

**Engineering Report
for a
Existing Nursery and Landscape Business
In
Milton, Massachusetts**

Prepared by:

DeCelle-Burke and Associates, Inc.
1266 Furnace Brook Parkway, Unit 401
Quincy, MA 02169

Prepared for:

Thayer Nursery
270 Hillside Street
Milton, MA 02186

February 25, 2015

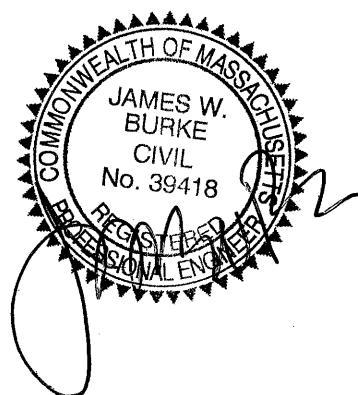


Table of Contents

Transmittal Letter

Section 1 –	Project Narrative Existing Conditions Proposed Conditions Stormwater Report
Section 2 –	Supporting Maps Assessor's Map USGS Map FEMA Panel Soils Map NHESP Map
Section 3-	Stormwater Management Operations and Maintenance Plan HydroCad Calculations

SECTION 1

PROJECT NARRATIVE

Existing Conditions

The project locus, 270 Hillside Street in Milton, Massachusetts is a 5.4 acre parcel of land located in the Residence A zoning district. The parcel is improved with two (2) single family dwellings, a 2-1/2 story shop building, a greenhouse and several large barns and sheds. The lot is accessed from Forest Street from a single curb cut that services a gravel parking area. The property abuts Hillside Street to the west, and Forest Street to the south. Residential properties abut the locus to the north and east.

The buildings are serviced by public water, private sewer, and overhead power and communications from the Hillside Street and Forest Street public layouts. No existing site drainage was found servicing the site. The site drains overland uncontrolled into abutting streets and private properties. The site topography ranges from a high elevation of 196 at the southeast corner to a low of 182 along the north eastern property boundary. The elevations are based on the North American Vertical Datum of 1988 (NAVD). The site is not in any FEMA mapped flood zone.

The primary use of the property is as a tree nursery and landscaping business. Operations on the property include but are not limited to tree planting and transplanting, transportation and storage of landscape materials such as mulch and stone dust, transportation of hardscape materials such as pave stone and concrete block, and the sale and storage of kiln dried firewood. The nursery also stocks Christmas trees and wreaths for seasonal sales.

Site soils for the parcel are defined by the Natural Resources Conservation Service (NRCS) as Woodbridge, a fine sandy loam. These soils are defined as moderately well drained sloping soils on top of hills, on the side slope and on toe slopes of uplands.

Proposed Conditions

The existing business operations on the site are being realigned to minimize visual, auditory and fugitive dust impacts to abutting properties. Hours of operation and rules regarding operations on site will be outlined under separate cover.

Fences outfitted with sound attenuating material will be installed along the property lines with residential abutters as shown on the site plans. These fences combined with new vegetative plantings will provide visual, noise and dust reduction to the maximum extent practicable.

To help mitigate runoff from leaving the site a drainage trench has been installed along the southeasterly property line. This trench will convey runoff to two leach pits that were installed behind the existing barn. Overland flow from the site will follow existing flow paths. Limited regrading to the site is proposed. The overland flow will flow to a new catch basin connected to a twelve (12) unit Cultec recharge system located in the northerly nursery stock area. The Cultecs will capture and recharge site runoff not captured by the trench. A ten (10) inch PVC overflow will connect the proposed catch basin to a catch basin in the Hillside Street Public layout.

Stormwater Management

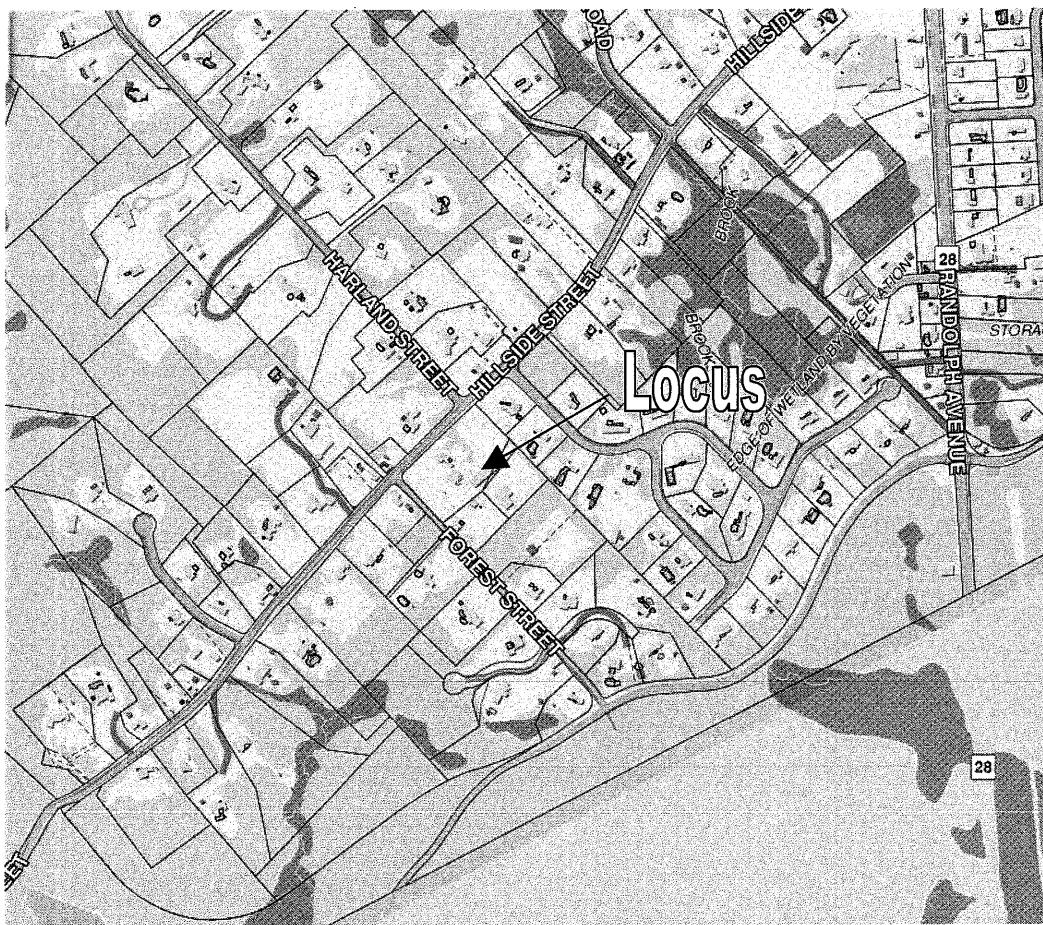
Thayer Nursery proposes to comply with Massachusetts Stormwater Management Policy by installing twelve Cultec chambers. The chambers will recharge the stormwater runoff generated by the buildings and parking areas. Calculations are attached that provide the hydraulic performance model of the chambers for the 2, 10, 25 & 100-year storm event. The infiltration chambers exceed the required water quality storage volume and eliminates any suspended solids contaminated runoff generated from this area.

Stormwater Runoff Comparison Chart for Pre- and Post-Construction

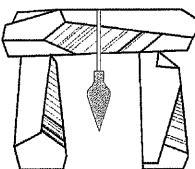
2-Year Storm (3.2")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	8.70	Flow off-site	8.55
10-Year Storm (4.7")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	16.52	Flow off-site	14.84
25-Year Storm (5.6")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	21.43	Flow off-site	18.30
100-Year Storm (7.0")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	29.38	Flow off-site	25.02

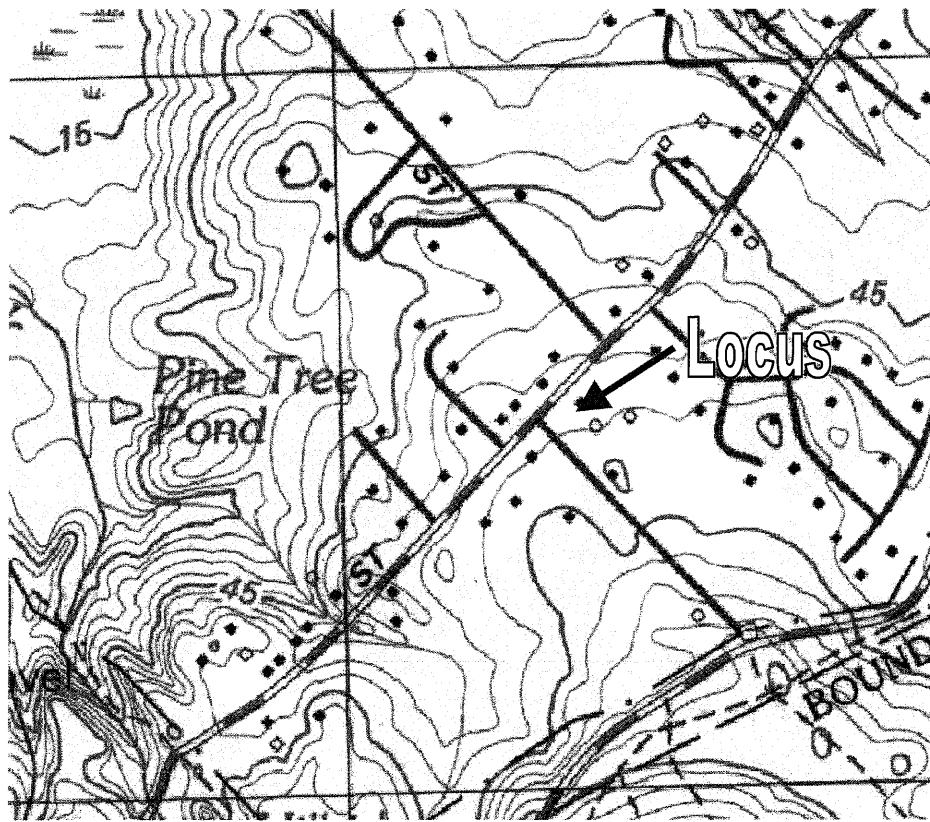
Section 2 – Supporting Maps

Assessor's Map
USGS Map
FEMA Panel
Soils Map
NHESP Map



Map N Block 12 Lots 1A, 1B & 1C

DATE: February 25, 2015	TITLE: ASSESSORS MAP	SCALE: NOT TO SCALE
PREPARED FOR:		PROJECT TITLE:
Thayer Nursery 270 Hillside Street Milton, MA		DeCELLE  BURKE & Associates, Inc. 1266 Furnace Brook Parkway, Unit 401, Quincy, MA 02169 (617) 405-5100 (O) (617) 405-5101 (F)



DATE:
February 25, 2015

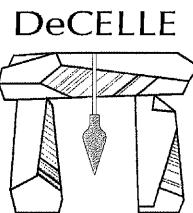
TITLE:

USGS MAP

SCALE:
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270 Hillside Street
Milton, MA

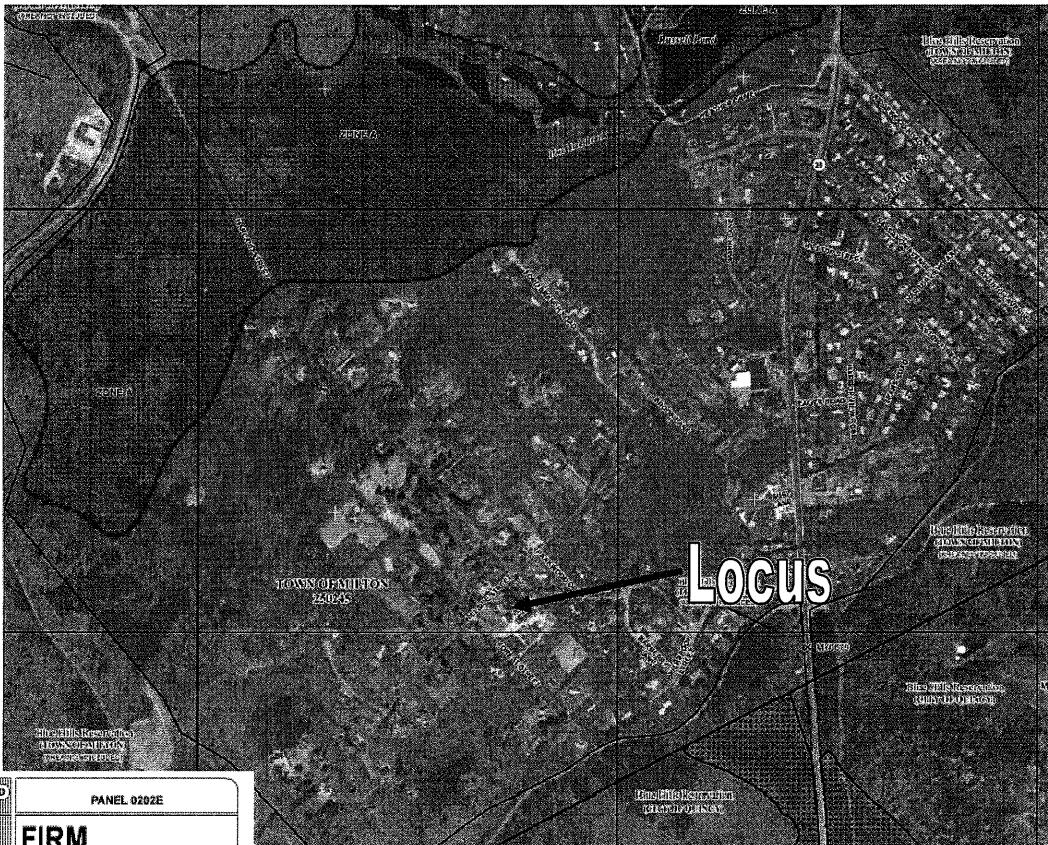


BURKE
& Associates, Inc.

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270 Hillside Street
Milton, MA



NATIONAL FLOOD INSURANCE PROGRAM	PANEL 0202E			
	FIRM FLOOD INSURANCE RATE MAP NORFOLK COUNTY, MASSACHUSETTS (ALL JURISDICTIONS)			
PANEL 202 OF 241				
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)				
CONTENTS				
COMMUNITY	BLM#	PANEL	BLF#	
NORTON, BOSTON JURIS 6-17-16	22856 22856	100	1	
Notice to User. The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.				
				
MAP NUMBER 25021C0202E				
EFFECTIVE DATE JULY 17, 2012				
Federal Emergency Management Agency				

DATE: **February 25, 2015** TITLE:

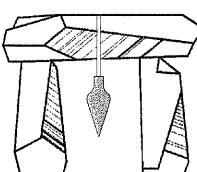
FEMA FLOOD MAP

SCALE:
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Milton, MA**

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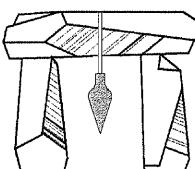


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BURKE

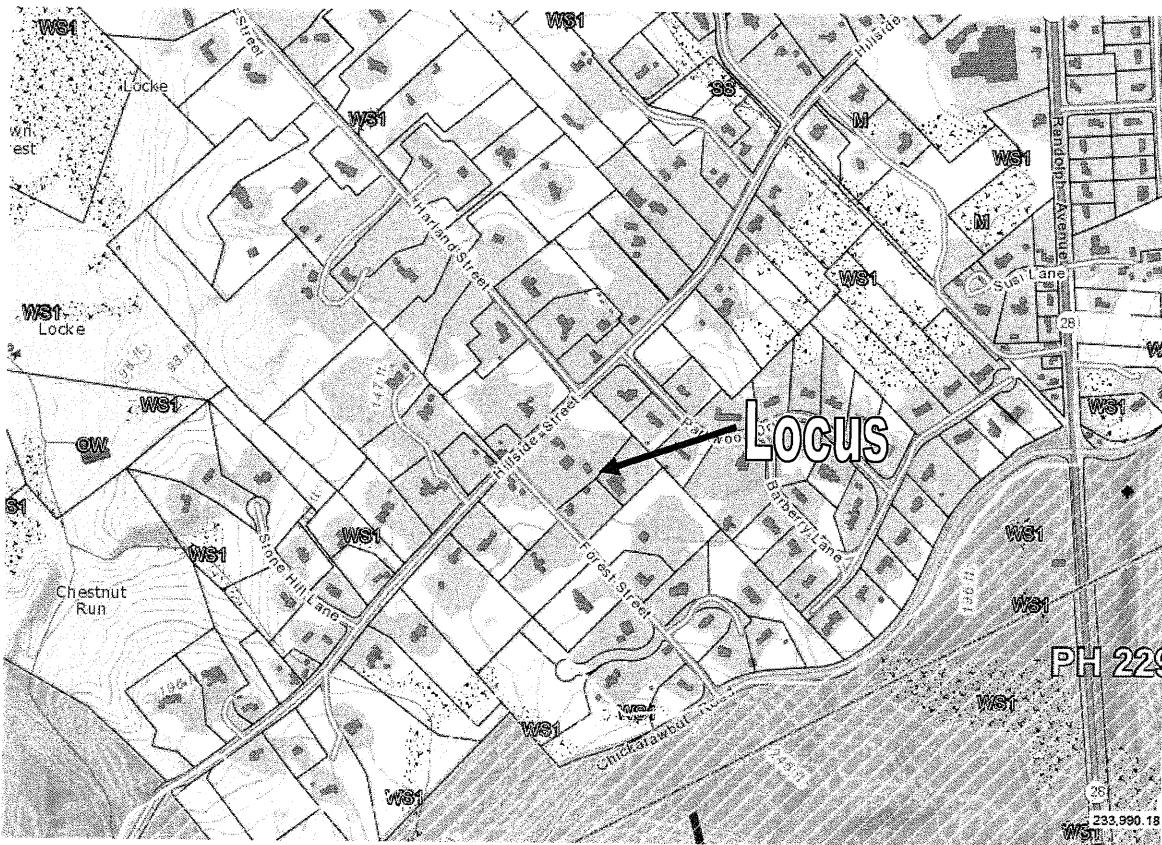
DORRE
& Associates, Inc.
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Soils Map provided by a website maintained by the University of California-Davis and supported by the Natural Resources Conservation Service.

DATE: February 25, 2015	TITLE: Soils MAP	SCALE: NOT TO SCALE
PREPARED FOR:	DeCELLE	PROJECT TITLE:
Thayer Nursery 270 Hillside Street Milton, MA	 BURKE & Associates, Inc.	Thayer Nursery 270 Hillside Street Milton, MA

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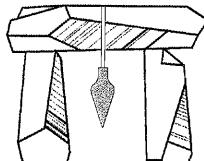


DATE: February 25, 2015	TITLE: NHESP MAP	SCALE: NOT TO SCALE
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PREPARED FOR:

**Thayer Nursery
270 Hillside Street
Milton, MA**

DeCELLE



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& Associates, Inc.**

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Milton, MA**

Section 3 – Stormwater Operation & Maintenance Plan

Structural Operations

Catch Basin

The catch basin was installed to remove trash, debris, sediment and a percentage of grease and oil from stormwater. Oil and grease will float on the surface of the pooled water and be trapped by an inverted elbow. To ensure maximum capacity and efficiency, the sumps will be cleaned when half of the available capacity of the deep sump has been used or at a minimum of once per year. The Manager shall inspect the manhole sumps at least twice per year. The Manager shall hire a contractor in good standing in the Commonwealth of Massachusetts with experience in cleaning stormwater sumps with a vacuum truck. All sediment and water retrieved from the tanks shall be disposed of by the hired company off-site in a legal manner. The Manager shall provide a written inspection report of which an example form is attached.

Underground Cultec Chambers

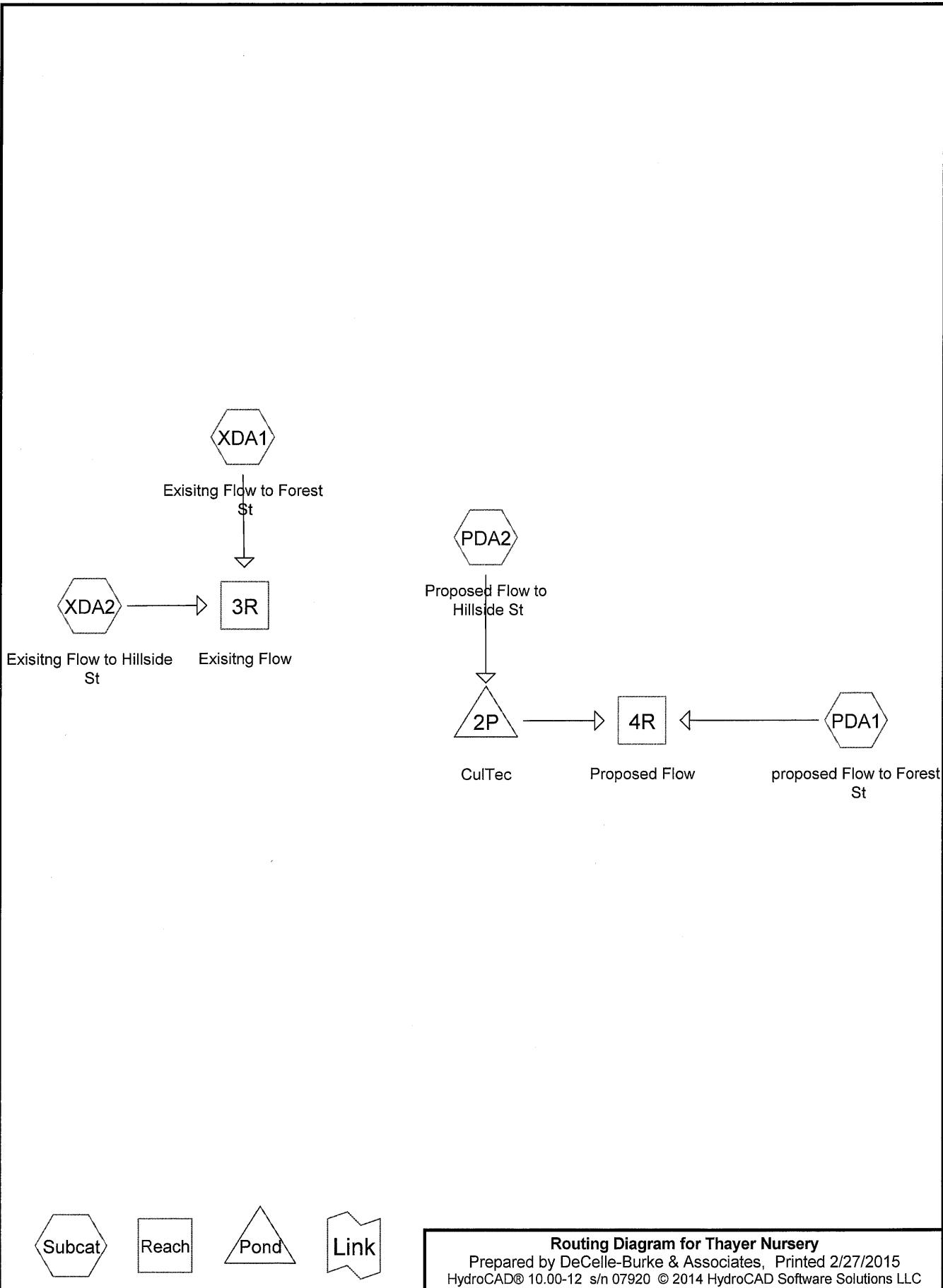
The underground Cultec chambers were installed to recharge stormwater runoff from the roof of the building. The benefit of this structural stormwater BMP is that the roof runoff does not generate sediment and the chambers shall remain effective for a long period of time. Inspection ports brought to grade are ineffective given the location of the chambers under a residential slab floor. Overflow ports at the building can be observed to determine the effectiveness of the chambers. The Site Manager shall inspect the chambers overflows during large storm events to determine the effectiveness.

Site Management

The site shall be inspected on a quarterly basis for rutting, potholes, broken berms, depressions eroded areas and any other site damage caused by vehicular or human activity. The landscaped areas shall be raked as necessary to maintain their grade. Grassed areas shall be raked out and seeded as needed to maintain an even vegetated surface. The Manager shall hire a contractor in good standing in the Commonwealth of Massachusetts with experience in paving to repair any potholes, broken berms or other damaged paved area. The Manager shall hire a landscaper in good standing in the Commonwealth of Massachusetts with experience in re-vegetating eroded areas.

Record Keeping

Records of the inspections and maintenance for the Non-Structural and Structural Operations performed or organized by Manager for the property shall be up to date and available for review and inspection. An example record keeping sheet is attached.



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Pond 2P: CulTec

Peak Elev=180.87' Storage=1,323 cf Inflow=6.10 cfs 0.405 af
Discarded=0.00 cfs 0.002 af Primary=6.03 cfs 0.396 af Outflow=6.03 cfs 0.398 af

Reach 3R: Existing Flow

Inflow=8.70 cfs 0.576 af
Outflow=8.70 cfs 0.576 af

Reach 4R: Proposed Flow

Inflow=8.55 cfs 0.568 af
Outflow=8.55 cfs 0.568 af

Subcatchment PDA1: proposed Flow to

Runoff Area=62,948 sf 2.81% Impervious Runoff Depth>1.43"
Tc=5.0 min CN=82 Runoff=2.60 cfs 0.172 af

Subcatchment PDA2: Proposed Flow to

Runoff Area=171,578 sf 13.26% Impervious Runoff Depth>1.23"
Tc=5.0 min CN=79 Runoff=6.10 cfs 0.405 af

Subcatchment XDA1: Existing Flow to

Runoff Area=62,948 sf 2.81% Impervious Runoff Depth>1.43"
Tc=5.0 min CN=82 Runoff=2.60 cfs 0.172 af

Subcatchment XDA2: Existing Flow to

Runoff Area=171,578 sf 15.03% Impervious Runoff Depth>1.23"
Tc=5.0 min CN=79 Runoff=6.10 cfs 0.405 af

Total Runoff Area = 10.768 ac Runoff Volume = 1.153 af Average Runoff Depth = 1.28"
88.90% Pervious = 9.573 ac 11.10% Impervious = 1.195 ac

Summary for Pond 2P: CulTec

Inflow Area = 3.939 ac, 13.26% Impervious, Inflow Depth > 1.23"
 Inflow = 6.10 cfs @ 12.08 hrs, Volume= 0.405 af
 Outflow = 6.03 cfs @ 12.11 hrs, Volume= 0.398 af, Atten= 1%, Lag= 1.5 min
 Discarded = 0.00 cfs @ 12.11 hrs, Volume= 0.002 af
 Primary = 6.03 cfs @ 12.11 hrs, Volume= 0.396 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 180.87' @ 12.11 hrs Surf.Area= 603 sf Storage= 1,323 cf

Plug-Flow detention time= 12.1 min calculated for 0.397 af (98% of inflow)
 Center-of-Mass det. time= 6.1 min (811.5 - 805.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	175.00'	593 cf	7.00'W x 86.17'L x 3.67'H Field A 2,212 cf Overall - 730 cf Embedded = 1,481 cf x 40.0% Voids
#2A	175.50'	730 cf	Cultec R-V8HD x 12 Inside #1 Effective Size= 55.2"W x 32.0"H => 8.68 sf x 7.50'L = 65.1 cf Overall Size= 60.0"W x 32.0"H x 8.00'L with 0.50' Overlap Row Length Adjustment= -5.83' x 8.68 sf x 1 rows
#3	181.00'	9,249 cf	Custom Stage Data (Prismatic) Listed below
		10,572 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.00	1,500	0	0
182.00	16,998	9,249	9,249

Device	Routing	Invert	Outlet Devices
#1	Primary	175.60'	10.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 175.60' / 175.60' S= 0.0000 '/' Cc= 0.900 n= 0.009 PVC, smooth interior, Flow Area= 0.55 sf
#2	Discarded	175.00'	0.170 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#3	Primary	180.80'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=180.61' (Free Discharge)
 2=Exfiltration (Controls 0.00 cfs)

Primary OutFlow Max=5.62 cfs @ 12.11 hrs HW=180.60' (Free Discharge)
 1=Culvert (Inlet Controls 5.62 cfs @ 10.31 fps)
 3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Reach 3R: Existing Flow

Inflow Area = 5.384 ac, 11.75% Impervious, Inflow Depth > 1.28"
 Inflow = 8.70 cfs @ 12.08 hrs, Volume= 0.576 af
 Outflow = 8.70 cfs @ 12.08 hrs, Volume= 0.576 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 4R: Proposed Flow

Inflow Area = 5.384 ac, 10.45% Impervious, Inflow Depth > 1.27"
 Inflow = 8.55 cfs @ 12.10 hrs, Volume= 0.568 af
 Outflow = 8.55 cfs @ 12.10 hrs, Volume= 0.568 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment PDA1: proposed Flow to Forest St

Runoff = 2.60 cfs @ 12.08 hrs, Volume= 0.172 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr Rainfall=3.20"

Area (sf)	CN	Description
1,464	98	Roofs, HSG B
13,311	75	Small grain, straight row, Good, HSG B
10,817	75	Small grain, straight row, Good, HSG B
7,539	61	>75% Grass cover, Good, HSG B
302	98	Paved parking, HSG B
21,106	96	Gravel surface, HSG B
8,409	79	<50% Grass cover, Poor, HSG B
62,948	82	Weighted Average
61,182		97.19% Pervious Area
1,766		2.81% Impervious Area

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

Summary for Subcatchment PDA2: Proposed Flow to Hillside St

Runoff = 6.10 cfs @ 12.08 hrs, Volume= 0.405 af, Depth> 1.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr Rainfall=3.20"

Thayer Nursery

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HydroCAD® 10.00-12 s/n 07920 © 2014 HydroCAD Software Solutions LLC

Type III 24-hr Rainfall=3.20"

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Page 5

Area (sf)	CN	Description	
1,837	98	Roofs, HSG B	
2,518	98	Roofs, HSG B	
6,197	98	Roofs, HSG B	
4,999	98	Roofs, HSG B	
4,215	98	Paved parking, HSG B	
2,554	98	Paved parking, HSG B	
19,494	61	>75% Grass cover, Good, HSG B	
3,111	61	>75% Grass cover, Good, HSG B	
7,334	73	Small grain, contoured, Good, HSG B	
31,891	73	Small grain, contoured, Good, HSG B	
2,900	79	<50% Grass cover, Poor, HSG B	
5,021	60	Woods, Fair, HSG B	
426	98	Unconnected pavement, HSG B	
79,081	82	Dirt roads, HSG B	
171,578	79	Weighted Average	
148,832		86.74% Pervious Area	
22,746		13.26% Impervious Area	
426		1.87% Unconnected	
Tc (min)	Length (feet)	Slope (ft/ft)	
		Velocity (ft/sec)	
		Capacity (cfs)	
5.0			Direct Entry,

Summary for Subcatchment XDA1: Existing Flow to Forest St

Runoff = 2.60 cfs @ 12.08 hrs, Volume= 0.172 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=3.20"

Area (sf)	CN	Description	
1,464	98	Roofs, HSG B	
13,311	75	Small grain, straight row, Good, HSG B	
10,817	75	Small grain, straight row, Good, HSG B	
7,539	61	>75% Grass cover, Good, HSG B	
302	98	Paved parking, HSG B	
21,106	96	Gravel surface, HSG B	
8,409	79	<50% Grass cover, Poor, HSG B	
62,948	82	Weighted Average	
61,182		97.19% Pervious Area	
1,766		2.81% Impervious Area	
Tc (min)	Length (feet)	Slope (ft/ft)	
		Velocity (ft/sec)	
		Capacity (cfs)	
5.0			Direct Entry,

Summary for Subcatchment XDA2: Existing Flow to Hillside St

Runoff = 6.10 cfs @ 12.08 hrs, Volume= 0.405 af, Depth> 1.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=3.20"

Area (sf)	CN	Description
1,837	98	Roofs, HSG B
2,518	98	Roofs, HSG B
6,197	98	Roofs, HSG B
4,999	98	Roofs, HSG B
4,215	98	Paved parking, HSG B
5,594	98	Paved parking, HSG B
19,494	61	>75% Grass cover, Good, HSG B
3,111	61	>75% Grass cover, Good, HSG B
5,687	73	Small grain, contoured, Good, HSG B
30,498	73	Small grain, contoured, Good, HSG B
2,900	79	<50% Grass cover, Poor, HSG B
5,021	60	Woods, Fair, HSG B
426	98	Unconnected pavement, HSG B
79,081	82	Dirt roads, HSG B
171,578	79	Weighted Average
145,792		84.97% Pervious Area
25,786		15.03% Impervious Area
426		1.65% Unconnected

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

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Pond 2P: CulTec

Peak Elev=181.05' Storage=1,825 cf Inflow=11.77 cfs 0.779 af
Discarded=0.01 cfs 0.002 af Primary=10.29 cfs 0.769 af Outflow=10.30 cfs 0.771 af

Reach 3R: Existng Flow

Inflow=16.52 cfs 1.095 af
Outflow=16.52 cfs 1.095 af

Reach 4R: Proposed Flow

Inflow=14.84 cfs 1.086 af
Outflow=14.84 cfs 1.086 af

Subcatchment PDA1: proposed Flow to

Runoff Area=62,948 sf 2.81% Impervious Runoff Depth>2.63"
Tc=5.0 min CN=82 Runoff=4.76 cfs 0.317 af

Subcatchment PDA2: Proposed Flow to

Runoff Area=171,578 sf 13.26% Impervious Runoff Depth>2.37"
Tc=5.0 min CN=79 Runoff=11.77 cfs 0.779 af

Subcatchment XDA1: Existng Flow to

Runoff Area=62,948 sf 2.81% Impervious Runoff Depth>2.63"
Tc=5.0 min CN=82 Runoff=4.76 cfs 0.317 af

Subcatchment XDA2: Existng Flow to

Runoff Area=171,578 sf 15.03% Impervious Runoff Depth>2.37"
Tc=5.0 min CN=79 Runoff=11.77 cfs 0.779 af

Total Runoff Area = 10.768 ac Runoff Volume = 2.191 af Average Runoff Depth = 2.44"
88.90% Pervious = 9.573 ac 11.10% Impervious = 1.195 ac

Summary for Pond 2P: CulTec

Inflow Area = 3.939 ac, 13.26% Impervious, Inflow Depth > 2.37"
 Inflow = 11.77 cfs @ 12.08 hrs, Volume= 0.779 af
 Outflow = 10.30 cfs @ 12.12 hrs, Volume= 0.771 af, Atten= 12%, Lag= 2.6 min
 Discarded = 0.01 cfs @ 12.12 hrs, Volume= 0.002 af
 Primary = 10.29 cfs @ 12.12 hrs, Volume= 0.769 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 181.05' @ 12.12 hrs Surf.Area= 2,945 sf Storage= 1,825 cf

Plug-Flow detention time= 8.6 min calculated for 0.771 af (99% of inflow)
 Center-of-Mass det. time= 4.9 min (795.6 - 790.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	175.00'	593 cf	7.00"W x 86.17'L x 3.67'H Field A 2,212 cf Overall - 730 cf Embedded = 1,481 cf x 40.0% Voids
#2A	175.50'	730 cf	Cultec R-V8HD x 12 Inside #1 Effective Size= 55.2"W x 32.0"H => 8.68 sf x 7.50'L = 65.1 cf Overall Size= 60.0"W x 32.0"H x 8.00'L with 0.50' Overlap Row Length Adjustment= -5.83' x 8.68 sf x 1 rows
#3	181.00'	9,249 cf	Custom Stage Data (Prismatic) Listed below
		10,572 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.00	1,500	0	0
182.00	16,998	9,249	9,249

Device	Routing	Invert	Outlet Devices
#1	Primary	175.60'	10.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 175.60' / 175.60' S= 0.0000 '/' Cc= 0.900 n= 0.009 PVC, smooth interior, Flow Area= 0.55 sf
#2	Discarded	175.00'	0.170 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#3	Primary	180.80'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.01 cfs @ 12.12 hrs HW=181.05' (Free Discharge)
 ↑ 2=Exfiltration (Controls 0.01 cfs)

Primary OutFlow Max=10.14 cfs @ 12.12 hrs HW=181.05' (Free Discharge)
 ↑ 1=Culvert (Inlet Controls 5.89 cfs @ 10.80 fps)
 3=Broad-Crested Rectangular Weir (Weir Controls 4.25 cfs @ 1.42 fps)

Summary for Reach 3R: Existing Flow

Inflow Area = 5.384 ac, 11.75% Impervious, Inflow Depth > 2.44"

Inflow = 16.52 cfs @ 12.08 hrs, Volume= 1.095 af

Outflow = 16.52 cfs @ 12.08 hrs, Volume= 1.095 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 4R: Proposed Flow

Inflow Area = 5.384 ac, 10.45% Impervious, Inflow Depth > 2.42"

Inflow = 14.84 cfs @ 12.10 hrs, Volume= 1.086 af

Outflow = 14.84 cfs @ 12.10 hrs, Volume= 1.086 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment PDA1: proposed Flow to Forest St

Runoff = 4.76 cfs @ 12.08 hrs, Volume= 0.317 af, Depth> 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Type III 24-hr Rainfall=4.70"

Area (sf)	CN	Description
1,464	98	Roofs, HSG B
13,311	75	Small grain, straight row, Good, HSG B
10,817	75	Small grain, straight row, Good, HSG B
7,539	61	>75% Grass cover, Good, HSG B
302	98	Paved parking, HSG B
21,106	96	Gravel surface, HSG B
8,409	79	<50% Grass cover, Poor, HSG B
62,948	82	Weighted Average
61,182		97.19% Pervious Area
1,766		2.81% Impervious Area

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

Summary for Subcatchment PDA2: Proposed Flow to Hillside St

Runoff = 11.77 cfs @ 12.08 hrs, Volume= 0.779 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Type III 24-hr Rainfall=4.70"

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Type III 24-hr Rainfall=4.70"

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Page 4

Area (sf)	CN	Description
1,837	98	Roofs, HSG B
2,518	98	Roofs, HSG B
6,197	98	Roofs, HSG B
4,999	98	Roofs, HSG B
4,215	98	Paved parking, HSG B
2,554	98	Paved parking, HSG B
19,494	61	>75% Grass cover, Good, HSG B
3,111	61	>75% Grass cover, Good, HSG B
7,334	73	Small grain, contoured, Good, HSG B
31,891	73	Small grain, contoured, Good, HSG B
2,900	79	<50% Grass cover, Poor, HSG B
5,021	60	Woods, Fair, HSG B
426	98	Unconnected pavement, HSG B
79,081	82	Dirt roads, HSG B
171,578	79	Weighted Average
148,832		86.74% Pervious Area
22,746		13.26% Impervious Area
426		1.87% Unconnected
Tc (min)	Length (feet)	Slope (ft/ft)
		Velocity (ft/sec)
		Capacity (cfs)
5.0		Direct Entry,

Summary for Subcatchment XDA1: Existing Flow to Forest St

Runoff = 4.76 cfs @ 12.08 hrs, Volume= 0.317 af, Depth> 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=4.70"

Area (sf)	CN	Description
1,464	98	Roofs, HSG B
13,311	75	Small grain, straight row, Good, HSG B
10,817	75	Small grain, straight row, Good, HSG B
7,539	61	>75% Grass cover, Good, HSG B
302	98	Paved parking, HSG B
21,106	96	Gravel surface, HSG B
8,409	79	<50% Grass cover, Poor, HSG B
62,948	82	Weighted Average
61,182		97.19% Pervious Area
1,766		2.81% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft)
		Velocity (ft/sec)
		Capacity (cfs)
5.0		Direct Entry,

Summary for Subcatchment XDA2: Existing Flow to Hillside St

Runoff = 11.77 cfs @ 12.08 hrs, Volume= 0.779 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=4.70"

Area (sf)	CN	Description
1,837	98	Roofs, HSG B
2,518	98	Roofs, HSG B
6,197	98	Roofs, HSG B
4,999	98	Roofs, HSG B
4,215	98	Paved parking, HSG B
5,594	98	Paved parking, HSG B
19,494	61	>75% Grass cover, Good, HSG B
3,111	61	>75% Grass cover, Good, HSG B
5,687	73	Small grain, contoured, Good, HSG B
30,498	73	Small grain, contoured, Good, HSG B
2,900	79	<50% Grass cover, Poor, HSG B
5,021	60	Woods, Fair, HSG B
426	98	Unconnected pavement, HSG B
79,081	82	Dirt roads, HSG B
171,578	79	Weighted Average
145,792		84.97% Pervious Area
25,786		15.03% Impervious Area
426		1.65% Unconnected

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

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Pond 2P: CulTec

Peak Elev=181.14' Storage=2,594 cf Inflow=15.34 cfs 1.021 af
Discarded=0.02 cfs 0.003 af Primary=12.75 cfs 1.011 af Outflow=12.77 cfs 1.013 af

Reach 3R: Existng Flow

Inflow=21.43 cfs 1.430 af
Outflow=21.43 cfs 1.430 af

Reach 4R: Proposed Flow

Inflow=18.30 cfs 1.420 af
Outflow=18.30 cfs 1.420 af

Subcatchment PDA1: proposed Flow to

Runoff Area=62,948 sf 2.81% Impervious Runoff Depth>3.40"
Tc=5.0 min CN=82 Runoff=6.13 cfs 0.409 af

Subcatchment PDA2: Proposed Flow to

Runoff Area=171,578 sf 13.26% Impervious Runoff Depth>3.11"
Tc=5.0 min CN=79 Runoff=15.34 cfs 1.021 af

Subcatchment XDA1: Existng Flow to

Runoff Area=62,948 sf 2.81% Impervious Runoff Depth>3.40"
Tc=5.0 min CN=82 Runoff=6.13 cfs 0.409 af

Subcatchment XDA2: Existng Flow to

Runoff Area=171,578 sf 15.03% Impervious Runoff Depth>3.11"
Tc=5.0 min CN=79 Runoff=15.34 cfs 1.021 af

Total Runoff Area = 10.768 ac Runoff Volume = 2.860 af Average Runoff Depth = 3.19"
88.90% Pervious = 9.573 ac 11.10% Impervious = 1.195 ac

Summary for Pond 2P: CulTec

Inflow Area = 3.939 ac, 13.26% Impervious, Inflow Depth > 3.11"

Inflow = 15.34 cfs @ 12.08 hrs, Volume= 1.021 af

Outflow = 12.77 cfs @ 12.13 hrs, Volume= 1.013 af, Atten= 17%, Lag= 3.4 min

Discarded = 0.02 cfs @ 12.13 hrs, Volume= 0.003 af

Primary = 12.75 cfs @ 12.13 hrs, Volume= 1.011 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 181.14' @ 12.13 hrs Surf.Area= 4,233 sf Storage= 2,594 cf

Plug-Flow detention time= 7.5 min calculated for 1.010 af (99% of inflow)

Center-of-Mass det. time= 4.6 min (789.0 - 784.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	175.00'	593 cf	7.00'W x 86.17'L x 3.67'H Field A 2,212 cf Overall - 730 cf Embedded = 1,481 cf x 40.0% Voids
#2A	175.50'	730 cf	Cultec R-V8HD x 12 Inside #1 Effective Size= 55.2" W x 32.0" H => 8.68 sf x 7.50'L = 65.1 cf Overall Size= 60.0" W x 32.0" H x 8.00'L with 0.50' Overlap Row Length Adjustment= -5.83' x 8.68 sf x 1 rows
#3	181.00'	9,249 cf	Custom Stage Data (Prismatic) Listed below
		10,572 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.00	1,500	0	0
182.00	16,998	9,249	9,249

Device	Routing	Invert	Outlet Devices
#1	Primary	175.60'	10.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 175.60' / 175.60' S= 0.0000 '/' Cc= 0.900 n= 0.009 PVC, smooth interior, Flow Area= 0.55 sf
#2	Discarded	175.00'	0.170 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#3	Primary	180.80'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.02 cfs @ 12.13 hrs HW=181.13' (Free Discharge)

↑ 2=Exfiltration (Controls 0.02 cfs)

Primary OutFlow Max=12.54 cfs @ 12.13 hrs HW=181.13' (Free Discharge)

↑ 1=Culvert (Inlet Controls 5.94 cfs @ 10.89 fps)

↓ 3=Broad-Crested Rectangular Weir (Weir Controls 6.60 cfs @ 1.66 fps)

Summary for Reach 3R: Existing Flow

Inflow Area = 5.384 ac, 11.75% Impervious, Inflow Depth > 3.19"
 Inflow = 21.43 cfs @ 12.08 hrs, Volume= 1.430 af
 Outflow = 21.43 cfs @ 12.08 hrs, Volume= 1.430 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 4R: Proposed Flow

Inflow Area = 5.384 ac, 10.45% Impervious, Inflow Depth > 3.16"
 Inflow = 18.30 cfs @ 12.11 hrs, Volume= 1.420 af
 Outflow = 18.30 cfs @ 12.11 hrs, Volume= 1.420 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment PDA1: proposed Flow to Forest St

Runoff = 6.13 cfs @ 12.07 hrs, Volume= 0.409 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr Rainfall=5.60"

Area (sf)	CN	Description
1,464	98	Roofs, HSG B
13,311	75	Small grain, straight row, Good, HSG B
10,817	75	Small grain, straight row, Good, HSG B
7,539	61	>75% Grass cover, Good, HSG B
302	98	Paved parking, HSG B
21,106	96	Gravel surface, HSG B
8,409	79	<50% Grass cover, Poor, HSG B
62,948	82	Weighted Average
61,182		97.19% Pervious Area
1,766		2.81% Impervious Area

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

Summary for Subcatchment PDA2: Proposed Flow to Hillside St

Runoff = 15.34 cfs @ 12.08 hrs, Volume= 1.021 af, Depth> 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr Rainfall=5.60"

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Type III 24-hr Rainfall=5.60"

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Page 4

Area (sf)	CN	Description
1,837	98	Roofs, HSG B
2,518	98	Roofs, HSG B
6,197	98	Roofs, HSG B
4,999	98	Roofs, HSG B
4,215	98	Paved parking, HSG B
2,554	98	Paved parking, HSG B
19,494	61	>75% Grass cover, Good, HSG B
3,111	61	>75% Grass cover, Good, HSG B
7,334	73	Small grain, contoured, Good, HSG B
31,891	73	Small grain, contoured, Good, HSG B
2,900	79	<50% Grass cover, Poor, HSG B
5,021	60	Woods, Fair, HSG B
426	98	Unconnected pavement, HSG B
79,081	82	Dirt roads, HSG B
171,578	79	Weighted Average
148,832		86.74% Pervious Area
22,746		13.26% Impervious Area
426		1.87% Unconnected

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

Summary for Subcatchment XDA1: Existing Flow to Forest St

Runoff = 6.13 cfs @ 12.07 hrs, Volume= 0.409 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=5.60"

Area (sf)	CN	Description
1,464	98	Roofs, HSG B
13,311	75	Small grain, straight row, Good, HSG B
10,817	75	Small grain, straight row, Good, HSG B
7,539	61	>75% Grass cover, Good, HSG B
302	98	Paved parking, HSG B
21,106	96	Gravel surface, HSG B
8,409	79	<50% Grass cover, Poor, HSG B
62,948	82	Weighted Average
61,182		97.19% Pervious Area
1,766		2.81% Impervious Area

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

Summary for Subcatchment XDA2: Existing Flow to Hillside St

Runoff = 15.34 cfs @ 12.08 hrs, Volume= 1.021 af, Depth> 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=5.60"

Area (sf)	CN	Description
1,837	98	Roofs, HSG B
2,518	98	Roofs, HSG B
6,197	98	Roofs, HSG B
4,999	98	Roofs, HSG B
4,215	98	Paved parking, HSG B
5,594	98	Paved parking, HSG B
19,494	61	>75% Grass cover, Good, HSG B
3,111	61	>75% Grass cover, Good, HSG B
5,687	73	Small grain, contoured, Good, HSG B
30,498	73	Small grain, contoured, Good, HSG B
2,900	79	<50% Grass cover, Poor, HSG B
5,021	60	Woods, Fair, HSG B
426	98	Unconnected pavement, HSG B
79,081	82	Dirt roads, HSG B
171,578	79	Weighted Average
145,792		84.97% Pervious Area
25,786		15.03% Impervious Area
426		1.65% Unconnected

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

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Pond 2P: CulTecPeak Elev=181.27' Storage=3,826 cf Inflow=21.13 cfs 1.413 af
Discarded=0.02 cfs 0.003 af Primary=17.57 cfs 1.402 af Outflow=17.60 cfs 1.405 af**Reach 3R: Existing Flow**Inflow=29.38 cfs 1.971 af
Outflow=29.38 cfs 1.971 af**Reach 4R: Proposed Flow**Inflow=25.02 cfs 1.960 af
Outflow=25.02 cfs 1.960 af**Subcatchment PDA1: proposed Flow to**Runoff Area=62,948 sf 2.81% Impervious Runoff Depth>4.63"
Tc=5.0 min CN=82 Runoff=8.24 cfs 0.558 af**Subcatchment PDA2: Proposed Flow to**Runoff Area=171,578 sf 13.26% Impervious Runoff Depth>4.31"
Tc=5.0 min CN=79 Runoff=21.13 cfs 1.413 af**Subcatchment XDA1: Existing Flow to**Runoff Area=62,948 sf 2.81% Impervious Runoff Depth>4.63"
Tc=5.0 min CN=82 Runoff=8.24 cfs 0.558 af**Subcatchment XDA2: Existing Flow to**Runoff Area=171,578 sf 15.03% Impervious Runoff Depth>4.31"
Tc=5.0 min CN=79 Runoff=21.13 cfs 1.413 af**Total Runoff Area = 10.768 ac Runoff Volume = 3.942 af Average Runoff Depth = 4.39"**
88.90% Pervious = 9.573 ac 11.10% Impervious = 1.195 ac

Summary for Pond 2P: CulTec

Inflow Area = 3.939 ac, 13.26% Impervious, Inflow Depth > 4.31"

Inflow = 21.13 cfs @ 12.07 hrs, Volume= 1.413 af

Outflow = 17.60 cfs @ 12.13 hrs, Volume= 1.405 af, Atten= 17%, Lag= 3.4 min

Discarded = 0.02 cfs @ 12.13 hrs, Volume= 0.003 af

Primary = 17.57 cfs @ 12.13 hrs, Volume= 1.402 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 181.27' @ 12.13 hrs Surf.Area= 6,297 sf Storage= 3,826 cf

Plug-Flow detention time= 6.6 min calculated for 1.405 af (99% of inflow)

Center-of-Mass det. time= 4.3 min (781.1 - 776.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	175.00'	593 cf	7.00'W x 86.17'L x 3.67'H Field A 2,212 cf Overall - 730 cf Embedded = 1,481 cf x 40.0% Voids
#2A	175.50'	730 cf	Cultec R-V8HD x 12 Inside #1 Effective Size= 55.2" W x 32.0" H => 8.68 sf x 7.50'L = 65.1 cf Overall Size= 60.0" W x 32.0" H x 8.00'L with 0.50' Overlap Row Length Adjustment= -5.83' x 8.68 sf x 1 rows
#3	181.00'	9,249 cf	Custom Stage Data (Prismatic) Listed below
		10,572 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.00	1,500	0	0
182.00	16,998	9,249	9,249

Device	Routing	Invert	Outlet Devices
#1	Primary	175.60'	10.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 175.60' / 175.60' S= 0.0000 '/' Cc= 0.900 n= 0.009 PVC, smooth interior, Flow Area= 0.55 sf
#2	Discarded	175.00'	0.170 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 0.00'
#3	Primary	180.80'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.02 cfs @ 12.13 hrs HW=181.26' (Free Discharge)

↑ 2=Exfiltration (Controls 0.02 cfs)

Primary OutFlow Max=17.23 cfs @ 12.13 hrs HW=181.26' (Free Discharge)

↑ 1=Culvert (Inlet Controls 6.01 cfs @ 11.03 fps)

↓ 3=Broad-Crested Rectangular Weir (Weir Controls 11.22 cfs @ 2.02 fps)

Summary for Reach 3R: Existing Flow

Inflow Area = 5.384 ac, 11.75% Impervious, Inflow Depth > 4.39"

Inflow = 29.38 cfs @ 12.07 hrs, Volume= 1.971 af

Outflow = 29.38 cfs @ 12.07 hrs, Volume= 1.971 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 4R: Proposed Flow

Inflow Area = 5.384 ac, 10.45% Impervious, Inflow Depth > 4.37"

Inflow = 25.02 cfs @ 12.11 hrs, Volume= 1.960 af

Outflow = 25.02 cfs @ 12.11 hrs, Volume= 1.960 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment PDA1: proposed Flow to Forest St

Runoff = 8.24 cfs @ 12.07 hrs, Volume= 0.558 af, Depth> 4.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Type III 24-hr Rainfall=7.00"

Area (sf)	CN	Description
1,464	98	Roofs, HSG B
13,311	75	Small grain, straight row, Good, HSG B
10,817	75	Small grain, straight row, Good, HSG B
7,539	61	>75% Grass cover, Good, HSG B
302	98	Paved parking, HSG B
21,106	96	Gravel surface, HSG B
8,409	79	<50% Grass cover, Poor, HSG B
62,948	82	Weighted Average
61,182		97.19% Pervious Area
1,766		2.81% Impervious Area

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

Summary for Subcatchment PDA2: Proposed Flow to Hillside St

Runoff = 21.13 cfs @ 12.07 hrs, Volume= 1.413 af, Depth> 4.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Type III 24-hr Rainfall=7.00"

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Type III 24-hr Rainfall=7.00"

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Page 4

Area (sf)	CN	Description
1,837	98	Roofs, HSG B
2,518	98	Roofs, HSG B
6,197	98	Roofs, HSG B
4,999	98	Roofs, HSG B
4,215	98	Paved parking, HSG B
2,554	98	Paved parking, HSG B
19,494	61	>75% Grass cover, Good, HSG B
3,111	61	>75% Grass cover, Good, HSG B
7,334	73	Small grain, contoured, Good, HSG B
31,891	73	Small grain, contoured, Good, HSG B
2,900	79	<50% Grass cover, Poor, HSG B
5,021	60	Woods, Fair, HSG B
426	98	Unconnected pavement, HSG B
79,081	82	Dirt roads, HSG B
171,578	79	Weighted Average
148,832		86.74% Pervious Area
22,746		13.26% Impervious Area
426		1.87% Unconnected

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

Summary for Subcatchment XDA1: Existing Flow to Forest St

Runoff = 8.24 cfs @ 12.07 hrs, Volume= 0.558 af, Depth> 4.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=7.00"

Area (sf)	CN	Description
1,464	98	Roofs, HSG B
13,311	75	Small grain, straight row, Good, HSG B
10,817	75	Small grain, straight row, Good, HSG B
7,539	61	>75% Grass cover, Good, HSG B
302	98	Paved parking, HSG B
21,106	96	Gravel surface, HSG B
8,409	79	<50% Grass cover, Poor, HSG B
62,948	82	Weighted Average
61,182		97.19% Pervious Area
1,766		2.81% Impervious Area

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

Summary for Subcatchment XDA2: Existing Flow to Hillside St

Runoff = 21.13 cfs @ 12.07 hrs, Volume= 1.413 af, Depth> 4.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Rainfall=7.00"

Area (sf)	CN	Description
1,837	98	Roofs, HSG B
2,518	98	Roofs, HSG B
6,197	98	Roofs, HSG B
4,999	98	Roofs, HSG B
4,215	98	Paved parking, HSG B
5,594	98	Paved parking, HSG B
19,494	61	>75% Grass cover, Good, HSG B
3,111	61	>75% Grass cover, Good, HSG B
5,687	73	Small grain, contoured, Good, HSG B
30,498	73	Small grain, contoured, Good, HSG B
2,900	79	<50% Grass cover, Poor, HSG B
5,021	60	Woods, Fair, HSG B
426	98	Unconnected pavement, HSG B
79,081	82	Dirt roads, HSG B
171,578	79	Weighted Average
145,792		84.97% Pervious Area
25,786		15.03% Impervious Area
426		1.65% Unconnected

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