Drainage Calculations and Stormwater Management Plan

In Support of a

A Comprehensive Permit

For:

The Cottages at Old Oaken Bucket

279-281 Old Oaken Bucket Rd.
Scituate, MA

Submitted to:

Town of Scituate Zoning Board of Appeals

Dated: January 18, 2022

Prepared By
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167R Summer Street
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Zoning Board of Appeals
Town of Scituate
600 Chief Justice Cushing Highway
Scituate, MA 02066

RE: Project Drainage Summary for The Cottages at Old Oaken Bucket
A Comprehensive Permit
279-281 Old Oaken Bucket Rd. Scituate, MA

Members of the Board,

We hereby submit these drainage calculations to accompany the site plans to support the construction of the proposed 32-unit Comprehensive Permit at 279-281 Old Oaken Bucket Rd. Scituate, MA.

We have complied with DEP Stormwater Management requirements as detailed in the following...

Standard 1 – No New Untreated Discharges

The proposed improvements to the property are designed so that new stormwater conveyances do not discharge untreated pavement runoff into or cause erosion to wetlands.

Standard 2 – Peak Rate Attenuation

The drainage study was completed using the SCS TR-20 computer program (HydroCAD) with the use of the Rainfall Depths of the Cornell method. The depths were provided for the 2, 10 and 100 year storms as required by MassDEP

The rainfall depths of the Cornell Method Rainfall Intensity Atlas were provided by the Northeast Regional Climate Center's Extreme Precipitation Estimates.

There is one Pre-Development watershed. The watershed on the east side of the site discharges west to Bordering Vegetated Wetland. This watershed is the Pre-development watershed considered in the calculations.

The Post-Development watershed plan details the proposed grading and construction of the development and drainage systems. It shows that drainage mitigation of peak runoff for the aforementioned storms will be provided by infiltration chambers.

Routing each of the storms through the Hydrocad model shows the following results...

Pre-Development vs. Post-Development to wetlands

storm	Exist. (CFS)	Prop. runoff (CFS
2-yr, 3.36 inches	1.88	0.58
10-yr, 4.98 inches	7.85	4.27
100-yr, 8.80 inches	28.79	20.16

The results above show that the proposed runoff discharging off-site will not exceed the discharge under existing conditions. Mounding and drawdown calculations are also included.

Standard 3 – Groundwater Recharge

Runoff from impervious areas will be infiltrated by the use of infiltration chambers and rain gardens, which will meet the Stormwater Guidelines to include:

- Utilize the "Simple Dynamic method for sizing the storage volume, which takes into account the fact that stormwater is exfiltrating from the infiltration basin at the same time that the basin is filling.
- Hydraulic conductivity are based on soil survey information and values developed from Rawls, Brakensiek and Saxton, 1982, Estimation of Soil Water Properties, *Transactions of the American Society of Agricultural Engineers*, vol. 25, no.5. The Rawls rate for A soils were used to determine the required infiltration volumes. The Rawls rate for B soils were used to determine the provided infiltration volumes.
- Refer to the detail sheets for soil testing results.

Standard 4 – Water Quality

The proposed stormwater management system includes deep sump catch basins, proprietary separators, infiltration chambers to collect runoff. Stormwater runoff from the cul-de-sac is routed to a Oil & Water Separator and then to a rain garden.

Removal rates for all paved surfaces are:

Deep sump catch basins	25%
First Defenders	80%

The proposed infiltration beds for the roof runoff do not require further water treatment.

The Standard is met.

Standard 5 – Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

The proposed project is not in a land use with higher potential pollutant loads. The standard is met

Standard 6 – Critical Areas

The proposed project is partially located within a critical area.

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

The proposed project is not a Redevelopment project. Not applicable.

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

Straw wattles will be used for erosion control devices in place of haybales and siltation fence and will be placed at the down-gradient limit of work prior to the commencement of any construction activity. The integrity of the wattles will be maintained by periodic inspection and replacement as necessary. The wattles will remain in place for the duration of the project. Refer to the plans for the locations of the erosion and sedimentation controls as well as the construction details.

Also, a Construction Phase Pollution Prevention and Erosion and Sedimentation Plan has been developed for the project and is attached to this report, see the Appendices. The Standard is met.

Standard 9 – Operation and Maintenance Plan

The Long-Term Pollution Prevention Plan has been incorporated into the Post-Development Operation and Maintenance Plan. Refer to Appendices for BMP Operation and Maintenance Plans.

The Standard is met.

Standard 10 – Prohibition of Illicit Discharges

No illicit discharges have been observed on site. Furthermore, measures to prevent illicit discharges are included in the Long-Term Pollution Prevention Plan. Therefore, provisions have been made to prevent illicit discharges.

The Standard is met.

If you have any questions, please contact us.

Very Truly Yours,
Anthony Esposito

Anthony A. Esposito, P.E.
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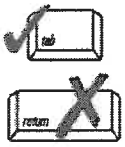
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

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



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

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

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

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

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

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

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

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

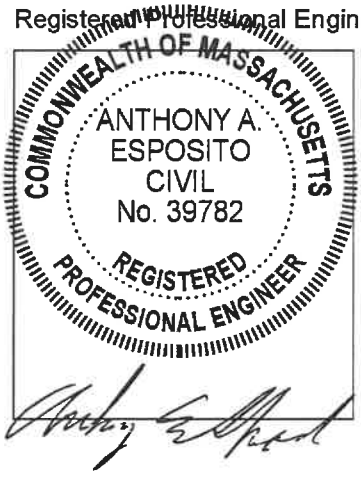
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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

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

Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature



Anthony Esposito
Signature and Date

Checklist

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

☒ New development

☐ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

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

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

Standard 1: No New Untreated Discharges

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

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☒ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☒ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☒ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

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

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☒ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

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

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☒ The BMP is sized (and calculations provided) based on:

- ☒ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

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

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☒ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☒ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

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

☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☐ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

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

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

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

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

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☐ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☐ Description and delineation of public safety features;
- ☒ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

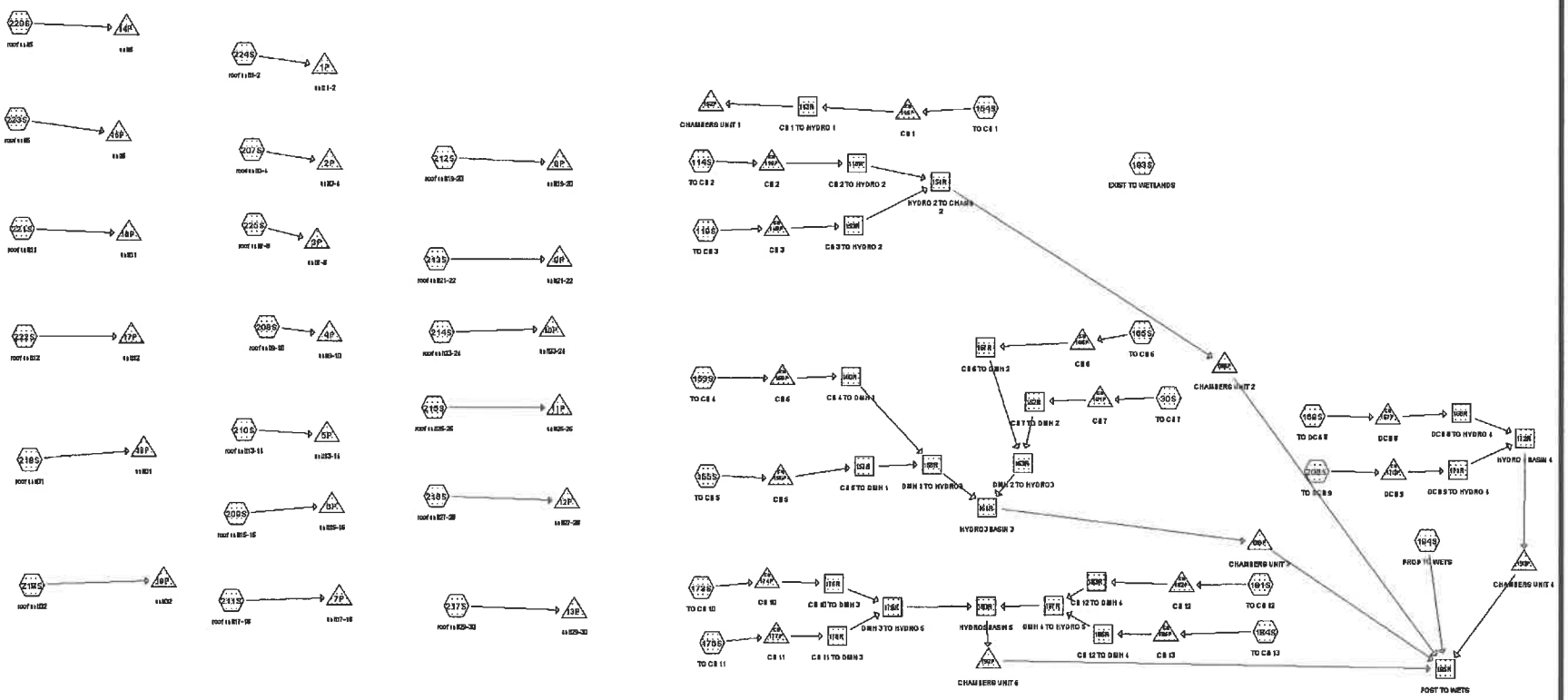
- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☒ An Illicit Discharge Compliance Statement is attached;

☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.



Routing Diagram for oldoakenbuckett
Prepared by ANTHONY A. ESPOSITO, Printed 2/15/2022

Summary for Subcatchment 30S: TO CB 7

Runoff = 0.15 cfs @ 12.08 hrs, Volume= 0.012 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

	Area (sf)	CN	Description
*	2,045	98	IMPERVIOUS
	2,045		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 114S: TO CB 2

Runoff = 0.32 cfs @ 12.48 hrs, Volume= 0.046 af, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

	Area (sf)	CN	Description
*	5,949	98	IMPERVIOUS
	22,185	61	>75% Grass cover, Good, HSG B
	3,121	55	Woods, Good, HSG B
	31,255	67	Weighted Average
	25,306		80.97% Pervious Area
	5,949		19.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	50	0.0100	0.03		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.37"
1.6	171	0.0116	1.73		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.5	124	0.0800	4.55		**Shallow Concentrated Flow, CD** Unpaved Kv= 16.1 fps
0.0	7	0.0200	2.87		**Shallow Concentrated Flow, DE** Paved Kv= 20.3 fps
29.7	352	Total			

Summary for Subcatchment 119S: TO CB 3

Runoff = 0.37 cfs @ 12.09 hrs, Volume= 0.027 af, Depth= 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

	Area (sf)	CN	Description
*	4,767	98	IMPERVIOUS
	975	61	>75% Grass cover, Good, HSG B
	5,742	92	Weighted Average
	975		16.98% Pervious Area
	4,767		83.02% 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 153S: TO CB 4

Runoff = 0.36 cfs @ 12.20 hrs, Volume= 0.035 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

	Area (sf)	CN	Description
*	5,695	98	IMPERVIOUS
	10,998	61	>75% Grass cover, Good, HSG B
	2,182	55	Woods, Good, HSG B
	18,875	71	Weighted Average
	13,180		69.83% Pervious Area
	5,695		30.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	50	0.0800	0.07		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.37"
1.1	188	0.0320	2.88		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.0	7	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
0.2	47	0.0300	3.52		**Shallow Concentrated Flow, DE** Paved Kv= 20.3 fps
13.3	292	Total			

Summary for Subcatchment 154S: TO CB 1

Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af, Depth= 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

	Area (sf)	CN	Description
*	2,341	98	IMPERVIOUS
	562	61	>75% Grass cover, Good, HSG B
	2,903	91	Weighted Average
	562		19.36% Pervious Area
	2,341		80.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.37"
0.1	22	0.0600	3.94		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
1.1	185	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
6.3	257	Total			

Summary for Subcatchment 155S: TO CB 5

Runoff = 0.32 cfs @ 12.08 hrs, Volume= 0.025 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

	Area (sf)	CN	Description
*	4,245	98	IMPERVIOUS
	233	61	>75% Grass cover, Good, HSG B
	4,478	96	Weighted Average
	233		5.20% Pervious Area
	4,245		94.80% 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 165S: TO CB 6

Runoff = 0.46 cfs @ 12.24 hrs, Volume= 0.067 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

	Area (sf)	CN	Description
*	3,299	98	IMPERVIOUS
	23,655	61	>75% Grass cover, Good, HSG B
	53,716	55	Woods, Good, HSG B
	80,670	59	Weighted Average
	77,371		95.91% Pervious Area
	3,299		4.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	50	0.0250	0.11		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.37"
2.0	298	0.0250	2.55		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
2.0	129	0.0465	1.08		**Shallow Concentrated Flow, CD** Woodland Kv= 5.0 fps
0.2	46	0.0240	3.14		**Shallow Concentrated Flow, DE** Paved Kv= 20.3 fps
11.5	523	Total			

Summary for Subcatchment 169S: TO DCB 8

Runoff = 0.58 cfs @ 12.18 hrs, Volume= 0.062 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

	Area (sf)	CN	Description
*	6,827	98	pavement
	32,629	61	>75% Grass cover, Good, HSG B
	8,195	55	Woods, Good, HSG B
	47,651	65	Weighted Average
	40,824		85.67% Pervious Area
	6,827		14.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0200	0.10		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.37"
0.5	116	0.0690	4.23		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.9	125	0.0200	2.28		**Shallow Concentrated Flow, CD** Unpaved Kv= 16.1 fps
1.7	364	0.0300	3.52		**Shallow Concentrated Flow, DE** Paved Kv= 20.3 fps
11.1	655	Total			

Summary for Subcatchment 173S: TO CB 10

Runoff = 0.30 cfs @ 12.33 hrs, Volume= 0.036 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

	Area (sf)	CN	Description
*	6,056	98	IMPERVIOUS
	7,937	61	>75% Grass cover, Good, HSG B
	6,364	55	Woods, Good, HSG B
	20,357	70	Weighted Average
	14,301		70.25% Pervious Area
	6,056		29.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	50	0.0250	0.04		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.37"
0.4	68	0.0250	2.55		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.1	25	0.0400	4.06		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
1.2	164	0.0210	2.33		**Shallow Concentrated Flow, DE** Unpaved Kv= 16.1 fps
0.6	140	0.0418	4.15		**Shallow Concentrated Flow, EF** Paved Kv= 20.3 fps
21.4	447	Total			

Summary for Subcatchment 176S: TO CB 11

Runoff = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

	Area (sf)	CN	Description
*	2,205	98	IMPERVIOUS
	2,205		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 181S: TO CB 12

Runoff = 0.47 cfs @ 12.09 hrs, Volume= 0.034 af, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

	Area (sf)	CN	Description
*	6,006	98	IMPERVIOUS
	3,266	61	>75% Grass cover, Good, HSG B
	9,272	85	Weighted Average
	3,266		35.22% Pervious Area
	6,006		64.78% 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 184S: TO CB 13

Runoff = 0.20 cfs @ 12.09 hrs, Volume= 0.014 af, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

	Area (sf)	CN	Description
*	2,568	98	IMPERVIOUS
	1,705	61	>75% Grass cover, Good, HSG B
	4,273	83	Weighted Average
	1,705		39.90% Pervious Area
	2,568		60.10% 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 193S: EXIST TO WETLANDS

Runoff = 1.88 cfs @ 12.45 hrs, Volume= 0.336 af, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

	Area (sf)	CN	Description
	321,173	55	Woods, Good, HSG B
*	8,361	98	ROOF, HSG B
*	415	98	CONCRETE, HSG B
	9,995	96	Gravel surface, HSG B
	44,142	61	>75% Grass cover, Good, HSG B
*	10,771	98	PAVEMENT, HSG B
	44,891	48	Brush, Good, HSG B
	439,748	58	Weighted Average
	420,201		95.55% Pervious Area
	19,547		4.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.8	50	0.0300	0.05		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.37"
2.5	524	0.0458	3.45		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
20.3	574	Total			

Summary for Subcatchment 194S: PROP TO WETS

Runoff = 0.58 cfs @ 12.44 hrs, Volume= 0.104 af, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
79,848	55	Woods, Good, HSG B
52,334	61	>75% Grass cover, Good, HSG B
1,627	98	Roofs, HSG B
1,832	96	Gravel surface, HSG B
135,641	58	Weighted Average
134,014		98.80% Pervious Area
1,627		1.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.8	50	0.0300	0.05		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.37"
1.8	352	0.0397	3.21		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.1	33	0.1800	6.83		**Shallow Concentrated Flow, CD** Unpaved Kv= 16.1 fps
19.7	435	Total			

Summary for Subcatchment 206S: TO DCB 9

Runoff = 0.99 cfs @ 12.09 hrs, Volume= 0.072 af, Depth= 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

	Area (sf)	CN	Description
*	12,510	98	pavement
	3,148	61	>75% Grass cover, Good, HSG B
	15,658	91	Weighted Average
	3,148		20.10% Pervious Area
	12,510		79.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR55 MIN**

Summary for Subcatchment 207S: roof unit3-4

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 208S: roof unit9-10

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 209S: roof unit15-16

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 210S: roof unit13-14

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 211S: roof unit17-18

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 212S: roof unit19-20

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 213S: roof unit21-22

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 214S: roof unit23-24

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 215S: roof unit25-26

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 216S: roof unit27-28

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 217S: roof unit29-30

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 218S: roof unit31

Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 219S: roof unit32

Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 220S: roof unit5

Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 221S: roof unit11

Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 222S: roof unit12

Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 223S: roof unit6

Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 224S: roof unit1-2

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 225S: roof unit7-8

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 002 Rainfall=3.36"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		100.00% Impervious Area

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

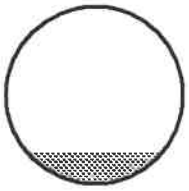
Summary for Reach 113R: CB 1 TO HYDRO 1

Inflow Area = 0.067 ac, 80.64% Impervious, Inflow Depth = 2.41" for cornell 002 event
Inflow = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 1.85 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.62 fps, Avg. Travel Time= 0.6 min

Peak Storage= 2 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 24.0' Slope= 0.0050 '/'
Inlet Invert= 102.27', Outlet Invert= 102.15'



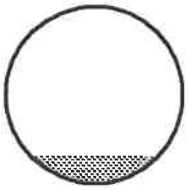
Summary for Reach 118R: CB 2 TO HYDRO 2

Inflow Area = 0.718 ac, 19.03% Impervious, Inflow Depth = 0.77" for cornell 002 event
Inflow = 0.32 cfs @ 12.48 hrs, Volume= 0.046 af
Outflow = 0.32 cfs @ 12.48 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.95 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.88 fps, Avg. Travel Time= 0.1 min

Peak Storage= 1 cf @ 12.48 hrs
Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.79 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0264 '/'
Inlet Invert= 95.91', Outlet Invert= 95.54'



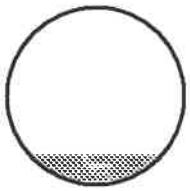
Summary for Reach 150R: CB 3 TO HYDRO 2

Inflow Area = 0.132 ac, 83.02% Impervious, Inflow Depth = 2.50" for cornell 002 event
Inflow = 0.37 cfs @ 12.09 hrs, Volume= 0.027 af
Outflow = 0.37 cfs @ 12.09 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.14 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.37 fps, Avg. Travel Time= 0.2 min

Peak Storage= 1 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.79 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0264 '/'
Inlet Invert= 95.91', Outlet Invert= 95.54'



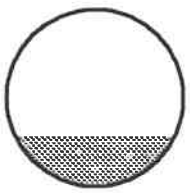
Summary for Reach 151R: HYDRO 2 TO CHAMB 2

Inflow Area = 0.849 ac, 28.96% Impervious, Inflow Depth = 1.04" for cornell 002 event
Inflow = 0.44 cfs @ 12.10 hrs, Volume= 0.074 af
Outflow = 0.43 cfs @ 12.10 hrs, Volume= 0.074 af, Atten= 1%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.37 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.98 fps, Avg. Travel Time= 0.3 min

Peak Storage= 3 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.49 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 18.5' Slope= 0.0049 '/'
Inlet Invert= 102.05', Outlet Invert= 101.96'



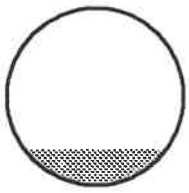
Summary for Reach 157R: CB 5 TO DMH 1

Inflow Area = 0.103 ac, 94.80% Impervious, Inflow Depth = 2.91" for cornell 002 event
Inflow = 0.32 cfs @ 12.08 hrs, Volume= 0.025 af
Outflow = 0.32 cfs @ 12.09 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.81 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.92 fps, Avg. Travel Time= 0.3 min

Peak Storage= 2 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0100 '/'
Inlet Invert= 90.86', Outlet Invert= 90.72'



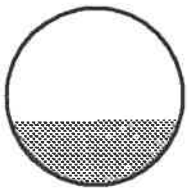
Summary for Reach 158R: DMH 1 TO HYDRO3

Inflow Area = 0.536 ac, 42.56% Impervious, Inflow Depth = 1.35" for cornell 002 event
Inflow = 0.59 cfs @ 12.13 hrs, Volume= 0.060 af
Outflow = 0.58 cfs @ 12.14 hrs, Volume= 0.060 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.25 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 0.78 fps, Avg. Travel Time= 2.5 min

Peak Storage= 30 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.36'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.06 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 117.0' Slope= 0.0033 '/'
Inlet Invert= 88.90', Outlet Invert= 88.51'



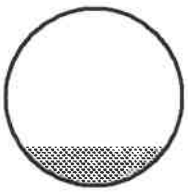
Summary for Reach 160R: CB 4 TO DMH 1

Inflow Area = 0.433 ac, 30.17% Impervious, Inflow Depth = 0.98" for cornell 002 event
Inflow = 0.36 cfs @ 12.20 hrs, Volume= 0.035 af
Outflow = 0.36 cfs @ 12.20 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.91 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.23 fps, Avg. Travel Time= 0.2 min

Peak Storage= 2 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0100 '/'
Inlet Invert= 90.86', Outlet Invert= 90.72'



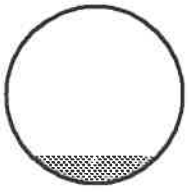
Summary for Reach 162R: CB 7 TO DMH 2

Inflow Area = 0.047 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.15 cfs @ 12.08 hrs, Volume= 0.012 af
Outflow = 0.15 cfs @ 12.09 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 1.83 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 0.60 fps, Avg. Travel Time= 1.0 min

Peak Storage= 3 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.66 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 36.0' Slope= 0.0056 '/'
Inlet Invert= 88.87', Outlet Invert= 88.67'



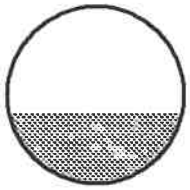
Summary for Reach 163R: DMH 2 TO HYDRO3

Inflow Area = 1.899 ac, 6.46% Impervious, Inflow Depth = 0.50" for cornell 002 event
Inflow = 0.54 cfs @ 12.22 hrs, Volume= 0.079 af
Outflow = 0.54 cfs @ 12.22 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 1.85 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 0.70 fps, Avg. Travel Time= 0.7 min

Peak Storage= 8 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 1.62 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 29.0' Slope= 0.0021 '/'
Inlet Invert= 88.57', Outlet Invert= 88.51'



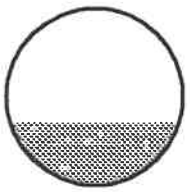
Summary for Reach 164R: HYDRO3 BASIN 3

Inflow Area = 2.435 ac, 14.41% Impervious, Inflow Depth = 0.69" for cornell 002 event
Inflow = 1.09 cfs @ 12.19 hrs, Volume= 0.140 af
Outflow = 1.09 cfs @ 12.19 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.43 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.59 fps, Avg. Travel Time= 0.9 min

Peak Storage= 20 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.13 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 82.0' Slope= 0.0134 '/'
Inlet Invert= 88.41', Outlet Invert= 87.31'



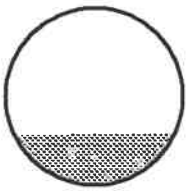
Summary for Reach 167R: CB 6 TO DMH 2

Inflow Area = 1.852 ac, 4.09% Impervious, Inflow Depth = 0.44" for cornell 002 event
Inflow = 0.46 cfs @ 12.24 hrs, Volume= 0.067 af
Outflow = 0.46 cfs @ 12.24 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.49 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.28 fps, Avg. Travel Time= 0.2 min

Peak Storage= 3 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.59 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 17.0' Slope= 0.0053 '/'
Inlet Invert= 88.96', Outlet Invert= 88.87'



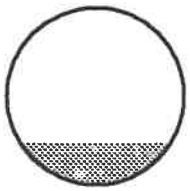
Summary for Reach 168R: DCB 8 TO HYDRO 4

Inflow Area = 1.094 ac, 14.33% Impervious, Inflow Depth = 0.68" for cornell 002 event
Inflow = 0.58 cfs @ 12.18 hrs, Volume= 0.062 af
Outflow = 0.58 cfs @ 12.18 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.28 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.93 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 12.18 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.04 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 12.0' Slope= 0.0200 '/'
Inlet Invert= 80.27', Outlet Invert= 80.03'



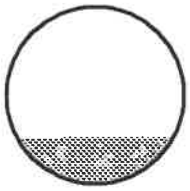
Summary for Reach 171R: DCB 9 TO HYDRO 4

Inflow Area = 0.359 ac, 79.90% Impervious, Inflow Depth = 2.41" for cornell 002 event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 0.072 af
Outflow = 0.99 cfs @ 12.09 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.03 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.01 fps, Avg. Travel Time= 0.1 min

Peak Storage= 1 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.60 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 7.0' Slope= 0.0343 '/'
Inlet Invert= 80.27', Outlet Invert= 80.03'



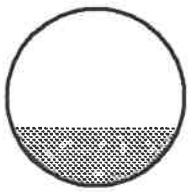
Summary for Reach 172R: HYDRO 4 BASIN 4

Inflow Area = 1.453 ac, 30.54% Impervious, Inflow Depth = 1.11" for cornell 002 event
Inflow = 1.41 cfs @ 12.12 hrs, Volume= 0.134 af
Outflow = 1.41 cfs @ 12.12 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.26 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.27 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.02 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0286 '/'
Inlet Invert= 79.90', Outlet Invert= 79.50'



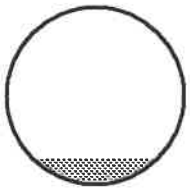
Summary for Reach 175R: CB 10 TO DMH 3

Inflow Area = 0.467 ac, 29.75% Impervious, Inflow Depth = 0.92" for cornell 002 event
Inflow = 0.30 cfs @ 12.33 hrs, Volume= 0.036 af
Outflow = 0.30 cfs @ 12.33 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.12 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.84 fps, Avg. Travel Time= 0.1 min

Peak Storage= 1 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.32 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0314 '/'
Inlet Invert= 84.79', Outlet Invert= 84.35'



Summary for Reach 178R: CB 11 TO DMH 3

Inflow Area = 0.051 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af
Outflow = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.44 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.15 fps, Avg. Travel Time= 0.2 min

Peak Storage= 1 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.32 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0314 '/'
Inlet Invert= 84.79', Outlet Invert= 84.35'

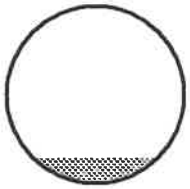
Summary for Reach 179R: DMH 3 TO HYDRO 5

Inflow Area = 0.518 ac, 36.61% Impervious, Inflow Depth = 1.14" for cornell 002 event
Inflow = 0.36 cfs @ 12.31 hrs, Volume= 0.049 af
Outflow = 0.36 cfs @ 12.32 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.88 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.78 fps, Avg. Travel Time= 1.9 min

Peak Storage= 15 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.41 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 203.4' Slope= 0.0433 '/'
Inlet Invert= 84.35', Outlet Invert= 75.54'



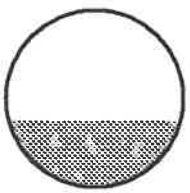
Summary for Reach 180R: HYDRO5 BASIN 5

Inflow Area = 0.829 ac, 46.63% Impervious, Inflow Depth = 1.40" for cornell 002 event
Inflow = 0.94 cfs @ 12.10 hrs, Volume= 0.097 af
Outflow = 0.94 cfs @ 12.10 hrs, Volume= 0.097 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.47 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.14 fps, Avg. Travel Time= 0.3 min

Peak Storage= 6 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.38'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.13 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 22.0' Slope= 0.0077 '/'
Inlet Invert= 74.47', Outlet Invert= 74.30'



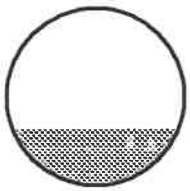
Summary for Reach 183R: CB 12 TO DMH 4

Inflow Area = 0.213 ac, 64.78% Impervious, Inflow Depth = 1.89" for cornell 002 event
Inflow = 0.47 cfs @ 12.09 hrs, Volume= 0.034 af
Outflow = 0.47 cfs @ 12.09 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.17 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.77 fps, Avg. Travel Time= 0.3 min

Peak Storage= 3 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.13 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0036 '/'
Inlet Invert= 74.78', Outlet Invert= 74.73'



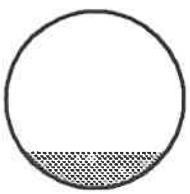
Summary for Reach 186R: CB 12 TO DMH 4

Inflow Area = 0.098 ac, 60.10% Impervious, Inflow Depth = 1.74" for cornell 002 event
Inflow = 0.20 cfs @ 12.09 hrs, Volume= 0.014 af
Outflow = 0.20 cfs @ 12.09 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 1.69 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.61 fps, Avg. Travel Time= 0.4 min

Peak Storage= 2 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.13 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0036 '/'
Inlet Invert= 74.78', Outlet Invert= 74.73'



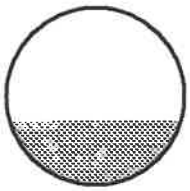
Summary for Reach 187R: DMH 4 TO HYDRO 5

Inflow Area = 0.311 ac, 63.30% Impervious, Inflow Depth = 1.85" for cornell 002 event
Inflow = 0.67 cfs @ 12.09 hrs, Volume= 0.048 af
Outflow = 0.67 cfs @ 12.09 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.62 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.93 fps, Avg. Travel Time= 0.2 min

Peak Storage= 3 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.36'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.42 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 13.0' Slope= 0.0046 '/'
Inlet Invert= 74.63', Outlet Invert= 74.57'



Summary for Reach 195R: POST TO WETS

Inflow Area = 8.680 ac, 16.87% Impervious, Inflow Depth = 0.14" for cornell 002 event
Inflow = 0.58 cfs @ 12.44 hrs, Volume= 0.104 af
Outflow = 0.58 cfs @ 12.44 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs

Summary for Pond 1P: unit 1-2

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af
Outflow = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af, Atten= 84%, Lag= 28.6 min
Discarded = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 97.41' @ 12.56 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 52.2 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 52.1 min (807.5 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	96.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	96.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	96.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 94.00'

Discarded OutFlow Max=0.05 cfs @ 12.56 hrs HW=97.41' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 2P: unit3-4

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af
Outflow = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af, Atten= 84%, Lag= 28.6 min
Discarded = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 98.41' @ 12.56 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 52.2 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 52.1 min (807.5 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	97.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	97.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	97.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 95.00'

Discarded OutFlow Max=0.05 cfs @ 12.56 hrs HW=98.41' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 3P: unit7-8

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af
Outflow = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af, Atten= 84%, Lag= 28.6 min
Discarded = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 100.81' @ 12.56 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 52.2 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 52.1 min (807.5 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	99.50'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	100.00'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.50'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 97.40'

Discarded OutFlow Max=0.05 cfs @ 12.56 hrs HW=100.81' (Free Discharge)
↑**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 4P: unit9-10

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af
Outflow = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af, Atten= 84%, Lag= 28.6 min
Discarded = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 97.21' @ 12.56 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 52.2 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 52.1 min (807.5 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	95.90'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	96.40'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	95.90'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 93.80'

Discarded OutFlow Max=0.05 cfs @ 12.56 hrs HW=97.21' (Free Discharge)
↑**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 5P: unit13-14

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af
Outflow = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af, Atten= 84%, Lag= 28.6 min
Discarded = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 92.41' @ 12.56 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 52.2 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 52.1 min (807.5 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	91.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	91.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	91.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 89.00'

Discarded OutFlow Max=0.05 cfs @ 12.56 hrs HW=92.41' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 6P: unit15-16

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af
Outflow = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af, Atten= 84%, Lag= 28.6 min
Discarded = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 86.91' @ 12.56 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 52.2 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 52.1 min (807.5 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	85.60'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	86.10'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	85.60'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 83.50'

Discarded OutFlow Max=0.05 cfs @ 12.56 hrs HW=86.91' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 7P: unit17-18

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af
Outflow = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af, Atten= 84%, Lag= 28.6 min
Discarded = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 86.01' @ 12.56 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 52.2 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 52.1 min (807.5 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	84.70'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	85.20'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	84.70'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 82.60'

Discarded OutFlow Max=0.05 cfs @ 12.56 hrs HW=86.01' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 8P: unit19-20

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af
Outflow = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af, Atten= 84%, Lag= 28.6 min
Discarded = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 80.01' @ 12.56 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 52.2 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 52.1 min (807.5 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	78.70'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	79.20'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	78.70'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 76.60'

Discarded OutFlow Max=0.05 cfs @ 12.56 hrs HW=80.01' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 9P: unit21-22

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af
Outflow = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af, Atten= 84%, Lag= 28.6 min
Discarded = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 75.41' @ 12.56 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 52.2 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 52.1 min (807.5 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	74.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	74.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	74.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 72.00'

Discarded OutFlow Max=0.05 cfs @ 12.56 hrs HW=75.41' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 10P: unit23-24

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af
Outflow = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af, Atten= 84%, Lag= 28.6 min
Discarded = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 76.41' @ 12.56 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 52.2 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 52.1 min (807.5 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	75.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	75.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	75.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 73.00'

Discarded OutFlow Max=0.05 cfs @ 12.56 hrs HW=76.41' (Free Discharge)
↑**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 11P: unit25-26

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af
Outflow = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af, Atten= 84%, Lag= 28.6 min
Discarded = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 77.41' @ 12.56 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 52.2 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 52.1 min (807.5 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	76.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	76.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	76.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 74.00'

Discarded OutFlow Max=0.05 cfs @ 12.56 hrs HW=77.41' (Free Discharge)
↑**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 12P: unit27-28

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af
Outflow = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af, Atten= 84%, Lag= 28.6 min
Discarded = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 78.41' @ 12.56 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 52.2 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 52.1 min (807.5 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	77.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	77.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	77.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 75.00'

Discarded OutFlow Max=0.05 cfs @ 12.56 hrs HW=78.41' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 13P: unit29-30

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af
Outflow = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af, Atten= 84%, Lag= 28.6 min
Discarded = 0.05 cfs @ 12.56 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 81.41' @ 12.56 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 52.2 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 52.1 min (807.5 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	80.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	80.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	80.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 78.00'

Discarded OutFlow Max=0.05 cfs @ 12.56 hrs HW=81.41' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 14P: unit5

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 12.55 hrs, Volume= 0.011 af, Atten= 83%, Lag= 27.7 min
Discarded = 0.02 cfs @ 12.55 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 96.32' @ 12.55 hrs Surf.Area= 0.004 ac Storage= 0.003 af

Plug-Flow detention time= 46.5 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 46.5 min (801.8 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	95.10'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	95.60'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	95.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 93.00'

Discarded OutFlow Max=0.02 cfs @ 12.55 hrs HW=96.32' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.02 cfs)

Summary for Pond 15P: unit6

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 12.55 hrs, Volume= 0.011 af, Atten= 83%, Lag= 27.7 min
Discarded = 0.02 cfs @ 12.55 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 106.62' @ 12.55 hrs Surf.Area= 0.004 ac Storage= 0.003 af

Plug-Flow detention time= 46.5 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 46.5 min (801.8 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	105.40'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	105.90'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.40'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 103.30'

Discarded OutFlow Max=0.02 cfs @ 12.55 hrs HW=106.62' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.02 cfs)

Summary for Pond 16P: unit11

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 12.55 hrs, Volume= 0.011 af, Atten= 83%, Lag= 27.7 min
Discarded = 0.02 cfs @ 12.55 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 96.12' @ 12.55 hrs Surf.Area= 0.004 ac Storage= 0.003 af

Plug-Flow detention time= 46.5 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 46.5 min (801.8 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	94.90'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	95.40'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	94.90'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 92.80'

Discarded OutFlow Max=0.02 cfs @ 12.55 hrs HW=96.12' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.02 cfs)

Summary for Pond 17P: unit12

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 12.55 hrs, Volume= 0.011 af, Atten= 83%, Lag= 27.7 min
Discarded = 0.02 cfs @ 12.55 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 91.12' @ 12.55 hrs Surf.Area= 0.004 ac Storage= 0.003 af

Plug-Flow detention time= 46.5 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 46.5 min (801.8 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	89.90'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	90.40'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	89.90'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 87.80'

Discarded OutFlow Max=0.02 cfs @ 12.55 hrs HW=91.12' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.02 cfs)

Summary for Pond 18P: unit31

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 12.55 hrs, Volume= 0.011 af, Atten= 83%, Lag= 27.7 min
Discarded = 0.02 cfs @ 12.55 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 85.32' @ 12.55 hrs Surf.Area= 0.004 ac Storage= 0.003 af

Plug-Flow detention time= 46.5 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 46.5 min (801.8 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	84.10'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	84.60'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	84.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 82.00'

Discarded OutFlow Max=0.02 cfs @ 12.55 hrs HW=85.32' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.02 cfs)

Summary for Pond 19P: unit32

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 12.55 hrs, Volume= 0.011 af, Atten= 83%, Lag= 27.7 min
Discarded = 0.02 cfs @ 12.55 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 88.32' @ 12.55 hrs Surf.Area= 0.004 ac Storage= 0.003 af

Plug-Flow detention time= 46.5 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 46.5 min (801.8 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1	87.10'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	87.60'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	87.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 85.00'

Discarded OutFlow Max=0.02 cfs @ 12.55 hrs HW=88.32' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.02 cfs)

Summary for Pond 115P: CB 1

Inflow Area = 0.067 ac, 80.64% Impervious, Inflow Depth = 2.41" for cornell 002 event
Inflow = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Primary = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 102.48' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	102.27'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.18 cfs @ 12.09 hrs HW=102.47' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.18 cfs @ 1.54 fps)

Summary for Pond 116P: CB 2

Inflow Area = 0.718 ac, 19.03% Impervious, Inflow Depth = 0.77" for cornell 002 event
Inflow = 0.32 cfs @ 12.48 hrs, Volume= 0.046 af
Outflow = 0.32 cfs @ 12.48 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min
Primary = 0.32 cfs @ 12.48 hrs, Volume= 0.046 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 96.16' @ 12.48 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	95.91'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.32 cfs @ 12.48 hrs HW=96.16' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.32 cfs @ 1.69 fps)

Summary for Pond 149P: CB 3

Inflow Area = 0.132 ac, 83.02% Impervious, Inflow Depth = 2.50" for cornell 002 event
Inflow = 0.37 cfs @ 12.09 hrs, Volume= 0.027 af
Outflow = 0.37 cfs @ 12.09 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min
Primary = 0.37 cfs @ 12.09 hrs, Volume= 0.027 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 96.18' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	95.91'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.37 cfs @ 12.09 hrs HW=96.17' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.37 cfs @ 1.75 fps)

Summary for Pond 152P: CHAMBERS UNIT 1

Inflow Area = 0.067 ac, 80.64% Impervious, Inflow Depth = 2.41" for cornell 002 event
Inflow = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.03 cfs @ 12.61 hrs, Volume= 0.013 af, Atten= 85%, Lag= 31.1 min
Discarded = 0.03 cfs @ 12.61 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 101.88' @ 12.61 hrs Surf.Area= 0.009 ac Storage= 0.004 af

Plug-Flow detention time= 51.0 min calculated for 0.013 af (100% of inflow)
Center-of-Mass det. time= 51.0 min (852.4 - 801.4)

Volume	Invert	Avail.Storage	Storage Description
#1	101.10'	0.007 af	**9.09'W x 43.00'L x 5.00'H Prismatoid** 0.045 af Overall - 0.027 af Embedded = 0.018 af x 40.0% Voids
#2	101.60'	0.027 af	**Cultec R-902HD** x 18 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 3 Rows of 6 Chambers Cap Storage= +2.8 cf x 2 x 3 rows = 16.6 cf
		0.034 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.10'	**2.410 in/hr Exfiltration over Wetted area**

Conductivity to Groundwater Elevation = 62.00'

Discarded OutFlow Max=0.03 cfs @ 12.61 hrs HW=101.88' (Free Discharge)
1=Exfiltration (Controls 0.03 cfs)

Summary for Pond 156P: CB 5

Inflow Area = 0.103 ac, 94.80% Impervious, Inflow Depth = 2.91" for cornell 002 event
Inflow = 0.32 cfs @ 12.08 hrs, Volume= 0.025 af
Outflow = 0.32 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.32 cfs @ 12.08 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 91.14' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	90.86'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.32 cfs @ 12.08 hrs HW=91.14' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.32 cfs @ 1.79 fps)

Summary for Pond 159P: CB 5

Inflow Area = 0.433 ac, 30.17% Impervious, Inflow Depth = 0.98" for cornell 002 event
Inflow = 0.36 cfs @ 12.20 hrs, Volume= 0.035 af
Outflow = 0.36 cfs @ 12.20 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.20 hrs, Volume= 0.035 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 91.16' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	90.86'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.36 cfs @ 12.20 hrs HW=91.15' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.36 cfs @ 1.85 fps)

Summary for Pond 161P: CB 7

Inflow Area = 0.047 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.15 cfs @ 12.08 hrs, Volume= 0.012 af
Outflow = 0.15 cfs @ 12.08 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Primary = 0.15 cfs @ 12.08 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 89.06' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	88.87'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.15 cfs @ 12.08 hrs HW=89.06' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.15 cfs @ 1.47 fps)

Summary for Pond 166P: CB 6

Inflow Area = 1.852 ac, 4.09% Impervious, Inflow Depth = 0.44" for cornell 002 event
Inflow = 0.46 cfs @ 12.24 hrs, Volume= 0.067 af
Outflow = 0.46 cfs @ 12.24 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min
Primary = 0.46 cfs @ 12.24 hrs, Volume= 0.067 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 89.30' @ 12.24 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	88.96'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.46 cfs @ 12.24 hrs HW=89.30' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.46 cfs @ 1.97 fps)

Summary for Pond 167P: DCB 8

Inflow Area = 1.094 ac, 14.33% Impervious, Inflow Depth = 0.68" for cornell 002 event
Inflow = 0.58 cfs @ 12.18 hrs, Volume= 0.062 af
Outflow = 0.58 cfs @ 12.18 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min
Primary = 0.58 cfs @ 12.18 hrs, Volume= 0.062 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 80.65' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	80.27'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.58 cfs @ 12.18 hrs HW=80.65' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.58 cfs @ 2.10 fps)

Summary for Pond 170P: DCB 9

Inflow Area = 0.359 ac, 79.90% Impervious, Inflow Depth = 2.41" for cornell 002 event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 0.072 af
Outflow = 0.99 cfs @ 12.09 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.0 min
Primary = 0.99 cfs @ 12.09 hrs, Volume= 0.072 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 80.78' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	80.27'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.97 cfs @ 12.09 hrs HW=80.78' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.97 cfs @ 2.43 fps)

Summary for Pond 174P: CB 10

Inflow Area = 0.467 ac, 29.75% Impervious, Inflow Depth = 0.92" for cornell 002 event
Inflow = 0.30 cfs @ 12.33 hrs, Volume= 0.036 af
Outflow = 0.30 cfs @ 12.33 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.33 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 85.06' @ 12.33 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	84.79'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.30 cfs @ 12.33 hrs HW=85.06' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.30 cfs @ 1.76 fps)

Summary for Pond 177P: CB 11

Inflow Area = 0.051 ac,100.00% Impervious, Inflow Depth = 3.13" for cornell 002 event
Inflow = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af
Outflow = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 84.99' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	84.79'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.16 cfs @ 12.08 hrs HW=84.98' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.16 cfs @ 1.50 fps)

Summary for Pond 182P: CB 12

Inflow Area = 0.213 ac, 64.78% Impervious, Inflow Depth = 1.89" for cornell 002 event
Inflow = 0.47 cfs @ 12.09 hrs, Volume= 0.034 af
Outflow = 0.47 cfs @ 12.09 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.09 hrs, Volume= 0.034 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 75.12' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.78'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.46 cfs @ 12.09 hrs HW=75.12' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.46 cfs @ 1.98 fps)

Summary for Pond 185P: CB 13

Inflow Area = 0.098 ac, 60.10% Impervious, Inflow Depth = 1.74" for cornell 002 event
Inflow = 0.20 cfs @ 12.09 hrs, Volume= 0.014 af
Outflow = 0.20 cfs @ 12.09 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.09 hrs, Volume= 0.014 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 75.00' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.78'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.19 cfs @ 12.09 hrs HW=74.99' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.19 cfs @ 1.58 fps)

Summary for Pond 188P: CHAMBERS UNIT 2

Inflow Area = 0.849 ac, 28.96% Impervious, Inflow Depth = 1.04" for cornell 002 event
Inflow = 0.43 cfs @ 12.10 hrs, Volume= 0.074 af
Outflow = 0.13 cfs @ 13.24 hrs, Volume= 0.074 af, Atten= 69%, Lag= 68.2 min
Discarded = 0.13 cfs @ 13.24 hrs, Volume= 0.074 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 93.16' @ 13.24 hrs Surf.Area= 0.033 ac Storage= 0.020 af

Plug-Flow detention time= 59.2 min calculated for 0.074 af (100% of inflow)
Center-of-Mass det. time= 59.2 min (923.7 - 864.6)

Volume	Invert	Avail.Storage	Storage Description
#1	92.10'	0.041 af	**20.56'W x 69.33'L x 5.00'H Prismatoid** 0.164 af Overall - 0.060 af Embedded = 0.104 af x 40.0% Voids
#2	92.60'	0.060 af	**Cultec R-902HD** x 40 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 4 Rows of 10 Chambers Cap Storage= +2.8 cf x 2 x 4 rows = 22.1 cf
		0.101 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	92.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 90.00'
#2	Primary	95.60'	**8.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.13 cfs @ 13.24 hrs HW=93.16' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=92.10' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 189P: CHAMBERS UNIT 3

Inflow Area = 2.435 ac, 14.41% Impervious, Inflow Depth = 0.69" for cornell 002 event
Inflow = 1.09 cfs @ 12.19 hrs, Volume= 0.140 af
Outflow = 0.14 cfs @ 14.66 hrs, Volume= 0.140 af, Atten= 87%, Lag= 147.8 min
Discarded = 0.14 cfs @ 14.66 hrs, Volume= 0.140 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 85.61' @ 14.66 hrs Surf.Area= 0.048 ac Storage= 0.048 af

Plug-Flow detention time= 152.1 min calculated for 0.139 af (100% of inflow)
Center-of-Mass det. time= 151.9 min (1,023.9 - 871.9)

Volume	Invert	Avail.Storage	Storage Description
#1	84.10'	0.057 af	**48.90'W x 43.00'L x 5.00'H Prismatoid** 0.241 af Overall - 0.099 af Embedded = 0.142 af x 40.0% Voids
#2	84.60'	0.099 af	**Cultec R-902HD** x 66 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 11 Rows of 6 Chambers Cap Storage= +2.8 cf x 2 x 11 rows = 60.7 cf
		0.156 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	84.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 62.00'
#2	Primary	86.60'	**24.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.14 cfs @ 14.66 hrs HW=85.61' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.14 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=84.10' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 190P: CHAMBERS UNIT 4

Inflow Area = 1.453 ac, 30.54% Impervious, Inflow Depth = 1.11" for cornell 002 event
Inflow = 1.41 cfs @ 12.12 hrs, Volume= 0.134 af
Outflow = 0.13 cfs @ 14.11 hrs, Volume= 0.134 af, Atten= 91%, Lag= 119.9 min
Discarded = 0.13 cfs @ 14.11 hrs, Volume= 0.134 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 77.15' @ 14.11 hrs Surf.Area= 0.039 ac Storage= 0.054 af

Plug-Flow detention time= 184.0 min calculated for 0.134 af (100% of inflow)
Center-of-Mass det. time= 183.8 min (1,028.3 - 844.6)

Volume	Invert	Avail.Storage	Storage Description
#1	75.10'	0.048 af	**24.50'W x 69.00'L x 5.00'H Prismatoid**
			0.194 af Overall - 0.075 af Embedded = 0.119 af x 40.0% Voids
#2	75.60'	0.075 af	**Cultec R-902HD** x 50 Inside #1
			Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
			Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
			5 Rows of 10 Chambers
			Cap Storage= +2.8 cf x 2 x 5 rows = 27.6 cf
		0.123 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	75.10'	**2.410 in/hr Exfiltration over Wetted area**
			Conductivity to Groundwater Elevation = 62.00'
#2	Primary	78.00'	**15.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.13 cfs @ 14.11 hrs HW=77.15' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=75.10' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 192P: CHAMBERS UNIT 5

Inflow Area = 0.829 ac, 46.63% Impervious, Inflow Depth = 1.40" for cornell 002 event
Inflow = 0.94 cfs @ 12.10 hrs, Volume= 0.097 af
Outflow = 0.13 cfs @ 13.34 hrs, Volume= 0.097 af, Atten= 86%, Lag= 74.4 min
Discarded = 0.13 cfs @ 13.34 hrs, Volume= 0.097 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 74.41' @ 13.34 hrs Surf.Area= 0.042 ac Storage= 0.035 af

Plug-Flow detention time= 110.6 min calculated for 0.097 af (100% of inflow)
Center-of-Mass det. time= 110.5 min (950.3 - 839.8)

Volume	Invert	Avail.Storage	Storage Description
#1	73.10'	0.050 af	**36.80'W x 49.50'L x 5.00'H Prismatoid**
			0.209 af Overall - 0.084 af Embedded = 0.125 af x 40.0% Voids
#2	73.60'	0.084 af	**Cultec R-902HD** x 56 Inside #1
			Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
			Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
			8 Rows of 7 Chambers
			Cap Storage= +2.8 cf x 2 x 8 rows = 44.2 cf
		0.134 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	73.10'	**2.410 in/hr Exfiltration over Wetted area**
			Conductivity to Groundwater Elevation = 62.00'
#2	Primary	76.50'	**10.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.13 cfs @ 13.34 hrs HW=74.41' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.10' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Subcatchment 30S: TO CB 7

Runoff = 0.23 cfs @ 12.08 hrs, Volume= 0.019 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

	Area (sf)	CN	Description
*	2,045	98	IMPERVIOUS
	2,045		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 114S: TO CB 2

Runoff = 0.82 cfs @ 12.44 hrs, Volume= 0.107 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

	Area (sf)	CN	Description
*	5,949	98	IMPERVIOUS
	22,185	61	>75% Grass cover, Good, HSG B
	3,121	55	Woods, Good, HSG B
	31,255	67	Weighted Average
	25,306		80.97% Pervious Area
	5,949		19.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	50	0.0100	0.03		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.37"
1.6	171	0.0116	1.73		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.5	124	0.0800	4.55		**Shallow Concentrated Flow, CD** Unpaved Kv= 16.1 fps
0.0	7	0.0200	2.87		**Shallow Concentrated Flow, DE** Paved Kv= 20.3 fps
29.7	352	Total			

Summary for Subcatchment 119S: TO CB 3

Runoff = 0.59 cfs @ 12.09 hrs, Volume= 0.045 af, Depth= 4.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

	Area (sf)	CN	Description
*	4,767	98	IMPERVIOUS
	975	61	>75% Grass cover, Good, HSG B
	5,742	92	Weighted Average
	975		16.98% Pervious Area
	4,767		83.02% 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 153S: TO CB 4

Runoff = 0.83 cfs @ 12.19 hrs, Volume= 0.076 af, Depth= 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

	Area (sf)	CN	Description
*	5,695	98	IMPERVIOUS
	10,998	61	>75% Grass cover, Good, HSG B
	2,182	55	Woods, Good, HSG B
	18,875	71	Weighted Average
	13,180		69.83% Pervious Area
	5,695		30.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	50	0.0800	0.07		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.37"
1.1	188	0.0320	2.88		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.0	7	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
0.2	47	0.0300	3.52		**Shallow Concentrated Flow, DE** Paved Kv= 20.3 fps
13.3	292	Total			

Summary for Subcatchment 154S: TO CB 1

Runoff = 0.29 cfs @ 12.09 hrs, Volume= 0.022 af, Depth= 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

	Area (sf)	CN	Description
*	2,341	98	IMPERVIOUS
	562	61	>75% Grass cover, Good, HSG B
	2,903	91	Weighted Average
	562		19.36% Pervious Area
	2,341		80.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.37"
0.1	22	0.0600	3.94		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
1.1	185	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
6.3	257	Total			

Summary for Subcatchment 155S: TO CB 5

Runoff = 0.49 cfs @ 12.08 hrs, Volume= 0.039 af, Depth= 4.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

	Area (sf)	CN	Description
*	4,245	98	IMPERVIOUS
	233	61	>75% Grass cover, Good, HSG B
	4,478	96	Weighted Average
	233		5.20% Pervious Area
	4,245		94.80% 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 165S: TO CB 6

Runoff = 1.91 cfs @ 12.18 hrs, Volume= 0.189 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

	Area (sf)	CN	Description
*	3,299	98	IMPERVIOUS
	23,655	61	>75% Grass cover, Good, HSG B
	53,716	55	Woods, Good, HSG B
	80,670	59	Weighted Average
	77,371		95.91% Pervious Area
	3,299		4.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	50	0.0250	0.11		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.37"
2.0	298	0.0250	2.55		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
2.0	129	0.0465	1.08		**Shallow Concentrated Flow, CD** Woodland Kv= 5.0 fps
0.2	46	0.0240	3.14		**Shallow Concentrated Flow, DE** Paved Kv= 20.3 fps
11.5	523	Total			

Summary for Subcatchment 169S: TO DCB 8

Runoff = 1.67 cfs @ 12.17 hrs, Volume= 0.150 af, Depth= 1.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

	Area (sf)	CN	Description
*	6,827	98	pavement
	32,629	61	>75% Grass cover, Good, HSG B
	8,195	55	Woods, Good, HSG B
	47,651	65	Weighted Average
	40,824		85.67% Pervious Area
	6,827		14.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0200	0.10		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.37"
0.5	116	0.0690	4.23		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.9	125	0.0200	2.28		**Shallow Concentrated Flow, CD** Unpaved Kv= 16.1 fps
1.7	364	0.0300	3.52		**Shallow Concentrated Flow, DE** Paved Kv= 20.3 fps
11.1	655	Total			

Summary for Subcatchment 173S: TO CB 10

Runoff = 0.71 cfs @ 12.31 hrs, Volume= 0.079 af, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

	Area (sf)	CN	Description
*	6,056	98	IMPERVIOUS
	7,937	61	>75% Grass cover, Good, HSG B
	6,364	55	Woods, Good, HSG B
	20,357	70	Weighted Average
	14,301		70.25% Pervious Area
	6,056		29.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	50	0.0250	0.04		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.37"
0.4	68	0.0250	2.55		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.1	25	0.0400	4.06		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
1.2	164	0.0210	2.33		**Shallow Concentrated Flow, DE** Unpaved Kv= 16.1 fps
0.6	140	0.0418	4.15		**Shallow Concentrated Flow, EF** Paved Kv= 20.3 fps
21.4	447	Total			

Summary for Subcatchment 176S: TO CB 11

Runoff = 0.24 cfs @ 12.08 hrs, Volume= 0.020 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

	Area (sf)	CN	Description
*	2,205	98	IMPERVIOUS
	2,205		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 181S: TO CB 12

Runoff = 0.82 cfs @ 12.09 hrs, Volume= 0.059 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

	Area (sf)	CN	Description
*	6,006	98	IMPERVIOUS
	3,266	61	>75% Grass cover, Good, HSG B
	9,272	85	Weighted Average
	3,266		35.22% Pervious Area
	6,006		64.78% 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 184S: TO CB 13

Runoff = 0.36 cfs @ 12.09 hrs, Volume= 0.026 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

	Area (sf)	CN	Description
*	2,568	98	IMPERVIOUS
	1,705	61	>75% Grass cover, Good, HSG B
	4,273	83	Weighted Average
	1,705		39.90% Pervious Area
	2,568		60.10% 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 193S: EXIST TO WETLANDS

Runoff = 7.85 cfs @ 12.33 hrs, Volume= 0.974 af, Depth= 1.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

	Area (sf)	CN	Description
	321,173	55	Woods, Good, HSG B
*	8,361	98	ROOF, HSG B
*	415	98	CONCRETE, HSG B
	9,995	96	Gravel surface, HSG B
	44,142	61	>75% Grass cover, Good, HSG B
*	10,771	98	PAVEMENT, HSG B
	44,891	48	Brush, Good, HSG B
	439,748	58	Weighted Average
	420,201		95.55% Pervious Area
	19,547		4.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.8	50	0.0300	0.05		**Sheet Flow, AB**
					Woods: Dense underbrush n= 0.800 P2= 3.37"
2.5	524	0.0458	3.45		**Shallow Concentrated Flow, BC**
					Unpaved Kv= 16.1 fps
20.3	574	Total			

Summary for Subcatchment 194S: PROP TO WETS

Runoff = 2.45 cfs @ 12.32 hrs, Volume= 0.300 af, Depth= 1.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
79,848	55	Woods, Good, HSG B
52,334	61	>75% Grass cover, Good, HSG B
1,627	98	Roofs, HSG B
1,832	96	Gravel surface, HSG B
135,641	58	Weighted Average
134,014		98.80% Pervious Area
1,627		1.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.8	50	0.0300	0.05		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.37"
1.8	352	0.0397	3.21		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.1	33	0.1800	6.83		**Shallow Concentrated Flow, CD** Unpaved Kv= 16.1 fps
19.7	435	Total			

Summary for Subcatchment 206S: TO DCB 9

Runoff = 1.58 cfs @ 12.09 hrs, Volume= 0.119 af, Depth= 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

	Area (sf)	CN	Description
*	12,510	98	pavement
	3,148	61	>75% Grass cover, Good, HSG B
	15,658	91	Weighted Average
	3,148		20.10% Pervious Area
	12,510		79.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR55 MIN**

Summary for Subcatchment 207S: roof unit3-4

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 208S: roof unit9-10

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 209S: roof unit15-16

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 210S: roof unit13-14

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 211S: roof unit17-18

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 212S: roof unit19-20

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 213S: roof unit21-22

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 214S: roof unit23-24

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 215S: roof unit25-26

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 216S: roof unit27-28

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 217S: roof unit29-30

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 218S: roof unit31

Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 219S: roof unit32

Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 220S: roof unit5

Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 221S: roof unit11

Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 222S: roof unit12

Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 223S: roof unit6

Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 224S: roof unit1-2

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 225S: roof unit7-8

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 010 Rainfall=4.98"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		100.00% Impervious Area

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

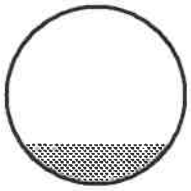
Summary for Reach 113R: CB 1 TO HYDRO 1

Inflow Area = 0.067 ac, 80.64% Impervious, Inflow Depth = 3.96" for cornell 010 event
Inflow = 0.29 cfs @ 12.09 hrs, Volume= 0.022 af
Outflow = 0.29 cfs @ 12.09 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.13 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.70 fps, Avg. Travel Time= 0.6 min

Peak Storage= 3 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 24.0' Slope= 0.0050 '/'
Inlet Invert= 102.27', Outlet Invert= 102.15'



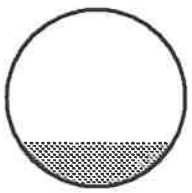
Summary for Reach 118R: CB 2 TO HYDRO 2

Inflow Area = 0.718 ac, 19.03% Impervious, Inflow Depth = 1.79" for cornell 010 event
Inflow = 0.82 cfs @ 12.44 hrs, Volume= 0.107 af
Outflow = 0.82 cfs @ 12.44 hrs, Volume= 0.107 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.22 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.27 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 12.44 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.79 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0264 '/'
Inlet Invert= 95.91', Outlet Invert= 95.54'



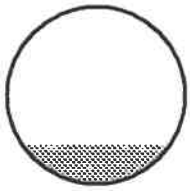
Summary for Reach 150R: CB 3 TO HYDRO 2

Inflow Area = 0.132 ac, 83.02% Impervious, Inflow Depth = 4.07" for cornell 010 event
Inflow = 0.59 cfs @ 12.09 hrs, Volume= 0.045 af
Outflow = 0.59 cfs @ 12.09 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.74 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.55 fps, Avg. Travel Time= 0.2 min

Peak Storage= 2 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.22'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.79 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0264 '/'
Inlet Invert= 95.91', Outlet Invert= 95.54'



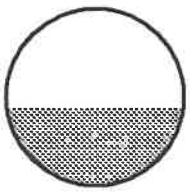
Summary for Reach 151R: HYDRO 2 TO CHAMB 2

Inflow Area = 0.849 ac, 28.96% Impervious, Inflow Depth = 2.14" for cornell 010 event
Inflow = 0.99 cfs @ 12.39 hrs, Volume= 0.152 af
Outflow = 0.99 cfs @ 12.40 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.99 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.16 fps, Avg. Travel Time= 0.3 min

Peak Storage= 6 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.49 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 18.5' Slope= 0.0049 '/'
Inlet Invert= 102.05', Outlet Invert= 101.96'



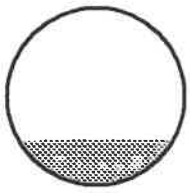
Summary for Reach 157R: CB 5 TO DMH 1

Inflow Area = 0.103 ac, 94.80% Impervious, Inflow Depth = 4.51" for cornell 010 event
Inflow = 0.49 cfs @ 12.08 hrs, Volume= 0.039 af
Outflow = 0.49 cfs @ 12.09 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.18 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.04 fps, Avg. Travel Time= 0.2 min

Peak Storage= 2 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0100 '/'
Inlet Invert= 90.86', Outlet Invert= 90.72'



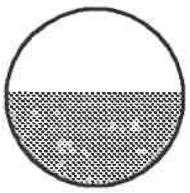
Summary for Reach 158R: DMH 1 TO HYDRO3

Inflow Area = 0.536 ac, 42.56% Impervious, Inflow Depth = 2.56" for cornell 010 event
Inflow = 1.16 cfs @ 12.15 hrs, Volume= 0.115 af
Outflow = 1.16 cfs @ 12.16 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.70 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 0.92 fps, Avg. Travel Time= 2.1 min

Peak Storage= 50 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.54'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.06 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 117.0' Slope= 0.0033 '/'
Inlet Invert= 88.90', Outlet Invert= 88.51'



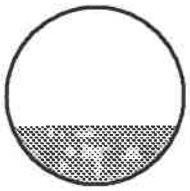
Summary for Reach 160R: CB 4 TO DMH 1

Inflow Area = 0.433 ac, 30.17% Impervious, Inflow Depth = 2.10" for cornell 010 event
Inflow = 0.83 cfs @ 12.19 hrs, Volume= 0.076 af
Outflow = 0.83 cfs @ 12.19 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.69 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.46 fps, Avg. Travel Time= 0.2 min

Peak Storage= 3 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0100 '/'
Inlet Invert= 90.86', Outlet Invert= 90.72'



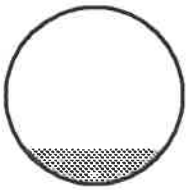
Summary for Reach 162R: CB 7 TO DMH 2

Inflow Area = 0.047 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.23 cfs @ 12.08 hrs, Volume= 0.019 af
Outflow = 0.23 cfs @ 12.09 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.06 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 0.68 fps, Avg. Travel Time= 0.9 min

Peak Storage= 4 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.66 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 36.0' Slope= 0.0056 '/'
Inlet Invert= 88.87', Outlet Invert= 88.67'



Summary for Reach 163R: DMH 2 TO HYDRO3

Inflow Area = 1.899 ac, 6.46% Impervious, Inflow Depth = 1.31" for cornell 010 event
Inflow = 2.07 cfs @ 12.17 hrs, Volume= 0.207 af
Outflow = 1.62 cfs @ 12.12 hrs, Volume= 0.207 af, Atten= 22%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.35 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.86 fps, Avg. Travel Time= 0.6 min

Peak Storage= 23 cf @ 12.12 hrs
Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 1.62 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 29.0' Slope= 0.0021 '/'
Inlet Invert= 88.57', Outlet Invert= 88.51'

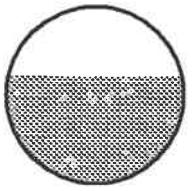
Summary for Reach 164R: HYDRO3 BASIN 3

Inflow Area = 2.435 ac, 14.41% Impervious, Inflow Depth = 1.59" for cornell 010 event
Inflow = 2.78 cfs @ 12.16 hrs, Volume= 0.322 af
Outflow = 2.78 cfs @ 12.16 hrs, Volume= 0.322 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.64 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.94 fps, Avg. Travel Time= 0.7 min

Peak Storage= 40 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.60'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.13 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 82.0' Slope= 0.0134 '/'
Inlet Invert= 88.41', Outlet Invert= 87.31'



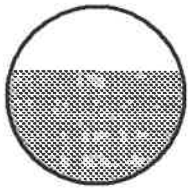
Summary for Reach 167R: CB 6 TO DMH 2

Inflow Area = 1.852 ac, 4.09% Impervious, Inflow Depth = 1.22" for cornell 010 event
Inflow = 1.91 cfs @ 12.18 hrs, Volume= 0.189 af
Outflow = 1.91 cfs @ 12.18 hrs, Volume= 0.189 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.60 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.64 fps, Avg. Travel Time= 0.2 min

Peak Storage= 9 cf @ 12.18 hrs
Average Depth at Peak Storage= 0.64'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.59 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 17.0' Slope= 0.0053 '/'
Inlet Invert= 88.96', Outlet Invert= 88.87'



Summary for Reach 168R: DCB 8 TO HYDRO 4

Inflow Area = 1.094 ac, 14.33% Impervious, Inflow Depth = 1.64" for cornell 010 event
Inflow = 1.67 cfs @ 12.17 hrs, Volume= 0.150 af
Outflow = 1.67 cfs @ 12.17 hrs, Volume= 0.150 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.76 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.37 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.04 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 12.0' Slope= 0.0200 '/'
Inlet Invert= 80.27', Outlet Invert= 80.03'

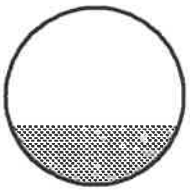
Summary for Reach 171R: DCB 9 TO HYDRO 4

Inflow Area = 0.359 ac, 79.90% Impervious, Inflow Depth = 3.96" for cornell 010 event
Inflow = 1.58 cfs @ 12.09 hrs, Volume= 0.119 af
Outflow = 1.58 cfs @ 12.09 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.90 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.28 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.60 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 7.0' Slope= 0.0343 '/'
Inlet Invert= 80.27', Outlet Invert= 80.03'



Summary for Reach 172R: HYDRO 4 BASIN 4

Inflow Area = 1.453 ac, 30.54% Impervious, Inflow Depth = 2.21" for cornell 010 event
Inflow = 2.99 cfs @ 12.12 hrs, Volume= 0.268 af
Outflow = 2.99 cfs @ 12.12 hrs, Volume= 0.268 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.65 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.65 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.50'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.02 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0286 '/'
Inlet Invert= 79.90', Outlet Invert= 79.50'

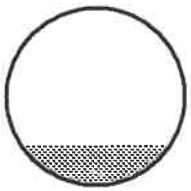
Summary for Reach 175R: CB 10 TO DMH 3

Inflow Area = 0.467 ac, 29.75% Impervious, Inflow Depth = 2.02" for cornell 010 event
Inflow = 0.71 cfs @ 12.31 hrs, Volume= 0.079 af
Outflow = 0.71 cfs @ 12.31 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.32 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.20 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.32 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0314 '/'
Inlet Invert= 84.79', Outlet Invert= 84.35'



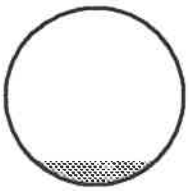
Summary for Reach 178R: CB 11 TO DMH 3

Inflow Area = 0.051 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.24 cfs @ 12.08 hrs, Volume= 0.020 af
Outflow = 0.24 cfs @ 12.08 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.88 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.29 fps, Avg. Travel Time= 0.2 min

Peak Storage= 1 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.32 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0314 '/'
Inlet Invert= 84.79', Outlet Invert= 84.35'



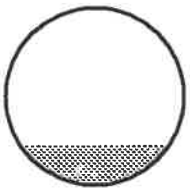
Summary for Reach 179R: DMH 3 TO HYDRO 5

Inflow Area = 0.518 ac, 36.61% Impervious, Inflow Depth = 2.29" for cornell 010 event
Inflow = 0.81 cfs @ 12.29 hrs, Volume= 0.099 af
Outflow = 0.80 cfs @ 12.30 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.18 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.11 fps, Avg. Travel Time= 1.6 min

Peak Storage= 26 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.22'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.41 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 203.4' Slope= 0.0433 '/'
Inlet Invert= 84.35', Outlet Invert= 75.54'



Summary for Reach 180R: HYDRO5 BASIN 5

Inflow Area = 0.829 ac, 46.63% Impervious, Inflow Depth = 2.66" for cornell 010 event
Inflow = 1.74 cfs @ 12.10 hrs, Volume= 0.184 af
Outflow = 1.75 cfs @ 12.10 hrs, Volume= 0.184 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.09 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.35 fps, Avg. Travel Time= 0.3 min

Peak Storage= 9 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.53'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.13 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 22.0' Slope= 0.0077 '/'
Inlet Invert= 74.47', Outlet Invert= 74.30'

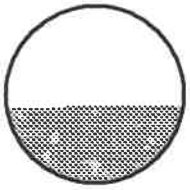
Summary for Reach 183R: CB 12 TO DMH 4

Inflow Area = 0.213 ac, 64.78% Impervious, Inflow Depth = 3.35" for cornell 010 event
Inflow = 0.82 cfs @ 12.09 hrs, Volume= 0.059 af
Outflow = 0.82 cfs @ 12.09 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.53 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.87 fps, Avg. Travel Time= 0.3 min

Peak Storage= 5 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.43'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.13 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0036 '/'
Inlet Invert= 74.78', Outlet Invert= 74.73'



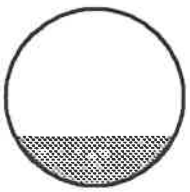
Summary for Reach 186R: CB 12 TO DMH 4

Inflow Area = 0.098 ac, 60.10% Impervious, Inflow Depth = 3.16" for cornell 010 event
Inflow = 0.36 cfs @ 12.09 hrs, Volume= 0.026 af
Outflow = 0.36 cfs @ 12.09 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.01 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.69 fps, Avg. Travel Time= 0.3 min

Peak Storage= 2 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.13 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0036 '/'
Inlet Invert= 74.78', Outlet Invert= 74.73'



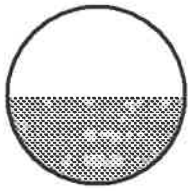
Summary for Reach 187R: DMH 4 TO HYDRO 5

Inflow Area = 0.311 ac, 63.30% Impervious, Inflow Depth = 3.29" for cornell 010 event
Inflow = 1.18 cfs @ 12.09 hrs, Volume= 0.085 af
Outflow = 1.18 cfs @ 12.09 hrs, Volume= 0.085 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.06 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.06 fps, Avg. Travel Time= 0.2 min

Peak Storage= 5 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.49'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.42 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 13.0' Slope= 0.0046 '/'
Inlet Invert= 74.63', Outlet Invert= 74.57'



Summary for Reach 195R: POST TO WETS

Inflow Area = 8.680 ac, 16.87% Impervious, Inflow Depth = 0.63" for cornell 010 event
Inflow = 4.27 cfs @ 12.51 hrs, Volume= 0.458 af
Outflow = 4.27 cfs @ 12.51 hrs, Volume= 0.458 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs

Summary for Pond 1P: unit 1-2

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af, Atten= 86%, Lag= 30.4 min
Discarded = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 98.16' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.012 af

Plug-Flow detention time= 74.8 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 74.7 min (822.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	96.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	96.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	96.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 94.00'

Discarded OutFlow Max=0.06 cfs @ 12.59 hrs HW=98.16' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.06 cfs)

Summary for Pond 2P: unit3-4

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af, Atten= 86%, Lag= 30.4 min
Discarded = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 99.16' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.012 af

Plug-Flow detention time= 74.8 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 74.7 min (822.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	97.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	97.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	97.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 95.00'

Discarded OutFlow Max=0.06 cfs @ 12.59 hrs HW=99.16' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.06 cfs)

Summary for Pond 3P: unit7-8

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af, Atten= 86%, Lag= 30.4 min
Discarded = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 101.56' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.012 af

Plug-Flow detention time= 74.8 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 74.7 min (822.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	99.50'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	100.00'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.50'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 97.40'

Discarded OutFlow Max=0.06 cfs @ 12.59 hrs HW=101.56' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.06 cfs)

Summary for Pond 4P: unit9-10

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af, Atten= 86%, Lag= 30.4 min
Discarded = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 97.96' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.012 af

Plug-Flow detention time= 74.8 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 74.7 min (822.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	95.90'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	96.40'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	95.90'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 93.80'

Discarded OutFlow Max=0.06 cfs @ 12.59 hrs HW=97.96' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.06 cfs)

Summary for Pond 5P: unit13-14

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af, Atten= 86%, Lag= 30.4 min
Discarded = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 93.16' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.012 af

Plug-Flow detention time= 74.8 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 74.7 min (822.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	91.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	91.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	91.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 89.00'

Discarded OutFlow Max=0.06 cfs @ 12.59 hrs HW=93.16' (Free Discharge)
↑**1=Exfiltration** (Controls 0.06 cfs)

Summary for Pond 6P: unit15-16

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af, Atten= 86%, Lag= 30.4 min
Discarded = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 87.66' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.012 af

Plug-Flow detention time= 74.8 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 74.7 min (822.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	85.60'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	86.10'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	85.60'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 83.50'

Discarded OutFlow Max=0.06 cfs @ 12.59 hrs HW=87.66' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.06 cfs)

Summary for Pond 7P: unit17-18

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af, Atten= 86%, Lag= 30.4 min
Discarded = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 86.76' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.012 af

Plug-Flow detention time= 74.8 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 74.7 min (822.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	84.70'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	85.20'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	84.70'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 82.60'

Discarded OutFlow Max=0.06 cfs @ 12.59 hrs HW=86.76' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.06 cfs)

Summary for Pond 8P: unit19-20

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af, Atten= 86%, Lag= 30.4 min
Discarded = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 80.76' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.012 af

Plug-Flow detention time= 74.8 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 74.7 min (822.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	78.70'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	79.20'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	78.70'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 76.60'

Discarded OutFlow Max=0.06 cfs @ 12.59 hrs HW=80.76' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.06 cfs)

Summary for Pond 9P: unit21-22

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af, Atten= 86%, Lag= 30.4 min
Discarded = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 76.16' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.012 af

Plug-Flow detention time= 74.8 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 74.7 min (822.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	74.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	74.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	74.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 72.00'

Discarded OutFlow Max=0.06 cfs @ 12.59 hrs HW=76.16' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.06 cfs)

Summary for Pond 10P: unit23-24

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af, Atten= 86%, Lag= 30.4 min
Discarded = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 77.16' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.012 af

Plug-Flow detention time= 74.8 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 74.7 min (822.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	75.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	75.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	75.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 73.00'

Discarded OutFlow Max=0.06 cfs @ 12.59 hrs HW=77.16' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.06 cfs)

Summary for Pond 11P: unit25-26

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af, Atten= 86%, Lag= 30.4 min
Discarded = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 78.16' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.012 af

Plug-Flow detention time= 74.8 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 74.7 min (822.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	76.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	76.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	76.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 74.00'

Discarded OutFlow Max=0.06 cfs @ 12.59 hrs HW=78.16' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.06 cfs)

Summary for Pond 12P: unit27-28

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af, Atten= 86%, Lag= 30.4 min
Discarded = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 79.16' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.012 af

Plug-Flow detention time= 74.8 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 74.7 min (822.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	77.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	77.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	77.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 75.00'

Discarded OutFlow Max=0.06 cfs @ 12.59 hrs HW=79.16' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.06 cfs)

Summary for Pond 13P: unit29-30

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af, Atten= 86%, Lag= 30.4 min
Discarded = 0.06 cfs @ 12.59 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 82.16' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.012 af

Plug-Flow detention time= 74.8 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 74.7 min (822.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	80.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	80.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	80.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 78.00'

Discarded OutFlow Max=0.06 cfs @ 12.59 hrs HW=82.16' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.06 cfs)

Summary for Pond 14P: unit5

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af
Outflow = 0.03 cfs @ 12.57 hrs, Volume= 0.016 af, Atten= 85%, Lag= 29.4 min
Discarded = 0.03 cfs @ 12.57 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 97.01' @ 12.57 hrs Surf.Area= 0.004 ac Storage= 0.005 af

Plug-Flow detention time= 66.8 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 66.7 min (814.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	95.10'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	95.60'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	95.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 93.00'

Discarded OutFlow Max=0.03 cfs @ 12.57 hrs HW=97.01' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Summary for Pond 15P: unit6

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af
Outflow = 0.03 cfs @ 12.57 hrs, Volume= 0.016 af, Atten= 85%, Lag= 29.4 min
Discarded = 0.03 cfs @ 12.57 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 107.31' @ 12.57 hrs Surf.Area= 0.004 ac Storage= 0.005 af

Plug-Flow detention time= 66.8 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 66.7 min (814.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	105.40'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	105.90'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.40'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 103.30'

Discarded OutFlow Max=0.03 cfs @ 12.57 hrs HW=107.31' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Summary for Pond 16P: unit11

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af
Outflow = 0.03 cfs @ 12.57 hrs, Volume= 0.016 af, Atten= 85%, Lag= 29.4 min
Discarded = 0.03 cfs @ 12.57 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 96.81' @ 12.57 hrs Surf.Area= 0.004 ac Storage= 0.005 af

Plug-Flow detention time= 66.8 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 66.7 min (814.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	94.90'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	95.40'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	94.90'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 92.80'

Discarded OutFlow Max=0.03 cfs @ 12.57 hrs HW=96.81' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Summary for Pond 17P: unit12

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af
Outflow = 0.03 cfs @ 12.57 hrs, Volume= 0.016 af, Atten= 85%, Lag= 29.4 min
Discarded = 0.03 cfs @ 12.57 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 91.81' @ 12.57 hrs Surf.Area= 0.004 ac Storage= 0.005 af

Plug-Flow detention time= 66.8 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 66.7 min (814.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	89.90'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	90.40'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	89.90'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 87.80'

Discarded OutFlow Max=0.03 cfs @ 12.57 hrs HW=91.81' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Summary for Pond 18P: unit31

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af
Outflow = 0.03 cfs @ 12.57 hrs, Volume= 0.016 af, Atten= 85%, Lag= 29.4 min
Discarded = 0.03 cfs @ 12.57 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 86.01' @ 12.57 hrs Surf.Area= 0.004 ac Storage= 0.005 af

Plug-Flow detention time= 66.8 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 66.7 min (814.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	84.10'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	84.60'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	84.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 82.00'

Discarded OutFlow Max=0.03 cfs @ 12.57 hrs HW=86.01' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Summary for Pond 19P: unit32

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af
Outflow = 0.03 cfs @ 12.57 hrs, Volume= 0.016 af, Atten= 85%, Lag= 29.4 min
Discarded = 0.03 cfs @ 12.57 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 89.01' @ 12.57 hrs Surf.Area= 0.004 ac Storage= 0.005 af

Plug-Flow detention time= 66.8 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 66.7 min (814.8 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	87.10'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	87.60'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	87.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 85.00'

Discarded OutFlow Max=0.03 cfs @ 12.57 hrs HW=89.01' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.03 cfs)

Summary for Pond 115P: CB 1

Inflow Area = 0.067 ac, 80.64% Impervious, Inflow Depth = 3.96" for cornell 010 event
Inflow = 0.29 cfs @ 12.09 hrs, Volume= 0.022 af
Outflow = 0.29 cfs @ 12.09 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.29 cfs @ 12.09 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 102.53' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	102.27'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.29 cfs @ 12.09 hrs HW=102.53' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.29 cfs @ 1.74 fps)

Summary for Pond 116P: CB 2

Inflow Area = 0.718 ac, 19.03% Impervious, Inflow Depth = 1.79" for cornell 010 event
Inflow = 0.82 cfs @ 12.44 hrs, Volume= 0.107 af
Outflow = 0.82 cfs @ 12.44 hrs, Volume= 0.107 af, Atten= 0%, Lag= 0.0 min
Primary = 0.82 cfs @ 12.44 hrs, Volume= 0.107 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 96.31' @ 12.44 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	95.91'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.82 cfs @ 12.44 hrs HW=96.31' (Free Discharge)
↑**1=Orifice/Grate** (Orifice Controls 0.82 cfs @ 2.16 fps)

Summary for Pond 149P: CB 3

Inflow Area = 0.132 ac, 83.02% Impervious, Inflow Depth = 4.07" for cornell 010 event
Inflow = 0.59 cfs @ 12.09 hrs, Volume= 0.045 af
Outflow = 0.59 cfs @ 12.09 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min
Primary = 0.59 cfs @ 12.09 hrs, Volume= 0.045 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 96.25' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	95.91'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.58 cfs @ 12.09 hrs HW=96.25' (Free Discharge)
↑**1=Orifice/Grate** (Orifice Controls 0.58 cfs @ 1.97 fps)

Summary for Pond 152P: CHAMBERS UNIT 1

Inflow Area = 0.067 ac, 80.64% Impervious, Inflow Depth = 3.96" for cornell 010 event
Inflow = 0.29 cfs @ 12.09 hrs, Volume= 0.022 af
Outflow = 0.03 cfs @ 12.88 hrs, Volume= 0.022 af, Atten= 90%, Lag= 47.2 min
Discarded = 0.03 cfs @ 12.88 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 102.33' @ 12.88 hrs Surf.Area= 0.009 ac Storage= 0.008 af

Plug-Flow detention time= 98.6 min calculated for 0.022 af (100% of inflow)
Center-of-Mass det. time= 98.5 min (886.1 - 787.6)

Volume	Invert	Avail.Storage	Storage Description
#1	101.10'	0.007 af	**9.09'W x 43.00'L x 5.00'H Prismatoid** 0.045 af Overall - 0.027 af Embedded = 0.018 af x 40.0% Voids
#2	101.60'	0.027 af	**Cultec R-902HD** x 18 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 3 Rows of 6 Chambers Cap Storage= +2.8 cf x 2 x 3 rows = 16.6 cf
		0.034 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.10'	**2.410 in/hr Exfiltration over Wetted area**

Conductivity to Groundwater Elevation = 62.00'

Discarded OutFlow Max=0.03 cfs @ 12.88 hrs HW=102.33' (Free Discharge)
└**1=Exfiltration** (Controls 0.03 cfs)

Summary for Pond 156P: CB 5

Inflow Area = 0.103 ac, 94.80% Impervious, Inflow Depth = 4.51" for cornell 010 event
Inflow = 0.49 cfs @ 12.08 hrs, Volume= 0.039 af
Outflow = 0.49 cfs @ 12.08 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.49 cfs @ 12.08 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 91.21' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	90.86'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.48 cfs @ 12.08 hrs HW=91.21' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.48 cfs @ 2.00 fps)

Summary for Pond 159P: CB 5

Inflow Area = 0.433 ac, 30.17% Impervious, Inflow Depth = 2.10" for cornell 010 event
Inflow = 0.83 cfs @ 12.19 hrs, Volume= 0.076 af
Outflow = 0.83 cfs @ 12.19 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min
Primary = 0.83 cfs @ 12.19 hrs, Volume= 0.076 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 91.32' @ 12.19 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	90.86'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.82 cfs @ 12.19 hrs HW=91.32' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.82 cfs @ 2.31 fps)

Summary for Pond 161P: CB 7

Inflow Area = 0.047 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.23 cfs @ 12.08 hrs, Volume= 0.019 af
Outflow = 0.23 cfs @ 12.08 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.08 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 89.10' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	88.87'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.22 cfs @ 12.08 hrs HW=89.10' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.22 cfs @ 1.64 fps)

Summary for Pond 166P: CB 6

Inflow Area = 1.852 ac, 4.09% Impervious, Inflow Depth = 1.22" for cornell 010 event
Inflow = 1.91 cfs @ 12.18 hrs, Volume= 0.189 af
Outflow = 1.91 cfs @ 12.18 hrs, Volume= 0.189 af, Atten= 0%, Lag= 0.0 min
Primary = 1.91 cfs @ 12.18 hrs, Volume= 0.189 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 89.72' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	88.96'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.89 cfs @ 12.18 hrs HW=89.72' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 1.89 cfs @ 2.96 fps)

Summary for Pond 167P: DCB 8

Inflow Area = 1.094 ac, 14.33% Impervious, Inflow Depth = 1.64" for cornell 010 event
Inflow = 1.67 cfs @ 12.17 hrs, Volume= 0.150 af
Outflow = 1.67 cfs @ 12.17 hrs, Volume= 0.150 af, Atten= 0%, Lag= 0.0 min
Primary = 1.67 cfs @ 12.17 hrs, Volume= 0.150 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 80.97' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	80.27'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.66 cfs @ 12.17 hrs HW=80.97' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 1.66 cfs @ 2.84 fps)

Summary for Pond 170P: DCB 9

Inflow Area = 0.359 ac, 79.90% Impervious, Inflow Depth = 3.96" for cornell 010 event
Inflow = 1.58 cfs @ 12.09 hrs, Volume= 0.119 af
Outflow = 1.58 cfs @ 12.09 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min
Primary = 1.58 cfs @ 12.09 hrs, Volume= 0.119 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 80.95' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	80.27'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.56 cfs @ 12.09 hrs HW=80.94' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 1.56 cfs @ 2.79 fps)

Summary for Pond 174P: CB 10

Inflow Area = 0.467 ac, 29.75% Impervious, Inflow Depth = 2.02" for cornell 010 event
Inflow = 0.71 cfs @ 12.31 hrs, Volume= 0.079 af
Outflow = 0.71 cfs @ 12.31 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min
Primary = 0.71 cfs @ 12.31 hrs, Volume= 0.079 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 85.22' @ 12.31 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	84.79'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.71 cfs @ 12.31 hrs HW=85.21' (Free Discharge)
↑**1=Orifice/Grate** (Orifice Controls 0.71 cfs @ 2.22 fps)

Summary for Pond 177P: CB 11

Inflow Area = 0.051 ac,100.00% Impervious, Inflow Depth = 4.74" for cornell 010 event
Inflow = 0.24 cfs @ 12.08 hrs, Volume= 0.020 af
Outflow = 0.24 cfs @ 12.08 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.08 hrs, Volume= 0.020 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 85.03' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	84.79'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.24 cfs @ 12.08 hrs HW=85.03' (Free Discharge)
↑**1=Orifice/Grate** (Orifice Controls 0.24 cfs @ 1.67 fps)

Summary for Pond 182P: CB 12

Inflow Area = 0.213 ac, 64.78% Impervious, Inflow Depth = 3.35" for cornell 010 event
Inflow = 0.82 cfs @ 12.09 hrs, Volume= 0.059 af
Outflow = 0.82 cfs @ 12.09 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min
Primary = 0.82 cfs @ 12.09 hrs, Volume= 0.059 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 75.24' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.78'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.81 cfs @ 12.09 hrs HW=75.24' (Free Discharge)
↑**1=Orifice/Grate** (Orifice Controls 0.81 cfs @ 2.30 fps)

Summary for Pond 185P: CB 13

Inflow Area = 0.098 ac, 60.10% Impervious, Inflow Depth = 3.16" for cornell 010 event
Inflow = 0.36 cfs @ 12.09 hrs, Volume= 0.026 af
Outflow = 0.36 cfs @ 12.09 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.09 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 75.08' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.78'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.35 cfs @ 12.09 hrs HW=75.07' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.35 cfs @ 1.84 fps)

Summary for Pond 188P: CHAMBERS UNIT 2

Inflow Area = 0.849 ac, 28.96% Impervious, Inflow Depth = 2.14" for cornell 010 event
Inflow = 0.99 cfs @ 12.40 hrs, Volume= 0.152 af
Outflow = 0.22 cfs @ 13.46 hrs, Volume= 0.152 af, Atten= 78%, Lag= 64.0 min
Discarded = 0.22 cfs @ 13.46 hrs, Volume= 0.152 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 94.71' @ 13.46 hrs Surf.Area= 0.033 ac Storage= 0.057 af

Plug-Flow detention time= 127.9 min calculated for 0.152 af (100% of inflow)
Center-of-Mass det. time= 127.8 min (977.8 - 850.0)

Volume	Invert	Avail.Storage	Storage Description
#1	92.10'	0.041 af	**20.56'W x 69.33'L x 5.00'H Prismatoid** 0.164 af Overall - 0.060 af Embedded = 0.104 af x 40.0% Voids
#2	92.60'	0.060 af	**Cultec R-902HD** x 40 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 4 Rows of 10 Chambers Cap Storage= +2.8 cf x 2 x 4 rows = 22.1 cf
		0.101 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	92.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 90.00'
#2	Primary	95.60'	**8.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.22 cfs @ 13.46 hrs HW=94.71' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.22 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=92.10' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 189P: CHAMBERS UNIT 3

Inflow Area = 2.435 ac, 14.41% Impervious, Inflow Depth = 1.59" for cornell 010 event
Inflow = 2.78 cfs @ 12.16 hrs, Volume= 0.322 af
Outflow = 1.49 cfs @ 12.54 hrs, Volume= 0.321 af, Atten= 46%, Lag= 22.6 min
Discarded = 0.17 cfs @ 12.54 hrs, Volume= 0.229 af
Primary = 1.33 cfs @ 12.54 hrs, Volume= 0.092 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 87.07' @ 12.54 hrs Surf.Area= 0.048 ac Storage= 0.102 af

Plug-Flow detention time= 204.5 min calculated for 0.321 af (100% of inflow)
Center-of-Mass det. time= 202.1 min (1,057.6 - 855.5)

Volume	Invert	Avail.Storage	Storage Description
#1	84.10'	0.057 af	**48.90'W x 43.00'L x 5.00'H Prismatoid** 0.241 af Overall - 0.099 af Embedded = 0.142 af x 40.0% Voids
#2	84.60'	0.099 af	**Cultec R-902HD** x 66 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 11 Rows of 6 Chambers Cap Storage= +2.8 cf x 2 x 11 rows = 60.7 cf
		0.156 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	84.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 62.00'
#2	Primary	86.60'	**24.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.17 cfs @ 12.54 hrs HW=87.07' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.17 cfs)

Primary OutFlow Max=1.29 cfs @ 12.54 hrs HW=87.07' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 1.29 cfs @ 2.32 fps)

Summary for Pond 190P: CHAMBERS UNIT 4

Inflow Area = 1.453 ac, 30.54% Impervious, Inflow Depth = 2.21" for cornell 010 event
Inflow = 2.99 cfs @ 12.12 hrs, Volume= 0.268 af
Outflow = 1.25 cfs @ 12.46 hrs, Volume= 0.268 af, Atten= 58%, Lag= 20.3 min
Discarded = 0.16 cfs @ 12.46 hrs, Volume= 0.203 af
Primary = 1.09 cfs @ 12.46 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 78.50' @ 12.46 hrs Surf.Area= 0.039 ac Storage= 0.091 af

Plug-Flow detention time= 201.9 min calculated for 0.268 af (100% of inflow)
Center-of-Mass det. time= 202.0 min (1,033.1 - 831.0)

Volume	Invert	Avail.Storage	Storage Description
#1	75.10'	0.048 af	**24.50'W x 69.00'L x 5.00'H Prismatoid** 0.194 af Overall - 0.075 af Embedded = 0.119 af x 40.0% Voids
#2	75.60'	0.075 af	**Cultec R-902HD** x 50 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 5 Rows of 10 Chambers Cap Storage= +2.8 cf x 2 x 5 rows = 27.6 cf
		0.123 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	75.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 62.00'
#2	Primary	78.00'	**15.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.16 cfs @ 12.46 hrs HW=78.49' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.16 cfs)

Primary OutFlow Max=1.08 cfs @ 12.46 hrs HW=78.49' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 1.08 cfs @ 2.39 fps)

Summary for Pond 192P: CHAMBERS UNIT 5

Inflow Area = 0.829 ac, 46.63% Impervious, Inflow Depth = 2.66" for cornell 010 event
Inflow = 1.75 cfs @ 12.10 hrs, Volume= 0.184 af
Outflow = 0.16 cfs @ 14.24 hrs, Volume= 0.184 af, Atten= 91%, Lag= 127.9 min
Discarded = 0.16 cfs @ 14.24 hrs, Volume= 0.184 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 75.99' @ 14.24 hrs Surf.Area= 0.042 ac Storage= 0.085 af

Plug-Flow detention time= 246.3 min calculated for 0.184 af (100% of inflow)
Center-of-Mass det. time= 246.2 min (1,072.4 - 826.2)

Volume	Invert	Avail.Storage	Storage Description
#1	73.10'	0.050 af	**36.80'W x 49.50'L x 5.00'H Prismatoid** 0.209 af Overall - 0.084 af Embedded = 0.125 af x 40.0% Voids
#2	73.60'	0.084 af	**Cultec R-902HD** x 56 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 8 Rows of 7 Chambers Cap Storage= +2.8 cf x 2 x 8 rows = 44.2 cf
		0.134 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	73.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 62.00'
#2	Primary	76.50'	**10.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.16 cfs @ 14.24 hrs HW=75.99' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.16 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.10' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Subcatchment 30S: TO CB 7

Runoff = 0.40 cfs @ 12.08 hrs, Volume= 0.033 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

	Area (sf)	CN	Description
*	2,045	98	IMPERVIOUS
	2,045		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 114S: TO CB 2

Runoff = 2.29 cfs @ 12.42 hrs, Volume= 0.287 af, Depth= 4.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

	Area (sf)	CN	Description
*	5,949	98	IMPERVIOUS
	22,185	61	>75% Grass cover, Good, HSG B
	3,121	55	Woods, Good, HSG B
	31,255	67	Weighted Average
	25,306		80.97% Pervious Area
	5,949		19.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	50	0.0100	0.03		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.37"
1.6	171	0.0116	1.73		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.5	124	0.0800	4.55		**Shallow Concentrated Flow, CD** Unpaved Kv= 16.1 fps
0.0	7	0.0200	2.87		**Shallow Concentrated Flow, DE** Paved Kv= 20.3 fps
29.7	352	Total			

Summary for Subcatchment 119S: TO CB 3

Runoff = 1.10 cfs @ 12.08 hrs, Volume= 0.086 af, Depth= 7.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

	Area (sf)	CN	Description
*	4,767	98	IMPERVIOUS
	975	61	>75% Grass cover, Good, HSG B
	5,742	92	Weighted Average
	975		16.98% Pervious Area
	4,767		83.02% 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 153S: TO CB 4

Runoff = 2.11 cfs @ 12.18 hrs, Volume= 0.191 af, Depth= 5.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

	Area (sf)	CN	Description
*	5,695	98	IMPERVIOUS
	10,998	61	>75% Grass cover, Good, HSG B
	2,182	55	Woods, Good, HSG B
	18,875	71	Weighted Average
	13,180		69.83% Pervious Area
	5,695		30.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	50	0.0800	0.07		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.37"
1.1	188	0.0320	2.88		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.0	7	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
0.2	47	0.0300	3.52		**Shallow Concentrated Flow, DE** Paved Kv= 20.3 fps
13.3	292	Total			

Summary for Subcatchment 154S: TO CB 1

Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.043 af, Depth= 7.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

	Area (sf)	CN	Description
*	2,341	98	IMPERVIOUS
	562	61	>75% Grass cover, Good, HSG B
	2,903	91	Weighted Average
	562		19.36% Pervious Area
	2,341		80.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.37"
0.1	22	0.0600	3.94		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
1.1	185	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
6.3	257	Total			

Summary for Subcatchment 155S: TO CB 5

Runoff = 0.88 cfs @ 12.08 hrs, Volume= 0.071 af, Depth= 8.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

	Area (sf)	CN	Description
*	4,245	98	IMPERVIOUS
	233	61	>75% Grass cover, Good, HSG B
	4,478	96	Weighted Average
	233		5.20% Pervious Area
	4,245		94.80% 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 165S: TO CB 6

Runoff = 6.80 cfs @ 12.17 hrs, Volume= 0.590 af, Depth= 3.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

	Area (sf)	CN	Description
*	3,299	98	IMPERVIOUS
	23,655	61	>75% Grass cover, Good, HSG B
	53,716	55	Woods, Good, HSG B
	80,670	59	Weighted Average
	77,371		95.91% Pervious Area
	3,299		4.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	50	0.0250	0.11		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.37"
2.0	298	0.0250	2.55		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
2.0	129	0.0465	1.08		**Shallow Concentrated Flow, CD** Woodland Kv= 5.0 fps
0.2	46	0.0240	3.14		**Shallow Concentrated Flow, DE** Paved Kv= 20.3 fps
11.5	523	Total			

Summary for Subcatchment 169S: TO DCB 8

Runoff = 4.89 cfs @ 12.16 hrs, Volume= 0.415 af, Depth= 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

	Area (sf)	CN	Description
*	6,827	98	pavement
	32,629	61	>75% Grass cover, Good, HSG B
	8,195	55	Woods, Good, HSG B
	47,651	65	Weighted Average
	40,824		85.67% Pervious Area
	6,827		14.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0200	0.10		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.37"
0.5	116	0.0690	4.23		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.9	125	0.0200	2.28		**Shallow Concentrated Flow, CD** Unpaved Kv= 16.1 fps
1.7	364	0.0300	3.52		**Shallow Concentrated Flow, DE** Paved Kv= 20.3 fps
11.1	655	Total			

Summary for Subcatchment 173S: TO CB 10

Runoff = 1.85 cfs @ 12.29 hrs, Volume= 0.201 af, Depth= 5.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

	Area (sf)	CN	Description
*	6,056	98	IMPERVIOUS
	7,937	61	>75% Grass cover, Good, HSG B
	6,364	55	Woods, Good, HSG B
	20,357	70	Weighted Average
	14,301		70.25% Pervious Area
	6,056		29.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	50	0.0250	0.04		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.37"
0.4	68	0.0250	2.55		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.1	25	0.0400	4.06		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
1.2	164	0.0210	2.33		**Shallow Concentrated Flow, DE** Unpaved Kv= 16.1 fps
0.6	140	0.0418	4.15		**Shallow Concentrated Flow, EF** Paved Kv= 20.3 fps
21.4	447	Total			

Summary for Subcatchment 176S: TO CB 11

Runoff = 0.43 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

	Area (sf)	CN	Description
*	2,205	98	IMPERVIOUS
	2,205		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 181S: TO CB 12

Runoff = 1.66 cfs @ 12.09 hrs, Volume= 0.124 af, Depth= 6.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

	Area (sf)	CN	Description
*	6,006	98	IMPERVIOUS
	3,266	61	>75% Grass cover, Good, HSG B
	9,272	85	Weighted Average
	3,266		35.22% Pervious Area
	6,006		64.78% 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 184S: TO CB 13

Runoff = 0.74 cfs @ 12.09 hrs, Volume= 0.055 af, Depth= 6.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

	Area (sf)	CN	Description
*	2,568	98	IMPERVIOUS
	1,705	61	>75% Grass cover, Good, HSG B
	4,273	83	Weighted Average
	1,705		39.90% Pervious Area
	2,568		60.10% 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 193S: EXIST TO WETLANDS

Runoff = 28.79 cfs @ 12.29 hrs, Volume= 3.116 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

	Area (sf)	CN	Description
	321,173	55	Woods, Good, HSG B
*	8,361	98	ROOF, HSG B
*	415	98	CONCRETE, HSG B
	9,995	96	Gravel surface, HSG B
	44,142	61	>75% Grass cover, Good, HSG B
*	10,771	98	PAVEMENT, HSG B
	44,891	48	Brush, Good, HSG B
	439,748	58	Weighted Average
	420,201		95.55% Pervious Area
	19,547		4.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.8	50	0.0300	0.05		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.37"
2.5	524	0.0458	3.45		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
20.3	574	Total			

Summary for Subcatchment 194S: PROP TO WETS

Runoff = 8.99 cfs @ 12.28 hrs, Volume= 0.961 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
79,848	55	Woods, Good, HSG B
52,334	61	>75% Grass cover, Good, HSG B
1,627	98	Roofs, HSG B
1,832	96	Gravel surface, HSG B
135,641	58	Weighted Average
134,014		98.80% Pervious Area
1,627		1.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.8	50	0.0300	0.05		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.37"
1.8	352	0.0397	3.21		**Shallow Concentrated Flow, BC** Unpaved Kv= 16.1 fps
0.1	33	0.1800	6.83		**Shallow Concentrated Flow, CD** Unpaved Kv= 16.1 fps
19.7	435	Total			

Summary for Subcatchment 206S: TO DCB 9

Runoff = 2.97 cfs @ 12.08 hrs, Volume= 0.231 af, Depth= 7.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

	Area (sf)	CN	Description
*	12,510	98	pavement
	3,148	61	>75% Grass cover, Good, HSG B
	15,658	91	Weighted Average
	3,148		20.10% Pervious Area
	12,510		79.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR55 MIN**

Summary for Subcatchment 207S: roof unit3-4

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 208S: roof unit9-10

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 209S: roof unit15-16

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 210S: roof unit13-14

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 211S: roof unit17-18

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 212S: roof unit19-20

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 213S: roof unit21-22

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 214S: roof unit23-24

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 215S: roof unit25-26

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 216S: roof unit27-28

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 217S: roof unit29-30

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 218S: roof unit31

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 0.029 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 219S: roof unit32

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 0.029 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 220S: roof unit5

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 0.029 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 221S: roof unit11

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 0.029 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 222S: roof unit12

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 0.029 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 223S: roof unit6

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 0.029 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
1,760	98	Roofs, HSG A
1,760		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 224S: roof unit1-2

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		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 225S: roof unit7-8

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Type III 24-hr cornell 100 Rainfall=8.80"

Area (sf)	CN	Description
3,940	98	Roofs, HSG A
3,940		100.00% Impervious Area

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

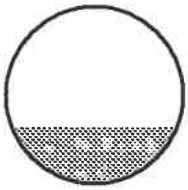
Summary for Reach 113R: CB 1 TO HYDRO 1

Inflow Area = 0.067 ac, 80.64% Impervious, Inflow Depth = 7.72" for cornell 100 event
Inflow = 0.55 cfs @ 12.09 hrs, Volume= 0.043 af
Outflow = 0.54 cfs @ 12.09 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.56 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.84 fps, Avg. Travel Time= 0.5 min

Peak Storage= 5 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 24.0' Slope= 0.0050 '/'
Inlet Invert= 102.27', Outlet Invert= 102.15'



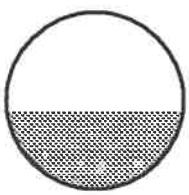
Summary for Reach 118R: CB 2 TO HYDRO 2

Inflow Area = 0.718 ac, 19.03% Impervious, Inflow Depth = 4.79" for cornell 100 event
Inflow = 2.29 cfs @ 12.42 hrs, Volume= 0.287 af
Outflow = 2.29 cfs @ 12.42 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.94 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.84 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.79 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0264 '/'
Inlet Invert= 95.91', Outlet Invert= 95.54'



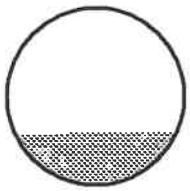
Summary for Reach 150R: CB 3 TO HYDRO 2

Inflow Area = 0.132 ac, 83.02% Impervious, Inflow Depth = 7.84" for cornell 100 event
Inflow = 1.10 cfs @ 12.08 hrs, Volume= 0.086 af
Outflow = 1.10 cfs @ 12.09 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.67 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.85 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.79 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0264 '/'
Inlet Invert= 95.91', Outlet Invert= 95.54'



Summary for Reach 151R: HYDRO 2 TO CHAMB 2

Inflow Area = 0.849 ac, 28.96% Impervious, Inflow Depth = 5.27" for cornell 100 event
Inflow = 2.62 cfs @ 12.38 hrs, Volume= 0.373 af
Outflow = 2.62 cfs @ 12.39 hrs, Volume= 0.373 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.61 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.44 fps, Avg. Travel Time= 0.2 min

Peak Storage= 14 cf @ 12.39 hrs
Average Depth at Peak Storage= 0.88'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.49 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 18.5' Slope= 0.0049 '/'
Inlet Invert= 102.05', Outlet Invert= 101.96'

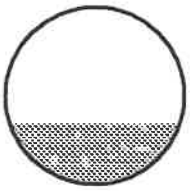
Summary for Reach 157R: CB 5 TO DMH 1

Inflow Area = 0.103 ac, 94.80% Impervious, Inflow Depth = 8.32" for cornell 100 event
Inflow = 0.88 cfs @ 12.08 hrs, Volume= 0.071 af
Outflow = 0.88 cfs @ 12.09 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.75 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.24 fps, Avg. Travel Time= 0.2 min

Peak Storage= 3 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0100 '/'
Inlet Invert= 90.86', Outlet Invert= 90.72'



Summary for Reach 158R: DMH 1 TO HYDRO3

Inflow Area = 0.536 ac, 42.56% Impervious, Inflow Depth = 5.86" for cornell 100 event
Inflow = 2.72 cfs @ 12.15 hrs, Volume= 0.262 af
Outflow = 2.06 cfs @ 12.08 hrs, Volume= 0.262 af, Atten= 24%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.98 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.14 fps, Avg. Travel Time= 1.7 min

Peak Storage= 92 cf @ 12.08 hrs
Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.06 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 117.0' Slope= 0.0033 '/'
Inlet Invert= 88.90', Outlet Invert= 88.51'

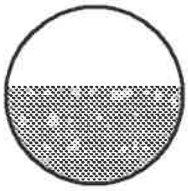
Summary for Reach 160R: CB 4 TO DMH 1

Inflow Area = 0.433 ac, 30.17% Impervious, Inflow Depth = 5.28" for cornell 100 event
Inflow = 2.11 cfs @ 12.18 hrs, Volume= 0.191 af
Outflow = 2.11 cfs @ 12.18 hrs, Volume= 0.191 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.72 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.79 fps, Avg. Travel Time= 0.1 min

Peak Storage= 6 cf @ 12.18 hrs
Average Depth at Peak Storage= 0.55'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0100 '/'
Inlet Invert= 90.86', Outlet Invert= 90.72'



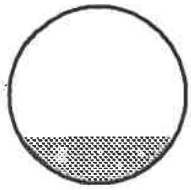
Summary for Reach 162R: CB 7 TO DMH 2

Inflow Area = 0.047 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.40 cfs @ 12.08 hrs, Volume= 0.033 af
Outflow = 0.40 cfs @ 12.09 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.44 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.81 fps, Avg. Travel Time= 0.7 min

Peak Storage= 6 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.66 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 36.0' Slope= 0.0056 '/'
Inlet Invert= 88.87', Outlet Invert= 88.67'



Summary for Reach 163R: DMH 2 TO HYDRO3

Inflow Area = 1.899 ac, 6.46% Impervious, Inflow Depth = 3.94" for cornell 100 event
Inflow = 2.99 cfs @ 12.09 hrs, Volume= 0.624 af
Outflow = 1.82 cfs @ 14.82 hrs, Volume= 0.624 af, Atten= 39%, Lag= 164.2 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.35 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.12 fps, Avg. Travel Time= 0.4 min

Peak Storage= 23 cf @ 11.88 hrs
Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 1.62 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 29.0' Slope= 0.0021 '/'
Inlet Invert= 88.57', Outlet Invert= 88.51'

Summary for Reach 164R: HYDRO3 BASIN 3

Inflow Area = 2.435 ac, 14.41% Impervious, Inflow Depth = 4.36" for cornell 100 event
Inflow = 3.68 cfs @ 12.08 hrs, Volume= 0.886 af
Outflow = 3.68 cfs @ 12.12 hrs, Volume= 0.886 af, Atten= 0%, Lag= 2.4 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.94 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.58 fps, Avg. Travel Time= 0.5 min

Peak Storage= 51 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.74'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.13 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 82.0' Slope= 0.0134 '/'
Inlet Invert= 88.41', Outlet Invert= 87.31'

Summary for Reach 167R: CB 6 TO DMH 2

Inflow Area = 1.852 ac, 4.09% Impervious, Inflow Depth = 3.82" for cornell 100 event
Inflow = 6.80 cfs @ 12.17 hrs, Volume= 0.590 af
Outflow = 2.59 cfs @ 12.00 hrs, Volume= 0.590 af, Atten= 62%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.74 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.07 fps, Avg. Travel Time= 0.1 min

Peak Storage= 13 cf @ 12.00 hrs
Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.59 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 17.0' Slope= 0.0053 '/'
Inlet Invert= 88.96', Outlet Invert= 88.87'

Summary for Reach 168R: DCB 8 TO HYDRO 4

Inflow Area = 1.094 ac, 14.33% Impervious, Inflow Depth = 4.55" for cornell 100 event
Inflow = 4.89 cfs @ 12.16 hrs, Volume= 0.415 af
Outflow = 4.89 cfs @ 12.16 hrs, Volume= 0.415 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.31 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.97 fps, Avg. Travel Time= 0.1 min

Peak Storage= 8 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.79'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.04 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 12.0' Slope= 0.0200 '/'
Inlet Invert= 80.27', Outlet Invert= 80.03'

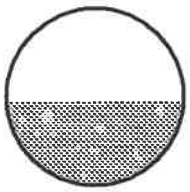
Summary for Reach 171R: DCB 9 TO HYDRO 4

Inflow Area = 0.359 ac, 79.90% Impervious, Inflow Depth = 7.72" for cornell 100 event
Inflow = 2.97 cfs @ 12.08 hrs, Volume= 0.231 af
Outflow = 2.97 cfs @ 12.08 hrs, Volume= 0.231 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 8.18 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.73 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.60 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 7.0' Slope= 0.0343 '/'
Inlet Invert= 80.27', Outlet Invert= 80.03'



Summary for Reach 172R: HYDRO 4 BASIN 4

Inflow Area = 1.453 ac, 30.54% Impervious, Inflow Depth = 5.33" for cornell 100 event
Inflow = 7.36 cfs @ 12.13 hrs, Volume= 0.646 af
Outflow = 6.02 cfs @ 12.08 hrs, Volume= 0.646 af, Atten= 18%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 8.74 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.29 fps, Avg. Travel Time= 0.1 min

Peak Storage= 11 cf @ 12.08 hrs
Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.02 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0286 '/'
Inlet Invert= 79.90', Outlet Invert= 79.50'

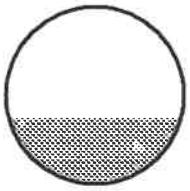
Summary for Reach 175R: CB 10 TO DMH 3

Inflow Area = 0.467 ac, 29.75% Impervious, Inflow Depth = 5.16" for cornell 100 event
Inflow = 1.85 cfs @ 12.29 hrs, Volume= 0.201 af
Outflow = 1.85 cfs @ 12.29 hrs, Volume= 0.201 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.98 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.72 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 12.29 hrs
Average Depth at Peak Storage= 0.37'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.32 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0314 '/'
Inlet Invert= 84.79', Outlet Invert= 84.35'



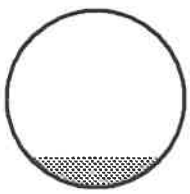
Summary for Reach 178R: CB 11 TO DMH 3

Inflow Area = 0.051 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.43 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.43 cfs @ 12.08 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.60 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.53 fps, Avg. Travel Time= 0.2 min

Peak Storage= 1 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.32 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0314 '/'
Inlet Invert= 84.79', Outlet Invert= 84.35'



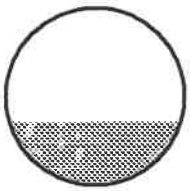
Summary for Reach 179R: DMH 3 TO HYDRO 5

Inflow Area = 0.518 ac, 36.61% Impervious, Inflow Depth = 5.49" for cornell 100 event
Inflow = 2.03 cfs @ 12.28 hrs, Volume= 0.237 af
Outflow = 2.03 cfs @ 12.29 hrs, Volume= 0.237 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 8.04 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.69 fps, Avg. Travel Time= 1.3 min

Peak Storage= 51 cf @ 12.29 hrs
Average Depth at Peak Storage= 0.36'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.41 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 203.4' Slope= 0.0433 '/'
Inlet Invert= 84.35', Outlet Invert= 75.54'



Summary for Reach 180R: HYDRO5 BASIN 5

Inflow Area = 0.829 ac, 46.63% Impervious, Inflow Depth = 6.02" for cornell 100 event
Inflow = 3.81 cfs @ 12.10 hrs, Volume= 0.416 af
Outflow = 3.13 cfs @ 12.04 hrs, Volume= 0.416 af, Atten= 18%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.55 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.71 fps, Avg. Travel Time= 0.2 min

Peak Storage= 17 cf @ 12.08 hrs
Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.13 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 22.0' Slope= 0.0077 '/'
Inlet Invert= 74.47', Outlet Invert= 74.30'

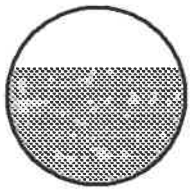
Summary for Reach 183R: CB 12 TO DMH 4

Inflow Area = 0.213 ac, 64.78% Impervious, Inflow Depth = 6.99" for cornell 100 event
Inflow = 1.66 cfs @ 12.09 hrs, Volume= 0.124 af
Outflow = 1.66 cfs @ 12.09 hrs, Volume= 0.124 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.99 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.04 fps, Avg. Travel Time= 0.2 min

Peak Storage= 8 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.66'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.13 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0036 '/'
Inlet Invert= 74.78', Outlet Invert= 74.73'



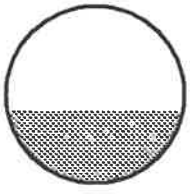
Summary for Reach 186R: CB 12 TO DMH 4

Inflow Area = 0.098 ac, 60.10% Impervious, Inflow Depth = 6.74" for cornell 100 event
Inflow = 0.74 cfs @ 12.09 hrs, Volume= 0.055 af
Outflow = 0.74 cfs @ 12.09 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.47 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.82 fps, Avg. Travel Time= 0.3 min

Peak Storage= 4 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.41'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.13 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 14.0' Slope= 0.0036 '/'
Inlet Invert= 74.78', Outlet Invert= 74.73'



Summary for Reach 187R: DMH 4 TO HYDRO 5

Inflow Area = 0.311 ac, 63.30% Impervious, Inflow Depth = 6.91" for cornell 100 event
Inflow = 2.40 cfs @ 12.09 hrs, Volume= 0.179 af
Outflow = 2.40 cfs @ 12.09 hrs, Volume= 0.179 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.51 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.26 fps, Avg. Travel Time= 0.2 min

Peak Storage= 9 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.81'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.42 cfs

12.0" Round Pipe
n= 0.013 Concrete sewer w/manholes & inlets
Length= 13.0' Slope= 0.0046 '/'
Inlet Invert= 74.63', Outlet Invert= 74.57'

Summary for Reach 195R: POST TO WETS

Inflow Area = 8.680 ac, 16.87% Impervious, Inflow Depth = 3.04" for cornell 100 event
Inflow = 20.16 cfs @ 12.33 hrs, Volume= 2.199 af
Outflow = 20.16 cfs @ 12.33 hrs, Volume= 2.199 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs

Summary for Pond 1P: unit 1-2

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af
Outflow = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af, Atten= 86%, Lag= 30.6 min
Discarded = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 100.24' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.025 af

Plug-Flow detention time= 108.1 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 108.0 min (848.1 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	96.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid**
			0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	96.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1
			Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
			Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
			Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	96.10'	**2.410 in/hr Exfiltration over Wetted area**
			Conductivity to Groundwater Elevation = 94.00'

Discarded OutFlow Max=0.11 cfs @ 12.59 hrs HW=100.24' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Summary for Pond 2P: unit3-4

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af
Outflow = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af, Atten= 86%, Lag= 30.6 min
Discarded = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 101.24' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.025 af

Plug-Flow detention time= 108.1 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 108.0 min (848.1 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	97.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid**
			0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	97.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1
			Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
			Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
			Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	97.10'	**2.410 in/hr Exfiltration over Wetted area**
			Conductivity to Groundwater Elevation = 95.00'

Discarded OutFlow Max=0.11 cfs @ 12.59 hrs HW=101.24' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Summary for Pond 3P: unit7-8

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af
Outflow = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af, Atten= 86%, Lag= 30.6 min
Discarded = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 103.64' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.025 af

Plug-Flow detention time= 108.1 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 108.0 min (848.1 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	99.50'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	100.00'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.50'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 97.40'

Discarded OutFlow Max=0.11 cfs @ 12.59 hrs HW=103.64' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Summary for Pond 4P: unit9-10

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af
Outflow = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af, Atten= 86%, Lag= 30.6 min
Discarded = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 100.04' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.025 af

Plug-Flow detention time= 108.1 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 108.0 min (848.1 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	95.90'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	96.40'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	95.90'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 93.80'

Discarded OutFlow Max=0.11 cfs @ 12.59 hrs HW=100.04' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Summary for Pond 5P: unit13-14

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af
Outflow = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af, Atten= 86%, Lag= 30.6 min
Discarded = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 95.24' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.025 af

Plug-Flow detention time= 108.1 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 108.0 min (848.1 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	91.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	91.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	91.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 89.00'

Discarded OutFlow Max=0.11 cfs @ 12.59 hrs HW=95.24' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Summary for Pond 6P: unit15-16

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af
Outflow = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af, Atten= 86%, Lag= 30.6 min
Discarded = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 89.74' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.025 af

Plug-Flow detention time= 108.1 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 108.0 min (848.1 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	85.60'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	86.10'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	85.60'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 83.50'

Discarded OutFlow Max=0.11 cfs @ 12.59 hrs HW=89.74' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Summary for Pond 7P: unit17-18

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af
Outflow = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af, Atten= 86%, Lag= 30.6 min
Discarded = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 88.84' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.025 af

Plug-Flow detention time= 108.1 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 108.0 min (848.1 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	84.70'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	85.20'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	84.70'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 82.60'

Discarded OutFlow Max=0.11 cfs @ 12.59 hrs HW=88.84' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Summary for Pond 8P: unit19-20

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af
Outflow = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af, Atten= 86%, Lag= 30.6 min
Discarded = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 82.84' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.025 af

Plug-Flow detention time= 108.1 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 108.0 min (848.1 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	78.70'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	79.20'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	78.70'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 76.60'

Discarded OutFlow Max=0.11 cfs @ 12.59 hrs HW=82.84' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Summary for Pond 9P: unit21-22

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af
Outflow = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af, Atten= 86%, Lag= 30.6 min
Discarded = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 78.24' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.025 af

Plug-Flow detention time= 108.1 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 108.0 min (848.1 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	74.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	74.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	74.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 72.00'

Discarded OutFlow Max=0.11 cfs @ 12.59 hrs HW=78.24' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Summary for Pond 10P: unit23-24

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af
Outflow = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af, Atten= 86%, Lag= 30.6 min
Discarded = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 79.24' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.025 af

Plug-Flow detention time= 108.1 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 108.0 min (848.1 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	75.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	75.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	75.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 73.00'

Discarded OutFlow Max=0.11 cfs @ 12.59 hrs HW=79.24' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Summary for Pond 11P: unit25-26

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af
Outflow = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af, Atten= 86%, Lag= 30.6 min
Discarded = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 80.24' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.025 af

Plug-Flow detention time= 108.1 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 108.0 min (848.1 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	76.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	76.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	76.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 74.00'

Discarded OutFlow Max=0.11 cfs @ 12.59 hrs HW=80.24' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Summary for Pond 12P: unit27-28

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af
Outflow = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af, Atten= 86%, Lag= 30.6 min
Discarded = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 81.24' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.025 af

Plug-Flow detention time= 108.1 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 108.0 min (848.1 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	77.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	77.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	77.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 75.00'

Discarded OutFlow Max=0.11 cfs @ 12.59 hrs HW=81.24' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Summary for Pond 13P: unit29-30

Inflow Area = 0.090 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.77 cfs @ 12.08 hrs, Volume= 0.065 af
Outflow = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af, Atten= 86%, Lag= 30.6 min
Discarded = 0.11 cfs @ 12.59 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 84.24' @ 12.59 hrs Surf.Area= 0.009 ac Storage= 0.025 af

Plug-Flow detention time= 108.1 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 108.0 min (848.1 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	80.10'	0.010 af	**8.50'W x 47.10'L x 4.50'H Prismatoid** 0.041 af Overall - 0.016 af Embedded = 0.025 af x 40.0% Voids
#2	80.60'	0.016 af	**Cultec R-902HD** x 11 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.026 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	80.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 78.00'

Discarded OutFlow Max=0.11 cfs @ 12.59 hrs HW=84.24' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Summary for Pond 14P: unit5

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.35 cfs @ 12.08 hrs, Volume= 0.029 af
Outflow = 0.05 cfs @ 12.58 hrs, Volume= 0.029 af, Atten= 85%, Lag= 29.7 min
Discarded = 0.05 cfs @ 12.58 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 98.88' @ 12.58 hrs Surf.Area= 0.004 ac Storage= 0.011 af

Plug-Flow detention time= 97.4 min calculated for 0.029 af (100% of inflow)
Center-of-Mass det. time= 97.2 min (837.3 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	95.10'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	95.60'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	95.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 93.00'

Discarded OutFlow Max=0.05 cfs @ 12.58 hrs HW=98.88' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 15P: unit6

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.35 cfs @ 12.08 hrs, Volume= 0.029 af
Outflow = 0.05 cfs @ 12.58 hrs, Volume= 0.029 af, Atten= 85%, Lag= 29.7 min
Discarded = 0.05 cfs @ 12.58 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 109.18' @ 12.58 hrs Surf.Area= 0.004 ac Storage= 0.011 af

Plug-Flow detention time= 97.4 min calculated for 0.029 af (100% of inflow)
Center-of-Mass det. time= 97.2 min (837.3 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	105.40'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid**
			0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	105.90'	0.008 af	**Cultec R-902HD** x 5 Inside #1
			Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
			Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
			Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.40'	**2.410 in/hr Exfiltration over Wetted area**
			Conductivity to Groundwater Elevation = 103.30'

Discarded OutFlow Max=0.05 cfs @ 12.58 hrs HW=109.18' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 16P: unit11

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.35 cfs @ 12.08 hrs, Volume= 0.029 af
Outflow = 0.05 cfs @ 12.58 hrs, Volume= 0.029 af, Atten= 85%, Lag= 29.7 min
Discarded = 0.05 cfs @ 12.58 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 98.68' @ 12.58 hrs Surf.Area= 0.004 ac Storage= 0.011 af

Plug-Flow detention time= 97.4 min calculated for 0.029 af (100% of inflow)
Center-of-Mass det. time= 97.2 min (837.3 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	94.90'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid**
			0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	95.40'	0.008 af	**Cultec R-902HD** x 5 Inside #1
			Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
			Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
			Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	94.90'	**2.410 in/hr Exfiltration over Wetted area**
			Conductivity to Groundwater Elevation = 92.80'

Discarded OutFlow Max=0.05 cfs @ 12.58 hrs HW=98.68' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 17P: unit12

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.35 cfs @ 12.08 hrs, Volume= 0.029 af
Outflow = 0.05 cfs @ 12.58 hrs, Volume= 0.029 af, Atten= 85%, Lag= 29.7 min
Discarded = 0.05 cfs @ 12.58 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 93.68' @ 12.58 hrs Surf.Area= 0.004 ac Storage= 0.011 af

Plug-Flow detention time= 97.4 min calculated for 0.029 af (100% of inflow)
Center-of-Mass det. time= 97.2 min (837.3 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	89.90'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	90.40'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	89.90'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 87.80'

Discarded OutFlow Max=0.05 cfs @ 12.58 hrs HW=93.68' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 18P: unit31

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.35 cfs @ 12.08 hrs, Volume= 0.029 af
Outflow = 0.05 cfs @ 12.58 hrs, Volume= 0.029 af, Atten= 85%, Lag= 29.7 min
Discarded = 0.05 cfs @ 12.58 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 87.88' @ 12.58 hrs Surf.Area= 0.004 ac Storage= 0.011 af

Plug-Flow detention time= 97.4 min calculated for 0.029 af (100% of inflow)
Center-of-Mass det. time= 97.2 min (837.3 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	84.10'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	84.60'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	84.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 82.00'

Discarded OutFlow Max=0.05 cfs @ 12.58 hrs HW=87.88' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 19P: unit32

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.35 cfs @ 12.08 hrs, Volume= 0.029 af
Outflow = 0.05 cfs @ 12.58 hrs, Volume= 0.029 af, Atten= 85%, Lag= 29.7 min
Discarded = 0.05 cfs @ 12.58 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 90.88' @ 12.58 hrs Surf.Area= 0.004 ac Storage= 0.011 af

Plug-Flow detention time= 97.4 min calculated for 0.029 af (100% of inflow)
Center-of-Mass det. time= 97.2 min (837.3 - 740.1)

Volume	Invert	Avail.Storage	Storage Description
#1	87.10'	0.005 af	**8.50'W x 22.50'L x 4.50'H Prismatoid** 0.020 af Overall - 0.008 af Embedded = 0.012 af x 40.0% Voids
#2	87.60'	0.008 af	**Cultec R-902HD** x 5 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
		0.012 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	87.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 85.00'

Discarded OutFlow Max=0.05 cfs @ 12.58 hrs HW=90.88' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Summary for Pond 115P: CB 1

Inflow Area = 0.067 ac, 80.64% Impervious, Inflow Depth = 7.72" for cornell 100 event
Inflow = 0.55 cfs @ 12.09 hrs, Volume= 0.043 af
Outflow = 0.55 cfs @ 12.09 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min
Primary = 0.55 cfs @ 12.09 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 102.64' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	102.27'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.54 cfs @ 12.09 hrs HW=102.64' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.54 cfs @ 2.06 fps)

Summary for Pond 116P: CB 2

Inflow Area = 0.718 ac, 19.03% Impervious, Inflow Depth = 4.79" for cornell 100 event
Inflow = 2.29 cfs @ 12.42 hrs, Volume= 0.287 af
Outflow = 2.29 cfs @ 12.42 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.0 min
Primary = 2.29 cfs @ 12.42 hrs, Volume= 0.287 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 96.61' @ 12.42 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	95.91'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=2.28 cfs @ 12.42 hrs HW=96.61' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 2.28 cfs @ 2.84 fps)

Summary for Pond 149P: CB 3

Inflow Area = 0.132 ac, 83.02% Impervious, Inflow Depth = 7.84" for cornell 100 event
Inflow = 1.10 cfs @ 12.08 hrs, Volume= 0.086 af
Outflow = 1.10 cfs @ 12.08 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min
Primary = 1.10 cfs @ 12.08 hrs, Volume= 0.086 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 96.38' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	95.91'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.09 cfs @ 12.08 hrs HW=96.38' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 1.09 cfs @ 2.32 fps)

Summary for Pond 152P: CHAMBERS UNIT 1

Inflow Area = 0.067 ac, 80.64% Impervious, Inflow Depth = 7.72" for cornell 100 event
Inflow = 0.54 cfs @ 12.09 hrs, Volume= 0.043 af
Outflow = 0.04 cfs @ 13.40 hrs, Volume= 0.043 af, Atten= 93%, Lag= 78.4 min
Discarded = 0.04 cfs @ 13.40 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 103.62' @ 13.40 hrs Surf.Area= 0.009 ac Storage= 0.019 af

Plug-Flow detention time= 207.8 min calculated for 0.043 af (100% of inflow)
Center-of-Mass det. time= 207.6 min (978.2 - 770.6)

Volume	Invert	Avail.Storage	Storage Description
#1	101.10'	0.007 af	**9.09'W x 43.00'L x 5.00'H Prismatoid** 0.045 af Overall - 0.027 af Embedded = 0.018 af x 40.0% Voids
#2	101.60'	0.027 af	**Cultec R-902HD** x 18 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 3 Rows of 6 Chambers Cap Storage= +2.8 cf x 2 x 3 rows = 16.6 cf
		0.034 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.10'	**2.410 in/hr Exfiltration over Wetted area**

Conductivity to Groundwater Elevation = 62.00'

Discarded OutFlow Max=0.04 cfs @ 13.40 hrs HW=103.62' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.04 cfs)

Summary for Pond 156P: CB 5

Inflow Area = 0.103 ac, 94.80% Impervious, Inflow Depth = 8.32" for cornell 100 event
Inflow = 0.88 cfs @ 12.08 hrs, Volume= 0.071 af
Outflow = 0.88 cfs @ 12.08 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min
Primary = 0.88 cfs @ 12.08 hrs, Volume= 0.071 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 91.34' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	90.86'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.87 cfs @ 12.08 hrs HW=91.34' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.87 cfs @ 2.35 fps)

Summary for Pond 159P: CB 5

Inflow Area = 0.433 ac, 30.17% Impervious, Inflow Depth = 5.28" for cornell 100 event
Inflow = 2.11 cfs @ 12.18 hrs, Volume= 0.191 af
Outflow = 2.11 cfs @ 12.18 hrs, Volume= 0.191 af, Atten= 0%, Lag= 0.0 min
Primary = 2.11 cfs @ 12.18 hrs, Volume= 0.191 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 91.68' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	90.86'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=2.09 cfs @ 12.18 hrs HW=91.67' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 2.09 cfs @ 3.07 fps)

Summary for Pond 161P: CB 7

Inflow Area = 0.047 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.40 cfs @ 12.08 hrs, Volume= 0.033 af
Outflow = 0.40 cfs @ 12.08 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.40 cfs @ 12.08 hrs, Volume= 0.033 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 89.18' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	88.87'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.40 cfs @ 12.08 hrs HW=89.18' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.40 cfs @ 1.90 fps)

Summary for Pond 166P: CB 6

Inflow Area = 1.852 ac, 4.09% Impervious, Inflow Depth = 3.82" for cornell 100 event
Inflow = 6.80 cfs @ 12.17 hrs, Volume= 0.590 af
Outflow = 6.80 cfs @ 12.17 hrs, Volume= 0.590 af, Atten= 0%, Lag= 0.0 min
Primary = 6.80 cfs @ 12.17 hrs, Volume= 0.590 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 92.69' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	88.96'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=6.75 cfs @ 12.17 hrs HW=92.64' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 6.75 cfs @ 8.59 fps)

Summary for Pond 167P: DCB 8

Inflow Area = 1.094 ac, 14.33% Impervious, Inflow Depth = 4.55" for cornell 100 event
Inflow = 4.89 cfs @ 12.16 hrs, Volume= 0.415 af
Outflow = 4.89 cfs @ 12.16 hrs, Volume= 0.415 af, Atten= 0%, Lag= 0.0 min
Primary = 4.89 cfs @ 12.16 hrs, Volume= 0.415 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 82.44' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	80.27'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.88 cfs @ 12.16 hrs HW=82.44' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 4.88 cfs @ 6.22 fps)

Summary for Pond 170P: DCB 9

Inflow Area = 0.359 ac, 79.90% Impervious, Inflow Depth = 7.72" for cornell 100 event
Inflow = 2.97 cfs @ 12.08 hrs, Volume= 0.231 af
Outflow = 2.97 cfs @ 12.08 hrs, Volume= 0.231 af, Atten= 0%, Lag= 0.0 min
Primary = 2.97 cfs @ 12.08 hrs, Volume= 0.231 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 81.39' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	80.27'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=2.94 cfs @ 12.08 hrs HW=81.37' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 2.94 cfs @ 3.74 fps)

Summary for Pond 174P: CB 10

Inflow Area = 0.467 ac, 29.75% Impervious, Inflow Depth = 5.16" for cornell 100 event
Inflow = 1.85 cfs @ 12.29 hrs, Volume= 0.201 af
Outflow = 1.85 cfs @ 12.29 hrs, Volume= 0.201 af, Atten= 0%, Lag= 0.0 min
Primary = 1.85 cfs @ 12.29 hrs, Volume= 0.201 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 85.54' @ 12.29 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	84.79'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.84 cfs @ 12.29 hrs HW=85.53' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 1.84 cfs @ 2.94 fps)

Summary for Pond 177P: CB 11

Inflow Area = 0.051 ac,100.00% Impervious, Inflow Depth = 8.56" for cornell 100 event
Inflow = 0.43 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.43 cfs @ 12.08 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min
Primary = 0.43 cfs @ 12.08 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 85.12' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	84.79'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.43 cfs @ 12.08 hrs HW=85.11' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.43 cfs @ 1.94 fps)

Summary for Pond 182P: CB 12

Inflow Area = 0.213 ac, 64.78% Impervious, Inflow Depth = 6.99" for cornell 100 event
Inflow = 1.66 cfs @ 12.09 hrs, Volume= 0.124 af
Outflow = 1.66 cfs @ 12.09 hrs, Volume= 0.124 af, Atten= 0%, Lag= 0.0 min
Primary = 1.66 cfs @ 12.09 hrs, Volume= 0.124 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 75.48' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.78'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.63 cfs @ 12.09 hrs HW=75.47' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 1.63 cfs @ 2.83 fps)

Summary for Pond 185P: CB 13

Inflow Area = 0.098 ac, 60.10% Impervious, Inflow Depth = 6.74" for cornell 100 event
Inflow = 0.74 cfs @ 12.09 hrs, Volume= 0.055 af
Outflow = 0.74 cfs @ 12.09 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min
Primary = 0.74 cfs @ 12.09 hrs, Volume= 0.055 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 75.22' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.78'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.73 cfs @ 12.09 hrs HW=75.21' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.73 cfs @ 2.24 fps)

Summary for Pond 188P: CHAMBERS UNIT 2

Inflow Area = 0.849 ac, 28.96% Impervious, Inflow Depth = 5.27" for cornell 100 event
Inflow = 2.62 cfs @ 12.39 hrs, Volume= 0.373 af
Outflow = 2.07 cfs @ 12.60 hrs, Volume= 0.373 af, Atten= 21%, Lag= 12.6 min
Discarded = 0.35 cfs @ 12.60 hrs, Volume= 0.263 af
Primary = 1.73 cfs @ 12.60 hrs, Volume= 0.109 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 96.99' @ 12.60 hrs Surf.Area= 0.033 ac Storage= 0.100 af

Plug-Flow detention time= 114.7 min calculated for 0.372 af (100% of inflow)
Center-of-Mass det. time= 114.7 min (944.7 - 830.0)

Volume	Invert	Avail.Storage	Storage Description
#1	92.10'	0.041 af	**20.56'W x 69.33'L x 5.00'H Prismatoid** 0.164 af Overall - 0.060 af Embedded = 0.104 af x 40.0% Voids
#2	92.60'	0.060 af	**Cultec R-902HD** x 40 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 4 Rows of 10 Chambers Cap Storage= +2.8 cf x 2 x 4 rows = 22.1 cf
		0.101 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	92.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 90.00'
#2	Primary	95.60'	**8.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.35 cfs @ 12.60 hrs HW=96.99' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.35 cfs)

Primary OutFlow Max=1.72 cfs @ 12.60 hrs HW=96.99' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 1.72 cfs @ 4.94 fps)

Summary for Pond 189P: CHAMBERS UNIT 3

Inflow Area = 2.435 ac, 14.41% Impervious, Inflow Depth = 4.36" for cornell 100 event
Inflow = 3.68 cfs @ 12.12 hrs, Volume= 0.886 af
Outflow = 3.68 cfs @ 12.44 hrs, Volume= 0.857 af, Atten= 0%, Lag= 19.2 min
Discarded = 0.17 cfs @ 12.44 hrs, Volume= 0.261 af
Primary = 3.51 cfs @ 12.44 hrs, Volume= 0.596 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 87.39' @ 12.44 hrs Surf.Area= 0.048 ac Storage= 0.113 af

Plug-Flow detention time= 90.3 min calculated for 0.857 af (97% of inflow)
Center-of-Mass det. time= 72.6 min (923.2 - 850.6)

Volume	Invert	Avail.Storage	Storage Description
#1	84.10'	0.057 af	**48.90'W x 43.00'L x 5.00'H Prismatoid** 0.241 af Overall - 0.099 af Embedded = 0.142 af x 40.0% Voids
#2	84.60'	0.099 af	**Cultec R-902HD** x 66 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 11 Rows of 6 Chambers Cap Storage= +2.8 cf x 2 x 11 rows = 60.7 cf
		0.156 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	84.10'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 62.00'
#2	Primary	86.60'	**24.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.17 cfs @ 12.44 hrs HW=87.39' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.17 cfs)

Primary OutFlow Max=3.50 cfs @ 12.44 hrs HW=87.39' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 3.50 cfs @ 3.03 fps)

Summary for Pond 190P: CHAMBERS UNIT 4

Inflow Area = 1.453 ac, 30.54% Impervious, Inflow Depth = 5.33" for cornell 100 event
Inflow = 6.02 cfs @ 12.08 hrs, Volume= 0.646 af
Outflow = 5.97 cfs @ 12.29 hrs, Volume= 0.627 af, Atten= 1%, Lag= 12.6 min
Discarded = 0.18 cfs @ 12.29 hrs, Volume= 0.246 af
Primary = 5.79 cfs @ 12.29 hrs, Volume= 0.381 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 79.59' @ 12.29 hrs Surf.Area= 0.039 ac Storage= 0.115 af

Plug-Flow detention time= 109.3 min calculated for 0.626 af (97% of inflow)
Center-of-Mass det. time= 92.4 min (904.7 - 812.3)

Volume	Invert	Avail.Storage	Storage Description
#1	75.10'	0.048 af	**24.50'W x 69.00'L x 5.00'H Prismatoid**
			0.194 af Overall - 0.075 af Embedded = 0.119 af x 40.0% Voids
#2	75.60'	0.075 af	**Cultec R-902HD** x 50 Inside #1
			Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
			Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
			5 Rows of 10 Chambers
			Cap Storage= +2.8 cf x 2 x 5 rows = 27.6 cf
		0.123 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	75.10'	**2.410 in/hr Exfiltration over Wetted area**
			Conductivity to Groundwater Elevation = 62.00'
#2	Primary	78.00'	**15.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.18 cfs @ 12.29 hrs HW=79.58' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.18 cfs)

Primary OutFlow Max=5.79 cfs @ 12.29 hrs HW=79.58' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 5.79 cfs @ 4.71 fps)

Summary for Pond 192P: CHAMBERS UNIT 5

Inflow Area = 0.829 ac, 46.63% Impervious, Inflow Depth = 6.02" for cornell 100 event
Inflow = 3.13 cfs @ 12.04 hrs, Volume= 0.416 af
Outflow = 2.71 cfs @ 12.45 hrs, Volume= 0.407 af, Atten= 14%, Lag= 24.4 min
Discarded = 0.20 cfs @ 12.45 hrs, Volume= 0.255 af
Primary = 2.51 cfs @ 12.45 hrs, Volume= 0.151 af

Routing by Stor-Ind method, Time Span= 0.00-29.00 hrs, dt= 0.04 hrs
Peak Elev= 77.83' @ 12.45 hrs Surf.Area= 0.042 ac Storage= 0.130 af

Plug-Flow detention time= 186.3 min calculated for 0.407 af (98% of inflow)
Center-of-Mass det. time= 172.5 min (980.3 - 807.8)

Volume	Invert	Avail.Storage	Storage Description
#1	73.10'	0.050 af	**36.80'W x 49.50'L x 5.00'H Prismatoid**
			0.209 af Overall - 0.084 af Embedded = 0.125 af x 40.0% Voids
#2	73.60'	0.084 af	**Cultec R-902HD** x 56 Inside #1
			Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
			Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
			8 Rows of 7 Chambers
			Cap Storage= +2.8 cf x 2 x 8 rows = 44.2 cf
		0.134 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	73.10'	**2.410 in/hr Exfiltration over Wetted area**
			Conductivity to Groundwater Elevation = 62.00'
#2	Primary	76.50'	**10.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.20 cfs @ 12.45 hrs HW=77.82' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.20 cfs)

Primary OutFlow Max=2.50 cfs @ 12.45 hrs HW=77.82' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 2.50 cfs @ 4.58 fps)

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	Massachusetts
Location	
Longitude	70.717 degrees West
Latitude	41.912 degrees North
Elevation	0 feet
Date/Time	Wed, 10 Feb 2021 15:25:45 -0500

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10d
1yr	0.29	0.44	0.55	0.72	0.90	1.14	1yr	0.78	1.09	1.32	1.69	2.16	2.79	3.12	1yr	2.47	3.00	3.46	4.15	4.8
2yr	0.36	0.55	0.69	0.91	1.14	1.44	2yr	0.99	1.35	1.67	2.11	2.66		3.74	2yr	2.98	3.60	4.11	4.87	5.5
5yr	0.43	0.67	0.84	1.13	1.44	1.83	5yr	1.24	1.70	2.13	2.68	3.36	4.21	4.70	5yr	3.73	4.52	5.16	6.06	6.7
10yr	0.49	0.77	0.98	1.33	1.72	2.21	10yr	1.49	2.03	2.57	3.23	4.02		5.60	10yr	4.42	5.39	6.13	7.14	7.9
25yr	0.58	0.93	1.18	1.64	2.18	2.81	25yr	1.88	2.56	3.28	4.11	5.09	6.24	7.06	25yr	5.52	6.78	7.70	8.89	9.8
50yr	0.67	1.08	1.38	1.94	2.61	3.38	50yr	2.25	3.06	3.95	4.93	6.07	7.39	8.41	50yr	6.54	8.09	9.16	10.49	11.4
100yr	0.77	1.25	1.61	2.29	3.12	4.07	100yr	2.69	3.65	4.75	5.92	7.25		10.03	100yr	7.76	9.64	10.89	12.39	13.4
200yr	0.89	1.45	1.89	2.70	3.74	4.89	200yr	3.22	4.37	5.72	7.10	8.65	10.39	11.96	200yr	9.20	11.50	12.96	14.64	15.1
500yr	1.09	1.79	2.34	3.39	4.75	6.24	500yr	4.10	5.53	7.29	9.02	10.93	13.03	15.11	500yr	11.53	14.53	16.32	18.27	19.4

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10da
1yr	0.25	0.39	0.47	0.63	0.78	0.90	1yr	0.67	0.88	1.10	1.47	1.91	2.51	2.88	1yr	2.22	2.77	3.08	3.75	4.57
2yr	0.35	0.53	0.66	0.89	1.10	1.33	2yr	0.95	1.30	1.54	2.04	2.58	3.30	3.66	2yr	2.92	3.52	4.01	4.77	5.42
5yr	0.40	0.61	0.76	1.04	1.32	1.58	5yr	1.14	1.54	1.82	2.41	3.03	3.99	4.46	5yr	3.53	4.29	4.88	5.78	6.48
10yr	0.44	0.67	0.83	1.16	1.50	1.80	10yr	1.30	1.76	2.05	2.72	3.40	4.59	5.15	10yr	4.06	4.95	5.63	6.66	7.42
25yr	0.50	0.76	0.95	1.35	1.78	2.14	25yr	1.53	2.09	2.36	3.18	3.95	5.53	6.23	25yr	4.90	6.00	6.80	8.02	8.90
50yr	0.55	0.84	1.04	1.50	2.02	2.43	50yr	1.74	2.38	2.61	3.58	4.40	6.38	7.21	50yr	5.65	6.93	7.82	9.23	10.2
100yr	0.61	0.93	1.16	1.68	2.30	2.75	100yr	1.99	2.69	2.87	4.04	4.92	7.36	8.34	100yr	6.52	8.02	9.00	10.65	11.7
200yr	0.68	1.02	1.29	1.87	2.61	3.13	200yr	2.25	3.06	3.15	4.54	5.49	8.49	9.67	200yr	7.51	9.30	10.42	12.31	13.4
500yr	0.78	1.16	1.50	2.17	3.09	3.70	500yr	2.67	3.62	3.54	5.31	6.33	10.25	11.76	500yr	9.07	11.31	12.65	14.93	16.2

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10
1yr	0.32	0.49	0.60	0.81	0.99	1.21	1yr	0.86	1.18	1.44	1.92	2.42	3.02	3.32	1yr	2.67	3.19	3.70	4.41	5.
2yr	0.38	0.58	0.71	0.97	1.19	1.43	2yr	1.03	1.40	1.68	2.20	2.78	3.46	3.85	2yr	3.06	3.71	4.25	5.01	5.
5yr	0.47	0.73	0.91	1.24	1.58	1.90	5yr	1.37	1.86	2.19	2.84	3.52	4.46	4.96	5yr	3.95	4.77	5.42	6.35	7.
10yr	0.58	0.89	1.10	1.54	1.98	2.36	10yr	1.71	2.31	2.70	3.46	4.25	5.40	6.03	10yr	4.78	5.80	6.57	7.64	8.
25yr	0.76	1.15	1.43	2.04	2.69	3.15	25yr	2.32	3.08	3.63	4.52	5.45	6.99	7.80	25yr	6.18	7.50	8.48	9.74	10
50yr	0.92	1.41	1.75	2.52	3.39	3.93	50yr	2.92	3.84	4.53	5.53	6.59	8.49	9.50	50yr	7.52	9.13	10.30	11.72	12
100yr	1.14	1.72	2.16	3.11	4.27	4.90	100yr	3.69	4.79	5.67	6.77	8.00	10.30	11.57	100yr	9.11	11.13	12.62	14.10	15
200yr	1.40	2.10	2.67	3.86	5.38	6.12	200yr	4.65	5.98	7.10	8.30	9.71	12.51	14.09	200yr	11.07	13.55	15.33	16.96	18
500yr	1.85	2.76	3.54	5.15	7.32	8.20	500yr	6.32	8.02	9.60	10.88	12.57	16.18	18.30	500yr	14.32	17.60	19.82	21.64	22

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Northeast Regional Climate Center

National Flood Hazard Layer FIRMette

FEMA

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

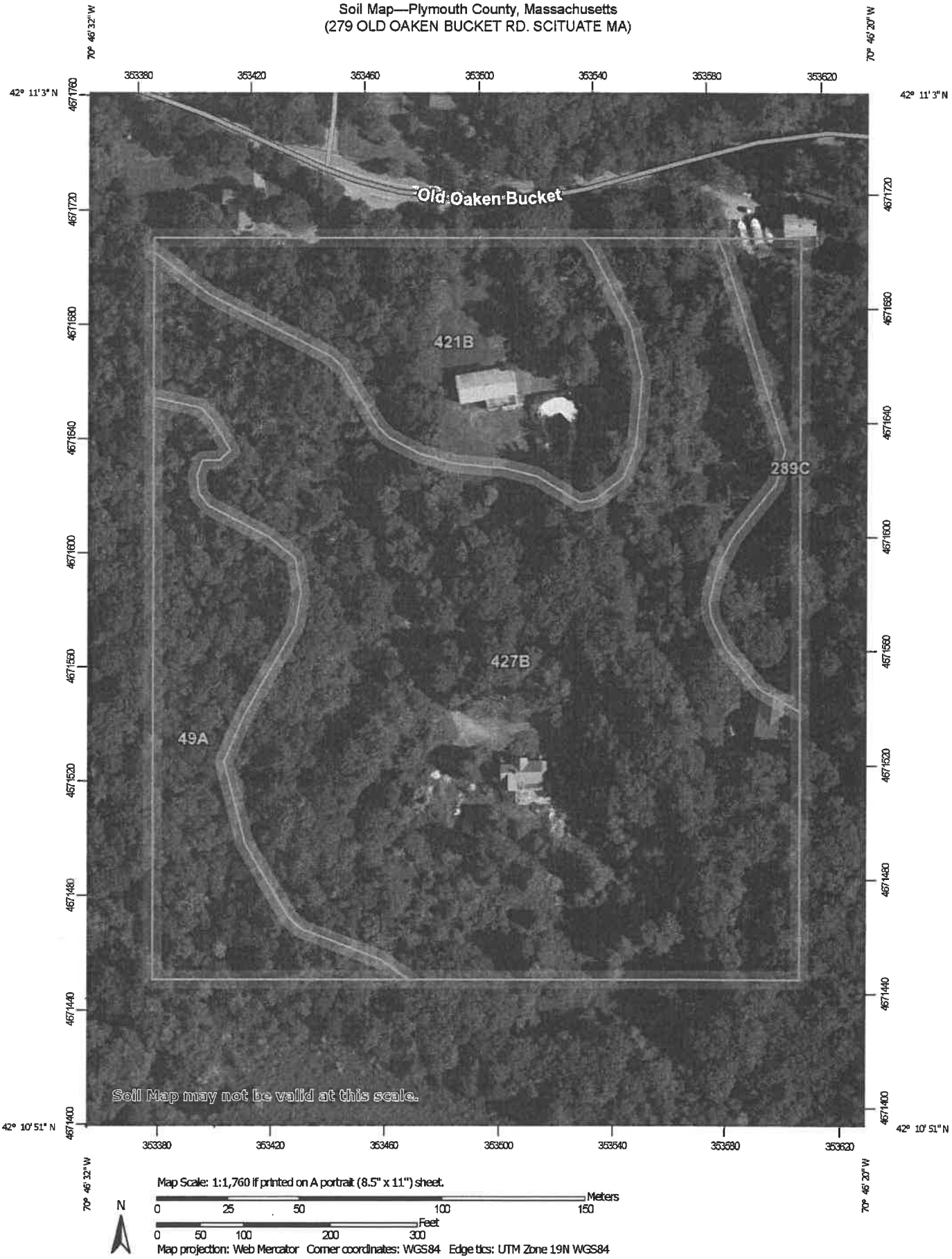
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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 3/26/2020 at 4:00:37 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.

Soil Map—Plymouth County, Massachusetts
(279 OLD OAKEN BUCKET RD. SCITUATE MA)



Map Scale: 1:1,760 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0, 25, 50, 100, 150

Feet: 0, 50, 100, 200, 300

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: Plymouth County, Massachusetts
Survey Area Data: Version 13, Jun 9, 2020

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

Date(s) aerial images were photographed: Jul 31, 2019—Sep 1, 2019

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
49A	Norwell mucky fine sandy loam, 0 to 3 percent slopes, extremely stony	1.9	13.1%
289C	Hinckley gravelly sandy loam, 8 to 15 percent slopes, bouldery	0.8	5.2%
421B	Canton fine sandy loam, 0 to 8 percent slopes, very stony	2.4	16.1%
427B	Newfields fine sandy loam, 3 to 8 percent slopes, extremely stony	9.6	65.6%
Totals for Area of Interest		**14.7**	**100.0%**

Plymouth County, Massachusetts

421B—Canton fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w81l
Elevation: 0 to 1,180 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: Farmland of statewide importance

Map Unit Composition

Canton, very stony, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton, Very Stony

Setting

Landform: Ridges, hills, moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
Bw1 - 5 to 16 inches: fine sandy loam
Bw2 - 16 to 22 inches: gravelly fine sandy loam
2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Scituate, very stony

Percent of map unit: 9 percent
Landform: Ground moraines, drumlins, hills
Landform position (two-dimensional): Footslope, backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Montauk, very stony

Percent of map unit: 5 percent
Landform: Drumlins, hills, ground moraines, recessionial moraines
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Gloucester, very stony

Percent of map unit: 4 percent
Landform: Ridges, hills, moraines
Landform position (two-dimensional): Summit, backslope, shoulder
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Swansea

Percent of map unit: 2 percent
Landform: Depressions, marshes, kettles, swamps, bogs
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Plymouth County, Massachusetts
Survey Area Data: Version 13, Jun 9, 2020

Plymouth County, Massachusetts

427B—Newfields fine sandy loam, 3 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: bcxt
Elevation: 10 to 400 feet
Mean annual precipitation: 41 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Newfields, extremely stony, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Newfields, Extremely Stony

Setting

Landform: Hills, till plains, moraines
Landform position (two-dimensional): Footslope, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Coarse-loamy eolian deposits over sandy and gravelly supraglacial meltout till

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 3 inches: fine sandy loam
Bs - 3 to 4 inches: fine sandy loam
Bw1 - 4 to 16 inches: fine sandy loam
Bw2 - 16 to 28 inches: gravelly fine sandy loam
2C - 28 to 63 inches: gravelly loamy coarse sand

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 15 to 36 inches to strongly contrasting textural stratification
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY008CT - Moist Till Uplands
Hydric soil rating: No

Minor Components

Barnstable, very stony

Percent of map unit: 8 percent
Landform: Moraines
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Norwell, extremely stony

Percent of map unit: 7 percent
Landform: Depressions, drainageways
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scituate, very stony

Percent of map unit: 5 percent
Landform: Ridges, drumlins
Landform position (two-dimensional): Footslope, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Data Source Information

Soil Survey Area: Plymouth County, Massachusetts
Survey Area Data: Version 13, Jun 9, 2020

Groundwater Recharge and Water Quality Calculations

The Cottages at Old Oaken Bucket
Scituate, Massachusetts

Groundwater Recharge
Stormwater Management Standard #3

The prescribed stormwater runoff volume to be recharged to groundwater has been determined using the existing site (pre-development) soil conditions from the U.S. Natural Resources Conservation Service NRCS, (formerly SCS) County Web Soils Survey.

Soil Hydrologic group, "B"
Required Infiltration Capacity = 0.35"
Watershed Area= 11.53 Acres total for the watershed analysed
Existing Impervious Area = 0.45 Acres
Proposed impervious area = 2.94 Acres
Net impervious area = 2.49

Required Infiltration Volume= (0.35"/12"/ft) x (2.49 Acres)
= 0.072 acf required

6 x 0.012 acf =0.072 acf provided in all chambers for the roofs of singles
13 x 0.026 acf =0.338 acf provided in all chambers for the roofs of duplexes

Chambers Unit 1=0.034 acf
Chambers Unit 2=0.101 acf
Chambers Unit 3=0.156 acf
Chambers Unit 4=0.123 acf
Chambers Unit 5=0.134 acf

Total provided=0.958 acf

Drawdown calculations

chambers for roofs of singles= (0.35"/12"/ft) x (1,760 sf)=52 cf

Drawdown = 52 cf / (2.41 in/hr x 191.25 sf x 1/12) = 1.4 hr

chambers for roofs of duplexes= (0.35"/12"/ft) x (3,940 sf)=115 cf

Drawdown = 115 cf / (2.41 in/hr x 400.35 sf x 1/12) = 1.5 hr

To chamber unit 1= (0.35"/12"/ft) x (2,341 sf)=69 cf

Drawdown = 69 cf/(2.41 in/hr x 391.3 sf x 1/12) = 0.9 hr

To chamber unit 2= (0.35"/12"/ft) x (10,716 sf)=313 cf

Drawdown = 313 cf/(2.41 in/hr x 1,425.4 sf x 1/12) = 1.1 hr

To chamber unit 3= (0.35"/12"/ft) x (15,291sf)=446 cf

Drawdown = 446 cf /(2.41 in/hr x 2,102.7 sf x 1/12) = 1.1 hr

To chamber unit 4= (0.35"/12"/ft) x (19,337sf)=564 cf

Drawdown = 564 cf /(2.41 in/hr x 1,690.5 sf x 1/12) = 1.7 hr

To chamber unit 3= (0.35"/12"/ft) x (16,839 sf)=492 cf

Drawdown = 492 cf /(2.41 in/hr x 1,821.6 sf x 1/12) = 1.4 hr

Water Quality
Stormwater Management Standard - General

"Containment and treatment of the first inch (first flush) of runoff during a rainfall event is a reasonably effective practice for controlling contaminants in stormwater."

See Calculations from storm treatment unit provider

Calculation of Required Water Quality Flow for Sizing of Stormwater Treatment System

1/10/2022

Based on Massachusetts DEP document:
"Standard Method to Convert Required Water Quality Volume to a Discharge Rate for Sizing Flow Based Manufactured Proprietary Stormwater Treatment Practices"

Stormwater Standard No. 4 requires that the full WQV be captured and treated to remove 80% of the average annual post-construction TSS load.
Since manufactured proprietary separators are sized using discharge rates and not volume, MassDEP is requiring this standard method be used to convert the required WQV to a discharge rate (WQF) to be treated.

Project Site: **Old Oaken Bucket**
Project Location: **Scituate, MA**

Runoff Depth, Q: **1** " (0.5" or 1")

Table 1.

Structure Name	Area (acres)	% Impervious	Impervious A (miles^2)	t_c (min.)	t_c (hrs.)
Hydro 1	**0.067**	**80.64%**	0.000084	**0.6**	0.010
Hydro 2	**0.849**	**28.96%**	0.000384	**0.3**	0.005
Hydro 3	**2.471**	**14.20%**	0.000548	**0.9**	0.015
Hydro 4	**1.417**	**31.32%**	0.000693	**0.1**	0.002
Hydro 5	**0.829**	**46.63%**	0.000604	**0.3**	0.005

Because only runoff from impervious surfaces is used in calculation of WQV, area is considered 100% impervious
Therefore, CN = 98

Enter Ia/P Ratio for CN=98:
Ia/P = **0.034** (0.058 for Q=0.5" / 0.034 for Q=1")

Enter unit peak discharge, qu (csm/in) for Type III rainfall distribution, Ia/P, and tc:
From Figure 2 (Q=0.5") or Figure 4 (Q=1")

Table 2.

Structure Name	tc (hours)	qu (csm/in)
Hydro 1	**0.010**	**835**
Hydro 2	**0.005**	**835**
Hydro 3	**0.015**	**835**
Hydro 4	**0.002**	**835**
Hydro 5	**0.005**	**835**

WQF in cfs = (qu)(A)(Q), where:

WQF = water quality flow (cfs)
q_u = unit peak discharge (csm/in) — From Table 2 above
A = drainage area (mi^2) — From Table 1 above
Q = runoff depth (watershed inches) — Based on Area Type, from above

Table 3.

Structure Name	**q_u (csm/in)**	**Impervious A (miles^2)**	**Q (in)**	**WQF (cfs)**	**Proposed Device[1]**
Hydro 1	835	0.000084	1	**0.07**	**FD-4HC**
Hydro 2	835	0.000384	1	**0.32**	**FD-4HC**
Hydro 3	835	0.000548	1	**0.46**	**FD-4HC**
Hydro 4	835	0.000693	1	**0.58**	**FD-4HC**
Hydro 5	835	0.000604	1	**0.50**	**FD-4HC**

[1]Proposed Device is sized so that the required site WQF is less than the treatment flow at which the device achieves at least 80% TSS removal, as documented by enclosed test data.

First Defense® High Capacity

A Simple Solution for your Trickiest Sites

Verified by NJCAT and NJDEP

Product Profile

The First Defense® High Capacity is an enhanced vortex separator that combines an effective stormwater treatment chamber with an integral peak flow bypass. It efficiently removes sediment total suspended solids (TSS), trash and hydrocarbons from stormwater runoff without washing out previously captured pollutants. The First Defense® High Capacity is available in several model configurations to accommodate a wide range of pipe sizes, peak flows and depth constraints (**Table 1**, next page).

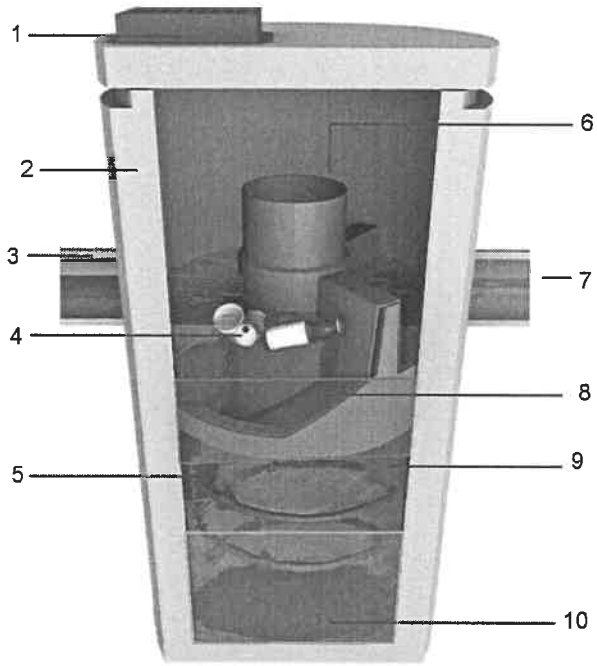
Applications

- Stormwater treatment at the point of entry into the drainage line
- Sites constrained by space, topography or drainage profiles with limited slope and depth of cover
- Retrofit installations where stormwater treatment is placed on or tied into an existing storm drain line
- Pretreatment for filters, infiltration and storage

Advantages

- Inlet options include surface grate or multiple inlet pipes
- Integral high capacity bypass conveys large peak flows without the need for "offline" arrangements using separate junction manholes
- Proven to prevent pollutant washout at up to 450% of its treatment flow
- Long flow path through the device ensures a long residence time within the treatment chamber, enhancing pollutant settling
- Delivered to site pre-assembled and ready for installation

Fig.1 The First Defense® High Capacity has internal components designed to efficiently capture pollutants and prevent washout at peak flows.



Components

1. Inlet Grate (optional)
2. Precast chamber
3. Inlet Pipe (optional)
4. Floatables Draw Off Slot (not pictured)
5. Inlet Chute
6. Internal Bypass
7. Outlet pipe
8. Oil and Floatables Storage
9. Outlet chute
10. Sediment Storage Sump

How it Works

The First Defense® High Capacity has internal components designed to remove and retain gross debris, total suspended solids (TSS) and hydrocarbons (**Fig.1**).

Contaminated stormwater runoff enters the inlet chute from a surface grate and/or inlet pipe. The inlet chute introduces flow into the chamber tangentially to create a low energy vortex flow regime (magenta arrow) that directs sediment into the sump while oils, floating trash and debris rise to the surface.

Treated stormwater exits through a submerged outlet chute located opposite to the direction of the rotating flow (blue arrow). Enhanced vortex separation is provided by forcing the rotating flow within the vessel to follow the longest path possible rather than directly from inlet to outlet.

Higher flows bypass the treatment chamber to prevent turbulence and washout of captured pollutants. An internal bypass conveys infrequent peak flows directly to the outlet eliminating the need for, and expense of, external bypass control structures. A floatables draw off slot functions to convey floatables into the treatment chamber prior to bypass.

Hydro International, 94 Hutchins Drive, Portland, ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212
Email: stormwaterinquiry@hydro-int.com Web: www.hydro-int.com

First Defense® High Capacity

Sizing & Design

This adaptable online treatment system works easily with large pipes, multiple inlet pipes, inlet grates and now, contains a high capacity bypass for the conveyance of large peak flows. Designed with site flexibility in mind, the First Defense® High Capacity allows engineers to maximize available site space without compromising treatment level.

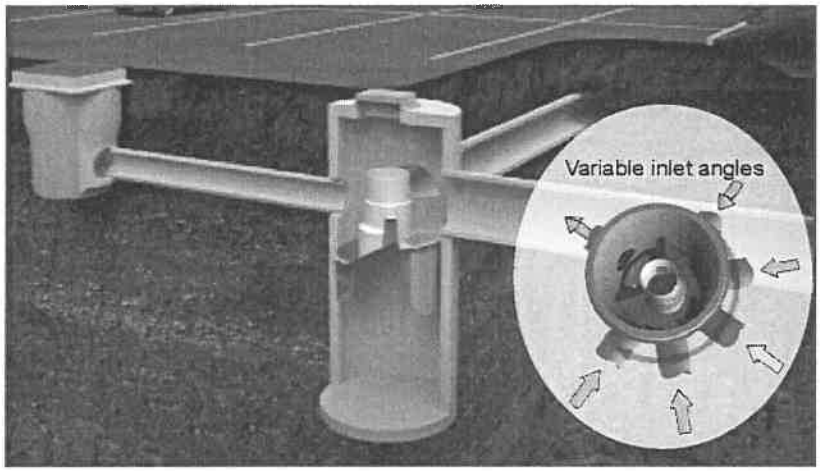


Fig 2. Works with multiple inlet pipes and grates

Inspection and Maintenance

Nobody maintains our systems better than we do. To ensure optimal, ongoing device performance, be sure to recommend Hydro International as a preferred service and maintenance provider to your clients.

Call **1 (800) 848-2706** to schedule an inspection and cleanout or learn more at **hydro-int.com/service**

Sizing Calculator for Engineers

This simple online tool will recommend the best separator, model size and online/offline arrangement based on site-specific data entered by the user.

Go to hydro-int.com/sizing to access the tool.

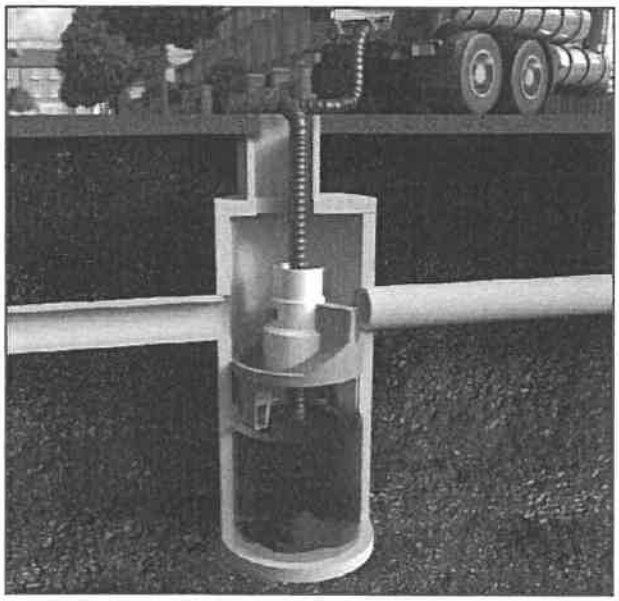


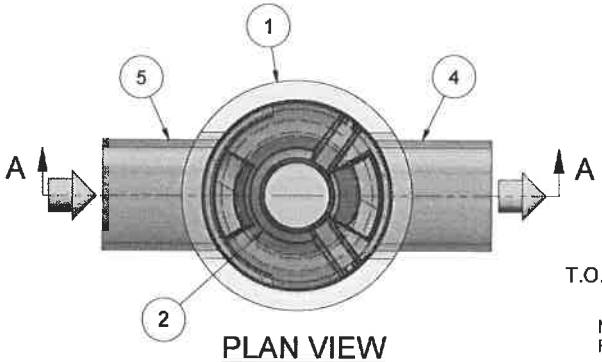
Fig 3. Maintenance is done with a vactor truck

Table 1. First Defense® High Capacity Design Criteria.

First Defense® High Capacity Model Number	Diameter	Typical TSS Treatment Flow Rates		Peak Online Flow Rate	Maximum Pipe Diameter[1]	Oil Storage Capacity	Typical Sediment Storage Capacity[2]	Minimum Distance from Outlet Invert to Top of Rim[3]	Standard Distance from Outlet Invert to Sump Floor
		NJDEP Certified	110µm						
	(ft / m)	(cfs / L/s)	(cfs / L/s)	(cfs / L/s)	(in / mm)	(gal / L)	(yd^3 / m^3)	(ft / m)	(ft / m)
FD-3HC	3 / 0.9	0.84 / 23.7	1.06 / 30.0	15 / 424	18 / 457	125 / 473	0.4 / 0.3	2.0 - 3.5 / 0.6 - 1.0	3.71 / 1.13
FD-4HC	4 / 1.2	1.50 / 42.4	1.88 / 53.2	18 / 510	24 / 600	191 / 723	0.7 / 0.5	2.3 - 3.9 / 0.7 - 1.2	4.97 / 1.5
FD-5HC	5 / 1.5	2.35 / 66.2	2.94 / 83.2	20 / 566	24 / 600	300 / 1135	1.1 / .84	2.5 - 4.5 / 0.7 - 1.3	5.19 / 1.5
FD-6HC	6 / 1.8	3.38 / 95.7	4.23 / 119.8	32 / 906	30 / 750	496 / 1,878	1.6 / 1.2	3.0 - 5.1 / 0.9 - 1.6	5.97 / 1.8
FD-8HC	8 / 2.4	6.00 / 169.9	7.52 / 212.9	50 / 1,415	48 / 1219	1120 / 4239	2.8 / 2.1	3.0 - 6.0 / 0.9 -1.8	7.40 / 2.2

[1]Contact Hydro International when larger pipe sizes are required.
[2]Contact Hydro International when custom sediment storage capacity is required.
[3]Minimum distance for models depends on pipe diameter.

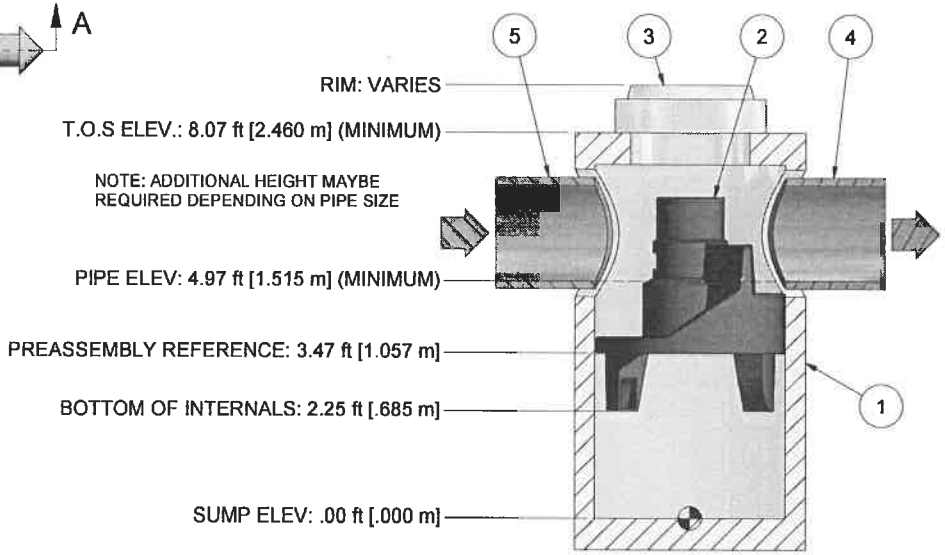
Hydro International, 94 Hutchins Drive, Portland, ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212
Email: stormwaterinquiry@hydro-int.com Web: www.hydro-int.com



PLAN VIEW

HYDRO FRAME AND COVER (INCLUDED)

GRADE RINGS BY OTHERS AS REQUIRED



SECTION A-A

1. MANHOLE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.

2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING FIRST DEFENSE MANHOLE.

3. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.

PRODUCT SPECIFICATION:

1. Peak Hydraulic Flow: 18.0 cfs (510 l/s)
2. Min Sediment Storage Capacity: 0.7 cu. yd. (0.5 cu. m.)
3. Oil Storage Capacity: 191 gal. (723 liters)
4. Maximum Inlet/Outlet Pipe Diameters: 24 in. (600 mm)
5. The Treatment System Shall Use An Induced Vortex To Separate Pollutants From Stormwater Runoff.
6. For More Product Information Including Regulatory Acceptances, Please Visit https://hydro-int.com/en/products/first-defense

GENERAL NOTES:
1. General Arrangement drawings only. Contact Hydro International for site specific drawings.
2. The diameter of the inlet and outlet pipes may be no more than 24".
3. Multiple inlet pipes possible (refer to project plan).
4. Inlet/outlet pipe angle can vary to align with drainage network (refer to project plan.s)
5. Peak flow rate and minimum height limited by available cover and pipe diameter.
6. Larger sediment storage capacity may be provided with a deeper sump depth.

PARTS LIST

ITEM	QTY	SIZE (in)	SIZE (mm)	DESCRIPTION
1	1	48	1200	I.D. PRECAST MANHOLE
2	1			INTERNAL COMPONENTS (PRE-INSTALLED)
3	1	30	750	FRAME AND COVER (ROUND)
4	1	24 (MAX)	600 (MAX)	OUTLET PIPE (BY OTHERS)
5	1	24 (MAX)	600 (MAX)	INLET PIPE (BY OTHERS)

PROJECTION

IF IN DOUBT ASK

DATE:	SCALE:
10/7/2019	1:30

DRAWN BY:	CHECKED BY:	APPROVED BY
ER	MRJ	

Title
4-ft DIAMETER
FIRST DEFENSE HIGH CAPACITY
GENERAL ARRANGEMENT

Hydro International
hydro-int.com
HYDRO INTERNATIONAL

WEIGHT:	MATERIAL:
N/A	

STOCK NUMBER:

DRAWING NO.: FDHC GA-4

SHEET SIZE:	SHEET:	Rev:
B	1 OF 1	-

INSTRUCTIONS:
1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Version 1, Automated: Mar. 4, 2008

Location: THE COTTAGES AT OLD OAKEN BUCKET

TSS Removal Calculation Worksheet

B BMP[1]	C TSS Removal Rate[1]	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Deep Sump and Hooded Catch Basin	0.25	1.00	0.25	0.75
Proprietary Treatment Practice	0.00	0.75	0.00	0.75
	0.00	0.75	0.00	0.75
	0.00	0.75	0.00	0.75
	0.00	0.75	0.00	0.75

Total TSS Removal = 25%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: THE COTTAGES AT OLD OAKEN BUCKET RD.
Prepared By: AAE
Date: 1/9/2022

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

Non-automated TSS Calculation Sheet
must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

Stormwater Management Regulations Standard #10:

Illicit Discharge Compliance Statement

An illicit discharge is any discharge to a municipal separate storm sewer system (MS4) that is not comprised entirely of stormwater, discharges from fire-fighting activities, and certain non-designated non-stormwater discharges.

To the best of my knowledge, no detectable illicit discharge exists on site. The Comprehensive Permit plans included with this report detail the storm sewers that convey stormwater on the site and demonstrate that these systems do not include the entry on and illicit discharge. An Operations and Maintenance Plan is also included along with the Long Term Pollution Prevention Plan that outlines measures to prevent future illicit discharges. As the Site Owner, I will be responsible for implementing the Long Term Pollution Prevention Plan.

Name: _____

Company: The Lovendale Company, LLC

Title: _____

Signature: _____

Date: _____

Commonwealth of Massachusetts
Scituate, Massachusetts
Soil Suitability Assessment for On-Site Septic System

Performed By: Anthony Esposito, South Shore Survey Consultants Inc.

Witnessed By: Peter Falabella., Scituate Board of Health

Location, Address, or Lot #	Owner's Name, Address, and Telephone #
279 Old Oaken Bucket Rd. Scituate, MA Assessors # 41-1-3	US Bank National Assc. Trust s/o Lovendale LLC 107 East St. Duxbury, MA 02332

New Construction **X** Repair

Office Review

Published Soil Survey Available: No ☐ Yes ☒

Year Published 2019 Publication Scale 1:12,000 Soil Map Unit 427B

Drainage Class B Soil Limitations High Water Table

Surficial Geologic Report Available: No ☐ Yes ☒

Year Published 2019 Publication Scale 1:12,000

Geologic Material (Map Unit) eiolian deposists

Landform outwash plain

Flood Insurance Rate Map:

Above 500 year flood boundary No ☐ Yes ☒

Within 500 year flood boundary No ☒ Yes ☐

Within 100 year flood boundary No ☒ Yes ☐

Wetland Area:

National Wetland Inventory Map (map unit) N/A

Wetlands Conservancy Program Map (map unit) N/A

Current Water Resource Conditions (USGS): Month December 2019

Range: Above Normal ☒ Normal ☐ Below Normal ☐

Other References Reviewed: None

On-Site Review

Deep Hole Number T.P 1 Date 12-13-2019 Time: 9 AM Weather: sunny 40s

Location (identify on site plan) north of onsite U pole

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-12"	A	SL	10yr3/3	-	
12-26"	B	LS	10yr5/6	mottles@ 24" 7.5y6/4	
45"-96"	C	SL	2.5y5/2		firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >96"

Depth to Groundwater: Standing Water in the Hole: 90" Weeping from Pit Face: 44"

Estimated Seasonal High Ground Water? 24"

On-Site Review

Deep Hole Number T.P 2 Date 12-13-2019 Time: 9 AM Weather: sunny 40s

Location (identify on site plan) north of onsite U pole

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ____

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-10"	A	SL	10yr3/3	-	
10-22"	B	LS	10yr5/6		
22"-94"	C	SL	2.5y5/2	mottles@ 40" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >94"

Depth to Groundwater: Standing Water in the Hole: 79" Weeping from Pit Face: 49"

Estimated Seasonal High Ground Water? 40"

On-Site Review

Deep Hole Number T.P 3 Date 12-13-2019 Time: 10 AM Weather: sunny 40s

Location (identify on site plan) north of onsite U pole

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-11"	A	SL	10yr3/3	-	
11-28"	B	LS	10yr5/6	mottles@ 27" 7.5y6/4	
28"-95"	C	SL	2.5y5/2		firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >95"

Depth to Groundwater: Standing Water in the Hole: 61" Weeping from Pit Face: 61"

Estimated Seasonal High Ground Water? 27"

On-Site Review

Deep Hole Number T.P 4 Date 12-13-2019 Time: 10 AM Weather: sunny 40s

Location (identify on site plan) north of onsite U pole

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-12"	A	SL	10yr3/3	-	
12-24"	B	LS	10yr5/6		
24"-85"	C	SL	2.5y5/2	mottles@ 30" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >85"

Depth to Groundwater: Standing Water in the Hole: 82" Weeping from Pit Face: 48"

Estimated Seasonal High Ground Water? 30"

On-Site Review

Deep Hole Number T.P 5 Date 12-13-2019 Time: 11AM Weather: sunny 40s

Location (identify on site plan) west of gravel drive at entrance

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-12"	A	SL	10yr3/3	-	
12-26"	B	LS	10yr5/6		
24"-84"	C	SL	2.5y5/2	mottles@ 36" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >84"

Depth to Groundwater: Standing Water in the Hole: 58" Weeping from Pit Face: 48"

Estimated Seasonal High Ground Water? 36"

On-Site Review

Deep Hole Number T.P 6 Date 12-13-2019 Time: 11 AM Weather: sunny 40s

Location (identify on site plan) east of gravel drive at entrance

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-11"	A	SL	10yr3/3	-	
11-20"	B	LS	10yr5/6		
20"-77"	C	SL	2.5y5/2	mottles@ 33" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >77"

Depth to Groundwater: Standing Water in the Hole: 54" Weeping from Pit Face: 54"

Estimated Seasonal High Ground Water? 33"

On-Site Review

Deep Hole Number T.P 10 Date 1-6-2020 Time: 9 AM Weather: cloudy 30s

Location (identify on site plan) east of gravel drive at 200 lf from entrance

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-16"	A	SL	10yr3/3	-	
16-35"	B	LS	10yr5/6		
35"-84"	C	SL	2.5y5/2	mottles@ 35" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >84"

Depth to Groundwater: Standing Water in the Hole: 70" Weeping from Pit Face: 39"

Estimated Seasonal High Ground Water? 35"

On-Site Review

Deep Hole Number T.P 11 Date 1-6-2020 Time: 9 AM Weather: cloudy 30s

Location (identify on site plan) west of gravel drive at 200 lf from entrance

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-7"	A	SL	10yr3/3	-	
7-25"	B	LS	10yr5/6		
25"-80"	C	SL	2.5y5/2	mottles@ 38" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >80"

Depth to Groundwater: Standing Water in the Hole: 78" Weeping from Pit Face: 38"

Estimated Seasonal High Ground Water? 38"

On-Site Review

Deep Hole Number T.P 13 Date 1-6-2020 Time: 10 AM Weather: cloudy 30s

Location (identify on site plan) east of gravel drive at 200 lf from entrance

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-12"	A	SL	10yr3/3	-	
12-26"	B	LS	10yr5/6		
26"-80"	C	SL	2.5y5/2	mottles@ 26" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >80"

Depth to Groundwater: Standing Water in the Hole: 70" Weeping from Pit Face: 26"

Estimated Seasonal High Ground Water? 26"

On-Site Review

Deep Hole Number T.P 20 Date 1-6-2020 Time: 11 AM Weather: cloudy 30s

Location (identify on site plan) south of onsite U pole

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-7"	A	SL	10yr3/3	-	
7-22"	B	LS	10yr5/6		
22"-84"	C	SL	2.5y5/2	mottles@ 31" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >84"

Depth to Groundwater: Standing Water in the Hole: 52" Weeping from Pit Face: 31"

Estimated Seasonal High Ground Water? 31"

On-Site Review

Deep Hole Number T.P 21 Date 1-6-2020 Time: 12 PM Weather: cloudy 30s

Location (identify on site plan) south of onsite U pole

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-6"	A	SL	10yr3/3	-	
6-22"	B	LS	10yr5/6		
22"-84"	C	SL	2.5y5/2	mottles@ 33" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >84"

Depth to Groundwater: Standing Water in the Hole: 52" Weeping from Pit Face: 41"

Estimated Seasonal High Ground Water? 80"

On-Site Review

Deep Hole Number T.P 22 Date 1-8-2020 Time: 9 AM Weather: rainy 30s

Location (identify on site plan) south of onsite U pole

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-9"	A	SL	10yr3/3	-	
9-24"	B	LS	10yr5/6		
24"-72"	C	SL	2.5y5/2	mottles@ 26" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >72"

Depth to Groundwater: Standing Water in the Hole: 60" Weeping from Pit Face: 26"

Estimated Seasonal High Ground Water? 26"

On-Site Review

Deep Hole Number T.P 24 Date 1-8-2020 Time: 10 AM Weather: rainy 30s

Location (identify on site plan) south of onsite U pole

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-10"	A	SL	10yr3/3	-	
10-28"	B	LS	10yr5/6	mottles@ 22" 7.5y6/4	
28"-88"	C	SL	2.5y5/2		firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >88"

Depth to Groundwater: Standing Water in the Hole: 63" Weeping from Pit Face: 22"

Estimated Seasonal High Ground Water? 22"

On-Site Review

Deep Hole Number T.P 25 Date 1-8-2020 Time: 10:30 AM Weather: rainy 30s

Location (identify on site plan) south of onsite U pole

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-10"	A	SL	10yr3/3	-	
10-25"	B	LS	10yr5/6	mottles@ 25" 7.5y6/4	
25"-98"	C	SL	2.5y5/2		firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >98"

Depth to Groundwater: Standing Water in the Hole: 96" Weeping from Pit Face: 32"

Estimated Seasonal High Ground Water? 32"

On-Site Review

Deep Hole Number T.P 26 Date 1-8-2020 Time: 11 AM Weather: rainy 30s

Location (identify on site plan) south of onsite U pole

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-10"	A	SL	10yr3/3	-	
10-24"	B	LS	10yr5/6	mottles@ 24" 7.5y6/4	
24"-82"	C	SL	2.5y5/2		firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >82"

Depth to Groundwater: Standing Water in the Hole: 73" Weeping from Pit Face: 24"

Estimated Seasonal High Ground Water? 24"

On-Site Review

Deep Hole Number T.P 1DW Date 2-19-2020 Time: 9 AM Weather: sunny 30s

Location (identify on site plan) 120' south of onsite U pole

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ____

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-10"	A	SL	10yr3/3	-	
10-22"	B	LS	10yr5/6		
22"-120"	C	SL	2.5y5/2	mottles@ 25" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >120"

Depth to Groundwater: Standing Water in the Hole: none Weeping from Pit Face: 30"

Estimated Seasonal High Ground Water? 25"

On-Site Review

Deep Hole Number T.P 2DW Date 2-19-2020 Time: 10 AM Weather: sunny 30s

Location (identify on site plan) 120' south of onsite U pole

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-8"	A	SL	10yr3/3	-	
8-19"	B	LS	10yr5/6		
19"-120"	C	SL	2.5y5/2	mottles@ 37" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >120"

Depth to Groundwater: Standing Water in the Hole: none Weeping from Pit Face: 41"

Estimated Seasonal High Ground Water? 37"

On-Site Review

Deep Hole Number T.P 3NDW Date 2-19-2020 Time: 11 AM Weather: sunny 30s

Location (identify on site plan) 120' south of onsite U pole

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-11"	A	SL	10yr3/3	-	
11-28"	B	LS	10yr5/6		
28"-120"	C	SL	2.5y5/2	mottles@ 31" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >120"

Depth to Groundwater: Standing Water in the Hole: 114" Weeping from Pit Face: 60"

Estimated Seasonal High Ground Water? 31"

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA

Determination for Seasonal High Water Table

Method Used:

☐ Depth to bottom of deep hole (assumed seasonal high groundwater)_____inches

☐ Depth observed standing in observation hole_____inches

☐ Depth weeping from side of observation hole _____inches

X Depth to soil mottle see soil logs_____inches

Index Well Number Reading Date_____ Index Well Level
Adjustment Factor_____ Adjusted Groundwater Level _____

Depth of Naturally Occurring Pervious Material

Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system?_____yes_____

If not, what is the depth of naturally occurring pervious material?_____

Certification

I certify that on June 1999 I have passed the soil evaluator examination approved by the Department of Environmental Protection and that the above analysis was performed by me consistent with the required training, expertise, and experience described in 310 CMR 15.017.

Signature *Anthony Esposito* Date 2/21/2020

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA.

Commonwealth of Massachusetts
Scituate, Massachusetts

*Percolation Test	
Date: 12-13-2019	Time: 9:53 AM, 10:17 AM

Observation Hole #	T.P. 2	T.P. 3
Depth of Perc.	24+18"	33+18"
Start Pre-Soak	9:53	10:17
End Pre-Soak	10:08	10:32
Time at 12"	10:08	10:32
Time at 9"	10:41	10:57
Time at 6"	11:20	11:38
Time (9" - 6")	39	41
Rate (Minutes/Inch)	13 min/in	14 min/in

Site Passed X Site Failed

Performed By: Anthony Esposito, SE688, P.E.

Witnessed By Peter Falabella, Scituate Board of Health

Comments:

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA.

Commonwealth of Massachusetts
Scituate, Massachusetts

*Percolation Test	
Date: 12-13-2019	Time: 10:32 AM, 11:47 AM

Observation Hole #	T.P. 4	T.P. 5
Depth of Perc.	30+18"	24+18"
Start Pre-Soak	10:32	11:47
End Pre-Soak	10:47	12:08
Time at 12"	10:47	12:08
Time at 9"	11:45	12:45
Time at 6"	1:09	1:34
Time (9" - 6")	84	49
Rate (Minutes/Inch)	28 min/in	17 min/in

Site Passed X Site Failed

Performed By: Anthony Esposito, SE688, P.E.

Witnessed By Peter Falabella, Scituate Board of Health

Comments:

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA.

Commonwealth of Massachusetts
Scituate, Massachusetts

*Percolation Test	
Date: 1-6-2020	Time: 11:11 AM, 12:33 PM

Observation Hole #	T.P. 13	T.P. 20
Depth of Perc.	24+18"	24+18"
Start Pre-Soak	11:11	12:33
End Pre-Soak	11:26	12:48
Time at 12"	11:26	12:48
Time at 9"	11:32	1:56
Time at 6"	1:01	3:45
Time (9" - 6")	89	109
Rate (Minutes/Inch)	30 min/in	37 min/in

Site Passed X Site Failed

Performed By: Anthony Esposito, SE688, P.E.

Witnessed By Peter Falabella, Scituate Board of Health

Comments:

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA.

Commonwealth of Massachusetts
Scituate, Massachusetts

*Percolation Test	
Date: 2-19-2020	Time: 10:02 AM, 9:16 AM

Observation Hole #	T.P. 1DW	T.P. 2DW
Depth of Perc.	26+18"	36+18"
Start Pre-Soak	10:02	9:16
End Pre-Soak	10:17	9:31
Time at 12"	10:17	9:31
Time at 9"	11:31	11:00
Time at 6"	1:12	1:40
Time (9" - 6")	101	160
Rate (Minutes/Inch)	34 min/in	54 min/in

Site Passed X Site Failed

Performed By: Anthony Esposito, SE688, P.E.

Witnessed By Peter Falabella, Scituate Board of Health

Comments:

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA.

Commonwealth of Massachusetts
Scituate, Massachusetts

*Percolation Test	
Date: 2-19-2020	Time: 10:02 AM, 9:16 AM

Observation Hole #	T.P. 3NDW	
Depth of Perc.	25+18"	
Start Pre-Soak	11:12	
End Pre-Soak	11:27	
Time at 12"	11:27	
Time at 9"	12:48	
Time at 6"	3:48	
Time (9" - 6")	120	
Rate (Minutes/Inch)	60 min/in	

Site Passed **X** Site Failed

Performed By: Anthony Esposito, SE688, P.E.

Witnessed By Peter Falabella, Scituate Board of Health

Comments:

Commonwealth of Massachusetts
Scituate, Massachusetts
Soil Suitability Assessment for On-Site Septic System

Performed By: Anthony Esposito, South Shore Survey Consultants Inc.

Witnessed By: Peter Falabella,, Scituate Board of Health

Location, Address, or Lot #	Owner's Name, Address, and Telephone #
279 Old Oaken Bucket Rd. Scituate, MA Assessors # 41-1-3	US Bank National Assc. Trust s/o Lovendale LLC 107 East St. Duxbury, MA 02332

New Construction **X** Repair

Office Review

Published Soil Survey Available: No ☐ Yes ☒

Year Published 2019 Publication Scale 1:12,000 Soil Map Unit 427B

Drainage Class B Soil Limitations High Water Table

Surficial Geologic Report Available: No ☐ Yes ☒

Year Published 2019 Publication Scale 1:12,000

Geologic Material (Map Unit) eiolian deposists

Landform outwash plain

Flood Insurance Rate Map:

Above 500 year flood boundary No ☐ Yes ☒

Within 500 year flood boundary No ☒ Yes ☐

Within 100 year flood boundary No ☒ Yes ☐

Wetland Area:

National Wetland Inventory Map (map unit) N/A

Wetlands Conservancy Program Map (map unit) N/A

Current Water Resource Conditions (USGS): Month August 2020

Range: Above Normal ☐ Normal ☐ Below Normal ☒

Other References Reviewed: None

On-Site Review

Deep Hole Number T.P 1-2 Date 8-26-20 Time: 9 AM Weather: sunny 80s

Location (identify on site plan) rear yard

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-8"	A	SL	10yr4/4	-	
8-27"	B	LS	10yr5/4	mottles@ 36" 7.5y6/4	
27"-120"	C	SL	2.5y6/3		firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >120"

Depth to Groundwater: Standing Water in the Hole: none Weeping from Pit Face: none

Estimated Seasonal High Ground Water? 36"

On-Site Review

Deep Hole Number T.P 2-2 Date 8-26-20 Time: 9:20 AM Weather: sunny 80s

Location (identify on site plan) rear yard

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-22"	A	SL	10yr4/4	-	
22-41"	B	LS	10yr5/4	mottles@ 41" 7.5y6/4	
27"-142"	C	SL	2.5y6/3		firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >142"

Depth to Groundwater: Standing Water in the Hole: 131" Weeping from Pit Face: 131"

Estimated Seasonal High Ground Water? 41"

On-Site Review

Deep Hole Number T.P 3-2 Date 8-26-20 Time: 9 :30AM Weather: sunny 80s

Location (identify on site plan) rear yard

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-8"	A	SL	10yr4/4	-	
8-23"	B	LS	10yr5/4	mottles@ 23" 7.5y6/4	
23"-122"	C	SL	2.5y6/3		firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >122"

Depth to Groundwater: Standing Water in the Hole: none Weeping from Pit Face: none
Estimated Seasonal High Ground Water? 23"

On-Site Review

Deep Hole Number T.P 4-2 Date 8-26-20 Time: 9 :40AM Weather: sunny 80s

Location (identify on site plan) rear yard

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-8"	A	SL	10yr4/4	-	
8-24"	B	LS	10yr5/4		
24"-133"	C	SL	2.5y6/3	mottles@ 35" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >133"

Depth to Groundwater: Standing Water in the Hole: 130" Weeping from Pit Face: 130"

Estimated Seasonal High Ground Water? 35"

On-Site Review

Deep Hole Number T.P 5-2 Date 8-26-20 Time: 9 :50AM Weather: sunny 80s

Location (identify on site plan) rear yard

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-10"	A	SL	10yr4/4	-	
10-35"	B	LS	10yr5/4		
35"-96"	C	SL	2.5y6/3	mottles@ 35" 7.5y6/4	loose, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >96"

Depth to Groundwater: Standing Water in the Hole: 96" Weeping from Pit Face: 96"

Estimated Seasonal High Ground Water? 35"

On-Site Review

Deep Hole Number T.P 6-2 Date 8-26-20 Time: 10AM Weather: sunny 80s

Location (identify on site plan) rear yard

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-10"	A	SL	10yr4/4	-	
10-26"	B	LS	10yr5/4		
26"-160"	C	SL	2.5y6/3	mottles@ 44" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >160"

Depth to Groundwater: Standing Water in the Hole: 152" Weeping from Pit Face: 151"

Estimated Seasonal High Ground Water? 44"

On-Site Review

Deep Hole Number T.P 7 Date 8-26-20 Time: 10:15AM Weather: sunny 80s

Location (identify on site plan) rear yard

Land Use vacant Slope (%) 5% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-7"	A	SL	10yr4/4	-	
7-23"	B	LS	10yr5/4		
23"-111"	C	SL	2.5y6/3	mottles@ 25" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >111"

Depth to Groundwater: Standing Water in the Hole: none Weeping from Pit Face: none

Estimated Seasonal High Ground Water? 25"

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA

Determination for Seasonal High Water Table

Method Used:

☐ Depth to bottom of deep hole (assumed seasonal high groundwater)_____inches

☐ Depth observed standing in observation hole_____inches

☐ Depth weeping from side of observation hole _____inches

X Depth to soil mottle see soil logs_____inches

Index Well Number Reading Date_____ Index Well Level
Adjustment Factor_____ Adjusted Groundwater Level _____

Depth of Naturally Occurring Pervious Material

Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system?_____yes_____

If not, what is the depth of naturally occurring pervious material?_____

Certification

I certify that on June 1999 I have passed the soil evaluator examination approved by the Department of Environmental Protection and that the above analysis was performed by me consistent with the required training, expertise, and experience described in 310 CMR 15.017.

Signature *Anthony Esposito* Date 8/26/2020

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA.

Commonwealth of Massachusetts
Scituate, Massachusetts

*Percolation Test	
Date: 8/26/2020	Time: 9:31 AM, 10:02AM

Observation Hole #	T.P. 1	T.P. 2
Depth of Perc.	42+18"	41+18"
Start Pre-Soak	9:31	10:02
End Pre-Soak	9:46	10:17
Time at 12"	9:46	10:17
Time at 9"	10:02	10:39
Time at 6"	10:23	11:11
Time (9" - 6")	21	32
Rate (Minutes/Inch)	7 min/in	11 min/in

Site Passed **X** Site Failed

Performed By: Anthony Esposito, SE688, P.E.

Witnessed By Peter Falabella, Scituate Board of Health

Comments:

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA.

Commonwealth of Massachusetts
Scituate, Massachusetts

*Percolation Test	
Date: 8/26/2020	Time: 10:22 AM

Observation Hole #	T.P. 3	T.P. 4
Depth of Perc.	30+18"	no
Start Pre-Soak	10:22	
End Pre-Soak	10:37	perc
Time at 12"	10:37	
Time at 9"	10:50	test
Time at 6"	11:05	
Time (9" - 6")	15	
Rate (Minutes/Inch)	5 min/in	

Site Passed **X** Site Failed

Performed By: Anthony Esposito, SE688, P.E.

Witnessed By Peter Falabella, Scituate Board of Health

Comments:

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA.

Commonwealth of Massachusetts
Scituate, Massachusetts

*Percolation Test	
Date: 8-26-2020	Time: 11:11 AM, 12:33 PM

Observation Hole #	T.P. 5	T.P. 6
Depth of Perc.	39+18"	22+18"
Start Pre-Soak	11:46	12:16
End Pre-Soak	12:01	12:31
Time at 12"	12:01	12:31
Time at 9"	12:36	12:43
Time at 6"	1:03	1:03
Time (9" - 6")	27	109
Rate (Minutes/Inch)	9 min/in	7 min/in

Site Passed **X** Site Failed

Performed By: Anthony Esposito, SE688, P.E.

Witnessed By Peter Falabella, Scituate Board of Health

Comments:

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA.

Commonwealth of Massachusetts
Scituate, Massachusetts

*Percolation Test	
Date: 8-26-2020	Time: 11:43 AM

Observation Hole #	T.P. 7	
Depth of Perc.	23+18"	
Start Pre-Soak	11:43	
End Pre-Soak	1:58	
Time at 12"	1:58	
Time at 9"	2:10	
Time at 6"	2:23	
Time (9" - 6")	13	
Rate (Minutes/Inch)	5 min/in	

Site Passed X Site Failed

Performed By: Anthony Esposito, SE688, P.E.

Witnessed By Peter Falabella, Scituate Board of Health

Comments:

Commonwealth of Massachusetts
Scituate, Massachusetts
Soil Suitability Assessment for On-Site Septic System

Performed By: Anthony Esposito, South Shore Survey Consultants Inc.

Witnessed By: Peter Falabella,, Scituate Board of Health

Location, Address, or Lot #	Owner's Name, Address, and Telephone #
279 Old Oaken Bucket Rd. Scituate, MA Assessors # 41-1-3	US Bank National Assc. Trust s/o Lovendale LLC 107 East St. Duxbury, MA 02332

New Construction **X** Repair

Office Review

Published Soil Survey Available: No ☐ Yes ☒

Year Published 2019 Publication Scale 1:12,000 Soil Map Unit 427B

Drainage Class B Soil Limitations High Water Table

Surficial Geologic Report Available: No ☐ Yes ☒

Year Published 2019 Publication Scale 1:12,000

Geologic Material (Map Unit) eiolian deposists

Landform outwash plain

Flood Insurance Rate Map:

Above 500 year flood boundary No ☐ Yes ☒

Within 500 year flood boundary No ☒ Yes ☐

Within 100 year flood boundary No ☒ Yes ☐

Wetland Area:

National Wetland Inventory Map (map unit) N/A

Wetlands Conservancy Program Map (map unit) N/A

Current Water Resource Conditions (USGS): Month February 2021

Range: Above Normal ☐ Normal ☒ Below Normal ☐

Other References Reviewed: None

On-Site Review

Deep Hole Number T.P 1-3 Date 2-1-21 Time: 9 AM Weather: snow 20s

Location (identify on site plan) upland island

Land Use vacant Slope (%) 3% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-12"	A	SL	10yr3/2	-	
12-36"	B	LS	10yr5/6	mottles@ 36" 7.5y6/4	
36"-120"	C	SL	2.5y6/3		Loose and wet, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >120"

Depth to Groundwater: Standing Water in the Hole: 108" Weeping from Pit Face: 36"

Estimated Seasonal High Ground Water? 36"

On-Site Review

Deep Hole Number T.P 2-3 Date 2-1-2021 Time: 9:20 AM Weather: snow 20s

Location (identify on site plan) upland island

Land Use vacant Slope (%) 3% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ____

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-10"	A	SL	10yr3/2	-	
10-26"	B	LS	10yr5/6		
26"-40"	C1	GS	2.5y4/3	mottles@ 36" 7.5y6/4	firm, 40% stones 50% gravel
40-120"	C2	SL	2.5y3/2		

Parent Material (geologic) eiolian deposists Depth to Bedrock >120"

Depth to Groundwater: Standing Water in the Hole: 76" Weeping from Pit Face: 40"

Estimated Seasonal High Ground Water? 36"

On-Site Review

Deep Hole Number T.P 3-3 Date 2-1-2021 Time: 9:40 AM Weather: snow 20s

Location (identify on site plan) upland island

Land Use vacant Slope (%) 3% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ____

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-15"	A	SL	10yr3/2	-	
15-36"	B	LS	10yr5/6		
36"-120"	C1	LS	2.5y4/3	mottles@ 36" 7.5y6/4	loose, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >120"

Depth to Groundwater: Standing Water in the Hole: 90" Weeping from Pit Face: 81"
Estimated Seasonal High Ground Water? 36"

On-Site Review

Deep Hole Number T.P 4-3 Date 2-1-21 Time: 9 :40AM Weather: sunny 30s

Location (identify on site plan) upland island

Land Use vacant Slope (%) 3% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-18"	A	SL	10yr3/2	-	
18-24"	B	LS	10yr5/4		
24"-108"	C	SL	2.5y6/3	mottles@ 22" 7.5y6/4	loose, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >108"

Depth to Groundwater: Standing Water in the Hole: 94" Weeping from Pit Face: 24"

Estimated Seasonal High Ground Water? 22"

On-Site Review

Deep Hole Number T.P 5-3 Date 2-1-21 Time: 9 :40AM Weather: snow 20s

Location (identify on site plan) upland island

Land Use vacant Slope (%) 3% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-10"	A	SL	10yr3/2	-	
10-24"	B	LS	10yr5/4		
24"-112"	C	SL	2.5y6/3	mottles@ 24" 7.5y6/4	loose 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >108"

Depth to Groundwater: Standing Water in the Hole: 100" Weeping from Pit Face: 24"

Estimated Seasonal High Ground Water? 22"

On-Site Review

Deep Hole Number T.P 6-3 Date 2-1-21 Time: 10AM Weather: snow 20s

Location (identify on site plan) upland island

Land Use vacant Slope (%) 3% Surface Stones <1%

Vegetation oaks and maples

Landform outwash plain

Position on Landscape (see septic plan) ___

Distances from:

Open Water Body	200+ feet	Drainage way	>25 feet
Possible Wet Area	50+ feet	Property Line	>10 feet
Drinking Water Well	100+ feet	Other	N/A feet

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (U.S.D.A.)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-9"	A	SL	10yr4/4	-	
9-18"	B	LS	10yr5/4		
18"-110"	C	SL	2.5y6/3	mottles@ 18" 7.5y6/4	firm, 40% stones 50% gravel

Parent Material (geologic) eiolian deposists Depth to Bedrock >110"

Depth to Groundwater: Standing Water in the Hole: 70" Weeping from Pit Face: 104"

Estimated Seasonal High Ground Water? 18"

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA

Determination for Seasonal High Water Table

Method Used:

☐ Depth to bottom of deep hole (assumed seasonal high groundwater)_____inches

☐ Depth observed standing in observation hole_____inches

☐ Depth weeping from side of observation hole _____inches

X Depth to soil mottle see soil logs_____inches

Index Well Number Reading Date_____ Index Well Level
Adjustment Factor_____ Adjusted Groundwater Level _____

Depth of Naturally Occurring Pervious Material

Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system?_____yes_____

If not, what is the depth of naturally occurring pervious material?_____

Certification

I certify that on June 1999 I have passed the soil evaluator examination approved by the Department of Environmental Protection and that the above analysis was performed by me consistent with the required training, expertise, and experience described in 310 CMR 15.017.

Signature *Anthony Esposito* Date 2/1/2021

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA.

Commonwealth of Massachusetts
Scituate, Massachusetts

*Percolation Test	
Date: 2/1/2021	Time: 9:31 AM, 10:02AM

Observation Hole #	T.P. 1-3	T.P. 2-3
Depth of Perc.	24+18"	36+18"
Start Pre-Soak	10:28	10:02
End Pre-Soak	10:43	10:17
Time at 12"	10:43	10:17
Time at 9"	11:34	10:39
Time at 6"	12:50	11:11
Time (9" - 6")	76	32
Rate (Minutes/Inch)	26 min/in	11 min/in

Site Passed **X** Site Failed

Performed By: Anthony Esposito, SE688, P.E.

Witnessed By Peter Falabella, Scituate Board of Health

Comments:

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA.

Commonwealth of Massachusetts
Scituate, Massachusetts

*Percolation Test	
Date: 8/26/2020	Time: 10:22 AM

Observation Hole #	T.P. 3-3	T.P. 4-3
Depth of Perc.	30+18"	no
Start Pre-Soak	10:22	
End Pre-Soak	10:37	perc
Time at 12"	10:37	
Time at 9"	10:50	test
Time at 6"	11:05	
Time (9" - 6")	15	
Rate (Minutes/Inch)	5 min/in	

Site Passed X Site Failed

Performed By: Anthony Esposito, SE688, P.E.

Witnessed By Peter Falabella, Scituate Board of Health

Comments:

Location, Address, or Lot # 279 Old Oaken Bucket Rd. Scituate, MA.

Commonwealth of Massachusetts
Scituate, Massachusetts

*Percolation Test	
Date: 8-26-2020	Time: 11:11 AM, 12:33 PM

Observation Hole #	T.P. 5-3	T.P. 6-3
Depth of Perc.	39+18"	22+18"
Start Pre-Soak	11:46	12:16
End Pre-Soak	12:01	12:31
Time at 12"	12:01	12:31
Time at 9"	12:36	12:43
Time at 6"	1:03	1:03
Time (9" - 6")	27	109
Rate (Minutes/Inch)	9 min/in	7 min/in

Site Passed **X** Site Failed

Performed By: Anthony Esposito, SE688, P.E.

Witnessed By Peter Falabella, Scituate Board of Health

Comments:

Construction Phase Pollution Prevention and Erosion and Sedimentation Plan

For:

The Cottages at Old Oaken Bucket

279-281 Old Oaken Bucket Rd.
Scituate, MA

Submitted to:

Town of Scituate Zoning Board of Appeals

Dated: January 4, 2022

Prepared By
Anthony Esposito, P.E.
South Shore Survey Consultants, Inc.
167R Summer Street
Kingston, MA 02364

TABLE OF CONTENTS

Construction Phase Pollution Prevention & Erosion and Sedimentation Control Plan

Erosion and Sedimentation will be controlled at the site by utilizing Structural Practices, Stabilization Practices, and Dust Control. These practices correspond with the approved plans entitled "The Cottages at Old Oaken Bucket, A Comprehensive Permit Plan of Land in Scituate MA", prepared by South Shore Survey Consultants, Inc., hereinafter referred to as the Site Plan.

Responsible Party/Property Owner/Developer contact information:

The Lovendale Company, LLC
114 Onion Hill Rd.
Duxbury, MA 02332
(781) 727-2195

Town of Scituate Contact Information:

Department of Public Works
Kevin Cafferty, Director of Public Works
Scituate Town Hall
600 Chief Justice Cushing Way
Scituate, MA 02066
Phone: (781) 545-8732

Narrative:

Project Description:

The applicant, The Lovendale Company, LLC, proposes to build 32 condominium units for residential dwellings.

Site Description:

The subject property is located 279-281 Old Oaken Bucket Rd. in Scituate, MA. The site contains three abandoned dwellings.

Soils:

Soils information was obtained from the USDA Natural Resources Conservation Service's (NRCS) Web Soil Survey mapping Site soils are classified as SCS Hydrologic Soil Groups: Canton fine sandy loam, 0 to 8 percent slopes, very stony, (421B- SCS Hydrologic Soil Group B) and Newfields fine sandy loam, 3 to 8 percent slopes, extremely stony, (427B - SCS Hydrologic Soil Group B) . Refer to the Soil Survey Map for a delineation of the boundaries of the soils with respect to the study area.

Erosion and Sedimentation Control Practices:

Structural Practices:

1) **Straw Wattle Barrier Controls** – Straw wattle barriers may be used in lieu of haybale and silt fence barrier controls and placed along downward slopes at the limit of work locations. This control will be installed prior to major soil disturbance on the site. The selected barrier control shall be installed as shown on the approved subdivision plans and the manufacturers recommendations.

   Straw Wattle Design/Installation Requirements *
   * (included on Inspection/Evaluation Checklist)

   a) Straw wattles should be placed lengthwise on the contour, with the ends of adjacent sock tightly abutting one another and overlapping on the ground surface (not one over another) per manufacturer instructions.

   b) The barrier should be placed on natural ground and staked on either side or through the barrier per manufacturer requirements.

   c) Straw wattle barriers should be removed when they have served their usefulness, but not before the upslope areas have been permanently stabilized.

   Straw Wattle Inspection/Maintenance *

   a) Straw wattle barriers should be inspected immediately after each runoff-producing rainfall and at least daily during prolonged rainfall.

   b) Close attention should be paid to the repair of damaged barriers, undercutting beneath the barrier, and flow around the ends of the barrier.

   c) Necessary repairs to barriers or replacement of bales should be completed promptly.

   d) Sediment deposits should be checked after each runoff-producing rainfall. They must be removed when the level of deposition reaches approximately one-half the height of the barrier.

   e) Any sediment deposits remaining in place after the barrier is no longer required should be dressed to conform to the existing grade, prepared and seeded.

2) **Inlet Protection** – Inlet Protection will be utilized around the catch basin grates. The inlet protection will allow the storm drain inlets to be used before final stabilization. This structural practice will allow early use of the drainage system if the detention basin is already stabilized. Siltsack or equivalent will be utilized for the inlet

protection. Siltsack is manufactured by ACF Environmental. Regular flow siltsack will be utilized, and if it does not allow enough storm water flow, hi-flow siltsack will be utilized.

Silt Sack (or equivalent) Inlet Protection Inspection/Maintenance Requirements *

a) All trapping devices and the structures they protect should be inspected after every rain storm and repairs made as necessary.

b) Sediment should be removed from the trapping devices after the sediment has reached a maximum depth of one-half the depth of the trap.

c) Oil build-up should be removed by using a small portable pump and disposed of in accordance with all applicable local, state, and federal regulations.

d) Sediment should be disposed of in a suitable area and protected from erosion by either structural or vegetative means. Sediment removed shall be disposed of in accordance with all applicable local, state, and federal regulations.

e) The silt sack must be replaced if it is ripped or torn in any way.

f) Temporary traps should be removed and the area repaired as soon as the contributing drainage area to the inlet has been completely stabilized.

Stabilization Practices:

Stabilization measures shall be implemented as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased, with the following exceptions.

- Where the initiation of stabilization measures by the 14th day after construction activity temporary or permanently cease is precluded by snow cover, stabilization measures shall be initiated as soon as practicable.

- Where construction activity will resume on a portion of the site within 21 days from when activities ceased, (e.g. the total time period that construction activity is temporarily ceased is less than 21 days) then stabilization measures do not have to be initiated on that portion of the site by the 14th day after construction activity temporarily ceased.

1) **Temporary Seeding** – Temporary seeding will allow a short-term vegetative cover on disturbed site areas that may be in danger of erosion. Temporary seeding will be done at stock piles and disturbed portions of the site where construction activity will temporarily cease for at least 21 days. The temporary seedings will stabilize cleared and unvegetated areas that will not be brought into final grade for several weeks or months.

Temporary Seeding Planting Procedures *

a) Planting should preferably be done between April 1st and June 30th, and September 1st through September 31st. If planting is done in the months of July and August, irrigation may be required. If planting is done between October 1st and March 31st, mulching should be applied immediately after planting. If seeding is done during the summer months, irrigation of some sort will probably be necessary.

b) Before seeding, install structural practice controls. Utilize Amoco supergro or equivalent.

c) The seedbed should be firm with a fairly fine surface. Perform all cultural operations across or at right angles to the slope. A minimum of 2 to 4-inches of tilled topsoil is required. The topsoil must have a sandy loam to silt loam texture with 15% to 20% organic content.

d) Apply uniformly 2 tons of ground limestone per acre (100 lbs. Per 1,000 sq.ft.) or according to soil test. Apply uniformly organic or non-nitrogen fertilizers at the rate of 400 lbs. per acre (14 lbs. per 1,000 sq.ft.) or as indicated by soil test. Forty percent of the nitrogen should be in organic form. Work in lime and fertilizer to a depth of 4-inches using any suitable equipment.

e) Select the appropriate seed species for temporary cover from the following table.

Species	Seeding Rate (lbs/1,000 sq.ft.)	Seeding Rate (lbs/acre)	Recommended Seeding Dates	Seed Cover required
Annual Ryegrass	1	40	April 1st to June 1st August 15th to Sept. 15th	¼ inch
Foxtail Millet	0.7	30	May 1st to June 30th	½ to ¾ inch
Oats	2	80	April 1st to July 1st August 15th to Sept. 15th	1 to 1-½ inch
Winter Rye	3	120	August 15th to Oct. 15th	1 to 1-½ inch

Apply the seed uniformly by hydroseeding, broadcasting, or by hand.

f) Use an effective mulch, such as clean grain straw; tacked and/or tied with netting to protect seedbed and encourage plant growth.

Temporary Seeding Inspection/Maintenance *

a) Inspect within 6 weeks of planting to see if stands are adequate. Check for damage within 24 hours of the end to a heavy rainfall, defined as a 2-year storm event (i.e., 3.2 inches of rainfall within a twenty-four hour period). Stands should be uniform and dense. Fertilize, reseed, and mulch damaged and sparse areas immediately. Tack or tie down mulch as necessary.

b) Seeds should be supplied with adequate moisture. Furnish water as needed, especially in abnormally hot or dry weather. Water application rates should be controlled to prevent runoff.

2) **Geotextiles** - Geotextiles such as jute netting will be used in combination with other practices such as mulching to stabilize slopes. The following geotextile materials or equivalent are to be utilized for structural and nonstructural controls as shown in the following table.

Practice	Manufacturer	Product	Remarks
Construction Entrance	Amoco	Woven polypropylene 2002 or equivalent	0.300 mm opening
Outlet Protection	Amoco	Nonwoven polypropylene 4551 or equivalent	0.150 mm opening
Erosion Control (slope stability)	Amoco	Supergro or equivalent	Erosion control revegetation mix, open polypropylene fiber on degradable polypropylene net scrim

Amoco may be reached at (800) 445-7732

Geotextile Installation

a) Netting and matting require firm, continuous contact between the materials and the soil. If there is no contact, the material will not hold the soil and erosion will occur underneath the material.

Geotextile Inspection/Maintenance *

a) In the field, regular inspections should be made to check for cracks, tears, or breaches in the fabric. The appropriate repairs should be made.

3) **Mulching and Netting** – Mulching will provide immediate protection to exposed soils during the period of short construction delays, or over winter months through the application of plant residues, or other suitable materials, to exposed soil areas. In areas, which have been seeded either for temporary or permanent cover, mulching should immediately follow seeding. On steep slopes, mulch must be supplemented with netting. The preferred mulching material is straw.

Mulch (Hay or Straw) Materials and Installation

a) Straw has been found to be one of the most effective organic mulch materials. The specifications for straw are described below, but other material may be appropriate. The straw should be air-dried; free of undesirable seeds & coarse materials. The application rate per 1,000 sq.ft. is 90-100 lbs. (2-3 bales) and the application rate per acre is 2 tons (100-120 bales). The application should cover about 90% of the surface. The use of straw mulch is appropriate where mulch is maintained for more than three months. Straw mulch is subject to wind blowing

unless anchored, is the most commonly used mulching material, and has the best microenvironment for germinating seeds.

Mulch Maintenance *

a) Inspect after rainstorms to check for movement of mulch or erosion. If washout, breakage, or erosion occurs, repair surface, reseed, remulch, and install new netting.

b) Straw or grass mulches that blow or wash away should be repaired promptly.

c) If plastic netting is used to anchor mulch, care should be taken during initial mowings to keep the mower height high. Otherwise, the netting can wrap up on the mower blade shafts. After a period of time, the netting degrades and becomes less of a problem.

d) Continue inspections until vegetation is well established.

4) **Land Grading** – Grading on fill slopes, cut slopes, and stockpile areas will be done with full siltation controls in place.

Land Grading Design/Installation Requirements

a) Areas to be graded should be cleared and grubbed of all timber, logs, brush, rubbish, and vegetated matter that will interfere with the grading operation. Topsoil should be stripped and stockpiled for use on critical disturbed areas for establishment of vegetation. Cut slopes to be topsoiled should be thoroughly scarified to a minimum depth of 3-inches prior to placement of topsoil.

b) Fill materials should be generally free of brush, rubbish, rocks, and stumps. Frozen materials or soft and easily compressible materials should not be used in fills intended to support buildings, parking lots, roads, conduits, or other structures.

c) Earth fill intended to support structural measures should be compacted to a minimum of 90 percent of Standard Proctor Test density with proper moisture control, or as otherwise specified by the engineer responsible for the design. Compaction of other fills should be to the density required to control sloughing, erosion or excessive moisture content. Maximum thickness of fill layers prior to compaction should not exceed 9 inches.

d) The uppermost one foot of fill slopes should be compacted to at least 85 percent of the maximum unit weight (based on the modified AASHTO compaction test). This is usually accomplished by running heavy equipment over the fill.

e) Fill should consist of material from borrow areas and excess cut will be stockpiled in areas shown on the Site Plans. All disturbed areas should be free draining, left with a neat and finished appearance, and should be protected from erosion.

Land Grading Stabilization Inspection/Maintenance *

a) All slopes should be checked periodically to see that vegetation is in good condition. Any rills or damage from erosion and animal burrowing should be repaired immediately to avoid further damage.

b) If seeps develop on the slopes, the area should be evaluated to determine if the seep will cause an unstable condition. Subsurface drains or a gravel mulch may be required to solve seep problems. However, no seeps are anticipated.

c) Areas requiring revegetation should be repaired immediately. Slopes should be limed and fertilized as necessary to keep vegetation healthy. Control undesirable vegetation such as weeds and woody growth to avoid bank stability problems in the future.

5) **Topsoiling *** – Topsoiling will help establish vegetation on all disturbed areas throughout the site during the seeding process. The soil texture of the topsoil to be used will be a sandy loam to a silt loam texture with 15% to 20% organic content.

Topsoiling Placement

a) Topsoil should not be placed while in a frozen or muddy condition, when the subgrade is excessively wet, or when conditions exist that may otherwise be detrimental to proper grading or proposed seeding.

b) Do not place topsoil on slopes steeper than 2:1, as it will tend to erode. Any proposed grass slope steeper than 2.5:1 shall be provided with erosion control blankets.

c) If topsoil and subsoil are not properly bonded, water will not infiltrate the soil profile evenly and it will be difficult to establish vegetation. The best method is to actually work the topsoil into the layer below for a depth of at least 6 inches.

6) **Preserving Natural Vegetation** – The trees to be saved will be clearly flagged or marked with a bright colored ribbon. Snow fencing will be set at the drip/spread line of the trees and shrubs to be protected. Machinery will be kept away from tree roots.

7) **Permanent Seeding** – Permanent Seeding should be done immediately after the final design grades are achieved. Native species of plants should be used to establish perennial vegetative cover on disturbed areas. The revegetation should be done early enough in the fall so that a good cover is established before cold weather comes and growth stops until the spring. A good cover is defined as vegetation covering 75 percent or more of the ground surface.

Permanent Seeding Seedbed Preparation

a) In fertile or coarse-textured subsoil, it is best to stockpile topsoil and respread it over the finished slope at a minimum 2 to 6-inch depth and roll it to provide a firm seedbed. The topsoil must have a sandy loam to silt loam texture with 15% to 20% organic content. If construction fill operations have left soil exposed with a loose, rough, or irregular surface, smooth with blade and roll.

b) Loosen the soil to a depth of 3-5 inches with suitable agricultural or construction equipment.

c) Areas not to receive topsoil shall be treated to firm the seedbed after incorporation of the lime and fertilizer so that it is depressed no more than ½ - 1 inch when stepped on with a shoe. Areas to receive topsoil shall not be firmed until after topsoiling and lime and fertilizer is applied and incorporated, at which time it shall be treated to firm the seedbed as described above.

Permanent Seeding Grass Selection/Application

a) Select an appropriate cool or warm season grass based on site conditions and seeding date. Apply the seed uniformly by hydroseeding, broadcasting, or by hand. Uniform seed distribution is essential. On steep slopes, hydroseeding may be the most effective seeding method. Surface roughening is particularly important when preparing slopes for hydroseeding.

b) Lime and fertilize. Organic fertilizer shall be utilized in areas within the 100 foot buffer zone to a wetland resource area.

c) Mulch the seedings with straw applied at the rate of ½ tons per acre. Anchor the mulch with erosion control netting or fabric on sloping areas. Amoco supergro or equivalent should be utilized.

Permanent Seeding Inspection/Maintenance *

a) Frequently inspect seeded areas for failure and make necessary repairs and reseed immediately. Conduct or follow-up survey after one year and replace failed plants where necessary.

b) If vegetative cover is inadequate to prevent rill erosion, overseed and fertilize in accordance with soil test results.

c) If a stand has less than 40% cover, reevaluate choice of plant materials and quantities of lime and fertilizer. Re-establish the stand following seedbed preparation and seeding recommendations, omitting lime and fertilizer in the absence of soil test results. If the season prevents resowing, mulch or jute netting is an effective temporary cover.

d) Seeded areas should be fertilized during the second growing season. Lime and fertilize thereafter at periodic intervals, as needed. Organic fertilizer shall be utilized in areas within the 100 foot buffer zone to a wetland resource area.

Dust Control *:

Dust control will be utilized throughout the entire construction process of the site. For example, keeping disturbed surfaces moist during windy periods will be an effective control measure, especially for construction haul roads. The use of dust control will prevent the movement of soil to offsite areas. However, care must be taken to not create runoff from excessive use of water to control dust. The following are methods of Dust Control that may be used on-site:

- Vegetative Cover – The most practical method for disturbed areas not subject to traffic.
- Calcium Chloride – Calcium chloride may be applied by mechanical spreader as loose, dry granules or flakes at a rate that keeps the surface moist but not so high as to cause water pollution or plant damage.
- Sprinkling – The site may be sprinkled until the surface is wet. Sprinkling will be effective for dust control on haul roads and other traffic routes.
- Stone – Stone will be used to stabilize construction roads; will also be effective for dust control.

Non-Stormwater Discharges:

During construction activities at the site, some water from the site will be suitable for discharge to the drainage system or temporary sediment basin areas.

The construction de-watering and all non-stormwater discharges will be directed into a sediment dirt bag (or equivalent inlet protection) or a sediment basin. Sediment material removed shall be disposed of in accordance with all applicable local, state, and federal regulations.

The developer and site general contractor will comply with the E.P.A.'s Final General Permit for Construction De-watering Discharges, (N.P.D.E.S., Section 402 and 40 C.F.R. 122.26(b)(14)(x).

Soil Stockpiling *:

Topsoil and subsoil from the roadway grading will be stockpiled in locations temporarily in the private lots.

Stockpile Material Construction Procedure

1) Topsoil and subsoil that are stripped will be stockpiled for later distribution on disturbed areas.

2) The stockpiles shall be located beyond 100 lf of the wetlands.
3) Seed the stockpiles with a temporary erosion control mix if the stockpile is to remain undisturbed for more than 30 days. The stockpiles must be stable and the side slopes should not exceed 2:1.

4) Straw wattles or equal erosion control measures should be placed surrounding each stockpile.

5) As needed, the stockpiled topsoil and subsoil are redistributed throughout the site.

Anticipated Construction Schedule:

To prevent excessive erosion and silting, the following construction sequence coupled with other widely accepted principals for reducing erosion and sedimentation shall be implemented in the development of the site.

1. Obtain all plan approvals and other applicable permits.
2. Flag the work limits and mark trees and buffer areas for protection.
3. Install straw wattle barriers at locations indicated on the construction drawings and construct stabilized construction entrance.
4. Clear and grub all areas associated with the construction area.
5. Construct the roadway stormwater system as soon as practicable after the proposed locations have been cleared.
6. Direct runoff to temporary sediment settling areas. No stormwater shall be allowed to discharge to the subsurface infiltration system until all tributary areas are fully stabilized.
7. Rough grade the area. Excavate crushed stone and subsoil from cut and fill areas and stockpile. Consideration should be given to locating stockpiles on the uphill side of disturbed areas, where possible, to act as temporary diversions.
8. After the site is stabilized, remove all temporary measures and install permanent vegetation on disturbed areas. Adequate growth for stabilization is defined as vegetation covering 75% or more of the ground surface.
9. Estimated time before final stabilization is 4 years of completed construction.

Inspection/Maintenance:

Operator personnel must inspect the construction site at least once every 7 calendar days and within 24 hours of a storm event of 2-inch or greater. The applicant shall be responsible to secure the services of a licensed engineer or similar professional (inspector) on an on-going basis throughout all phases of the project. Refer to the Inspection/Maintenance Requirements presented earlier in the "Structural and Stabilization Practices." The inspector should review the erosion and sediment controls with respect to the following:

- Whether or not the measure was installed/performed correctly.
- Whether or not there has been damage to the measure since it was installed or performed.

- What should be done to correct any problems with the measure.

The inspector should complete the Stormwater Management Construction Phase BMP Inspection Schedule and Evaluation Checklist, as attached, for documenting the findings and should request the required maintenance or repair for the pollution prevention measures when the inspector finds that it is necessary for the measure to be effective. The inspector should notify the appropriate person to make the changes and submit copies of the form to the Brockton Planning Board upon request.

It is essential that the inspector document the inspection of the pollution prevention measures. These records will be used to request maintenance and repair and to prove that the inspection and maintenance were performed. The forms list each of the measures to be inspected on the site, the inspector's name, the date of the inspection, the condition of the measure/area inspected, maintenance or repair performed and any changes which should be made to the Pollution Prevention & Erosion and Sedimentation Control Plan to control or eliminate unforeseen pollution of storm water.

Property Location: 279-281 Old Oaken Bucket Rd. Scituate, MA **Date:**

Stormwater Management – Construction Period and Long Term Pollution Prevention Plan
Best Management Practices – Inspection Schedule and Evaluation Checklist

Long Term Practices

Best Management Practice	Inspection Frequency (1)	Date Inspected	Inspector	Minimum Maintenance and Key Items to Check (1)	Cleaning/Repair Needed: ☐yes ☐no (List Items)	Date of Cleaning/ Repair	Performed by
Catch Basins				Sediment level, accumulation of oil, accumulation of floating debris.			
Galley Systems				Carryover of sediment level, oil, or floating debris.			
Downstream Defenders				Sediment level, accumulation of oil, accumulation of floating debris.			

(1) Refer to the Massachusetts Stormwater Management, Volume Two: MA Stormwater Handbook (Feb. 2008) for recommendations regarding frequency for inspection and maintenance of specific BMP's.

Post-Construction Phase Best Management Practices Operation and Maintenance Plan & Long-Term Pollution Prevention Plan

For:

The Cottages at Old Oaken Bucket

279-281 Old Oaken Bucket Rd.
Scituate, MA

Submitted to:

Town of Scituate Zoning Board of Appeals

Dated: January 4, 2022

Prepared By
Anthony Esposito, P.E.
South Shore Survey Consultants, Inc.
167R Summer Street
Kingston, MA 02364

TABLE OF CONTENTS

Post-Construction Best Management Practices (BMPs) Operation and Maintenance Plan

Responsible Party/Property Owner/Developer contact information:

The Lovendale Company, LLC
114 Onion Hill Rd.
Duxbury, MA 02332
(781) 727-2195

Town of Scituate Contact Information:

Department of Public Works
Kevin Cafferty, Director of Public Works
Scituate Town Hall
600 Chief Justice Cushing Way
Scituate, MA 02066
Phone: (781) 545-8732

Best Management Practices (BMPs) of the Commonwealth of Massachusetts Department of Environmental Protection's (DEP's) Stormwater Management Policy (SMP) have been implemented and utilized for the project. The following information provided is to be used as a guideline for monitoring and maintaining the performance of the drainage facilities and to ensure that the quality of water runoff meets the standards set forth by the SMP. The structural Best Management Practices (BMPs) shall be inspected during rainfall conditions during the first year of operation to verify functionality.

BMPs included in the design consist of the use of:

- Deep Sump Catch Basins
- Proprietary Treatment units
- Infiltration chambers

Operation:

Once the site has been permanently stabilized and the stormwater facilities are online, the operation of the stormwater management system will function as intended. Stormwater runoff from the paved areas are directed into the infiltration chambers where it will recharge the groundwater table. The beds have been designed to convey peak flows for the 2-year, 10-year and the 100-year storm event.

Maintenance:

1. **Roadway Maintenance** – Vacuum sweepers shall sweep paved areas periodically during dry weather to remove excess sediments to reduce the amount of sediments that the drainage system shall have to remove from the runoff. The sweeping should be conducted on a semiannual basis before April 30th and after November 15th.

   Salt used for de-icing on the pavement during winter months shall be limited as much as possible as this will reduce the need for removal and treatment. Sand containing the minimum amount of calcium chloride (or approved equivalent) needed for handling may be applied as part of the routine winter maintenance activities. Estimated annual budget $1000.

2. **Catch Basins** - Catch basin grates shall be inspected twice per year, in the spring following snow-melt and in the fall following leaf drop and following heavy rainfalls, defined as a storm event exceeding two inch of rainfall within a twenty-four hour period to verify that the inlet openings are not clogged by debris. Debris shall be removed from the grates and disposed of properly. Deep sump and hooded catch basins shall be inspected quarterly to check oil build-up and outlet obstructions and cleaned of all accumulated sediments as warranted by inspections. Oil build-up shall be removed by using a small portable pump and disposed of properly. Material shall be removed from catch basins and disposed of in accordance with all applicable local, state, and federal regulations. Estimated annual budget $800.

3. **Subsurface Infiltration galleys** – The subsurface infiltration galleys for the subdivision shall be checked for siltation accumulation on a quarterly basis through the lawn grate inspection ports. Additional inspections should be scheduled during the first few months after construction to make sure that no debris or silt has accumulated during construction. Silt, sand and sediment, if significant accumulation occurs, shall be removed by vacuum annually. Material removed from the bed shall be disposed of in accordance with all applicable local, state, and federal regulations.

   Any slope erosion within the facilities shall be stabilized and repaired as soon as practical. The galley bed shall be inspected annually for debris, sediment and structural integrity. The inspections shall be conducted by a licensed engineer or qualified professional (inspector). Estimated annual budget $1000.

4. **Pre-treatment units, (i.e. Hydro International)** - The pre-treatment units shall be checked on a semiannual basis and following heavy rainfalls, defined as a storm event exceeding one inch of rainfall within a twenty-four hour period to verify that the inlet openings are not clogged by debris. Debris shall be removed and disposed of properly. Treatment chambers shall be inspected and cleaned semi-annually of all accumulated sediments. Any oily liquid shall be removed prior to the removal of any sediment removal activities in order to minimize the re-suspension or re-mixing of oil and water. Oil build-up shall be removed by using a small portable pump, absorbent pillows or other measures and disposed of properly. Accumulated sediment 18 inches in depth or greater shall be removed. Sediment shall be removed from the unit using a vacuum truck. Material shall be removed from the pre-

treatment unit and disposed of in accordance with all applicable local, state, and federal regulations. Estimated annual budget $800.

Maintenance Responsibilities:

All post construction maintenance activities will be documented and kept on file. Annual inspection reports in the form of an Evaluation Checklist and a cover letter **shall be kept on file to be provided to local Town officials when requested**

Long-Term Pollution Prevention Plan

Good Housekeeping:

To develop and implement an operation and maintenance program with the goal of preventing or reducing pollutant runoff by keeping potential pollutants from coming into contact with stormwater or being transported off site without treatment, the following efforts will be made:

- Property Management awareness and training on how to incorporate pollution prevention techniques into maintenance operations.
- Follow appropriate best management practices (BMPs) by proper maintenance and inspection procedures.

Storage and Disposal of Household Waste and Toxics:

This management measure involves educating the general public on the management considerations for hazardous materials. Failure to properly store hazardous materials dramatically increases the probability that they will end up in local waterways. Many people have hazardous chemicals stored throughout their homes, especially in garages and storage sheds. Practices such as covering hazardous materials or even storing them properly, can have dramatic impacts. Property owners are encouraged to contract with a hazardous waste collection company as required for removal of the waste.

MADEP has prepared several materials for property owners on how to properly use and dispose of household hazardous materials:

http://www.mass.gov/dep/recycle/reduce/househol.htm

For consumer questions on household hazardous waste call the following number:

DEP Household Hazardous Waste Hotline 800-343-3420

The following is a list of management considerations for hazardous materials as outlined by the EPA:

- Ensuring sufficient aisle space to provide access for inspections and to improve the ease of material transport;
- Storing materials well away from high-traffic areas to reduce the likelihood of accidents that might cause spills or damage to drums, bags, or containers.

- Stacking containers in accordance with the manufacturers' directions to avoid damaging the container or the product itself;
- Storing containers on pallets or equivalent structures. This facilitates inspection for leaks and prevents the containers from coming into contact with wet floors, which can cause corrosion. This consideration also reduces the incidence of damage by pests.

The following is a list of commonly used hazardous materials used in the household:

Batteries – automotive and rechargeable
.. ..nickel cadmium batteries
....(no alkaline batteries)
Gasoline
Oil-based paints
Fluorescent light bulbs and lamps
Pool chemicals
Propane tanks
Lawn chemicals,
fertilizers and weed killers
Turpentine
Bug sprays
Antifreeze
Paint thinners, strippers, varnishes and
.. stains
Arts and crafts chemicals
Charcoal lighter fluid

Disinfectant
Drain clog dissolvers
Driveway sealer
Flea dips, sprays and collars
Houseplant insecticides
Metal polishes
Mothballs
Motor oil and filters
Muriatic acid (concrete cleaner)
Nail polishes and nail polish
removers
Oven cleaner
Household pest and rat poisons
Rug and upholstery cleaners
Shoe polish
Windshield wiper fluid

Landscape Maintenance:

This management measure seeks to control the storm water impacts of landscaping and lawn care practices through education and outreach on methods that reduce nutrient loadings and the amount of storm water runoff generated from lawns. Nutrient loads generated by fertilizer use on suburban lawns can be significant, and recent research has shown that lawns produce more surface runoff than previously thought.

Using proper landscaping techniques can effectively increase the value of a property while benefiting the environment. These practices can benefit the environment by reducing water use; decreasing energy use (because less water pumping and treatment is required); minimizing runoff of storm and irrigation water that transports soils, fertilizers, and pesticides; and creating additional habitat for plants and wildlife. The following lawn and landscaping management practices will be encouraged:

- Mow lawns at the highest recommended height.
- Minimize lawn size and maintain existing native vegetation.
- Raise public awareness for promoting the water efficient maintenance practices by informing users of water efficient irrigation techniques and other innovative approaches to water conservation.

- Abide by water restrictions and other conservation measures implemented by the Town of Duxbury.
- Water only when necessary.

Integrated Pest Management (IPM):

This management measure seeks to limit the adverse impacts of insecticides and herbicides by providing information on alternative pest control techniques other than chemicals or explaining how to determine the correct dosages needed to manage pests.

The presence of pesticides in stormwater runoff has a direct impact on the health of aquatic organisms and can present a threat to humans through contamination of drinking water supplies. The pesticides of greatest concern are insecticides, such as diazinon and chloropyrifos, which even at very low levels can be harmful to aquatic life. The major source of pesticides to urban steams is home application of products designed to kill insects and weeds in the lawn and garden. The following IPM practices will be encouraged:

- Lawn care and landscaping management programs including appropriate pesticide use management as part of program.
- Raise public awareness by referring homeowners to "A Homeowner's Guide to Environmentally Sound Lawncare, Maintaining a Healthy Lawn the IPM Way", Massachusetts Department of Food and Agriculture, Pesticide Bureau or link **http://www.mass.gov/dep/water/resources/nonpoint.htm#megaman>**

Proper Management of Deicing Chemicals and Snow:

The following deicing chemicals and snow storage practices will be encouraged:

- Select effective snow disposal sites adjacent to or on pervious surfaces in upland areas away from water resources and wells. At these locations, the snow meltwater can filter in to the soil, leaving behind sand and debris, which can be removed in the springtime.
- No roadway deicing materials shall be stockpiled on site unless all storage areas are protected from exposure to rain, snow, snowmelt and runoff.
- Avoid dumping snow into any on-site or off-site waterbody, including wetlands, cranberry bogs, detention/infiltration basins, and grassed swales/channels.
- Avoid disposing of snow on top of storm drain catch basins.

Mounding Calculations
First 24 hours

In Support of a

A Comprehensive Permit

For:

The Cottages at
Old Oaken Bucket
279-281 Old Oaken Bucket Rd.
Scituate, MA

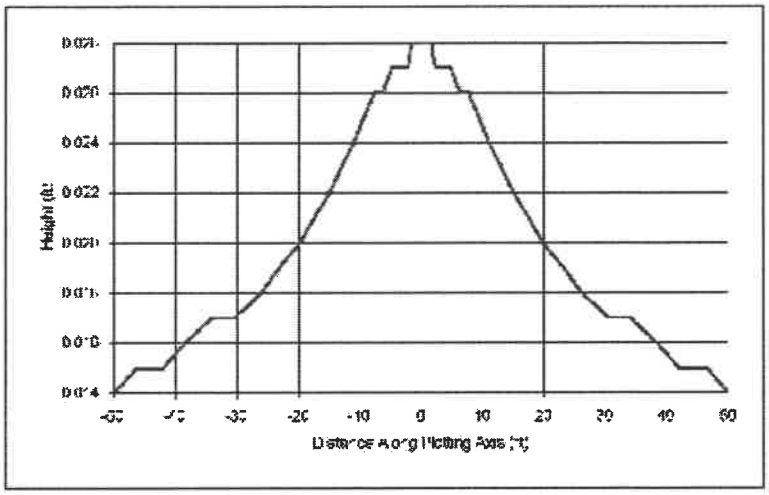
Submitted to:

Town of Scituate
Zoning Board of Appeals

Dated: January 18, 2022

Prepared By
Anthony A. Esposito, P.E.
South Shore Survey Consultants, Inc.
167R Summer Street
Kingston, MA 02364

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CONS

PROJECT: THE CO AG= US

ANALYST: ANTHONY ESPOSITO

DATE: 1/5/2022 TIME: 6:20:51 PM

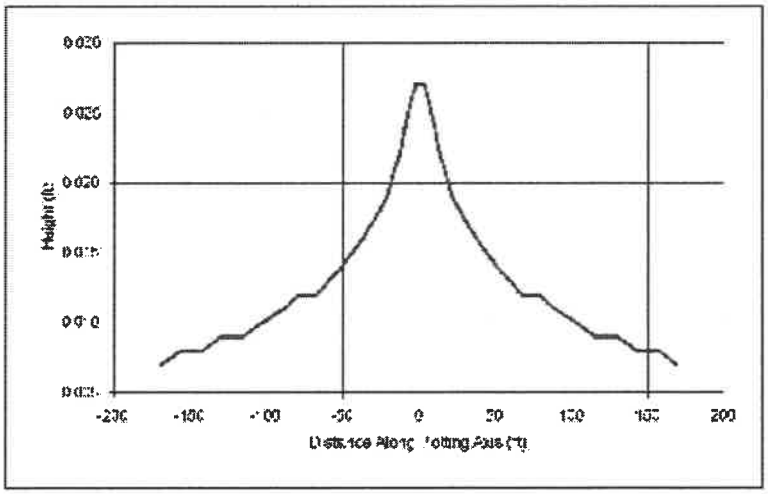
INPUT PARAMETERS

Application rate: 0.27 gal/hour/sq. ft
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 50 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 22.5 ft
Width of application area: 8.5 ft
No constant head boundary used
Plotting axis from Y-Axis: 30 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 7.4 ft
Total volume applied: 1758.3 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
26	45.3	50	0.01
-21	-36.4	-42	0.03
17	29.5	34	0.02
-13.1	-22.6	-26	0.02
9.6	17.2	20	0.02
-7.5	-13	-15	0.02
6.5	9.8	11	0.02
-3.9	-6.7	-8	0.02
2.4	4.2	5	0.03
-1.4	-2.5	-3	0.02
-0.8	-1.4	-2	0.03
0	0	0	0.03
0.8	1.4	2	0.03
1.4	2.5	3	0.03
2.4	4.2	5	0.03
3.9	6.7	8	0.03
5.5	9.5	11	0.03
7.5	13	15	0.02
9.9	17.2	20	0.03
13.1	22.6	26	0.02
17	29.5	34	0.03
21	36.4	42	0.02
25	43.3	50	0.01

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THECO AGS UC

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 8:32:40 PM

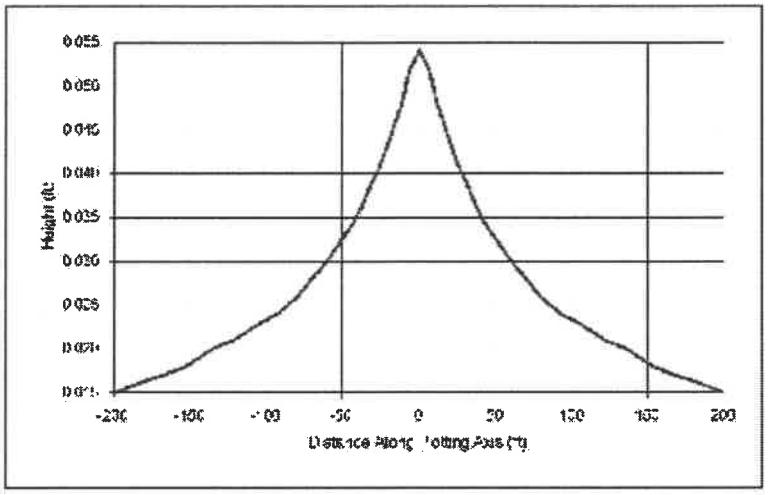
INPUT PARAMETERS

Application rate: 0.27 in/hour/sq. ft
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 47 ft
Length of application area: 22.5 ft
Width of application area: 8.5 ft
No constant head boundary used
Pumping axis from Y-Axis: 30 degrees
Edge of recharge area
positive X: 11.2 ft
positive Y: 7.4 ft
Total volume applied: 1268.3 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
84.5	123.4	169	0.01
-71.1	-123.1	-142	0.01
57.6	99.8	115	0.01
-41.2	-76.5	-86	0.01
33.6	56.2	67	0.01
-25.4	-47.1	-51	0.01
18.7	32.5	37	0.02
-13.1	-22.7	-26	0.02
8.2	14.2	16	0.02
-4.3	-8.6	-10	0.02
-2.7	-4.6	-5	0.03
0	0	0	0.03
2.7	4.6	5	0.03
4.9	8.5	10	0.02
8.2	14.2	16	0.03
13.1	22.7	26	0.02
18.7	32.5	37	0.03
25.4	44.1	51	0.01
33.6	58.2	67	0.01
44.2	76.5	88	0.01
57.6	99.8	115	0.01
71.1	123.1	142	0.01
84.5	146.4	169	0.01

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEYORS

PROJECT: THE CO AGE UV-6

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 8:23:41 PM

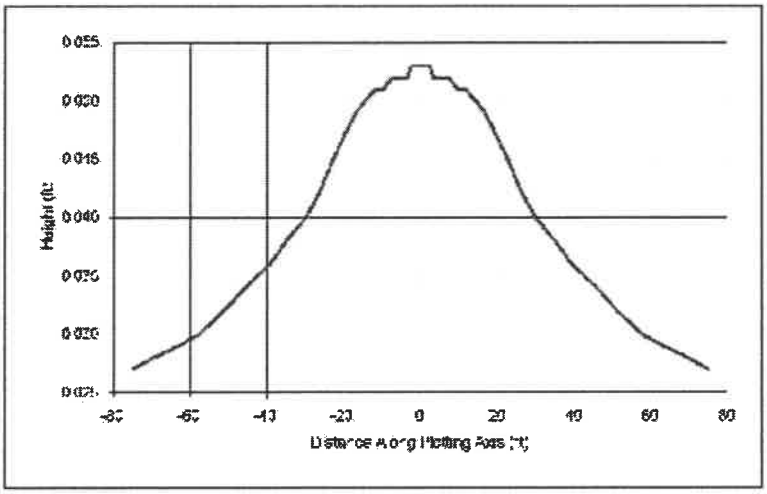
INPUT PARAMETERS

Application rate: 0.29 in/hour/sq. ft
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 47 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No constant head boundary used
Plotting axis from Y-Axis: 45 degrees
Edge of recharge area:
positive X: 4.2 ft
positive Y: 4.3 ft
Total volume applied: 2760.456 cf

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-140.7	-140.7	-199	0.02
-118.3	-118.3	-167	0.02
95	95	135	0.02
-73.6	-73.6	-104	0.02
56	56	79	0.03
-42.4	-42.4	-60	0.03
31.2	31.2	44	0.03
-21.8	-21.8	-31	0.04
13.6	13.6	19	0.04
-8.2	-8.2	-12	0.05
-4.4	-4.4	-6	0.05
0	0	0	0.05
4.4	4.4	6	0.05
8.2	8.2	12	0.05
13.6	13.6	19	0.04
21.8	21.8	31	0.04
31.2	31.2	44	0.03
42.4	42.4	60	0.03
56	56	79	0.03
73.6	73.6	104	0.02
95	95	135	0.02
118.3	118.3	167	0.02
140.7	140.7	199	0.02

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE UB-10

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 6:34:43 PM

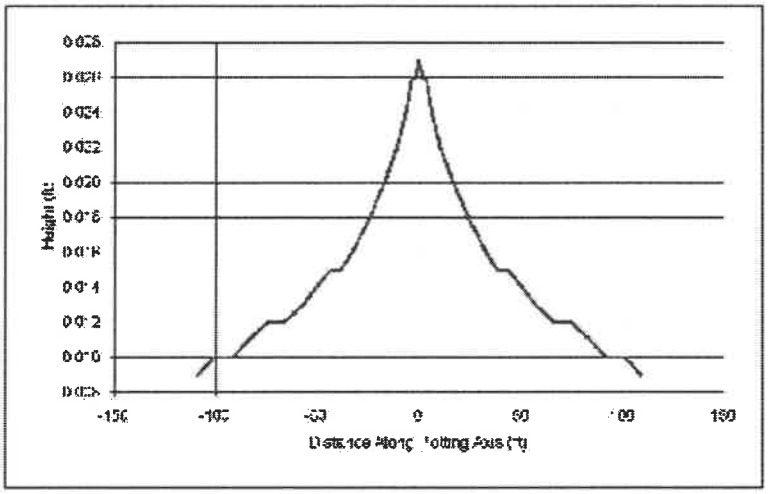
INPUT PARAMETERS

Application rate: 0.29 cu.ft/hour/sq. ft
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 50 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No-constant head boundary used
Plotting axis from Y-Axis: 0 degrees
Edge of recharge area
negative X: 4.2 ft
positive Y: 23.6 ft
Total volume applied: 2768.496 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-73	-75.6	-75	0.03
-63	-62.1	-63	0.03
-53	-50.4	-51	0.03
-38.8	-38.8	-39	0.04
-29.2	-29.4	-30	0.04
-23.5	-22.2	-23	0.04
-16.3	-16.4	-17	0.05
-11.2	-11.4	-12	0.05
-7.3	-7.2	-7	0.05
-0.8	-1.3	-1	0.05
-0.4	-2.3	-2	0.05
0	0	0	0.05
0.4	2.3	2	0.05
0.8	7.3	7	0.05
1.3	12.3	12	0.05
2	17.4	17	0.05
2.8	18.4	19	0.05
3.9	22.2	23	0.04
5.2	29.4	30	0.04
6.8	38.6	39	0.04
8.9	50.4	51	0.03
11	62.1	63	0.03
13	73.9	75	0.03

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THEGO AGE D**

ANALYST: ANTHONY ESPOSITO

DATE: 1/**/2022 TIME: 6:25:53 PM

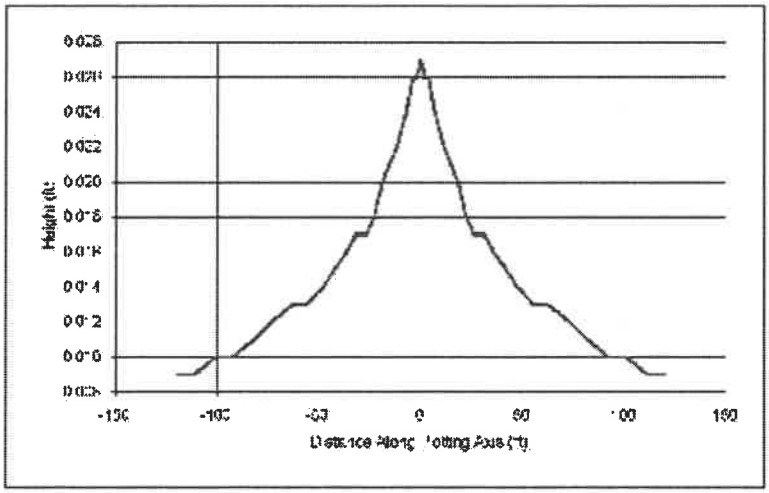
INPUT PARAMETERS

Application rate: 0.27 gal/day/sq. ft
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 22.5 ft
Width of application area: 8.5 ft
No constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 0 ft
Total volume applied: 1768.3 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-109	0	-109	0.01
-91.7	0	-92	0.01
-74.3	0	-74	0.01
-57	0	-57	0.01
-43.4	0	-45	0.02
-32.8	0	-33	0.02
-24.2	0	-24	0.02
-16.9	0	-17	0.02
-10.6	0	-11	0.02
-8.2	0	-8	0.02
-3.4	0	-3	0.03
0	0	0	0.02
3.4	0	3	0.02
6.3	0	6	0.02
10.6	0	11	0.02
16.9	0	17	0.02
24.2	0	24	0.02
32.8	0	33	0.02
43.4	0	43	0.03
57	0	57	0.01
74.3	0	74	0.01
91.7	0	92	0.01
109	0	109	0.01

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE COVE AGE 0712

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 6:27:02 PM

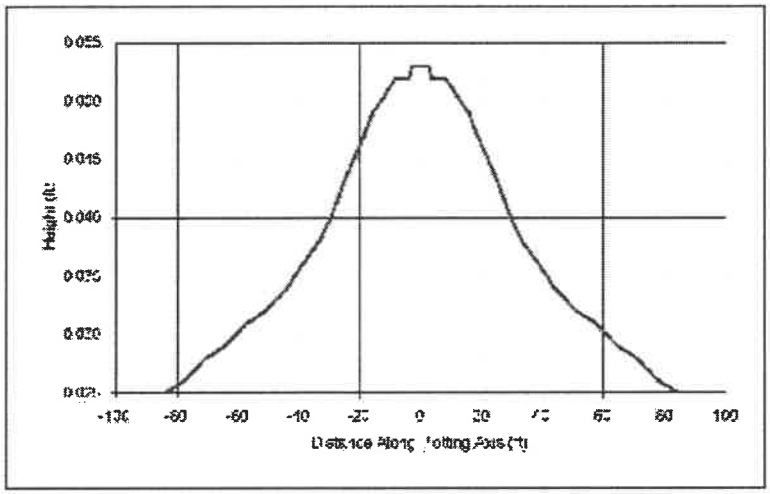
INPUT PARAMETERS

Application rate: 0.27 cu.ft/hour/sq. ft
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 48 ft
Length of application area: 22.9 ft
Width of application area: 8.5 ft
No constant head boundary used
Plotting axis from Y-Axis: 45 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 4.3 ft
Total volume applied: 1258.3 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
84.9	84.9	120	0.01
-71.4	-71.4	-101	0.01
57.9	57.9	82	0.01
-41.4	-41.4	-59	0.01
33.8	33.8	48	0.01
-25.5	-25.5	-36	0.02
18.8	18.8	27	0.02
-13.1	-13.1	-19	0.02
8.2	8.2	12	0.02
-4.9	-4.9	-7	0.02
-2.7	-2.7	-4	0.03
0	0	0	0.02
2.7	2.7	4	0.02
4.9	4.9	7	0.02
8.2	8.2	12	0.03
13.1	13.1	19	0.02
18.8	18.8	27	0.02
25.5	25.5	36	0.02
33.8	33.8	48	0.01
44.4	44.4	63	0.01
57.9	57.9	82	0.01
71.4	71.4	101	0.01
84.9	84.9	120	0.01

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THEICO AGE 0"3-14

ANALYST: ANTHONY ESPOSITO

DATE: 1/"3/2022 TIME: 6:35:12 PM

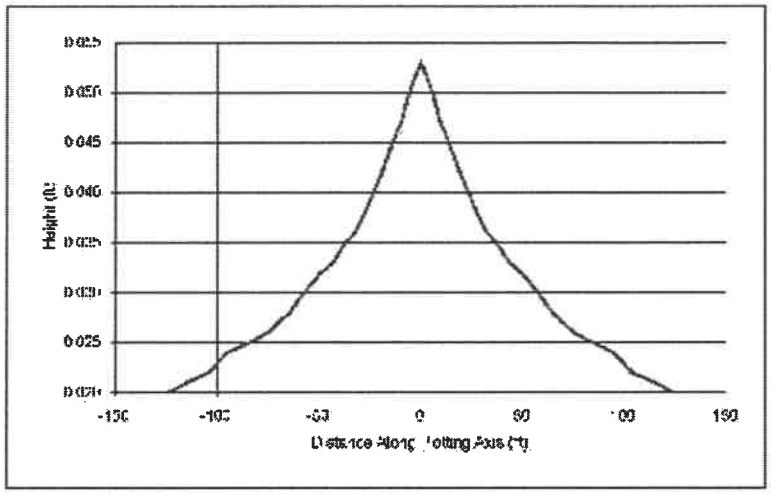
INPUT PARAMETERS

Application rate: 0.29 gal/sq. ft.
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 48 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No constant head boundary used
Plotting axis from Y-Axis: 10 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 23.5 ft
Total volume applied: 2768.456 cf

MOUNDING RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-14.6	80.7	84	0.02
-12.3	-69.6	-72	0.03
9.5	66.4	67	0.03
-7.6	-43.2	-44	0.03
5.8	32.9	33	0.04
-4.4	-24.5	-25	0.04
3.2	16.3	16	0.05
-2.3	-12.9	-13	0.05
1.4	8	8	0.05
-0.8	-4.8	-5	0.05
-0.5	-2.6	-3	0.05
0	0	0	0.05
0.9	2.5	3	0.05
0.8	4.8	5	0.05
1.4	8	8	0.05
2.3	12.8	13	0.05
3.2	16.3	16	0.05
4.4	24.0	25	0.04
5.8	32.9	33	0.04
7.6	42.3	44	0.03
9.9	56.4	57	0.03
12.3	66.6	71	0.03
14.6	80.7	84	0.02

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE 0"5-16

ANALYST: ANTHONY ESPOSITO

DATE: 1/"3/2022 TIME: 6:30:"6 PM

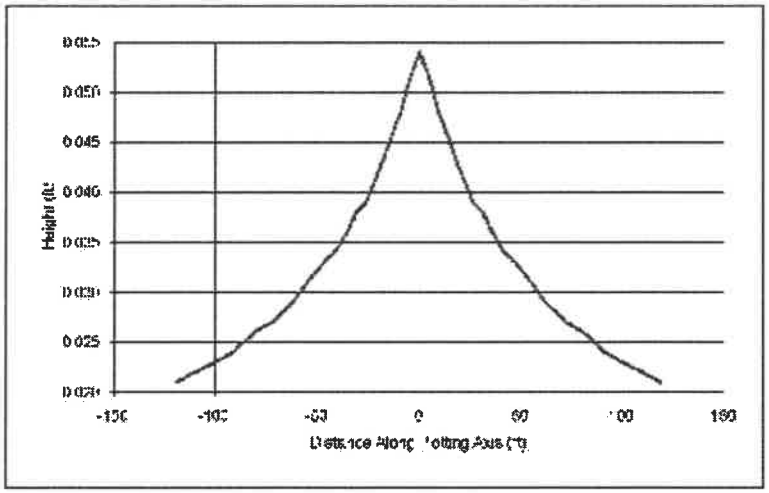
INPUT PARAMETERS

Application rate: 0.29 ft/day/sq. ft
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 50 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.6 ft
No-constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 0 ft
Total volume applied: 2768.436 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
"24	0	124	0.02
-"04.3	0	-104	0.03
84.6	0	85	0.02
-61.5	0	-65	0.03
49.3	0	49	0.03
-37.3	0	-37	0.04
27.5	0	28	0.04
-"9.2	0	-19	0.04
"2	0	12	0.05
-7.2	0	-7	0.05
-3.3	0	-4	0.05
0	0	0	0.05
3.9	0	4	0.05
7.2	0	7	0.05
11	0	"2	0.05
19.2	0	"9	0.04
27.5	0	28	0.04
37.3	0	37	0.04
49.3	0	49	0.03
64.8	0	65	0.03
84.6	0	85	0.03
104.5	0	"04	0.02
124	0	"24	0.03

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP.

PROJECT: THE CO AGE U**7-18

ANALYST: ANTHONY ESPOSITO

DATE: 1**3/2022 TIME: 6:13:26 PM

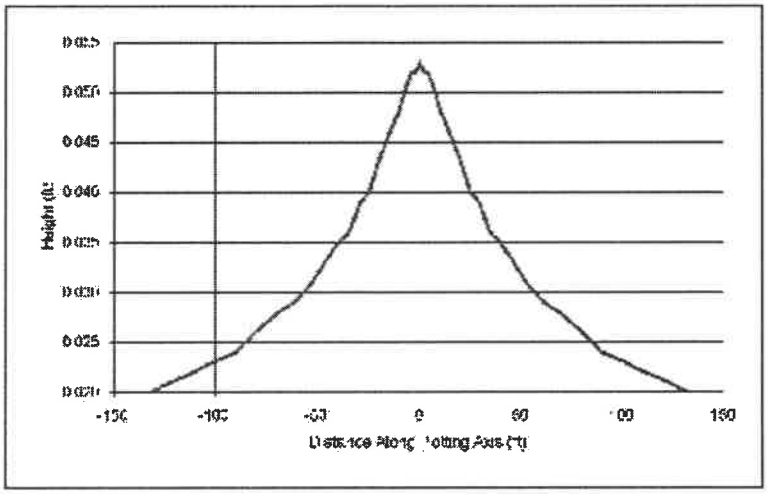
INPUT PARAMETERS

Application rate: 0.29 gal/hour/sq. ft
Duration of application: 24 hours
Fillable porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 47 ft
Length of application area: 47.1 ft
Width of application area: 8.6 ft
No constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 47.2 ft
positive Y: 0 ft
Total volume applied: 2768.436 cf

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
**9	0	119	0.02
-1**	0	-100	0.02
81.1	0	8*	0.03
-82.2	0	-82	0.02
47.4	0	47	0.03
-35.8	0	-36	0.04
26.4	0	26	0.04
-18.4	0	-18	0.04
**.5	0	12	0.05
-6.5	0	-7	0.05
-3.7	0	-4	0.05
0	0	0	0.05
3.*	0	4	0.05
6.9	0	7	0.05
11.5	0	12	0.05
18.4	0	18	0.04
26.4	0	26	0.04
35.8	0	36	0.04
47.4	0	47	0.03
62.3	0	62	0.02
81.*	0	81	0.03
100.*	0	100	0.02
119	0	**9	0.02

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE 0719-22

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 6:13:40 PM

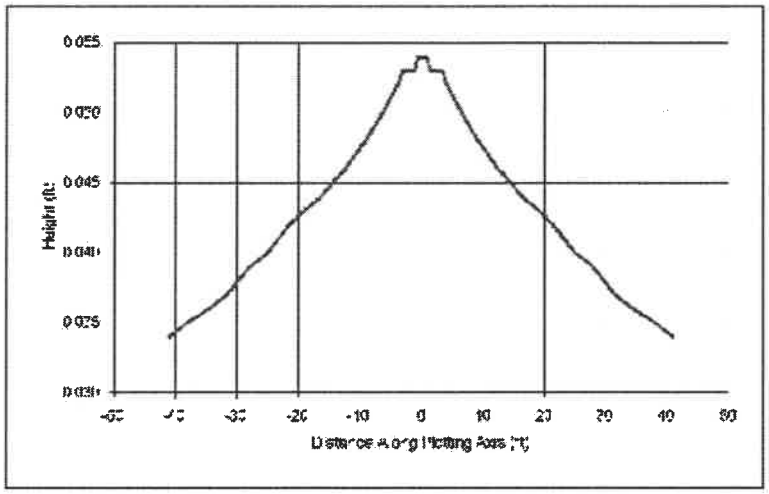
INPUT PARAMETERS

Application rate: 0.29 cu.ft/hour/sq. ft
Duration of application: 24 hours
Fillable porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No constant head boundary used
Plotting axis from Y-Axis: 45 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 4.3 ft
Total volume applied: 2768.456 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
93.3	93.3	132	0.02
-78.5	-78.5	-111	0.03
63.6	63.6	90	0.02
-48.8	-48.8	-69	0.03
37.1	37.1	53	0.03
-28.1	-28.1	-40	0.04
20.7	20.7	29	0.04
-14.5	-14.5	-20	0.04
9	9	13	0.05
-5.4	-5.4	-8	0.05
-2.9	-2.9	-4	0.05
0	0	0	0.05
2.9	2.9	4	0.05
5.4	5.4	8	0.05
9	9	13	0.05
14.5	14.5	20	0.04
20.7	20.7	29	0.04
28.1	28.1	40	0.04
37.1	37.1	53	0.03
48.8	48.8	69	0.03
63.6	63.6	90	0.03
78.5	78.5	111	0.02
93.3	93.3	132	0.02

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THESCO AGS U21-23

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 6:14:45 PM

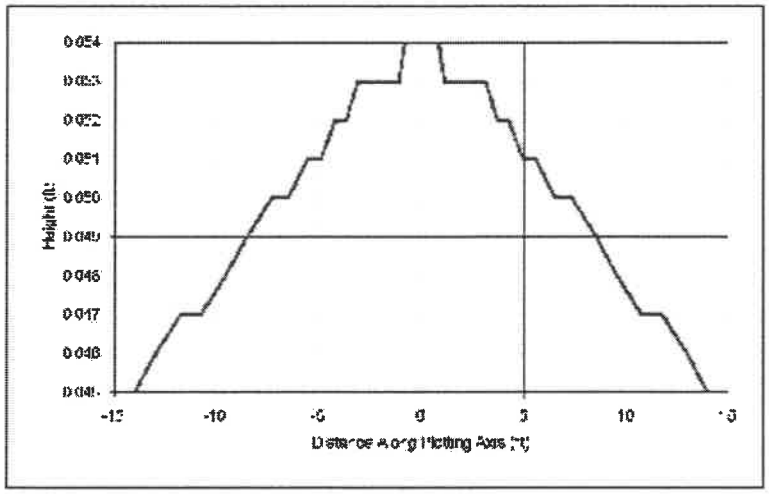
INPUT PARAMETERS

Application rate: 0.29 cfs/acre/sq. ft
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 47 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No-constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 47.1 ft
positive Y: 0 ft
Total volume applied: 2768.496 cf

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
41	0	41	0.03
-34.5	0	-34	0.04
28	0	28	0.04
-21.4	0	-21	0.04
16.3	0	16	0.04
-12.3	0	-12	0.05
9.1	0	9	0.05
-6.4	0	-6	0.05
4	0	4	0.05
-2.4	0	-2	0.05
-1.3	0	-1	0.05
0	0	0	0.05
1.3	0	1	0.05
2.4	0	2	0.05
4	0	4	0.05
6.4	0	6	0.05
9.1	0	9	0.05
12.3	0	12	0.05
16.3	0	16	0.04
21.4	0	21	0.04
28	0	28	0.04
34.5	0	34	0.04
41	0	41	0.03

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP.

PROJECT: THE CO AG= U20-24

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 6:15:56 PM

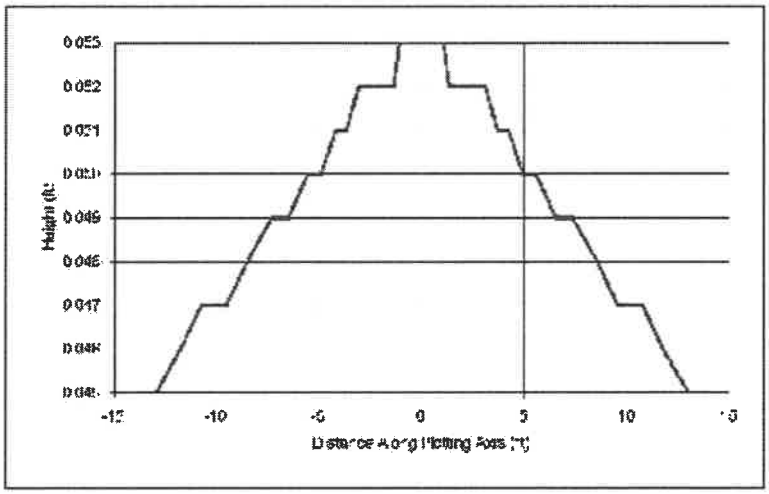
INPUT PARAMETERS

Application rate: 0.29 ft/Hour/Aq. ft
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 47 ft
Length of application area: 47.1 ft
Width of application area: 8.6 ft
No-constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 4.3 ft
positive Y: 0 ft
Total volume applied: 2758.436 cf

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
14	0	14	0.04
-11.8	0	-12	0.05
9.5	0	10	0.05
-7.2	0	-7	0.05
5.0	0	5	0.05
-2.7	0	-3	0.05
0.1	0	0	0.05
-2.2	0	-2	0.05
2.4	0	2	0.05
-0.5	0	-1	0.05
-0.4	0	0	0.05
0	0	0	0.05
0.4	0	0	0.05
0.6	0	1	0.05
1.4	0	1	0.05
2.2	0	2	0.05
3.1	0	3	0.05
4.2	0	4	0.05
5.6	0	6	0.05
7.3	0	7	0.05
9.5	0	10	0.05
11.8	0	12	0.05
14	0	14	0.04

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE U25-26

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 6:17:10 PM

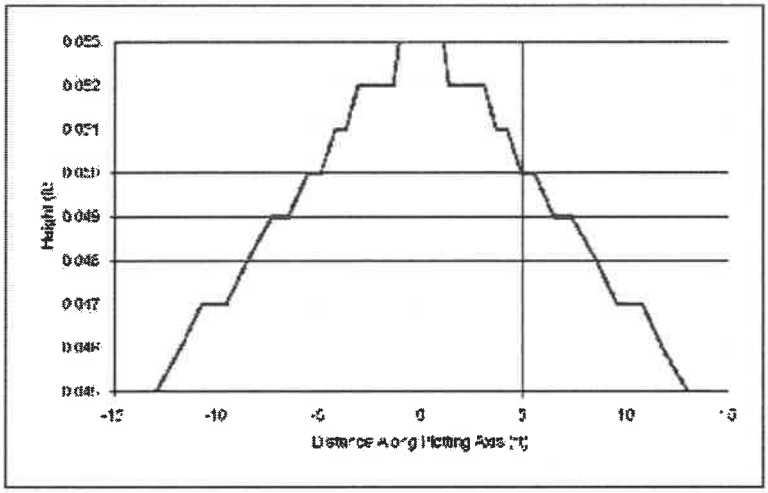
INPUT PARAMETERS

Application rate: 0.29 cu.ft/hour/sq. ft
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 50 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 0 ft
Total volume applied: 2768.496 cu.ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
14	0	14	0.04
-11.8	0	-12	0.05
9.5	0	10	0.05
-7.2	0	-7	0.05
5.9	0	6	0.05
-4.2	0	-4	0.05
3.1	0	3	0.05
-2.2	0	-2	0.05
1.4	0	1	0.05
-0.8	0	-1	0.05
-0.4	0	0	0.05
0	0	0	0.05
0.4	0	0	0.05
0.8	0	1	0.05
1.4	0	1	0.05
2.2	0	2	0.05
3.1	0	3	0.05
4.2	0	4	0.05
5.6	0	6	0.05
7.3	0	7	0.05
9.5	0	10	0.05
11.8	0	12	0.05
14	0	14	0.04

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AG= U27-28

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 6:15:17 PM

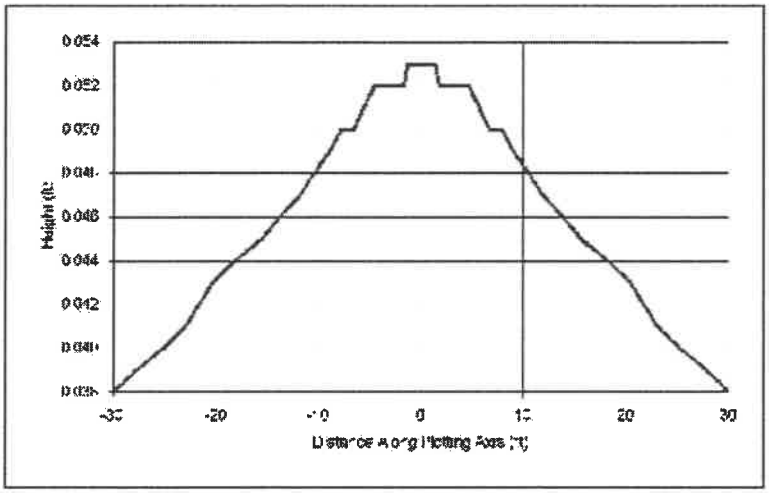
INPUT PARAMETERS

Application rate: 0.29 cu.ft/hour/sq. ft
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.6 ft
No constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 0 ft
Total volume applied: 2768.496 cu.ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-14	0	14	0.04
-11.8	0	-12	0.05
-9.5	0	-10	0.05
-7.3	0	-7	0.05
-5.2	0	-6	0.05
-3.0	0	-4	0.05
-0.7	0	-3	0.05
-0.2	0	-2	0.05
1.4	0	-1	0.05
-0.8	0	-1	0.05
-0.4	0	0	0.05
0	0	0	0.05
0.4	0	0	0.05
0.8	0	1	0.05
1.4	0	1	0.05
2.2	0	2	0.05
3.1	0	3	0.05
4.2	0	4	0.05
5.6	0	6	0.05
7.3	0	7	0.05
9.5	0	10	0.05
11.8	0	12	0.05
14	0	14	0.04

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE U20-30

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 6:13:26 PM

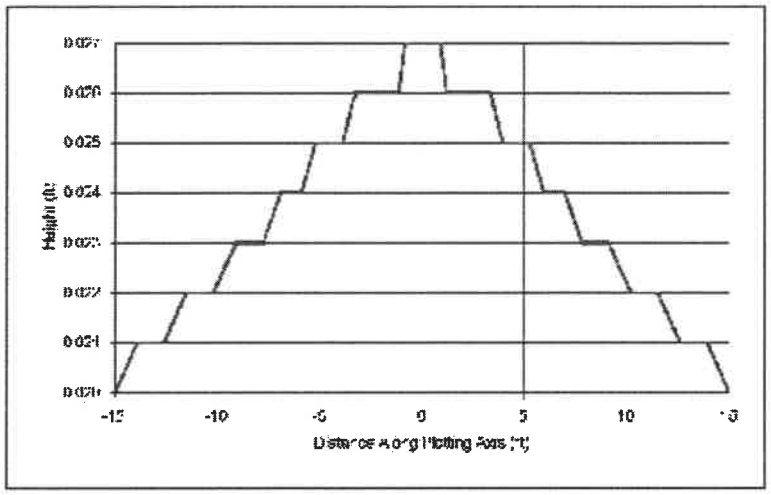
INPUT PARAMETERS

Application rate: 0.29 ft/hour/sq. ft
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.6 ft
No-constant head boundary used
Plotting axis from Y-Axis: 45 degrees
Edge of recharge area
positive X: 4.3 ft
positive Y: 4.3 ft
Total volume applied: 2768.496 cf

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
21.2	21.2	30	0.04
-17.8	-17.8	-25	0.04
14.5	14.5	20	0.04
-11.1	-11.1	-16	0.04
8.4	8.4	12	0.05
-6.4	-6.4	-9	0.05
4.7	4.7	7	0.05
-3.3	-3.3	-5	0.05
2.1	2.1	3	0.05
-1.2	-1.2	-2	0.05
-0.7	-0.7	-1	0.05
0	0	0	0.05
0.7	0.7	1	0.05
1.2	1.2	2	0.05
2.1	2.1	3	0.05
3.3	3.3	5	0.05
4.7	4.7	7	0.05
6.4	6.4	9	0.05
8.4	8.4	12	0.05
11.1	11.1	16	0.04
14.5	14.5	20	0.04
17.8	17.8	25	0.04
21.2	21.2	30	0.04

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE 032

ANALYST: ANTHONY ESPOSITO

DATE: 1/15/2022 TIME: 6:20:39 PM

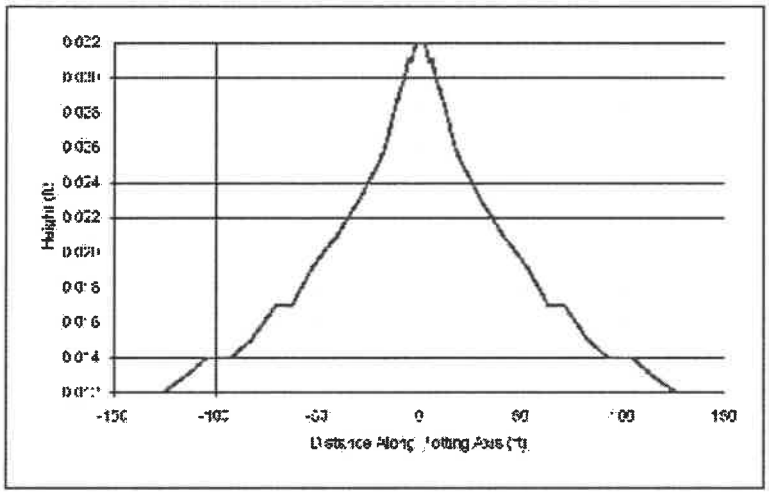
INPUT PARAMETERS

Application rate: 0.27 gal/hour/sq. ft
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 22.5 ft
Width of application area: 8.5 ft
No constant head boundary used
Plotting axis from X-Axis: 90 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 0 ft
Total volume applied: 1358.3 cu ft

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
15	0	15	0.02
-12.6	0	-13	0.02
10.2	0	10	0.02
-7.8	0	-8	0.02
6	0	6	0.02
-4.8	0	-5	0.02
3.3	0	3	0.03
-2.2	0	-2	0.02
1.5	0	1	0.03
-0.9	0	-1	0.02
-0.5	0	0	0.03
0	0	0	0.02
0.5	0	0	0.02
0.9	0	1	0.02
1.5	0	1	0.03
2.3	0	2	0.02
3.3	0	3	0.03
4.5	0	5	0.02
6	0	6	0.03
7.8	0	8	0.02
10.2	0	10	0.03
12.6	0	13	0.02
15	0	15	0.03

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE CH1

ANALYST: ANTHONY ESPOSITO

DATE: 1/[illegible]/2022 TIME: 6:21:44 PM

INPUT PARAMETERS

Application rate: 0.1 cf/hour/sq. ft.
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 50 ft/hour
Initial saturated thickness: 47 ft
Length of application area: 43 ft
Width of application area: 18.3 ft
No constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 8.2 ft
positive Y: 0 ft
Total volume applied: 1662.16 cf

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
[illegible]33	0	[illegible]136	0.01
-[illegible]14.4	0	-114	0.01
92.7	0	95	0.01
-71.1	0	-71	0.02
54.1	0	54	0.02
-40.9	0	-41	0.02
30.2	0	30	0.02
-21.1	0	-21	0.02
[illegible]3.2	0	13	0.03
-7.5	0	-8	0.03
-4.3	0	-4	0.03
0	0	0	0.03
4.3	0	4	0.03
7.9	0	8	0.03
13.2	0	13	0.03
21.1	0	21	0.02
30.2	0	30	0.03
40.9	0	41	0.02
54.1	0	54	0.03
71.1	0	71	0.02
92.7	0	93	0.01
114.4	0	[illegible]14	0.01
136	0	[illegible]36	0.01

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)

COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AG= CH2

ANALYST: ANTHONY ESPOSITO

DATE: 1/19/2022 TIME: 6:22:49 PM

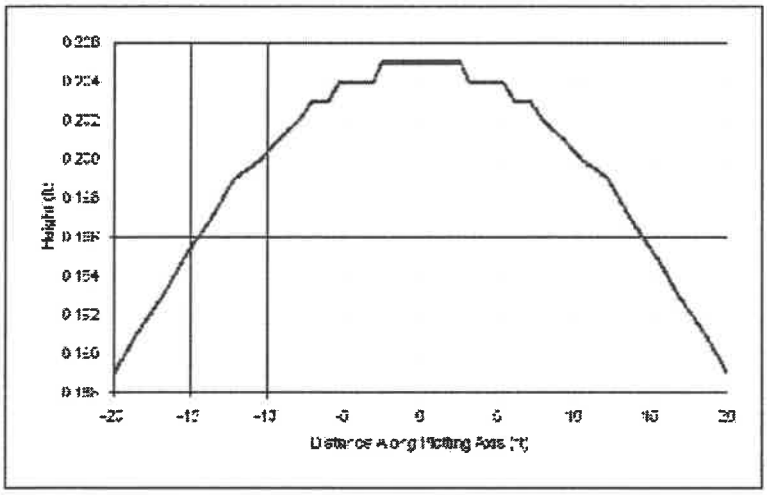
INPUT PARAMETERS

Application rate: 0.22 cu ft/hour/sq. ft.
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 66.33 ft
Width of application area: 20.0 ft
No-constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 10.0 ft
positive Y: 0 ft
Total volume applied: 7540.866 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
7	0	7	0.12
-5.5	0	-5	0.12
4.8	0	5	0.13
-3.7	0	-4	0.12
2.8	0	3	0.13
-2.1	0	-2	0.12
1.9	0	2	0.13
-1.1	0	-1	0.12
0.7	0	1	0.13
-0.4	0	0	0.12
-0.2	0	0	0.13
0	0	0	0.12
0.2	0	0	0.13
0.4	0	0	0.12
0.7	0	1	0.13
1.1	0	1	0.12
1.6	0	2	0.13
2.1	0	2	0.12
2.8	0	3	0.13
3.7	0	4	0.12
4.8	0	5	0.13
5.9	0	6	0.12
7	0	7	0.13

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CONS

PROJECT: THE CO AGE CH3

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 6:23:51 PM

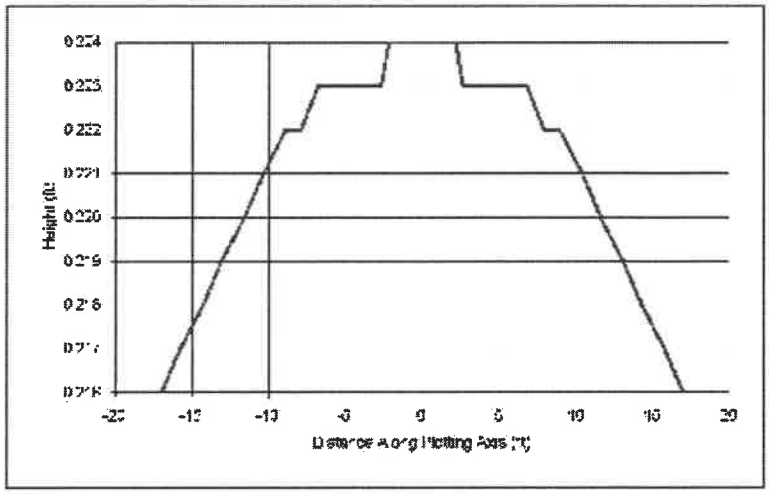
INPUT PARAMETERS

Application rate: 0.24 cu.ft/hour/sq. ft.
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 46.1 ft
Width of application area: 45 ft
No-constant head boundary used
Plotting axis from X-Axis: 45 degrees
Edge of recharge area
positive X: 21.5 ft
positive Y: 21.5 ft
Total volume applied: 121581.09 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-14.1	-14.1	-20	0.15
-11.3	-11.3	-17	0.15
9.8	9.8	14	0.2
-7.4	-7.4	-10	0.2
5.8	5.8	8	0.2
-4.3	-4.3	-6	0.2
3.1	3.1	4	0.2
-2.2	-2.2	-3	0.2
1.4	1.4	2	0.2
-0.8	-0.8	-1	0.2
-0.4	-0.4	-1	0.2
0	0	0	0.2
0.4	0.4	1	0.2
0.8	0.8	1	0.2
1.4	1.4	2	0.2
2.2	2.2	3	0.2
3.1	3.1	4	0.2
4.3	4.3	6	0.2
5.8	5.8	8	0.2
7.4	7.4	10	0.2
9.8	9.8	14	0.2
11.9	11.9	17	0.15
14.1	14.1	20	0.15

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THESCO AGE CH4

ANALYST: ANTHONY ESPOSITO

DATE: 1/3/2022 TIME: 10:35:05 PM

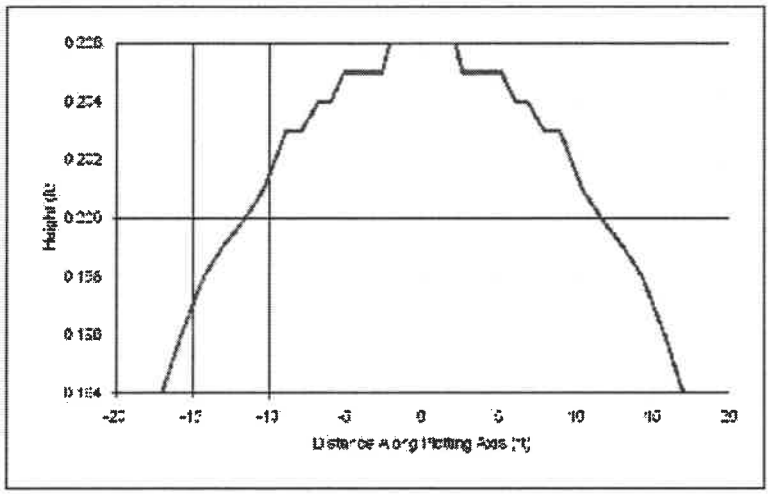
INPUT PARAMETERS

Application rate: 0.33 gal/hour/sq. ft
Duration of application: 24 hours
Porosity: 0.2
Hydraulic conductivity: 50 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 65 ft
Width of application area: 24.5 ft
No-constant head boundary used
Plotting axis from X-Axis: 0 degrees
Edge of recharge area
pnet vs X: 0 ft
pnet vs Y: 34.5 ft
Total volume applied: 15588.75 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
0	17	17	0.22
0	-14.3	-14	0.22
0	11.6	12	0.22
0	-8.9	-9	0.22
0	6.8	7	0.22
0	-5.1	-5	0.22
0	3.8	4	0.22
0	-2.6	-3	0.22
0	1.6	2	0.22
0	-1	-1	0.22
0	-0.5	-1	0.22
0	0	0	0.22
0	0.5	1	0.22
0	1	1	0.22
0	1.9	2	0.22
0	2.8	3	0.22
0	3.8	4	0.22
0	5.1	5	0.22
0	6.8	7	0.22
0	8.9	9	0.22
0	11.6	12	0.22
0	14.3	14	0.22
0	17	17	0.22

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEYORS

PROJECT: THEGO AGE CHS

ANALYST: ANTHONY ESPOSITO

DATE: 1/3/2022 TIME: 6:28:00 PM

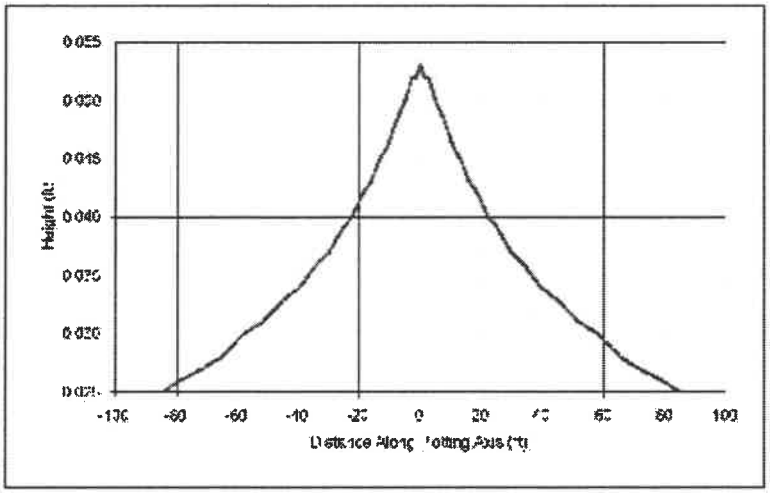
INPUT PARAMETERS

Application rate: 0.28 cu.ft/hour/sq. ft
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 46.5 ft
Width of application area: 36 ft
No-constant head boundary used
Plotting axis from Y-Axis: 0 degrees
Edge of recharge area
positive X: 0 ft
positive Y: 24.6 ft
Total volume applied: 11975.04 cu.ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
0	-17	17	0.16
0	-14.3	-14	0.2
0	-11.6	12	0.2
0	-8.9	-9	0.2
0	6.8	7	0.2
0	-5.1	-5	0.2
0	3.8	4	0.2
0	-2.6	-3	0.2
0	1.6	2	0.21
0	-1	-1	0.21
0	-0.5	-1	0.21
0	0	0	0.21
0	0.5	1	0.21
0	1	1	0.21
0	1.6	2	0.21
0	2.6	3	0.2
0	3.8	4	0.2
0	5.1	5	0.2
0	6.8	7	0.2
0	8.9	9	0.2
0	11.6	12	0.2
0	14.3	14	0.2
0	17	17	0.16

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGES U1-2

ANALYST: ANTHONY ESPOSITO

DATE: 1/18/2022 TIME: 5:45:31 PM

INPUT PARAMETERS

Application rate: 0.29 cu.ft/sq.ft/day
Duration of application: 24 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No-constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 0 ft
Total volume applied: 2768.436 cu.ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
85	0	85	0.02
-71.5	0	-71	0.02
58	0	58	0.03
-47.4	0	-47	0.03
33.8	0	34	0.04
-25.6	0	-26	0.04
18.9	0	19	0.04
-13.2	0	-13	0.04
8.2	0	8	0.05
-4.3	0	-5	0.05
-2.7	0	-3	0.05
0	0	0	0.05
2.7	0	3	0.05
4.9	0	5	0.05
8.2	0	8	0.05
13.2	0	13	0.04
18.9	0	19	0.04
25.6	0	26	0.04
33.8	0	34	0.04
44.4	0	44	0.03
58	0	58	0.03
71.5	0	71	0.03
85	0	85	0.02

Mounding Calculations
For 72 hours

In Support of a

A Comprehensive Permit

For:

The Cottages at
Old Oaken Bucket
279-281 Old Oaken Bucket Rd.
Scituate, MA

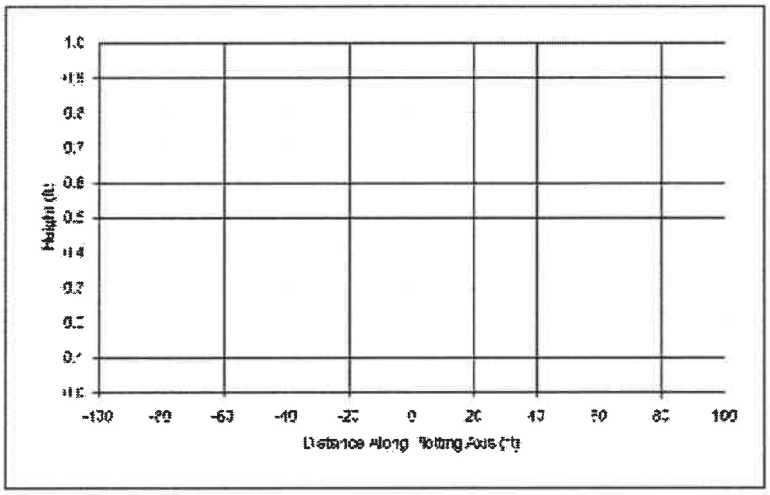
Submitted to:

Town of Scituate
Zoning Board of Appeals

Dated: January 18, 2022

Prepared By
Anthony A. Esposito, P.E.
South Shore Survey Consultants, Inc.
167R Summer Street
Kingston, MA 02364

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CONS

PROJECT: THE CO AGES U1-2

ANALYST: ANTHONY ESPOSITO

DATE: 1/3/2022 TIME: 5:50:56 PM

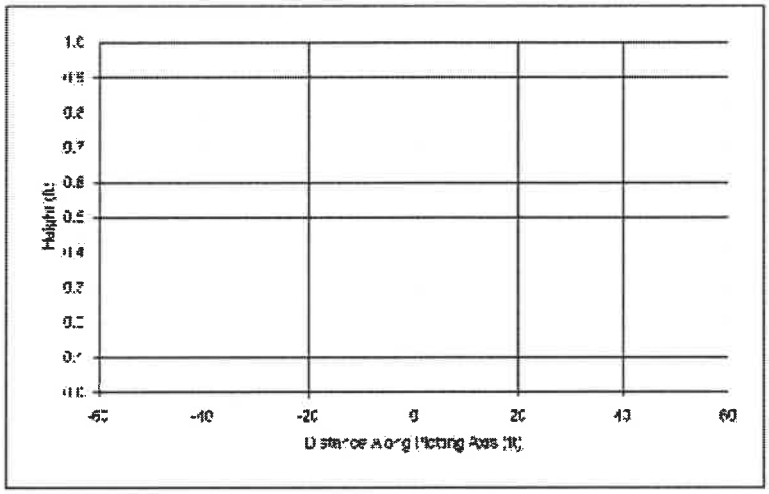
INPUT PARAMETERS

Application rate: 0.0 Thousand/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 0 ft
Total volume applied: 0 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
85	0	85	0
-71.5	0	-71	0
58	0	58	0
-44.1	0	-44	0
33.8	0	34	0
-25.6	0	-26	0
18.9	0	19	0
-13.2	0	-13	0
8.2	0	8	0
-4.3	0	-4	0
-2.7	0	-3	0
0	0	0	0
2.7	0	3	0
4.9	0	5	0
8.2	0	8	0
13.2	0	13	0
18.9	0	19	0
25.6	0	26	0
33.8	0	34	0
44.4	0	44	0
58	0	58	0
71.5	0	71	0
85	0	85	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AG= US-4

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 9:58:47 PM

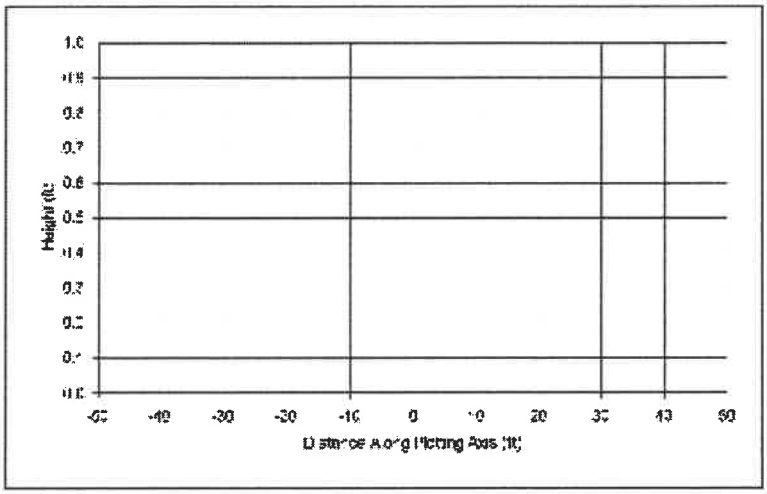
INPUT PARAMETERS

Application rate: 0.0 Thousand/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 47 ft
Length of application area: 47.1 ft
Width of application area: 8.6 ft
No-constant head boundary used
Plotting axis from Y-Axis: 0 degrees
Edge of recharge area
positive X: 0 ft
positive Y: 23.5 ft
Total volume applied: 0 c ft

MODF RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
0	55	55	0
0	-44.8	-45	0
0	36.1	36	0
0	-27.7	-28	0
0	21.1	21	0
0	-16	-16	0
0	11.8	12	0
0	-8.2	-8	0
0	5.1	5	0
0	-3.1	-3	0
0	-1.7	-2	0
0	0	0	0
0	1.7	2	0
0	3.1	3	0
0	5.1	5	0
0	6.7	6	0
0	11.8	12	0
0	16	16	0
0	21.1	21	0
0	27.7	28	0
0	36.1	36	0
0	44.8	45	0
0	55	55	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CONS

PROJECT: THE CO AG= US

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 9:55:29 PM

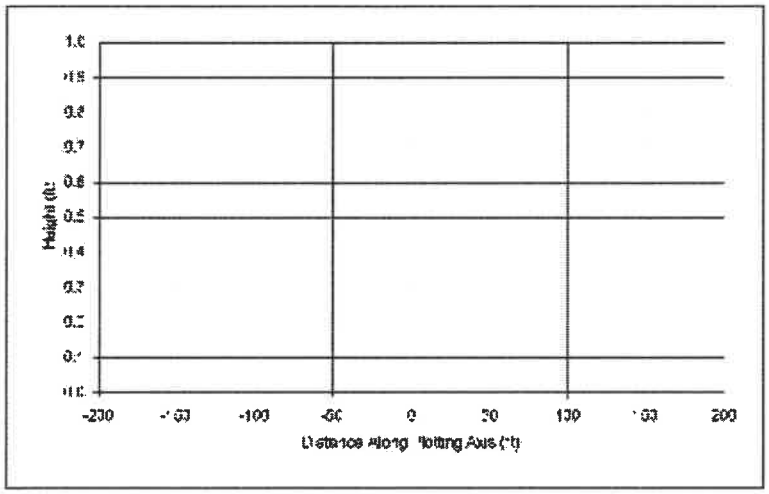
INPUT PARAMETERS

Application rate: 0.0 [illegible]/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 22.5 ft
Width of application area: 8.6 ft
No-constant head boundary used
Plotting axis from Y-Axis: 30 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 7.4 ft
Total volume applied: 0.0 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
26	45.3	50	0
-21	-36.4	-42	0
17	29.5	34	0
-13.1	-22.8	-26	0
9.3	17.2	20	0
-7.5	-13	-15	0
5.5	9.6	11	0
-3.9	-6.7	-8	0
2.4	4.2	5	0
-1.4	-2.5	-3	0
-0.8	-1.4	-2	0
0	0	0	0
0.8	1.4	2	0
1.4	2.5	3	0
2.4	4.2	5	0
3.9	6.7	8	0
5.5	9.6	11	0
7.5	13	15	0
9.9	17.2	20	0
13.1	22.8	26	0
17	29.5	34	0
21	36.4	42	0
25	43.3	50	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEYORS

PROJECT: THE CO AGE UC

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 10:30:04 PM

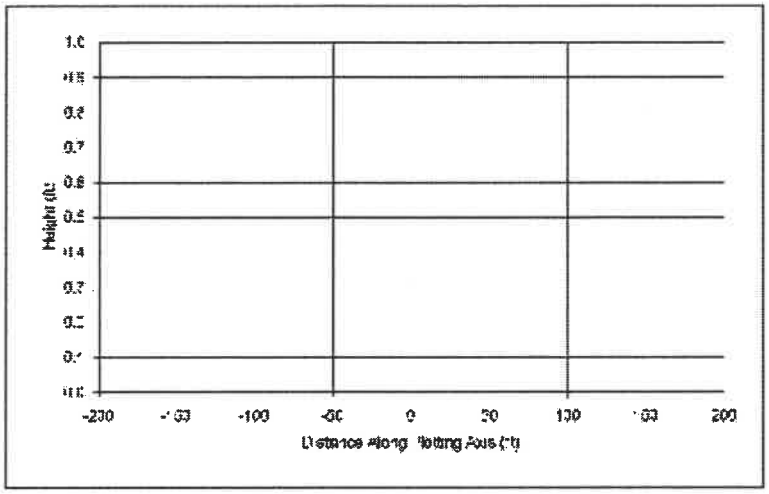
INPUT PARAMETERS

Application rate: 0.0 Thousands ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 47 ft
Length of application area: 22.5 ft
Width of application area: 8.5 ft
No constant head boundary used
Plotting axis from X-Axis: 30 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 7.4 ft
Total volume applied: 0 c ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
84.5	-123.4	169	0
-71.1	-122.1	-142	0
57.6	99.8	115	0
-41.2	-76.5	-86	0
33.6	56.2	67	0
-25.4	-47.1	-51	0
18.7	32.5	37	0
-13.1	-22.7	-26	0
8.2	14.2	16	0
-4.9	-8.5	-10	0
-2.7	-4.6	-5	0
0	0	0	0
2.7	4.5	5	0
4.9	8.5	10	0
8.2	14.2	16	0
13.1	22.7	26	0
18.7	32.5	37	0
25.4	44.1	51	0
33.6	58.2	67	0
44.3	76.5	88	0
57.6	99.8	115	0
71.1	123.1	142	0
84.5	146.4	169	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTHSHORE SURVEY CORP.

PROJECT: THE CO AGE 0/7-6

ANALYST: ANTHONY ESPOSITO

DATE: 1/3/2022 TIME: 10:01:26 PM

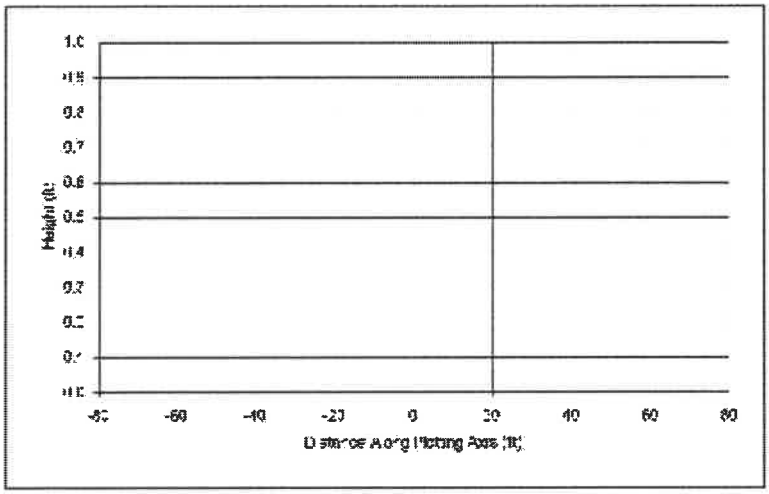
INPUT PARAMETERS

Application rate: 0.0 Thousand/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 50 ft/hour
Initial saturated thickness: 47 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No constant head boundary used
Plotting axis from Y-Axis: 45 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 4.3 ft
Total volume applied: 0 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
140.7	140.7	199	0
-118.3	-118.3	-167	0
95	95	135	0
-73.6	-73.6	-104	0
56	56	79	0
-42.4	-42.4	-60	0
31.2	31.2	44	0
-21.8	-21.8	-31	0
-13.6	-13.6	-19	0
-8.2	-8.2	-12	0
-4.4	-4.4	-6	0
0	0	0	0
4.4	4.4	6	0
8.2	8.2	12	0
13.6	13.6	19	0
21.8	21.8	31	0
31.2	31.2	44	0
42.4	42.4	60	0
56	56	79	0
73.6	73.6	104	0
95	95	135	0
118.3	118.3	167	0
140.7	140.7	199	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE US-10

ANALYST: ANTHONY ESPOSITO

DATE: 1/3/2022 TIME: 10:02:45 PM

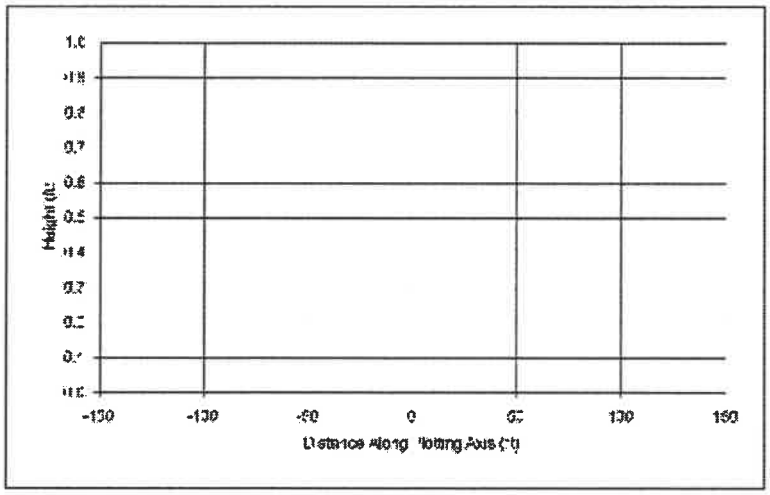
INPUT PARAMETERS

Application rate: 0.6 Gallons/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.6 ft
No-constant head boundary used
Plotting axis from X-Axis: 10 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 23.6 ft
Total volume applied: 0 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-73	75.6	75	0
-[illegible]	-62.1	-63	0
6.6	60.4	61	0
-6.8	-36.8	-39	0
5.2	29.4	30	0
-3.5	-22.2	-23	0
2.6	16.4	17	0
-2	-11.4	-12	0
1.3	7.2	7	0
-0.8	-1.8	-1	0
-0.4	-2.3	-2	0
0	0	0	0
0.4	2.3	2	0
0.8	7.8	7	0
1.3	7.2	7	0
2	11.4	12	0
2.6	15.4	17	0
3.9	22.2	23	0
5.2	29.4	30	0
6.6	38.6	39	0
8.9	52.4	51	0
11	62.1	63	0
13	73.9	75	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CONS

PROJECT: THE CO AGE U**

ANALYST: ANTHONY ESPOSITO

DATE: 1**3/2022 TIME: **0:11:36 PM

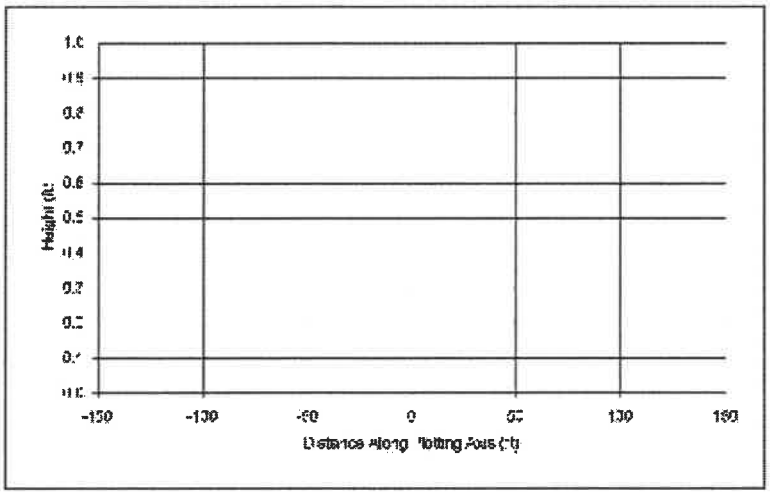
INPUT PARAMETERS

Application rate: 0 c Mhou/sc ft
Duration of application: 72 hours
Fillable porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 22.5 ft
Width of application area: 8.6 ft
No-constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 0 ft
Total volume applied: 0 c ft

MODF RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
**105	0	109	0
-91.7	0	-92	0
74.3	0	74	0
-57	0	-57	0
43.4	0	43	0
-32.8	0	-33	0
24.2	0	24	0
**16.9	0	-17	0
**0.6	0	11	0
-6.2	0	-6	0
-3.4	0	-3	0
0	0	0	0
3.4	0	3	0
6.3	0	6	0
10.6	0	**	0
16.9	0	17	0
24.2	0	24	0
32.8	0	33	0
43.4	0	43	0
57	0	57	0
74.3	0	74	0
91.7	0	92	0
109	0	**09	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE 0 2

ANALYST: ANTHONY ESPOSITO

DATE: 1/18/2022 TIME: 10:13:02 PM

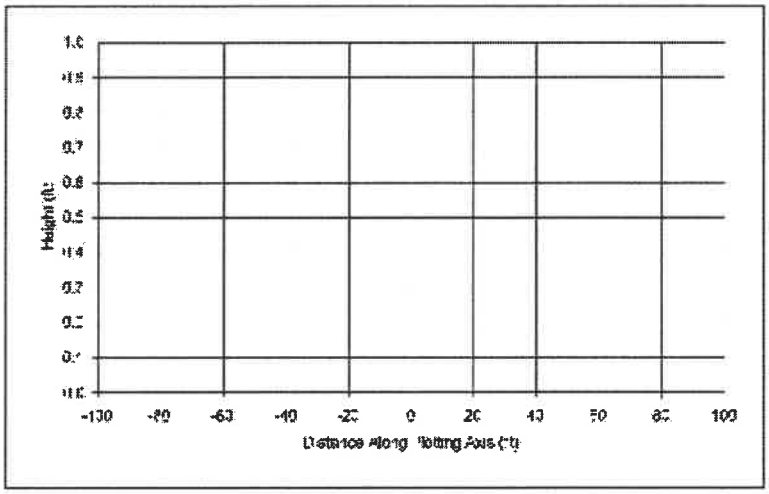
INPUT PARAMETERS

Application rate: 0.0 Thousand/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 50 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 22.5 ft
Width of application area: 8.5 ft
No-constant head boundary used
Plotting axis from Y-Axis: 45 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 4.3 ft
Total volume applied: 0 cu ft

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
84.9	84.9	120	0
-71.4	-71.4	-101	0
57.9	57.9	82	0
-47.4	-47.4	-67	0
33.8	33.8	48	0
-25.5	-25.5	-36	0
18.8	18.8	27	0
-13.1	-13.1	-19	0
8.2	8.2	12	0
-4.9	-4.9	-7	0
-2.7	-2.7	-4	0
0	0	0	0
2.7	2.7	4	0
4.9	4.9	7	0
8.2	8.2	12	0
13.1	13.1	19	0
18.8	18.8	27	0
25.5	25.5	36	0
33.8	33.8	48	0
44.4	44.4	63	0
57.9	57.9	82	0
71.4	71.4	101	0
84.9	84.9	120	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THESCO AGE 0713-14

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 10:14:21 PM

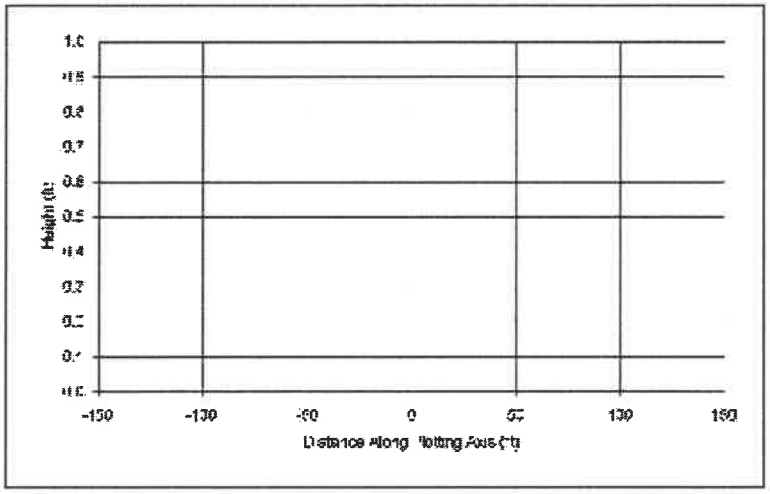
INPUT PARAMETERS

Application rate: 0.5 cubic feet/sec/ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 50 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.6 ft
No-constant head boundary used
Plotting axis from Y-Axis: 10 degrees
Edge of recharge area
positive X: 41.2 ft
positive Y: 23.5 ft
Total volume applied: 0 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-14.6	-82.7	-84	0
-12.3	-69.8	-71	0
-9.8	-56.4	-57	0
-7.6	-43.2	-47	0
-5.8	-32.3	-33	0
-4.4	-24.5	-25	0
-3.2	-18.3	-19	0
-2.3	-12.9	-13	0
-1.4	-8	-8	0
-0.9	-4.8	-5	0
-0.5	-2.6	-3	0
0	0	0	0
0.9	2.9	3	0
0.8	4.9	5	0
1.4	8	8	0
2.3	12.8	13	0
3.2	18.3	19	0
4.4	24.9	25	0
5.8	32.9	33	0
7.6	43.3	44	0
9.9	55.4	57	0
12.3	68.6	71	0
14.6	82.7	84	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE 0715-16

ANALYST: ANTHONY ESPOSITO

DATE: 1/15/2022 TIME: 10:15:47 PM

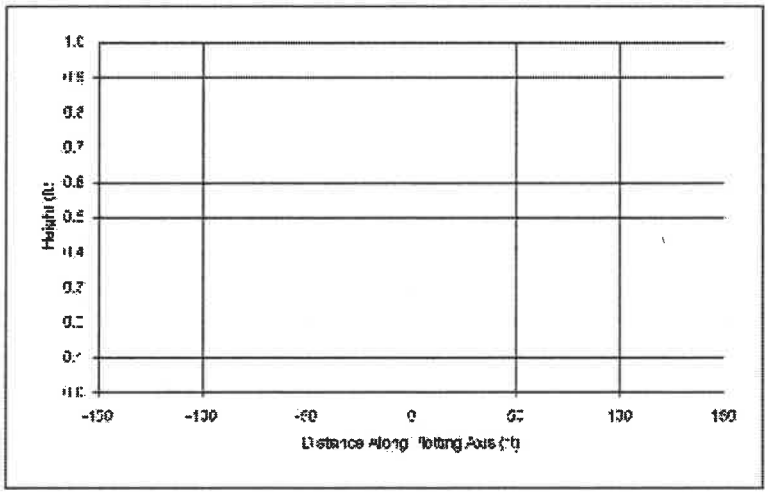
INPUT PARAMETERS

Application rate: 0.6 Thousand/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.6 ft
No constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 47.2 ft
positive Y: 0 ft
Total volume applied: 0 cu ft

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-124	0	124	0
-104.3	0	-104	0
84.6	0	85	0
-64.8	0	-65	0
45.3	0	45	0
-37.3	0	-37	0
27.5	0	28	0
-19.2	0	-19	0
12	0	12	0
-7.2	0	-7	0
-3.3	0	-4	0
0	0	0	0
3.9	0	4	0
7.9	0	7	0
12	0	12	0
19.9	0	19	0
27.8	0	28	0
37.3	0	37	0
48.3	0	49	0
64.8	0	65	0
84.6	0	85	0
104.3	0	104	0
124	0	124	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE [illegible]

ANALYST: ANTHONY ESPOSITO

DATE: 1/3/2022 TIME: 10:17:05 PM

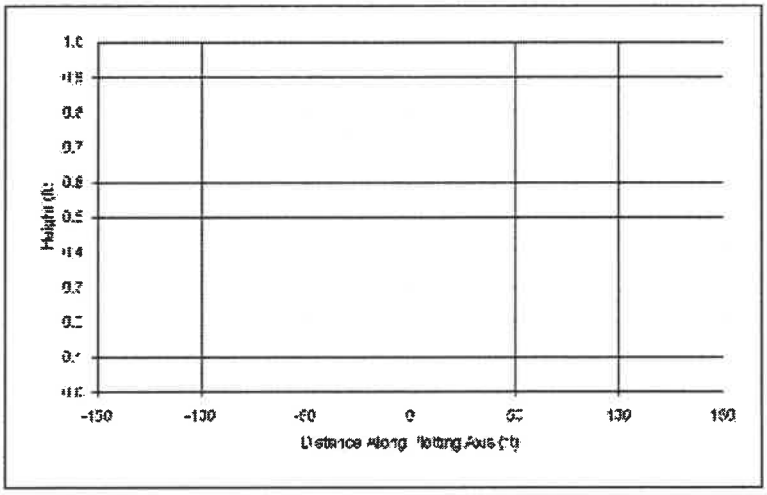
INPUT PARAMETERS

Application rate: 0.0 Thousand/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 50 ft/hour
Initial saturated thickness: 47 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No-constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 0 ft
Total volume applied: 0.0 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
[illegible]9	0	119	0
-100.1	0	-100	0
81.1	0	81	0
-62.2	0	-62	0
47.4	0	47	0
-35.8	0	-36	0
26.4	0	26	0
-18.4	0	-18	0
11.5	0	12	0
-6.8	0	-7	0
3.7	0	4	0
0	0	0	0
3.7	0	4	0
6.9	0	7	0
11.5	0	12	0
18.4	0	18	0
26.4	0	26	0
35.8	0	36	0
47.4	0	47	0
62.2	0	62	0
81.1	0	81	0
100.1	0	100	0
119	0	119	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE U 9-23

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 10:18:34 PM

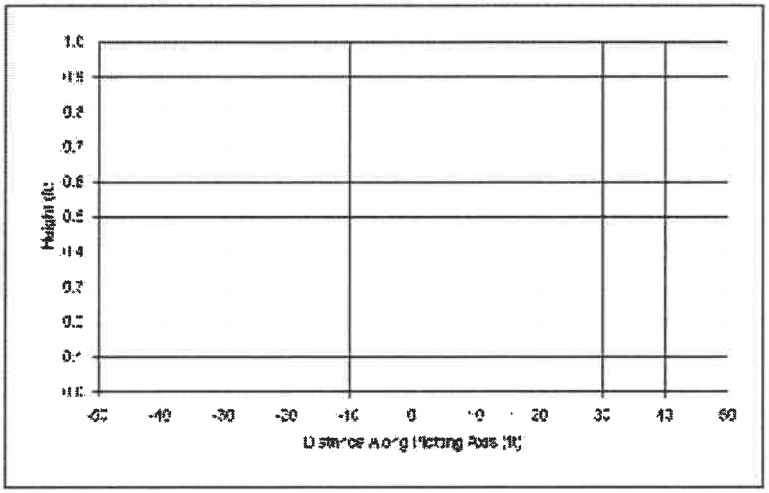
INPUT PARAMETERS

Application rate: 0.5 inch/day/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No constant head boundary used
Plotting axis from Y-Axis: 45 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 4.3 ft
Total volume applied: 0 cu ft

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
93.3	93.3	132	0
-78.5	-78.5	-111	0
63.6	63.6	90	0
-48.8	-48.8	-69	0
37.1	37.1	53	0
-28.1	-28.1	-40	0
20.7	20.7	29	0
-14.5	-14.5	-20	0
9	9	13	0
-5.4	-5.4	-8	0
-2.9	-2.9	-4	0
0	0	0	0
2.9	2.9	4	0
5.4	5.4	8	0
9	9	13	0
14.5	14.5	20	0
20.7	20.7	29	0
28.1	28.1	40	0
37.1	37.1	53	0
48.8	48.8	69	0
63.6	63.6	90	0
78.5	78.5	111	0
93.3	93.3	132	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AG= U21-23

ANALYST: ANTHONY ESPOSITO

DATE: 1/5/2022 TIME: 10:20:11 PM

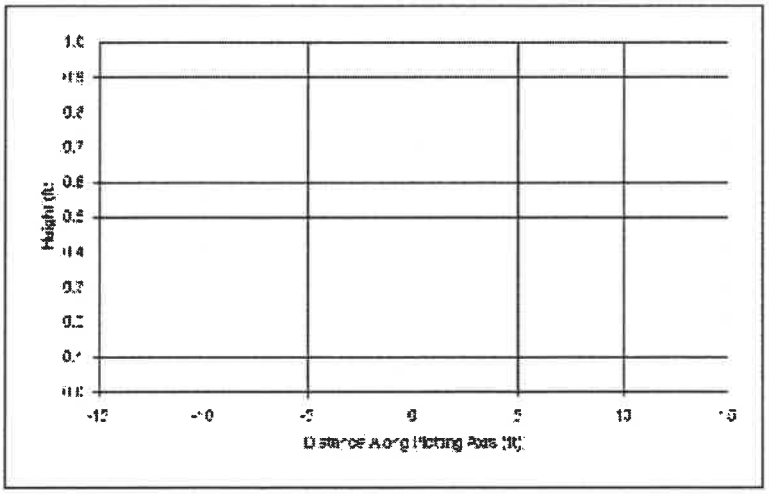
INPUT PARAMETERS

Application rate: 0.0 Thousand/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 47 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 41.2 ft
positive Y: 0 ft
Total volume applied: 0 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
41	0	41	0
-34.5	0	-34	0
28	0	28	0
-21.4	0	-21	0
16.3	0	16	0
-12.3	0	-12	0
9.1	0	9	0
-6.4	0	-6	0
4	0	4	0
-2.4	0	-2	0
-1.3	0	-1	0
0	0	0	0
1.3	0	1	0
2.4	0	2	0
4	0	4	0
6.4	0	6	0
9.1	0	9	0
12.3	0	12	0
16.3	0	16	0
21.4	0	21	0
28	0	28	0
34.5	0	34	0
41	0	41	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP.

PROJECT: THE CO AG= U20-24

ANALYST: ANTHONY ESPOSITO

DATE: 1/3/2022 TIME: 10:21:31 PM

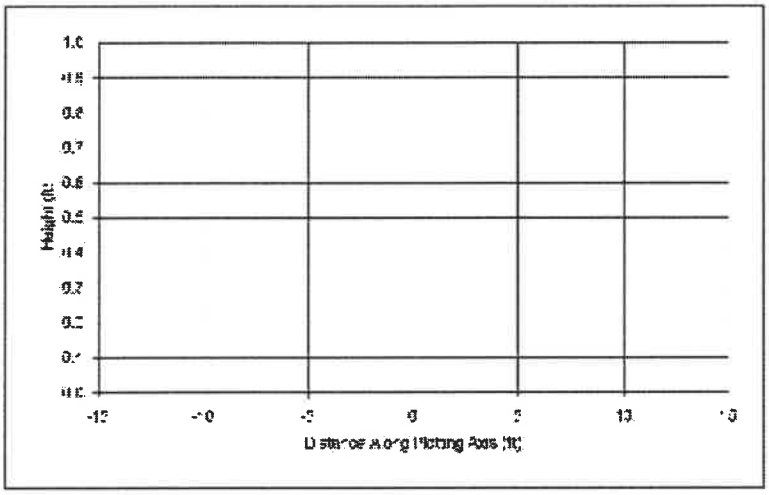
INPUT PARAMETERS

Application rate: 0.0 Thousand/sq ft
Duration of application: 72 hours
Fillable porosity: 0.2
Hydraulic conductivity: 50 ft/hour
Initial saturated thickness: 47 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 0 ft
Total volume applied: 0 cu ft

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-14	0	14	0
-11.8	0	-12	0
-9.5	0	-10	0
-7.2	0	-7	0
-5.0	0	-5	0
-2.7	0	-3	0
-0.5	0	-1	0
1.8	0	2	0
4.1	0	4	0
6.3	0	6	0
8.6	0	9	0
10.8	0	11	0
13.1	0	13	0
15.3	0	15	0
17.6	0	18	0
19.8	0	20	0
22.1	0	22	0
24.3	0	24	0
26.6	0	27	0
28.8	0	29	0
31.1	0	31	0
33.3	0	33	0
35.6	0	36	0
37.8	0	38	0
40.1	0	40	0
42.3	0	42	0
44.6	0	45	0
46.8	0	47	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CONS

PROJECT: THE CO AGE U25-26

ANALYST: ANTHONY ESPOSITO

DATE: 1/[illegible]/2022 TIME: [illegible]0:22:55 PM

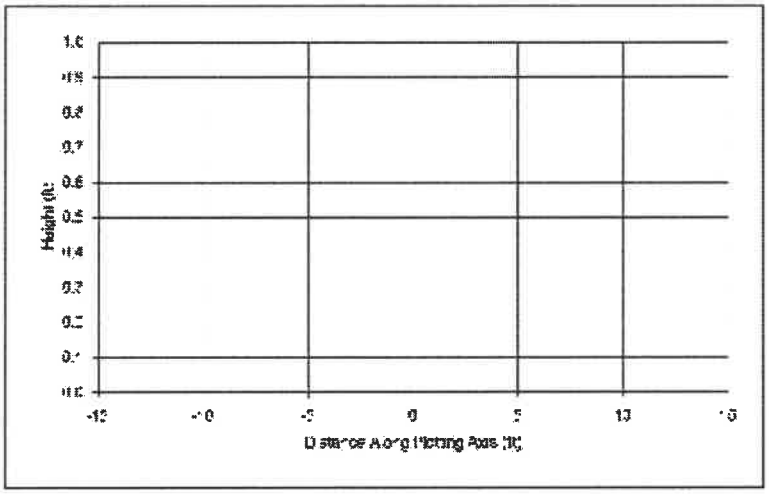
INPUT PARAMETERS

Application rate: [illegible] Thousand/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No-constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 0 ft
Total volume applied: 0 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
[illegible]4	0	14	0
[illegible]1.0	0	-12	0
9.5	0	-10	0
-7.2	0	-7	0
5.9	0	6	0
-4.2	0	-4	0
3.1	0	3	0
-2.2	0	-2	0
1.4	0	1	0
-0.8	0	-1	0
-0.4	0	0	0
0	0	0	0
0.4	0	0	0
0.8	0	1	0
1.4	0	1	0
2.2	0	2	0
3.1	0	3	0
4.2	0	4	0
5.6	0	6	0
7.3	0	7	0
9.5	0	10	0
11.8	0	12	0
14	0	14	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE 027-28

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 10:24:15 PM

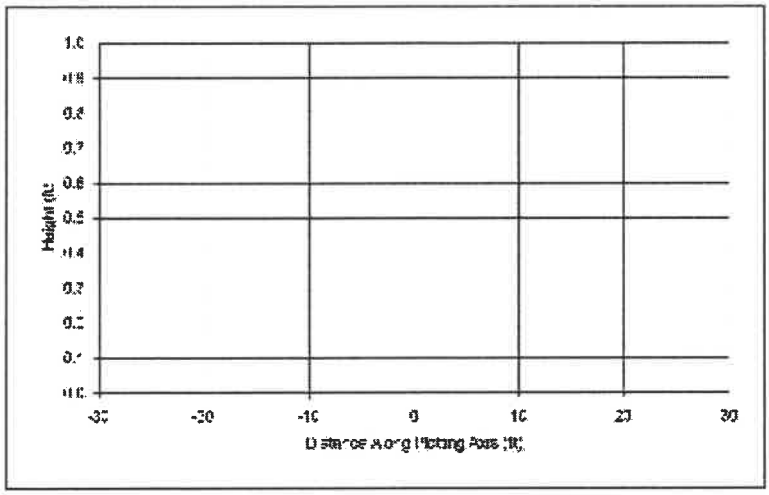
INPUT PARAMETERS

Application rate: 0.0 Mbtu/sec ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.5 ft
No-constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 0 ft
Total volume applied: 0 cu ft

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
14	0	14	0
-11.8	0	-12	0
9.5	0	10	0
-7.3	0	-7	0
5.6	0	6	0
-4.2	0	-4	0
3.1	0	3	0
-2.2	0	-2	0
1.4	0	1	0
-0.8	0	-1	0
-0.4	0	0	0
0	0	0	0
0.4	0	0	0
0.8	0	1	0
1.4	0	1	0
2.2	0	2	0
3.1	0	3	0
4.2	0	4	0
5.6	0	6	0
7.3	0	7	0
9.5	0	10	0
11.8	0	12	0
14	0	14	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE U20-32

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 10:27:02 PM

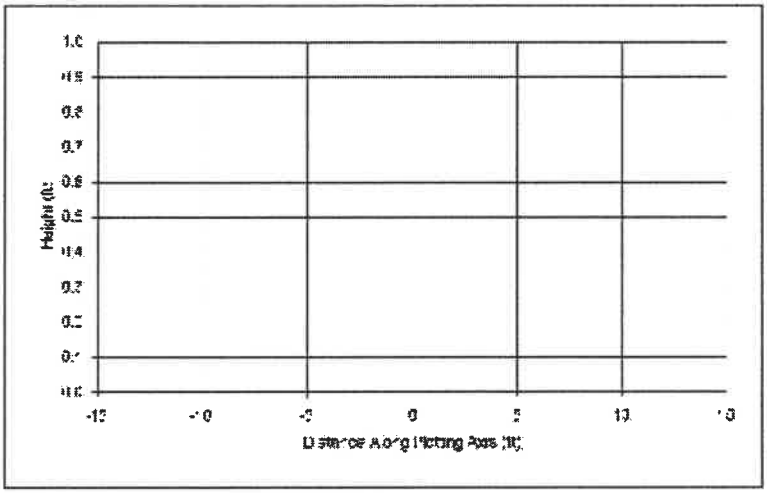
INPUT PARAMETERS

Application rate: 0.6 Thousand/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 47.1 ft
Width of application area: 8.6 ft
No constant head boundary used
Plotting axis from Y-Axis: 45 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 4.3 ft
Total volume applied: 0 cu ft

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
21.2	21.2	30	0
-17.8	-17.8	-25	0
-14.5	-14.5	-20	0
-11.1	-11.1	-16	0
8.4	8.4	12	0
-6.4	-6.4	-9	0
4.7	4.7	7	0
-3.3	-3.3	-5	0
2.1	2.1	3	0
-1.2	-1.2	-2	0
-0.7	-0.7	-1	0
0	0	0	0
0.7	0.7	1	0
1.2	1.7	2	0
2.1	2.1	3	0
3.3	3.3	5	0
4.7	4.7	7	0
6.4	6.4	9	0
8.4	8.4	12	0
11.1	11.1	16	0
14.5	14.5	20	0
17.8	17.8	25	0
21.2	21.2	30	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE 032

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 10:28:55 PM

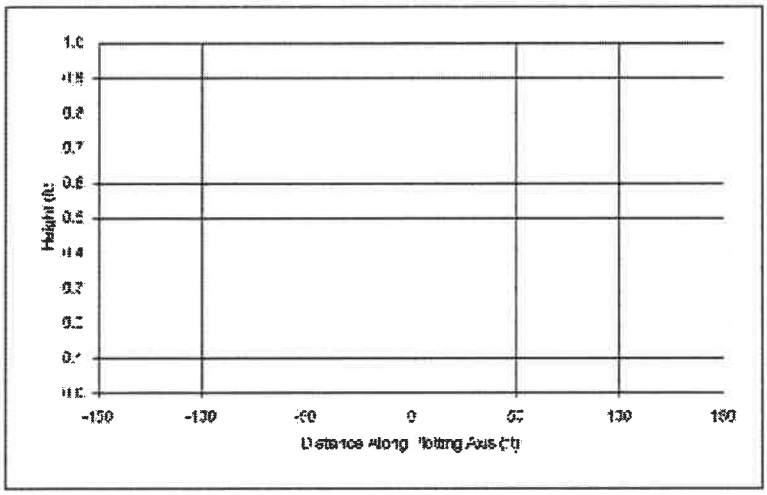
INPUT PARAMETERS

Application rate: 0.0 Mgd/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 50 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 22.5 ft
Width of application area: 8.5 ft
No-constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 4.2 ft
positive Y: 0 ft
Total volume applied: 0 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-15	0	15	0
-12.6	0	-13	0
-10.2	0	10	0
-7.8	0	-8	0
-6	0	6	0
-4.5	0	-5	0
-3.3	0	-3	0
-2.3	0	-2	0
-1.5	0	-1	0
-0.9	0	-1	0
-0.5	0	0	0
0	0	0	0
0.5	0	0	0
0.9	0	1	0
1.5	0	1	0
2.3	0	2	0
3.3	0	3	0
4.5	0	5	0
6	0	6	0
7.8	0	8	0
10.2	0	10	0
12.6	0	13	0
15	0	15	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE CH1

ANALYST: ANTHONY ESPOSITO

DATE: 1/15/2022 TIME: 10:30:32 PM

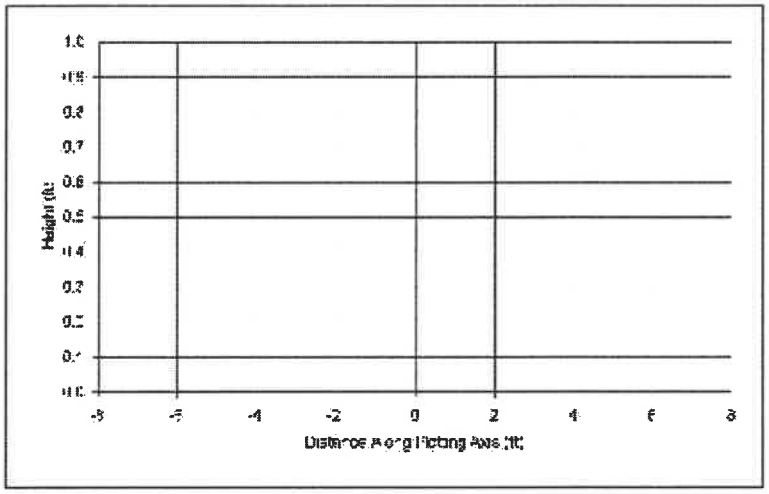
INPUT PARAMETERS

Application rate: 0.0 Mgd/acre ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 47 ft
Length of application area: 43 ft
Width of application area: 16.2 ft
No constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 8.2 ft
positive Y: 0 ft
Total volume applied: 0 cu ft

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-138	0	138	0
-114.4	0	-114	0
92.7	0	93	0
-71.1	0	-71	0
54.1	0	54	0
-40.9	0	-41	0
30.2	0	30	0
-21.1	0	-21	0
13.2	0	13	0
-7.5	0	-8	0
-4.3	0	-4	0
0	0	0	0
4.3	0	4	0
7.9	0	8	0
13.2	0	13	0
21.1	0	21	0
30.2	0	30	0
40.9	0	41	0
54.1	0	54	0
71.1	0	71	0
92.7	0	93	0
114.4	0	114	0
138	0	138	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE CH2

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 10:31:42 PM

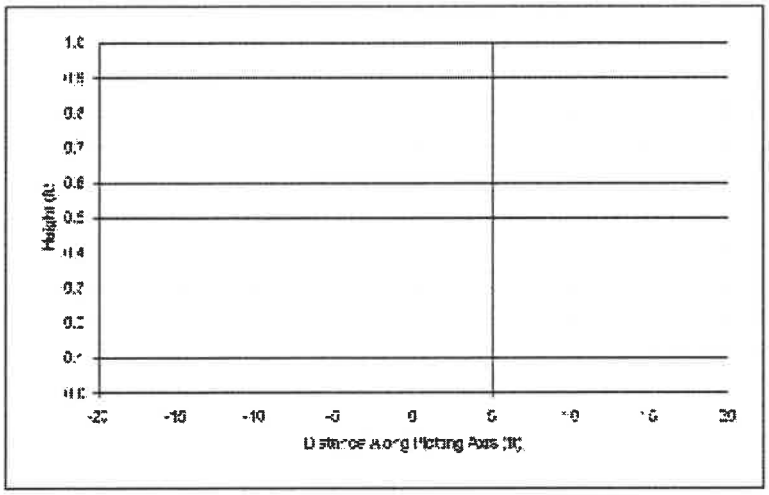
INPUT PARAMETERS

Application rate: 0.6 Units/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 50 ft/hour
Initial saturated thickness: 48 ft
Length of application area: 66.33 ft
Width of application area: 20.6 ft
No-constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area
positive X: 10.3 ft
positive Y: 0 ft
Total volume applied: 0 cu ft

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
7	0	7	0
-5.5	0	-5	0
-4.8	0	-5	0
-3.7	0	-4	0
-2.8	0	-3	0
-2.1	0	-2	0
-1.5	0	-2	0
-1.1	0	-1	0
0.7	0	1	0
-0.4	0	0	0
-0.2	0	0	0
0	0	0	0
0.2	0	0	0
0.4	0	0	0
0.7	0	1	0
1.1	0	1	0
1.6	0	2	0
2.1	0	2	0
2.6	0	3	0
3.7	0	4	0
4.8	0	5	0
5.9	0	6	0
7	0	7	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE CH3

ANALYST: ANTHONY ESPOSITO

DATE: 1/3/2022 TIME: 10:32:52 PM

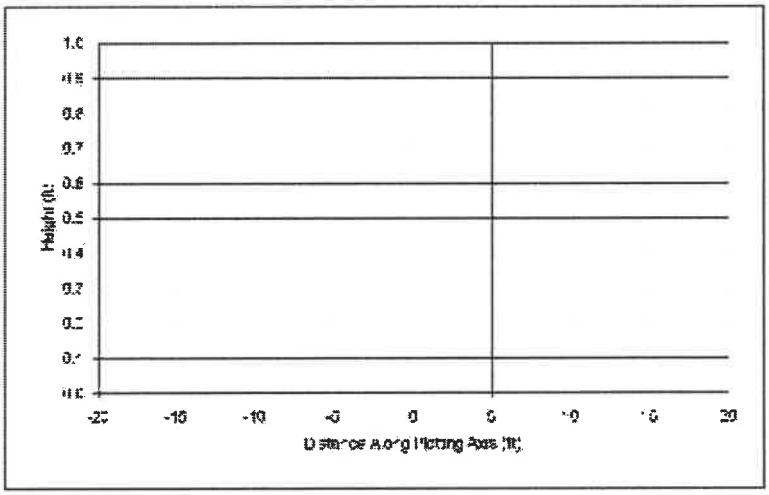
INPUT PARAMETERS

Application rate: 0.0 Thousand/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 46.1 ft
Width of application area: 46 ft
No constant head boundary used
Plotting axis from Y-Axis: 45 degrees
Edge of recharge area
positive X: 21.5 ft
positive Y: 21.5 ft
Total volume applied: 0 cf

MOUND RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-14.1	-14.1	-20	0
-11.3	-11.3	-17	0
9.9	9.9	14	0
-7.4	-7.4	-10	0
5.6	5.6	8	0
-4.2	-4.3	-6	0
3.1	3.1	4	0
-2.2	-2.2	-3	0
1.4	1.4	2	0
-0.8	-0.8	-1	0
-0.4	-0.4	-1	0
0	0	0	0
0.4	0.4	1	0
0.8	0.8	1	0
1.4	1.4	2	0
2.2	2.2	3	0
3.1	3.1	4	0
4.3	4.3	6	0
5.6	5.6	8	0
7.4	7.4	10	0
9.8	9.8	14	0
11.9	11.8	17	0
14.1	14.1	20	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP

PROJECT: THE CO AGE CH4

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 10:39:02 PM

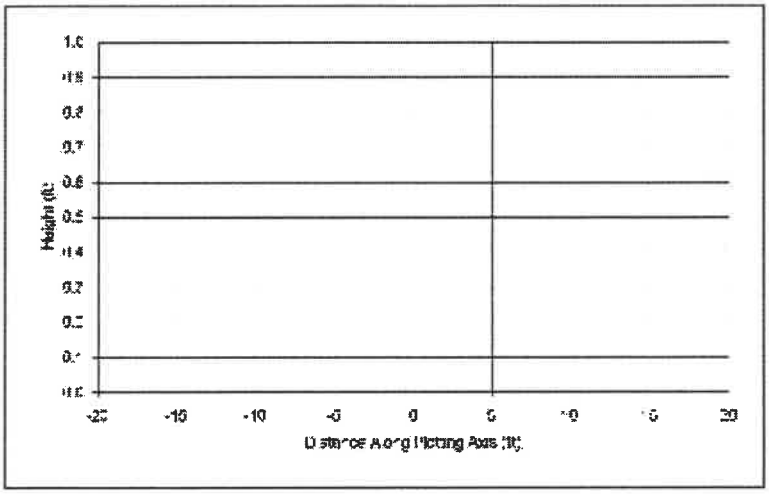
INPUT PARAMETERS

Application rate: 0.6 Thousand/sq ft
Duration of application: 72 hours
Effective porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 66 ft
Width of application area: 24.5 ft
No constant head boundary used
Plotting axis from Y-Axis: 0 degrees
Edge of recharge area
positive X: 0 ft
positive Y: 34.5 ft
Total volume applied: 0 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
0	17	17	0
0	-14.3	-14	0
0	11.6	12	0
0	-8.9	-9	0
0	6.8	7	0
0	-5.1	-5	0
0	3.8	4	0
0	-2.6	-3	0
0	1.6	2	0
0	-1	-1	0
0	-0.5	-1	0
0	0	0	0
0	0.5	1	0
0	1	1	0
0	1.6	2	0
0	2.8	3	0
0	3.8	4	0
0	5.1	5	0
0	6.9	7	0
0	8.8	9	0
0	11.6	12	0
0	14.3	14	0
0	17	17	0

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: SOUTH SHORE SURVEY CORP.

PROJECT: THE CO AGE CHO

ANALYST: ANTHONY ESPOSITO

DATE: 1/13/2022 TIME: 10:37:26 PM

INPUT PARAMETERS

Application rate: 0.0 Thousand/sq. ft
Duration of application: 72 hours
Fillable porosity: 0.2
Hydraulic conductivity: 30 ft/hour
Initial saturated thickness: 46 ft
Length of application area: 46.5 ft
Width of application area: 36 ft
No-constant head boundary used
Plotting axis from Y-Axis: 0 degrees
Edge of recharge area
positive X: 0 ft
positive Y: 24.8 ft
Total volume applied: 0 cu ft

MODFLOW RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
0	17	17	0
0	-14.3	-14	0
0	11.6	12	0
0	-8.9	-9	0
0	6.8	7	0
0	-5.1	-5	0
0	3.8	4	0
0	-2.6	-3	0
0	1.6	2	0
0	-1	-1	0
0	-0.5	-1	0
0	0	0	0
0	0.5	1	0
0	1	1	0
0	1.6	2	0
0	2.6	3	0
0	3.8	4	0
0	5.1	5	0
0	6.8	7	0
0	8.9	9	0
0	11.6	12	0
0	14.3	14	0
0	17	17	0