMH

[81] Warning: Exceeded Pond CB-111 by 0.21' @ 12.08 hrs
[79] Warning: Submerged Pond CB-112 Primary device # 1 INLET by 0.58'
[81] Warning: Exceeded Pond CB-113 by 0.30' @ 12.08 hrs

Inflow Area = 54,967 sf, 86.15% Impervious, Inflow Depth = 1.84" for 1-Year event
Inflow = 2.51 cfs @ 12.09 hrs, Volume= 8,411 cf
Outflow = 2.51 cfs @ 12.09 hrs, Volume= 8,411 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.51 cfs @ 12.09 hrs, Volume= 8,411 cf
Routed to Pond DMH-113 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.84' @ 12.09 hrs
Flood Elev= 48.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.07'	**18.0" Round Culvert** L= 41.9' Ke= 0.500 Inlet / Outlet Invert= 45.07' / 44.65' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.50 cfs @ 12.09 hrs HW=45.84' (Free Discharge)
1=Culvert (Barrel Controls 2.50 cfs @ 3.99 fps)

Summary for Pond DMH-113: DMH

[79] Warning: Submerged Pond DMH-111 Primary device # 1 INLET by 0.21'
[79] Warning: Submerged Pond DMH-112 Primary device # 1 OUTLET by 0.36'

Inflow Area = 85,294 sf, 72.24% Impervious, Inflow Depth = 1.42" for 1-Year event
Inflow = 3.04 cfs @ 12.09 hrs, Volume= 10,125 cf
Outflow = 3.04 cfs @ 12.09 hrs, Volume= 10,125 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.04 cfs @ 12.09 hrs, Volume= 10,125 cf
Routed to Pond WQ-101 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.01' @ 12.09 hrs
Flood Elev= 49.39'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.15'	**24.0" Round Culvert** L= 42.2' Ke= 0.500 Inlet / Outlet Invert= 44.15' / 43.94' S= 0.0050 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=3.04 cfs @ 12.09 hrs HW=45.01' (Free Discharge)
1=Culvert (Barrel Controls 3.04 cfs @ 3.45 fps)

Summary for Pond DMH-201: dmh

Inflow Area = 45,774 sf, 40.92% Impervious, Inflow Depth = 0.27" for 1-Year event
Inflow = 0.14 cfs @ 12.16 hrs, Volume= 1,022 cf
Outflow = 0.14 cfs @ 12.16 hrs, Volume= 1,022 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.16 hrs, Volume= 1,022 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.92' @ 12.16 hrs
Flood Elev= 76.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.75'	**15.0" Round Culvert** L= 71.0' Ke= 0.500 Inlet / Outlet Invert= 69.75' / 69.04' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.13 cfs @ 12.16 hrs HW=69.92' (Free Discharge)
1=Culvert (Barrel Controls 0.13 cfs @ 2.03 fps)

Summary for Pond DMH-202: dmh

Inflow Area = 47,937 sf, 41.13% Impervious, Inflow Depth = 0.30" for 1-Year event
Inflow = 0.19 cfs @ 12.14 hrs, Volume= 1,199 cf
Outflow = 0.19 cfs @ 12.14 hrs, Volume= 1,199 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.14 hrs, Volume= 1,199 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.98' @ 12.14 hrs
Flood Elev= 77.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.78'	**15.0" Round Culvert** L= 71.0' Ke= 0.500 Inlet / Outlet Invert= 71.78' / 71.07' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.18 cfs @ 12.14 hrs HW=71.98' (Free Discharge)
1=Culvert (Barrel Controls 0.18 cfs @ 2.24 fps)

Summary for Pond DMH-204: dmh

[79] Warning: Submerged Pond DMH-206 Primary device # 1 OUTLET by 0.05'

Inflow Area = 84,570 sf, 60.24% Impervious, Inflow Depth = 0.94" for 1-Year event
Inflow = 1.76 cfs @ 12.09 hrs, Volume= 6,601 cf
Outflow = 1.76 cfs @ 12.09 hrs, Volume= 6,601 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.76 cfs @ 12.09 hrs, Volume= 6,601 cf
Routed to Pond WQ-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.97' @ 12.09 hrs
Flood Elev= 73.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.42'	**24.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 67.42' / 66.19' S= 0.0198 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.76 cfs @ 12.09 hrs HW=67.97' (Free Discharge)
1=Culvert (Inlet Controls 1.76 cfs @ 2.52 fps)

Summary for Pond DMH-206: dmh

[79] Warning: Submerged Pond CB-210 Primary device # 1 OUTLET by 0.01'

Inflow Area = 72,390 sf, 56.96% Impervious, Inflow Depth = 0.84" for 1-Year event
Inflow = 1.30 cfs @ 12.09 hrs, Volume= 5,070 cf
Outflow = 1.30 cfs @ 12.09 hrs, Volume= 5,070 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.30 cfs @ 12.09 hrs, Volume= 5,070 cf
Routed to Pond DMH-204 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.42' @ 12.09 hrs
Flood Elev= 75.47'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.91'	**18.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 68.91' / 67.92' S= 0.0168 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.30 cfs @ 12.09 hrs HW=69.42' (Free Discharge)
1=Culvert (Inlet Controls 1.30 cfs @ 2.44 fps)

Summary for Pond DMH-207: cb

[79] Warning: Submerged Pond CB-215 Primary device # 1 OUTLET by 0.24'

Inflow Area = 12,180 sf, 79.75% Impervious, Inflow Depth = 1.51" for 1-Year event
Inflow = 0.46 cfs @ 12.09 hrs, Volume= 1,531 cf
Outflow = 0.46 cfs @ 12.09 hrs, Volume= 1,531 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.46 cfs @ 12.09 hrs, Volume= 1,531 cf
Routed to Pond dmh-204 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.34' @ 12.09 hrs
Flood Elev= 73.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.00'	**12.0" Round Culvert** L= 57.0' Ke= 0.500 Inlet / Outlet Invert= 69.00' / 68.42' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.46 cfs @ 12.09 hrs HW=69.34' (Free Discharge)
1=Culvert (Barrel Controls 0.46 cfs @ 2.91 fps)

Summary for Pond DMH-301: dmh

Inflow Area = 4,688 sf, 99.90% Impervious, Inflow Depth = 2.47" for 1-Year event
Inflow = 0.28 cfs @ 12.08 hrs, Volume= 965 cf
Outflow = 0.28 cfs @ 12.08 hrs, Volume= 965 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.28 cfs @ 12.08 hrs, Volume= 965 cf
Routed to Pond DMH-302 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.46' @ 12.08 hrs
Flood Elev= 73.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.20'	**12.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 70.20' / 68.98' S= 0.0207 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.28 cfs @ 12.08 hrs HW=70.46' (Free Discharge)
1=Culvert (Inlet Controls 0.28 cfs @ 1.73 fps)

Summary for Pond DMH-302: dmh

[79] Warning: Submerged Pond DMH-301 Primary device # 1 OUTLET by 0.16'

Inflow Area = 17,161 sf, 51.76% Impervious, Inflow Depth = 0.83" for 1-Year event
Inflow = 0.28 cfs @ 12.09 hrs, Volume= 1,181 cf
Outflow = 0.28 cfs @ 12.09 hrs, Volume= 1,181 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.28 cfs @ 12.09 hrs, Volume= 1,181 cf
Routed to Pond DMH-303 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.14' @ 12.09 hrs
Flood Elev= 72.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.88'	**12.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 68.88' / 66.92' S= 0.0784 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.28 cfs @ 12.09 hrs HW=69.14' (Free Discharge)
1=Culvert (Inlet Controls 0.28 cfs @ 1.74 fps)

Summary for Pond DMH-303: dmh

Inflow Area = 26,775 sf, 42.05% Impervious, Inflow Depth = 0.57" for 1-Year event
Inflow = 0.30 cfs @ 12.09 hrs, Volume= 1,281 cf
Outflow = 0.30 cfs @ 12.09 hrs, Volume= 1,281 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.09 hrs, Volume= 1,281 cf
Routed to Pond DMH-304 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.87' @ 12.09 hrs
Flood Elev= 70.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.60'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 65.60' / 62.58' S= 0.0795 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.30 cfs @ 12.09 hrs HW=65.87' (Free Discharge)
1=Culvert (Inlet Controls 0.30 cfs @ 1.76 fps)

Summary for Pond DMH-304: dmh

Inflow Area = 202,176 sf, 61.53% Impervious, Inflow Depth = 0.08" for 1-Year event
Inflow = 0.30 cfs @ 12.09 hrs, Volume= 1,281 cf
Outflow = 0.30 cfs @ 12.09 hrs, Volume= 1,281 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.09 hrs, Volume= 1,281 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 59.06' @ 12.09 hrs
Flood Elev= 65.88'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.84'	**24.0" Round Culvert** L= 131.0' Ke= 0.500 Inlet / Outlet Invert= 58.84' / 48.34' S= 0.0802 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=0.30 cfs @ 12.09 hrs HW=59.06' (Free Discharge)
1=Culvert (Inlet Controls 0.30 cfs @ 1.59 fps)

Summary for Pond DMH-306: DMH

[79] Warning: Submerged Pond CB-307 Primary device # 1 OUTLET by 0.09'

Inflow Area = 69,993 sf, 37.98% Impervious, Inflow Depth = 0.18" for 1-Year event
Inflow = 0.11 cfs @ 12.36 hrs, Volume= 1,076 cf
Outflow = 0.11 cfs @ 12.36 hrs, Volume= 1,076 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.36 hrs, Volume= 1,076 cf
Routed to Pond DMH-307 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 48.46' @ 12.36 hrs
Flood Elev= 50.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.27'	**18.0" Round Culvert** L= 165.0' Ke= 0.500 Inlet / Outlet Invert= 48.27' / 47.79' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.11 cfs @ 12.36 hrs HW=48.46' (Free Discharge)
1=Culvert (Barrel Controls 0.11 cfs @ 1.27 fps)

Summary for Pond DMH-307: DMH

[79] Warning: Submerged Pond DMH-306 Primary device # 1 OUTLET by 0.11'

Inflow Area = 73,236 sf, 39.33% Impervious, Inflow Depth = 0.22" for 1-Year event
Inflow = 0.15 cfs @ 12.33 hrs, Volume= 1,339 cf
Outflow = 0.15 cfs @ 12.33 hrs, Volume= 1,339 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.15 cfs @ 12.33 hrs, Volume= 1,339 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.90' @ 12.33 hrs
Flood Elev= 53.58'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.69'	**18.0" Round Culvert** L= 17.3' Ke= 0.500 Inlet / Outlet Invert= 47.69' / 47.64' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.14 cfs @ 12.33 hrs HW=47.90' (Free Discharge)
1=Culvert (Barrel Controls 0.14 cfs @ 1.42 fps)

Summary for Pond DMH-308: DMH

[79] Warning: Submerged Pond DMH-304 Primary device # 1 OUTLET by 0.41'
[81] Warning: Exceeded Pond DMH-307 by 0.89' @ 12.08 hrs

Inflow Area = 385,962 sf, 59.90% Impervious, Inflow Depth = 0.58" for 1-Year event
Inflow = 5.05 cfs @ 12.08 hrs, Volume= 18,670 cf
Outflow = 5.05 cfs @ 12.08 hrs, Volume= 18,670 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.05 cfs @ 12.08 hrs, Volume= 18,670 cf
Routed to Pond WQ-301 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 48.75' @ 12.08 hrs
Flood Elev= 53.09'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.54'	**24.0" Round Culvert** L= 163.2' Ke= 0.500 Inlet / Outlet Invert= 47.54' / 47.07' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.04 cfs @ 12.08 hrs HW=48.75' (Free Discharge)
1=Culvert (Barrel Controls 5.04 cfs @ 3.65 fps)

Summary for Pond E-DMH 1: E-DMH

[81] Warning: Exceeded Pond WQ-101 by 0.76' @ 12.09 hrs

Inflow Area = 213,583 sf, 70.93% Impervious, Inflow Depth = 1.06" for 1-Year event
Inflow = 5.67 cfs @ 12.09 hrs, Volume= 18,815 cf
Outflow = 5.67 cfs @ 12.09 hrs, Volume= 18,815 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.67 cfs @ 12.09 hrs, Volume= 18,815 cf
Routed to Link L-2 : Link 1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.96' @ 12.09 hrs
Flood Elev= 49.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.80'	**12.0" Round Culvert X 2.00** L= 16.3' Ke= 0.500 Inlet / Outlet Invert= 44.80' / 44.64' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=5.67 cfs @ 12.09 hrs HW=45.96' (Free Discharge)
1=Culvert (Barrel Controls 5.67 cfs @ 3.91 fps)

Summary for Pond IS-1: infiltration

Notes:
An infiltration rate of 8.27 was used for sand (Rawl's) because the systems will have ASTM C-33 sand, or equivalent, below the systems.

GW elevation based on TP 1 (no GW encountered) and SB-1 (GW encountered at 14 feet below grade)

Inflow Area = 68,362 sf, 56.93% Impervious, Inflow Depth = 0.73" for 1-Year event
Inflow = 1.07 cfs @ 12.10 hrs, Volume= 4,185 cf
Outflow = 0.62 cfs @ 12.25 hrs, Volume= 4,185 cf, Atten= 42%, Lag= 9.0 min
Discarded = 0.62 cfs @ 12.25 hrs, Volume= 4,185 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond DMH-103 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 64.71' @ 12.25 hrs Surf.Area= 3,136 sf Storage= 263 cf
Flood Elev= 70.00' Surf.Area= 3,136 sf Storage= 10,617 cf

Plug-Flow detention time= 2.8 min calculated for 4,183 cf (100% of inflow)
Center-of-Mass det. time= 2.8 min (836.8 - 833.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	64.50'	4,421 cf	**37.08'W x 84.57'L x 5.50'H Field A** 17,249 cf Overall - 6,196 cf Embedded = 11,052 cf x 40.0% Voids
#2A	65.25'	6,196 cf	**ADS_StormTech MC-3500 d +Cap** x 55 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 55 Chambers in 5 Rows Cap Storage= 14.9 cf x 2 x 5 rows = 149.0 cf
		10,617 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	64.50'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 57.50' Phase-In= 0.01'
#2	Primary	67.35'	**12.0" Round Culvert** L= 27.0' Ke= 0.500 Inlet / Outlet Invert= 67.35' / 67.08' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 2	69.00'	**4.0' long x 0.5' breadth Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.62 cfs @ 12.25 hrs HW=64.71' (Free Discharge)
└**1=Exfiltration** (Controls 0.62 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=64.50' (Free Discharge)
└**2=Culvert** (Controls 0.00 cfs)
└**3=Weir** (Controls 0.00 cfs)

Summary for Pond IS-2: infiltration

Notes:
An infiltration rate of 1.02 inches per hour was used for sandy loam (Rawl's) at TP 4

GW from TP 4 (GW not encountered to a depth of 8 feet below grade)

[81] Warning: Exceeded Pond WQ-202 by 1.21' @ 16.08 hrs

Inflow Area = 175,401 sf, 64.50% Impervious, Inflow Depth = 1.11" for 1-Year event
Inflow = 4.38 cfs @ 12.09 hrs, Volume= 16,173 cf
Outflow = 0.19 cfs @ 15.73 hrs, Volume= 13,727 cf, Atten= 96%, Lag= 218.5 min
Discarded = 0.19 cfs @ 15.73 hrs, Volume= 13,727 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond DMH-304 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.42' @ 15.73 hrs Surf.Area= 5,452 sf Storage= 8,493 cf
Flood Elev= 70.50' Surf.Area= 5,452 sf Storage= 17,818 cf

Plug-Flow detention time= 398.2 min calculated for 13,723 cf (85% of inflow)
Center-of-Mass det. time= 329.4 min (1,127.6 - 798.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	65.25'	7,203 cf	**15.58'W x 349.86'L x 5.25'H Field A** 28,623 cf Overall - 10,615 cf Embedded = 18,008 cf x 40.0% Voids
#2A	65.75'	10,615 cf	**ADS_StormTech MC-3500 d +Cap** x 96 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 96 Chambers in 2 Rows Cap Storage= 14.9 cf x 2 x 2 rows = 59.6 cf
		17,818 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	65.25'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 60.75' Phase-In= 0.01'
#2	Primary	65.64'	**24.0" Round Culvert** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 65.64' / 60.30' S= 0.0797 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	69.00'	**4.0' long x 0.5' breadth Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.19 cfs @ 15.73 hrs HW=67.42' (Free Discharge)
└**1=Exfiltration** (Controls 0.19 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.25' (Free Discharge)
└**2=Culvert** (Controls 0.00 cfs)
└**3=Weir** (Controls 0.00 cfs)

Summary for Pond WQ-002: dmh

Inflow Area = 57,945 sf, 49.40% Impervious, Inflow Depth = 0.44" for 1-Year event
Inflow = 0.47 cfs @ 12.11 hrs, Volume= 2,102 cf
Outflow = 0.47 cfs @ 12.11 hrs, Volume= 2,102 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.11 hrs, Volume= 2,102 cf
Routed to Pond IS-1 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.22' @ 12.11 hrs
Flood Elev= 70.94'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.87'	**18.0" Round Culvert** L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 65.87' / 65.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.47 cfs @ 12.11 hrs HW=66.22' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.47 cfs @ 2.30 fps)

Summary for Pond WQ-101: TREATMENT

[79] Warning: Submerged Pond DMH-109 Primary device # 1 OUTLET by 0.86'
[81] Warning: Exceeded Pond DMH-113 by 0.19' @ 12.09 hrs

Inflow Area = 213,583 sf, 70.93% Impervious, Inflow Depth = 1.06" for 1-Year event
Inflow = 5.67 cfs @ 12.09 hrs, Volume= 18,815 cf
Outflow = 5.67 cfs @ 12.09 hrs, Volume= 18,815 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.67 cfs @ 12.09 hrs, Volume= 18,815 cf
Routed to Pond E-DMH 1 : E-DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.20' @ 12.09 hrs
Flood Elev= 51.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.13'	**24.0" Round Culvert** L= 58.0' Ke= 0.500 Inlet / Outlet Invert= 44.13' / 43.55' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.66 cfs @ 12.09 hrs HW=45.20' (Free Discharge)
└**1=Culvert** (Barrel Controls 5.66 cfs @ 4.79 fps)

Summary for Pond WQ-201: wq

[79] Warning: Submerged Pond CB-205 Primary device # 1 OUTLET by 0.01'

Inflow Area = 65,484 sf, 58.71% Impervious, Inflow Depth = 0.93" for 1-Year event
Inflow = 1.27 cfs @ 12.09 hrs, Volume= 5,079 cf
Outflow = 1.27 cfs @ 12.09 hrs, Volume= 5,079 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.27 cfs @ 12.09 hrs, Volume= 5,079 cf
Routed to Pond IS-2 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.70' @ 12.09 hrs
Flood Elev= 74.49'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.19'	**18.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 68.19' / 67.58' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.27 cfs @ 12.09 hrs HW=68.70' (Free Discharge)
└**1=Culvert** (Barrel Controls 1.27 cfs @ 3.58 fps)

Summary for Pond WQ-202: dmh

[79] Warning: Submerged Pond DMH-204 Primary device # 1 OUTLET by 0.55'

Inflow Area = 90,151 sf, 62.70% Impervious, Inflow Depth = 1.03" for 1-Year event
Inflow = 2.10 cfs @ 12.09 hrs, Volume= 7,749 cf
Outflow = 2.10 cfs @ 12.09 hrs, Volume= 7,749 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.10 cfs @ 12.09 hrs, Volume= 7,749 cf
Routed to Pond is-2 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.74' @ 12.09 hrs
Flood Elev= 72.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.09'	**24.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 66.09' / 65.92' S= 0.0213 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.09 cfs @ 12.09 hrs HW=66.74' (Free Discharge)
1=Culvert (Barrel Controls 2.09 cfs @ 3.54 fps)

Summary for Pond WQ-301: TREATMENT

[81] Warning: Exceeded Pond CB-311 by 1.93' @ 12.08 hrs
[79] Warning: Submerged Pond DMH-308 Primary device # 1 INLET by 0.71'

Inflow Area = 406,222 sf, 60.26% Impervious, Inflow Depth = 0.60" for 1-Year event
Inflow = 5.56 cfs @ 12.09 hrs, Volume= 20,315 cf
Outflow = 5.56 cfs @ 12.09 hrs, Volume= 20,315 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.56 cfs @ 12.09 hrs, Volume= 20,315 cf
Routed to Pond DMH-006 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 48.25' @ 12.09 hrs
Flood Elev= 50.06'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.97'	**24.0" Round Culvert** L= 10.4' Ke= 0.500 Inlet / Outlet Invert= 46.97' / 46.94' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.55 cfs @ 12.09 hrs HW=48.25' (Free Discharge)
1=Culvert (Barrel Controls 5.55 cfs @ 3.72 fps)

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Pond AD-3: AD Peak Elev=45.58' Inflow=0.00 cfs 5 cf
8.0" Round Culvert n=0.013 L=89.4' S=0.0050 '/' Outflow=0.00 cfs 5 cf

Pond CB-001: cb Peak Elev=69.29' Inflow=0.16 cfs 581 cf
12.0" Round Culvert n=0.013 L=78.0' S=0.0100 '/' Outflow=0.16 cfs 581 cf

Pond CB-005: cb Peak Elev=68.30' Inflow=0.09 cfs 344 cf
12.0" Round Culvert n=0.013 L=73.0' S=0.0100 '/' Outflow=0.09 cfs 344 cf

Pond CB-101: cb Peak Elev=66.26' Inflow=0.29 cfs 996 cf
12.0" Round Culvert n=0.013 L=82.0' S=0.0100 '/' Outflow=0.29 cfs 996 cf

Pond CB-102: cb Peak Elev=67.02' Inflow=0.26 cfs 852 cf
12.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=0.26 cfs 852 cf

Pond CB-103: cb Peak Elev=65.33' Inflow=0.46 cfs 1,447 cf
12.0" Round Culvert n=0.013 L=77.0' S=0.0051 '/' Outflow=0.46 cfs 1,447 cf

Pond CB-105: cb Peak Elev=68.15' Inflow=0.22 cfs 692 cf
12.0" Round Culvert n=0.013 L=19.0' S=0.0100 '/' Outflow=0.22 cfs 692 cf

Pond CB-107: CB Peak Elev=62.01' Inflow=0.16 cfs 488 cf
12.0" Round Culvert n=0.013 L=5.5' S=0.0091 '/' Outflow=0.16 cfs 488 cf

Pond CB-108: CB Peak Elev=57.51' Inflow=0.10 cfs 314 cf
12.0" Round Culvert n=0.013 L=6.4' S=0.0592 '/' Outflow=0.10 cfs 314 cf

Pond CB-109: CB Peak Elev=47.62' Inflow=0.10 cfs 332 cf
12.0" Round Culvert n=0.013 L=31.5' S=0.0815 '/' Outflow=0.10 cfs 332 cf

Pond CB-110: CB Peak Elev=46.85' Inflow=0.69 cfs 2,143 cf
12.0" Round Culvert n=0.013 L=215.7' S=0.0070 '/' Outflow=0.69 cfs 2,143 cf

Pond CB-111: CB Peak Elev=45.70' Inflow=0.59 cfs 1,839 cf
12.0" Round Culvert n=0.013 L=8.8' S=0.0103 '/' Outflow=0.59 cfs 1,839 cf

Pond CB-112: CB Peak Elev=46.37' Inflow=2.48 cfs 8,453 cf
12.0" Round Culvert n=0.013 L=14.7' S=0.0061 '/' Outflow=2.48 cfs 8,453 cf

Pond CB-113: CB Peak Elev=45.60' Inflow=0.15 cfs 547 cf
12.0" Round Culvert n=0.013 L=23.3' S=0.0099 '/' Outflow=0.15 cfs 547 cf

Pond CB-201: cb Peak Elev=71.93' Inflow=0.16 cfs 694 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=0.16 cfs 694 cf

Pond CB-202: cb Peak Elev=70.91' Inflow=0.30 cfs 1,364 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0102 '/' Outflow=0.30 cfs 1,364 cf

Pond CB-203: cb Peak Elev=72.91' Inflow=0.11 cfs 539 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0100 '/' Outflow=0.11 cfs 539 cf

Pond CB-204: cb Peak Elev=70.53' Inflow=0.45 cfs 1,561 cf
12.0" Round Culvert n=0.013 L=85.0' S=0.0101 '/' Outflow=0.45 cfs 1,561 cf

Pond CB-205: cb Peak Elev=69.76' Inflow=0.97 cfs 3,376 cf
12.0" Round Culvert n=0.013 L=56.0' S=0.0098 '/' Outflow=0.97 cfs 3,376 cf

Pond CB-206: cb Peak Elev=71.48' Inflow=0.48 cfs 1,661 cf
12.0" Round Culvert n=0.013 L=62.0' S=0.0098 '/' Outflow=0.48 cfs 1,661 cf

Pond CB-207: cb Peak Elev=72.92' Inflow=0.14 cfs 667 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0102 '/' Outflow=0.14 cfs 667 cf

Pond CB-208: cb Peak Elev=73.85' Inflow=0.25 cfs 986 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.1211 '/' Outflow=0.25 cfs 986 cf

Pond CB-209: cb Peak Elev=72.91' Inflow=0.36 cfs 1,507 cf
12.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=0.36 cfs 1,507 cf

Pond CB-210: cb Peak Elev=70.42' Inflow=0.59 cfs 2,060 cf
12.0" Round Culvert n=0.013 L=62.0' S=0.0100 '/' Outflow=0.59 cfs 2,060 cf

Pond CB-211: cb Peak Elev=72.47' Inflow=0.46 cfs 1,422 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.0100 '/' Outflow=0.46 cfs 1,422 cf

Pond CB-212: cb Peak Elev=71.62' Inflow=0.89 cfs 2,918 cf
12.0" Round Culvert n=0.013 L=57.0' S=0.0100 '/' Outflow=0.89 cfs 2,918 cf

Pond CB-213: cb Peak Elev=75.80' Inflow=0.04 cfs 171 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0440 '/' Outflow=0.04 cfs 171 cf

Pond CB-214: cb Peak Elev=74.64' Inflow=0.08 cfs 341 cf
12.0" Round Culvert n=0.013 L=55.0' S=0.0144 '/' Outflow=0.08 cfs 341 cf

Pond CB-215: cb Peak Elev=70.28' Inflow=0.32 cfs 1,002 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.0100 '/' Outflow=0.32 cfs 1,002 cf

Pond CB-307: CB Peak Elev=49.00' Inflow=0.36 cfs 2,199 cf
15.0" Round Culvert n=0.013 L=92.4' S=0.0029 '/' Outflow=0.36 cfs 2,199 cf

Pond CB-309: CB Peak Elev=53.06' Inflow=0.12 cfs 382 cf
12.0" Round Culvert n=0.013 L=34.1' S=0.0367 '/' Outflow=0.12 cfs 382 cf

Pond CB-310: CB Peak Elev=51.62' Inflow=0.16 cfs 566 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0180 '/' Outflow=0.16 cfs 566 cf

Pond CB-311: CB Peak Elev=46.43' Inflow=0.76 cfs 2,384 cf
12.0" Round Culvert n=0.013 L=21.8' S=0.0050 '/' Outflow=0.76 cfs 2,384 cf

Pond DMH-001: dmh Peak Elev=68.35' Inflow=0.37 cfs 1,332 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0100 '/' Outflow=0.37 cfs 1,332 cf

Pond DMH-002: dmh Peak Elev=67.33' Inflow=0.51 cfs 2,031 cf
12.0" Round Culvert n=0.013 L=61.0' S=0.0098 '/' Outflow=0.51 cfs 2,031 cf

Pond DMH-005: dmh Peak Elev=67.53' Inflow=0.17 cfs 616 cf
12.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=0.17 cfs 616 cf

Pond DMH-006: DMH Peak Elev=50.08' Storage=134 cf Inflow=7.33 cfs 26,745 cf
12.0" Round Culvert n=0.013 L=25.4' S=0.0094 '/' Primary=6.79 cfs 26,745 cf Secondary=0.00 cfs 0 cf Outflow=6.79 cfs 26,745 cf

Pond DMH-101: dmh Peak Elev=65.47' Inflow=0.55 cfs 1,847 cf
12.0" Round Culvert n=0.013 L=52.0' S=0.0100 '/' Outflow=0.55 cfs 1,847 cf

Pond DMH-102: dmh Peak Elev=64.99' Inflow=1.01 cfs 3,294 cf
12.0" Round Culvert n=0.013 L=65.0' S=0.0100 '/' Outflow=1.01 cfs 3,294 cf

Pond DMH-103: dmh Peak Elev=64.23' Inflow=1.01 cfs 3,294 cf
12.0" Round Culvert n=0.013 L=81.0' S=0.0100 '/' Outflow=1.01 cfs 3,294 cf

Pond DMH-104: dmh Peak Elev=63.36' Inflow=1.37 cfs 4,416 cf
15.0" Round Culvert n=0.013 L=154.0' S=0.0100 '/' Outflow=1.37 cfs 4,416 cf

Pond DMH-105: dmh Peak Elev=67.85' Inflow=0.22 cfs 692 cf
12.0" Round Culvert n=0.013 L=72.0' S=0.0228 '/' Outflow=0.22 cfs 692 cf

Pond DMH-106: dmh Peak Elev=61.84' Inflow=1.90 cfs 6,094 cf
15.0" Round Culvert n=0.013 L=110.0' S=0.0300 '/' Outflow=1.90 cfs 6,094 cf

Pond DMH-107: DMH Peak Elev=58.70' Inflow=3.33 cfs 11,015 cf
15.0" Round Culvert n=0.013 L=61.5' S=0.0200 '/' Outflow=3.33 cfs 11,015 cf

Pond DMH-107A: DMH Peak Elev=60.53' Inflow=1.43 cfs 4,921 cf
12.0" Round Culvert n=0.013 L=49.1' S=0.0415 '/' Outflow=1.43 cfs 4,921 cf

Pond DMH-108: DMH Peak Elev=55.17' Inflow=3.43 cfs 11,329 cf
15.0" Round Culvert n=0.013 L=66.3' S=0.0499 '/' Outflow=3.43 cfs 11,329 cf

Pond DMH-109: DMH Peak Elev=49.71' Inflow=3.43 cfs 11,329 cf
18.0" Round Culvert n=0.013 L=74.8' S=0.0600 '/' Outflow=3.43 cfs 11,329 cf

Pond DMH-111: DMH Peak Elev=45.34' Inflow=0.79 cfs 2,480 cf
12.0" Round Culvert n=0.013 L=29.3' S=0.0051 '/' Outflow=0.79 cfs 2,480 cf

Pond DMH-112: DMH Peak Elev=45.97' Inflow=3.23 cfs 10,839 cf
18.0" Round Culvert n=0.013 L=41.9' S=0.0100 '/' Outflow=3.23 cfs 10,839 cf

Pond DMH-113: DMH Peak Elev=45.16' Inflow=4.02 cfs 13,319 cf
24.0" Round Culvert n=0.013 L=42.2' S=0.0050 '/' Outflow=4.02 cfs 13,319 cf

Pond DMH-201: dmh Peak Elev=70.05' Inflow=0.41 cfs 1,904 cf
15.0" Round Culvert n=0.013 L=71.0' S=0.0100 '/' Outflow=0.41 cfs 1,904 cf

Pond DMH-202: dmh Peak Elev=72.11' Inflow=0.51 cfs 2,174 cf
15.0" Round Culvert n=0.013 L=71.0' S=0.0100 '/' Outflow=0.51 cfs 2,174 cf

Pond DMH-204: dmh Peak Elev=68.09' Inflow=2.58 cfs 9,189 cf
24.0" Round Culvert n=0.013 L=62.0' S=0.0198 '/' Outflow=2.58 cfs 9,189 cf

Pond DMH-206: dmh Peak Elev=69.55' Inflow=1.96 cfs 7,151 cf
18.0" Round Culvert n=0.013 L=59.0' S=0.0168 '/' Outflow=1.96 cfs 7,151 cf

Pond DMH-207: cb Peak Elev=69.40' Inflow=0.62 cfs 2,037 cf
12.0" Round Culvert n=0.013 L=57.0' S=0.0102 '/' Outflow=0.62 cfs 2,037 cf

Pond DMH-301: dmh Peak Elev=70.49' Inflow=0.35 cfs 1,198 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0207 '/' Outflow=0.35 cfs 1,198 cf

Pond DMH-302: dmh Peak Elev=69.20' Inflow=0.41 cfs 1,626 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0784 '/' Outflow=0.41 cfs 1,626 cf

Pond DMH-303: dmh Peak Elev=65.93' Inflow=0.44 cfs 1,843 cf
12.0" Round Culvert n=0.013 L=38.0' S=0.0795 '/' Outflow=0.44 cfs 1,843 cf

Pond DMH-304: dmh Peak Elev=59.11' Inflow=0.44 cfs 1,843 cf
24.0" Round Culvert n=0.013 L=131.0' S=0.0802 '/' Outflow=0.44 cfs 1,843 cf

Pond DMH-306: DMH Peak Elev=48.61' Inflow=0.36 cfs 2,199 cf
18.0" Round Culvert n=0.013 L=165.0' S=0.0029 '/' Outflow=0.36 cfs 2,199 cf

Pond DMH-307: DMH Peak Elev=48.07' Inflow=0.47 cfs 2,581 cf
18.0" Round Culvert n=0.013 L=17.3' S=0.0029 '/' Outflow=0.47 cfs 2,581 cf

Pond DMH-308: DMH Peak Elev=48.95' Inflow=6.57 cfs 24,361 cf
24.0" Round Culvert n=0.013 L=163.2' S=0.0029 '/' Outflow=6.57 cfs 24,361 cf

Pond E-DMH 1: E-DMH Peak Elev=46.34' Inflow=7.45 cfs 24,648 cf
12.0" Round Culvert x 2.00 n=0.013 L=16.3' S=0.0098 '/' Outflow=7.45 cfs 24,648 cf

Pond IS-1: infiltration Peak Elev=65.11' Storage=770 cf Inflow=1.69 cfs 6,099 cf
Discarded=0.65 cfs 6,099 cf Primary=0.00 cfs 0 cf Outflow=0.65 cfs 6,099 cf

Pond IS-2: infiltration Peak Elev=68.43' Storage=12,472 cf Inflow=6.12 cfs 21,838 cf
Discarded=0.22 cfs 15,842 cf Primary=0.00 cfs 0 cf Outflow=0.22 cfs 15,842 cf

Pond WQ-002: dmh Peak Elev=66.38' Inflow=0.94 cfs 3,500 cf
18.0" Round Culvert n=0.013 L=7.0' S=0.0100 '/' Outflow=0.94 cfs 3,500 cf

Pond WQ-101: TREATMENT Peak Elev=45.40' Inflow=7.45 cfs 24,648 cf
24.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=7.45 cfs 24,648 cf

Pond WQ-201: wq Peak Elev=68.81' Inflow=1.84 cfs 6,941 cf
18.0" Round Culvert n=0.013 L=60.0' S=0.0102 '/' Outflow=1.84 cfs 6,941 cf

Pond WQ-202: dmh Peak Elev=66.89' Inflow=2.99 cfs 10,615 cf
24.0" Round Culvert n=0.013 L=8.0' S=0.0213 '/' Outflow=2.99 cfs 10,615 cf

Pond WQ-301: TREATMENT Peak Elev=48.47' Inflow=7.33 cfs 26,745 cf
24.0" Round Culvert n=0.013 L=10.4' S=0.0029 '/' Outflow=7.33 cfs 26,745 cf

Summary for Pond AD-3: AD

Inflow Area = 9,685 sf, 2.51% Impervious, Inflow Depth = 0.01" for 2-Year event
Inflow = 0.00 cfs @ 23.02 hrs, Volume= 5 cf
Outflow = 0.00 cfs @ 23.02 hrs, Volume= 5 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 23.02 hrs, Volume= 5 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.58' @ 23.02 hrs
Flood Elev= 51.61'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.58'	**8.0" Round Culvert** L= 89.4' Ke= 0.500 Inlet / Outlet Invert= 45.58' / 45.13' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.00 cfs @ 23.02 hrs HW=45.58' (Free Discharge)
1=Culvert (Barrel Controls 0.00 cfs @ 0.08 fps)

Summary for Pond CB-001: cb

Inflow Area = 9,415 sf, 48.58% Impervious, Inflow Depth = 0.74" for 2-Year event
Inflow = 0.16 cfs @ 12.10 hrs, Volume= 581 cf
Outflow = 0.16 cfs @ 12.10 hrs, Volume= 581 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.10 hrs, Volume= 581 cf
Routed to Pond DMH-001 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.29' @ 12.10 hrs
Flood Elev= 72.39'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.09'	**12.0" Round Culvert** L= 78.0' Ke= 0.500 Inlet / Outlet Invert= 69.09' / 68.31' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.16 cfs @ 12.10 hrs HW=69.29' (Free Discharge)
1=Culvert (Barrel Controls 0.16 cfs @ 2.21 fps)

Summary for Pond CB-005: cb

Inflow Area = 6,798 sf, 42.20% Impervious, Inflow Depth = 0.61" for 2-Year event
Inflow = 0.09 cfs @ 12.11 hrs, Volume= 344 cf
Outflow = 0.09 cfs @ 12.11 hrs, Volume= 344 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.11 hrs, Volume= 344 cf
Routed to Pond DMH-005 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.30' @ 12.11 hrs
Flood Elev= 71.47'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.16'	**12.0" Round Culvert** L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 68.16' / 67.43' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.08 cfs @ 12.11 hrs HW=68.30' (Free Discharge)
1=Culvert (Barrel Controls 0.08 cfs @ 1.85 fps)

Summary for Pond CB-101: cb

Inflow Area = 3,896 sf, 99.56% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 996 cf
Outflow = 0.29 cfs @ 12.08 hrs, Volume= 996 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.29 cfs @ 12.08 hrs, Volume= 996 cf
Routed to Pond DMH-101 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.26' @ 12.08 hrs
Flood Elev= 71.46'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**12.0" Round Culvert** L= 82.0' Ke= 0.500 Inlet / Outlet Invert= 66.00' / 65.18' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.28 cfs @ 12.08 hrs HW=66.26' (Free Discharge)
1=Culvert (Barrel Controls 0.28 cfs @ 2.60 fps)

Summary for Pond CB-102: cb

Inflow Area = 3,726 sf, 95.76% Impervious, Inflow Depth = 2.74" for 2-Year event
Inflow = 0.26 cfs @ 12.08 hrs, Volume= 852 cf
Outflow = 0.26 cfs @ 12.08 hrs, Volume= 852 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.26 cfs @ 12.08 hrs, Volume= 852 cf
Routed to Pond DMH-101 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.02' @ 12.08 hrs
Flood Elev= 70.07'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.76'	**12.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 66.76' / 66.45' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.26 cfs @ 12.08 hrs HW=67.02' (Free Discharge)
1=Culvert (Barrel Controls 0.26 cfs @ 2.41 fps)

Summary for Pond CB-103: cb

Inflow Area = 7,676 sf, 86.47% Impervious, Inflow Depth = 2.26" for 2-Year event
Inflow = 0.46 cfs @ 12.09 hrs, Volume= 1,447 cf
Outflow = 0.46 cfs @ 12.09 hrs, Volume= 1,447 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.46 cfs @ 12.09 hrs, Volume= 1,447 cf
Routed to Pond DMH-102 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.33' @ 12.09 hrs
Flood Elev= 67.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.94'	**12.0" Round Culvert** L= 77.0' Ke= 0.500 Inlet / Outlet Invert= 64.94' / 64.55' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.46 cfs @ 12.09 hrs HW=65.33' (Free Discharge)
1=Culvert (Barrel Controls 0.46 cfs @ 2.37 fps)

Summary for Pond CB-105: cb

Inflow Area = 5,616 sf, 69.72% Impervious, Inflow Depth = 1.48" for 2-Year event
Inflow = 0.22 cfs @ 12.09 hrs, Volume= 692 cf
Outflow = 0.22 cfs @ 12.09 hrs, Volume= 692 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 12.09 hrs, Volume= 692 cf
Routed to Pond DMH-105 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.15' @ 12.09 hrs
Flood Elev= 71.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.91'	**12.0" Round Culvert** L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 67.91' / 67.72' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 12.09 hrs HW=68.15' (Free Discharge)
1=Culvert (Barrel Controls 0.22 cfs @ 2.23 fps)

Summary for Pond CB-107: CB

Inflow Area = 3,461 sf, 73.85% Impervious, Inflow Depth = 1.69" for 2-Year event
Inflow = 0.16 cfs @ 12.09 hrs, Volume= 488 cf
Outflow = 0.16 cfs @ 12.09 hrs, Volume= 488 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.09 hrs, Volume= 488 cf
Routed to Pond DMH-107A : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 62.01' @ 12.09 hrs
Flood Elev= 65.74'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.79'	**12.0" Round Culvert** L= 5.5' Ke= 0.500 Inlet / Outlet Invert= 61.79' / 61.74' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.16 cfs @ 12.09 hrs HW=62.01' (Free Discharge)
1=Culvert (Barrel Controls 0.16 cfs @ 1.81 fps)

Summary for Pond CB-108: CB

Inflow Area = 2,798 sf, 65.43% Impervious, Inflow Depth = 1.35" for 2-Year event
Inflow = 0.10 cfs @ 12.09 hrs, Volume= 314 cf
Outflow = 0.10 cfs @ 12.09 hrs, Volume= 314 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.09 hrs, Volume= 314 cf
Routed to Pond DMH-108 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 57.51' @ 12.09 hrs
Flood Elev= 59.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.36'	**12.0" Round Culvert** L= 6.4' Ke= 0.500 Inlet / Outlet Invert= 57.36' / 56.98' S= 0.0592 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.10 cfs @ 12.09 hrs HW=57.51' (Free Discharge)
1=Culvert (Inlet Controls 0.10 cfs @ 1.33 fps)

Summary for Pond CB-109: CB

Inflow Area = 3,259 sf, 62.16% Impervious, Inflow Depth = 1.22" for 2-Year event
Inflow = 0.10 cfs @ 12.09 hrs, Volume= 332 cf
Outflow = 0.10 cfs @ 12.09 hrs, Volume= 332 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.09 hrs, Volume= 332 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.62' @ 12.09 hrs
Flood Elev= 51.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.47'	**12.0" Round Culvert** L= 31.5' Ke= 0.500 Inlet / Outlet Invert= 47.47' / 44.90' S= 0.0815 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.10 cfs @ 12.09 hrs HW=47.62' (Free Discharge)
1=Culvert (Inlet Controls 0.10 cfs @ 1.34 fps)

Summary for Pond CB-110: CB

Inflow Area = 17,384 sf, 68.99% Impervious, Inflow Depth = 1.48" for 2-Year event
Inflow = 0.69 cfs @ 12.09 hrs, Volume= 2,143 cf
Outflow = 0.69 cfs @ 12.09 hrs, Volume= 2,143 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.69 cfs @ 12.09 hrs, Volume= 2,143 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.85' @ 12.09 hrs
Flood Elev= 49.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.41'	**12.0" Round Culvert** L= 215.7' Ke= 0.500 Inlet / Outlet Invert= 46.41' / 44.90' S= 0.0070 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.69 cfs @ 12.09 hrs HW=46.85' (Free Discharge)
1=Culvert (Barrel Controls 0.69 cfs @ 3.00 fps)

Summary for Pond CB-111: CB

Inflow Area = 11,014 sf, 81.48% Impervious, Inflow Depth = 2.00" for 2-Year event
Inflow = 0.59 cfs @ 12.09 hrs, Volume= 1,839 cf
Outflow = 0.59 cfs @ 12.09 hrs, Volume= 1,839 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.59 cfs @ 12.09 hrs, Volume= 1,839 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.70' @ 12.09 hrs
Flood Elev= 47.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.26'	**12.0" Round Culvert** L= 8.8' Ke= 0.500 Inlet / Outlet Invert= 45.26' / 45.17' S= 0.0103 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.59 cfs @ 12.09 hrs HW=45.70' (Free Discharge)
1=Culvert (Barrel Controls 0.59 cfs @ 2.60 fps)

Summary for Pond CB-112: CB

Inflow Area = 35,612 sf, 96.36% Impervious, Inflow Depth = 2.85" for 2-Year event
Inflow = 2.48 cfs @ 12.08 hrs, Volume= 8,453 cf
Outflow = 2.48 cfs @ 12.08 hrs, Volume= 8,453 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.48 cfs @ 12.08 hrs, Volume= 8,453 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.37' @ 12.08 hrs
Flood Elev= 47.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.26'	**12.0" Round Culvert** L= 14.7' Ke= 0.500 Inlet / Outlet Invert= 45.26' / 45.17' S= 0.0061 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.48 cfs @ 12.08 hrs HW=46.36' (Free Discharge)
1=Culvert (Barrel Controls 2.48 cfs @ 3.57 fps)

Summary for Pond CB-113: CB

Inflow Area = 8,340 sf, 48.71% Impervious, Inflow Depth = 0.79" for 2-Year event
Inflow = 0.15 cfs @ 12.10 hrs, Volume= 547 cf
Outflow = 0.15 cfs @ 12.10 hrs, Volume= 547 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.15 cfs @ 12.10 hrs, Volume= 547 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.60' @ 12.10 hrs
Flood Elev= 48.28'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.40'	**12.0" Round Culvert** L= 23.3' Ke= 0.500 Inlet / Outlet Invert= 45.40' / 45.17' S= 0.0099 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.15 cfs @ 12.10 hrs HW=45.60' (Free Discharge)
1=Culvert (Barrel Controls 0.15 cfs @ 2.07 fps)

Summary for Pond CB-201: cb

Inflow Area = 15,873 sf, 42.70% Impervious, Inflow Depth = 0.52" for 2-Year event
Inflow = 0.16 cfs @ 12.11 hrs, Volume= 694 cf
Outflow = 0.16 cfs @ 12.11 hrs, Volume= 694 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.11 hrs, Volume= 694 cf
Routed to Pond CB-202 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.93' @ 12.11 hrs
Flood Elev= 75.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.74'	**12.0" Round Culvert** L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 71.74' / 70.74' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.16 cfs @ 12.11 hrs HW=71.93' (Free Discharge)
1=Culvert (Barrel Controls 0.16 cfs @ 2.22 fps)

Summary for Pond CB-202: cb

[79] Warning: Submerged Pond CB-201 Primary device # 1 OUTLET by 0.17'

Inflow Area = 32,444 sf, 41.56% Impervious, Inflow Depth = 0.50" for 2-Year event
Inflow = 0.30 cfs @ 12.12 hrs, Volume= 1,364 cf
Outflow = 0.30 cfs @ 12.12 hrs, Volume= 1,364 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.12 hrs, Volume= 1,364 cf
Routed to Pond DMH-201 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.91' @ 12.12 hrs
Flood Elev= 75.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.64'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 70.64' / 70.00' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.30 cfs @ 12.12 hrs HW=70.91' (Free Discharge)
1=Culvert (Barrel Controls 0.30 cfs @ 2.62 fps)

Summary for Pond CB-203: cb

Inflow Area = 13,330 sf, 39.38% Impervious, Inflow Depth = 0.49" for 2-Year event
Inflow = 0.11 cfs @ 12.12 hrs, Volume= 539 cf
Outflow = 0.11 cfs @ 12.12 hrs, Volume= 539 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.12 hrs, Volume= 539 cf
Routed to Pond DMH-201 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.91' @ 12.12 hrs
Flood Elev= 76.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.74'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 72.74' / 72.11' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.11 cfs @ 12.12 hrs HW=72.91' (Free Discharge)
1=Culvert (Barrel Controls 0.11 cfs @ 2.01 fps)

Summary for Pond CB-204: cb

Inflow Area = 6,109 sf,100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 0.45 cfs @ 12.08 hrs, Volume= 1,561 cf
Outflow = 0.45 cfs @ 12.08 hrs, Volume= 1,561 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 12.08 hrs, Volume= 1,561 cf
Routed to Pond CB-205 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.53' @ 12.08 hrs
Flood Elev= 73.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.20'	**12.0" Round Culvert** L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 70.20' / 69.34' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.45 cfs @ 12.08 hrs HW=70.53' (Free Discharge)
1=Culvert (Inlet Controls 0.45 cfs @ 1.96 fps)

Summary for Pond CB-205: cb

[79] Warning: Submerged Pond CB-204 Primary device # 1 OUTLET by 0.42'

Inflow Area = 13,210 sf,100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 0.97 cfs @ 12.08 hrs, Volume= 3,376 cf
Outflow = 0.97 cfs @ 12.08 hrs, Volume= 3,376 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.97 cfs @ 12.08 hrs, Volume= 3,376 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.76' @ 12.08 hrs
Flood Elev= 73.11'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.24'	**12.0" Round Culvert** L= 56.0' Ke= 0.500 Inlet / Outlet Invert= 69.24' / 68.69' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.97 cfs @ 12.08 hrs HW=69.76' (Free Discharge)
1=Culvert (Barrel Controls 0.97 cfs @ 3.43 fps)

Summary for Pond CB-206: cb

Inflow Area = 6,500 sf,100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 0.48 cfs @ 12.08 hrs, Volume= 1,661 cf
Outflow = 0.48 cfs @ 12.08 hrs, Volume= 1,661 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.48 cfs @ 12.08 hrs, Volume= 1,661 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.48' @ 12.08 hrs
Flood Elev= 74.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.13'	**12.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 71.13' / 70.52' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.48 cfs @ 12.08 hrs HW=71.48' (Free Discharge)
1=Culvert (Barrel Controls 0.48 cfs @ 2.92 fps)

Summary for Pond CB-207: cb

Inflow Area = 16,473 sf, 41.23% Impervious, Inflow Depth = 0.49" for 2-Year event
Inflow = 0.14 cfs @ 12.12 hrs, Volume= 667 cf
Outflow = 0.14 cfs @ 12.12 hrs, Volume= 667 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.12 hrs, Volume= 667 cf
Routed to Pond DMH-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.92' @ 12.12 hrs
Flood Elev= 76.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.74'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 72.74' / 72.10' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.14 cfs @ 12.12 hrs HW=72.92' (Free Discharge)
1=Culvert (Barrel Controls 0.14 cfs @ 2.14 fps)

Summary for Pond CB-208: cb

[79] Warning: Submerged Pond CB-214 Primary device # 1 OUTLET by 0.14'

Inflow Area = 19,530 sf, 41.92% Impervious, Inflow Depth = 0.61" for 2-Year event
Inflow = 0.25 cfs @ 12.11 hrs, Volume= 986 cf
Outflow = 0.25 cfs @ 12.11 hrs, Volume= 986 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.25 cfs @ 12.11 hrs, Volume= 986 cf
Routed to Pond CB-209 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 73.85' @ 12.11 hrs
Flood Elev= 77.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.61'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 73.61' / 62.71' S= 0.1211 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.25 cfs @ 12.11 hrs HW=73.85' (Free Discharge)
1=Culvert (Inlet Controls 0.25 cfs @ 1.67 fps)

Summary for Pond CB-209: cb

[79] Warning: Submerged Pond CB-208 Primary device # 1 OUTLET by 10.20'

Inflow Area = 31,464 sf, 41.07% Impervious, Inflow Depth = 0.57" for 2-Year event
Inflow = 0.36 cfs @ 12.11 hrs, Volume= 1,507 cf
Outflow = 0.36 cfs @ 12.11 hrs, Volume= 1,507 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.11 hrs, Volume= 1,507 cf
Routed to Pond DMH-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.91' @ 12.11 hrs
Flood Elev= 77.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.61'	**12.0" Round Culvert** L= 58.0' Ke= 0.500 Inlet / Outlet Invert= 72.61' / 72.03' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.36 cfs @ 12.11 hrs HW=72.91' (Free Discharge)
1=Culvert (Barrel Controls 0.36 cfs @ 2.73 fps)

Summary for Pond CB-210: cb

Inflow Area = 8,060 sf,100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 0.59 cfs @ 12.08 hrs, Volume= 2,060 cf
Outflow = 0.59 cfs @ 12.08 hrs, Volume= 2,060 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.59 cfs @ 12.08 hrs, Volume= 2,060 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.42' @ 12.08 hrs
Flood Elev= 74.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.03'	**12.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 70.03' / 69.41' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.59 cfs @ 12.08 hrs HW=70.42' (Free Discharge)
1=Culvert (Barrel Controls 0.59 cfs @ 3.09 fps)

Summary for Pond CB-211: cb

Inflow Area = 10,543 sf, 72.18% Impervious, Inflow Depth = 1.62" for 2-Year event
Inflow = 0.46 cfs @ 12.09 hrs, Volume= 1,422 cf
Outflow = 0.46 cfs @ 12.09 hrs, Volume= 1,422 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.46 cfs @ 12.09 hrs, Volume= 1,422 cf
Routed to Pond CB-212 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.47' @ 12.09 hrs
Flood Elev= 75.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.13'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 72.13' / 71.23' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.46 cfs @ 12.09 hrs HW=72.47' (Free Discharge)
1=Culvert (Inlet Controls 0.46 cfs @ 1.97 fps)

Summary for Pond CB-212: cb

[79] Warning: Submerged Pond CB-211 Primary device # 1 OUTLET by 0.39'

Inflow Area = 16,393 sf, 82.11% Impervious, Inflow Depth = 2.14" for 2-Year event
Inflow = 0.89 cfs @ 12.09 hrs, Volume= 2,918 cf
Outflow = 0.89 cfs @ 12.09 hrs, Volume= 2,918 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.89 cfs @ 12.09 hrs, Volume= 2,918 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.62' @ 12.09 hrs
Flood Elev= 75.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.13'	**12.0" Round Culvert** L= 57.0' Ke= 0.500 Inlet / Outlet Invert= 71.13' / 70.56' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.89 cfs @ 12.09 hrs HW=71.62' (Free Discharge)
1=Culvert (Barrel Controls 0.89 cfs @ 3.38 fps)

Summary for Pond CB-213: cb

Inflow Area = 3,633 sf, 40.06% Impervious, Inflow Depth = 0.56" for 2-Year event
Inflow = 0.04 cfs @ 12.11 hrs, Volume= 171 cf
Outflow = 0.04 cfs @ 12.11 hrs, Volume= 171 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.11 hrs, Volume= 171 cf
Routed to Pond CB-214 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 75.80' @ 12.11 hrs
Flood Elev= 79.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.70'	**12.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 75.70' / 74.60' S= 0.0440 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.04 cfs @ 12.11 hrs HW=75.80' (Free Discharge)
1=Culvert (Inlet Controls 0.04 cfs @ 1.05 fps)

Summary for Pond CB-214: cb

[79] Warning: Submerged Pond CB-213 Primary device # 1 OUTLET by 0.04'

Inflow Area = 6,778 sf, 42.27% Impervious, Inflow Depth = 0.60" for 2-Year event
Inflow = 0.08 cfs @ 12.11 hrs, Volume= 341 cf
Outflow = 0.08 cfs @ 12.11 hrs, Volume= 341 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.08 cfs @ 12.11 hrs, Volume= 341 cf
Routed to Pond CB-208 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 74.64' @ 12.11 hrs
Flood Elev= 78.07'

Device	Routing	Invert	Outlet Devices
#1	Primary	74.50'	**12.0" Round Culvert** L= 55.0' Ke= 0.500 Inlet / Outlet Invert= 74.50' / 73.71' S= 0.0144 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.08 cfs @ 12.11 hrs HW=74.64' (Free Discharge)
1=Culvert (Inlet Controls 0.08 cfs @ 1.27 fps)

Summary for Pond CB-215: cb

Inflow Area = 8,130 sf, 69.66% Impervious, Inflow Depth = 1.48" for 2-Year event
Inflow = 0.32 cfs @ 12.09 hrs, Volume= 1,002 cf
Outflow = 0.32 cfs @ 12.09 hrs, Volume= 1,002 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.32 cfs @ 12.09 hrs, Volume= 1,002 cf
Routed to Pond DMH-207 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.28' @ 12.09 hrs
Flood Elev= 73.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.00'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 70.00' / 69.10' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.32 cfs @ 12.09 hrs HW=70.28' (Free Discharge)
1=Culvert (Barrel Controls 0.32 cfs @ 2.69 fps)

Summary for Pond CB-307: CB

Inflow Area = 69,993 sf, 37.98% Impervious, Inflow Depth = 0.38" for 2-Year event
Inflow = 0.36 cfs @ 12.14 hrs, Volume= 2,199 cf
Outflow = 0.36 cfs @ 12.14 hrs, Volume= 2,199 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.14 hrs, Volume= 2,199 cf
Routed to Pond DMH-306 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.00' @ 12.14 hrs
Flood Elev= 50.19'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.64'	**15.0" Round Culvert** L= 92.4' Ke= 0.500 Inlet / Outlet Invert= 48.64' / 48.37' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.36 cfs @ 12.14 hrs HW=49.00' (Free Discharge)
1=Culvert (Barrel Controls 0.36 cfs @ 1.85 fps)

Summary for Pond CB-309: CB

Inflow Area = 3,243 sf, 68.42% Impervious, Inflow Depth = 1.41" for 2-Year event
Inflow = 0.12 cfs @ 12.09 hrs, Volume= 382 cf
Outflow = 0.12 cfs @ 12.09 hrs, Volume= 382 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 12.09 hrs, Volume= 382 cf
Routed to Pond DMH-307 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 53.06' @ 12.09 hrs
Flood Elev= 56.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.89'	**12.0" Round Culvert** L= 34.1' Ke= 0.500 Inlet / Outlet Invert= 52.89' / 51.64' S= 0.0367 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.12 cfs @ 12.09 hrs HW=53.06' (Free Discharge)
1=Culvert (Inlet Controls 0.12 cfs @ 1.40 fps)

Summary for Pond CB-310: CB

Inflow Area = 34,760 sf, 6.31% Impervious, Inflow Depth = 0.20" for 2-Year event
Inflow = 0.16 cfs @ 12.08 hrs, Volume= 566 cf
Outflow = 0.16 cfs @ 12.08 hrs, Volume= 566 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.08 hrs, Volume= 566 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 51.62' @ 12.08 hrs
Flood Elev= 53.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.43'	**12.0" Round Culvert** L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 51.43' / 51.16' S= 0.0180 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.16 cfs @ 12.08 hrs HW=51.62' (Free Discharge)
1=Culvert (Inlet Controls 0.16 cfs @ 1.50 fps)

Summary for Pond CB-311: CB

Inflow Area = 20,260 sf, 67.28% Impervious, Inflow Depth = 1.41" for 2-Year event
Inflow = 0.76 cfs @ 12.09 hrs, Volume= 2,384 cf
Outflow = 0.76 cfs @ 12.09 hrs, Volume= 2,384 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.76 cfs @ 12.09 hrs, Volume= 2,384 cf
Routed to Pond WQ-301 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.43' @ 12.09 hrs
Flood Elev= 47.83'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.90'	**12.0" Round Culvert** L= 21.8' Ke= 0.500 Inlet / Outlet Invert= 45.90' / 45.79' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.76 cfs @ 12.09 hrs HW=46.43' (Free Discharge)
1=Culvert (Barrel Controls 0.76 cfs @ 2.59 fps)

Summary for Pond DMH-001: dmh

[79] Warning: Submerged Pond CB-001 Primary device # 1 OUTLET by 0.04'

Inflow Area = 21,598 sf, 50.19% Impervious, Inflow Depth = 0.74" for 2-Year event
Inflow = 0.37 cfs @ 12.10 hrs, Volume= 1,332 cf
Outflow = 0.37 cfs @ 12.10 hrs, Volume= 1,332 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.37 cfs @ 12.10 hrs, Volume= 1,332 cf
Routed to Pond DMH-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.35' @ 12.10 hrs
Flood Elev= 71.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.05'	**12.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 68.05' / 67.46' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.36 cfs @ 12.10 hrs HW=68.35' (Free Discharge)
1=Culvert (Barrel Controls 0.36 cfs @ 2.73 fps)

Summary for Pond DMH-002: dmh

Inflow Area = 38,859 sf, 47.20% Impervious, Inflow Depth = 0.63" for 2-Year event
Inflow = 0.51 cfs @ 12.11 hrs, Volume= 2,031 cf
Outflow = 0.51 cfs @ 12.11 hrs, Volume= 2,031 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.51 cfs @ 12.11 hrs, Volume= 2,031 cf
Routed to Pond WQ-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.33' @ 12.11 hrs
Flood Elev= 70.94'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.97'	**12.0" Round Culvert** L= 61.0' Ke= 0.500 Inlet / Outlet Invert= 66.97' / 66.37' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.51 cfs @ 12.11 hrs HW=67.33' (Free Discharge)
1=Culvert (Barrel Controls 0.51 cfs @ 2.97 fps)

Summary for Pond DMH-005: dmh

[79] Warning: Submerged Pond CB-005 Primary device # 1 OUTLET by 0.10'

Inflow Area = 10,274 sf, 46.43% Impervious, Inflow Depth = 0.72" for 2-Year event
Inflow = 0.17 cfs @ 12.10 hrs, Volume= 616 cf
Outflow = 0.17 cfs @ 12.10 hrs, Volume= 616 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.17 cfs @ 12.10 hrs, Volume= 616 cf
Routed to Pond WQ-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.53' @ 12.10 hrs
Flood Elev= 71.77'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.33'	**12.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 67.33' / 67.02' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.16 cfs @ 12.10 hrs HW=67.53' (Free Discharge)
1=Culvert (Barrel Controls 0.16 cfs @ 2.15 fps)

Summary for Pond DMH-006: DMH

[58] Hint: Peaked 0.15' above defined flood level
[81] Warning: Exceeded Pond WQ-301 by 1.76' @ 12.16 hrs

Inflow Area = 406,222 sf, 60.26% Impervious, Inflow Depth = 0.79" for 2-Year event
Inflow = 7.33 cfs @ 12.09 hrs, Volume= 26,745 cf
Outflow = 6.79 cfs @ 12.12 hrs, Volume= 26,745 cf, Atten= 7%, Lag= 1.9 min
Primary = 6.79 cfs @ 12.12 hrs, Volume= 26,745 cf
Routed to Link L-1 : Link 1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link L-1 : Link 1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 50.08' @ 12.12 hrs Surf.Area= 1,306 sf Storage= 134 cf
Flood Elev= 49.93' Surf.Area= 13 sf Storage= 45 cf

Plug-Flow detention time= 0.2 min calculated for 26,737 cf (100% of inflow)
Center-of-Mass det. time= 0.2 min (783.5 - 783.3)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	4,416 cf	**Flood storage in parking area (Irregular)** Listed below (Recalc)
#2	46.35'	50 cf	**4.00'D x 4.00'H Precast structure**
		4,467 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
50.00	950	168.4	0	0	950
51.00	9,323	601.9	4,416	4,416	27,526

Device	Routing	Invert	Outlet Devices
#0	Secondary	51.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	46.35'	**12.0" Round Culvert** L= 25.4' Ke= 0.500 Inlet / Outlet Invert= 46.35' / 46.11' S= 0.0094 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.79 cfs @ 12.12 hrs HW=50.08' (Free Discharge)
1=Culvert (Inlet Controls 6.79 cfs @ 8.65 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=46.35' (Free Discharge)

Summary for Pond DMH-101: dmh

[79] Warning: Submerged Pond CB-101 Primary device # 1 OUTLET by 0.29'

Inflow Area = 7,622 sf, 97.70% Impervious, Inflow Depth = 2.91" for 2-Year event
Inflow = 0.55 cfs @ 12.08 hrs, Volume= 1,847 cf
Outflow = 0.55 cfs @ 12.08 hrs, Volume= 1,847 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.55 cfs @ 12.08 hrs, Volume= 1,847 cf
Routed to Pond DMH-102 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.47' @ 12.08 hrs
Flood Elev= 71.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.09'	**12.0" Round Culvert** L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 65.09' / 64.57' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.54 cfs @ 12.08 hrs HW=65.47' (Free Discharge)
1=Culvert (Barrel Controls 0.54 cfs @ 3.00 fps)

Summary for Pond DMH-102: dmh

[79] Warning: Submerged Pond CB-103 Primary device # 1 INLET by 0.05'
[79] Warning: Submerged Pond DMH-101 Primary device # 1 OUTLET by 0.42'

Inflow Area = 15,298 sf, 92.06% Impervious, Inflow Depth = 2.58" for 2-Year event
Inflow = 1.01 cfs @ 12.09 hrs, Volume= 3,294 cf
Outflow = 1.01 cfs @ 12.09 hrs, Volume= 3,294 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.01 cfs @ 12.09 hrs, Volume= 3,294 cf
Routed to Pond DMH-103 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 64.99' @ 12.09 hrs
Flood Elev= 70.48'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.47'	**12.0" Round Culvert** L= 65.0' Ke= 0.500 Inlet / Outlet Invert= 64.47' / 63.82' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.00 cfs @ 12.09 hrs HW=64.99' (Free Discharge)
1=Culvert (Barrel Controls 1.00 cfs @ 3.52 fps)

Summary for Pond DMH-103: dmh

[79] Warning: Submerged Pond DMH-102 Primary device # 1 OUTLET by 0.41'

Inflow Area = 83,660 sf, 63.35% Impervious, Inflow Depth = 0.47" for 2-Year event
Inflow = 1.01 cfs @ 12.09 hrs, Volume= 3,294 cf
Outflow = 1.01 cfs @ 12.09 hrs, Volume= 3,294 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.01 cfs @ 12.09 hrs, Volume= 3,294 cf
Routed to Pond DMH-104 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 64.23' @ 12.09 hrs
Flood Elev= 71.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.71'	**12.0" Round Culvert** L= 81.0' Ke= 0.500 Inlet / Outlet Invert= 63.71' / 62.90' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.01 cfs @ 12.09 hrs HW=64.23' (Free Discharge)
1=Culvert (Inlet Controls 1.01 cfs @ 2.45 fps)

Summary for Pond DMH-104: dmh

[79] Warning: Submerged Pond DMH-103 Primary device # 1 OUTLET by 0.46'

Inflow Area = 89,855 sf, 64.87% Impervious, Inflow Depth = 0.59" for 2-Year event
Inflow = 1.37 cfs @ 12.09 hrs, Volume= 4,416 cf
Outflow = 1.37 cfs @ 12.09 hrs, Volume= 4,416 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.37 cfs @ 12.09 hrs, Volume= 4,416 cf
Routed to Pond DMH-106 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 63.36' @ 12.09 hrs
Flood Elev= 70.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.80'	**15.0" Round Culvert** L= 154.0' Ke= 0.500 Inlet / Outlet Invert= 62.80' / 61.26' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.36 cfs @ 12.09 hrs HW=63.36' (Free Discharge)
1=Culvert (Inlet Controls 1.36 cfs @ 2.55 fps)

Summary for Pond DMH-105: dmh

[79] Warning: Submerged Pond CB-105 Primary device # 1 OUTLET by 0.13'

Inflow Area = 5,616 sf, 69.72% Impervious, Inflow Depth = 1.48" for 2-Year event
Inflow = 0.22 cfs @ 12.09 hrs, Volume= 692 cf
Outflow = 0.22 cfs @ 12.09 hrs, Volume= 692 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 12.09 hrs, Volume= 692 cf
Routed to Pond DMH-106 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.85' @ 12.09 hrs
Flood Elev= 71.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.62'	**12.0" Round Culvert** L= 72.0' Ke= 0.500 Inlet / Outlet Invert= 67.62' / 65.98' S= 0.0228 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 12.09 hrs HW=67.85' (Free Discharge)
1=Culvert (Inlet Controls 0.22 cfs @ 1.63 fps)

Summary for Pond DMH-106: dmh

[79] Warning: Submerged Pond DMH-104 Primary device # 1 OUTLET by 0.58'

Inflow Area = 104,686 sf, 65.09% Impervious, Inflow Depth = 0.70" for 2-Year event
Inflow = 1.90 cfs @ 12.09 hrs, Volume= 6,094 cf
Outflow = 1.90 cfs @ 12.09 hrs, Volume= 6,094 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.90 cfs @ 12.09 hrs, Volume= 6,094 cf
Routed to Pond DMH-107 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 61.84' @ 12.09 hrs
Flood Elev= 69.28'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.16'	**15.0" Round Culvert** L= 110.0' Ke= 0.500 Inlet / Outlet Invert= 61.16' / 57.86' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.89 cfs @ 12.09 hrs HW=61.84' (Free Discharge)
1=Culvert (Inlet Controls 1.89 cfs @ 2.80 fps)

Summary for Pond DMH-107: DMH

[79] Warning: Submerged Pond DMH-106 Primary device # 1 OUTLET by 0.84'
[79] Warning: Submerged Pond DMH-107A Primary device # 1 OUTLET by 0.85'

Inflow Area = 125,491 sf, 70.16% Impervious, Inflow Depth = 1.05" for 2-Year event
Inflow = 3.33 cfs @ 12.09 hrs, Volume= 11,015 cf
Outflow = 3.33 cfs @ 12.09 hrs, Volume= 11,015 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.33 cfs @ 12.09 hrs, Volume= 11,015 cf
Routed to Pond DMH-108 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 58.70' @ 12.09 hrs
Flood Elev= 64.16'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.75'	**15.0" Round Culvert** L= 61.5' Ke= 0.500 Inlet / Outlet Invert= 57.75' / 56.52' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.33 cfs @ 12.09 hrs HW=58.70' (Free Discharge)
1=Culvert (Inlet Controls 3.33 cfs @ 3.32 fps)

Summary for Pond DMH-107A: DMH

Inflow Area = 20,805 sf, 95.65% Impervious, Inflow Depth = 2.84" for 2-Year event
Inflow = 1.43 cfs @ 12.08 hrs, Volume= 4,921 cf
Outflow = 1.43 cfs @ 12.08 hrs, Volume= 4,921 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.43 cfs @ 12.08 hrs, Volume= 4,921 cf
Routed to Pond DMH-107 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 60.53' @ 12.08 hrs
Flood Elev= 67.88'

Device	Routing	Invert	Outlet Devices
#1	Primary	59.89'	**12.0" Round Culvert** L= 49.1' Ke= 0.500 Inlet / Outlet Invert= 59.89' / 57.85' S= 0.0415 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.43 cfs @ 12.08 hrs HW=60.53' (Free Discharge)
1=Culvert (Inlet Controls 1.43 cfs @ 2.72 fps)

Summary for Pond DMH-108: DMH

Inflow Area = 128,289 sf, 70.05% Impervious, Inflow Depth = 1.06" for 2-Year event
Inflow = 3.43 cfs @ 12.09 hrs, Volume= 11,329 cf
Outflow = 3.43 cfs @ 12.09 hrs, Volume= 11,329 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.43 cfs @ 12.09 hrs, Volume= 11,329 cf
Routed to Pond DMH-109 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 55.17' @ 12.09 hrs
Flood Elev= 61.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.20'	**15.0" Round Culvert** L= 66.3' Ke= 0.500 Inlet / Outlet Invert= 54.20' / 50.89' S= 0.0499 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.43 cfs @ 12.09 hrs HW=55.17' (Free Discharge)
1=Culvert (Inlet Controls 3.43 cfs @ 3.35 fps)

Summary for Pond DMH-109: DMH

Inflow Area = 128,289 sf, 70.05% Impervious, Inflow Depth = 1.06" for 2-Year event
Inflow = 3.43 cfs @ 12.09 hrs, Volume= 11,329 cf
Outflow = 3.43 cfs @ 12.09 hrs, Volume= 11,329 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.43 cfs @ 12.09 hrs, Volume= 11,329 cf
Routed to Pond WQ-101 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.71' @ 12.09 hrs
Flood Elev= 55.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.83'	**18.0" Round Culvert** L= 74.8' Ke= 0.500 Inlet / Outlet Invert= 48.83' / 44.34' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.42 cfs @ 12.09 hrs HW=49.71' (Free Discharge)
1=Culvert (Inlet Controls 3.42 cfs @ 3.19 fps)

Summary for Pond DMH-111: DMH

[79] Warning: Submerged Pond AD-3 Primary device # 1 OUTLET by 0.21'
[79] Warning: Submerged Pond CB-109 Primary device # 1 OUTLET by 0.44'
[79] Warning: Submerged Pond CB-110 Primary device # 1 OUTLET by 0.44'

Inflow Area = 30,327 sf, 47.03% Impervious, Inflow Depth = 0.98" for 2-Year event
Inflow = 0.79 cfs @ 12.09 hrs, Volume= 2,480 cf
Outflow = 0.79 cfs @ 12.09 hrs, Volume= 2,480 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.79 cfs @ 12.09 hrs, Volume= 2,480 cf
Routed to Pond DMH-113 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.34' @ 12.09 hrs
Flood Elev= 49.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.80'	**12.0" Round Culvert** L= 29.3' Ke= 0.500 Inlet / Outlet Invert= 44.80' / 44.65' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.79 cfs @ 12.09 hrs HW=45.34' (Free Discharge)
1=Culvert (Barrel Controls 0.79 cfs @ 2.65 fps)

Summary for Pond DMH-112: DMH

[81] Warning: Exceeded Pond CB-111 by 0.26' @ 12.08 hrs
[79] Warning: Submerged Pond CB-112 Primary device # 1 INLET by 0.71'
[81] Warning: Exceeded Pond CB-113 by 0.37' @ 12.08 hrs

Inflow Area = 54,967 sf, 86.15% Impervious, Inflow Depth = 2.37" for 2-Year event
Inflow = 3.23 cfs @ 12.09 hrs, Volume= 10,839 cf
Outflow = 3.23 cfs @ 12.09 hrs, Volume= 10,839 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.23 cfs @ 12.09 hrs, Volume= 10,839 cf
Routed to Pond DMH-113 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.97' @ 12.09 hrs
Flood Elev= 48.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.07'	**18.0" Round Culvert** L= 41.9' Ke= 0.500 Inlet / Outlet Invert= 45.07' / 44.65' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.22 cfs @ 12.09 hrs HW=45.97' (Free Discharge)
1=Culvert (Barrel Controls 3.22 cfs @ 4.20 fps)

Summary for Pond DMH-113: DMH

[79] Warning: Submerged Pond DMH-111 Primary device # 1 INLET by 0.36'
[79] Warning: Submerged Pond DMH-112 Primary device # 1 INLET by 0.09'

Inflow Area = 85,294 sf, 72.24% Impervious, Inflow Depth = 1.87" for 2-Year event
Inflow = 4.02 cfs @ 12.09 hrs, Volume= 13,319 cf
Outflow = 4.02 cfs @ 12.09 hrs, Volume= 13,319 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.02 cfs @ 12.09 hrs, Volume= 13,319 cf
Routed to Pond WQ-101 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.16' @ 12.09 hrs
Flood Elev= 49.39'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.15'	**24.0" Round Culvert** L= 42.2' Ke= 0.500 Inlet / Outlet Invert= 44.15' / 43.94' S= 0.0050 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.01 cfs @ 12.09 hrs HW=45.16' (Free Discharge)
1=Culvert (Barrel Controls 4.01 cfs @ 3.69 fps)

Summary for Pond DMH-201: dmh

[79] Warning: Submerged Pond CB-202 Primary device # 1 OUTLET by 0.05'

Inflow Area = 45,774 sf, 40.92% Impervious, Inflow Depth = 0.50" for 2-Year event
Inflow = 0.41 cfs @ 12.12 hrs, Volume= 1,904 cf
Outflow = 0.41 cfs @ 12.12 hrs, Volume= 1,904 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.41 cfs @ 12.12 hrs, Volume= 1,904 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.05' @ 12.12 hrs
Flood Elev= 76.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.75'	**15.0" Round Culvert** L= 71.0' Ke= 0.500 Inlet / Outlet Invert= 69.75' / 69.04' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.41 cfs @ 12.12 hrs HW=70.05' (Free Discharge)
1=Culvert (Barrel Controls 0.41 cfs @ 2.78 fps)

Summary for Pond DMH-202: dmh

[79] Warning: Submerged Pond CB-207 Primary device # 1 OUTLET by 0.01'
[79] Warning: Submerged Pond CB-209 Primary device # 1 OUTLET by 0.08'

Inflow Area = 47,937 sf, 41.13% Impervious, Inflow Depth = 0.54" for 2-Year event
Inflow = 0.51 cfs @ 12.11 hrs, Volume= 2,174 cf
Outflow = 0.51 cfs @ 12.11 hrs, Volume= 2,174 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.51 cfs @ 12.11 hrs, Volume= 2,174 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.11' @ 12.11 hrs
Flood Elev= 77.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.78'	**15.0" Round Culvert** L= 71.0' Ke= 0.500 Inlet / Outlet Invert= 71.78' / 71.07' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.50 cfs @ 12.11 hrs HW=72.11' (Free Discharge)
1=Culvert (Barrel Controls 0.50 cfs @ 2.93 fps)

Summary for Pond DMH-204: dmh

[79] Warning: Submerged Pond DMH-206 Primary device # 1 OUTLET by 0.17'

Inflow Area = 84,570 sf, 60.24% Impervious, Inflow Depth = 1.30" for 2-Year event
Inflow = 2.58 cfs @ 12.09 hrs, Volume= 9,189 cf
Outflow = 2.58 cfs @ 12.09 hrs, Volume= 9,189 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.58 cfs @ 12.09 hrs, Volume= 9,189 cf
Routed to Pond WQ-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.09' @ 12.09 hrs
Flood Elev= 73.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.42'	**24.0" Round Culvert** L= 62.0' Ke= 0.500

Inlet / Outlet Invert= 67.42' / 66.19' S= 0.0198 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.57 cfs @ 12.09 hrs HW=68.09' (Free Discharge)
1=Culvert (Inlet Controls 2.57 cfs @ 2.79 fps)

Summary for Pond DMH-206: dmh

[79] Warning: Submerged Pond CB-210 Primary device # 1 OUTLET by 0.14'

Inflow Area = 72,390 sf, 56.96% Impervious, Inflow Depth = 1.19" for 2-Year event
Inflow = 1.96 cfs @ 12.09 hrs, Volume= 7,151 cf
Outflow = 1.96 cfs @ 12.09 hrs, Volume= 7,151 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.96 cfs @ 12.09 hrs, Volume= 7,151 cf
Routed to Pond DMH-204 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.55' @ 12.09 hrs
Flood Elev= 75.47'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.91'	**18.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 68.91' / 67.92' S= 0.0168 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.96 cfs @ 12.09 hrs HW=69.55' (Free Discharge)
1=Culvert (Inlet Controls 1.96 cfs @ 2.72 fps)

Summary for Pond DMH-207: cb

[79] Warning: Submerged Pond CB-215 Primary device # 1 OUTLET by 0.30'

Inflow Area = 12,180 sf, 79.75% Impervious, Inflow Depth = 2.01" for 2-Year event
Inflow = 0.62 cfs @ 12.09 hrs, Volume= 2,037 cf
Outflow = 0.62 cfs @ 12.09 hrs, Volume= 2,037 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.62 cfs @ 12.09 hrs, Volume= 2,037 cf
Routed to Pond dmh-204 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.40' @ 12.09 hrs
Flood Elev= 73.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.00'	**12.0" Round Culvert** L= 57.0' Ke= 0.500 Inlet / Outlet Invert= 69.00' / 68.42' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.62 cfs @ 12.09 hrs HW=69.40' (Free Discharge)
1=Culvert (Barrel Controls 0.62 cfs @ 3.13 fps)

Summary for Pond DMH-301: dmh

Inflow Area = 4,688 sf, 99.90% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 0.35 cfs @ 12.08 hrs, Volume= 1,198 cf
Outflow = 0.35 cfs @ 12.08 hrs, Volume= 1,198 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.08 hrs, Volume= 1,198 cf
Routed to Pond DMH-302 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.49' @ 12.08 hrs
Flood Elev= 73.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.20'	**12.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 70.20' / 68.98' S= 0.0207 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.08 hrs HW=70.49' (Free Discharge)
1=Culvert (Inlet Controls 0.34 cfs @ 1.83 fps)

Summary for Pond DMH-302: dmh

[79] Warning: Submerged Pond DMH-301 Primary device # 1 OUTLET by 0.22'

Inflow Area = 17,161 sf, 51.76% Impervious, Inflow Depth = 1.14" for 2-Year event
Inflow = 0.41 cfs @ 12.09 hrs, Volume= 1,626 cf
Outflow = 0.41 cfs @ 12.09 hrs, Volume= 1,626 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.41 cfs @ 12.09 hrs, Volume= 1,626 cf
Routed to Pond DMH-303 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.20' @ 12.09 hrs
Flood Elev= 72.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.88'	**12.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 68.88' / 66.92' S= 0.0784 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.41 cfs @ 12.09 hrs HW=69.20' (Free Discharge)
1=Culvert (Inlet Controls 0.41 cfs @ 1.92 fps)

Summary for Pond DMH-303: dmh

Inflow Area = 26,775 sf, 42.05% Impervious, Inflow Depth = 0.83" for 2-Year event
Inflow = 0.44 cfs @ 12.09 hrs, Volume= 1,843 cf
Outflow = 0.44 cfs @ 12.09 hrs, Volume= 1,843 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.44 cfs @ 12.09 hrs, Volume= 1,843 cf
Routed to Pond DMH-304 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.93' @ 12.09 hrs
Flood Elev= 70.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.60'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 65.60' / 62.58' S= 0.0795 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.44 cfs @ 12.09 hrs HW=65.93' (Free Discharge)
1=Culvert (Inlet Controls 0.44 cfs @ 1.95 fps)

Summary for Pond DMH-304: dmh

Inflow Area = 202,176 sf, 61.53% Impervious, Inflow Depth = 0.11" for 2-Year event
Inflow = 0.44 cfs @ 12.09 hrs, Volume= 1,843 cf
Outflow = 0.44 cfs @ 12.09 hrs, Volume= 1,843 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.44 cfs @ 12.09 hrs, Volume= 1,843 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 59.11' @ 12.09 hrs
Flood Elev= 65.88'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.84'	**24.0" Round Culvert** L= 131.0' Ke= 0.500 Inlet / Outlet Invert= 58.84' / 48.34' S= 0.0802 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=0.43 cfs @ 12.09 hrs HW=59.11' (Free Discharge)
1=Culvert (Inlet Controls 0.43 cfs @ 1.75 fps)

Summary for Pond DMH-306: DMH

[79] Warning: Submerged Pond CB-307 Primary device # 1 OUTLET by 0.24'

Inflow Area = 69,993 sf, 37.98% Impervious, Inflow Depth = 0.38" for 2-Year event
Inflow = 0.36 cfs @ 12.14 hrs, Volume= 2,199 cf
Outflow = 0.36 cfs @ 12.14 hrs, Volume= 2,199 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.14 hrs, Volume= 2,199 cf
Routed to Pond DMH-307 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 48.61' @ 12.14 hrs
Flood Elev= 50.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.27'	**18.0" Round Culvert** L= 165.0' Ke= 0.500 Inlet / Outlet Invert= 48.27' / 47.79' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.36 cfs @ 12.14 hrs HW=48.61' (Free Discharge)
1=Culvert (Barrel Controls 0.36 cfs @ 1.80 fps)

Summary for Pond DMH-307: DMH

[79] Warning: Submerged Pond DMH-306 Primary device # 1 OUTLET by 0.28'

Inflow Area = 73,236 sf, 39.33% Impervious, Inflow Depth = 0.42" for 2-Year event
Inflow = 0.47 cfs @ 12.13 hrs, Volume= 2,581 cf
Outflow = 0.47 cfs @ 12.13 hrs, Volume= 2,581 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.13 hrs, Volume= 2,581 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 48.07' @ 12.13 hrs
Flood Elev= 53.58'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.69'	**18.0" Round Culvert** L= 17.3' Ke= 0.500 Inlet / Outlet Invert= 47.69' / 47.64' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.46 cfs @ 12.13 hrs HW=48.07' (Free Discharge)
1=Culvert (Barrel Controls 0.46 cfs @ 1.98 fps)

Summary for Pond DMH-308: DMH

[79] Warning: Submerged Pond DMH-304 Primary device # 1 OUTLET by 0.60'
[81] Warning: Exceeded Pond DMH-307 by 0.91' @ 12.07 hrs

Inflow Area = 385,962 sf, 59.90% Impervious, Inflow Depth = 0.76" for 2-Year event
Inflow = 6.57 cfs @ 12.09 hrs, Volume= 24,361 cf
Outflow = 6.57 cfs @ 12.09 hrs, Volume= 24,361 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.57 cfs @ 12.09 hrs, Volume= 24,361 cf
Routed to Pond WQ-301 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 48.95' @ 12.09 hrs
Flood Elev= 53.09'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.54'	**24.0" Round Culvert** L= 163.2' Ke= 0.500 Inlet / Outlet Invert= 47.54' / 47.07' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=6.56 cfs @ 12.09 hrs HW=48.94' (Free Discharge)
1=Culvert (Barrel Controls 6.56 cfs @ 3.92 fps)

Summary for Pond E-DMH 1: E-DMH

[81] Warning: Exceeded Pond WQ-101 by 0.94' @ 12.09 hrs

Inflow Area = 213,583 sf, 70.93% Impervious, Inflow Depth = 1.38" for 2-Year event
Inflow = 7.45 cfs @ 12.09 hrs, Volume= 24,648 cf
Outflow = 7.45 cfs @ 12.09 hrs, Volume= 24,648 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.45 cfs @ 12.09 hrs, Volume= 24,648 cf
Routed to Link L-2 : Link 1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.34' @ 12.09 hrs
Flood Elev= 49.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.80'	**12.0" Round Culvert X 2.00** L= 16.3' Ke= 0.500 Inlet / Outlet Invert= 44.80' / 44.64' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=7.44 cfs @ 12.09 hrs HW=46.34' (Free Discharge)
1=Culvert (Barrel Controls 7.44 cfs @ 4.73 fps)

Summary for Pond IS-1: infiltration

Notes:
An infiltration rate of 8.27 was used for sand (Rawl's) because the systems will have ASTM C-33 sand, or equivalent, below the systems.

GW elevation based on TP 1 (no GW encountered) and SB-1 (GW encountered at 14 feet below grade)

Inflow Area = 68,362 sf, 56.93% Impervious, Inflow Depth = 1.07" for 2-Year event
Inflow = 1.69 cfs @ 12.09 hrs, Volume= 6,099 cf
Outflow = 0.65 cfs @ 12.40 hrs, Volume= 6,099 cf, Atten= 61%, Lag= 18.6 min
Discarded = 0.65 cfs @ 12.40 hrs, Volume= 6,099 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond DMH-103 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.11' @ 12.40 hrs Surf.Area= 3,136 sf Storage= 770 cf
Flood Elev= 70.00' Surf.Area= 3,136 sf Storage= 10,617 cf

Plug-Flow detention time= 6.2 min calculated for 6,099 cf (100% of inflow)
Center-of-Mass det. time= 6.2 min (837.4 - 831.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	64.50'	4,421 cf	**37.08'W x 84.57'L x 5.50'H Field A** 17,249 cf Overall - 6,196 cf Embedded = 11,052 cf x 40.0% Voids
#2A	65.25'	6,196 cf	**ADS_StormTech MC-3500 d +Cap** x 55 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 55 Chambers in 5 Rows Cap Storage= 14.9 cf x 2 x 5 rows = 149.0 cf
		10,617 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	64.50'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 57.50' Phase-In= 0.01'
#2	Primary	67.35'	**12.0" Round Culvert** L= 27.0' Ke= 0.500 Inlet / Outlet Invert= 67.35' / 67.08' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 2	69.00'	**4.0' long x 0.5' breadth Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.65 cfs @ 12.40 hrs HW=65.11' (Free Discharge)
1=Exfiltration (Controls 0.65 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=64.50' (Free Discharge)
2=Culvert (Controls 0.00 cfs)
3=Weir (Controls 0.00 cfs)

Summary for Pond IS-2: infiltration

Notes:
An infiltration rate of 1.02 inches per hour was used for sandy loam (Rawl's) at TP 4

GW from TP 4 (GW not encountered to a depth of 8 feet below grade)

[81] Warning: Exceeded Pond WQ-201 by 0.12' @ 16.52 hrs
[81] Warning: Exceeded Pond WQ-202 by 2.20' @ 16.60 hrs

Inflow Area = 175,401 sf, 64.50% Impervious, Inflow Depth = 1.49" for 2-Year event
Inflow = 6.12 cfs @ 12.09 hrs, Volume= 21,838 cf
Outflow = 0.22 cfs @ 16.17 hrs, Volume= 15,842 cf, Atten= 96%, Lag= 245.0 min
Discarded = 0.22 cfs @ 16.17 hrs, Volume= 15,842 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond DMH-304 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.43' @ 16.17 hrs Surf.Area= 5,452 sf Storage= 12,472 cf
Flood Elev= 70.50' Surf.Area= 5,452 sf Storage= 17,818 cf

Plug-Flow detention time= 425.5 min calculated for 15,836 cf (73% of inflow)
Center-of-Mass det. time= 326.7 min (1,124.2 - 797.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	65.25'	7,203 cf	**15.58'W x 349.86'L x 5.25'H Field A** 28,623 cf Overall - 10,615 cf Embedded = 18,008 cf x 40.0% Voids
#2A	65.75'	10,615 cf	**ADS_StormTech MC-3500 d +Cap** x 96 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 96 Chambers in 2 Rows Cap Storage= 14.9 cf x 2 x 2 rows = 59.6 cf
		17,818 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	65.25'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 60.75' Phase-In= 0.01'
#2	Primary	65.64'	**24.0" Round Culvert** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 65.64' / 60.30' S= 0.0797 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	69.00'	**4.0' long x 0.5' breadth Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.22 cfs @ 16.17 hrs HW=68.43' (Free Discharge)
1=Exfiltration (Controls 0.22 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.25' (Free Discharge)
2=Culvert (Controls 0.00 cfs)
3=Weir (Controls 0.00 cfs)

Summary for Pond WQ-002: dmh

[79] Warning: Submerged Pond DMH-002 Primary device # 1 OUTLET by 0.01'

Inflow Area = 57,945 sf, 49.40% Impervious, Inflow Depth = 0.72" for 2-Year event
Inflow = 0.94 cfs @ 12.10 hrs, Volume= 3,500 cf
Outflow = 0.94 cfs @ 12.10 hrs, Volume= 3,500 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.94 cfs @ 12.10 hrs, Volume= 3,500 cf
Routed to Pond IS-1 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.38' @ 12.10 hrs
Flood Elev= 70.94'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.87'	**18.0" Round Culvert** L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 65.87' / 65.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.94 cfs @ 12.10 hrs HW=66.38' (Free Discharge)
1=Culvert (Barrel Controls 0.94 cfs @ 2.68 fps)

Summary for Pond WQ-101: TREATMENT

[79] Warning: Submerged Pond DMH-109 Primary device # 1 OUTLET by 1.06'
[81] Warning: Exceeded Pond DMH-113 by 0.24' @ 12.09 hrs

Inflow Area = 213,583 sf, 70.93% Impervious, Inflow Depth = 1.38" for 2-Year event
Inflow = 7.45 cfs @ 12.09 hrs, Volume= 24,648 cf
Outflow = 7.45 cfs @ 12.09 hrs, Volume= 24,648 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.45 cfs @ 12.09 hrs, Volume= 24,648 cf
Routed to Pond E-DMH 1 : E-DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.40' @ 12.09 hrs
Flood Elev= 51.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.13'	**24.0" Round Culvert** L= 58.0' Ke= 0.500 Inlet / Outlet Invert= 44.13' / 43.55' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.43 cfs @ 12.09 hrs HW=45.40' (Free Discharge)
1=Culvert (Barrel Controls 7.43 cfs @ 5.06 fps)

Summary for Pond WQ-201: wq

[79] Warning: Submerged Pond CB-205 Primary device # 1 OUTLET by 0.12'

Inflow Area = 65,484 sf, 58.71% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 1.84 cfs @ 12.09 hrs, Volume= 6,941 cf
Outflow = 1.84 cfs @ 12.09 hrs, Volume= 6,941 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.84 cfs @ 12.09 hrs, Volume= 6,941 cf
Routed to Pond IS-2 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.81' @ 12.09 hrs
Flood Elev= 74.49'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.19'	**18.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 68.19' / 67.58' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.83 cfs @ 12.09 hrs HW=68.81' (Free Discharge)
1=Culvert (Barrel Controls 1.83 cfs @ 3.90 fps)

Summary for Pond WQ-202: dmh

[79] Warning: Submerged Pond DMH-204 Primary device # 1 OUTLET by 0.70'

Inflow Area = 90,151 sf, 62.70% Impervious, Inflow Depth = 1.41" for 2-Year event
Inflow = 2.99 cfs @ 12.09 hrs, Volume= 10,615 cf
Outflow = 2.99 cfs @ 12.09 hrs, Volume= 10,615 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.99 cfs @ 12.09 hrs, Volume= 10,615 cf
Routed to Pond is-2 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.89' @ 12.09 hrs
Flood Elev= 72.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.09'	**24.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 66.09' / 65.92' S= 0.0213 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.99 cfs @ 12.09 hrs HW=66.89' (Free Discharge)
1=Culvert (Barrel Controls 2.99 cfs @ 3.78 fps)

Summary for Pond WQ-301: TREATMENT

[81] Warning: Exceeded Pond CB-311 by 2.04' @ 12.09 hrs
[79] Warning: Submerged Pond DMH-308 Primary device # 1 INLET by 0.93'

Inflow Area = 406,222 sf, 60.26% Impervious, Inflow Depth = 0.79" for 2-Year event
Inflow = 7.33 cfs @ 12.09 hrs, Volume= 26,745 cf
Outflow = 7.33 cfs @ 12.09 hrs, Volume= 26,745 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.33 cfs @ 12.09 hrs, Volume= 26,745 cf
Routed to Pond DMH-006 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 48.47' @ 12.09 hrs
Flood Elev= 50.06'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.97'	**24.0" Round Culvert** L= 10.4' Ke= 0.500 Inlet / Outlet Invert= 46.97' / 46.94' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.33 cfs @ 12.09 hrs HW=48.47' (Free Discharge)
1=Culvert (Barrel Controls 7.33 cfs @ 4.02 fps)

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Pond AD-3: AD Peak Elev=45.65' Inflow=0.01 cfs 172 cf
8.0" Round Culvert n=0.013 L=89.4' S=0.0050 '/' Outflow=0.01 cfs 172 cf

Pond CB-001: cb Peak Elev=69.41' Inflow=0.42 cfs 1,360 cf
12.0" Round Culvert n=0.013 L=78.0' S=0.0100 '/' Outflow=0.42 cfs 1,360 cf

Pond CB-005: cb Peak Elev=68.41' Inflow=0.26 cfs 859 cf
12.0" Round Culvert n=0.013 L=73.0' S=0.0100 '/' Outflow=0.26 cfs 859 cf

Pond CB-101: cb Peak Elev=66.32' Inflow=0.43 cfs 1,514 cf
12.0" Round Culvert n=0.013 L=82.0' S=0.0100 '/' Outflow=0.43 cfs 1,514 cf

Pond CB-102: cb Peak Elev=67.09' Inflow=0.40 cfs 1,341 cf
12.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=0.40 cfs 1,341 cf

Pond CB-103: cb Peak Elev=65.45' Inflow=0.75 cfs 2,418 cf
12.0" Round Culvert n=0.013 L=77.0' S=0.0051 '/' Outflow=0.75 cfs 2,418 cf

Pond CB-105: cb Peak Elev=68.26' Inflow=0.42 cfs 1,313 cf
12.0" Round Culvert n=0.013 L=19.0' S=0.0100 '/' Outflow=0.42 cfs 1,313 cf

Pond CB-107: CB Peak Elev=62.10' Inflow=0.29 cfs 889 cf
12.0" Round Culvert n=0.013 L=5.5' S=0.0091 '/' Outflow=0.29 cfs 889 cf

Pond CB-108: CB Peak Elev=57.58' Inflow=0.20 cfs 613 cf
12.0" Round Culvert n=0.013 L=6.4' S=0.0592 '/' Outflow=0.20 cfs 613 cf

Pond CB-109: CB Peak Elev=47.69' Inflow=0.21 cfs 666 cf
12.0" Round Culvert n=0.013 L=31.5' S=0.0815 '/' Outflow=0.21 cfs 666 cf

Pond CB-110: CB Peak Elev=47.05' Inflow=1.31 cfs 4,065 cf
12.0" Round Culvert n=0.013 L=215.7' S=0.0070 '/' Outflow=1.31 cfs 4,065 cf

Pond CB-111: CB Peak Elev=45.86' Inflow=1.01 cfs 3,188 cf
12.0" Round Culvert n=0.013 L=8.8' S=0.0103 '/' Outflow=1.01 cfs 3,188 cf

Pond CB-112: CB Peak Elev=46.88' Inflow=3.80 cfs 13,122 cf
12.0" Round Culvert n=0.013 L=14.7' S=0.0061 '/' Outflow=3.80 cfs 13,122 cf

Pond CB-113: CB Peak Elev=45.73' Inflow=0.39 cfs 1,257 cf
12.0" Round Culvert n=0.013 L=23.3' S=0.0099 '/' Outflow=0.39 cfs 1,257 cf

Pond CB-201: cb Peak Elev=72.11' Inflow=0.54 cfs 1,821 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=0.54 cfs 1,821 cf

Pond CB-202: cb Peak Elev=71.18' Inflow=1.07 cfs 3,630 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0102 '/' Outflow=1.07 cfs 3,630 cf

Pond CB-203: cb Peak Elev=73.07' Inflow=0.42 cfs 1,455 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0100 '/' Outflow=0.42 cfs 1,455 cf

Pond CB-204: cb Peak Elev=70.61' Inflow=0.67 cfs 2,374 cf
12.0" Round Culvert n=0.013 L=85.0' S=0.0101 '/' Outflow=0.67 cfs 2,374 cf

Pond CB-205: cb Peak Elev=69.90' Inflow=1.45 cfs 5,134 cf
12.0" Round Culvert n=0.013 L=56.0' S=0.0098 '/' Outflow=1.45 cfs 5,134 cf

Pond CB-206: cb Peak Elev=71.56' Inflow=0.72 cfs 2,526 cf
12.0" Round Culvert n=0.013 L=62.0' S=0.0098 '/' Outflow=0.72 cfs 2,526 cf

Pond CB-207: cb Peak Elev=73.10' Inflow=0.52 cfs 1,798 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0102 '/' Outflow=0.52 cfs 1,798 cf

Pond CB-208: cb Peak Elev=74.05' Inflow=0.75 cfs 2,465 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.1211 '/' Outflow=0.75 cfs 2,465 cf

Pond CB-209: cb Peak Elev=73.18' Inflow=1.15 cfs 3,834 cf
12.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=1.15 cfs 3,834 cf

Pond CB-210: cb Peak Elev=70.52' Inflow=0.89 cfs 3,132 cf
12.0" Round Culvert n=0.013 L=62.0' S=0.0100 '/' Outflow=0.89 cfs 3,132 cf

Pond CB-211: cb Peak Elev=72.60' Inflow=0.85 cfs 2,627 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.0100 '/' Outflow=0.85 cfs 2,627 cf

Pond CB-212: cb Peak Elev=71.80' Inflow=1.49 cfs 4,900 cf
12.0" Round Culvert n=0.013 L=57.0' S=0.0100 '/' Outflow=1.49 cfs 4,900 cf

Pond CB-213: cb Peak Elev=75.87' Inflow=0.13 cfs 438 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0440 '/' Outflow=0.13 cfs 438 cf

Pond CB-214: cb Peak Elev=74.75' Inflow=0.26 cfs 854 cf
12.0" Round Culvert n=0.013 L=55.0' S=0.0144 '/' Outflow=0.26 cfs 854 cf

Pond CB-215: cb Peak Elev=70.39' Inflow=0.61 cfs 1,901 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.0100 '/' Outflow=0.61 cfs 1,901 cf

Pond CB-307: CB Peak Elev=49.48' Inflow=1.79 cfs 6,499 cf
15.0" Round Culvert n=0.013 L=92.4' S=0.0029 '/' Outflow=1.79 cfs 6,499 cf

Pond CB-309: CB Peak Elev=53.13' Inflow=0.24 cfs 734 cf
12.0" Round Culvert n=0.013 L=34.1' S=0.0367 '/' Outflow=0.24 cfs 734 cf

Pond CB-310: CB Peak Elev=51.67' Inflow=0.24 cfs 1,341 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0180 '/' Outflow=0.24 cfs 1,341 cf

Pond CB-311: CB Peak Elev=46.69' Inflow=1.48 cfs 4,585 cf
12.0" Round Culvert n=0.013 L=21.8' S=0.0050 '/' Outflow=1.48 cfs 4,585 cf

Pond DMH-001: dmh Peak Elev=68.57' Inflow=0.97 cfs 3,120 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0100 '/' Outflow=0.97 cfs 3,120 cf

Pond DMH-002: dmh Peak Elev=67.64' Inflow=1.52 cfs 5,004 cf
12.0" Round Culvert n=0.013 L=61.0' S=0.0098 '/' Outflow=1.52 cfs 5,004 cf

Pond DMH-005: dmh Peak Elev=67.68' Inflow=0.45 cfs 1,450 cf
12.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=0.45 cfs 1,450 cf

Pond DMH-006: DMH Peak Elev=50.85' Storage=3,196 cf Inflow=13.07 cfs 58,111 cf
12.0" Round Culvert n=0.013 L=25.4' S=0.0094 '/' Primary=7.56 cfs 58,111 cf Secondary=0.00 cfs 0 cf Outflow=7.56 cfs 58,111 cf

Pond DMH-101: dmh Peak Elev=65.56' Inflow=0.83 cfs 2,856 cf
12.0" Round Culvert n=0.013 L=52.0' S=0.0100 '/' Outflow=0.83 cfs 2,856 cf

Pond DMH-102: dmh Peak Elev=65.15' Inflow=1.58 cfs 5,273 cf
12.0" Round Culvert n=0.013 L=65.0' S=0.0100 '/' Outflow=1.58 cfs 5,273 cf

Pond DMH-103: dmh Peak Elev=64.39' Inflow=1.58 cfs 5,273 cf
12.0" Round Culvert n=0.013 L=81.0' S=0.0100 '/' Outflow=1.58 cfs 5,273 cf

Pond DMH-104: dmh Peak Elev=63.53' Inflow=2.18 cfs 7,171 cf
15.0" Round Culvert n=0.013 L=154.0' S=0.0100 '/' Outflow=2.18 cfs 7,171 cf

Pond DMH-105: dmh Peak Elev=67.94' Inflow=0.42 cfs 1,313 cf
12.0" Round Culvert n=0.013 L=72.0' S=0.0228 '/' Outflow=0.42 cfs 1,313 cf

Pond DMH-106: dmh Peak Elev=62.09' Inflow=3.23 cfs 10,435 cf
15.0" Round Culvert n=0.013 L=110.0' S=0.0300 '/' Outflow=3.23 cfs 10,435 cf

Pond DMH-107: DMH Peak Elev=59.22' Inflow=5.42 cfs 18,064 cf
15.0" Round Culvert n=0.013 L=61.5' S=0.0200 '/' Outflow=5.42 cfs 18,064 cf

Pond DMH-107A: DMH Peak Elev=60.73' Inflow=2.19 cfs 7,629 cf
12.0" Round Culvert n=0.013 L=49.1' S=0.0415 '/' Outflow=2.19 cfs 7,629 cf

Pond DMH-108: DMH Peak Elev=55.73' Inflow=5.62 cfs 18,677 cf
15.0" Round Culvert n=0.013 L=66.3' S=0.0499 '/' Outflow=5.62 cfs 18,677 cf

Pond DMH-109: DMH Peak Elev=50.03' Inflow=5.62 cfs 18,677 cf
18.0" Round Culvert n=0.013 L=74.8' S=0.0600 '/' Outflow=5.62 cfs 18,677 cf

Pond DMH-111: DMH Peak Elev=45.60' Inflow=1.53 cfs 4,903 cf
12.0" Round Culvert n=0.013 L=29.3' S=0.0051 '/' Outflow=1.53 cfs 4,903 cf

Pond DMH-112: DMH Peak Elev=46.28' Inflow=5.20 cfs 17,567 cf
18.0" Round Culvert n=0.013 L=41.9' S=0.0100 '/' Outflow=5.20 cfs 17,567 cf

Pond DMH-113: DMH Peak Elev=45.51' Inflow=6.73 cfs 22,471 cf
24.0" Round Culvert n=0.013 L=42.2' S=0.0050 '/' Outflow=6.73 cfs 22,471 cf

Pond DMH-201: dmh Peak Elev=70.34' Inflow=1.49 cfs 5,084 cf
15.0" Round Culvert n=0.013 L=71.0' S=0.0100 '/' Outflow=1.49 cfs 5,084 cf

Pond DMH-202: dmh Peak Elev=72.41' Inflow=1.68 cfs 5,632 cf
15.0" Round Culvert n=0.013 L=71.0' S=0.0100 '/' Outflow=1.68 cfs 5,632 cf

Pond DMH-204: dmh Peak Elev=68.39' Inflow=5.10 cfs 17,139 cf
24.0" Round Culvert n=0.013 L=62.0' S=0.0198 '/' Outflow=5.10 cfs 17,139 cf

Pond DMH-206: dmh Peak Elev=69.88' Inflow=4.04 cfs 13,664 cf
18.0" Round Culvert n=0.013 L=59.0' S=0.0168 '/' Outflow=4.04 cfs 13,664 cf

Pond DMH-207: cb Peak Elev=69.54' Inflow=1.06 cfs 3,475 cf
12.0" Round Culvert n=0.013 L=57.0' S=0.0102 '/' Outflow=1.06 cfs 3,475 cf

Pond DMH-301: dmh Peak Elev=70.56' Inflow=0.52 cfs 1,822 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0207 '/' Outflow=0.52 cfs 1,822 cf

Pond DMH-302: dmh Peak Elev=69.35' Inflow=0.86 cfs 3,046 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0784 '/' Outflow=0.86 cfs 3,046 cf

Pond DMH-303: dmh Peak Elev=66.12' Inflow=1.02 cfs 3,750 cf
12.0" Round Culvert n=0.013 L=38.0' S=0.0795 '/' Outflow=1.02 cfs 3,750 cf

Pond DMH-304: dmh Peak Elev=59.74' Inflow=4.43 cfs 15,499 cf
24.0" Round Culvert n=0.013 L=131.0' S=0.0802 '/' Outflow=4.43 cfs 15,499 cf

Pond DMH-306: DMH Peak Elev=49.04' Inflow=1.79 cfs 6,499 cf
18.0" Round Culvert n=0.013 L=165.0' S=0.0029 '/' Outflow=1.79 cfs 6,499 cf

Pond DMH-307: DMH Peak Elev=48.51' Inflow=2.03 cfs 7,233 cf
18.0" Round Culvert n=0.013 L=17.3' S=0.0029 '/' Outflow=2.03 cfs 7,233 cf

Pond DMH-308: DMH Peak Elev=49.57' Inflow=11.58 cfs 53,526 cf
24.0" Round Culvert n=0.013 L=163.2' S=0.0029 '/' Outflow=11.58 cfs 53,526 cf

Pond E-DMH 1: E-DMH Peak Elev=47.97' Inflow=12.35 cfs 41,147 cf
12.0" Round Culvert x 2.00 n=0.013 L=16.3' S=0.0098 '/' Outflow=12.35 cfs 41,147 cf

Pond IS-1: infiltration Peak Elev=66.06' Storage=3,064 cf Inflow=3.66 cfs 12,175 cf
Discarded=0.73 cfs 12,175 cf Primary=0.00 cfs 0 cf Outflow=0.73 cfs 12,175 cf

Pond IS-2: infiltration Peak Elev=69.48' Storage=15,597 cf Inflow=11.38 cfs 38,882 cf
Discarded=0.25 cfs 18,257 cf Primary=4.00 cfs 11,749 cf Outflow=4.25 cfs 30,006 cf

Pond WQ-002: dmh Peak Elev=66.75' Inflow=2.53 cfs 8,193 cf
18.0" Round Culvert n=0.013 L=7.0' S=0.0100 '/' Outflow=2.53 cfs 8,193 cf

Pond WQ-101: TREATMENT Peak Elev=45.89' Inflow=12.35 cfs 41,147 cf
24.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=12.35 cfs 41,147 cf

Pond WQ-201: wq Peak Elev=69.12' Inflow=3.64 cfs 12,744 cf
18.0" Round Culvert n=0.013 L=60.0' S=0.0102 '/' Outflow=3.64 cfs 12,744 cf

Pond WQ-202: dmh Peak Elev=67.26' Inflow=5.71 cfs 19,308 cf
24.0" Round Culvert n=0.013 L=8.0' S=0.0213 '/' Outflow=5.71 cfs 19,308 cf

Pond WQ-301: TREATMENT Peak Elev=49.13' Inflow=13.07 cfs 58,111 cf
24.0" Round Culvert n=0.013 L=10.4' S=0.0029 '/' Outflow=13.07 cfs 58,111 cf

Summary for Pond AD-3: AD

Inflow Area = 9,685 sf, 2.51% Impervious, Inflow Depth = 0.21" for 10-Year event
Inflow = 0.01 cfs @ 12.46 hrs, Volume= 172 cf
Outflow = 0.01 cfs @ 12.46 hrs, Volume= 172 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 12.46 hrs, Volume= 172 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.65' @ 12.46 hrs
Flood Elev= 51.61'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.58'	**8.0" Round Culvert** L= 89.4' Ke= 0.500 Inlet / Outlet Invert= 45.58' / 45.13' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.01 cfs @ 12.46 hrs HW=45.65' (Free Discharge)
1=Culvert (Barrel Controls 0.01 cfs @ 0.82 fps)

Summary for Pond CB-001: cb

Inflow Area = 9,415 sf, 48.58% Impervious, Inflow Depth = 1.73" for 10-Year event
Inflow = 0.42 cfs @ 12.09 hrs, Volume= 1,360 cf
Outflow = 0.42 cfs @ 12.09 hrs, Volume= 1,360 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.09 hrs, Volume= 1,360 cf
Routed to Pond DMH-001 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.41' @ 12.09 hrs
Flood Elev= 72.39'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.09'	**12.0" Round Culvert** L= 78.0' Ke= 0.500 Inlet / Outlet Invert= 69.09' / 68.31' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.42 cfs @ 12.09 hrs HW=69.41' (Free Discharge)
1=Culvert (Barrel Controls 0.42 cfs @ 2.88 fps)

Summary for Pond CB-005: cb

Inflow Area = 6,798 sf, 42.20% Impervious, Inflow Depth = 1.52" for 10-Year event
Inflow = 0.26 cfs @ 12.10 hrs, Volume= 859 cf
Outflow = 0.26 cfs @ 12.10 hrs, Volume= 859 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.26 cfs @ 12.10 hrs, Volume= 859 cf
Routed to Pond DMH-005 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.41' @ 12.10 hrs
Flood Elev= 71.47'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.16'	**12.0" Round Culvert** L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 68.16' / 67.43' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.26 cfs @ 12.10 hrs HW=68.41' (Free Discharge)
1=Culvert (Barrel Controls 0.26 cfs @ 2.52 fps)

Summary for Pond CB-101: cb

Inflow Area = 3,896 sf, 99.56% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 0.43 cfs @ 12.08 hrs, Volume= 1,514 cf
Outflow = 0.43 cfs @ 12.08 hrs, Volume= 1,514 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.43 cfs @ 12.08 hrs, Volume= 1,514 cf
Routed to Pond DMH-101 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.32' @ 12.08 hrs
Flood Elev= 71.46'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**12.0" Round Culvert** L= 82.0' Ke= 0.500 Inlet / Outlet Invert= 66.00' / 65.18' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.43 cfs @ 12.08 hrs HW=66.32' (Free Discharge)
1=Culvert (Inlet Controls 0.43 cfs @ 1.94 fps)

Summary for Pond CB-102: cb

Inflow Area = 3,726 sf, 95.76% Impervious, Inflow Depth = 4.32" for 10-Year event
Inflow = 0.40 cfs @ 12.08 hrs, Volume= 1,341 cf
Outflow = 0.40 cfs @ 12.08 hrs, Volume= 1,341 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.40 cfs @ 12.08 hrs, Volume= 1,341 cf
Routed to Pond DMH-101 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.09' @ 12.08 hrs
Flood Elev= 70.07'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.76'	**12.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 66.76' / 66.45' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.08 hrs HW=67.09' (Free Discharge)
1=Culvert (Barrel Controls 0.40 cfs @ 2.67 fps)

Summary for Pond CB-103: cb

Inflow Area = 7,676 sf, 86.47% Impervious, Inflow Depth = 3.78" for 10-Year event
Inflow = 0.75 cfs @ 12.09 hrs, Volume= 2,418 cf
Outflow = 0.75 cfs @ 12.09 hrs, Volume= 2,418 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.75 cfs @ 12.09 hrs, Volume= 2,418 cf
Routed to Pond DMH-102 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.45' @ 12.09 hrs
Flood Elev= 67.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.94'	**12.0" Round Culvert** L= 77.0' Ke= 0.500 Inlet / Outlet Invert= 64.94' / 64.55' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.75 cfs @ 12.09 hrs HW=65.45' (Free Discharge)
1=Culvert (Barrel Controls 0.75 cfs @ 2.70 fps)

Summary for Pond CB-105: cb

Inflow Area = 5,616 sf, 69.72% Impervious, Inflow Depth = 2.81" for 10-Year event
Inflow = 0.42 cfs @ 12.09 hrs, Volume= 1,313 cf
Outflow = 0.42 cfs @ 12.09 hrs, Volume= 1,313 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.09 hrs, Volume= 1,313 cf
Routed to Pond DMH-105 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.26' @ 12.09 hrs
Flood Elev= 71.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.91'	**12.0" Round Culvert** L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 67.91' / 67.72' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.42 cfs @ 12.09 hrs HW=68.26' (Free Discharge)
1=Culvert (Barrel Controls 0.42 cfs @ 2.59 fps)

Summary for Pond CB-107: CB

Inflow Area = 3,461 sf, 73.85% Impervious, Inflow Depth = 3.08" for 10-Year event
Inflow = 0.29 cfs @ 12.09 hrs, Volume= 889 cf
Outflow = 0.29 cfs @ 12.09 hrs, Volume= 889 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.29 cfs @ 12.09 hrs, Volume= 889 cf
Routed to Pond DMH-107A : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 62.10' @ 12.09 hrs
Flood Elev= 65.74'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.79'	**12.0" Round Culvert** L= 5.5' Ke= 0.500 Inlet / Outlet Invert= 61.79' / 61.74' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.29 cfs @ 12.09 hrs HW=62.10' (Free Discharge)
1=Culvert (Barrel Controls 0.29 cfs @ 2.08 fps)

Summary for Pond CB-108: CB

Inflow Area = 2,798 sf, 65.43% Impervious, Inflow Depth = 2.63" for 10-Year event
Inflow = 0.20 cfs @ 12.09 hrs, Volume= 613 cf
Outflow = 0.20 cfs @ 12.09 hrs, Volume= 613 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.09 hrs, Volume= 613 cf
Routed to Pond DMH-108 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 57.58' @ 12.09 hrs
Flood Elev= 59.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.36'	**12.0" Round Culvert** L= 6.4' Ke= 0.500 Inlet / Outlet Invert= 57.36' / 56.98' S= 0.0592 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.20 cfs @ 12.09 hrs HW=57.58' (Free Discharge)
1=Culvert (Inlet Controls 0.20 cfs @ 1.58 fps)

Summary for Pond CB-109: CB

Inflow Area = 3,259 sf, 62.16% Impervious, Inflow Depth = 2.45" for 10-Year event
Inflow = 0.21 cfs @ 12.09 hrs, Volume= 666 cf
Outflow = 0.21 cfs @ 12.09 hrs, Volume= 666 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 12.09 hrs, Volume= 666 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.69' @ 12.09 hrs
Flood Elev= 51.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.47'	**12.0" Round Culvert** L= 31.5' Ke= 0.500 Inlet / Outlet Invert= 47.47' / 44.90' S= 0.0815 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.21 cfs @ 12.09 hrs HW=47.69' (Free Discharge)
1=Culvert (Inlet Controls 0.21 cfs @ 1.61 fps)

Summary for Pond CB-110: CB

Inflow Area = 17,384 sf, 68.99% Impervious, Inflow Depth = 2.81" for 10-Year event
Inflow = 1.31 cfs @ 12.09 hrs, Volume= 4,065 cf
Outflow = 1.31 cfs @ 12.09 hrs, Volume= 4,065 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.31 cfs @ 12.09 hrs, Volume= 4,065 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.05' @ 12.09 hrs
Flood Elev= 49.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.41'	**12.0" Round Culvert** L= 215.7' Ke= 0.500 Inlet / Outlet Invert= 46.41' / 44.90' S= 0.0070 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.31 cfs @ 12.09 hrs HW=47.05' (Free Discharge)
1=Culvert (Barrel Controls 1.31 cfs @ 3.55 fps)

Summary for Pond CB-111: CB

Inflow Area = 11,014 sf, 81.48% Impervious, Inflow Depth = 3.47" for 10-Year event
Inflow = 1.01 cfs @ 12.09 hrs, Volume= 3,188 cf
Outflow = 1.01 cfs @ 12.09 hrs, Volume= 3,188 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.01 cfs @ 12.09 hrs, Volume= 3,188 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.86' @ 12.09 hrs
Flood Elev= 47.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.26'	**12.0" Round Culvert** L= 8.8' Ke= 0.500 Inlet / Outlet Invert= 45.26' / 45.17' S= 0.0103 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.01 cfs @ 12.09 hrs HW=45.86' (Free Discharge)
1=Culvert (Barrel Controls 1.01 cfs @ 2.93 fps)

Summary for Pond CB-112: CB

Inflow Area = 35,612 sf, 96.36% Impervious, Inflow Depth = 4.42" for 10-Year event
Inflow = 3.80 cfs @ 12.08 hrs, Volume= 13,122 cf
Outflow = 3.80 cfs @ 12.08 hrs, Volume= 13,122 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.80 cfs @ 12.08 hrs, Volume= 13,122 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.88' @ 12.08 hrs
Flood Elev= 47.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.26'	**12.0" Round Culvert** L= 14.7' Ke= 0.500 Inlet / Outlet Invert= 45.26' / 45.17' S= 0.0061 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.79 cfs @ 12.08 hrs HW=46.88' (Free Discharge)
1=Culvert (Barrel Controls 3.79 cfs @ 4.83 fps)

Summary for Pond CB-113: CB

Inflow Area = 8,340 sf, 48.71% Impervious, Inflow Depth = 1.81" for 10-Year event
Inflow = 0.39 cfs @ 12.09 hrs, Volume= 1,257 cf
Outflow = 0.39 cfs @ 12.09 hrs, Volume= 1,257 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.39 cfs @ 12.09 hrs, Volume= 1,257 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.73' @ 12.09 hrs
Flood Elev= 48.28'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.40'	**12.0" Round Culvert** L= 23.3' Ke= 0.500 Inlet / Outlet Invert= 45.40' / 45.17' S= 0.0099 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.39 cfs @ 12.09 hrs HW=45.73' (Free Discharge)
1=Culvert (Barrel Controls 0.39 cfs @ 2.59 fps)

Summary for Pond CB-201: cb

Inflow Area = 15,873 sf, 42.70% Impervious, Inflow Depth = 1.38" for 10-Year event
Inflow = 0.54 cfs @ 12.10 hrs, Volume= 1,821 cf
Outflow = 0.54 cfs @ 12.10 hrs, Volume= 1,821 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.54 cfs @ 12.10 hrs, Volume= 1,821 cf
Routed to Pond CB-202 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.11' @ 12.10 hrs
Flood Elev= 75.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.74'	**12.0" Round Culvert** L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 71.74' / 70.74' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.54 cfs @ 12.10 hrs HW=72.11' (Free Discharge)
1=Culvert (Inlet Controls 0.54 cfs @ 2.06 fps)

Summary for Pond CB-202: cb

[79] Warning: Submerged Pond CB-201 Primary device # 1 OUTLET by 0.44'

Inflow Area = 32,444 sf, 41.56% Impervious, Inflow Depth = 1.34" for 10-Year event
Inflow = 1.07 cfs @ 12.10 hrs, Volume= 3,630 cf
Outflow = 1.07 cfs @ 12.10 hrs, Volume= 3,630 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.07 cfs @ 12.10 hrs, Volume= 3,630 cf
Routed to Pond DMH-201 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.18' @ 12.10 hrs
Flood Elev= 75.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.64'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 70.64' / 70.00' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.07 cfs @ 12.10 hrs HW=71.18' (Free Discharge)
1=Culvert (Barrel Controls 1.07 cfs @ 3.58 fps)

Summary for Pond CB-203: cb

Inflow Area = 13,330 sf, 39.38% Impervious, Inflow Depth = 1.31" for 10-Year event
Inflow = 0.42 cfs @ 12.10 hrs, Volume= 1,455 cf
Outflow = 0.42 cfs @ 12.10 hrs, Volume= 1,455 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.10 hrs, Volume= 1,455 cf
Routed to Pond DMH-201 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 73.07' @ 12.10 hrs
Flood Elev= 76.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.74'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 72.74' / 72.11' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.42 cfs @ 12.10 hrs HW=73.07' (Free Discharge)
1=Culvert (Barrel Controls 0.42 cfs @ 2.85 fps)

Summary for Pond CB-204: cb

Inflow Area = 6,109 sf,100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 0.67 cfs @ 12.08 hrs, Volume= 2,374 cf
Outflow = 0.67 cfs @ 12.08 hrs, Volume= 2,374 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.08 hrs, Volume= 2,374 cf
Routed to Pond CB-205 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.61' @ 12.08 hrs
Flood Elev= 73.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.20'	**12.0" Round Culvert** L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 70.20' / 69.34' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.67 cfs @ 12.08 hrs HW=70.61' (Free Discharge)
1=Culvert (Inlet Controls 0.67 cfs @ 2.19 fps)

Summary for Pond CB-205: cb

[79] Warning: Submerged Pond CB-204 Primary device # 1 OUTLET by 0.56'

Inflow Area = 13,210 sf,100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 1.45 cfs @ 12.08 hrs, Volume= 5,134 cf
Outflow = 1.45 cfs @ 12.08 hrs, Volume= 5,134 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.45 cfs @ 12.08 hrs, Volume= 5,134 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.90' @ 12.08 hrs
Flood Elev= 73.11'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.24'	**12.0" Round Culvert** L= 56.0' Ke= 0.500 Inlet / Outlet Invert= 69.24' / 68.69' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.45 cfs @ 12.08 hrs HW=69.90' (Free Discharge)
1=Culvert (Barrel Controls 1.45 cfs @ 3.75 fps)

Summary for Pond CB-206: cb

Inflow Area = 6,500 sf,100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 0.72 cfs @ 12.08 hrs, Volume= 2,526 cf
Outflow = 0.72 cfs @ 12.08 hrs, Volume= 2,526 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.72 cfs @ 12.08 hrs, Volume= 2,526 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.56' @ 12.08 hrs
Flood Elev= 74.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.13'	**12.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 71.13' / 70.52' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.71 cfs @ 12.08 hrs HW=71.56' (Free Discharge)
1=Culvert (Barrel Controls 0.71 cfs @ 3.22 fps)

Summary for Pond CB-207: cb

Inflow Area = 16,473 sf, 41.23% Impervious, Inflow Depth = 1.31" for 10-Year event
Inflow = 0.52 cfs @ 12.10 hrs, Volume= 1,798 cf
Outflow = 0.52 cfs @ 12.10 hrs, Volume= 1,798 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 12.10 hrs, Volume= 1,798 cf
Routed to Pond DMH-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 73.10' @ 12.10 hrs
Flood Elev= 76.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.74'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 72.74' / 72.10' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.52 cfs @ 12.10 hrs HW=73.10' (Free Discharge)
1=Culvert (Barrel Controls 0.52 cfs @ 3.02 fps)

Summary for Pond CB-208: cb

[79] Warning: Submerged Pond CB-214 Primary device # 1 OUTLET by 0.34'

Inflow Area = 19,530 sf, 41.92% Impervious, Inflow Depth = 1.51" for 10-Year event
Inflow = 0.75 cfs @ 12.10 hrs, Volume= 2,465 cf
Outflow = 0.75 cfs @ 12.10 hrs, Volume= 2,465 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.75 cfs @ 12.10 hrs, Volume= 2,465 cf
Routed to Pond CB-209 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 74.05' @ 12.10 hrs
Flood Elev= 77.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.61'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 73.61' / 62.71' S= 0.1211 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.75 cfs @ 12.10 hrs HW=74.05' (Free Discharge)
1=Culvert (Inlet Controls 0.75 cfs @ 2.25 fps)

Summary for Pond CB-209: cb

[79] Warning: Submerged Pond CB-208 Primary device # 1 OUTLET by 10.47'

Inflow Area = 31,464 sf, 41.07% Impervious, Inflow Depth = 1.46" for 10-Year event
Inflow = 1.15 cfs @ 12.10 hrs, Volume= 3,834 cf
Outflow = 1.15 cfs @ 12.10 hrs, Volume= 3,834 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.15 cfs @ 12.10 hrs, Volume= 3,834 cf
Routed to Pond DMH-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 73.18' @ 12.10 hrs
Flood Elev= 77.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.61'	**12.0" Round Culvert** L= 58.0' Ke= 0.500 Inlet / Outlet Invert= 72.61' / 72.03' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.15 cfs @ 12.10 hrs HW=73.18' (Free Discharge)
1=Culvert (Barrel Controls 1.15 cfs @ 3.59 fps)

Summary for Pond CB-210: cb

Inflow Area = 8,060 sf,100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 0.89 cfs @ 12.08 hrs, Volume= 3,132 cf
Outflow = 0.89 cfs @ 12.08 hrs, Volume= 3,132 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.89 cfs @ 12.08 hrs, Volume= 3,132 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.52' @ 12.08 hrs
Flood Elev= 74.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.03'	**12.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 70.03' / 69.41' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.89 cfs @ 12.08 hrs HW=70.52' (Free Discharge)
1=Culvert (Barrel Controls 0.89 cfs @ 3.41 fps)

Summary for Pond CB-211: cb

Inflow Area = 10,543 sf, 72.18% Impervious, Inflow Depth = 2.99" for 10-Year event
Inflow = 0.85 cfs @ 12.09 hrs, Volume= 2,627 cf
Outflow = 0.85 cfs @ 12.09 hrs, Volume= 2,627 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.85 cfs @ 12.09 hrs, Volume= 2,627 cf
Routed to Pond CB-212 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.60' @ 12.09 hrs
Flood Elev= 75.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.13'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 72.13' / 71.23' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.85 cfs @ 12.09 hrs HW=72.60' (Free Discharge)
1=Culvert (Inlet Controls 0.85 cfs @ 2.33 fps)

Summary for Pond CB-212: cb

[79] Warning: Submerged Pond CB-211 Primary device # 1 OUTLET by 0.57'

Inflow Area = 16,393 sf, 82.11% Impervious, Inflow Depth = 3.59" for 10-Year event
Inflow = 1.49 cfs @ 12.09 hrs, Volume= 4,900 cf
Outflow = 1.49 cfs @ 12.09 hrs, Volume= 4,900 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.49 cfs @ 12.09 hrs, Volume= 4,900 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.80' @ 12.09 hrs
Flood Elev= 75.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.13'	**12.0" Round Culvert** L= 57.0' Ke= 0.500 Inlet / Outlet Invert= 71.13' / 70.56' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.49 cfs @ 12.09 hrs HW=71.80' (Free Discharge)
1=Culvert (Barrel Controls 1.49 cfs @ 3.80 fps)

Summary for Pond CB-213: cb

Inflow Area = 3,633 sf, 40.06% Impervious, Inflow Depth = 1.45" for 10-Year event
Inflow = 0.13 cfs @ 12.10 hrs, Volume= 438 cf
Outflow = 0.13 cfs @ 12.10 hrs, Volume= 438 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.13 cfs @ 12.10 hrs, Volume= 438 cf
Routed to Pond CB-214 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 75.87' @ 12.10 hrs
Flood Elev= 79.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.70'	**12.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 75.70' / 74.60' S= 0.0440 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.13 cfs @ 12.10 hrs HW=75.87' (Free Discharge)
1=Culvert (Inlet Controls 0.13 cfs @ 1.42 fps)

Summary for Pond CB-214: cb

[79] Warning: Submerged Pond CB-213 Primary device # 1 OUTLET by 0.15'

Inflow Area = 6,778 sf, 42.27% Impervious, Inflow Depth = 1.51" for 10-Year event
Inflow = 0.26 cfs @ 12.10 hrs, Volume= 854 cf
Outflow = 0.26 cfs @ 12.10 hrs, Volume= 854 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.26 cfs @ 12.10 hrs, Volume= 854 cf
Routed to Pond CB-208 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 74.75' @ 12.10 hrs
Flood Elev= 78.07'

Device	Routing	Invert	Outlet Devices
#1	Primary	74.50'	**12.0" Round Culvert** L= 55.0' Ke= 0.500 Inlet / Outlet Invert= 74.50' / 73.71' S= 0.0144 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.26 cfs @ 12.10 hrs HW=74.75' (Free Discharge)
1=Culvert (Inlet Controls 0.26 cfs @ 1.70 fps)

Summary for Pond CB-215: cb

Inflow Area = 8,130 sf, 69.66% Impervious, Inflow Depth = 2.81" for 10-Year event
Inflow = 0.61 cfs @ 12.09 hrs, Volume= 1,901 cf
Outflow = 0.61 cfs @ 12.09 hrs, Volume= 1,901 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.61 cfs @ 12.09 hrs, Volume= 1,901 cf
Routed to Pond DMH-207 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.39' @ 12.09 hrs
Flood Elev= 73.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.00'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 70.00' / 69.10' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.61 cfs @ 12.09 hrs HW=70.39' (Free Discharge)
1=Culvert (Inlet Controls 0.61 cfs @ 2.14 fps)

Summary for Pond CB-307: CB

Inflow Area = 69,993 sf, 37.98% Impervious, Inflow Depth = 1.11" for 10-Year event
Inflow = 1.79 cfs @ 12.10 hrs, Volume= 6,499 cf
Outflow = 1.79 cfs @ 12.10 hrs, Volume= 6,499 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.79 cfs @ 12.10 hrs, Volume= 6,499 cf
Routed to Pond DMH-306 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.48' @ 12.10 hrs
Flood Elev= 50.19'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.64'	**15.0" Round Culvert** L= 92.4' Ke= 0.500 Inlet / Outlet Invert= 48.64' / 48.37' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.79 cfs @ 12.10 hrs HW=49.48' (Free Discharge)
1=Culvert (Barrel Controls 1.79 cfs @ 2.91 fps)

Summary for Pond CB-309: CB

Inflow Area = 3,243 sf, 68.42% Impervious, Inflow Depth = 2.72" for 10-Year event
Inflow = 0.24 cfs @ 12.09 hrs, Volume= 734 cf
Outflow = 0.24 cfs @ 12.09 hrs, Volume= 734 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.09 hrs, Volume= 734 cf
Routed to Pond DMH-307 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 53.13' @ 12.09 hrs
Flood Elev= 56.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.89'	**12.0" Round Culvert** L= 34.1' Ke= 0.500 Inlet / Outlet Invert= 52.89' / 51.64' S= 0.0367 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.24 cfs @ 12.09 hrs HW=53.13' (Free Discharge)
1=Culvert (Inlet Controls 0.24 cfs @ 1.66 fps)

Summary for Pond CB-310: CB

Inflow Area = 34,760 sf, 6.31% Impervious, Inflow Depth = 0.46" for 10-Year event
Inflow = 0.24 cfs @ 12.08 hrs, Volume= 1,341 cf
Outflow = 0.24 cfs @ 12.08 hrs, Volume= 1,341 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.08 hrs, Volume= 1,341 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 51.67' @ 12.08 hrs
Flood Elev= 53.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.43'	**12.0" Round Culvert** L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 51.43' / 51.16' S= 0.0180 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.24 cfs @ 12.08 hrs HW=51.67' (Free Discharge)
1=Culvert (Inlet Controls 0.24 cfs @ 1.67 fps)

Summary for Pond CB-311: CB

Inflow Area = 20,260 sf, 67.28% Impervious, Inflow Depth = 2.72" for 10-Year event
Inflow = 1.48 cfs @ 12.09 hrs, Volume= 4,585 cf
Outflow = 1.48 cfs @ 12.09 hrs, Volume= 4,585 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.48 cfs @ 12.09 hrs, Volume= 4,585 cf
Routed to Pond WQ-301 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.69' @ 12.09 hrs
Flood Elev= 47.83'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.90'	**12.0" Round Culvert** L= 21.8' Ke= 0.500 Inlet / Outlet Invert= 45.90' / 45.79' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.48 cfs @ 12.09 hrs HW=46.69' (Free Discharge)
1=Culvert (Barrel Controls 1.48 cfs @ 3.07 fps)

Summary for Pond DMH-001: dmh

[79] Warning: Submerged Pond CB-001 Primary device # 1 OUTLET by 0.25'

Inflow Area = 21,598 sf, 50.19% Impervious, Inflow Depth = 1.73" for 10-Year event
Inflow = 0.97 cfs @ 12.09 hrs, Volume= 3,120 cf
Outflow = 0.97 cfs @ 12.09 hrs, Volume= 3,120 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.97 cfs @ 12.09 hrs, Volume= 3,120 cf
Routed to Pond DMH-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.57' @ 12.09 hrs
Flood Elev= 71.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.05'	**12.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 68.05' / 67.46' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.97 cfs @ 12.09 hrs HW=68.56' (Free Discharge)
1=Culvert (Barrel Controls 0.97 cfs @ 3.46 fps)

Summary for Pond DMH-002: dmh

[79] Warning: Submerged Pond DMH-001 Primary device # 1 OUTLET by 0.18'

Inflow Area = 38,859 sf, 47.20% Impervious, Inflow Depth = 1.55" for 10-Year event
Inflow = 1.52 cfs @ 12.10 hrs, Volume= 5,004 cf
Outflow = 1.52 cfs @ 12.10 hrs, Volume= 5,004 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.52 cfs @ 12.10 hrs, Volume= 5,004 cf
Routed to Pond WQ-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.64' @ 12.10 hrs
Flood Elev= 70.94'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.97'	**12.0" Round Culvert** L= 61.0' Ke= 0.500 Inlet / Outlet Invert= 66.97' / 66.37' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.52 cfs @ 12.10 hrs HW=67.64' (Free Discharge)
1=Culvert (Barrel Controls 1.52 cfs @ 3.82 fps)

Summary for Pond DMH-005: dmh

[79] Warning: Submerged Pond CB-005 Primary device # 1 OUTLET by 0.25'

Inflow Area = 10,274 sf, 46.43% Impervious, Inflow Depth = 1.69" for 10-Year event
Inflow = 0.45 cfs @ 12.09 hrs, Volume= 1,450 cf
Outflow = 0.45 cfs @ 12.09 hrs, Volume= 1,450 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 12.09 hrs, Volume= 1,450 cf
Routed to Pond WQ-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.68' @ 12.09 hrs
Flood Elev= 71.77'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.33'	**12.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 67.33' / 67.02' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.45 cfs @ 12.09 hrs HW=67.68' (Free Discharge)
1=Culvert (Barrel Controls 0.45 cfs @ 2.75 fps)

Summary for Pond DMH-006: DMH

[58] Hint: Peaked 0.92' above defined flood level
[81] Warning: Exceeded Pond WQ-301 by 2.64' @ 12.60 hrs

Inflow Area = 406,222 sf, 60.26% Impervious, Inflow Depth = 1.72" for 10-Year event
Inflow = 13.07 cfs @ 12.09 hrs, Volume= 58,111 cf
Outflow = 7.56 cfs @ 12.43 hrs, Volume= 58,111 cf, Atten= 42%, Lag= 20.7 min
Primary = 7.56 cfs @ 12.43 hrs, Volume= 58,111 cf
Routed to Link L-1 : Link 1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link L-1 : Link 1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 50.85' @ 12.43 hrs Surf.Area= 7,514 sf Storage= 3,196 cf
Flood Elev= 49.93' Surf.Area= 13 sf Storage= 45 cf

Plug-Flow detention time= 1.7 min calculated for 58,092 cf (100% of inflow)
Center-of-Mass det. time= 1.7 min (791.7 - 790.0)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	4,416 cf	**Flood storage in parking area (Irregular)** Listed below (Recalc)
#2	46.35'	50 cf	**4.00'D x 4.00'H Precast structure**
		4,467 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
50.00	950	168.4	0	0	950
51.00	9,323	601.9	4,416	4,416	27,526

Device	Routing	Invert	Outlet Devices
#0	Secondary	51.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	46.35'	**12.0" Round Culvert** L= 25.4' Ke= 0.500 Inlet / Outlet Invert= 46.35' / 46.11' S= 0.0094 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=7.56 cfs @ 12.43 hrs HW=50.85' (Free Discharge)
1=Culvert (Inlet Controls 7.56 cfs @ 9.63 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=46.35' (Free Discharge)

Summary for Pond DMH-101: dmh

[79] Warning: Submerged Pond CB-101 Primary device # 1 OUTLET by 0.38'

Inflow Area = 7,622 sf, 97.70% Impervious, Inflow Depth = 4.50" for 10-Year event
Inflow = 0.83 cfs @ 12.08 hrs, Volume= 2,856 cf
Outflow = 0.83 cfs @ 12.08 hrs, Volume= 2,856 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.83 cfs @ 12.08 hrs, Volume= 2,856 cf
Routed to Pond DMH-102 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.56' @ 12.08 hrs
Flood Elev= 71.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.09'	**12.0" Round Culvert** L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 65.09' / 64.57' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.82 cfs @ 12.08 hrs HW=65.56' (Free Discharge)
1=Culvert (Barrel Controls 0.82 cfs @ 3.30 fps)

Summary for Pond DMH-102: dmh

[79] Warning: Submerged Pond CB-103 Primary device # 1 INLET by 0.21'
[79] Warning: Submerged Pond DMH-101 Primary device # 1 INLET by 0.06'

Inflow Area = 15,298 sf, 92.06% Impervious, Inflow Depth = 4.14" for 10-Year event
Inflow = 1.58 cfs @ 12.08 hrs, Volume= 5,273 cf
Outflow = 1.58 cfs @ 12.08 hrs, Volume= 5,273 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.58 cfs @ 12.08 hrs, Volume= 5,273 cf
Routed to Pond DMH-103 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.15' @ 12.08 hrs
Flood Elev= 70.48'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.47'	**12.0" Round Culvert** L= 65.0' Ke= 0.500 Inlet / Outlet Invert= 64.47' / 63.82' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.58 cfs @ 12.08 hrs HW=65.15' (Free Discharge)
1=Culvert (Barrel Controls 1.58 cfs @ 3.89 fps)

Summary for Pond DMH-103: dmh

[79] Warning: Submerged Pond DMH-102 Primary device # 1 OUTLET by 0.57'

Inflow Area = 83,660 sf, 63.35% Impervious, Inflow Depth = 0.76" for 10-Year event
Inflow = 1.58 cfs @ 12.08 hrs, Volume= 5,273 cf
Outflow = 1.58 cfs @ 12.08 hrs, Volume= 5,273 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.58 cfs @ 12.08 hrs, Volume= 5,273 cf
Routed to Pond DMH-104 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 64.39' @ 12.08 hrs
Flood Elev= 71.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.71'	**12.0" Round Culvert** L= 81.0' Ke= 0.500 Inlet / Outlet Invert= 63.71' / 62.90' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.58 cfs @ 12.08 hrs HW=64.39' (Free Discharge)
1=Culvert (Inlet Controls 1.58 cfs @ 2.80 fps)

Summary for Pond DMH-104: dmh

[79] Warning: Submerged Pond DMH-103 Primary device # 1 OUTLET by 0.63'

Inflow Area = 89,855 sf, 64.87% Impervious, Inflow Depth = 0.96" for 10-Year event
Inflow = 2.18 cfs @ 12.08 hrs, Volume= 7,171 cf
Outflow = 2.18 cfs @ 12.08 hrs, Volume= 7,171 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.18 cfs @ 12.08 hrs, Volume= 7,171 cf
Routed to Pond DMH-106 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 63.53' @ 12.08 hrs
Flood Elev= 70.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.80'	**15.0" Round Culvert** L= 154.0' Ke= 0.500 Inlet / Outlet Invert= 62.80' / 61.26' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.17 cfs @ 12.08 hrs HW=63.53' (Free Discharge)
1=Culvert (Inlet Controls 2.17 cfs @ 2.91 fps)

Summary for Pond DMH-105: dmh

[79] Warning: Submerged Pond CB-105 Primary device # 1 INLET by 0.03'

Inflow Area = 5,616 sf, 69.72% Impervious, Inflow Depth = 2.81" for 10-Year event
Inflow = 0.42 cfs @ 12.09 hrs, Volume= 1,313 cf
Outflow = 0.42 cfs @ 12.09 hrs, Volume= 1,313 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.09 hrs, Volume= 1,313 cf
Routed to Pond DMH-106 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.94' @ 12.09 hrs
Flood Elev= 71.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.62'	**12.0" Round Culvert** L= 72.0' Ke= 0.500 Inlet / Outlet Invert= 67.62' / 65.98' S= 0.0228 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.42 cfs @ 12.09 hrs HW=67.94' (Free Discharge)
1=Culvert (Inlet Controls 0.42 cfs @ 1.93 fps)

Summary for Pond DMH-106: dmh

[79] Warning: Submerged Pond DMH-104 Primary device # 1 OUTLET by 0.83'

Inflow Area = 104,686 sf, 65.09% Impervious, Inflow Depth = 1.20" for 10-Year event
Inflow = 3.23 cfs @ 12.09 hrs, Volume= 10,435 cf
Outflow = 3.23 cfs @ 12.09 hrs, Volume= 10,435 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.23 cfs @ 12.09 hrs, Volume= 10,435 cf
Routed to Pond DMH-107 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 62.09' @ 12.09 hrs
Flood Elev= 69.28'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.16'	**15.0" Round Culvert** L= 110.0' Ke= 0.500 Inlet / Outlet Invert= 61.16' / 57.86' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.23 cfs @ 12.09 hrs HW=62.09' (Free Discharge)
1=Culvert (Inlet Controls 3.23 cfs @ 3.29 fps)

Summary for Pond DMH-107: DMH

[79] Warning: Submerged Pond DMH-106 Primary device # 1 OUTLET by 1.35'
[79] Warning: Submerged Pond DMH-107A Primary device # 1 OUTLET by 1.36'

Inflow Area = 125,491 sf, 70.16% Impervious, Inflow Depth = 1.73" for 10-Year event
Inflow = 5.42 cfs @ 12.09 hrs, Volume= 18,064 cf
Outflow = 5.42 cfs @ 12.09 hrs, Volume= 18,064 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.42 cfs @ 12.09 hrs, Volume= 18,064 cf
Routed to Pond DMH-108 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 59.22' @ 12.09 hrs
Flood Elev= 64.16'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.75'	**15.0" Round Culvert** L= 61.5' Ke= 0.500 Inlet / Outlet Invert= 57.75' / 56.52' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.41 cfs @ 12.09 hrs HW=59.21' (Free Discharge)
1=Culvert (Inlet Controls 5.41 cfs @ 4.41 fps)

Summary for Pond DMH-107A: DMH

Inflow Area = 20,805 sf, 95.65% Impervious, Inflow Depth = 4.40" for 10-Year event
Inflow = 2.19 cfs @ 12.08 hrs, Volume= 7,629 cf
Outflow = 2.19 cfs @ 12.08 hrs, Volume= 7,629 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.19 cfs @ 12.08 hrs, Volume= 7,629 cf
Routed to Pond DMH-107 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 60.73' @ 12.08 hrs
Flood Elev= 67.88'

Device	Routing	Invert	Outlet Devices
#1	Primary	59.89'	**12.0" Round Culvert** L= 49.1' Ke= 0.500 Inlet / Outlet Invert= 59.89' / 57.85' S= 0.0415 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.19 cfs @ 12.08 hrs HW=60.73' (Free Discharge)
1=Culvert (Inlet Controls 2.19 cfs @ 3.12 fps)

Summary for Pond DMH-108: DMH

Inflow Area = 128,289 sf, 70.05% Impervious, Inflow Depth = 1.75" for 10-Year event
Inflow = 5.62 cfs @ 12.09 hrs, Volume= 18,677 cf
Outflow = 5.62 cfs @ 12.09 hrs, Volume= 18,677 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.62 cfs @ 12.09 hrs, Volume= 18,677 cf
Routed to Pond DMH-109 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 55.73' @ 12.09 hrs
Flood Elev= 61.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.20'	**15.0" Round Culvert** L= 66.3' Ke= 0.500 Inlet / Outlet Invert= 54.20' / 50.89' S= 0.0499 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.61 cfs @ 12.09 hrs HW=55.73' (Free Discharge)
1=Culvert (Inlet Controls 5.61 cfs @ 4.57 fps)

Summary for Pond DMH-109: DMH

Inflow Area = 128,289 sf, 70.05% Impervious, Inflow Depth = 1.75" for 10-Year event
Inflow = 5.62 cfs @ 12.09 hrs, Volume= 18,677 cf
Outflow = 5.62 cfs @ 12.09 hrs, Volume= 18,677 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.62 cfs @ 12.09 hrs, Volume= 18,677 cf
Routed to Pond WQ-101 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 50.03' @ 12.09 hrs
Flood Elev= 55.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.83'	**18.0" Round Culvert** L= 74.8' Ke= 0.500 Inlet / Outlet Invert= 48.83' / 44.34' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.61 cfs @ 12.09 hrs HW=50.02' (Free Discharge)
1=Culvert (Inlet Controls 5.61 cfs @ 3.72 fps)

Summary for Pond DMH-111: DMH

[81] Warning: Exceeded Pond AD-3 by 0.02' @ 12.09 hrs
[79] Warning: Submerged Pond CB-109 Primary device # 1 OUTLET by 0.70'
[79] Warning: Submerged Pond CB-110 Primary device # 1 OUTLET by 0.70'

Inflow Area = 30,327 sf, 47.03% Impervious, Inflow Depth = 1.94" for 10-Year event
Inflow = 1.53 cfs @ 12.09 hrs, Volume= 4,903 cf
Outflow = 1.53 cfs @ 12.09 hrs, Volume= 4,903 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.53 cfs @ 12.09 hrs, Volume= 4,903 cf
Routed to Pond DMH-113 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.60' @ 12.09 hrs
Flood Elev= 49.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.80'	**12.0" Round Culvert** L= 29.3' Ke= 0.500 Inlet / Outlet Invert= 44.80' / 44.65' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.53 cfs @ 12.09 hrs HW=45.60' (Free Discharge)
1=Culvert (Barrel Controls 1.53 cfs @ 3.12 fps)

Summary for Pond DMH-112: DMH

[81] Warning: Exceeded Pond CB-111 by 0.42' @ 12.08 hrs
[79] Warning: Submerged Pond CB-112 Primary device # 1 INLET by 1.02'
[81] Warning: Exceeded Pond CB-113 by 0.55' @ 12.08 hrs

Inflow Area = 54,967 sf, 86.15% Impervious, Inflow Depth = 3.84" for 10-Year event
Inflow = 5.20 cfs @ 12.09 hrs, Volume= 17,567 cf
Outflow = 5.20 cfs @ 12.09 hrs, Volume= 17,567 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.20 cfs @ 12.09 hrs, Volume= 17,567 cf
Routed to Pond DMH-113 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.28' @ 12.09 hrs
Flood Elev= 48.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.07'	**18.0" Round Culvert** L= 41.9' Ke= 0.500 Inlet / Outlet Invert= 45.07' / 44.65' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.19 cfs @ 12.09 hrs HW=46.28' (Free Discharge)
1=Culvert (Barrel Controls 5.19 cfs @ 4.64 fps)

Summary for Pond DMH-113: DMH

[79] Warning: Submerged Pond DMH-111 Primary device # 1 INLET by 0.71'
[79] Warning: Submerged Pond DMH-112 Primary device # 1 INLET by 0.44'

Inflow Area = 85,294 sf, 72.24% Impervious, Inflow Depth = 3.16" for 10-Year event
Inflow = 6.73 cfs @ 12.09 hrs, Volume= 22,471 cf
Outflow = 6.73 cfs @ 12.09 hrs, Volume= 22,471 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.73 cfs @ 12.09 hrs, Volume= 22,471 cf
Routed to Pond WQ-101 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.51' @ 12.09 hrs
Flood Elev= 49.39'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.15'	**24.0" Round Culvert** L= 42.2' Ke= 0.500 Inlet / Outlet Invert= 44.15' / 43.94' S= 0.0050 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=6.71 cfs @ 12.09 hrs HW=45.51' (Free Discharge)
1=Culvert (Barrel Controls 6.71 cfs @ 4.18 fps)

Summary for Pond DMH-201: dmh

[79] Warning: Submerged Pond CB-202 Primary device # 1 OUTLET by 0.34'

Inflow Area = 45,774 sf, 40.92% Impervious, Inflow Depth = 1.33" for 10-Year event
Inflow = 1.49 cfs @ 12.10 hrs, Volume= 5,084 cf
Outflow = 1.49 cfs @ 12.10 hrs, Volume= 5,084 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.49 cfs @ 12.10 hrs, Volume= 5,084 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.34' @ 12.10 hrs
Flood Elev= 76.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.75'	**15.0" Round Culvert** L= 71.0' Ke= 0.500 Inlet / Outlet Invert= 69.75' / 69.04' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.49 cfs @ 12.10 hrs HW=70.34' (Free Discharge)
1=Culvert (Barrel Controls 1.49 cfs @ 3.82 fps)

Summary for Pond DMH-202: dmh

[79] Warning: Submerged Pond CB-207 Primary device # 1 OUTLET by 0.31'
[79] Warning: Submerged Pond CB-209 Primary device # 1 OUTLET by 0.38'

Inflow Area = 47,937 sf, 41.13% Impervious, Inflow Depth = 1.41" for 10-Year event
Inflow = 1.68 cfs @ 12.10 hrs, Volume= 5,632 cf
Outflow = 1.68 cfs @ 12.10 hrs, Volume= 5,632 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.68 cfs @ 12.10 hrs, Volume= 5,632 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.41' @ 12.10 hrs
Flood Elev= 77.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.78'	**15.0" Round Culvert** L= 71.0' Ke= 0.500 Inlet / Outlet Invert= 71.78' / 71.07' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.67 cfs @ 12.10 hrs HW=72.41' (Free Discharge)
1=Culvert (Barrel Controls 1.67 cfs @ 3.92 fps)

Summary for Pond DMH-204: dmh

[79] Warning: Submerged Pond DMH-206 Primary device # 1 OUTLET by 0.47'

Inflow Area = 84,570 sf, 60.24% Impervious, Inflow Depth = 2.43" for 10-Year event
Inflow = 5.10 cfs @ 12.09 hrs, Volume= 17,139 cf
Outflow = 5.10 cfs @ 12.09 hrs, Volume= 17,139 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.10 cfs @ 12.09 hrs, Volume= 17,139 cf
Routed to Pond WQ-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.39' @ 12.09 hrs
Flood Elev= 73.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.42'	**24.0" Round Culvert** L= 62.0' Ke= 0.500

Inlet / Outlet Invert= 67.42' / 66.19' S= 0.0198 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.10 cfs @ 12.09 hrs HW=68.39' (Free Discharge)
1=Culvert (Inlet Controls 5.10 cfs @ 3.36 fps)

Summary for Pond DMH-206: dmh

[79] Warning: Submerged Pond CB-210 Primary device # 1 OUTLET by 0.47'

Inflow Area = 72,390 sf, 56.96% Impervious, Inflow Depth = 2.27" for 10-Year event
Inflow = 4.04 cfs @ 12.09 hrs, Volume= 13,664 cf
Outflow = 4.04 cfs @ 12.09 hrs, Volume= 13,664 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.04 cfs @ 12.09 hrs, Volume= 13,664 cf
Routed to Pond DMH-204 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.88' @ 12.09 hrs
Flood Elev= 75.47'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.91'	**18.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 68.91' / 67.92' S= 0.0168 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.04 cfs @ 12.09 hrs HW=69.88' (Free Discharge)
1=Culvert (Inlet Controls 4.04 cfs @ 3.35 fps)

Summary for Pond DMH-207: cb

[79] Warning: Submerged Pond CB-215 Primary device # 1 OUTLET by 0.44'

Inflow Area = 12,180 sf, 79.75% Impervious, Inflow Depth = 3.42" for 10-Year event
Inflow = 1.06 cfs @ 12.09 hrs, Volume= 3,475 cf
Outflow = 1.06 cfs @ 12.09 hrs, Volume= 3,475 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.06 cfs @ 12.09 hrs, Volume= 3,475 cf
Routed to Pond dmh-204 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.54' @ 12.09 hrs
Flood Elev= 73.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.00'	**12.0" Round Culvert** L= 57.0' Ke= 0.500 Inlet / Outlet Invert= 69.00' / 68.42' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.06 cfs @ 12.09 hrs HW=69.54' (Free Discharge)
1=Culvert (Barrel Controls 1.06 cfs @ 3.54 fps)

Summary for Pond DMH-301: dmh

Inflow Area = 4,688 sf, 99.90% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 0.52 cfs @ 12.08 hrs, Volume= 1,822 cf
Outflow = 0.52 cfs @ 12.08 hrs, Volume= 1,822 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 12.08 hrs, Volume= 1,822 cf
Routed to Pond DMH-302 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.56' @ 12.08 hrs
Flood Elev= 73.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.20'	**12.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 70.20' / 68.98' S= 0.0207 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.51 cfs @ 12.08 hrs HW=70.56' (Free Discharge)
1=Culvert (Inlet Controls 0.51 cfs @ 2.04 fps)

Summary for Pond DMH-302: dmh

[79] Warning: Submerged Pond DMH-301 Primary device # 1 OUTLET by 0.37'

Inflow Area = 17,161 sf, 51.76% Impervious, Inflow Depth = 2.13" for 10-Year event
Inflow = 0.86 cfs @ 12.09 hrs, Volume= 3,046 cf
Outflow = 0.86 cfs @ 12.09 hrs, Volume= 3,046 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.86 cfs @ 12.09 hrs, Volume= 3,046 cf
Routed to Pond DMH-303 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.35' @ 12.09 hrs
Flood Elev= 72.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.88'	**12.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 68.88' / 66.92' S= 0.0784 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.85 cfs @ 12.09 hrs HW=69.35' (Free Discharge)
1=Culvert (Inlet Controls 0.85 cfs @ 2.34 fps)

Summary for Pond DMH-303: dmh

Inflow Area = 26,775 sf, 42.05% Impervious, Inflow Depth = 1.68" for 10-Year event
Inflow = 1.02 cfs @ 12.09 hrs, Volume= 3,750 cf
Outflow = 1.02 cfs @ 12.09 hrs, Volume= 3,750 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.02 cfs @ 12.09 hrs, Volume= 3,750 cf
Routed to Pond DMH-304 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.12' @ 12.09 hrs
Flood Elev= 70.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.60'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 65.60' / 62.58' S= 0.0795 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.02 cfs @ 12.09 hrs HW=66.12' (Free Discharge)
1=Culvert (Inlet Controls 1.02 cfs @ 2.46 fps)

Summary for Pond DMH-304: dmh

Inflow Area = 202,176 sf, 61.53% Impervious, Inflow Depth = 0.92" for 10-Year event
Inflow = 4.43 cfs @ 12.36 hrs, Volume= 15,499 cf
Outflow = 4.43 cfs @ 12.36 hrs, Volume= 15,499 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.43 cfs @ 12.36 hrs, Volume= 15,499 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 59.74' @ 12.36 hrs
Flood Elev= 65.88'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.84'	**24.0" Round Culvert** L= 131.0' Ke= 0.500 Inlet / Outlet Invert= 58.84' / 48.34' S= 0.0802 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.43 cfs @ 12.36 hrs HW=59.74' (Free Discharge)
1=Culvert (Inlet Controls 4.43 cfs @ 3.23 fps)

Summary for Pond DMH-306: DMH

[79] Warning: Submerged Pond CB-307 Primary device # 1 INLET by 0.40'

Inflow Area = 69,993 sf, 37.98% Impervious, Inflow Depth = 1.11" for 10-Year event
Inflow = 1.79 cfs @ 12.10 hrs, Volume= 6,499 cf
Outflow = 1.79 cfs @ 12.10 hrs, Volume= 6,499 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.79 cfs @ 12.10 hrs, Volume= 6,499 cf
Routed to Pond DMH-307 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.04' @ 12.10 hrs
Flood Elev= 50.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.27'	**18.0" Round Culvert** L= 165.0' Ke= 0.500 Inlet / Outlet Invert= 48.27' / 47.79' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.79 cfs @ 12.10 hrs HW=49.04' (Free Discharge)
1=Culvert (Barrel Controls 1.79 cfs @ 2.85 fps)

Summary for Pond DMH-307: DMH

[79] Warning: Submerged Pond DMH-306 Primary device # 1 INLET by 0.24'

Inflow Area = 73,236 sf, 39.33% Impervious, Inflow Depth = 1.19" for 10-Year event
Inflow = 2.03 cfs @ 12.10 hrs, Volume= 7,233 cf
Outflow = 2.03 cfs @ 12.10 hrs, Volume= 7,233 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.03 cfs @ 12.10 hrs, Volume= 7,233 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 48.51' @ 12.10 hrs
Flood Elev= 53.58'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.69'	**18.0" Round Culvert** L= 17.3' Ke= 0.500 Inlet / Outlet Invert= 47.69' / 47.64' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.03 cfs @ 12.10 hrs HW=48.51' (Free Discharge)
1=Culvert (Barrel Controls 2.03 cfs @ 2.96 fps)

Summary for Pond DMH-308: DMH

[79] Warning: Submerged Pond DMH-304 Primary device # 1 OUTLET by 1.23'
[81] Warning: Exceeded Pond DMH-307 by 1.06' @ 12.08 hrs

Inflow Area = 385,962 sf, 59.90% Impervious, Inflow Depth = 1.66" for 10-Year event
Inflow = 11.58 cfs @ 12.09 hrs, Volume= 53,526 cf
Outflow = 11.58 cfs @ 12.09 hrs, Volume= 53,526 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.58 cfs @ 12.09 hrs, Volume= 53,526 cf
Routed to Pond WQ-301 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.57' @ 12.09 hrs
Flood Elev= 53.09'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.54'	**24.0" Round Culvert** L= 163.2' Ke= 0.500 Inlet / Outlet Invert= 47.54' / 47.07' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=11.57 cfs @ 12.09 hrs HW=49.57' (Free Discharge)
1=Culvert (Barrel Controls 11.57 cfs @ 4.52 fps)

Summary for Pond E-DMH 1: E-DMH

[81] Warning: Exceeded Pond WQ-101 by 2.07' @ 12.09 hrs

Inflow Area = 213,583 sf, 70.93% Impervious, Inflow Depth = 2.31" for 10-Year event
Inflow = 12.35 cfs @ 12.09 hrs, Volume= 41,147 cf
Outflow = 12.35 cfs @ 12.09 hrs, Volume= 41,147 cf, Atten= 0%, Lag= 0.0 min
Primary = 12.35 cfs @ 12.09 hrs, Volume= 41,147 cf
Routed to Link L-2 : Link 1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.97' @ 12.09 hrs
Flood Elev= 49.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.80'	**12.0" Round Culvert X 2.00** L= 16.3' Ke= 0.500 Inlet / Outlet Invert= 44.80' / 44.64' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=12.33 cfs @ 12.09 hrs HW=47.96' (Free Discharge)
1=Culvert (Inlet Controls 12.33 cfs @ 7.85 fps)

Summary for Pond IS-1: infiltration

Notes:
An infiltration rate of 8.27 was used for sand (Rawl's) because the systems will have ASTM C-33 sand, or equivalent, below the systems.

GW elevation based on TP 1 (no GW encountered) and SB-1 (GW encountered at 14 feet below grade)

[79] Warning: Submerged Pond WQ-002 Primary device # 1 INLET by 0.19'

Inflow Area = 68,362 sf, 56.93% Impervious, Inflow Depth = 2.14" for 10-Year event
Inflow = 3.66 cfs @ 12.09 hrs, Volume= 12,175 cf
Outflow = 0.73 cfs @ 12.55 hrs, Volume= 12,175 cf, Atten= 80%, Lag= 27.7 min
Discarded = 0.73 cfs @ 12.55 hrs, Volume= 12,175 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond DMH-103 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.06' @ 12.55 hrs Surf.Area= 3,136 sf Storage= 3,064 cf
Flood Elev= 70.00' Surf.Area= 3,136 sf Storage= 10,617 cf

Plug-Flow detention time= 26.5 min calculated for 12,171 cf (100% of inflow)
Center-of-Mass det. time= 26.5 min (849.0 - 822.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	64.50'	4,421 cf	**37.08'W x 84.57'L x 5.50'H Field A** 17,249 cf Overall - 6,196 cf Embedded = 11,052 cf x 40.0% Voids
#2A	65.25'	6,196 cf	**ADS_StormTech MC-3500 d +Cap** x 55 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 55 Chambers in 5 Rows Cap Storage= 14.9 cf x 2 x 5 rows = 149.0 cf
		10,617 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	64.50'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 57.50' Phase-In= 0.01'
#2	Primary	67.35'	**12.0" Round Culvert** L= 27.0' Ke= 0.500 Inlet / Outlet Invert= 67.35' / 67.08' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 2	69.00'	**4.0' long x 0.5' breadth Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.73 cfs @ 12.55 hrs HW=66.06' (Free Discharge)
└**1=Exfiltration** (Controls 0.73 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=64.50' (Free Discharge)
└**2=Culvert** (Controls 0.00 cfs)
└**3=Weir** (Controls 0.00 cfs)

Summary for Pond IS-2: infiltration

Notes:
An infiltration rate of 1.02 inches per hour was used for sandy loam (Rawl's) at TP 4

GW from TP 4 (GW not encountered to a depth of 8 feet below grade)

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[81] Warning: Exceeded Pond WQ-201 by 0.79' @ 12.56 hrs
[81] Warning: Exceeded Pond WQ-202 by 2.83' @ 12.58 hrs

Inflow Area = 175,401 sf, 64.50% Impervious, Inflow Depth = 2.66" for 10-Year event
Inflow = 11.38 cfs @ 12.09 hrs, Volume= 38,882 cf
Outflow = 4.25 cfs @ 12.36 hrs, Volume= 30,006 cf, Atten= 63%, Lag= 16.5 min
Discarded = 0.25 cfs @ 12.36 hrs, Volume= 18,257 cf
Primary = 4.00 cfs @ 12.36 hrs, Volume= 11,749 cf
Routed to Pond DMH-304 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.48' @ 12.36 hrs Surf.Area= 5,452 sf Storage= 15,597 cf
Flood Elev= 70.50' Surf.Area= 5,452 sf Storage= 17,818 cf

Plug-Flow detention time= 278.4 min calculated for 29,996 cf (77% of inflow)
Center-of-Mass det. time= 190.8 min (985.0 - 794.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	65.25'	7,203 cf	**15.58'W x 349.86'L x 5.25'H Field A** 28,623 cf Overall - 10,615 cf Embedded = 18,008 cf x 40.0% Voids
#2A	65.75'	10,615 cf	**ADS_StormTech MC-3500 d +Cap** x 96 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 96 Chambers in 2 Rows Cap Storage= 14.9 cf x 2 x 2 rows = 59.6 cf
		17,818 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	65.25'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 60.75' Phase-In= 0.01'
#2	Primary	65.64'	**24.0" Round Culvert** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 65.64' / 60.30' S= 0.0797 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	69.00'	**4.0' long x 0.5' breadth Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.25 cfs @ 12.36 hrs HW=69.48' (Free Discharge)
└**1=Exfiltration** (Controls 0.25 cfs)

Primary OutFlow Max=3.99 cfs @ 12.36 hrs HW=69.48' (Free Discharge)
└**2=Culvert** (Passes 3.99 cfs of 25.50 cfs potential flow)
└**3=Weir** (Weir Controls 3.99 cfs @ 2.07 fps)

Summary for Pond WQ-002: dmh

[79] Warning: Submerged Pond DMH-002 Primary device # 1 OUTLET by 0.38'

Inflow Area = 57,945 sf, 49.40% Impervious, Inflow Depth = 1.70" for 10-Year event
Inflow = 2.53 cfs @ 12.09 hrs, Volume= 8,193 cf
Outflow = 2.53 cfs @ 12.09 hrs, Volume= 8,193 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.53 cfs @ 12.09 hrs, Volume= 8,193 cf
Routed to Pond IS-1 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.75' @ 12.09 hrs
Flood Elev= 70.94'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.87'	**18.0" Round Culvert** L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 65.87' / 65.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.52 cfs @ 12.09 hrs HW=66.75' (Free Discharge)
└**1=Culvert** (Barrel Controls 2.52 cfs @ 3.37 fps)

Summary for Pond WQ-101: TREATMENT

[79] Warning: Submerged Pond DMH-109 Primary device # 1 OUTLET by 1.55'
[81] Warning: Exceeded Pond DMH-113 by 0.38' @ 12.09 hrs

Inflow Area = 213,583 sf, 70.93% Impervious, Inflow Depth = 2.31" for 10-Year event
Inflow = 12.35 cfs @ 12.09 hrs, Volume= 41,147 cf
Outflow = 12.35 cfs @ 12.09 hrs, Volume= 41,147 cf, Atten= 0%, Lag= 0.0 min
Primary = 12.35 cfs @ 12.09 hrs, Volume= 41,147 cf
Routed to Pond E-DMH 1 : E-DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.89' @ 12.09 hrs
Flood Elev= 51.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.13'	**24.0" Round Culvert** L= 58.0' Ke= 0.500 Inlet / Outlet Invert= 44.13' / 43.55' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.33 cfs @ 12.09 hrs HW=45.89' (Free Discharge)
└**1=Culvert** (Barrel Controls 12.33 cfs @ 5.60 fps)

Summary for Pond WQ-201: wq

[79] Warning: Submerged Pond CB-205 Primary device # 1 OUTLET by 0.43'
[79] Warning: Submerged Pond DMH-201 Primary device # 1 OUTLET by 0.08'

Inflow Area = 65,484 sf, 58.71% Impervious, Inflow Depth = 2.34" for 10-Year event
Inflow = 3.64 cfs @ 12.09 hrs, Volume= 12,744 cf
Outflow = 3.64 cfs @ 12.09 hrs, Volume= 12,744 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.64 cfs @ 12.09 hrs, Volume= 12,744 cf
Routed to Pond IS-2 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.12' @ 12.09 hrs
Flood Elev= 74.49'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.19'	**18.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 68.19' / 67.58' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.64 cfs @ 12.09 hrs HW=69.12' (Free Discharge)
1=Culvert (Barrel Controls 3.64 cfs @ 4.51 fps)

Summary for Pond WQ-202: dmh

[79] Warning: Submerged Pond DMH-204 Primary device # 1 OUTLET by 1.07'

Inflow Area = 90,151 sf, 62.70% Impervious, Inflow Depth = 2.57" for 10-Year event
Inflow = 5.71 cfs @ 12.09 hrs, Volume= 19,308 cf
Outflow = 5.71 cfs @ 12.09 hrs, Volume= 19,308 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.71 cfs @ 12.09 hrs, Volume= 19,308 cf
Routed to Pond is-2 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.26' @ 12.09 hrs
Flood Elev= 72.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.09'	**24.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 66.09' / 65.92' S= 0.0213 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.71 cfs @ 12.09 hrs HW=67.26' (Free Discharge)
1=Culvert (Barrel Controls 5.71 cfs @ 4.30 fps)

Summary for Pond WQ-301: TREATMENT

[81] Warning: Exceeded Pond CB-311 by 2.44' @ 12.09 hrs
[79] Warning: Submerged Pond DMH-308 Primary device # 1 INLET by 1.59'

Inflow Area = 406,222 sf, 60.26% Impervious, Inflow Depth = 1.72" for 10-Year event
Inflow = 13.07 cfs @ 12.09 hrs, Volume= 58,111 cf
Outflow = 13.07 cfs @ 12.09 hrs, Volume= 58,111 cf, Atten= 0%, Lag= 0.0 min
Primary = 13.07 cfs @ 12.09 hrs, Volume= 58,111 cf
Routed to Pond DMH-006 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.13' @ 12.09 hrs
Flood Elev= 50.06'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.97'	**24.0" Round Culvert** L= 10.4' Ke= 0.500 Inlet / Outlet Invert= 46.97' / 46.94' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=13.05 cfs @ 12.09 hrs HW=49.13' (Free Discharge)
1=Culvert (Barrel Controls 13.05 cfs @ 4.79 fps)

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Pond AD-3: AD Peak Elev=45.73' Inflow=0.05 cfs 428 cf
8.0" Round Culvert n=0.013 L=89.4' S=0.0050 '/' Outflow=0.05 cfs 428 cf

Pond CB-001: cb Peak Elev=69.50' Inflow=0.65 cfs 2,044 cf
12.0" Round Culvert n=0.013 L=78.0' S=0.0100 '/' Outflow=0.65 cfs 2,044 cf

Pond CB-005: cb Peak Elev=68.48' Inflow=0.42 cfs 1,323 cf
12.0" Round Culvert n=0.013 L=73.0' S=0.0100 '/' Outflow=0.42 cfs 1,323 cf

Pond CB-101: cb Peak Elev=66.36' Inflow=0.53 cfs 1,903 cf
12.0" Round Culvert n=0.013 L=82.0' S=0.0100 '/' Outflow=0.53 cfs 1,903 cf

Pond CB-102: cb Peak Elev=67.13' Inflow=0.50 cfs 1,711 cf
12.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=0.50 cfs 1,711 cf

Pond CB-103: cb Peak Elev=65.53' Inflow=0.97 cfs 3,162 cf
12.0" Round Culvert n=0.013 L=77.0' S=0.0051 '/' Outflow=0.97 cfs 3,162 cf

Pond CB-105: cb Peak Elev=68.33' Inflow=0.58 cfs 1,812 cf
12.0" Round Culvert n=0.013 L=19.0' S=0.0100 '/' Outflow=0.58 cfs 1,812 cf

Pond CB-107: CB Peak Elev=62.15' Inflow=0.38 cfs 1,207 cf
12.0" Round Culvert n=0.013 L=5.5' S=0.0091 '/' Outflow=0.38 cfs 1,207 cf

Pond CB-108: CB Peak Elev=57.62' Inflow=0.28 cfs 855 cf
12.0" Round Culvert n=0.013 L=6.4' S=0.0592 '/' Outflow=0.28 cfs 855 cf

Pond CB-109: CB Peak Elev=47.74' Inflow=0.30 cfs 941 cf
12.0" Round Culvert n=0.013 L=31.5' S=0.0815 '/' Outflow=0.30 cfs 941 cf

Pond CB-110: CB Peak Elev=47.18' Inflow=1.80 cfs 5,609 cf
12.0" Round Culvert n=0.013 L=215.7' S=0.0070 '/' Outflow=1.80 cfs 5,609 cf

Pond CB-111: CB Peak Elev=45.97' Inflow=1.33 cfs 4,234 cf
12.0" Round Culvert n=0.013 L=8.8' S=0.0103 '/' Outflow=1.33 cfs 4,234 cf

Pond CB-112: CB Peak Elev=47.36' Inflow=4.78 cfs 16,648 cf
12.0" Round Culvert n=0.013 L=14.7' S=0.0061 '/' Outflow=4.78 cfs 16,648 cf

Pond CB-113: CB Peak Elev=45.82' Inflow=0.60 cfs 1,875 cf
12.0" Round Culvert n=0.013 L=23.3' S=0.0099 '/' Outflow=0.60 cfs 1,875 cf

Pond CB-201: cb Peak Elev=72.22' Inflow=0.89 cfs 2,856 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=0.89 cfs 2,856 cf

Pond CB-202: cb Peak Elev=71.38' Inflow=1.77 cfs 5,718 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0102 '/' Outflow=1.77 cfs 5,718 cf

Pond CB-203: cb Peak Elev=73.17' Inflow=0.71 cfs 2,303 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0100 '/' Outflow=0.71 cfs 2,303 cf

Pond CB-204: cb Peak Elev=70.67' Inflow=0.84 cfs 2,984 cf
12.0" Round Culvert n=0.013 L=85.0' S=0.0101 '/' Outflow=0.84 cfs 2,984 cf

Pond CB-205: cb Peak Elev=70.00' Inflow=1.81 cfs 6,453 cf
12.0" Round Culvert n=0.013 L=56.0' S=0.0098 '/' Outflow=1.81 cfs 6,453 cf

Pond CB-206: cb Peak Elev=71.62' Inflow=0.89 cfs 3,175 cf
12.0" Round Culvert n=0.013 L=62.0' S=0.0098 '/' Outflow=0.89 cfs 3,175 cf

Pond CB-207: cb Peak Elev=73.22' Inflow=0.88 cfs 2,845 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0102 '/' Outflow=0.88 cfs 2,845 cf

Pond CB-208: cb Peak Elev=74.18' Inflow=1.20 cfs 3,797 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.1211 '/' Outflow=1.20 cfs 3,797 cf

Pond CB-209: cb Peak Elev=73.38' Inflow=1.86 cfs 5,944 cf
12.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=1.86 cfs 5,944 cf

Pond CB-210: cb Peak Elev=70.58' Inflow=1.11 cfs 3,937 cf
12.0" Round Culvert n=0.013 L=62.0' S=0.0100 '/' Outflow=1.11 cfs 3,937 cf

Pond CB-211: cb Peak Elev=72.69' Inflow=1.15 cfs 3,584 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.0100 '/' Outflow=1.15 cfs 3,584 cf

Pond CB-212: cb Peak Elev=71.92' Inflow=1.95 cfs 6,441 cf
12.0" Round Culvert n=0.013 L=57.0' S=0.0100 '/' Outflow=1.95 cfs 6,441 cf

Pond CB-213: cb Peak Elev=75.92' Inflow=0.21 cfs 680 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0440 '/' Outflow=0.21 cfs 680 cf

Pond CB-214: cb Peak Elev=74.82' Inflow=0.41 cfs 1,316 cf
12.0" Round Culvert n=0.013 L=55.0' S=0.0144 '/' Outflow=0.41 cfs 1,316 cf

Pond CB-215: cb Peak Elev=70.47' Inflow=0.84 cfs 2,623 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.0100 '/' Outflow=0.84 cfs 2,623 cf

Pond CB-307: CB Peak Elev=49.84' Inflow=3.19 cfs 10,612 cf
15.0" Round Culvert n=0.013 L=92.4' S=0.0029 '/' Outflow=3.19 cfs 10,612 cf

Pond CB-309: CB Peak Elev=53.17' Inflow=0.33 cfs 1,018 cf
12.0" Round Culvert n=0.013 L=34.1' S=0.0367 '/' Outflow=0.33 cfs 1,018 cf

Pond CB-310: CB Peak Elev=51.72' Inflow=0.34 cfs 2,359 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0180 '/' Outflow=0.34 cfs 2,359 cf

Pond CB-311: CB Peak Elev=46.87' Inflow=2.05 cfs 6,364 cf
12.0" Round Culvert n=0.013 L=21.8' S=0.0050 '/' Outflow=2.05 cfs 6,364 cf

Pond DMH-001: dmh Peak Elev=68.72' Inflow=1.50 cfs 4,690 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0100 '/' Outflow=1.50 cfs 4,690 cf

Pond DMH-002: dmh Peak Elev=67.89' Inflow=2.42 cfs 7,671 cf
12.0" Round Culvert n=0.013 L=61.0' S=0.0098 '/' Outflow=2.42 cfs 7,671 cf

Pond DMH-005: dmh Peak Elev=67.77' Inflow=0.69 cfs 2,186 cf
12.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=0.69 cfs 2,186 cf

Pond DMH-006: DMH Peak Elev=51.00' Storage=4,467 cf Inflow=26.12 cfs 87,176 cf
12.0" Round Culvert n=0.013 L=25.4' S=0.0094 '/' Primary=7.70 cfs 76,008 cf Secondary=18.33 cfs 11,168 cf Outflow=26.03 cfs 87,176 cf

Pond DMH-101: dmh Peak Elev=65.63' Inflow=1.04 cfs 3,614 cf
12.0" Round Culvert n=0.013 L=52.0' S=0.0100 '/' Outflow=1.04 cfs 3,614 cf

Pond DMH-102: dmh Peak Elev=65.27' Inflow=2.01 cfs 6,776 cf
12.0" Round Culvert n=0.013 L=65.0' S=0.0100 '/' Outflow=2.01 cfs 6,776 cf

Pond DMH-103: dmh Peak Elev=64.50' Inflow=2.01 cfs 6,776 cf
12.0" Round Culvert n=0.013 L=81.0' S=0.0100 '/' Outflow=2.01 cfs 6,776 cf

Pond DMH-104: dmh Peak Elev=63.65' Inflow=2.78 cfs 9,271 cf
15.0" Round Culvert n=0.013 L=154.0' S=0.0100 '/' Outflow=2.78 cfs 9,271 cf

Pond DMH-105: dmh Peak Elev=68.00' Inflow=0.58 cfs 1,812 cf
12.0" Round Culvert n=0.013 L=72.0' S=0.0228 '/' Outflow=0.58 cfs 1,812 cf

Pond DMH-106: dmh Peak Elev=62.30' Inflow=4.25 cfs 13,822 cf
15.0" Round Culvert n=0.013 L=110.0' S=0.0300 '/' Outflow=4.25 cfs 13,822 cf

Pond DMH-107: DMH Peak Elev=59.78' Inflow=7.01 cfs 23,501 cf
15.0" Round Culvert n=0.013 L=61.5' S=0.0200 '/' Outflow=7.01 cfs 23,501 cf

Pond DMH-107A: DMH Peak Elev=60.92' Inflow=2.77 cfs 9,679 cf
12.0" Round Culvert n=0.013 L=49.1' S=0.0415 '/' Outflow=2.77 cfs 9,679 cf

Pond DMH-108: DMH Peak Elev=56.35' Inflow=7.29 cfs 24,356 cf
15.0" Round Culvert n=0.013 L=66.3' S=0.0499 '/' Outflow=7.29 cfs 24,356 cf

Pond DMH-109: DMH Peak Elev=50.31' Inflow=7.29 cfs 24,356 cf
18.0" Round Culvert n=0.013 L=74.8' S=0.0600 '/' Outflow=7.29 cfs 24,356 cf

Pond DMH-111: DMH Peak Elev=45.79' Inflow=2.13 cfs 6,979 cf
12.0" Round Culvert n=0.013 L=29.3' S=0.0051 '/' Outflow=2.13 cfs 6,979 cf

Pond DMH-112: DMH Peak Elev=46.52' Inflow=6.70 cfs 22,757 cf
18.0" Round Culvert n=0.013 L=41.9' S=0.0100 '/' Outflow=6.70 cfs 22,757 cf

Pond DMH-113: DMH Peak Elev=45.75' Inflow=8.83 cfs 29,736 cf
24.0" Round Culvert n=0.013 L=42.2' S=0.0050 '/' Outflow=8.83 cfs 29,736 cf

Pond DMH-201: dmh Peak Elev=70.55' Inflow=2.48 cfs 8,021 cf
15.0" Round Culvert n=0.013 L=71.0' S=0.0100 '/' Outflow=2.48 cfs 8,021 cf

Pond DMH-202: dmh Peak Elev=72.63' Inflow=2.74 cfs 8,789 cf
15.0" Round Culvert n=0.013 L=71.0' S=0.0100 '/' Outflow=2.74 cfs 8,789 cf

Pond DMH-204: dmh Peak Elev=68.61' Inflow=7.19 cfs 23,770 cf
24.0" Round Culvert n=0.013 L=62.0' S=0.0198 '/' Outflow=7.19 cfs 23,770 cf

Pond DMH-206: dmh Peak Elev=70.13' Inflow=5.79 cfs 19,168 cf
18.0" Round Culvert n=0.013 L=59.0' S=0.0168 '/' Outflow=5.79 cfs 19,168 cf

Pond DMH-207: cb Peak Elev=69.64' Inflow=1.40 cfs 4,602 cf
12.0" Round Culvert n=0.013 L=57.0' S=0.0102 '/' Outflow=1.40 cfs 4,602 cf

Pond DMH-301: dmh Peak Elev=70.60' Inflow=0.64 cfs 2,290 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0207 '/' Outflow=0.64 cfs 2,290 cf

Pond DMH-302: dmh Peak Elev=69.46' Inflow=1.24 cfs 4,268 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0784 '/' Outflow=1.24 cfs 4,268 cf

Pond DMH-303: dmh Peak Elev=66.27' Inflow=1.57 cfs 5,462 cf
12.0" Round Culvert n=0.013 L=38.0' S=0.0795 '/' Outflow=1.57 cfs 5,462 cf

Pond DMH-304: dmh Peak Elev=60.55' Inflow=12.77 cfs 29,801 cf
24.0" Round Culvert n=0.013 L=131.0' S=0.0802 '/' Outflow=12.77 cfs 29,801 cf

Pond DMH-306: DMH Peak Elev=49.34' Inflow=3.19 cfs 10,612 cf
18.0" Round Culvert n=0.013 L=165.0' S=0.0029 '/' Outflow=3.19 cfs 10,612 cf

Pond DMH-307: DMH Peak Elev=48.81' Inflow=3.52 cfs 11,631 cf
18.0" Round Culvert n=0.013 L=17.3' S=0.0029 '/' Outflow=3.52 cfs 11,631 cf

Pond DMH-308: DMH Peak Elev=52.36' Inflow=24.33 cfs 80,812 cf
24.0" Round Culvert n=0.013 L=163.2' S=0.0029 '/' Outflow=24.33 cfs 80,812 cf

Pond E-DMH 1: E-DMH Peak Elev=49.84' Inflow=16.12 cfs 54,092 cf
12.0" Round Culvert x 2.00 n=0.013 L=16.3' S=0.0098 '/' Outflow=16.12 cfs 54,092 cf

Pond IS-1: infiltration Peak Elev=66.94' Storage=5,285 cf Inflow=5.33 cfs 17,351 cf
Discarded=0.81 cfs 17,351 cf Primary=0.00 cfs 0 cf Outflow=0.81 cfs 17,351 cf

Pond IS-2: infiltration Peak Elev=69.91' Storage=16,535 cf Inflow=15.71 cfs 52,912 cf
Discarded=0.26 cfs 19,044 cf Primary=11.53 cfs 24,339 cf Outflow=11.79 cfs 43,383 cf

Pond WQ-002: dmh Peak Elev=67.01' Inflow=3.91 cfs 12,330 cf
18.0" Round Culvert n=0.013 L=7.0' S=0.0100 '/' Outflow=3.91 cfs 12,330 cf

Pond WQ-101: TREATMENT Peak Elev=46.29' Inflow=16.12 cfs 54,092 cf
24.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=16.12 cfs 54,092 cf

Pond WQ-201: wq Peak Elev=69.36' Inflow=5.18 cfs 17,649 cf
18.0" Round Culvert n=0.013 L=60.0' S=0.0102 '/' Outflow=5.18 cfs 17,649 cf

Pond WQ-202: dmh Peak Elev=67.52' Inflow=7.95 cfs 26,496 cf
24.0" Round Culvert n=0.013 L=8.0' S=0.0213 '/' Outflow=7.95 cfs 26,496 cf

Pond WQ-301: TREATMENT Peak Elev=50.95' Inflow=26.12 cfs 87,176 cf
24.0" Round Culvert n=0.013 L=10.4' S=0.0029 '/' Outflow=26.12 cfs 87,176 cf

Summary for Pond AD-3: AD

Inflow Area = 9,685 sf, 2.51% Impervious, Inflow Depth = 0.53" for 25-Year event
Inflow = 0.05 cfs @ 12.31 hrs, Volume= 428 cf
Outflow = 0.05 cfs @ 12.31 hrs, Volume= 428 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.31 hrs, Volume= 428 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.73' @ 12.31 hrs
Flood Elev= 51.61'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.58'	**8.0" Round Culvert** L= 89.4' Ke= 0.500 Inlet / Outlet Invert= 45.58' / 45.13' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.05 cfs @ 12.31 hrs HW=45.73' (Free Discharge)
1=Culvert (Barrel Controls 0.05 cfs @ 1.33 fps)

Summary for Pond CB-001: cb

Inflow Area = 9,415 sf, 48.58% Impervious, Inflow Depth = 2.61" for 25-Year event
Inflow = 0.65 cfs @ 12.09 hrs, Volume= 2,044 cf
Outflow = 0.65 cfs @ 12.09 hrs, Volume= 2,044 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.65 cfs @ 12.09 hrs, Volume= 2,044 cf
Routed to Pond DMH-001 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.50' @ 12.09 hrs
Flood Elev= 72.39'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.09'	**12.0" Round Culvert** L= 78.0' Ke= 0.500 Inlet / Outlet Invert= 69.09' / 68.31' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.65 cfs @ 12.09 hrs HW=69.50' (Free Discharge)
1=Culvert (Inlet Controls 0.65 cfs @ 2.17 fps)

Summary for Pond CB-005: cb

Inflow Area = 6,798 sf, 42.20% Impervious, Inflow Depth = 2.33" for 25-Year event
Inflow = 0.42 cfs @ 12.09 hrs, Volume= 1,323 cf
Outflow = 0.42 cfs @ 12.09 hrs, Volume= 1,323 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.09 hrs, Volume= 1,323 cf
Routed to Pond DMH-005 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.48' @ 12.09 hrs
Flood Elev= 71.47'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.16'	**12.0" Round Culvert** L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 68.16' / 67.43' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.42 cfs @ 12.09 hrs HW=68.48' (Free Discharge)
1=Culvert (Barrel Controls 0.42 cfs @ 2.86 fps)

Summary for Pond CB-101: cb

Inflow Area = 3,896 sf, 99.56% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 0.53 cfs @ 12.08 hrs, Volume= 1,903 cf
Outflow = 0.53 cfs @ 12.08 hrs, Volume= 1,903 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.53 cfs @ 12.08 hrs, Volume= 1,903 cf
Routed to Pond DMH-101 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.36' @ 12.08 hrs
Flood Elev= 71.46'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**12.0" Round Culvert** L= 82.0' Ke= 0.500 Inlet / Outlet Invert= 66.00' / 65.18' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.53 cfs @ 12.08 hrs HW=66.36' (Free Discharge)
1=Culvert (Inlet Controls 0.53 cfs @ 2.06 fps)

Summary for Pond CB-102: cb

Inflow Area = 3,726 sf, 95.76% Impervious, Inflow Depth = 5.51" for 25-Year event
Inflow = 0.50 cfs @ 12.08 hrs, Volume= 1,711 cf
Outflow = 0.50 cfs @ 12.08 hrs, Volume= 1,711 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.08 hrs, Volume= 1,711 cf
Routed to Pond DMH-101 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.13' @ 12.08 hrs
Flood Elev= 70.07'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.76'	**12.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 66.76' / 66.45' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.50 cfs @ 12.08 hrs HW=67.13' (Free Discharge)
1=Culvert (Barrel Controls 0.50 cfs @ 2.82 fps)

Summary for Pond CB-103: cb

Inflow Area = 7,676 sf, 86.47% Impervious, Inflow Depth = 4.94" for 25-Year event
Inflow = 0.97 cfs @ 12.08 hrs, Volume= 3,162 cf
Outflow = 0.97 cfs @ 12.08 hrs, Volume= 3,162 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.97 cfs @ 12.08 hrs, Volume= 3,162 cf
Routed to Pond DMH-102 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.53' @ 12.08 hrs
Flood Elev= 67.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.94'	**12.0" Round Culvert** L= 77.0' Ke= 0.500 Inlet / Outlet Invert= 64.94' / 64.55' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.97 cfs @ 12.08 hrs HW=65.53' (Free Discharge)
1=Culvert (Barrel Controls 0.97 cfs @ 2.88 fps)

Summary for Pond CB-105: cb

Inflow Area = 5,616 sf, 69.72% Impervious, Inflow Depth = 3.87" for 25-Year event
Inflow = 0.58 cfs @ 12.09 hrs, Volume= 1,812 cf
Outflow = 0.58 cfs @ 12.09 hrs, Volume= 1,812 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.58 cfs @ 12.09 hrs, Volume= 1,812 cf
Routed to Pond DMH-105 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.33' @ 12.09 hrs
Flood Elev= 71.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.91'	**12.0" Round Culvert** L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 67.91' / 67.72' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.58 cfs @ 12.09 hrs HW=68.33' (Free Discharge)
1=Culvert (Barrel Controls 0.58 cfs @ 2.78 fps)

Summary for Pond CB-107: CB

Inflow Area = 3,461 sf, 73.85% Impervious, Inflow Depth = 4.18" for 25-Year event
Inflow = 0.38 cfs @ 12.09 hrs, Volume= 1,207 cf
Outflow = 0.38 cfs @ 12.09 hrs, Volume= 1,207 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.09 hrs, Volume= 1,207 cf
Routed to Pond DMH-107A : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 62.15' @ 12.09 hrs
Flood Elev= 65.74'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.79'	**12.0" Round Culvert** L= 5.5' Ke= 0.500 Inlet / Outlet Invert= 61.79' / 61.74' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.38 cfs @ 12.09 hrs HW=62.15' (Free Discharge)
1=Culvert (Barrel Controls 0.38 cfs @ 2.23 fps)

Summary for Pond CB-108: CB

Inflow Area = 2,798 sf, 65.43% Impervious, Inflow Depth = 3.67" for 25-Year event
Inflow = 0.28 cfs @ 12.09 hrs, Volume= 855 cf
Outflow = 0.28 cfs @ 12.09 hrs, Volume= 855 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.28 cfs @ 12.09 hrs, Volume= 855 cf
Routed to Pond DMH-108 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 57.62' @ 12.09 hrs
Flood Elev= 59.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.36'	**12.0" Round Culvert** L= 6.4' Ke= 0.500 Inlet / Outlet Invert= 57.36' / 56.98' S= 0.0592 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.28 cfs @ 12.09 hrs HW=57.62' (Free Discharge)
1=Culvert (Inlet Controls 0.28 cfs @ 1.73 fps)

Summary for Pond CB-109: CB

Inflow Area = 3,259 sf, 62.16% Impervious, Inflow Depth = 3.47" for 25-Year event
Inflow = 0.30 cfs @ 12.09 hrs, Volume= 941 cf
Outflow = 0.30 cfs @ 12.09 hrs, Volume= 941 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.09 hrs, Volume= 941 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.74' @ 12.09 hrs
Flood Elev= 51.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.47'	**12.0" Round Culvert** L= 31.5' Ke= 0.500 Inlet / Outlet Invert= 47.47' / 44.90' S= 0.0815 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.30 cfs @ 12.09 hrs HW=47.74' (Free Discharge)
1=Culvert (Inlet Controls 0.30 cfs @ 1.77 fps)

Summary for Pond CB-110: CB

Inflow Area = 17,384 sf, 68.99% Impervious, Inflow Depth = 3.87" for 25-Year event
Inflow = 1.80 cfs @ 12.09 hrs, Volume= 5,609 cf
Outflow = 1.80 cfs @ 12.09 hrs, Volume= 5,609 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.80 cfs @ 12.09 hrs, Volume= 5,609 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.18' @ 12.09 hrs
Flood Elev= 49.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.41'	**12.0" Round Culvert** L= 215.7' Ke= 0.500 Inlet / Outlet Invert= 46.41' / 44.90' S= 0.0070 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.80 cfs @ 12.09 hrs HW=47.18' (Free Discharge)
1=Culvert (Barrel Controls 1.80 cfs @ 3.82 fps)

Summary for Pond CB-111: CB

Inflow Area = 11,014 sf, 81.48% Impervious, Inflow Depth = 4.61" for 25-Year event
Inflow = 1.33 cfs @ 12.09 hrs, Volume= 4,234 cf
Outflow = 1.33 cfs @ 12.09 hrs, Volume= 4,234 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.33 cfs @ 12.09 hrs, Volume= 4,234 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.97' @ 12.09 hrs
Flood Elev= 47.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.26'	**12.0" Round Culvert** L= 8.8' Ke= 0.500 Inlet / Outlet Invert= 45.26' / 45.17' S= 0.0103 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.32 cfs @ 12.09 hrs HW=45.97' (Free Discharge)
1=Culvert (Barrel Controls 1.32 cfs @ 3.12 fps)

Summary for Pond CB-112: CB

Inflow Area = 35,612 sf, 96.36% Impervious, Inflow Depth = 5.61" for 25-Year event
Inflow = 4.78 cfs @ 12.08 hrs, Volume= 16,648 cf
Outflow = 4.78 cfs @ 12.08 hrs, Volume= 16,648 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.78 cfs @ 12.08 hrs, Volume= 16,648 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.36' @ 12.08 hrs
Flood Elev= 47.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.26'	**12.0" Round Culvert** L= 14.7' Ke= 0.500 Inlet / Outlet Invert= 45.26' / 45.17' S= 0.0061 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.77 cfs @ 12.08 hrs HW=47.35' (Free Discharge)
1=Culvert (Inlet Controls 4.77 cfs @ 6.07 fps)

Summary for Pond CB-113: CB

Inflow Area = 8,340 sf, 48.71% Impervious, Inflow Depth = 2.70" for 25-Year event
Inflow = 0.60 cfs @ 12.09 hrs, Volume= 1,875 cf
Outflow = 0.60 cfs @ 12.09 hrs, Volume= 1,875 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.60 cfs @ 12.09 hrs, Volume= 1,875 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.82' @ 12.09 hrs
Flood Elev= 48.28'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.40'	**12.0" Round Culvert** L= 23.3' Ke= 0.500 Inlet / Outlet Invert= 45.40' / 45.17' S= 0.0099 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.60 cfs @ 12.09 hrs HW=45.82' (Free Discharge)
1=Culvert (Barrel Controls 0.60 cfs @ 2.85 fps)

Summary for Pond CB-201: cb

Inflow Area = 15,873 sf, 42.70% Impervious, Inflow Depth = 2.16" for 25-Year event
Inflow = 0.89 cfs @ 12.09 hrs, Volume= 2,856 cf
Outflow = 0.89 cfs @ 12.09 hrs, Volume= 2,856 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.89 cfs @ 12.09 hrs, Volume= 2,856 cf
Routed to Pond CB-202 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.22' @ 12.09 hrs
Flood Elev= 75.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.74'	**12.0" Round Culvert** L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 71.74' / 70.74' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.89 cfs @ 12.09 hrs HW=72.22' (Free Discharge)
1=Culvert (Inlet Controls 0.89 cfs @ 2.36 fps)

Summary for Pond CB-202: cb

[79] Warning: Submerged Pond CB-201 Primary device # 1 OUTLET by 0.63'

Inflow Area = 32,444 sf, 41.56% Impervious, Inflow Depth = 2.12" for 25-Year event
Inflow = 1.77 cfs @ 12.09 hrs, Volume= 5,718 cf
Outflow = 1.77 cfs @ 12.09 hrs, Volume= 5,718 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.77 cfs @ 12.09 hrs, Volume= 5,718 cf
Routed to Pond DMH-201 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.38' @ 12.09 hrs
Flood Elev= 75.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.64'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 70.64' / 70.00' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.77 cfs @ 12.09 hrs HW=71.37' (Free Discharge)
1=Culvert (Barrel Controls 1.77 cfs @ 3.99 fps)

Summary for Pond CB-203: cb

Inflow Area = 13,330 sf, 39.38% Impervious, Inflow Depth = 2.07" for 25-Year event
Inflow = 0.71 cfs @ 12.10 hrs, Volume= 2,303 cf
Outflow = 0.71 cfs @ 12.10 hrs, Volume= 2,303 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.71 cfs @ 12.10 hrs, Volume= 2,303 cf
Routed to Pond DMH-201 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 73.17' @ 12.10 hrs
Flood Elev= 76.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.74'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 72.74' / 72.11' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.71 cfs @ 12.10 hrs HW=73.17' (Free Discharge)
1=Culvert (Barrel Controls 0.71 cfs @ 3.24 fps)

Summary for Pond CB-204: cb

Inflow Area = 6,109 sf,100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 0.84 cfs @ 12.08 hrs, Volume= 2,984 cf
Outflow = 0.84 cfs @ 12.08 hrs, Volume= 2,984 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.08 hrs, Volume= 2,984 cf
Routed to Pond CB-205 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.67' @ 12.08 hrs
Flood Elev= 73.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.20'	**12.0" Round Culvert** L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 70.20' / 69.34' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.84 cfs @ 12.08 hrs HW=70.67' (Free Discharge)
1=Culvert (Inlet Controls 0.84 cfs @ 2.33 fps)

Summary for Pond CB-205: cb

[79] Warning: Submerged Pond CB-204 Primary device # 1 OUTLET by 0.66'

Inflow Area = 13,210 sf,100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 1.81 cfs @ 12.08 hrs, Volume= 6,453 cf
Outflow = 1.81 cfs @ 12.08 hrs, Volume= 6,453 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.81 cfs @ 12.08 hrs, Volume= 6,453 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.00' @ 12.08 hrs
Flood Elev= 73.11'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.24'	**12.0" Round Culvert** L= 56.0' Ke= 0.500 Inlet / Outlet Invert= 69.24' / 68.69' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.81 cfs @ 12.08 hrs HW=70.00' (Free Discharge)
1=Culvert (Barrel Controls 1.81 cfs @ 3.93 fps)

Summary for Pond CB-206: cb

Inflow Area = 6,500 sf,100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 0.89 cfs @ 12.08 hrs, Volume= 3,175 cf
Outflow = 0.89 cfs @ 12.08 hrs, Volume= 3,175 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.89 cfs @ 12.08 hrs, Volume= 3,175 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.62' @ 12.08 hrs
Flood Elev= 74.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.13'	**12.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 71.13' / 70.52' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.89 cfs @ 12.08 hrs HW=71.62' (Free Discharge)
1=Culvert (Barrel Controls 0.89 cfs @ 3.39 fps)

Summary for Pond CB-207: cb

Inflow Area = 16,473 sf, 41.23% Impervious, Inflow Depth = 2.07" for 25-Year event
Inflow = 0.88 cfs @ 12.10 hrs, Volume= 2,845 cf
Outflow = 0.88 cfs @ 12.10 hrs, Volume= 2,845 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.88 cfs @ 12.10 hrs, Volume= 2,845 cf
Routed to Pond DMH-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 73.22' @ 12.10 hrs
Flood Elev= 76.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.74'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 72.74' / 72.10' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.88 cfs @ 12.10 hrs HW=73.22' (Free Discharge)
1=Culvert (Barrel Controls 0.88 cfs @ 3.42 fps)

Summary for Pond CB-208: cb

[79] Warning: Submerged Pond CB-214 Primary device # 1 OUTLET by 0.47'

Inflow Area = 19,530 sf, 41.92% Impervious, Inflow Depth = 2.33" for 25-Year event
Inflow = 1.20 cfs @ 12.09 hrs, Volume= 3,797 cf
Outflow = 1.20 cfs @ 12.09 hrs, Volume= 3,797 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.20 cfs @ 12.09 hrs, Volume= 3,797 cf
Routed to Pond CB-209 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 74.18' @ 12.09 hrs
Flood Elev= 77.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.61'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 73.61' / 62.71' S= 0.1211 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.19 cfs @ 12.09 hrs HW=74.18' (Free Discharge)
1=Culvert (Inlet Controls 1.19 cfs @ 2.57 fps)

Summary for Pond CB-209: cb

[79] Warning: Submerged Pond CB-208 Primary device # 1 OUTLET by 10.67'

Inflow Area = 31,464 sf, 41.07% Impervious, Inflow Depth = 2.27" for 25-Year event
Inflow = 1.86 cfs @ 12.09 hrs, Volume= 5,944 cf
Outflow = 1.86 cfs @ 12.09 hrs, Volume= 5,944 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.86 cfs @ 12.09 hrs, Volume= 5,944 cf
Routed to Pond DMH-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 73.38' @ 12.09 hrs
Flood Elev= 77.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.61'	**12.0" Round Culvert** L= 58.0' Ke= 0.500 Inlet / Outlet Invert= 72.61' / 72.03' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.86 cfs @ 12.09 hrs HW=73.38' (Free Discharge)
1=Culvert (Barrel Controls 1.86 cfs @ 3.98 fps)

Summary for Pond CB-210: cb

Inflow Area = 8,060 sf,100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 1.11 cfs @ 12.08 hrs, Volume= 3,937 cf
Outflow = 1.11 cfs @ 12.08 hrs, Volume= 3,937 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.11 cfs @ 12.08 hrs, Volume= 3,937 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.58' @ 12.08 hrs
Flood Elev= 74.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.03'	**12.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 70.03' / 69.41' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.10 cfs @ 12.08 hrs HW=70.58' (Free Discharge)
1=Culvert (Barrel Controls 1.10 cfs @ 3.58 fps)

Summary for Pond CB-211: cb

Inflow Area = 10,543 sf, 72.18% Impervious, Inflow Depth = 4.08" for 25-Year event
Inflow = 1.15 cfs @ 12.09 hrs, Volume= 3,584 cf
Outflow = 1.15 cfs @ 12.09 hrs, Volume= 3,584 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.15 cfs @ 12.09 hrs, Volume= 3,584 cf
Routed to Pond CB-212 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.69' @ 12.09 hrs
Flood Elev= 75.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.13'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 72.13' / 71.23' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.14 cfs @ 12.09 hrs HW=72.69' (Free Discharge)
1=Culvert (Inlet Controls 1.14 cfs @ 2.54 fps)

Summary for Pond CB-212: cb

[79] Warning: Submerged Pond CB-211 Primary device # 1 OUTLET by 0.69'

Inflow Area = 16,393 sf, 82.11% Impervious, Inflow Depth = 4.72" for 25-Year event
Inflow = 1.95 cfs @ 12.09 hrs, Volume= 6,441 cf
Outflow = 1.95 cfs @ 12.09 hrs, Volume= 6,441 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.95 cfs @ 12.09 hrs, Volume= 6,441 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.92' @ 12.09 hrs
Flood Elev= 75.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.13'	**12.0" Round Culvert** L= 57.0' Ke= 0.500 Inlet / Outlet Invert= 71.13' / 70.56' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.95 cfs @ 12.09 hrs HW=71.92' (Free Discharge)
1=Culvert (Barrel Controls 1.95 cfs @ 4.01 fps)

Summary for Pond CB-213: cb

Inflow Area = 3,633 sf, 40.06% Impervious, Inflow Depth = 2.25" for 25-Year event
Inflow = 0.21 cfs @ 12.09 hrs, Volume= 680 cf
Outflow = 0.21 cfs @ 12.09 hrs, Volume= 680 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 12.09 hrs, Volume= 680 cf
Routed to Pond CB-214 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 75.92' @ 12.09 hrs
Flood Elev= 79.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.70'	**12.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 75.70' / 74.60' S= 0.0440 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.21 cfs @ 12.09 hrs HW=75.92' (Free Discharge)
1=Culvert (Inlet Controls 0.21 cfs @ 1.61 fps)

Summary for Pond CB-214: cb

[79] Warning: Submerged Pond CB-213 Primary device # 1 OUTLET by 0.22'

Inflow Area = 6,778 sf, 42.27% Impervious, Inflow Depth = 2.33" for 25-Year event
Inflow = 0.41 cfs @ 12.09 hrs, Volume= 1,316 cf
Outflow = 0.41 cfs @ 12.09 hrs, Volume= 1,316 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.41 cfs @ 12.09 hrs, Volume= 1,316 cf
Routed to Pond CB-208 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 74.82' @ 12.09 hrs
Flood Elev= 78.07'

Device	Routing	Invert	Outlet Devices
#1	Primary	74.50'	**12.0" Round Culvert** L= 55.0' Ke= 0.500 Inlet / Outlet Invert= 74.50' / 73.71' S= 0.0144 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.41 cfs @ 12.09 hrs HW=74.82' (Free Discharge)
1=Culvert (Inlet Controls 0.41 cfs @ 1.92 fps)

Summary for Pond CB-215: cb

Inflow Area = 8,130 sf, 69.66% Impervious, Inflow Depth = 3.87" for 25-Year event
Inflow = 0.84 cfs @ 12.09 hrs, Volume= 2,623 cf
Outflow = 0.84 cfs @ 12.09 hrs, Volume= 2,623 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.09 hrs, Volume= 2,623 cf
Routed to Pond DMH-207 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.47' @ 12.09 hrs
Flood Elev= 73.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.00'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 70.00' / 69.10' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.84 cfs @ 12.09 hrs HW=70.47' (Free Discharge)
1=Culvert (Inlet Controls 0.84 cfs @ 2.33 fps)

Summary for Pond CB-307: CB

Inflow Area = 69,993 sf, 37.98% Impervious, Inflow Depth = 1.82" for 25-Year event
Inflow = 3.19 cfs @ 12.10 hrs, Volume= 10,612 cf
Outflow = 3.19 cfs @ 12.10 hrs, Volume= 10,612 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.19 cfs @ 12.10 hrs, Volume= 10,612 cf
Routed to Pond DMH-306 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.84' @ 12.10 hrs
Flood Elev= 50.19'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.64'	**15.0" Round Culvert** L= 92.4' Ke= 0.500 Inlet / Outlet Invert= 48.64' / 48.37' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.18 cfs @ 12.10 hrs HW=49.83' (Free Discharge)
1=Culvert (Barrel Controls 3.18 cfs @ 3.38 fps)

Summary for Pond CB-309: CB

Inflow Area = 3,243 sf, 68.42% Impervious, Inflow Depth = 3.77" for 25-Year event
Inflow = 0.33 cfs @ 12.09 hrs, Volume= 1,018 cf
Outflow = 0.33 cfs @ 12.09 hrs, Volume= 1,018 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.09 hrs, Volume= 1,018 cf
Routed to Pond DMH-307 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 53.17' @ 12.09 hrs
Flood Elev= 56.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.89'	**12.0" Round Culvert** L= 34.1' Ke= 0.500 Inlet / Outlet Invert= 52.89' / 51.64' S= 0.0367 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.33 cfs @ 12.09 hrs HW=53.17' (Free Discharge)
1=Culvert (Inlet Controls 0.33 cfs @ 1.81 fps)

Summary for Pond CB-310: CB

Inflow Area = 34,760 sf, 6.31% Impervious, Inflow Depth = 0.81" for 25-Year event
Inflow = 0.34 cfs @ 12.12 hrs, Volume= 2,359 cf
Outflow = 0.34 cfs @ 12.12 hrs, Volume= 2,359 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.12 hrs, Volume= 2,359 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 51.72' @ 12.12 hrs
Flood Elev= 53.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.43'	**12.0" Round Culvert** L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 51.43' / 51.16' S= 0.0180 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.12 hrs HW=51.72' (Free Discharge)
1=Culvert (Inlet Controls 0.34 cfs @ 1.83 fps)

Summary for Pond CB-311: CB

Inflow Area = 20,260 sf, 67.28% Impervious, Inflow Depth = 3.77" for 25-Year event
Inflow = 2.05 cfs @ 12.09 hrs, Volume= 6,364 cf
Outflow = 2.05 cfs @ 12.09 hrs, Volume= 6,364 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.05 cfs @ 12.09 hrs, Volume= 6,364 cf
Routed to Pond WQ-301 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.87' @ 12.09 hrs
Flood Elev= 47.83'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.90'	**12.0" Round Culvert** L= 21.8' Ke= 0.500 Inlet / Outlet Invert= 45.90' / 45.79' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.05 cfs @ 12.09 hrs HW=46.87' (Free Discharge)
1=Culvert (Barrel Controls 2.05 cfs @ 3.34 fps)

Summary for Pond DMH-001: dmh

[79] Warning: Submerged Pond CB-001 Primary device # 1 OUTLET by 0.41'

Inflow Area = 21,598 sf, 50.19% Impervious, Inflow Depth = 2.61" for 25-Year event
Inflow = 1.50 cfs @ 12.09 hrs, Volume= 4,690 cf
Outflow = 1.50 cfs @ 12.09 hrs, Volume= 4,690 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.50 cfs @ 12.09 hrs, Volume= 4,690 cf
Routed to Pond DMH-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.72' @ 12.09 hrs
Flood Elev= 71.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.05'	**12.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 68.05' / 67.46' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.49 cfs @ 12.09 hrs HW=68.72' (Free Discharge)
1=Culvert (Barrel Controls 1.49 cfs @ 3.81 fps)

Summary for Pond DMH-002: dmh

[79] Warning: Submerged Pond DMH-001 Primary device # 1 OUTLET by 0.43'

Inflow Area = 38,859 sf, 47.20% Impervious, Inflow Depth = 2.37" for 25-Year event
Inflow = 2.42 cfs @ 12.09 hrs, Volume= 7,671 cf
Outflow = 2.42 cfs @ 12.09 hrs, Volume= 7,671 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.42 cfs @ 12.09 hrs, Volume= 7,671 cf
Routed to Pond WQ-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.89' @ 12.09 hrs
Flood Elev= 70.94'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.97'	**12.0" Round Culvert** L= 61.0' Ke= 0.500 Inlet / Outlet Invert= 66.97' / 66.37' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.41 cfs @ 12.09 hrs HW=67.89' (Free Discharge)
1=Culvert (Barrel Controls 2.41 cfs @ 4.19 fps)

Summary for Pond DMH-005: dmh

[79] Warning: Submerged Pond CB-005 Primary device # 1 OUTLET by 0.34'

Inflow Area = 10,274 sf, 46.43% Impervious, Inflow Depth = 2.55" for 25-Year event
Inflow = 0.69 cfs @ 12.09 hrs, Volume= 2,186 cf
Outflow = 0.69 cfs @ 12.09 hrs, Volume= 2,186 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.69 cfs @ 12.09 hrs, Volume= 2,186 cf
Routed to Pond WQ-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.77' @ 12.09 hrs
Flood Elev= 71.77'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.33'	**12.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 67.33' / 67.02' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.69 cfs @ 12.09 hrs HW=67.77' (Free Discharge)
1=Culvert (Barrel Controls 0.69 cfs @ 3.03 fps)

Summary for Pond DMH-006: DMH

[58] Hint: Peaked 1.07' above defined flood level
[81] Warning: Exceeded Pond WQ-301 by 2.76' @ 12.65 hrs

Inflow Area = 406,222 sf, 60.26% Impervious, Inflow Depth = 2.58" for 25-Year event
Inflow = 26.12 cfs @ 12.13 hrs, Volume= 87,176 cf
Outflow = 26.03 cfs @ 12.14 hrs, Volume= 87,176 cf, Atten= 0%, Lag= 0.4 min
Primary = 7.70 cfs @ 12.12 hrs, Volume= 76,008 cf
Routed to Link L-1 : Link 1
Secondary = 18.33 cfs @ 12.14 hrs, Volume= 11,168 cf
Routed to Link L-1 : Link 1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 51.00' @ 12.12 hrs Surf.Area= 9,336 sf Storage= 4,467 cf
Flood Elev= 49.93' Surf.Area= 13 sf Storage= 45 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.3 min (791.9 - 789.6)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	4,416 cf	**Flood storage in parking area (Irregular)** Listed below (Recalc)
#2	46.35'	50 cf	**4.00'D x 4.00'H Precast structure**
		4,467 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
50.00	950	168.4	0	0	950
51.00	9,323	601.9	4,416	4,416	27,526

Device	Routing	Invert	Outlet Devices
#0	Secondary	51.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	46.35'	**12.0" Round Culvert** L= 25.4' Ke= 0.500 Inlet / Outlet Invert= 46.35' / 46.11' S= 0.0094 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=7.70 cfs @ 12.12 hrs HW=51.00' (Free Discharge)
1=Culvert (Inlet Controls 7.70 cfs @ 9.81 fps)

Secondary OutFlow Max=0.00 cfs @ 12.14 hrs HW=51.00' (Free Discharge)

Summary for Pond DMH-101: dmh

[79] Warning: Submerged Pond CB-101 Primary device # 1 OUTLET by 0.45'

Inflow Area = 7,622 sf, 97.70% Impervious, Inflow Depth = 5.69" for 25-Year event
Inflow = 1.04 cfs @ 12.08 hrs, Volume= 3,614 cf
Outflow = 1.04 cfs @ 12.08 hrs, Volume= 3,614 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.08 hrs, Volume= 3,614 cf
Routed to Pond DMH-102 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.63' @ 12.08 hrs
Flood Elev= 71.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.09'	**12.0" Round Culvert** L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 65.09' / 64.57' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.03 cfs @ 12.08 hrs HW=65.63' (Free Discharge)
1=Culvert (Barrel Controls 1.03 cfs @ 3.48 fps)

Summary for Pond DMH-102: dmh

[79] Warning: Submerged Pond CB-103 Primary device # 1 INLET by 0.33'
[79] Warning: Submerged Pond DMH-101 Primary device # 1 INLET by 0.18'

Inflow Area = 15,298 sf, 92.06% Impervious, Inflow Depth = 5.32" for 25-Year event
Inflow = 2.01 cfs @ 12.08 hrs, Volume= 6,776 cf
Outflow = 2.01 cfs @ 12.08 hrs, Volume= 6,776 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.01 cfs @ 12.08 hrs, Volume= 6,776 cf
Routed to Pond DMH-103 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.27' @ 12.08 hrs
Flood Elev= 70.48'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.47'	**12.0" Round Culvert** L= 65.0' Ke= 0.500 Inlet / Outlet Invert= 64.47' / 63.82' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.01 cfs @ 12.08 hrs HW=65.27' (Free Discharge)
1=Culvert (Barrel Controls 2.01 cfs @ 4.09 fps)

Summary for Pond DMH-103: dmh

[79] Warning: Submerged Pond DMH-102 Primary device # 1 INLET by 0.03'

Inflow Area = 83,660 sf, 63.35% Impervious, Inflow Depth = 0.97" for 25-Year event
Inflow = 2.01 cfs @ 12.08 hrs, Volume= 6,776 cf
Outflow = 2.01 cfs @ 12.08 hrs, Volume= 6,776 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.01 cfs @ 12.08 hrs, Volume= 6,776 cf
Routed to Pond DMH-104 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 64.50' @ 12.08 hrs
Flood Elev= 71.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.71'	**12.0" Round Culvert** L= 81.0' Ke= 0.500 Inlet / Outlet Invert= 63.71' / 62.90' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.01 cfs @ 12.08 hrs HW=64.50' (Free Discharge)
1=Culvert (Inlet Controls 2.01 cfs @ 3.02 fps)

Summary for Pond DMH-104: dmh

[79] Warning: Submerged Pond DMH-103 Primary device # 1 OUTLET by 0.75'

Inflow Area = 89,855 sf, 64.87% Impervious, Inflow Depth = 1.24" for 25-Year event
Inflow = 2.78 cfs @ 12.08 hrs, Volume= 9,271 cf
Outflow = 2.78 cfs @ 12.08 hrs, Volume= 9,271 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.78 cfs @ 12.08 hrs, Volume= 9,271 cf
Routed to Pond DMH-106 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 63.65' @ 12.08 hrs
Flood Elev= 70.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.80'	**15.0" Round Culvert** L= 154.0' Ke= 0.500 Inlet / Outlet Invert= 62.80' / 61.26' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.78 cfs @ 12.08 hrs HW=63.65' (Free Discharge)
1=Culvert (Inlet Controls 2.78 cfs @ 3.13 fps)

Summary for Pond DMH-105: dmh

[79] Warning: Submerged Pond CB-105 Primary device # 1 INLET by 0.09'

Inflow Area = 5,616 sf, 69.72% Impervious, Inflow Depth = 3.87" for 25-Year event
Inflow = 0.58 cfs @ 12.09 hrs, Volume= 1,812 cf
Outflow = 0.58 cfs @ 12.09 hrs, Volume= 1,812 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.58 cfs @ 12.09 hrs, Volume= 1,812 cf
Routed to Pond DMH-106 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.00' @ 12.09 hrs
Flood Elev= 71.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.62'	**12.0" Round Culvert** L= 72.0' Ke= 0.500 Inlet / Outlet Invert= 67.62' / 65.98' S= 0.0228 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.58 cfs @ 12.09 hrs HW=68.00' (Free Discharge)
1=Culvert (Inlet Controls 0.58 cfs @ 2.10 fps)

Summary for Pond DMH-106: dmh

[79] Warning: Submerged Pond DMH-104 Primary device # 1 OUTLET by 1.03'

Inflow Area = 104,686 sf, 65.09% Impervious, Inflow Depth = 1.58" for 25-Year event
Inflow = 4.25 cfs @ 12.09 hrs, Volume= 13,822 cf
Outflow = 4.25 cfs @ 12.09 hrs, Volume= 13,822 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.25 cfs @ 12.09 hrs, Volume= 13,822 cf
Routed to Pond DMH-107 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 62.30' @ 12.09 hrs
Flood Elev= 69.28'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.16'	**15.0" Round Culvert** L= 110.0' Ke= 0.500 Inlet / Outlet Invert= 61.16' / 57.86' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.24 cfs @ 12.09 hrs HW=62.29' (Free Discharge)
1=Culvert (Inlet Controls 4.24 cfs @ 3.63 fps)

Summary for Pond DMH-107: DMH

[79] Warning: Submerged Pond DMH-106 Primary device # 1 OUTLET by 1.92'
[79] Warning: Submerged Pond DMH-107A Primary device # 1 OUTLET by 1.93'

Inflow Area = 125,491 sf, 70.16% Impervious, Inflow Depth = 2.25" for 25-Year event
Inflow = 7.01 cfs @ 12.08 hrs, Volume= 23,501 cf
Outflow = 7.01 cfs @ 12.08 hrs, Volume= 23,501 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.01 cfs @ 12.08 hrs, Volume= 23,501 cf
Routed to Pond DMH-108 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 59.78' @ 12.08 hrs
Flood Elev= 64.16'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.75'	**15.0" Round Culvert** L= 61.5' Ke= 0.500 Inlet / Outlet Invert= 57.75' / 56.52' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=7.00 cfs @ 12.08 hrs HW=59.78' (Free Discharge)
1=Culvert (Inlet Controls 7.00 cfs @ 5.70 fps)

Summary for Pond DMH-107A: DMH

Inflow Area = 20,805 sf, 95.65% Impervious, Inflow Depth = 5.58" for 25-Year event
Inflow = 2.77 cfs @ 12.08 hrs, Volume= 9,679 cf
Outflow = 2.77 cfs @ 12.08 hrs, Volume= 9,679 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.77 cfs @ 12.08 hrs, Volume= 9,679 cf
Routed to Pond DMH-107 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 60.92' @ 12.08 hrs
Flood Elev= 67.88'

Device	Routing	Invert	Outlet Devices
#1	Primary	59.89'	**12.0" Round Culvert** L= 49.1' Ke= 0.500 Inlet / Outlet Invert= 59.89' / 57.85' S= 0.0415 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.76 cfs @ 12.08 hrs HW=60.92' (Free Discharge)
1=Culvert (Inlet Controls 2.76 cfs @ 3.51 fps)

Summary for Pond DMH-108: DMH

Inflow Area = 128,289 sf, 70.05% Impervious, Inflow Depth = 2.28" for 25-Year event
Inflow = 7.29 cfs @ 12.08 hrs, Volume= 24,356 cf
Outflow = 7.29 cfs @ 12.08 hrs, Volume= 24,356 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.29 cfs @ 12.08 hrs, Volume= 24,356 cf
Routed to Pond DMH-109 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 56.35' @ 12.08 hrs
Flood Elev= 61.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.20'	**15.0" Round Culvert** L= 66.3' Ke= 0.500 Inlet / Outlet Invert= 54.20' / 50.89' S= 0.0499 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=7.27 cfs @ 12.08 hrs HW=56.34' (Free Discharge)
1=Culvert (Inlet Controls 7.27 cfs @ 5.93 fps)

Summary for Pond DMH-109: DMH

Inflow Area = 128,289 sf, 70.05% Impervious, Inflow Depth = 2.28" for 25-Year event
Inflow = 7.29 cfs @ 12.08 hrs, Volume= 24,356 cf
Outflow = 7.29 cfs @ 12.08 hrs, Volume= 24,356 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.29 cfs @ 12.08 hrs, Volume= 24,356 cf
Routed to Pond WQ-101 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 50.31' @ 12.08 hrs
Flood Elev= 55.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.83'	**18.0" Round Culvert** L= 74.8' Ke= 0.500 Inlet / Outlet Invert= 48.83' / 44.34' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.27 cfs @ 12.08 hrs HW=50.30' (Free Discharge)
1=Culvert (Inlet Controls 7.27 cfs @ 4.13 fps)

Summary for Pond DMH-111: DMH

[81] Warning: Exceeded Pond AD-3 by 0.13' @ 12.08 hrs
[79] Warning: Submerged Pond CB-109 Primary device # 1 OUTLET by 0.89'
[79] Warning: Submerged Pond CB-110 Primary device # 1 OUTLET by 0.89'

Inflow Area = 30,327 sf, 47.03% Impervious, Inflow Depth = 2.76" for 25-Year event
Inflow = 2.13 cfs @ 12.09 hrs, Volume= 6,979 cf
Outflow = 2.13 cfs @ 12.09 hrs, Volume= 6,979 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.13 cfs @ 12.09 hrs, Volume= 6,979 cf
Routed to Pond DMH-113 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.79' @ 12.09 hrs
Flood Elev= 49.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.80'	**12.0" Round Culvert** L= 29.3' Ke= 0.500 Inlet / Outlet Invert= 44.80' / 44.65' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.13 cfs @ 12.09 hrs HW=45.79' (Free Discharge)
1=Culvert (Barrel Controls 2.13 cfs @ 3.40 fps)

Summary for Pond DMH-112: DMH

[81] Warning: Exceeded Pond CB-111 by 0.55' @ 12.08 hrs
[79] Warning: Submerged Pond CB-112 Primary device # 1 INLET by 1.26'
[81] Warning: Exceeded Pond CB-113 by 0.70' @ 12.08 hrs

Inflow Area = 54,967 sf, 86.15% Impervious, Inflow Depth = 4.97" for 25-Year event
Inflow = 6.70 cfs @ 12.08 hrs, Volume= 22,757 cf
Outflow = 6.70 cfs @ 12.08 hrs, Volume= 22,757 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.70 cfs @ 12.08 hrs, Volume= 22,757 cf
Routed to Pond DMH-113 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.52' @ 12.08 hrs
Flood Elev= 48.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.07'	**18.0" Round Culvert** L= 41.9' Ke= 0.500 Inlet / Outlet Invert= 45.07' / 44.65' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.69 cfs @ 12.08 hrs HW=46.52' (Free Discharge)
1=Culvert (Barrel Controls 6.69 cfs @ 4.89 fps)

Summary for Pond DMH-113: DMH

[79] Warning: Submerged Pond DMH-111 Primary device # 1 INLET by 0.95'
[79] Warning: Submerged Pond DMH-112 Primary device # 1 INLET by 0.68'

Inflow Area = 85,294 sf, 72.24% Impervious, Inflow Depth = 4.18" for 25-Year event
Inflow = 8.83 cfs @ 12.09 hrs, Volume= 29,736 cf
Outflow = 8.83 cfs @ 12.09 hrs, Volume= 29,736 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.83 cfs @ 12.09 hrs, Volume= 29,736 cf
Routed to Pond WQ-101 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.75' @ 12.09 hrs
Flood Elev= 49.39'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.15'	**24.0" Round Culvert** L= 42.2' Ke= 0.500 Inlet / Outlet Invert= 44.15' / 43.94' S= 0.0050 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.81 cfs @ 12.09 hrs HW=45.75' (Free Discharge)
1=Culvert (Barrel Controls 8.81 cfs @ 4.48 fps)

Summary for Pond DMH-201: dmh

[79] Warning: Submerged Pond CB-202 Primary device # 1 OUTLET by 0.55'

Inflow Area = 45,774 sf, 40.92% Impervious, Inflow Depth = 2.10" for 25-Year event
Inflow = 2.48 cfs @ 12.09 hrs, Volume= 8,021 cf
Outflow = 2.48 cfs @ 12.09 hrs, Volume= 8,021 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.48 cfs @ 12.09 hrs, Volume= 8,021 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.55' @ 12.09 hrs
Flood Elev= 76.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.75'	**15.0" Round Culvert** L= 71.0' Ke= 0.500 Inlet / Outlet Invert= 69.75' / 69.04' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.48 cfs @ 12.09 hrs HW=70.55' (Free Discharge)
1=Culvert (Barrel Controls 2.48 cfs @ 4.27 fps)

Summary for Pond DMH-202: dmh

[79] Warning: Submerged Pond CB-207 Primary device # 1 OUTLET by 0.53'
[79] Warning: Submerged Pond CB-209 Primary device # 1 INLET by 0.02'

Inflow Area = 47,937 sf, 41.13% Impervious, Inflow Depth = 2.20" for 25-Year event
Inflow = 2.74 cfs @ 12.09 hrs, Volume= 8,789 cf
Outflow = 2.74 cfs @ 12.09 hrs, Volume= 8,789 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.74 cfs @ 12.09 hrs, Volume= 8,789 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.63' @ 12.09 hrs
Flood Elev= 77.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.78'	**15.0" Round Culvert** L= 71.0' Ke= 0.500 Inlet / Outlet Invert= 71.78' / 71.07' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.74 cfs @ 12.09 hrs HW=72.63' (Free Discharge)
1=Culvert (Barrel Controls 2.74 cfs @ 4.36 fps)

Summary for Pond DMH-204: dmh

[79] Warning: Submerged Pond DMH-206 Primary device # 1 OUTLET by 0.68'
[79] Warning: Submerged Pond DMH-207 Primary device # 1 OUTLET by 0.18'

Inflow Area = 84,570 sf, 60.24% Impervious, Inflow Depth = 3.37" for 25-Year event
Inflow = 7.19 cfs @ 12.09 hrs, Volume= 23,770 cf
Outflow = 7.19 cfs @ 12.09 hrs, Volume= 23,770 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.19 cfs @ 12.09 hrs, Volume= 23,770 cf
Routed to Pond WQ-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.61' @ 12.09 hrs
Flood Elev= 73.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.42'	**24.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 67.42' / 66.19' S= 0.0198 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.18 cfs @ 12.09 hrs HW=68.60' (Free Discharge)
1=Culvert (Inlet Controls 7.18 cfs @ 3.71 fps)

Summary for Pond DMH-206: dmh

[79] Warning: Submerged Pond CB-210 Primary device # 1 INLET by 0.10'

Inflow Area = 72,390 sf, 56.96% Impervious, Inflow Depth = 3.18" for 25-Year event
Inflow = 5.79 cfs @ 12.09 hrs, Volume= 19,168 cf
Outflow = 5.79 cfs @ 12.09 hrs, Volume= 19,168 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.79 cfs @ 12.09 hrs, Volume= 19,168 cf
Routed to Pond DMH-204 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.13' @ 12.09 hrs
Flood Elev= 75.47'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.91'	**18.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 68.91' / 67.92' S= 0.0168 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.79 cfs @ 12.09 hrs HW=70.13' (Free Discharge)
1=Culvert (Inlet Controls 5.79 cfs @ 3.76 fps)

Summary for Pond DMH-207: cb

[79] Warning: Submerged Pond CB-215 Primary device # 1 OUTLET by 0.54'

Inflow Area = 12,180 sf, 79.75% Impervious, Inflow Depth = 4.53" for 25-Year event
Inflow = 1.40 cfs @ 12.09 hrs, Volume= 4,602 cf
Outflow = 1.40 cfs @ 12.09 hrs, Volume= 4,602 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.40 cfs @ 12.09 hrs, Volume= 4,602 cf
Routed to Pond dmh-204 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.64' @ 12.09 hrs
Flood Elev= 73.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.00'	**12.0" Round Culvert** L= 57.0' Ke= 0.500 Inlet / Outlet Invert= 69.00' / 68.42' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.40 cfs @ 12.09 hrs HW=69.64' (Free Discharge)
1=Culvert (Barrel Controls 1.40 cfs @ 3.76 fps)

Summary for Pond DMH-301: dmh

Inflow Area = 4,688 sf, 99.90% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 0.64 cfs @ 12.08 hrs, Volume= 2,290 cf
Outflow = 0.64 cfs @ 12.08 hrs, Volume= 2,290 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.64 cfs @ 12.08 hrs, Volume= 2,290 cf
Routed to Pond DMH-302 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.60' @ 12.08 hrs
Flood Elev= 73.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.20'	**12.0" Round Culvert** L= 59.0' Ke= 0.500

Inlet / Outlet Invert= 70.20' / 68.98' S= 0.0207 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.64 cfs @ 12.08 hrs HW=70.60' (Free Discharge)
1=Culvert (Inlet Controls 0.64 cfs @ 2.16 fps)

Summary for Pond DMH-302: dmh

[79] Warning: Submerged Pond DMH-301 Primary device # 1 OUTLET by 0.48'

Inflow Area = 17,161 sf, 51.76% Impervious, Inflow Depth = 2.98" for 25-Year event
Inflow = 1.24 cfs @ 12.09 hrs, Volume= 4,268 cf
Outflow = 1.24 cfs @ 12.09 hrs, Volume= 4,268 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.24 cfs @ 12.09 hrs, Volume= 4,268 cf
Routed to Pond DMH-303 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.46' @ 12.09 hrs
Flood Elev= 72.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.88'	**12.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 68.88' / 66.92' S= 0.0784 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.24 cfs @ 12.09 hrs HW=69.46' (Free Discharge)
1=Culvert (Inlet Controls 1.24 cfs @ 2.60 fps)

Summary for Pond DMH-303: dmh

Inflow Area = 26,775 sf, 42.05% Impervious, Inflow Depth = 2.45" for 25-Year event
Inflow = 1.57 cfs @ 12.09 hrs, Volume= 5,462 cf
Outflow = 1.57 cfs @ 12.09 hrs, Volume= 5,462 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.57 cfs @ 12.09 hrs, Volume= 5,462 cf
Routed to Pond DMH-304 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.27' @ 12.09 hrs
Flood Elev= 70.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.60'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 65.60' / 62.58' S= 0.0795 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.57 cfs @ 12.09 hrs HW=66.27' (Free Discharge)
1=Culvert (Inlet Controls 1.57 cfs @ 2.79 fps)

Summary for Pond DMH-304: dmh

[79] Warning: Submerged Pond IS-2 Primary device # 2 OUTLET by 0.25'

Inflow Area = 202,176 sf, 61.53% Impervious, Inflow Depth = 1.77" for 25-Year event
Inflow = 12.77 cfs @ 12.15 hrs, Volume= 29,801 cf
Outflow = 12.77 cfs @ 12.15 hrs, Volume= 29,801 cf, Atten= 0%, Lag= 0.0 min
Primary = 12.77 cfs @ 12.15 hrs, Volume= 29,801 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 60.55' @ 12.15 hrs
Flood Elev= 65.88'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.84'	**24.0" Round Culvert** L= 131.0' Ke= 0.500 Inlet / Outlet Invert= 58.84' / 48.34' S= 0.0802 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.74 cfs @ 12.15 hrs HW=60.55' (Free Discharge)
1=Culvert (Inlet Controls 12.74 cfs @ 4.45 fps)

Summary for Pond DMH-306: DMH

[79] Warning: Submerged Pond CB-307 Primary device # 1 INLET by 0.70'

Inflow Area = 69,993 sf, 37.98% Impervious, Inflow Depth = 1.82" for 25-Year event
Inflow = 3.19 cfs @ 12.10 hrs, Volume= 10,612 cf
Outflow = 3.19 cfs @ 12.10 hrs, Volume= 10,612 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.19 cfs @ 12.10 hrs, Volume= 10,612 cf
Routed to Pond DMH-307 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.34' @ 12.10 hrs
Flood Elev= 50.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.27'	**18.0" Round Culvert** L= 165.0' Ke= 0.500 Inlet / Outlet Invert= 48.27' / 47.79' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.18 cfs @ 12.10 hrs HW=49.34' (Free Discharge)
1=Culvert (Barrel Controls 3.18 cfs @ 3.32 fps)

Summary for Pond DMH-307: DMH

[79] Warning: Submerged Pond DMH-306 Primary device # 1 INLET by 0.54'

Inflow Area = 73,236 sf, 39.33% Impervious, Inflow Depth = 1.91" for 25-Year event
Inflow = 3.52 cfs @ 12.10 hrs, Volume= 11,631 cf
Outflow = 3.52 cfs @ 12.10 hrs, Volume= 11,631 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.52 cfs @ 12.10 hrs, Volume= 11,631 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 48.81' @ 12.10 hrs
Flood Elev= 53.58'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.69'	**18.0" Round Culvert** L= 17.3' Ke= 0.500 Inlet / Outlet Invert= 47.69' / 47.64' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.51 cfs @ 12.10 hrs HW=48.81' (Free Discharge)
1=Culvert (Barrel Controls 3.51 cfs @ 3.45 fps)

Summary for Pond DMH-308: DMH

[81] Warning: Exceeded Pond CB-310 by 0.64' @ 12.14 hrs
[79] Warning: Submerged Pond DMH-304 Primary device # 1 OUTLET by 4.01'
[81] Warning: Exceeded Pond DMH-307 by 3.62' @ 12.14 hrs

Inflow Area = 385,962 sf, 59.90% Impervious, Inflow Depth = 2.51" for 25-Year event
Inflow = 24.33 cfs @ 12.14 hrs, Volume= 80,812 cf
Outflow = 24.33 cfs @ 12.14 hrs, Volume= 80,812 cf, Atten= 0%, Lag= 0.0 min
Primary = 24.33 cfs @ 12.14 hrs, Volume= 80,812 cf
Routed to Pond WQ-301 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 52.36' @ 12.14 hrs
Flood Elev= 53.09'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.54'	**24.0" Round Culvert** L= 163.2' Ke= 0.500

Inlet / Outlet Invert= 47.54' / 47.07' S= 0.0029 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=24.28 cfs @ 12.14 hrs HW=52.35' (Free Discharge)
└**1=Culvert** (Barrel Controls 24.28 cfs @ 7.73 fps)

Summary for Pond E-DMH 1: E-DMH

[81] Warning: Exceeded Pond WQ-101 by 3.54' @ 12.09 hrs

Inflow Area = 213,583 sf, 70.93% Impervious, Inflow Depth = 3.04" for 25-Year event
Inflow = 16.12 cfs @ 12.09 hrs, Volume= 54,092 cf
Outflow = 16.12 cfs @ 12.09 hrs, Volume= 54,092 cf, Atten= 0%, Lag= 0.0 min
Primary = 16.12 cfs @ 12.09 hrs, Volume= 54,092 cf
Routed to Link L-2 : Link 1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.84' @ 12.09 hrs
Flood Elev= 49.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.80'	**12.0" Round Culvert X 2.00** L= 16.3' Ke= 0.500 Inlet / Outlet Invert= 44.80' / 44.64' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=16.09 cfs @ 12.09 hrs HW=49.82' (Free Discharge)
└**1=Culvert** (Inlet Controls 16.09 cfs @ 10.24 fps)

Summary for Pond IS-1: infiltration

Notes:
An infiltration rate of 8.27 was used for sand (Rawl's) because the systems will have ASTM C-33 sand, or equivalent, below the systems.

GW elevation based on TP 1 (no GW encountered) and SB-1 (GW encountered at 14 feet below grade)

[81] Warning: Exceeded Pond WQ-002 by 0.68' @ 12.76 hrs

Inflow Area = 68,362 sf, 56.93% Impervious, Inflow Depth = 3.05" for 25-Year event
Inflow = 5.33 cfs @ 12.09 hrs, Volume= 17,351 cf
Outflow = 0.81 cfs @ 12.62 hrs, Volume= 17,351 cf, Atten= 85%, Lag= 32.0 min
Discarded = 0.81 cfs @ 12.62 hrs, Volume= 17,351 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond DMH-103 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.94' @ 12.62 hrs Surf.Area= 3,136 sf Storage= 5,285 cf
Flood Elev= 70.00' Surf.Area= 3,136 sf Storage= 10,617 cf

Plug-Flow detention time= 48.8 min calculated for 17,345 cf (100% of inflow)
Center-of-Mass det. time= 48.7 min (865.6 - 816.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	64.50'	4,421 cf	**37.08'W x 84.57'L x 5.50'H Field A** 17,249 cf Overall - 6,196 cf Embedded = 11,052 cf x 40.0% Voids
#2A	65.25'	6,196 cf	**ADS_StormTech MC-3500 d +Cap** x 55 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 55 Chambers in 5 Rows Cap Storage= 14.9 cf x 2 x 5 rows = 149.0 cf
		10,617 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	64.50'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 57.50' Phase-In= 0.01'
#2	Primary	67.35'	**12.0" Round Culvert** L= 27.0' Ke= 0.500 Inlet / Outlet Invert= 67.35' / 67.08' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 2	69.00'	**4.0' long x 0.5' breadth Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.81 cfs @ 12.62 hrs HW=66.94' (Free Discharge)
└**1=Exfiltration** (Controls 0.81 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=64.50' (Free Discharge)
└**2=Culvert** (Controls 0.00 cfs)
└**3=Weir** (Controls 0.00 cfs)

Summary for Pond IS-2: infiltration

Notes:
An infiltration rate of 1.02 inches per hour was used for sandy loam (Rawl's) at TP 4

GW from TP 4 (GW not encountered to a depth of 8 feet below grade)

[81] Warning: Exceeded Pond WQ-201 by 0.81' @ 12.20 hrs
[81] Warning: Exceeded Pond WQ-202 by 2.82' @ 12.58 hrs

Inflow Area = 175,401 sf, 64.50% Impervious, Inflow Depth = 3.62" for 25-Year event
Inflow = 15.71 cfs @ 12.09 hrs, Volume= 52,912 cf
Outflow = 11.79 cfs @ 12.16 hrs, Volume= 43,383 cf, Atten= 25%, Lag= 4.2 min
Discarded = 0.26 cfs @ 12.16 hrs, Volume= 19,044 cf
Primary = 11.53 cfs @ 12.16 hrs, Volume= 24,339 cf
Routed to Pond DMH-304 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.91' @ 12.16 hrs Surf.Area= 5,452 sf Storage= 16,535 cf
Flood Elev= 70.50' Surf.Area= 5,452 sf Storage= 17,818 cf

Plug-Flow detention time= 207.7 min calculated for 43,369 cf (82% of inflow)
Center-of-Mass det. time= 132.4 min (923.8 - 791.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	65.25'	7,203 cf	**15.58'W x 349.86'L x 5.25'H Field A** 28,623 cf Overall - 10,615 cf Embedded = 18,008 cf x 40.0% Voids
#2A	65.75'	10,615 cf	**ADS_StormTech MC-3500 d +Cap** x 96 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 96 Chambers in 2 Rows Cap Storage= 14.9 cf x 2 x 2 rows = 59.6 cf
		17,818 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	65.25'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 60.75' Phase-In= 0.01'
#2	Primary	65.64'	**24.0" Round Culvert** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 65.64' / 60.30' S= 0.0797 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	69.00'	**4.0' long x 0.5' breadth Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.26 cfs @ 12.16 hrs HW=69.91' (Free Discharge)
└**1=Exfiltration** (Controls 0.26 cfs)

Primary OutFlow Max=11.51 cfs @ 12.16 hrs HW=69.91' (Free Discharge)
└**2=Culvert** (Passes 11.51 cfs of 27.36 cfs potential flow)
└**3=Weir** (Weir Controls 11.51 cfs @ 3.16 fps)

Summary for Pond WQ-002: dmh

[79] Warning: Submerged Pond DMH-002 Primary device # 1 INLET by 0.04'

Inflow Area = 57,945 sf, 49.40% Impervious, Inflow Depth = 2.55" for 25-Year event
Inflow = 3.91 cfs @ 12.09 hrs, Volume= 12,330 cf
Outflow = 3.91 cfs @ 12.09 hrs, Volume= 12,330 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.91 cfs @ 12.09 hrs, Volume= 12,330 cf
Routed to Pond IS-1 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.01' @ 12.09 hrs
Flood Elev= 70.94'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.87'	**18.0" Round Culvert** L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 65.87' / 65.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.90 cfs @ 12.09 hrs HW=67.01' (Free Discharge)
└**1=Culvert** (Barrel Controls 3.90 cfs @ 3.76 fps)

Summary for Pond WQ-101: TREATMENT

[79] Warning: Submerged Pond DMH-109 Primary device # 1 OUTLET by 1.94'
[81] Warning: Exceeded Pond DMH-113 by 0.53' @ 12.08 hrs

Inflow Area = 213,583 sf, 70.93% Impervious, Inflow Depth = 3.04" for 25-Year event
Inflow = 16.12 cfs @ 12.09 hrs, Volume= 54,092 cf
Outflow = 16.12 cfs @ 12.09 hrs, Volume= 54,092 cf, Atten= 0%, Lag= 0.0 min
Primary = 16.12 cfs @ 12.09 hrs, Volume= 54,092 cf
Routed to Pond E-DMH 1 : E-DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.29' @ 12.09 hrs
Flood Elev= 51.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.13'	**24.0" Round Culvert** L= 58.0' Ke= 0.500 Inlet / Outlet Invert= 44.13' / 43.55' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=16.09 cfs @ 12.09 hrs HW=46.28' (Free Discharge)
└**1=Culvert** (Barrel Controls 16.09 cfs @ 5.92 fps)

Summary for Pond WQ-201: wq

[79] Warning: Submerged Pond CB-205 Primary device # 1 INLET by 0.12'
[79] Warning: Submerged Pond DMH-201 Primary device # 1 OUTLET by 0.32'

Inflow Area = 65,484 sf, 58.71% Impervious, Inflow Depth = 3.23" for 25-Year event
Inflow = 5.18 cfs @ 12.09 hrs, Volume= 17,649 cf
Outflow = 5.18 cfs @ 12.09 hrs, Volume= 17,649 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.18 cfs @ 12.09 hrs, Volume= 17,649 cf
Routed to Pond IS-2 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Peak Elev= 69.36' @ 12.09 hrs
Flood Elev= 74.49'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.19'	**18.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 68.19' / 67.58' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.17 cfs @ 12.09 hrs HW=69.35' (Free Discharge)
└**1=Culvert** (Barrel Controls 5.17 cfs @ 4.84 fps)

Summary for Pond WQ-202: dmh

[79] Warning: Submerged Pond DMH-204 Primary device # 1 INLET by 0.10'

Inflow Area = 90,151 sf, 62.70% Impervious, Inflow Depth = 3.53" for 25-Year event
Inflow = 7.95 cfs @ 12.09 hrs, Volume= 26,496 cf
Outflow = 7.95 cfs @ 12.09 hrs, Volume= 26,496 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.95 cfs @ 12.09 hrs, Volume= 26,496 cf
Routed to Pond is-2 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.52' @ 12.09 hrs
Flood Elev= 72.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.09'	**24.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 66.09' / 65.92' S= 0.0213 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.94 cfs @ 12.09 hrs HW=67.52' (Free Discharge)
└**1=Culvert** (Barrel Controls 7.94 cfs @ 4.62 fps)

Summary for Pond WQ-301: TREATMENT

[58] Hint: Peaked 0.89' above defined flood level
[81] Warning: Exceeded Pond CB-311 by 4.16' @ 12.14 hrs
[79] Warning: Submerged Pond DMH-308 Primary device # 1 INLET by 3.40'

Inflow Area = 406,222 sf, 60.26% Impervious, Inflow Depth = 2.58" for 25-Year event
Inflow = 26.12 cfs @ 12.13 hrs, Volume= 87,176 cf
Outflow = 26.12 cfs @ 12.13 hrs, Volume= 87,176 cf, Atten= 0%, Lag= 0.0 min
Primary = 26.12 cfs @ 12.13 hrs, Volume= 87,176 cf
Routed to Pond DMH-006 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 50.95' @ 12.13 hrs
Flood Elev= 50.06'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.97'	**24.0" Round Culvert** L= 10.4' Ke= 0.500 Inlet / Outlet Invert= 46.97' / 46.94' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=26.04 cfs @ 12.13 hrs HW=50.93' (Free Discharge)
└**1=Culvert** (Inlet Controls 26.04 cfs @ 8.29 fps)

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Pond AD-3: AD Peak Elev=45.96' Inflow=0.31 cfs 1,267 cf
8.0" Round Culvert n=0.013 L=89.4' S=0.0050 '/' Outflow=0.31 cfs 1,267 cf

Pond CB-001: cb Peak Elev=69.66' Inflow=1.19 cfs 3,694 cf
12.0" Round Culvert n=0.013 L=78.0' S=0.0100 '/' Outflow=1.19 cfs 3,694 cf

Pond CB-005: cb Peak Elev=68.61' Inflow=0.79 cfs 2,463 cf
12.0" Round Culvert n=0.013 L=73.0' S=0.0100 '/' Outflow=0.79 cfs 2,463 cf

Pond CB-101: cb Peak Elev=66.44' Inflow=0.76 cfs 2,747 cf
12.0" Round Culvert n=0.013 L=82.0' S=0.0100 '/' Outflow=0.76 cfs 2,747 cf

Pond CB-102: cb Peak Elev=67.21' Inflow=0.72 cfs 2,514 cf
12.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=0.72 cfs 2,514 cf

Pond CB-103: cb Peak Elev=65.69' Inflow=1.44 cfs 4,795 cf
12.0" Round Culvert n=0.013 L=77.0' S=0.0051 '/' Outflow=1.44 cfs 4,795 cf

Pond CB-105: cb Peak Elev=68.46' Inflow=0.93 cfs 2,941 cf
12.0" Round Culvert n=0.013 L=19.0' S=0.0100 '/' Outflow=0.93 cfs 2,941 cf

Pond CB-107: CB Peak Elev=62.25' Inflow=0.60 cfs 1,917 cf
12.0" Round Culvert n=0.013 L=5.5' S=0.0091 '/' Outflow=0.60 cfs 1,917 cf

Pond CB-108: CB Peak Elev=57.69' Inflow=0.45 cfs 1,409 cf
12.0" Round Culvert n=0.013 L=6.4' S=0.0592 '/' Outflow=0.45 cfs 1,409 cf

Pond CB-109: CB Peak Elev=47.82' Inflow=0.50 cfs 1,575 cf
12.0" Round Culvert n=0.013 L=31.5' S=0.0815 '/' Outflow=0.50 cfs 1,575 cf

Pond CB-110: CB Peak Elev=47.52' Inflow=2.88 cfs 9,104 cf
12.0" Round Culvert n=0.013 L=215.7' S=0.0070 '/' Outflow=2.88 cfs 9,104 cf

Pond CB-111: CB Peak Elev=46.18' Inflow=2.01 cfs 6,547 cf
12.0" Round Culvert n=0.013 L=8.8' S=0.0103 '/' Outflow=2.01 cfs 6,547 cf

Pond CB-112: CB Peak Elev=49.08' Inflow=6.90 cfs 24,318 cf
12.0" Round Culvert n=0.013 L=14.7' S=0.0061 '/' Outflow=6.90 cfs 24,318 cf

Pond CB-113: CB Peak Elev=45.99' Inflow=1.08 cfs 3,356 cf
12.0" Round Culvert n=0.013 L=23.3' S=0.0099 '/' Outflow=1.08 cfs 3,356 cf

Pond CB-201: cb Peak Elev=72.46' Inflow=1.75 cfs 5,432 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=1.75 cfs 5,432 cf

Pond CB-202: cb Peak Elev=72.08' Inflow=3.51 cfs 10,937 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0102 '/' Outflow=3.51 cfs 10,937 cf

Pond CB-203: cb Peak Elev=73.38' Inflow=1.42 cfs 4,429 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0100 '/' Outflow=1.42 cfs 4,429 cf

Pond CB-204: cb Peak Elev=70.77' Inflow=1.20 cfs 4,307 cf
12.0" Round Culvert n=0.013 L=85.0' S=0.0101 '/' Outflow=1.20 cfs 4,307 cf

Pond CB-205: cb Peak Elev=70.21' Inflow=2.59 cfs 9,313 cf
12.0" Round Culvert n=0.013 L=56.0' S=0.0098 '/' Outflow=2.59 cfs 9,313 cf

Pond CB-206: cb Peak Elev=71.73' Inflow=1.28 cfs 4,582 cf
12.0" Round Culvert n=0.013 L=62.0' S=0.0098 '/' Outflow=1.28 cfs 4,582 cf

Pond CB-207: cb Peak Elev=73.47' Inflow=1.76 cfs 5,473 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0102 '/' Outflow=1.76 cfs 5,473 cf

Pond CB-208: cb Peak Elev=74.47' Inflow=2.28 cfs 7,070 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.1211 '/' Outflow=2.28 cfs 7,070 cf

Pond CB-209: cb Peak Elev=74.11' Inflow=3.59 cfs 11,154 cf
12.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=3.59 cfs 11,154 cf

Pond CB-210: cb Peak Elev=70.72' Inflow=1.58 cfs 5,682 cf
12.0" Round Culvert n=0.013 L=62.0' S=0.0100 '/' Outflow=1.58 cfs 5,682 cf

Pond CB-211: cb Peak Elev=72.86' Inflow=1.80 cfs 5,734 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.0100 '/' Outflow=1.80 cfs 5,734 cf

Pond CB-212: cb Peak Elev=72.24' Inflow=2.95 cfs 9,858 cf
12.0" Round Culvert n=0.013 L=57.0' S=0.0100 '/' Outflow=2.95 cfs 9,858 cf

Pond CB-213: cb Peak Elev=76.02' Inflow=0.41 cfs 1,279 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0440 '/' Outflow=0.41 cfs 1,279 cf

Pond CB-214: cb Peak Elev=74.95' Inflow=0.79 cfs 2,451 cf
12.0" Round Culvert n=0.013 L=55.0' S=0.0144 '/' Outflow=0.79 cfs 2,451 cf

Pond CB-215: cb Peak Elev=70.61' Inflow=1.35 cfs 4,257 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.0100 '/' Outflow=1.35 cfs 4,257 cf

Pond CB-307: CB Peak Elev=51.33' Inflow=6.73 cfs 21,164 cf
15.0" Round Culvert n=0.013 L=92.4' S=0.0029 '/' Outflow=6.73 cfs 21,164 cf

Pond CB-309: CB Peak Elev=53.25' Inflow=0.53 cfs 1,665 cf
12.0" Round Culvert n=0.013 L=34.1' S=0.0367 '/' Outflow=0.53 cfs 1,665 cf

Pond CB-310: CB Peak Elev=52.06' Inflow=1.35 cfs 5,518 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0180 '/' Outflow=1.35 cfs 5,518 cf

Pond CB-311: CB Peak Elev=47.39' Inflow=3.30 cfs 10,405 cf
12.0" Round Culvert n=0.013 L=21.8' S=0.0050 '/' Outflow=3.30 cfs 10,405 cf

Pond DMH-001: dmh Peak Elev=69.07' Inflow=2.74 cfs 8,475 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0100 '/' Outflow=2.74 cfs 8,475 cf

Pond DMH-002: dmh Peak Elev=69.17' Inflow=4.58 cfs 14,209 cf
12.0" Round Culvert n=0.013 L=61.0' S=0.0098 '/' Outflow=4.58 cfs 14,209 cf

Pond DMH-005: dmh Peak Elev=67.97' Inflow=1.28 cfs 3,967 cf
12.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=1.28 cfs 3,967 cf

Pond DMH-006: DMH Peak Elev=51.00' Storage=4,467 cf Inflow=53.42 cfs 157,323 cf
12.0" Round Culvert n=0.013 L=25.4' S=0.0094 '/' Primary=7.70 cfs 112,026 cf Secondary=45.62 cfs 45,297 cf Outflow=53.32 cfs 157,323 cf

Pond DMH-101: dmh Peak Elev=65.76' Inflow=1.49 cfs 5,261 cf
12.0" Round Culvert n=0.013 L=52.0' S=0.0100 '/' Outflow=1.49 cfs 5,261 cf

Pond DMH-102: dmh Peak Elev=65.57' Inflow=2.93 cfs 10,056 cf
12.0" Round Culvert n=0.013 L=65.0' S=0.0100 '/' Outflow=2.93 cfs 10,056 cf

Pond DMH-103: dmh Peak Elev=64.81' Inflow=2.93 cfs 11,568 cf
12.0" Round Culvert n=0.013 L=81.0' S=0.0100 '/' Outflow=2.93 cfs 11,568 cf

Pond DMH-104: dmh Peak Elev=63.90' Inflow=4.08 cfs 15,375 cf
15.0" Round Culvert n=0.013 L=154.0' S=0.0100 '/' Outflow=4.08 cfs 15,375 cf

Pond DMH-105: dmh Peak Elev=68.12' Inflow=0.93 cfs 2,941 cf
12.0" Round Culvert n=0.013 L=72.0' S=0.0228 '/' Outflow=0.93 cfs 2,941 cf

Pond DMH-106: dmh Peak Elev=62.98' Inflow=6.46 cfs 22,862 cf
15.0" Round Culvert n=0.013 L=110.0' S=0.0300 '/' Outflow=6.46 cfs 22,862 cf

Pond DMH-107: DMH Peak Elev=61.51' Inflow=10.46 cfs 37,007 cf
15.0" Round Culvert n=0.013 L=61.5' S=0.0200 '/' Outflow=10.46 cfs 37,007 cf

Pond DMH-107A: DMH Peak Elev=61.51' Inflow=4.00 cfs 14,145 cf
12.0" Round Culvert n=0.013 L=49.1' S=0.0415 '/' Outflow=4.00 cfs 14,145 cf

Pond DMH-108: DMH Peak Elev=58.23' Inflow=10.91 cfs 38,416 cf
15.0" Round Culvert n=0.013 L=66.3' S=0.0499 '/' Outflow=10.91 cfs 38,416 cf

Pond DMH-109: DMH Peak Elev=51.22' Inflow=10.91 cfs 38,416 cf
18.0" Round Culvert n=0.013 L=74.8' S=0.0600 '/' Outflow=10.91 cfs 38,416 cf

Pond DMH-111: DMH Peak Elev=46.48' Inflow=3.68 cfs 11,945 cf
12.0" Round Culvert n=0.013 L=29.3' S=0.0051 '/' Outflow=3.68 cfs 11,945 cf

Pond DMH-112: DMH Peak Elev=47.27' Inflow=9.98 cfs 34,221 cf
18.0" Round Culvert n=0.013 L=41.9' S=0.0100 '/' Outflow=9.98 cfs 34,221 cf

Pond DMH-113: DMH Peak Elev=46.30' Inflow=13.67 cfs 46,166 cf
24.0" Round Culvert n=0.013 L=42.2' S=0.0050 '/' Outflow=13.67 cfs 46,166 cf

Pond DMH-201: dmh Peak Elev=71.07' Inflow=4.94 cfs 15,366 cf
15.0" Round Culvert n=0.013 L=71.0' S=0.0100 '/' Outflow=4.94 cfs 15,366 cf

Pond DMH-202: dmh Peak Elev=73.22' Inflow=5.35 cfs 16,627 cf
15.0" Round Culvert n=0.013 L=71.0' S=0.0100 '/' Outflow=5.35 cfs 16,627 cf

Pond DMH-204: dmh Peak Elev=69.06' Inflow=12.01 cfs 39,280 cf
24.0" Round Culvert n=0.013 L=62.0' S=0.0198 '/' Outflow=12.01 cfs 39,280 cf

Pond DMH-206: dmh Peak Elev=71.01' Inflow=9.87 cfs 32,167 cf
18.0" Round Culvert n=0.013 L=59.0' S=0.0168 '/' Outflow=9.87 cfs 32,167 cf

Pond DMH-207: cb Peak Elev=69.84' Inflow=2.14 cfs 7,113 cf
12.0" Round Culvert n=0.013 L=57.0' S=0.0102 '/' Outflow=2.14 cfs 7,113 cf

Pond DMH-301: dmh Peak Elev=70.69' Inflow=0.92 cfs 3,305 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0207 '/' Outflow=0.92 cfs 3,305 cf

Pond DMH-302: dmh Peak Elev=69.71' Inflow=2.16 cfs 7,200 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0784 '/' Outflow=2.16 cfs 7,200 cf

Pond DMH-303: dmh Peak Elev=66.70' Inflow=2.93 cfs 9,699 cf
12.0" Round Culvert n=0.013 L=38.0' S=0.0795 '/' Outflow=2.93 cfs 9,699 cf

Pond DMH-304: dmh Peak Elev=63.06' Inflow=27.15 cfs 65,140 cf
24.0" Round Culvert n=0.013 L=131.0' S=0.0802 '/' Outflow=27.15 cfs 65,140 cf

Pond DMH-306: DMH Peak Elev=50.14' Inflow=6.73 cfs 21,164 cf
18.0" Round Culvert n=0.013 L=165.0' S=0.0029 '/' Outflow=6.73 cfs 21,164 cf

Pond DMH-307: DMH Peak Elev=49.51' Inflow=7.26 cfs 22,829 cf
18.0" Round Culvert n=0.013 L=17.3' S=0.0029 '/' Outflow=7.26 cfs 22,829 cf

Pond DMH-308: DMH Peak Elev=63.05' Inflow=50.15 cfs 146,918 cf
24.0" Round Culvert n=0.013 L=163.2' S=0.0029 '/' Outflow=50.15 cfs 146,918 cf

Pond E-DMH 1: E-DMH Peak Elev=55.86' Inflow=24.57 cfs 84,582 cf
12.0" Round Culvert x 2.00 n=0.013 L=16.3' S=0.0098 '/' Outflow=24.57 cfs 84,582 cf

Pond IS-1: infiltration Peak Elev=69.29' Storage=9,723 cf Inflow=9.23 cfs 29,620 cf
Discarded=1.01 cfs 28,108 cf Primary=1.76 cfs 1,512 cf Outflow=2.77 cfs 29,620 cf

Pond IS-2: infiltration Peak Elev=70.50' Storage=17,810 cf Inflow=25.66 cfs 85,474 cf
Discarded=0.28 cfs 20,199 cf Primary=24.31 cfs 55,441 cf Outflow=24.59 cfs 75,639 cf

Pond WQ-002: dmh Peak Elev=67.58' Inflow=7.20 cfs 22,346 cf
18.0" Round Culvert n=0.013 L=7.0' S=0.0100 '/' Outflow=7.20 cfs 22,346 cf

Pond WQ-101: TREATMENT Peak Elev=47.77' Inflow=24.57 cfs 84,582 cf
24.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=24.57 cfs 84,582 cf

Pond WQ-201: wq Peak Elev=70.01' Inflow=8.79 cfs 29,261 cf
18.0" Round Culvert n=0.013 L=60.0' S=0.0102 '/' Outflow=8.79 cfs 29,261 cf

Pond WQ-202: dmh Peak Elev=68.08' Inflow=13.11 cfs 43,214 cf
24.0" Round Culvert n=0.013 L=8.0' S=0.0213 '/' Outflow=13.11 cfs 43,214 cf

Pond WQ-301: TREATMENT Peak Elev=60.44' Inflow=53.42 cfs 157,323 cf
24.0" Round Culvert n=0.013 L=10.4' S=0.0029 '/' Outflow=53.42 cfs 157,323 cf

Summary for Pond AD-3: AD

Inflow Area = 9,685 sf, 2.51% Impervious, Inflow Depth = 1.57" for 100-Year event
Inflow = 0.31 cfs @ 12.11 hrs, Volume= 1,267 cf
Outflow = 0.31 cfs @ 12.11 hrs, Volume= 1,267 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.31 cfs @ 12.11 hrs, Volume= 1,267 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.96' @ 12.11 hrs
Flood Elev= 51.61'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.58'	**8.0" Round Culvert** L= 89.4' Ke= 0.500 Inlet / Outlet Invert= 45.58' / 45.13' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.31 cfs @ 12.11 hrs HW=45.96' (Free Discharge)
1=Culvert (Barrel Controls 0.31 cfs @ 2.22 fps)

Summary for Pond CB-001: cb

Inflow Area = 9,415 sf, 48.58% Impervious, Inflow Depth = 4.71" for 100-Year event
Inflow = 1.19 cfs @ 12.09 hrs, Volume= 3,694 cf
Outflow = 1.19 cfs @ 12.09 hrs, Volume= 3,694 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.19 cfs @ 12.09 hrs, Volume= 3,694 cf
Routed to Pond DMH-001 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.66' @ 12.09 hrs
Flood Elev= 72.39'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.09'	**12.0" Round Culvert** L= 78.0' Ke= 0.500 Inlet / Outlet Invert= 69.09' / 68.31' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.19 cfs @ 12.09 hrs HW=69.66' (Free Discharge)
1=Culvert (Barrel Controls 1.19 cfs @ 3.71 fps)

Summary for Pond CB-005: cb

Inflow Area = 6,798 sf, 42.20% Impervious, Inflow Depth = 4.35" for 100-Year event
Inflow = 0.79 cfs @ 12.09 hrs, Volume= 2,463 cf
Outflow = 0.79 cfs @ 12.09 hrs, Volume= 2,463 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.79 cfs @ 12.09 hrs, Volume= 2,463 cf
Routed to Pond DMH-005 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.61' @ 12.09 hrs
Flood Elev= 71.47'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.16'	**12.0" Round Culvert** L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 68.16' / 67.43' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.79 cfs @ 12.09 hrs HW=68.61' (Free Discharge)
1=Culvert (Barrel Controls 0.79 cfs @ 3.36 fps)

Summary for Pond CB-101: cb

Inflow Area = 3,896 sf, 99.56% Impervious, Inflow Depth = 8.46" for 100-Year event
Inflow = 0.76 cfs @ 12.08 hrs, Volume= 2,747 cf
Outflow = 0.76 cfs @ 12.08 hrs, Volume= 2,747 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.76 cfs @ 12.08 hrs, Volume= 2,747 cf
Routed to Pond DMH-101 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.44' @ 12.08 hrs
Flood Elev= 71.46'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**12.0" Round Culvert** L= 82.0' Ke= 0.500 Inlet / Outlet Invert= 66.00' / 65.18' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.76 cfs @ 12.08 hrs HW=66.44' (Free Discharge)
1=Culvert (Inlet Controls 0.76 cfs @ 2.27 fps)

Summary for Pond CB-102: cb

Inflow Area = 3,726 sf, 95.76% Impervious, Inflow Depth = 8.10" for 100-Year event
Inflow = 0.72 cfs @ 12.08 hrs, Volume= 2,514 cf
Outflow = 0.72 cfs @ 12.08 hrs, Volume= 2,514 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.72 cfs @ 12.08 hrs, Volume= 2,514 cf
Routed to Pond DMH-101 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.21' @ 12.08 hrs
Flood Elev= 70.07'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.76'	**12.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 66.76' / 66.45' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.72 cfs @ 12.08 hrs HW=67.21' (Free Discharge)
1=Culvert (Barrel Controls 0.72 cfs @ 3.06 fps)

Summary for Pond CB-103: cb

Inflow Area = 7,676 sf, 86.47% Impervious, Inflow Depth = 7.50" for 100-Year event
Inflow = 1.44 cfs @ 12.08 hrs, Volume= 4,795 cf
Outflow = 1.44 cfs @ 12.08 hrs, Volume= 4,795 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.44 cfs @ 12.08 hrs, Volume= 4,795 cf
Routed to Pond DMH-102 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.69' @ 12.08 hrs
Flood Elev= 67.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.94'	**12.0" Round Culvert** L= 77.0' Ke= 0.500 Inlet / Outlet Invert= 64.94' / 64.55' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.44 cfs @ 12.08 hrs HW=65.69' (Free Discharge)
1=Culvert (Barrel Controls 1.44 cfs @ 3.17 fps)

Summary for Pond CB-105: cb

Inflow Area = 5,616 sf, 69.72% Impervious, Inflow Depth = 6.28" for 100-Year event
Inflow = 0.93 cfs @ 12.09 hrs, Volume= 2,941 cf
Outflow = 0.93 cfs @ 12.09 hrs, Volume= 2,941 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.93 cfs @ 12.09 hrs, Volume= 2,941 cf
Routed to Pond DMH-105 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.46' @ 12.09 hrs
Flood Elev= 71.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.91'	**12.0" Round Culvert** L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 67.91' / 67.72' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.93 cfs @ 12.09 hrs HW=68.45' (Free Discharge)
1=Culvert (Barrel Controls 0.93 cfs @ 3.08 fps)

Summary for Pond CB-107: CB

Inflow Area = 3,461 sf, 73.85% Impervious, Inflow Depth = 6.65" for 100-Year event
Inflow = 0.60 cfs @ 12.09 hrs, Volume= 1,917 cf
Outflow = 0.60 cfs @ 12.09 hrs, Volume= 1,917 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.60 cfs @ 12.09 hrs, Volume= 1,917 cf
Routed to Pond DMH-107A : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 62.25' @ 12.09 hrs
Flood Elev= 65.74'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.79'	**12.0" Round Culvert** L= 5.5' Ke= 0.500 Inlet / Outlet Invert= 61.79' / 61.74' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.60 cfs @ 12.09 hrs HW=62.25' (Free Discharge)
1=Culvert (Barrel Controls 0.60 cfs @ 2.47 fps)

Summary for Pond CB-108: CB

Inflow Area = 2,798 sf, 65.43% Impervious, Inflow Depth = 6.04" for 100-Year event
Inflow = 0.45 cfs @ 12.09 hrs, Volume= 1,409 cf
Outflow = 0.45 cfs @ 12.09 hrs, Volume= 1,409 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 12.09 hrs, Volume= 1,409 cf
Routed to Pond DMH-108 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 57.69' @ 12.09 hrs
Flood Elev= 59.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.36'	**12.0" Round Culvert** L= 6.4' Ke= 0.500 Inlet / Outlet Invert= 57.36' / 56.98' S= 0.0592 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.45 cfs @ 12.09 hrs HW=57.69' (Free Discharge)
1=Culvert (Inlet Controls 0.45 cfs @ 1.96 fps)

Summary for Pond CB-109: CB

Inflow Area = 3,259 sf, 62.16% Impervious, Inflow Depth = 5.80" for 100-Year event
Inflow = 0.50 cfs @ 12.09 hrs, Volume= 1,575 cf
Outflow = 0.50 cfs @ 12.09 hrs, Volume= 1,575 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.09 hrs, Volume= 1,575 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.82' @ 12.09 hrs
Flood Elev= 51.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.47'	**12.0" Round Culvert** L= 31.5' Ke= 0.500 Inlet / Outlet Invert= 47.47' / 44.90' S= 0.0815 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.50 cfs @ 12.09 hrs HW=47.82' (Free Discharge)
1=Culvert (Inlet Controls 0.50 cfs @ 2.02 fps)

Summary for Pond CB-110: CB

Inflow Area = 17,384 sf, 68.99% Impervious, Inflow Depth = 6.28" for 100-Year event
Inflow = 2.88 cfs @ 12.09 hrs, Volume= 9,104 cf
Outflow = 2.88 cfs @ 12.09 hrs, Volume= 9,104 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.88 cfs @ 12.09 hrs, Volume= 9,104 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.52' @ 12.09 hrs
Flood Elev= 49.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.41'	**12.0" Round Culvert** L= 215.7' Ke= 0.500 Inlet / Outlet Invert= 46.41' / 44.90' S= 0.0070 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.88 cfs @ 12.09 hrs HW=47.51' (Free Discharge)
1=Culvert (Barrel Controls 2.88 cfs @ 4.14 fps)

Summary for Pond CB-111: CB

Inflow Area = 11,014 sf, 81.48% Impervious, Inflow Depth = 7.13" for 100-Year event
Inflow = 2.01 cfs @ 12.08 hrs, Volume= 6,547 cf
Outflow = 2.01 cfs @ 12.08 hrs, Volume= 6,547 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.01 cfs @ 12.08 hrs, Volume= 6,547 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.18' @ 12.08 hrs
Flood Elev= 47.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.26'	**12.0" Round Culvert** L= 8.8' Ke= 0.500 Inlet / Outlet Invert= 45.26' / 45.17' S= 0.0103 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.00 cfs @ 12.08 hrs HW=46.18' (Free Discharge)
1=Culvert (Barrel Controls 2.00 cfs @ 3.46 fps)

Summary for Pond CB-112: CB

[58] Hint: Peaked 1.33' above defined flood level

Inflow Area = 35,612 sf, 96.36% Impervious, Inflow Depth = 8.19" for 100-Year event
Inflow = 6.90 cfs @ 12.08 hrs, Volume= 24,318 cf
Outflow = 6.90 cfs @ 12.08 hrs, Volume= 24,318 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.90 cfs @ 12.08 hrs, Volume= 24,318 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.08' @ 12.08 hrs
Flood Elev= 47.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.26'	**12.0" Round Culvert** L= 14.7' Ke= 0.500 Inlet / Outlet Invert= 45.26' / 45.17' S= 0.0061 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.88 cfs @ 12.08 hrs HW=49.07' (Free Discharge)
1=Culvert (Inlet Controls 6.88 cfs @ 8.77 fps)

Summary for Pond CB-113: CB

Inflow Area = 8,340 sf, 48.71% Impervious, Inflow Depth = 4.83" for 100-Year event
Inflow = 1.08 cfs @ 12.09 hrs, Volume= 3,356 cf
Outflow = 1.08 cfs @ 12.09 hrs, Volume= 3,356 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.08 cfs @ 12.09 hrs, Volume= 3,356 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.99' @ 12.09 hrs
Flood Elev= 48.28'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.40'	**12.0" Round Culvert** L= 23.3' Ke= 0.500 Inlet / Outlet Invert= 45.40' / 45.17' S= 0.0099 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.08 cfs @ 12.09 hrs HW=45.99' (Free Discharge)
1=Culvert (Barrel Controls 1.08 cfs @ 3.24 fps)

Summary for Pond CB-201: cb

Inflow Area = 15,873 sf, 42.70% Impervious, Inflow Depth = 4.11" for 100-Year event
Inflow = 1.75 cfs @ 12.09 hrs, Volume= 5,432 cf
Outflow = 1.75 cfs @ 12.09 hrs, Volume= 5,432 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.75 cfs @ 12.09 hrs, Volume= 5,432 cf
Routed to Pond CB-202 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.46' @ 12.09 hrs
Flood Elev= 75.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.74'	**12.0" Round Culvert** L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 71.74' / 70.74' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.75 cfs @ 12.09 hrs HW=72.46' (Free Discharge)
1=Culvert (Inlet Controls 1.75 cfs @ 2.89 fps)

Summary for Pond CB-202: cb

[79] Warning: Submerged Pond CB-201 Primary device # 1 INLET by 0.34'

Inflow Area = 32,444 sf, 41.56% Impervious, Inflow Depth = 4.05" for 100-Year event
Inflow = 3.51 cfs @ 12.09 hrs, Volume= 10,937 cf
Outflow = 3.51 cfs @ 12.09 hrs, Volume= 10,937 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.51 cfs @ 12.09 hrs, Volume= 10,937 cf
Routed to Pond DMH-201 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.08' @ 12.09 hrs
Flood Elev= 75.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.64'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 70.64' / 70.00' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.51 cfs @ 12.09 hrs HW=72.08' (Free Discharge)
1=Culvert (Barrel Controls 3.51 cfs @ 4.47 fps)

Summary for Pond CB-203: cb

Inflow Area = 13,330 sf, 39.38% Impervious, Inflow Depth = 3.99" for 100-Year event
Inflow = 1.42 cfs @ 12.09 hrs, Volume= 4,429 cf
Outflow = 1.42 cfs @ 12.09 hrs, Volume= 4,429 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.42 cfs @ 12.09 hrs, Volume= 4,429 cf
Routed to Pond DMH-201 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 73.38' @ 12.09 hrs
Flood Elev= 76.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.74'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 72.74' / 72.11' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.42 cfs @ 12.09 hrs HW=73.38' (Free Discharge)
1=Culvert (Barrel Controls 1.42 cfs @ 3.79 fps)

Summary for Pond CB-204: cb

Inflow Area = 6,109 sf,100.00% Impervious, Inflow Depth = 8.46" for 100-Year event
Inflow = 1.20 cfs @ 12.08 hrs, Volume= 4,307 cf
Outflow = 1.20 cfs @ 12.08 hrs, Volume= 4,307 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.20 cfs @ 12.08 hrs, Volume= 4,307 cf
Routed to Pond CB-205 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.77' @ 12.08 hrs
Flood Elev= 73.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.20'	**12.0" Round Culvert** L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 70.20' / 69.34' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.20 cfs @ 12.08 hrs HW=70.77' (Free Discharge)
1=Culvert (Inlet Controls 1.20 cfs @ 2.58 fps)

Summary for Pond CB-205: cb

[79] Warning: Submerged Pond CB-204 Primary device # 1 INLET by 0.01'

Inflow Area = 13,210 sf,100.00% Impervious, Inflow Depth = 8.46" for 100-Year event
Inflow = 2.59 cfs @ 12.08 hrs, Volume= 9,313 cf
Outflow = 2.59 cfs @ 12.08 hrs, Volume= 9,313 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.59 cfs @ 12.08 hrs, Volume= 9,313 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.21' @ 12.08 hrs
Flood Elev= 73.11'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.24'	**12.0" Round Culvert** L= 56.0' Ke= 0.500 Inlet / Outlet Invert= 69.24' / 68.69' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.59 cfs @ 12.08 hrs HW=70.21' (Free Discharge)
1=Culvert (Barrel Controls 2.59 cfs @ 4.21 fps)

Summary for Pond CB-206: cb

Inflow Area = 6,500 sf,100.00% Impervious, Inflow Depth = 8.46" for 100-Year event
Inflow = 1.28 cfs @ 12.08 hrs, Volume= 4,582 cf
Outflow = 1.28 cfs @ 12.08 hrs, Volume= 4,582 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.28 cfs @ 12.08 hrs, Volume= 4,582 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.73' @ 12.08 hrs
Flood Elev= 74.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.13'	**12.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 71.13' / 70.52' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.27 cfs @ 12.08 hrs HW=71.73' (Free Discharge)
1=Culvert (Barrel Controls 1.27 cfs @ 3.68 fps)

Summary for Pond CB-207: cb

Inflow Area = 16,473 sf, 41.23% Impervious, Inflow Depth = 3.99" for 100-Year event
Inflow = 1.76 cfs @ 12.09 hrs, Volume= 5,473 cf
Outflow = 1.76 cfs @ 12.09 hrs, Volume= 5,473 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.76 cfs @ 12.09 hrs, Volume= 5,473 cf
Routed to Pond DMH-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 73.47' @ 12.09 hrs
Flood Elev= 76.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.74'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 72.74' / 72.10' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.76 cfs @ 12.09 hrs HW=73.47' (Free Discharge)
1=Culvert (Barrel Controls 1.76 cfs @ 3.98 fps)

Summary for Pond CB-208: cb

[79] Warning: Submerged Pond CB-214 Primary device # 1 OUTLET by 0.76'

Inflow Area = 19,530 sf, 41.92% Impervious, Inflow Depth = 4.34" for 100-Year event
Inflow = 2.28 cfs @ 12.09 hrs, Volume= 7,070 cf
Outflow = 2.28 cfs @ 12.09 hrs, Volume= 7,070 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.28 cfs @ 12.09 hrs, Volume= 7,070 cf
Routed to Pond CB-209 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 74.47' @ 12.09 hrs
Flood Elev= 77.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.61'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 73.61' / 62.71' S= 0.1211 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.28 cfs @ 12.09 hrs HW=74.47' (Free Discharge)
1=Culvert (Inlet Controls 2.28 cfs @ 3.16 fps)

Summary for Pond CB-209: cb

[79] Warning: Submerged Pond CB-208 Primary device # 1 INLET by 0.50'

Inflow Area = 31,464 sf, 41.07% Impervious, Inflow Depth = 4.25" for 100-Year event
Inflow = 3.59 cfs @ 12.09 hrs, Volume= 11,154 cf
Outflow = 3.59 cfs @ 12.09 hrs, Volume= 11,154 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.59 cfs @ 12.09 hrs, Volume= 11,154 cf
Routed to Pond DMH-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 74.11' @ 12.09 hrs
Flood Elev= 77.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.61'	**12.0" Round Culvert** L= 58.0' Ke= 0.500 Inlet / Outlet Invert= 72.61' / 72.03' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.59 cfs @ 12.09 hrs HW=74.11' (Free Discharge)
1=Culvert (Barrel Controls 3.59 cfs @ 4.57 fps)

Summary for Pond CB-210: cb

Inflow Area = 8,060 sf,100.00% Impervious, Inflow Depth = 8.46" for 100-Year event
Inflow = 1.58 cfs @ 12.08 hrs, Volume= 5,682 cf
Outflow = 1.58 cfs @ 12.08 hrs, Volume= 5,682 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.58 cfs @ 12.08 hrs, Volume= 5,682 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.72' @ 12.08 hrs
Flood Elev= 74.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.03'	**12.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 70.03' / 69.41' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.58 cfs @ 12.08 hrs HW=70.72' (Free Discharge)
1=Culvert (Barrel Controls 1.58 cfs @ 3.87 fps)

Summary for Pond CB-211: cb

Inflow Area = 10,543 sf, 72.18% Impervious, Inflow Depth = 6.53" for 100-Year event
Inflow = 1.80 cfs @ 12.09 hrs, Volume= 5,734 cf
Outflow = 1.80 cfs @ 12.09 hrs, Volume= 5,734 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.80 cfs @ 12.09 hrs, Volume= 5,734 cf
Routed to Pond CB-212 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.86' @ 12.09 hrs
Flood Elev= 75.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.13'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 72.13' / 71.23' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.80 cfs @ 12.09 hrs HW=72.86' (Free Discharge)
1=Culvert (Inlet Controls 1.80 cfs @ 2.91 fps)

Summary for Pond CB-212: cb

[79] Warning: Submerged Pond CB-211 Primary device # 1 INLET by 0.11'

Inflow Area = 16,393 sf, 82.11% Impervious, Inflow Depth = 7.22" for 100-Year event
Inflow = 2.95 cfs @ 12.08 hrs, Volume= 9,858 cf
Outflow = 2.95 cfs @ 12.08 hrs, Volume= 9,858 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.95 cfs @ 12.08 hrs, Volume= 9,858 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.24' @ 12.08 hrs
Flood Elev= 75.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.13'	**12.0" Round Culvert** L= 57.0' Ke= 0.500 Inlet / Outlet Invert= 71.13' / 70.56' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.94 cfs @ 12.08 hrs HW=72.24' (Free Discharge)
1=Culvert (Inlet Controls 2.94 cfs @ 3.75 fps)

Summary for Pond CB-213: cb

Inflow Area = 3,633 sf, 40.06% Impervious, Inflow Depth = 4.23" for 100-Year event
Inflow = 0.41 cfs @ 12.09 hrs, Volume= 1,279 cf
Outflow = 0.41 cfs @ 12.09 hrs, Volume= 1,279 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.41 cfs @ 12.09 hrs, Volume= 1,279 cf
Routed to Pond CB-214 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 76.02' @ 12.09 hrs
Flood Elev= 79.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.70'	**12.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 75.70' / 74.60' S= 0.0440 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.41 cfs @ 12.09 hrs HW=76.02' (Free Discharge)
1=Culvert (Inlet Controls 0.41 cfs @ 1.92 fps)

Summary for Pond CB-214: cb

[79] Warning: Submerged Pond CB-213 Primary device # 1 OUTLET by 0.35'

Inflow Area = 6,778 sf, 42.27% Impervious, Inflow Depth = 4.34" for 100-Year event
Inflow = 0.79 cfs @ 12.09 hrs, Volume= 2,451 cf
Outflow = 0.79 cfs @ 12.09 hrs, Volume= 2,451 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.79 cfs @ 12.09 hrs, Volume= 2,451 cf
Routed to Pond CB-208 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 74.95' @ 12.09 hrs
Flood Elev= 78.07'

Device	Routing	Invert	Outlet Devices
#1	Primary	74.50'	**12.0" Round Culvert** L= 55.0' Ke= 0.500 Inlet / Outlet Invert= 74.50' / 73.71' S= 0.0144 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.79 cfs @ 12.09 hrs HW=74.95' (Free Discharge)
1=Culvert (Inlet Controls 0.79 cfs @ 2.29 fps)

Summary for Pond CB-215: cb

Inflow Area = 8,130 sf, 69.66% Impervious, Inflow Depth = 6.28" for 100-Year event
Inflow = 1.35 cfs @ 12.09 hrs, Volume= 4,257 cf
Outflow = 1.35 cfs @ 12.09 hrs, Volume= 4,257 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.35 cfs @ 12.09 hrs, Volume= 4,257 cf
Routed to Pond DMH-207 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.61' @ 12.09 hrs
Flood Elev= 73.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.00'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 70.00' / 69.10' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.34 cfs @ 12.09 hrs HW=70.61' (Free Discharge)
1=Culvert (Inlet Controls 1.34 cfs @ 2.67 fps)

Summary for Pond CB-307: CB

[58] Hint: Peaked 1.14' above defined flood level

Inflow Area = 69,993 sf, 37.98% Impervious, Inflow Depth = 3.63" for 100-Year event
Inflow = 6.73 cfs @ 12.09 hrs, Volume= 21,164 cf
Outflow = 6.73 cfs @ 12.09 hrs, Volume= 21,164 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.73 cfs @ 12.09 hrs, Volume= 21,164 cf
Routed to Pond DMH-306 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 51.33' @ 12.09 hrs
Flood Elev= 50.19'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.64'	**15.0" Round Culvert** L= 92.4' Ke= 0.500 Inlet / Outlet Invert= 48.64' / 48.37' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.73 cfs @ 12.09 hrs HW=51.32' (Free Discharge)
1=Culvert (Barrel Controls 6.73 cfs @ 5.48 fps)

Summary for Pond CB-309: CB

Inflow Area = 3,243 sf, 68.42% Impervious, Inflow Depth = 6.16" for 100-Year event
Inflow = 0.53 cfs @ 12.09 hrs, Volume= 1,665 cf
Outflow = 0.53 cfs @ 12.09 hrs, Volume= 1,665 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.53 cfs @ 12.09 hrs, Volume= 1,665 cf
Routed to Pond DMH-307 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 53.25' @ 12.09 hrs
Flood Elev= 56.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.89'	**12.0" Round Culvert** L= 34.1' Ke= 0.500 Inlet / Outlet Invert= 52.89' / 51.64' S= 0.0367 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.53 cfs @ 12.09 hrs HW=53.25' (Free Discharge)
1=Culvert (Inlet Controls 0.53 cfs @ 2.05 fps)

Summary for Pond CB-310: CB

Inflow Area = 34,760 sf, 6.31% Impervious, Inflow Depth = 1.90" for 100-Year event
Inflow = 1.35 cfs @ 12.10 hrs, Volume= 5,518 cf
Outflow = 1.35 cfs @ 12.10 hrs, Volume= 5,518 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.35 cfs @ 12.10 hrs, Volume= 5,518 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 52.06' @ 12.10 hrs
Flood Elev= 53.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.43'	**12.0" Round Culvert** L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 51.43' / 51.16' S= 0.0180 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.35 cfs @ 12.10 hrs HW=52.06' (Free Discharge)
1=Culvert (Barrel Controls 1.35 cfs @ 3.71 fps)

Summary for Pond CB-311: CB

Inflow Area = 20,260 sf, 67.28% Impervious, Inflow Depth = 6.16" for 100-Year event
Inflow = 3.30 cfs @ 12.09 hrs, Volume= 10,405 cf
Outflow = 3.30 cfs @ 12.09 hrs, Volume= 10,405 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.30 cfs @ 12.09 hrs, Volume= 10,405 cf
Routed to Pond WQ-301 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.39' @ 12.09 hrs
Flood Elev= 47.83'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.90'	**12.0" Round Culvert** L= 21.8' Ke= 0.500 Inlet / Outlet Invert= 45.90' / 45.79' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.30 cfs @ 12.09 hrs HW=47.39' (Free Discharge)
1=Culvert (Barrel Controls 3.30 cfs @ 4.20 fps)

Summary for Pond DMH-001: dmh

[79] Warning: Submerged Pond CB-001 Primary device # 1 OUTLET by 0.76'

Inflow Area = 21,598 sf, 50.19% Impervious, Inflow Depth = 4.71" for 100-Year event
Inflow = 2.74 cfs @ 12.09 hrs, Volume= 8,475 cf
Outflow = 2.74 cfs @ 12.09 hrs, Volume= 8,475 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.74 cfs @ 12.09 hrs, Volume= 8,475 cf
Routed to Pond DMH-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.07' @ 12.09 hrs
Flood Elev= 71.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.05'	**12.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 68.05' / 67.46' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.74 cfs @ 12.09 hrs HW=69.07' (Free Discharge)
1=Culvert (Inlet Controls 2.74 cfs @ 3.49 fps)

Summary for Pond DMH-002: dmh

[81] Warning: Exceeded Pond DMH-001 by 0.10' @ 12.09 hrs

Inflow Area = 38,859 sf, 47.20% Impervious, Inflow Depth = 4.39" for 100-Year event
Inflow = 4.58 cfs @ 12.09 hrs, Volume= 14,209 cf
Outflow = 4.58 cfs @ 12.09 hrs, Volume= 14,209 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.58 cfs @ 12.09 hrs, Volume= 14,209 cf
Routed to Pond WQ-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.17' @ 12.09 hrs
Flood Elev= 70.94'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.97'	**12.0" Round Culvert** L= 61.0' Ke= 0.500 Inlet / Outlet Invert= 66.97' / 66.37' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.58 cfs @ 12.09 hrs HW=69.17' (Free Discharge)
1=Culvert (Barrel Controls 4.58 cfs @ 5.83 fps)

Summary for Pond DMH-005: dmh

[79] Warning: Submerged Pond CB-005 Primary device # 1 OUTLET by 0.54'

Inflow Area = 10,274 sf, 46.43% Impervious, Inflow Depth = 4.63" for 100-Year event
Inflow = 1.28 cfs @ 12.09 hrs, Volume= 3,967 cf
Outflow = 1.28 cfs @ 12.09 hrs, Volume= 3,967 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.28 cfs @ 12.09 hrs, Volume= 3,967 cf
Routed to Pond WQ-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.97' @ 12.09 hrs
Flood Elev= 71.77'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.33'	**12.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 67.33' / 67.02' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.28 cfs @ 12.09 hrs HW=67.97' (Free Discharge)
1=Culvert (Barrel Controls 1.28 cfs @ 3.46 fps)

Summary for Pond DMH-006: DMH

[58] Hint: Peaked 1.07' above defined flood level
[81] Warning: Exceeded Pond WQ-301 by 2.61' @ 12.87 hrs

Inflow Area = 406,222 sf, 60.26% Impervious, Inflow Depth = 4.65" for 100-Year event
Inflow = 53.42 cfs @ 12.10 hrs, Volume= 157,323 cf
Outflow = 53.32 cfs @ 12.10 hrs, Volume= 157,323 cf, Atten= 0%, Lag= 0.3 min
Primary = 7.70 cfs @ 11.97 hrs, Volume= 112,026 cf
Routed to Link L-1 : Link 1
Secondary = 45.62 cfs @ 12.10 hrs, Volume= 45,297 cf
Routed to Link L-1 : Link 1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 51.00' @ 11.97 hrs Surf.Area= 9,336 sf Storage= 4,467 cf
Flood Elev= 49.93' Surf.Area= 13 sf Storage= 45 cf

Plug-Flow detention time= 2.1 min calculated for 157,270 cf (100% of inflow)
Center-of-Mass det. time= 2.1 min (793.2 - 791.1)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	4,416 cf	**Flood storage in parking area (Irregular)** Listed below (Recalc)
#2	46.35'	50 cf	**4.00'D x 4.00'H Precast structure**
		4,467 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
50.00	950	168.4	0	0	950
51.00	9,323	601.9	4,416	4,416	27,526

Device	Routing	Invert	Outlet Devices
#0	Secondary	51.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	46.35'	**12.0" Round Culvert** L= 25.4' Ke= 0.500 Inlet / Outlet Invert= 46.35' / 46.11' S= 0.0094 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=7.70 cfs @ 11.97 hrs HW=51.00' (Free Discharge)
1=Culvert (Inlet Controls 7.70 cfs @ 9.81 fps)

Secondary OutFlow Max=0.00 cfs @ 12.10 hrs HW=51.00' (Free Discharge)

Summary for Pond DMH-101: dmh

[79] Warning: Submerged Pond CB-101 Primary device # 1 OUTLET by 0.58'

Inflow Area = 7,622 sf, 97.70% Impervious, Inflow Depth = 8.28" for 100-Year event
Inflow = 1.49 cfs @ 12.08 hrs, Volume= 5,261 cf
Outflow = 1.49 cfs @ 12.08 hrs, Volume= 5,261 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.49 cfs @ 12.08 hrs, Volume= 5,261 cf
Routed to Pond DMH-102 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.76' @ 12.08 hrs
Flood Elev= 71.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.09'	**12.0" Round Culvert** L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 65.09' / 64.57' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.48 cfs @ 12.08 hrs HW=65.76' (Free Discharge)
1=Culvert (Barrel Controls 1.48 cfs @ 3.76 fps)

Summary for Pond DMH-102: dmh

[79] Warning: Submerged Pond CB-103 Primary device # 1 INLET by 0.63'
[79] Warning: Submerged Pond DMH-101 Primary device # 1 INLET by 0.48'

Inflow Area = 15,298 sf, 92.06% Impervious, Inflow Depth = 7.89" for 100-Year event
Inflow = 2.93 cfs @ 12.08 hrs, Volume= 10,056 cf
Outflow = 2.93 cfs @ 12.08 hrs, Volume= 10,056 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.93 cfs @ 12.08 hrs, Volume= 10,056 cf
Routed to Pond DMH-103 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.57' @ 12.08 hrs
Flood Elev= 70.48'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.47'	**12.0" Round Culvert** L= 65.0' Ke= 0.500 Inlet / Outlet Invert= 64.47' / 63.82' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.92 cfs @ 12.08 hrs HW=65.57' (Free Discharge)
1=Culvert (Inlet Controls 2.92 cfs @ 3.72 fps)

Summary for Pond DMH-103: dmh

[79] Warning: Submerged Pond DMH-102 Primary device # 1 INLET by 0.34'

Inflow Area = 83,660 sf, 63.35% Impervious, Inflow Depth = 1.66" for 100-Year event
Inflow = 2.93 cfs @ 12.08 hrs, Volume= 11,568 cf
Outflow = 2.93 cfs @ 12.08 hrs, Volume= 11,568 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.93 cfs @ 12.08 hrs, Volume= 11,568 cf
Routed to Pond DMH-104 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 64.81' @ 12.08 hrs
Flood Elev= 71.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.71'	**12.0" Round Culvert** L= 81.0' Ke= 0.500 Inlet / Outlet Invert= 63.71' / 62.90' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.92 cfs @ 12.08 hrs HW=64.81' (Free Discharge)
1=Culvert (Inlet Controls 2.92 cfs @ 3.72 fps)

Summary for Pond DMH-104: dmh

[79] Warning: Submerged Pond DMH-103 Primary device # 1 INLET by 0.19'

Inflow Area = 89,855 sf, 64.87% Impervious, Inflow Depth = 2.05" for 100-Year event
Inflow = 4.08 cfs @ 12.08 hrs, Volume= 15,375 cf
Outflow = 4.08 cfs @ 12.08 hrs, Volume= 15,375 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.08 cfs @ 12.08 hrs, Volume= 15,375 cf
Routed to Pond DMH-106 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 63.90' @ 12.08 hrs
Flood Elev= 70.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.80'	**15.0" Round Culvert** L= 154.0' Ke= 0.500 Inlet / Outlet Invert= 62.80' / 61.26' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.07 cfs @ 12.08 hrs HW=63.90' (Free Discharge)
1=Culvert (Inlet Controls 4.07 cfs @ 3.57 fps)

Summary for Pond DMH-105: dmh

[79] Warning: Submerged Pond CB-105 Primary device # 1 INLET by 0.21'

Inflow Area = 5,616 sf, 69.72% Impervious, Inflow Depth = 6.28" for 100-Year event
Inflow = 0.93 cfs @ 12.09 hrs, Volume= 2,941 cf
Outflow = 0.93 cfs @ 12.09 hrs, Volume= 2,941 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.93 cfs @ 12.09 hrs, Volume= 2,941 cf
Routed to Pond DMH-106 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.12' @ 12.09 hrs
Flood Elev= 71.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.62'	**12.0" Round Culvert** L= 72.0' Ke= 0.500 Inlet / Outlet Invert= 67.62' / 65.98' S= 0.0228 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.93 cfs @ 12.09 hrs HW=68.11' (Free Discharge)
1=Culvert (Inlet Controls 0.93 cfs @ 2.40 fps)

Summary for Pond DMH-106: dmh

[79] Warning: Submerged Pond DMH-104 Primary device # 1 INLET by 0.18'

Inflow Area = 104,686 sf, 65.09% Impervious, Inflow Depth = 2.62" for 100-Year event
Inflow = 6.46 cfs @ 12.08 hrs, Volume= 22,862 cf
Outflow = 6.46 cfs @ 12.08 hrs, Volume= 22,862 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.46 cfs @ 12.08 hrs, Volume= 22,862 cf
Routed to Pond DMH-107 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 62.98' @ 12.08 hrs
Flood Elev= 69.28'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.16'	**15.0" Round Culvert** L= 110.0' Ke= 0.500 Inlet / Outlet Invert= 61.16' / 57.86' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.45 cfs @ 12.08 hrs HW=62.98' (Free Discharge)
1=Culvert (Inlet Controls 6.45 cfs @ 5.26 fps)

Summary for Pond DMH-107: DMH

[79] Warning: Submerged Pond DMH-106 Primary device # 1 INLET by 0.34'
[79] Warning: Submerged Pond DMH-107A Primary device # 1 INLET by 1.61'

Inflow Area = 125,491 sf, 70.16% Impervious, Inflow Depth = 3.54" for 100-Year event
Inflow = 10.46 cfs @ 12.08 hrs, Volume= 37,007 cf
Outflow = 10.46 cfs @ 12.08 hrs, Volume= 37,007 cf, Atten= 0%, Lag= 0.0 min
Primary = 10.46 cfs @ 12.08 hrs, Volume= 37,007 cf
Routed to Pond DMH-108 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 61.51' @ 12.08 hrs
Flood Elev= 64.16'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.75'	**15.0" Round Culvert** L= 61.5' Ke= 0.500 Inlet / Outlet Invert= 57.75' / 56.52' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=10.44 cfs @ 12.08 hrs HW=61.50' (Free Discharge)
1=Culvert (Inlet Controls 10.44 cfs @ 8.51 fps)

Summary for Pond DMH-107A: DMH

Inflow Area = 20,805 sf, 95.65% Impervious, Inflow Depth = 8.16" for 100-Year event
Inflow = 4.00 cfs @ 12.08 hrs, Volume= 14,145 cf
Outflow = 4.00 cfs @ 12.08 hrs, Volume= 14,145 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.00 cfs @ 12.08 hrs, Volume= 14,145 cf
Routed to Pond DMH-107 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 61.51' @ 12.08 hrs
Flood Elev= 67.88'

Device	Routing	Invert	Outlet Devices
#1	Primary	59.89'	**12.0" Round Culvert** L= 49.1' Ke= 0.500 Inlet / Outlet Invert= 59.89' / 57.85' S= 0.0415 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.00 cfs @ 12.08 hrs HW=61.51' (Free Discharge)
1=Culvert (Inlet Controls 4.00 cfs @ 5.09 fps)

Summary for Pond DMH-108: DMH

[81] Warning: Exceeded Pond CB-108 by 0.53' @ 12.08 hrs
[79] Warning: Submerged Pond DMH-107 Primary device # 1 INLET by 0.47'

Inflow Area = 128,289 sf, 70.05% Impervious, Inflow Depth = 3.59" for 100-Year event
Inflow = 10.91 cfs @ 12.08 hrs, Volume= 38,416 cf
Outflow = 10.91 cfs @ 12.08 hrs, Volume= 38,416 cf, Atten= 0%, Lag= 0.0 min
Primary = 10.91 cfs @ 12.08 hrs, Volume= 38,416 cf
Routed to Pond DMH-109 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 58.23' @ 12.08 hrs
Flood Elev= 61.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.20'	**15.0" Round Culvert** L= 66.3' Ke= 0.500 Inlet / Outlet Invert= 54.20' / 50.89' S= 0.0499 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=10.89 cfs @ 12.08 hrs HW=58.22' (Free Discharge)
1=Culvert (Inlet Controls 10.89 cfs @ 8.87 fps)

Summary for Pond DMH-109: DMH

[79] Warning: Submerged Pond DMH-108 Primary device # 1 OUTLET by 0.33'

Inflow Area = 128,289 sf, 70.05% Impervious, Inflow Depth = 3.59" for 100-Year event
Inflow = 10.91 cfs @ 12.08 hrs, Volume= 38,416 cf
Outflow = 10.91 cfs @ 12.08 hrs, Volume= 38,416 cf, Atten= 0%, Lag= 0.0 min
Primary = 10.91 cfs @ 12.08 hrs, Volume= 38,416 cf
Routed to Pond WQ-101 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 51.22' @ 12.08 hrs
Flood Elev= 55.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.83'	**18.0" Round Culvert** L= 74.8' Ke= 0.500 Inlet / Outlet Invert= 48.83' / 44.34' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=10.89 cfs @ 12.08 hrs HW=51.22' (Free Discharge)
1=Culvert (Inlet Controls 10.89 cfs @ 6.16 fps)

Summary for Pond DMH-111: DMH

[81] Warning: Exceeded Pond AD-3 by 0.53' @ 12.08 hrs
[79] Warning: Submerged Pond CB-109 Primary device # 1 OUTLET by 1.58'
[79] Warning: Submerged Pond CB-110 Primary device # 1 INLET by 0.07'

Inflow Area = 30,327 sf, 47.03% Impervious, Inflow Depth = 4.73" for 100-Year event
Inflow = 3.68 cfs @ 12.09 hrs, Volume= 11,945 cf
Outflow = 3.68 cfs @ 12.09 hrs, Volume= 11,945 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.68 cfs @ 12.09 hrs, Volume= 11,945 cf
Routed to Pond DMH-113 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.48' @ 12.09 hrs
Flood Elev= 49.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.80'	**12.0" Round Culvert** L= 29.3' Ke= 0.500 Inlet / Outlet Invert= 44.80' / 44.65' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.68 cfs @ 12.09 hrs HW=46.48' (Free Discharge)
1=Culvert (Barrel Controls 3.68 cfs @ 4.69 fps)

Summary for Pond DMH-112: DMH

[81] Warning: Exceeded Pond CB-111 by 1.09' @ 12.08 hrs
[79] Warning: Submerged Pond CB-112 Primary device # 1 INLET by 2.01'
[81] Warning: Exceeded Pond CB-113 by 1.28' @ 12.08 hrs

Inflow Area = 54,967 sf, 86.15% Impervious, Inflow Depth = 7.47" for 100-Year event
Inflow = 9.98 cfs @ 12.08 hrs, Volume= 34,221 cf
Outflow = 9.98 cfs @ 12.08 hrs, Volume= 34,221 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.98 cfs @ 12.08 hrs, Volume= 34,221 cf
Routed to Pond DMH-113 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.27' @ 12.08 hrs
Flood Elev= 48.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.07'	**18.0" Round Culvert** L= 41.9' Ke= 0.500 Inlet / Outlet Invert= 45.07' / 44.65' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=9.97 cfs @ 12.08 hrs HW=47.27' (Free Discharge)
1=Culvert (Barrel Controls 9.97 cfs @ 5.64 fps)

Summary for Pond DMH-113: DMH

[79] Warning: Submerged Pond DMH-111 Primary device # 1 INLET by 1.50'
[79] Warning: Submerged Pond DMH-112 Primary device # 1 INLET by 1.23'

Inflow Area = 85,294 sf, 72.24% Impervious, Inflow Depth = 6.50" for 100-Year event
Inflow = 13.67 cfs @ 12.09 hrs, Volume= 46,166 cf
Outflow = 13.67 cfs @ 12.09 hrs, Volume= 46,166 cf, Atten= 0%, Lag= 0.0 min
Primary = 13.67 cfs @ 12.09 hrs, Volume= 46,166 cf
Routed to Pond WQ-101 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.30' @ 12.09 hrs
Flood Elev= 49.39'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.15'	**24.0" Round Culvert** L= 42.2' Ke= 0.500 Inlet / Outlet Invert= 44.15' / 43.94' S= 0.0050 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=13.64 cfs @ 12.09 hrs HW=46.30' (Free Discharge)
1=Culvert (Barrel Controls 13.64 cfs @ 5.03 fps)

Summary for Pond DMH-201: dmh

[79] Warning: Submerged Pond CB-202 Primary device # 1 INLET by 0.43'

Inflow Area = 45,774 sf, 40.92% Impervious, Inflow Depth = 4.03" for 100-Year event
Inflow = 4.94 cfs @ 12.09 hrs, Volume= 15,366 cf
Outflow = 4.94 cfs @ 12.09 hrs, Volume= 15,366 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.94 cfs @ 12.09 hrs, Volume= 15,366 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.07' @ 12.09 hrs
Flood Elev= 76.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.75'	**15.0" Round Culvert** L= 71.0' Ke= 0.500 Inlet / Outlet Invert= 69.75' / 69.04' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.93 cfs @ 12.09 hrs HW=71.07' (Free Discharge)
1=Culvert (Inlet Controls 4.93 cfs @ 4.02 fps)

Summary for Pond DMH-202: dmh

[79] Warning: Submerged Pond CB-207 Primary device # 1 INLET by 0.48'
[79] Warning: Submerged Pond CB-209 Primary device # 1 INLET by 0.61'

Inflow Area = 47,937 sf, 41.13% Impervious, Inflow Depth = 4.16" for 100-Year event
Inflow = 5.35 cfs @ 12.09 hrs, Volume= 16,627 cf
Outflow = 5.35 cfs @ 12.09 hrs, Volume= 16,627 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.35 cfs @ 12.09 hrs, Volume= 16,627 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 73.22' @ 12.09 hrs
Flood Elev= 77.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.78'	**15.0" Round Culvert** L= 71.0' Ke= 0.500 Inlet / Outlet Invert= 71.78' / 71.07' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.35 cfs @ 12.09 hrs HW=73.22' (Free Discharge)
1=Culvert (Inlet Controls 5.35 cfs @ 4.36 fps)

Summary for Pond DMH-204: dmh

[79] Warning: Submerged Pond DMH-206 Primary device # 1 INLET by 0.15'
[79] Warning: Submerged Pond DMH-207 Primary device # 1 INLET by 0.06'

Inflow Area = 84,570 sf, 60.24% Impervious, Inflow Depth = 5.57" for 100-Year event
Inflow = 12.01 cfs @ 12.09 hrs, Volume= 39,280 cf
Outflow = 12.01 cfs @ 12.09 hrs, Volume= 39,280 cf, Atten= 0%, Lag= 0.0 min
Primary = 12.01 cfs @ 12.09 hrs, Volume= 39,280 cf
Routed to Pond WQ-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.06' @ 12.09 hrs
Flood Elev= 73.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.42'	**24.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 67.42' / 66.19' S= 0.0198 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=11.99 cfs @ 12.09 hrs HW=69.06' (Free Discharge)
1=Culvert (Inlet Controls 11.99 cfs @ 4.36 fps)

Summary for Pond DMH-206: dmh

[81] Warning: Exceeded Pond CB-210 by 0.29' @ 12.09 hrs
[79] Warning: Submerged Pond CB-212 Primary device # 1 OUTLET by 0.44'

Inflow Area = 72,390 sf, 56.96% Impervious, Inflow Depth = 5.33" for 100-Year event
Inflow = 9.87 cfs @ 12.09 hrs, Volume= 32,167 cf
Outflow = 9.87 cfs @ 12.09 hrs, Volume= 32,167 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.87 cfs @ 12.09 hrs, Volume= 32,167 cf
Routed to Pond DMH-204 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.01' @ 12.09 hrs
Flood Elev= 75.47'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.91'	**18.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 68.91' / 67.92' S= 0.0168 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=9.86 cfs @ 12.09 hrs HW=71.00' (Free Discharge)
1=Culvert (Inlet Controls 9.86 cfs @ 5.58 fps)

Summary for Pond DMH-207: cb

[79] Warning: Submerged Pond CB-215 Primary device # 1 OUTLET by 0.74'

Inflow Area = 12,180 sf, 79.75% Impervious, Inflow Depth = 7.01" for 100-Year event
Inflow = 2.14 cfs @ 12.08 hrs, Volume= 7,113 cf
Outflow = 2.14 cfs @ 12.08 hrs, Volume= 7,113 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.14 cfs @ 12.08 hrs, Volume= 7,113 cf
Routed to Pond dmh-204 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.84' @ 12.08 hrs
Flood Elev= 73.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.00'	**12.0" Round Culvert** L= 57.0' Ke= 0.500 Inlet / Outlet Invert= 69.00' / 68.42' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.14 cfs @ 12.08 hrs HW=69.84' (Free Discharge)
1=Culvert (Barrel Controls 2.14 cfs @ 4.11 fps)

Summary for Pond DMH-301: dmh

Inflow Area = 4,688 sf, 99.90% Impervious, Inflow Depth = 8.46" for 100-Year event
Inflow = 0.92 cfs @ 12.08 hrs, Volume= 3,305 cf
Outflow = 0.92 cfs @ 12.08 hrs, Volume= 3,305 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.92 cfs @ 12.08 hrs, Volume= 3,305 cf
Routed to Pond DMH-302 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.69' @ 12.08 hrs
Flood Elev= 73.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.20'	**12.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 70.20' / 68.98' S= 0.0207 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.92 cfs @ 12.08 hrs HW=70.69' (Free Discharge)
1=Culvert (Inlet Controls 0.92 cfs @ 2.39 fps)

Summary for Pond DMH-302: dmh

[79] Warning: Submerged Pond DMH-301 Primary device # 1 OUTLET by 0.73'

Inflow Area = 17,161 sf, 51.76% Impervious, Inflow Depth = 5.03" for 100-Year event
Inflow = 2.16 cfs @ 12.09 hrs, Volume= 7,200 cf
Outflow = 2.16 cfs @ 12.09 hrs, Volume= 7,200 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.16 cfs @ 12.09 hrs, Volume= 7,200 cf
Routed to Pond DMH-303 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.71' @ 12.09 hrs
Flood Elev= 72.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.88'	**12.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 68.88' / 66.92' S= 0.0784 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.16 cfs @ 12.09 hrs HW=69.71' (Free Discharge)
1=Culvert (Inlet Controls 2.16 cfs @ 3.10 fps)

Summary for Pond DMH-303: dmh

Inflow Area = 26,775 sf, 42.05% Impervious, Inflow Depth = 4.35" for 100-Year event
Inflow = 2.93 cfs @ 12.09 hrs, Volume= 9,699 cf
Outflow = 2.93 cfs @ 12.09 hrs, Volume= 9,699 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.93 cfs @ 12.09 hrs, Volume= 9,699 cf
Routed to Pond DMH-304 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.70' @ 12.09 hrs
Flood Elev= 70.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.60'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 65.60' / 62.58' S= 0.0795 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.93 cfs @ 12.09 hrs HW=66.70' (Free Discharge)
1=Culvert (Inlet Controls 2.93 cfs @ 3.73 fps)

Summary for Pond DMH-304: dmh

[79] Warning: Submerged Pond DMH-303 Primary device # 1 OUTLET by 0.48'
[79] Warning: Submerged Pond IS-2 Primary device # 2 OUTLET by 2.76'

Inflow Area = 202,176 sf, 61.53% Impervious, Inflow Depth = 3.87" for 100-Year event
Inflow = 27.15 cfs @ 12.11 hrs, Volume= 65,140 cf
Outflow = 27.15 cfs @ 12.11 hrs, Volume= 65,140 cf, Atten= 0%, Lag= 0.0 min
Primary = 27.15 cfs @ 12.11 hrs, Volume= 65,140 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 63.06' @ 12.11 hrs
Flood Elev= 65.88'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.84'	**24.0" Round Culvert** L= 131.0' Ke= 0.500 Inlet / Outlet Invert= 58.84' / 48.34' S= 0.0802 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=27.13 cfs @ 12.11 hrs HW=63.06' (Free Discharge)
1=Culvert (Inlet Controls 27.13 cfs @ 8.64 fps)

Summary for Pond DMH-306: DMH

[79] Warning: Submerged Pond CB-307 Primary device # 1 INLET by 1.50'

Inflow Area = 69,993 sf, 37.98% Impervious, Inflow Depth = 3.63" for 100-Year event
Inflow = 6.73 cfs @ 12.09 hrs, Volume= 21,164 cf
Outflow = 6.73 cfs @ 12.09 hrs, Volume= 21,164 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.73 cfs @ 12.09 hrs, Volume= 21,164 cf
Routed to Pond DMH-307 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 50.14' @ 12.09 hrs
Flood Elev= 50.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.27'	**18.0" Round Culvert** L= 165.0' Ke= 0.500 Inlet / Outlet Invert= 48.27' / 47.79' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.73 cfs @ 12.09 hrs HW=50.13' (Free Discharge)
1=Culvert (Barrel Controls 6.73 cfs @ 3.92 fps)

Summary for Pond DMH-307: DMH

[79] Warning: Submerged Pond DMH-306 Primary device # 1 INLET by 1.24'

Inflow Area = 73,236 sf, 39.33% Impervious, Inflow Depth = 3.74" for 100-Year event
Inflow = 7.26 cfs @ 12.09 hrs, Volume= 22,829 cf
Outflow = 7.26 cfs @ 12.09 hrs, Volume= 22,829 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.26 cfs @ 12.09 hrs, Volume= 22,829 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.51' @ 12.09 hrs
Flood Elev= 53.58'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.69'	**18.0" Round Culvert** L= 17.3' Ke= 0.500 Inlet / Outlet Invert= 47.69' / 47.64' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.26 cfs @ 12.09 hrs HW=49.51' (Free Discharge)
1=Culvert (Barrel Controls 7.26 cfs @ 4.30 fps)

Summary for Pond DMH-308: DMH

[58] Hint: Peaked 9.96' above defined flood level
[81] Warning: Exceeded Pond CB-310 by 10.99' @ 12.10 hrs
[81] Warning: Exceeded Pond DMH-304 by 0.02' @ 12.10 hrs
[81] Warning: Exceeded Pond DMH-307 by 13.55' @ 12.10 hrs

Inflow Area = 385,962 sf, 59.90% Impervious, Inflow Depth = 4.57" for 100-Year event
Inflow = 50.15 cfs @ 12.10 hrs, Volume= 146,918 cf
Outflow = 50.15 cfs @ 12.10 hrs, Volume= 146,918 cf, Atten= 0%, Lag= 0.0 min
Primary = 50.15 cfs @ 12.10 hrs, Volume= 146,918 cf
Routed to Pond WQ-301 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Peak Elev= 63.05' @ 12.10 hrs
Flood Elev= 53.09'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.54'	**24.0" Round Culvert** L= 163.2' Ke= 0.500 Inlet / Outlet Invert= 47.54' / 47.07' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=50.10 cfs @ 12.10 hrs HW=63.03' (Free Discharge)
1=Culvert (Barrel Controls 50.10 cfs @ 15.95 fps)

Summary for Pond E-DMH 1: E-DMH

[58] Hint: Peaked 5.91' above defined flood level
[81] Warning: Exceeded Pond WQ-101 by 8.06' @ 12.08 hrs

Inflow Area = 213,583 sf, 70.93% Impervious, Inflow Depth = 4.75" for 100-Year event
Inflow = 24.57 cfs @ 12.08 hrs, Volume= 84,582 cf
Outflow = 24.57 cfs @ 12.08 hrs, Volume= 84,582 cf, Atten= 0%, Lag= 0.0 min
Primary = 24.57 cfs @ 12.08 hrs, Volume= 84,582 cf
Routed to Link L-2 : Link 1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 55.86' @ 12.08 hrs
Flood Elev= 49.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.80'	**12.0" Round Culvert X 2.00** L= 16.3' Ke= 0.500 Inlet / Outlet Invert= 44.80' / 44.64' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=24.53 cfs @ 12.08 hrs HW=55.82' (Free Discharge)
1=Culvert (Inlet Controls 24.53 cfs @ 15.62 fps)

Summary for Pond IS-1: infiltration

Notes:
An infiltration rate of 8.27 was used for sand (Rawl's) because the systems will have ASTM C-33 sand, or equivalent, below the systems.

GW elevation based on TP 1 (no GW encountered) and SB-1 (GW encountered at 14 feet below grade)

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[81] Warning: Exceeded Pond WQ-002 by 2.73' @ 12.60 hrs

Inflow Area = 68,362 sf, 56.93% Impervious, Inflow Depth = 5.20" for 100-Year event
Inflow = 9.23 cfs @ 12.09 hrs, Volume= 29,620 cf
Outflow = 2.77 cfs @ 12.43 hrs, Volume= 29,620 cf, Atten= 70%, Lag= 20.7 min
Discarded = 1.01 cfs @ 12.43 hrs, Volume= 28,108 cf
Primary = 1.76 cfs @ 12.43 hrs, Volume= 1,512 cf
Routed to Pond DMH-103 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.29' @ 12.43 hrs Surf.Area= 3,136 sf Storage= 9,723 cf
Flood Elev= 70.00' Surf.Area= 3,136 sf Storage= 10,617 cf

Plug-Flow detention time= 81.2 min calculated for 29,610 cf (100% of inflow)
Center-of-Mass det. time= 81.2 min (888.1 - 806.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	64.50'	4,421 cf	**37.08'W x 84.57'L x 5.50'H Field A** 17,249 cf Overall - 6,196 cf Embedded = 11,052 cf x 40.0% Voids
#2A	65.25'	6,196 cf	**ADS_StormTech MC-3500 d +Cap** x 55 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 55 Chambers in 5 Rows Cap Storage= 14.9 cf x 2 x 5 rows = 149.0 cf
		10,617 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	64.50'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 57.50' Phase-In= 0.01'
#2	Primary	67.35'	**12.0" Round Culvert** L= 27.0' Ke= 0.500 Inlet / Outlet Invert= 67.35' / 67.08' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 2	69.00'	**4.0' long x 0.5' breadth Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=1.01 cfs @ 12.43 hrs HW=69.29' (Free Discharge)
└**1=Exfiltration** (Controls 1.01 cfs)

Primary OutFlow Max=1.75 cfs @ 12.43 hrs HW=69.29' (Free Discharge)
└**2=Culvert** (Passes 1.75 cfs of 4.52 cfs potential flow)
└**3=Weir** (Weir Controls 1.75 cfs @ 1.53 fps)

Summary for Pond IS-2: infiltration

Notes:
An infiltration rate of 1.02 inches per hour was used for sandy loam (Rawl's) at TP 4

GW from TP 4 (GW not encountered to a depth of 8 feet below grade)

[81] Warning: Exceeded Pond WQ-201 by 0.84' @ 12.19 hrs
[81] Warning: Exceeded Pond WQ-202 by 2.89' @ 24.20 hrs

Inflow Area = 175,401 sf, 64.50% Impervious, Inflow Depth = 5.85" for 100-Year event
Inflow = 25.66 cfs @ 12.09 hrs, Volume= 85,474 cf
Outflow = 24.59 cfs @ 12.11 hrs, Volume= 75,639 cf, Atten= 4%, Lag= 1.5 min
Discarded = 0.28 cfs @ 12.11 hrs, Volume= 20,199 cf
Primary = 24.31 cfs @ 12.11 hrs, Volume= 55,441 cf
Routed to Pond DMH-304 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.50' @ 12.11 hrs Surf.Area= 5,452 sf Storage= 17,810 cf
Flood Elev= 70.50' Surf.Area= 5,452 sf Storage= 17,818 cf

Plug-Flow detention time= 139.3 min calculated for 75,614 cf (88% of inflow)
Center-of-Mass det. time= 83.9 min (870.0 - 786.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	65.25'	7,203 cf	**15.58'W x 349.86'L x 5.25'H Field A** 28,623 cf Overall - 10,615 cf Embedded = 18,008 cf x 40.0% Voids
#2A	65.75'	10,615 cf	**ADS_StormTech MC-3500 d +Cap** x 96 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 96 Chambers in 2 Rows Cap Storage= 14.9 cf x 2 x 2 rows = 59.6 cf
		17,818 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	65.25'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 60.75' Phase-In= 0.01'
#2	Primary	65.64'	**24.0" Round Culvert** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 65.64' / 60.30' S= 0.0797 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	69.00'	**4.0' long x 0.5' breadth Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.28 cfs @ 12.11 hrs HW=70.50' (Free Discharge)
└**1=Exfiltration** (Controls 0.28 cfs)

Primary OutFlow Max=24.29 cfs @ 12.11 hrs HW=70.50' (Free Discharge)
└**2=Culvert** (Passes 24.29 cfs of 29.70 cfs potential flow)
└**3=Weir** (Weir Controls 24.29 cfs @ 4.06 fps)

Summary for Pond WQ-002: dmh

[79] Warning: Submerged Pond DMH-002 Primary device # 1 INLET by 0.61'
[79] Warning: Submerged Pond DMH-005 Primary device # 1 INLET by 0.25'

Inflow Area = 57,945 sf, 49.40% Impervious, Inflow Depth = 4.63" for 100-Year event
Inflow = 7.20 cfs @ 12.09 hrs, Volume= 22,346 cf
Outflow = 7.20 cfs @ 12.09 hrs, Volume= 22,346 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.20 cfs @ 12.09 hrs, Volume= 22,346 cf
Routed to Pond IS-1 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.58' @ 12.09 hrs
Flood Elev= 70.94'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.87'	**18.0" Round Culvert** L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 65.87' / 65.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.19 cfs @ 12.09 hrs HW=67.58' (Free Discharge)
└**1=Culvert** (Barrel Controls 7.19 cfs @ 4.47 fps)

Summary for Pond WQ-101: TREATMENT

[79] Warning: Submerged Pond DMH-109 Primary device # 1 OUTLET by 3.42'
[81] Warning: Exceeded Pond DMH-113 by 1.46' @ 12.08 hrs

Inflow Area = 213,583 sf, 70.93% Impervious, Inflow Depth = 4.75" for 100-Year event
Inflow = 24.57 cfs @ 12.08 hrs, Volume= 84,582 cf
Outflow = 24.57 cfs @ 12.08 hrs, Volume= 84,582 cf, Atten= 0%, Lag= 0.0 min
Primary = 24.57 cfs @ 12.08 hrs, Volume= 84,582 cf
Routed to Pond E-DMH 1 : E-DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.77' @ 12.08 hrs
Flood Elev= 51.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.13'	**24.0" Round Culvert** L= 58.0' Ke= 0.500 Inlet / Outlet Invert= 44.13' / 43.55' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=24.53 cfs @ 12.08 hrs HW=47.76' (Free Discharge)
└**1=Culvert** (Inlet Controls 24.53 cfs @ 7.81 fps)

Summary for Pond WQ-201: wq

[79] Warning: Submerged Pond CB-205 Primary device # 1 INLET by 0.77'
[79] Warning: Submerged Pond DMH-201 Primary device # 1 INLET by 0.26'

Inflow Area = 65,484 sf, 58.71% Impervious, Inflow Depth = 5.36" for 100-Year event
Inflow = 8.79 cfs @ 12.09 hrs, Volume= 29,261 cf
Outflow = 8.79 cfs @ 12.09 hrs, Volume= 29,261 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.79 cfs @ 12.09 hrs, Volume= 29,261 cf
Routed to Pond IS-2 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Peak Elev= 70.01' @ 12.09 hrs
Flood Elev= 74.49'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.19'	**18.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 68.19' / 67.58' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=8.78 cfs @ 12.09 hrs HW=70.00' (Free Discharge)
1=Culvert (Inlet Controls 8.78 cfs @ 4.97 fps)

Summary for Pond WQ-202: dmh

[79] Warning: Submerged Pond DMH-204 Primary device # 1 INLET by 0.66'

Inflow Area = 90,151 sf, 62.70% Impervious, Inflow Depth = 5.75" for 100-Year event
Inflow = 13.11 cfs @ 12.09 hrs, Volume= 43,214 cf
Outflow = 13.11 cfs @ 12.09 hrs, Volume= 43,214 cf, Atten= 0%, Lag= 0.0 min
Primary = 13.11 cfs @ 12.09 hrs, Volume= 43,214 cf
Routed to Pond is-2 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.08' @ 12.09 hrs
Flood Elev= 72.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.09'	**24.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 66.09' / 65.92' S= 0.0213 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=13.08 cfs @ 12.09 hrs HW=68.08' (Free Discharge)
1=Culvert (Barrel Controls 13.08 cfs @ 5.22 fps)

Summary for Pond WQ-301: TREATMENT

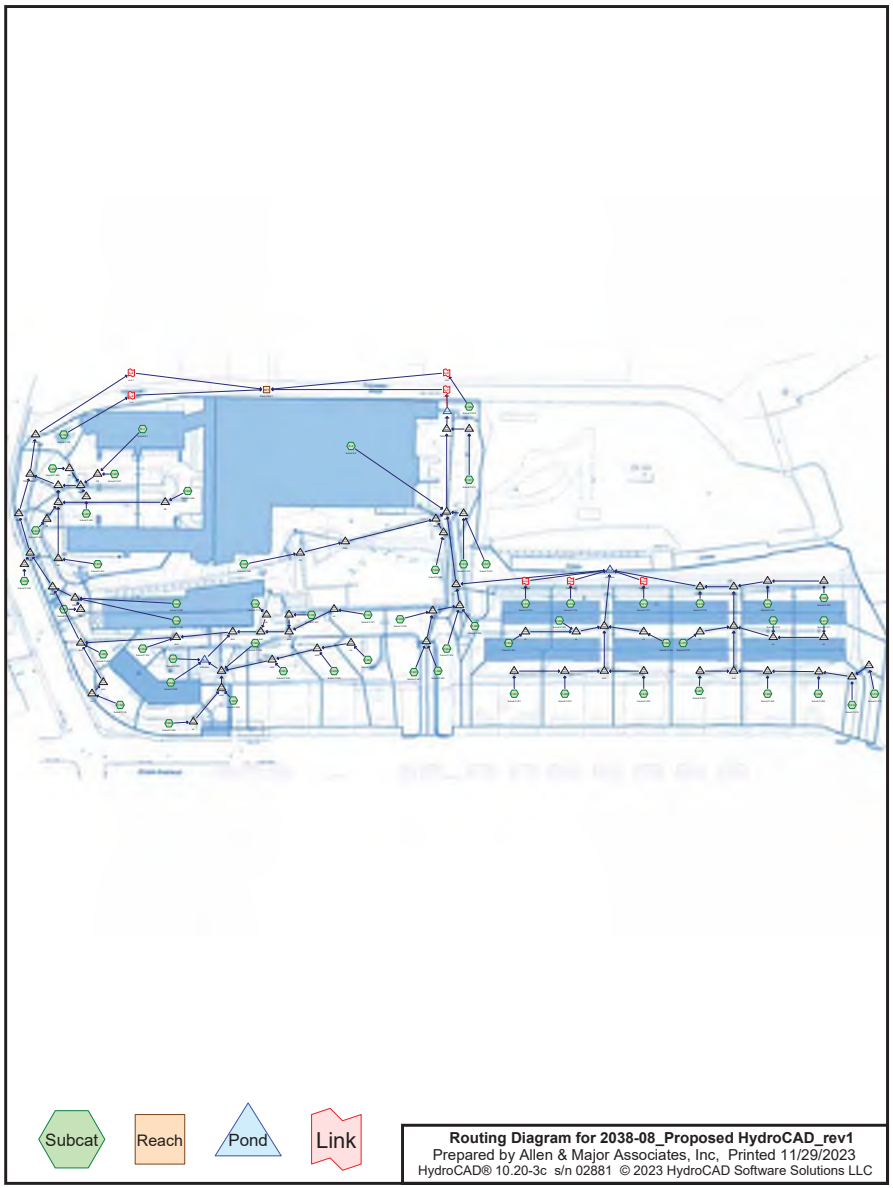
[58] Hint: Peaked 10.38' above defined flood level
[81] Warning: Exceeded Pond CB-311 by 13.06' @ 12.10 hrs
[79] Warning: Submerged Pond DMH-308 Primary device # 1 INLET by 12.89'

Inflow Area = 406,222 sf, 60.26% Impervious, Inflow Depth = 4.65" for 100-Year event
Inflow = 53.42 cfs @ 12.10 hrs, Volume= 157,323 cf
Outflow = 53.42 cfs @ 12.10 hrs, Volume= 157,323 cf, Atten= 0%, Lag= 0.0 min
Primary = 53.42 cfs @ 12.10 hrs, Volume= 157,323 cf
Routed to Pond DMH-006 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 60.44' @ 12.10 hrs
Flood Elev= 50.06'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.97'	**24.0" Round Culvert** L= 10.4' Ke= 0.500 Inlet / Outlet Invert= 46.97' / 46.94' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=53.35 cfs @ 12.10 hrs HW=60.41' (Free Discharge)
1=Culvert (Inlet Controls 53.35 cfs @ 16.98 fps)



Routing Diagram for 2038-08_Proposed HydroCAD_rev1
Prepared by Allen & Major Associates, Inc, Printed 11/29/2023
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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
182,840	39	>75% Grass cover, Good, HSG A (P-001, P-002, P-003, P-004, P-005, P-006, P-007, P-101, P-102, P-103, P-104, P-105, P-106, P-201, P-202, P-203, P-207, P-208, P-209, P-211, P-213, P-214, P-215, P-216, P-217, P-220, P-302, P-303, P-304, P-305, P-306, P-309, P-311, P-400, P-401, P-402, P-403, P-404, P-405, P-406, P-407, P-408, P-501, P-502)
34,310	30	Brush, Good, HSG A (P-001, P-002, P-003, P-004, P-006, P-201, P-202, P-203, P-207, P-209, P-306)
213,148	98	Paved parking, HSG A (P-001, P-002, P-003, P-004, P-005, P-006, P-007, P-008, P-101, P-102, P-103, P-104, P-105, P-106, P-201, P-202, P-203, P-204, P-205, P-206, P-207, P-208, P-209, P-210, P-211, P-212, P-213, P-214, P-215, P-216, P-217, P-218, P-219, P-220, P-301, P-302, P-303, P-304, P-305, P-306, P-309, P-310, P-311, P-400, P-401, P-402, P-403, P-404, P-405, P-406, P-407, P-408, P-501)
183,782	98	Roofs, HSG A (E-1, E-2, P-001, P-002, P-003, P-004, P-005, P-006, P-008, P-106, P-150, P-201, P-202, P-203, P-204, P-205, P-206, P-207, P-208, P-209, P-210, P-211, P-212, P-215, P-216, P-217, P-218, P-219, P-220, P-303, P-304, P-350, P-402, P-407)
14,726	30	Woods, Good, HSG A (P-306)
628,805	**76**	**TOTAL AREA**

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	AD-3	45.58	45.13	89.4	0.0050	0.013	0.0	8.0	0.0	AD
2	CB-001	69.09	68.31	78.0	0.0100	0.013	0.0	12.0	0.0	cb
3	CB-005	68.16	67.43	73.0	0.0100	0.013	0.0	12.0	0.0	cb
4	CB-101	66.00	65.18	82.0	0.0100	0.013	0.0	12.0	0.0	cb
5	CB-102	66.76	66.45	31.0	0.0100	0.013	0.0	12.0	0.0	cb
6	CB-103	64.94	64.55	77.0	0.0051	0.013	0.0	12.0	0.0	cb
7	CB-105	67.91	67.72	19.0	0.0100	0.013	0.0	12.0	0.0	cb
8	CB-107	61.79	61.74	5.5	0.0091	0.013	0.0	12.0	0.0	CB
9	CB-108	57.36	56.98	6.4	0.0592	0.013	0.0	12.0	0.0	CB
10	CB-109	47.47	44.90	31.5	0.0815	0.013	0.0	12.0	0.0	CB
11	CB-110	46.41	44.90	215.7	0.0070	0.013	0.0	12.0	0.0	CB
12	CB-111	45.26	45.17	8.8	0.0103	0.013	0.0	12.0	0.0	CB
13	CB-112	45.26	45.17	14.7	0.0061	0.013	0.0	12.0	0.0	CB
14	CB-113	45.40	45.17	23.3	0.0099	0.013	0.0	12.0	0.0	CB
15	CB-201	71.74	70.74	100.0	0.0100	0.013	0.0	12.0	0.0	cb
16	CB-202	70.64	70.00	63.0	0.0102	0.013	0.0	12.0	0.0	cb
17	CB-203	72.74	72.11	63.0	0.0100	0.013	0.0	12.0	0.0	cb
18	CB-204	70.20	69.34	85.0	0.0101	0.013	0.0	12.0	0.0	cb
19	CB-205	69.24	68.69	56.0	0.0098	0.013	0.0	12.0	0.0	cb
20	CB-206	71.13	70.52	62.0	0.0098	0.013	0.0	12.0	0.0	cb
21	CB-207	72.74	72.10	63.0	0.0102	0.013	0.0	12.0	0.0	cb
22	CB-208	73.61	62.71	90.0	0.1211	0.013	0.0	12.0	0.0	cb
23	CB-209	72.61	72.03	58.0	0.0100	0.013	0.0	12.0	0.0	cb
24	CB-210	70.03	69.41	62.0	0.0100	0.013	0.0	12.0	0.0	cb
25	CB-211	72.13	71.23	90.0	0.0100	0.013	0.0	12.0	0.0	cb
26	CB-212	71.13	70.56	57.0	0.0100	0.013	0.0	12.0	0.0	cb
27	CB-213	75.70	74.60	25.0	0.0440	0.013	0.0	12.0	0.0	cb
28	CB-214	74.50	73.71	55.0	0.0144	0.013	0.0	12.0	0.0	cb
29	CB-215	70.00	69.10	90.0	0.0100	0.013	0.0	12.0	0.0	cb
30	CB-307	48.64	48.37	92.4	0.0029	0.013	0.0	15.0	0.0	CB
31	CB-309	52.89	51.64	34.1	0.0367	0.013	0.0	12.0	0.0	CB
32	CB-310	51.43	51.16	15.0	0.0180	0.013	0.0	12.0	0.0	CB
33	CB-311	45.90	45.79	21.8	0.0050	0.013	0.0	12.0	0.0	CB
34	DMH-001	68.05	67.46	59.0	0.0100	0.013	0.0	12.0	0.0	dmh
35	DMH-002	66.97	66.37	61.0	0.0098	0.013	0.0	12.0	0.0	dmh
36	DMH-005	67.33	67.02	31.0	0.0100	0.013	0.0	12.0	0.0	dmh
37	DMH-006	46.35	46.11	25.4	0.0094	0.013	0.0	12.0	0.0	DMH
38	DMH-101	65.09	64.57	52.0	0.0100	0.013	0.0	12.0	0.0	dmh
39	DMH-102	64.47	63.82	65.0	0.0100	0.013	0.0	12.0	0.0	dmh
40	DMH-103	63.71	62.90	81.0	0.0100	0.013	0.0	12.0	0.0	dmh
41	DMH-104	62.80	61.26	154.0	0.0100	0.013	0.0	15.0	0.0	dmh
42	DMH-105	67.62	65.98	72.0	0.0228	0.013	0.0	12.0	0.0	dmh
43	DMH-106	61.16	57.86	110.0	0.0300	0.013	0.0	15.0	0.0	dmh
44	DMH-107	57.75	56.52	61.5	0.0200	0.013	0.0	15.0	0.0	DMH
45	DMH-107A	59.89	57.85	49.1	0.0415	0.013	0.0	12.0	0.0	DMH
46	DMH-108	54.20	50.89	66.3	0.0499	0.013	0.0	15.0	0.0	DMH
47	DMH-109	48.83	44.34	74.8	0.0600	0.013	0.0	18.0	0.0	DMH
48	DMH-111	44.80	44.65	29.3	0.0051	0.013	0.0	12.0	0.0	DMH
49	DMH-112	45.07	44.65	41.9	0.0100	0.013	0.0	18.0	0.0	DMH
50	DMH-113	44.15	43.94	42.2	0.0050	0.013	0.0	24.0	0.0	DMH
51	DMH-201	69.75	69.04	71.0	0.0100	0.013	0.0	15.0	0.0	dmh
52	DMH-202	71.78	71.07	71.0	0.0100	0.013	0.0	15.0	0.0	dmh
53	DMH-204	67.42	66.19	62.0	0.0198	0.013	0.0	24.0	0.0	dmh
54	DMH-206	68.91	67.92	59.0	0.0168	0.013	0.0	18.0	0.0	dmh
55	DMH-207	69.00	68.42	57.0	0.0102	0.013	0.0	12.0	0.0	cb

Pipe Listing (all nodes) (continued)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
56	DMH-301	70.20	68.98	59.0	0.0207	0.013	0.0	12.0	0.0	dmh
57	DMH-302	68.88	66.92	25.0	0.0784	0.013	0.0	12.0	0.0	dmh
58	DMH-303	65.60	62.58	38.0	0.0795	0.013	0.0	12.0	0.0	dmh
59	DMH-304	58.84	48.34	131.0	0.0802	0.013	0.0	24.0	0.0	dmh
60	DMH-306	48.27	47.79	165.0	0.0029	0.013	0.0	18.0	0.0	DMH
61	DMH-307	47.69	47.64	17.3	0.0029	0.013	0.0	18.0	0.0	DMH
62	DMH-308	47.54	47.07	163.2	0.0029	0.013	0.0	24.0	0.0	DMH
63	E-DMH 1	44.80	44.64	16.3	0.0098	0.013	0.0	12.0	0.0	E-DMH
64	IS-1	67.35	67.08	27.0	0.0100	0.013	0.0	12.0	0.0	infiltration
65	IS-2	65.64	60.30	67.0	0.0797	0.013	0.0	24.0	0.0	infiltration
66	WQ-002	65.87	65.80	7.0	0.0100	0.013	0.0	18.0	0.0	dmh
67	WQ-101	44.13	43.55	58.0	0.0100	0.013	0.0	24.0	0.0	TREATMENT
68	WQ-201	68.19	67.58	60.0	0.0102	0.013	0.0	18.0	0.0	wq
69	WQ-202	66.09	65.92	8.0	0.0213	0.013	0.0	24.0	0.0	dmh
70	WQ-301	46.97	46.94	10.4	0.0029	0.013	0.0	24.0	0.0	TREATMENT

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Pond AD-3: AD Peak Elev=45.63' Inflow=0.01 cfs 20 cf
8.0" Round Culvert n=0.013 L=89.4' S=0.0050 '/' Outflow=0.01 cfs 20 cf

Pond CB-001: cb Peak Elev=69.26' Inflow=0.11 cfs 376 cf
12.0" Round Culvert n=0.013 L=78.0' S=0.0100 '/' Outflow=0.11 cfs 376 cf

Pond CB-005: cb Peak Elev=68.29' Inflow=0.07 cfs 236 cf
12.0" Round Culvert n=0.013 L=73.0' S=0.0100 '/' Outflow=0.07 cfs 236 cf

Pond CB-101: cb Peak Elev=66.15' Inflow=0.10 cfs 319 cf
12.0" Round Culvert n=0.013 L=82.0' S=0.0100 '/' Outflow=0.10 cfs 319 cf

Pond CB-102: cb Peak Elev=66.91' Inflow=0.09 cfs 293 cf
12.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=0.09 cfs 293 cf

Pond CB-103: cb Peak Elev=65.17' Inflow=0.17 cfs 545 cf
12.0" Round Culvert n=0.013 L=77.0' S=0.0051 '/' Outflow=0.17 cfs 545 cf

Pond CB-105: cb Peak Elev=68.07' Inflow=0.10 cfs 322 cf
12.0" Round Culvert n=0.013 L=19.0' S=0.0100 '/' Outflow=0.10 cfs 322 cf

Pond CB-107: CB Peak Elev=61.93' Inflow=0.06 cfs 210 cf
12.0" Round Culvert n=0.013 L=5.5' S=0.0091 '/' Outflow=0.06 cfs 210 cf

Pond CB-108: CB Peak Elev=57.46' Inflow=0.05 cfs 150 cf
12.0" Round Culvert n=0.013 L=6.4' S=0.0592 '/' Outflow=0.05 cfs 150 cf

Pond CB-109: CB Peak Elev=47.58' Inflow=0.05 cfs 166 cf
12.0" Round Culvert n=0.013 L=31.5' S=0.0815 '/' Outflow=0.05 cfs 166 cf

Pond CB-110: CB Peak Elev=46.70' Inflow=0.30 cfs 985 cf
12.0" Round Culvert n=0.013 L=215.7' S=0.0070 '/' Outflow=0.30 cfs 985 cf

Pond CB-111: CB Peak Elev=45.52' Inflow=0.23 cfs 737 cf
12.0" Round Culvert n=0.013 L=8.8' S=0.0103 '/' Outflow=0.23 cfs 737 cf

Pond CB-112: CB Peak Elev=45.83' Inflow=0.86 cfs 2,819 cf
12.0" Round Culvert n=0.013 L=14.7' S=0.0061 '/' Outflow=0.86 cfs 2,819 cf

Pond CB-113: CB Peak Elev=45.56' Inflow=0.10 cfs 334 cf
12.0" Round Culvert n=0.013 L=23.3' S=0.0099 '/' Outflow=0.10 cfs 334 cf

Pond CB-201: cb Peak Elev=71.94' Inflow=0.17 cfs 557 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=0.17 cfs 557 cf

Pond CB-202: cb Peak Elev=70.93' Inflow=0.34 cfs 1,108 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0102 '/' Outflow=0.34 cfs 1,108 cf

Pond CB-203: cb Peak Elev=72.92' Inflow=0.13 cfs 431 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0100 '/' Outflow=0.13 cfs 431 cf

Pond CB-204: cb Peak Elev=70.39' Inflow=0.15 cfs 502 cf
12.0" Round Culvert n=0.013 L=85.0' S=0.0101 '/' Outflow=0.15 cfs 502 cf

Pond CB-205: cb Peak Elev=69.53' Inflow=0.33 cfs 1,085 cf
12.0" Round Culvert n=0.013 L=56.0' S=0.0098 '/' Outflow=0.33 cfs 1,085 cf

Pond CB-206: cb Peak Elev=71.33' Inflow=0.16 cfs 534 cf
12.0" Round Culvert n=0.013 L=62.0' S=0.0098 '/' Outflow=0.16 cfs 534 cf

Pond CB-207: cb Peak Elev=72.94' Inflow=0.17 cfs 558 cf
12.0" Round Culvert n=0.013 L=63.0' S=0.0102 '/' Outflow=0.17 cfs 558 cf

Pond CB-208: cb Peak Elev=73.83' Inflow=0.21 cfs 672 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.1211 '/' Outflow=0.21 cfs 672 cf

Pond CB-209: cb Peak Elev=72.89' Inflow=0.32 cfs 1,061 cf
12.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=0.32 cfs 1,061 cf

Pond CB-210: cb Peak Elev=70.25' Inflow=0.20 cfs 662 cf
12.0" Round Culvert n=0.013 L=62.0' S=0.0100 '/' Outflow=0.20 cfs 662 cf

Pond CB-211: cb Peak Elev=72.34' Inflow=0.19 cfs 625 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.0100 '/' Outflow=0.19 cfs 625 cf

Pond CB-212: cb Peak Elev=71.42' Inflow=0.34 cfs 1,106 cf
12.0" Round Culvert n=0.013 L=57.0' S=0.0100 '/' Outflow=0.34 cfs 1,106 cf

Pond CB-213: cb Peak Elev=75.79' Inflow=0.04 cfs 120 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0440 '/' Outflow=0.04 cfs 120 cf

Pond CB-214: cb Peak Elev=74.63' Inflow=0.07 cfs 235 cf
12.0" Round Culvert n=0.013 L=55.0' S=0.0144 '/' Outflow=0.07 cfs 235 cf

Pond CB-215: cb Peak Elev=70.18' Inflow=0.14 cfs 465 cf
12.0" Round Culvert n=0.013 L=90.0' S=0.0100 '/' Outflow=0.14 cfs 465 cf

Pond CB-307: CB Peak Elev=49.13' Inflow=0.67 cfs 2,184 cf
15.0" Round Culvert n=0.013 L=92.4' S=0.0029 '/' Outflow=0.67 cfs 2,184 cf

Pond CB-309: CB Peak Elev=53.00' Inflow=0.06 cfs 182 cf
12.0" Round Culvert n=0.013 L=34.1' S=0.0367 '/' Outflow=0.06 cfs 182 cf

Pond CB-310: CB Peak Elev=51.54' Inflow=0.06 cfs 180 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0180 '/' Outflow=0.06 cfs 180 cf

Pond CB-311: CB Peak Elev=46.25' Inflow=0.34 cfs 1,120 cf
12.0" Round Culvert n=0.013 L=21.8' S=0.0050 '/' Outflow=0.34 cfs 1,120 cf

Pond DMH-001: dmh Peak Elev=68.31' Inflow=0.27 cfs 890 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0100 '/' Outflow=0.27 cfs 890 cf

Pond DMH-002: dmh Peak Elev=67.31' Inflow=0.46 cfs 1,506 cf
12.0" Round Culvert n=0.013 L=61.0' S=0.0098 '/' Outflow=0.46 cfs 1,506 cf

Pond DMH-005: dmh Peak Elev=67.50' Inflow=0.12 cfs 392 cf
12.0" Round Culvert n=0.013 L=31.0' S=0.0100 '/' Outflow=0.12 cfs 392 cf

Pond DMH-006: DMH Peak Elev=47.75' Storage=18 cf Inflow=3.31 cfs 10,816 cf
12.0" Round Culvert n=0.013 L=25.4' S=0.0094 '/' Primary=3.32 cfs 10,816 cf Secondary=0.00 cfs 0 cf Outflow=3.32 cfs 10,816 cf

Pond DMH-101: dmh Peak Elev=65.30' Inflow=0.19 cfs 612 cf
12.0" Round Culvert n=0.013 L=52.0' S=0.0100 '/' Outflow=0.19 cfs 612 cf

Pond DMH-102: dmh Peak Elev=64.77' Inflow=0.35 cfs 1,157 cf
12.0" Round Culvert n=0.013 L=65.0' S=0.0100 '/' Outflow=0.35 cfs 1,157 cf

Pond DMH-103: dmh Peak Elev=64.00' Inflow=0.35 cfs 1,157 cf
12.0" Round Culvert n=0.013 L=81.0' S=0.0100 '/' Outflow=0.35 cfs 1,157 cf

Pond DMH-104: dmh Peak Elev=63.12' Inflow=0.49 cfs 1,591 cf
15.0" Round Culvert n=0.013 L=154.0' S=0.0100 '/' Outflow=0.49 cfs 1,591 cf

Pond DMH-105: dmh Peak Elev=67.77' Inflow=0.10 cfs 322 cf
12.0" Round Culvert n=0.013 L=72.0' S=0.0228 '/' Outflow=0.10 cfs 322 cf

Pond DMH-106: dmh Peak Elev=61.56' Inflow=0.73 cfs 2,400 cf
15.0" Round Culvert n=0.013 L=110.0' S=0.0300 '/' Outflow=0.73 cfs 2,400 cf

Pond DMH-107: DMH Peak Elev=58.28' Inflow=1.23 cfs 4,035 cf
15.0" Round Culvert n=0.013 L=61.5' S=0.0200 '/' Outflow=1.23 cfs 4,035 cf

Pond DMH-107A: DMH Peak Elev=60.24' Inflow=0.50 cfs 1,635 cf
12.0" Round Culvert n=0.013 L=49.1' S=0.0415 '/' Outflow=0.50 cfs 1,635 cf

Pond DMH-108: DMH Peak Elev=54.74' Inflow=1.28 cfs 4,185 cf
15.0" Round Culvert n=0.013 L=66.3' S=0.0499 '/' Outflow=1.28 cfs 4,185 cf

Pond DMH-109: DMH Peak Elev=49.34' Inflow=1.28 cfs 4,185 cf
18.0" Round Culvert n=0.013 L=74.8' S=0.0600 '/' Outflow=1.28 cfs 4,185 cf

Pond DMH-111: DMH Peak Elev=45.15' Inflow=0.36 cfs 1,171 cf
12.0" Round Culvert n=0.013 L=29.3' S=0.0051 '/' Outflow=0.36 cfs 1,171 cf

Pond DMH-112: DMH Peak Elev=45.57' Inflow=1.19 cfs 3,889 cf
18.0" Round Culvert n=0.013 L=41.9' S=0.0100 '/' Outflow=1.19 cfs 3,889 cf

Pond DMH-113: DMH Peak Elev=44.75' Inflow=1.55 cfs 5,061 cf
24.0" Round Culvert n=0.013 L=42.2' S=0.0050 '/' Outflow=1.55 cfs 5,061 cf

Pond DMH-201: dmh Peak Elev=70.07' Inflow=0.47 cfs 1,539 cf
15.0" Round Culvert n=0.013 L=71.0' S=0.0100 '/' Outflow=0.47 cfs 1,539 cf

Pond DMH-202: dmh Peak Elev=72.11' Inflow=0.50 cfs 1,619 cf
15.0" Round Culvert n=0.013 L=71.0' S=0.0100 '/' Outflow=0.50 cfs 1,619 cf

Pond DMH-204: dmh Peak Elev=67.88' Inflow=1.28 cfs 4,185 cf
24.0" Round Culvert n=0.013 L=62.0' S=0.0198 '/' Outflow=1.28 cfs 4,185 cf

Pond DMH-206: dmh Peak Elev=69.36' Inflow=1.04 cfs 3,387 cf
18.0" Round Culvert n=0.013 L=59.0' S=0.0168 '/' Outflow=1.04 cfs 3,387 cf

Pond DMH-207: cb Peak Elev=69.24' Inflow=0.24 cfs 798 cf
12.0" Round Culvert n=0.013 L=57.0' S=0.0102 '/' Outflow=0.24 cfs 798 cf

Pond DMH-301: dmh Peak Elev=70.36' Inflow=0.12 cfs 385 cf
12.0" Round Culvert n=0.013 L=59.0' S=0.0207 '/' Outflow=0.12 cfs 385 cf

Pond DMH-302: dmh Peak Elev=69.11' Inflow=0.22 cfs 730 cf
12.0" Round Culvert n=0.013 L=25.0' S=0.0784 '/' Outflow=0.22 cfs 730 cf

Pond DMH-303: dmh Peak Elev=65.86' Inflow=0.28 cfs 925 cf
12.0" Round Culvert n=0.013 L=38.0' S=0.0795 '/' Outflow=0.28 cfs 925 cf

Pond DMH-304: dmh Peak Elev=59.05' Inflow=0.28 cfs 925 cf
24.0" Round Culvert n=0.013 L=131.0' S=0.0802 '/' Outflow=0.28 cfs 925 cf

Pond DMH-306: DMH Peak Elev=48.73' Inflow=0.67 cfs 2,184 cf
18.0" Round Culvert n=0.013 L=165.0' S=0.0029 '/' Outflow=0.67 cfs 2,184 cf

Pond DMH-307: DMH Peak Elev=48.17' Inflow=0.72 cfs 2,366 cf
18.0" Round Culvert n=0.013 L=17.3' S=0.0029 '/' Outflow=0.72 cfs 2,366 cf

Pond DMH-308: DMH Peak Elev=48.44' Inflow=2.97 cfs 9,696 cf
24.0" Round Culvert n=0.013 L=163.2' S=0.0029 '/' Outflow=2.97 cfs 9,696 cf

Pond E-DMH 1: E-DMH Peak Elev=45.51' Inflow=2.83 cfs 9,246 cf
12.0" Round Culvert x 2.00 n=0.013 L=16.3' S=0.0098 '/' Outflow=2.83 cfs 9,246 cf

Pond IS-1: infiltration Peak Elev=64.66' Storage=203 cf Inflow=0.98 cfs 3,197 cf
Discarded=0.61 cfs 3,197 cf Primary=0.00 cfs 0 cf Outflow=0.61 cfs 3,197 cf

Pond IS-2: infiltration Peak Elev=66.47' Storage=4,372 cf Inflow=2.84 cfs 9,292 cf
Discarded=0.16 cfs 9,292 cf Primary=0.00 cfs 0 cf Outflow=0.16 cfs 9,292 cf

Pond WQ-002: dmh Peak Elev=66.31' Inflow=0.72 cfs 2,351 cf
18.0" Round Culvert n=0.013 L=7.0' S=0.0100 '/' Outflow=0.72 cfs 2,351 cf

Pond WQ-101: TREATMENT Peak Elev=44.85' Inflow=2.83 cfs 9,246 cf
24.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=2.83 cfs 9,246 cf

Pond WQ-201: wq Peak Elev=68.63' Inflow=0.97 cfs 3,158 cf
18.0" Round Culvert n=0.013 L=60.0' S=0.0102 '/' Outflow=0.97 cfs 3,158 cf

Pond WQ-202: dmh Peak Elev=66.61' Inflow=1.42 cfs 4,643 cf
24.0" Round Culvert n=0.013 L=8.0' S=0.0213 '/' Outflow=1.42 cfs 4,643 cf

Pond WQ-301: TREATMENT Peak Elev=47.93' Inflow=3.31 cfs 10,816 cf
24.0" Round Culvert n=0.013 L=10.4' S=0.0029 '/' Outflow=3.31 cfs 10,816 cf

Summary for Pond AD-3: AD

Inflow Area = 9,685 sf, 2.51% Impervious, Inflow Depth = 0.02" for 1.2" Peak event
Inflow = 0.01 cfs @ 12.08 hrs, Volume= 20 cf
Outflow = 0.01 cfs @ 12.08 hrs, Volume= 20 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 12.08 hrs, Volume= 20 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.63' @ 12.08 hrs
Flood Elev= 51.61'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.58'	**8.0" Round Culvert** L= 89.4' Ke= 0.500 Inlet / Outlet Invert= 45.58' / 45.13' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.00 cfs @ 12.08 hrs HW=45.63' (Free Discharge)
1=Culvert (Barrel Controls 0.00 cfs @ 0.65 fps)

Summary for Pond CB-001: cb

Inflow Area = 9,415 sf, 48.58% Impervious, Inflow Depth = 0.48" for 1.2" Peak event
Inflow = 0.11 cfs @ 12.08 hrs, Volume= 376 cf
Outflow = 0.11 cfs @ 12.08 hrs, Volume= 376 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.08 hrs, Volume= 376 cf
Routed to Pond DMH-001 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.26' @ 12.08 hrs
Flood Elev= 72.39'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.09'	**12.0" Round Culvert** L= 78.0' Ke= 0.500 Inlet / Outlet Invert= 69.09' / 68.31' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.11 cfs @ 12.08 hrs HW=69.26' (Free Discharge)
1=Culvert (Barrel Controls 0.11 cfs @ 2.02 fps)

Summary for Pond CB-005: cb

Inflow Area = 6,798 sf, 42.20% Impervious, Inflow Depth = 0.42" for 1.2" Peak event
Inflow = 0.07 cfs @ 12.08 hrs, Volume= 236 cf
Outflow = 0.07 cfs @ 12.08 hrs, Volume= 236 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.07 cfs @ 12.08 hrs, Volume= 236 cf
Routed to Pond DMH-005 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.29' @ 12.08 hrs
Flood Elev= 71.47'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.16'	**12.0" Round Culvert** L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 68.16' / 67.43' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.07 cfs @ 12.08 hrs HW=68.29' (Free Discharge)
1=Culvert (Barrel Controls 0.07 cfs @ 1.76 fps)

Summary for Pond CB-101: cb

Inflow Area = 3,896 sf, 99.56% Impervious, Inflow Depth = 0.98" for 1.2" Peak event
Inflow = 0.10 cfs @ 12.08 hrs, Volume= 319 cf
Outflow = 0.10 cfs @ 12.08 hrs, Volume= 319 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.08 hrs, Volume= 319 cf
Routed to Pond DMH-101 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.15' @ 12.08 hrs
Flood Elev= 71.46'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**12.0" Round Culvert** L= 82.0' Ke= 0.500 Inlet / Outlet Invert= 66.00' / 65.18' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.10 cfs @ 12.08 hrs HW=66.15' (Free Discharge)
1=Culvert (Barrel Controls 0.10 cfs @ 1.92 fps)

Summary for Pond CB-102: cb

Inflow Area = 3,726 sf, 95.76% Impervious, Inflow Depth = 0.94" for 1.2" Peak event
Inflow = 0.09 cfs @ 12.08 hrs, Volume= 293 cf
Outflow = 0.09 cfs @ 12.08 hrs, Volume= 293 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.08 hrs, Volume= 293 cf
Routed to Pond DMH-101 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.91' @ 12.08 hrs
Flood Elev= 70.07'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.76'	**12.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 66.76' / 66.45' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.09 cfs @ 12.08 hrs HW=66.91' (Free Discharge)
1=Culvert (Barrel Controls 0.09 cfs @ 1.83 fps)

Summary for Pond CB-103: cb

Inflow Area = 7,676 sf, 86.47% Impervious, Inflow Depth = 0.85" for 1.2" Peak event
Inflow = 0.17 cfs @ 12.08 hrs, Volume= 545 cf
Outflow = 0.17 cfs @ 12.08 hrs, Volume= 545 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.17 cfs @ 12.08 hrs, Volume= 545 cf
Routed to Pond DMH-102 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.17' @ 12.08 hrs
Flood Elev= 67.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.94'	**12.0" Round Culvert** L= 77.0' Ke= 0.500 Inlet / Outlet Invert= 64.94' / 64.55' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.17 cfs @ 12.08 hrs HW=65.17' (Free Discharge)
1=Culvert (Barrel Controls 0.17 cfs @ 1.79 fps)

Summary for Pond CB-105: cb

Inflow Area = 5,616 sf, 69.72% Impervious, Inflow Depth = 0.69" for 1.2" Peak event
Inflow = 0.10 cfs @ 12.08 hrs, Volume= 322 cf
Outflow = 0.10 cfs @ 12.08 hrs, Volume= 322 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.08 hrs, Volume= 322 cf
Routed to Pond DMH-105 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.07' @ 12.08 hrs
Flood Elev= 71.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.91'	**12.0" Round Culvert** L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 67.91' / 67.72' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.10 cfs @ 12.08 hrs HW=68.07' (Free Discharge)
1=Culvert (Barrel Controls 0.10 cfs @ 1.83 fps)

Summary for Pond CB-107: CB

Inflow Area = 3,461 sf, 73.85% Impervious, Inflow Depth = 0.73" for 1.2" Peak event
Inflow = 0.06 cfs @ 12.08 hrs, Volume= 210 cf
Outflow = 0.06 cfs @ 12.08 hrs, Volume= 210 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.08 hrs, Volume= 210 cf
Routed to Pond DMH-107A : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 61.93' @ 12.08 hrs
Flood Elev= 65.74'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.79'	**12.0" Round Culvert** L= 5.5' Ke= 0.500 Inlet / Outlet Invert= 61.79' / 61.74' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.08 hrs HW=61.93' (Free Discharge)
1=Culvert (Barrel Controls 0.06 cfs @ 1.47 fps)

Summary for Pond CB-108: CB

Inflow Area = 2,798 sf, 65.43% Impervious, Inflow Depth = 0.64" for 1.2" Peak event
Inflow = 0.05 cfs @ 12.08 hrs, Volume= 150 cf
Outflow = 0.05 cfs @ 12.08 hrs, Volume= 150 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.08 hrs, Volume= 150 cf
Routed to Pond DMH-108 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 57.46' @ 12.08 hrs
Flood Elev= 59.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.36'	**12.0" Round Culvert** L= 6.4' Ke= 0.500 Inlet / Outlet Invert= 57.36' / 56.98' S= 0.0592 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 12.08 hrs HW=57.46' (Free Discharge)
1=Culvert (Inlet Controls 0.05 cfs @ 1.09 fps)

Summary for Pond CB-109: CB

Inflow Area = 3,259 sf, 62.16% Impervious, Inflow Depth = 0.61" for 1.2" Peak event
Inflow = 0.05 cfs @ 12.08 hrs, Volume= 166 cf
Outflow = 0.05 cfs @ 12.08 hrs, Volume= 166 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.08 hrs, Volume= 166 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.58' @ 12.08 hrs
Flood Elev= 51.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.47'	**12.0" Round Culvert** L= 31.5' Ke= 0.500 Inlet / Outlet Invert= 47.47' / 44.90' S= 0.0815 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 12.08 hrs HW=47.58' (Free Discharge)
1=Culvert (Inlet Controls 0.05 cfs @ 1.11 fps)

Summary for Pond CB-110: CB

Inflow Area = 17,384 sf, 68.99% Impervious, Inflow Depth = 0.68" for 1.2" Peak event
Inflow = 0.30 cfs @ 12.08 hrs, Volume= 985 cf
Outflow = 0.30 cfs @ 12.08 hrs, Volume= 985 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.08 hrs, Volume= 985 cf
Routed to Pond DMH-111 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.70' @ 12.08 hrs
Flood Elev= 49.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.41'	**12.0" Round Culvert** L= 215.7' Ke= 0.500 Inlet / Outlet Invert= 46.41' / 44.90' S= 0.0070 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.30 cfs @ 12.08 hrs HW=46.70' (Free Discharge)
1=Culvert (Barrel Controls 0.30 cfs @ 2.39 fps)

Summary for Pond CB-111: CB

Inflow Area = 11,014 sf, 81.48% Impervious, Inflow Depth = 0.80" for 1.2" Peak event
Inflow = 0.23 cfs @ 12.08 hrs, Volume= 737 cf
Outflow = 0.23 cfs @ 12.08 hrs, Volume= 737 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.08 hrs, Volume= 737 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.52' @ 12.08 hrs
Flood Elev= 47.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.26'	**12.0" Round Culvert** L= 8.8' Ke= 0.500 Inlet / Outlet Invert= 45.26' / 45.17' S= 0.0103 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.23 cfs @ 12.08 hrs HW=45.52' (Free Discharge)
1=Culvert (Barrel Controls 0.23 cfs @ 2.10 fps)

Summary for Pond CB-112: CB

Inflow Area = 35,612 sf, 96.36% Impervious, Inflow Depth = 0.95" for 1.2" Peak event
Inflow = 0.86 cfs @ 12.08 hrs, Volume= 2,819 cf
Outflow = 0.86 cfs @ 12.08 hrs, Volume= 2,819 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.86 cfs @ 12.08 hrs, Volume= 2,819 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.83' @ 12.08 hrs
Flood Elev= 47.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.26'	**12.0" Round Culvert** L= 14.7' Ke= 0.500 Inlet / Outlet Invert= 45.26' / 45.17' S= 0.0061 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.86 cfs @ 12.08 hrs HW=45.83' (Free Discharge)
1=Culvert (Barrel Controls 0.86 cfs @ 2.71 fps)

Summary for Pond CB-113: CB

Inflow Area = 8,340 sf, 48.71% Impervious, Inflow Depth = 0.48" for 1.2" Peak event
Inflow = 0.10 cfs @ 12.08 hrs, Volume= 334 cf
Outflow = 0.10 cfs @ 12.08 hrs, Volume= 334 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.08 hrs, Volume= 334 cf
Routed to Pond DMH-112 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.56' @ 12.08 hrs
Flood Elev= 48.28'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.40'	**12.0" Round Culvert** L= 23.3' Ke= 0.500 Inlet / Outlet Invert= 45.40' / 45.17' S= 0.0099 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.10 cfs @ 12.08 hrs HW=45.56' (Free Discharge)
1=Culvert (Barrel Controls 0.10 cfs @ 1.86 fps)

Summary for Pond CB-201: cb

Inflow Area = 15,873 sf, 42.70% Impervious, Inflow Depth = 0.42" for 1.2" Peak event
Inflow = 0.17 cfs @ 12.08 hrs, Volume= 557 cf
Outflow = 0.17 cfs @ 12.08 hrs, Volume= 557 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.17 cfs @ 12.08 hrs, Volume= 557 cf
Routed to Pond CB-202 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.94' @ 12.08 hrs
Flood Elev= 75.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.74'	**12.0" Round Culvert** L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 71.74' / 70.74' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.17 cfs @ 12.08 hrs HW=71.94' (Free Discharge)
1=Culvert (Barrel Controls 0.17 cfs @ 2.27 fps)

Summary for Pond CB-202: cb

[79] Warning: Submerged Pond CB-201 Primary device # 1 OUTLET by 0.19'

Inflow Area = 32,444 sf, 41.56% Impervious, Inflow Depth = 0.41" for 1.2" Peak event
Inflow = 0.34 cfs @ 12.08 hrs, Volume= 1,108 cf
Outflow = 0.34 cfs @ 12.08 hrs, Volume= 1,108 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.08 hrs, Volume= 1,108 cf
Routed to Pond DMH-201 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.93' @ 12.08 hrs
Flood Elev= 75.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.64'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 70.64' / 70.00' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.08 hrs HW=70.93' (Free Discharge)
1=Culvert (Barrel Controls 0.34 cfs @ 2.70 fps)

Summary for Pond CB-203: cb

Inflow Area = 13,330 sf, 39.38% Impervious, Inflow Depth = 0.39" for 1.2" Peak event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 431 cf
Outflow = 0.13 cfs @ 12.08 hrs, Volume= 431 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.13 cfs @ 12.08 hrs, Volume= 431 cf
Routed to Pond DMH-201 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.92' @ 12.08 hrs
Flood Elev= 76.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.74'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 72.74' / 72.11' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.13 cfs @ 12.08 hrs HW=72.92' (Free Discharge)
1=Culvert (Barrel Controls 0.13 cfs @ 2.08 fps)

Summary for Pond CB-204: cb

Inflow Area = 6,109 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2" Peak event
Inflow = 0.15 cfs @ 12.08 hrs, Volume= 502 cf
Outflow = 0.15 cfs @ 12.08 hrs, Volume= 502 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.15 cfs @ 12.08 hrs, Volume= 502 cf
Routed to Pond CB-205 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.39' @ 12.08 hrs
Flood Elev= 73.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.20'	**12.0" Round Culvert** L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 70.20' / 69.34' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.15 cfs @ 12.08 hrs HW=70.39' (Free Discharge)
1=Culvert (Barrel Controls 0.15 cfs @ 2.20 fps)

Summary for Pond CB-205: cb

[79] Warning: Submerged Pond CB-204 Primary device # 1 OUTLET by 0.19'

Inflow Area = 13,210 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2" Peak event
Inflow = 0.33 cfs @ 12.08 hrs, Volume= 1,085 cf
Outflow = 0.33 cfs @ 12.08 hrs, Volume= 1,085 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.08 hrs, Volume= 1,085 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.53' @ 12.08 hrs
Flood Elev= 73.11'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.24'	**12.0" Round Culvert** L= 56.0' Ke= 0.500 Inlet / Outlet Invert= 69.24' / 68.69' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.33 cfs @ 12.08 hrs HW=69.53' (Free Discharge)
1=Culvert (Barrel Controls 0.33 cfs @ 2.64 fps)

Summary for Pond CB-206: cb

Inflow Area = 6,500 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2" Peak event
Inflow = 0.16 cfs @ 12.08 hrs, Volume= 534 cf
Outflow = 0.16 cfs @ 12.08 hrs, Volume= 534 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.08 hrs, Volume= 534 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.33' @ 12.08 hrs
Flood Elev= 74.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.13'	**12.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 71.13' / 70.52' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.16 cfs @ 12.08 hrs HW=71.33' (Free Discharge)
1=Culvert (Barrel Controls 0.16 cfs @ 2.20 fps)

Summary for Pond CB-207: cb

Inflow Area = 16,473 sf, 41.23% Impervious, Inflow Depth = 0.41" for 1.2" Peak event
Inflow = 0.17 cfs @ 12.08 hrs, Volume= 558 cf
Outflow = 0.17 cfs @ 12.08 hrs, Volume= 558 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.17 cfs @ 12.08 hrs, Volume= 558 cf
Routed to Pond DMH-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.94' @ 12.08 hrs
Flood Elev= 76.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.74'	**12.0" Round Culvert** L= 63.0' Ke= 0.500 Inlet / Outlet Invert= 72.74' / 72.10' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.17 cfs @ 12.08 hrs HW=72.94' (Free Discharge)
1=Culvert (Barrel Controls 0.17 cfs @ 2.25 fps)

Summary for Pond CB-208: cb

[79] Warning: Submerged Pond CB-214 Primary device # 1 OUTLET by 0.12'

Inflow Area = 19,530 sf, 41.92% Impervious, Inflow Depth = 0.41" for 1.2" Peak event
Inflow = 0.21 cfs @ 12.08 hrs, Volume= 672 cf
Outflow = 0.21 cfs @ 12.08 hrs, Volume= 672 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 12.08 hrs, Volume= 672 cf
Routed to Pond CB-209 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 73.83' @ 12.08 hrs
Flood Elev= 77.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.61'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 73.61' / 62.71' S= 0.1211 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.20 cfs @ 12.08 hrs HW=73.83' (Free Discharge)
1=Culvert (Inlet Controls 0.20 cfs @ 1.60 fps)

Summary for Pond CB-209: cb

[79] Warning: Submerged Pond CB-208 Primary device # 1 OUTLET by 10.18'

Inflow Area = 31,464 sf, 41.07% Impervious, Inflow Depth = 0.40" for 1.2" Peak event
Inflow = 0.32 cfs @ 12.08 hrs, Volume= 1,061 cf
Outflow = 0.32 cfs @ 12.08 hrs, Volume= 1,061 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.32 cfs @ 12.08 hrs, Volume= 1,061 cf
Routed to Pond DMH-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.89' @ 12.08 hrs
Flood Elev= 77.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.61'	**12.0" Round Culvert** L= 58.0' Ke= 0.500 Inlet / Outlet Invert= 72.61' / 72.03' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.32 cfs @ 12.08 hrs HW=72.89' (Free Discharge)
1=Culvert (Barrel Controls 0.32 cfs @ 2.65 fps)

Summary for Pond CB-210: cb

Inflow Area = 8,060 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2" Peak event
Inflow = 0.20 cfs @ 12.08 hrs, Volume= 662 cf
Outflow = 0.20 cfs @ 12.08 hrs, Volume= 662 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.08 hrs, Volume= 662 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.25' @ 12.08 hrs
Flood Elev= 74.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.03'	**12.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 70.03' / 69.41' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.20 cfs @ 12.08 hrs HW=70.25' (Free Discharge)
1=Culvert (Barrel Controls 0.20 cfs @ 2.35 fps)

Summary for Pond CB-211: cb

Inflow Area = 10,543 sf, 72.18% Impervious, Inflow Depth = 0.71" for 1.2" Peak event
Inflow = 0.19 cfs @ 12.08 hrs, Volume= 625 cf
Outflow = 0.19 cfs @ 12.08 hrs, Volume= 625 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.08 hrs, Volume= 625 cf
Routed to Pond CB-212 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.34' @ 12.08 hrs
Flood Elev= 75.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.13'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 72.13' / 71.23' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.19 cfs @ 12.08 hrs HW=72.34' (Free Discharge)
1=Culvert (Barrel Controls 0.19 cfs @ 2.34 fps)

Summary for Pond CB-212: cb

[79] Warning: Submerged Pond CB-211 Primary device # 1 OUTLET by 0.19'

Inflow Area = 16,393 sf, 82.11% Impervious, Inflow Depth = 0.81" for 1.2" Peak event
Inflow = 0.34 cfs @ 12.08 hrs, Volume= 1,106 cf
Outflow = 0.34 cfs @ 12.08 hrs, Volume= 1,106 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.08 hrs, Volume= 1,106 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 71.42' @ 12.08 hrs
Flood Elev= 75.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.13'	**12.0" Round Culvert** L= 57.0' Ke= 0.500 Inlet / Outlet Invert= 71.13' / 70.56' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.08 hrs HW=71.42' (Free Discharge)
1=Culvert (Barrel Controls 0.34 cfs @ 2.67 fps)

Summary for Pond CB-213: cb

Inflow Area = 3,633 sf, 40.06% Impervious, Inflow Depth = 0.39" for 1.2" Peak event
Inflow = 0.04 cfs @ 12.08 hrs, Volume= 120 cf
Outflow = 0.04 cfs @ 12.08 hrs, Volume= 120 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.08 hrs, Volume= 120 cf
Routed to Pond CB-214 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 75.79' @ 12.08 hrs
Flood Elev= 79.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.70'	**12.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 75.70' / 74.60' S= 0.0440 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.04 cfs @ 12.08 hrs HW=75.79' (Free Discharge)
1=Culvert (Inlet Controls 0.04 cfs @ 1.02 fps)

Summary for Pond CB-214: cb

[79] Warning: Submerged Pond CB-213 Primary device # 1 OUTLET by 0.03'

Inflow Area = 6,778 sf, 42.27% Impervious, Inflow Depth = 0.42" for 1.2" Peak event
Inflow = 0.07 cfs @ 12.08 hrs, Volume= 235 cf
Outflow = 0.07 cfs @ 12.08 hrs, Volume= 235 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.07 cfs @ 12.08 hrs, Volume= 235 cf
Routed to Pond CB-208 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 74.63' @ 12.08 hrs
Flood Elev= 78.07'

Device	Routing	Invert	Outlet Devices
#1	Primary	74.50'	**12.0" Round Culvert** L= 55.0' Ke= 0.500 Inlet / Outlet Invert= 74.50' / 73.71' S= 0.0144 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.07 cfs @ 12.08 hrs HW=74.63' (Free Discharge)
1=Culvert (Inlet Controls 0.07 cfs @ 1.21 fps)

Summary for Pond CB-215: cb

Inflow Area = 8,130 sf, 69.66% Impervious, Inflow Depth = 0.69" for 1.2" Peak event
Inflow = 0.14 cfs @ 12.08 hrs, Volume= 465 cf
Outflow = 0.14 cfs @ 12.08 hrs, Volume= 465 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.08 hrs, Volume= 465 cf
Routed to Pond DMH-207 : cb

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.18' @ 12.08 hrs
Flood Elev= 73.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.00'	**12.0" Round Culvert** L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 70.00' / 69.10' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.14 cfs @ 12.08 hrs HW=70.18' (Free Discharge)
1=Culvert (Barrel Controls 0.14 cfs @ 2.15 fps)

Summary for Pond CB-307: CB

Inflow Area = 69,993 sf, 37.98% Impervious, Inflow Depth = 0.37" for 1.2" Peak event
Inflow = 0.67 cfs @ 12.08 hrs, Volume= 2,184 cf
Outflow = 0.67 cfs @ 12.08 hrs, Volume= 2,184 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.08 hrs, Volume= 2,184 cf
Routed to Pond DMH-306 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.13' @ 12.08 hrs
Flood Elev= 50.19'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.64'	**15.0" Round Culvert** L= 92.4' Ke= 0.500 Inlet / Outlet Invert= 48.64' / 48.37' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.67 cfs @ 12.08 hrs HW=49.13' (Free Discharge)
1=Culvert (Barrel Controls 0.67 cfs @ 2.21 fps)

Summary for Pond CB-309: CB

Inflow Area = 3,243 sf, 68.42% Impervious, Inflow Depth = 0.67" for 1.2" Peak event
Inflow = 0.06 cfs @ 12.08 hrs, Volume= 182 cf
Outflow = 0.06 cfs @ 12.08 hrs, Volume= 182 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.08 hrs, Volume= 182 cf
Routed to Pond DMH-307 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 53.00' @ 12.08 hrs
Flood Elev= 56.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.89'	**12.0" Round Culvert** L= 34.1' Ke= 0.500 Inlet / Outlet Invert= 52.89' / 51.64' S= 0.0367 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 12.08 hrs HW=53.00' (Free Discharge)
1=Culvert (Inlet Controls 0.05 cfs @ 1.14 fps)

Summary for Pond CB-310: CB

Inflow Area = 34,760 sf, 6.31% Impervious, Inflow Depth = 0.06" for 1.2" Peak event
Inflow = 0.06 cfs @ 12.08 hrs, Volume= 180 cf
Outflow = 0.06 cfs @ 12.08 hrs, Volume= 180 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.08 hrs, Volume= 180 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 51.54' @ 12.08 hrs
Flood Elev= 53.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.43'	**12.0" Round Culvert** L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 51.43' / 51.16' S= 0.0180 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 12.08 hrs HW=51.54' (Free Discharge)
1=Culvert (Inlet Controls 0.05 cfs @ 1.14 fps)

Summary for Pond CB-311: CB

Inflow Area = 20,260 sf, 67.28% Impervious, Inflow Depth = 0.66" for 1.2" Peak event
Inflow = 0.34 cfs @ 12.08 hrs, Volume= 1,120 cf
Outflow = 0.34 cfs @ 12.08 hrs, Volume= 1,120 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.08 hrs, Volume= 1,120 cf
Routed to Pond WQ-301 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 46.25' @ 12.08 hrs
Flood Elev= 47.83'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.90'	**12.0" Round Culvert** L= 21.8' Ke= 0.500 Inlet / Outlet Invert= 45.90' / 45.79' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.08 hrs HW=46.25' (Free Discharge)
1=Culvert (Barrel Controls 0.34 cfs @ 2.11 fps)

Summary for Pond DMH-001: dmh

Inflow Area = 21,598 sf, 50.19% Impervious, Inflow Depth = 0.49" for 1.2" Peak event
Inflow = 0.27 cfs @ 12.08 hrs, Volume= 890 cf
Outflow = 0.27 cfs @ 12.08 hrs, Volume= 890 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.27 cfs @ 12.08 hrs, Volume= 890 cf
Routed to Pond DMH-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.31' @ 12.08 hrs
Flood Elev= 71.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.05'	**12.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 68.05' / 67.46' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.27 cfs @ 12.08 hrs HW=68.31' (Free Discharge)
1=Culvert (Barrel Controls 0.27 cfs @ 2.53 fps)

Summary for Pond DMH-002: dmh

Inflow Area = 38,859 sf, 47.20% Impervious, Inflow Depth = 0.47" for 1.2" Peak event
Inflow = 0.46 cfs @ 12.08 hrs, Volume= 1,506 cf
Outflow = 0.46 cfs @ 12.08 hrs, Volume= 1,506 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.46 cfs @ 12.08 hrs, Volume= 1,506 cf
Routed to Pond WQ-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.31' @ 12.08 hrs
Flood Elev= 70.94'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.97'	**12.0" Round Culvert** L= 61.0' Ke= 0.500 Inlet / Outlet Invert= 66.97' / 66.37' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.46 cfs @ 12.08 hrs HW=67.31' (Free Discharge)
1=Culvert (Barrel Controls 0.46 cfs @ 2.89 fps)

Summary for Pond DMH-005: dmh

[79] Warning: Submerged Pond CB-005 Primary device # 1 OUTLET by 0.07'

Inflow Area = 10,274 sf, 46.43% Impervious, Inflow Depth = 0.46" for 1.2" Peak event
Inflow = 0.12 cfs @ 12.08 hrs, Volume= 392 cf
Outflow = 0.12 cfs @ 12.08 hrs, Volume= 392 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 12.08 hrs, Volume= 392 cf
Routed to Pond WQ-002 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.50' @ 12.08 hrs
Flood Elev= 71.77'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.33'	**12.0" Round Culvert** L= 31.0' Ke= 0.500 Inlet / Outlet Invert= 67.33' / 67.02' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.12 cfs @ 12.08 hrs HW=67.50' (Free Discharge)
1=Culvert (Barrel Controls 0.12 cfs @ 1.98 fps)

Summary for Pond DMH-006: DMH

[88] Warning: Qout>Qin may require smaller dt or Finer Routing
[79] Warning: Submerged Pond WQ-301 Primary device # 1 INLET by 0.78'

Inflow Area = 406,222 sf, 60.26% Impervious, Inflow Depth = 0.32" for 1.2" Peak event
Inflow = 3.31 cfs @ 12.08 hrs, Volume= 10,816 cf
Outflow = 3.32 cfs @ 12.08 hrs, Volume= 10,816 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.32 cfs @ 12.08 hrs, Volume= 10,816 cf
Routed to Link L-1 : Link 1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link L-1 : Link 1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.75' @ 12.08 hrs Surf.Area= 13 sf Storage= 18 cf
Flood Elev= 49.93' Surf.Area= 13 sf Storage= 45 cf

Plug-Flow detention time= 0.2 min calculated for 10,812 cf (100% of inflow)
Center-of-Mass det. time= 0.2 min (782.2 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	4,416 cf	**Flood storage in parking area (Irregular)** Listed below (Recalc)
#2	46.35'	50 cf	**4.00'D x 4.00'H Precast structure**
		4,467 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
50.00	950	168.4	0	0	950
51.00	9,323	601.9	4,416	4,416	27,526

Device	Routing	Invert	Outlet Devices
#0	Secondary	51.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	46.35'	**12.0" Round Culvert** L= 25.4' Ke= 0.500 Inlet / Outlet Invert= 46.35' / 46.11' S= 0.0094 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.31 cfs @ 12.08 hrs HW=47.74' (Free Discharge)
1=Culvert (Barrel Controls 3.31 cfs @ 4.22 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=46.35' (Free Discharge)

Summary for Pond DMH-101: dmh

[79] Warning: Submerged Pond CB-101 Primary device # 1 OUTLET by 0.12'

Inflow Area = 7,622 sf, 97.70% Impervious, Inflow Depth = 0.96" for 1.2" Peak event
Inflow = 0.19 cfs @ 12.08 hrs, Volume= 612 cf
Outflow = 0.19 cfs @ 12.08 hrs, Volume= 612 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.08 hrs, Volume= 612 cf
Routed to Pond DMH-102 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.30' @ 12.08 hrs
Flood Elev= 71.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.09'	**12.0" Round Culvert** L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 65.09' / 64.57' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.18 cfs @ 12.08 hrs HW=65.30' (Free Discharge)
1=Culvert (Barrel Controls 0.18 cfs @ 2.27 fps)

Summary for Pond DMH-102: dmh

[79] Warning: Submerged Pond CB-103 Primary device # 1 OUTLET by 0.22'
[79] Warning: Submerged Pond DMH-101 Primary device # 1 OUTLET by 0.20'

Inflow Area = 15,298 sf, 92.06% Impervious, Inflow Depth = 0.91" for 1.2" Peak event
Inflow = 0.35 cfs @ 12.08 hrs, Volume= 1,157 cf
Outflow = 0.35 cfs @ 12.08 hrs, Volume= 1,157 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.08 hrs, Volume= 1,157 cf
Routed to Pond DMH-103 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 64.77' @ 12.08 hrs
Flood Elev= 70.48'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.47'	**12.0" Round Culvert** L= 65.0' Ke= 0.500 Inlet / Outlet Invert= 64.47' / 63.82' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.35 cfs @ 12.08 hrs HW=64.77' (Free Discharge)
1=Culvert (Barrel Controls 0.35 cfs @ 2.72 fps)

Summary for Pond DMH-103: dmh

[79] Warning: Submerged Pond DMH-102 Primary device # 1 OUTLET by 0.18'

Inflow Area = 83,660 sf, 63.35% Impervious, Inflow Depth = 0.17" for 1.2" Peak event
Inflow = 0.35 cfs @ 12.08 hrs, Volume= 1,157 cf
Outflow = 0.35 cfs @ 12.08 hrs, Volume= 1,157 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.08 hrs, Volume= 1,157 cf
Routed to Pond DMH-104 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 64.00' @ 12.08 hrs
Flood Elev= 71.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.71'	**12.0" Round Culvert** L= 81.0' Ke= 0.500 Inlet / Outlet Invert= 63.71' / 62.90' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.35 cfs @ 12.08 hrs HW=64.00' (Free Discharge)
1=Culvert (Barrel Controls 0.35 cfs @ 2.75 fps)

Summary for Pond DMH-104: dmh

[79] Warning: Submerged Pond DMH-103 Primary device # 1 OUTLET by 0.22'

Inflow Area = 89,855 sf, 64.87% Impervious, Inflow Depth = 0.21" for 1.2" Peak event
Inflow = 0.49 cfs @ 12.08 hrs, Volume= 1,591 cf
Outflow = 0.49 cfs @ 12.08 hrs, Volume= 1,591 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.49 cfs @ 12.08 hrs, Volume= 1,591 cf
Routed to Pond DMH-106 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 63.12' @ 12.08 hrs
Flood Elev= 70.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.80'	**15.0" Round Culvert** L= 154.0' Ke= 0.500 Inlet / Outlet Invert= 62.80' / 61.26' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.48 cfs @ 12.08 hrs HW=63.12' (Free Discharge)
1=Culvert (Inlet Controls 0.48 cfs @ 1.93 fps)

Summary for Pond DMH-105: dmh

[79] Warning: Submerged Pond CB-105 Primary device # 1 OUTLET by 0.05'

Inflow Area = 5,616 sf, 69.72% Impervious, Inflow Depth = 0.69" for 1.2" Peak event
Inflow = 0.10 cfs @ 12.08 hrs, Volume= 322 cf
Outflow = 0.10 cfs @ 12.08 hrs, Volume= 322 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.08 hrs, Volume= 322 cf
Routed to Pond DMH-106 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.77' @ 12.08 hrs
Flood Elev= 71.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.62'	**12.0" Round Culvert** L= 72.0' Ke= 0.500 Inlet / Outlet Invert= 67.62' / 65.98' S= 0.0228 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.10 cfs @ 12.08 hrs HW=67.77' (Free Discharge)
1=Culvert (Inlet Controls 0.10 cfs @ 1.32 fps)

Summary for Pond DMH-106: dmh

[79] Warning: Submerged Pond DMH-104 Primary device # 1 OUTLET by 0.30'

Inflow Area = 104,686 sf, 65.09% Impervious, Inflow Depth = 0.28" for 1.2" Peak event
Inflow = 0.73 cfs @ 12.08 hrs, Volume= 2,400 cf
Outflow = 0.73 cfs @ 12.08 hrs, Volume= 2,400 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.73 cfs @ 12.08 hrs, Volume= 2,400 cf
Routed to Pond DMH-107 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 61.56' @ 12.08 hrs
Flood Elev= 69.28'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.16'	**15.0" Round Culvert** L= 110.0' Ke= 0.500 Inlet / Outlet Invert= 61.16' / 57.86' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.73 cfs @ 12.08 hrs HW=61.56' (Free Discharge)
1=Culvert (Inlet Controls 0.73 cfs @ 2.16 fps)

Summary for Pond DMH-107: DMH

[79] Warning: Submerged Pond DMH-106 Primary device # 1 OUTLET by 0.42'
[79] Warning: Submerged Pond DMH-107A Primary device # 1 OUTLET by 0.43'

Inflow Area = 125,491 sf, 70.16% Impervious, Inflow Depth = 0.39" for 1.2" Peak event
Inflow = 1.23 cfs @ 12.08 hrs, Volume= 4,035 cf
Outflow = 1.23 cfs @ 12.08 hrs, Volume= 4,035 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.23 cfs @ 12.08 hrs, Volume= 4,035 cf
Routed to Pond DMH-108 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 58.28' @ 12.08 hrs
Flood Elev= 64.16'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.75'	**15.0" Round Culvert** L= 61.5' Ke= 0.500 Inlet / Outlet Invert= 57.75' / 56.52' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.23 cfs @ 12.08 hrs HW=58.28' (Free Discharge)
1=Culvert (Inlet Controls 1.23 cfs @ 2.48 fps)

Summary for Pond DMH-107A: DMH

Inflow Area = 20,805 sf, 95.65% Impervious, Inflow Depth = 0.94" for 1.2" Peak event
Inflow = 0.50 cfs @ 12.08 hrs, Volume= 1,635 cf
Outflow = 0.50 cfs @ 12.08 hrs, Volume= 1,635 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.08 hrs, Volume= 1,635 cf
Routed to Pond DMH-107 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 60.24' @ 12.08 hrs
Flood Elev= 67.88'

Device	Routing	Invert	Outlet Devices
#1	Primary	59.89'	**12.0" Round Culvert** L= 49.1' Ke= 0.500 Inlet / Outlet Invert= 59.89' / 57.85' S= 0.0415 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.50 cfs @ 12.08 hrs HW=60.24' (Free Discharge)
1=Culvert (Inlet Controls 0.50 cfs @ 2.02 fps)

Summary for Pond DMH-108: DMH

Inflow Area = 128,289 sf, 70.05% Impervious, Inflow Depth = 0.39" for 1.2" Peak event
Inflow = 1.28 cfs @ 12.08 hrs, Volume= 4,185 cf
Outflow = 1.28 cfs @ 12.08 hrs, Volume= 4,185 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.28 cfs @ 12.08 hrs, Volume= 4,185 cf
Routed to Pond DMH-109 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 54.74' @ 12.08 hrs
Flood Elev= 61.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.20'	**15.0" Round Culvert** L= 66.3' Ke= 0.500 Inlet / Outlet Invert= 54.20' / 50.89' S= 0.0499 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.28 cfs @ 12.08 hrs HW=54.74' (Free Discharge)
1=Culvert (Inlet Controls 1.28 cfs @ 2.50 fps)

Summary for Pond DMH-109: DMH

Inflow Area = 128,289 sf, 70.05% Impervious, Inflow Depth = 0.39" for 1.2" Peak event
Inflow = 1.28 cfs @ 12.08 hrs, Volume= 4,185 cf
Outflow = 1.28 cfs @ 12.08 hrs, Volume= 4,185 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.28 cfs @ 12.08 hrs, Volume= 4,185 cf
Routed to Pond WQ-101 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 49.34' @ 12.08 hrs
Flood Elev= 55.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.83'	**18.0" Round Culvert** L= 74.8' Ke= 0.500 Inlet / Outlet Invert= 48.83' / 44.34' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.27 cfs @ 12.08 hrs HW=49.34' (Free Discharge)
1=Culvert (Inlet Controls 1.27 cfs @ 2.42 fps)

Summary for Pond DMH-111: DMH

[79] Warning: Submerged Pond AD-3 Primary device # 1 OUTLET by 0.02'
[79] Warning: Submerged Pond CB-109 Primary device # 1 OUTLET by 0.25'
[79] Warning: Submerged Pond CB-110 Primary device # 1 OUTLET by 0.25'

Inflow Area = 30,327 sf, 47.03% Impervious, Inflow Depth = 0.46" for 1.2" Peak event
Inflow = 0.36 cfs @ 12.08 hrs, Volume= 1,171 cf
Outflow = 0.36 cfs @ 12.08 hrs, Volume= 1,171 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.08 hrs, Volume= 1,171 cf
Routed to Pond DMH-113 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.15' @ 12.08 hrs
Flood Elev= 49.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.80'	**12.0" Round Culvert** L= 29.3' Ke= 0.500 Inlet / Outlet Invert= 44.80' / 44.65' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.36 cfs @ 12.08 hrs HW=45.15' (Free Discharge)
1=Culvert (Barrel Controls 0.36 cfs @ 2.16 fps)

Summary for Pond DMH-112: DMH

[81] Warning: Exceeded Pond CB-111 by 0.06' @ 12.08 hrs
[79] Warning: Submerged Pond CB-112 Primary device # 1 INLET by 0.31'
[81] Warning: Exceeded Pond CB-113 by 0.01' @ 12.08 hrs

Inflow Area = 54,967 sf, 86.15% Impervious, Inflow Depth = 0.85" for 1.2" Peak event
Inflow = 1.19 cfs @ 12.08 hrs, Volume= 3,889 cf
Outflow = 1.19 cfs @ 12.08 hrs, Volume= 3,889 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.19 cfs @ 12.08 hrs, Volume= 3,889 cf
Routed to Pond DMH-113 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.57' @ 12.08 hrs
Flood Elev= 48.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	45.07'	**18.0" Round Culvert** L= 41.9' Ke= 0.500 Inlet / Outlet Invert= 45.07' / 44.65' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.19 cfs @ 12.08 hrs HW=45.57' (Free Discharge)
1=Culvert (Barrel Controls 1.19 cfs @ 3.40 fps)

Summary for Pond DMH-113: DMH

[79] Warning: Submerged Pond DMH-111 Primary device # 1 OUTLET by 0.10'
[79] Warning: Submerged Pond DMH-112 Primary device # 1 OUTLET by 0.10'

Inflow Area = 85,294 sf, 72.24% Impervious, Inflow Depth = 0.71" for 1.2" Peak event
Inflow = 1.55 cfs @ 12.08 hrs, Volume= 5,061 cf
Outflow = 1.55 cfs @ 12.08 hrs, Volume= 5,061 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.55 cfs @ 12.08 hrs, Volume= 5,061 cf
Routed to Pond WQ-101 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 44.75' @ 12.08 hrs
Flood Elev= 49.39'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.15'	**24.0" Round Culvert** L= 42.2' Ke= 0.500 Inlet / Outlet Invert= 44.15' / 43.94' S= 0.0050 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.54 cfs @ 12.08 hrs HW=44.75' (Free Discharge)
1=Culvert (Barrel Controls 1.54 cfs @ 2.92 fps)

Summary for Pond DMH-201: dmh

[79] Warning: Submerged Pond CB-202 Primary device # 1 OUTLET by 0.07'

Inflow Area = 45,774 sf, 40.92% Impervious, Inflow Depth = 0.40" for 1.2" Peak event
Inflow = 0.47 cfs @ 12.08 hrs, Volume= 1,539 cf
Outflow = 0.47 cfs @ 12.08 hrs, Volume= 1,539 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.08 hrs, Volume= 1,539 cf
Routed to Pond WQ-201 : wq

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.07' @ 12.08 hrs
Flood Elev= 76.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.75'	**15.0" Round Culvert** L= 71.0' Ke= 0.500 Inlet / Outlet Invert= 69.75' / 69.04' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.47 cfs @ 12.08 hrs HW=70.07' (Free Discharge)
1=Culvert (Barrel Controls 0.47 cfs @ 2.87 fps)

Summary for Pond DMH-202: dmh

[79] Warning: Submerged Pond CB-207 Primary device # 1 OUTLET by 0.01'
[79] Warning: Submerged Pond CB-209 Primary device # 1 OUTLET by 0.08'

Inflow Area = 47,937 sf, 41.13% Impervious, Inflow Depth = 0.41" for 1.2" Peak event
Inflow = 0.50 cfs @ 12.08 hrs, Volume= 1,619 cf
Outflow = 0.50 cfs @ 12.08 hrs, Volume= 1,619 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.08 hrs, Volume= 1,619 cf
Routed to Pond DMH-206 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 72.11' @ 12.08 hrs
Flood Elev= 77.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.78'	**15.0" Round Culvert** L= 71.0' Ke= 0.500 Inlet / Outlet Invert= 71.78' / 71.07' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.49 cfs @ 12.08 hrs HW=72.11' (Free Discharge)
1=Culvert (Barrel Controls 0.49 cfs @ 2.91 fps)

Summary for Pond DMH-204: dmh

Inflow Area = 84,570 sf, 60.24% Impervious, Inflow Depth = 0.59" for 1.2" Peak event
Inflow = 1.28 cfs @ 12.08 hrs, Volume= 4,185 cf
Outflow = 1.28 cfs @ 12.08 hrs, Volume= 4,185 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.28 cfs @ 12.08 hrs, Volume= 4,185 cf
Routed to Pond WQ-202 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 67.88' @ 12.08 hrs
Flood Elev= 73.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.42'	**24.0" Round Culvert** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 67.42' / 66.19' S= 0.0198 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.28 cfs @ 12.08 hrs HW=67.88' (Free Discharge)
1=Culvert (Inlet Controls 1.28 cfs @ 2.32 fps)

Summary for Pond DMH-206: dmh

Inflow Area = 72,390 sf, 56.96% Impervious, Inflow Depth = 0.56" for 1.2" Peak event
Inflow = 1.04 cfs @ 12.08 hrs, Volume= 3,387 cf
Outflow = 1.04 cfs @ 12.08 hrs, Volume= 3,387 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.08 hrs, Volume= 3,387 cf
Routed to Pond DMH-204 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.36' @ 12.08 hrs
Flood Elev= 75.47'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.91'	**18.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 68.91' / 67.92' S= 0.0168 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.03 cfs @ 12.08 hrs HW=69.36' (Free Discharge)
1=Culvert (Inlet Controls 1.03 cfs @ 2.29 fps)

Summary for Pond DMH-207: cb

[79] Warning: Submerged Pond CB-215 Primary device # 1 OUTLET by 0.14'

Inflow Area = 12,180 sf, 79.75% Impervious, Inflow Depth = 0.79" for 1.2" Peak event
Inflow = 0.24 cfs @ 12.08 hrs, Volume= 798 cf
Outflow = 0.24 cfs @ 12.08 hrs, Volume= 798 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.08 hrs, Volume= 798 cf
Routed to Pond dmh-204 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.24' @ 12.08 hrs
Flood Elev= 73.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.00'	**12.0" Round Culvert** L= 57.0' Ke= 0.500 Inlet / Outlet Invert= 69.00' / 68.42' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.24 cfs @ 12.08 hrs HW=69.24' (Free Discharge)
1=Culvert (Barrel Controls 0.24 cfs @ 2.47 fps)

Summary for Pond DMH-301: dmh

Inflow Area = 4,688 sf, 99.90% Impervious, Inflow Depth = 0.98" for 1.2" Peak event
Inflow = 0.12 cfs @ 12.08 hrs, Volume= 385 cf
Outflow = 0.12 cfs @ 12.08 hrs, Volume= 385 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 12.08 hrs, Volume= 385 cf
Routed to Pond DMH-302 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 70.36' @ 12.08 hrs
Flood Elev= 73.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.20'	**12.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 70.20' / 68.98' S= 0.0207 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.12 cfs @ 12.08 hrs HW=70.36' (Free Discharge)
1=Culvert (Inlet Controls 0.12 cfs @ 1.38 fps)

Summary for Pond DMH-302: dmh

[79] Warning: Submerged Pond DMH-301 Primary device # 1 OUTLET by 0.13'

Inflow Area = 17,161 sf, 51.76% Impervious, Inflow Depth = 0.51" for 1.2" Peak event
Inflow = 0.22 cfs @ 12.08 hrs, Volume= 730 cf
Outflow = 0.22 cfs @ 12.08 hrs, Volume= 730 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 12.08 hrs, Volume= 730 cf
Routed to Pond DMH-303 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 69.11' @ 12.08 hrs
Flood Elev= 72.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.88'	**12.0" Round Culvert** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 68.88' / 66.92' S= 0.0784 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 12.08 hrs HW=69.11' (Free Discharge)
1=Culvert (Inlet Controls 0.22 cfs @ 1.63 fps)

Summary for Pond DMH-303: dmh

Inflow Area = 26,775 sf, 42.05% Impervious, Inflow Depth = 0.41" for 1.2" Peak event
Inflow = 0.28 cfs @ 12.08 hrs, Volume= 925 cf
Outflow = 0.28 cfs @ 12.08 hrs, Volume= 925 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.28 cfs @ 12.08 hrs, Volume= 925 cf
Routed to Pond DMH-304 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.86' @ 12.08 hrs
Flood Elev= 70.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.60'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 65.60' / 62.58' S= 0.0795 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.28 cfs @ 12.08 hrs HW=65.86' (Free Discharge)
1=Culvert (Inlet Controls 0.28 cfs @ 1.73 fps)

Summary for Pond DMH-304: dmh

Inflow Area = 202,176 sf, 61.53% Impervious, Inflow Depth = 0.05" for 1.2" Peak event
Inflow = 0.28 cfs @ 12.08 hrs, Volume= 925 cf
Outflow = 0.28 cfs @ 12.08 hrs, Volume= 925 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.28 cfs @ 12.08 hrs, Volume= 925 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 59.05' @ 12.08 hrs
Flood Elev= 65.88'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.84'	**24.0" Round Culvert** L= 131.0' Ke= 0.500 Inlet / Outlet Invert= 58.84' / 48.34' S= 0.0802 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=0.28 cfs @ 12.08 hrs HW=59.05' (Free Discharge)
1=Culvert (Inlet Controls 0.28 cfs @ 1.57 fps)

Summary for Pond DMH-306: DMH

[79] Warning: Submerged Pond CB-307 Primary device # 1 INLET by 0.09'

Inflow Area = 69,993 sf, 37.98% Impervious, Inflow Depth = 0.37" for 1.2" Peak event
Inflow = 0.67 cfs @ 12.08 hrs, Volume= 2,184 cf
Outflow = 0.67 cfs @ 12.08 hrs, Volume= 2,184 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.08 hrs, Volume= 2,184 cf
Routed to Pond DMH-307 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 48.73' @ 12.08 hrs
Flood Elev= 50.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.27'	**18.0" Round Culvert** L= 165.0' Ke= 0.500 Inlet / Outlet Invert= 48.27' / 47.79' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.67 cfs @ 12.08 hrs HW=48.73' (Free Discharge)
1=Culvert (Barrel Controls 0.67 cfs @ 2.16 fps)

Summary for Pond DMH-307: DMH

[79] Warning: Submerged Pond DMH-306 Primary device # 1 OUTLET by 0.38'

Inflow Area = 73,236 sf, 39.33% Impervious, Inflow Depth = 0.39" for 1.2" Peak event
Inflow = 0.72 cfs @ 12.08 hrs, Volume= 2,366 cf
Outflow = 0.72 cfs @ 12.08 hrs, Volume= 2,366 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.72 cfs @ 12.08 hrs, Volume= 2,366 cf
Routed to Pond DMH-308 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 48.17' @ 12.08 hrs
Flood Elev= 53.58'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.69'	**18.0" Round Culvert** L= 17.3' Ke= 0.500 Inlet / Outlet Invert= 47.69' / 47.64' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.72 cfs @ 12.08 hrs HW=48.17' (Free Discharge)
1=Culvert (Barrel Controls 0.72 cfs @ 2.24 fps)

Summary for Pond DMH-308: DMH

[79] Warning: Submerged Pond DMH-304 Primary device # 1 OUTLET by 0.10'
[81] Warning: Exceeded Pond DMH-307 by 0.28' @ 12.08 hrs

Inflow Area = 385,962 sf, 59.90% Impervious, Inflow Depth = 0.30" for 1.2" Peak event
Inflow = 2.97 cfs @ 12.08 hrs, Volume= 9,696 cf
Outflow = 2.97 cfs @ 12.08 hrs, Volume= 9,696 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.97 cfs @ 12.08 hrs, Volume= 9,696 cf
Routed to Pond WQ-301 : TREATMENT

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 48.44' @ 12.08 hrs
Flood Elev= 53.09'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.54'	**24.0" Round Culvert** L= 163.2' Ke= 0.500 Inlet / Outlet Invert= 47.54' / 47.07' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.96 cfs @ 12.08 hrs HW=48.44' (Free Discharge)
1=Culvert (Barrel Controls 2.96 cfs @ 3.17 fps)

Summary for Pond E-DMH 1: E-DMH

[81] Warning: Exceeded Pond WQ-101 by 0.67' @ 6.31 hrs

Inflow Area = 213,583 sf, 70.93% Impervious, Inflow Depth = 0.52" for 1.2" Peak event
Inflow = 2.83 cfs @ 12.08 hrs, Volume= 9,246 cf
Outflow = 2.83 cfs @ 12.08 hrs, Volume= 9,246 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.83 cfs @ 12.08 hrs, Volume= 9,246 cf
Routed to Link L-2 : Link 1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 45.51' @ 12.08 hrs
Flood Elev= 49.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.80'	**12.0" Round Culvert X 2.00** L= 16.3' Ke= 0.500 Inlet / Outlet Invert= 44.80' / 44.64' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.82 cfs @ 12.08 hrs HW=45.51' (Free Discharge)
1=Culvert (Barrel Controls 2.82 cfs @ 3.31 fps)

Summary for Pond IS-1: infiltration

Notes:
An infiltration rate of 8.27 was used for sand (Rawl's) because the systems will have ASTM C-33 sand, or equivalent, below the systems.

GW elevation based on TP 1 (no GW encountered) and SB-1 (GW encountered at 14 feet below grade)

Inflow Area = 68,362 sf, 56.93% Impervious, Inflow Depth = 0.56" for 1.2" Peak event
Inflow = 0.98 cfs @ 12.08 hrs, Volume= 3,197 cf
Outflow = 0.61 cfs @ 12.18 hrs, Volume= 3,197 cf, Atten= 37%, Lag= 5.8 min
Discarded = 0.61 cfs @ 12.18 hrs, Volume= 3,197 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond DMH-103 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 64.66' @ 12.18 hrs Surf.Area= 3,136 sf Storage= 203 cf
Flood Elev= 70.00' Surf.Area= 3,136 sf Storage= 10,617 cf

Plug-Flow detention time= 2.4 min calculated for 3,196 cf (100% of inflow)
Center-of-Mass det. time= 2.4 min (784.5 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	64.50'	4,421 cf	**37.08'W x 84.57'L x 5.50'H Field A** 17,249 cf Overall - 6,196 cf Embedded = 11,052 cf x 40.0% Voids
#2A	65.25'	6,196 cf	**ADS_StormTech MC-3500 d +Cap** x 55 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 55 Chambers in 5 Rows Cap Storage= 14.9 cf x 2 x 5 rows = 149.0 cf
		10,617 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	64.50'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 57.50' Phase-In= 0.01'
#2	Primary	67.35'	**12.0" Round Culvert** L= 27.0' Ke= 0.500 Inlet / Outlet Invert= 67.35' / 67.08' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 2	69.00'	**4.0' long x 0.5' breadth Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.61 cfs @ 12.18 hrs HW=64.66' (Free Discharge)
1=Exfiltration (Controls 0.61 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=64.50' (Free Discharge)
2=Culvert (Controls 0.00 cfs)
3=Weir (Controls 0.00 cfs)

Summary for Pond IS-2: infiltration

Notes:
An infiltration rate of 1.02 inches per hour was used for sandy loam (Rawl's) at TP 4

GW from TP 4 (GW not encountered to a depth of 8 feet below grade)

[81] Warning: Exceeded Pond WQ-202 by 0.28' @ 14.20 hrs

Inflow Area = 175,401 sf, 64.50% Impervious, Inflow Depth = 0.64" for 1.2" Peak event
Inflow = 2.84 cfs @ 12.08 hrs, Volume= 9,292 cf
Outflow = 0.16 cfs @ 13.89 hrs, Volume= 9,292 cf, Atten= 94%, Lag= 108.4 min
Discarded = 0.16 cfs @ 13.89 hrs, Volume= 9,292 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond DMH-304 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.47' @ 13.89 hrs Surf.Area= 5,452 sf Storage= 4,372 cf
Flood Elev= 70.50' Surf.Area= 5,452 sf Storage= 17,818 cf

Plug-Flow detention time= 249.0 min calculated for 9,292 cf (100% of inflow)
Center-of-Mass det. time= 248.9 min (1,031.0 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	65.25'	7,203 cf	**15.58'W x 349.86'L x 5.25'H Field A** 28,623 cf Overall - 10,615 cf Embedded = 18,008 cf x 40.0% Voids
#2A	65.75'	10,615 cf	**ADS_StormTech MC-3500 d +Cap** x 96 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 96 Chambers in 2 Rows Cap Storage= 14.9 cf x 2 x 2 rows = 59.6 cf
		17,818 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	65.25'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 60.75' Phase-In= 0.01'
#2	Primary	65.64'	**24.0" Round Culvert** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 65.64' / 60.30' S= 0.0797 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	69.00'	**4.0' long x 0.5' breadth Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.16 cfs @ 13.89 hrs HW=66.47' (Free Discharge)
1=Exfiltration (Controls 0.16 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.25' (Free Discharge)
2=Culvert (Controls 0.00 cfs)
3=Weir (Controls 0.00 cfs)

Summary for Pond WQ-002: dmh

Inflow Area = 57,945 sf, 49.40% Impervious, Inflow Depth = 0.49" for 1.2" Peak event
Inflow = 0.72 cfs @ 12.08 hrs, Volume= 2,351 cf
Outflow = 0.72 cfs @ 12.08 hrs, Volume= 2,351 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.72 cfs @ 12.08 hrs, Volume= 2,351 cf
Routed to Pond IS-1 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.31' @ 12.08 hrs
Flood Elev= 70.94'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.87'	**18.0" Round Culvert** L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 65.87' / 65.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.72 cfs @ 12.08 hrs HW=66.31' (Free Discharge)
1=Culvert (Barrel Controls 0.72 cfs @ 2.53 fps)

Summary for Pond WQ-101: TREATMENT

[79] Warning: Submerged Pond DMH-109 Primary device # 1 OUTLET by 0.51'
[81] Warning: Exceeded Pond DMH-113 by 0.10' @ 12.08 hrs

Inflow Area = 213,583 sf, 70.93% Impervious, Inflow Depth = 0.52" for 1.2" Peak event
Inflow = 2.83 cfs @ 12.08 hrs, Volume= 9,246 cf
Outflow = 2.83 cfs @ 12.08 hrs, Volume= 9,246 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.83 cfs @ 12.08 hrs, Volume= 9,246 cf
Routed to Pond E-DMH 1 : E-DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 44.85' @ 12.08 hrs
Flood Elev= 51.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.13'	**24.0" Round Culvert** L= 58.0' Ke= 0.500 Inlet / Outlet Invert= 44.13' / 43.55' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.82 cfs @ 12.08 hrs HW=44.85' (Free Discharge)
1=Culvert (Barrel Controls 2.82 cfs @ 4.14 fps)

Summary for Pond WQ-201: wq

Inflow Area = 65,484 sf, 58.71% Impervious, Inflow Depth = 0.58" for 1.2" Peak event
Inflow = 0.97 cfs @ 12.08 hrs, Volume= 3,158 cf
Outflow = 0.97 cfs @ 12.08 hrs, Volume= 3,158 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.97 cfs @ 12.08 hrs, Volume= 3,158 cf
Routed to Pond IS-2 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 68.63' @ 12.08 hrs
Flood Elev= 74.49'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.19'	**18.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 68.19' / 67.58' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.96 cfs @ 12.08 hrs HW=68.63' (Free Discharge)
1=Culvert (Barrel Controls 0.96 cfs @ 3.36 fps)

Summary for Pond WQ-202: dmh

[79] Warning: Submerged Pond DMH-204 Primary device # 1 OUTLET by 0.42'

Inflow Area = 90,151 sf, 62.70% Impervious, Inflow Depth = 0.62" for 1.2" Peak event
Inflow = 1.42 cfs @ 12.08 hrs, Volume= 4,643 cf
Outflow = 1.42 cfs @ 12.08 hrs, Volume= 4,643 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.42 cfs @ 12.08 hrs, Volume= 4,643 cf
Routed to Pond is-2 : infiltration

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 66.61' @ 12.08 hrs
Flood Elev= 72.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.09'	**24.0" Round Culvert** L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 66.09' / 65.92' S= 0.0213 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.42 cfs @ 12.08 hrs HW=66.61' (Free Discharge)
1=Culvert (Barrel Controls 1.42 cfs @ 3.30 fps)

Summary for Pond WQ-301: TREATMENT

[81] Warning: Exceeded Pond CB-311 by 1.69' @ 12.08 hrs
[79] Warning: Submerged Pond DMH-308 Primary device # 1 INLET by 0.39'

Inflow Area = 406,222 sf, 60.26% Impervious, Inflow Depth = 0.32" for 1.2" Peak event
Inflow = 3.31 cfs @ 12.08 hrs, Volume= 10,816 cf
Outflow = 3.31 cfs @ 12.08 hrs, Volume= 10,816 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.31 cfs @ 12.08 hrs, Volume= 10,816 cf
Routed to Pond DMH-006 : DMH

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 47.93' @ 12.08 hrs
Flood Elev= 50.06'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.97'	**24.0" Round Culvert** L= 10.4' Ke= 0.500 Inlet / Outlet Invert= 46.97' / 46.94' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=3.30 cfs @ 12.08 hrs HW=47.93' (Free Discharge)
1=Culvert (Barrel Controls 3.30 cfs @ 3.23 fps)

SECTION 5.0 -
APPENDIX

Rainfall Data

3.0 STORMWATER MANAGEMENT STANDARDS AND PERFORMANCE CRITERIA

3.1 OVERVIEW

Rhode Island has seen an increase in commercial and residential development over the last several decades. Controlling stormwater from development sites is a priority with regards to impacts to receiving water bodies. This chapter presents performance standards and criteria for all new and redevelopment projects in the State of Rhode Island. Project applicants are required to meet the eleven minimum standards, as well as comply with specific criteria for the site planning process, groundwater recharge, water quality, channel protection, and peak flow control requirements. In the case of restoration or retrofitting, deviation from these standards may be appropriate at the discretion of the approving agency. All applicable development proposals must include a stormwater management site plan for review by State and local government. A plan must address all of the above minimum standards through compliance with the requirements of this manual (see checklist in Appendix A of this document).

All of the minimum standards contribute to protecting the water and habitat quality of receiving waters from the negative impacts of stormwater runoff. This is achieved by using a combination of both structural controls and non-structural practices (such as LID) as part of an effective stormwater management system. In general, when a project's stormwater management system is designed, installed, and maintained in accordance with the requirements of this manual, its runoff impacts will be presumed to be in compliance with applicable state regulatory standards and requirements. In some cases, the permitting agency may require that an applicant prepare and submit a pollutant loading analysis developed in accordance with the provisions of Appendix H in order to ascertain compliance.

This manual often refers to storm events of various kinds. Unless otherwise noted, all storm events are 24 hours in duration and utilize NRCS Type III precipitation distribution. Rainfall amounts for Rhode Island for various return frequencies are provided in Table 3-1 and shall be used for design unless otherwise specified.

Table 3-1 Design Rainfall Amounts for Rhode Island

RI County	24-hour (Type III) Rainfall Amount (inches)*						
	1-Year	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Providence County	2.7	3.3	4.1	4.9	6.1	7.3	8.7
Bristol County	2.8	3.3	4.1	4.9	6.1	7.3	8.6
Newport County	2.8	3.3	4.1	4.9	6.1	7.3	8.6

NRCS Soils Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties

June 7, 2022

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

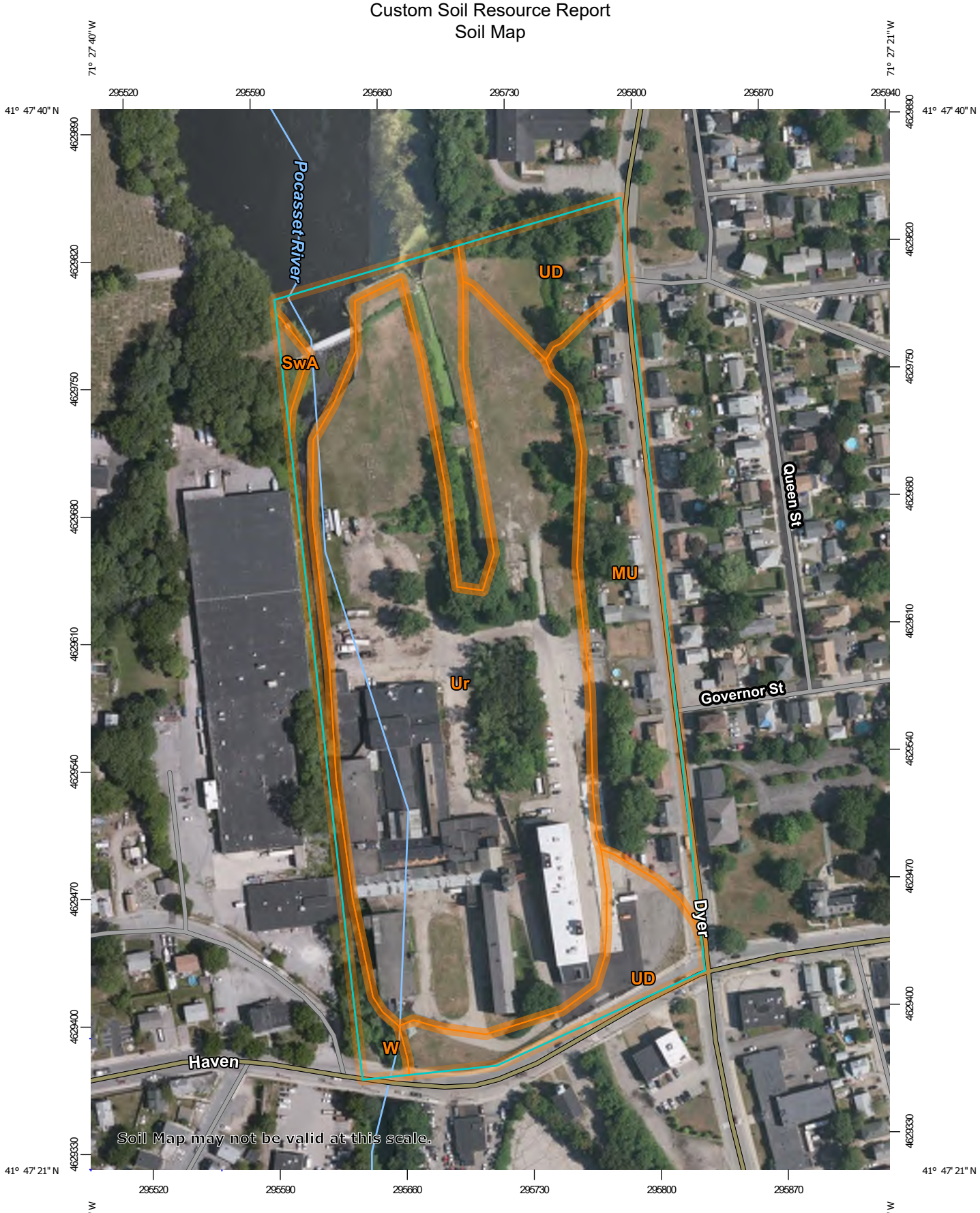
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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

Soil Map

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

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,840 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

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

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 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 21, Sep 3, 2021

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

Date(s) aerial images were photographed: May 24, 2020—Jul 18, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MU	Merrimac-Urban land complex, 0 to 8 percent slopes	3.5	16.6%
SwA	Swansea muck, 0 to 1 percent slopes	0.1	0.6%
UD	Udorthents-Urban land complex	2.6	12.2%
Ur	Urban land	12.4	58.7%
W	Water	2.5	12.0%
Totals for Area of Interest		**21.1**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate

pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties

MU—Merrimac-Urban land complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tyr9
Elevation: 0 to 820 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Merrimac and similar soils: 45 percent
Urban land: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Merrimac

Setting

Landform: Outwash plains, outwash terraces, moraines, eskers, kames
Landform position (two-dimensional): Backslope, footslope, summit, shoulder
Landform position (three-dimensional): Side slope, crest, riser, tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss

Typical profile

Ap - 0 to 10 inches: fine sandy loam
Bw1 - 10 to 22 inches: fine sandy loam
Bw2 - 22 to 26 inches: stratified gravel to gravelly loamy sand
2C - 26 to 65 inches: stratified gravel to very gravelly sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline (0.0 to 1.4 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Description of Urban Land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Windsor

Percent of map unit: 5 percent
Landform: Outwash terraces, dunes, outwash plains, deltas
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Sudbury

Percent of map unit: 5 percent
Landform: Deltas, terraces, outwash plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Hinckley

Percent of map unit: 5 percent
Landform: Deltas, kames, eskers, outwash plains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, crest, head slope, side slope, rise
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

SwA—Swansea muck, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2trl2
Elevation: 0 to 1,140 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Swansea and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Swansea

Setting

Landform: Bogs, swamps
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed organic material over loose sandy and gravelly glaciofluvial deposits

Typical profile

Oa1 - 0 to 24 inches: muck
Oa2 - 24 to 34 inches: muck
Cg - 34 to 79 inches: coarse sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Rare
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very high (about 16.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: B/D
Ecological site: F144AY043MA - Acidic Organic Wetlands
Hydric soil rating: Yes

Minor Components

Freetown

Percent of map unit: 10 percent
Landform: Bogs, swamps
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Whitman

Percent of map unit: 5 percent
Landform: Drainageways, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro

Percent of map unit: 5 percent
Landform: Drainageways, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

UD—Udorthents-Urban land complex

Map Unit Setting

National map unit symbol: 9lxj
Elevation: 0 to 670 feet
Mean annual precipitation: 44 to 50 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 211 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 70 percent
Urban land: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Human transported material

Typical profile

A - 0 to 12 inches: sandy loam
C1 - 12 to 25 inches: sandy loam
C2 - 25 to 60 inches: stratified sand to very gravelly coarse sand

Properties and qualities

Slope: 0 to 15 percent
Depth to restrictive feature: More than 80 inches
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 42 to 54 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Description of Urban Land

Setting

Parent material: Human transported material

Typical profile

R - 0 to 6 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Minor Components

Merrimac

Percent of map unit: 5 percent
Landform: Terraces, outwash plains, kames
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Quonset

Percent of map unit: 5 percent
Landform: Outwash plains, terraces, outwash terraces, eskers
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ur—Urban land

Map Unit Setting

National map unit symbol: 9lxk
Elevation: 0 to 810 feet

Mean annual precipitation: 44 to 50 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 100 to 211 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Human transported material

Minor Components

Udorthents

Percent of map unit: 5 percent
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Pittstown

Percent of map unit: 2 percent
Landform: Drumlins
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Charlton

Percent of map unit: 2 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Canton

Percent of map unit: 2 percent
Landform: Hills
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Sutton

Percent of map unit: 1 percent
Landform: Drainageways, depressions
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: No

Newport

Percent of map unit: 1 percent
Landform: Drumlins
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Sudbury

Percent of map unit: 1 percent
Landform: Terraces, outwash plains
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Merrimac

Percent of map unit: 1 percent
Landform: Terraces, outwash plains, kames
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: 9lxl
Mean annual precipitation: 44 to 50 inches
Mean annual air temperature: 48 to 50 degrees F
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Physical Properties

Soil Physical Properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

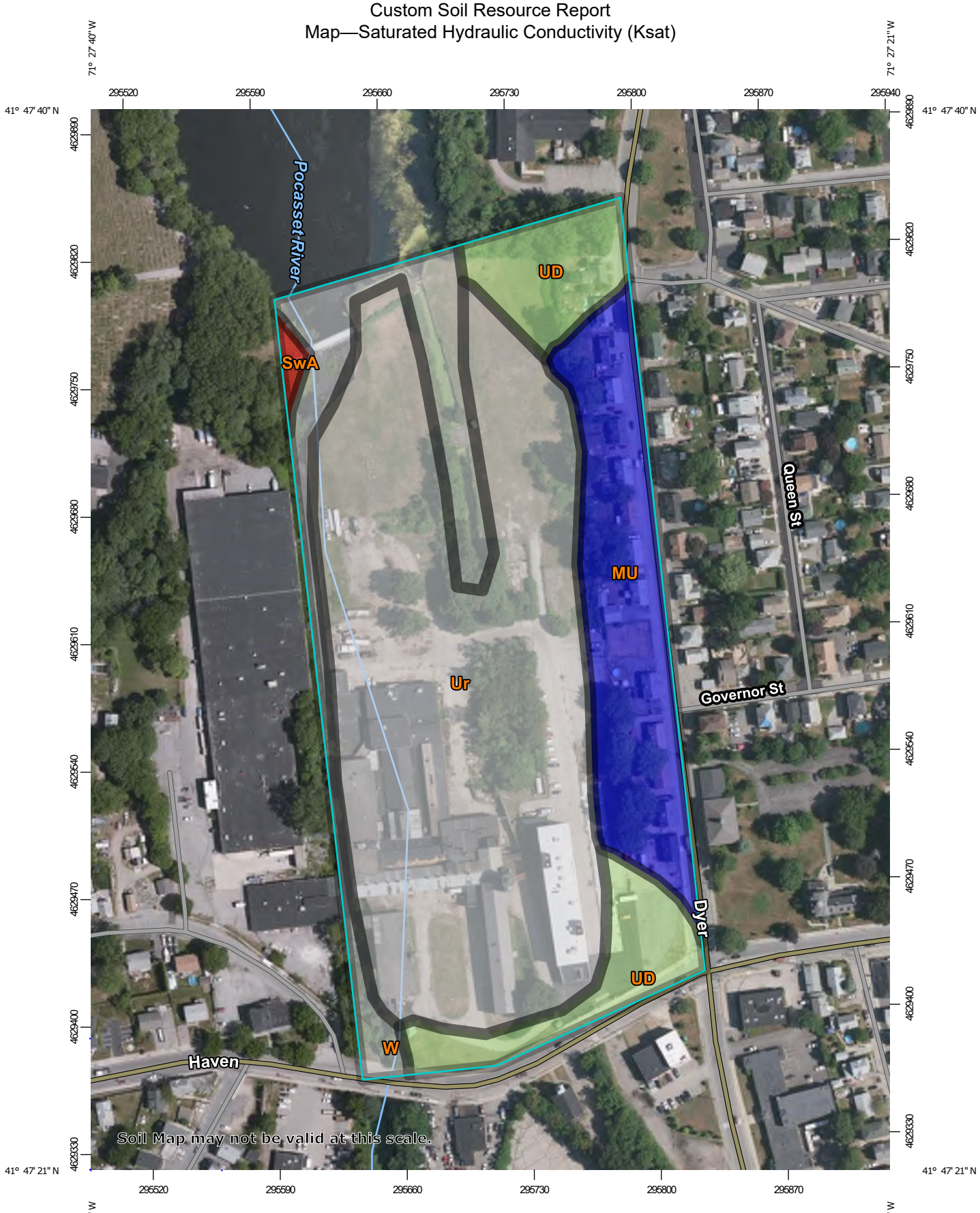
Saturated Hydraulic Conductivity (Ksat)

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Custom Soil Resource Report
Map—Saturated Hydraulic Conductivity (Ksat)



Map Scale: 1:2,840 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

<= 22.6000

> 22.6000 and <= 51.0936

> 51.0936 and <= 100.0000

Not rated or not available

Soil Rating Lines

<= 22.6000

> 22.6000 and <= 51.0936

> 51.0936 and <= 100.0000

Not rated or not available

Soil Rating Points

<= 22.6000

> 22.6000 and <= 51.0936

> 51.0936 and <= 100.0000

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 21, Sep 3, 2021

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

Date(s) aerial images were photographed: May 24, 2020—Jul 18, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Saturated Hydraulic Conductivity (Ksat)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
MU	Merrimac-Urban land complex, 0 to 8 percent slopes	100.0000	3.5	16.6%
SwA	Swansea muck, 0 to 1 percent slopes	22.6000	0.1	0.6%
UD	Udorthents-Urban land complex	51.0936	2.6	12.2%
Ur	Urban land		12.4	58.7%
W	Water		2.5	12.0%
Totals for Area of Interest			**21.1**	**100.0%**

Rating Options—Saturated Hydraulic Conductivity (Ksat)

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 0

Bottom Depth: 100

Units of Measure: Centimeters

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

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.

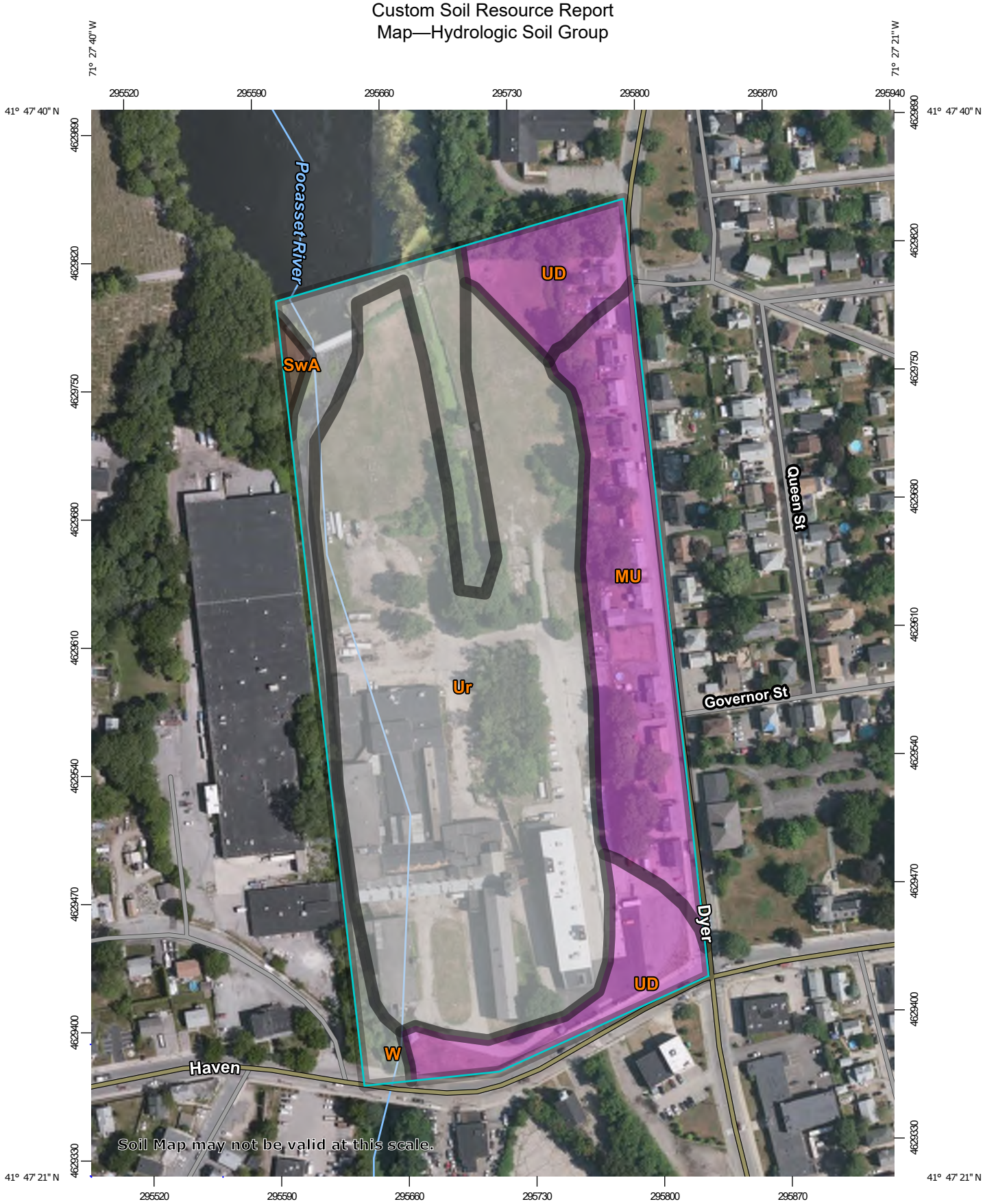
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

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.

Custom Soil Resource Report
Map—Hydrologic Soil Group



Map Scale: 1:2,840 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 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 21, Sep 3, 2021

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

Date(s) aerial images were photographed: May 24, 2020—Jul 18, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
MU	Merrimac-Urban land complex, 0 to 8 percent slopes	A	3.5	16.6%
SwA	Swansea muck, 0 to 1 percent slopes	B/D	0.1	0.6%
UD	Udorthents-Urban land complex	A	2.6	12.2%
Ur	Urban land		12.4	58.7%
W	Water		2.5	12.0%
Totals for Area of Interest			**21.1**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

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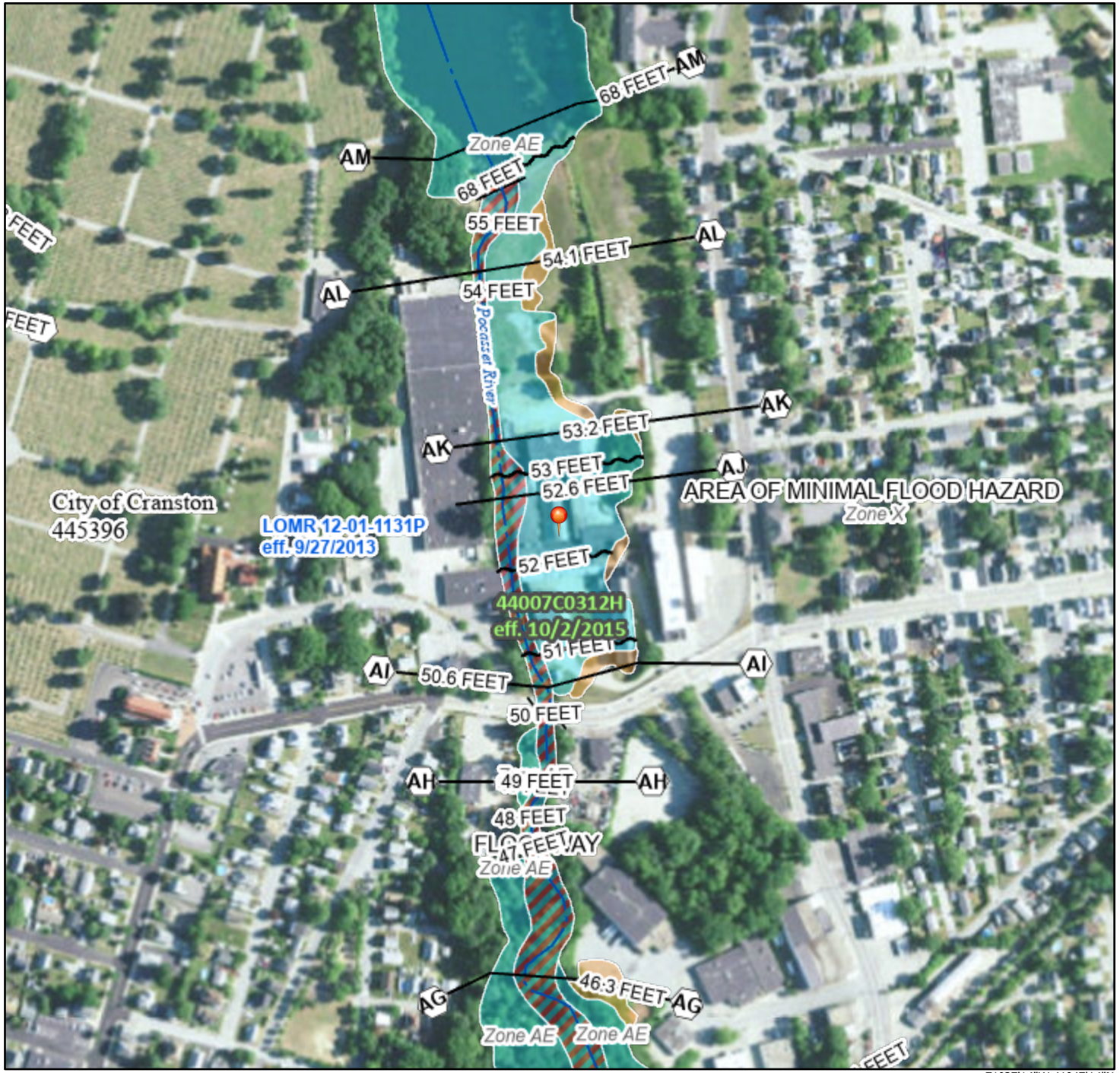
FEMA FIRMette

National Flood Hazard Layer FIRMette

FEMA

71°27'52"W 41°47'41"N



71°27'14"W 41°47'14"N

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

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

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

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

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

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

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

OTHER FEATURES
- 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 5/23/2023 at 4:17 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.

Site Investigation Report

EXCERPTS TAKEN FROM

Site Investigation Report

1381 Cranston Street
City of Cranston Assessor's Plat 8-5 Lot 195
Cranston, Rhode Island

Brady Sullivan Properties
Manchester, NH

May 2022

FUSS & O'NEILL

317 Iron Horse Way, Suite 204
Providence, RI 02908

Project No. 2001696.M40

FUSS & O'NEILL

May 6, 2022

Mr. Joseph T. Martella II
Environmental Engineer III
Office of Land Revitalization & Sustainable Materials Management
Rhode Island Department of Environmental Management
235 Promenade Street
Providence, RI 02908

RE: Site Investigation Report
Cranston Print Works Redevelopment
Assessor's Plat 8-5, Lot 195
1381 Cranston Street, Cranston, Rhode Island

Dear Mr. Martella:

The purpose of this letter is to provide you with the attached *Site Investigation Report* for the above-referenced site. Fuss & O'Neill, Inc. (Fuss & O'Neill) prepared this report on behalf of Brady Sullivan Properties. Please contact the undersigned if you have any questions or require additional information regarding this report, or the project in general.

Sincerely,

Allen P. Tevyaw II
Environmental Scientist

Patrick J. Dowling, CPG
Associate | Department Manager

/rlz

317 Iron Horse Way
Suite 204
Providence, RI
02908
t 401.861.3070
800.286.2469
f 401.861.3076

www.fando.com

California
Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

EXCERPTS TAKEN FROM

Supplemental Phase II Environmental Site Assessment
City of Cranston Assessor's Plat 8-5 Lot 195

1381 Cranston Street
Cranston, Rhode Island

Brady Sullivan Properties
Manchester, NH

December 2021

FUSS & O'NEILL

317 Iron Horse Way, Suite 204
Providence, RI 02908

Project No. 2001696.M40

FUSS & O'NEILL

December 21, 2021

Mr. Christopher Reynolds
Senior Project Manager
Brady Sullivan Properties
670 North Commercial Street
Manchester, NH 03101

RE: Supplemental Phase II Environmental Site Assessment Results
Cranston Print Works Redevelopment
Assessor's Plat 8-5, Lot 195
1381 Cranston Street, Cranston, Rhode Island

Dear Mr. Reynolds:

Fuss & O'Neill, Inc. (Fuss & O'Neill) has prepared this report to document the results of a supplemental Phase II Environmental Site Assessment (ESA) conducted at the above-referenced property (the Site). Brady Sullivan Properties (Brady Sullivan) retained Fuss & O'Neill to complete these activities in anticipation of purchasing the property for a mixed-use redevelopment project.

If you have any questions or require additional information, please contact the undersigned.

Sincerely,

Madelyn H. Sampson
Environmental Scientist

Patrick J. Dowling, CPG
Associate | Department Manager

/rlz

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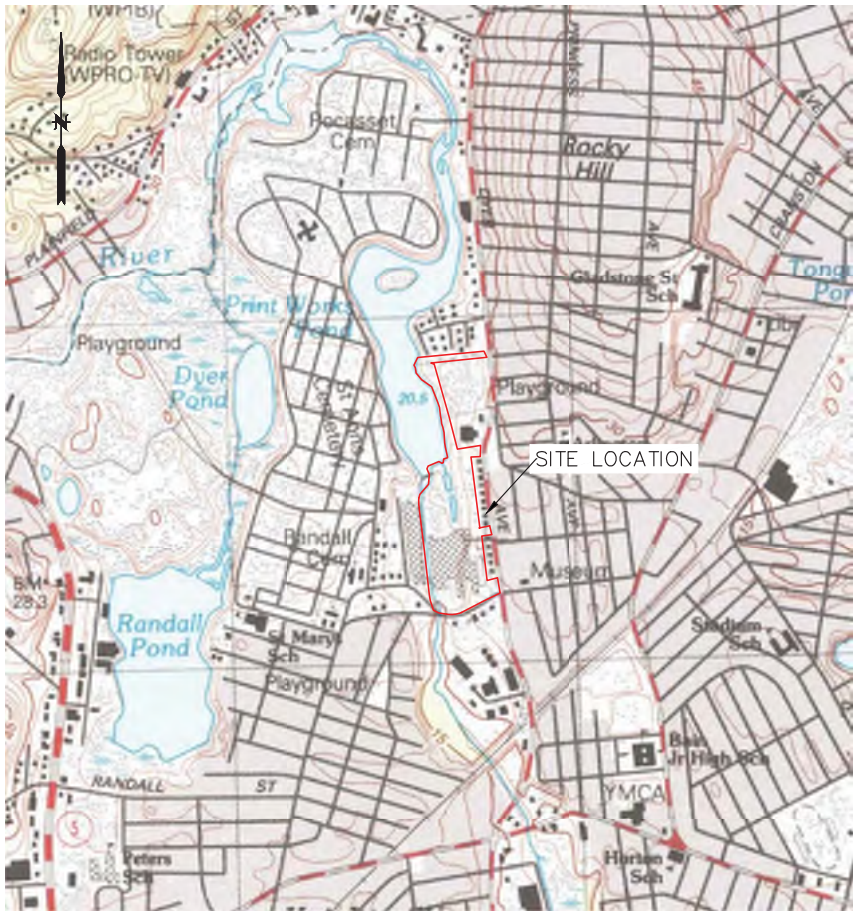
Figures



MAP REFERENCE:

THIS MAP WAS PREPARED FROM THE FOLLOWING
7.5 x15 MINUTE USGS TOPOGRAPHIC QUADRANGLES:
PROVIDENCE, RI (1987).

SOURCE: RHODE ISLAND GEOGRAPHIC INFORMATION SYSTEM (RIGIS).

SCALE: HORZ.: 1" = 1000' VERT.: DATUM: HORZ.: VERT.: 0 500 1000 GRAPHIC SCALE	FUSS&O'NEILL 317 IRON HORSE WAY, SUITE 204 PROVIDENCE, RI 02908 401.861.3070 www.fando.com	BRADY SULLIVAN PROPERTIES SITE LOCATION PLAN 1381 CRANSTON STREET CRANSTON RHODE ISLAND	PROJ. No.: 2001696.M40 DATE: JULY 2021 FIGURE 1

File: J:\DWG\P2001\696\M40\Environmental\Plan\2001696.M40_LOC01.dwg Layout: 08.5X11-P Plotted: 2021-07-02 7:40 AM Saved: 2021-07-02 7:35 AM User: msampson
PC3: DWG TO PDF.PC3 STBCTB: FO.STB
LAYER STATE:
MSVIEW:

LEGEND

- SITE BOUNDARY
- MW-XX — JULY 2021 MONITORING WELL
- SB-XX — JULY 2021 SOIL BORING
- JULY 2021 TEST PIT
- S-X — JULY 2021 SEDIMENT SAMPLE
- MW-XX — NOVEMBER 2021 MONITORING WELL

MAP REFERENCES AND NOTES

THIS MAP WAS PREPARED FROM RIGIS COLOR ORTHO IMAGERY (2019)

SOURCE: THE RHODE ISLAND GEOGRAPHIC INFORMATION SYSTEM (RIGIS)

SITE FEATURES ARE APPROXIMATE

SCALE: HORZ.: 1"=150' VERT.: | DATUM: HORZ.: VERT.: | 0 75 150 GRAPHIC SCALE

FUSS&O'NEILL
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

BRADY SULLIVAN PROPERTIES

SITE PLAN

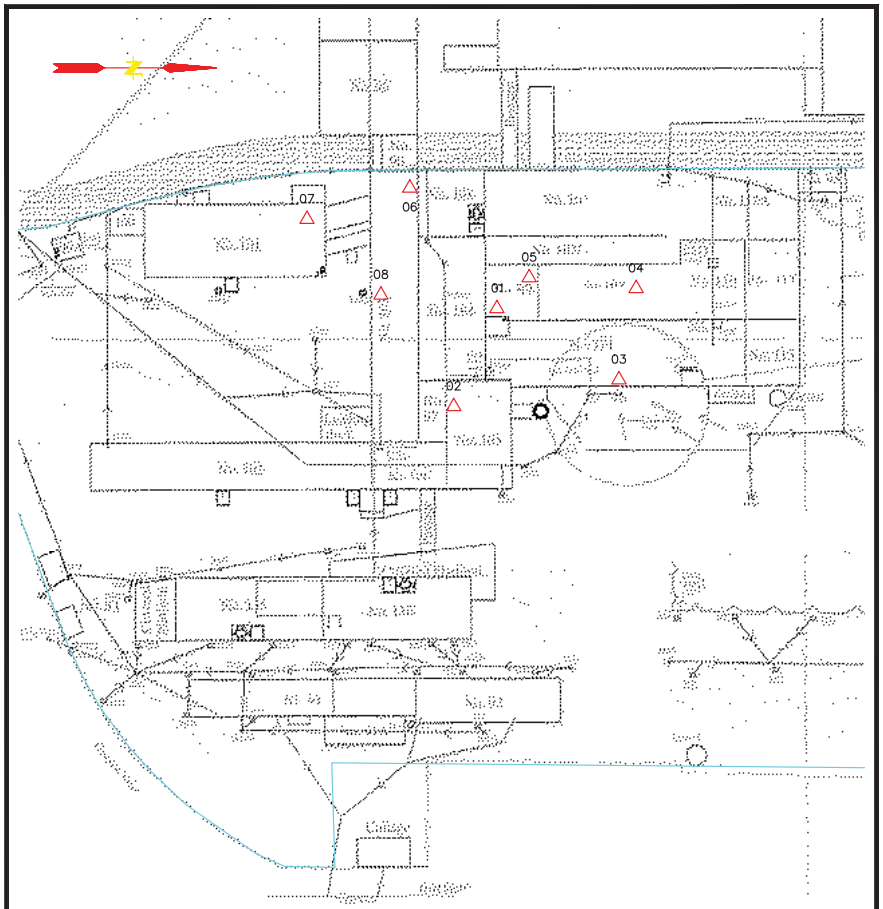
1381 CRANSTON STREET

CRANSTON RHODE ISLAND

PROJ. No.: 2001696.M40
DATE: DECEMBER 2021

FIGURE 2

File: J:\DWG\P2001696\M40\Environmental\Plan\2001696.M40_STP02.dwg Layout: 11X17-P Plotted: 2021-12-09 8:52 AM Saved: 2021-12-09 3:09 PM User: msampson
PC3: DWG TO PDF.PC3 STB/CTB: FO.STB
LAYER STATE:
MS VIEW:



LEGEND

- SITE BOUNDARY
- XX — PCB WIPE SAMPLE

MAP REFERENCES AND NOTES

THE MAP WAS PREPARED FROM DRAWING TITLED "CORPORATE PLOT PLAN" PREPARED BY CRANSTON PRINT WORKS CO. DATED JUNE 5, 2002.

SITE FEATURES ARE APPROXIMATE

SCALE: HORZ.: 1" = 100' VERT.: | DATUM: HORZ.: VERT.: | 0 50 100 GRAPHIC SCALE

FUSS&O'NEILL
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

BRADY SULLIVAN PROPERTIES, LLC

PCB WIPE SAMPLING LOCATIONS

1381 CRANSTON STREET

CRANSTON RHODE ISLAND

PROJ. No.: 2001696.M40
DATE: JULY 2021

FIGURE 3

File: J:\DWG\P2001696\M40\Environmental\Plan\2001696.M40_STP02_PCB Sample Locations.dwg Layout: 08.5X11-P Plotted: 2021-07-01 4:28 PM Saved: 2021-07-01 3:54 PM User: msampson
PC3: DWG TO PDF.PC3 STB/CTB: FO.STB
LAYER STATE:
MS VIEW:

LEGEND

- SITE BOUNDARY
- GROUNDWATER FLOW DIRECTION
- GROUNDWATER ELEVATION EQUIPOTENTIAL CONTOUR
- MW-XX MONITORING WELL

MAP REFERENCES AND NOTES

THIS MAP WAS PREPARED FROM RIGIS COLOR ORTHO IMAGERY (2019)

SOURCE: THE RHODE ISLAND GEOGRAPHIC INFORMATION SYSTEM (RIGIS)

SITE FEATURES ARE APPROXIMATE

SCALE:
HORZ.: 1" = 250'
VERT.:
DATUM:
HORZ.:
VERT.:
0 125 250
GRAPHIC SCALE

FUSS&O'NEILL
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

BRADY SULLIVAN

GROUNDWATER CONTOUR MAP

1381 CRANSTON STREET

CRANSTON RHODE ISLAND

PROJ. No.: 2001696.M40
DATE: JULY 2021

FIGURE 4

File Path: J:\DWG\P2001\696\M40\Environmental\Plan\2001696.M40_GW Contour.dwg Layout: 08.5X11-P Plotted: Fri, July 02, 2021 - 2:31 PM User: msampson
Plotter: DWG TO PDF.PC3 CTB File: FO.STB
LAYER STATE:
MS VIEW:

FUSS&O'NEILL

Appendix A

Soil Boring Logs

Fuss & O'Neill, Inc.
317 Iron Horse Way, Suite 204
Providence, RI
Telephone: 401.861.3070

SOIL BORING SB-1

PROJECT NUMBER 2001696.M40
PROJECT NAME Cranston Print Works
LOCATION 1381 Cranston Street, Cranston, RI
DRILLING METHOD Geologic/Geoprobe
HAMMER WEIGHT/FALL --
ELEVATION (FT) ---
TOP OF CASING ----
LOGGED BY Madelyn Sampson
REMARKS No refusal encountered.

DATE STARTED 6/14/21
DATE COMPLETED 6/14/21
CASING TYPE/DIAMETER ----
SCREEN TYPE/SLOT/INTERVAL ----
GRAVEL PACK TYPE ----
GROUT TYPE/QUANTITY ----
DEPTH TO WATER (FT) 14.0
GROUND WATER ELEVATION ---

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH
0.0		39	GB 0614-01			FILL		3" ASPHALT SAND, fine to medium; little silt; trace fine gravel; trace brick; trace ash; light brown; dry. No odor.	
0.0		46			5	FILL		SAND, fine to medium; little gravel; trace silt; trace brick; trace concrete; light brown; dry. No odor.	
0.0		46			10	SP		SAND, fine to coarse; little fine gravel; trace silt; brown; dry. No odor.	
						SP		SAND, fine to medium, some silt, wet at 14 feet. No odor.	▼
0.0		60			15	SP		SAND, fine to coarse; some silt; wet. No odor.	

Bottom of borehole at 20.0 feet.

Fuss & O'Neill, Inc.
317 Iron Horse Way, Suite 204
Providence, RI
Telephone: 401.861.3070

SOIL BORING/MONITORING WELL MW-2

PROJECT NUMBER 2001696.M40
PROJECT NAME Cranston Print Works
LOCATION 1381 Cranston Street, Cranston, RI
DRILLING METHOD Geologic/Geoprobe
HAMMER WEIGHT/FALL --
ELEVATION (FT) ---
TOP OF CASING ----
LOGGED BY Madelyn Sampson
REMARKS No refusal encountered.

DATE STARTED 6/14/21
DATE COMPLETED 6/14/21
CASING TYPE/DIAMETER PVC / 1"
SCREEN TYPE/SLOT/INTERVAL Slotted/PVC / 0.010" / 5-15'
GRAVEL PACK TYPE Silica Sand
GROUT TYPE/QUANTITY Bentonite / 1
DEPTH TO WATER (FT) 7.0
GROUND WATER ELEVATION ---

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH	WELL DIAGRAM
2.5		29	GB 0614-02			FILL		3" ASPHALT SAND, fine to medium; litle gravel; trace silt; trace brick; light brown; dry. No odor.		
0.0		60			5	FILL		SAND, fine to medium; some fine gravel; trace silt; trace asphalt; light brown; wet at 7 feet. No odor.	▼	
3.8		50			10	SP		SAND, coarse; little gravel; trace silt; brown; wet. No odor.		
						SP		SAND, coarse; and silt; gray; wet. No odor.		
0.0		60			15	SP		SAND, coarse; and silt; trace gravel; gray; wet. No odor.		

Bottom of borehole at 20.0 feet.

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SOIL BORING/MONITORING WELL MW-3

PROJECT NUMBER 2001696.M40
PROJECT NAME Cranston Print Works
LOCATION 1381 Cranston Street, Cranston, RI
DRILLING METHOD Geologic/Geoprobe
HAMMER WEIGHT/FALL --
ELEVATION (FT) ---
TOP OF CASING ----
LOGGED BY Madelyn Sampson
REMARKS No refusal encountered.

DATE STARTED 6/14/21
DATE COMPLETED 6/14/21
CASING TYPE/DIAMETER PVC / 1"
SCREEN TYPE/SLOT/INTERVAL Slotted/PVC / 0.010" / 2-12'
GRAVEL PACK TYPE Silica Sand
GROUT TYPE/QUANTITY Bentonite / 1
DEPTH TO WATER (FT) 10.0
GROUND WATER ELEVATION ---

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH
0.0		55	GB 0614-03			FILL		SAND, fine to coarse; little fine gravel; trace silt; trace brick; light brown; dry. No odor.	
0.0		60			5	FILL		SAND, fine to coarse, little silt, little fine gravel; trace brick; gray; dry. No odor.	
0.0		60			10	SP		SAND, fine to coarse; some silt; trace gravel; gray; wet at 10 feet. No odor.	▼
0.0		50			15	SP		SAND, fine to coarse; some silt; gray; dry. No odor. Weathered shale in cap.	

WELL DIAGRAM

Bottom of borehole at 20.0 feet.

LOG A EWNN01 - ESDAT_LOG1.GDT - 7/2/21 08:08 - F:\P2001\696\M40\FIELD NOTES\BORING LOGS\MHS_CPW_BORING LOGS_20210823.GPJ

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SOIL BORING SB-4

PROJECT NUMBER 2001696.M40
PROJECT NAME Cranston Print Works
LOCATION 1381 Cranston Street, Cranston, RI
DRILLING METHOD Geologic/Geoprobe
HAMMER WEIGHT/FALL --
ELEVATION (FT) ---
TOP OF CASING ----
LOGGED BY Madelyn Sampson
REMARKS Refusal encountered at 11.5 feet.

DATE STARTED 6/14/21
DATE COMPLETED 6/14/21
CASING TYPE/DIAMETER ----
SCREEN TYPE/SLOT/INTERVAL ----
GRAVEL PACK TYPE ----
GROUT TYPE/QUANTITY ----
DEPTH TO WATER (FT) 4.0
GROUND WATER ELEVATION ---

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH
0.0		41	GB 0614-04			FILL		SAND, fine to medium; little silt; little fine gravel; trace brick; trace coal ash; brown; wet at 4 feet. No odor.	▼
0.0		52			5	SP		SAND, fine to medium; and silt; trace weathered shale; gray; wet. No odor.	
0.0		12			10	SP		SAND, fine to medium; and silt; trace weathered shale; gray; wet. No odor. Refusal at 11.5. Weathered stone at base of liner.	

Bottom of borehole at 11.5 feet.

LOG A EWNN01 - ESDAT_LOG1.GDT - 7/2/21 08:08 - F:\P2001\696\M40\FIELD NOTES\BORING LOGS\MHS_CPW_BORING LOGS_20210823.GPJ

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SOIL BORING/MONITORING WELL MW-5

PROJECT NUMBER 2001696.M40
PROJECT NAME Cranston Print Works
LOCATION 1381 Cranston Street, Cranston, RI
DRILLING METHOD Geologic/Geoprobe
HAMMER WEIGHT/FALL --
ELEVATION (FT) ---
TOP OF CASING ----
LOGGED BY Madelyn Sampson
REMARKS Refusal encountered at 12.5 feet.

DATE STARTED 6/14/21
DATE COMPLETED 6/14/21
CASING TYPE/DIAMETER PVC / 1"
SCREEN TYPE/SLOT/INTERVAL Slotted/PVC / 0.010" / 2-12'
GRAVEL PACK TYPE Silica Sand
GROUT TYPE/QUANTITY Bentonite / 1
DEPTH TO WATER (FT) 5.0
GROUND WATER ELEVATION ---

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH
0.0		60	GB 0614-05			FILL		SAND, fine to medium; some silt, little gravel; trace brick; light brown; dry. No odor.	
0.0		20			5	FILL		SAND, fine to medium; some silt; little gravel; trace brick; brown; wet at 5 feet. No odor.	▼
0.0		30			10	SP		SAND, fine to coarse; and silt; little gravel; gray; wet. No odor. Refusal at 12.5. Weathered stone at base of liner.	

WELL DIAGRAM

Bottom of borehole at 12.5 feet.

LOG A EWNN01 - ESDAT_LOG1.GDT - 7/2/21 08:08 - F:\P2001\696\M40\FIELD NOTES\BORING LOGS\MHS_CPW_BORING LOGS_20210823.GPJ

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SOIL BORING SB-6

PROJECT NUMBER 2001696.M40
PROJECT NAME Cranston Print Works
LOCATION 1381 Cranston Street, Cranston, RI
DRILLING METHOD Geologic/Geoprobe
HAMMER WEIGHT/FALL --
ELEVATION (FT) ---
TOP OF CASING ----
LOGGED BY Madelyn Sampson
REMARKS Refusal encountered at 11.5 feet.

DATE STARTED 6/14/21
DATE COMPLETED 6/14/21
CASING TYPE/DIAMETER ----
SCREEN TYPE/SLOT/INTERVAL ----
GRAVEL PACK TYPE ----
GROUT TYPE/QUANTITY ----
DEPTH TO WATER (FT) 3.0
GROUND WATER ELEVATION ---

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH
0.0		20	GB 0614-06			FILL		SAND, fine to coarse; some silt; little gravel; trace brick; black; wet at 3 feet. No odor.	▼
0.0		34			5	SP		SAND, fine to coarse; some silt; little gravel; black; wet. No odor. Weathered shale in cap.	
0.0		10			10	SP		SAND, fine to coarse; some silt; little gravel; black; wet. No odor. Weathered shale in cap. Refusal at 11.5.	

Bottom of borehole at 11.5 feet.

LOG A EWNN01 - ESDAT_LOG1.GDT - 7/2/21 08:08 - F:\P2001\696\M40\FIELD NOTES\BORING LOGS\MHS_CPW_BORING LOGS_20210823.GPJ

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SOIL BORING/MONITORING WELL MW-7

PROJECT NUMBER 2001696.M40
PROJECT NAME Cranston Print Works
LOCATION 1381 Cranston Street, Cranston, RI
DRILLING METHOD Geologic/Geoprobe
HAMMER WEIGHT/FALL --
ELEVATION (FT) ---
TOP OF CASING ----
LOGGED BY Madelyn Sampson
REMARKS No refusal encountered.

DATE STARTED 6/15/21
DATE COMPLETED 6/15/21
CASING TYPE/DIAMETER PVC / 1"
SCREEN TYPE/SLOT/INTERVAL Slotted/PVC / 0.010" / 5-15'
GRAVEL PACK TYPE Silica Sand
GROUT TYPE/QUANTITY Bentonite / 1
DEPTH TO WATER (FT) 6.0
GROUND WATER ELEVATION ---

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH	WELL DIAGRAM
0.0		24	GB 0615-08			FILL		SAND, fine to medium; some silt; little gravel; light brown; dry. No odor.		
0.0		32			5	FILL		SAND, fine to coarse; and silt; black; wet at 6 feet. Strong petroleum odor.	▼	
0.0		42			10	FILL		SAND, fine to coarse; and silt; little gravel; black; wet at 6 feet. Strong petroleum odor.		
0.0		48				FILL		SAND, fine to coarse; and silt; little gravel; black; wet at 6 feet. Strong petroleum odor.		
					15	SP		SAND, fine to medium; and silt; light brown; wet. No odor.		
								Bottom of borehole at 16.0 feet.		

LOG A EWNN01 - ESDAT_LOG1.GDT - 7/2/21 08:08 - F:\P2001\696\M40\FIELD NOTES\BORING LOGS\MHS_CPW_BORING LOGS_20210823.GPJ

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SOIL BORING/MONITORING WELL MW-8

PROJECT NUMBER 2001696.M40
PROJECT NAME Cranston Print Works
LOCATION 1381 Cranston Street, Cranston, RI
DRILLING METHOD Geologic/Geoprobe
HAMMER WEIGHT/FALL --
ELEVATION (FT) ---
TOP OF CASING ----
LOGGED BY Madelyn Sampson
REMARKS No refusal encountered.

DATE STARTED 6/15/21
DATE COMPLETED 6/15/21
CASING TYPE/DIAMETER PVC / 1"
SCREEN TYPE/SLOT/INTERVAL Slotted/PVC / 0.010" / 5-15'
GRAVEL PACK TYPE Silica Sand
GROUT TYPE/QUANTITY Bentonite / 1
DEPTH TO WATER (FT) 7.0
GROUND WATER ELEVATION ---

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH	WELL DIAGRAM
11.5		18				FILL		SAND, fine to medium; some silt; little gravel; trace brick; brown; dry. No odor.		
12.6		28	GB 0615-09		5	FILL		SAND, fine to medium, some silt, little gravel; trace brick; wet at 7 feet. No odor.	▼	
10.5		18				FILL		SAND, fine to coarse, some silt, little gravel; black; wet. Petroleum odor.		
					10	FILL				
0.0		48				FILL		SAND, fine to coarse, some silt, little gravel; black; wet. Light petroleum odor.		
					15	SP		SAND, fine to medium; some silt; light brown; wet. No odor.		
								Bottom of borehole at 20.0 feet.		

LOG A EWNN01 - ESDAT_LOG1.GDT - 7/2/21 08:08 - F:\P2001\696\M40\FIELD NOTES\BORING LOGS\MHS_CPW_BORING LOGS_20210823.GPJ

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SOIL BORING/MONITORING WELL MW-9

PROJECT NUMBER 2001696.M40
PROJECT NAME Cranston Print Works
LOCATION 1381 Cranston Street, Cranston, RI
DRILLING METHOD Geologic/Geoprobe
HAMMER WEIGHT/FALL --
ELEVATION (FT) ---
TOP OF CASING ----
LOGGED BY Madelyn Sampson
REMARKS No refusal encountered.

DATE STARTED 6/15/21
DATE COMPLETED 6/15/21
CASING TYPE/DIAMETER PVC / 1"
SCREEN TYPE/SLOT/INTERVAL Slotted/PVC / 0.010" / 5-15'
GRAVEL PACK TYPE Silica Sand
GROUT TYPE/QUANTITY Bentonite / 1
DEPTH TO WATER (FT) 4.0
GROUND WATER ELEVATION ---

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH	WELL DIAGRAM
0.0		24	GB 0615-10			FILL		SAND, fine to medium; little fine gravel; trace silt; light brown; dry. Petroleum odor.		
								SAND, fine to coarse sand; some silt; trace fine gravel; brown; wet at 4 feet. Petroleum odor.	▼	
0.0		60			5	FILL		SAND, fine to coarse; some silt; little gravel; brown; wet. Petroleum odor. At 8 to 9 feet iron staining observed.		
0.0		40			10	FILL		SAND, fine to coarse; and silt; light brown; wet. Petroleum odor.		
						SP		SAND, fine to medium, and silt; light brown; wet. No odor.		

Bottom of borehole at 15.0 feet.

LOG A EWNN01 - ESDAT_LOG1.GDT - 7/2/21 08:08 - F:\P2001\696\M40\FIELD NOTES\BORING LOGS\MHS_CPW_BORING LOGS_20210823.GPJ

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SOIL BORING SB-10

PROJECT NUMBER 2001696.M40
PROJECT NAME Cranston Print Works
LOCATION 1381 Cranston Street, Cranston, RI
DRILLING METHOD Geologic/Geoprobe
HAMMER WEIGHT/FALL --
ELEVATION (FT) ---
TOP OF CASING ----
LOGGED BY Madelyn Sampson
REMARKS Refusal encountered at 14 feet.

DATE STARTED 6/15/21
DATE COMPLETED 6/15/21
CASING TYPE/DIAMETER ----
SCREEN TYPE/SLOT/INTERVAL ----
GRAVEL PACK TYPE ----
GROUT TYPE/QUANTITY ----
DEPTH TO WATER (FT) 7.0
GROUND WATER ELEVATION ---

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH
0.0		0				FILL		No recovery.	
0.0		60	GB 0615-11		5	FILL		SAND, fine to coarse; some silt; little gravel; trace brick; gray; wet at 7 feet. No odor.	
						SP		SAND, fine to medium; and silt; light brown; wet. No odor.	▼
0.0		48			10	SP		SAND, fine to medium; and silt; light brown; wet. No odor. Refusal at 14 feet. Weathered shale in cap.	

Bottom of borehole at 14.0 feet.

LOG A EWNN01 - ESDAT_LOG1.GDT - 7/2/21 08:08 - F:\P2001\696\M40\FIELD NOTES\BORING LOGS\MHS_CPW_BORING LOGS_20210823.GPJ

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SOIL BORING SB-11

PROJECT NUMBER 2001696.M40
PROJECT NAME Cranston Print Works
LOCATION 1381 Cranston Street, Cranston, RI
DRILLING METHOD Geologic/Geoprobe
HAMMER WEIGHT/FALL --
ELEVATION (FT) ---
TOP OF CASING ----
LOGGED BY Madelyn Sampson
REMARKS Refusal encountered at 13 feet.

DATE STARTED 6/16/21
DATE COMPLETED 6/16/21
CASING TYPE/DIAMETER ----
SCREEN TYPE/SLOT/INTERVAL ----
GRAVEL PACK TYPE ----
GROUT TYPE/QUANTITY ----
DEPTH TO WATER (FT) 4.0
GROUND WATER ELEVATION ---

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH
0.0		30	GB 0616-13			FILL		SAND, fine to coarse; little silt; little fine gravel; black; wet at 4 feet. Slight petroleum odor.	▼
0.0		60			5	FILL		SAND, fine to coarse; little silt; little fine gravel; black; wet. No odor.	
						SP		SAND, fine to medium; some silt; gray; wet. No odor.	
0.0		36			10	SP		SAND, fine to medium; some silt; light brown; wet. No odor. Refusal at 13 feet. Weathered shale in cap.	

Bottom of borehole at 13.0 feet.

LOG A EWNN01 - ESDAT_LOG1.GDT - 7/2/21 08:08 - F:\P200\1696\M40\FIELD NOTES\BORING LOGS\MHS_CPW_BORING LOGS_20210823.GPJ

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SOIL BORING/MONITORING WELL MW-12

PROJECT NUMBER 2001696.M40
PROJECT NAME Cranston Print Works
LOCATION 1381 Cranston Street, Cranston, RI
DRILLING METHOD Geologic/Geoprobe
HAMMER WEIGHT/FALL --
ELEVATION (FT) ---
TOP OF CASING ----
LOGGED BY Madelyn Sampson
REMARKS Refusal encountered at 15.5 feet.

DATE STARTED 6/16/21
DATE COMPLETED 6/16/21
CASING TYPE/DIAMETER PVC / 1"
SCREEN TYPE/SLOT/INTERVAL Slotted/PVC / 0.010" / 2-12'
GRAVEL PACK TYPE Silica Sand
GROUT TYPE/QUANTITY Bentonite / 1
DEPTH TO WATER (FT) 4.0
GROUND WATER ELEVATION ---

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH	WELL DIAGRAM
0.0		43	GB 0616-14			FILL		SAND, fine to medium; some gravel; trace silt; trace brick; trace ash; brown; wet at 4 feet. No odor.	▼	
0.0		43			5	FILL		SAND, fine to coarse; little silt, little fine gravel; trace brick; black; wet. Petroleum odor.		
								SAND, fine to coarse; little silt, little fine gravel; trace brick; blue/gray staining; wet. Petroleum odor.		
								SAND, fine to medium; some silt; trace gravel; light brown; wet. Petroleum odor.		
0.0		38			10	SP		SAND, fine to coarse; some silt; little fine gravel; light brown; wet. No odor. Refusal at 15.5 feet on weathered stone.		
					15					

Bottom of borehole at 15.5 feet.

LOG A EWNN01 - ESDAT_LOG1.GDT - 7/2/21 08:08 - F:\P200\1696\M40\FIELD NOTES\BORING LOGS\MHS_CPW_BORING LOGS_20210823.GPJ

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SOIL BORING/MONITORING WELL MW-13

PROJECT NUMBER 2001696.M40
PROJECT NAME Cranston Print Works
LOCATION 1381 Cranston Street, Cranston, RI
DRILLING METHOD Geologic/Geoprobe
HAMMER WEIGHT/FALL --
ELEVATION (FT) ---
TOP OF CASING ----
LOGGED BY Madelyn Sampson
REMARKS Refusal encountered at 15 feet.

DATE STARTED 6/16/21
DATE COMPLETED 6/16/21
CASING TYPE/DIAMETER PVC / 1"
SCREEN TYPE/SLOT/INTERVAL Slotted/PVC / 0.010" / 3-13'
GRAVEL PACK TYPE Silica Sand
GROUT TYPE/QUANTITY Bentonite / 1
DEPTH TO WATER (FT) 5.0
GROUND WATER ELEVATION ---

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH	WELL DIAGRAM
1.0		28	GB 0616-15			FILL		SAND, fine to medium; little silt; little gravel; trace brick; light brown; dry. No odor.		
0.0		48			5	FILL		SAND, fine to coarse; some silt; little gravel; light brown; wet at 5 feet. No odor.		
						SP		SAND, fine to coarse; some silt; little gravel; gray; wet. No odor.		
0.0		60			10	SP		SAND, fine to coarse; some silt; little gravel; gray; wet. No odor.		

Bottom of borehole at 15.0 feet.

LOG AEWNN01 - ESDAT_LOG1.GDT - 7/2/21 08:08 - F:\P2001\696\M40\FIELD NOTES\BORING LOGS\MHS_CPW_BORING LOGS_20210823.GPJ

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SOIL BORING/MONITORING WELL MW-14

PROJECT NUMBER 6440A1ANM. 4
PROJECT NAME Crat l rdt Pré nO drwl
LOCATION 0380 Crat l rdt Smroom Crat l rdt i Vl
DRILLING METHOD Godcdbe/"Godprdho"Mv9 A42 Le or
HAMMER WEIGHT/FALL --
ELEVATION (FT)
TOP OF CASING ----
LOGGED BY Ma; odR Sau pl dt
REMARKS _, d rons l acot vdst nro ro; N

DATE STARTED 00"61"60
DATE COMPLETED 00"61"60
CASING TYPE/DIAMETER P' C " 02
SCREEN TYPE/SLOT/INTERVAL Scdmo; "P' C " 4N042" 8-08
GRAVEL PACK TYPE Seava Sat ;
GROUT TYPE/QUANTITY Bot rdt eo " 0
DEPTH TO WATER (FT) 1N4
GROUND WATER ELEVATION ---

Plf hlpu (	BLUO CU) , 5S	VECU' EVW Hel v/ ol (	SDMPLE If N	EY5E. 5	f EP5T HeNBGL(	) NSNCNSN	GVDPTIC LUG	LI5TULUGIC f ESCVIP5IU,	O D5EV f EP5T	O ELL f IDGVDM
4N4		38	GB 0061-46			FILL		SD, f i nte o rd u o; esu gmravo l exgcmo brako gmravo hrevgmravo al / ghrdy t g; rRN, d d; drN		
4N4		. 6			9	FILL		SD, f i nte o rd u o; esu gmravo l exgcmo brako gmravo hrevgmravo al / ghrdy t g; rRN, d d; drN		
						SP		SD, f i nte o rd u o; esu gat ; SIL5gbraRgy ormamI roorN, d d; drN		
4N		3.			04	SP		SD, f i nte o rd u o; esu gat ; SIL5gbraRgy orN, d d; drN		
4N4		A4			09	SP		SD, f i nte o rd vdarl ogl du o brako gcmo l exgmravo hrevg hrdy t gy orN, d d; drN		

Bdmdu dnhdro/ dco an64N4 roorN

LUG D EO. . 40 - ESf D5_LUGN6f 5 - 06'0. '60 06'6: - F:\P6440\A1AM. 41f ELI' EVDBLESVEPUV.6VS) PPLEME. 5DL E. ' IVU_ME. 5DL I. ' ESSIGD5IU, IDPPE. f ICESID - SUIL BUVI. G LUGSIf VDF9\MTS - S) PPLEME. 5DL BUVI. G LUGS_64600648KPJ

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SOIL BORING/MONITORING WELL MW-15

PDGE 0 UF 0

PROJECT NUMBER 6440A1AN/. 4
PROJECT NAME Crat l rdt Pré mO drwl
LOCATION 0380 Crat l rdt SmroomCrat l rdt i Vl
DRILLING METHOD Godcdbe/"Godprdho"Mv9 A42Lé or
HAMMER WEIGHT/FALL --
ELEVATION (FT)
TOP OF CASING ----
LOGGED BY Ma; odR Sau pl dt
REMARKS _, d rons l acot vdst roro; N

DATE STARTED 00"61"60
DATE COMPLETED 00"61"60
CASING TYPE/DIAMETER P' C " 02
SCREEN TYPE/SLOT/INTERVAL Scdmo; "P' C " 4N042" 8-08
GRAVEL PACK TYPE Seava Sat ;
GROUT TYPE/QUANTITY Bot rdt eo " 0
DEPTH TO WATER (FT) 1N4
GROUND WATER ELEVATION ---

Plf hpu (	BLUO CU) , 5S	VECU' EVW Hé v/ ol (	SDMPLE lf N	EY5E. 5	f EP5T HmNBGL(	) NSNCNSN	GVDPTIC LUG	LI5TULUGIC f ESCVIP5IU,	O D5EV f EP5T	O ELL f IDGVDM
4N6		. 8	GB 0061-43			FILL		SD, f i nt o rd u o; esu gl du o brako gcemo l esgrmavo hrewg rmavo al / g; rRN, d d; drN		
4N4		96			9	FILL		SD, f i nt o rd u o; esu gl du o brako gcemo l esgrmavo hrewg rmavo al / g; rRN, d d; drN		
						SP		SD, f i nt o rd u o; esu gat ; SIL5gbraRgy orn am l roorN, d d; drN		
4N4		96			04	SP		SD, f i nt o rd u o; esu gat ; SIL5gbraRgy orN, d d; drN		
						SP		SD, f i nt o rd u o; esu gat ; SIL5gl du o y oarhoro; l / aeog braRgy orN, d d; drN		
4N4		94			09	SP		SD, f i nt o rd vdarl ogl du o brako gcemavo l esghrdy t gy orN, d d; drN		
						SP		SD, f i nt o rd u o; esu gat ; SIL5ghrdy t gy orN, d d; drN O oarhoro; l / aeoN		

LUG D EO. , .40 - ESf D5_LUG0N5f 5 - 06'0. '60 06'6: - F1P6440A1AM .41f ELI' EVDBLESVEPUV.5\S) PPLEME. 5DL E. ' IVU. ME. 5DL I. ' ES5IGD5IU, \DPPE. f ICESID - SUIL BUVI. G LUGSVf VDF5\MTS .S) PPLEME. 5DL BUVI. G LUGS .64600648KPJ

Bdmdu dnhdro/ dko an64N4 roorN

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Providence, RI
Telephone: 401.861.3070

SOIL BORING/MONITORING WELL MW-16

PDGE 0 UF 0

PROJECT NUMBER 6440A1AN/. 4
PROJECT NAME Crat l rdt Pré mO drwl
LOCATION 0380 Crat l rdt SmroomCrat l rdt i Vl
DRILLING METHOD Godcdbe/"Godprdho"Mv9 A42Lé or
HAMMER WEIGHT/FALL --
ELEVATION (FT)
TOP OF CASING ----
LOGGED BY Ma; odR Sau pl dt
REMARKS Vons l acot vdst roro; an06N9 roorN

DATE STARTED 00"61"60
DATE COMPLETED 00"61"60
CASING TYPE/DIAMETER P' C " 02
SCREEN TYPE/SLOT/INTERVAL Scdmo; "P' C " 4N042" 6-06
GRAVEL PACK TYPE Seava Sat ;
GROUT TYPE/QUANTITY Bot rdt eo " 0
DEPTH TO WATER (FT) _. N4
GROUND WATER ELEVATION ---

Plf hpu (	BLUO CU) , 5S	VECU' EVW Hé v/ ol (	SDMPLE lf N	EY5E. 5	f EP5T HmNBGL(	) NSNCNSN	GVDPTIC LUG	LI5TULUGIC f ESCVIP5IU,	O D5EV f EP5T	O ELL f IDGVDM
4N4		3A	GB 0061-4.			FILL		SD, f i nt o rd u o; esu gcemo brako gcemavo l esgrmavo hrewg hrdy t gy orn am roorN, d d; drN		
4N4		9.			9	SP		SD, f i nt o rd u o; esu gat ; SIL5gbraRgy orN, d d; drN		
						CU , CVEL		Cdt vroroN		
4N4		69			04	SP		SD, f i u o; esu rd vdarl ogl du o brako gcemavo l esgy oarhor l / aeoghrdy t gy orN, d d; drN		

LUG D EO. , .40 - ESf D5_LUG0N5f 5 - 06'0. '60 06'6: - F1P6440A1AM .41f ELI' EVDBLESVEPUV.5\S) PPLEME. 5DL E. ' IVU. ME. 5DL I. ' ES5IGD5IU, \DPPE. f ICESID - SUIL BUVI. G LUGSVf VDF5\MTS .S) PPLEME. 5DL BUVI. G LUGS .64600648KPJ

Bdmdu dnhdro/ dko an06N9 roorN

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SOIL BORING/MONITORING WELL MW-17

PDGE 0 UF 0

PROJECT NUMBER 6440A1ANM. 4
PROJECT NAME Crat l rdt Pré nO drwl
LOCATION 0380 Crat l rdt SmoorinCrat l rdt i Vl
DRILLING METHOD Godcdbæ"Godprdho"Mv9 A42Léor
HAMMER WEIGHT/FALL --
ELEVATION (FT)
TOP OF CASING ----
LOGGED BY Ma; odR Sau pl dt
REMARKS _, d rons l acot vdst roro; N

DATE STARTED 00"61"60
DATE COMPLETED 00"61"60
CASING TYPE/DIAMETER P' C " 02
SCREEN TYPE/SLOT/INTERVAL Scdmo; "P' C " 4N042" 6-06
GRAVEL PACK TYPE Seava Sat ;
GROUT TYPE/QUANTITY Bot rdt eo " 0
DEPTH TO WATER (FT) _.N
GROUND WATER ELEVATION ---

Plf hpu (	BLUO CU) , 5S	VECU' EVW Hel v/ ol (	SDMPLE lf N	EY5E. 5	f EP5T HrWBGL(	) NSNCNSN	GVDPTIC LUG	LI5TULUGIC f ESCVIP5IU,	O D5EV f EP5T	O ELL f IDGVDM
4N0		6A	GB 006A-49			FILL		SD, f i nt o rd l u o; esu grravo brako grravo l esghrdy t gy orram roorN, d d; drN		
4N		. A			9	SP		SD, f i u o; esu rd vdarl ogl du o brako grravo l esghrdy t gy orN , d d; drN		
						SP		SD, f i nt o rd l u o; esu gat ; SIL5gbraRgy orN, d d; drN		
4N		. 6			04	SP		SD, f i nt o rd l u o; esu gat ; SIL5gbraRgy orNO oarhoro; l / aco é vapN		

Bdrmdu drnhdro/ dco an09N roorN

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SOIL BORING/MONITORING WELL MW-18

PDGE 0 UF 0

PROJECT NUMBER 6440A1ANM. 4
PROJECT NAME Crat l rdt Pré nO drwl
LOCATION 0380 Crat l rdt SmoorinCrat l rdt i Vl
DRILLING METHOD Godcdbæ"Godprdho"Mv9 A42Léor
HAMMER WEIGHT/FALL --
ELEVATION (FT)
TOP OF CASING ----
LOGGED BY Ma; odR Sau pl dt
REMARKS _, d rons l acot vdst roro; N

DATE STARTED 00"61"60
DATE COMPLETED 00"61"60
CASING TYPE/DIAMETER P' C " 02
SCREEN TYPE/SLOT/INTERVAL Scdmo; "P' C " 4N042" 6-06
GRAVEL PACK TYPE Seava Sat ;
GROUT TYPE/QUANTITY Bot rdt eo " 0
DEPTH TO WATER (FT) _.N
GROUND WATER ELEVATION ---

Plf hpu (	BLUO CU) , 5S	VECU' EVW Hel v/ ol (	SDMPLE lf N	EY5E. 5	f EP5T HrWBGL(	) NSNCNSN	GVDPTIC LUG	LI5TULUGIC f ESCVIP5IU,	O D5EV f EP5T	O ELL f IDGVDM
4N		6.	GB 0061-4A			FILL		SD, f i nt o rd l u o; esu gerravo brako grravo l esghrdy t gy orram roorN, d d; drN		
4N		6A			9	FILL		SD, f i u o; esu rd vdarl ogl du o brako grravo l esghrdy t gy orN , d d; drN		
4N		A4			04	SP		SD, f i u o; esu rd vdarl ogl du o brako grravo l esghrdy t gy orN , d d; drN		
						SP		SD, f i nt o rd l u o; esu gat ; SIL5gbraRgy orN, d d; drN		

Bdrmdu drnhdro/ dco an09N roorN

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SOIL BORING/MONITORING WELL MW-19

PDGE 0 UF 0

PROJECT NUMBER 6440A1ANM. 4
PROJECT NAME Crat l rdt Pr4 nO drwl
LOCATION 0380 Crat l rdt SmoornCrat l rdt i Vl
DRILLING METHOD Godcdbar"Godprdho"Mv9 A42Le4 or
HAMMER WEIGHT/FALL --
ELEVATION (FT)
TOP OF CASING ----
LOGGED BY Ma; odR Sau pl dt
REMARKS Vons l acot vdst nro ro; am0. roorN

DATE STARTED 00"61"60
DATE COMPLETED 00"61"60
CASING TYPE/DIAMETER P' C " 02
SCREEN TYPE/SLOT/INTERVAL Scdmo; "P' C " 4N042" . -0.
GRAVEL PACK TYPE Seava Sat ;
GROUT TYPE/QUANTITY Bot rdt eo " 0
DEPTH TO WATER (FT) : N4
GROUND WATER ELEVATION ---

Plf Hppu (	BLUO CU) , 5S	VECU' EVW He v/ ol (	SDMPLE lf N	EY5E. 5	f EP5T HrMBGL(	) N6NCN6N	GVDPTIC LUG	LI5TULUGIC f ESCVIP5IU,	O D5EV f EP5T	O ELL f IDGVDM
4N4		. 8	GB 0061-4:			FILL		SD, f i nt o rd u o; esu gl du o brako gmavo l esgmavo hrevg rmavo al / ghrdy t g; rFN, d d; drN		
4N4		38			9	FILL		SD, f i u o; esu rd vdarl ogl du o brako gmavo l esgmavo hrevg hrdy t gy orN, d d; drN		
4N4		. 8			04	FILL		SD, f i u o; esu rd vdarl ogl du o brako gmavo l esgmavo hrevg hrdy t gy orN, d d; drN		
						SP		SD, f i nt o rd u o; esu gat ; SIL5gbraRgy orN, d d; drN		

Bdmdu dnhdro/ dko an0. N4 roorN

LUG D EO. , 40 - ES! D5_LUG06f 5 - 06'0. '60 06'6: - F!P6440A1AM. 41' ELI' EVDBLES\VEPUV.5\S) PPLEME. 5DL E. ' IVU. ME. 5DL I. ' ESSIGD5IU, \DPPE. f ICESID - SUIL BUVI. G LUGSV VDF5\MTS. S) PPLEME. 5DL BUVI. G LUGS. 64600648NPJ

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Appendix B

Test Pit Logs

FUSS & O'NEILL

TEST PIT LOG

Project Name: Cranston Print Works

Project Location: Cranston, RI

Location ID: TP-1
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 0832
Depth to Saturated Zone: N/A
Water Observation:
None

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-3	**SAND, fine to medium; some silt; some gravel; light brown; dry. No odor.**	**0.0**	**FILL**			
3-6	**SAND, fine to medium; some silt, fine gravel; brown; moist. No odor.**	**0.0**	**FILL**			
6-8	**SAND, medium to coarse; some silt; little fine gravel; gray; moist. No odor.**	**0.0**	**SP**			
	End test pit at 8 feet.					

SKETCH (Include North arrow)

Coordinates Obtained?	Latitude	Longitude
Yes	41.7933955	-71.4585113
Pit Dimensions	**7'x2'x8'**	

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20%And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To
Fill		To
Cuttings/Native	0	To 8
Other		To

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TEST PIT LOG

Project Name: Cranston Print Works

Project Location: Cranston, RI

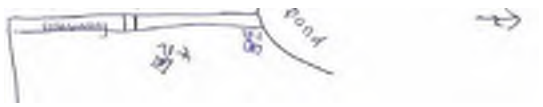
Location ID: TP-2
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 0908
Depth to Saturated Zone: N/A
Water Observation:
None

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-3	**SAND, fine to medium; little silt; little gravel; brown; trace brick; trash ash; trace wood; metal pipe observed; dry. No odor.**	**0.0**	**FILL**			
3-5	**SAND, fine to medium; little silt; light brown; dry. No odor.**	**0.0**	**FILL**			
5-8.5	**SAND, medium to coarse; some silt; some fine gravel; gray; moist. No odor.**	**0.0**	**SP**			
	End test pit at 8.5 feet.					

SKETCH (Include North arrow)



Coordinates Obtained?	Latitude	Longitude
Yes	41.7932807	-71.4586733
Pit Dimensions	**10.7'x2.3'x8.5'**	

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20%And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To
Fill		To
Cuttings/Native	0	To 8.5
Other		To

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TEST PIT LOG

Project Name: Cranston Print Works

Project Location: Cranston, RI

Location ID: TP-3
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 0925
Depth to Saturated Zone: 8'
Water Observation:
Weeping

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-4	SAND, fine to medium; little silt; little gravel; brown; dry. No odor.	0.0	FILL			
4-9	SAND, medium to coarse; some silt; little fine gravel; gray; wet at 8 feet. No odor.	0.0	SP			
	End test pit at 9 feet.					

SKETCH (Include North arrow)

Coordinates Obtained?	Latitude	Longitude
Yes	41.7928216	-71.4586140
Pit Dimensions	**2.3'x9.3'x9'**	

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	9
Other		To	

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TEST PIT LOG

Project Name: Cranston Print Works

Project Location: Cranston, RI

Location ID: TP-4
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 0935
Depth to Saturated Zone: N/A
Water Observation:
None.

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-3	SAND, fine to medium; little silt; little gravel; trace brick; light brown; dry. No odor.	0.0	FILL			
	End test pit at 3 feet. Refusal at 3 feet on top of foundation.					

SKETCH (Include North arrow)

Coordinates Obtained?	Latitude	Longitude
Yes	41.7933575	-71.4569007
Pit Dimensions	**8.4'x2.7'x3'**	

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

Refusal at 3 feet on foundation.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	3
Other		To	

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TEST PIT LOG

Project Name: Cranston Print Works

Project Location: Cranston, RI

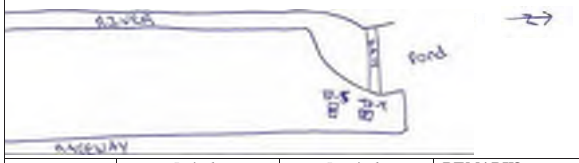
Location ID: TP-5
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: Grab
Sample # Prefix: 16032106221-

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 0945
Depth to Saturated Zone: N/A
Water Observation:
None.

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-3	SAND, fine to medium; little silt; little gravel; trace brick; trace wood; light brown; dry. No odor.	0.0	FILL			
3-4	SAND, medium to coarse; some silt; some gravel; trace brick; trace weathered shale; moist. No odor. Refusal at 4 feet.	0.0	FILL	-01 0942	3-4	8 oz Glass (1) VOA + Methanol (1) VOA + DI Water (2)
	End test pit at 4 feet. Refusal at 4 feet on top of foundation.					

SKETCH (Include North arrow)



Coordinates Obtained?	Latitude	Longitude
Yes	41.7933511	-71.4593294
Pit Dimensions	10'x2.2'x4'	

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

Refusal at 4 feet on foundation.

Field Decon: Dedicated Device

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	4
Other		To	

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TEST PIT LOG

Project Name: Cranston Print Works

Project Location: Cranston, RI

Location ID: TP-6
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 1000
Depth to Saturated Zone: N/A
Water Observation:
None.

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-3	SAND, fine to medium; some silt; trace gravel; trace brick; trace wood; brown; dry. No odor.	0.0	FILL			
3-6.5	SAND, fine to medium; some silt; some gravel; trace brick; brown; moist. No odor.	0.0	FILL			

SKETCH (Include North arrow)

Coordinates Obtained?	Latitude	Longitude
Yes	41.7932681	-71.4591420
Pit Dimensions	9'x2'x6.5	

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	6.5
Other		To	

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TEST PIT LOG

Project Name: Cranston Print Works

Project Location: Cranston, RI

Location ID: TP-7
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 1045
Depth to Saturated Zone: 4'
Water Observation:
Standing

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-3	SAND, fine to medium; little silt; little gravel; trace brick; concrete pieces; brown; dry. No odor.	0.0	FILL			
2-5	SAND, fine to medium; some silt; little gravel; trace brick; concrete pieces; brown; wet at 4 feet. No odor.	0.0	FILL			
5-6	SAND, medium to coarse; some silt; little gravel; brown; wet. No odor.	0.0	SP			
	End test pit at 6 feet.					

Coordinates Obtained?	Latitude	Longitude
Yes	41.7930642	-71.4595085

Pit Dimensions	
	9.3'x2.5'x6'

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	6
Other		To	

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TEST PIT LOG

Project Name: Cranston Print Works

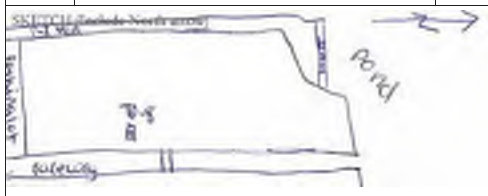
Project Location: Cranston, RI

Location ID: TP-8
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 1055
Depth to Saturated Zone: N/A
Water Observation:
None

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-4.8	SAND, fine to medium; little silt; little gravel; trace brick; brown; dry. No odor.	0.0	FILL			
	End test pit at 4.8 feet. Refusal at 4.8 feet on top of foundation.					



Coordinates Obtained?	Latitude	Longitude
Yes	41.7928345	-71.4589548

Pit Dimensions	
	8.7'x2.5'x4.8'

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

Refusal at 4.8 feet on foundation.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	4.8
Other		To	

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TEST PIT LOG

Project Name: Cranston Print Works

Project Location: Cranston, RI

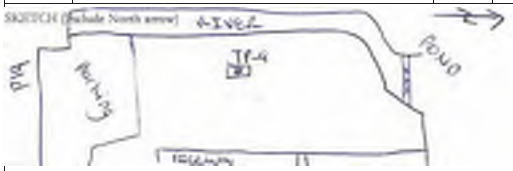
Location ID: TP-9
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 1055
Depth to Saturated Zone: 4'
Water Observation:
Standing

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-3	SAND, fine to medium; little silt; little gravel; trace brick; light brown; dry. No odor.	0.0	FILL			
3-4	SAND, medium to coarse; some silt; little gravel; light brown; wet at 4 feet. No odor.	0.0	SP			
4-4.5	SAND, medium to coarse; some silt; little gravel; gray; wet at 4 feet. No odor.	0.0	SP			
	End of test pit at 4.5 feet.					

SKETCH (Include North arrow)



Coordinates Obtained?	Latitude	Longitude
Yes	41.7926817	-71.4596962
Pit Dimensions	**8.7'x2.5'x4.8'**	

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	4.5
Other		To	

FUSS & O'NEILL

TEST PIT LOG

Project Name: Cranston Print Works

Project Location: Cranston, RI

Location ID: TP-10
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: Grab
Sample # Prefix: 16032106210-

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 1148
Depth to Saturated Zone: 4.5'
Water Observation:
Standing

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-2	SAND, fine to medium; little silt; little gravel; trace brick; brown; dry. No odor.	0.0	FILL			
2-4	SAND, fine to medium; some silt; little gravel; trace brick; black; moist. Petroleum odor.	0.0	FILL	-02 1122	2-3	8oz Glass (1) VOA + Methanol (1) VOA + DI Water (2)
4-6.7	SAND, medium to coarse; some silt; and gravel; brown; wet at 4.5 feet. No odor.	0.0	SP			
	End of test pit at 6.7 feet.					

SKETCH (Include North arrow)

Coordinates Obtained?	Latitude	Longitude
Yes	41.7921779	-71.45936369
Pit Dimensions	**9.3'x2.3'x6.7'**	

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	6.7
Other		To	

FUSS & O'NEILL

TEST PIT LOG

Project Name: Cranston Print Works

Project Location: Cranston, RI

Location ID: TP-11
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 1212
Depth to Saturated Zone: 3'
Water Observation:
Standing

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-3	**SAND, fine to medium; little silt; little gravel; trace brick; concrete pieces; light brown; dry. No odor.**	**0.0**	**FILL**			
3-5	**SAND, medium to coarse; some silt; some gravel; trace brick; trace wood; trace glass, concrete pieces; trace metal; brown; wet at 3 feet. No odor.**	**0.0**	**FILL**			
	End test pit at 5 feet.					

SKETCH (Include North arrow)

Coordinates Obtained?	Latitude	Longitude
Yes	41.7913664	-71.4586329
Pit Dimensions	**5.8'x4'x5'**	

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	5
Other		To	

FUSS & O'NEILL

TEST PIT LOG

Project Name: Cranston Print Works

Project Location: Cranston, RI

Location ID: TP-12
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 1212
Depth to Saturated Zone: 5'
Water Observation:
Mottling

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-2	**SAND, fine to medium; little silt; little gravel; trace coal; black; dry. No odor.**	**0.0**	**FILL**			
3-5	**SAND, fine to medium; some silt; little gravel; light brown; moist. No odor**	**0.0**	**FILL**			
5-7	**SAND, medium to coarse; some silt; some gravel; trace weathered shale; brown; wet at 5 feet. No odor.**	**0.0**	**SP**			
	End test pit at 7 feet.					

SKETCH (Include North arrow)

Coordinates Obtained?	Latitude	Longitude
Yes	41.7918250	-71.4587286
Pit Dimensions	**9.8'x3'x7'**	

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	7
Other		To	

TEST PIT LOG

FUSS & O'NEILL

Project Name: Cranston Print Works

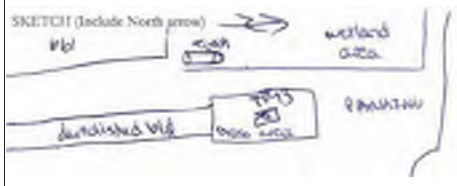
Project Location: Cranston, RI

Location ID: TP-13
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 1315
Depth to Saturated Zone: N/A
Water Observation:
None

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-2	SAND, fine to medium; some gravel; little silt; trace brick; light brown; dry. No odor.	0.0	FILL			
2-4	SAND, fine to medium; some silt; little gravel; trace asphalt; brown; moist. No odor.	0.0	FILL			
4-8.3	SAND, medium to coarse; some silt; some gravel; light brown; moist. No odor.	0.0	SP			
	End test pit at 8.3 feet.					



Coordinates Obtained?	Latitude	Longitude
Yes	41.7914380	-71.4579241
Pit Dimensions	**9.3'x2.7'x8.3'**	

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	8.3
Other		To	

TEST PIT LOG

FUSS & O'NEILL

Project Name: Cranston Print Works

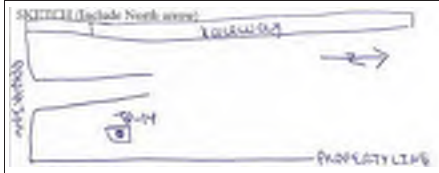
Project Location: Cranston, RI

Location ID: TP-14
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 1359
Depth to Saturated Zone: N/A
Water Observation:
None

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-4	SAND, fine to medium; little silt; little gravel; brown; dry. No odor.	0.0	FILL			
4-8	SAND, medium to coarse; some silt; some gravel; light brown; moist. No odor.	0.0	SP			
	End test pit at 8 feet.					



Coordinates Obtained?	Latitude	Longitude
Yes	41.7925044	-71.4581301
Pit Dimensions	**9.3'x2.6'x8.0'**	

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	8
Other		To	

FUSS & O'NEILL

TEST PIT LOG

Project Name: Cranston Print Works

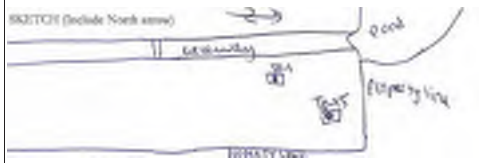
Project Location: Cranston, RI

Location ID: TP-15
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 1405
Depth to Saturated Zone: N/A
Water Observation:
None

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-3	SAND, fine to medium; little silt; little gravel; light brown; dry. No odor.	0.0	FILL			
3-8	SAND, medium to coarse; some silt; some gravel; gray; dry. No odor.	0.0	SP			
	End test pit at 8 feet.					



Coordinates Obtained?	Latitude	Longitude
Yes	41.7938029	-714585206
Pit Dimensions	**9.9'x2.5'x8.0'**	

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	8'
Other		To	

FUSS & O'NEILL

TEST PIT LOG

Project Name: Cranston Print Works

Project Location: Cranston, RI

Location ID: TP-16
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 1427
Depth to Saturated Zone: 4'
Water Observation:
Weeping

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-3	SAND, fine to medium; little silt; little gravel; trace brick; trace glass; black; dry. No odor.	0.0	FILL			
3-4	SAND, fine to medium; some silt; some gravel; brown; moist. No odor.	0.0	FILL			
4-6.8	SAND, medium to coarse; some silt; little gravel; gray; wet at 4 feet. No odor.	0.0	SP			
	End test pit at 6.8 feet.					

Coordinates Obtained?	Latitude	Longitude
Yes	41.7935323	-71.4589416
Pit Dimensions	**9.0'x2.5'x6.8'**	

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	6.8'
Other		To	

FUSS & O'NEILL

TEST PIT LOG

Project Name: Cranston Print Works

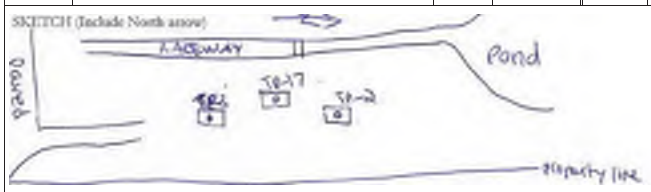
Project Location: Cranston, RI

Location ID: TP-17
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 1456
Depth to Saturated Zone: N/A
Water Observation:
None

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-3	SAND, fine to medium; little silt; little gravel; concrete pieces; metal pole; light brown; dry. No odor.	0.0	FILL			
3-8	SAND, medium to coarse; some silt; some gravel; gray; moist. No odor.	0.0	SP			
	End test pit at 8.0 feet.					



Coordinates Obtained?	Latitude	Longitude
Yes	41.7932007	-71.4584988
Pit Dimensions	**10.5'x2.7'x8'**	

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	8'
Other		To	

FUSS & O'NEILL

TEST PIT LOG

Project Name: Cranston Print Works

Project Location: Cranston, RI

Location ID: TP-18
Sheet: 1 of 1
Project #: 2001696.M40
Weather: 70s°F, cloudy

Contractor: Skurka Construction
Operator: Tom
F&O Representative: MHS
Sampling Method: N/A
Sample # Prefix: N/A

Test Pit Location Description: See Site Plan
Date Started: 6/21/2021
Date/Time Completed: 6/21/2021 1321
Depth to Saturated Zone: N/A
Water Observation:
None

MATERIAL DESCRIPTION				ANALYTICAL SAMPLES		
DEPTH RANGE (FT)	DESCRIPTION	PID	LITHOLOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERVATIVES
0-3	SAND, fine to medium; some gravel; little silt; trace brick; trace metal; light brown; dry. No odor.	0.0	FILL			
3-4	SAND, fine to medium; some silt; some gravel; trace brick; brown; moist. No odor.	0.0	FILL			
4-9	SAND, medium to coarse; some silt; little gravel; gray; moist. No odor.	0.0	SP			

Coordinates Obtained?	Latitude	Longitude
Yes	41.7929520	-71.4582111
Pit Dimensions	**9.5'x3.0'x9'**	

REMARKS
Field Instrument ID = PID (Ion Science Tiger)

No refusal.

Field Decon: Dedicated Device

PROPORTIONS USED:
Trace (tr) 0 to 10% Some (sm) 20 to 35%
Little (ltl) 10 to 20% And 35 to 50%

EXAMPLE DESCRIPTION:
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

BACKFILL

Asphalt / Concrete		To	
Fill		To	
Cuttings/Native	0	To	9'
Other		To	

Water Quality Unit Worksheets

Brief Stormceptor Sizing Report - WQ-001

Project Information & Location			
Project Name	Cranston Print Works	**Project Number**	49998
City	Cranston	**State/ Province**	Rhode Island
Country	United States of America	**Date**	6/20/2023
Designer Information		**EOR Information (optional)**	
Name	Sabrina Maldonado	**Name**	
Company	Contech Engineered Solutions	**Company**	
Phone #	513-512-5523	**Phone #**	
Email	Sabrina.Maldonado@conteches.com	**Email**	

Stormwater Treatment Recommendation
The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	WQ-001
Target TSS Removal (%)	80
TSS Removal (%) Provided	96
Recommended Stormceptor Model	STC 450i

The recommended Stormceptor Model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected particle size distribution.

Stormceptor Sizing Summary	
Stormceptor Model	**% TSS Removal Provided**
STC 450i	96
STC 900	98
STC 1200	98
STC 1800	99
STC 2400	99
STC 3600	99
STC 4800	99
STC 6000	99
STC 7200	100
STC 11000	100
STC 13000	100
STC 16000	100

Sizing Details			
Drainage Area		**Water Quality Objective**	
Total Area (acres)	0.08	**TSS Removal (%)**	80.0
Imperviousness %	96.3	**Runoff Volume Capture (%)**	
Rainfall		**Oil Spill Capture Volume (Gal)**	
Station Name	PROVIDENCE WSO AIRPORT	**Peak Conveyed Flow Rate (CFS)**	
State/Province	Rhode Island	**Water Quality Flow Rate (CFS)**	
Station ID #	6698	**Up Stream Storage**	
Years of Records	58	**Storage (ac-ft)**	**Discharge (cfs)**
Latitude	41°43'19"N	0.000	0.000
Longitude	71°25'57"W	**Up Stream Flow Diversion**	
		Max. Flow to Stormceptor (cfs)	0.00000

Particle Size Distribution (PSD) The selected PSD defines TSS removal		
OK-110		
Particle Diameter (microns)	**Distribution %**	**Specific Gravity**
1.0	0.0	2.65
53.0	3.0	2.65
75.0	15.0	2.65
88.0	25.0	2.65
106.0	41.0	2.65
125.0	15.0	2.65
150.0	1.0	2.65
212.0	0.0	2.65

Notes

• Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
• Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
• For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

For Stormceptor Specifications and Drawings Please Visit:
https://www.conteches.com/technical-guides/search?filter=1WBC0O5EYX

Project: Cranston Print Works
Location: Cranston, RI
Prepared For: ALLen & Major Associates Inc

Purpose:

To calculate the first flush runoff flow rate (WQF) over a given site area. In this situation the WQV to be analyzed is the runoff produced by the first 1" of rainfall and the WQF is produced using the first 1.2" of rainfall.

Reference:

United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Given:

Structure Name	A (acres)	A ($miles^2$)	Runoff Coefficient	Percent Imp. (%)*	t_c (min)	t_c (hr)
WQ-001	0.08	0.00012	0.90	96.37	5.0	0.083

* Assumes runoff coefficient of 0.3 for pervious areas and 0.9 for impervious areas.

Procedure:

The Water Quality Flow (WQF) is calculated using the Water Quality Volume (WQV). This WQV, converted to watershed inches, is substituted for the runoff depth (Q) in the Natural Resources Conservation Service (formerly Soil Conservation Service), TR-55 Graphical Peak Discharge Method.

1. Compute WQV in watershed inches using the following equation:

$$WQV = P * R$$

where: WQV = water quality volume (watershed inches)
WQV(ac-ft) = 1" * I/12 PER RIDEM
P = design precipitation (inches) = (1.2" for water quality storm)
R = volumetric runoff coefficient = 0.05 + 0.009(I)
I = percent impervious cover

Structure Name	Percent Imp. (%)	R	P (in)	WQV (in)	WQV (ac-ft)
WQ-001	96.37	0.917	1.2	1.101	0.0064

2. Compute the NRCS Runoff Curve Number (CN) using the following equation, or graphically using Figure 2-1 from TR-55 (USDA, 1986):

$$CN = 1000 / [10+5P+10Q-10(Q^2+1.25QP)^{1/2}]$$

where: CN = Runoff Curve Number
P = design precipitation (inches) = (1.2" for water quality storm)
Q = runoff depth (watershed inches)

Structure Name	Q (in)	CN
WQ-001	1.101	99.13

3. Using computed CN, read initial abstraction (I_a) from Table 4-1 in Chapter 4 of TR-55; compute I_a/P, interpolating when appropriate.

Structure Name	I_a (in)	I_a/P
WQ-001	0.018	0.015

4. Compute the time of concentration (t_c) in hours and the drainage area in square miles.

Structure Name	t_c (hr)	A ($miles^2$)
WQ-001	0.083	0.00012

5. Read the unit peak discharge (q_u) from Exhibit 4-III in Chapter 4 of TR-55 for appropriate t_c for type III rainfall distribution.

Structure Name	t_c (hr)	I_a/P	q_u (csm/in)
WQ-001	0.083	0.014619696	650

6. Substituting WQV (watershed inches) for runoff depth (Q), compute the water quality flow (WQF) from the following equation:

$$WQF = (q_u)*(A)*(Q)$$

where: WQF = water quality flow (cfs)
q_u = unit peak discharge ($cfs/mi^2/inch$)
A = drainage area (mi^2)
Q = runoff depth (watershed inches)

Structure Name	q_u (csm/in)	A ($miles^2$)	Q (in)	WQF (cfs)
WQ-001	650	0.00012	1.101	0.09

CONTECH ENGINEERED SOLUTIONS

CDS

CDS ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION BASED ON THE RATIONAL RAINFALL METHOD

CRANSTON PRINT WORKS
CRANSTON, RI

Area	1.33 ac	Unit Site Designation	WQ-002
Weighted C	0.90	Rainfall Station #	146
t_c	5 min		
CDS Model	2015-4	CDS Treatment Capacity	1.4 cfs

Rainfall Intensity[1] (in/hr)	Percent Rainfall Volume[1]	Cumulative Rainfall Volume	Total Flowrate (cfs)	Treated Flowrate (cfs)	Incremental Removal (%)
0.02	9.1%	9.1%	0.02	0.02	9.1
0.04	8.9%	18.0%	0.05	0.05	8.9
0.06	9.8%	27.7%	0.07	0.07	9.7
0.08	8.2%	35.9%	0.10	0.10	8.0
0.10	7.7%	43.6%	0.12	0.12	7.5
0.12	5.5%	49.1%	0.14	0.14	5.4
0.14	5.0%	54.2%	0.17	0.17	4.8
0.16	4.9%	59.1%	0.19	0.19	4.7
0.18	4.3%	63.4%	0.22	0.22	4.0
0.20	4.8%	68.2%	0.24	0.24	4.4
0.25	7.4%	75.6%	0.30	0.30	6.8
0.30	5.8%	81.5%	0.36	0.36	5.2
0.35	4.5%	85.9%	0.42	0.42	3.9
0.40	2.4%	88.3%	0.48	0.48	2.0
0.45	2.0%	90.3%	0.54	0.54	1.6
0.50	1.9%	92.1%	0.60	0.60	1.5
0.75	5.0%	97.1%	0.90	0.90	3.5
1.00	1.6%	98.7%	1.20	1.20	1.0
1.50	0.8%	99.5%	1.80	1.40	0.3
2.00	0.0%	99.5%	2.39	1.40	0.0
					92.5
				Removal Efficiency Adjustment[2] =	6.5%
				Predicted % Annual Rainfall Treated =	93.1%
				Predicted Net Annual Load Removal Efficiency =	**86.0%**

1 - Based on 10 years of hourly precipitation data from NCDC 6698, Providence WSO Airport, Kent County, RI
2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

Project: Cranston Print Works
Location: Cranston, RI
Prepared For: ALLen & Major Associates Inc

Purpose: To calculate the first flush runoff flow rate (WQF) over a given site area. In this situation the WQV to be analyzed is the runoff produced by the first 1" of rainfall and the WQF is produced using the first 1.2" of rainfall.

Reference: United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Given:

Structure Name	A (acres)	A ($miles^2$)	Runoff Coefficient	Percent Imp. (%)*	t_c (min)	t_c (hr)
WQ-002	1.33	0.00208	0.90	49.40	5.0	0.083

* Assumes runoff coefficient of 0.3 for pervious areas and 0.9 for impervious areas.

Procedure: The Water Quality Flow (WQF) is calculated using the Water Quality Volume (WQV). This WQV, converted to watershed inches, is substituted for the runoff depth (Q) in the Natural Resources Conservation Service (formerly Soil Conservation Service), TR-55 Graphical Peak Discharge Method.

1. Compute WQV in watershed inches using the following equation:

$$WQV = P * R$$

where: WQV = water quality volume (watershed inches)
WQV(ac-ft) = 1" * I/12 PER RIDEM
P = design precipitation (inches) = (1.2" for water quality storm)
R = volumetric runoff coefficient = 0.05 + 0.009(I)
I = percent impervious cover

Structure Name	Percent Imp. (%)	R	P (in)	WQV (in)	WQV (ac-ft)
WQ-002	49.40	0.495	1.2	0.594	0.0548

2. Compute the NRCS Runoff Curve Number (CN) using the following equation, or graphically using Figure 2-1 from TR-55 (USDA, 1986):

$$CN = 1000 / [10+5P+10Q-10(Q^2+1.25QP)^{1/2}]$$

where: CN = Runoff Curve Number
P = design precipitation (inches) = (1.2" for water quality storm)
Q = runoff depth (watershed inches)

Structure Name	Q (in)	CN
WQ-002	0.594	92.69

3. Using computed CN, read initial abstraction (I_a) from Table 4-1 in Chapter 4 of TR-55; compute I_a/P, interpolating when appropriate.

Structure Name	I_a (in)	I_a/P
WQ-002	0.158	0.131

4. Compute the time of concentration (t_c) in hours and the drainage area in square miles.

Structure Name	t_c (hr)	A (miles^2)
WQ-002	0.083	0.00208

5. Read the unit peak discharge (q_u) from Exhibit 4-III in Chapter 4 of TR-55 for appropriate t_c for type III rainfall distribution.

Structure Name	t_c (hr)	I_a/P	q_u (csm/in)
WQ-002	0.083	0.131374217	650

6. Substituting WQV (watershed inches) for runoff depth (Q), compute the water quality flow (WQF) from the following equation:

$WQF = (q_u)*(A)*(Q)$

where: WQF = water quality flow (cfs)
q_u = unit peak discharge (cfs/mi^2/inch)
A = drainage area (mi^2)
Q = runoff depth (watershed inches)

Structure Name	q_u (csm/in)	A (miles^2)	Q (in)	WQF (cfs)
WQ-002	650	0.00208	0.594	0.80

Project: Cranston Print Works
Location: Cranston, RI
Prepared For: ALLen & Major Associates Inc

Purpose:

To calculate the first flush runoff flow rate (WQF) over a given site area. In this situation the WQV to be analyzed is the runoff produced by the first 1" of rainfall and the WQF is produced using the first 1.2" of rainfall.

Reference:

United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Given:

Structure Name	A (acres)	A (miles^2)	Runoff Coefficient	Percent Imp. (%)*	t_c (min)	t_c (hr)
WQ 101	4.90	0.00766	0.90	70.90	10.0	0.167

* Assumes runoff coefficient of 0.3 for pervious areas and 0.9 for impervious areas.

Procedure:

The Water Quality Flow (WQF) is calculated using the Water Quality Volume (WQV). This WQV, converted to watershed inches, is substituted for the runoff depth (Q) in the Natural Resources Conservation Service (formerly Soil Conservation Service), TR-55 Graphical Peak Discharge Method.

1. Compute WQV in watershed inches using the following equation:

$WQV = P * R$

where: WQV = water quality volume (watershed inches)
WQV(ac-ft) = 1" * I/12 PER RIDEM
P = design precipitation (inches) = (1.2" for water quality storm)
R = volumetric runoff coefficient = 0.05 + 0.009(I)
I = percent impervious cover

Structure Name	Percent Imp. (%)	R	P (in)	WQV (in)	WQV (ac-ft)
WQ 101	70.90	0.688	1.2	0.826	0.2895

2. Compute the NRCS Runoff Curve Number (CN) using the following equation, or graphically using Figure 2-1 from TR-55 (USDA, 1986):

$CN = 1000 / [10+5P+10Q-10(Q^2+1.25QP)^{1/2}]$

where: CN = Runoff Curve Number
P = design precipitation (inches) = (1.2" for water quality storm)
Q = runoff depth (watershed inches)

Structure Name	Q (in)	CN
WQ 101	0.826	96.16

3. Using computed CN, read initial abstraction (I_a) from Table 4-1 in Chapter 4 of TR-55; compute I_a/P, interpolating when appropriate.

Structure Name	I_a (in)	I_a/P
WQ 101	0.080	0.067

4. Compute the time of concentration (t_c) in hours and the drainage area in square miles.

Structure Name	t_c (hr)	A (miles^2)
WQ 101	0.167	0.00766

5. Read the unit peak discharge (q_u) from Exhibit 4-III in Chapter 4 of TR-55 for appropriate t_c for type III rainfall distribution.

Structure Name	t_c (hr)	I_a/P	q_u (csm/in)
WQ 101	0.167	0.066562271	600

6. Substituting WQV (watershed inches) for runoff depth (Q), compute the water quality flow (WQF) from the following equation:

$$WQF = (q_u)*(A)*(Q)$$

where: WQF = water quality flow (cfs)
q_u = unit peak discharge (cfs/mi^2/inch)
A = drainage area (mi^2)
Q = runoff depth (watershed inches)

Structure Name	q_u (csm/in)	A (miles^2)	Q (in)	WQF (cfs)
WQ 101	600	0.00766	0.826	3.79

Estimated Net Annual Solids Load Reduction
Based on the Rational Rainfall Method

CONTECH ENGINEERED SOLUTIONS

CASCADE separator™

CRANSTON PRINT WORKS
CRANSTON, RI
WQ-101

AREA	4.90	acres	**CASCADE MODEL**	CS-6	
WEIGHTED C	0.95		**PARTICLE SIZE**	110	microns
TC	10.00	minutes	**RAINFALL STATION**	146	

Rainfall Intensity[1] (in/hr)	Percent Rainfall Volume[1]	Hydraulic Loading Rate (gpm/ft2)	Removal Efficiency (%)	Incremental Removal (%)
0.02	9.1%	1.48	100.0	9.1
0.04	8.9%	2.96	100.0	8.9
0.06	9.8%	4.43	100.0	9.8
0.08	8.2%	5.91	100.0	8.2
0.10	7.7%	7.39	100.0	7.7
0.12	5.5%	8.87	100.0	5.5
0.14	5.0%	10.35	100.0	5.0
0.16	4.9%	11.82	100.0	4.9
0.18	4.3%	13.30	99.4	4.3
0.20	4.8%	14.78	98.0	4.7
0.25	7.4%	18.47	94.5	7.0
0.30	5.8%	22.17	91.1	5.3
0.35	4.5%	25.86	87.6	3.9
0.40	2.4%	29.56	84.1	2.0
0.45	2.0%	33.25	80.6	1.6
0.50	1.9%	36.95	77.2	1.4
0.75	5.0%	55.42	59.8	3.0
1.00	1.6%	73.89	42.4	0.7
1.50	0.8%	110.84	7.7	0.1
				93.1
			Removal Efficiency Adjustment[2] =	6.5%
			Predicted % Annual Rainfall Treated =	93.4%
			Predicted Net Annual Load Removal Efficiency =	**86.6%**

1 - Based on 10 years of hourly precipitation data from NCDC 6698, Providence WSO Airport, Kent County, RI

2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

Estimated Net Annual Solids Load Reduction
Based on the Rational Rainfall Method

CONTECH ENGINEERED SOLUTIONS

CASCADE separator™

CRANSTON PRINT WORKS
CRANSTON, RI
WQ-201

AREA	1.50	acres	**CASCADE MODEL**	CS-4	
WEIGHTED C	0.95		**PARTICLE SIZE**	110	microns
TC	5.00	minutes	**RAINFALL STATION**	146	

Rainfall Intensity[1] (in/hr)	Percent Rainfall Volume[1]	Hydraulic Loading Rate (gpm/ft2)	Removal Efficiency (%)	Incremental Removal (%)
0.02	9.1%	1.02	100.0	9.1
0.04	8.9%	2.04	100.0	8.9
0.06	9.8%	3.05	100.0	9.8
0.08	8.2%	4.07	100.0	8.2
0.10	7.7%	5.09	100.0	7.7
0.12	5.5%	6.11	100.0	5.5
0.14	5.0%	7.13	100.0	5.0
0.16	4.9%	8.14	100.0	4.9
0.18	4.3%	9.16	100.0	4.3
0.20	4.8%	10.18	100.0	4.8
0.25	7.4%	12.72	99.9	7.4
0.30	5.8%	15.27	97.5	5.7
0.35	4.5%	17.81	95.2	4.2
0.40	2.4%	20.36	92.8	2.2
0.45	2.0%	22.90	90.4	1.8
0.50	1.9%	25.45	88.0	1.6
0.75	5.0%	38.17	76.0	3.8
1.00	1.6%	50.90	64.1	1.0
1.50	0.8%	76.08	40.2	0.3
				96.4
			Removal Efficiency Adjustment[2] =	6.5%
			Predicted % Annual Rainfall Treated =	93.3%
			Predicted Net Annual Load Removal Efficiency =	**90.0%**

1 - Based on 10 years of hourly precipitation data from NCDC 6698, Providence WSO Airport, Kent County, RI

2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

Project: Cranston Print Works
Location: Cranston, RI
Prepared For: ALLen & Major Associates Inc

Purpose:
To calculate the first flush runoff flow rate (WQF) over a given site area. In this situation the WQV to be analyzed is the runoff produced by the first 1" of rainfall and the WQF is produced using the first 1.2" of rainfall.

Reference:
United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Given:

Structure Name	A (acres)	A ($miles^2$)	Runoff Coefficient	Percent Imp. (%)*	t_c (min)	t_c (hr)
WQ-201	1.50	0.00235	0.90	58.71	5.0	0.083

* Assumes runoff coefficient of 0.3 for pervious areas and 0.9 for impervious areas.

Procedure:
The Water Quality Flow (WQF) is calculated using the Water Quality Volume (WQV). This WQV, converted to watershed inches, is substituted for the runoff depth (Q) in the Natural Resources Conservation Service (formerly Soil Conservation Service), TR-55 Graphical Peak Discharge Method.

1. Compute WQV in watershed inches using the following equation:

$$WQV = P * R$$

where: WQV = water quality volume (watershed inches)
WQV(ac-ft) = 1" * I/12 PER RIDEM
P = design precipitation (inches) = (1.2" for water quality storm)
R = volumetric runoff coefficient = 0.05 + 0.009(I)
I = percent impervious cover

Structure Name	Percent Imp. (%)	R	P (in)	WQV (in)	WQV (ac-ft)
WQ-201	58.71	0.578	1.2	0.694	0.0735

2. Compute the NRCS Runoff Curve Number (CN) using the following equation, or graphically using Figure 2-1 from TR-55 (USDA, 1986):

$$CN = 1000 / [10+5P+10Q-10(Q^2+1.25QP)^{1/2}]$$

where: CN = Runoff Curve Number
P = design precipitation (inches) = (1.2" for water quality storm)
Q = runoff depth (watershed inches)

Structure Name	Q (in)	CN
WQ-201	0.694	94.34

3. Using computed CN, read initial abstraction (I_a) from Table 4-1 in Chapter 4 of TR-55; compute I_a/P, interpolating when appropriate.

Structure Name	I_a (in)	I_a/P
WQ-201	0.120	0.100

4. Compute the time of concentration (t_c) in hours and the drainage area in square miles.

Structure Name	t_c (hr)	A (miles^2)
WQ-201	0.083	0.00235

5. Read the unit peak discharge (q_u) from Exhibit 4-III in Chapter 4 of TR-55 for appropriate t_c for type III rainfall distribution.

Structure Name	t_c (hr)	I_a/P	q_u (csm/in)
WQ-201	0.083	0.100061748	650

6. Substituting WQV (watershed inches) for runoff depth (Q), compute the water quality flow (WQF) from the following equation:

$WQF = (q_u)*(A)*(Q)$

where: WQF = water quality flow (cfs)
q_u = unit peak discharge (cfs/mi^2/inch)
A = drainage area (mi^2)
Q = runoff depth (watershed inches)

Structure Name	q_u (csm/in)	A (miles^2)	Q (in)	WQF (cfs)
WQ-201	650	0.00235	0.694	1.06

Estimated Net Annual Solids Load Reduction
Based on the Rational Rainfall Method

CONTECH ENGINEERED SOLUTIONS

CASCADE separator™

CRANSTON PRINT WORKS
CRANSTON, RI
WQ-202

AREA	2.07	acres	**CASCADE MODEL**	CS-4	
WEIGHTED C	0.68		**PARTICLE SIZE**	110	microns
TC	5.00	minutes	**RAINFALL STATION**	146	

Rainfall Intensity[1] (in/hr)	Percent Rainfall Volume[1]	Hydraulic Loading Rate (gpm/ft2)	Removal Efficiency (%)	Incremental Removal (%)
0.02	9.1%	1.01	100.0	9.1
0.04	8.9%	2.01	100.0	8.9
0.06	9.8%	3.02	100.0	9.8
0.08	8.2%	4.02	100.0	8.2
0.10	7.7%	5.03	100.0	7.7
0.12	5.5%	6.03	100.0	5.5
0.14	5.0%	7.04	100.0	5.0
0.16	4.9%	8.04	100.0	4.9
0.18	4.3%	9.05	100.0	4.3
0.20	4.8%	10.05	100.0	4.8
0.25	7.4%	12.57	100.0	7.4
0.30	5.8%	15.08	97.7	5.7
0.35	4.5%	17.60	95.4	4.3
0.40	2.4%	20.11	93.0	2.2
0.45	2.0%	22.62	90.6	1.8
0.50	1.9%	25.14	88.3	1.6
0.75	5.0%	37.71	76.5	3.8
1.00	1.6%	50.27	64.6	1.0
1.50	0.8%	75.41	41.0	0.3
				96.5
			Removal Efficiency Adjustment[2] =	6.5%
			Predicted % Annual Rainfall Treated =	93.4%
			Predicted Net Annual Load Removal Efficiency =	**90.1%**

1 - Based on 10 years of hourly precipitation data from NCDC 6698, Providence WSO Airport, Kent County, RI

2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

Project: Cranston Print Works (760648)
Location: Cranston, RI
Prepared For: Allen & Major Associates

Purpose:

To calculate the first flush runoff flow rate (WQF) over a given site area. In this situation the WQV to be analyzed is the runoff produced by the first 1" of rainfall and the WQF is produced using the first 1.2" of rainfall.

Reference:

United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Given:

Structure Name	A (acres)	A ($miles^2$)	Runoff Coefficient	Percent Imp. (%)*	t_c (min)	t_c (hr)
WQ 202	2.07	0.00323	0.68	62.70	5.0	0.083

* Assumes runoff coefficient of 0.3 for pervious areas and 0.9 for impervious areas.

Procedure:

The Water Quality Flow (WQF) is calculated using the Water Quality Volume (WQV). This WQV, converted to watershed inches, is substituted for the runoff depth (Q) in the Natural Resources Conservation Service (formerly Soil Conservation Service), TR-55 Graphical Peak Discharge Method.

1. Compute WQV in watershed inches using the following equation:

$$WQV = P * R$$

where: WQV = water quality volume (watershed inches)
WQV(ac-ft) = 1" * I/12 PER RIDEM
P = design precipitation (inches) = (1.2" for water quality storm)
R = volumetric runoff coefficient = 0.05 + 0.009(I)
I = percent impervious cover

Structure Name	Percent Imp. (%)	R	P (in)	WQV (in)	WQV (ac-ft)
WQ 202	62.70	0.614	1.2	0.737	0.1081

2. Compute the NRCS Runoff Curve Number (CN) using the following equation, or graphically using Figure 2-1 from TR-55 (USDA, 1986):

$$CN = 1000 / [10+5P+10Q-10(Q^2+1.25QP)^{1/2}]$$

where: CN = Runoff Curve Number
P = design precipitation (inches) = (1.2" for water quality storm)
Q = runoff depth (watershed inches)

Structure Name	Q (in)	CN
WQ 202	0.737	94.97

3. Using computed CN, read initial abstraction (I_a) from Table 4-1 in Chapter 4 of TR-55; compute I_a/P, interpolating when appropriate.

Structure Name	I_a (in)	I_a/P
WQ 202	0.106	0.088

4. Compute the time of concentration (t_c) in hours and the drainage area in square miles.

Structure Name	t_c (hr)	A ($miles^2$)
WQ 202	0.083	0.00323

5. Read the unit peak discharge (q_u) from Exhibit 4-III in Chapter 4 of TR-55 for appropriate t_c for type III rainfall distribution.

Structure Name	t_c (hr)	I_a/P	q_u (csm/in)
WQ 202	0.083	0.088282743	650

6. Substituting WQV (watershed inches) for runoff depth (Q), compute the water quality flow (WQF) from the following equation:

$$WQF = (q_u)*(A)*(Q)$$

where: WQF = water quality flow (cfs)
q_u = unit peak discharge ($cfs/mi^2/inch$)
A = drainage area (mi^2)
Q = runoff depth (watershed inches)

Structure Name	q_u (csm/in)	A ($miles^2$)	Q (in)	WQF (cfs)
WQ 202	650	0.00323	0.737	1.55

Brief Stormceptor Sizing Report - WQ-203

Project Information & Location			
Project Name	Cranston Print Works	**Project Number**	49998
City	Cranston	**State/ Province**	Rhode Island
Country	United States of America	**Date**	6/20/2023
Designer Information		**EOR Information (optional)**	
Name	Sabrina Maldonado	**Name**	
Company	Contech Engineered Solutions	**Company**	
Phone #	513-512-5523	**Phone #**	
Email	Sabrina.Maldonado@conteches.com	**Email**	

Stormwater Treatment Recommendation
The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	WQ-203
Target TSS Removal (%)	80
TSS Removal (%) Provided	93
Recommended Stormceptor Model	STC 450i

The recommended Stormceptor Model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected particle size distribution.

Stormceptor Sizing Summary	
Stormceptor Model	**% TSS Removal Provided**
STC 450i	93
STC 900	96
STC 1200	96
STC 1800	97
STC 2400	98
STC 3600	98
STC 4800	99
STC 6000	99
STC 7200	99
STC 11000	99
STC 13000	99
STC 16000	99

Sizing Details	
Drainage Area	
Total Area (acres)	0.24
Imperviousness %	84.4
Rainfall	
Station Name	PROVIDENCE WSO AIRPORT
State/Province	Rhode Island
Station ID #	6698
Years of Records	58
Latitude	41°43'19"N
Longitude	71°25'57"W

Water Quality Objective	
TSS Removal (%)	80.0
Runoff Volume Capture (%)	
Oil Spill Capture Volume (Gal)	
Peak Conveyed Flow Rate (CFS)	
Water Quality Flow Rate (CFS)	

Up Stream Storage	
Storage (ac-ft)	**Discharge (cfs)**
0.000	0.000

Up Stream Flow Diversion	
Max. Flow to Stormceptor (cfs)	

Particle Size Distribution (PSD) The selected PSD defines TSS removal		
OK-110		
Particle Diameter (microns)	**Distribution %**	**Specific Gravity**
1.0	0.0	2.65
53.0	3.0	2.65
75.0	15.0	2.65
88.0	25.0	2.65
106.0	41.0	2.65
125.0	15.0	2.65
150.0	1.0	2.65
212.0	0.0	2.65

Notes

- Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
- Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
- For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

For Stormceptor Specifications and Drawings Please Visit:
https://www.conteches.com/technical-guides/search?filter=1WBC0O5EYX

Project: Cranston Print Works
Location: Cranston, RI
Prepared For: ALLen & Major Associates Inc

Purpose:

To calculate the first flush runoff flow rate (WQF) over a given site area. In this situation the WQV to be analyzed is the runoff produced by the first 1" of rainfall and the WQF is produced using the first 1.2" of rainfall.

Reference:

United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Given:

Structure Name	A (acres)	A ($miles^2$)	Runoff Coefficient	Percent Imp. (%)*	t_c (min)	t_c (hr)
WQ-203	0.24	0.00037	0.90	84.47	5.0	0.083

* Assumes runoff coefficient of 0.3 for pervious areas and 0.9 for impervious areas.

Procedure:

The Water Quality Flow (WQF) is calculated using the Water Quality Volume (WQV). This WQV, converted to watershed inches, is substituted for the runoff depth (Q) in the Natural Resources Conservation Service (formerly Soil Conservation Service), TR-55 Graphical Peak Discharge Method.

1. Compute WQV in watershed inches using the following equation:

$$WQV = P * R$$

where: WQV = water quality volume (watershed inches)
WQV(ac-ft) = 1" * I/12 PER RIDEM
P = design precipitation (inches) = (1.2" for water quality storm)
R = volumetric runoff coefficient = 0.05 + 0.009(I)
I = percent impervious cover

Structure Name	Percent Imp. (%)	R	P (in)	WQV (in)	WQV (ac-ft)
WQ-203	84.47	0.810	1.2	0.972	0.0167

2. Compute the NRCS Runoff Curve Number (CN) using the following equation, or graphically using Figure 2-1 from TR-55 (USDA, 1986):

$$CN = 1000 / [10+5P+10Q-10(Q^2+1.25QP)^{1/2}]$$

where: CN = Runoff Curve Number
P = design precipitation (inches) = (1.2" for water quality storm)
Q = runoff depth (watershed inches)

Structure Name	Q (in)	CN
WQ-203	0.972	97.85

3. Using computed CN, read initial abstraction (I_a) from Table 4-1 in Chapter 4 of TR-55; compute I_a/P, interpolating when appropriate.

Structure Name	I_a (in)	I_a/P
WQ-203	0.044	0.037

4. Compute the time of concentration (t_c) in hours and the drainage area in square miles.

Structure Name	t_c (hr)	A ($miles^2$)
WQ-203	0.083	0.00037

5. Read the unit peak discharge (q_u) from Exhibit 4-III in Chapter 4 of TR-55 for appropriate t_c for type III rainfall distribution.

Structure Name	t_c (hr)	I_a/P	q_u (csm/in)
WQ-203	0.083	0.036602734	650

6. Substituting WQV (watershed inches) for runoff depth (Q), compute the water quality flow (WQF) from the following equation:

$$WQF = (q_u)*(A)*(Q)$$

where: WQF = water quality flow (cfs)
q_u = unit peak discharge ($cfs/mi^2/inch$)
A = drainage area (mi^2)
Q = runoff depth (watershed inches)

Structure Name	q_u (csm/in)	A ($miles^2$)	Q (in)	WQF (cfs)
WQ-203	650	0.00037	0.972	0.23

Brief Stormceptor Sizing Report - WQ-204

Project Information & Location			
Project Name	Cranston Print Works	Project Number	49998
City	Cranston	State/ Province	Rhode Island
Country	United States of America	Date	6/20/2023
Designer Information		**EOR Information (optional)**	
Name	Sabrina Maldonado	Name	
Company	Contech Engineered Solutions	Company	
Phone #	513-512-5523	Phone #	
Email	Sabrina.Maldonado@conteches.com	Email	

Stormwater Treatment Recommendation
The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	WQ-204
Target TSS Removal (%)	80
TSS Removal (%) Provided	95
Recommended Stormceptor Model	STC 450i

The recommended Stormceptor Model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected particle size distribution.

Stormceptor Sizing Summary	
Stormceptor Model	% TSS Removal Provided
STC 450i	95
STC 900	98
STC 1200	98
STC 1800	98
STC 2400	99
STC 3600	99
STC 4800	99
STC 6000	99
STC 7200	99
STC 11000	100
STC 13000	100
STC 16000	100

Sizing Details	
Drainage Area	
Total Area (acres)	0.11
Imperviousness %	100.0
Rainfall	
Station Name	PROVIDENCE WSO AIRPORT
State/Province	Rhode Island
Station ID #	6698
Years of Records	58
Latitude	41°43'19"N
Longitude	71°25'57"W

Water Quality Objective	
TSS Removal (%)	80.0
Runoff Volume Capture (%)	
Oil Spill Capture Volume (Gal)	
Peak Conveyed Flow Rate (CFS)	
Water Quality Flow Rate (CFS)	

Up Stream Storage	
Storage (ac-ft)	Discharge (cfs)
0.000	0.000

Up Stream Flow Diversion	
Max. Flow to Stormceptor (cfs)	

Particle Size Distribution (PSD) The selected PSD defines TSS removal		
OK-110		
Particle Diameter (microns)	Distribution %	Specific Gravity
1.0	0.0	2.65
53.0	3.0	2.65
75.0	15.0	2.65
88.0	25.0	2.65
106.0	41.0	2.65
125.0	15.0	2.65
150.0	1.0	2.65
212.0	0.0	2.65

Notes

- Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
- Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
- For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

For Stormceptor Specifications and Drawings Please Visit:
https://www.conteches.com/technical-guides/search?filter=1WBC0O5EYX

Project: Cranston Print Works
Location: Cranston, RI
Prepared For: ALLen & Major Associates Inc

Purpose:

To calculate the first flush runoff flow rate (WQF) over a given site area. In this situation the WQV to be analyzed is the runoff produced by the first 1" of rainfall and the WQF is produced using the first 1.2" of rainfall.

Reference:

United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Given:

Structure Name	A (acres)	A ($miles^2$)	Runoff Coefficient	Percent Imp. (%)*	t_c (min)	t_c (hr)
WQ-204	0.11	0.00018	0.90	100.00	5.0	0.083

* Assumes runoff coefficient of 0.3 for pervious areas and 0.9 for impervious areas.

Procedure:

The Water Quality Flow (WQF) is calculated using the Water Quality Volume (WQV). This WQV, converted to watershed inches, is substituted for the runoff depth (Q) in the Natural Resources Conservation Service (formerly Soil Conservation Service), TR-55 Graphical Peak Discharge Method.

1. Compute WQV in watershed inches using the following equation:

$$WQV = P * R$$

where: WQV = water quality volume (watershed inches)
WQV(ac-ft) = 1" * I/12 PER RIDEM
P = design precipitation (inches) = (1.2" for water quality storm)
R = volumetric runoff coefficient = 0.05 + 0.009(I)
I = percent impervious cover

Structure Name	Percent Imp. (%)	R	P (in)	WQV (in)	WQV (ac-ft)
WQ-204	100.00	0.950	1.2	1.140	0.0094

2. Compute the NRCS Runoff Curve Number (CN) using the following equation, or graphically using Figure 2-1 from TR-55 (USDA, 1986):

$$CN = 1000 / [10+5P+10Q-10(Q^2+1.25QP)^{1/2}]$$

where: CN = Runoff Curve Number
P = design precipitation (inches) = (1.2" for water quality storm)
Q = runoff depth (watershed inches)

Structure Name	Q (in)	CN
WQ-204	1.140	99.48

3. Using computed CN, read initial abstraction (I_a) from Table 4-1 in Chapter 4 of TR-55; compute I_a/P, interpolating when appropriate.

Structure Name	I_a (in)	I_a/P
WQ-204	0.010	0.009

4. Compute the time of concentration (t_c) in hours and the drainage area in square miles.

Structure Name	t_c (hr)	A ($miles^2$)
WQ-204	0.083	0.00018

5. Read the unit peak discharge (q_u) from Exhibit 4-III in Chapter 4 of TR-55 for appropriate t_c for type III rainfall distribution.

Structure Name	t_c (hr)	I_a/P	q_u (csm/in)
WQ-204	0.083	0.008633541	650

6. Substituting WQV (watershed inches) for runoff depth (Q), compute the water quality flow (WQF) from the following equation:

$$WQF = (q_u)*(A)*(Q)$$

where: WQF = water quality flow (cfs)
q_u = unit peak discharge ($cfs/mi^2/inch$)
A = drainage area (mi^2)
Q = runoff depth (watershed inches)

Structure Name	q_u (csm/in)	A ($miles^2$)	Q (in)	WQF (cfs)
WQ-204	650	0.00018	1.140	0.13

Brief Stormceptor Sizing Report - WQ-205

Project Information & Location			
Project Name	Cranston Print Works	Project Number	49998
City	Cranston	State/ Province	Rhode Island
Country	United States of America	Date	6/20/2023
Designer Information		**EOR Information (optional)**	
Name	Sabrina Maldonado	Name	
Company	Contech Engineered Solutions	Company	
Phone #	513-512-5523	Phone #	
Email	Sabrina.Maldonado@conteches.com	Email	

Stormwater Treatment Recommendation
The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	WQ-205
Target TSS Removal (%)	80
TSS Removal (%) Provided	96
Recommended Stormceptor Model	STC 450i

The recommended Stormceptor Model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected particle size distribution.

Stormceptor Sizing Summary	
Stormceptor Model	**% TSS Removal Provided**
STC 450i	96
STC 900	98
STC 1200	98
STC 1800	98
STC 2400	99
STC 3600	99
STC 4800	99
STC 6000	99
STC 7200	99
STC 11000	100
STC 13000	100
STC 16000	100

Sizing Details	
Drainage Area	
Total Area (acres)	0.10
Imperviousness %	100.0
Rainfall	
Station Name	PROVIDENCE WSO AIRPORT
State/Province	Rhode Island
Station ID #	6698
Years of Records	58
Latitude	41°43'19"N
Longitude	71°25'57"W

Water Quality Objective	
TSS Removal (%)	80.0
Runoff Volume Capture (%)	
Oil Spill Capture Volume (Gal)	
Peak Conveyed Flow Rate (CFS)	
Water Quality Flow Rate (CFS)	

Up Stream Storage	
Storage (ac-ft)	Discharge (cfs)
0.000	0.000

Up Stream Flow Diversion	
Max. Flow to Stormceptor (cfs)	

Particle Size Distribution (PSD) The selected PSD defines TSS removal		
OK-110		
Particle Diameter (microns)	**Distribution %**	**Specific Gravity**
1.0	0.0	2.65
53.0	3.0	2.65
75.0	15.0	2.65
88.0	25.0	2.65
106.0	41.0	2.65
125.0	15.0	2.65
150.0	1.0	2.65
212.0	0.0	2.65

Notes

- Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
- Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
- For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

For Stormceptor Specifications and Drawings Please Visit:
https://www.conteches.com/technical-guides/search?filter=1WBC0O5EYX

Project: Cranston Print Works
Location: Cranston, RI
Prepared For: ALLen & Major Associates Inc

Purpose:

To calculate the first flush runoff flow rate (WQF) over a given site area. In this situation the WQV to be analyzed is the runoff produced by the first 1" of rainfall and the WQF is produced using the first 1.2" of rainfall.

Reference:

United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Given:

Structure Name	A (acres)	A ($miles^2$)	Runoff Coefficient	Percent Imp. (%)*	t_c (min)	t_c (hr)
WQ-205	0.10	0.00016	0.90	100.00	5.0	0.083

* Assumes runoff coefficient of 0.3 for pervious areas and 0.9 for impervious areas.

Procedure:

The Water Quality Flow (WQF) is calculated using the Water Quality Volume (WQV). This WQV, converted to watershed inches, is substituted for the runoff depth (Q) in the Natural Resources Conservation Service (formerly Soil Conservation Service), TR-55 Graphical Peak Discharge Method.

1. Compute WQV in watershed inches using the following equation:

$$WQV = P * R$$

where: WQV = water quality volume (watershed inches)
WQV(ac-ft) = 1" * I/12 PER RIDEM
P = design precipitation (inches) = (1.2" for water quality storm)
R = volumetric runoff coefficient = 0.05 + 0.009(I)
I = percent impervious cover

Structure Name	Percent Imp. (%)	R	P (in)	WQV (in)	WQV (ac-ft)
WQ-205	100.00	0.950	1.2	1.140	0.0086

2. Compute the NRCS Runoff Curve Number (CN) using the following equation, or graphically using Figure 2-1 from TR-55 (USDA, 1986):

$$CN = 1000 / [10+5P+10Q-10(Q^2+1.25QP)^{1/2}]$$

where: CN = Runoff Curve Number
P = design precipitation (inches) = (1.2" for water quality storm)
Q = runoff depth (watershed inches)

Structure Name	Q (in)	CN
WQ-205	1.140	99.48

3. Using computed CN, read initial abstraction (I_a) from Table 4-1 in Chapter 4 of TR-55; compute I_a/P, interpolating when appropriate.

Structure Name	I_a (in)	I_a/P
WQ-205	0.010	0.009

4. Compute the time of concentration (t_c) in hours and the drainage area in square miles.

Structure Name	t_c (hr)	A ($miles^2$)
WQ-205	0.083	0.00016

5. Read the unit peak discharge (q_u) from Exhibit 4-III in Chapter 4 of TR-55 for appropriate t_c for type III rainfall distribution.

Structure Name	t_c (hr)	I_a/P	q_u (csm/in)
WQ-205	0.083	0.008633541	650

6. Substituting WQV (watershed inches) for runoff depth (Q), compute the water quality flow (WQF) from the following equation:

$$WQF = (q_u)*(A)*(Q)$$

where: WQF = water quality flow (cfs)
q_u = unit peak discharge ($cfs/mi^2/inch$)
A = drainage area (mi^2)
Q = runoff depth (watershed inches)

Structure Name	q_u (csm/in)	A ($miles^2$)	Q (in)	WQF (cfs)
WQ-205	650	0.00016	1.140	0.12

Estimated Net Annual Solids Load Reduction
Based on the Rational Rainfall Method

CONTECH ENGINEERED SOLUTIONS

CASCADE separator™

CRANSTON PRINT WORKS
CRANSTON, RI
WQ-301

AREA	9.33	acres	**CASCADE MODEL**	CS-8	
WEIGHTED C	0.95		**PARTICLE SIZE**	110	microns
TC	5.00	minutes	**RAINFALL STATION**	146	

Rainfall Intensity[1] (in/hr)	Percent Rainfall Volume[1]	Hydraulic Loading Rate (gpm/ft2)	Removal Efficiency (%)	Incremental Removal (%)
0.02	9.1%	1.58	100.0	9.1
0.04	8.9%	3.17	100.0	8.9
0.06	9.8%	4.75	100.0	9.8
0.08	8.2%	6.33	100.0	8.2
0.10	7.7%	7.91	100.0	7.7
0.12	5.5%	9.50	100.0	5.5
0.14	5.0%	11.08	100.0	5.0
0.16	4.9%	12.66	100.0	4.9
0.18	4.3%	14.25	98.5	4.2
0.20	4.8%	15.83	97.0	4.6
0.25	7.4%	19.79	93.3	6.9
0.30	5.8%	23.74	89.6	5.2
0.35	4.5%	27.70	85.9	3.8
0.40	2.4%	31.66	82.1	2.0
0.45	2.0%	35.61	78.4	1.5
0.50	1.9%	39.57	74.7	1.4
0.75	5.0%	59.36	56.1	2.8
1.00	1.6%	79.14	37.5	0.6
1.50	0.8%	118.72	0.3	0.0
				92.3
			Removal Efficiency Adjustment[2] =	6.5%
			Predicted % Annual Rainfall Treated =	93.4%
			Predicted Net Annual Load Removal Efficiency =	**85.8%**

1 - Based on 10 years of hourly precipitation data from NCDC 6698, Providence WSO Airport, Kent County, RI

2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

Project: Cranston Print Works
Location: Cranston, RI
Prepared For: ALLen & Major Associates Inc

Purpose:
To calculate the first flush runoff flow rate (WQF) over a given site area. In this situation the WQV to be analyzed is the runoff produced by the first 1" of rainfall and the WQF is produced using the first 1.2" of rainfall.

Reference:
United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Given:

Structure Name	A (acres)	A ($miles^2$)	Runoff Coefficient	Percent Imp. (%)*	t_c (min)	t_c (hr)
WQ-301	9.33	0.01457	0.90	60.26	5.0	0.083

* Assumes runoff coefficient of 0.3 for pervious areas and 0.9 for impervious areas.

Procedure:
The Water Quality Flow (WQF) is calculated using the Water Quality Volume (WQV). This WQV, converted to watershed inches, is substituted for the runoff depth (Q) in the Natural Resources Conservation Service (formerly Soil Conservation Service), TR-55 Graphical Peak Discharge Method.

1. Compute WQV in watershed inches using the following equation:

$$WQV = P * R$$

where: WQV = water quality volume (watershed inches)
WQV(ac-ft) = 1" * I/12 PER RIDEM
P = design precipitation (inches) = (1.2" for water quality storm)
R = volumetric runoff coefficient = 0.05 + 0.009(I)
I = percent impervious cover

Structure Name	Percent Imp. (%)	R	P (in)	WQV (in)	WQV (ac-ft)
WQ-301	60.26	0.592	1.2	0.711	0.4683

2. Compute the NRCS Runoff Curve Number (CN) using the following equation, or graphically using Figure 2-1 from TR-55 (USDA, 1986):

$$CN = 1000 / [10+5P+10Q-10(Q^2+1.25QP)^{1/2}]$$

where: CN = Runoff Curve Number
P = design precipitation (inches) = (1.2" for water quality storm)
Q = runoff depth (watershed inches)

Structure Name	Q (in)	CN
WQ-301	0.711	94.59

3. Using computed CN, read initial abstraction (I_a) from Table 4-1 in Chapter 4 of TR-55; compute I_a/P, interpolating when appropriate.

Structure Name	I_a (in)	I_a/P
WQ-301	0.114	0.095

4. Compute the time of concentration (t_c) in hours and the drainage area in square miles.

Structure Name	t_c (hr)	A (miles^2)
WQ-301	0.083	0.01457

5. Read the unit peak discharge (q_u) from Exhibit 4-III in Chapter 4 of TR-55 for appropriate t_c for type III rainfall distribution.

Structure Name	t_c (hr)	I_a/P	q_u (csm/in)
WQ-301	0.083	0.095381864	650

6. Substituting WQV (watershed inches) for runoff depth (Q), compute the water quality flow (WQF) from the following equation:

$WQF = (q_u)*(A)*(Q)$

where: WQF = water quality flow (cfs)
q_u = unit peak discharge (cfs/mi^2/inch)
A = drainage area (mi^2)
Q = runoff depth (watershed inches)

Structure Name	q_u (csm/in)	A (miles^2)	Q (in)	WQF (cfs)
WQ-301	650	0.01457	0.711	6.73

Stage Storage Calculations

Stage-Area-Storage for Pond IS-1: infiltration

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
64.50	**3,136**	0	65.03	3,136	665
64.51	3,136	13	65.04	3,136	677
64.52	3,136	25	65.05	3,136	690
64.53	3,136	38	65.06	3,136	702
64.54	3,136	50	65.07	3,136	715
64.55	3,136	63	65.08	3,136	728
64.56	3,136	75	65.09	3,136	740
64.57	3,136	88	65.10	3,136	753
64.58	3,136	100	65.11	3,136	765
64.59	3,136	113	65.12	3,136	778
64.60	3,136	125	65.13	3,136	790
64.61	3,136	138	65.14	3,136	803
64.62	3,136	151	65.15	3,136	815
64.63	3,136	163	65.16	3,136	828
64.64	3,136	176	65.17	3,136	840
64.65	3,136	188	65.18	3,136	853
64.66	3,136	201	65.19	3,136	866
64.67	3,136	213	65.20	3,136	878
64.68	3,136	226	65.21	3,136	891
64.69	3,136	238	65.22	3,136	903
64.70	3,136	251	65.23	3,136	916
64.71	3,136	263	65.24	3,136	928
64.72	3,136	276	65.25	3,136	941
64.73	3,136	289	65.26	3,136	968
64.74	3,136	301	65.27	3,136	994
64.75	3,136	314	65.28	3,136	1,021
64.76	3,136	326	65.29	3,136	1,048
64.77	3,136	339	65.30	3,136	1,075
64.78	3,136	351	65.31	3,136	1,101
64.79	3,136	364	65.32	3,136	1,128
64.80	3,136	376	65.33	3,136	1,155
64.81	3,136	389	65.34	3,136	1,181
64.82	3,136	401	65.35	3,136	1,208
64.83	3,136	414	65.36	3,136	1,235
64.84	3,136	427	65.37	3,136	1,262
64.85	3,136	439	65.38	3,136	1,288
64.86	3,136	452	65.39	3,136	1,315
64.87	3,136	464	65.40	3,136	1,342
64.88	3,136	477	65.41	3,136	1,368
64.89	3,136	489	65.42	3,136	1,395
64.90	3,136	502	65.43	3,136	1,421
64.91	3,136	514	65.44	3,136	1,448
64.92	3,136	527	65.45	3,136	1,475
64.93	3,136	539	65.46	3,136	1,501
64.94	3,136	552	65.47	3,136	1,528
64.95	3,136	565	65.48	3,136	1,554
64.96	3,136	577	65.49	3,136	1,581
64.97	3,136	590	65.50	3,136	1,607
64.98	3,136	602	65.51	3,136	1,634
64.99	3,136	615	65.52	3,136	1,660
65.00	3,136	627	65.53	3,136	1,687
65.01	3,136	640	65.54	3,136	1,713
65.02	3,136	652	65.55	3,136	1,740

Stage-Area-Storage for Pond IS-1: infiltration (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
65.56	3,136	1,766	66.09	3,136	3,153
65.57	3,136	1,793	66.10	3,136	3,179
65.58	3,136	1,819	66.11	3,136	3,205
65.59	3,136	1,846	66.12	3,136	3,231
65.60	3,136	1,872	66.13	3,136	3,257
65.61	3,136	1,899	66.14	3,136	3,282
65.62	3,136	1,925	66.15	3,136	3,308
65.63	3,136	1,951	66.16	3,136	3,334
65.64	3,136	1,978	66.17	3,136	3,360
65.65	3,136	2,004	66.18	3,136	3,385
65.66	3,136	2,031	66.19	3,136	3,411
65.67	3,136	2,057	66.20	3,136	3,437
65.68	3,136	2,083	66.21	3,136	3,462
65.69	3,136	2,110	66.22	3,136	3,488
65.70	3,136	2,136	66.23	3,136	3,514
65.71	3,136	2,162	66.24	3,136	3,539
65.72	3,136	2,188	66.25	3,136	3,565
65.73	3,136	2,215	66.26	3,136	3,590
65.74	3,136	2,241	66.27	3,136	3,616
65.75	3,136	2,267	66.28	3,136	3,641
65.76	3,136	2,294	66.29	3,136	3,667
65.77	3,136	2,320	66.30	3,136	3,693
65.78	3,136	2,346	66.31	3,136	3,718
65.79	3,136	2,372	66.32	3,136	3,744
65.80	3,136	2,399	66.33	3,136	3,769
65.81	3,136	2,425	66.34	3,136	3,794
65.82	3,136	2,451	66.35	3,136	3,820
65.83	3,136	2,477	66.36	3,136	3,845
65.84	3,136	2,503	66.37	3,136	3,871
65.85	3,136	2,529	66.38	3,136	3,896
65.86	3,136	2,556	66.39	3,136	3,922
65.87	3,136	2,582	66.40	3,136	3,947
65.88	3,136	2,608	66.41	3,136	3,972
65.89	3,136	2,634	66.42	3,136	3,998
65.90	3,136	2,660	66.43	3,136	4,023
65.91	3,136	2,686	66.44	3,136	4,048
65.92	3,136	2,712	66.45	3,136	4,073
65.93	3,136	2,738	66.46	3,136	4,099
65.94	3,136	2,764	66.47	3,136	4,124
65.95	3,136	2,790	66.48	3,136	4,149
65.96	3,136	2,816	66.49	3,136	4,174
65.97	3,136	2,842	66.50	3,136	4,200
65.98	3,136	2,868	66.51	3,136	4,225
65.99	3,136	2,894	66.52	3,136	4,250
66.00	3,136	2,920	66.53	3,136	4,275
66.01	3,136	2,946	66.54	3,136	4,300
66.02	3,136	2,972	66.55	3,136	4,325
66.03	3,136	2,998	66.56	3,136	4,350
66.04	3,136	3,024	66.57	3,136	4,375
66.05	3,136	3,050	66.58	3,136	4,400
66.06	3,136	3,076	66.59	3,136	4,426
66.07	3,136	3,102	66.60	3,136	4,451
66.08	3,136	3,127	66.61	3,136	4,475

Stage-Area-Storage for Pond IS-1: infiltration (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
66.62	3,136	4,500	67.15	3,136	5,792
66.63	3,136	4,525	67.16	3,136	5,816
66.64	3,136	4,550	67.17	3,136	5,839
66.65	3,136	4,575	67.18	3,136	5,863
66.66	3,136	4,600	67.19	3,136	5,887
66.67	3,136	4,625	67.20	3,136	5,910
66.68	3,136	4,650	67.21	3,136	5,934
66.69	3,136	4,675	67.22	3,136	5,957
66.70	3,136	4,699	67.23	3,136	5,981
66.71	3,136	4,724	67.24	3,136	6,004
66.72	3,136	4,749	67.25	3,136	6,028
66.73	3,136	4,774	67.26	3,136	6,051
66.74	3,136	4,798	67.27	3,136	6,075
66.75	3,136	4,823	67.28	3,136	6,098
66.76	3,136	4,848	67.29	3,136	6,121
66.77	3,136	4,872	67.30	3,136	6,145
66.78	3,136	4,897	67.31	3,136	6,168
66.79	3,136	4,922	67.32	3,136	6,191
66.80	3,136	4,946	67.33	3,136	6,215
66.81	3,136	4,971	67.34	3,136	6,238
66.82	3,136	4,995	67.35	3,136	6,261
66.83	3,136	5,020	67.36	3,136	6,284
66.84	3,136	5,044	67.37	3,136	6,307
66.85	3,136	5,069	67.38	3,136	6,330
66.86	3,136	5,093	67.39	3,136	6,353
66.87	3,136	5,118	67.40	3,136	6,376
66.88	3,136	5,142	67.41	3,136	6,399
66.89	3,136	5,166	67.42	3,136	6,422
66.90	3,136	5,191	67.43	3,136	6,445
66.91	3,136	5,215	67.44	3,136	6,468
66.92	3,136	5,239	67.45	3,136	6,491
66.93	3,136	5,264	67.46	3,136	6,514
66.94	3,136	5,288	67.47	3,136	6,536
66.95	3,136	5,312	67.48	3,136	6,559
66.96	3,136	5,336	67.49	3,136	6,582
66.97	3,136	5,361	67.50	3,136	6,605
66.98	3,136	5,385	67.51	3,136	6,627
66.99	3,136	5,409	67.52	3,136	6,650
67.00	3,136	5,433	67.53	3,136	6,672
67.01	3,136	5,457	67.54	3,136	6,695
67.02	3,136	5,481	67.55	3,136	6,718
67.03	3,136	5,505	67.56	3,136	6,740
67.04	3,136	5,529	67.57	3,136	6,762
67.05	3,136	5,553	67.58	3,136	6,785
67.06	3,136	5,577	67.59	3,136	6,807
67.07	3,136	5,601	67.60	3,136	6,830
67.08	3,136	5,625	67.61	3,136	6,852
67.09	3,136	5,649	67.62	3,136	6,874
67.10	3,136	5,673	67.63	3,136	6,896
67.11	3,136	5,697	67.64	3,136	6,919
67.12	3,136	5,721	67.65	3,136	6,941
67.13	3,136	5,744	67.66	3,136	6,963
67.14	3,136	5,768	67.67	3,136	6,985

Stage-Area-Storage for Pond IS-1: infiltration (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
67.68	3,136	7,007	68.21	3,136	8,111
67.69	3,136	7,029	68.22	3,136	8,131
67.70	3,136	7,051	68.23	3,136	8,150
67.71	3,136	7,073	68.24	3,136	8,169
67.72	3,136	7,095	68.25	3,136	8,188
67.73	3,136	7,117	68.26	3,136	8,208
67.74	3,136	7,138	68.27	3,136	8,227
67.75	3,136	7,160	68.28	3,136	8,246
67.76	3,136	7,182	68.29	3,136	8,265
67.77	3,136	7,203	68.30	3,136	8,284
67.78	3,136	7,225	68.31	3,136	8,302
67.79	3,136	7,247	68.32	3,136	8,321
67.80	3,136	7,268	68.33	3,136	8,340
67.81	3,136	7,290	68.34	3,136	8,358
67.82	3,136	7,311	68.35	3,136	8,377
67.83	3,136	7,333	68.36	3,136	8,395
67.84	3,136	7,354	68.37	3,136	8,414
67.85	3,136	7,375	68.38	3,136	8,432
67.86	3,136	7,397	68.39	3,136	8,450
67.87	3,136	7,418	68.40	3,136	8,468
67.88	3,136	7,439	68.41	3,136	8,486
67.89	3,136	7,460	68.42	3,136	8,504
67.90	3,136	7,481	68.43	3,136	8,522
67.91	3,136	7,502	68.44	3,136	8,540
67.92	3,136	7,524	68.45	3,136	8,558
67.93	3,136	7,544	68.46	3,136	8,575
67.94	3,136	7,565	68.47	3,136	8,593
67.95	3,136	7,586	68.48	3,136	8,610
67.96	3,136	7,607	68.49	3,136	8,628
67.97	3,136	7,628	68.50	3,136	8,645
67.98	3,136	7,649	68.51	3,136	8,662
67.99	3,136	7,669	68.52	3,136	8,679
68.00	3,136	7,690	68.53	3,136	8,696
68.01	3,136	7,711	68.54	3,136	8,712
68.02	3,136	7,731	68.55	3,136	8,729
68.03	3,136	7,752	68.56	3,136	8,745
68.04	3,136	7,772	68.57	3,136	8,762
68.05	3,136	7,792	68.58	3,136	8,778
68.06	3,136	7,813	68.59	3,136	8,794
68.07	3,136	7,833	68.60	3,136	8,810
68.08	3,136	7,853	68.61	3,136	8,825
68.09	3,136	7,873	68.62	3,136	8,841
68.10	3,136	7,894	68.63	3,136	8,856
68.11	3,136	7,914	68.64	3,136	8,871
68.12	3,136	7,934	68.65	3,136	8,886
68.13	3,136	7,954	68.66	3,136	8,901
68.14	3,136	7,973	68.67	3,136	8,916
68.15	3,136	7,993	68.68	3,136	8,931
68.16	3,136	8,013	68.69	3,136	8,945
68.17	3,136	8,033	68.70	3,136	8,960
68.18	3,136	8,052	68.71	3,136	8,974
68.19	3,136	8,072	68.72	3,136	8,989
68.20	3,136	8,092	68.73	3,136	9,003

Stage-Area-Storage for Pond IS-1: infiltration (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
68.74	3,136	9,017	69.27	3,136	9,702
68.75	3,136	9,031	69.28	3,136	9,714
68.76	3,136	9,045	69.29	3,136	9,727
68.77	3,136	9,059	69.30	3,136	9,739
68.78	3,136	9,073	69.31	3,136	9,752
68.79	3,136	9,086	69.32	3,136	9,764
68.80	3,136	9,100	69.33	3,136	9,777
68.81	3,136	9,114	69.34	3,136	9,789
68.82	3,136	9,127	69.35	3,136	9,802
68.83	3,136	9,141	69.36	3,136	9,814
68.84	3,136	9,154	69.37	3,136	9,827
68.85	3,136	9,168	69.38	3,136	9,840
68.86	3,136	9,181	69.39	3,136	9,852
68.87	3,136	9,195	69.40	3,136	9,865
68.88	3,136	9,208	69.41	3,136	9,877
68.89	3,136	9,221	69.42	3,136	9,890
68.90	3,136	9,234	69.43	3,136	9,902
68.91	3,136	9,247	69.44	3,136	9,915
68.92	3,136	9,261	69.45	3,136	9,927
68.93	3,136	9,274	69.46	3,136	9,940
68.94	3,136	9,286	69.47	3,136	9,952
68.95	3,136	9,299	69.48	3,136	9,965
68.96	3,136	9,312	69.49	3,136	9,978
68.97	3,136	9,325	69.50	3,136	9,990
68.98	3,136	9,338	69.51	3,136	10,003
68.99	3,136	9,350	69.52	3,136	10,015
69.00	3,136	9,363	69.53	3,136	10,028
69.01	3,136	9,375	69.54	3,136	10,040
69.02	3,136	9,388	69.55	3,136	10,053
69.03	3,136	9,400	69.56	3,136	10,065
69.04	3,136	9,413	69.57	3,136	10,078
69.05	3,136	9,426	69.58	3,136	10,090
69.06	3,136	9,438	69.59	3,136	10,103
69.07	3,136	9,451	69.60	3,136	10,116
69.08	3,136	9,463	69.61	3,136	10,128
69.09	3,136	9,476	69.62	3,136	10,141
69.10	3,136	9,488	69.63	3,136	10,153
69.11	3,136	9,501	69.64	3,136	10,166
69.12	3,136	9,513	69.65	3,136	10,178
69.13	3,136	9,526	69.66	3,136	10,191
69.14	3,136	9,538	69.67	3,136	10,203
69.15	3,136	9,551	69.68	3,136	10,216
69.16	3,136	9,564	69.69	3,136	10,228
69.17	3,136	9,576	69.70	3,136	10,241
69.18	3,136	9,589	69.71	3,136	10,254
69.19	3,136	9,601	69.72	3,136	10,266
69.20	3,136	9,614	69.73	3,136	10,279
69.21	3,136	9,626	69.74	3,136	10,291
69.22	3,136	9,639	69.75	3,136	10,304
69.23	3,136	9,651	69.76	3,136	10,316
69.24	3,136	9,664	69.77	3,136	10,329
69.25	3,136	9,676	69.78	3,136	10,341
69.26	3,136	9,689	69.79	3,136	10,354

Stage-Area-Storage for Pond IS-1: infiltration (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
69.80	3,136	10,366
69.81	3,136	10,379
69.82	3,136	10,392
69.83	3,136	10,404
69.84	3,136	10,417
69.85	3,136	10,429
69.86	3,136	10,442
69.87	3,136	10,454
69.88	3,136	10,467
69.89	3,136	10,479
69.90	3,136	10,492
69.91	3,136	10,504
69.92	3,136	10,517
69.93	3,136	10,530
69.94	3,136	10,542
69.95	3,136	10,555
69.96	3,136	10,567
69.97	3,136	10,580
69.98	3,136	10,592
69.99	3,136	10,605
70.00	3,136	**10,617**

Stage-Area-Storage for Pond IS-2: infiltration

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
65.00	**5,452**	0
65.10	5,452	218
65.20	5,452	436
65.30	5,452	654
65.40	5,452	872
65.50	5,452	1,090
65.60	5,452	1,308
65.70	5,452	1,527
65.80	5,452	1,866
65.90	5,452	2,327
66.00	5,452	2,785
66.10	5,452	3,242
66.20	5,452	3,697
66.30	5,452	4,150
66.40	5,452	4,601
66.50	5,452	5,050
66.60	5,452	5,497
66.70	5,452	5,941
66.80	5,452	6,383
66.90	5,452	6,822
67.00	5,452	7,258
67.10	5,452	7,691
67.20	5,452	8,120
67.30	5,452	8,546
67.40	5,452	8,969
67.50	5,452	9,387
67.60	5,452	9,801
67.70	5,452	10,211
67.80	5,452	10,616
67.90	5,452	11,015
68.00	5,452	11,410
68.10	5,452	11,798
68.20	5,452	12,181
68.30	5,452	12,556
68.40	5,452	12,924
68.50	5,452	13,285
68.60	5,452	13,637
68.70	5,452	13,979
68.80	5,452	14,311
68.90	5,452	14,631
69.00	5,452	14,937
69.10	5,452	15,222
69.20	5,452	15,483
69.30	5,452	15,726
69.40	5,452	15,959
69.50	5,452	16,183
69.60	5,452	16,401
69.70	5,452	16,619
69.80	5,452	16,837
69.90	5,452	17,055
70.00	5,452	17,273
70.10	5,452	17,491
70.20	5,452	17,709
70.30	5,452	17,927
70.40	5,452	18,145
70.50	5,452	**18,363**

Water Quality Volume Worksheet

Version: 4/2015

Project Name: Cranston Print Works
Date: 11-29-23

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	42.10	acres
Total Jurisdictional Wetlands and/or floodplain within the above TSA	JW1	24.08	acres
Existing impervious also within the Jurisdictonal Wetlands	-JW2	0.00	acres
Conservation Land within the TSA		0.00	acres
Site Size = (TSA)-(JW1-JW2)-CL	**SS=**	**18.02**	acres

Step 3 - Redevelopment Applicability			
Total Impervious Area (pre-construction)	TIA=	8.15	acres
% Impervious (if ≥40% - redevelopment standard 3.2.6 applies)		**0.45**	

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	Pocasset River
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	8.15	acres
Total Disturbed Existing Impervious (DI)	1.23	acres
Total Post-Construction Impervious to this Waterbody ID	9.11	acres
Net Increased Impervious (NII)	0.96	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	38%	%
I am proposing this number of BMP's	2	#

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		
No Impairment or TMDL - Redevelopment	1.58	1.58
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	**1.6**	acres

* Enter the name of the STP (both type and label) which has been designed to treat this particular Rev or Rea.

ALLEN & MAJOR ASSOCIATES, INC.

Water Quality Treatment Summary
Site Re-Development Project
1381 Cranston St - Cranston RI
11/29/2023

Site Information [1]

	Sq. Ft	*Acres*
Pavement subject to full reconstruction	147,853	3.39
Exisitng Impervious area to remain	138,616	3.18
New impervious cover	110,433	2.54

[1] *Areas are from HydroCAD model encompassing contributing watershed, including off site areas*

Treatment Requirements

		Sq. Ft	*Acres*
Pavement subject to full reconstruction	50.00%	73,927	1.70
Exisitng Impervious area to remain	50.00%	69,308	1.59
New impervious cover	100.00%	110,433	2.54
	Total	**253,668**	**5.82**

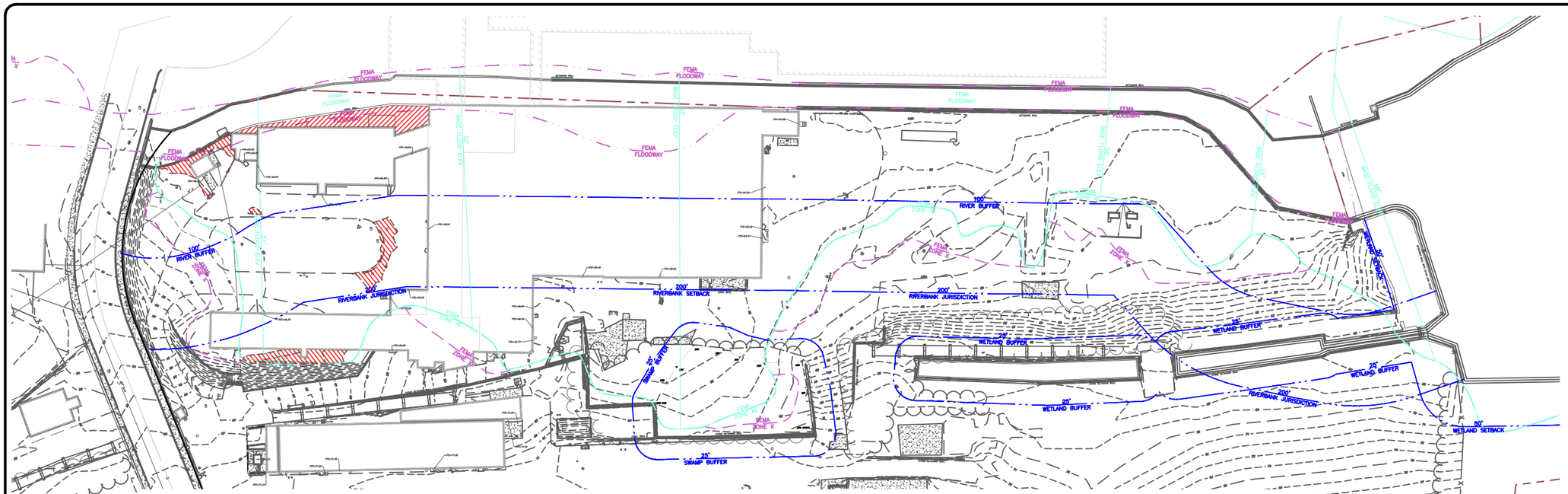
Treatment Provided

			Sq. Ft	*Acres*
Existing impervious to be converted to pervious			53,618	1.23
Hydrodynamic Separator Treatment Devices				
WQ 002		Impervious Area	28,654	1.33
WQ 101		Adjusted Impervious Area *	122,841	2.82
	Impervious Area	*151,494*		
WQ 201		Impervious Area	38,446	1.50
WQ 202		Impervious Area	56,525	2.07
WQ 203		Impervious Area	8,741	0.24
WQ 204		Impervious Area	4,917	0.11
WQ 205		Impervious Area	4,501	0.10
WQ 301		Adjusted Impervious Area *	131,660	3.02
	Impervious Area	*244,789*		

** Impervious area reduced as these units collect overflow from subsurface infiltation systems previously treated prior to discharge*

Total Impervious Area Treated	**396,284**	**9.10**

Compensatory Flood Storage Plans (1-12)



Elevation	Existing Area	Proposed Area	Difference Area
48	561	2,592	2,031
49	6,527	21,927	15,400
50	39,075	59,246	20,171
51	65,780	85,922	20,143
52	95,412	107,960	12,547
53	128,320	141,041	12,722
54	164,379	177,814	13,435
55	197,929	210,950	13,021
56	215,457	228,132	12,675
57	223,389	235,367	11,978
58	229,315	241,478	12,164
59	234,297	246,797	12,499
60	239,217	251,561	12,344
Total	1,839,657	2,010,786	122,143

Existing	Volume	Proposed	Volume	Difference	Volume	Difference
Elevation 48 to 49	1,063	Elevation 48 to 49	3,678	Elevation 48 to 49	2,615	245,9%
Elevation 49 to 50	22,801	Elevation 49 to 50	40,586	Elevation 49 to 50	17,785	78,0%
Elevation 50 to 51	52,427	Elevation 50 to 51	72,584	Elevation 50 to 51	20,157	38,4%
Elevation 51 to 52	80,596	Elevation 51 to 52	96,941	Elevation 51 to 52	16,345	20,3%
Elevation 52 to 53	111,866	Elevation 52 to 53	124,500	Elevation 52 to 53	12,634	11,3%
Elevation 53 to 54	146,349	Elevation 53 to 54	159,427	Elevation 53 to 54	13,078	8,9%
Elevation 54 to 55	181,154	Elevation 54 to 55	194,382	Elevation 54 to 55	13,228	7,3%
Elevation 55 to 56	206,693	Elevation 55 to 56	219,541	Elevation 55 to 56	12,848	6,2%
Elevation 56 to 57	219,423	Elevation 56 to 57	231,749	Elevation 56 to 57	12,326	5,6%
Elevation 57 to 58	226,352	Elevation 57 to 58	238,423	Elevation 57 to 58	12,071	5,3%
Elevation 58 to 59	231,806	Elevation 58 to 59	244,137	Elevation 58 to 59	12,332	5,3%
Elevation 59 to 60	236,757	Elevation 59 to 60	249,179	Elevation 59 to 60	12,422	5,2%
	1,717,288		1,875,128	Total Volume	157,840	9,2%

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

DIG SAFE

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ISSUED FOR PERMITTING REVIEW
October 29, 2024

REV	DATE	DESCRIPTION
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3	02-21-24	MISC. UPDATES PER RIDEM COMMENTS
2	01-12-24	MISC. REVS. PER SEWER & RIDEM COMMENTS
1	11-29-23	MISC. UPDATES PER RIDEM COMMENTS

APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT

ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	10-16-2023
SCALE:	1" = 60'	DWG.:C-2038-08_FLOOD PLAIN	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

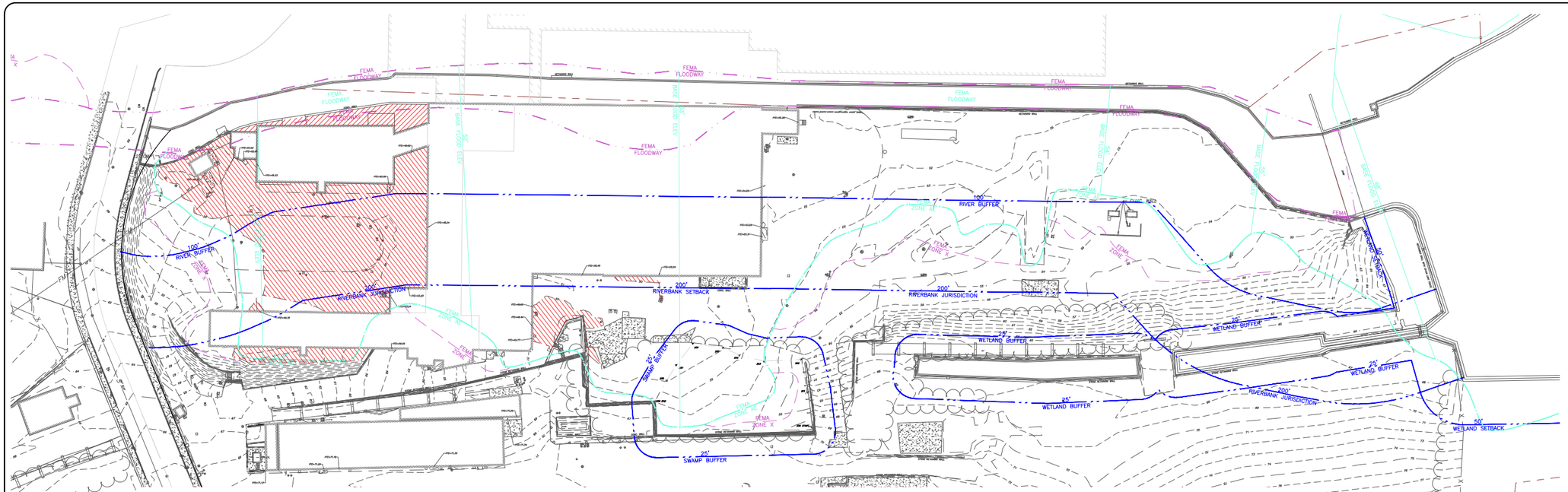
ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ♦ land surveying
environmental consulting ♦ landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801
TEL: (781) 935-0889
FAX: (781) 935-2896

WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

DRAWING TITLE:

ELEVATION 48 TO 49 COMPENSATORY STORAGE PLAN

SHEET No.
CSP-1
1 OF 12



Elevation	Existing Area	Proposed Area	Difference Area
48	561	2,592	2,031
49	6,527	21,927	15,400
50	39,075	59,246	20,171
51	65,780	85,922	20,143
52	95,412	107,960	12,547
53	128,320	141,041	12,722
54	164,379	177,814	13,435
55	197,929	210,950	13,021
56	215,457	228,132	12,675
57	223,389	235,367	11,978
58	229,315	241,478	12,164
59	234,297	246,797	12,499
60	239,217	251,561	12,344
Total	1,839,657	2,010,786	122,143

Existing	Volume
Elevation 48 to 49	1,063
Elevation 49 to 50	22,801
Elevation 50 to 51	52,427
Elevation 51 to 52	80,596
Elevation 52 to 53	111,866
Elevation 53 to 54	146,349
Elevation 54 to 55	181,154
Elevation 55 to 56	206,693
Elevation 56 to 57	219,423
Elevation 57 to 58	226,352
Elevation 58 to 59	231,806
Elevation 59 to 60	236,757
	1,717,288

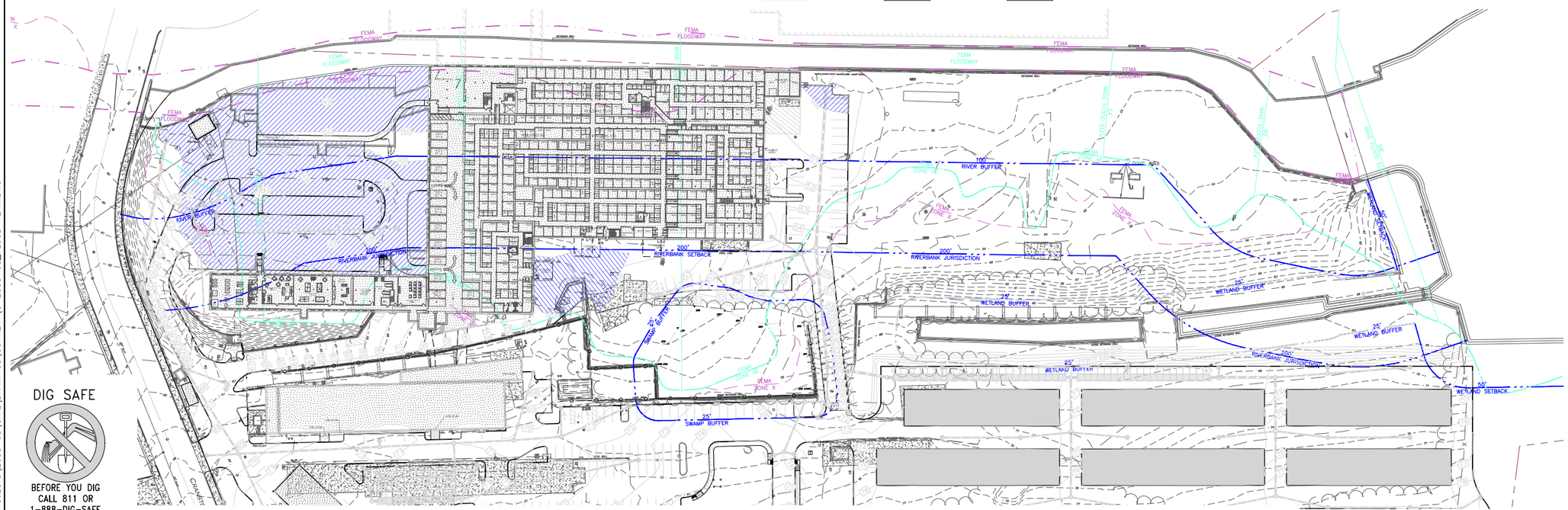
Proposed	Volume
Elevation 48 to 49	3,678
Elevation 49 to 50	40,586
Elevation 50 to 51	72,584
Elevation 51 to 52	96,941
Elevation 52 to 53	124,500
Elevation 53 to 54	159,427
Elevation 54 to 55	194,382
Elevation 55 to 56	219,541
Elevation 56 to 57	231,749
Elevation 57 to 58	238,423
Elevation 58 to 59	244,137
Elevation 59 to 60	249,179
	1,875,128

Difference	Volume	Difference
Elevation 48 to 49	2,615	245,9%
Elevation 49 to 50	17,785	78,0%
Elevation 50 to 51	20,157	38,4%
Elevation 51 to 52	16,345	20,3%
Elevation 52 to 53	12,634	11,3%
Elevation 53 to 54	13,078	8,9%
Elevation 54 to 55	13,228	7,3%
Elevation 55 to 56	12,848	6,2%
Elevation 56 to 57	12,326	5,6%
Elevation 57 to 58	12,071	5,3%
Elevation 58 to 59	12,332	5,3%
Elevation 59 to 60	12,422	5,2%
Total Volume	157,840	9,2%

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.



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MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
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PROJECT NO.	2038-08	DATE:	10-16-2023
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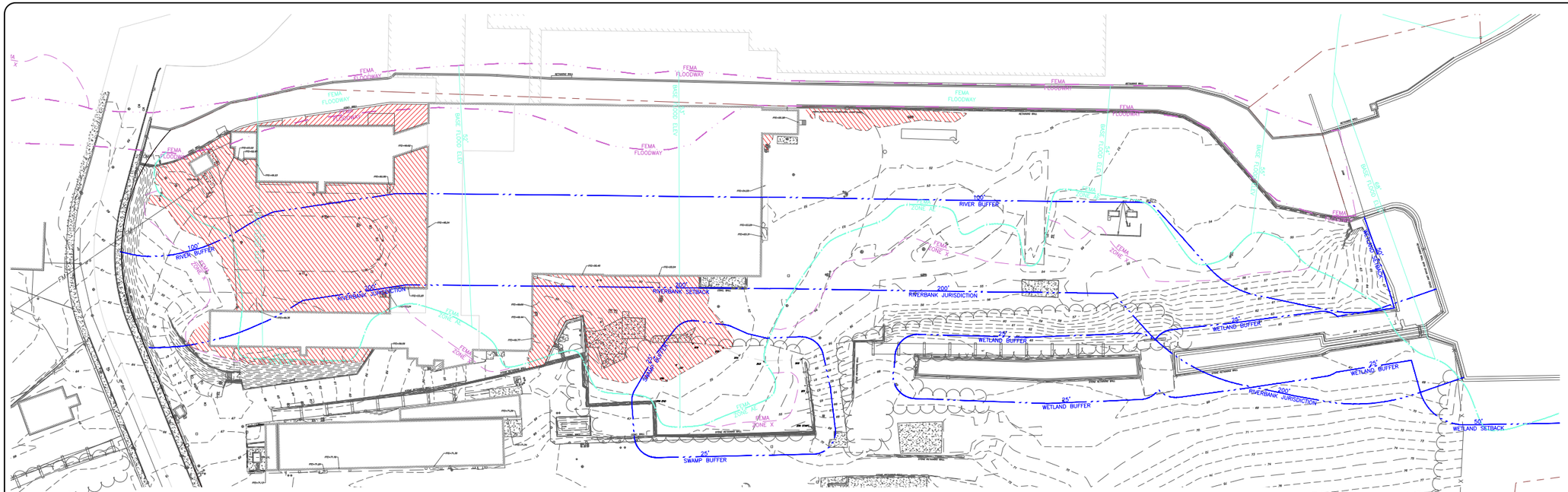
DRAWING TITLE:

ELEVATION 49 TO 50 COMPENSATORY STORAGE PLAN

SHEET No.

CSP-2

2 OF 12



Elevation	Existing Area	Proposed Area	Difference Area
48	561	2,592	2,031
49	6,527	21,927	15,400
50	39,075	59,246	20,171
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56	215,457	228,132	12,675
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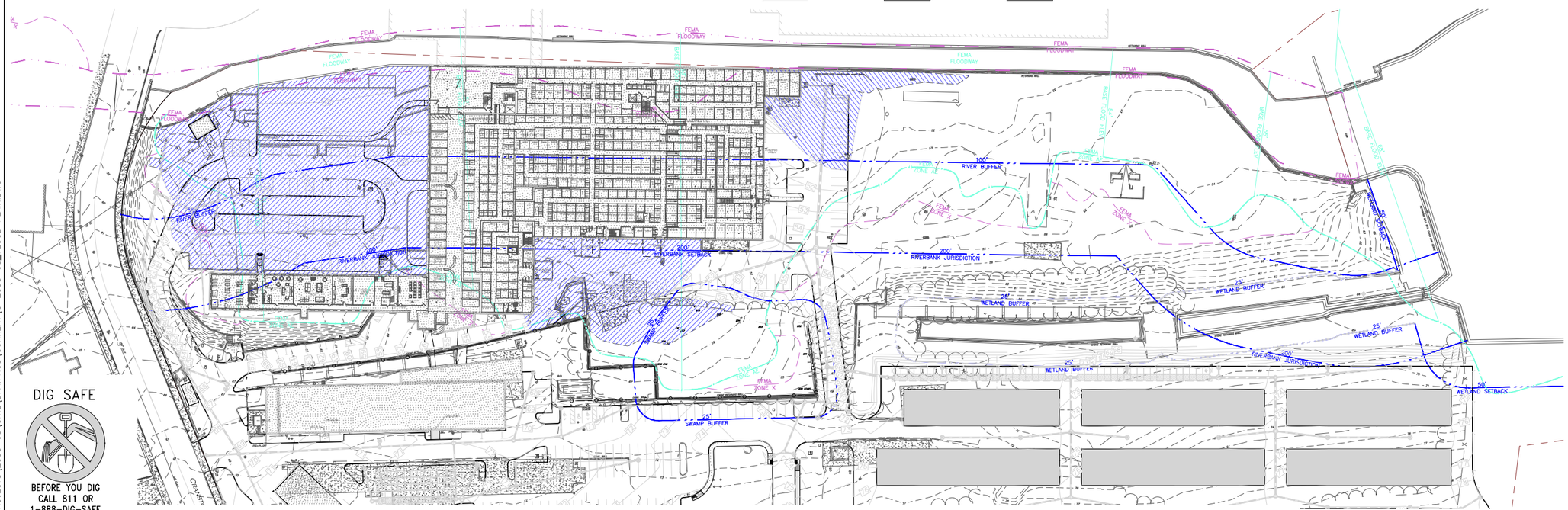
58	229,315	241,478	12,164
59	234,297	246,797	12,499
60	239,217	251,561	12,344
Total	1,839,657	2,010,786	122,143

Existing	Volume	Proposed	Volume	Difference	Volume	Difference
Elevation 48 to 49	1,063	Elevation 48 to 49	3,678	Elevation 48 to 49	2,615	245,9%
Elevation 49 to 50	22,801	Elevation 49 to 50	40,586	Elevation 49 to 50	17,785	78,0%
Elevation 50 to 51	52,427	Elevation 50 to 51	72,584	Elevation 50 to 51	20,157	38,4%
Elevation 51 to 52	80,596	Elevation 51 to 52	96,941	Elevation 51 to 52	16,345	20,3%
Elevation 52 to 53	111,866	Elevation 52 to 53	124,500	Elevation 52 to 53	12,634	11,3%
Elevation 53 to 54	146,349	Elevation 53 to 54	159,427	Elevation 53 to 54	13,078	8,9%
Elevation 54 to 55	181,154	Elevation 54 to 55	194,382	Elevation 54 to 55	13,228	7,3%
Elevation 55 to 56	206,693	Elevation 55 to 56	219,541	Elevation 55 to 56	12,848	6,2%
Elevation 56 to 57	219,423	Elevation 56 to 57	231,749	Elevation 56 to 57	12,326	5,6%
Elevation 57 to 58	226,352	Elevation 57 to 58	238,423	Elevation 57 to 58	12,071	5,3%
Elevation 58 to 59	231,806	Elevation 58 to 59	244,137	Elevation 58 to 59	12,332	5,3%
Elevation 59 to 60	236,757	Elevation 59 to 60	249,179	Elevation 59 to 60	12,422	5,2%
	1,717,288		1,875,128	Total Volume	157,840	9,2%

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.



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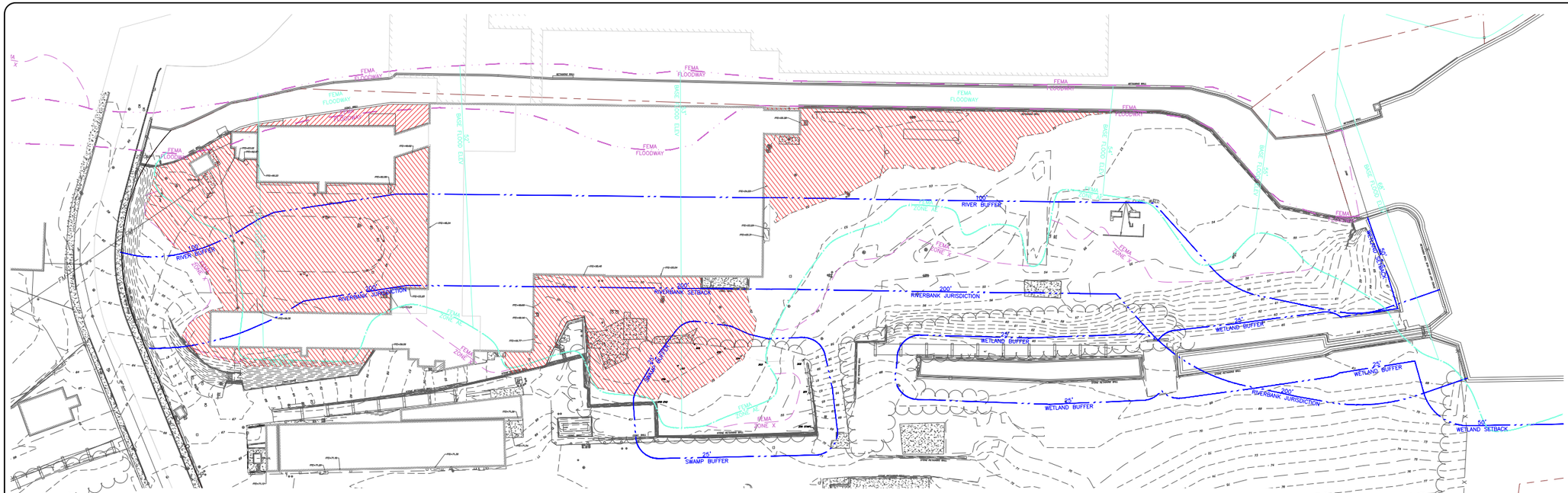
DRAWING TITLE:

ELEVATION 50 TO 51 COMPENSATORY STORAGE PLAN

SHEET No.

CSP-3

3 OF 12



Elevation	Existing Area	Proposed Area	Difference Area
48	561	2,592	2,031
49	6,527	21,927	15,400
50	39,075	59,246	20,171
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59	234,297	246,797	12,499
60	239,217	251,561	12,344
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Elevation 50 to 51	52,427
Elevation 51 to 52	80,596
Elevation 52 to 53	111,866
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Elevation 56 to 57	219,423
Elevation 57 to 58	226,352
Elevation 58 to 59	231,806
Elevation 59 to 60	236,757
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Proposed	Volume
Elevation 48 to 49	3,678
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Elevation 58 to 59	244,137
Elevation 59 to 60	249,179
	1,875,128

Difference	Volume	Difference
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Total Volume	157,840	9,2%

GRAPHIC SCALE

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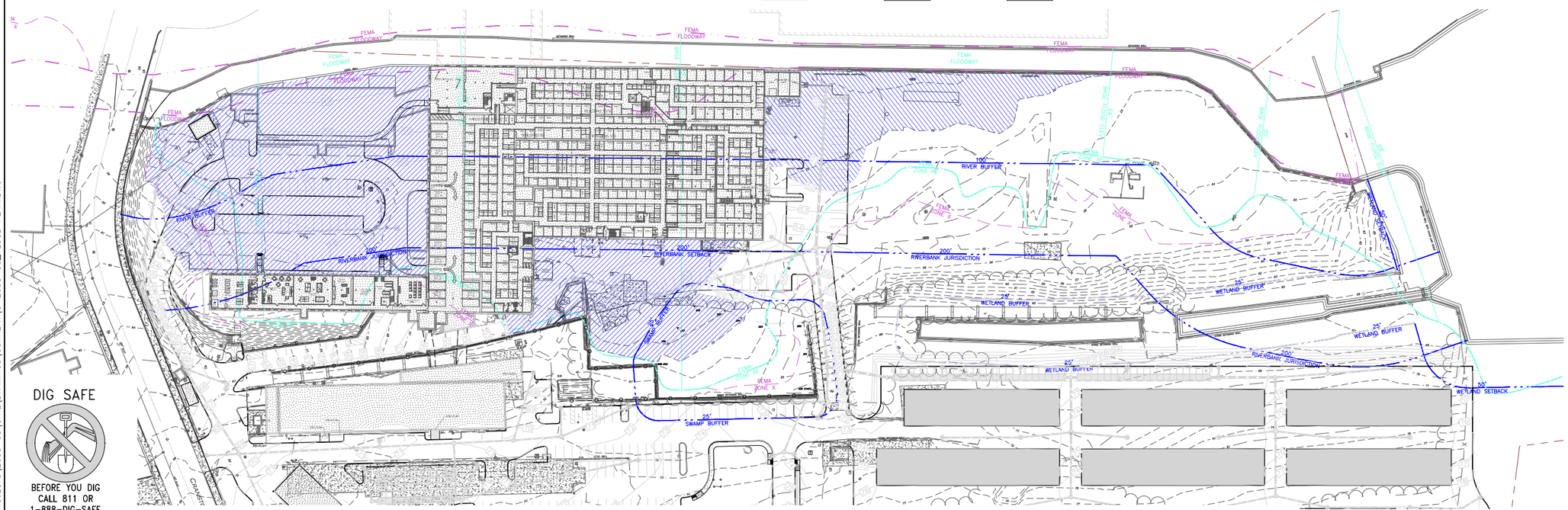
(IN FEET)
1 inch = 60 ft.



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APPLICANT\OWNER:

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670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
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WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

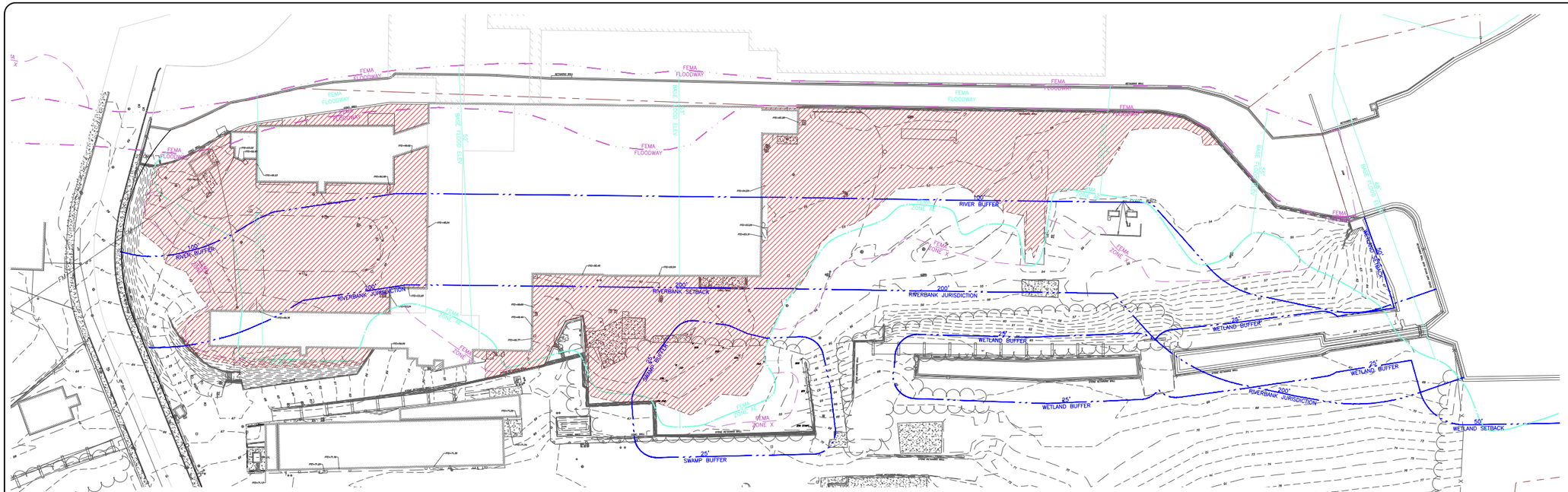
DRAWING TITLE:

ELEVATION 51 TO 52
COMPENSATORY STORAGE PLAN

SHEET No.

CSP-4

4 OF 12



Elevation	Existing Area	Proposed Area	Difference Area
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50	39,075	59,246	20,171
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60	239,217	251,561	12,344
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Elevation 58 to 59	231,806
Elevation 59 to 60	236,757
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Elevation 59 to 60	249,179
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GRAPHIC SCALE

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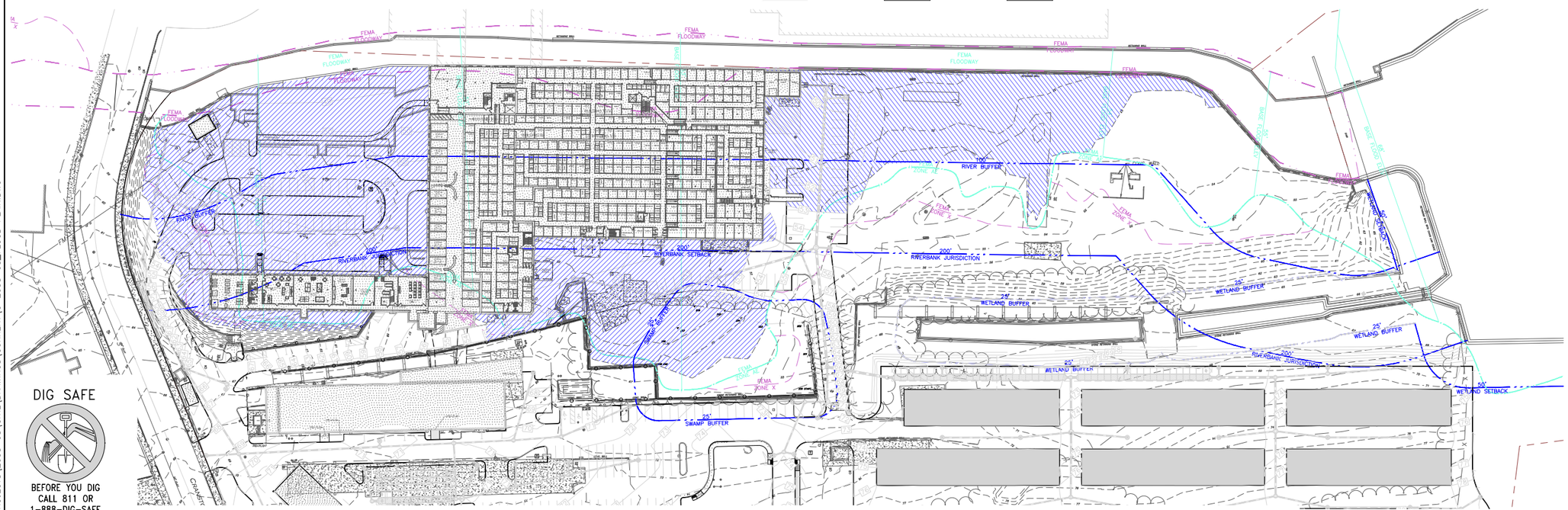

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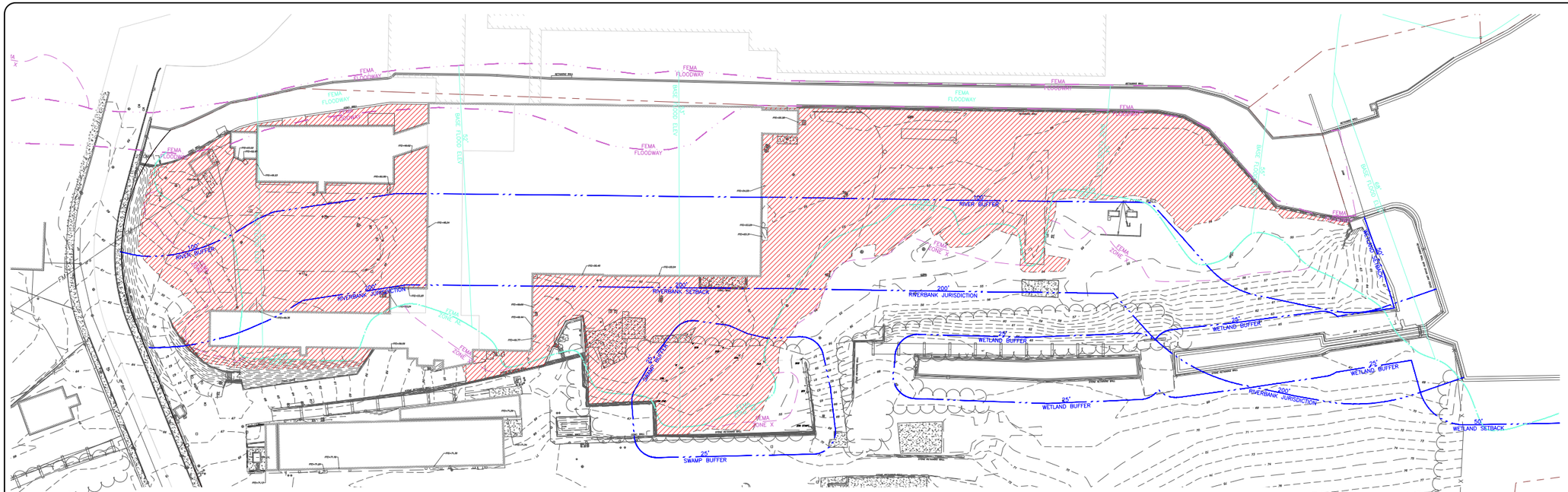
DRAWING TITLE:

ELEVATION 52 TO 53
COMPENSATORY STORAGE PLAN

SHEET No.

CSP-5

5 OF 12



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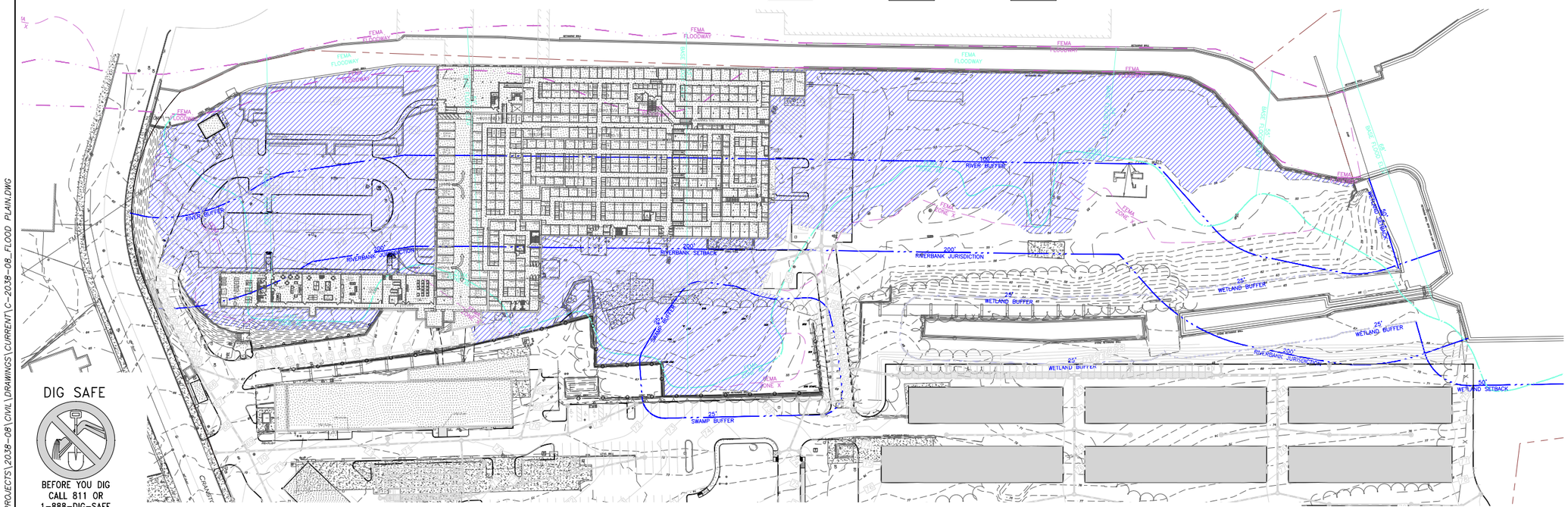

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APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	10-16-2023
SCALE:	1" = 60'	DWG.:C-2038-08_FLOOD PLAIN	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ♦ land surveying
environmental consulting ♦ landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801
TEL: (781) 935-0889
FAX: (781) 935-2896
WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

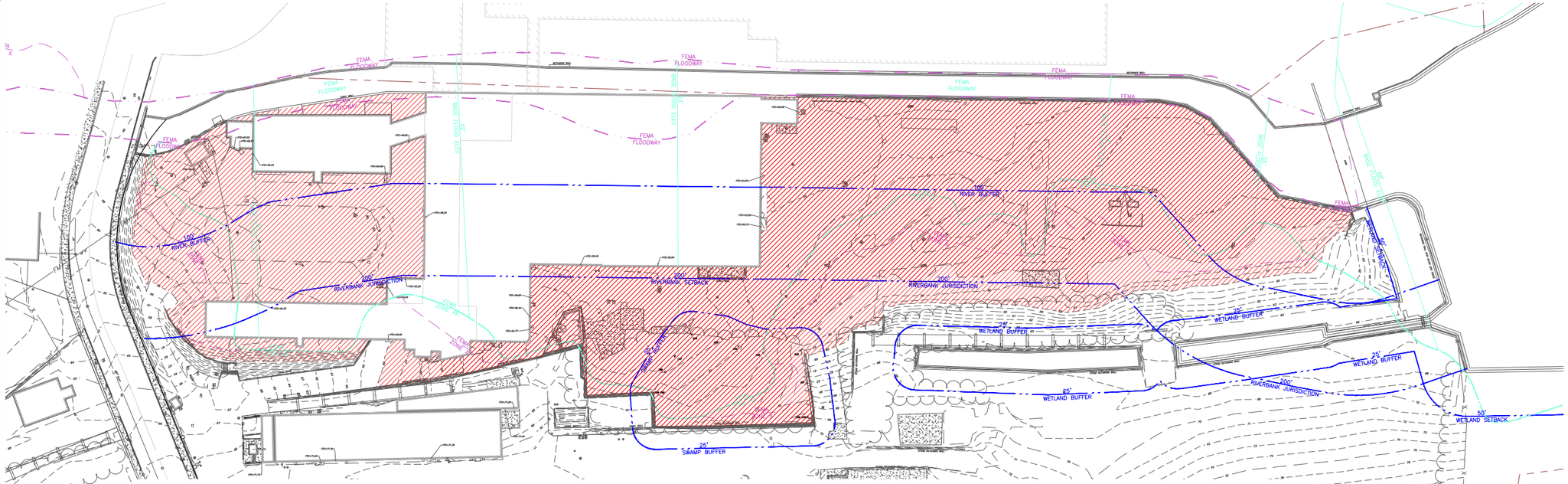
DRAWING TITLE:

ELEVATION 53 TO 54
COMPENSATORY STORAGE PLAN

SHEET No.

CSP-6

6 OF 12



Elevation	Existing Area	Proposed Area	Difference Area
48	561	2,592	2,031
49	6,527	21,927	15,400
50	39,075	59,246	20,171
51	65,780	85,922	20,143
52	95,412	107,960	12,547
53	128,320	141,041	12,722
54	164,379	177,814	13,435
55	197,929	210,950	13,021
56	215,457	228,132	12,675
57	223,389	235,367	11,978
58	229,315	241,478	12,164
59	234,297	246,797	12,499
60	239,217	251,561	12,344
Total	1,839,657	2,010,786	122,143

Existing	Volume
Elevation 48 to 49	1,063
Elevation 49 to 50	22,801
Elevation 50 to 51	52,427
Elevation 51 to 52	80,596
Elevation 52 to 53	111,866
Elevation 53 to 54	146,349
Elevation 54 to 55	181,154
Elevation 55 to 56	206,693
Elevation 56 to 57	219,423
Elevation 57 to 58	226,352
Elevation 58 to 59	231,806
Elevation 59 to 60	236,757
	1,717,288

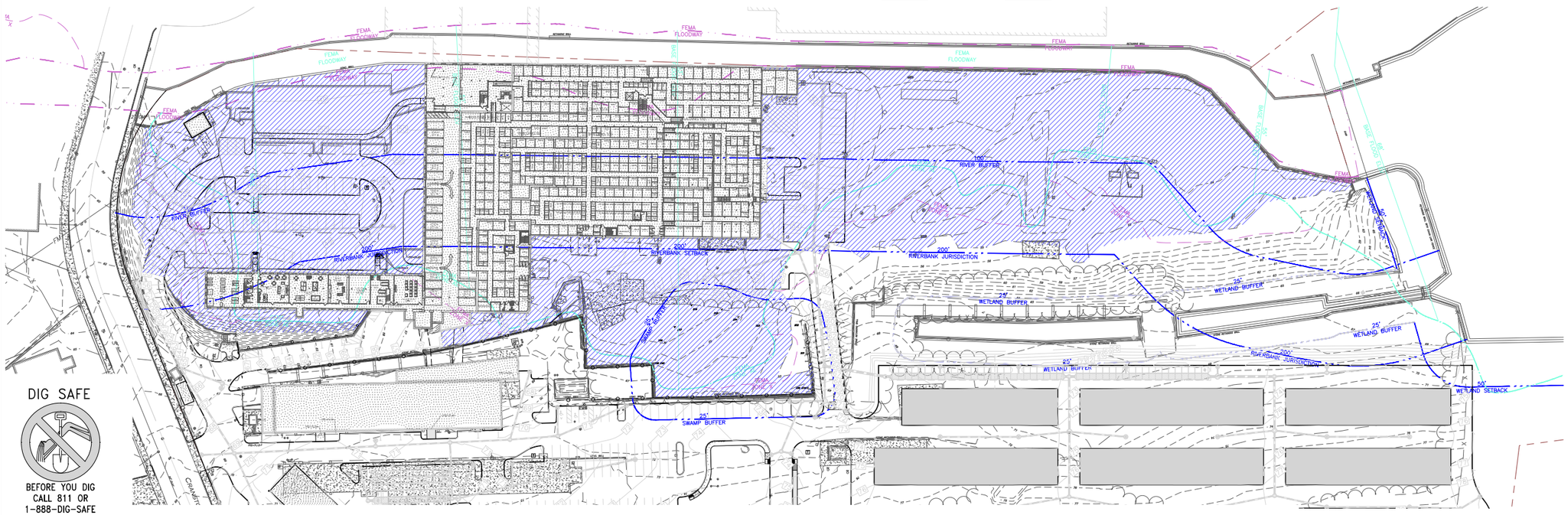
Proposed	Volume
Elevation 48 to 49	3,678
Elevation 49 to 50	40,586
Elevation 50 to 51	72,584
Elevation 51 to 52	96,941
Elevation 52 to 53	124,500
Elevation 53 to 54	159,427
Elevation 54 to 55	194,382
Elevation 55 to 56	219,541
Elevation 56 to 57	231,749
Elevation 57 to 58	238,423
Elevation 58 to 59	244,137
Elevation 59 to 60	249,179
	1,875,128

Difference	Volume	Difference
Elevation 48 to 49	2,615	245,9%
Elevation 49 to 50	17,785	78,0%
Elevation 50 to 51	20,157	38,4%
Elevation 51 to 52	16,345	20,3%
Elevation 52 to 53	12,634	11,3%
Elevation 53 to 54	13,078	8,9%
Elevation 54 to 55	13,228	7,3%
Elevation 55 to 56	12,848	6,2%
Elevation 56 to 57	12,326	5,6%
Elevation 57 to 58	12,071	5,3%
Elevation 58 to 59	12,332	5,3%
Elevation 59 to 60	12,422	5,2%
Total Volume	157,840	9,2%

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.



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ISSUED FOR PERMITTING REVIEW
October 29, 2024

REV	DATE	DESCRIPTION
6	10-09-24	MISC. REVS. PER SEWER DEPT COMMENTS
5	05-28-24	MISC. REVS. PER SEWER DEPT COMMENTS
4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS
3	02-21-24	MISC. UPDATES PER RIDEM COMMENTS
2	01-12-24	MISC. REVS. PER SEWER & RIDEM COMMENTS
1	11-29-23	MISC. UPDATES PER RIDEM COMMENTS

APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	10-16-2023
SCALE:	1" = 60'	DWG.:C-2038-08_FLOOD PLAIN	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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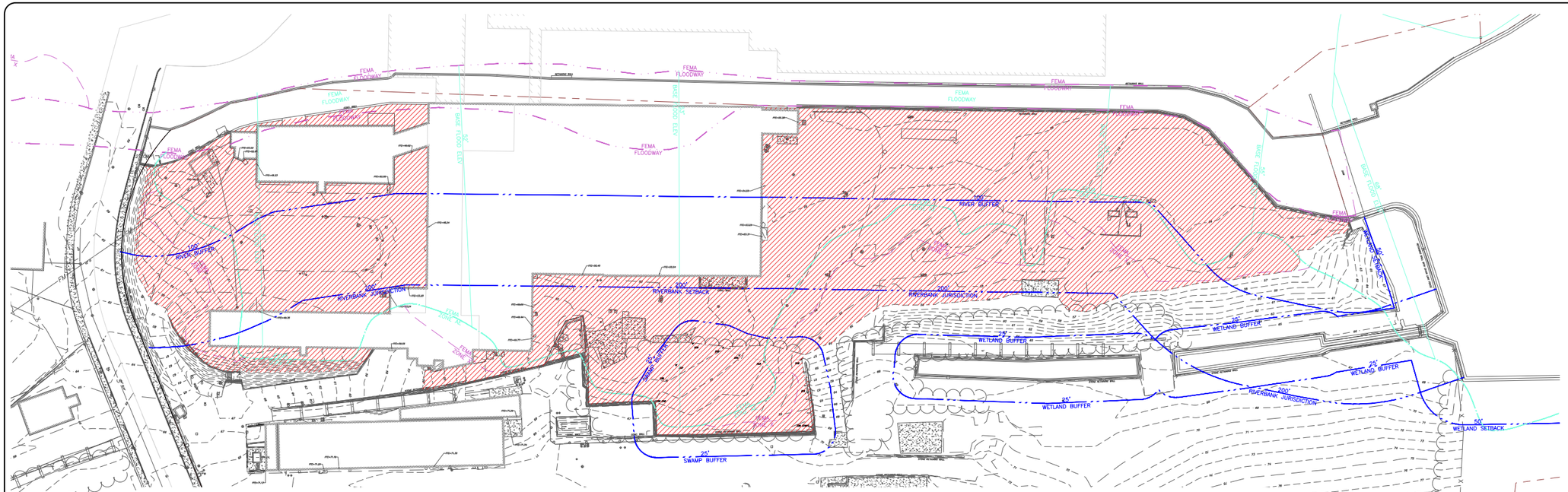
civil engineering ♦ land surveying
environmental consulting ♦ landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801
TEL: (781) 935-0889
FAX: (781) 935-2896

WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

DRAWING TITLE:
ELEVATION 54 TO 55
COMPENSATORY STORAGE PLAN

SHEET No.
CSP-7
7 OF 12



Elevation	Existing Area	Proposed Area	Difference Area
48	561	2,592	2,031
49	6,527	21,927	15,400
50	39,075	59,246	20,171
51	65,780	85,922	20,143
52	95,412	107,960	12,547
53	128,320	141,041	12,722
54	164,379	177,814	13,435
55	197,929	210,950	13,021
56	215,457	228,132	12,675
57	223,389	235,367	11,978
58	229,315	241,478	12,164
59	234,297	246,797	12,499
60	239,217	251,561	12,344
Total	1,839,657	2,010,786	122,143

Existing	Volume	Proposed	Volume	Difference	Volume	Difference
Elevation 48 to 49	1,063	Elevation 48 to 49	3,678	Elevation 48 to 49	2,615	245,9%
Elevation 49 to 50	22,801	Elevation 49 to 50	40,586	Elevation 49 to 50	17,785	78,0%
Elevation 50 to 51	52,427	Elevation 50 to 51	72,584	Elevation 50 to 51	20,157	38,4%
Elevation 51 to 52	80,596	Elevation 51 to 52	96,941	Elevation 51 to 52	16,345	20,3%
Elevation 52 to 53	111,866	Elevation 52 to 53	124,500	Elevation 52 to 53	12,634	11,3%
Elevation 53 to 54	146,349	Elevation 53 to 54	159,427	Elevation 53 to 54	13,078	8,9%
Elevation 54 to 55	181,154	Elevation 54 to 55	194,382	Elevation 54 to 55	13,228	7,3%
Elevation 55 to 56	206,693	Elevation 55 to 56	219,541	Elevation 55 to 56	12,848	6,2%
Elevation 56 to 57	219,423	Elevation 56 to 57	231,749	Elevation 56 to 57	12,326	5,6%
Elevation 57 to 58	226,352	Elevation 57 to 58	238,423	Elevation 57 to 58	12,071	5,3%
Elevation 58 to 59	231,806	Elevation 58 to 59	244,137	Elevation 58 to 59	12,332	5,3%
Elevation 59 to 60	236,757	Elevation 59 to 60	249,179	Elevation 59 to 60	12,422	5,2%
	1,717,288		1,875,128	Total Volume	157,840	9,2%

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

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APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT

ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	10-16-2023
SCALE:	1" = 60'	DWG.:C-2038-08_FLOOD PLAIN	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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FAX: (781) 935-2896

WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

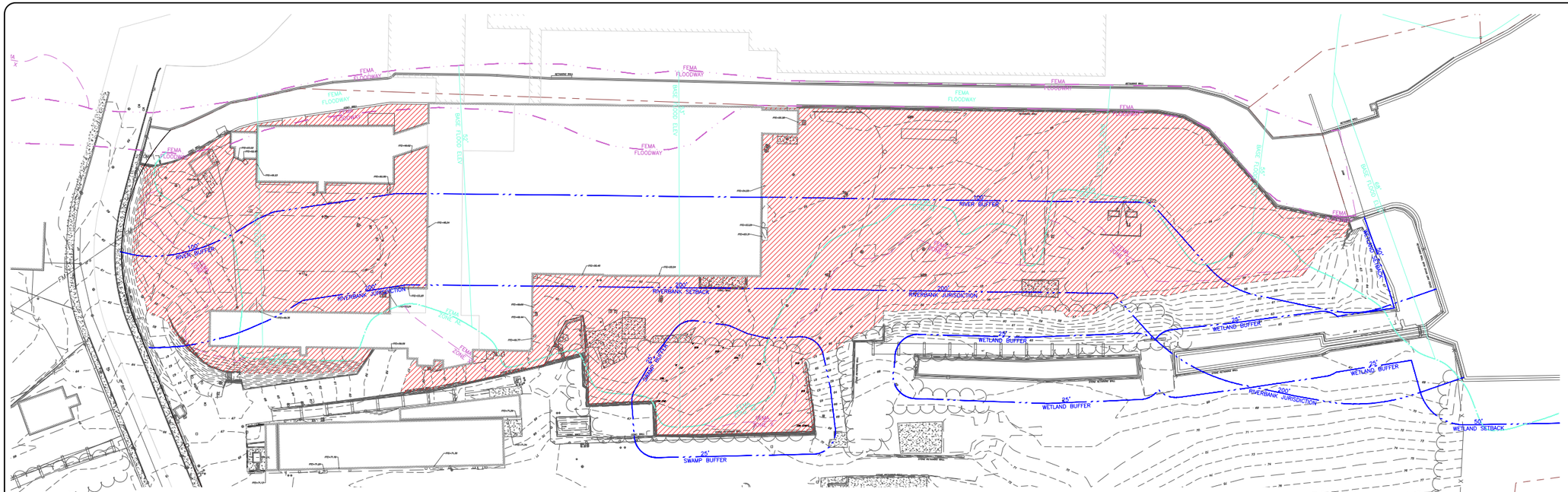
DRAWING TITLE:

ELEVATION 55 TO 56
COMPENSATORY STORAGE PLAN

SHEET No.

CSP-8

8 OF 12



Elevation	Existing Area	Proposed Area	Difference Area
48	561	2,592	2,031
49	6,527	21,927	15,400
50	39,075	59,246	20,171
51	65,780	85,922	20,143
52	95,412	107,960	12,547
53	128,320	141,041	12,722
54	164,379	177,814	13,435
55	197,929	210,950	13,021
56	215,457	228,132	12,675
57	223,389	235,367	11,978
58	229,315	241,478	12,164
59	234,297	246,797	12,499
60	239,217	251,561	12,344
Total	1,839,657	2,010,786	122,143

Existing	Volume
Elevation 48 to 49	1,063
Elevation 49 to 50	22,801
Elevation 50 to 51	52,427
Elevation 51 to 52	80,596
Elevation 52 to 53	111,866
Elevation 53 to 54	146,349
Elevation 54 to 55	181,154
Elevation 55 to 56	206,693
Elevation 56 to 57	219,423
Elevation 57 to 58	226,352
Elevation 58 to 59	231,806
Elevation 59 to 60	236,757
	1,717,288

Proposed	Volume
Elevation 48 to 49	3,678
Elevation 49 to 50	40,586
Elevation 50 to 51	72,584
Elevation 51 to 52	96,941
Elevation 52 to 53	124,500
Elevation 53 to 54	159,427
Elevation 54 to 55	194,382
Elevation 55 to 56	219,541
Elevation 56 to 57	231,749
Elevation 57 to 58	238,423
Elevation 58 to 59	244,137
Elevation 59 to 60	249,179
	1,875,128

Difference	Volume	Difference
Elevation 48 to 49	2,615	245,9%
Elevation 49 to 50	17,785	78,0%
Elevation 50 to 51	20,157	38,4%
Elevation 51 to 52	16,345	20,3%
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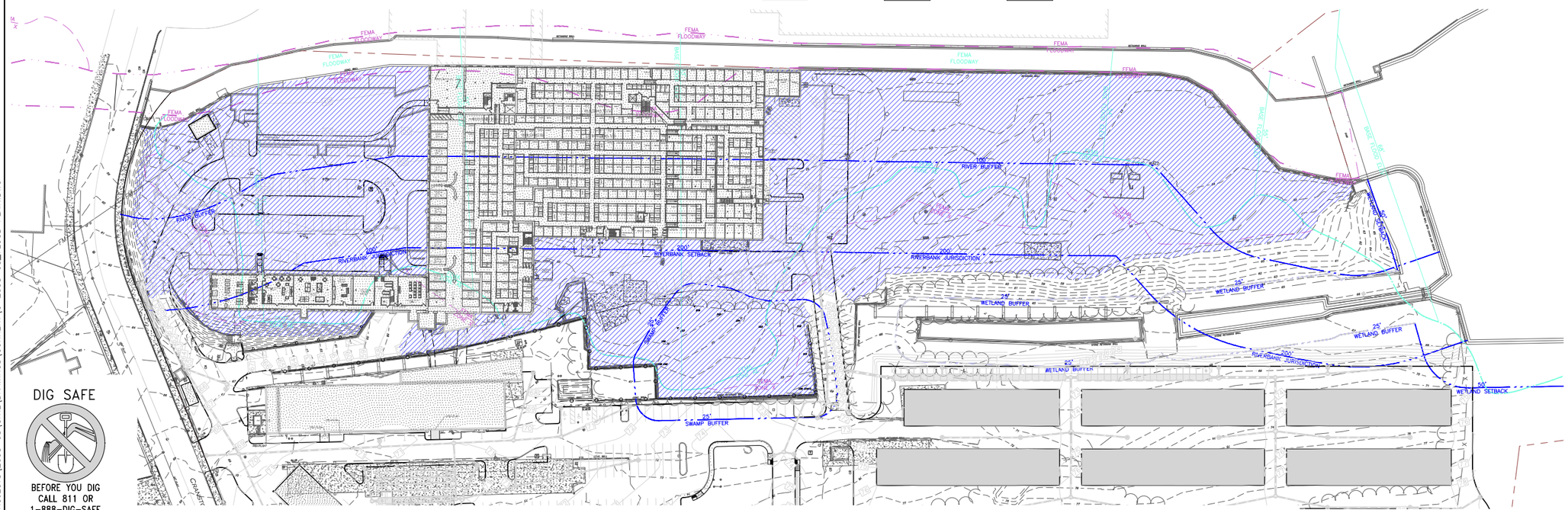
Elevation 53 to 54	13,078	8,9%
Elevation 54 to 55	13,228	7,3%
Elevation 55 to 56	12,848	6,2%
Elevation 56 to 57	12,326	5,6%
Elevation 57 to 58	12,071	5,3%
Elevation 58 to 59	12,332	5,3%
Elevation 59 to 60	12,422	5,2%
Total Volume	157,840	9,2%

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.



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APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	10-16-2023
SCALE:	1" = 60'	DWG.:C-2038-08_FLOOD PLAIN	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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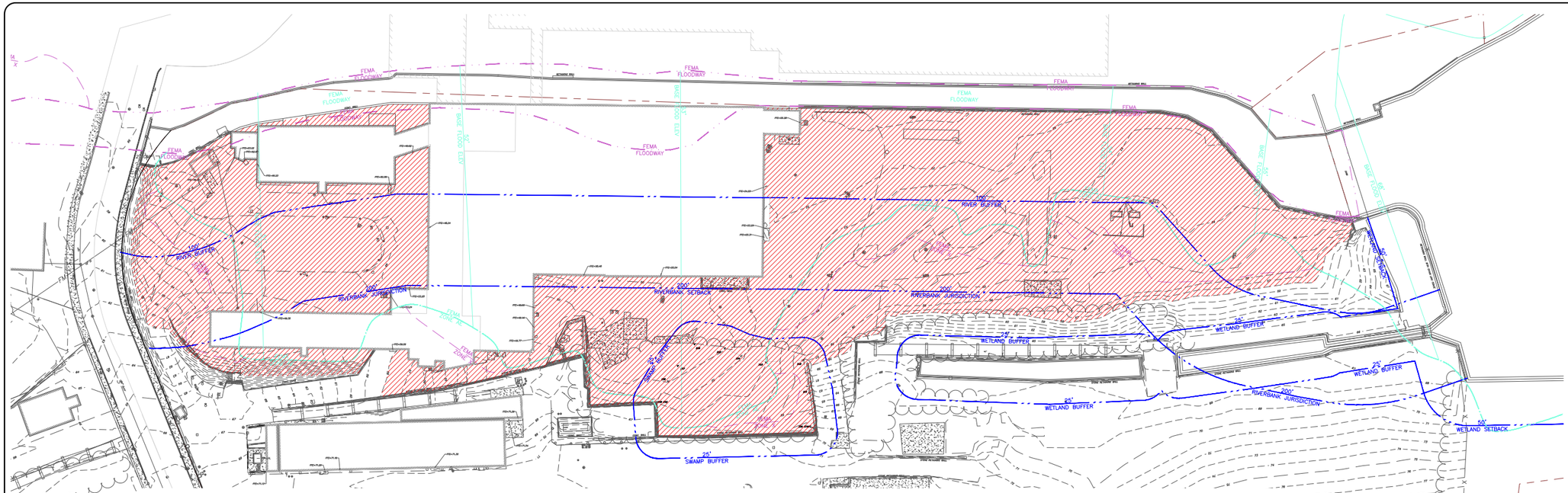
FAX: (781) 935-2896

WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

DRAWING TITLE:
ELEVATION 56 TO 57
COMPENSATORY STORAGE PLAN

SHEET No.
CSP-9



Elevation	Existing Area	Proposed Area	Difference Area
48	561	2,592	2,031
49	6,527	21,927	15,400
50	39,075	59,246	20,171
51	65,780	85,922	20,143
52	95,412	107,960	12,547
53	128,320	141,041	12,722
54	164,379	177,814	13,435
55	197,929	210,950	13,021
56	215,457	228,132	12,675
57	223,389	235,367	11,978
58	229,315	241,478	12,164
59	234,297	246,797	12,499
60	239,217	251,561	12,344
Total	1,839,657	2,010,786	122,143

Existing	Volume
Elevation 48 to 49	1,063
Elevation 49 to 50	22,801
Elevation 50 to 51	52,427
Elevation 51 to 52	80,596
Elevation 52 to 53	111,866
Elevation 53 to 54	146,349
Elevation 54 to 55	181,154
Elevation 55 to 56	206,693
Elevation 56 to 57	219,423
Elevation 57 to 58	226,352
Elevation 58 to 59	231,806
Elevation 59 to 60	236,757
	1,717,288

Proposed	Volume
Elevation 48 to 49	3,678
Elevation 49 to 50	40,586
Elevation 50 to 51	72,584
Elevation 51 to 52	96,941
Elevation 52 to 53	124,500
Elevation 53 to 54	159,427
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Elevation 55 to 56	219,541
Elevation 56 to 57	231,749
Elevation 57 to 58	238,423
Elevation 58 to 59	244,137
Elevation 59 to 60	249,179
	1,875,128

Difference	Volume	Difference
Elevation 48 to 49	2,615	245,9%
Elevation 49 to 50	17,785	78,0%
Elevation 50 to 51	20,157	38,4%
Elevation 51 to 52	16,345	20,3%
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Elevation 53 to 54	13,078	8,9%
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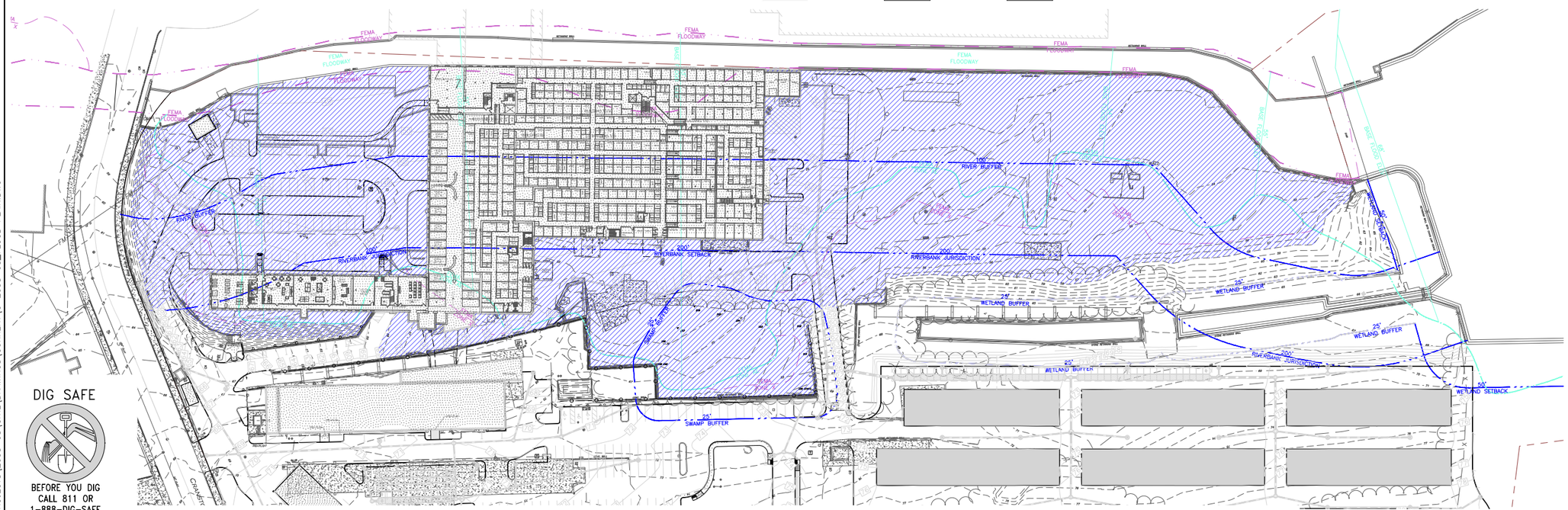
Elevation 55 to 56	12,848	6,2%
Elevation 56 to 57	12,326	5,6%
Elevation 57 to 58	12,071	5,3%
Elevation 58 to 59	12,332	5,3%
Elevation 59 to 60	12,422	5,2%
Total Volume	157,840	9,2%

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.



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APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	10-16-2023
SCALE:	1" = 60'	DWG.:C-2038-08_FLOOD PLAIN	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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FAX: (781) 935-2896

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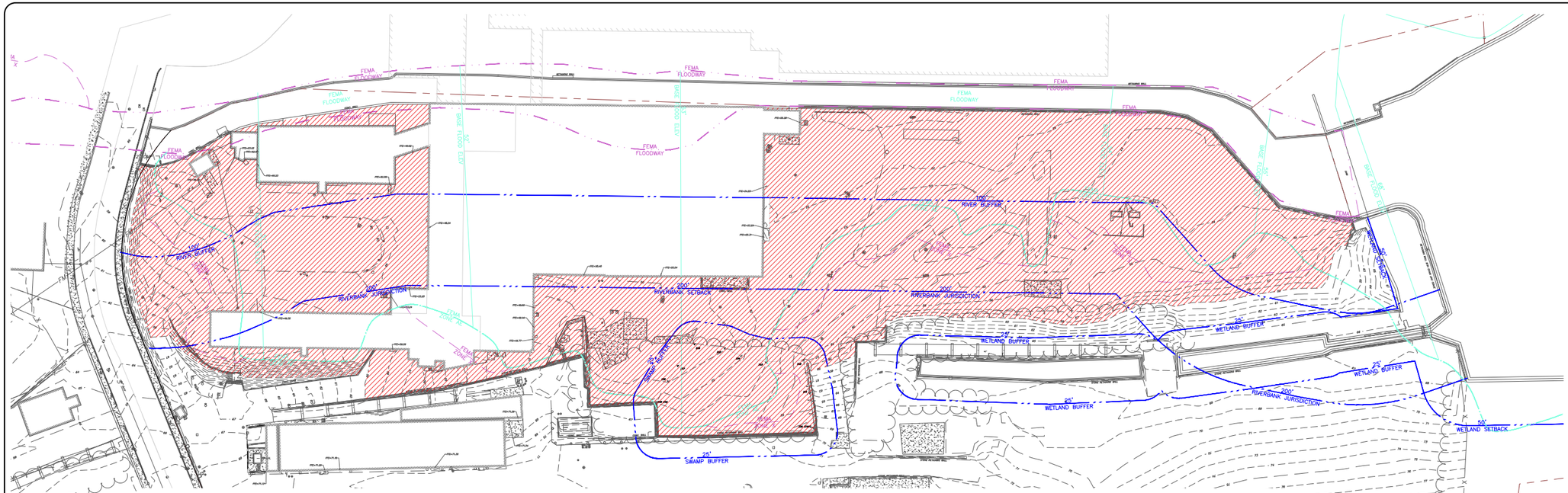
DRAWING TITLE:

ELEVATION 57 TO 58
COMPENSATORY STORAGE PLAN

SHEET No.

CSP-10

10 OF 12



Elevation	Existing Area	Proposed Area	Difference Area
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49	6,527	21,927	15,400
50	39,075	59,246	20,171
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Elevation 53 to 54	146,349
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Elevation 56 to 57	219,423
Elevation 57 to 58	226,352
Elevation 58 to 59	231,806
Elevation 59 to 60	236,757
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Proposed	Volume
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Elevation 50 to 51	72,584
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Elevation 57 to 58	12,071	5,3%
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GRAPHIC SCALE

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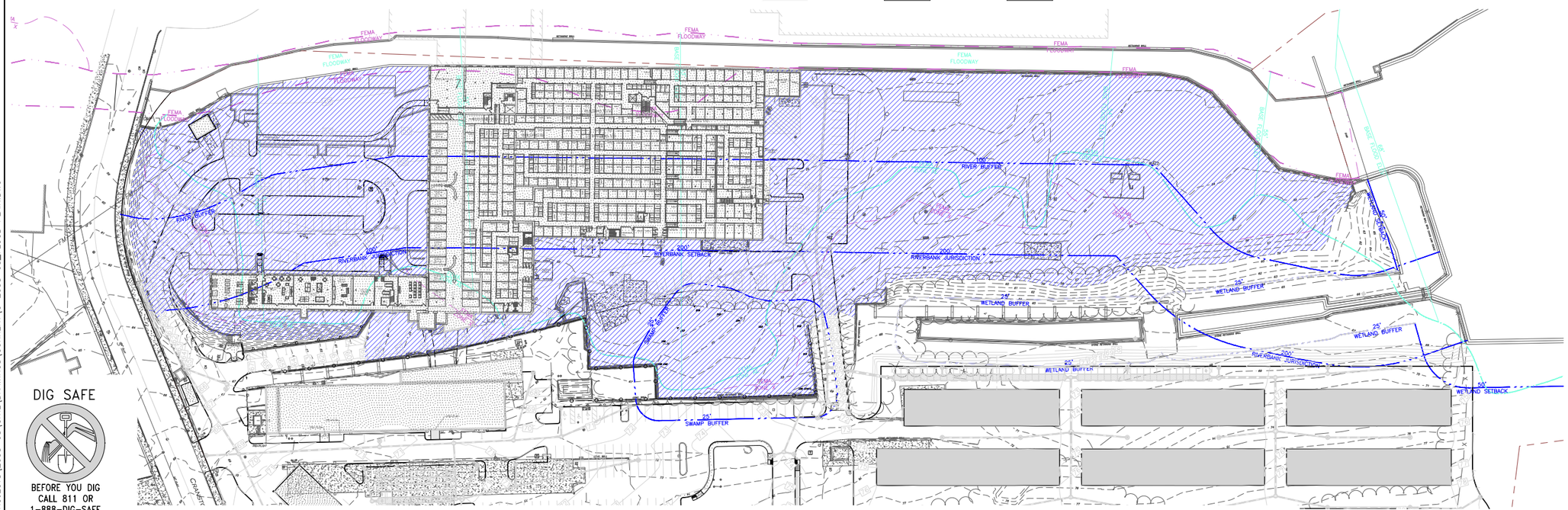
(IN FEET)
1 inch = 60 ft.



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1	11-29-23	MISC. UPDATES PER RIDEM COMMENTS

APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT

ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	10-16-2023
SCALE:	1" = 60'	DWG.:C-2038-08_FLOOD PLAIN	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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FAX: (781) 935-2896

WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

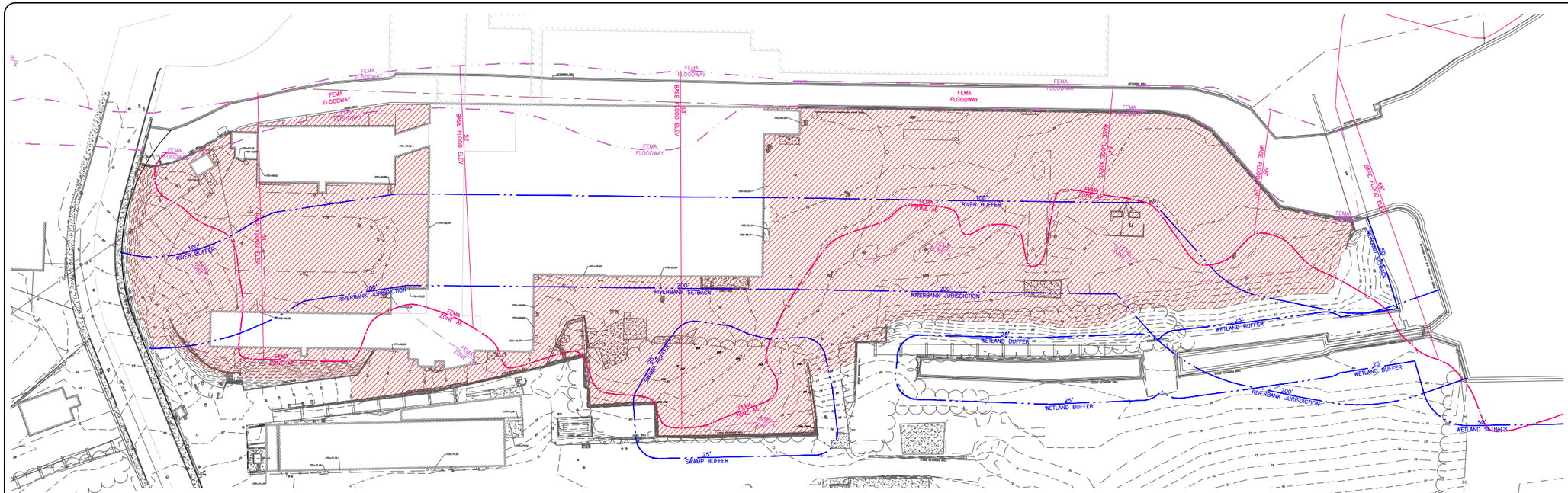
DRAWING TITLE:

ELEVATION 58 TO 59
COMPENSATORY STORAGE PLAN

SHEET No.

CSP-11

11 OF 12



Elevation	Existing Area	Proposed Area	Difference Area
48	561	2,592	2,031
49	6,527	21,927	15,400
50	39,075	59,246	20,171
51	65,780	85,922	20,143
52	95,412	107,960	12,547
53	128,320	141,041	12,722
54	164,379	177,814	13,435
55	197,929	210,950	13,021
56	215,457	228,132	12,675
57	223,389	235,367	11,978
58	229,315	241,478	12,164
59	234,297	246,797	12,499
60	239,217	251,561	12,344
Total	1,839,657	2,010,786	122,143

Existing	Volume
Elevation 48 to 49	1,063
Elevation 49 to 50	22,801
Elevation 50 to 51	52,427
Elevation 51 to 52	80,596
Elevation 52 to 53	111,866
Elevation 53 to 54	146,349
Elevation 54 to 55	181,154
Elevation 55 to 56	206,693
Elevation 56 to 57	219,423
Elevation 57 to 58	226,352
Elevation 58 to 59	231,806
Elevation 59 to 60	236,757
	1,717,288

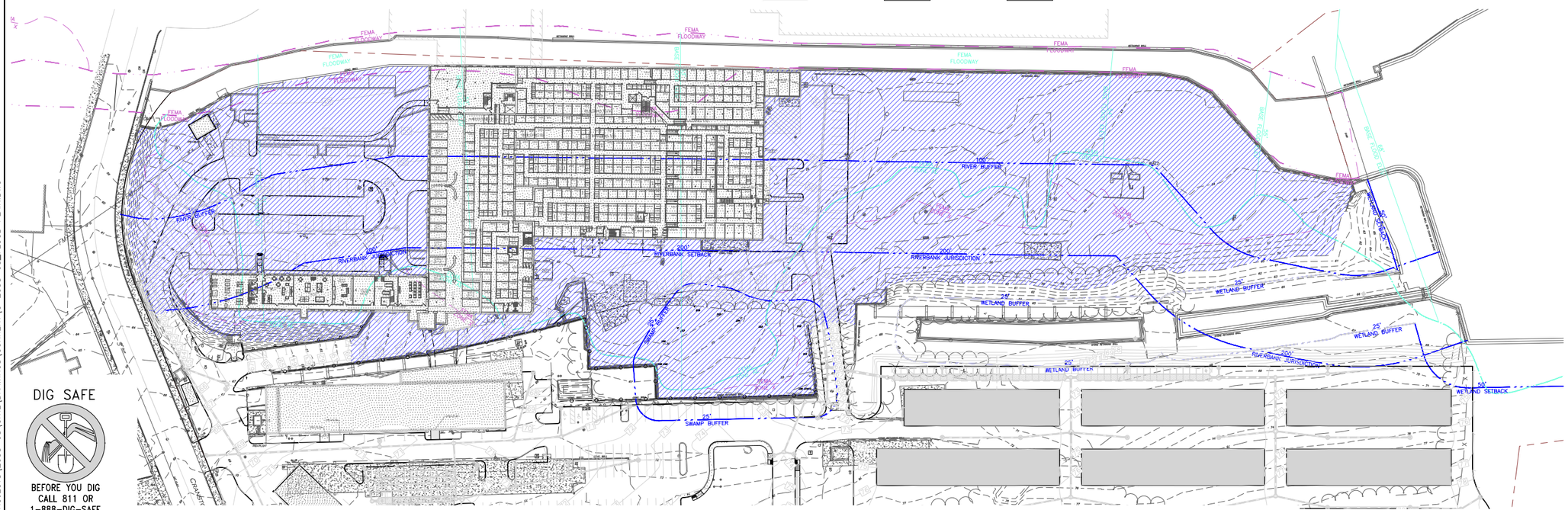
Proposed	Volume
Elevation 48 to 49	3,678
Elevation 49 to 50	40,586
Elevation 50 to 51	72,584
Elevation 51 to 52	96,941
Elevation 52 to 53	124,500
Elevation 53 to 54	159,427
Elevation 54 to 55	194,382
Elevation 55 to 56	219,541
Elevation 56 to 57	231,749
Elevation 57 to 58	238,423
Elevation 58 to 59	244,137
Elevation 59 to 60	249,179
	1,875,128

Difference	Volume	Difference
Elevation 48 to 49	2,615	245,9%
Elevation 49 to 50	17,785	78,0%
Elevation 50 to 51	20,157	38,4%
Elevation 51 to 52	16,345	20,3%
Elevation 52 to 53	12,634	11,3%
Elevation 53 to 54	13,078	8,9%
Elevation 54 to 55	13,228	7,3%
Elevation 55 to 56	12,848	6,2%
Elevation 56 to 57	12,326	5,6%
Elevation 57 to 58	12,071	5,3%
Elevation 58 to 59	12,332	5,3%
Elevation 59 to 60	12,422	5,2%
Total Volume	157,840	9,2%

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.



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R:\PROJECTS\2038-08\CIVILDRAWINGS\CURRENT\C-2038-08_FLOOD PLAIN.DWG

ISSUED FOR PERMITTING REVIEW
October 29, 2024

REV	DATE	DESCRIPTION
6	10-09-24	MISC. REVS. PER SEWER DEPT COMMENTS
5	05-28-24	MISC. REVS. PER SEWER DEPT COMMENTS
4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS
3	02-21-24	MISC. UPDATES PER RIDEM COMMENTS
2	01-12-24	MISC. REVS. PER SEWER & RIDEM COMMENTS
1	11-29-23	MISC. UPDATES PER RIDEM COMMENTS

APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT

ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	10-16-2023
SCALE:	1" = 60'	DWG.:C-2038-08_FLOOD PLAIN	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ♦ land surveying
environmental consulting ♦ landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801
TEL: (781) 935-0889
FAX: (781) 935-2896

WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

DRAWING TITLE:

ELEVATION 59 TO 60
COMPENSATORY STORAGE PLAN

SHEET No.

CSP-12

12 OF 12

Mounding Analysis

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 changedotherwise 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		
2.0400	*R*	**Recharge (infiltration) rate (feet/day)**
0.260	Sy	**Specific yield, Sy (dimensionless, between 0 and 1)**
28.34	K	**Horizontal hydraulic conductivity, Kh (feet/day)***
174.930	x	**1/2 length of basin (x direction, in feet)**
7.790	y	**1/2 width of basin (y direction, in feet)**
0.540	t	**duration of infiltration period (days)**
12.000	hi(0)	**initial thickness of saturated zone (feet)**

Conversion Table

inch/hour	feet/day
0.67	1.33
2.00	4.00

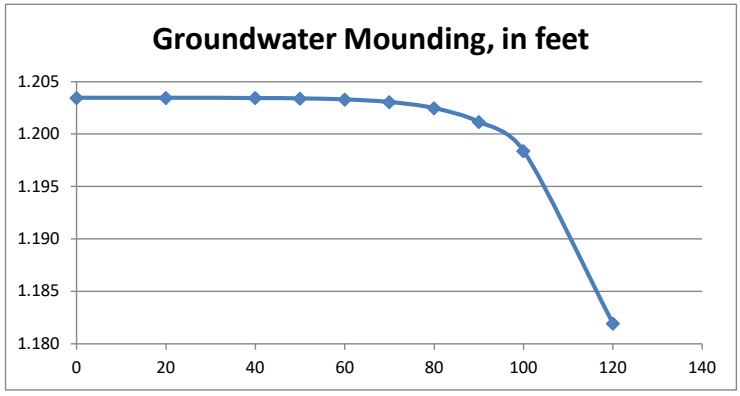
hours	days
36	1.50

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).

13.203	h(max)	**maximum thickness of saturated zone (beneath center of basin at end of infiltration period)**
1.203	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
1.203	0
1.203	20
1.203	40
1.203	50
1.203	60
1.203	70
1.202	80
1.201	90
1.198	100
1.182	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.

Design Guidance

- The sides of infiltration chambers, trenches, and dry wells should be lined with an acceptable filter fabric that prevents soil piping.

5.3.4 Treatment

Required Elements

- If the in-situ infiltration rate for the underlying soils is greater than 8.3 inches per hour, 100% of the WQ_v shall be treated by an acceptable water quality practice prior to entry into an infiltration facility.
- Infiltration practices shall be designed to exfiltrate the entire WQ_v through the floor of each practice (i.e., sidewalls are not considered in sizing), unless the depth is greater than ½ the square root of the bottom surface area.
- The construction sequence and specifications for each infiltration practice shall be precisely followed. Experience has shown that the longevity of infiltration practices is strongly influenced by the care taken during construction.
- Design infiltration rates (f_c) shall be determined by using Table 5-3, or shall be determined by in-situ rates (using a factor of safety of 2 from the field-derived value) established by one of the approved methods listed in Appendix H.1.3 (rates derived from standard percolation tests are not acceptable).

Table 5-3 Design Infiltration Rates for Different Soil Textures (Rawls et al., 1982)

USDA Soil Texture	Design Infiltration Rate (f_c) (in/hr)	Design Infiltration Rate (f_c) (ft/min)
Sand	8.27	0.0115
Loamy Sand	2.41	0.0033
Sandy Loam	1.02	0.0014
Loam	0.52	0.0007
Silt Loam	0.27	0.0004

Design Guidance

0.0014 x 1440min/day = 2.04 ft/day

- Infiltration practices are best used in conjunction with other practices, and often downstream detention is still needed to meet the CP_v and Q_p sizing criteria.
- A porosity value (V_v/V_t) of 0.33 should be used to design stone reservoirs for infiltration practices.
- The bottom of the stone reservoir should be completely flat or nearly so (i.e., 0.5% slope) in order that infiltrated runoff will be able to infiltrate through the entire bottom surface area.
- One method to calculate the surface area of infiltration trenches is to use the following equation:

$$A_p = V / (nd_t + f_c t/12)$$

Where:

A_p = surface area at the bottom of the trench (ft^2)

SPECIFIC YIELD—COMPILATION OF SPECIFIC YIELDS FOR VARIOUS MATERIALS

By A. I. JOHNSON

ABSTRACT

Specific yield is defined as the ratio of (1) the volume of water that a saturated rock or soil will yield by gravity to (2) the total volume of the rock or soil. Specific yield is usually expressed as a percentage. The value is not definitive, because the quantity of water that will drain by gravity depends on variables such as duration of drainage, temperature, mineral composition of the water, and various physical characteristics of the rock or soil under consideration. Values of specific yield, nevertheless, offer a convenient means by which hydrologists can estimate the water-yielding capacities of earth materials and, as such, are very useful in hydrologic studies.

The present report consists mostly of direct or modified quotations from many selected reports that present and evaluate methods for determining specific yield, limitations of those methods, and results of the determinations made on a wide variety of rock and soil materials. Although no particular values are recommended in this report, a table summarizes values of specific yield, and their averages, determined for 10 rock textures. The following is an abstract of the table:

Specific yields, in percent, of various materials

[Rounded to nearest whole percent]

Material	Number of determinations	Specific yield		
		Maximum	Minimum	Average
Clay	15	5	0	2
Silt	16	19	3	8
Sandy clay	12	12	3	7
Fine sand	17	28	10	21
Medium sand	17	32	15	26
Coarse sand	17	35	20	27
Gravelly sand	15	35	20	25
Fine gravel	17	35	21	25
Medium gravel	14	26	13	23
Coarse gravel	14	26	12	22

INTRODUCTION

PURPOSE AND SCOPE

The purpose of this report is to assist hydrologists in estimating the quantity of water in storage in ground-water reservoirs by providing

Use 0.260

Table—Saturated Hydraulic Conductivity (Ksat)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
MU	Merrimac-Urban land complex, 0 to 8 percent slopes	100.0000	3.5	16.6%
SwA	Swansea muck, 0 to 1 percent slopes	22.6000	0.1	0.6%
UD	Udorthents-Urban land complex	51.0936	2.6	12.2%
Ur	Urban land		12.4	58.7%
W	Water		2.5	12.0%
Totals for Area of Interest			**21.1**	**100.0%**

Rating Options—Saturated Hydraulic Conductivity (Ksat)

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 0

Bottom Depth: 100

Units of Measure: Centimeters

1 micrometers/second =
0.28346456692913 feet/day
100 x .0.28346456692913 = 28.35 ft/day

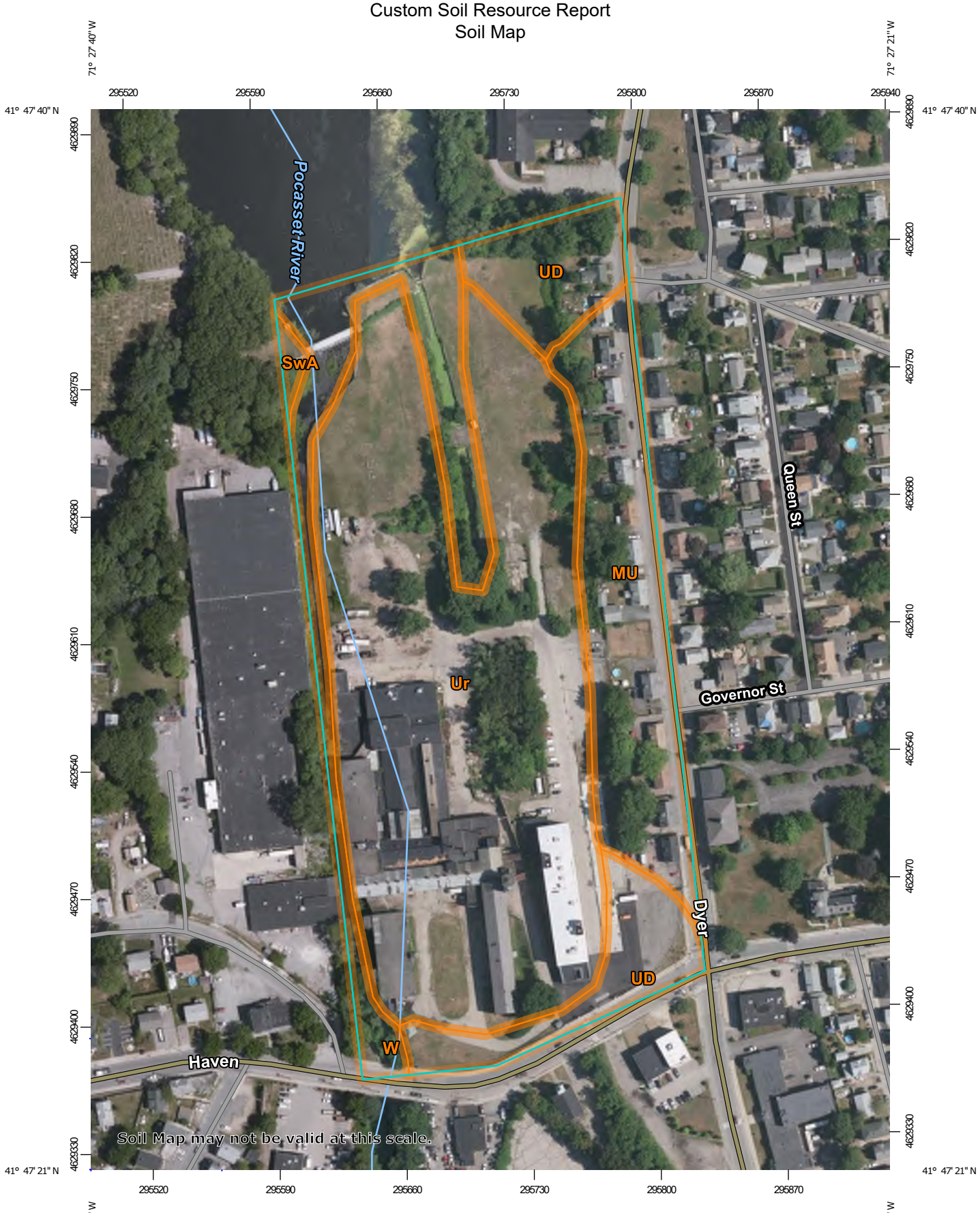
Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

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.

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,840 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

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

Summary for Pond IS-2: infiltration

Notes:
An infiltration rate of 1.02 inches per hour was used for sandy loam (Rawl's) at TP 4

GW from TP 4 (GW not encountered to a depth of 8 feet below grade)

Inflow Area = 175,401 sf, 64.50% Impervious, Inflow Depth = 0.34" for 1.2" Peak event
Inflow = 1.49 cfs @ 12.09 hrs, Volume= 4,961 cf
Outflow = 0.15 cfs @ 12.95 hrs, Volume= 4,961 cf, Atten= 90%, Lag= 51.9 min
Discarded = 0.15 cfs @ 12.95 hrs, Volume= 4,961 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond DMH-304 : dmh

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 65.91' @ 12.95 hrs Surf.Area= 5,452 sf Storage= 1,842 cf
Flood Elev= 70.50' Surf.Area= 5,452 sf Storage= 17,818 cf

1/2 width = 7.79 ft

1/2 length = 174.93 ft

Plug-Flow detention time= 102.9 min calculated for 4,960 cf (100% of inflow)
Center-of-Mass det. time= 102.9 min (897.7 - 794.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	65.25'	7,203 cf	**15.58'W x 349.86'L x 5.25'H Field A** 28,623 cf Overall - 10,615 cf Embedded = 18,008 cf x 40.0% Voids
#2A	65.75'	10,615 cf	**ADS_StormTech MC-3500 d +Cap** x 96 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 96 Chambers in 2 Rows Cap Storage= 14.9 cf x 2 x 2 rows = 59.6 cf
		17,818 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	65.25'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 60.75' Phase-In= 0.01'
#2	Primary	65.64'	**24.0" Round Culvert** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 65.64' / 60.30' S= 0.0797 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	69.00'	**4.0' long x 0.5' breadth Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.15 cfs @ 12.95 hrs HW=65.91' (Free Discharge)
└**1=Exfiltration** (Controls 0.15 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.25' (Free Discharge)
└**2=Culvert** (Controls 0.00 cfs)
└**3=Weir** (Controls 0.00 cfs)

Hydrograph for Pond IS-2: infiltration

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	65.25	0.00	0.00	**0.00**
0.50	0.00	0	65.25	0.00	0.00	0.00
1.00	0.00	0	65.25	0.00	0.00	0.00
1.50	0.00	0	65.25	0.00	0.00	0.00
2.00	0.00	0	65.25	0.00	0.00	0.00
2.50	0.00	0	65.25	0.00	0.00	0.00
3.00	0.00	0	65.25	0.00	0.00	0.00
3.50	0.00	0	65.25	0.00	0.00	0.00
4.00	0.00	1	65.25	0.00	0.00	0.00
4.50	0.00	2	65.25	0.00	0.00	0.00
5.00	0.00	3	65.25	0.00	0.00	0.00
5.50	0.01	5	65.25	0.01	0.01	0.00
6.00	0.01	6	65.25	0.01	0.01	0.00
6.50	0.01	8	65.25	0.01	0.01	0.00
7.00	0.01	10	65.25	0.01	0.01	0.00
7.50	0.02	13	65.26	0.01	0.01	0.00
8.00	0.02	16	65.26	0.02	0.02	0.00
8.50	0.03	20	65.26	0.02	0.02	0.00
9.00	0.03	26	65.26	0.03	0.03	0.00
9.50	0.04	33	65.27	0.04	0.04	0.00
10.00	0.05	41	65.27	0.05	0.05	0.00
10.50	0.07	51	65.27	0.06	0.06	0.00
11.00	0.08	66	65.28	0.08	0.08	0.00
11.50	0.14	99	65.30	0.11	0.11	0.00
12.00	**0.89**	531	65.49	0.14	0.14	0.00
12.50	**0.34**	**1,761**	**65.90**	**0.15**	**0.15**	0.00
13.00	0.14	**1,841**	**65.91**	**0.15**	**0.15**	0.00
13.50	0.11	1,793	65.90	0.15	0.15	0.00
14.00	0.09	1,708	65.88	0.15	0.15	0.00
14.50	0.08	1,595	65.86	0.15	0.15	0.00
15.00	0.07	1,465	65.83	0.15	0.15	0.00
15.50	0.06	1,319	65.80	0.14	0.14	0.00
16.00	0.05	1,156	65.76	0.14	0.14	0.00
16.50	0.04	981	65.70	0.14	0.14	0.00
17.00	0.04	802	65.62	0.14	0.14	0.00
17.50	0.03	619	65.53	0.14	0.14	0.00
18.00	0.03	433	65.45	0.13	0.13	0.00
18.50	0.03	245	65.36	0.13	0.13	0.00
19.00	0.03	73	65.28	0.08	0.08	0.00
19.50	0.03	29	65.26	0.03	0.03	0.00
20.00	0.02	23	65.26	0.03	0.03	0.00
20.50	0.02	21	65.26	0.02	0.02	0.00
21.00	0.02	20	65.26	0.02	0.02	0.00
21.50	0.02	19	65.26	0.02	0.02	0.00
22.00	0.02	18	65.26	0.02	0.02	0.00
22.50	0.02	17	65.26	0.02	0.02	0.00
23.00	0.02	16	65.26	0.02	0.02	0.00
23.50	0.02	15	65.26	0.02	0.02	0.00
24.00	0.02	14	65.26	0.02	0.02	0.00
24.50	0.00	3	65.25	0.00	0.00	0.00
25.00	0.00	0	65.25	0.00	0.00	0.00
25.50	0.00	0	65.25	0.00	0.00	0.00
26.00	0.00	0	65.25	0.00	0.00	0.00
26.50	0.00	0	65.25	0.00	0.00	0.00
27.00	0.00	0	65.25	0.00	0.00	0.00
27.50	0.00	0	65.25	0.00	0.00	0.00
28.00	0.00	0	65.25	0.00	0.00	0.00
28.50	0.00	0	65.25	0.00	0.00	0.00
29.00	0.00	0	65.25	0.00	0.00	0.00
29.50	0.00	0	65.25	0.00	0.00	0.00
30.00	0.00	0	65.25	0.00	0.00	0.00

13 hr / 24 = 0.54 days

Fuss & O'Neill, Inc.
317 Iron Horse Way, Suite 204
Providence, RI
Telephone: 401.861.3070

SOIL BORING/MONITORING WELL MW-3

PROJECT NUMBER 2001696.M40
PROJECT NAME Cranston Print Works
LOCATION 1381 Cranston Street, Cranston, RI
DRILLING METHOD Geologic/Geoprobe
HAMMER WEIGHT/FALL --
ELEVATION (FT) ---
TOP OF CASING ----
LOGGED BY Madelyn Sampson
REMARKS No refusal encountered.

DATE STARTED 6/14/21
DATE COMPLETED 6/14/21
CASING TYPE/DIAMETER PVC / 1"
SCREEN TYPE/SLOT/INTERVAL Slotted/PVC / 0.010" / 2-12'
GRAVEL PACK TYPE Silica Sand
GROUT TYPE/QUANTITY Bentonite / 1
DEPTH TO WATER (FT) 10.0
GROUND WATER ELEVATION ---

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WATER DEPTH
0.0		55	GB 0614-03			FILL		SAND, fine to coarse; little fine gravel; trace silt; trace brick; light brown; dry. No odor.	
0.0		60			5	FILL		SAND, fine to coarse, little silt, little fine gravel; trace brick; gray; dry. No odor.	
0.0		60			10	SP		SAND, fine to coarse; some silt; trace gravel; gray; wet at 10 feet. No odor.	▼
0.0		50			15	SP		SAND, fine to coarse; some silt; gray; dry. No odor. Weathered shale in cap.	

8'-0"

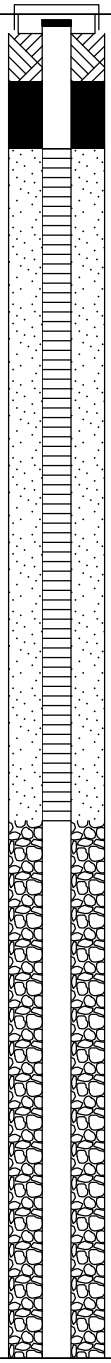
Depth of test pit. Bottom of pit assumed to be ESHWT

12'-0"

Depth of Saturated Zone

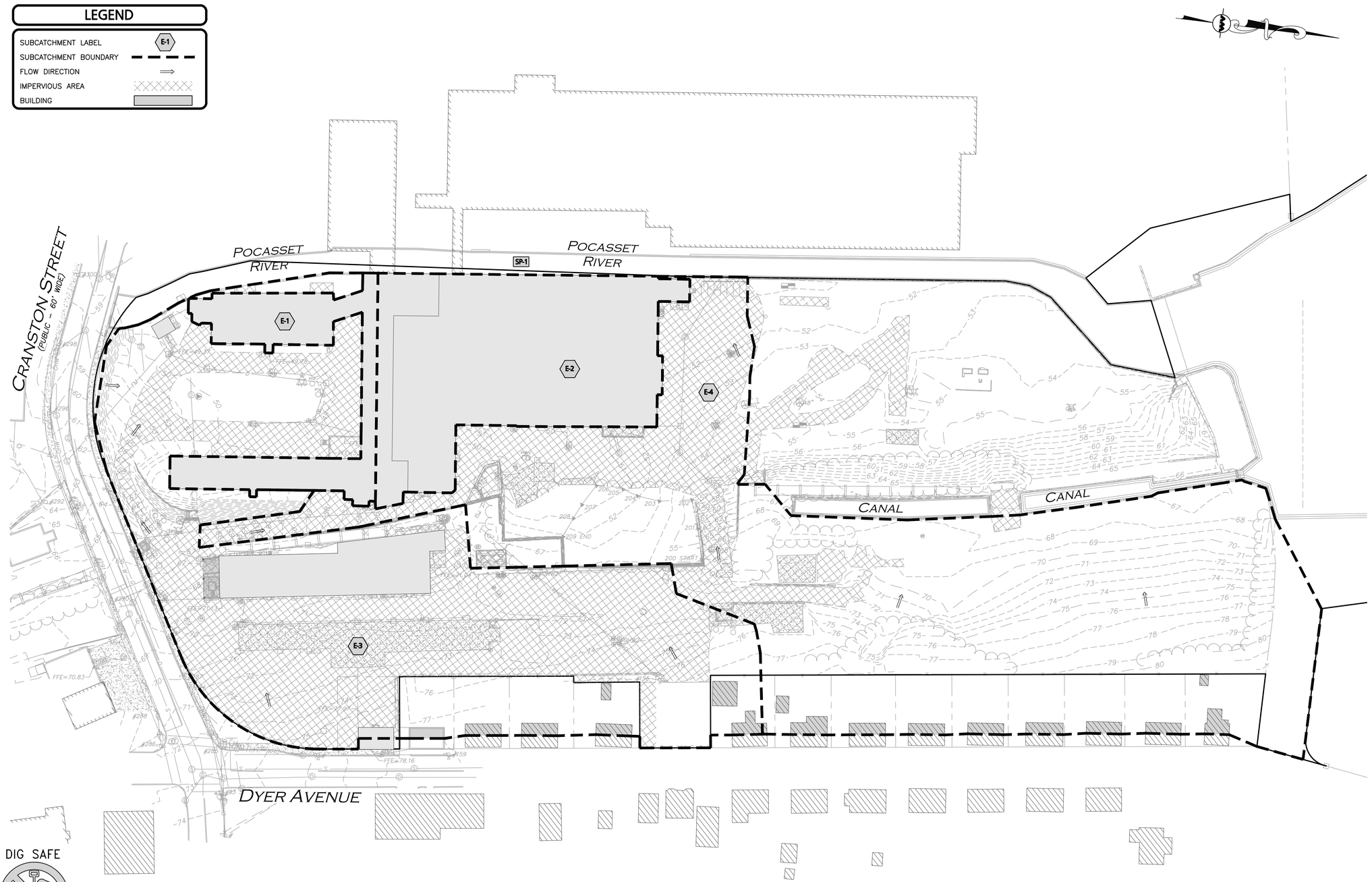
Bottom of boring assumed to be restrictive layter

WELL DIAGRAM



Bottom of borehole at 20.0 feet.

SECTION 6.0 –
WATERSHED PLANS



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1-888-344-7233

R:\PROJECTS\2038-08\CIVIL\DRAWINGS\CURRENT\C-2038-08_WATERSHED-EXISTING.DWG

REV	DATE	DESCRIPTION
1	10-06-23	REVISED PER RIDEM COMMENTS

APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT

ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	06-16-2023
SCALE:	1" = 60'	DWG.:	C-2038-08_WATERSHED-EXISTING
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ♦ land surveying
environmental consulting ♦ landscape architecture
www.allenmajor.com
100 COMMERCE WAY, SUITE 5
WOBURN MA 01801
TEL: (781) 935-6889
FAX: (781) 935-2896

WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

DRAWING TITLE:

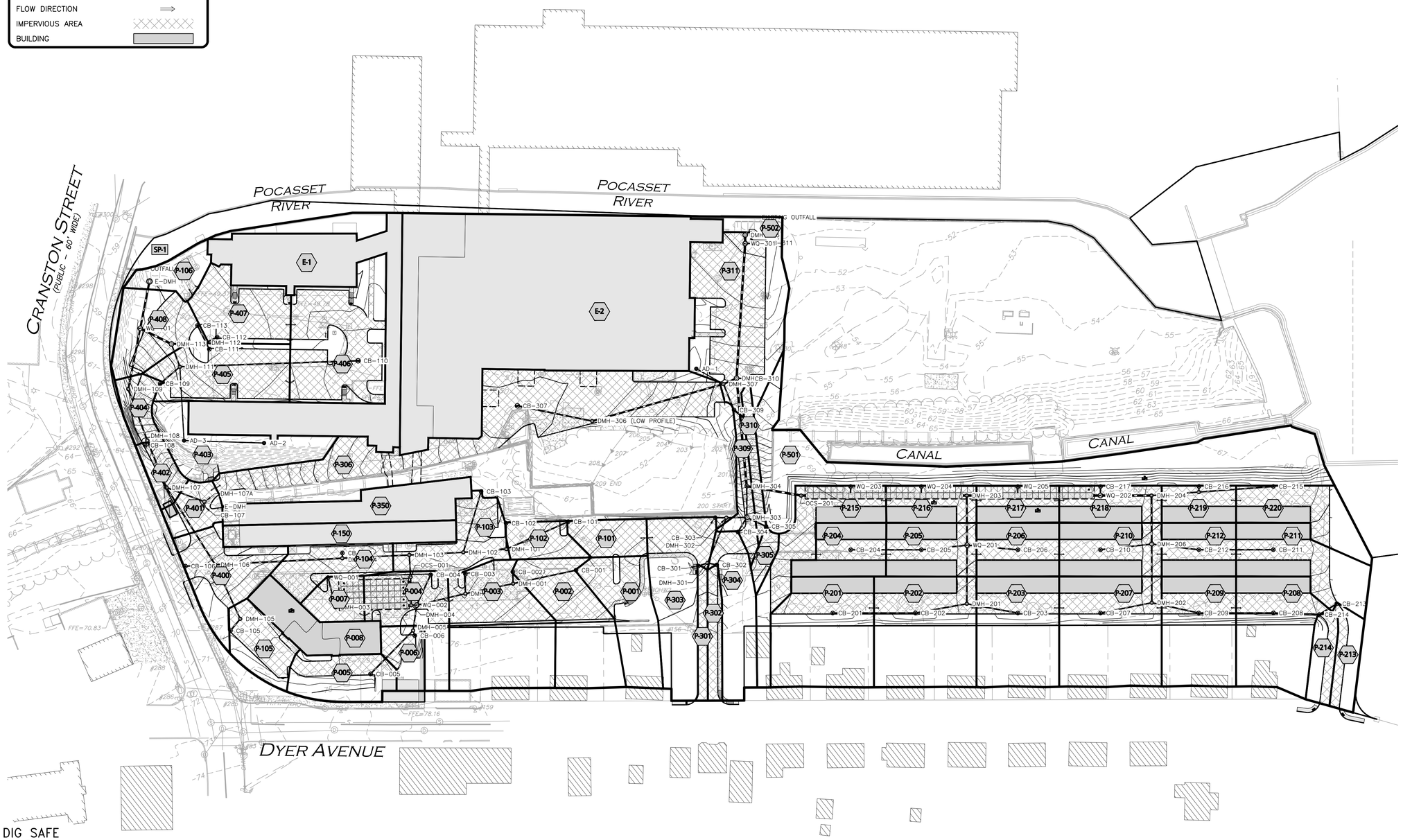
EXISTING WATERSHED PLAN

SHEET No.

EWS-1

LEGEND

- SUBCATCHMENT LABEL — P-1
- SUBCATCHMENT BOUNDARY
- FLOW DIRECTION
- IMPERVIOUS AREA
- BUILDING



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1-888-344-7233

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

REV	DATE	DESCRIPTION
1	10-06-23	REVISED PER RIDEM COMMENTS

APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT

ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	06-16-2023
SCALE:	1" = 60'	DWG.:C2038-08_WATERSHED-PROPOSED	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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WOBURN, MA ♦ LAKEVILLE, MA ♦ MANCHESTER, NH

DRAWING TITLE:

PROPOSED WATERSHED PLAN

SHEET No.

PWS-1

R:\PROJECTS\2038-08\CIVIL\DRAWINGS\CURRENT\C-2038-08_WATERSHED-PROPOSED.DWG

SECTION 7.0 –
GRADING & DRAINAGE PLANS and FIGURES

LEGEND

DRAIN MANHOLE	D
CATCH BASIN	
CATCH BASIN – DOUBLE GRATE	
WATER QUALITY UNIT	WQ
AREA DRAIN	
DRAIN LINE	
5' CONTOUR	70
1' CONTOUR	69
SPOT GRADE	×71.50
INFILTRATION SYSTEM	
INFILTRATION CHAMBER	
ISOLATOR ROW	
FLOW DIRECTION	

A&M TP-1 — Date: 9/29/2023 — Witnessed by M. Malynowski, PE

-	0 - 24	Pavement road box		
B	24 - 54	Sand - Med to Course	10YR 4/6	
C	54 - 102	Sand - Med to Course	10YR 5/4	Fine cobbles

Pit Bottom: 102" — Mottles: n/a
Observed Water: n/a — Some clayring: n/a
Restrictive Layer: n/a — Pit elevation: 71.5
Seepage: n/a — ESHWT / Restrictive Layer: 62.0

A&M TP-2 — Date: 9/29/2023 — Witnessed by M. Malynowski, PE

	0 - 15	Top Soil & Fill		
B	15 - 33	Sand - Fine to Med	10YR 3/2	some pebbles
C	33 - 50	Fine Sandy Loam	5Y 5/2	

Pit Bottom: 50" — Mottles: n/a
Observed Water: n/a — Some clayring: n/a
Restrictive Layer: n/a — Pit elevation: 68.2
Seepage: 50" — ESHWT / Restrictive Layer: 64.0

A&M TP-3 — Date: 9/29/2023 — Witnessed by M. Malynowski, PE

	0 - 15	Top Soil & Fill		
B	15 - 33	Sand - Fine to Med	10YR 3/2	some pebbles
C1	33 - 53	Fine Sandy Loam	2.5Y 5/2	
C2	53 - 89	Fine Sandy Loam	5Y 5/2	

Pit Bottom: 88" — Mottles: n/a
Observed Water: n/a — Some clayring: n/a
Restrictive Layer: n/a — Pit elevation: 69.4
Seepage: n/a — ESHWT / Restrictive Layer: 62.0

A&M TP-4 — Date: 9/29/2023 — Witnessed by M. Malynowski, PE

	0 - 18	Top Soil & Fill		
B	18 - 52	Sand - Fine to Med	10YR 3/2	some pebbles
C1	52 - 96	Fine Sandy Loam	2.5Y 5/3	

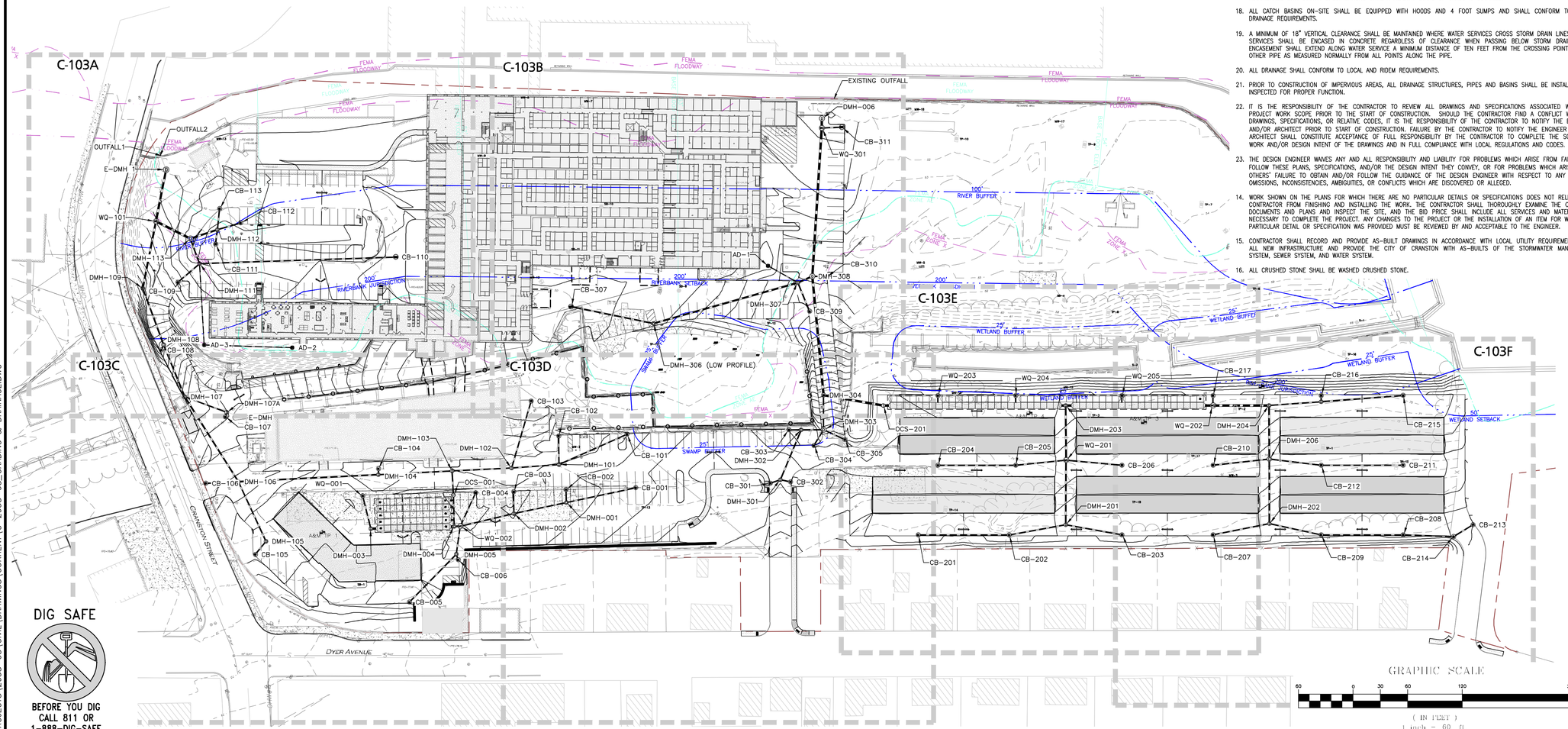
Pit Bottom: 96" — Mottles: n/a
Observed Water: n/a — Some clayring: n/a
Restrictive Layer: n/a — Pit elevation: 68.75
Seepage: n/a — ESHWT / Restrictive Layer: 60.75

EROSION CONTROL NOTES

1. THE SEDIMENTATION AND EROSION CONTROLS DEPICTED SOIL EROSION AND SEDIMENTATION CONTROL (SCSE) PLAN ARE THE MINIMUM REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER MAINTENANCE OF ALL EROSION CONTROLS AND SHALL INSTALL ADDITIONAL MITIGATION MEASURES AS MAY BE NECESSARY TO ENSURE PROTECTION OF ALL NATURAL RESOURCES.
2. THE FOLLOWING DOCUMENTS ARE CONSIDERED PART OF THE PROJECT PLANS AND THE CONTRACTOR/OWNER MUST MAINTAIN THESE DOCUMENTS AS PART OF A FULL PLAN SET: SOIL EROSION AND SEDIMENT CONTROL PLAN (SESC), SHEET C–101A & C–102B. THE SESC CONTAINS THE FOLLOWING:
   2.1. EROSION CONTROL MEASURES
   2.2. SHORT TERM MAINTENANCE
   2.3. ESTABLISHMENT OF VEGETATIVE COVER
   2.4. CONSTRUCTION POLLUTION PREVENTION
   2.5. SEQUENCE OF CONSTRUCTION
   2.6. OPERATION AND MAINTENANCE PLAN (O&M)
   2.7. LONG TERM MAINTENANCE
   2.8. LONG TERM POLLUTION PREVENTION
3. THE SITE IS NOT WITHIN A:
   3.1. GROUNDWATER PROTECTION AREA (RIDEM)
   3.2. NATURAL HERITAGE AREA (RIDEM)
   3.3. GROUNDWATER PROTECTION OVERLAY DISTRICT (TOWN)
4. PRIOR TO THE START OF ANY CONSTRUCTION, ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE INSTALLED AS DEPICTED HEREON. THE CONTRACTOR SHALL MAINTAIN THESE MEASURES UNTIL ALL WORK IS COMPLETED AND ALL AREAS HAVE BEEN STABILIZED.
5. AT NO TIME SHOULD HEAVY EQUIPMENT CROSS THE EROSION CONTROL BARRIERS OR OPERATE BEYOND THE LIMIT OF WORK DEPICTED HEREON. ALL FUELING OF CONSTRUCTION EQUIPMENT IS TO BE DONE IN THE UPLANDS OUTSIDE OF THE 100' BUFFER ZONE.
6. TEMPORARY STABILIZATION OF DISTURBED AREAS IS TO LIMIT EROSION TOWARD THE WETLAND AREAS. ALL TRENCHES ARE TO BE FILLED ON A DAILY BASIS WITH SPECIAL CARE TAKEN TO AVOID ROUTING RAINFALL THROUGH GULLIES TOWARD THE WETLAND AREAS. TEMPORARY DETENTION BASINS ARE TO BE INSTALLED IN AREAS PRONE TO CHANNEL FLOWS DURING PERIODS OF HIGH INTENSITY RAINFALL.
7. THE CONTRACTOR IS TO USE PROPER JUDGMENT RELATIVE TO CONSTRUCTION PRACTICES DURING ADVERSE WEATHER CONDITIONS OR PERIODS OF HIGH GROUNDWATER. NO WORK IS TO BE PERFORMED NEAR THE WETLAND AREAS DURING PERIODS OF HEAVY RAINFALL.
8. PERIODIC MAINTENANCE OF THE EROSION CONTROL MEASURES IS REQUIRED IN ORDER TO INSURE THE PROPER PROTECTION OF THE RESOURCE: AREAS. ALL EROSION CONTROL STRUCTURES ARE TO BE INSPECTED ON A WEEKLY BASIS OR WHENEVER THERE IS A STORM EVENT EXCEEDING 1/2" OF RAIN IN TWENTY FOUR HOURS.
9. THE TREE CLEARING REMOVAL LIMITS SHALL NOT EXTEND BEYOND THE SILTFENCE/HAYBALE EROSION CONTROL BARRIERS AND THE LIMIT OF WORK. AREAS OF EXISTING VEGETATION TO REMAIN ARE TO BE PROTECTED THROUGHOUT CONSTRUCTION.
10. THE BASE OF ALL STOCKPILES SHALL BE CONTAINED WITHIN THE EROSION CONTROL MEASURES LIMITS. STOCKPILES TO BE LEFT OVER 30 DAYS SHALL BE SEEDED WITH ANNUAL RYE GRASS.
11. THE FUNCTIONING OF THE TEMPORARY SEDIMENT CONTROLS OR CONSTRUCTION OPERATIONS SHALL NOT CAUSE NOTICEABLE SEDIMENT PLUMES. IF PLUMES OCCUR, THE CONTRACTOR SHALL STOP WORK AND INSTALL ADDITIONAL SEDIMENTATION CONTROLS IMMEDIATELY TO PREVENT FURTHER SEDIMENTATION.
12. AFTER THE CONSTRUCTION/INSTALLATION OF THE PERMANENT DRAINAGE /INFRASTRUCTURE, THE CONTRACTOR SHALL INSTALL AND MAINTAIN THE APPROPRIATE SEDIMENTATION CONTROLS TO PROTECT THE INTEGRITY OF THE STRUCTURES DURING THE ONGOING CONSTRUCT/ON. ALL CATCH BASINS SHALL HAVE A SILT SAC CATCH BASIN FILTER INSTALLED. THE FILTERS SHALL BE MAINTAINED AND/OR REPLACED AS NECESSARY UNTIL THE CONSTRUCTION IS COMPLETED.
13. ALL DISTURBED AREAS TO BE LEFT DORMANT FOR MORE THAN 60 DAYS SHALL BE STABILIZED BY TEMPORARILY SEEDING OR MULCHING.
14. DEWATERING OPERATIONS, IF REQUIRED SHALL DISCHARGE ONTO STABILIZED AREAS AND ALL DISCHARGE WATER IS TO PASS THROUGH SEDIMENTATION CONTROL DEVICES TO PREVENT IMPACTS UPON THE WETLANDS RESOURCES, DRAINAGE SYSTEMS. AND ABUTTING PROPERTIES

GRADING & DRAINAGE NOTES:

1. THE MOST CURRENT EDITION OF THE STATE OF RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE RHODE ISLAND STANDARD DETAILS ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO THE CURRENT VERSION OF THE STANDARD SPECIFICATIONS MAY BE OBTAINED AT THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS IN ADDITION, THE CITY OF CRANSTON STANDARD SPECIFICATIONS ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO
2. ALL REQUIRED SITE IMPROVEMENTS SHALL BE INSPECTED BY THE TOWN ENGINEER TO ENSURE SATISFACTORY COMPLETION. IN NO CASE SHALL THE INSTALLATION OF ANY IMPROVEMENTS BE STARTED UNTIL PRIOR NOTIFICATION IS GIVEN TO THE CITY ENGINEER. AT LEAST A 48–HOUR NOTICE SHALL BE GIVEN TO THE TOWN ENGINEER PRIOR TO ANY SUCH START OF CONSTRUCTION. A FINAL INSPECTION OF ALL SITE IMPROVEMENTS, UTILITIES AND GRADING WILL BE MADE TO DETERMINE WHETHER THE WORK IS SATISFACTORY AND IN SUBSTANTIAL AGREEMENT WITH THE APPROVED FINAL CONSTRUCTION DRAWING AND THE TOWN SPECIFICATIONS.
3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY ALLEN & MAJOR ASSOCIATES DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK, OR THE OWNER'S EMPLOYEES, CUSTOMERS, OR THE GENERAL PUBLIC. THE SEAL OF THE ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PROVIDE THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE BY THE US OCCUPATIONAL SAFETY AND HEATH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
4. ALL ELEVATIONS REFER TO NAVD 88.
5. PIPE DIMENSIONS ARE MEASURED FROM THE INSIDE FACE OF THE STRUCTURE.
6. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION, ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.
7. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE. UTILITIES ARE TO BE REMOVED TO THE RIGHT–OF–WAY.
8. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED. AT NO TIME SHALL CUT OF FILL SLOPES EXCEED 2:1.
9. EXISTING AND PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT
10. ROOF DRAINS SHALL CONNECT TO NEAREST DRAIN STRUCTURE. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS.
11. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
12. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
13. ALL STORM SEWER MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT AND SHALL HAVE TRAFFIC BEARING RING & COVERS. MANHOLES IN UNPAVED AREAS SHALL BE 6" ABOVE FINISH GRADE. LIDS SHALL BE LABELED "DRAIN".
14. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
15. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
16. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
17. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH COUNTY SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
18. ALL CATCH BASINS ON–SITE SHALL BE EQUIPPED WITH HOODS AND 4 FOOT SUMPS AND SHALL CONFORM TO LOCAL DRAINAGE REQUIREMENTS.
19. A MINIMUM OF 18" VERTICAL CLEARANCE SHALL BE MAINTAINED WHERE WATER SERVICES CROSS STORM DRAIN LINES. WATER SERVICES SHALL BE ENCASED IN CONCRETE REGARDLESS OF CLEARANCE WHEN PASSING BELOW STORM DRAIN LINES. ENCASEMENT SHALL EXTEND ALONG WATER SERVICE A MINIMUM DISTANCE OF TEN FEET FROM THE CROSSING POINT OF THE OTHER PIPE AS MEASURED NORMALLY FROM ALL POINTS ALONG THE PIPE.
20. ALL DRAINAGE SHALL CONFORM TO LOCAL AND RIDEM REQUIREMENTS.
21. PRIOR TO CONSTRUCTION OF IMPERVIOUS AREAS, ALL DRAINAGE STRUCTURES, PIPES AND BASINS SHALL BE INSTALLED AND INSPECTED FOR PROPER FUNCTION.
22. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE START OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DRAWINGS, SPECIFICATIONS, OR RELATIVE CODES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT PRIOR TO START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AND/OR DESIGN INTENT OF THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
23. THE DESIGN ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND/OR THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE GUIDANCE OF THE DESIGN ENGINEER WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS WHICH ARE DISCOVERED OR ALLEGED.
14. WORK SHOWN ON THE PLANS FOR WHICH THERE ARE NO PARTICULAR DETAILS OR SPECIFICATIONS DOES NOT RELIEVE THE CONTRACTOR FROM FINISHING AND INSTALLING THE WORK. THE CONTRACTOR SHALL THOROUGHLY EXAMINE THE CONTRACT DOCUMENTS AND PLANS AND INSPECT THE SITE, AND THE BID PRICE SHALL INCLUDE ALL SERVICES AND MATERIALS AS NECESSARY TO COMPLETE THE PROJECT. ANY CHANGES TO THE PROJECT OR THE INSTALLATION OF AN ITEM FOR WHICH NO PARTICULAR DETAIL OR SPECIFICATION WAS PROVIDED MUST BE REVIEWED BY AND ACCEPTABLE TO THE ENGINEER.
15. CONTRACTOR SHALL RECORD AND PROVIDE AS–BUILT DRAWINGS IN ACCORDANCE WITH LOCAL UTILITY REQUIREMENTS FOR ALL NEW INFRASTRUCTURE AND PROVIDE THE CITY OF CRANSTON WITH AS–BUILTS OF THE STORMWATER MANAGEMENT SYSTEM, SEWER SYSTEM, AND WATER SYSTEM.
16. ALL CRUSHED STONE SHALL BE WASHED CRUSHED STONE.



GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

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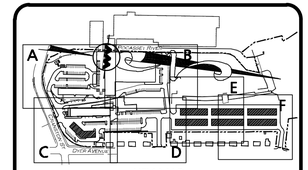

KEY MAP
NOT TO SCALE

ISSUED FOR PERMITTING REVIEW
October 29, 2024

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
6	10-09-24	MISC. REVS. PER SEWER DEPT COMMENTS
5	05-28-24	MISC. REVS. PER SEWER DEPT COMMENTS
4	03-11-24	MISC. REVS. PER SEWER DEPT COMMENTS
3	02-21-24	MISC. UPDATES PER RIDEM COMMENTS
2	01-12-24	MISC. REVS. PER SEWER & RIDEM COMMENTS
1	11-29-23	MISC. UPDATES PER RIDEM COMMENTS

APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	01-25-2023
SCALE:	1" = 60'	DWG.:C2038-08_GRADING & DRAINAGE	
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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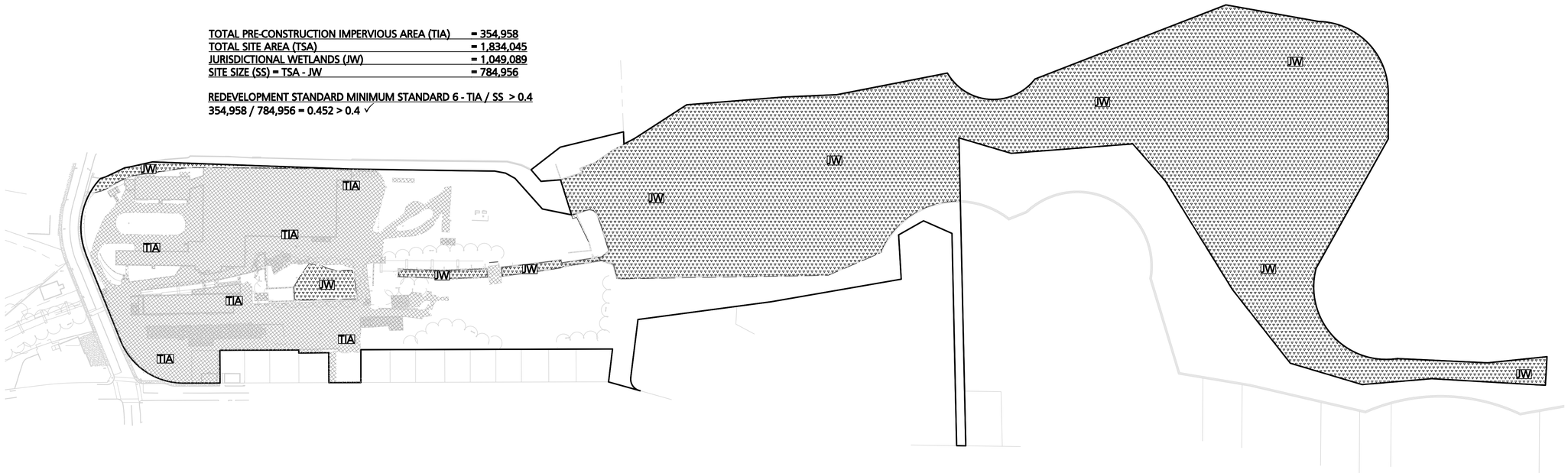
DRAWING TITLE: GRADING & DRAINAGE PLAN

SHEET No. C-103

TOTAL PRE-CONSTRUCTION IMPERVIOUS AREA (TIA) = 354,958
TOTAL SITE AREA (TSA) = 1,834,045
JURISDICTIONAL WETLANDS (JW) = 1,049,089
SITE SIZE (SS) = TSA - JW = 784,956

REDEVELOPMENT STANDARD MINIMUM STANDARD 6 - TIA / SS > 0.4
354,958 / 784,956 = 0.452 > 0.4 ✓



LEGEND

PROPERTY LINE

JURISDICTIONAL WETLANDS

TOTAL PRE-CONSTRUCTION IMPERVIOUS AREA

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1-888-344-7233

GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)
1 inch = 150 ft.

ISSUED FOR PERMITTING REVIEW
NOVEMBER 29, 2023

REV	DATE	DESCRIPTION
1	11-29-23	MISC. UPDATES PER RIDEM COMMENTS

APPLICANT\OWNER:

CPW TRUE STORAGE LLC
670 N. COMMERCIAL STREET, SUITE 303
MANCHESTER, NH 03101

PROJECT:

SITE REDEVELOPMENT
ASSESSORS MAP 8, LOTS 195, 1617 & 2711
1381 CRANSTON STREET - CRANSTON, RI

PROJECT NO.	2038-08	DATE:	10-06-2023
SCALE:	1" = 150'	DWG.:	C-2038-08_EXISTING IMPERVIOUS PLAN
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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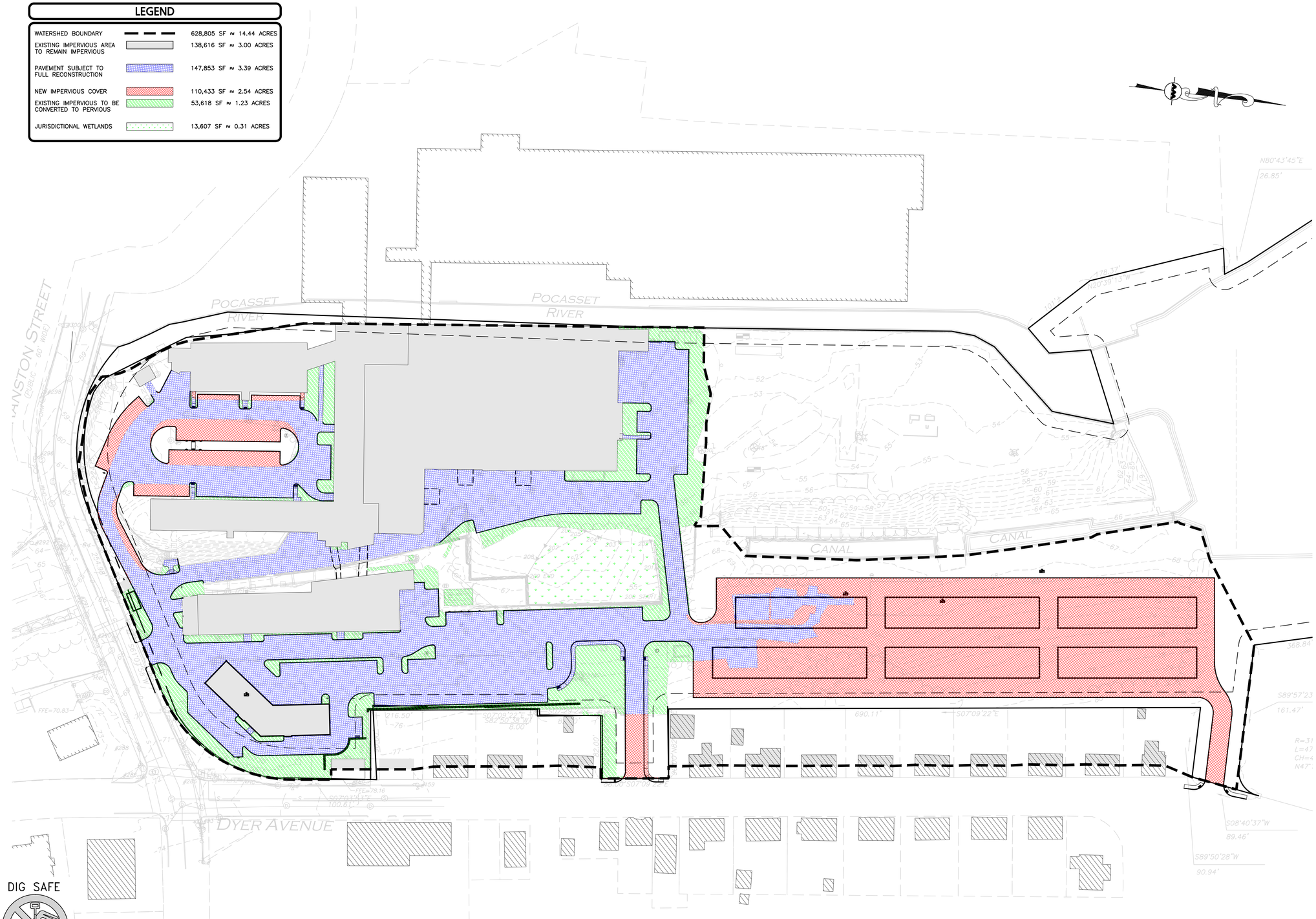
DRAWING TITLE: EXISTING IMPERVIOUS PLAN

FIGURE No. 1

R:\PROJECTS\2038-08\CIVIL\DRAWINGS\CURRENT\C-2038-08_EXISTING IMPERVIOUS PLAN.DWG

LEGEND

WATERSHED BOUNDARY	— — —	628,805 SF ≈ 14.44 ACRES
EXISTING IMPERVIOUS AREA TO REMAIN IMPERVIOUS		138,616 SF ≈ 3.00 ACRES
PAVEMENT SUBJECT TO FULL RECONSTRUCTION		147,853 SF ≈ 3.39 ACRES
NEW IMPERVIOUS COVER		110,433 SF ≈ 2.54 ACRES
EXISTING IMPERVIOUS TO BE CONVERTED TO PERVIOUS		53,618 SF ≈ 1.23 ACRES
JURISDICTIONAL WETLANDS		13,607 SF ≈ 0.31 ACRES



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GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

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SCALE:	1" = 60'	DWG.:	C:\2038-08_WATERSHED-REDEVELOPMENT
DESIGNED BY:	JRG	CHECKED BY:	MAM

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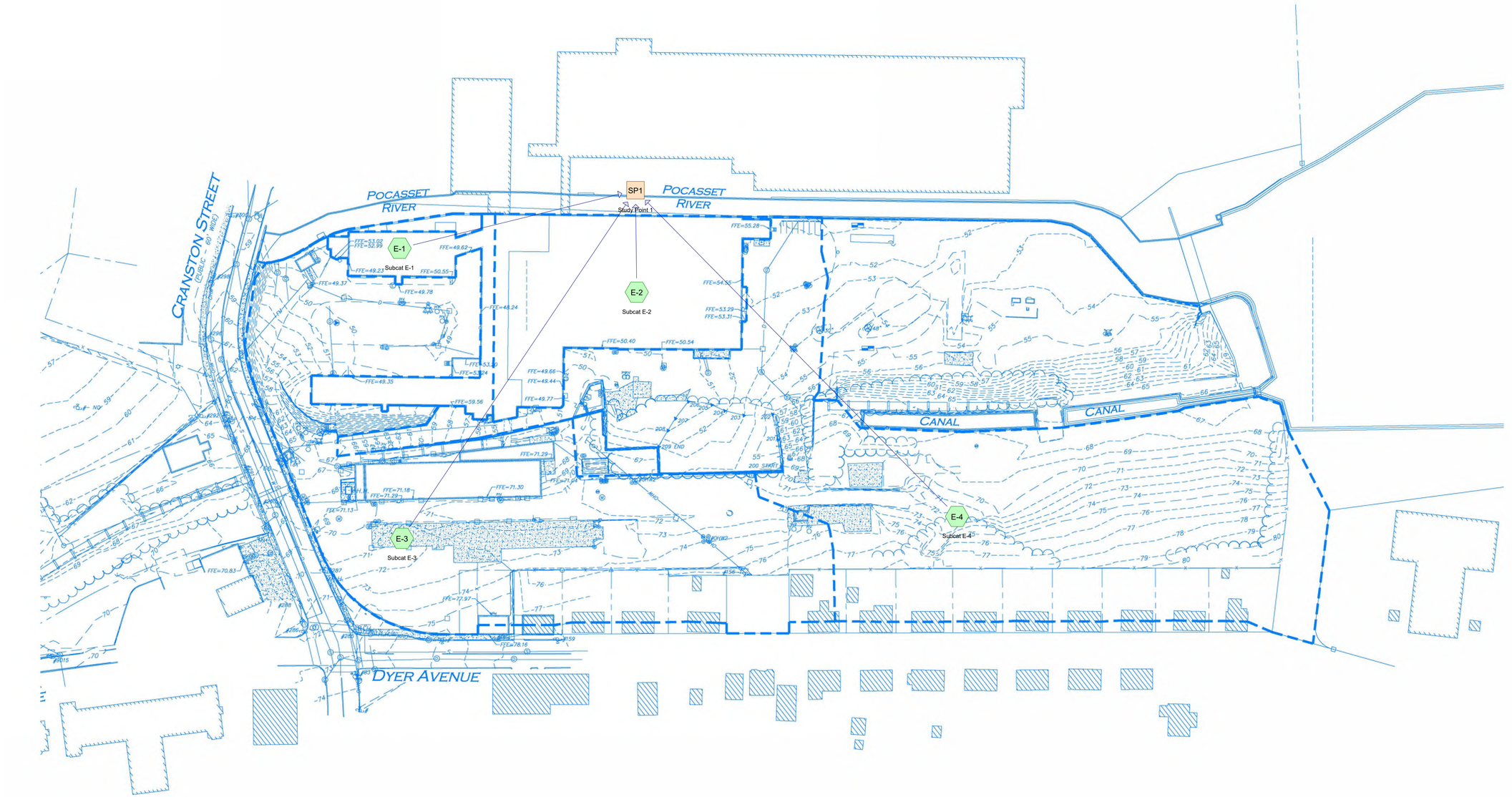
DRAWING TITLE:

REDEVELOPMENT
WATERSHED PLAN

FIGURE No.

2

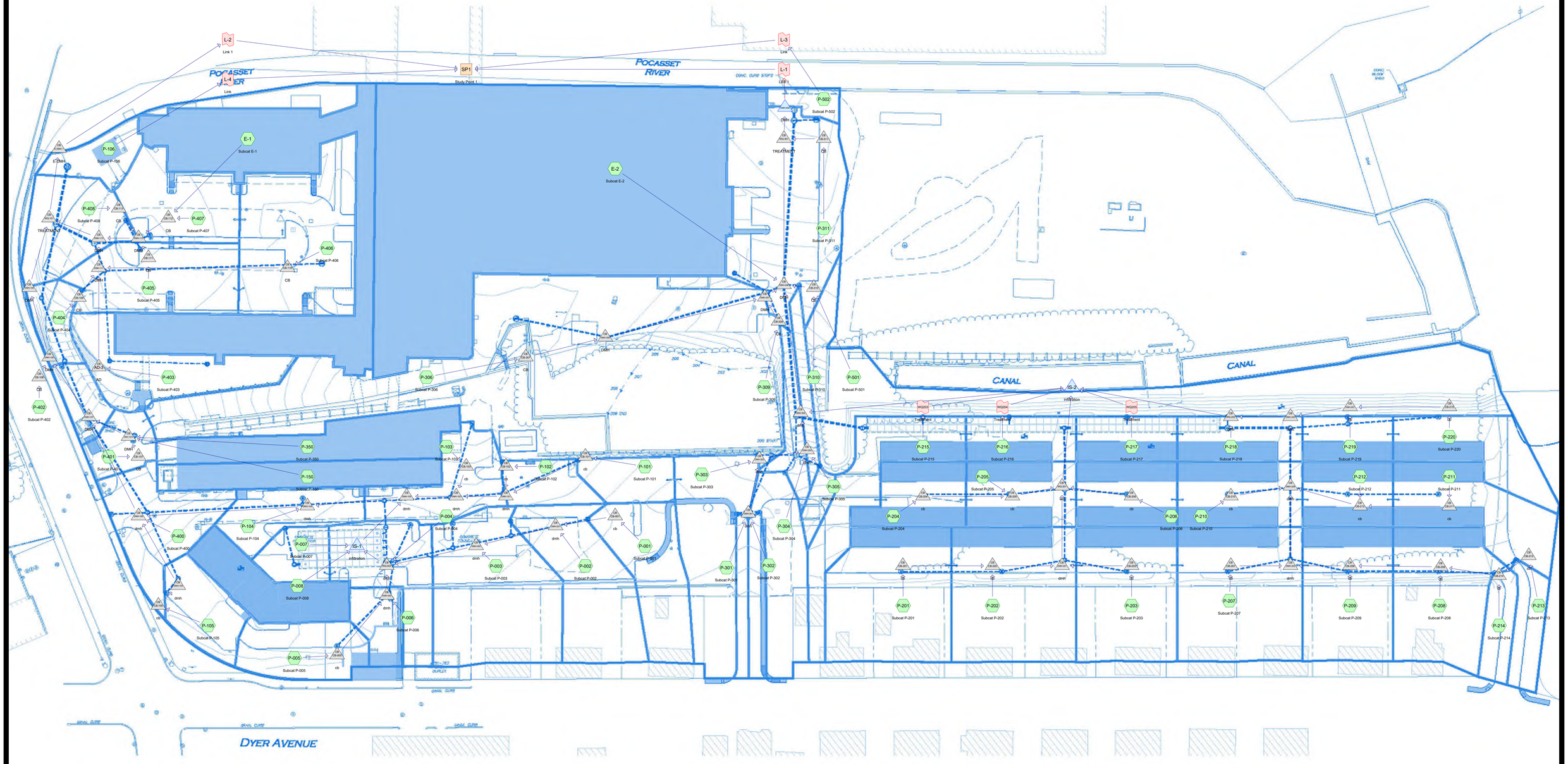
R:\PROJECTS\2038-08\CIVIL\DRAWINGS\CURRENT\C-2038-08_WATERSHED-REDEVELOPMENT.DWG



Subcat Reach Pond Link

Routing Diagram for 2038-08_Existing HydroCAD

Prepared by Allen & Major Associates, Inc, Printed 10/6/2023



Subcat | Reach | Pond | Link

Routing Diagram for 2038-08_Proposed HydroCAD

Prepared by Allen & Major Associates, Inc, Printed 10/6/2023