Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

City/Town

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

Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

319 Palmer Road — a. Street Address
Ware — b. City/Town
01082 — c. Zip Code

Latitude and Longitude:
42.2424 — d. Latitude
72.2749 — e. Longitude

9 — f. Assessors Map/Plat Number
138 — g. Parcel /Lot Number

2. Applicant:

William — a. First Name
Moryl — b. Last Name
Sunny Side Storage LLC — c. Organization
319 Palmer Road — d. Street Address
Ware — e. City/Town
MA — f. State
01082 — g. Zip Code
41363-478-7100 — h. Phone Number
i. Fax Number
j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

William & Jennifer — a. First Name
Moryl — b. Last Name
c. Organization
315 Palmer Road — d. Street Address
Ware — e. City/Town
MA — f. State
01082 — g. Zip Code
413-478-7100 — h. Phone Number
i. Fax Number
j. Email address

4. Representative (if any):

a. First Name
b. Last Name
c. Company
d. Street Address
e. City/Town
f. State
g. Zip Code
h. Phone Number
i. Fax Number
j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

$1575.00 — a. Total Fee Paid
$775.00 — b. State Fee Paid
$800.00 — c. City/Town Fee Paid

A. General Information (continued)

6. General Project Description:

Construct Storage Facility

7a. Project Type Checklist:

1. ☐ Single Family Home
2. ☐ Residential Subdivision
3. ☐ Limited Project Driveway Crossing
4. ☒ Commercial/Industrial
5. ☐ Dock/Pier
6. ☐ Utilities
7. ☐ Coastal Engineering Structure
8. ☐ Agriculture (e.g., cranberries, forestry)
9. ☐ Transportation
10. ☐ Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☒ No If yes, describe which limited project applies to this project:

2. Limited Project

8. Property recorded at the Registry of Deeds for:

Hampshire	
a. County	b. Certificate # (if registered land)
11557	267
c. Book	d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☒ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☐ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☐ Land Under Waterbodies and Waterways	1. linear feet	2. linear feet
	3. cubic yards dredged	

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced
f. ☒ Riverfront Area	unknown stream 1. Name of Waterway (if available)	

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☒ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: 302306 square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.
54014	0	54014

5. Has an alternatives analysis been done and is it attached to this NOI? ☒ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☒ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	1. square feet	
	2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

		Size of Proposed Alteration	Proposed Replacement (if any)
f. ☐	Coastal Banks	1. linear feet	
g. ☐	Rocky Intertidal Shores	1. square feet	
h. ☐	Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐	Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. ☐	Land Containing Shellfish	1. square feet	
k. ☐	Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. ☐	Land Subject to Coastal Storm Flowage	1. square feet	

4. ☐ Restoration/Enhancement
If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW | b. square feet of Salt Marsh

C. Other Applicable Standards and Requirements

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://www.mass.gov/dfwele/dfw/nhesp/nhregmap.htm.

a. ☐ Yes ☒ No **If yes, include proof of mailing or hand delivery of NOI to:**

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
Route 135, North Drive
Westborough, MA 01581

4/1/20
b. Date of map

If *yes*, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.C, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.1.d, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

C. Other Applicable Standards and Requirements (cont'd)

1. c. Submit Supplemental Information for Endangered Species Review *

   1. ☐ Percentage/acreage of property to be altered:

      (a) within wetland Resource Area — percentage/acreage

      (b) outside Resource Area — 14% 1.24 A.+/- — percentage/acreage

   2. ☐ Assessor's Map or right-of-way plan of site

   3. ☒ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

      (a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

      (b) ☒ Photographs representative of the site

      (c) ☐ MESA filing fee (fee information available at: http://www.mass.gov/dfwele/dfw/nhesp/nhenvmesa.htm)
      Make check payable to "Natural Heritage & Endangered Species Fund" and ***mail to NHESP*** at above address

      *Projects altering **10 or more acres** of land, also submit:*

      (d) ☐ Vegetation cover type map of site

      (e) ☐ Project plans showing Priority & Estimated Habitat boundaries

   d. OR Check One of the Following

      1. ☐ Project is exempt from MESA review.
      Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhesp/nhenvexemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

      2. ☐ Separate MESA review ongoing.

      a. NHESP Tracking Number — b. Date submitted to NHESP

      3. ☐ Separate MESA review completed.
      Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see www.nhesp.org regulatory review tab). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.

C. Other Applicable Standards and Requirements (cont'd)

2. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

   a. ☒ Not applicable – project is in inland resource area only

   b. ☐ Yes ☐ No If yes, include proof of mailing or hand delivery of NOI to either:

   South Shore - Cohasset to Rhode Island, and the Cape & Islands:

   Division of Marine Fisheries - Southeast Marine Fisheries Station
   Attn: Environmental Reviewer
   838 South Rodney French Blvd.
   New Bedford, MA 02744

   North Shore - Hull to New Hampshire:

   Division of Marine Fisheries - North Shore Office
   Attn: Environmental Reviewer
   30 Emerson Avenue
   Gloucester, MA 01930

   Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

3. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

   a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.

   b. ACEC

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

   a. ☐ Yes ☒ No

5. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?

   a. ☐ Yes ☒ No

6. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

   a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

      1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)

      2. ☐ A portion of the site constitutes redevelopment

      3. ☐ Proprietary BMPs are included in the Stormwater Management System.

   b. ☐ No. Check why the project is exempt:

      1. ☐ Single-family house

      2. ☐ Emergency road repair

      3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)

2. ☐ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

3. ☒ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

Proposed Expansion of Sunny Side Storage LLC
a. Plan Title

R. H. LeMaitre, PE, PLS
b. Prepared By

Robert H. LeMaitre
c. Signed and Stamped by

April 18, 2020
d. Final Revision Date

1"=40'
e. Scale

NHESP Map, USGS Quad, Mass GIS of Locus
f. Additional Plan or Document Title

various
g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. ☒ Attach NOI Wetland Fee Transmittal Form

9. ☒ Attach Stormwater Report, if needed.

E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

1674
2. Municipal Check Number

4-23-2020
3. Check date

1673
4. State Check Number

4-23-2020
5. Check date

Sunny Side Storage LLC
6. Payor name on check: First Name

7. Payor name on check: Last Name

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant	2. Date: 4-23-2020
3. Signature of Property Owner (if different)	4. Date
5. Signature of Representative (if any)	6. Date

For Conservation Commission:
Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:
One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

A. Applicant Information

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

1. Applicant:

William	Moryl	Sunny Side Storage LLC
a. First Name	b. Last Name	c. Company

319 Palmer Road
d. Mailing Address

Ware	MA	01082
e. City/Town	f. State	g. Zip Code

413-478-7100
h. Phone Number

2. Property Owner (if different):

a. First Name	b. Last Name	c. Company

d. Mailing Address

e. City/Town	f. State	g. Zip Code

h. Phone Number

3. Project Location:

319 Palmer Road	Ware
a. Street Address	b. City/Town

B. Fees

To calculate filing fees, refer to the category fee list and examples in the instructions for WPA Form 4 (Abbreviated Notice of Intent).

Notice of Intent (Form 3) or Abbreviated Notice of Intent (Form 4):

The fee should be calculated using the following six-step process and worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract $12.50. To calculate the city/town share of the fee, divide the total fee in half and add $12.50.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Storage Building Construction (in riverfront)	1	$1050 x1.5	$1575.00

Step 5/Total Project Fee:

Step 6/Fee Payments:

Total Project Fee:	$1575.00 (a. Total fee from Step 5)
State share of filing fee:	$775.00 (b. 1/2 total fee less $12.50)
City/Town share of filling fee:	$800.00 (c. 1/2 total fee plus $12.50)

C. Submittal Requirements

a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of pages 1 and 2 of this form; and the city/town fee payment.

c.) **To DEP Regional Office** (see Instructions): Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of pages 1 and 2 of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

Assessment Field Card

Town of Ware, Massachusetts

NO PHOTO AVAILABLE

Parcel Information

Address: 319 PALMER RD
Map-Lot: 9-0-138
Patriot Account #: 4108
Owner: MORYL WILLIAM A
Co-Owner: MORYL JENNIFER L
Mailing Address: 315 PALMER RD

WARE, MA 01082

Building Exterior Details

Building Type: STORE
Year Built: 1957
Grade: C
Frame Type: WOOD
Living Units: 1
Building Condition: Good
Roof Cover: ASPHALT SH
Roof Type: GABLE
Exterior Wall Type: VINYL
Pool: False

General Information

Total Acres: 7.497
Land Use Code: 325
Neighborhood Code: 22
Owner Occupied: N
Condo Name:
Condo Unit:
Zone: RB
Utility Code 1:
Utility Code 2:
Utility Code 3:

Building Area

Gross Area: 2222 sqft
Finished Area: 768 sqft
Basement Area: 768 sqft
Garage Area: 0 sqft
Detached Garage: sqft
Basement Garage: 0 sqft

Ownership History

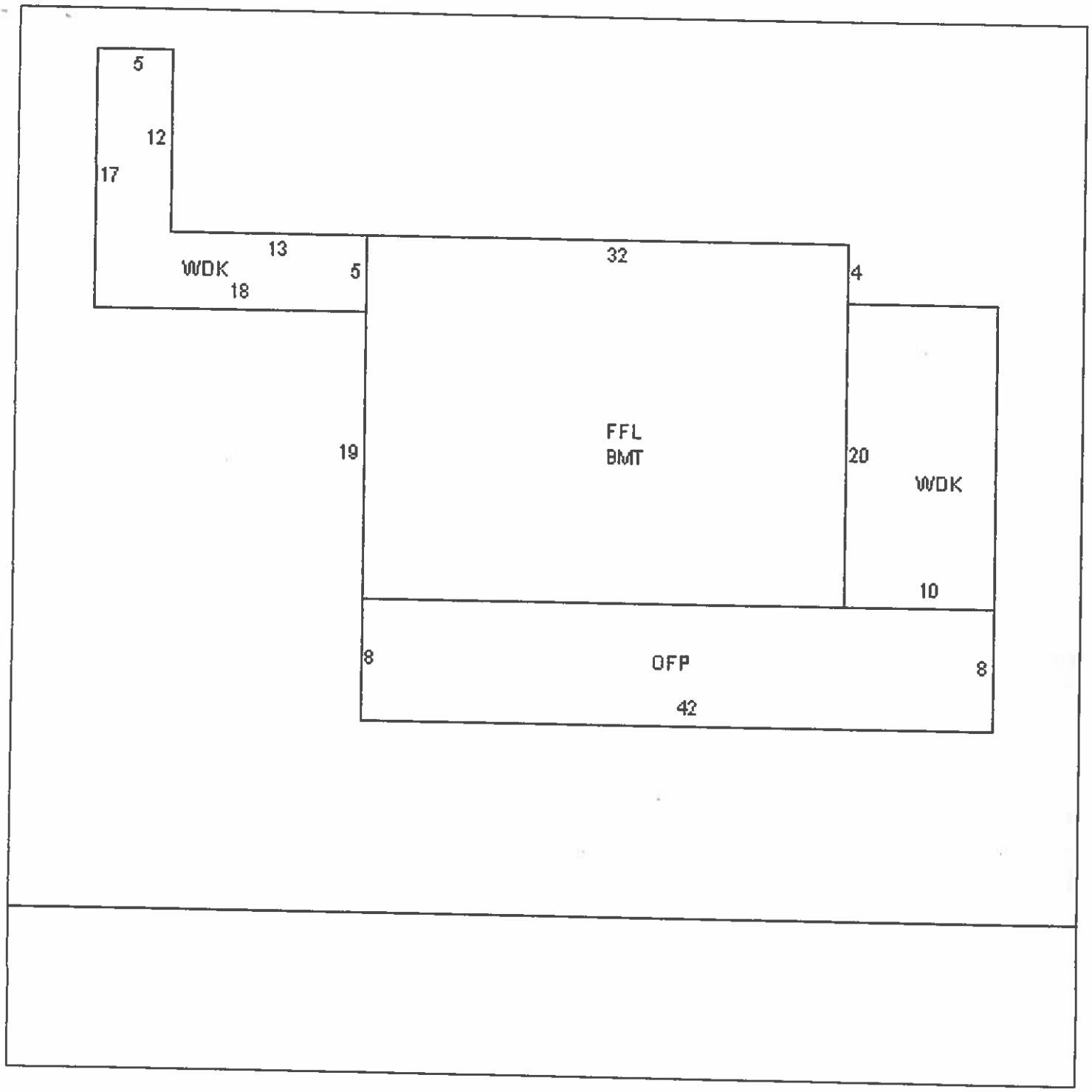
Sale Date: 12/30/2013
Sale Price: $ 100
Nal Description: FAMILY
Grantor (Seller): MORYL PAUL A & GAIL F,
Book/Page: 11557-267

Building Interior

No. Total Rooms: 4
No. Bedrooms: 2
No. Full Baths: 0
No. Half Baths: 1
Bath Rating:
No. Kitchens: 0
Kitchen Rating:
Building Framing: WOOD
Interior Wall Type: DRYWALL
Fireplaces: 0
Solar Hot Water: False
Central Vac: False
Floor Type: HARDWOOD
Heat Type: ELECTRC BB
Heat Fuel: ELECTRIC
Percent A/C: 0

Assessed Value

Assessed Yard Value: $ 1100
Assessed Land Value: $ 82700
Assessed Bldg Value: $62200
Total Assessed Value: **$146000**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TOWN OF WARE
BOARD OF ASSESSORS

126 MAIN STREET, TOWN HALL, SUITE G
WARE, MASSACHUSETTS 01082-1336
TEL: (413) 967-9648X179 FAX: (413) 967-4227

ABUTTERS LIST REQUEST

(PLEASE ALLOW 10 DAYS FOR FINAL LIST)

PARCEL REQUESTED: 319 Palmer Rd

RECORD OWNER: William A. Maryl

FOR WHICH BOARD: Conservation

REASON FOR REQUEST: Required for conservation meeting for Storage Buildings

CONTACT PERSON: William A. Maryl TELEPHONE NUMBER: 413-478-7100

SIGNATURE: William A Maryl DATE: 3-27-2020

DEPOSIT OF $10.00 IS DUE AT TIME OF REQUEST

DATE RECEIVED	AMOUNT PAID	CHECK #	CASH
BALANCE DUE			
DATE RECEIVED	AMOUNT PAID	CHECK #	CASH

TOWN OF WARE
BOARD OF ASSESSORS
126 MAIN STREET, TOWN HALL, SUITE G
WARE, MASSACHUSETTS 01082-1336
TEL: (413) 967-9648X179 FAX: (413) 967-4227

March 26, 2020

Conservation Commission
126 Main Street
Ware, MA 01082

Re: 319 Palmer Rd.
Map 9, Lot 138

Dear Board Members:

Listed on the attached sheet are the record owners of Real Property within 300' of the above-captioned property requested by William Moryl for the purpose of a Notice of Intent.

I certify the attached Abutters List to be true and complete to the best of my knowledge.

Respectfully,

Theodore P. Balicki

Theodore P. Balicki
Chairman

TPB/laj

Enclosure

Town of Ware
Abutters List

Subject Parcel ID:

Subject Property Location:

ParcelID	Location	Owner	Co-Owner	Mailing Address	City	State	Zip
0-0-100	312 PALMER RD	CHU RICKY		312 PALMER RD	WARE	MA	01082
0-0-102	314 PALMER RD	LEE DOMINICK	LEE DENISE	314 PALMER RD	WARE	MA	01082
0-0-103	316 PALMER RD	BATOR DOUGLAS J	BATOR DOREEN M	316 PALMER RD	WARE	MA	01082
0-0-104	318 PALMER RD	LUGO JAVIER	SANTANA MARIELA	318 PALMER RD	WARE	MA	01082
0-0-105	313 PALMER RD	SUNNY SIDE STORAGE LLC		PO BOX 888	WARE	MA	01082
0-0-106	305 PALMER RD	FERRENTINO MARIO	FERRENTINO CLAUDIO	P O BOX 111	WARE	MA	01082
0-105-1	315 PALMER RD	MORYL WILLIAM A	MORYL JENNIFER L	315 PALMER RD	WARE	MA	01082
0-0-118	2 KINGSBERRY LN	ZACHARIE DONNA		2 KINGSBERRY LANE	WARE	MA	01082
0-0-119	4 KINGSBERRY LN	CORNEILLE SUSAN D LIFE ESTA	CORNEILLE CHRISTOPHE	4 KINGSBERRY LANE	WARE	MA	01082
0-0-120	6 KINGSBERRY LN	KING KEVIN E	KING COLLEEN D	6 KINGSBERRY LN	WARE	MA	01082
0-0-121	8 KINGSBERRY LN	BREARLEY CECILE A		8 KINGSBERRY LA	WARE	MA	01082
0-0-122	10 KINGSBERRY LN	VALLEE CHARLENE		10 KINGSBERRY LANE	WARE	MA	01082
0-0-123	12 KINGSBERRY LN	BAK JOSEPH J		12 KINGSBERRY LN	WARE	MA	01082
0-0-124	14 KINGSBERRY LN	FRICKE WILLIAM R JR		14 KINGSBERRY LN	WARE	MA	01082
0-0-125	16 KINGSBERRY LN	COACHE MARY A		16 KINGSBERRY LA	WARE	MA	01082
0-0-126	18 KINGSBERRY LN	HONEYWELL CLARK W	HONEYWELL DONNA L	18 KINGSBERRY LN	WARE	MA	01082
0-0-127	20 KINGSBERRY LN	KULARSKI DANNI J		20 KINGSBERRY LN	WARE	MA	01082
0-0-128	22 KINGSBERRY LN	SILLER ROLF R	SILLER CINDY A	22 KINGSBERRY LN	WARE	MA	01082
0-0-129	21 KINGSBERRY LN	BILODEAU JEREMY W		21 KINGSBERRY LANE	WARE	MA	01082
0-0-130	19 KINGSBERRY LN	KULARSKI DANNI J	KULARSKI CAITLIN R	20 KINGSBERRY LANE	WARE	MA	01082
0-0-131	17 KINGSBERRY LN	MC DONALD IVY		120 ELMORE AVE	SPRINGFIELD	MA	01119
0-0-132	15 KINGSBERRY LN	PULCHTOPEK DOUGLAS P		15 KINGSBERRY LN	WARE	MA	01082
0-0-133	13 KINGSBERRY LN	DESABRAIS JAMES III		13 KINGSBERRY LN	WARE	MA	01082
0-0-134	11 KINGSBERRY LN	CYGAN STANLEY P LIFE ESTATE	CYGAN PATRICIA A LIFE E	11 KINGSBERRY LN	WARE	MA	01082
0-0-135	9 KINGSBERRY LN	BROWN SHARON A LIFE ESTATE	BROWN DARRIN R	9 KINGSBERRY LANE	WARE	MA	01082
0-0-136	325 PALMER RD	KURCHARCZYK JR WALTER J	BURKHART KIM A	325 PALMER RD	WARE	MA	01082
0-0-137	321 PALMER RD	KUCHARCZYK WALTER J JR	BURKHART KIM A	325 PALMER RD	WARE	MA	01082
0-0-139	320 PALMER RD	KSZASZCZ PAUL F		320 PALMER ROAD	WARE	MA	01082
0-0-140	PALMER RD	KSZASZCZ PAUL F		320 PALMER RD	WARE	MA	01082
0-0-141	328 PALMER RD	LAMOTHE BLAKE E &	LAMOTHE ROBIN M	1294 SOUTH MAIN ST	PALMER	MA	01069
0-0-151	20 MEADOW RD	RAICHE JEFFREY B	RAICHE CHRISTINE A	PO BOX 881	WARE	MA	01082
0-105-1	KINGSBERRY LN	GOSSELIN ELIZABETH		27 DUGAN RD	WARE	MA	01082
0-105-2	27 DUGAN RD	GOSSELIN ALBERT P	GOSSELIN PATRICIA A	27 DUGAN RD	WARE	MA	01082

Parcel Count: 33

End of Report

312 PALMER RD 10-0-100
LUC: 101

CHU RICKY
312 PALMER RD
WARE MA 01082

314 PALMER RD 10-0-102
LUC: 101

LEE DOMINICK
LEE DENISE
314 PALMER RD
WARE, MA 01082

316 PALMER RD 10-0-103
LUC: 101

BATOR DOUGLAS J
BATOR DOREEN M
316 PALMER RD
WARE, MA 01082

318 PALMER RD 10-0-104
LUC: 101

LUGO JAVIER
SANTANA MARIELA
318 PALMER RD
WARE, MA 01082

313 PALMER RD 10-0-105
LUC: 316

SUNNY SIDE STORAGE LLC
PO BOX 888
WARE, MA 01082

305 PALMER RD 10-0-106
LUC: 326

FERRENTINO MARIO
FERRENTINO CLAUDIO
P O BOX 111
WARE, MA 01082

315 PALMER RD 10-105-1
LUC: 101

MORYL WILLIAM A
MORYL JENNIFER L
315 PALMER RD
WARE MA 01082

2 KINGSBERRY LN 9-0-118
LUC: 101

ZACHARIE DONNA
2 KINGSBERRY LANE
WARE, MA 01082

4 KINGSBERRY LN 9-0-119
LUC 101

CORNEILLE SUSAN D LIFE ESTATE
CORNEILLE CHRISTOPHER TRUSTEE OF
4 KINGSBERRY LANE
WARE MA 01082

6 KINGSBERRY LN 9-0-120
LUC 101

KING KEVIN E
KING COLLEEN D
6 KINGSBERRY LN
WARE MA 01082

8 KINGSBERRY LN 9-0-121
LUC: 101

BREARLEY CEC LE A
8 KINGSBERRY LA
WARE, MA 01082

10 KINGSBERRY LN 9-0-122
LUC: 101

VALLEE CHARLENE
10 KINGSBERRY LANE
WARE, MA 01082

12 KINGSBERRY LN 9-0-123
LUC: 101

BAK JOSEPH J
12 KINGSBERRY LN
WARE, MA 01082

14 KINGSBERRY LN 9-0-124
LUC: 101

FRICKE WILLIAM R JR
14 KINGSBERRY LN
WARE, MA 01082

16 KINGSBERRY LN 9-0-125
LUC: 101

COACHE MARY A
16 KINGSBERRY LA
WARE, MA 01082

18 KINGSBERRY LN 9-0-126
LUC: 101

HONEYWELL CLARK W
HONEYWELL DONNA L
18 KINGSBERRY LN
WARE, MA 01082

20 KINGSBERRY LN 9-0-127
LUC 101

KULARSKI DANNI J
20 KINGSBERRY LN
WARE, MA 01082

22 KINGSBERRY LN 9-0-128
LUC: 101

SILLER ROLF R
SILLER CINDY A
22 KINGSBERRY LN
WARE, MA 01082

21 KINGSBERRY LN 9-0-129
LUC 101

BILODEAU JEREMY W
21 KINGSBERRY LANE
WARE MA 01082

19 KINGSBERRY LN 9-0-130
LUC: 101

KULARSKI DANNI J
KULARSKI CAITLIN R
20 KINGSBERRY LANE
WARE MA 01082

17 KINGSBERRY LN 9-0-131
LUC: 101

MC DONALD IVY
120 ELMORE AVE
SPRINGFIELD MA 01119

15 KINGSBERRY LN 9-0-132
LUC: 101

PULCHTOPEK DOUGLAS P
15 KINGSBERRY LN
WARE, MA 01082

13 KINGSBERRY LN 9-0-133
LUC: 101

DESABRAIS JAMES III
13 KINGSBERRY LN
WARE, MA 01082

11 KINGSBERRY LN 9-0-134
LUC: 101

CYGAN STANLEY P LIFE ESTATE
CYGAN PATRICIA A LIFE ESTATE
11 KINGSBERRY LN
WARE, MA 01082

9 KINGSBERRY LN 9-0-135
LUC: 101

BROWN SHARON A LIFE ESTATE
BROWN DARRIN R
9 KINGSBERRY LANE
WARE, MA 01082

325 PALMER RD 9-0-136
LUC: 101

KURCHARCZYK JR WALTER J
BURKHART KIM A
325 PALMER RD
WARE, MA 01082

321 PALMER RD 9-0-137
LUC 101

KUCHARCZYK WALTER J JR
BURKHART KIM A
325 PALMER RD
WARE, MA 01082

320 PALMER RD 9-0-139
LUC: 101

KSZASZCZ PAUL F
320 PALMER ROAD
WARE, MA 01082

PALMER RD 9-0-140
LUC 130

KSZASZCZ PAUL F
320 PALMER RD
WARE MA 01082

328 PALMER RD 9-0-141
LUC 325

LAMOTHE BLAKE E &
LAMOTHE ROBIN M
1294 SOUTH MAIN ST
PALMER MA 01069

2? MEADOW RD 9-0-151
LUC: 101

RAICHE JEFFREY B
RAICHE CHRISTINE A
PO BOX 881
WARE, MA 01082

KINGSBERRY LN 9-105-1
LUC: 130

GOSSELIN ELIZABETH
27 DUGAN RD
WARE MA 01082

27 DUGAN RD 9-105-2
LUC: 101

GOSSELIN ALBERT P
GOSSELIN PATRICIA A
27 DUGAN RD
WARE, MA 01082

LEGAL NOTICE

The Ware Conservation Commission will hold a public hearing on Wednesday, April 8, 2020, at 6:30 PM pursuant to the Wetlands Protection Act, M.G.L. 131 c40. The hearing will include consideration of a Notice of Intent (NOI) by William A Moryl – Sunny Side Storage LLC for construction of a self storage facility located at 319 Palmer RD. Said hearing will be held in the Selectmen's Meeting Room, Town Hall, 126 Main Street, Ware, MA 01082. To view application and related plans, contact the Conservation office at 413.967.9648 x117.

Pursuant to MGL Chapter 4, Section 13, a copy of this legal notice can be found on the Massachusetts Newspaper Publishers Association's (MNPA) website: http://masspublicnotices.org.

From: **Turley Public Notices** notices@turley.com
Subject: **Re: Legal ad for NOI Ware Conservation Meeting**
Date: **March 30, 2020 at 1:53 PM**
To: **Bill Moryl** billmoryl@me.com

TN

Hi Bill,
The legal notice for Ware Conservation will run in the Ware River News 4.2 as requested.
Jamie Joslyn
Turley Public Notices
notices@turley.com

> On Mar 30, 2020, at 1:19 PM, Bill Moryl <billmoryl@me.com> wrote:
>
> <Document1.docx>

ntinues its
the COVID-
ve that resi-
alth be able
ch as waste
and dispos-
partment of
ommissioner
g this emer-
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ents are able
cleanliness,
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llenging cir-

on will help

support continuity of waste and recycling operations by helping to ensure availability of adequate staffing resources throughout this emergency, and is consistent with the State of Emergency declared by Gov. Charlie Baker on Tuesday, March 10/

The order will remain in effect until April 12, unless the Administration determines otherwise.

For information about the Baker-Polito Administration's ongoing efforts to mitigate the spread of COVID-19, please visit the Department of Public Health's website.

Turley Publications staff photos by Paula O

There is also a tower from which to wildlife, including a wide range of bir Mandell Hill.

There are bluebird houses on the Mande property, although a variety of birds, wh cavity nesters, also use them.

Mandell Hill has bluebird boxes as do m

public notices

LEGAL NOTICE

The Ware Conservation Commission will hold a public hearing on **Wednesday, April 8, 2020, at 6:30 PM** pursuant to the Wetlands Protection Act, M.G.L. 131 c40. The hearing will include consideration of a Notice of Intent (NOI) by William A Moryl – Sunny Side Storage LLC for construction of a self storage facility located at 319 Palmer RD. Said hearing will be held in the Selectmen's Meeting Room, Town Hall, 126 Main Street, Ware, MA 01082. To view application and related plans, contact the Conservation office at 413.967.9648 x117.

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4/2/2020

HOW TO SUBMIT PUBLIC NOTICES

All public notices to be published in the *Ware River News* should be sent directly to notices@turley.com. Please indicate the newspapers and publication date(s) for the notice(s) in the subject line of your email. For questions regarding coverage area, procedures or cost, please call 413-283-8393.

Turley Publications, Inc. publishes 14 weekly newspapers throughout Western Massachusetts. Visit www.turley.com for more information.

TOWN OF WARREN HIGHWAY DEPARTMENT INVITATION FOR BIDS

The Warren Highway Department is seeking sealed bids for road work under MGL Chapter 30B and 30B section 39M. Information can be obtained at Town Accountant's Office, 48 High Street, Warren, MA, email to witaszek@warren-ma.gov, or email to olson@warren-ma.gov. **Bids will be open on April 8, 2020 at 1 p.m. at the Town Accountant's office.**
3/26, 4/02/2020

NEWS & FEATURES

As a paper of record, we attempt to cover all general news, personality profiles, and community features that we know about. This includes all selectmen and school committee meetings as well as spot planning board, board of health, finance, and other town meetings determined by the issue's relevance to our readers. There are the annual major community event features that we should always cover, but we are more than open to suggestions of other features to celebrate the fabric of our communities and their many interesting occupants. Our loyal advertisers provide funding for this paid staff coverage.

For more information on news or community features for the Ware River News, please email ekennedy@turley.com.

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William A. Moryl
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Ware, MA 01082

To:
Walter J Kurcharczyk Jr
Kim A Burkhart
325 Palmer Rd
Ware, MA 01082

PS Form 3817, April 2007 PSN 7530-02-000-9065

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U.S. P
FCM L
WARE
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MAR 30
AMO
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R2306

Postmark Here
WARE, MA 01082

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From:
William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:
Sharon A Brown
Darrin R Brown
9 Kingsberry Lane
Ware, MA 01082

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MAR 30 2020

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William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:
Douglas P Pulchtopek
15 Kingsberry Lane
Ware, MA 01082

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MAR 30 2020

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From:
William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:
Ivy McDonald
120 Elmore Ave
Springfield MA 01119

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WARE, MA 01082
MAR 30 2020

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From:
William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:
Jeremy W Bilodeau
21 Kingsberry Lane
Ware, MA 01082

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To:
Paul F Kszaszcz
320 Palmer Rd
Ware, MA 01082

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Postmark Here
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MAR 30 2020
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From:
William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:
Jeffrey B. Raiche
Christine A. Raiche
P.O. Box 881
Ware, MA 01082

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WARE, MA 01082
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William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:
Elizabeth Gosselin
27 Duagn Rd.
Ware MA 01082

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Postmark Here
WARE, MA 01082
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From:
William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:
Ricky Chu
312 Palmer Rd
Ware MA 01082

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William A. Moryl
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Ware, MA 01082

To:
Dominick Lee
Denise Lee
314 Palmer Rd
Ware, MA 01082

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WARE, MA 01082
MAR 30 2020
USPS

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From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

1000

To:

Douglas J Bator
Doreen M Bator
316 Palme Rd
Ware, MA 01082

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WARE, MA 01082

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From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

1000

To:

Javier Lugo
Mariela Santiana
318 Palmer Rd
Ware, MA 01082

Postmark Here

WARE, MA 01082
MAR 30 2020

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From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

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To:

Sunny Side Storage
PO Box 888
Ware, MA 01082

Postmark Here

WARE, MA 01082
MAR 30 2020

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From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

1000

To:

Mario Ferrentino
Claudio Ferrentino
PO Box 111
Ware, MA 01082

Postmark Here

WARE, MA 01082

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From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

1000

To:

William A Moryl
Jennifer L Moryl
315 Palmer Rd
Ware, MA 01082

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WARE, MA 01082
MAR 30 2020

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From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:

Walter J Kurcharczyk Jr
Kim A Burkhart
325 Palmer, Rd
Ware, MA 01082

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From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:

Donna Zacherie
2 Kingsberry Lane
Ware, MA 01082

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From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:

Susan D Corneille
Christopher Corneille
4 Kingsberry Lane
Ware, MA 01082

PS Form 3817, April 2007 PSN 7530-02-000-9065

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Postmark Here

WARE, MA 01082
MAR 30 2020
USPS

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From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:

Kevin E King
Colleen D King
6 Kingsberry Lane
Ware, MA 01082

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From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:

Cecile Brearley
8 Kingsberry Lane
Ware, MA 01082

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William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:
Charlene Vallee
10 Kingsberry Lane
Ware, MA 01082

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WARE, MA 01082
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From:
William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:
Joseph J Bak
12 Kingsberry Lane
Ware, MA 01082

WARE, MA 01082
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From:
William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:
William R Fricke JR
14 Kingsberry Lane
Ware, MA 01082

Postmark Here
WARE, MA 01082
MAR 30 2020

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U.S. POSTAGE
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UNITED STATES POSTAL SERVICE

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From:
William A. Moryl
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Ware, MA 01082

To:
Mary A Coache
16 Kingsberry Lane
Ware, MA 01082

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WARE, MA 01082
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From:
William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:
Clark W Honeywell
Donna L Honey well
18 Kingsberry Lane
Ware, MA 01082

Postmark Here
WARE, MA 01082
MAR 30 2020

PS Form 3817, April 2007 PSN 7530-02-000-9065

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is form may be used for domestic and international mail.

om:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

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Postmark Here

Danni J Kularski
20 Kingsberry Lane
Ware, MA 01082

S Form 3817, April 2007 PSN 7530-02-000-9065

UNITED STATES POSTAL SERVICE

is Certificate of Mailing provides evidence that mail has been pres
is form may be used for domestic and international mail.

om:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

1000

Postmark Here

Blake E Lamothe
Robin M Lamothe
1294 South Main St
Palmer, MA 01069

S Form 3817, April 2007 PSN 7530-02-000-9065

UNITED STATES POSTAL SERVICE

Cert

is Certificate of Mailing provides evidence that mail has been presented to
is form may be used for domestic and international mail.

om:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

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Postmark Here

Paul F Kszaszcz
320 Palmer Rd
Ware, MA 01082

S Form 3817, April 2007 PSN 7530-02-000-9065

UNITED STATES POSTAL SERVICE

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This form may be used for domestic and international mail.

From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:

Stanley P Cygan
Patricia A Cygan
11 Kingsberry Lane
Ware, MA 01082

PS Form 3817, April 2007 PSN 7530-02-000-9065

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This Certificate of Mailing provides evidence that mail has been
This form may be used for domestic and international mail.

From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

To:

James Desabrais III
13 Kingsberry Lane
Ware, MA 01082

PS Form 3817, April 2007 PSN 7530-02-000-9065

UNITED STATES POSTAL SERVICE®

Certificate of Mailing provides evidence that mail has been presented to
form may be used for domestic and international mail.

From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

1000

To:

Danni J Kularski
Caitlin R Kularski
20 Kingsberry Lane
Ware, MA 01082

Postmark Here
WARE, MA 01082
MAR 30 2020
USPS

PS Form 3817, April 2007 PSN 7530-02-000-9065

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form may be used for domestic and international mail.

From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

1000

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A

To:

Rolf R Siller
Cindy A Siller
22 Kingsberry Lane
Ware, MA 01082

Postmark Here
MAR 30 2020
USPS

PS Form 3817, April 2007 PSN 7530-02-000-9065

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Certificate of Mailing provides evidence that mail has been presen
form may be used for domestic and international mail.

From:

William A. Moryl
315 Palmer Rd.
Ware, MA 01082

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U.S. POST
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WARE, MA
01082
MAR 30, 2
AMOUN
$1.
R2306Y

To:

Albert P Gosselin
Patricia A Gosselin
27 Dugan Rd.
Ware MA 01082

Postmark Here
MAR 30 2020
USPS

PS Form 3817, April 2007 PSN 7530-02-000-9065

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Project Description

Prepared for

William Moryl

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Prepared by

Robert H. LeMaitre, PE, PLS

4 Skyview Drive

Ware, MA 01082

Project Description

The proposed development is to construct storage units on what is now a largley vacant tract. The site lies northerly of Palmer Road (Rt. 32) and consists of 8.82 acres. Currently 5.31 acres are wooded, 2.31 acres are hay field and the remaining 0.69 acre is used as a commercial/residential property.

The proposed improvements would include constructing storage units to serve the needs of local residents seeking additional space. The entrance would be along the existing driveway on the property to newly constructed gravel ways leading directly to the storage units.

The storage units would be constructed so as to allow all stormwater runoff from the roofs to be infiltrated directly through the use of infiltration basins at each structure. The gravel drives would encourage absorption of rainfall and lessen impacts on the environment. A rain garden will also be built to aid in water quality and runoff reduction.

The completed project would be screened by plantings, as necessary, so that it is unobtrusive and visually beneficial to the neighborhood. Access to the units would be allowed only during daylight hours.

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Additional Plans & Mapping

Prepared for

William Moryl

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

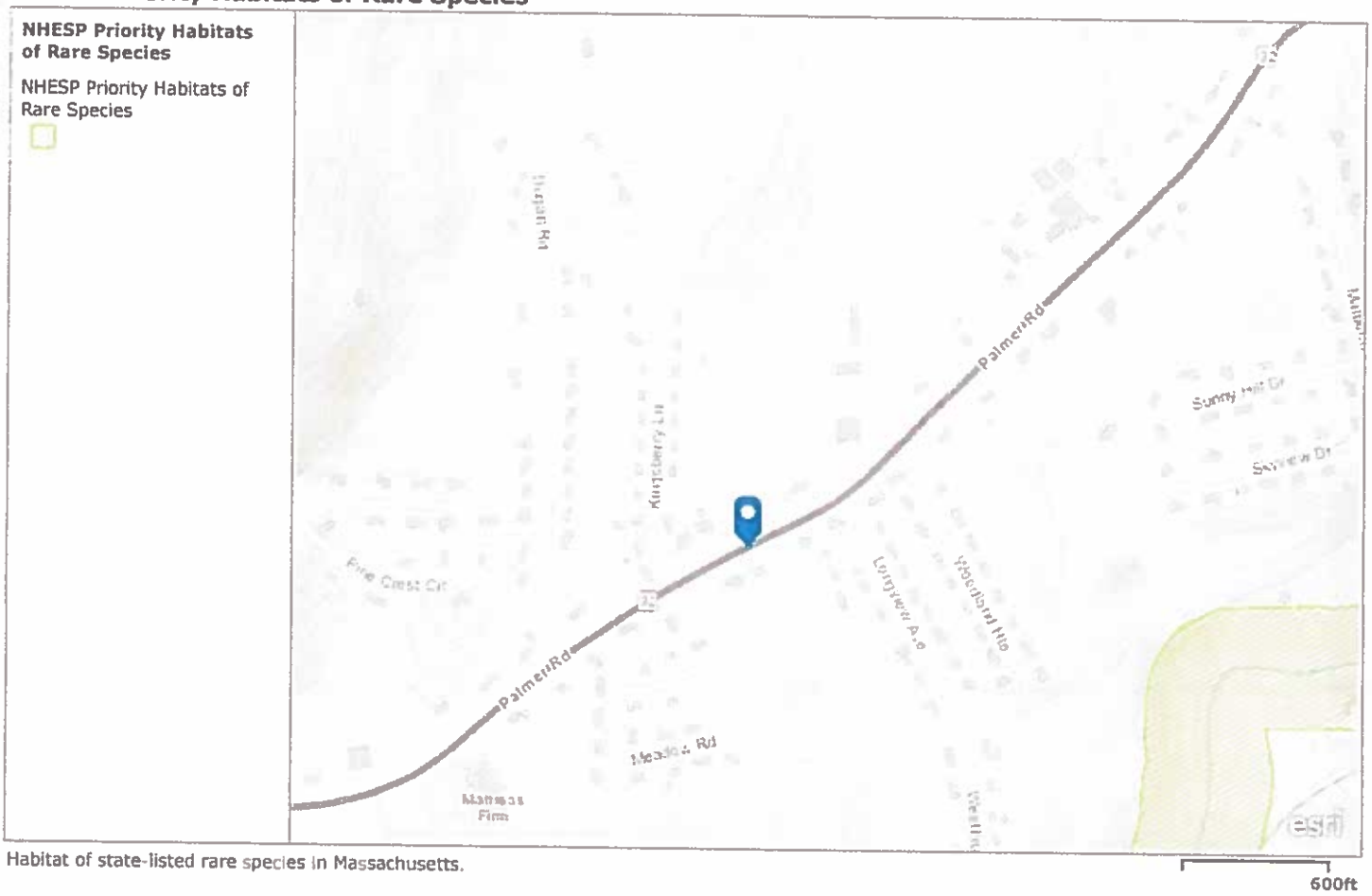
Prepared by

Robert H. LeMaitre, PE, PLS

4 Skyview Drive

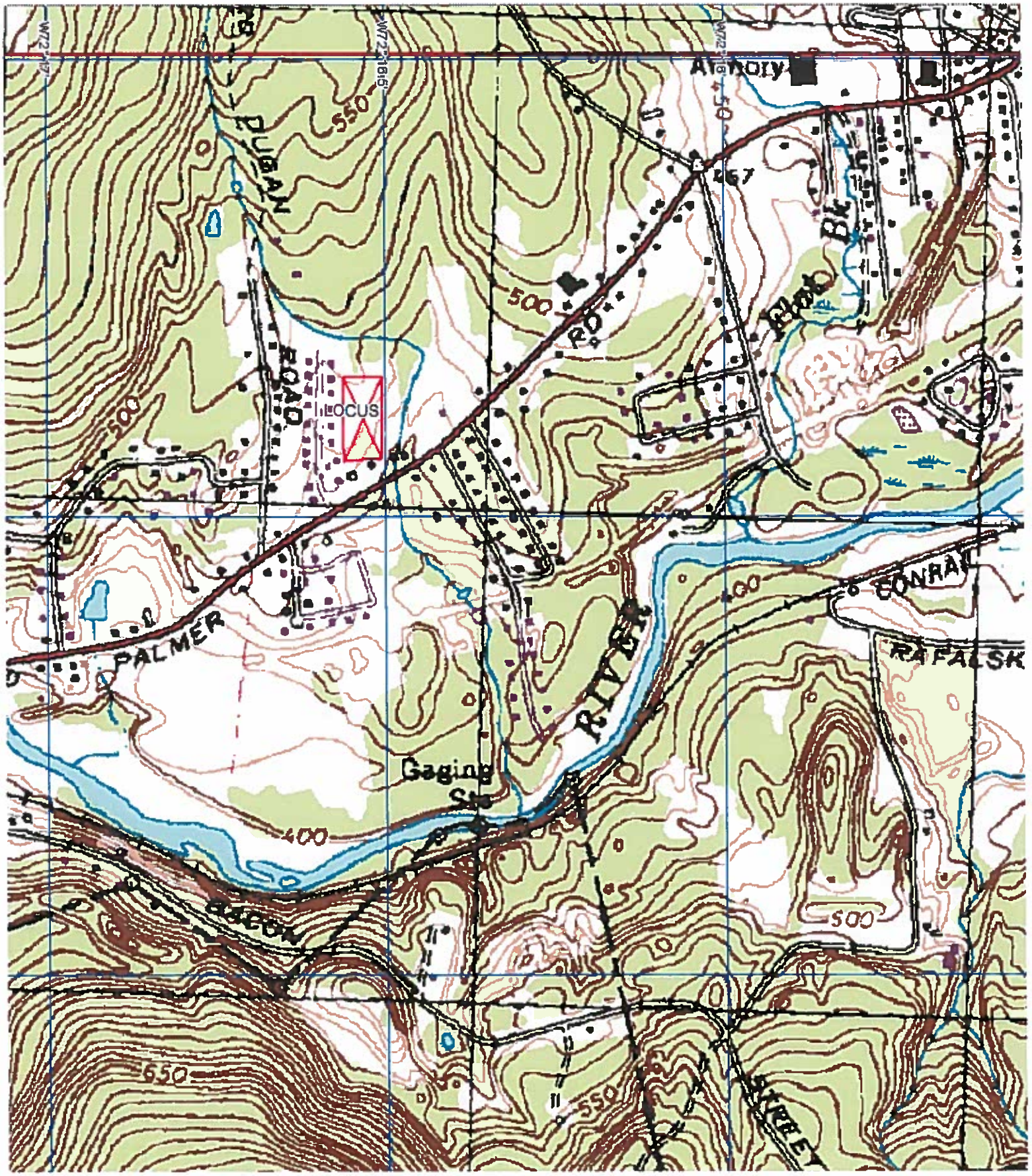
Ware, MA 01082

NHESP Priority Habitats of Rare Species

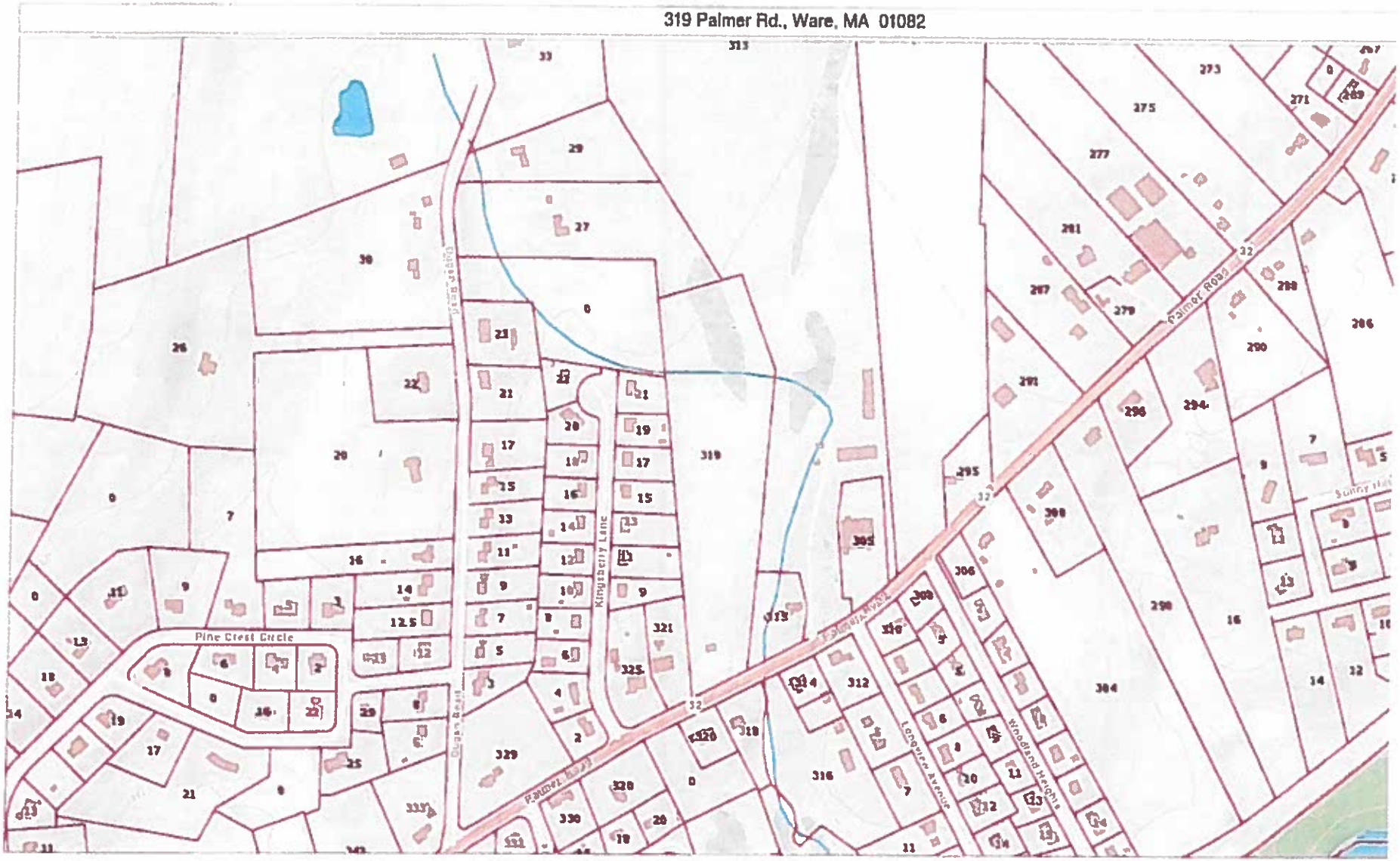


Habitat of state-listed rare species in Massachusetts.

MassGIS, Esri Canada, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA | MassGIS, NHESP



Locus Map 1:14400


319 Palmer Rd., Ware, MA 01082
Pine Crest Circle
Kingsberry Lane
Palmer Road
Longpine Avenue
Woodland Heights

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Alternative analysis

Prepared for

William Moryl

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Prepared by

Robert H. LeMaitre, PE, PLS

4 Skyview Drive

Ware, MA 01082

Alternative Analysis

The proponent originally proposed a much larger project containing twice the storage units with a paved entrance and bituminous concrete pavement between the structures. To minimize impacts on the riverfront and buffer zone the total number of units has been halved to lessen impacts.

It was decided to directly infiltrate runoff from the roofs thereby eliminating overland flow and diminishing the size and impact of stormwater controls in the riverfront and or buffer zone.

The roads and areas between structures, which were to be paved, have been revised from a paved width of 25 feet to a graveled surface 16 ft. wide. This will not only decrease anticipated runoff and improve water quality but will lessen impacts within the riverfront and wetland buffer.

The scaled back project, as currently shown, has a much smaller footprint while retaining economic viability. A further decrease in access or the number of units would make profitability of the venture difficult if not impossible.

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Stormwater Management Form

&

Stormwater Report Checklist

April 19, 2020

Prepared for

William Moryl

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Prepared by

Robert H. LeMaitre, PE, PLS

4 Skyview Drive

Ware, MA 01082

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Stormwater Management Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

A. Property Information

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

1. The proposed project is:

   a. New development ☒ Yes ☐ No

   b. Redevelopment ☐ Yes ☐ No

   c. Combination ☐ Yes ☐ No (If yes, distinguish redevelopment components from new development components on plans).

2. Stormwater runoff to be treated for water quality is based on the following calculations:

   a. ☐ 1 inch of runoff x total impervious area of post-development site for discharge to **critical areas** (Outstanding Resource Waters, recharge areas of public water supplies, shellfish growing areas, swimming beaches, cold water fisheries).

   b. ☒ 0.5 inches of runoff x total impervious area of post-development site for other resource areas.

Note: This November 2000 version of the Stormwater Management Form supersedes earlier versions including those contained in DEP's Stormwater Handbooks.

B. Stormwater Management Standards

DEP's Stormwater Management Policy (March 1997) includes nine standards that are listed on the following pages. Check the appropriate boxes for each standard and provide documentation and additional information when applicable.

Standard #1: Untreated stormwater

a. ☒ The project is designed so that new stormwater point discharges do not discharge untreated stormwater into, or cause erosion to, wetlands and waters.

Standard #2: Post-development peak discharge rates

a. ☐ Not applicable – project site contains waters subject to tidal action.

Post-development peak discharge does not exceed pre-development rates on the site at the point of discharge or downgradient property boundary for the 2-yr, 10-yr, and 100-yr, 24-hr storm.

b. ☐ Without stormwater controls

c. ☒ With stormwater controls designed for the 2-yr, and 10-yr storm, 24-hr storm.

d. ☒ The project as designed will not increase off-site flooding impacts from the 100-yr, 24-hr storm.

B. Stormwater Management Standards (cont.)

Standard #3: Recharge to groundwater

Amount of impervious area (sq. ft.) to be infiltrated: 39200 (roofs only)
a. square feet

Volume to be recharged is based on:

b. ☒ The following Natural Resources Conservation Service hydrologic soils groups (e.g. A, B, C, D, or UA) or any combination of groups:

1. % of impervious area	2. Hydrologic soil group	3. % of impervious area	4. Hydrologic soil group
100	HSG A		
5. % of impervious area	**6. Hydrologic soil group**	**7. % of impervious area**	**8. Hydrologic soil group**

c. ☐ Site specific pre-development conditions: 2.41 in/hr (1. Recharge rate) 1960.2 c.f (2. Volume)

d. Describe how the calculations were determined:

Mass Stormwater Manual , Calculations using Hydrocad Software

e. List each BMP or nonstructural measure used to meet Standard #3 (e.g. dry well, infiltration trench).

Roof runoff will be infiltrated through 20 individual drywells which will accept runoff directly from downspouts. A rain garden will also be constructed.

Does the annual groundwater recharge for the post-development site approximate the annual recharge from existing site conditions?

f. ☒ Yes ☐ No

Standard #4: 80% TSS Removal

a. ☐ The proposed stormwater management system will remove 80% of the post-development site's average annual Total Suspended Solids (TSS) load.

b. Identify the BMP's proposed for the project and describe how the 80% TSS removal will be achieved.

Rain garden

B. Stormwater Management Standards (cont.)

c. If the project is redevelopment, explain how much TSS will be removed and briefly explain why 80% removal cannot be achieved.
Alll impervious surfaves will be infiltrated through the basins installed and the structures. The rain garden will remove 80 % of TSS reaching it.
All drives will be gravel only withno pavement installed

Standard #5: Higher potential pollutant loads

See Stormwater Policy Handbook Vol. I, page I-23, for land uses of high pollutant loading (see Instructions).

Does the project site contain land uses with higher potential pollutant loads

a. ☐ Yes ☒ No b. If yes, describe land uses:

c. Identify the BMPs selected to treat stormwater runoff. If infiltration measures are proposed, describe the pretreatment. (Note: If the area of higher potential pollutant loading is upgradient of a critical area, infiltration is not allowed.)

Standard #6: Protection of critical areas

See Stormwater Policy Handbook Vol. I, page I -25, for critical areas (see instructions).

Will the project discharge to or affect a critical area?

a. ☐ Yes ☒ No b. If yes, describe areas:

c. Identify the BMPs selected for stormwater discharges in these areas and describe how BMPs meet restrictions listed on pages I-27 and I-28 of the Stormwater Policy Handbook – Vol. I:

B. Stormwater Management Standards (cont.)

Note: components of redevelopment projects which plan to develop previously undeveloped areas do not fall under the scope of Standard 7.

Standard #7: Redevelopment projects

Is the proposed activity a redevelopment project?

a. ☐ Yes ☒ No b. If yes, the following stormwater management standards have been met:

c. The following stormwater standards have not been met for the following reasons:

d. ☐ The proposed project will reduce the annual pollutant load on the site with new or improved stormwater control.

Standard #8: Erosion/sediment control

a. ☒ Erosion and sediment controls are incorporated into the project design to prevent erosion, control sediments, and stabilize exposed soils during construction or land disturbance.

Standard #9: Operation/maintenance plan

a. ☒ An operation and maintenance plan for the post-development stormwater controls have been developed. The plan includes ownership of the stormwater BMPs, parties responsible for operation and maintenance, schedule for inspection and maintenance, routine and long-term maintenance responsibilities, and provision for appropriate access and maintenance easements extending from a public right-of-way to the stormwater controls.

Stormwater Management Plan	4/19/20
b. Plan/Title	c. Date
d. Plan/Title	e. Date

C. Submittal Requirements

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

DEP recommends that applicants submit this form, as well as, supporting documentation and plans, with the Notice of Intent to provide stormwater management information for Commission review consistent with the wetland regulations (310 CMR 10.05 (6)(b)) and DEP's Stormwater Management Policy (March 1997). If a particular stormwater management standard cannot be met, information should be provided to demonstrate how equivalent water quality and water quantity protection will be provided. DEP encourages engineers to use this form to certify that the project meets the stormwater management standards as well as acceptable engineering standards. For more information, consult the Stormwater Management Policy.

D. Signatures

William A. Moryl
Applicant Name

4-20-2020
Date

Signature

Representative (if any)

Date

Signature

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.

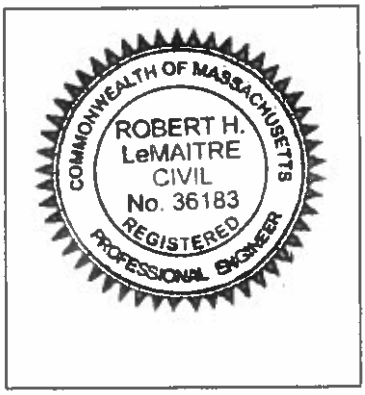
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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



Robert H LeMaitre 4.20.20

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.

Stormwater Management and Pollution Prevention Plan

For

Sunny Side Storage LLC Expansion

319 Palmer Road

Ware, Hampshire County, MA

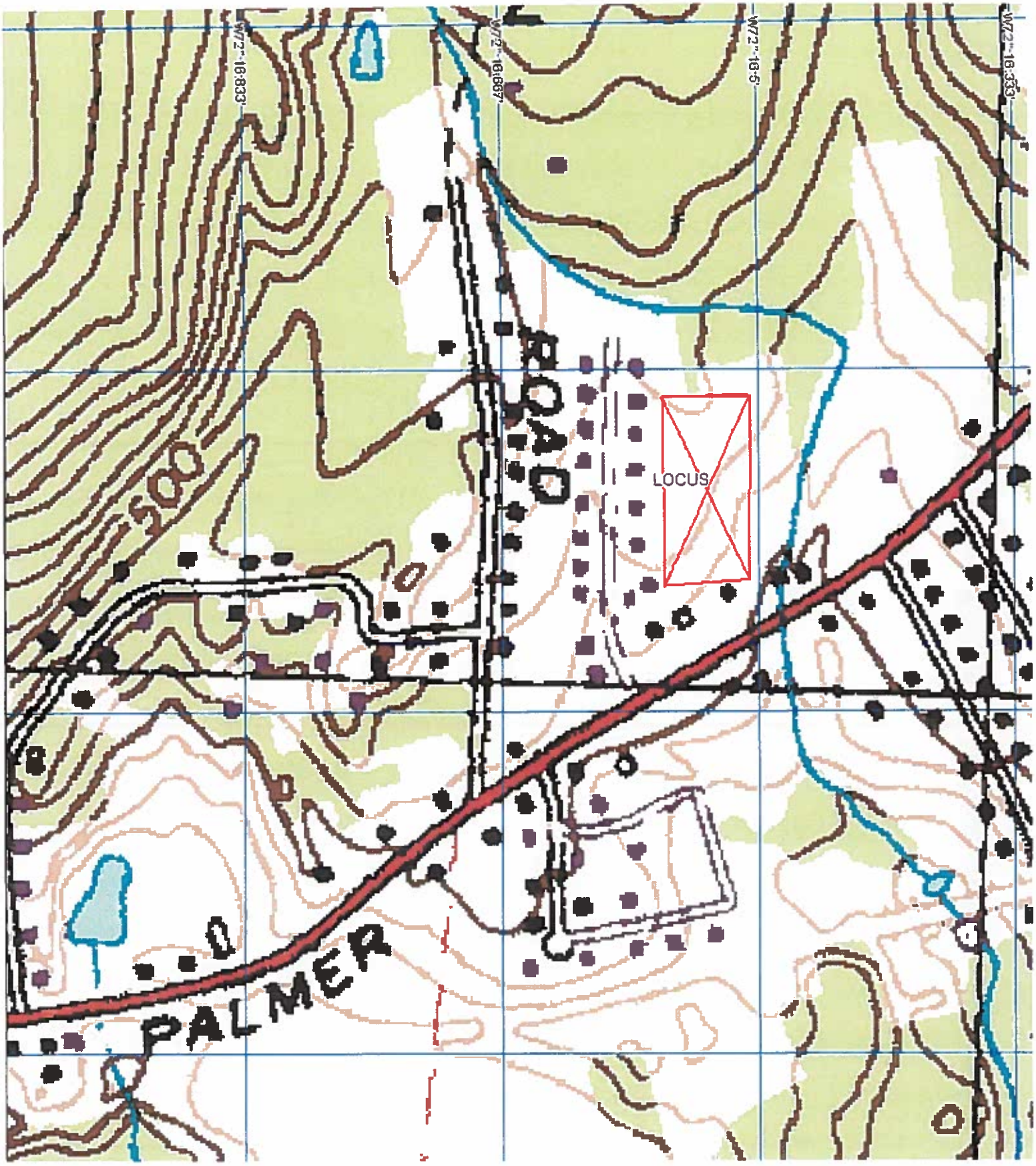
April 19, 2020

Prepared for

William Moryl
Sunny Storage LLC
319 Palmer Road
Ware, MA 01082

Prepared by

Robert H. LeMaitre, PE, PLS
4 Skyview Drive
Ware, MA 01082
413-967-7878



1:6400

Locus Map

Stormwater Management

The Stormwater Management Plan is intended to control the water quality and minimize pollutant discharges during construction and to increase storm water recharge on the site. The plan will provide long term protection of the areas environmental resources.

The site is subject to the following guidelines of the Commonwealth of Massachusetts which have been met:

1. No new storm water conveyances may discharge untreated storm water directly into or to cause erosion in wetlands or waters of the Commonwealth.

   No new discharges are proposed

2. Storm water management systems shall be designed so that post-development peak discharges do not exceed pre-development peak discharge rates.

   The model indicates that this has been achieved and that the rate is less than pre-development

3. Loss of annual recharge to ground water shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, storm water best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post–development site shall approximate the annual recharge from pre-development conditions based on soil type. This standard is met when storm water management system is designed to infiltrate the required volume as determined in accordance with the Massachusetts Stormwater Handbook.

   The proposed methods of storm water removal is to allow infiltration of the roof runoff directly through infiltration basins and additional site runoff at the rain garden. This will achieve the required results.

4. Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total suspended Solids. (TSS).
   This standard is met when:
   a. Suitable practices for source control and pollution prevention are identified in a long term pollution protection plan and thereafter are implemented and maintained
   b. Structural storm water best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook: and pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

The regraded ground will prevent water and sediment from leaving the site. The final grading will direct storm water the rain garden that will act as sediment trap and encourage infiltration. Eventually the sediments will require removal and disposal to reestablish leaching into the ground.

5. For land uses with higher potential pollutant load, source control and pollution prevention shall be in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of storm water runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential loads cannot be completely protected from exposure to rain, snow, snow melt, and storm water runoff, the proponent shall use the specific structural storm water BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Storm water discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act M.G.L.c21 ~~ss~~ 26-53 and the regulations promulgated there under at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

   This project is not considered to have high potential pollutant load.

6. Storm water discharges within Zone II or Interim Wellhead Protection Area of a public water supply and storm water discharges near or to any other critical area require the use of specific source control and pollutant prevention measures and the specific structural storm water best management practices determined by the Department to be suitable for managing discharges to such areas as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area, if there is a strong likelihood of a significant impact to said area, taking into account site specific factors. Storm water discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined by 314 CMR3.04 (2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Storm water discharges to a Zone I or Zone II and are prohibited unless essential to the operation of a public water supply.

   This project is not within a Well head protection area or a Zone II.

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

   This is not a redevelopment project.

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

   A Sediment and Erosion plan is included

9. A long term operation and maintenance plan shall be developed and implemented to ensure that storm water management systems function as designed.
   The Operation and Maintenance Plan and accompanying checklists will assist in the best practices to accomplish this goal.

10. All Illicit discharges to the storm water management system are strictly prohibited.

    The site contains no sanitary facilities nor any prior storm drainage. The pollution prevention plan and design plans include measures to prevent illicit discharges.

Erosion and Sediment Controls

During construction operations hay bales and or silt barrier will be placed along the extremities of the work zone to trap sediment carried by runoff before it reaches the adjacent areas. Bales and silt sock will be embedded four (4) inches into the ground to minimize undercutting. The bales shall be tightly butted and staked with a minimum of two (2) stakes. The bales shall be placed with the on the cut side rather than the string.

Diversion channels will be constructed as necessary to control the flow and direction of runoff. Ditch checks of stone or hay bales will be installed in any area found to have rapid runoff to prevent the displacement of fines.

Temporary sediment basins will be constructed as needed to capture sediment from the runoff and assist in infiltration. These sediment traps shall be cleaned once 50% of their capacity is reached. Sediment basins will be cleaned when the entrapped material reaches 2 feet below the outlet.

Open slopes shall be stabilized to prevent erosion and encourage plant growth.

All exposed areas shall be covered with topsoil, stabilized and seeded as early as possible.

Sunny Side Storage, LLC Expansion, 319 Palmer Road, Ware, MA 01802

Stormwater Operation & Maintenance Plan

Post Construction

Procedure

After each storm event the site will be visually checked for signs of erosion and or overtopping of the infiltration basins and raingarden. Should any problems or deficiencies be noted they will be immediately addressed.

Record Keeping

The party in responsible charge shall keep a running list of all inspections, findings and actions taken if needed. This list shall be available for viewing by appropriate persons upon request.

Maintenance

Semiannually, in addition to the above all eaves troughs shall be cleaned and kept in operating condition. The bio retention area (rain garden) shall be cleaned and any accumulated removed all plantings shall be maintained and pruned.

Gravel drives shall be kept graded free from ruts and ponding at all times of the year, snow will be removed immediately after each storm. The use of road salt is not anticipated.

Responsible Party

William A. Moryl
319 Palmer Road
Ware, MA 01082
413-478-7100

Construction Procedures

Prior to the commencement of activities all sediment and erosion controls shall be in place and functioning. These devices shall be maintained and left in place until the site is stabilized.

During the construction period the site shall be inspected as stated above after each storm event as well as weekly to assure compliance. Any concerns noted shall be remedied at once.

Sunny Side Storage LLC 319 Palmer Road, Ware, MA 01082

Erosion & Sediment Control Checklist

BMP	Inspection Frequency	Date of Inspection	Inspector	Maintenance Items	Clean/Repair YES No	Date of Repair	Performed by
Silt Sock & Hay Bales	Weekly & Post Storm						
Entrance & Drives	Weekly & Post Storm						
Slope & Lawn Stabilization	Weekly & Post Storm						
Buildings and Down Spouts	Weekly & Post Storm						
Rain Garden & Infiltration Basins	Weekly & Post Storm						

Stormwater Control Manager _____

Long Term Best Management Practices Maintenance Checklist

Stormwater Control Manager _____

Pollution Prevention

NATIONAL STORM WATER POLLUTION PREVENTION PROGRAM

1. SCOPE

A. PURPOSE:

The proper implementation of a National Storm Water Pollution Prevention Program that will be utilized on the project in addition to the U.S. Environmental Protection Agency National Pollutant Discharge Elimination System (NPDES) Construction General Permit governing storm water discharges during construction, and in accordance with erosion control practices. The Contractor's participation in this program is mandatory.

B. NPDES CONSTRUCTION GENERAL PERMIT FOR STORM WATER DISCHARGE FROM CONSTRUCTION SITES:

Regulations promulgated by the U.S. Environmental Protection Agency to regulate the discharge of storm water from construction activities on sites where more than (1) acre of soil is disturbed. One of the ways to comply with these regulations for affected sites is to request coverage under the General Permit for Construction Activities for the particular state in which the site is found. In order to use the General Permit, a Notice of Intent (NOI) form must be completed and mailed to the U.S. Environmental Protection Agency at least seven (7) days prior to any earth-disturbing activities and a Storm Water Pollution Prevention Plan (SWPPP) for the site must be prepared and followed during the construction activities.

C. RESPONSIBILITIES OF CONTRACTOR REGARDING THE CONSTRUCTION GENERAL PERMIT:

The Owner shall manage the discharge of storm water from the site in accordance with the NPDES Construction General Permit for Construction Activities conditions and the following provisions of this section of the specifications. The Owner shall be responsible for conducting the storm water management practices in accordance with the permit. The Owner shall be responsible for providing qualified inspectors to conduct the inspections required by the SWPPP. It shall be the responsibility of the Owner to make any changes to the SWPPP necessary when the site contractor or any of his subcontractors elects to us borrow or fill or material storage sites, either contiguous to or remote from the construction site, when such sites are used solely for this construction site. Such sites are considered to be part of the construction site covered by the permit and this SWPPP.

D. NOTICE OF INTENT:

The Owner has petitioned the U.S. Environmental Protection Agency for the storm water discharges during construction at this site to be covered by the NPDES General Permit for Construction Activity for the State of Massachusetts. A Notice of Intent (NOI) (using the form required by the federal, state, and/or local permitting agency)

to be covered under this permit has been filed by the Owner. A complete NOI is posted on EPA's NPDES website http://www.epa.gov/npdes/stormwater/Construction General Permit. The SWPPP must be prepared prior to submittal of the NOI form. In some jurisdictions the Contractor, if it meets the permitting authority's definition of "Operator" may be required to file a separate NOI at least seven (7) days prior to any earth disturbing activities. In other jurisdictions, the Contractor may be a co-permittee with the Operator. Confirmation of delivery of the NOI to EPA or EPA's eleetronic NOI system must be included in the SWPPP. Confirmation can include a postal receipt or electronic acknowledgement. The signatory on the NOI must sign all documents (i.e., inspection reports) associated with the SWPPP.

E. If the signatory chooses not to sign all documents, he/she must designated a duly authorized representative to sign all relevant documents. This designation must be made in writing and be included in the SWPPP. The duly authorized representative may be either a named individual or any individual occupying a named position. Additionally, in some states, the written designation must be submitted to the jurisdictional authority. Form A-1 is to be used for designating duly authorized representatives.

F. The Project Operator/Project Manager shall be versed in the importance of the following topics:

- Erosion and sediment control for water quality protection
- Implementation of erosion and sediment control plans
- The importance to proper installation of erosion and sediment control measures
- Regular inspection by Qualified Personnel of erosion and sediment control measures
- Diligent maintenance of erosion and sediment control measures
- Contemporaneous preparation of accurate and complete records regarding inspection and maintenance of erosion and sediment control measures
- Record-keeping for inspections and maintenance activities

G. STORM WATER POLLUCTION PREVENTION PROGRAM LOCATION REQUIREMENTS:

The records for compliance with SWPPP are meant to be working documents that shall be maintained at the site of the Construction Activities at all times throughout the project, shall be readily available upon request by the Operator's personnel or U.S. Environmental Protection Agency or any other agency with regulatory authority over storm water issues, and shall be kept on-site until the site complies with the Final Stabilization. A sign or other notice must be posted near the main entrance of the construction site which contains a completed NOI, the location of the SWPPP and the name and phone number of a contact person responsible for scheduling SWPPP

viewing times, and any other state specific requirements. The Notice of Coverage (NOC) or other form notifying the applicant that coverage under the applicable permit has been obtained must also be posted. once received.

H. SWPPP RECORDS OF INSPECTIONS:

Copies of the weekly site **Inspection Report (Form C-1)** shall be kept on site and made available for review by appropriate authorities. The Plan Operator shall utilize **Project Rainfall Log Form H-1** to compile records regarding rainfall events which occur prior to full site stabilization. All Inspection and Maintenance Forms must be signed by the Operator.

I. INSPECTIONS AND RECORD KEEPING:

Inspections are required at least every seven (7) calendar days and within 24 hours following a rainfall event and shall continue until the site complies with the Final Stabilization section of this document. Inspections must be conducted by a "Qualified" Inspector. "Qualified" is defined as a person knowledgeable in the practices of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activity. Each inspection must be followed up by a report documenting the inspector's findings and request the required maintenance and/or repair for the erosion and sedimentation control measures. It is imperative that the Inspection and Maintenance of all erosion and sediment control measures be documented as soon as possible after the inspection and/or maintenance is completed. These records are used to prove that the required inspection and maintenance were performed. In addition to inspection and maintenance reports, records should be kept of the Construction Activities that occur on the site. The qualified inspector shall be the Owner/Project Manager.

I. SWPPP MODIFICATIONS:

The inspection report should also identify if any revisions to the SWPPP are warranted due to unexpected conditions. The SWPPP is meant to be a dynamic working guide that is to be kept current and amended whenever:

- There is a change in design, construction, operation, or maintenance at the construction site that has or could have a significant effect on the discharge of pollutants to the waters of the United States that has not been previously addressed in the SWPPP. In addition to modifying the SWPPP, the site map may also require an amendment.

- Inspections or investigations by site staff, or by local, state or federal officials, determine that the discharges the SWPPP is ineffective in eliminating or significantly minimizing pollutants in storm water discharges from the construction site.

- Based on the results of an inspection, it must be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP must be completed within seven (7) calendar days following the inspection.

Any such changes to the SWPPP must be made in writing whenever:

- The Location and Type of Control Measures
- The Construction Requirements for the Control Measures
- Maintenance Procedures for each of the Control Measures
- Spill Prevention and Cleanup Measures
- Inspection and Maintenance Record Keeping Requirements

2. PROJECT NAME AND LOCATION

Sunny Side Storage LLC Expansion
319 Palmer Road
Ware, MA 01082

The site consists of 8.82 acres of which 1.14 acres will be utilized for the construction of storage buildings, drives and related items. The site also includes a single family dwelling and was previously used as agricultural land.

A general location map (i.e., USGS quadrangle map), which identifies the location of the construction site receiving waters within on (1) mile of the site, is included in this SWPPP. The site plans identify surface waters and wetlands, storm water discharge locations and other areas as required by Construction General Permit are to be considered part of the SWPPP plan.

3. OPERATOR'S NAME AND ADDRESS

Sunny Side Storage, LLC
319 Palmer Road
Ware, MA 01082
413-478-7100

4. PROJECT DESCRIPTION

Site work activities on the parcel will be performed by the operator of the facility in accordance with the SWWP. The SWWP to be implemented by the owner includes earth work, grading construction of structures and drives. The work shall also include drainage improvements and installing maintaining stormwater management systems. The limits of work are shown on the plans. It will be the responsibility of the Contractor to update the SWWP accordingly and

Implement erosion and stabilization measures necessary to maintain compliance with the Construction General Permit conditions.

It is the Responsibility of the Owner/Contractor to implement and maintain all temporary and permanent storm water, erosion and sediment controls per the SWWP.

The estimated time for completion of the project development is 2 years during which time the drives and buildings will be constructed. Major activities will include:

- Drives/roadways
- Installation of Drainage
- Earth work
- Building Construction

The site is in Hampshire County which receives an average of 44 inches of rainfall annually with the highest amounts of rainfall in the months of October and November per the National Climate Data Center.

5. NAME OF RECEIVING WATERS

The site drains toward an unmanned pond and the Ware River.

6. INDIAN COUNTRY LANDS

To the best of our knowledge, the site is not located in Indian Country Lands.

7. WETLANDS AND/OR OTHER SURFACE WATERS

Bordering vegetated wetlands are located at various locations on site. The boundaries were verified by the Palmer Conservation Commission. Work proposed which is within 100 feet of these land areas has been permitted by local and state authorities. (See Order of Conditions).

8. EROSION AND SEDIMENT CONTROL

8.1 Stabilization Practices (Permanent) – It is understood that permanent stabilization practices will be installed by the site contractor upon the completion of the earth removal Permanent measures on this site include side slope stabilization with grass, mulch and plantings.

8.2 Stabilization Practices (Temporary) – Temporary stabilization practices within the limit of work shall include the following measures that were selected based on the anticipated site conditions during building construction.

- All unpaved areas that have been disturbed and remain disturbed but inactive for more than 30 days will be stabilized with hay, mulch, erosion control matting or other acceptable materials.
- Frequent watering to minimize wind erosion during construction

8.3 Structural Practices (Permanent) – It is understood that all permanent structural practices will be installed on the site by the site contractor performing the earth moving and grading activities. Permanent structural practices for this site include deep sump catchbasins with hooded outlets; settling basins, forebays, and sediment traps.

8.4 Structural Practices (Temporary) – It is understood that all temporary structural practices will be installed on the site by the site contractor performing the earth moving and grading activities. These temporary structures include:

- Catch basin inlet protection
- Siltation Fence and hay bales in areas shown on the Erosion Control Plans
- Stabilized construction entrances. This will include trap rock tire scrubbers
- Temporary siltation ponds
- Diversion berms along the project roadways as noted on the plans

9. SEQUENCE OR MAJOR ACTIVITIES

(See the Construction Sequencing and Erosion Control Narrative as submitted to the Palmer Planning Board)

The site contractor/owner or the Designated Erosion Control Monitor must inspect the erosion measures in accordance with the requirements of this SWPPP. These include:

- Inspect all proposed stabilization and sedimentation and erosion control measures, including: side slopes, silt fence, hay bales, siltation ponds and repair/replace as required to achieve compliance with the Construction General Permit Conditions.
- Inspect construction equipment storage and refueling area
- Inspect stabilized site access for effectiveness in preventing soil deposits on existing roads.

10. DUST CONTROL

Minimizing wind erosion and control dust will be accomplished by one or more of the following methods:

- Frequent watering of haul roads and excavation and fill areas.
- Providing paving at construction entrance.

11. COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS

The site Contractor/Owner will obtain copies of local and state regulations which are applicable to storm water management, erosion control, and pollution minimization at this job site and will comply fully with such regulations.

12. INSPECTION AND MATENANCE PROCEDURES

The following inspection and maintenance practices will be used to maintain erosion and sediment controls and stabilization measures.

a. All control measures will be inspected at least once every seven (7) calendar days and within 24 hours following a rainfall event of 0.5 inches or greater

b. All measures will be maintained in good working order; if repairs or other measures are found to be necessary, they will be initiated within 24 hours of report.

c. Built up sediment will be removed from silt fence and hay bales when it has reached one-third the height of the fence or bale.

d. Silt fences and hay bales will be inspected for depth of sediment, tears, decomposition etc., to see if the fabric is securely attached to the fence posts, to determine the structural integrity of the hay bale, and to see that the fence posts are securely in the ground.

e. The sediment basins will be inspected for depth of sediment, and built up sediment will be removed when it reaches 25 percent of the design capacity.

f. Temporary and permanent seeding and all other stabilization measures will be inspected for bare spots, washout and healthy growth.

g. A maintenance inspection report will be made after each inspection. Copies of the report forms to be completed by the inspector are included in this SWPPP.

h. The site contractor/owner will be responsible for selecting individual who will be responsible for these inspections, maintenance and repair activities and filling out inspection and maintenance reports.

i. Disturbed areas and materials storage areas will be inspected for evidence of or potential for pollutants entering stormwater systems.

j. Releases of hazardous substances or oil in excess of reportable quantities (as established under 40CFR 110, 40 CFR 117 or 40 CFR 302) must be reported. Form G-1 provides further details on the notification and reporting process.

13. INSPECTION AND MAINTENANCE REPORT FORMS

Once installation of any required or optional erosion control device or measure has been implemented, [at least once every seven (7) calendar days and within 24 hours following a rainfall event of 0.5 inches or greater. Inspections of each measure shall be performed by a Qualified Inspector. The forms found in this SWPPP shall be used by the inspectors to inventory and report the condition of each measure to assist in maintaining the erosion and sediment control measures in good working order.

These report forms shall become an integral part of the SWPPP and shall be made readily accessible to governmental inspection officials, the Operator's Engineer, and the Operator for review upon request during visits to the project site. In addition, copies of the reports shall be provided to any of these persons, upon request, via mail or facsimile transmission. Inspection and maintenance report forms are to be maintained by the permittee for five years following the final stabilization of the site.

14. OTHER RECORD-KEEPING REQUIREMENTS

The Contractor shall keep the following records related to construction activities at the site:

- Dates when major grading activities occur and the areas which were graded
- Dates and details concerning the installation of structural controls
- Dates when construction activities cease in an area
- Dates when an area is stabilized, either temporarily or permanently
- Dates of rainfall and the amount of rainfall
- Dates and descriptions of the character and amount of any spills of hazardous material
- Records of reports filed with regulatory agencies if reportable quantities of hazardous materials spilled

15. MATERIALS MANAGEMENT PLAN

15.1 MATERIALS COVERED

The following materials or substances are expected to be present onsite during construction:

Concrete/Additives/Wastes
Petroleum based products
Fertilizers
Sanitary wastes
Solid wastes

15.2 MATERIALS MANAGEMENT PRACTICES

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to

stormwater runoff. The job site superintendent will be responsible for ensuring that these procedures are followed.

A. Good Housekeeping

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough products required to do the job.
- All materials stored on site will be stored in a neat, orderly manner and, if possible, under a roof or in a containment area. At a minimum, all containers will be stored with their lids on when not in use. Drip pans shall be provided under all dispensers.
- Products will be kept in their original containers with the original manufacturer's label in legible condition.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used up before disposing of the container.
- Manufacturer's recommendations for proper use and disposal will be followed.
- The job site contractor will be responsible for daily inspections to ensure proper use and disposal of materials.

B. Hazardous Products

These practices will be used to reduce the risks associated with hazardous materials. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site will be obtained and used for the proper management of potential wastes that may result from these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained in the SWPPP file at the job site construction trailer office. Each employee who must handle a substance with hazardous properties will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

- Products will be kept in original containers with the original labels in legible condition.
- Original labels and material safety data sheets (MSDS's) will be procured and used for each material.
- If surplus product must be disposed of, manufacturer's or loca/state/federal recommended methods for proper disposal will be followed.

C. Hazardous Waste

All Hazardous waste materials will be disposed of by the Contractor in the manner specified by local, state, and/or federal regulations and by the manufacturer of such products. Site personnel will be instructed in these practices by the job site superintendent, who will also be responsible for seeing that these practices are followed.

D. Product Specific Practices

The following product specific practices will be followed on the job site

1. Petroleum Products
   All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any petroleum storage tanks stored onsite will be located within a containment area that is designed with an impervious surface between the tank and the ground. The secondary containment must be designed to provide a containment volume that is equal to 110% of the volume of the largest tank. Drip pans shall be provided for all dispensers. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations. The location of any fuel tanks and/or equipment storage areas must be identified on the Erosion Control Plan by the contractor once the locations have been determined.

2. Fertilizers
   Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked in the soil to limit exposure to stormwater. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

3. Concrete Wastes
   Concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in either (1) specifically designated diked area which have been prepared to prevent contact between the concrete and/or wash out and storm water which will be discharged from the site or (2) in locations where waste concrete can be poured into forms to make riprap or other useful concrete products.

   The hardened residue from the concrete wash out diked areas will be disposed of in the same manner as other non-hazardous construction waste materials or may be broken up and used on site. The job site contractor shall be responsible for seeing that these procedures are followed.

The project may require the use of multiple concrete wash out areas. All concrete wash out areas will be located in an area where the likelihood of the area contributing to storm water discharges is negligible. If required, additional BMPs must be implemented to prevent concrete wastes from contributing to storm water discharges. The contractor must determine the appropriate size of the washout area based on the expected amount of concrete waste generated during construction. The washout area must be located a minimum of 50 feet from a catch basin inlet and minimum of 100 feet from a wetland. The site contractor may elect to relocate or reconfigure the wash out area. The SWPPP must update accordingly to reflect any changes.

E. Solid Wastes

All waste materials will be collected and stored in an appropriately covered container and/or securely lidded metal dumpster rented from a local waste management company which must be licensed solid waste management company. The dumpster will comply with all local and state solid waste management regulations.

All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied a minimum of once per week or more often if necessary, and the trash will be hauled to a state approved landfill. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal.

All waste dumpsters and roll-off containers will be located in an area where the likelihood of the containers contributing to storm water discharges is negligible. If required, additional BMPs must be implemented, such as sandbags around the base, to prevent wastes from contributing to storm water discharges.

F. Sanitary Wastes

All sanitary waste will be collected from the portable units a minimum of once a week by a licensed portable facility provider in complete compliance with local and state regulations.

All sanitary waste units will be located in an area where the likelihood of the unit contributing to storm water discharges is negligible. If required, additional BMPs must be implemented, such as sandbags around the base, to prevent wastes from contributing to storm water discharges.

G. Contaminated Soils

Any contaminated soils (resulting from spills of materials with hazardous properties) which may result from construction activities will be contained and cleaned up immediately in accordance with the procedures given in the Materials Management Plan and in accordance with applicable state and federal regulations.

16. SPILL PREVENTION AND RESPONSE PROCEDURES

The contractor will train all personnel in the proper handling and cleanup of spilled materials. No spilled hazardous materials or hazardous wastes will be allowed to come in contact with storm water discharges. If such contact occurs, the storm water discharge will be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated storm water. It shall be the responsibility of the job site superintendent to properly train all personnel in spill prevention and clean up procedures.

In order to minimize the potential for a spill of hazardous materials to come into contact with storm water, the following steps will be implemented:

- All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.
- The minimum practical quantity of all such materials will be kept on the job site.
- Manufacturer's recommended methods for spill cleanup will be clearly posed and site personnel will be trained regarding these procedures and the location of the information.

In the event of a spill, the following procedures should be followed:

- All spills will be cleaned up immediately after discovery
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with the hazardous substances.

CONSTRUCTION SITE NOTICE

Form I-1

The following information is posted in compliance with the Environmental Protection Agency {EPA} National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CONSTRUCTION GENERAL PERMIT)

Contact Name and Phone Number:	William Moryl Sunny Side Storage 413-478-7100
Brief Project Description	Construction of Entrance Road and Storage Buildings
Location of Storm Water Pollution Prevevtion Plan (SWPPP)	R. H. LeMaitre, PE, PLS 4 Skyview Drive Ware, MA 01082 Tel 413-967-7878 Onsite with site Contractor

A Storm Water Pollution Prevention Plan (SWPPP) has been developed and implemented according to Permit requirements. A full copy of the SWPPP for this construction project can be found at the location identified above.

This permit does not provide the public with any right to trespass on a construction site for any reason, including inspection of a site; nor does this permit require that permittees allow members of the public access to a construction site.

*This notice must be posted conspicuously near the main entrance of the construction site and shall also include the NPDES Permit Number for the project or a "completed" copy of the Notice of Intent (NOI) or other form of request required to obtain coverage under the applicable storm water permit if a number has not yet been assigned. This notice must be updated whenever information related to the contact person has changed or the location of the SWPFP- has changed.

STORM WATER POLLUTION PREVENTION PLAN
PRE-CONSTRUCTION MEETING TRAINING AGENDA

Form J-1

Sunny Storage LLC Expansion Project Ware, MA

Topic	Discussed	Further action or Information Required (Yes or No)
Overview of NPDES Permit Program		
General Discussion of SWPPP and Records Retention Requirements		
Phasing of Project		
Review of Erosion and Sediment Control Plans (to include all temporary and permanent structural and stabilization measures)		
Locating waste containers, portable toilets, concrete washout areas, fueling areas and tank storage area on designated Erosion and Sediment Control Plans		
Posting Erosion and Sediment Control Plan(s) at job trailer		
Posting requirements for the Notice of Intent (NOI), Notice of Coverage (NOC) and Construction Site Notice (Form I-1)		
Allowable non-storm water discharges and handling procedures		
Materials management to include proper material storage, etc.		
Inspection form and required inspection timeframe (Form C-1)		
Stabilization schedule (Form C-2)		
Implementation schedule (Form C-3)		
Modification report and modifying plans (Form D-1)		
Final stabilization (Form F-1)		
Rainfall logs (Form H-1)		
Import/Export - Fill and Spoil Materials		

Attendance Roster: **Date:**_____

Name	Company	Telephone Number	Signature

Items which require further action or additional information:

_____

_____

Additional items discussed (not addressed above): _____

FORM C-1

Sunny Side Storage LLC Expansion
319 Palmer Road, Ware, MA

Inspections/reports must be completed every seven (7) calendar days and within 24 hours following a rainfall event of 0.5 inches or greater

Inspection Type: ☐ Routine (every 7 calendar days) ☐ Pre-Storm ☐ Storm ☐ Post-Storm

Date:_____ Week Ending: _____

Weather/Storm Event Information:

Storm Start Time: _____ Storm Duration: _____

Time Elapsed Since Last Storm: _____ Approximate Amount of Rainfall (inches): _____

Based an the results of the inspection, necessary control modifications shall be implemented within seven (7) calendar days. These reports shall be kept on file as part of the Storm Water Pollution Prevention Plan for at least five (5) years from the date of completion and submission of the Final Stabilization Certification/Termination Checklist and Notice of Termination. A copy of the SWPPP shall be kept at the site at all times during construction.

Certification Statement:
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name of Inspector: _____ Title of Inspector: _____

Qualifications of Inspector: _____

Inspector's Signature: _____

Construction phasing/scheduling is consistent with the SWPP and Erosion Control Plans ☐ Yes ☐ No

STORM WATER POLLUTION PREVENTION PLAN

Stabilization Schedule for Major Grading Activities

Form C-2

Major Grading Activity/Area to be Stabilized	Begin Date	Date Activity Temporarily Ceased / Date Activity Resumed	Date Temporary Stabilization Measures Initiated and Method of Stabilization (if activities cease for more than 14 days, this column must be completed)	Date Activity Permanently Ceased	Date Permanent Stabilization Measures Initiated	Permanent Stabilization Measure(s) Used (i.e., stone, seeded, rolled, tracked)	Name of Contractor Responsible for Implementing Stabilization Measures
Access way							
Building Sites							
Drainage Installations							
Silt Barrier							

Sunny Side Storage Expansion 319 Palmer Road Ware, MA

*This form should be updated as necessary

STORM WATER POLLUTION PREVENTION PLAN

Implementation Schedule

FORM C-3

Sunny Side Storage LLC
Expansion
319 Palmer Road
Ware, Hampshire County, MA

*To be completed prior to initiation of construction by the contractor.

The Contractor will be responsible for implementing all erosion control and storm water management control structures. The Contractor may designate these tasks to certain subcontractors as they see fit, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the contractor.

Construction Activity	Proposed Initiation Date	Proposed Completion Date	Contractor Responsible for Implementation
Inspect all proposed erosion & sedimentation control devices repair/replace as necessary			
Entrance Road			
Drainage Structures			
Rain garden			
Site improvements			

STORM WATER POLLUTION PREVENTION PLAN
MODIFICATION REPORT

FORM D-1

Sunny Side Storage LLC Ware, MA

CHANGES REQUIRED FOR STORM WATER POLLUTION PREVENTION PLAN

The SWPPP must be amended whenever there is a change in design, construction, operation, or maintenance at the construction site that has a significant effect on the discharge of pollutants to the waters of the United States that has not been previously addressed in the SWPPP, if inspections or investigations by site staff, local, state or federal officials determine that discharges are causing water quality exceedances or the SWPPP is ineffective in eliminating significantly minimizing pollutants in storm water discharges from the construction site, or based on the results of an inspection, the SWPPP must be modified to include additional or modified BMPs designed to correct identified problems. Revisions must be completed within seven (7) calendar days following the inspection.

To: Project Manager: William Moiryl Date:_____

Address: 319 Palmer Road Ware, MA
Telephone: 413-478-7100
Facsimile:

Sent Via: ☐ Facsimile ☐ Courier ☐ US Mail

INSPECTOR: _____ Date:_____

(Print)

(Signature) _____

QUALIFICATIONS OF INSPECTOR:_____

CHANGES REQUIRED TO THE STORMWATER POLLUTION PREVENTION PLAN:

_____

_____

REASONS FOR CHANGES:_____

_____

_____

TO BE PERFORMED BY:_____ ON OR BEFORE:_____

STORM WATER POLLUTION PREVENTION PLAN

FINAL STABILIZATION CERTIFICATION /NOTICE OF TERMINATION CHECKLIST

FORM F-1

Sunny Side Storage LLC

1. ☐ All soil disturbing activities are complete.

2. ☐ Temporary Erosion and Sediment Control Measures have been removed or will be removed at the appropriate time.

3. ☐ All areas of the Construction Site not otherwise covered by a permanent pavement or structure have been stabilized with a uniform perennial vegetative cover with a density of 85% or equivalent measures have been employed.

CONTRACTOR'S CERTIFICATION:

"I certify under penalty of law that all storm water discharges associated with industrial activity from the identified project that are authorized by the NPDES Construction General Permit have been eliminated and that all disturbed areas and soils at the construction site have achieved Final Stabilization and all temporary erosion and sediment control measures have been removed or will be removed at the appropriate time."

Company Name:

Name (Print):

Signature:

Title:

Date:

Year 20___

Form H-1

Storm Water Pollution Prevention Plan
Project Rainfall Log

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Day												
1												
2												
3												
4												
5												
6												
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29												
30												
31												
PM Initials												

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Oil Release Response Plan

April 19, 2020

Prepared for

William Moryl

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Prepared by

Robert H. LeMaitre, PE, PLS

4 Skyview Drive

Ware, MA 01082

Oil Release Response Plan

A designated fueling and repair area, located near the westerly end of the haul road, will be provided.

The following immediate response plan has been developed to minimize the risk of environmental damage due to the accidental release of motor fuels or hazardous material on the site. The owner/operator will institute the following policy to aid in the abatement of damage.

Notifications
Should an event occur, the operator shall immediately notify the MA DEP 1-888-304-1133 and the local authorities (Police and Fire Departments) of the situation. The temporary devices listed will be installed as an interim measure until professional assistance can be obtained and clean up performed under the direction of a Licensed Site Professional.

On Site Mitigation
In anticipation of the remote possibility of an onsite fuel spill or release of oil from the equipment, the operator shall have on site ready for use, four (4) 5 gallon spill kits. Each kit shall be capable of absorbing 5 gallons of oil or fuel. Each kit shall contain at a minimum: three 3"x 4' socks capable of absorbing 0.86 gallons each, ten 18"x18" pads capable of absorbing 0.24 gallons each and at least one disposable bag. In addition to the sand accessible on site, 100 lbs. of an oil absorbing material such as speedy dry will be available for immediate use.

Guidelines
The guidance offered by the DEP fact sheet "Managing Spills of Oil and Hazardous Materials" a copy of which is attached, will be followed in consultation with local officials to provide the best course of action to eliminate or minimize damage from a release.

Additional Precautions
The designated fueling area shall be lined with an impervious oil resistant membrane to prevent infiltration and facilitate clean up of a release. Should a release occur in the paved area, in addition to the use of absorbing materials, the drainage system, beginning with the catch basin, will be pumped and cleaned by a licensed operator, capable of handling oils and other waste materials.

Illicit Discharge Statement

For

Sunny Side Storage LLC Expansion

319 Palmer Road

Ware, Hampshire County, MA

April 19, 2020

Prepared for

William Moryl
Sunny Storage LLC
319 Palmer Road
Ware, MA 01082

Prepared by

Robert H. LeMaitre, PE, PLS
4 Skyview Drive
Ware, MA 01082
413-967-7878

Illicit Discharge Statement

Sunny Side Storage LLC

The Expansion of Sunny Side Storage LLC located at 319 Palmer Road in Ware. The original operations have been ongoing on an adjoining site. No new impervious surfaces of any type are included in the operations.

The records available, relative to the existing conditions and the tasks proposed indicate that no illicit discharge is planned as part of the work. Therefore, to the best of my knowledge, information and belief if the work is performed in accordance with the plans there should be no illicit discharges after construction.

Robert E. Martin

4.20.20

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Stormwater Calculations

Prepared for

William Moryl

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Prepared by

Robert H. LeMaitre, PE, PLS

4 Skyview Drive

Ware, MA 01082

Runoff Comparison

	Existing Conditions		Proposed	
	Runoff		Runoff	
Rainfall Event	Flow (cfs)	Volume (af)	Flow (cfs)	Volume (af)
2 year	1.69	0.26	1.72	0.28
10 year	3.7	0.56	3.75	0.59
100 year	9.86	1.62	9.47	1.55

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Stormwater Calculations

Existing Conditions

Prepared for

William Moryl

Sunny Side Storage LLC

319 Palmer Road

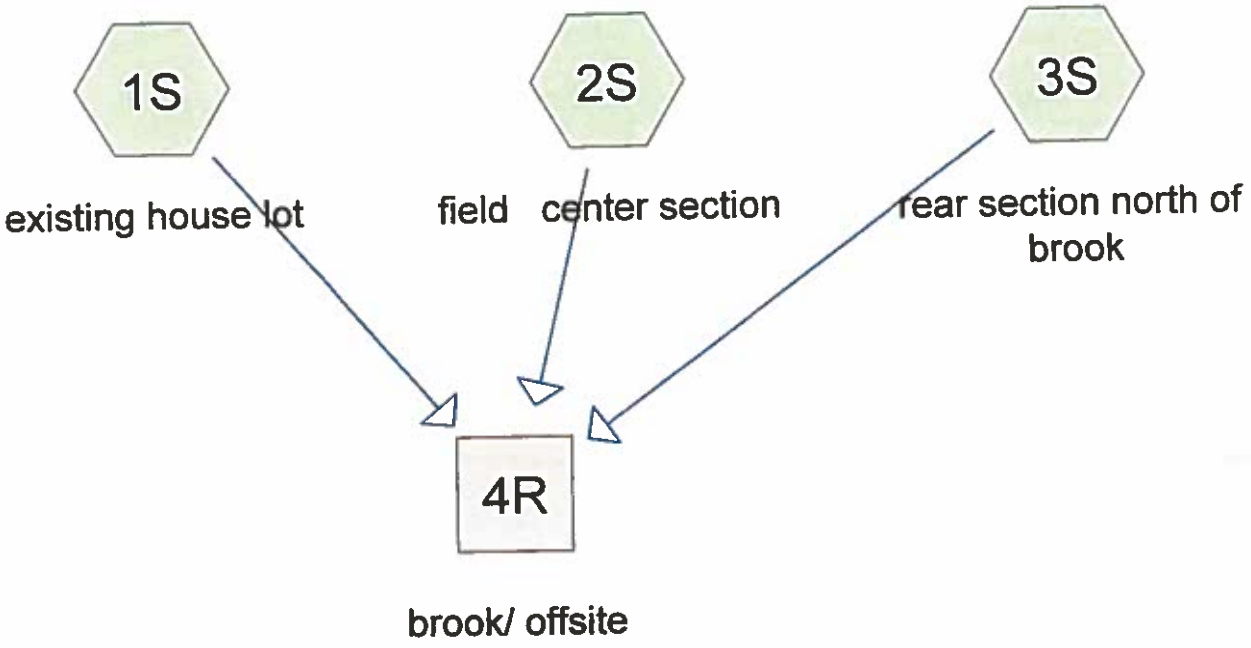
Ware, MA 01082

Prepared by

Robert H. LeMaitre, PE, PLS

4 Skyview Drive

Ware, MA 01082



Subcat Reach Pond Link

Drainage Diagram for 319 Palmer Rd. Existing
Prepared by Robert H. LeMaitre, PE, PLS, Printed 4/15/2020

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

Subcatchment 1S: existing house lot Runoff Area=0.790 ac 22.78% Impervious Runoff Depth>0.14"
Flow Length=280' Tc=12.3 min CN=54 Runoff=0.04 cfs 0.009 af

Subcatchment 2S: field center section Runoff Area=4.790 ac 4.18% Impervious Runoff Depth=0.00"
Flow Length=450' Tc=35.5 min CN=33 Runoff=0.00 cfs 0.000 af

Subcatchment 3S: rear section north of Runoff Area=3.240 ac 48.46% Impervious Runoff Depth>0.92"
Flow Length=600' Slope=0.0300 '/' Tc=48.1 min CN=76 Runoff=1.66 cfs 0.249 af

Reach 4R: brook/ offsite Inflow=1.69 cfs 0.258 af
Outflow=1.69 cfs 0.258 af

Total Runoff Area = 8.820 ac Runoff Volume = 0.258 af Average Runoff Depth = 0.35"
77.89% Pervious = 6.870 ac 22.11% Impervious = 1.950 ac

Summary for Subcatchment 1S: existing house lot

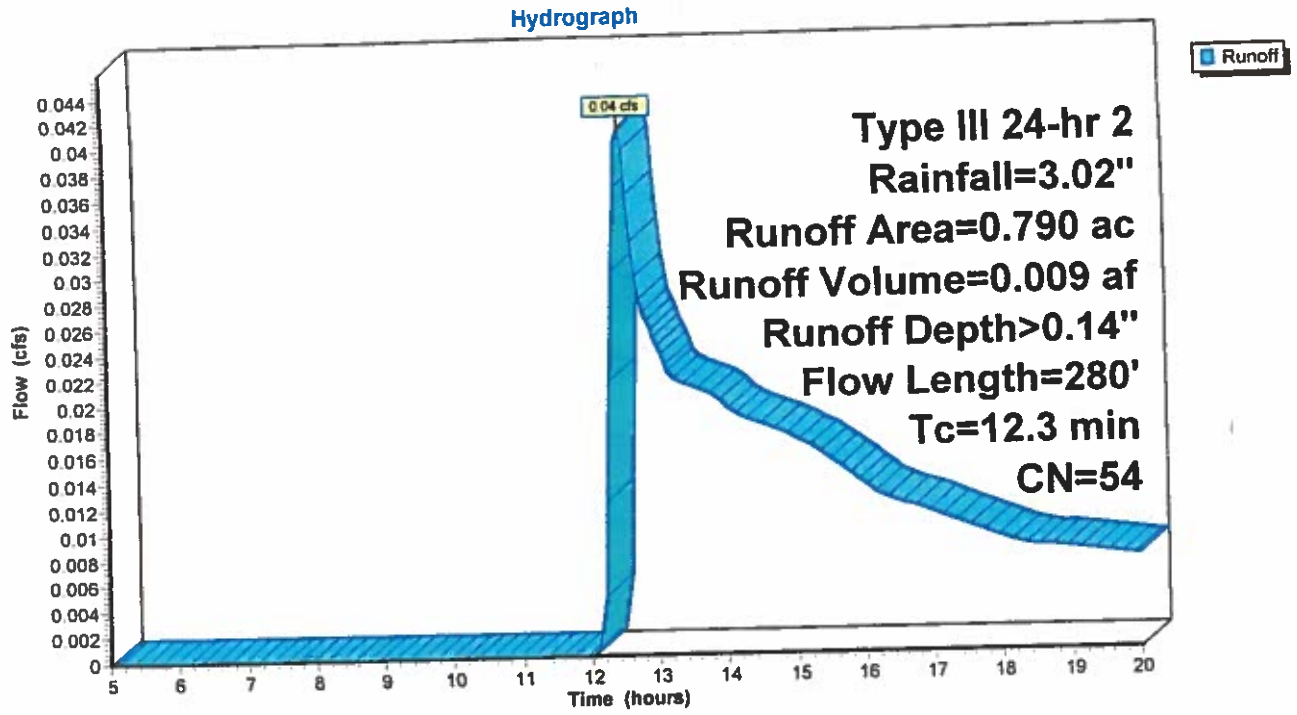
Runoff = 0.04 cfs @ 12.49 hrs, Volume= 0.009 af, Depth> 0.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.02"

	Area (ac)	CN	Description
*	0.160	98	roof & drive
	0.530	39	>75% Grass cover, Good, HSG A
*	0.080	51	woods
*	0.020	98	wetland
	0.790	54	Weighted Average
	0.610		77.22% Pervious Area
	0.180		22.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	50	0.0300	3.52		**Shallow Concentrated Flow, roof/drive** Paved Kv= 20.3 fps
0.8	40	0.0300	0.87		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
0.1	10	0.0200	2.87		**Shallow Concentrated Flow, wetland** Paved Kv= 20.3 fps
11.2	180	0.0500	0.27		**Sheet Flow, lawn** Grass: Short n= 0.150 P2= 3.02"
12.3	280	Total			

Subcatchment 1S: existing house lot



Summary for Subcatchment 2S: field center section

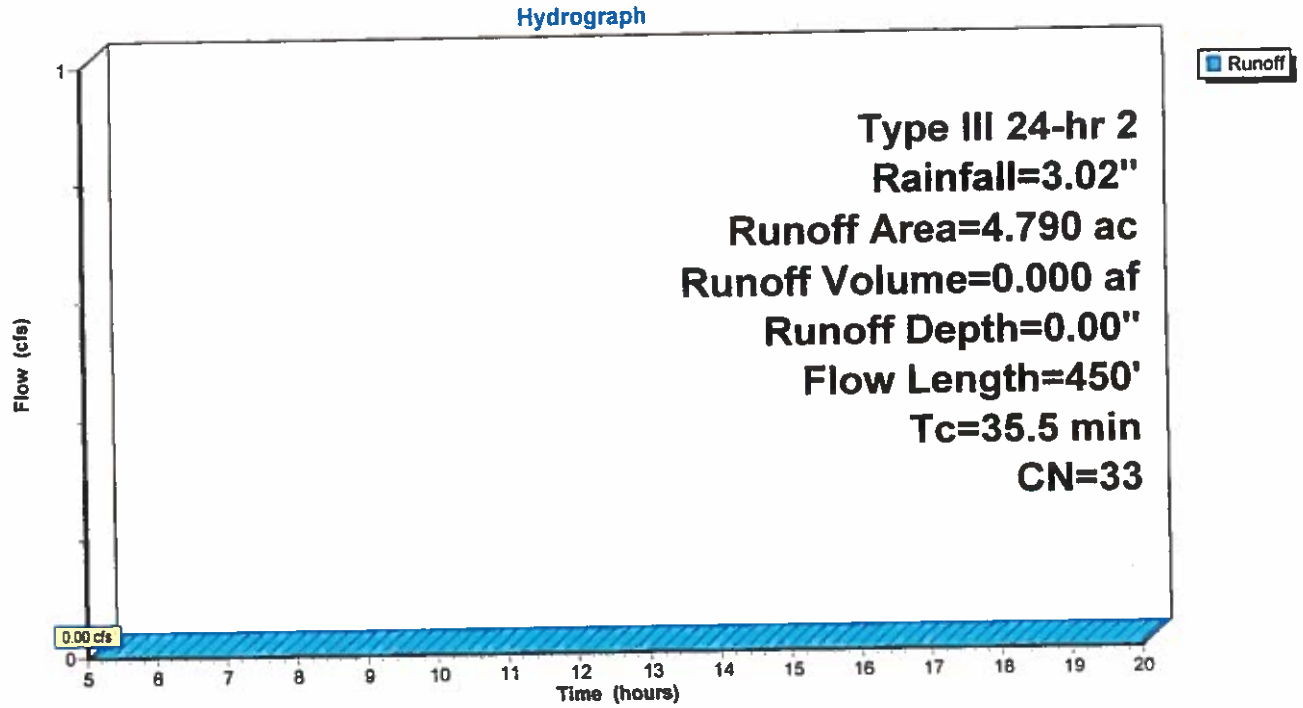
Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.02"

	Area (ac)	CN	Description
*	0.200	98	wetlasnd/brook
	2.190	30	Woods, Good, HSG A
	2.400	30	Meadow, non-grazed, HSG A
	4.790	33	Weighted Average
	4.590		95.82% Pervious Area
	0.200		4.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	20	0.0200	2.87		**Shallow Concentrated Flow, wetland** Paved Kv= 20.3 fps
6.6	210	0.0400	0.53		**Sheet Flow, field** Cultivated: Residue<=20% n= 0.060 P2= 3.02"
28.8	220	0.0500	0.13		**Sheet Flow, wooded** Woods: Light underbrush n= 0.400 P2= 3.02"
35.5	450	Total			

Subcatchment 2S: field center section



Summary for Subcatchment 3S: rear section north of brook

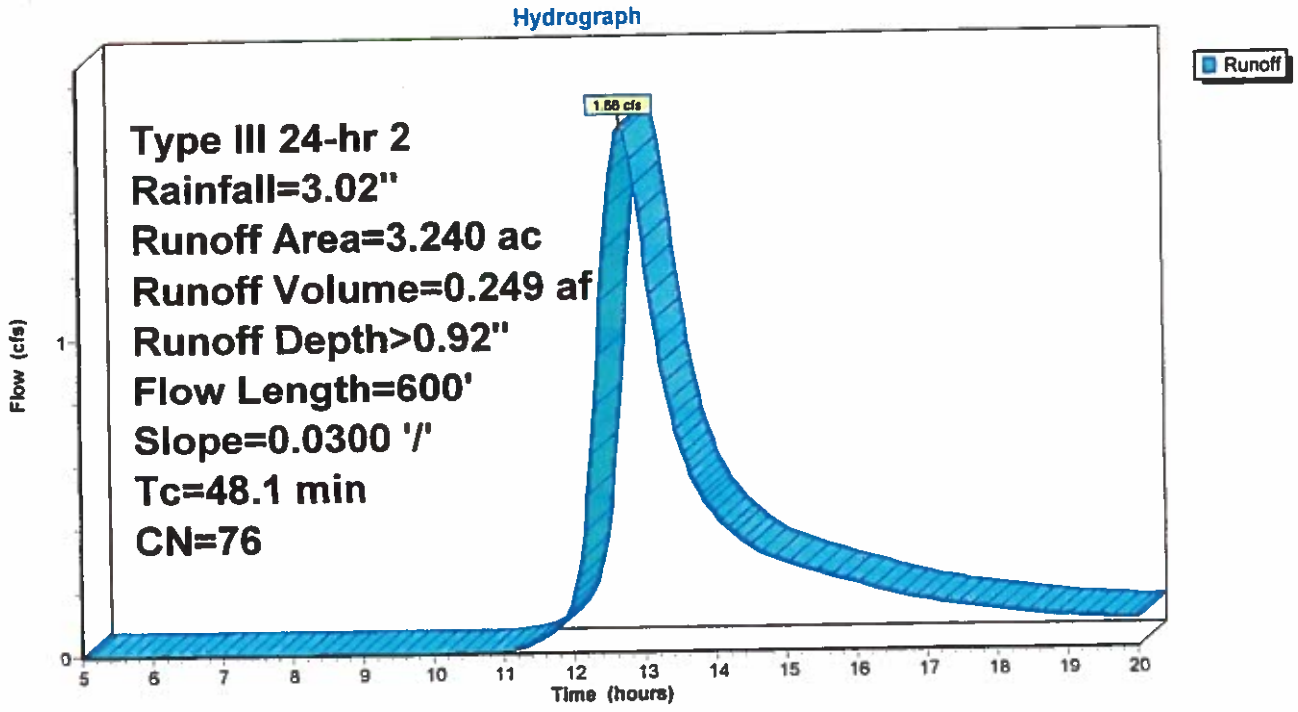
Runoff = 1.66 cfs @ 12.70 hrs, Volume= 0.249 af, Depth> 0.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.02"

	Area (ac)	CN	Description
	1.670	55	Woods, Good, HSG B
*	1.570	98	wetland
	3.240	76	Weighted Average
	1.670		51.54% Pervious Area
	1.570		48.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.3	300	0.0300	0.11		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 3.02"
2.8	300		1.79		**Lake or Reservoir, wetland** Mean Depth= 0.10'
48.1	600	Total			

Subcatchment 3S: rear section north of brook

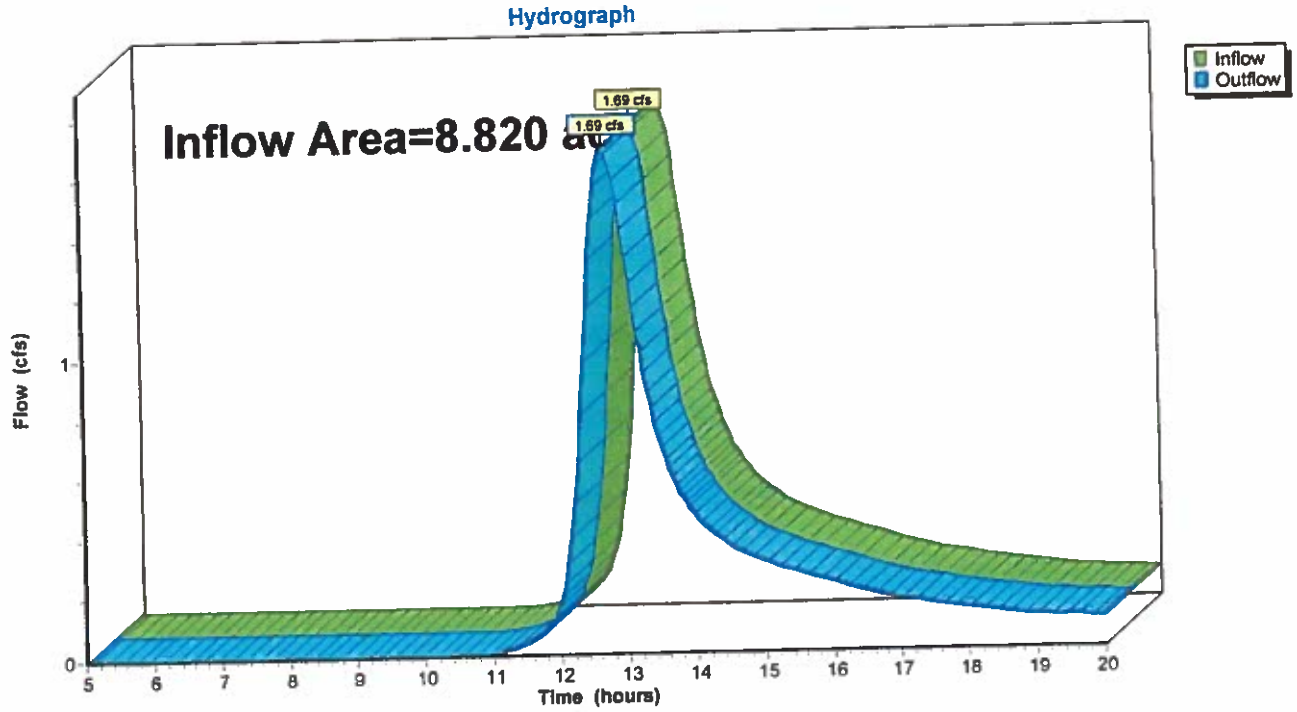


Summary for Reach 4R: brook/ offsite

Inflow Area = 8.820 ac, 22.11% Impervious, Inflow Depth > 0.35" for 2 event
Inflow = 1.69 cfs @ 12.70 hrs, Volume= 0.258 af
Outflow = 1.69 cfs @ 12.70 hrs, Volume= 0.258 af, Atten= 0%, Lag= 0.0 min

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

Reach 4R: brook/ offsite



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

Subcatchment 1S: existing house lot Runoff Area=0.790 ac 22.78% Impervious Runoff Depth>0.60"
Flow Length=280' Tc=12.3 min CN=54 Runoff=0.34 cfs 0.039 af

Subcatchment 2S: field center section Runoff Area=4.790 ac 4.18% Impervious Runoff Depth>0.00"
Flow Length=450' Tc=35.5 min CN=33 Runoff=0.01 cfs 0.001 af

Subcatchment 3S: rear section north of Runoff Area=3.240 ac 48.46% Impervious Runoff Depth>1.93"
Flow Length=600' Slope=0.0300 '/' Tc=48.1 min CN=76 Runoff=3.56 cfs 0.520 af

Reach 4R: brook/ offsite Inflow=3.70 cfs 0.560 af
Outflow=3.70 cfs 0.560 af

Total Runoff Area = 8.820 ac Runoff Volume = 0.560 af Average Runoff Depth = 0.76"
77.89% Pervious = 6.870 ac 22.11% Impervious = 1.950 ac

Summary for Subcatchment 1S: existing house lot

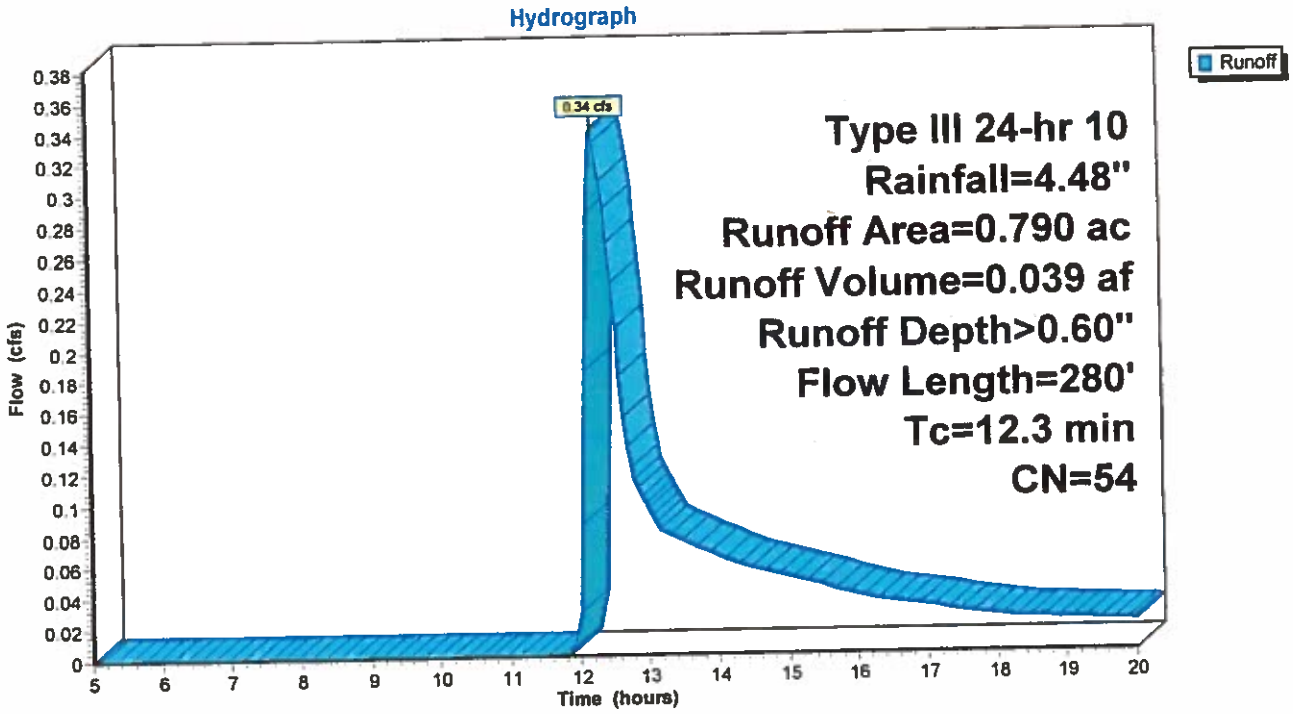
Runoff = 0.34 cfs @ 12.23 hrs, Volume= 0.039 af, Depth> 0.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=4.48"

	Area (ac)	CN	Description
*	0.160	98	roof & drive
	0.530	39	>75% Grass cover, Good, HSG A
*	0.080	51	woods
*	0.020	98	wetland
	0.790	54	Weighted Average
	0.610		77.22% Pervious Area
	0.180		22.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	50	0.0300	3.52		**Shallow Concentrated Flow, roof/drive** Paved Kv= 20.3 fps
0.8	40	0.0300	0.87		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
0.1	10	0.0200	2.87		**Shallow Concentrated Flow, wetland** Paved Kv= 20.3 fps
11.2	180	0.0500	0.27		**Sheet Flow, lawn** Grass: Short n= 0.150 P2= 3.02"
12.3	280	Total			

Subcatchment 1S: existing house lot



Summary for Subcatchment 2S: field center section

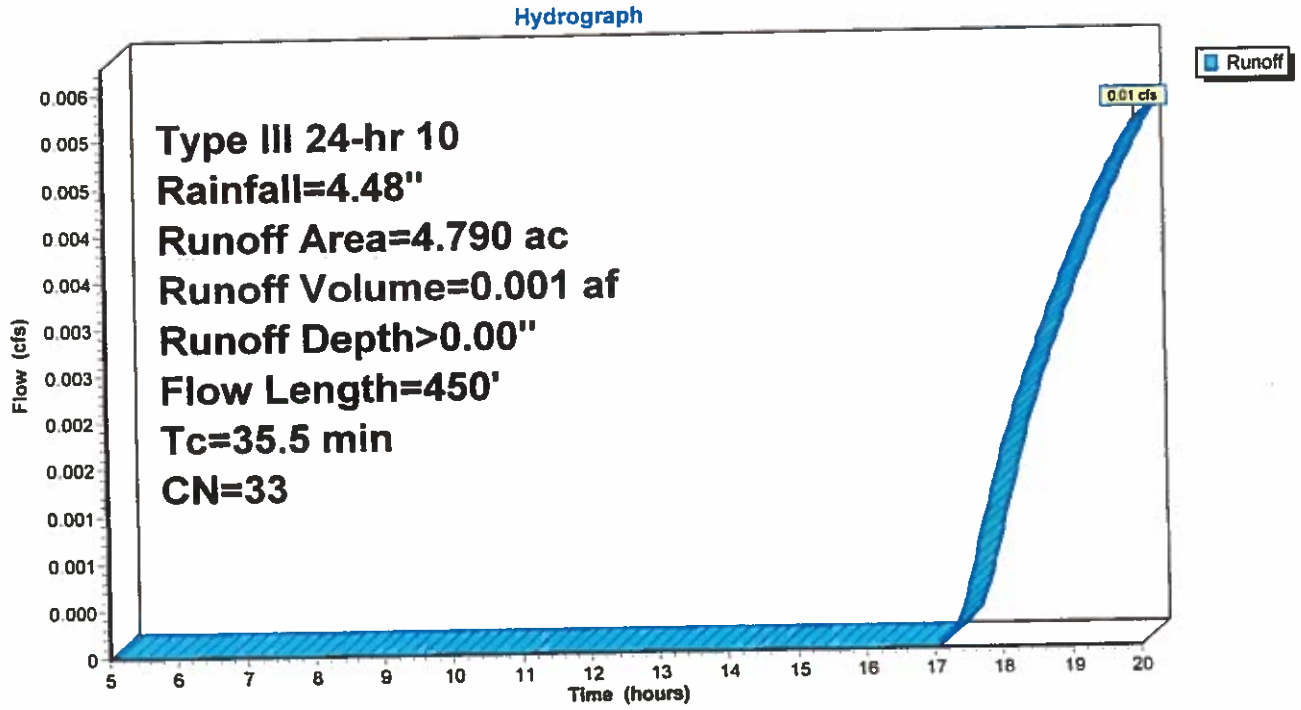
Runoff = 0.01 cfs @ 20.00 hrs, Volume= 0.001 af, Depth> 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=4.48"

	Area (ac)	CN	Description
*	0.200	98	wetlasnd/brook
	2.190	30	Woods, Good, HSG A
	2.400	30	Meadow, non-grazed, HSG A
	4.790	33	Weighted Average
	4.590		95.82% Pervious Area
	0.200		4.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	20	0.0200	2.87		**Shallow Concentrated Flow, wetland** Paved Kv= 20.3 fps
6.6	210	0.0400	0.53		**Sheet Flow, field** Cultivated: Residue<=20% n= 0.060 P2= 3.02"
28.8	220	0.0500	0.13		**Sheet Flow, wooded** Woods: Light underbrush n= 0.400 P2= 3.02"
35.5	450	Total			

Subcatchment 2S: field center section



Summary for Subcatchment 3S: rear section north of brook

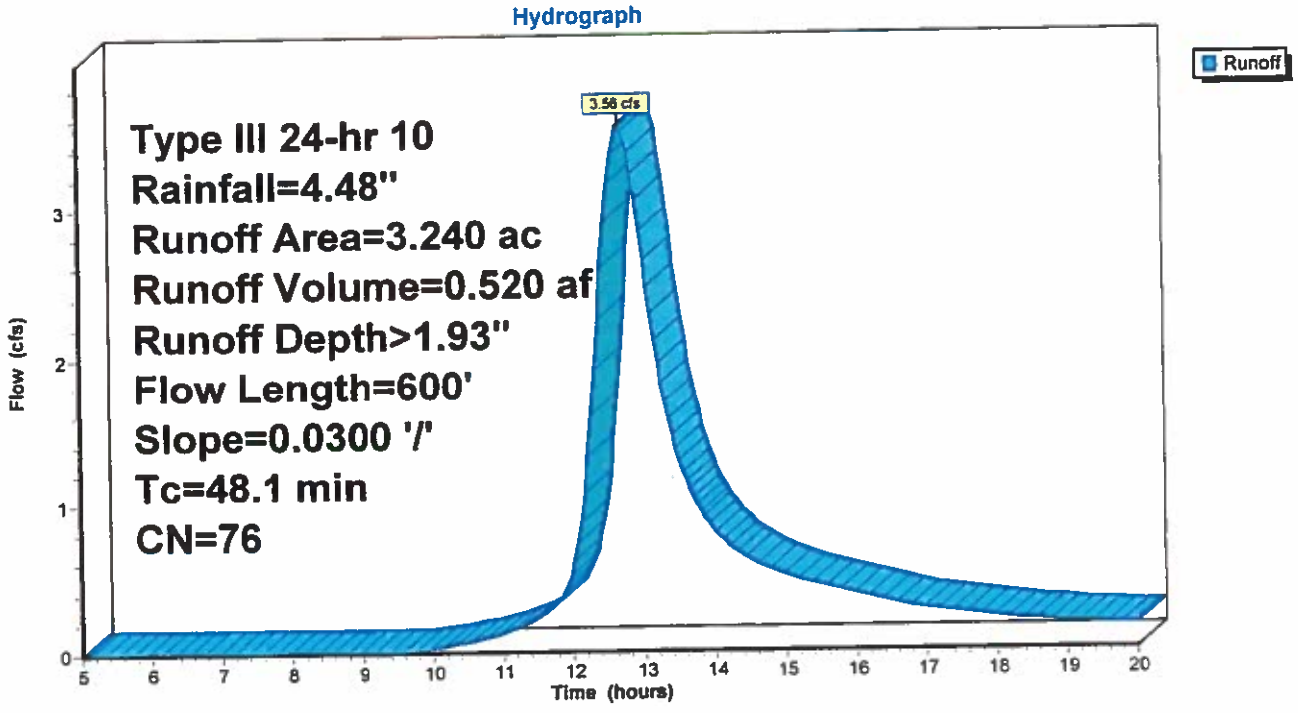
Runoff = 3.56 cfs @ 12.67 hrs, Volume= 0.520 af, Depth> 1.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=4.48"

	Area (ac)	CN	Description
	1.670	55	Woods, Good, HSG B
*	1.570	98	wetland
	3.240	76	Weighted Average
	1.670		51.54% Pervious Area
	1.570		48.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.3	300	0.0300	0.11		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 3.02"
2.8	300		1.79		**Lake or Reservoir, wetland** Mean Depth= 0.10'
48.1	600	Total			

Subcatchment 3S: rear section north of brook

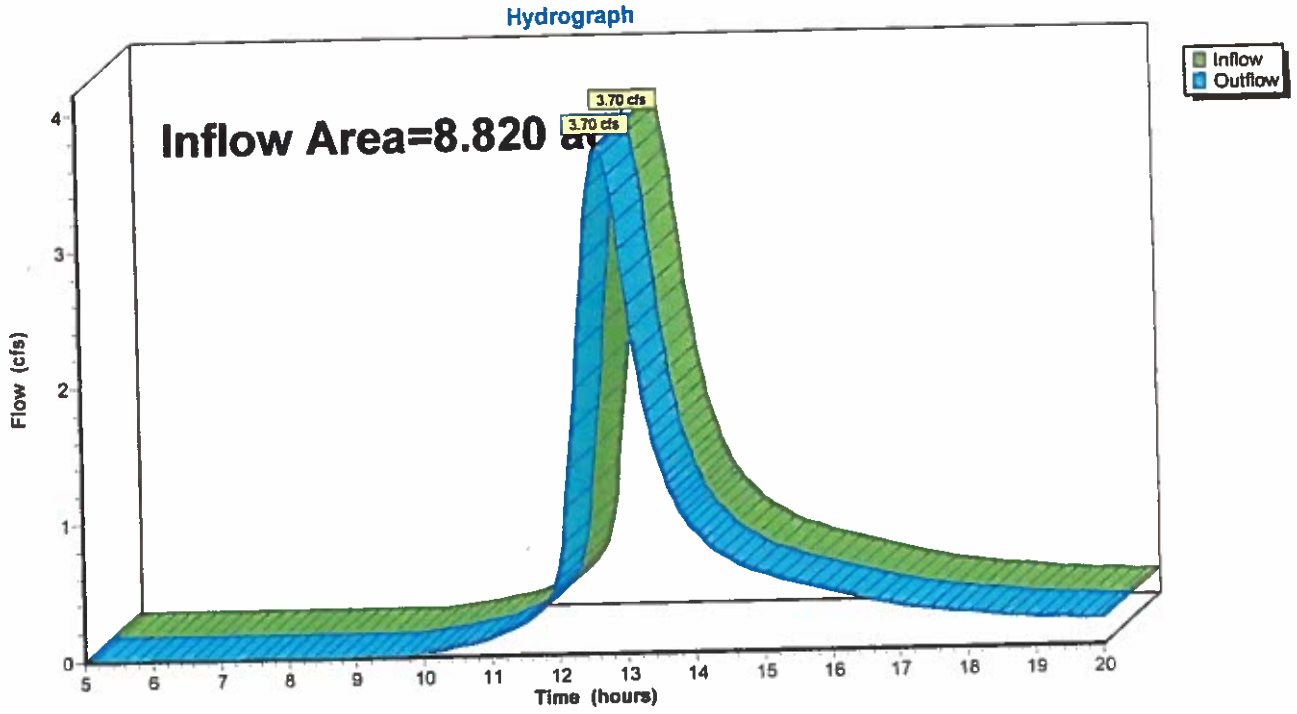


Summary for Reach 4R: brook/ offsite

Inflow Area = 8.820 ac, 22.11% Impervious, Inflow Depth > 0.76" for 10 event
Inflow = 3.70 cfs @ 12.66 hrs, Volume= 0.560 af
Outflow = 3.70 cfs @ 12.66 hrs, Volume= 0.560 af, Atten= 0%, Lag= 0.0 min

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

Reach 4R: brook/ offsite



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

Subcatchment 1S: existing house lot Runoff Area=0.790 ac 22.78% Impervious Runoff Depth>2.37"
Flow Length=280' Tc=12.3 min CN=54 Runoff=1.84 cfs 0.156 af

Subcatchment 2S: field center section Runoff Area=4.790 ac 4.18% Impervious Runoff Depth>0.50"
Flow Length=450' Tc=35.5 min CN=33 Runoff=0.81 cfs 0.199 af

Subcatchment 3S: rear section north of Runoff Area=3.240 ac 48.46% Impervious Runoff Depth>4.69"
Flow Length=600' Slope=0.0300 '/' Tc=48.1 min CN=76 Runoff=8.58 cfs 1.266 af

Reach 4R: brook/ offsite Inflow=9.86 cfs 1.622 af
Outflow=9.86 cfs 1.622 af

Total Runoff Area = 8.820 ac Runoff Volume = 1.622 af Average Runoff Depth = 2.21"
77.89% Pervious = 6.870 ac 22.11% Impervious = 1.950 ac

Summary for Subcatchment 1S: existing house lot

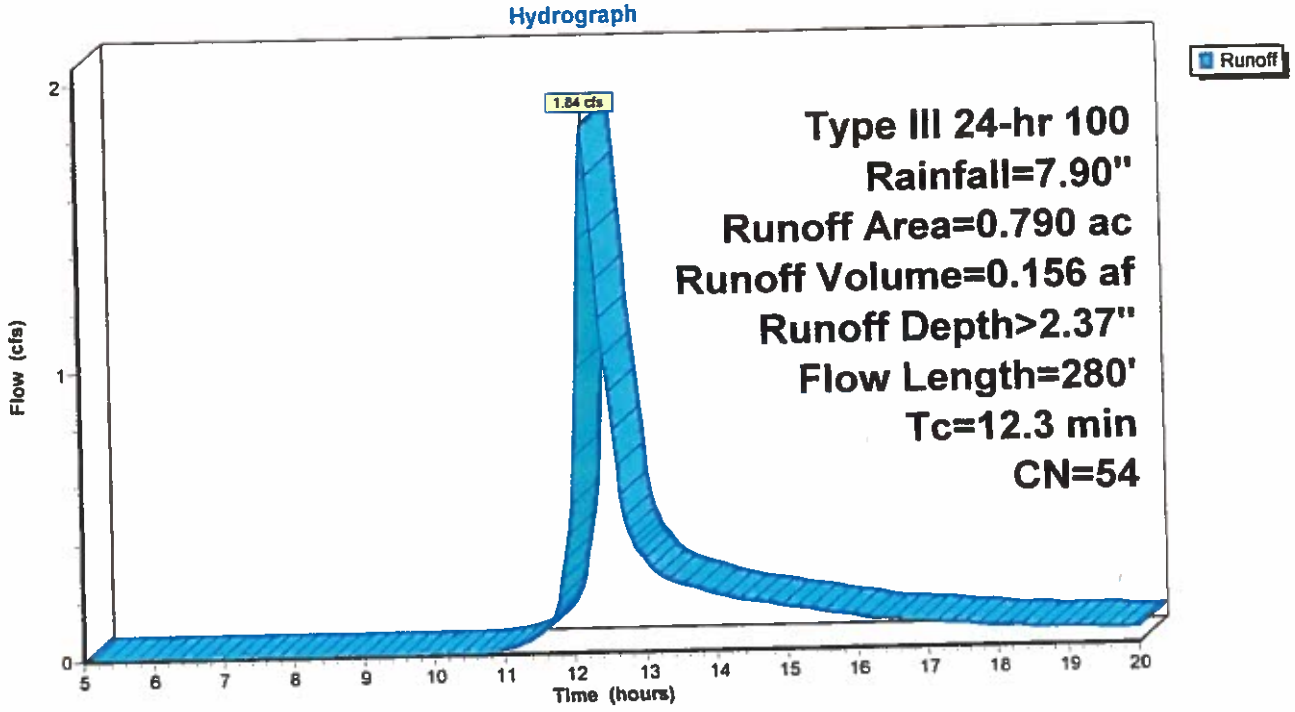
Runoff = 1.84 cfs @ 12.19 hrs, Volume= 0.156 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=7.90"

	Area (ac)	CN	Description
*	0.160	98	roof & drive
	0.530	39	>75% Grass cover, Good, HSG A
*	0.080	51	woods
*	0.020	98	wetland
	0.790	54	Weighted Average
	0.610		77.22% Pervious Area
	0.180		22.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	50	0.0300	3.52		**Shallow Concentrated Flow, roof/drive** Paved Kv= 20.3 fps
0.8	40	0.0300	0.87		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
0.1	10	0.0200	2.87		**Shallow Concentrated Flow, wetland** Paved Kv= 20.3 fps
11.2	180	0.0500	0.27		**Sheet Flow, lawn** Grass: Short n= 0.150 P2= 3.02"
12.3	280	Total			

Subcatchment 1S: existing house lot



Summary for Subcatchment 2S: field center section

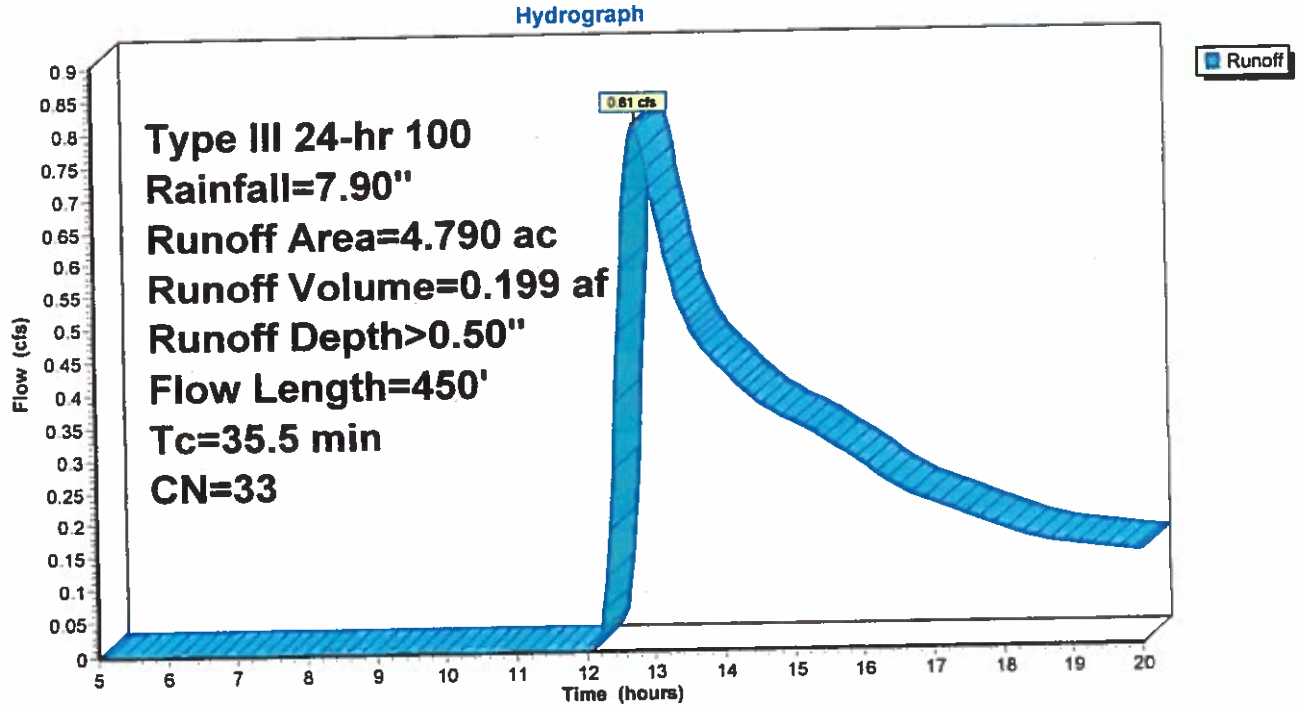
Runoff = 0.81 cfs @ 12.77 hrs, Volume= 0.199 af, Depth> 0.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=7.90"

	Area (ac)	CN	Description
*	0.200	98	wetlasnd/brook
	2.190	30	Woods, Good, HSG A
	2.400	30	Meadow, non-grazed, HSG A
	4.790	33	Weighted Average
	4.590		95.82% Pervious Area
	0.200		4.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	20	0.0200	2.87		**Shallow Concentrated Flow, wetland** Paved Kv= 20.3 fps
6.6	210	0.0400	0.53		**Sheet Flow, field** Cultivated: Residue<=20% n= 0.060 P2= 3.02"
28.8	220	0.0500	0.13		**Sheet Flow, wooded** Woods: Light underbrush n= 0.400 P2= 3.02"
35.5	450	Total			

Subcatchment 2S: field center section



Summary for Subcatchment 3S: rear section north of brook

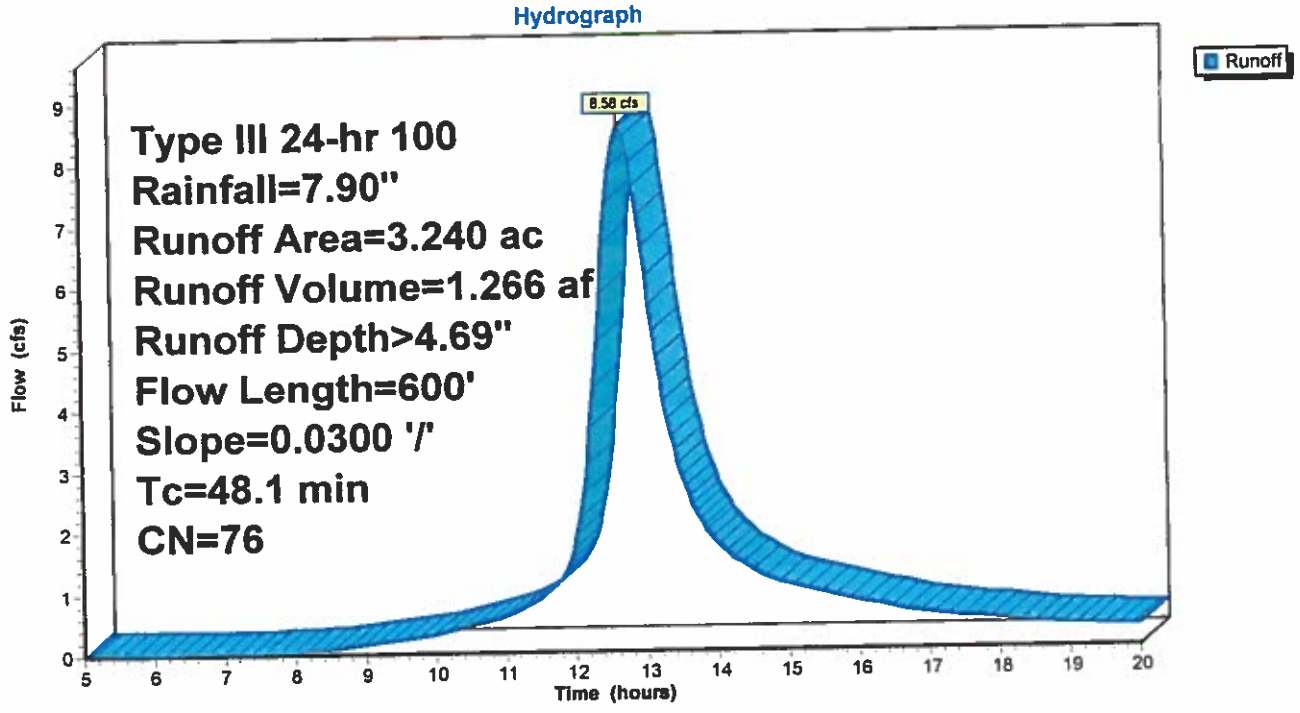
Runoff = 8.58 cfs @ 12.65 hrs, Volume= 1.266 af, Depth> 4.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=7.90"

	Area (ac)	CN	Description
	1.670	55	Woods, Good, HSG B
*	1.570	98	wetland
	3.240	76	Weighted Average
	1.670		51.54% Pervious Area
	1.570		48.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.3	300	0.0300	0.11		Sheet Flow, woods Woods: Light underbrush n= 0.400 P2= 3.02"
2.8	300		1.79		Lake or Reservoir, wetland Mean Depth= 0.10'
48.1	600	Total			

Subcatchment 3S: rear section north of brook

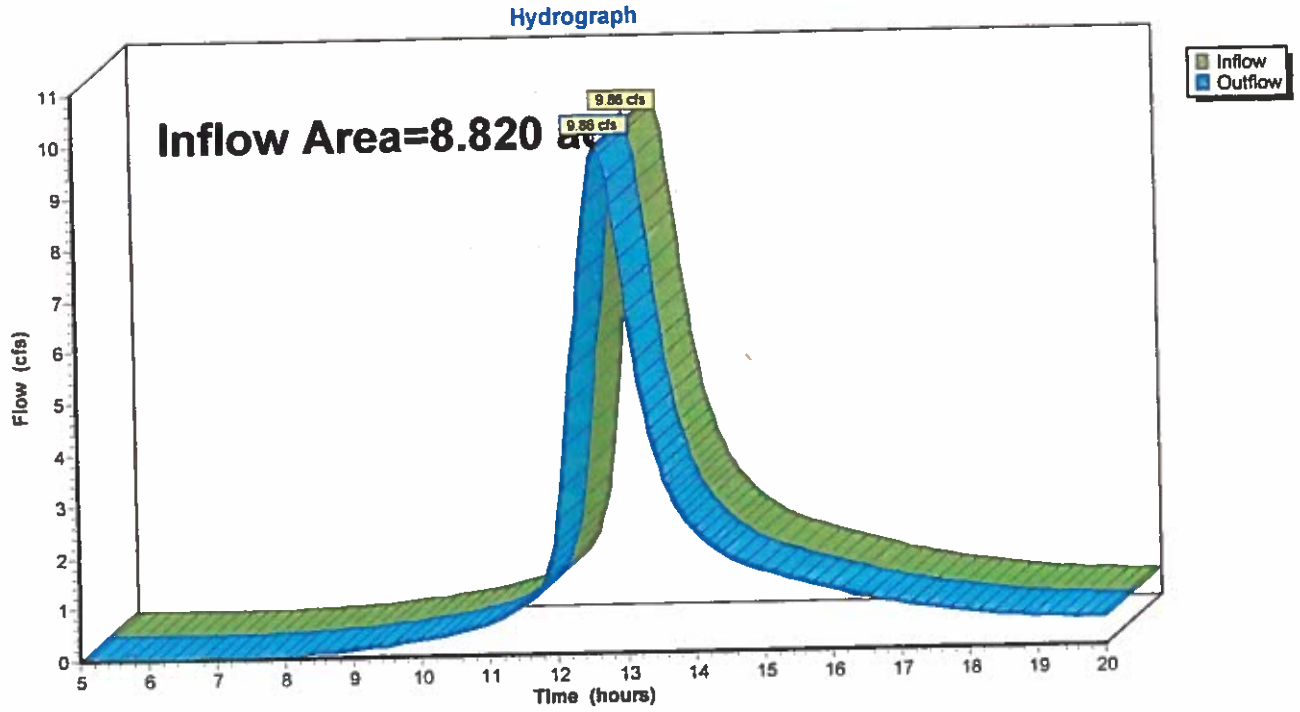


Summary for Reach 4R: brook/ offsite

Inflow Area = 8.820 ac, 22.11% Impervious, Inflow Depth > 2.21" for 100 event
Inflow = 9.86 cfs @ 12.64 hrs, Volume= 1.622 af
Outflow = 9.86 cfs @ 12.64 hrs, Volume= 1.622 af, Atten= 0%, Lag= 0.0 min

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

Reach 4R: brook/ offsite



Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Stormwater Calculations

Proposed Conditions

Prepared for

William Moryl

Sunny Side Storage LLC

319 Palmer Road

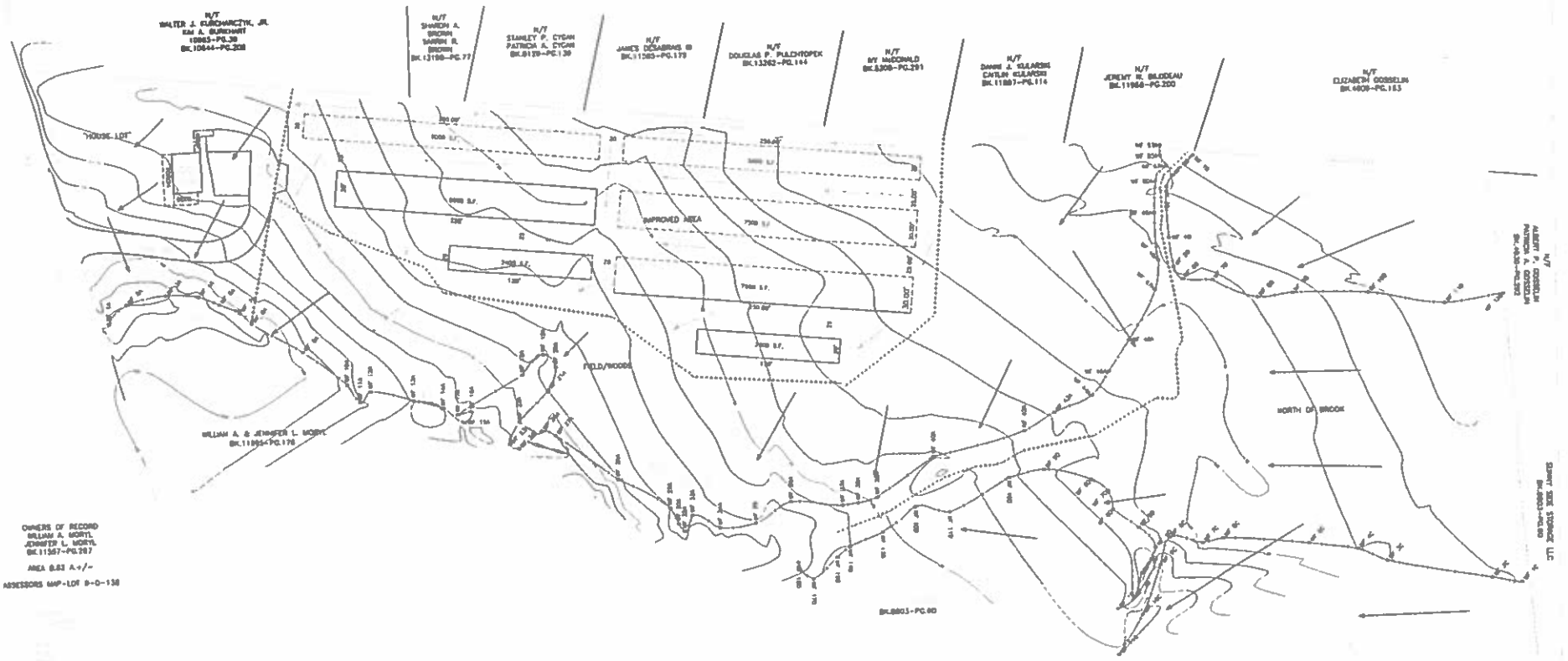
Ware, MA 01082

Prepared by

Robert H. LeMaitre, PE, PLS

4 Skyview Drive

Ware, MA 01082



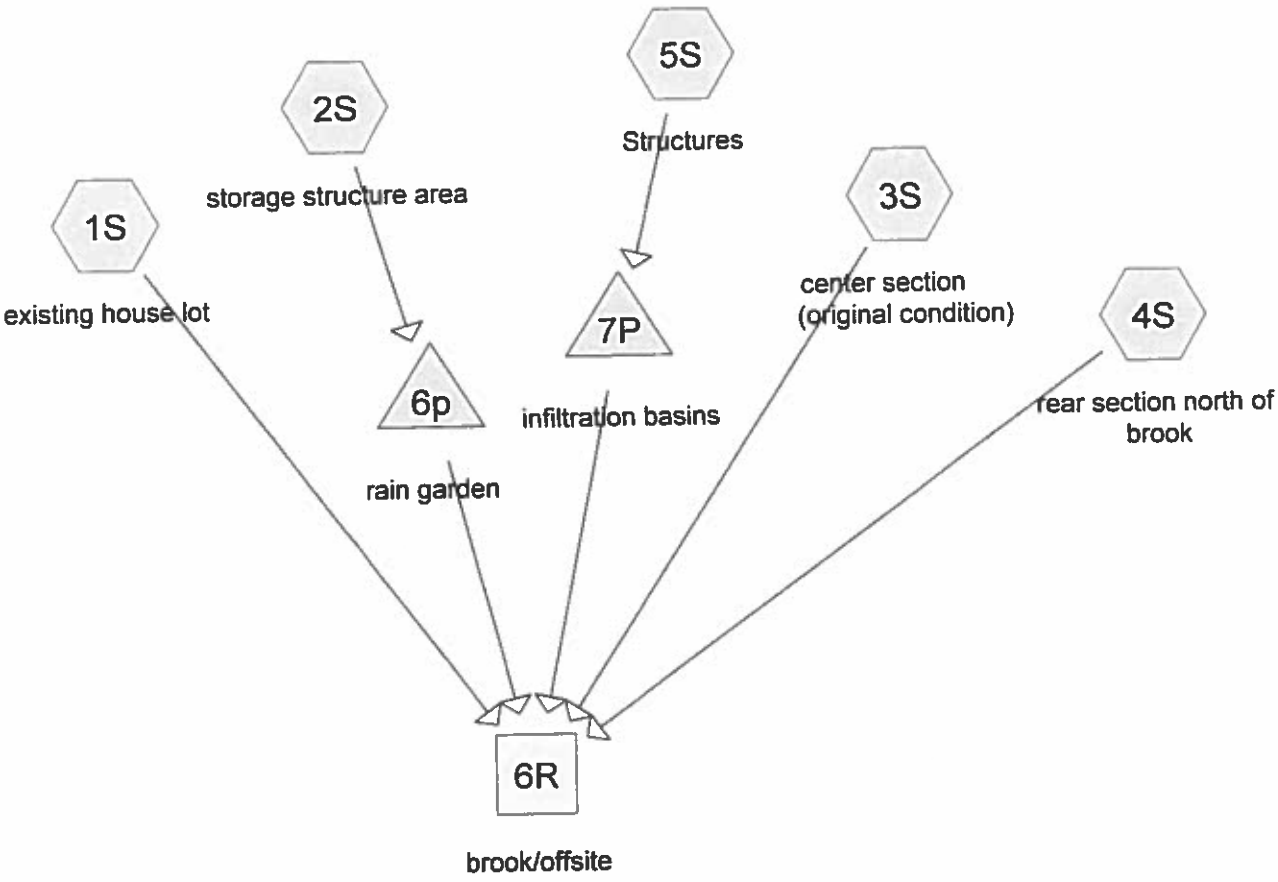
WETLAND DELINEATION BY

EBI ENVIRONMENTAL CONSULTANTS, INC.
GLENN E. KREWOSKY, CONSULTANT
7 WELLINGTON ROAD
OXFORD, MA 01540
508-987-0979
&
LEC ENVIRONMENTAL CONSULTANTS, INC.
200 GROVE STREET
SUITE 302
WORCESTER, MA 01605
508-753-3077

PROPOSED CONDITIONS
AT
319 PALMER ROAD IN WARE
OWNED BY
WILLIAM A. MORYL

1"=40' APRIL 15, 2020

R. H. LeMAITRE, PE, PLS
4 SKYVIEW DRIVE
WARE, MA 01082
413-967-7878



Subcat Reach Pond Link

Drainage Diagram for 319 Palmer Rd. Post Construction
Prepared by Robert H. LeMaitre, PE, PLS, Printed 4/16/2020
HydroCAD® 9.10 s/n 03091 © 2010 HydroCAD Software Solutions LLC

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

Subcatchment 1S: existing house lot Runoff Area=0.790 ac 22.78% Impervious Runoff Depth>0.14"
Flow Length=280' Tc=12.3 min CN=54 Runoff=0.04 cfs 0.009 af

Subcatchment 2S: storage structure area Runoff Area=1.280 ac 0.00% Impervious Runoff Depth>0.38"
Flow Length=210' Slope=0.0400 '/' Tc=13.8 min CN=63 Runoff=0.34 cfs 0.041 af

Subcatchment 3S: center section Runoff Area=2.610 ac 2.30% Impervious Runoff Depth=0.00"
Flow Length=430' Tc=35.4 min CN=32 Runoff=0.00 cfs 0.000 af

Subcatchment 4S: rear section north of Runoff Area=3.240 ac 48.46% Impervious Runoff Depth>0.92"
Flow Length=600' Slope=0.0300 '/' Tc=48.1 min CN=76 Runoff=1.66 cfs 0.249 af

Subcatchment 5S: Structures Runoff Area=0.900 ac 100.00% Impervious Runoff Depth>2.61"
Flow Length=22' Slope=0.0200 '/' Tc=0.1 min CN=98 Runoff=3.01 cfs 0.196 af

Reach 6R: brook/offsite Inflow=1.72 cfs 0.283 af
Outflow=1.72 cfs 0.283 af

Pond 6p: rain garden Peak Elev=111.27' Storage=0.020 af Inflow=0.34 cfs 0.041 af
Primary=0.04 cfs 0.025 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.025 af

Pond 7P: infiltration basins Peak Elev=97.94' Storage=0.026 af Inflow=3.01 cfs 0.196 af
Discarded=1.77 cfs 0.196 af Primary=0.00 cfs 0.000 af Outflow=1.77 cfs 0.196 af

Total Runoff Area = 8.820 ac Runoff Volume = 0.495 af Average Runoff Depth = 0.67"
69.27% Pervious = 6.110 ac 30.73% Impervious = 2.710 ac

Summary for Subcatchment 1S: existing house lot

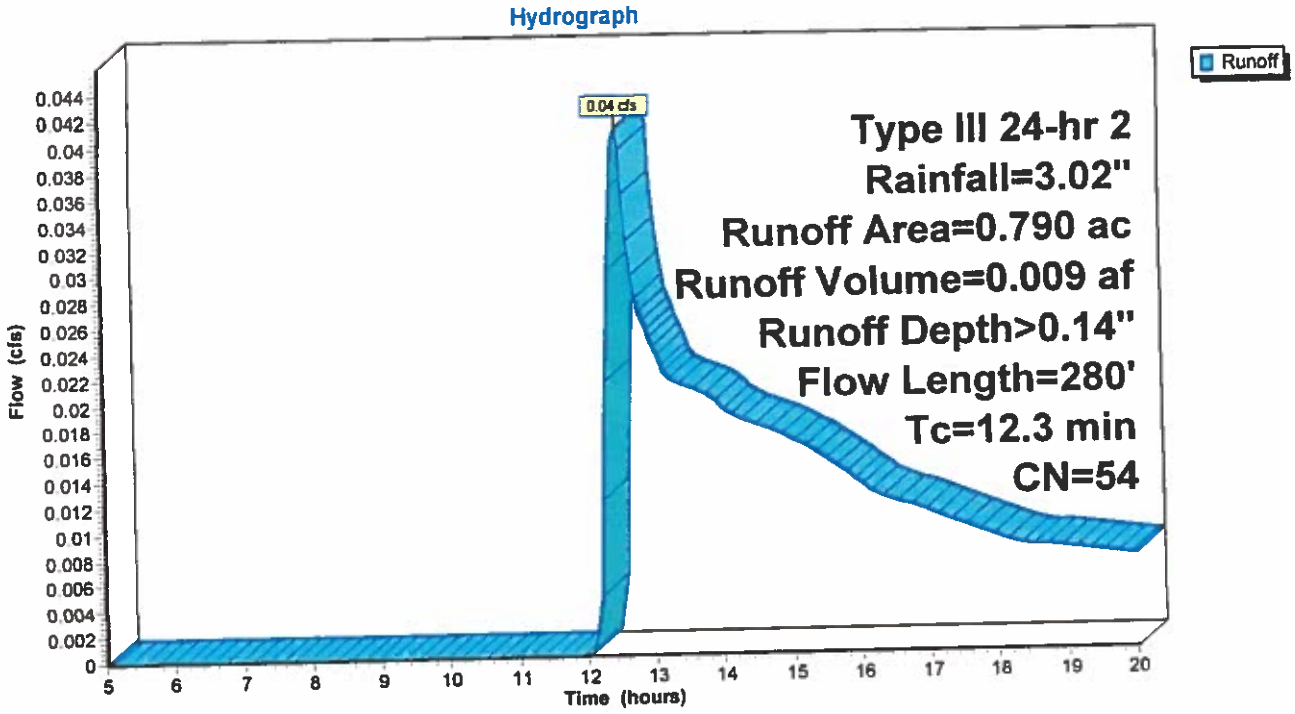
Runoff = 0.04 cfs @ 12.49 hrs, Volume= 0.009 af, Depth> 0.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.02"

	Area (ac)	CN	Description
*	0.160	98	roof & drive
*	0.530	39	>75% grass cove good, HSG A
*	0.080	51	woods
*	0.020	98	wetland
	0.790	54	Weighted Average
	0.610		77.22% Pervious Area
	0.180		22.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	50	0.0300	3.52		**Shallow Concentrated Flow, paved** Paved Kv= 20.3 fps
0.8	40	0.0300	0.87		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
0.1	10	0.0200	2.87		**Shallow Concentrated Flow, wetland** Paved Kv= 20.3 fps
11.2	180	0.0500	0.27		**Sheet Flow, lawn** Grass: Short n= 0.150 P2= 3.02"
12.3	280	Total			

Subcatchment 1S: existing house lot



Summary for Subcatchment 2S: storage structure area

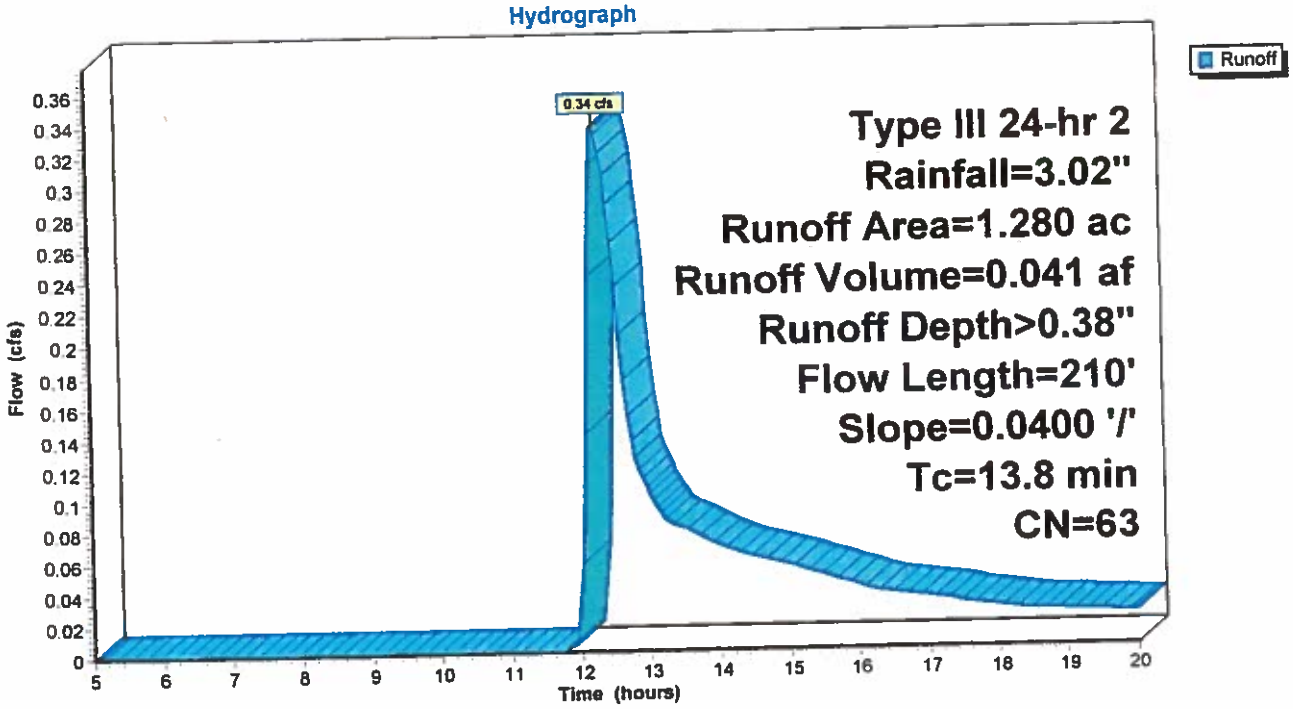
Runoff = 0.34 cfs @ 12.27 hrs, Volume= 0.041 af, Depth> 0.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.02"

	Area (ac)	CN	Description
*	0.920	72	gravel drives & surfaces
*	0.360	39	slopes/lawn
	1.280	63	Weighted Average
	1.280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	210	0.0400	0.25		**Sheet Flow, slopes/lawn** Grass: Short n= 0.150 P2= 3.02"

Subcatchment 2S: storage structure area



Summary for Subcatchment 3S: center section (original condition)

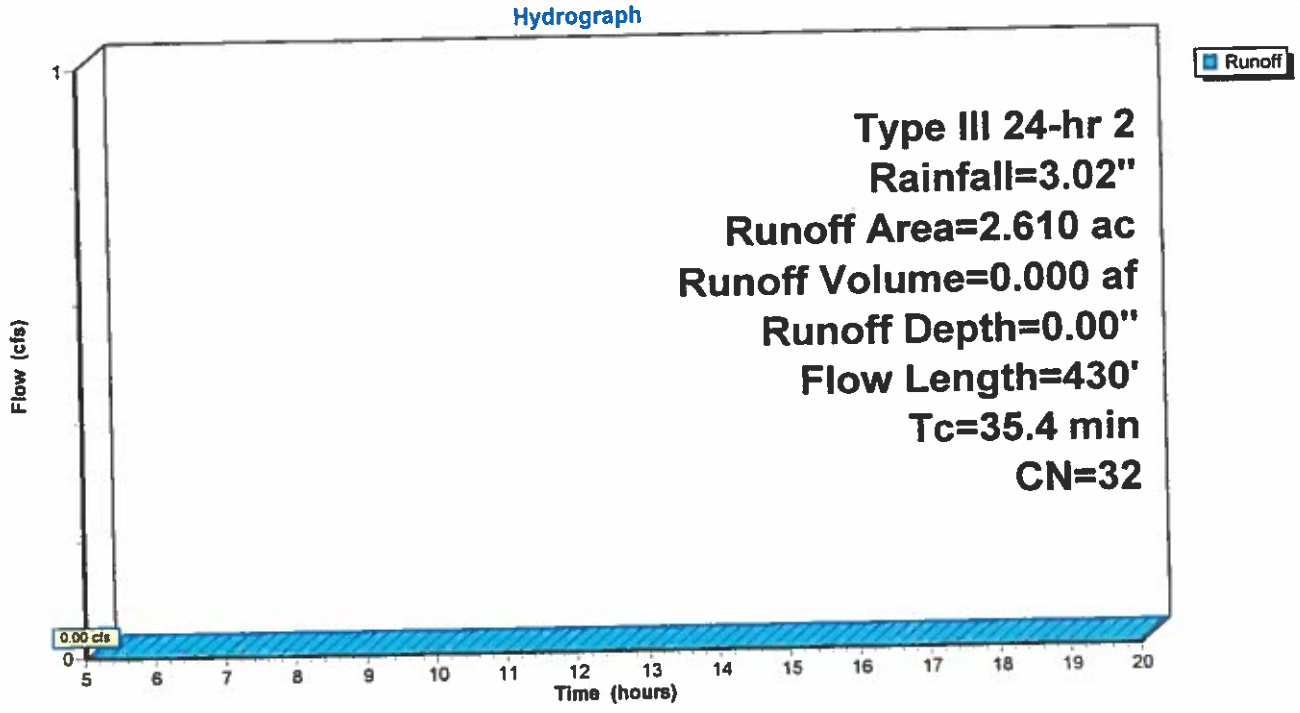
Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.02"

	Area (ac)	CN	Description
*	2.190	30	woods
*	0.360	30	Meadow non-grazed HSG a
*	0.060	98	wetland
	2.610	32	Weighted Average
	2.550		97.70% Pervious Area
	0.060		2.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	220	0.0500	0.13		**Sheet Flow, wooded** Woods: Light underbrush n= 0.400 P2= 3.02"
6.6	210	0.0400	0.53		**Sheet Flow, field** Cultivated: Residue<=20% n= 0.060 P2= 3.02"
35.4	430	Total			

Subcatchment 3S: center section (original condition)



Summary for Subcatchment 4S: rear section north of brook

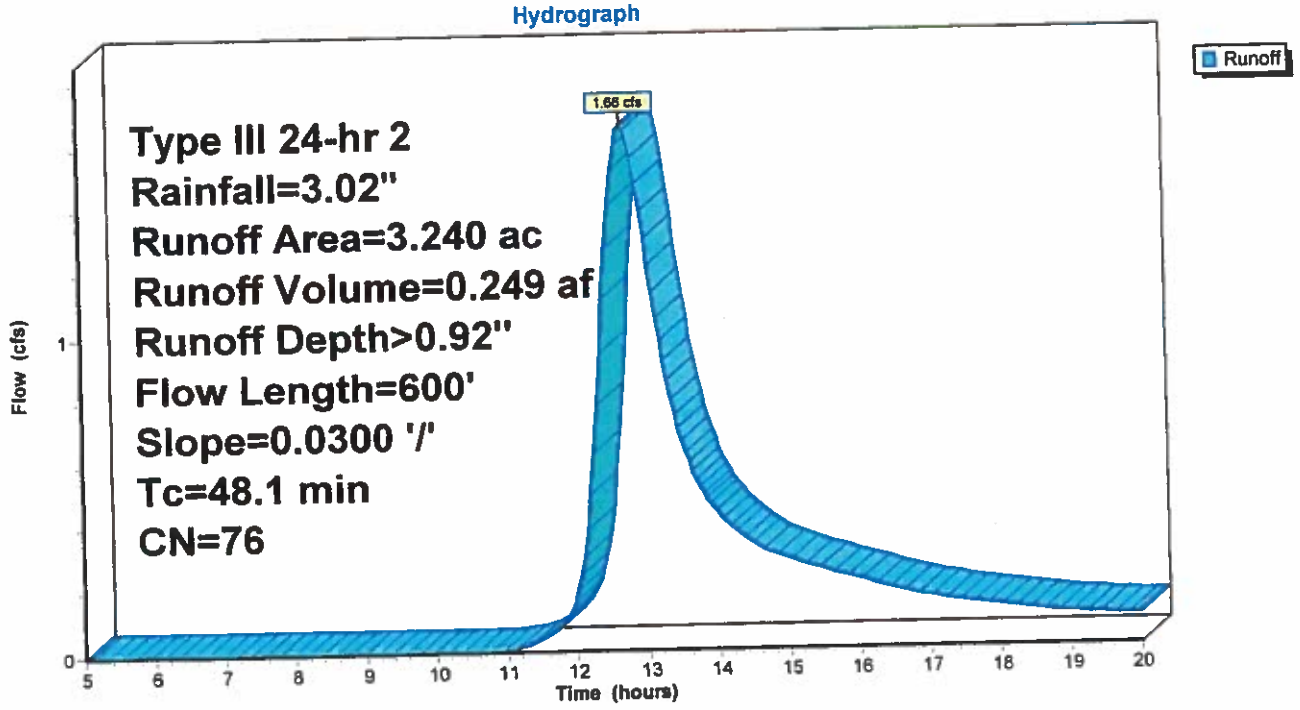
Runoff = 1.66 cfs @ 12.70 hrs, Volume= 0.249 af, Depth> 0.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.02"

	Area (ac)	CN	Description
*	1.670	55	Woods Goog HSG b
*	1.570	98	wetland
	3.240	76	Weighted Average
	1.670		51.54% Pervious Area
	1.570		48.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.3	300	0.0300	0.11		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 3.02"
2.8	300		1.79		**Lake or Reservoir, wetland** Mean Depth= 0.10'
48.1	600	Total			

Subcatchment 4S: rear section north of brook



Summary for Subcatchment 5S: Structures

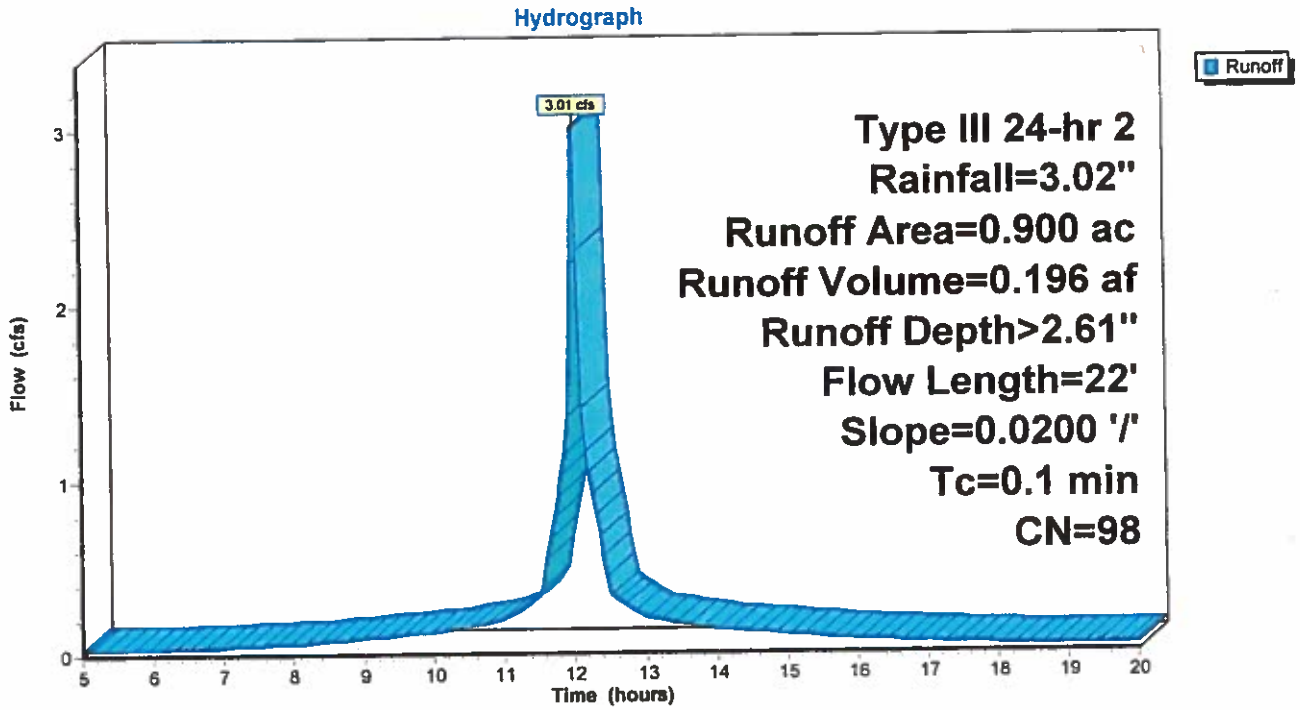
Runoff = 3.01 cfs @ 12.00 hrs, Volume= 0.196 af, Depth> 2.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.02"

	Area (ac)	CN	Description
*	0.900	98	roofs
	0.900		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	22	0.0200	2.87		**Shallow Concentrated Flow, roofs** Paved Kv= 20.3 fps

Subcatchment 5S: Structures

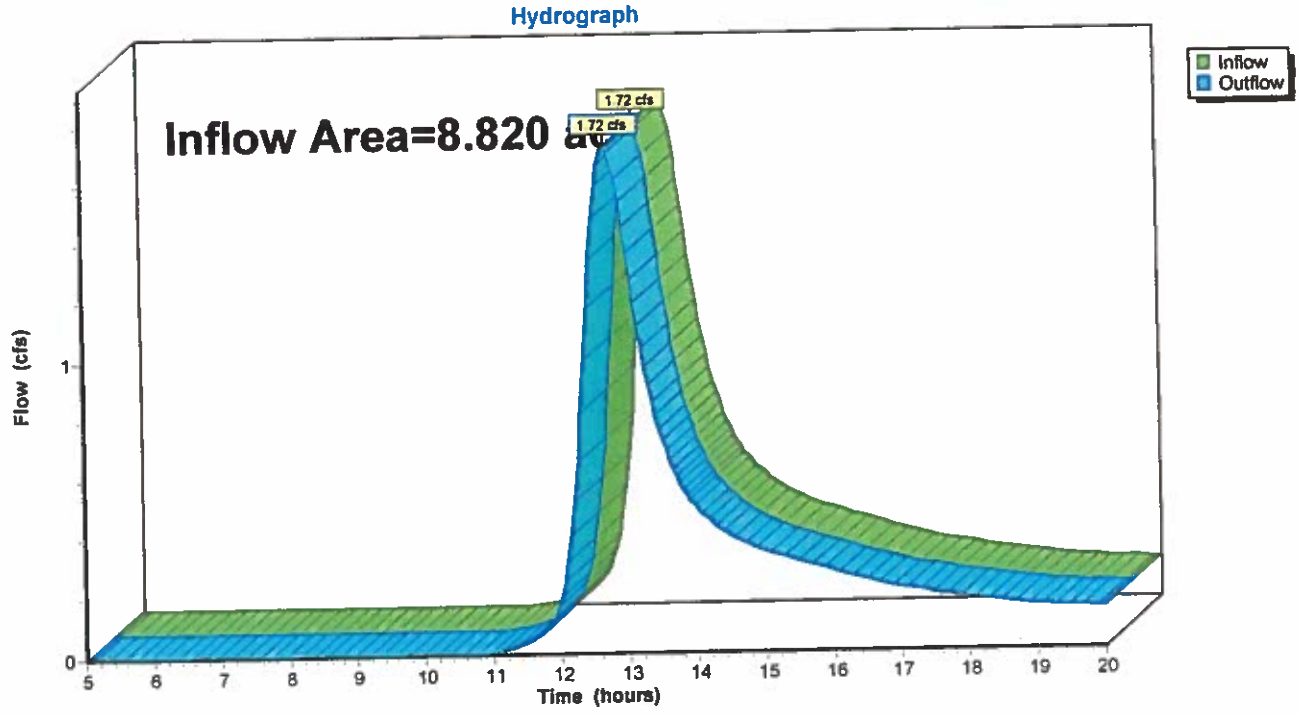


Summary for Reach 6R: brook/offsite

Inflow Area = 8.820 ac, 30.73% Impervious, Inflow Depth > 0.39" for 2 event
Inflow = 1.72 cfs @ 12.70 hrs, Volume= 0.283 af
Outflow = 1.72 cfs @ 12.70 hrs, Volume= 0.283 af, Atten= 0%, Lag= 0.0 min

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

Reach 6R: brook/offsite



Summary for Pond 6p: rain garden

Inflow Area = 1.280 ac, 0.00% Impervious, Inflow Depth > 0.38" for 2 event
Inflow = 0.34 cfs @ 12.27 hrs, Volume= 0.041 af
Outflow = 0.04 cfs @ 15.95 hrs, Volume= 0.025 af, Atten= 88%, Lag= 220.9 min
Primary = 0.04 cfs @ 15.95 hrs, Volume= 0.025 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 111.27' @ 15.95 hrs Surf.Area= 0.015 ac Storage= 0.020 af

Plug-Flow detention time= 201.6 min calculated for 0.025 af (60% of inflow)
Center-of-Mass det. time= 111.5 min (971.4 - 859.9)

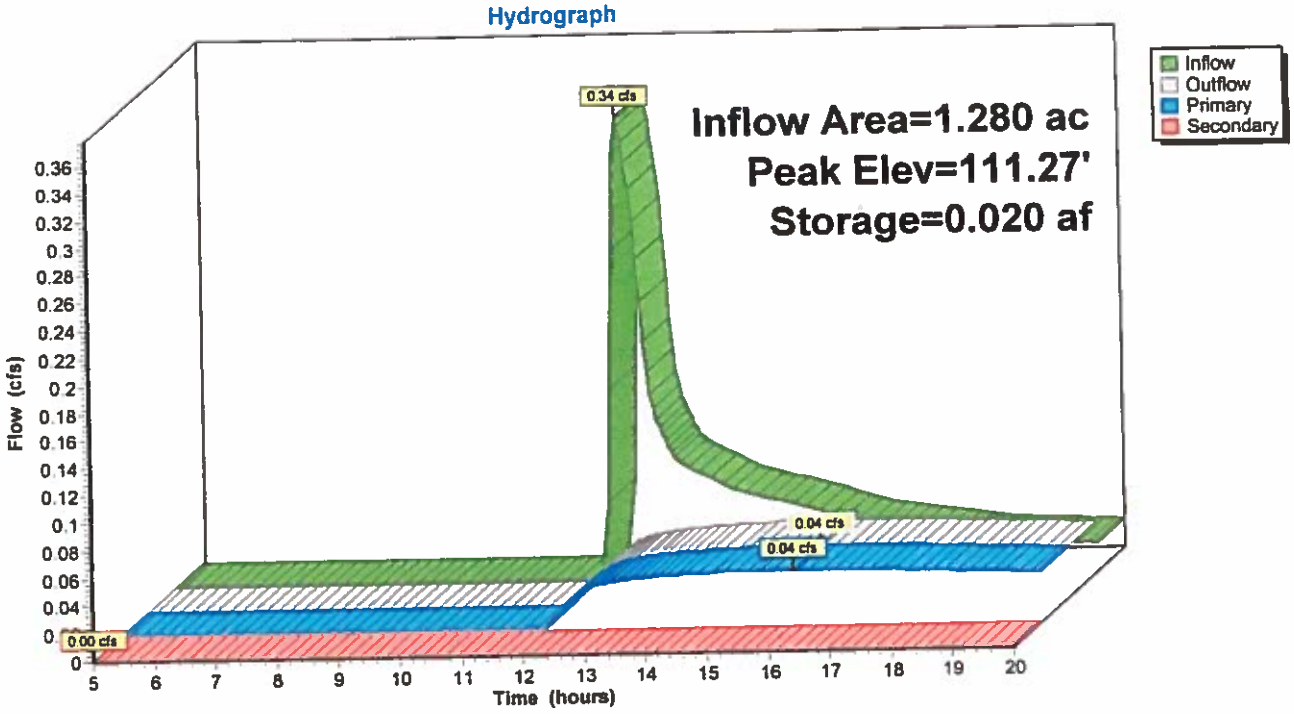
Volume	Invert	Avail.Storage	Storage Description
#1	109.00'	0.024 af	**4.00'W x 40.00'L x 2.50'H Prismatoid Z=2.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	109.00'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 82.00'
#2	Secondary	112.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.04 cfs @ 15.95 hrs HW=111.27' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=109.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6p: rain garden



Summary for Pond 7P: infiltration basins

Inflow Area = 0.900 ac,100.00% Impervious, Inflow Depth > 2.61" for 2 event
Inflow = 3.01 cfs @ 12.00 hrs, Volume= 0.196 af
Outflow = 1.77 cfs @ 12.10 hrs, Volume= 0.196 af, Atten= 41%, Lag= 5.9 min
Discarded = 1.77 cfs @ 12.10 hrs, Volume= 0.196 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 97.94' @ 12.10 hrs Surf.Area= 0.022 ac Storage= 0.026 af

Plug-Flow detention time= 5.2 min calculated for 0.195 af (100% of inflow)
Center-of-Mass det. time= 4.9 min (739.6 - 734.7)

Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	0.180 af	**8.00'D x 6.00'H stone fill Z=1.0** x 20 0.450 af Overall x 40.0% Voids
#2	96.00'	0.100 af	**4.00'D x 4.00'H Vertical Cone/Cylinder Z=1.0** x 20
		0.280 af	Total Available Storage

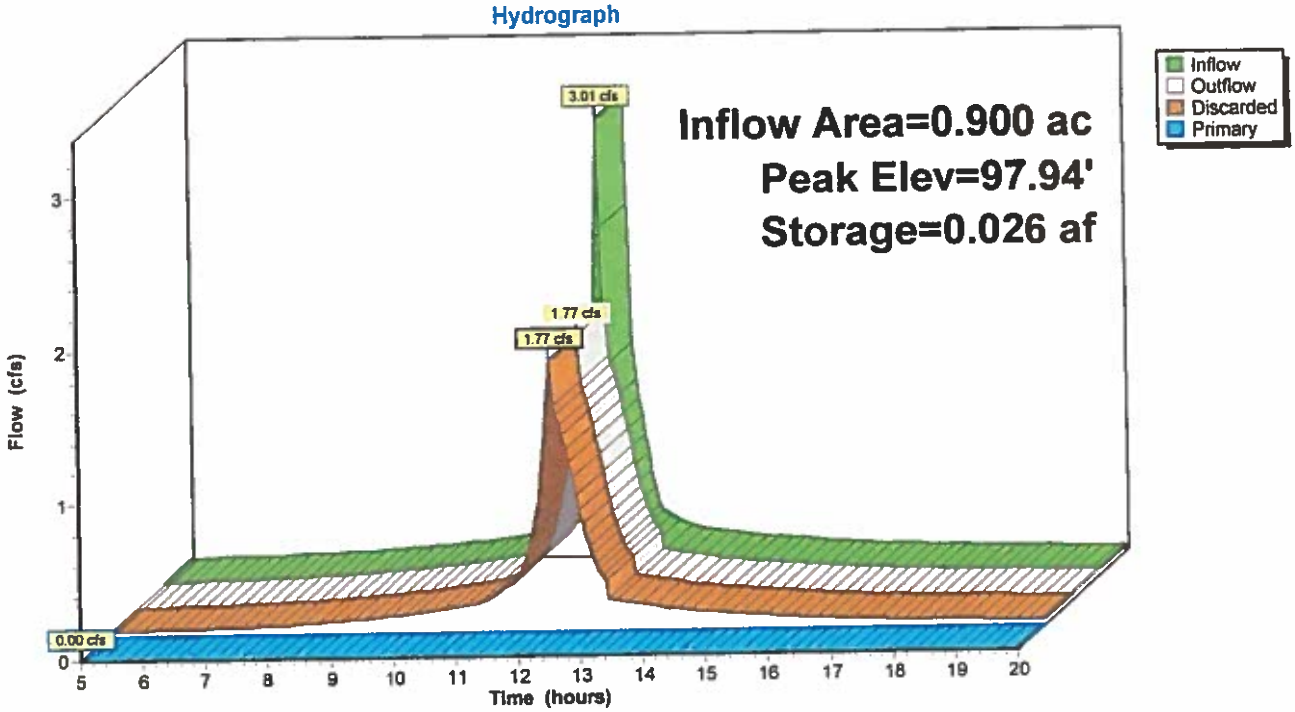
Device	Routing	Invert	Outlet Devices
#1	Discarded	96.00'	**2.410 in/hr Exfiltration X 20.00 over Wetted area** Conductivity to Groundwater Elevation = 82.00'
#2	Primary	100.00'	**4.0" Round Culvert X 20.00** L= 1.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 98.00' / 100.00' S= -2.0000 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior

Discarded OutFlow Max=1.52 cfs @ 12.10 hrs HW=97.94' (Free Discharge)
↑—**1=Exfiltration** (Controls 1.52 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=96.00' (Free Discharge)
↑—**2=Culvert** (Controls 0.00 cfs)

Pond 7P: infiltration basins

Hydrograph



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

Subcatchment 1S: existing house lot Runoff Area=0.790 ac 22.78% Impervious Runoff Depth>0.60"
Flow Length=280' Tc=12.3 min CN=54 Runoff=0.34 cfs 0.039 af

Subcatchment 2S: storage structure area Runoff Area=1.280 ac 0.00% Impervious Runoff Depth>1.07"
Flow Length=210' Slope=0.0400 '/' Tc=13.8 min CN=63 Runoff=1.24 cfs 0.114 af

Subcatchment 3S: center section Runoff Area=2.610 ac 2.30% Impervious Runoff Depth>0.00"
Flow Length=430' Tc=35.4 min CN=32 Runoff=0.00 cfs 0.000 af

Subcatchment 4S: rear section north of Runoff Area=3.240 ac 48.46% Impervious Runoff Depth>1.93"
Flow Length=600' Slope=0.0300 '/' Tc=48.1 min CN=76 Runoff=3.56 cfs 0.520 af

Subcatchment 5S: Structures Runoff Area=0.900 ac 100.00% Impervious Runoff Depth>3.95"
Flow Length=22' Slope=0.0200 '/' Tc=0.1 min CN=98 Runoff=4.51 cfs 0.296 af

Reach 6R: brook/offsite Inflow=3.75 cfs 0.590 af
Outflow=3.75 cfs 0.590 af

Pond 6p: rain garden Peak Elev=112.20' Storage=0.024 af Inflow=1.24 cfs 0.114 af
Primary=0.05 cfs 0.030 af Secondary=1.38 cfs 0.060 af Outflow=1.43 cfs 0.091 af

Pond 7P: infiltration basins Peak Elev=98.22' Storage=0.035 af Inflow=4.51 cfs 0.296 af
Discarded=3.10 cfs 0.296 af Primary=0.00 cfs 0.000 af Outflow=3.10 cfs 0.296 af

Total Runoff Area = 8.820 ac Runoff Volume = 0.970 af Average Runoff Depth = 1.32"
69.27% Pervious = 6.110 ac 30.73% Impervious = 2.710 ac

Summary for Subcatchment 1S: existing house lot

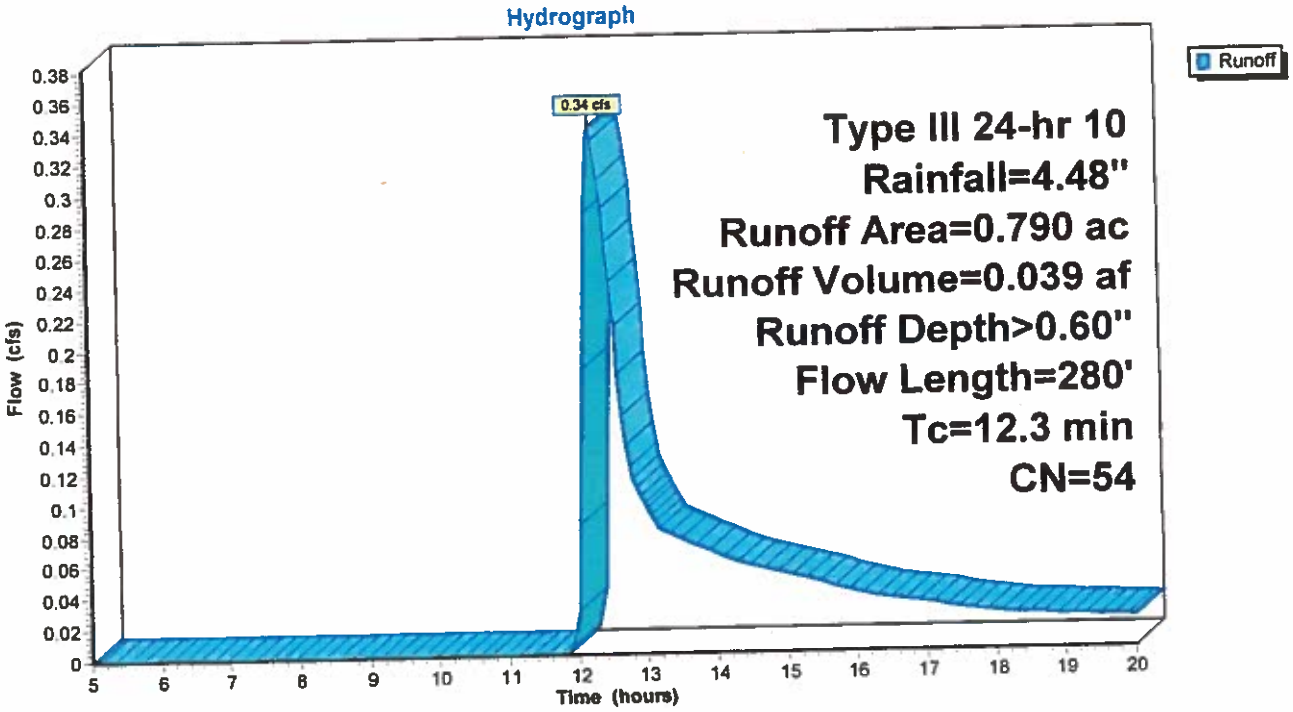
Runoff = 0.34 cfs @ 12.23 hrs, Volume= 0.039 af, Depth> 0.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=4.48"

	Area (ac)	CN	Description
*	0.160	98	roof & drive
*	0.530	39	>75% grass cove good, HSG A
*	0.080	51	woods
*	0.020	98	wetland
	0.790	54	Weighted Average
	0.610		77.22% Pervious Area
	0.180		22.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	50	0.0300	3.52		**Shallow Concentrated Flow, paved** Paved Kv= 20.3 fps
0.8	40	0.0300	0.87		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
0.1	10	0.0200	2.87		**Shallow Concentrated Flow, wetland** Paved Kv= 20.3 fps
11.2	180	0.0500	0.27		**Sheet Flow, lawn** Grass: Short n= 0.150 P2= 3.02"
12.3	280	Total			

Subcatchment 1S: existing house lot



Summary for Subcatchment 2S: storage structure area

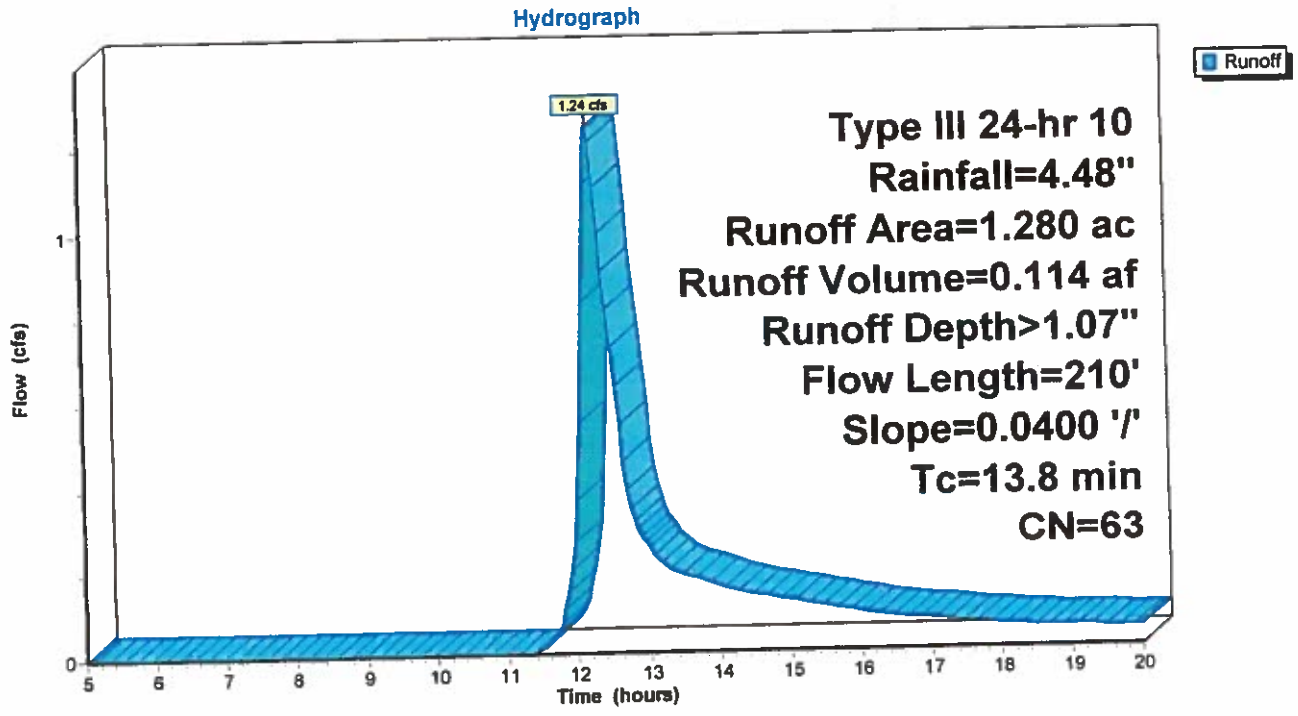
Runoff = 1.24 cfs @ 12.21 hrs, Volume= 0.114 af, Depth> 1.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=4.48"

	Area (ac)	CN	Description
*	0.920	72	gravel drives & surfaces
*	0.360	39	slopes/lawn
	1.280	63	Weighted Average
	1.280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	210	0.0400	0.25		**Sheet Flow, slopes/lawn** Grass: Short n= 0.150 P2= 3.02"

Subcatchment 2S: storage structure area



Summary for Subcatchment 3S: center section (original condition)

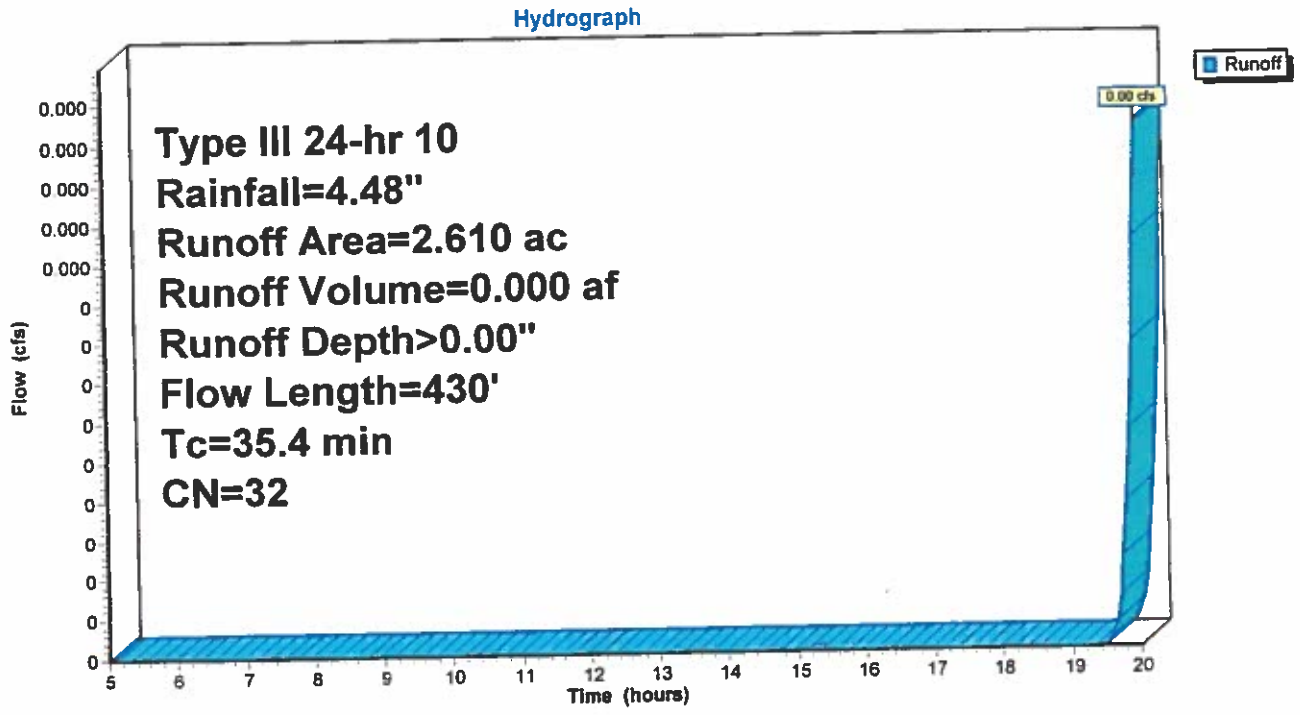
Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Depth> 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=4.48"

	Area (ac)	CN	Description
*	2.190	30	woods
*	0.360	30	Meadow non-grazed HSG a
*	0.060	98	wetland
	2.610	32	Weighted Average
	2.550		97.70% Pervious Area
	0.060		2.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	220	0.0500	0.13		**Sheet Flow, wooded** Woods: Light underbrush n= 0.400 P2= 3.02"
6.6	210	0.0400	0.53		**Sheet Flow, field** Cultivated: Residue<=20% n= 0.060 P2= 3.02"
35.4	430	Total			

Subcatchment 3S: center section (original condition)



Summary for Subcatchment 4S: rear section north of brook

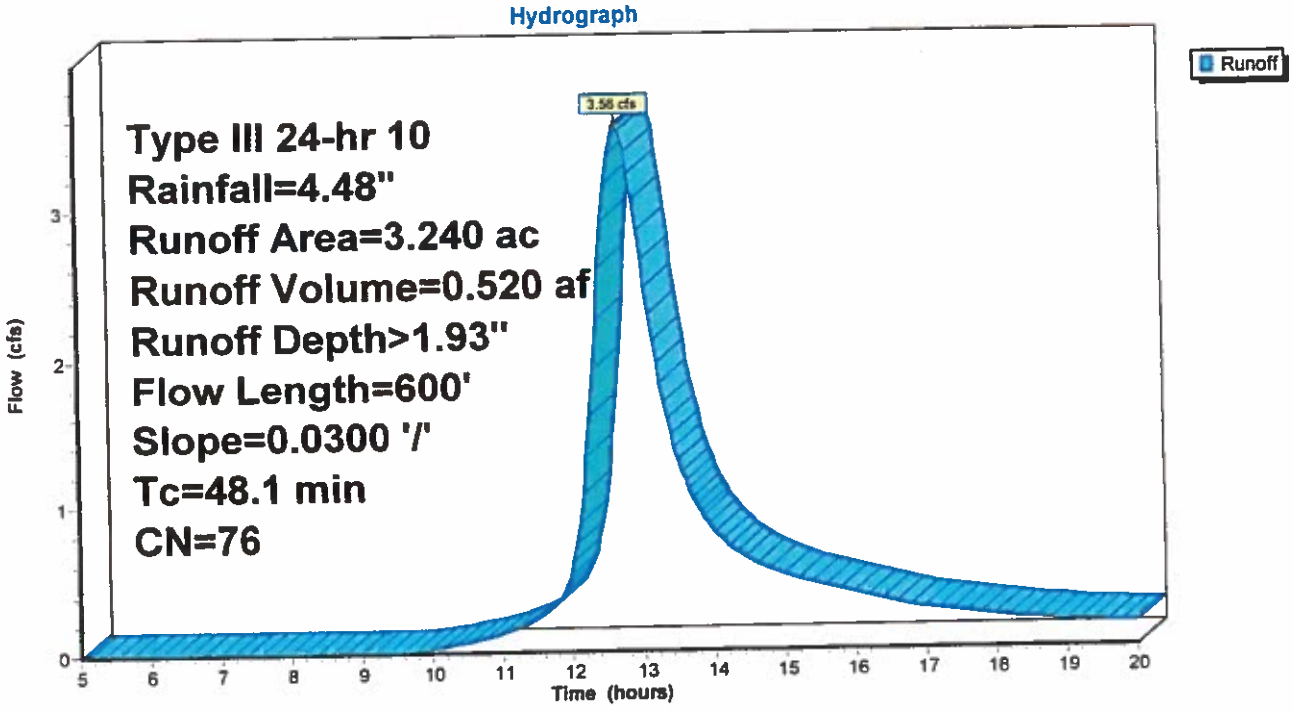
Runoff = 3.56 cfs @ 12.67 hrs, Volume= 0.520 af, Depth> 1.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=4.48"

	Area (ac)	CN	Description
*	1.670	55	Woods Goog HSG b
*	1.570	98	wetland
	3.240	76	Weighted Average
	1.670		51.54% Pervious Area
	1.570		48.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.3	300	0.0300	0.11		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 3.02"
2.8	300		1.79		**Lake or Reservoir, wetland** Mean Depth= 0.10'
48.1	600	Total			

Subcatchment 4S: rear section north of brook



Summary for Subcatchment 5S: Structures

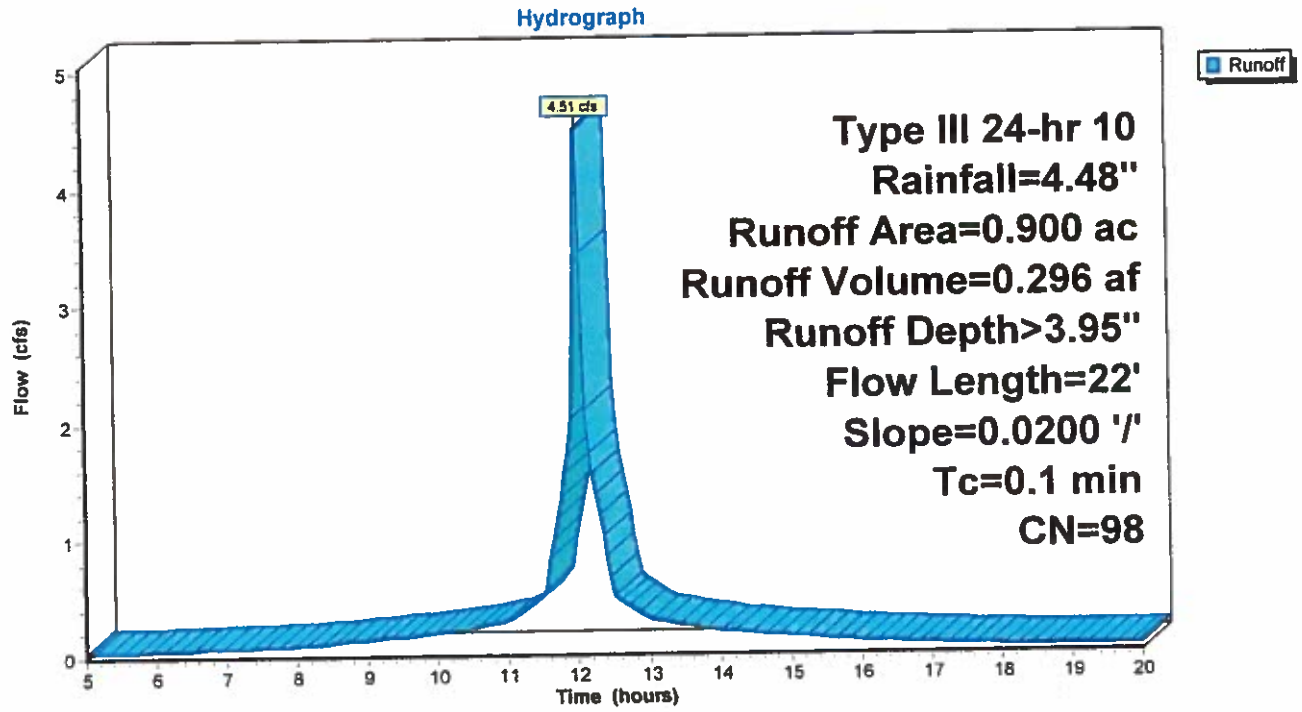
Runoff = 4.51 cfs @ 12.00 hrs, Volume= 0.296 af, Depth> 3.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=4.48"

	Area (ac)	CN	Description
*	0.900	98	roofs
	0.900		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	22	0.0200	2.87		**Shallow Concentrated Flow, roofs** Paved Kv= 20.3 fps

Subcatchment 5S: Structures

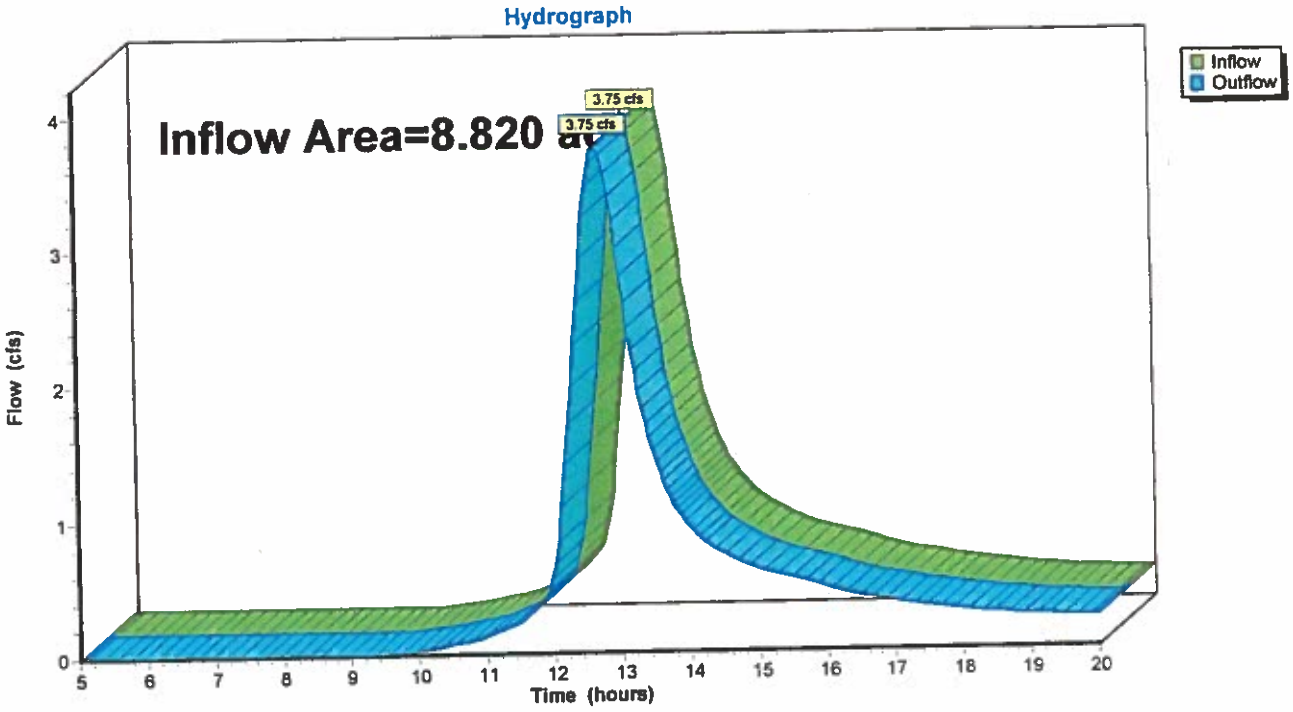


Summary for Reach 6R: brook/offsite

Inflow Area = 8.820 ac, 30.73% Impervious, Inflow Depth > 0.80" for 10 event
Inflow = 3.75 cfs @ 12.66 hrs, Volume= 0.590 af
Outflow = 3.75 cfs @ 12.66 hrs, Volume= 0.590 af, Atten= 0%, Lag= 0.0 min

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

Reach 6R: brook/offsite



Summary for Pond 6p: rain garden

Inflow Area = 1.280 ac, 0.00% Impervious, Inflow Depth > 1.07" for 10 event
Inflow = 1.24 cfs @ 12.21 hrs, Volume= 0.114 af
Outflow = 1.43 cfs @ 12.31 hrs, Volume= 0.091 af, Atten= 0%, Lag= 5.6 min
Primary = 0.05 cfs @ 12.30 hrs, Volume= 0.030 af
Secondary = 1.38 cfs @ 12.31 hrs, Volume= 0.060 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 112.20' @ 12.30 hrs Surf.Area= 0.016 ac Storage= 0.024 af

Plug-Flow detention time= 83.0 min calculated for 0.090 af (79% of inflow)
Center-of-Mass det. time= 27.9 min (860.9 - 833.0)

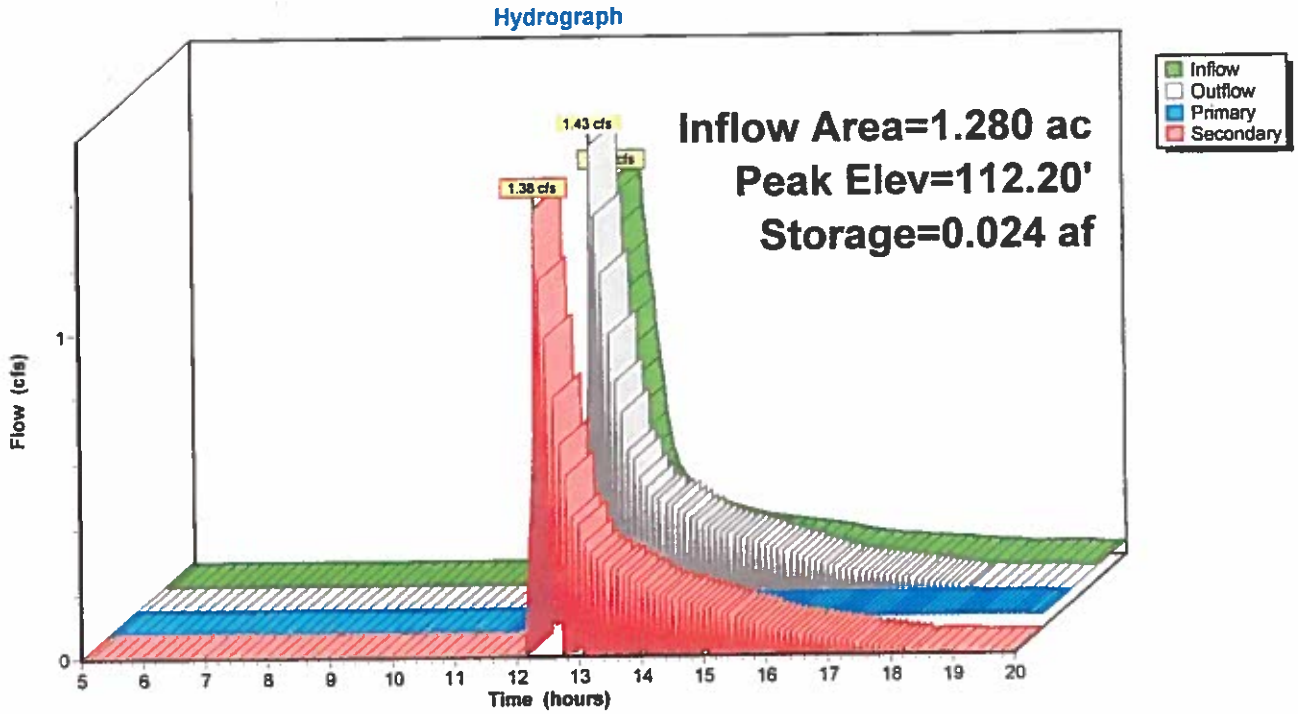
Volume	Invert	Avail.Storage	Storage Description
#1	109.00'	0.024 af	**4.00'W x 40.00'L x 2.50'H Prismatoid Z=2.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	109.00'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 82.00'
#2	Secondary	112.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.05 cfs @ 12.30 hrs HW=112.20' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Secondary OutFlow Max=1.24 cfs @ 12.31 hrs HW=112.19' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 1.24 cfs @ 1.10 fps)

Pond 6p: rain garden



Summary for Pond 7P: infiltration basins

Inflow Area = 0.900 ac,100.00% Impervious, Inflow Depth > 3.95" for 10 event
Inflow = 4.51 cfs @ 12.00 hrs, Volume= 0.296 af
Outflow = 3.10 cfs @ 12.06 hrs, Volume= 0.296 af, Atten= 31%, Lag= 3.8 min
Discarded = 3.10 cfs @ 12.06 hrs, Volume= 0.296 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 98.22' @ 12.06 hrs Surf.Area= 0.051 ac Storage= 0.035 af

Plug-Flow detention time= 5.2 min calculated for 0.296 af (100% of inflow)
Center-of-Mass det. time= 5.0 min (736.4 - 731.5)

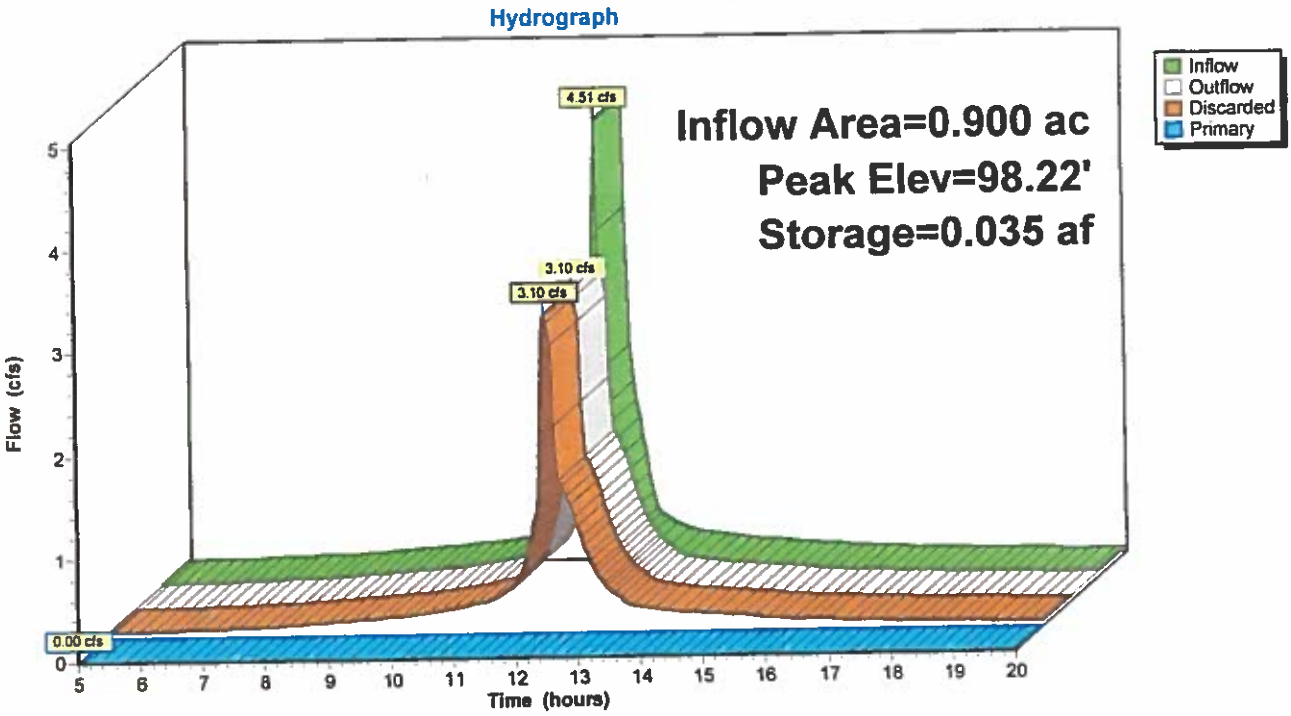
Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	0.180 af	**8.00'D x 6.00'H stone fill Z=1.0** x 20 0.450 af Overall x 40.0% Voids
#2	96.00'	0.100 af	**4.00'D x 4.00'H Vertical Cone/Cylinder Z=1.0** x 20
		0.280 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	96.00'	**2.410 in/hr Exfiltration X 20.00 over Wetted area** Conductivity to Groundwater Elevation = 82.00'
#2	Primary	100.00'	**4.0" Round Culvert X 20.00** L= 1.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 98.00' / 100.00' S= -2.0000 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior

Discarded OutFlow Max=3.07 cfs @ 12.06 hrs HW=98.21' (Free Discharge)
↑—**1=Exfiltration** (Controls 3.07 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=96.01' (Free Discharge)
↑—**2=Culvert** (Controls 0.00 cfs)

Pond 7P: infiltration basins



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

Subcatchment 1S: existing house lot Runoff Area=0.790 ac 22.78% Impervious Runoff Depth>2.37"
Flow Length=280' Tc=12.3 min CN=54 Runoff=1.84 cfs 0.156 af

Subcatchment 2S: storage structure area Runoff Area=1.280 ac 0.00% Impervious Runoff Depth>3.31"
Flow Length=210' Slope=0.0400 '/' Tc=13.8 min CN=63 Runoff=4.14 cfs 0.353 af

Subcatchment 3S: center section Runoff Area=2.610 ac 2.30% Impervious Runoff Depth>0.43"
Flow Length=430' Tc=35.4 min CN=32 Runoff=0.34 cfs 0.094 af

Subcatchment 4S: rear section north of Runoff Area=3.240 ac 48.46% Impervious Runoff Depth>4.69"
Flow Length=600' Slope=0.0300 '/' Tc=48.1 min CN=76 Runoff=8.58 cfs 1.266 af

Subcatchment 5S: Structures Runoff Area=0.900 ac 100.00% Impervious Runoff Depth>7.05"
Flow Length=22' Slope=0.0200 '/' Tc=0.1 min CN=98 Runoff=7.98 cfs 0.529 af

Reach 6R: brook/offsite Inflow=9.47 cfs 1.551 af
Outflow=9.47 cfs 1.551 af

Pond 6p: rain garden Peak Elev=112.41' Storage=0.024 af Inflow=4.14 cfs 0.353 af
Primary=0.05 cfs 0.035 af Secondary=4.11 cfs 0.295 af Outflow=4.16 cfs 0.330 af

Pond 7P: infiltration basins Peak Elev=98.93' Storage=0.065 af Inflow=7.98 cfs 0.529 af
Discarded=4.55 cfs 0.529 af Primary=0.00 cfs 0.000 af Outflow=4.55 cfs 0.529 af

Total Runoff Area = 8.820 ac Runoff Volume = 2.399 af Average Runoff Depth = 3.26"
69.27% Pervious = 6.110 ac 30.73% Impervious = 2.710 ac

Summary for Subcatchment 1S: existing house lot

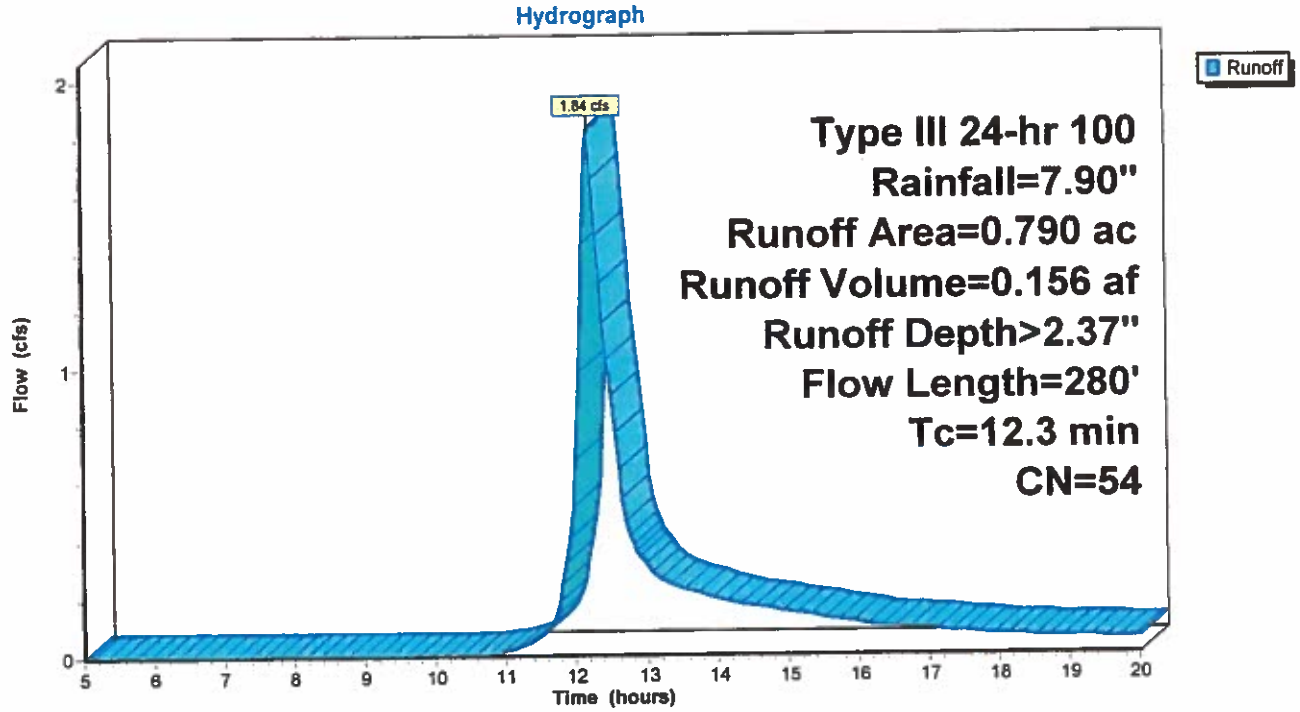
Runoff = 1.84 cfs @ 12.19 hrs, Volume= 0.156 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=7.90"

	Area (ac)	CN	Description
*	0.160	98	roof & drive
*	0.530	39	>75% grass cove good, HSG A
*	0.080	51	woods
*	0.020	98	wetland
	0.790	54	Weighted Average
	0.610		77.22% Pervious Area
	0.180		22.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	50	0.0300	3.52		**Shallow Concentrated Flow, paved** Paved Kv= 20.3 fps
0.8	40	0.0300	0.87		**Shallow Concentrated Flow, woods** Woodland Kv= 5.0 fps
0.1	10	0.0200	2.87		**Shallow Concentrated Flow, wetland** Paved Kv= 20.3 fps
11.2	180	0.0500	0.27		**Sheet Flow, lawn** Grass: Short n= 0.150 P2= 3.02"
12.3	280	Total			

Subcatchment 1S: existing house lot



Summary for Subcatchment 2S: storage structure area

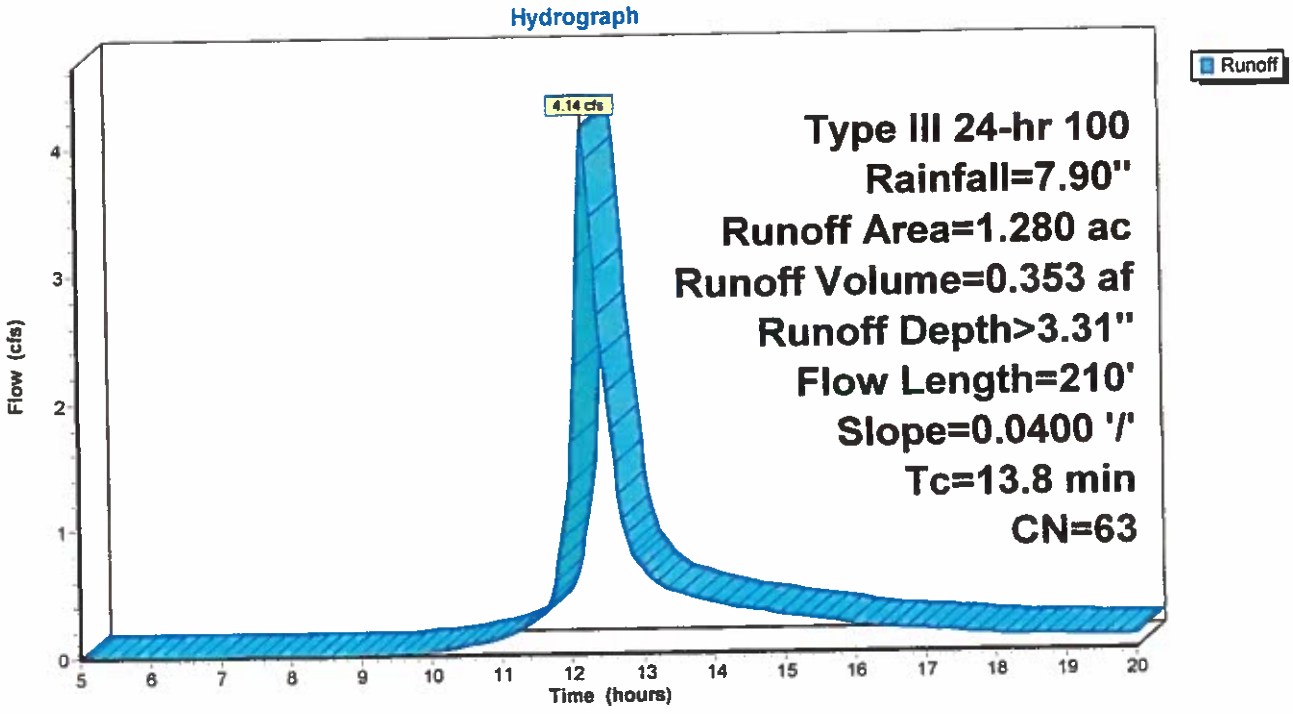
Runoff = 4.14 cfs @ 12.20 hrs, Volume= 0.353 af, Depth> 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=7.90"

	Area (ac)	CN	Description
*	0.920	72	gravel drives & surfaces
*	0.360	39	slopes/lawn
	1.280	63	Weighted Average
	1.280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	210	0.0400	0.25		**Sheet Flow, slopes/lawn** Grass: Short n= 0.150 P2= 3.02"

Subcatchment 2S: storage structure area



Summary for Subcatchment 3S: center section (original condition)

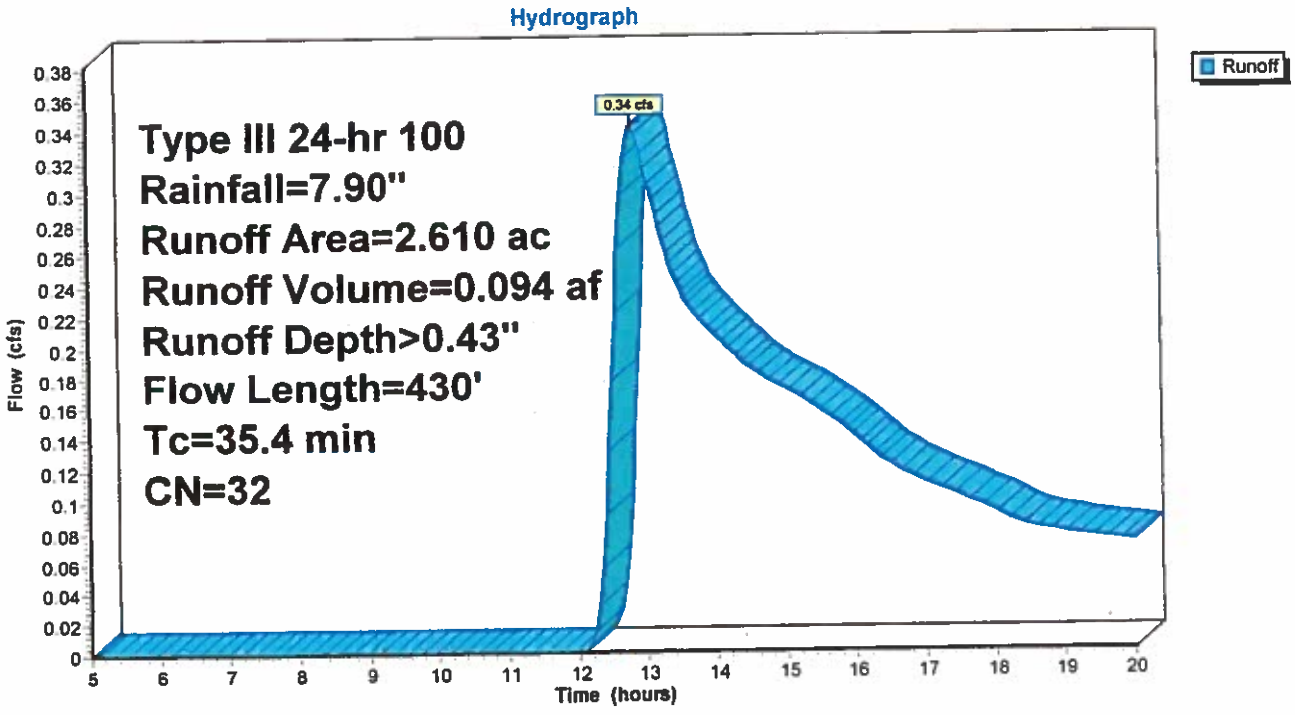
Runoff = 0.34 cfs @ 12.81 hrs, Volume= 0.094 af, Depth> 0.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=7.90"

	Area (ac)	CN	Description
*	2.190	30	woods
*	0.360	30	Meadow non-grazed HSG a
*	0.060	98	wetland
	2.610	32	Weighted Average
	2.550		97.70% Pervious Area
	0.060		2.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	220	0.0500	0.13		**Sheet Flow, wooded** Woods: Light underbrush n= 0.400 P2= 3.02"
6.6	210	0.0400	0.53		**Sheet Flow, field** Cultivated: Residue<=20% n= 0.060 P2= 3.02"
35.4	430	Total			

Subcatchment 3S: center section (original condition)



Summary for Subcatchment 4S: rear section north of brook

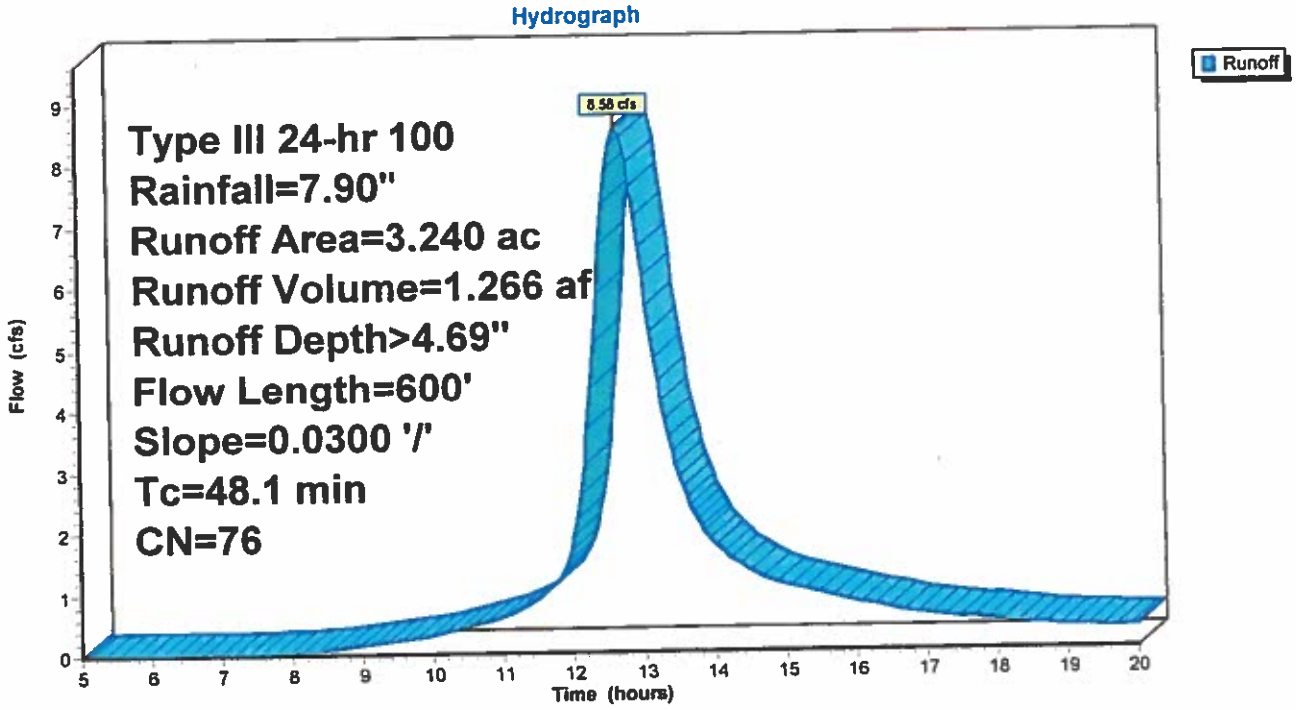
Runoff = 8.58 cfs @ 12.65 hrs, Volume= 1.266 af, Depth> 4.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=7.90"

	Area (ac)	CN	Description
*	1.670	55	Woods Goog HSG b
*	1.570	98	wetland
	3.240	76	Weighted Average
	1.670		51.54% Pervious Area
	1.570		48.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.3	300	0.0300	0.11		**Sheet Flow, woods** Woods: Light underbrush n= 0.400 P2= 3.02"
2.8	300		1.79		**Lake or Reservoir, wetland** Mean Depth= 0.10'
48.1	600	Total			

Subcatchment 4S: rear section north of brook



Summary for Subcatchment 5S: Structures

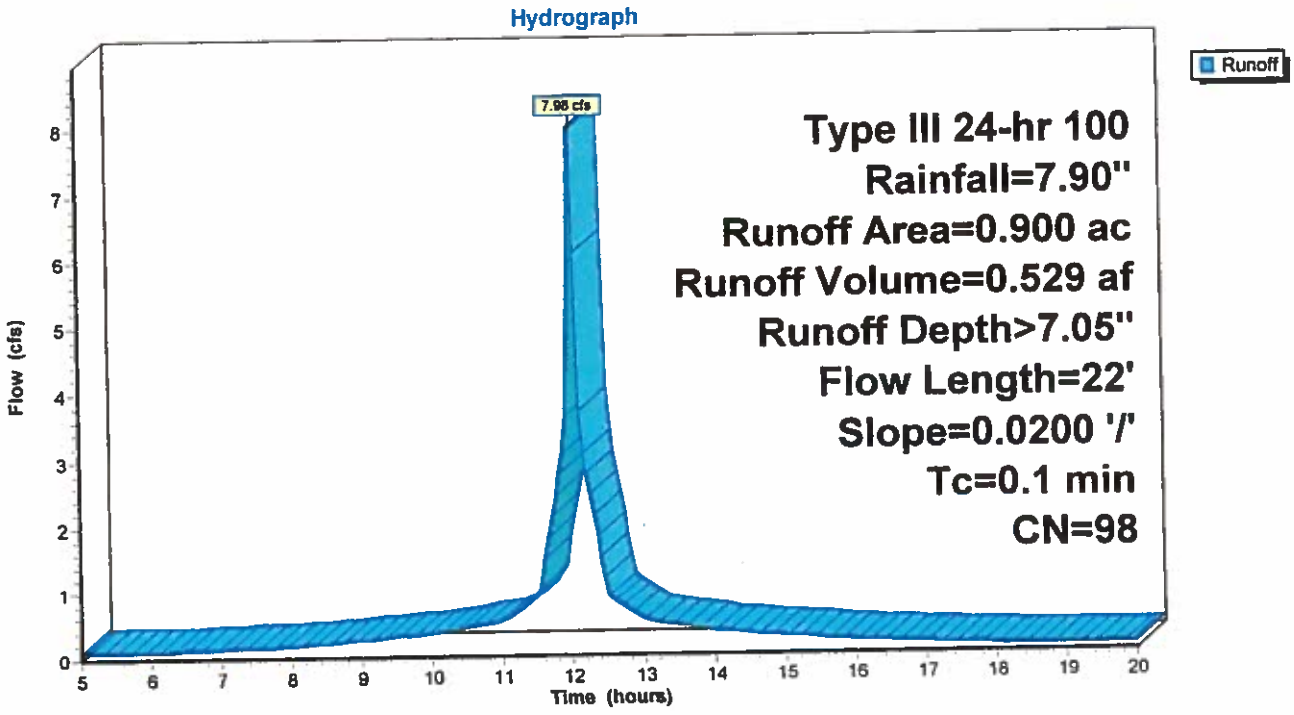
Runoff = 7.98 cfs @ 12.00 hrs, Volume= 0.529 af, Depth> 7.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=7.90"

	Area (ac)	CN	Description
*	0.900	98	roofs
	0.900		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	22	0.0200	2.87		**Shallow Concentrated Flow, roofs** Paved Kv= 20.3 fps

Subcatchment 5S: Structures

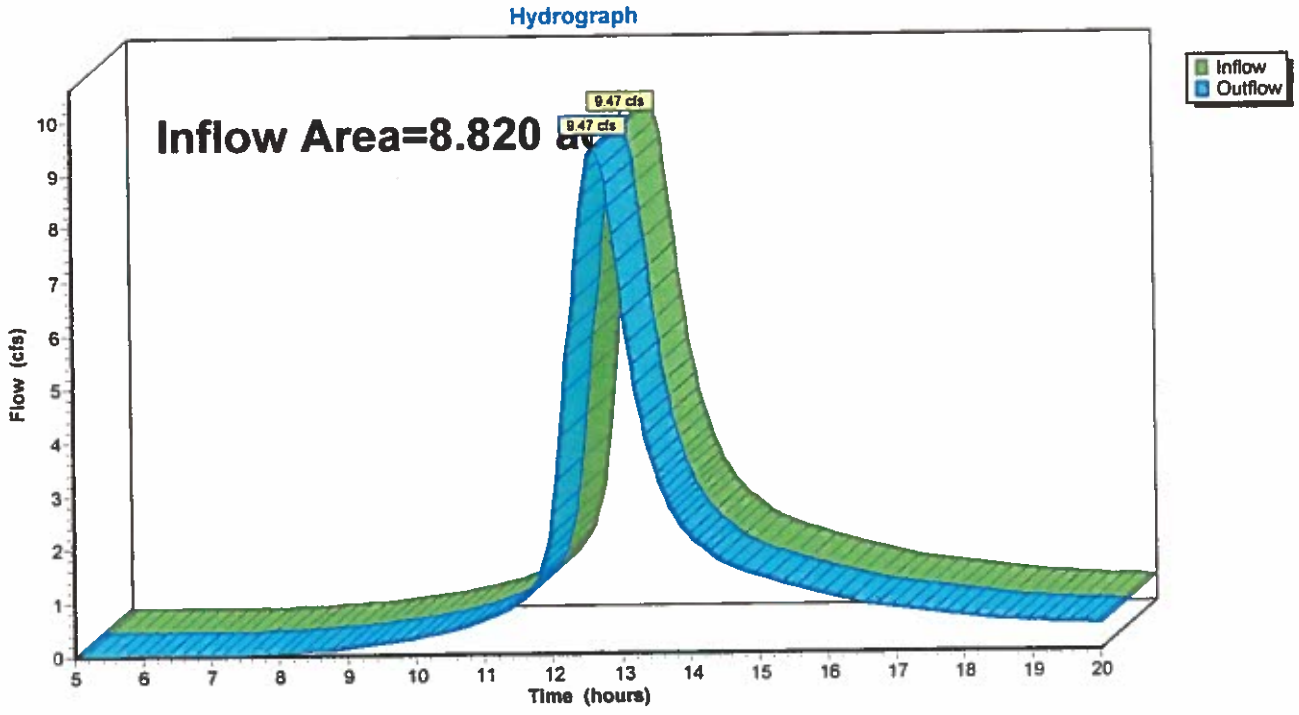


Summary for Reach 6R: brook/offsite

Inflow Area = 8.820 ac, 30.73% Impervious, Inflow Depth > 2.11" for 100 event
Inflow = 9.47 cfs @ 12.63 hrs, Volume= 1.551 af
Outflow = 9.47 cfs @ 12.63 hrs, Volume= 1.551 af, Atten= 0%, Lag= 0.0 min

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

Reach 6R: brook/offsite



Summary for Pond 6p: rain garden

Inflow Area =	1.280 ac,	0.00% Impervious,	Inflow Depth >	3.31" for 100 event
Inflow =	4.14 cfs @	12.20 hrs, Volume=	0.353 af	
Outflow =	4.16 cfs @	12.20 hrs, Volume=	0.330 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.05 cfs @	12.20 hrs, Volume=	0.035 af	
Secondary =	4.11 cfs @	12.20 hrs, Volume=	0.295 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 112.41' @ 12.20 hrs Surf.Area= 0.016 ac Storage= 0.024 af

Plug-Flow detention time= 32.3 min calculated for 0.330 af (93% of inflow)
Center-of-Mass det. time= 9.5 min (817.2 - 807.8)

Volume	Invert	Avail.Storage	Storage Description
#1	109.00'	0.024 af	**4.00'W x 40.00'L x 2.50'H Prismatoid Z=2.0**

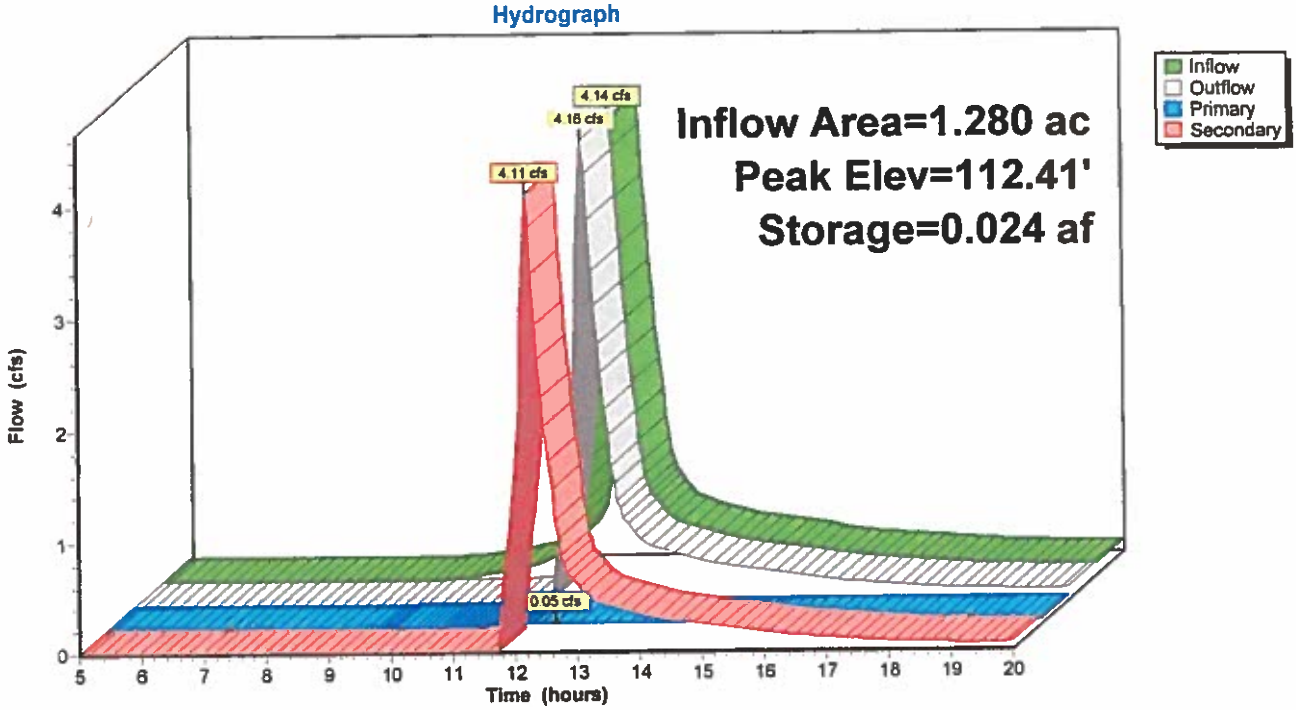
Device	Routing	Invert	Outlet Devices
#1	Primary	109.00'	**2.410 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 82.00'
#2	Secondary	112.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.05 cfs @ 12.20 hrs HW=112.41' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.05 cfs)

Secondary OutFlow Max=4.11 cfs @ 12.20 hrs HW=112.41' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 4.11 cfs @ 1.67 fps)

Pond 6p: rain garden

Hydrograph



Summary for Pond 7P: infiltration basins

Inflow Area = 0.900 ac,100.00% Impervious, Inflow Depth > 7.05" for 100 event
Inflow = 7.98 cfs @ 12.00 hrs, Volume= 0.529 af
Outflow = 4.55 cfs @ 12.09 hrs, Volume= 0.529 af, Atten= 43%, Lag= 5.2 min
Discarded = 4.55 cfs @ 12.09 hrs, Volume= 0.529 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 98.93' @ 12.09 hrs Surf.Area= 0.070 ac Storage= 0.065 af

Plug-Flow detention time= 6.1 min calculated for 0.529 af (100% of inflow)
Center-of-Mass det. time= 5.9 min (734.7 - 728.8)

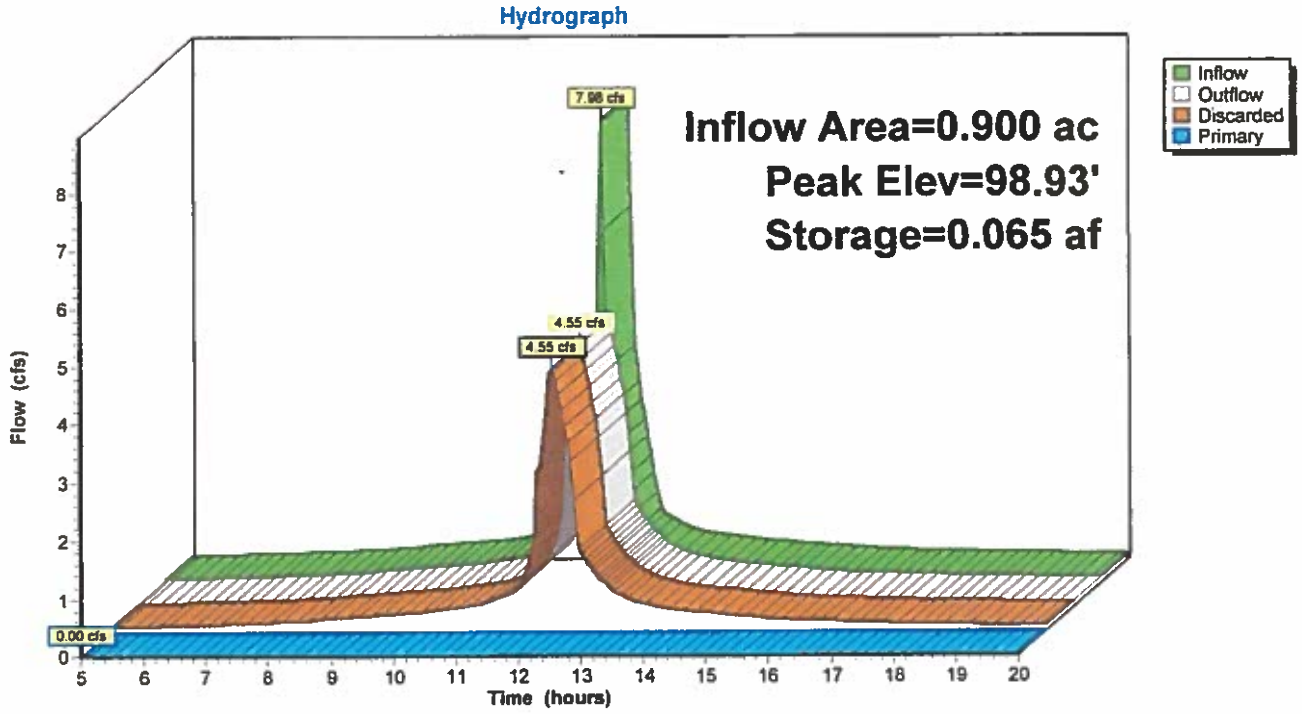
Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	0.180 af	**8.00'D x 6.00'H stone fill Z=1.0** x 20 0.450 af Overall x 40.0% Voids
#2	96.00'	0.100 af	**4.00'D x 4.00'H Vertical Cone/Cylinder Z=1.0** x 20
		0.280 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	96.00'	**2.410 in/hr Exfiltration X 20.00 over Wetted area** Conductivity to Groundwater Elevation = 82.00'
#2	Primary	100.00'	**4.0" Round Culvert X 20.00** L= 1.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 98.00' / 100.00' S= -2.0000 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior

Discarded OutFlow Max=4.53 cfs @ 12.09 hrs HW=98.92' (Free Discharge)
↑—**1=Exfiltration** (Controls 4.53 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=96.01' (Free Discharge)
↑—**2=Culvert** (Controls 0.00 cfs)

Pond 7P: infiltration basins



Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Recharge Data

Prepared for

William Moryl

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Prepared by

Robert H. LeMaitre, PE, PLS

4 Skyview Drive

Ware, MA 01082

Recharge

Sunny Side Storage LLC Expansion

$Rv = FX$ HSG A F = 0.60 in. X = 0.90 Acres

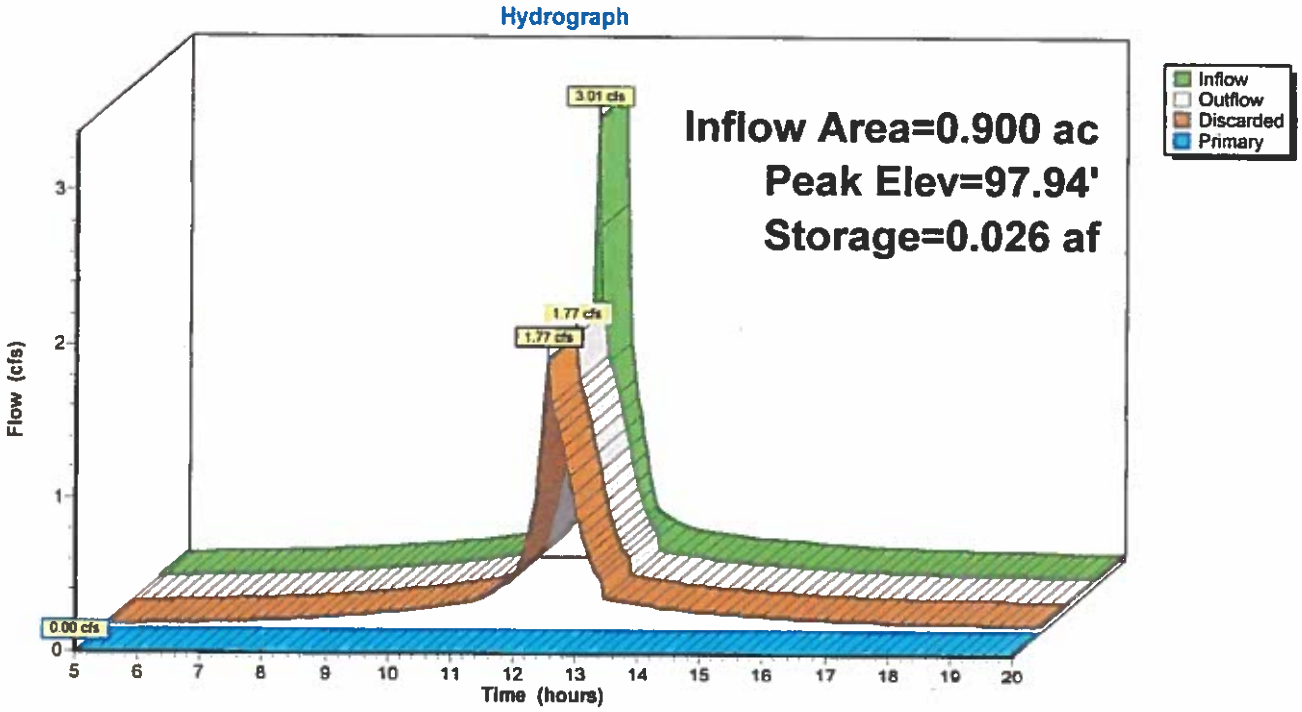
$Rv = (0.60 \text{ in})(12 \text{ in/ft.})(0.90 \text{ A})(435660 \text{ S.F./A}) = 1960.2 \text{ C.F.} = 0.045 \text{ A.F.}$

The recharge volume is more than satisfied in all storm events

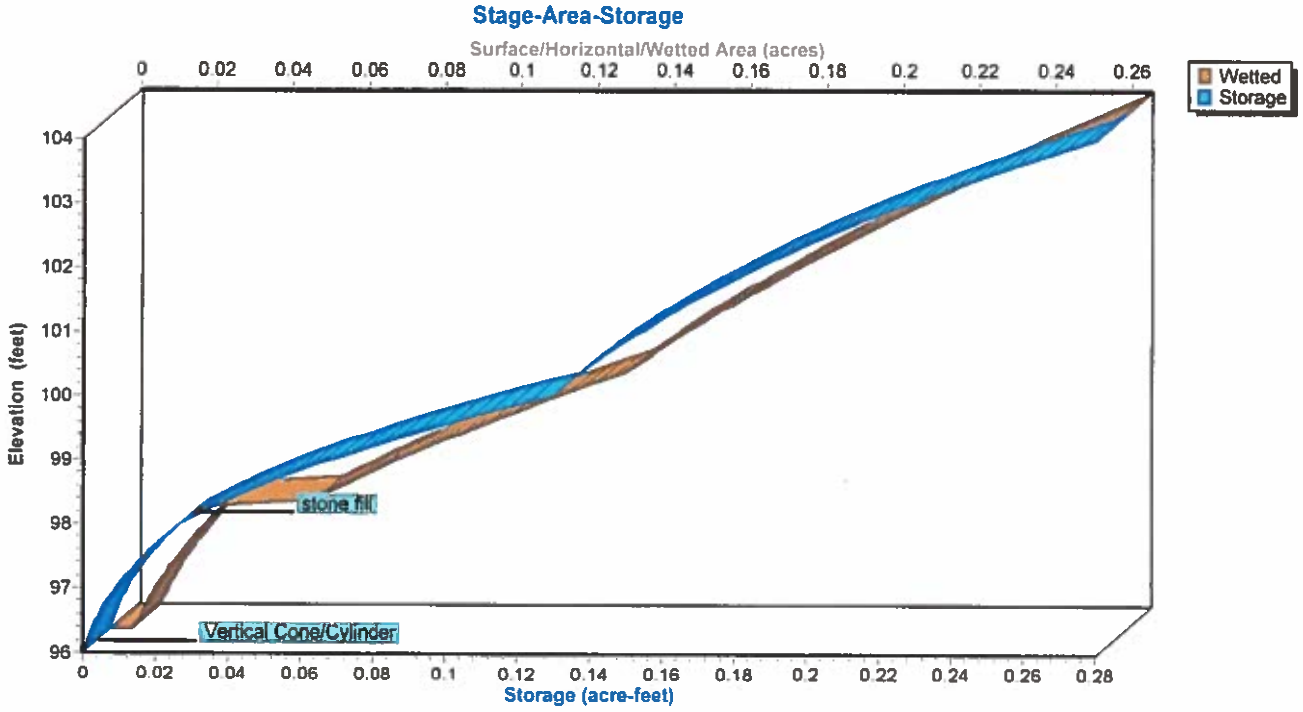
Events for Pond 7P: infiltration basins

Event	Inflow (cfs)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2	3.01	1.77	1.77	0.00	97.94	0.026
5	3.79	2.95	2.95	0.00	98.09	0.030
10	4.51	3.10	3.10	0.00	98.22	0.035
25	5.66	3.58	3.58	0.00	98.47	0.044
50	6.72	4.01	4.01	0.00	98.68	0.053
100	7.98	4.55	4.55	0.00	98.93	0.065

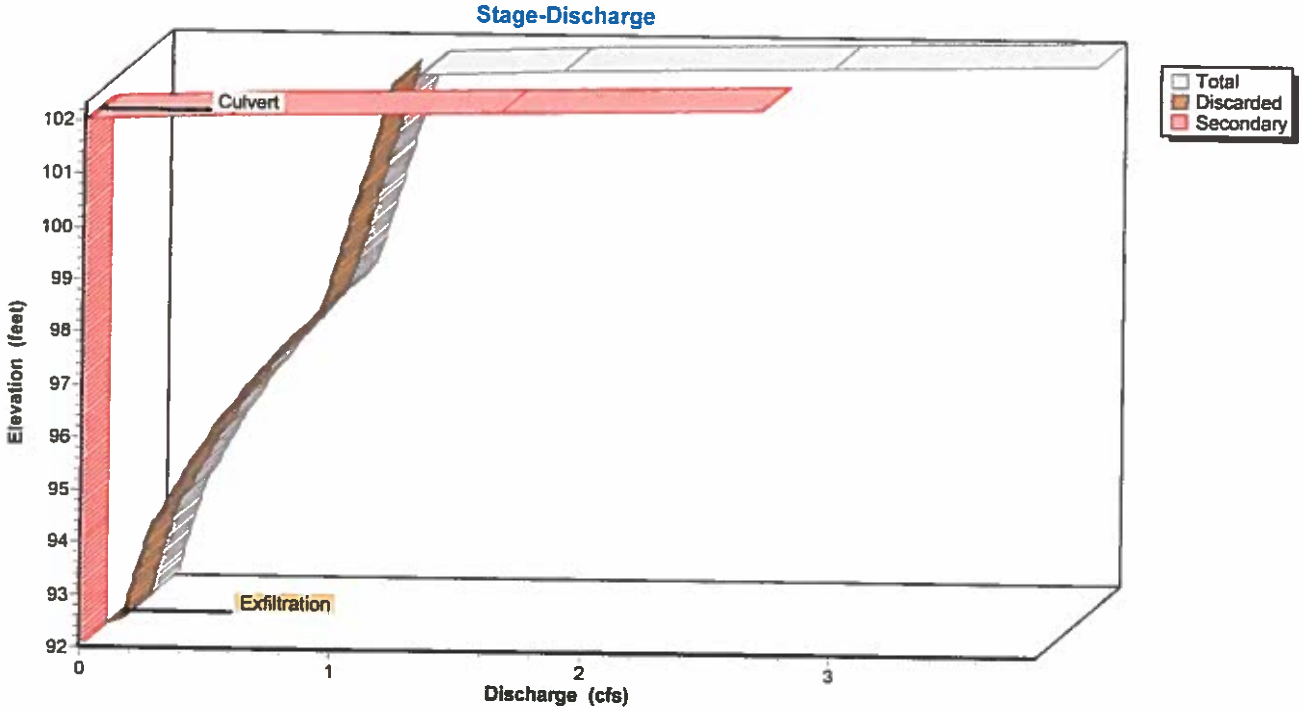
Pond 7P: infiltration basins



Pond 7P: infiltration basins



Pond 2P: basin



Summary for Pond 7P: infiltration basins

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.900 ac,100.00% Impervious, Inflow Depth > 2.61" for 2 event
Inflow = 3.01 cfs @ 12.00 hrs, Volume= 0.196 af
Outflow = 1.77 cfs @ 12.10 hrs, Volume= 0.196 af, Atten= 41%, Lag= 5.9 min
Discarded = 1.77 cfs @ 12.10 hrs, Volume= 0.196 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 97.94' @ 12.10 hrs Surf.Area= 0.022 ac Storage= 0.026 af

Plug-Flow detention time= 5.2 min calculated for 0.195 af (100% of inflow)
Center-of-Mass det. time= 4.9 min (739.6 - 734.7)

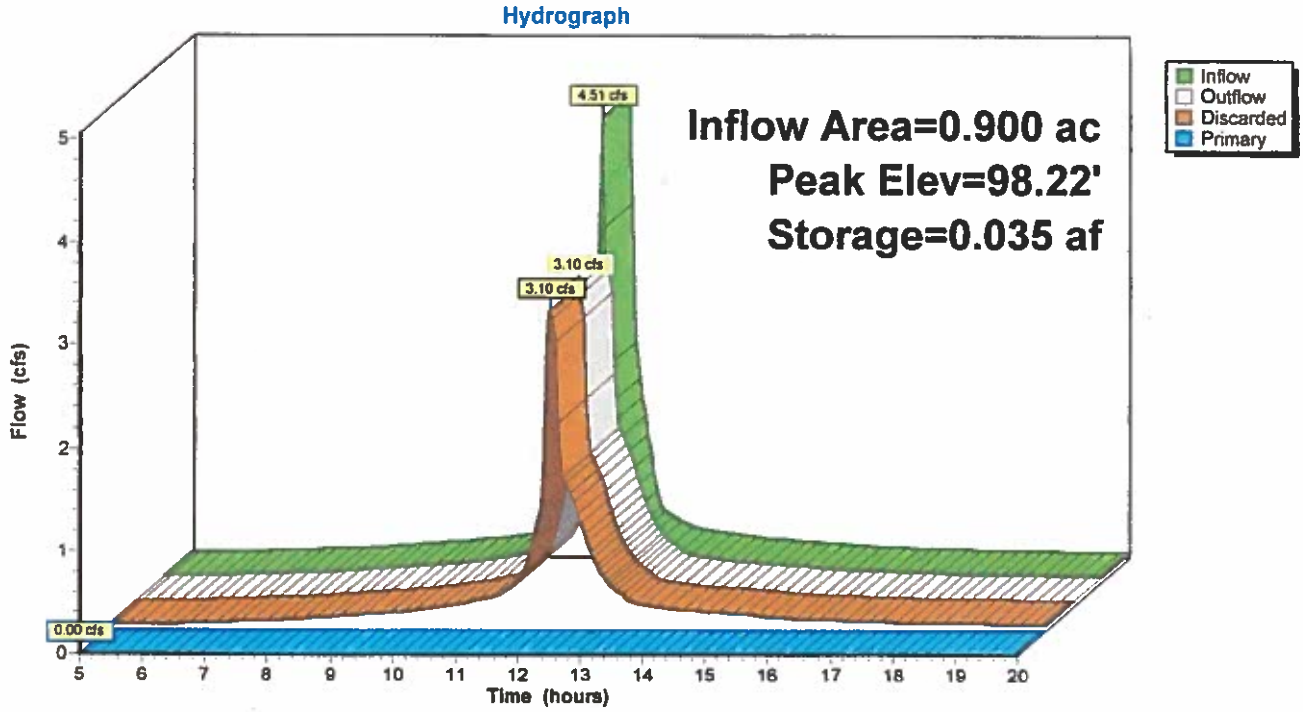
Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	0.180 af	**8.00'D x 6.00'H stone fill Z=1.0** x 20 0.450 af Overall x 40.0% Voids
#2	96.00'	0.100 af	**4.00'D x 4.00'H Vertical Cone/Cylinder Z=1.0** x 20
		0.280 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	96.00'	**2.410 in/hr Exfiltration X 20.00 over Wetted area** Conductivity to Groundwater Elevation = 82.00'
#2	Primary	100.00'	**4.0" Round Culvert X 20.00** L= 1.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 98.00' / 100.00' S= -2.0000 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior

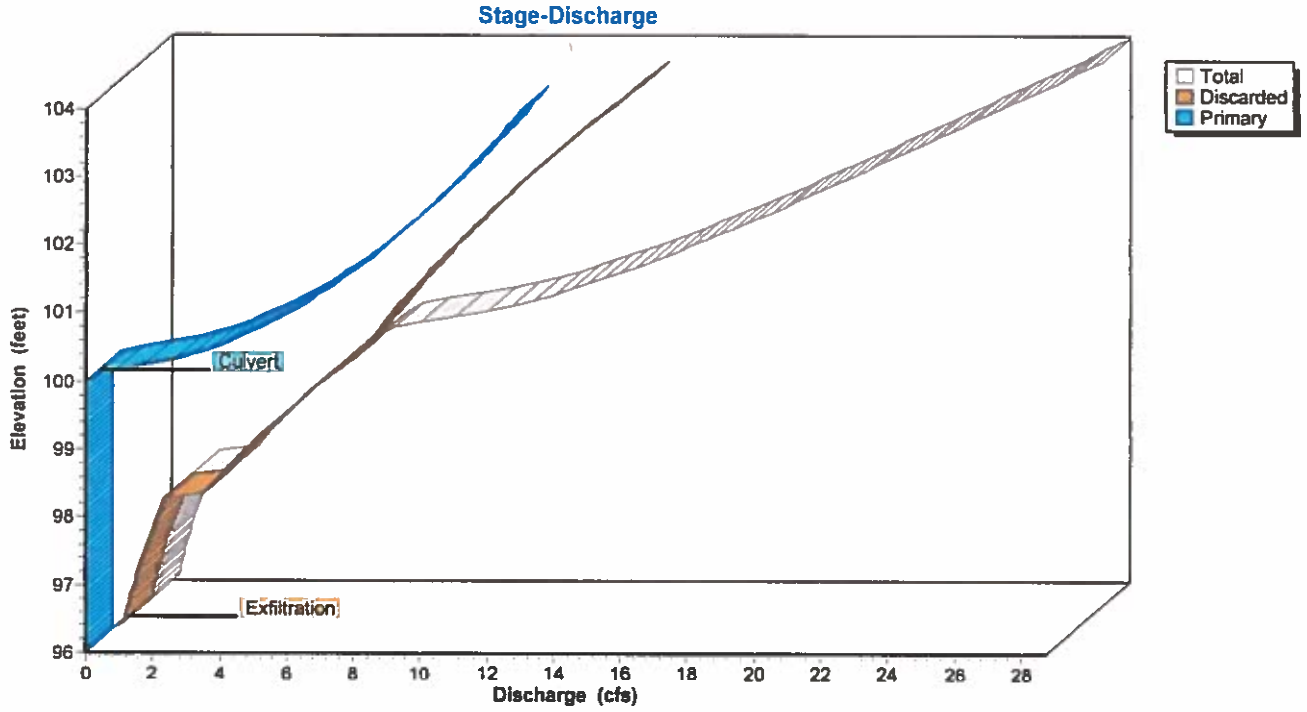
Discarded OutFlow Max=1.52 cfs @ 12.10 hrs HW=97.94' (Free Discharge)
↑—**1=Exfiltration** (Controls 1.52 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=96.00' (Free Discharge)
↑—**2=Culvert** (Controls 0.00 cfs)

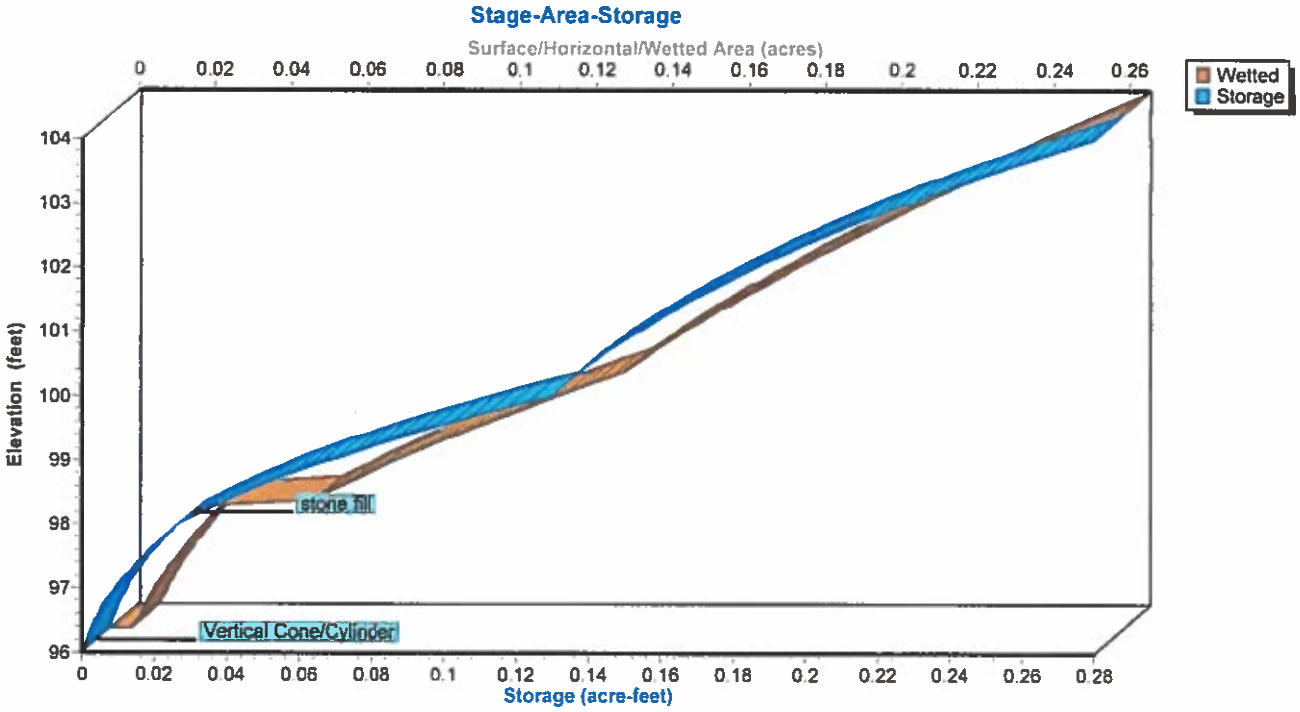
Pond 7P: infiltration basins



Pond 7P: infiltration basins



Pond 7P: infiltration basins



Summary for Pond 7P: infiltration basins

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.900 ac,100.00% Impervious, Inflow Depth > 3.95" for 10 event
Inflow = 4.51 cfs @ 12.00 hrs, Volume= 0.296 af
Outflow = 3.10 cfs @ 12.06 hrs, Volume= 0.296 af, Atten= 31%, Lag= 3.8 min
Discarded = 3.10 cfs @ 12.06 hrs, Volume= 0.296 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 98.22' @ 12.06 hrs Surf.Area= 0.051 ac Storage= 0.035 af

Plug-Flow detention time= 5.2 min calculated for 0.296 af (100% of inflow)
Center-of-Mass det. time= 5.0 min (736.4 - 731.5)

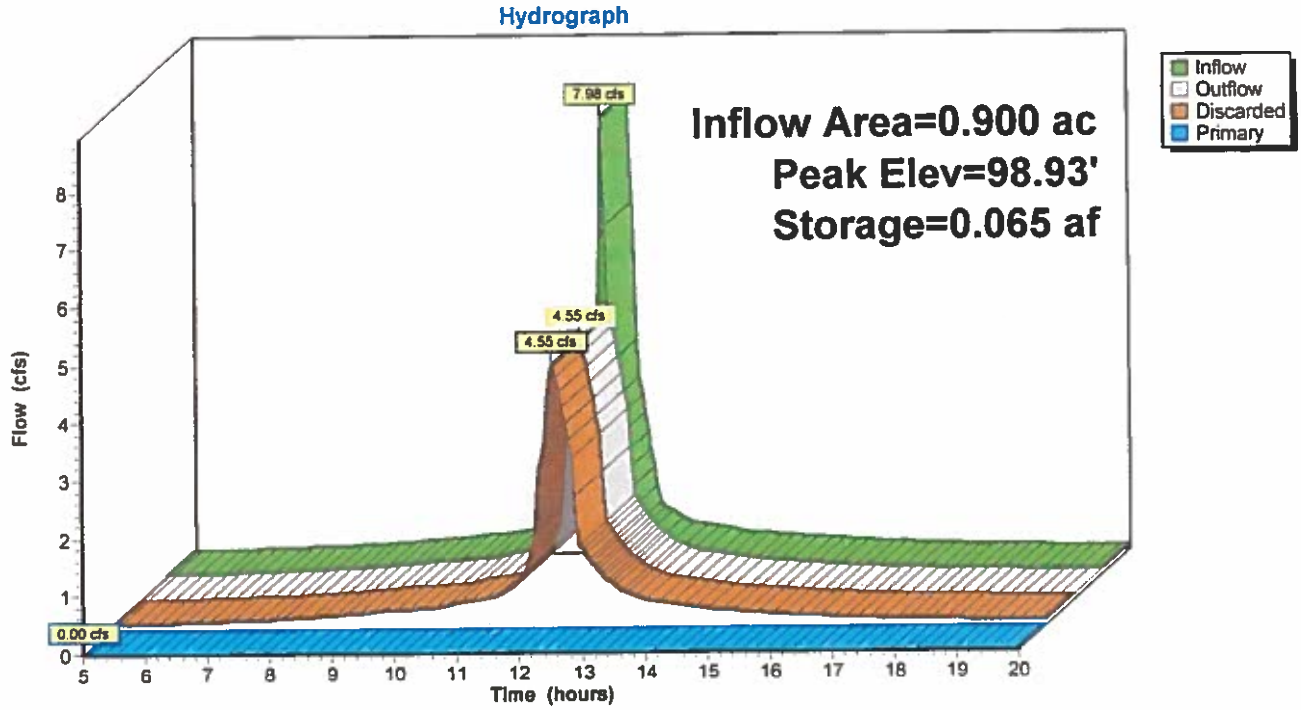
Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	0.180 af	**8.00'D x 6.00'H stone fill Z=1.0** x 20 0.450 af Overall x 40.0% Voids
#2	96.00'	0.100 af	**4.00'D x 4.00'H Vertical Cone/Cylinder Z=1.0** x 20
		0.280 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	96.00'	**2.410 in/hr Exfiltration X 20.00 over Wetted area** Conductivity to Groundwater Elevation = 82.00'
#2	Primary	100.00'	**4.0" Round Culvert X 20.00** L= 1.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 98.00' / 100.00' S= -2.0000 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior

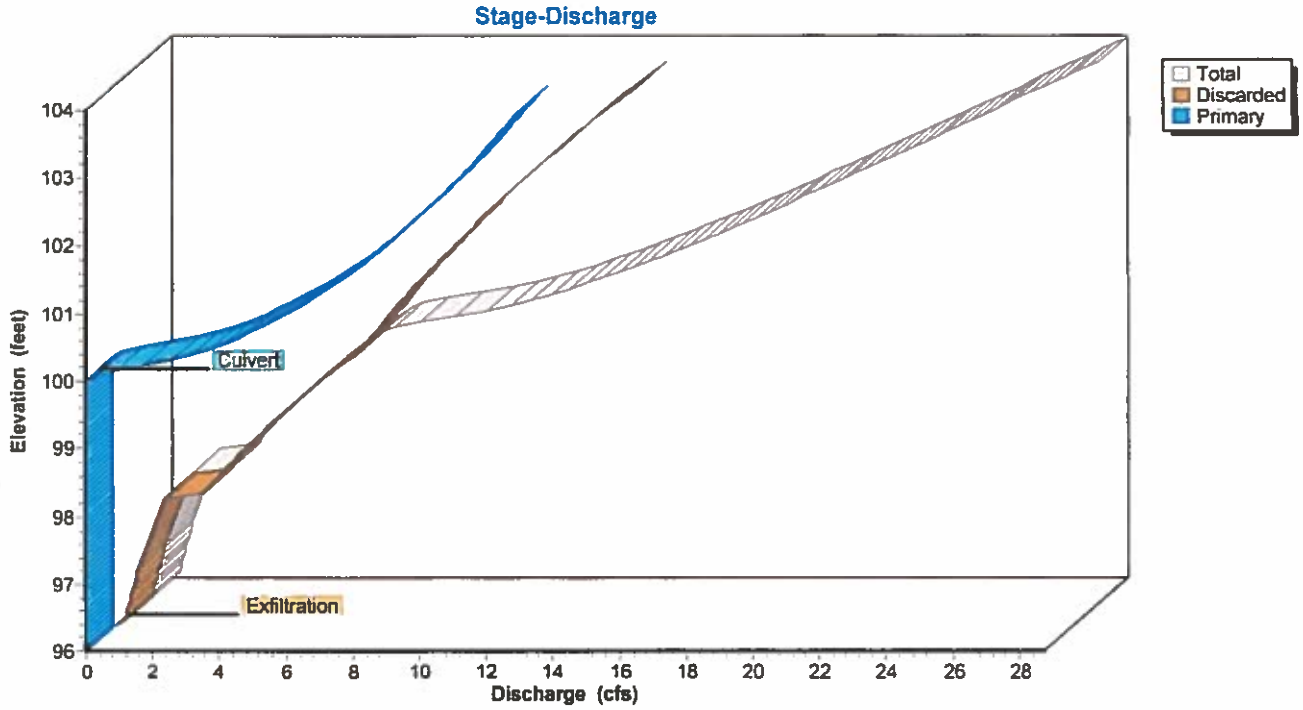
Discarded OutFlow Max=3.07 cfs @ 12.06 hrs HW=98.21' (Free Discharge)
↑—**1=Exfiltration** (Controls 3.07 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=96.01' (Free Discharge)
↑—**2=Culvert** (Controls 0.00 cfs)

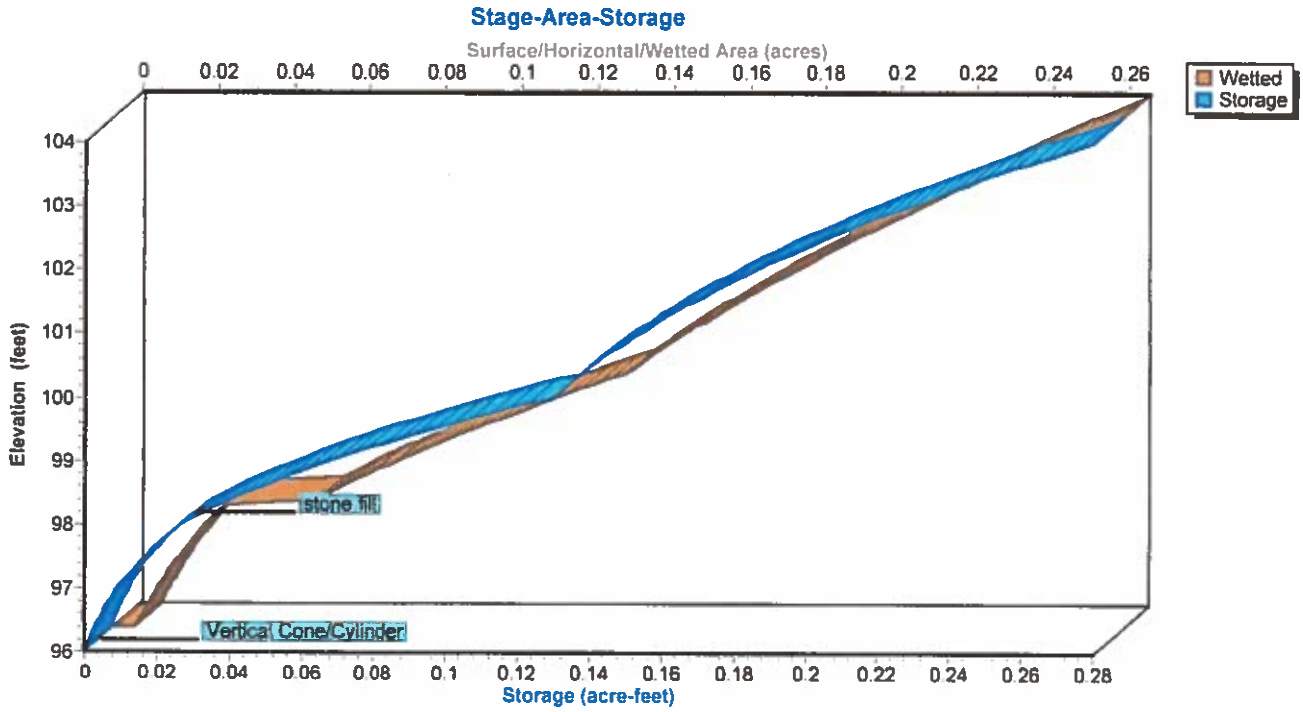
Pond 7P: infiltration basins



Pond 7P: infiltration basins



Pond 7P: infiltration basins



Summary for Pond 7P: infiltration basins

[82] Warning: Early inflow requires earlier time span

Inflow Area =	0.900 ac,100.00% Impervious,	Inflow Depth >	7.05"	for 100 event	
Inflow =	7.98 cfs @	12.00 hrs,	Volume=	0.529 af	
Outflow =	4.55 cfs @	12.09 hrs,	Volume=	0.529 af,	Atten= 43%, Lag= 5.2 min
Discarded =	4.55 cfs @	12.09 hrs,	Volume=	0.529 af	
Primary =	0.00 cfs @	5.00 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 98.93' @ 12.09 hrs Surf.Area= 0.070 ac Storage= 0.065 af

Plug-Flow detention time= 6.1 min calculated for 0.529 af (100% of inflow)
Center-of-Mass det. time= 5.9 min (734.7 - 728.8)

Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	0.180 af	**8.00'D x 6.00'H stone fill Z=1.0** x 20 0.450 af Overall x 40.0% Voids
#2	96.00'	0.100 af	**4.00'D x 4.00'H Vertical Cone/Cylinder Z=1.0** x 20
		0.280 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	96.00'	**2.410 in/hr Exfiltration X 20.00 over Wetted area** Conductivity to Groundwater Elevation = 82.00'
#2	Primary	100.00'	**4.0" Round Culvert X 20.00** L= 1.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 98.00' / 100.00' S= -2.0000 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior

Discarded OutFlow Max=4.53 cfs @ 12.09 hrs HW=98.92' (Free Discharge)
↑—**1=Exfiltration** (Controls 4.53 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=96.01' (Free Discharge)
↑—**2=Culvert** (Controls 0.00 cfs)

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Soil Data

Prepared for

William Moryl

Sunny Side Storage LLC

319 Palmer Road

Ware, MA 01082

Prepared by

Robert H. LeMaitre, PE, PLS

4 Skyview Drive

Ware, MA 01082

Soils Data

Soil evaluations and percolation tests have been performed on the site. In all cases ground water was found to be at depths greater than 10 feet.

The parent material is Hinkley Loamy sand. The soil is an excessively drained, gravelly loamy sand having a Munsell color of 2.5y6/4. The percolation rate was determined to be 2 minutes per inch.

These results confirm the validity of previous testing in the area and the accuracy of the NRCS Soil Report included in the submittal.

Hinkley Soils are listed as a Hydrogeologic Soil Group A, material by the NRCS, USDA, COE and other agencies. The Massachusetts Stormwater Handbook vol. 3 ch. 1 pg. 22, prescribes an infiltration rate of 2.41 inches/hour for this soil.

The historical data submitted is correct and consistent with recent findings

All oil explorations were conducted in the presents of a DEP Approved Soil Evaluator and Professional Engineer.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Hampden and Hampshire Counties, Massachusetts, Eastern Part

319 Palmer Road Ware

April 2, 2020

Preface

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

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

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

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

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

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

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253C—Hinckley loamy sand, 8 to 15 percent slopes 15
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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Custom Soil Resource Report
Soil Map

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Hampden and Hampshire Counties, Massachusetts, Eastern Part
Survey Area Data: Version 14, Sep 13, 2019

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

Date(s) aerial images were photographed: Apr 14, 2011—Aug 27, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
253B	Hinckley loamy sand, 3 to 8 percent slopes	16.8	82.5%
253C	Hinckley loamy sand, 8 to 15 percent slopes	0.1	0.3%
422B	Canton fine sandy loam, 0 to 8 percent slopes, extremely stony	3.5	17.3%
Totals for Area of Interest		20.3	100.0%

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Hampden and Hampshire Counties, Massachusetts, Eastern Part

253B—Hinckley loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svm8
Elevation: 0 to 1,430 feet
Mean annual precipitation: 36 to 53 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Kame terraces, outwash deltas, kames, eskers, outwash terraces, outwash plains, moraines
Landform position (two-dimensional): Summit, backslope, footslope, shoulder
Landform position (three-dimensional): Nose slope, side slope, base slope, crest, tread, riser
Down-slope shape: Linear, convex, concave
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 8 percent
Landform: Eskers, outwash terraces, kames, kame terraces, outwash plains, moraines, outwash deltas
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Nose slope, side slope, base slope, crest, riser, tread
Down-slope shape: Linear, convex, concave
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Sudbury

Percent of map unit: 5 percent
Landform: Kame terraces, outwash plains, moraines, outwash deltas, outwash terraces
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope, head slope, tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Agawam

Percent of map unit: 2 percent
Landform: Kames, kame terraces, outwash plains, moraines, outwash deltas, eskers, outwash terraces
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Nose slope, side slope, base slope, crest, tread, riser
Down-slope shape: Linear, convex, concave
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

253C—Hinckley loamy sand, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2svm9
Elevation: 0 to 1,480 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

Hinckley and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Kame terraces, outwash plains, moraines, outwash deltas, kames, eskers, outwash terraces
Landform position (two-dimensional): Shoulder, toeslope, footslope, backslope
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser
Down-slope shape: Linear, convex, concave
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Merrimac

Percent of map unit: 5 percent
Landform: Eskers, outwash terraces, kames, moraines, outwash plains
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Side slope, head slope, nose slope, crest, riser
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Windsor

Percent of map unit: 5 percent
Landform: Outwash deltas, moraines, outwash terraces, eskers, kame terraces, kames, outwash plains

Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser
Down-slope shape: Convex, concave, linear
Across-slope shape: Concave, linear, convex
Hydric soil rating: No

Sudbury

Percent of map unit: 5 percent
Landform: Moraines, outwash deltas, outwash terraces, kame terraces, outwash plains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

422B—Canton fine sandy loam, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w818
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: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Canton, extremely stony, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton, Extremely Stony

Setting

Landform: Ridges, moraines, hills
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
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Natural 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
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Scituate, extremely stony

Percent of map unit: 6 percent
Landform: Hills, drumlins, ground moraines
Landform position (two-dimensional): Footslope, backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Charlton, extremely stony

Percent of map unit: 6 percent
Landform: Ground moraines, hills, ridges
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

Swansea

Percent of map unit: 4 percent
Landform: Bogs, depressions, marshes, swamps, kettles
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Montauk, extremely stony

Percent of map unit: 4 percent
Landform: Hills, recessionial moraines, drumlins, ground 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

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No.

Date: 10/2/12

Commonwealth of Massachusetts

Ware, Massachusetts

Soil Suitability Assessment for On-site Sewage Disposal

Performed By: Robert H. LeMaitre

Date: 10/2/12

Witnessed By: Ryan Fitzemeyer

Location, Address 319 Palmer Road

Owner's Name: William Moryl, Paul Moryl & Gail Moryl

Address 315 Palmer Road

Telephone 967-5888

Lot # map 9 lot 138

New construction Repair X

Office Review

Published Soil Survey Available: No Yes X

Year Published 1989 Publication Scale 1:25000 Soil Map Unit HgB

Drainage Class excessive Soil Limitations. no major limits

Surficial Geologic Report Available: No x Yes

Year Published Publication Scale

Geologic Material (Map Unit)

Landform

Flood Insurance Rate Map:

Above 500 year flood boundary No Yes x

Within 500 year flood boundary No x Yes

Within 100 year flood boundary No x Yes

Wetland Area:

National Wetland Inventory Map (map unit).

Wetlands Conservancy Program Map (map unit)

Current Water Resource Conditions (USGS): Month September 2012

Range :Above Normal Normal X Below Normal

Other References Reviewed USGS Quad

Location Address or Lot No. 319 Palmer Road
Deep Hole Number 1 Date 10/2/12 Time 8:45 AM Weather PC
Location (identify on site plan) Attached
Land Use residential Slope (%) 3-8 Surface Stones few
Vegetation grass, hemlock, pine

Landform terrace

Position on landscape (sketch on the back) Attached

Distances from:
Open Water Body >100 feet Drainage way >100 feet
Possible Wet Area >100 feet Property Line >50 feet
Drinking Water Well >100 feet Other
Municipal water

DEEP OBSERVATION HOLE LOG

Depth from Surface (Inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munse11)	Soil Mottling	Other (Structure. Stones. Boulders, Consistency, % Gravel)
0-10	A	SL	10yr3/2	N/O	Friable
10-35	B	S	10yr5/6		Stoney cobbles common
35-126	C	S	2.5y7/1		Sharp sand

Parent Material (geologic) outwash

Depth to Bedrock: >126"

Depth to ground water: **Standing Water in the Hole:** n/o

Weeping from Pit Face: n/o

Estimated Seasonal High Ground Water >126"

Location Address or Lot No. 319 Palmer Road
Deep Hole Number 2 Date 10/2/12 Time 8:45 AM Weather PC
Location (identify on site plan) Attached
Land Use residential Slope (%) 3-8 Surface Stones few
Vegetation grass, hemlock, pine

Landform terrace

Position on landscape (sketch on the back) Attached

Distances from:
Open Water Body >100 feet Drainage way >100 feet
Possible Wet Area >100 feet Property Line >60 feet
Drinking Water Well >100 feet Other
Municipal water

DEEP OBSERVATION HOLE LOG

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munse11)	Soil Mottling	Other (Structure. Stones. Boulders, Consistency, % Gravel)
0-10	A	SL	10yr3/2	N/O	Friable
10-36	B	S	10yr5/6		Stoney cobbles common
36-120	C	S	2.5y7/1		Sharp sand

Parent Material (geologic) outwash

Depth to Bedrock: >120"

Depth to ground water: Standing Water in the Hole: n/o

Weeping from Pit Face: n/o

Estimated Seasonal High Ground Water >120"

Location Address or Lot No. 319 Palmer Road

Determination for Seasonal High Water Table

Method Used:

Depth observed standing in observation hole ...n/o..... inches
Depth weeping from side of observation hole ...n/o inches
Depth to soil mottles n/o . inches

Ground water adjustment ..... feet
Index Well Number ..... Reading Date ..... Index well level .....
Adjustment factor ..... Adjusted ground water level.....>120".....

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 November,1995 (date) 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 Robert H LeMaitre Date 10/2/12

Robert H. LeMaitre, P.E., P.L.S

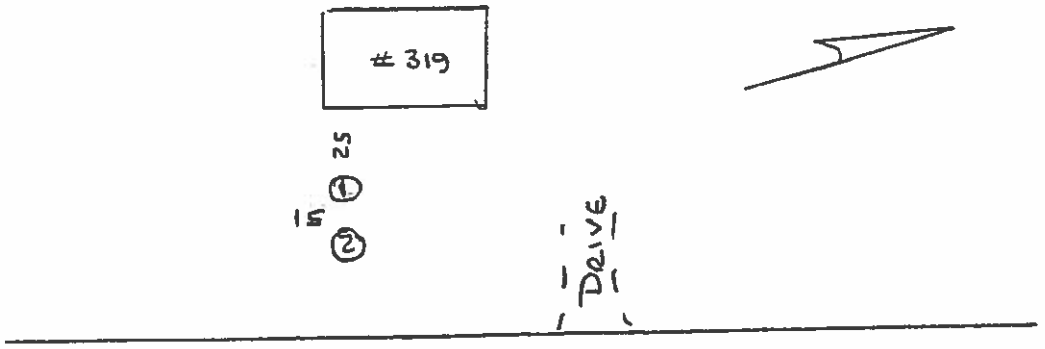
DEP APPROVED *FORM - 12107195*

Robert H. LeMaitre, PE, PLS
4 Skyview Drive
Ware, MA 01082
413-967-7878

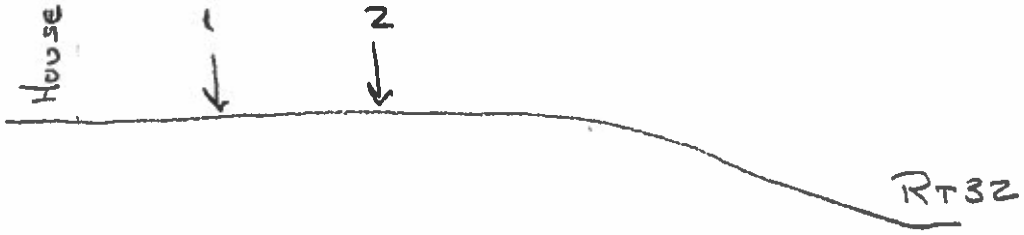
Job No:
Project: 319 Palmer Rd
Calc. By:
Date: 10/2/12

DESIGN CALCULATIONS

Sheet ____ **of** ____



LOCATION SKETCH NTS



LANDSCAPE POSITION NTS

FORM 12 - PERCOLATION TEST

Location Address or Lot No. 319 Palmer Road

COMMONWEALTH OF MASSACHUSETTS

Ware, Massachusetts

Percolation Test		
	Date: 10/2/12 Time: 8:45 AM	
Observation Hole #	1	
Depth of Perc	60"	
Start Pre-soak	9:35	
End Pre-soak	9:40	
Time at 12"	Would not hold water	
Time at 9"		
Time at 6"		
Time (9"-6")		
Rate Min./Inch		

Minimum of 1 percolation test must be performed in both the primary area AND reserve area.

Site Passed__X___Site Failed

Performed By: R. H. LeMaitre, PE, PLS

Witnessed By: Ryan Fitzemeyer

Comments: 5 ft. separation required