NOTICE OF PUBLIC HEARING
SUDBURY CONSERVATION COMMISSION
Monday, October 3, 2022 at 6:45 PM
Virtual Meeting

The Sudbury Conservation Commission will hold a public hearing to review the Notice of Intent filing to construct a single-family house with associated grading, utilities, and stormwater management within the 100-foot Buffer Zone, pursuant to the Wetlands Protection Act and Sudbury Wetlands Administration Bylaw, at 219 Wayside Inn Road (L01-0002, L02-0003, L02-0013), Sudbury, MA. Elizabeth Rudenberg, Applicant. The hearing will be held on Monday, October 3, 2022 at 6:45 pm, via remote participation.

Please see the Conservation Commission web page for further information.

https://sudbury.ma.us/conservationcommission/meeting/conservation-commission-meeting-monday-october-3-2022/

SUDBURY CONSERVATION COMMISSION
9/6/22

DGT Associates
Surveying & Engineering

1071 Worcester Rd.
Framingham, MA 01701
508.879.0030
www.dgtassociates.com

WETLANDS NOTICE OF INTENT

for

PROPOSED HOUSE PROJECT

Estate of Gunther Rudenberg
Wayside Inn Road
Sudbury, MA 01776

Prepared for:
Estate of Gunther Rudenberg
(Elizabeth Rudenberg)
259 Foreside Road
Falmouth, Maine 04105

Prepared by:
DGT Associates – Project Civil Engineer
1071 Worcester Road
Framingham, MA 01701
508-879-0030

August 31, 2022

LIST OF INCLUDED DOCUMENTS

Notice of Intent Form (WPA Form 3) Signed

Sudbury Notice of Intent Checklist (next page)

ATTACHMENTS

1. Project Narrative
   Includes: USGS Locus Map
   NHESP Map
   FEMA Firmette Map
   FEMA Flood Profile
   Site Photos

2. Copies of Filing Fee Checks and Sudbury Fee Information.

3. Copy of Draft Abutter Notice and Lists of Abutters

4. Wetland Delineation Report (March 26, 2020)

5. Stormwater Report (Under Separate Cover):
   "Stormwater Management Design and Runoff Calculations Report for Proposed Single Family House" Dated August 30, 2022, by DGT Associates.

SITE PLANS:
"Site Plan, H. Gunther Rudenberg Estate, Wayside Inn Road, Sudbury, MA" Dated August 8, 2022 by DGT Associates (6 sheets).

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

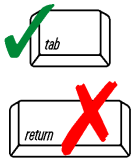
Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Sudbury
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):

219 Wayside Inn Road (Unofficial) — a. Street Address
Sudbury — b. City/Town
01776 — c. Zip Code

Latitude and Longitude:
42.356283 — d. Latitude
-71.481283 — e. Longitude

L01 - 0002, L02 - 0003 and L02 - 0013 — f. Assessors Map/Plat Number
See at left. — g. Parcel /Lot Number

2. Applicant:

Elizabeth — a. First Name
Rudenberg — b. Last Name
c. Organization
259 Foreside Road — d. Street Address
Falmouth — e. City/Town
Maine — f. State
04105 — g. Zip Code
207-781-2223 — h. Phone Number
i. Fax Number
elizabeth.rudenberg@gmail.com — j. Email Address

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

CO/ Elizabeth — a. First Name
Rudenberg — b. Last Name
Estate of H.G. Rudenberg — c. Organization
259 Foreside Road — d. Street Address
Falmouth — e. City/Town
Maine — f. State
04105 — g. Zip Code
207-781-2223 — h. Phone Number
i. Fax Number
elizabeth.rudenberg@gmail.com — j. Email address

4. Representative (if any):

Fredric — a. First Name
King — b. Last Name
DGT Associates, Inc. — c. Company
1071 Worcester Road — d. Street Address
Framingham — e. City/Town
MA — f. State
01701 — g. Zip Code
508-879-0030 — h. Phone Number
508-879-1797 — i. Fax Number
fking@dgtassociates.com — j. Email address

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

$ 500.00 — a. Total Fee Paid
$ 237.50 — b. State Fee Paid
$ 262.50 — c. City/Town Fee Paid

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

Sudbury
City/Town

A. General Information (continued)

6. General Project Description:

Construction of a single family house with associated driveway, well, septic system, stormwater management and landscaping.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

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

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration 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. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

a. County	b. Certificate # (if registered land)
Middlesex South	
c. Book	**d. Page Number**
7807 and 49650	Bk 7807 pg 267 and Bk 49650 pg 379

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.

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

Sudbury
City/Town

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

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. square feet 3. cubic yards dredged	2. square feet

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

1. Name of Waterway (if available) - **specify coastal or inland**

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: _____ 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. _____

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)

Note: for coastal riverfront areas, please complete **Section B.2.f**. above.

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

Sudbury
City/Town

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

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

Resource Area	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

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings

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
Sudbury
City/Town

C. Other Applicable Standards and Requirements

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

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://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.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
1 Rabbit Hill Road
Westborough, MA 01581

Current Mass. GIS
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.2.f, 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. 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 _____ percentage/acreage

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

2. ☐ 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

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see https://www.mass.gov/ma-endangered-species-act-mesa-regulatory-review).
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.

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
Sudbury
City/Town

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

(c) ☐ MESA filing fee (fee information available at https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review).
Make check payable to "Commonwealth of Massachusetts - NHESP" 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

(f) 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, https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat; 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 # 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.

3. 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, hand delivery, or electronic delivery of NOI to either:

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

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: dmf.envreview-south@mass.gov

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: dmf.envreview-north@mass.gov

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.

c. ☐ Is this an aquaculture project? d. ☐ Yes ☐ No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).

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

Sudbury
City/Town

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

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 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

5. 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

6. 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

7. 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

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

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.

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

Sudbury
City/Town

D. Additional Information (cont'd)

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.

Site Plan, H. Gunther Rudenberg Estate, Proposed Residential Site Plan (Single Family House)
a. Plan Title

DGT Associates
b. Prepared By

Fredric W. King, P.E.
c. Signed and Stamped by

August 8, 2022
d. Final Revision Date

1 inch = 20 ft.
e. Scale

See attached list of documents.
f. Additional Plan or Document Title

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:

1097
2. Municipal Check Number

June 30, 2022
3. Check date

1096
4. State Check Number

June 30, 2022
5. Check date

Elizabeth
6. Payor name on check: First Name

Rudenberg
7. Payor name on check: Last Name

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

Sudbury

City/Town

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.

Elizabeth C. Rudenberg PR HG Rudenberg estate — 1. Signature of Applicant

8/8/22 — 2. Date

Elizabeth C. Rudenberg — 3. Signature of Property Owner (if different)

4. Date

Frederick W. Kane — 5. Signature of Representative (if any)

8/30/2022 — 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.

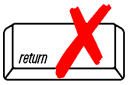
The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

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

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



A. Applicant Information

1. Location of Project:

219 Wayside Inn Road (Unofficial)	Sudbury
a. Street Address	b. City/Town
1096	$ 237.50
c. Check number	d. Fee amount

2. Applicant Mailing Address:

Elizabeth	Rudenberg
a. First Name	b. Last Name

c. Organization

259 Foreside Road
d. Mailing Address

Falmouth	ME	04105
e. City/Town	f. State	g. Zip Code

207-781-2223		elizabeth.rudenberg@gmail.com
h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

CO/ Elizabeth	Rudenberg
a. First Name	b. Last Name

Estate of H.G. Rudenberg
c. Organization

259 Foreside Road
d. Mailing Address

Falmouth	ME	04105
e. City/Town	f. State	g. Zip Code

207-781-2223		elizabeth.rudenberg@gmail.com
h. Phone Number	i. Fax Number	j. Email Address

B. Fees

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

Fee should be calculated using the following process & 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
Category 2.a. Single Family Home	1	$ 500.00	$ 500.00

Step 5/Total Project Fee: $ 500.00

Step 6/Fee Payments:

Total Project Fee:	$ 500.00 (a. Total Fee from Step 5)
State share of filing Fee:	$ 237.50 (b. 1/2 Total Fee **less $**12.50)
City/Town share of filling Fee:	$ 262.50 (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 this form; and the city/town fee payment.

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

Town of Sudbury
Conservation Commission

Conservation Department
275 Old Lancaster Rd.
Sudbury MA 01776
978-440-5472
ConCom@sudbury.ma.us

Notice of Intent Submission Checklist

A complete application package (double-sided and collated) must be submitted by close of business a minimum of two weeks in advance of a scheduled meeting. The Commission generally meets every other Monday. A list of meetings and submission deadlines can be found on the Commission's webpage (https://sudbury.ma.us/conservationcommission/). Incomplete packages may be returned and/or cause delay of your project.

Supplemental information for continued hearings must be submitted by 3:30 pm at least 4 business days in advanced of the next scheduled Commission meeting.

REQUIRED DOCUMENTATION:

✓ 1. One original signature and one copy of completed Notice of Intent Application Form (WPA Form 3) signed by the Applicant and Property Owner.

✓ 2. One completed NOI Wetland Fee Transmittal Form Pages 1 & 2.

✓ 3. One copy of the following maps, all with the site clearly identified. (One can generate these maps be using the Town GIS at www.mapsonline.net/sudburyma/ or by using Oliver through MassGIS at: http://maps.massgis.state.ma.us/map_ol/oliver.php.)
- ✓ USGS
- ✓ FEMA
- ✓ NHESP

✓ 4. Two sets of full-sized stamped plans, including graphic scale (not more than 1 inch = 20 feet) and title block that shows proposed structures or modifications to existing structures, paving, drainage, or water control structures, and erosion controls. Be sure to include resource delineation, riverfront and/or buffer zones, and existing and proposed topography. GIS maps may be used for small projects at the discretion of the Conservation Commission.
- Plan revisions shall be clearly noted and dated on the plans.
- Colored plan shall be provided that clearly depict existing and proposed conditions with the following color scheme:
  - Existing conditions = Black
  - Proposed Construction = Red
  - Wetland boundaries = Blue
  - Buffer Zone = Yellow
  - Riverfront = Purple
  - Proposed Tree line = Green
  - Erosion Controls = Orange

Color plans not provided.

✓ 5. One copy of the Abutter's list (certified by the Assessor's Office), Abutter Notification form, and proof of mailing. Notification can be either by hand or via certificate of mailing or certified mail. This certificate, return receipt green cards, copies of green cards, or proof of receipt of hand delivered mail, must be submitted prior to the hearing (scanned copies are OK).

✓ 6. Two copies of a narrative which should include the following information:

- Description of work within regulated resource areas, the buffer zones, and any impacts to these areas.
- Description of the project's compliance with the WPA performance standards. If work is proposed in the Riverfront Area, you must provide an alternatives analysis.
- Description of the project's compliance with the Sudbury Administration Wetlands Bylaw.
  - If work is proposed within Adjacent Upland Resource Area, you must provide an alternatives analysis.
  - If work is located adjacent to a stream, you must provide the required evidence in accordance with Section 2.3 of the Sudbury Administration Wetlands Bylaw Regulations to determine whether the stream is intermittent or perennial.

Described in the Narrative

7. Proposed mitigation for unavoidable project impacts to regulated areas. Provide the following information:
   - Square footage of work proposed by type (i.e. disturbance, structures, impervious surface, etc.) within each regulated area, including the 100-foot Buffer Zone, 100-foot Adjacent Upland Resource Area, and 200-foot Riverfront Area (inner and outer riparian zones).
   - Square footage of proposed mitigation by type (i.e. native plantings, invasive species removal, impervious surface reduction, etc.) within each regulated area.

8. Description of wetland resource areas, date delineated, and name of wetland scientist that conducted the delineation

9. Photos of the site.

10. Applicable Filing Fees under the Wetlands Protection Act and the Sudbury Administrative Wetlands Bylaw Checks to the Town of Sudbury. See attached.

    * Please note, a legal notice fee will be billed directly to the Applicant. The Applicant is responsible for the cost of the legal notice in accordance with the state Wetlands Protection Act [310 CMR 10.05(5)(a)] and Sudbury Administration Wetlands Bylaw.

11. If applicable, one completed, signed Stormwater Management Form, Appendix C, if applicable. This does not apply to projects on single-family lots.

12. If applicable, one signed copy of any Operation and Maintenance Plans associated with elements located or that discharge to resource areas.

13. All documentation also must be provided in electronic format, including any revised information.

DEP MAILING

1. Send check for state fee made out to the Commonwealth of Massachusetts and copy of NOI Wetland Fee Transmittal Form Pages 1 & 2 to: DEP, Box 4062, Boston, MA 02211.

2. Send one complete copy of the Notice of Intent application, including copies of all required maps, project plans, Wetland Fee Transmittal Form, list of abutters, Notification to Abutters Form, and a copy of the check for state and town fee payments to:
   DEP-NERO, Wetlands Division 205 Lowell Street Wilmington, MA 01887.

DGT Associates
Surveying & Engineering

1071 Worcester Rd.
Framingham, MA 01701
508.879.0030
www.dgtassociates.com

25052

ATTACHMENT 1: PROJECT NARRATIVE

GENERAL SITE DESCRIPTION:
The site is a 9.9 acre parcel of land at 219 (unofficial) Wayside Inn Road in Sudbury, MA. The property is on the south side of Wayside Inn Road and the western property boundary is the Sudbury /Town Line with the City of Marlborough. The rear (southerly) boundary is the centerline of Hop Brook. The eastern property boundary abuts protected open space land owned by the Sudbury Valley Trustees. The property includes three parcels identified on the Sudbury Assessors Maps as Map L01- Parcel 0002; Map L02 – Parcel 0003; and Map L02 – Parcel 0013.

The majority of the property is forested with a dense stand of mature second growth White Pine. The rear (southern) portion of the site is open shallow marsh and shrub swamp adjacent to the open water of Hop Brook. Hop Brook flows easterly into the Gristmill Pond just off the southeast corner of the property. Hop Brook is a perennial stream that qualifies as a River under the Mass. Wetlands Protection Act and the Sudbury Wetlands Administration Bylaw.

The land is relatively flat with a very gradual slope from the road to the brook in the rear. The central and rear portion of the site is within the Flood Plain of Hop Brook. The boundary of the 100 year flood plain is at elevation 211.4 from the latest Federal Emergency Management Agency (FEMA) flood profile information mapping. The central portion of the site is interspersed with low areas that have a predominance of wetland vegetation in the understory and two of the low areas have evidence of shallow temporary ponding.

The area along the road is upland and most of the rear portion is vegetated wetlands. There is a roadside drainage ditch within the Wayside Inn Road layout along the front of the site. There are small areas of upland between the low central area of the site and the marshes to the south, but those boundaries were not delineated. The uplands along the front portion of the property have Red Oak mixed in with the White Pine forest. The rear portion also has a White Pine overstory with Red Maple and some Elm in the understory.

The Wetlands Resource Areas at the site include: Bordering Vegetated Wetland (BVW); Riverfront; Bordering Land Subject to Flooding (BLSF); Banks and Land Under Waterbody (LUW) (of Hop Brook); with the associated Buffer Zones. The Buffer Zones are identified as "Adjacent Upland Resource Area (AURA)" under the Sudbury Wetlands Administration Bylaw.

DGT Associates performed a field delineation of the boundaries of the Bordering Vegetated Wetlands and Estimated Mean Annual High Water (MAHW) of Hop Brook at the subject property in June of 2017 and March of 2020. The boundary of the BLSF was determined by field survey as the 211.4 FEMA Flood contour line.

Complete information on the wetlands delineations is contained in the delineation report in Attachment 4 and the surveyed locations are included on the Existing Conditions Plan and the Site Plans included in this filing.

WILDLIFE HABITAT OF RARE AND ENDANGERED SPECIES

According to the latest Mass. Natural Heritage and Endangered Species Program (NHESP) mapping on Mass. GIS, there are no areas of Estimated Habitat or Priority Habitat of Rare Species on or near the subject property.

There are no identified Certified or Potential Vernal Pools on the property. The nearest vernal pool is located in the rear of the nearby property at 129 Wayside Inn Road in Marlborough. That pool is located approximately 280 feet west of the subject property and about 1,000 feet from the proposed project work site. This vernal pool was observed by DGT to be very active with spring peepers and wood frogs chorusing in the spring seasons of both 2021 and 2022.

There are two low areas on the subject property that temporarily hold water in the spring. One is located within the wetlands in the central portion of the site, about 60 feet south of the BVW boundary. The other is located on the gas easement, about 250 feet from Wayside Inn Road. Both are very shallow (about 6 inches deep) and recede quickly to small puddles (approximately one month in the spring). No vernal pool activity was noted during the spring of 2021 and 2022 in these two areas. Additional information is included in the Wetland Delineation Report (Attachment 4).

PROPOSED PROJECT:

The proposed project is the construction of one single family house with attached garage on the site, with associated driveway, septic system, water supply well, and utilities in the northeast portion of the site. Due to the limited space available and required setbacks to the wetlands and drainage ditch for the septic system, the project is limited to a 3-bedroom house. The major portion of the project is within the 100 foot buffer zone and the Adjacent Upland resource Area of the BVW. No direct alteration of the BVW, Riverfront and BLSF is proposed.

The project has been designed to be as compact as reasonable and keeps the proposed alterations as far as possible from the wetland resource areas. The closest alterations to the BVW is 10 feet and generally varies from 10 to 40 feet from the worksite to the wetland.

The project will result in 18,700 sq. ft. of alteration on the 9.9 acre parcel (4.3% of the parcel). The area of alterations within the Buffer Zone/AURA is 17,300 sq. ft. Impervious surfaces include 2,125 sq. ft. of house and 1,800 sq. ft. of driveway and walkways. The house shown on the plan is a conceptual design at this time. The actual house has not yet been designed but will

be substantially within the footprint shown and no larger in area. The current concept for the landscape plantings and stabilization of the disturbed area includes the following:

- Lawn area will be limited to approximately 2,800 sq. ft. of area in the rear of the house and small areas around the side for foot access.
- The remaining 11,925 sq. ft. of disturbed area will be vegetated with native plantings including the following:
  - The sloping areas will be stabilized with a combination of native shrubs and New England Conservation Wildlife Mix seed.
  - The area over the septic system leaching field will be New England Showy Wildflower Mix.
  - The two rain gardens off the front corners of the house will be vegetated with New England Wetmix in the bottom, New England Erosion Control / Restoration Mix for Detention Basins on the inside slopes in combination with wet tolerant shrubs.
  - The area surrounding the rain gardens and front yard area would be a combination of New England Wildflower Mix and planting beds with trees and flowering shrubs.

Note that the plans for this project, Notice of Intent and other permit applications are being prepared for the Owners / Applicants to prepare for the sale of the property to other parties. It is not the intent of the owners / applicants to build the proposed project. Construction will be by the future owners to follow the plans and the requirements of the various permits. The future owners will be aware that any modifications to the plans will need further review by the permitting authorities.

STORMWATER MANAGEMENT

The project as designed is intended to meet the requirements of the Sudbury Stormwater Management Bylaw and Regulations. Under the Massachusetts Stormwater Management Regulations, this project is exempt as a Single-Family House. However, this project is subject to the Sudbury Stormwater Regulations as a General Permit project. The following describes the stormwater management features planned to comply with these requirements.

Under existing conditions, stormwater runoff from the site drains uncontrolled and overland to the onsite wetland areas that drain to Hop Brook to the south. Hop Brook (A warmwater stream) and the gristmill pond downstream are not “Outstanding Resource Waters” or “Critical Areas under the Mass. Regulations. Wayside Inn Road in front of the site drains to roadside ditches. The roadside ditch along the front of the project site drains easterly to wetlands on downstream properties to the east. A portion of the ditch in front of the site is at a lower elevation and acts as a small stormwater infiltration area.

To meet the requirements of the Sudbury regulations, the stormwater from impervious surfaces need to be treated and controlled so as to provide water quality mitigation and to control the

runoff so as to not degrade water quality and not increase stormwater runoff to the wetlands. Essentially, this is to maintain the existing site hydrology. As required by the regulations, "Limited Impact Development (LID) techniques are to be utilized to the extent practicable to accomplish these objectives.

For this project the following stormwater management features are proposed:

1. The roof runoff from the house will be directed to two small "Rain Gardens". These are to be located off the two front corners of the proposed house. These features are a form of Bio-Retention Basin that are vegetated and capture the runoff for infiltration through the vegetated bottom of the basin. They are classified as LID stormwater technologies. The bottom of the Rain Gardens are set at 2 feet above the high groundwater table for proper treatment and drainage. Overflows are provided in the event of extreme rain events. Due to the well-draining soils and relatively small area draining to them, these two facilities actually have the capacity to capture a 100 year storm event.

2. Porous Pavers: To capture and treat stormwater from the proposed driveway, a precast concrete permeable paver system is proposed for approximately 1,000 sq. ft. of the driveway. A small portion of the sloping entry drive will also drain onto the permeable surface. The pavement system has a crushed stone reservoir base that is set 2 feet above the seasonal water table and has the capacity to infiltrate up to a 100 year storm. This system is also classified as an LID Technology.

3. The entry driveway crosses the existing drainage ditch. To assure unrestricted flow of this Town owned drain, a 4 foot wide, open bottom precast concrete culvert is proposed. This will effectively bridge the ditch and has H-20 load capacity. Wayside Inn Road is a Scenic Road under the Town Bylaws. The driveway location was selected to avoid removal of any existing town trees. The proposed use of fieldstone along the sides of the driveway will provide a rustic bridge appearance in keeping with the aesthetics of the area and purpose of the Scenic Road Bylaw.

Detailed stormwater calculations and information are contained in the Stormwater Management Report in Attachment 5 of the NOI documents. The document includes a Stormwater Operation and Maintenance Plan for all stormwater components with detailed instructions for future property owners.

PROPOSED 100 FOOT ADJACENT UPLAND RESOURCE AREA (AURA) MITIGATION

Due to the limited upland area on this site, the proposed project requires alterations near the wetlands. To minimize the impact on the AURA, the proposed house is a modest size with the layout kept as compact as possible, and the alterations are kept to a minimum area. Formal lawn is minimized, and native plantings are proposed to vegetate the areas beyond the formal use areas to restore as much of the AURA in natural landscape and for wildlife habitat value.

RE: 219 Wayside Inn Road, Sudbury, MA
NOI Narrative

August 20, 2022

The septic system has been designed utilizing a "Presby Enviro-Septic" leaching area which is an Innovative Alternative (IA) design approved by the Mass. DEP for general use. This has been approved by the Board of Health for use on this project as it lowers and reduces the footprint of the systems, eliminates the need for retaining walls and reduces the area of alteration significantly from a conventional Title 5 system.

ALTERNATIVES: Given the location and configuration of the upland area of at this site, the proposed location is the only suitable area for this project on this 9.9 acre parcel. For the overall project scope there appears to be no available alternatives.

The following are additional mitigation measures intended to preserve and protect the wetlands resource areas on the site:

- **Permanent Preservation of the rear portion of the site:**
  This property is in the Wayside Inn Historic Preservation Zoning District. Under that District, the minimum lot size for building lots is five acres. To remain as a building lot the owner is proposing dividing the lot to keep 5.1 acres with the house lot. The owners of the property have been in communications with the Sudbury Valley Trustees (SVT) to transfer approximately 4.8 acres of the parcel along Hop Brook to the SVT for permanent open space protection. The SVT presently owns 1.67 acers of land with frontage on Wayside Inn Road that abuts the east side of the subject property. This would bring their holdings to nearly 6.5 contiguous acres.

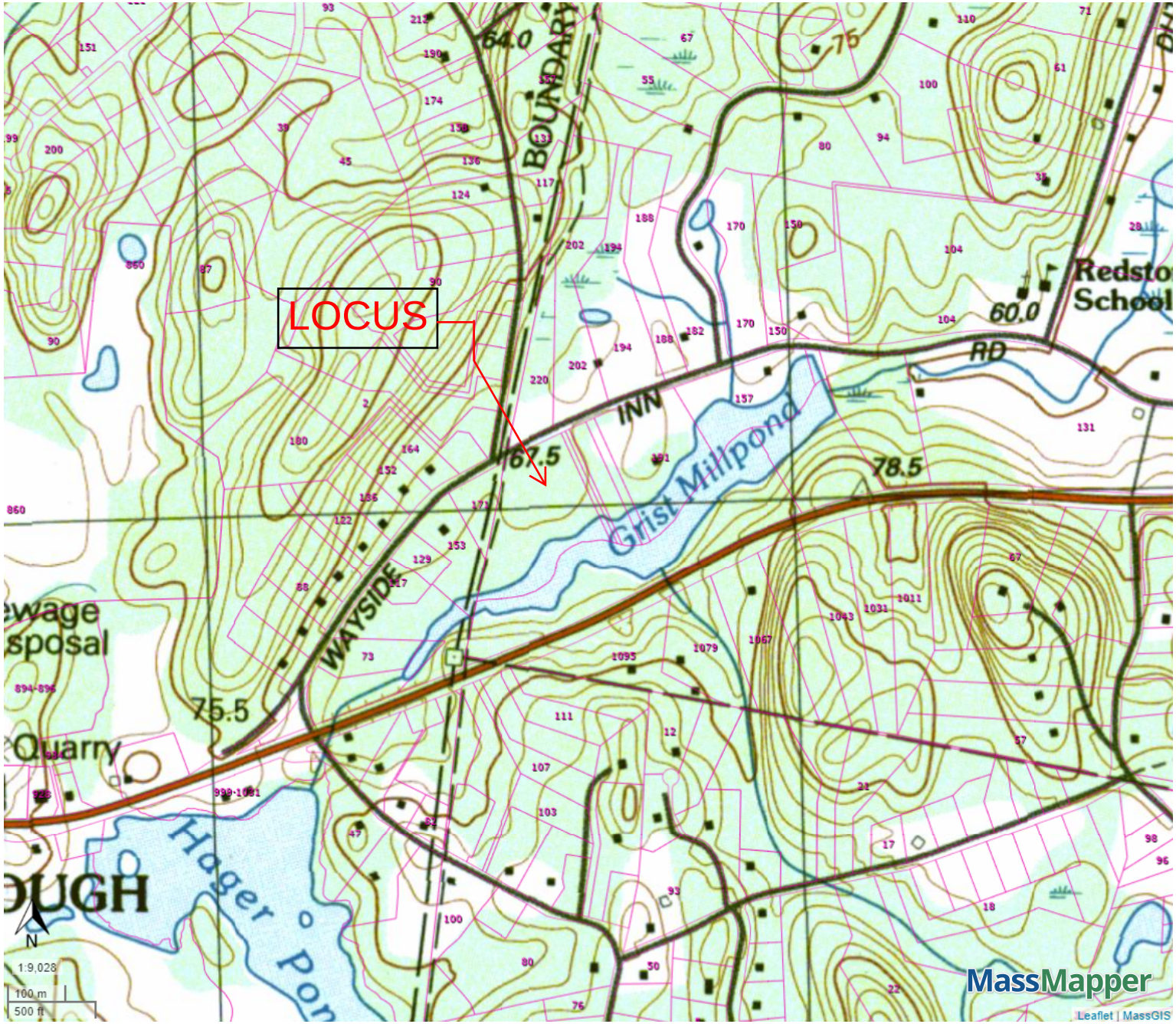
- **Possible provision of a Conservation Restriction on the undeveloped portion of the 5.1 acre building lot:**
  To prevent future encroachments into the wetland resource areas, the rear portion of the 5.1 acre lot could be placed in a formal Conservation Restriction (CR). The CR could be held by either the SVT or the Town with the limited allowable uses of the property specifically determined in the CR documents.

- **Permanent Markers for Limits of Use of the Building Lot:**
  The proposed limits of lawn and landscaping requiring maintenance by the homeowner are shown on the plan. The proposal is to provide permanent markers consisting of boulders to serve as a clearly visible marked boundary. The land beyond the markers are to not be disturbed other than allowable open space management activities as specified by the Conservation Commission and CR documents. An alternative to the boulder markers could be post and rail fencing and / or bounds as may be determined by the Conservation Commission through the wetlands Order of Conditions and CR documents.

END OF NARRATIVE

FIGURE 1

LOCUS MAP



Property Tax Parcels
USGS Topographic Maps

NHESP DATA MAP

NHESP Priority Habitats of Rare Species

None near site.

NHESP Estimated Habitats of Rare Wildlife

None near site.

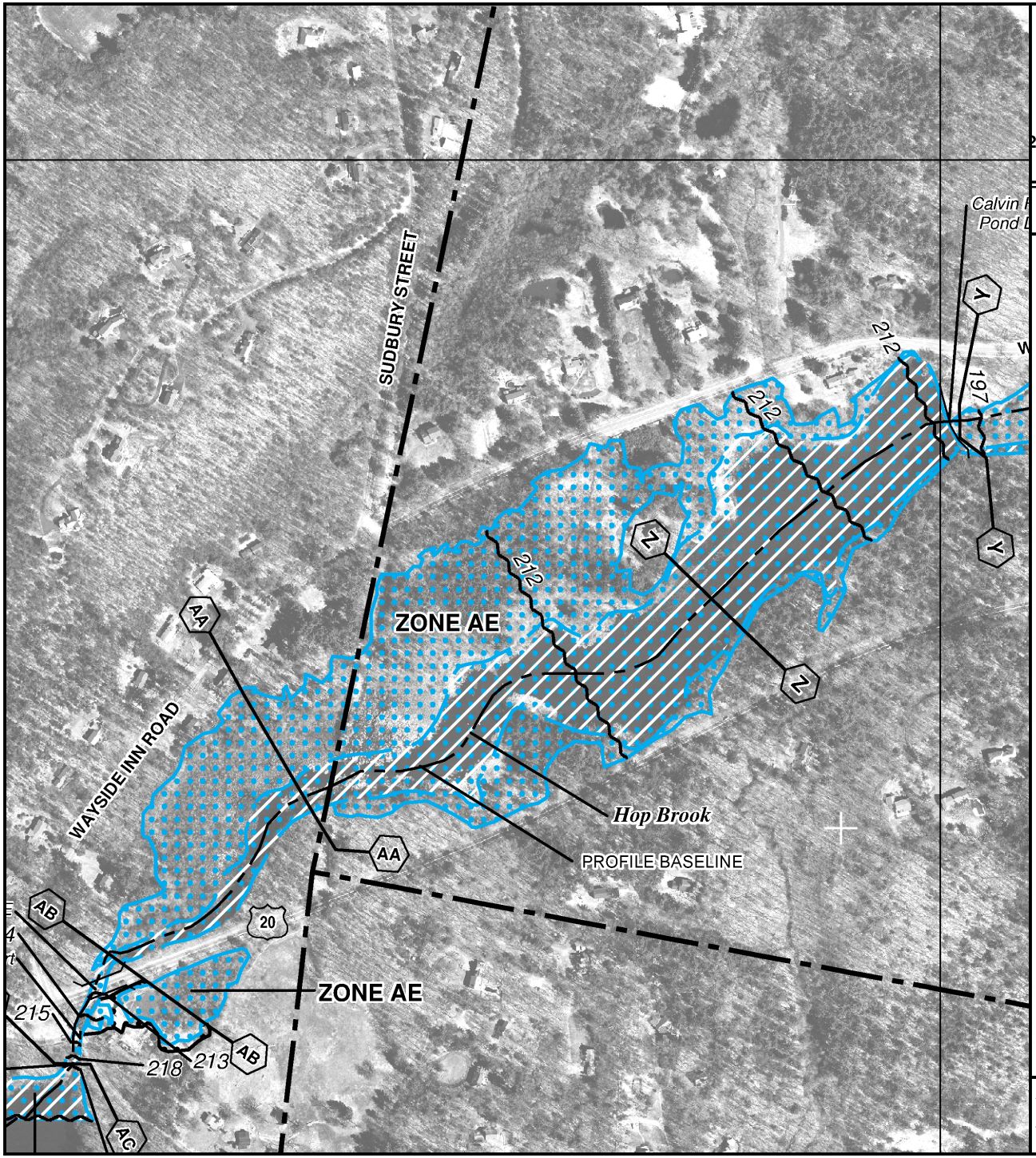
Potential Vernal Pools

None near site

NHESP Certified Vernal Pools

On nearby property to the west. Shown

Property Tax Parcels



MAP SCALE 1" = 500'

250 0 500 1000

FEET

METERS

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

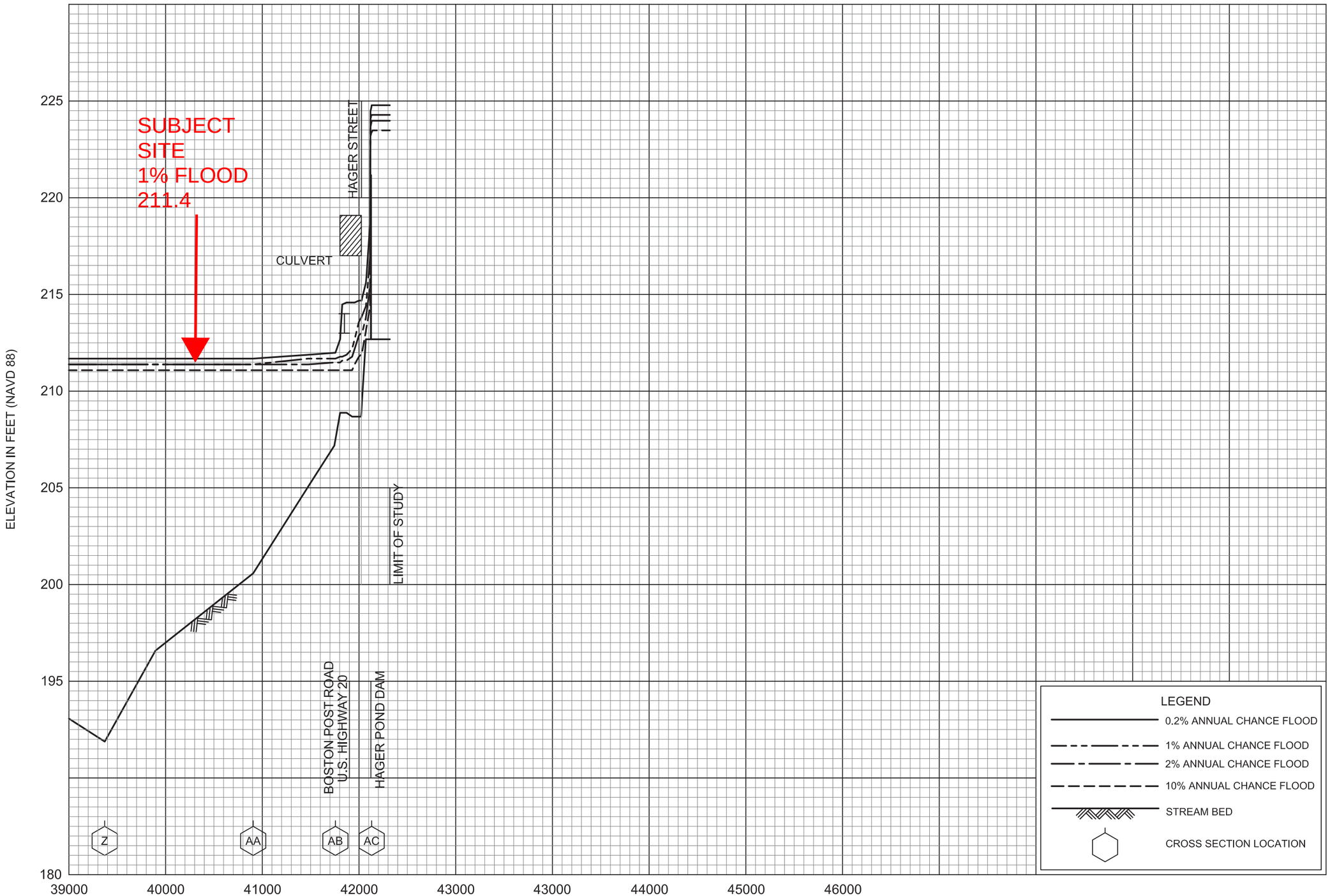
COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% Annual Chance Floodplain Boundary

0.2% Annual Chance Floodplain Boundary



FLOOD PROFILES

HOP BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MIDDLESEX COUNTY, MA

(ALL JURISDICTIONS)

260P

SITE PHOTOS (3/15/2020)

Open marshes at rear of site

Transition from marsh to wooded wetland.

MAHW #1 elevation at spike in tree

MAHW #2 elevation at spike in tree.

SITE PHOTOS

Short term ponding in wetland (3/12/2020)

Short term ponding in wetland (4/1/2022)

Short term ponding at Gas line (4/1/2022)

Stone wall at proposed driveway looking west. (4/1/2022)

Stone wall from proposed driveway looking east. (4/1/2022)

Drain ditch with puddle after rainstorm looking east. (4/1/2022)

SITE PHOTOS

Typical Upland Area (4/23/2020)

Typical Upland Area (4/23/2020)

Roadside Drain Ditch (3/12/2020)

Roadside Drain Ditch (3/12/2020)

Road drain inlet to ditch. (3/12/2020)

RUDENBERG NOI

ATTACHMENT 2
COPIES OF FILING FEE CHECKS
AND
SUDBURY FILING FEE INFORMATION

Sudbury Wetlands Administration Bylaw Fee Payments For All Applications:

Category A: Single minor project -- i.e., house addition, tennis court, swimming pool, or other accessory residential activity **$25 per project**

Category B: New single family dwelling **$250**

Category C: Subdivision--road and utilities only - **$500 plus $2 per foot** of road sideline within a resource area

Category D: Drainage, detention/retention basins **$500 plus $2 per 100 cubic feet of basin within a resource area**

Category E: Multiple Dwelling Structure **$500 plus $100/unit**, all or part of which is within a resource area

Category F: Commercial and Industrial Projects **$500 plus $0.50 per square foot of disturbance** in an undeveloped resource area

Category G: Application filed after Enforcement Order **double** the above fee

Category H: Determination of Applicability **no charge**

Category I: Remediation of a Contaminated Site or Enhancement of a Degraded Resource (excluding violations) **$25.00/project**

Additional Fees:

Abbreviated Notice of Resource Area Delineation:

New Construction: **$500 plus $2.00 for each linear foot of resource area subject to the Bylaw**

Existing Developed Single Family Lots: **$25.00**

Inspection Fee: $50.00 for each status inspection conducted as a follow up to a Notice of Violation.

RUDENBERG NOI

ATTACHMENT 3
ABUTTER NOTICE AND LISTS

INCLUDES:

- **DRAFT OF ABUTTER NOTICE**
- **SUDBURY ABUTTERS LIST (VERIFIED)**
- **MARLBOROUGH ABUTTERS LIST (VERIFIED**

Notification to Abutters DRAFT
Under the Massachusetts Wetlands Protection Act and the Sudbury Wetlands Administrative Bylaw

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, you are hereby notified of the following:

A. The name of the **Applicant** is Estate of H.G. Rudenberg

B. The Applicant has filed a Notice of Intent with the Sudbury Conservation Commission seeking permission to work in an Area Subject to Protection (Wetland Resource Area and/or Buffer Zone) under the Massachusetts Wetlands Protection Act (General Laws Chapter 131, Sec.40) and the Town of Sudbury Wetlands Administrative Bylaw.

C. The **address** of the lot where the activity is proposed: Wayside Inn Road (219 - unofficial)
Assessors Map L01-Pcl 0002, Map L02-Pcls 0003 and 0013.

D. The **proposed activity** is: Construction of a single family house with associated driveway, well, septic system, stormwater management and landscaping.

E. A **Public Hearing** regarding this Notice of Intent will be held on:
Monday, _____ at 6:45 PM.

F. **Public Participation will be via Virtual Means Only** - In light of the ongoing COVID-19 coronavirus outbreak, Governor Baker issued an emergency Order on March 12, 2020, allowing public bodies greater flexibility in utilizing technology in the conduct of meetings under the Open Meeting Law. The Town of Sudbury Conservation Commission greatly values the participation of its citizens in the public meeting process, but given the current circumstances and recommendations at both the state and federal levels to limit or avoid public gatherings, including Governor Baker's ban on gatherings of more than 10 people, together with the present closure of Sudbury Town Hall and other public buildings to the public, the Town has decided to implement the "remote participation" procedures allowed under Governor Baker's emergency Order for all boards, committees, and commissions.

G The public may participate in this meeting via Remote Participation:

From your computer, smart phone or tablet:

- _____
- Meeting ID: _____
- From your phone: **978-639-3366** or **470 250 9358**

H Copies of the Notice of Intent may be examined by visiting this Website:
https://sudbury.ma.us/conservationcommission/meetings/

I. Copies of the Notice of Intent may be obtained from either The Applicant, or the Applicant's representative DGT Associates, by calling this telephone number: 508-879-0030 between the hours of 8:30 am - 5:00 pm (M - F)Wayside

Note: Public Hearing Notice, including its date, time, and place, will be published at least 5 days in advance in the MetroWest newspaper (at the applicant's expense).

Abutters List
Date: June 02, 2022

print this list

Subject Property Address: WAYSIDE INN RD Sudbury, MA
Subject Property ID: L01-0002

Subject Property Address: WAYSIDE INN RD Sudbury, MA
Subject Property ID: L02-0003

Subject Property Address: WAYSIDE INN RD Sudbury, MA
Subject Property ID: L02-0013

Search Distance: 100 Feet

Prop ID: L01-0001
Prop Location: 202 WAYSIDE INN RD Sudbury, MA
Owner: MAYS ROBERT HARVEY & GAIL GAO
Co-Owner: TRUSTEES THE WAYSIDE INN ROAD
Mailing Address:

202 WAYSIDE INN RD
SUDBURY, MA 01776

Prop ID: L01-0003
Prop Location: 220 WAYSIDE INN RD Sudbury, MA
Owner: HAGGARD RICHARD L & JAYNE E
Co-Owner:
Mailing Address:
220 WAYSIDE INN RD
SUDBURY, MA 01776

Prop ID: L02-0004
Prop Location: WAYSIDE INN RD Sudbury, MA
Owner: SUDBURY VALLEY TRUSTEES INC
Co-Owner:
Mailing Address:
18 WOLBACH RD
SUDBURY, MA 01776

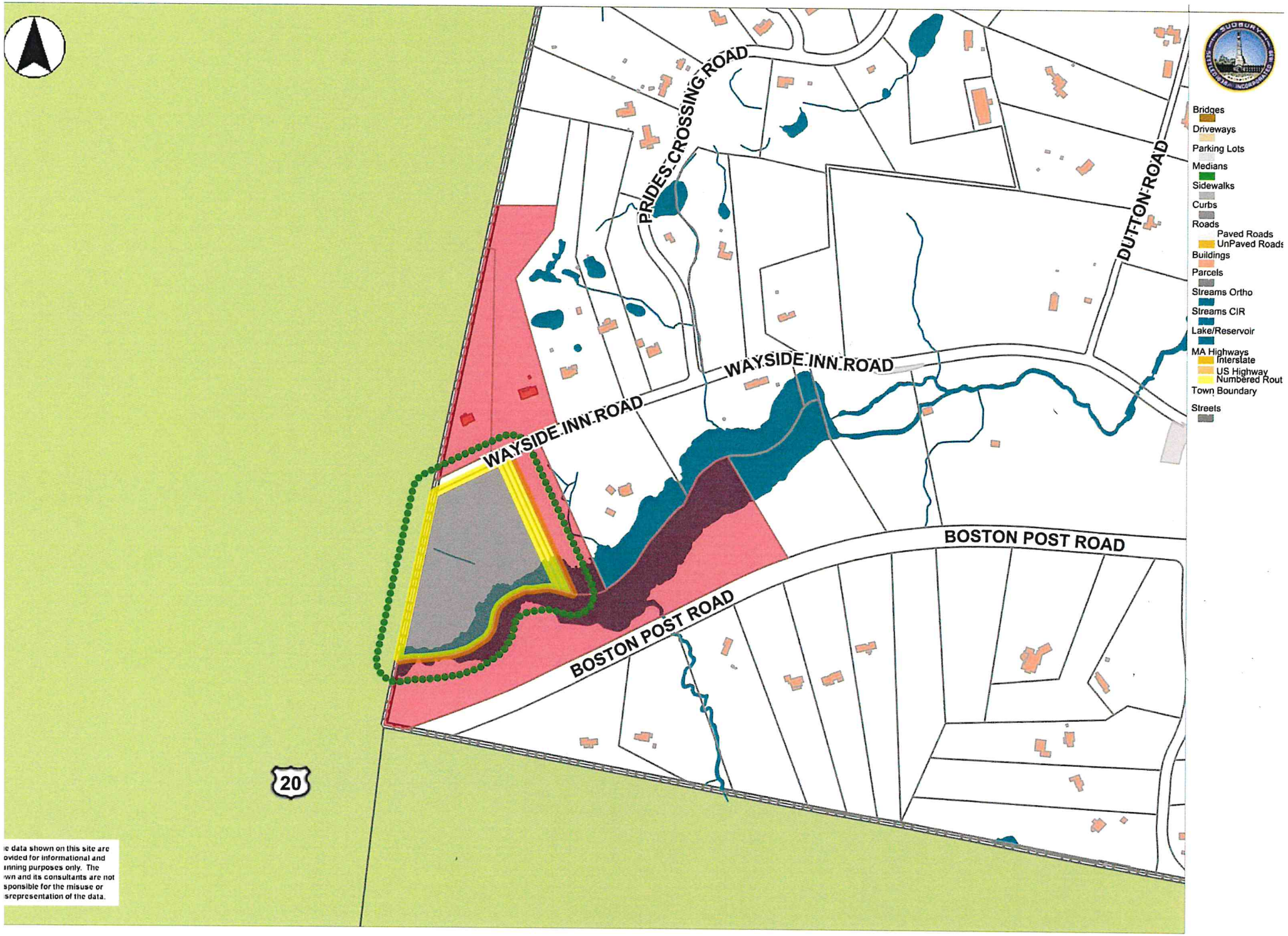
Prop ID: L02-0005
Prop Location: WAYSIDE INN RD Sudbury, MA
Owner: MOORE KENNETH & JANE I

Co-Owner:
Mailing Address:
406 RUSH MEADOW RD
BROWNSVILLE, VT 05037

Prop ID: L02-0011
Prop Location: WAYSIDE INN RD Sudbury, MA
Owner: SUDBURY VALLEY TRUSTEES INC
Co-Owner:
Mailing Address:
18 WOLBACH RD
SUDBURY, MA 01776

VERIFIED OWNERS:
JUNE 3, 2022
JOHN J. IRISH

TOWN OF SUDBURY
BOARD OF ASSESSORS
278 OLD SUDBURY ROAD
SUDBURY, MA 01776



e data shown on this site are ovided for informational and anning purposes only. The wn and its consultants are not sponsible for the misuse or srepresentation of the data.

800 1600 ft

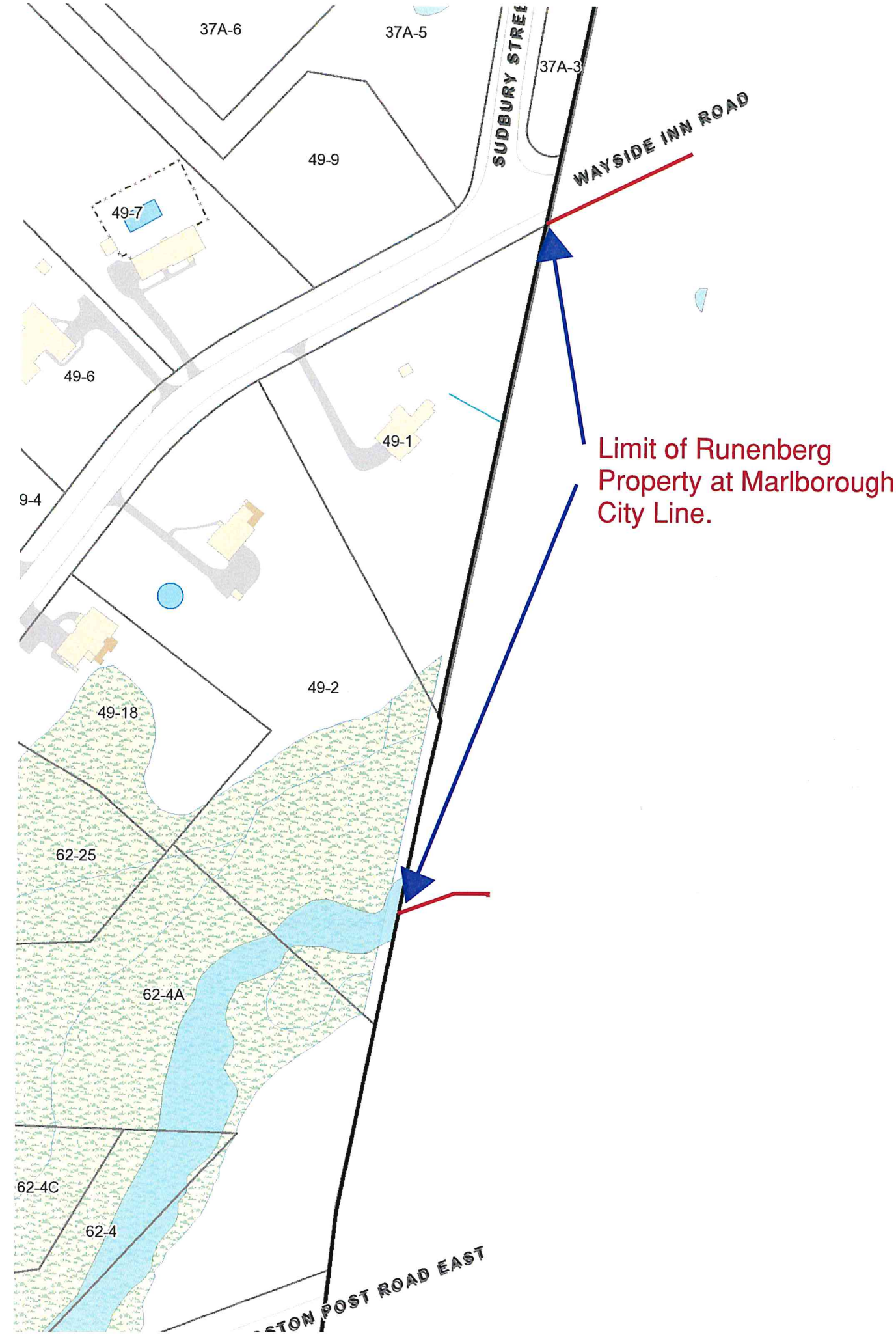
Printed on 06/02/2022 at 11:16 AM

MapsOnline

ABUTTERS **WAYSIDE INN RD., MARLBOROUGH, MA** **100 FT**

Parcel Number	GIS Number	Cama Number	Property Address	Owner Name	Co-Owner Name	Owner Address	Owner Address 2	Owner City	Owner State	Owner Zip	Use Code
37A-3	M_201477_900 844	37A-3	SUDBURY ST	HAGGARD RICHARD LEWIS	JAYNE E HAGGARD	220 WAYSIDE INN RD		SUDBURY	MA	01776	1320
37A-5	M_201136_900 733	37A-5	2 SUDBURY ST	HIGGINS DANIEL P	MICHELE M HIGGINS	2 SUDBURY ST		MARLBOROUGH	MA	01752	1010
49-2	M_201347_900 418	49-2	153 WAYSIDE INN RD	LACERRA JOHN M	KATHLEEN LACERRA	153 WAYSIDE INN RD		MARLBOROUGH	MA	01752	1010
49-6	M_201208_900 635	49-6	152 WAYSIDE INN RD	WHITTEMORE DAVID O	MARY R WHITTEMORE	152 WAYSIDE INN RD		MARLBOROUGH	MA	01752	1010
49-7	M_201249_900 674	49-7	164 WAYSIDE INN RD	LUSSIER STEPHEN	MARCIA LUSSIER	164 WAYSIDE INN RD		MARLBOROUGH	MA	01752	1010
49-9	M_201091_900 657	49-9	180 WAYSIDE INN RD	BENNETT ROBERT	BENNETT KIMBERLY	180 WAYSIDE INN RD		MARLBOROUGH	MA	01752	1010

John H. Valade


37A-6
37A-5
37A-3
SUDBURY STREET
WAYSIDE INN ROAD
49-9
49-7
49-6
49-1
9-4
49-2
49-18
62-25
62-4A
62-4C
62-4
Limit of Runenberg Property at Marlborough City Line.

DGT Associates
Surveying & Engineering

1071 Worcester Rd.
Framingham, MA 01701
508.879.0030
www.dgtassociates.com

March 26, 2020 25052

Ms. Elizabeth Rudenberg
259 Foreside Road
Falmouth, ME 04105

RE: 219 Wayside Inn Road, Sudbury, MA– Wetland Resource Area Delineation

Dear Ms. Rudenberg,

DGT Associates performed a field delineation of the boundaries of the Bordering Vegetated Wetlands and Estimated Mean Annual High Water (MAHW) at the subject property. A preliminary delineation was performed on June 9, 2017 and the formal delineation with transects and data plots was performed on March 12, 2020. The delineation was performed by this writer, Fredric King, Senior Wetland Specialist for DGT Associates.

The delineations were performed to define Wetlands Resource Area Boundaries under the Mass. Wetlands Protection Act and the Sudbury Wetlands Protection Bylaw for use in the planning for anticipated projects at the subject site.

Following the field delineation, the flags were survey located by the DGT project surveyors as part of the topographic survey of the site. The topographic plan produced contains the location of the delineation flags, mean annual high water determination and Riverfront boundary, and the associated wetland Buffer Zones.

The delineation included the Bordering Vegetated Wetlands and Mean Annual High Water Line of the perennial stream located in the rear (southern) portion of the site. The resource area delineations were for the northern side of stream. For "Land Subject to Flooding", the survey plan includes the FEMA Flood Hazard Map boundary as determined by field survey of the elevation from the FEMA Flood Profile data of the 1% flood elevation (AKA 100 year flood). That elevation contour is also on the Topographic Survey Plan.

This report also included information relative to Priority Habitats or Rare Species and Estimated Habitat of Rare Wildlife from the Mass. Natural Heritage and Endangered Species Program mapping for planning purposes.

GENERAL SITE DESCRIPTION:
The site is a 9.5 acre parcel of land at 219 Wayside Inn Road in Sudbury, MA. The property is on the south side of Wayside Inn Road and the western property boundary is the Sudbury /Town Line with the City of Marlborough. The rear (southerly) boundary is the centerline of Hop Brook.

The majority of the property is forested with a dense mature second growth stand of White Pine. The rear (southern) portion of the site is open shallow marsh adjacent to the open water of Hop Brook. Hop Brook flows into the Gristmill Pond just off the southeast corner of the property. Hop Brook is a perennial stream that qualifies as a River under the Mass. Wetlands Protection Act and the Sudbury Wetlands Bylaw.

The land is relatively flat with a very gradual slope from the road to the brook in the rear. The central and rear portion of the site is within the Flood Plain of Hop Brook. The boundary of the 100 year flood plain is at elevation 211.4. The central portion of the site is interspersed with low areas that have a predominance of wetland vegetation in the understory and one of the low areas have evidence of shallow temporary ponding.

The area along the street is upland and most of the rear portion is vegetated wetlands. There are small areas of upland between the low central area and the marshes to the south but the majority of those areas are still below the floodplain elevation. The uplands along the front portion of the property have Red Oak mixed in with the White Pine forest. The rear portion also has a White Pine overstory with Red Maple and some Elm in the understory.

SOILS

The NRCS Soil Survey of Middlesex County indicates that the near-surface soils (within about 70 inches from ground surface) at the site are in an area of glacial outwash (sand and gravel) soils. The soils along the brook in the southern portion of the site are classified as Freetown Muck. The soils in the remainder of the site are classified Deerfield Loamy Sand. The latter soils typically have hydric inclusions along streams that consist of Sudbury soils. The Sudbury soils have shallow seasonal groundwater and include wetland areas when near a stream, and can include ponding in depressions.

During our wetland delineation work, the soil conditions found generally verified the NRCS soil mapping as described in the general description above.

WETLAND RESOURCE AREAS

The purpose of this wetland resource area delineation is to show the boundaries of the wetlands resource areas and the regulated buffer zones in order to determine the portions of the site for possible residential development. The wetland resource areas at this site include: Land Under Water Bodies and Waterways (Hop Brook); Banks (Hop Brook); Bordering Vegetated Wetlands (BVW); Bordering Land Subject to Flooding (BLSF); and Riverfront.

In this case, the Land Under Water Bodies and Waterways and Banks of Hop Brook were inaccessible at the time of the delineation and are not critical to the determination for this study as the BVW extends much farther inland and will be the controlling boundaries with related

Buffer Zones. The limit of the Riverfront boundary and BLSF are also important to see if those boundaries have any impact on the developable area. So those areas have been determined.

200 FOOT RIVERFRONT

The inner boundary of the Riverfront is determined as the Mean Annual High Water Level (MAHW) of the perennial stream. This level is determined using "Bankfull Indicators" per Mass. DEP Guidelines. Due to the relatively flat topography of the land adjacent to the stream, it is nearly impossible to accurately follow and flag the limit by field observation. For these situations, the delineation is best determined by finding the best locations of Bankfull Indicators and mark that elevation with a Benchmark. Then, the elevation of these benchmarks are located on the ground by the Surveyors. The location of this elevation contour is then surveyed in a method called "chasing the contour". This is a very accurate method of determining MAHW boundary.

In this case the Estimated MEHW level was determined at two locations which were the water marks found on older trees within the area that floods on an annual basis. Cut spikes were set at the determined level and the trees were marked with pink survey ribbon. MAHW 1 is on an 8 inch maple tree in the southeast corner of the site (downstream end), and MAHW 2 is on a 12 inch maple in the southwest corner of the site (upstream end).

The elevation of MEHW 1 in the eastern portion of the site was found to be elevation 210.47, and MAHW 2 in the western (upstream) portion of the site was at elevation 210.69. As would be expected, MAHW 2 is slightly higher than MAHW 1 indicating the gradient of the stream during annual flooding. Since there was only a slight difference, we used the elevation at MAHW 1 for the eastern half of the line and MAHW 2 for the western portion. The results of the survey are shown on the plan, and the 200 Foot Riverfront Boundary is shown from that line.

BORDERING VEGETATED WETLANDS (BVW)

The delineation of Bordering Vegetated Wetlands was performed in accordance with current Mass. Department of Environmental Protection methodology as contained in the DEP Handbook "Delineating Bordering Vegetated Wetlands under the Massachusetts Wetlands Protection Act" dated March 1995.

The BVWs at the site are classified as a Wooded Swamp that borders on Hop Brook. The delineation was performed using vegetation, soils and other indicators of wetland hydrology. To delineate the boundary, constant field estimations of wetlands vegetation and frequent soil observations with a hand soil auger were performed. To aid in this delineation and to provide the required supporting documentation, two observation transects with sample plots were performed and documented. The DEP Field Delineation Forms are included in Attachment 2 of this report. The transect location is shown on the Survey Plan.

The delineation was performed on March 12, 2020 under early spring conditions, however, a preliminary delineation was performed on June 9, 2017 so I was familiar with the site during the growing season. The site is a dense white pine forest with minimal herbaceous ground cover and there was good evidence of the remains of what herbaceous cover there was on the March 12th delineation work. Due to the very gradual grade of the terrain, and the dense white pine overstory, the transition from wetland to upland is not distinct. (Note that white pine is a Facultative Upland species.) The primary determining factor in this case is the soils. The documentation provided in the data plots demonstrated that there is a subtle difference in the understory and subdominant tree species between the upland and the wetland, thereby supporting the line determined.

Due to the consistent loamy sand and fine sand soils below the topsoil, the soil determination for hydric vs non-hydric soils is quite distinct. This provided supportable confidence in the delineation made.

BORDERING LAND SUBJECT TO FLOODING

The site is shown on the latest FEMA National Flood Insurance Program mapping as being in a FEMA Flood Zone A. An actual flood elevation has been determined by FEMA. Per the FEMA Flood Profile data, the elevation of the 1% chance (AKA 100 year flood) for this reach of Hop Brook is 211.4 (NAVD 88 datum).

DGT surveyed the 211.4 contour line on the site and this is shown on the topographic plan.

MASS NATURAL HERITAGE ENDANGERED SPECIES PROGRAM

According to the latest Mass, Natural Heritage Endangered Species Program (NHESP) mapping on the Mass. GIS, there are no areas of Estimated Habitat or Priority Habitat of Rare Species on or near the subject property. There are also no identified Certified or Potential Vernal Pools on or near the site. (See Attachment 3).

During our wetlands delineation work on March 12, 2020, we noted only one area that contained ponded water. This delineation was following a heavy rain two days previous. This area was in the central portion of the site and was quite small and only a few inches deep. From water marks on the ground, it was noted that the ponding was receding quickly following a recent rain. Photos are included in Attachment 4. No activity of vernal pool species was observed at that time. We will monitor the area over the next few weeks.

DGT Associates
Surveying & Engineering

RE: 219 Wayside Inn Road, Sudbury, MA
Wetland Resource Area Delineation Report

March 26, 2020

Please note that the delineations performed are based on best professional judgment and interpretation per the applicable regulatory guidelines. The delineations are not an official "Determination" under the applicable wetlands laws and regulations until accepted by the Conservation Commission or Mass. DEP through the filing of an Abbreviated Notice of Resource Area Delineation or a Notice of Intent under the Mass. Wetlands Protection Act and local wetlands laws and regulations.

If you have any questions regarding the delineation or this report, please contact me.

Sincerely,
DGT Associates

Fredric W. King

Fredric W. King, PE
Senior Engineer &
Wetland Specialist

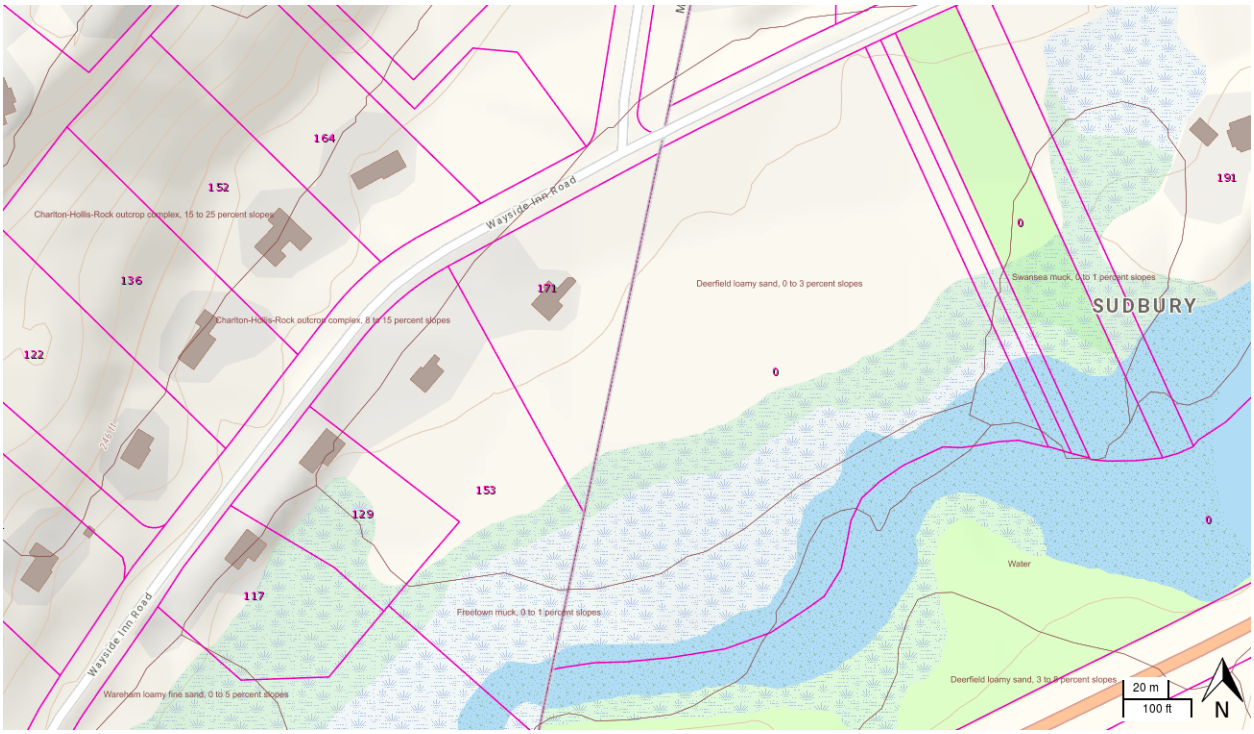
Attachments:

1. NRCS Soils Map
2. DEP Field Delineation Forms
3. NHESP Habitat Map
4. Photos of Isolated Ponding
5. Topographic Survey Plan.

ATTACHMENT 1

NRCS SOILS MAP

DATA LAYERS FROM MASS GIS



ATTACHMENT 2

MASS. DEP FIELD DELINEATION FORMS

DEP Bordering Vegetated Wetlands (310 CMR 10.55) Delineation Field Data Form

Applicant: Rudenberg Prepared by: FWK Project location: 219 Wayside Inn Rd DEP File #:

Check all that apply:

☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only

☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II

☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: P1 Transect Number: T1 Date of Delineation: 3/12/20

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees				
White Pine (Pinus strobus) 24” 12”	562 sq in	80.5	Yes	FACU
Red Maple (Acer rubrum) 7” 11”	136 sq. in.	19.5	Yes	FAC
Shrub/Sapling/Vine				
White Pine (Pinus strobus)	10.5	63.6	Yes	FACU
Greenbriar (Smilax rotundofolia)	3.0	18.2	No	FAC
Glossy Buckthorn (Rhamnus frangula)	3.0	18.2	No	FAC
Ground Cover				
White Pine seedling (Pinus strobus)	3.0	77.8	Yes	FACU
Cinnamon Fern (Osmunda cinnamomea)	10.5	22.2	Yes	FACW

* Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FAC+, FACW-, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptations next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 2 **Number of dominant non-wetland indicator plants:** 3

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? Yes **No** X

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

MA DEP; 3/95

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? Yes X No

title/date: Soil Survey of Middlesex County, Massachusetts
Date 2009

map number: Mass. GIS

soil type mapped: 256 B Deerfield Loamt Sand (Upland) Freetown Muck (wet)

hydric soil inclusions: 256A/B Deerfield Loamy Sand (has Hydric inclusions)

Are field observations consistent with soil survey? Yes X no

Remarks: Relatively flat with low areas interspersed in central portion of parcel. Generally slopes gradually from front toward brook in rear.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Ap - FSL	0 -11”	10 YR 2/2	None
B - LS	11 – 18”	10 YR 3/4	10 YR 5/6 Com

Remarks: Saturated at 16”.

3. Other:

Conclusion: Is soil hydric? Yes Marginal

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: 18”
- ☒ Depth to soil saturation in observation hole: 16”
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	Yes	No
Number of wetland indicator plants ≥ number of non-wetland indicator plants	☐	☒
Wetland hydrology present: hydric soil present	☒	☐
other indicators of hydrology Present	☒	☐
Sample location is in a BVW	☒	☐

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetlands (310 CMR 10.55) Delineation Field Data Form

Applicant: Rudenberg Prepared by: FWK Project location: 219 Wayside Inn Rd DEP File #:

Check all that apply:

☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only

☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II

☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: P2 Transect Number: T1 Date of Delineation: 3/12/20

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees				
Note: This plot was to examine the soil just down gradient of T1-P1. See next page.				
Shrub/Sapling/Vine				
Ground Cover				

* Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FAC+, FACW-, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptations next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: **Number of dominant non-wetland indicator plants:**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? Yes No

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

MA DEP; 3/95

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? Yes X No

title/date: Soil Survey of Middlesex County, Massachusetts
Date 2009

map number: Mass. GIS

soil type mapped: 256 B Deerfield Loamt Sand (Upland) Freetown Muck (wet)

hydric soil inclusions: 256A/B Deerfield Loamy Sand (has Hydric inclusions)

Are field observations consistent with soil survey? Yes X no

Remarks: Relatively flat with low areas interspersed in central portion of parcel. Generally slopes gradually from front toward brook in rear.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A1 - FSL	0 -10”	10 YR 3/2	None
A2 - FSL	10 – 15”	10 YR 2/1	2.5 YR 2.5/4
B - LS Gravelly	15 – 20”	10 YR 3/3	10 YR 2/1 10 YR 5/8

Remarks: Saturated at 13”. Water @ 16”

3. Other:

Conclusion: Is soil hydric? Yes

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: 16”
- ☒ Depth to soil saturation in observation hole: 13”
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	Yes	No
Number of wetland indicator plants ≥ number of non-wetland indicator plants	☐	☐
Wetland hydrology present: hydric soil present	☒	☐
other indicators of hydrology Present	☒	☐
Sample location is in a BVW	☒	☐

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetlands (310 CMR 10.55) Delineation Field Data Form

Applicant: Rudenberg Prepared by: FWK Project location: 219 Wayside Inn Rd DEP File #:

Check all that apply:

☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only

☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II

☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: P3 Transect Number: T1 Date of Delineation: 3/12/20

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees				
White Pine (Pinus strobus) 19”	286 sq in	45.2	Yes	FACU
Red Maple (Acer rubrum) 12” 14”	269 sq. in.	42.6	Yes	FAC
Slippery Elm (Ulmus rubra) 10”	77 sq. in.	12.2	NO	FAC
Shrub/Sapling/Vine				
White Pine (Pinus strobus)	38.0	92.7	YES	FACU
Glossy Buckthorn (Rhamnus frangula)	3.0	7.3	No	FAC
Ground Cover				
White Pine seedling (Pinus strobus)	20.5	87.2	Yes	FACU
Princess Pine – Tree Clubmoss)(Lycopodium obscurum)	3.0	12.8	NO	FACU

* Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FAC+, FACW-, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptations next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 1 **Number of dominant non-wetland indicator plants:** 3

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? Yes **No** X

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

MA DEP; 3/95

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? Yes X No

title/date: Soil Survey of Middlesex County, Massachusetts
Date 2009

map number: Mass. GIS

soil type mapped: 256 B Deerfield Loamt Sand (Upland) Freetown Muck (wet)

hydric soil inclusions: 256A/B Deerfield Loamy Sand (has Hydric inclusions)

Are field observations consistent with soil survey? Yes X no

Remarks: Relatively flat with low areas interspersed in central portion of parcel. Generally slopes gradually from front toward brook in rear.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Ap - FSL	0 -12"	10 YR 3/3	None
B1 - LS	12 – 15"	10 YR 3/4	None
B2 - LS Gravelly	15 – 20"	10 YR 4/3	10 YR 5/6

Remarks: Saturated at 18".

3. Other:

Conclusion: Is soil hydric? YES NO X

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☐ Depth to soil saturation in observation hole: 18 too deep
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

	Yes	No
Number of wetland indicator plants ≥ number of non-wetland indicator plants	☐	X
Wetland hydrology present: hydric soil present	☐	X
other indicators of hydrology Present	☐	X
Sample location is in a BVW	☐	X

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetlands (310 CMR 10.55) Delineation Field Data Form

Applicant: Rudenberg Prepared by: FWK Project location: 219 Wayside Inn Rd DEP File #:

Check all that apply:

☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only

☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II

☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: P1 Transect Number: T2 Date of Delineation: 3/12/20

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees				
White Pine (Pinus strobus) 24" 21"	795 sq in	72.6	Yes	FACU
Red Maple (Acer rubrum) 10" 11" 9" 9"	300 sq. in.	27.4	Yes	FAC
Shrub/Sapling/Vine				
Slippery Elm (Ulmus rubra)	3.0	11.3	No	FAC
Greenbriar (Smilax rotundofolia)	3.0	11.3	No	FAC
Glossy Buckthorn (Rhamnus frangula)	20.5	77.4	Yes	FAC
Ground Cover				
White Pine seedling (Pinus strobus)	3.0	6.8	No	FACU
Glossy Buckthorn seedlings) (Rhamnus frangula)	3.0	6.8	No	FAC
Cinnamon Fern (Osmunda cinnamomea)	38.0	86.4	Yes	FACW

* Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FAC+, FACW-, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptations next to the asterisk.

Vegetation conclusion:

Number of dominant wetland indicator plants: 3 **Number of dominant non-wetland indicator plants:** 1

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? Yes X **No**

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

MA DEP; 3/95

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? Yes X No

title/date: Soil Survey of Middlesex County, Massachusetts
Date 2009

map number: Mass. GIS

soil type mapped: 256 B Deerfield Loamt Sand (Upland) Freetown Muck (wet)

hydric soil inclusions: 256A/B Deerfield Loamy Sand (has Hydric inclusions)

Are field observations consistent with soil survey? Yes X no

Remarks: Relatively flat with low areas interspersed in central portion of parcel. Generally slopes gradually from front toward brook in rear.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Ap - FSL	0 -12”	10 YR 2/1	None visible
B - SL	12 – 18”	10 YR 3/4	2.4 YR 2.5/4

Remarks: Saturated at 16”.

3. Other:

Conclusion: Is soil hydric? Yes X No

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: _____
- ☒ Depth to soil saturation in observation hole: 16”
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☐ Other: _____

Vegetation and Hydrology Conclusion

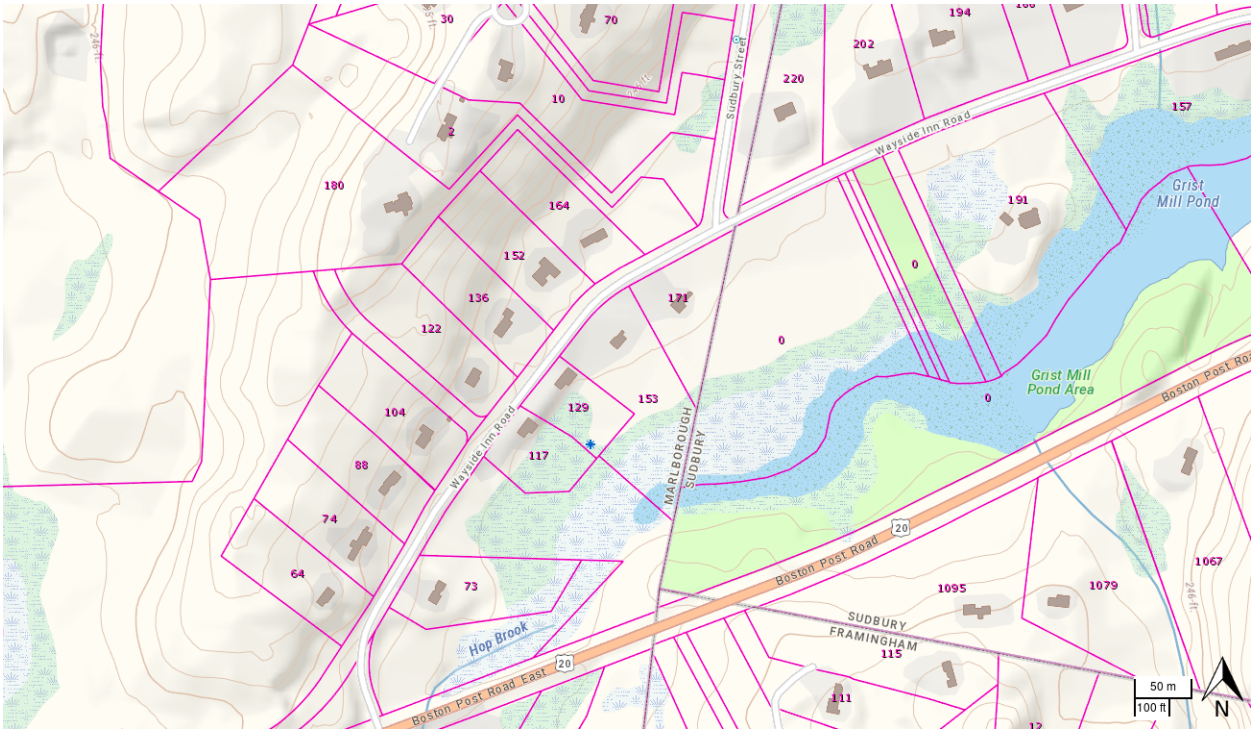
	Yes	No
Number of wetland indicator plants ≥ number of non-wetland indicator plants	X	
Wetland hydrology present: hydric soil present	X	
other indicators of hydrology Present	X	
Sample location is in a BVW	X	

Submit this form with the Request for Determination of Applicability or Notice of Intent.

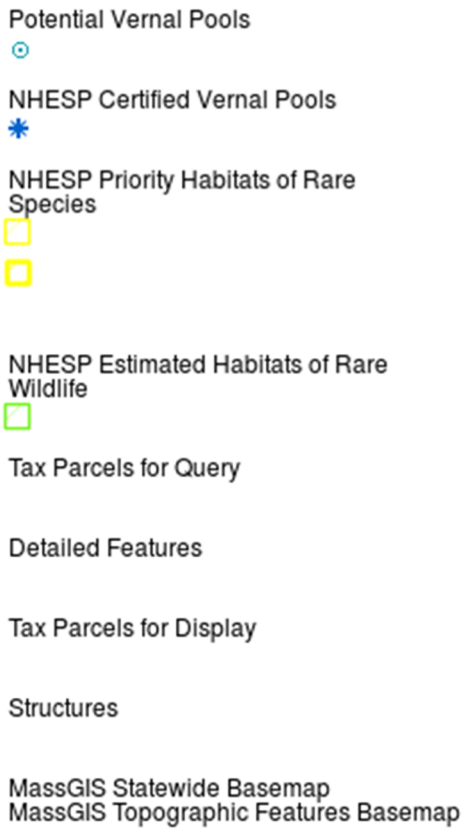
ATTACHMENT 3

NHESP HABITAT MAP

PRIORITY HABITAT OF RARE SPECIES
ESTIMATED HABITAT OF RARE WETLAND SPECIES
CERTIFIED AND POTENTIAL VERNAL POOLS



NO PRIORITY OR EXTIMATED HABITAT OF RARE SPECIES
NO CERTIFIED PR POTENTIAL VERNAL POOLS


Potential Vernal Pools
NHESP Certified Vernal Pools
NHESP Priority Habitats of Rare Species
NHESP Estimated Habitats of Rare Wildlife
Tax Parcels for Query
Detailed Features
Tax Parcels for Display
Structures
MassGIS Statewide Basemap
MassGIS Topographic Features Basemap

ATTACHMENT 4

PHOTO OF ISOLATED PONDING
03/12/2020

DGT Associates
Surveying &
Engineering

1071 Worcester Rd.
Framingham, MA 01701
508.879.0030
www.dgtassociates.com

STORMWATER MANAGEMENT DESIGN AND RUNOFF CALCULATIONS REPORT

for

PROPOSED SINGLE FAMILY HOUSE PROJECT

Estate of Gunther Rudenberg
Wayside Inn Road
Sudbury, MA 01776

Report Prepared for:
Estate of Gunther Rudenberg
(Elizabeth Rudenberg)
259 Foreside Road
Falmouth, Maine 04105

Report Prepared by:
DGT Associates – Project Civil Engineer
1071 Worcester Road
Framingham, MA 01701
508-879-0030

August 30, 2022

TABLE OF CONTENTS

Section 1	**Stormwater Management Narrative & Summary**	**6 pages**
Section 2	**Compliance Calculations** Stormwater Standards Compliance Summary MassDEP "Checklist for Stormwater Report" Illicit Discharge Statement Standard 3 - Recharge Calculations / Drawdown Time Calculations	**23 pages**
Section 3	**Existing and Proposed Conditions Stormwater Model** showing Stormwater Flows and Flood Routing Computations using HydroCAD version 10.10 Existing Conditions Watershed Map Proposed Conditions Eatershed Map	**22 pages**

APPENDICIES

Appendix 1	**Soils Data** 1. NRCS Soils Information 2. Soil Test Data	**14 pages**
Appendix 2	**Stormwater BMP Operation and Maintenance Plan And Long Term Pollution Prevention**	**13 pages**

DGT Associates
Surveying & Engineering

1071 Worcester Rd.
Framingham, MA 01701
508.879.0030
www.dgtassociates.com

ESTATE OF H.G. RUDENBERG
SINGLE FAMILY HOME PROJECT
STORMWATER MANAGEMENT
NARRATIVE SUMMARY

This report contains the hydrologic computations and design information relative to the existing and proposed stormwater runoff conditions for the proposed single family home site and associated site improvements at Wayside Inn Road in Sudbury, MA. It includes information on the stormwater management system design, assessment of stormwater impacts and compliance with the Massachusetts Department of Environmental Protection (Mass. DEP) Stormwater Management Regulations and the Town of Sudbury Stormwater Management Bylaw and Regulations for the proposed project.

Existing Property Description

The site is a 9.9 acre parcel of land at Wayside Inn Road in Sudbury, MA. The property is on the south side of Wayside Inn Road and the western property boundary is the Sudbury /Town Line with the City of Marlborough. The property includes three parcels identified on the Sudbury Assessors Maps as Map L01- Parcel 0002; Map L02 – Parcel 0003; and Map L02 – Parcel 0013. The rear (southerly) boundary is the centerline of Hop Brook. The eastern property boundary abuts protected open space land owned by the Sudbury Valley Trustees.

The major portion of the property is forested with a dense stand of mature second growth White Pine. The rear (southern) portion of the site is open shallow marsh and shrub swamp adjacent to the Hop Brook that flows easterly into the Gristmill Pond just off the southeast corner of the property. Hop Brook is a perennial stream that qualifies as a River under the Mass. Wetlands Protection Act and the Sudbury Wetlands Administration Bylaw.

The land is relatively flat with a very gradual slope from the road to the brook in the rear. The central and rear portion of the site is within the Flood Plain of Hop Brook. The boundary of the 100 year flood plain is at elevation 211.4 from the latest Federal Emergency Management Agency (FEMA) flood profile information mapping. The central portion of the site is interspersed with low areas that have a predominance of wetland vegetation in the understory and two of the low areas have evidence of shallow temporary ponding.

Relative to existing stormwater runoff, the entire property drains to Hop Brook through the wooded wetland. There is a narrow drain ditch in the rear portion of the site that drains to Hop Brook. Two of the shallow depressions within the wetlands mentioned above intercept some runoff. Seasonal groundwater is very shallow in the wetland. Due to the sandy underlying soils, any ponding in the depressions is very short term in the spring season, shrinking to small puddles withing a few weeks.

There is a roadside drainage ditch within the Wayside Inn Road layout along the front of the site that drains this section of the Town roadway. The ditch drains east along the roadway into wetland areas on properties to the east.

Soils and Groundwater

The NRCS Soil Survey of Middlesex County indicates that the near-surface soils (within about 70 inches from ground surface) at the site are in an area of glacial outwash (sand and gravel) soils. The soils along the brook in the southern portion of the site are classified as Freetown Muck. The soils in the remainder of the site are classified Deerfield Loamy Sand. The latter soils can have hydric inclusions along streams and low-lying areas that consist of Sudbury soils, which appears to be the case at this site.

The upland Deerfield soils have moderately well-draining loamy sand topsoil and subsoil, underlain by sand and gravels. The Deerfield soils typically have seasonal groundwater between 18 inches to 3 feet below the surface. These soils are classified as being in Hydrologic Soil Group B for stormwater management calculations.

Soil testing was performed by DGT at the site in the recent past, including:

- Auger testing of the soils performed during our wetland delineation work on June 9, 2017 and March 12, 2020.
- Soil testing for septic system design purposes were conducted on July 2, 2020.
- Hand dug and auger soil testing for stormwater management designs on April 1, 2022.

Based on the testing and observed site conditions, DGT will use Hydrologic Soil Group B for runoff calculations for this site. For determination of infiltration rates for infiltrating stormwater management BMPs, the Rawls Rate of 2.4 inches per hour (for Loamy Sand) will be used. Complete information on the soils is contained in Appendix 1 of this report.

Project Description

The proposed project is the construction of one single family house with attached garage and associated driveway, septic system, water supply well, utilities and stormwater management best management practices (BMPs) in the northeast portion of the site. Due to the limited space available and required setbacks to the wetlands and drainage ditch for the septic system, the project is limited to a 3-bedroom house.

The project has been designed to be as compact as reasonable and keeps the proposed alterations as far as possible from the wetland resource areas. The closest proposed alteration to the BVW is 10 feet and generally varies from 10 to 40 feet from the worksite to the wetland.

The project will result in approximately 18,700 sq. ft. of alteration on the 9.9 acre parcel (4.3% of the parcel). The area of alterations within the Buffer Zone/AURA is 17,300 sq. ft. Proposed impervious surfaces include 2,076 sq. ft. of house and 1,800 sq. ft. of driveway and walkways. 1,000 sq. ft. of the driveway will be a porous paver system. The house shown on the plan is a conceptual design at this time. The actual house has not yet been designed but will be

substantially within the footprint shown and no larger in area. The current concept for the landscape plantings and stabilization of the disturbed area includes the following:

- Lawn area will be limited to approximately 2,800 sq. ft. of area in the rear of the house and small areas around the side for foot access.
- The remaining 11,925 sq. ft. of disturbed area will be vegetated with native plantings.
- Stormwater BMPs to mitigate stormwater impacts to the wetlands include two small rain gardens for the roof runoff and porous pavers for the main portion of the driveway.
- The proposed driveway will cross a Town drainage ditch at Wayside Inn Road. An open bottom, four-foot wide open bottom box culvert will bridge the drainage ditch to not interfere with the function of the ditch.

Stormwater Management Objectives

For organizational purposes, the descriptions and design calculations for the components of the stormwater management system are contained in Section 2 of this report. The hydrologic and flood routing computer modeling calculations and watershed maps for the existing and proposed conditions are included in Section 3. The watershed modeling was performed using computer software "HydroCAD" version 10.1 by Applied Microcomputer Systems.

The intent of the design is to provide stormwater management improvements that will meet the requirements of the Sudbury Stormwater Management Bylaw and Regulations and the Sudbury Wetlands Administration Bylaw. Per the requirements, the design utilizes Limited Impact Design (LID) Best Management Practices (BMPs). The basis of designs are in accordance with the Mass. Stormwater Management Handbook.

The stormwater system as designed will assure that there will be no significant stormwater impacts to the wetland resource area by providing proper water quality treatment and mitigation of both the peak rates of runoff and volumes for all storm events up to a 100-year storm.

Compliance with Applicable Stormwater Regulations:

- **Massachusetts Stormwater Management Regulations**: This project is exempt from these regulations as a Single-Family House.
- **Sudbury Stormwater Bylaw and Regulations:** This is a Single-Family House Project that alters less than 40,000 sq. ft. of area. It therefore qualifies for a "General Stormwater Permit" under Section 5.B. of the Bylaw. As demonstrated in this Report, the project has been designed to meet the Standard Conditions of the Bylaw Regulation under Section 6.0 J. 1. Also, Attachment 2 of this report contains the Stormwater BMP Operation and Maintenance Plan that deals with the long-term maintenance required for the owners to comply with the Standard Conditions.
- **Sudbury Wetlands Administration Bylaw and Regulations:**
  Section 7.11 if the Regulations requires that "All stormwater runoff systems shall at a minimum conform the best management practices as specified in the Stormwater Management Bylaw and Regulations." These would be subject to more stringent conditions as may be required by the

Conservation Commission where warranted. As stated above, this report demonstrates compliance with the Stormwater Management Bylaw and Regulations.
Section 9.6 of these Regulations also discusses stormwater discharges. Due to the BMPs designed into this project, there will be no point discharges to the wetland resource areas. Any runoff will generally be overland sheet flow from adjacent terrain as occurs under existing conditions.

The existing drainage patterns for the watersheds for this project are maintained. The subject site drains from the front of the site, southerly to the wetlands and Hop Brook. The proposed project area is small and there are no point discharge to the wetland from this area. The project as designed will maintain this drain pattern.

The results of the hydrologic analysis for the existing and proposed conditions have been computed for the 1 inch, and the 2, 10, 25 and 100-year storm events and the rainfall depths used in the analysis are as specified in the Stormwater Management Bylaw Regulations Section 8.0 A. 3. f.

The following describes how the project meets the Design and Performance Criteria for a General Permit per Section 6.0 J.1. of the Stormwater Bylaw Regulations. The paraphrased text of the Bylaw Regs is included in Italics for context:

6.0 J.1.a. *The activity shall not increase either the rate or volume of stormwater runoff leaving the site, nor shall it alter the stormwater flow to any adjoining properties, public ways, or any wetland resource areas unless otherwise permitted based on improvement over existing conditions.*

RESPONSE: The design includes the following features that address this requirement:

- The summary of stormwater volumes and peak flows from the project site is shown on the table at the end of this section. As can be seen, there will be no increase in the volume of runoff and peak flows and there will also be no point discharges as is is the case under existing conditions. The exception is a 0.04 cfs peak flow increase at the 2 year storm. However, there will be no increase in volume and no point discharge, so this is spread over the entire area so is truly de minimis.
- The project will not drain to any abutting private property which is also the existing condition.
- The only part of the project that will drain to the public roadway is the first 15 feet of the driveway. This area presently drains to the ditch at the front of the site and will continue to do so. The difference will be that the driveway apron will be paved with a minimal 200 sq. ft. of pavement instead of the vegetated roadside ditch. A 4 foot wide – open bottom culvert will be installed so that the ditch flow will not be interrupted in any way.

6.0 J.1.b. *The activity shall, to the maximum extent feasible, treat all stormwater runoff from the site using recommended Best Management Practices (BMPs) in accordance with the latest edition of the Massachusetts DEP Stormwater Handbook.*

RESPONSE: The project includes two small rain gardens for the roof runoff and a porous paver system for the major portion of the driveway. These are classified as LID stormwater infiltration practices and appropriate for the scope of the project. The roof runoff is considered as clean and the rain gardens will be primarily for recharge purposes in this case. The porous paver (concrete pavers) driveway will provide a minimum of 80% TSS removal and recharge for up to a 100 year storm event.

The rear wood deck will be underlain with a 6 inch thick crushed stone bed that will infiltrate runoff so that the structure will behave as a permeable surface.

6.0 J.1.c. *The activity to the maximum extent feasible, minimizes impervious surfaces and provides on-site infiltration of stormwater in accordance with the latest edition of the Massachusetts DEP Stormwater Handbook.*

RESPONSE: The stormwater BMPs will infiltrate in excess of the minimum one inch of runoff from the impervious surfaces. As can be seen in the table at the end of this section, the project will not increase the volume of runoff for all storms up to a 100 year event. Essentially the property will generate no more runoff that the existing forested land.

6.0 J.1.d. *The Applicant shall provide and maintain Erosion and Sediment Controls in accordance with the latest edition of the Massachusetts DEP Stormwater Handbook as necessary until the site is permanently stabilized. BMPs selected for erosion control shall be chosen to minimize site disturbance from erosion control installation. Once the site is stabilized, such measures shall be removed.*

RESPONSE: A complete erosion and sediment control plan is included in the plan set that details compliance with the standard condition.

6.0 J.1.e. *The Applicant shall ensure that the site and stormwater management systems are perpetually inspected and maintained to function as designed.*

RESPONSE: A complete Stormwater Operation and Maintenance Plan is included at the end of this report document that is to be followed to assure the system operates as required to comply with this section.

6.0 J.1.f. *The following source control and pollution prevention measures shall be employed on the site to prevent contamination of stormwater runoff. (see listing in the Regulations).*

RESPONSE: A Long Term Pollution Prevention Plan (LTPPP) is included with the O&M plan that addresses each of the listed requirements of this standard conditions

SUMMARY TABLE OF STORMWATER RUNOFF

STORM	EXISTING CONDITIONS		PROPOSED CONDITIONS	
	Peak Rate (cfs)	Volume (ac-ft)	Peak Rate (cfs)	Volume (ac-ft)
1 inch	0	0	0	0
2 year = 3.2”	0.04	0.009	0.08	0.009
10 year = 4.8”	0.34	0.032	0.31	0.026
25 year = 6.0”	0.54	0.043	0.54	0.043
100 year = 8.0”	1.57	0.115	1.43	0.089

Watershed Modeling and Best Management Practices Design
The hydrologic analysis of the existing conditions and proposed watershed is based on the nationally recognized watershed modeling techniques developed by the USDA, Soil Conservation Service (SCS). The techniques and runoff models are described in the following SCS publications:

- “Urban Hydrology for Small Watersheds, Technical Release Number 55”, 1986 and Technical Release 20.
- National Engineering Handbook, Hydrology, Section 4, 1972.
- “A Method for Estimating Volume and Rate of Runoff in Small Watersheds, Technical Release No. 149” 1973.
- “Hydrology Handbook for Conservation Commissions” March 2002, Mass. DEP.
- The watershed modeling was performed using computer software “HydroCAD” version 10.1 by Applied Microcomputer Systems, which is based on the publications referenced above.
- Best Management Practices were designed based on the guidance provided in the DEP “Stormwater Management Standards Handbook”, February, 2008.

DGT Associates
Surveying & Engineering

1071 Worcester Rd.
Framingham, MA 01701
508.879.0030
www.dgtassociates.com

SECTION 2

COMPLIANCE CALCULATIONS

Stormwater Standards Compliance Summary
MassDEP "Checklist for Stormwater Report"
Illicit Discharge Statement
Standard 3 – Recharge Design Calculations
And Drawdown Time

for

PROPOSED SINGLE FAMILY HOUSE PROJECT

Estate of Gunther Rudenberg
Wayside Inn Road
Sudbury, MA 01776

STORMWATER STANDARDS COMPLIANCE SUMMARY

MASS. STORMWATER MANAGEMENT REGULATIONS
AND
SUDBURY STORMWATER BYLAW

PROPOSED SINGLE FAMILY HOME PROJECT
Estate of Gunther Rudenberg
Wayside Inn Road
Sudbury, MA

Standard 1: (Untreated Discharges)

There are no new stormwater conveyances proposed that discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

The stormwater will discharge to the same locations as the existing conditions at less than or the same rates and less volume. The receiving areas are existing wetlands via non-point sources and stormwater ditches with no erosion issues. As such, there will be no impacts at the discharge locations. The runoff from the proposed building is classified as clean, not requiring any pre-treatment prior to discharge. The driveway will drain to via a porous paver system with no surface discharge.

Standard 2: (Peak Rate Control and Flood Protection)

There will be no increase in peak rate of discharge and volumes for all storms up to and including the 100-year storm event. The exception is a de minimis increase of 0.04 cfs over a large area with no increase in volume.

The computations have been made for the 1 inch, 2, 10, 25, and 100-year storms. The computations for the peak rates of runoff and volumes are contained in Section 3 of this report and a summary table in included in Section 1 Narrative

Standard 3: (Recharge to Groundwater)

To meet the current DEP Stormwater Regulations, Standard 3 requires that a minimum 0.35 inches of runoff from the impervious surfaces must be recharged to the ground for hydrologic soil groups (HSG) B for the subject site. This is the minimum amount required for impervious surfaces to maintain the natural recharge hydrology of the area.

The BMPs for this project are infiltration BMPs. The project is not within a critical area however, it is within the watershed of a Town water supply (Zone III). Although not required, the recharge / water quality volume of 1 inch is being used as a design minimum.

The runoff from the entire roof area and most of the driveway and paved walks will discharge to BMPs that are designed to infiltrate a minimum of 1 inch of runoff from the area of the roof infiltrating at least 3 times the minimum required for this Standard.

The project as designed meets this standard. Detailed calculations demonstrating compliance with this standard are included at the end of this section.

Standard 4: (80% TSS Removal)

The runoff from the proposed house roof is classified as clean and does not require pre-treatment.

The porous concrete paver systems include pre-treatment as the filter course setting bed below the pavers. All runoff runs through the filter course, meeting this standard to achieve the minimum 80% TSS removal for the system.

A small area of walkway at the front of the building will sheet flow through a vegetated area for any pre-treatment, and the rain garden is rated for a minimum of 90% TSS removal.

In compliance with Standard 4, a long-term Stormwater Operation and Maintenance Plan is included in Appendix 2.

Standard 5: (Land Use with Higher Potential Pollutant Load, LUHPPL)

Not Applicable. This site and project are not classified as a LUHPPL.

Standard 6: (Critical Areas)

The site is not within a "Critical Area" per the Regulations.

Standard 7: (Redevelopment)

Not Applicable. This project is not considered a redevelopment.

Standard 8: (Erosion, Sediment Control)

Erosion and sediment control BMPs are included in the Erosion and Sediment Control Plan contained in the plan set. This plan includes details and information regarding the responsibilities for the Contractor in managing the site in compliance with applicable permits.

This project will alter less than one acre so it is not subject to the NPDES Phase II requirements for construction sites. Coverage under the NPDES Construction General Permit and preparation of a full Stormwater Pollution Prevention Plan are not required.

Standard 9: (Operation & Maintenance)

An Operation and Maintenance Plan for the stormwater system is included in Appendix 2 to meet this Standard.

Standard 10: (Illicit Discharges)

There are no illicit discharges designed or proposed for this project. No illicit discharges are known to exist. An Illicit Discharge Statement to that effect is included in this section.

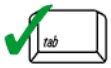
This project is being designed by the present owner in preparation of sell the property to another party who will build the project. An Illicit Discharge Statement also needs to be prepared and signed by the future owner prior to construction. It is requested that the preparation and execution of an Illicit Discharge Statement prior to any site alterations be made as a condition of permitting.

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.

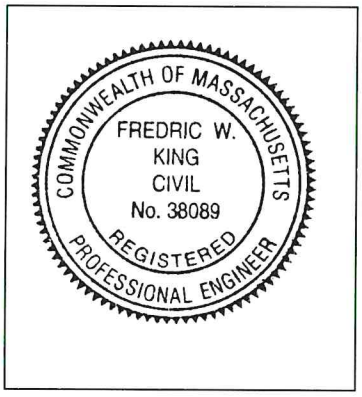
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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



Fredric W. King 8/23/2022
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): Porous concrete paver system

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.

DGT Associates
Surveying & Engineering

1071 Worcester Rd.
Framingham, MA 01701
508.879.0030
www.dgtassociates.com

August 23, 2022

25052

Sudbury Planning & Community Development
278 Old Sudbury Road
Sudbury, MA 01776

RE: Illicit Discharge Compliance Statement

In accordance with Standard 10 of the Massachusetts Stormwater Regulations, the following statement is made regarding the proposed residential house project at Wayside Inn Road in Sudbury, MA (Assessors Map L01- Parcel 0002; Map L02 – Parcel 0003; and Map L02 – Parcel 0013):

- There are no illicit discharges designed or proposed for this project. No illicit discharges are known to exist.

Please feel free to contact me if you have any questions.

Sincerely yours,
DGT Associates

Fredric W. King

Fredric W. King, P.E.
Senior Engineer

DGT Associates, Inc.
Surveying & Engineering
www.dgtassociates.com
(617) 275-0541

JOB 25052 RUDENBERG

SHEET NO. 1 OF 10

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE _____

RECHARGE CALCULATIONS

STANDARD 3.

HSG = B

MIN. RECHARGE = 0.35 INCHES OVER THE IMPERVIOUS SURFACES

PROVIDE - 1.0" MIN PER STORMWATER BYLAW AND TO MITIGATE (IMPROVE) RECHARGE CONDITIONS FOR THE WATER RESOURCES PROTECTION DISTRICT ZONE III.

DGT Associates, Inc.
Surveying & Engineering
www.dgtassociates.com
(617) 275-0541

JOB 25052 RUDENBERG
SHEET NO. 2 OF 10
CALCULATED BY _____ DATE _____
CHECKED BY _____ DATE _____
SCALE _____

RECHARGE DESIGN CALCULATIONS

CRITERIA:- CAPACITY TO INFILTRATE 1 INCH OF RUNOFF FROM THE TRIBUTARY AREA OF IMPERVIOUS SURFACES
- SOIL INFILTRATION RATE (LOAMY SAND) = 2.4 inch/hr. - RAWLS RATE.
- USE STATIC METHOD

BIO-RETENTION (RAIN GARDEN #1)

ROOF AREA = 951 SF
WALKS AREA = 236 SF
TOTAL = 1,187 SF

OVERFLOW ELEV. = 215.8

$1'' = \frac{1,187\ ft^2}{12\ in/ft} = 98.9\ ft^3$ = POND ELEV 214.93 < 215.8 OK

POND CAPACITY IS LARGER THAN REQUIRED CAPTURE VOLUME

DRAIN TIME - FROM HYDROCAD AT FULL CAPACITY = 26 HOURS FROM BEGINNING OF A 100 YEAR STORM < 72 hrs. OK
SEE PRINTOUT AT THE END OF THIS SECTION

DGT Associates, Inc.
Surveying & Engineering
www.dgtassociates.com
(617) 275-0541

JOB

SHEET NO. 3 OF 10

CALCULATED BY DATE

CHECKED BY DATE

SCALE

BIO-RETENTION (RAIN GARDEN #2)

ROOF AREA	=	1,125 ft²
WALKS	=	55 ft²
TOTAL		1,180 ft²

OVERFLOW ELEV = 215.2 ft

$$1'' = \frac{1{,}180\ ft^2}{1.2\ in/ft} = 98.3\ ft^3 \Rightarrow \text{POND ELEV} = 214.95 < 215.2 \quad \text{OK}$$

POND CAPACITY IS LARGER THAN REQUIRED CAPTURE VOLUME.

DRAIN TIME - FROM HYDROCAD AT FULL CAPACITY = 25 hours from START OF A 100 YEAR STORM. SEE PRINTOUT AT END OF THIS SECTION

DGT Associates, Inc.
Surveying & Engineering
www.dgtassociates.com
(617) 275-0541

JOB

SHEET NO. 4 OF 10

CALCULATED BY DATE

CHECKED BY DATE

SCALE

POROUS PAVER AREA

TOTAL PAVED AREA = 1,580 INCLUDES 1000 SF POROUS

OVERFLOW ELEV = 215.3

$1'' = \frac{1580\ ft^2}{12\ in/ft} = 131.7\ ft^3 \Rightarrow$ PONDING ELEV = 214.73 < 215.3 OK

PONDING CAPACITY IS LARGER THAN REQUIRED

DRAIN TIME - FROM HYDROCAD AT FULL CAPACITY = 19 hours FROM START OF A 100 YEAR STORM. SEE PRINTOUT AT END OF THIS SECTION.

Stage-Area-Storage for Pond 1P: Rain Garden 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	
214.50	200	0	
214.52	202	4	
214.54	205	8	
214.56	208	12	
214.58	210	16	
214.60	213	21	
214.62	215	25	
214.64	218	29	
214.66	220	34	
214.68	223	38	
214.70	226	43	
214.72	228	47	
214.74	231	52	
214.76	234	56	
214.78	236	61	
214.80	239	66	
214.82	242	71	
214.84	245	75	
214.86	247	80	
214.88	250	85	
214.90	253	90	
214.92	256	95	1" RUNOFF
214.94	258	101	
214.96	261	106	
214.98	264	111	
215.00	267	116	
215.02	275	122	
215.04	283	127	
215.06	290	133	
215.08	299	139	
215.10	307	145	
215.12	315	151	
215.14	323	158	
215.16	332	164	
215.18	340	171	
215.20	349	178	
215.22	358	185	
215.24	367	192	
215.26	376	200	
215.28	385	207	
215.30	394	215	
215.32	404	223	
215.34	413	231	
215.36	423	239	
215.38	432	248	
215.40	442	257	
215.42	452	266	
215.44	462	275	
215.46	472	284	
215.48	483	294	
215.50	493	303	
215.52	521	314	
215.54	550	324	
215.56	579	336	
215.58	609	347	
215.60	640	360	
215.62	672	373	
215.64	704	387	
215.66	738	401	
215.68	772	416	
215.70	806	432	
215.72	842	449	
215.74	878	466	
215.76	915	484	
215.78	953	502	
215.80	992	522	OVERFLOW
215.82	1,031	542	
215.84	1,071	563	
215.86	1,112	585	
215.88	1,154	608	
215.90	1,196	631	
215.92	1,239	655	
215.94	1,283	681	
215.96	1,328	707	
215.98	1,374	734	
216.00	**1,420**	**762**	

Hydrograph for Pond 1P: Rain Garden 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	214.50	0.00	0.00	0.00
1.00	0.00	0	214.50	0.00	0.00	0.00
2.00	0.00	0	214.50	0.00	0.00	0.00
3.00	0.00	0	214.50	0.00	0.00	0.00
4.00	0.00	0	214.50	0.00	0.00	0.00
5.00	0.00	0	214.50	0.00	0.00	0.00
6.00	0.00	0	214.50	0.00	0.00	0.00
7.00	0.00	0	214.50	0.00	0.00	0.00
8.00	0.00	0	214.50	0.00	0.00	0.00
9.00	0.01	1	214.51	0.01	0.01	0.00
10.00	0.01	3	214.51	0.01	0.01	0.00
11.00	0.02	22	214.61	0.01	0.01	0.00
12.00	**0.30**	**240**	**215.36**	**0.02**	**0.02**	**0.00**
13.00	**0.05**	**538**	**215.82**	**0.06**	**0.06**	**0.01**
14.00	0.03	479	215.75	0.05	0.05	0.00
15.00	0.02	410	215.67	0.04	0.04	0.00
16.00	0.02	346	215.58	0.03	0.03	0.00
17.00	0.01	292	215.48	0.03	0.03	0.00
18.00	0.01	244	215.37	0.02	0.02	0.00
19.00	0.01	198	215.26	0.02	0.02	0.00
20.00	0.01	159	215.15	0.02	0.02	0.00
21.00	0.01	127	215.04	0.02	0.02	0.00
22.00	0.01	99	214.94	0.01	0.01	0.00
23.00	0.01	73	214.83	0.01	0.01	0.00
24.00	0.01	46	214.72	0.01	0.01	0.00
25.00	0.00	5	214.52	0.01	0.01	0.00
26.00	0.00	0	214.50	0.00	0.00	0.00
27.00	0.00	0	214.50	0.00	0.00	0.00
28.00	0.00	0	214.50	0.00	0.00	0.00
29.00	0.00	0	214.50	0.00	0.00	0.00
30.00	0.00	0	214.50	0.00	0.00	0.00

POND EMPTY AT 26 hours

Hydrograph for Pond 2P: Rain Garden 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	214.50	0.00	0.00	0.00
1.00	0.00	0	214.50	0.00	0.00	0.00
2.00	0.00	0	214.50	0.00	0.00	0.00
3.00	0.00	0	214.50	0.00	0.00	0.00
4.00	0.00	0	214.50	0.00	0.00	0.00
5.00	0.00	0	214.50	0.00	0.00	0.00
6.00	0.00	0	214.50	0.00	0.00	0.00
7.00	0.00	0	214.50	0.00	0.00	0.00
8.00	0.00	0	214.50	0.00	0.00	0.00
9.00	0.01	1	214.51	0.01	0.01	0.00
10.00	0.01	3	214.51	0.01	0.01	0.00
11.00	0.02	24	214.63	0.01	0.01	0.00
12.00	**0.26**	**207**	**215.28**	**0.14**	**0.02**	**0.12**
13.00	**0.04**	**187**	**215.23**	**0.04**	**0.02**	**0.02**
14.00	0.03	181	215.21	0.03	0.02	0.01
15.00	0.02	177	215.20	0.02	0.02	0.00
16.00	0.01	165	215.17	0.02	0.02	0.00
17.00	0.01	142	215.10	0.02	0.02	0.00
18.00	0.01	117	215.02	0.02	0.02	0.00
19.00	0.01	91	214.92	0.01	0.01	0.00
20.00	0.01	68	214.83	0.01	0.01	0.00
21.00	0.01	45	214.73	0.01	0.01	0.00
22.00	0.01	25	214.64	0.01	0.01	0.00
23.00	0.01	7	214.54	0.01	0.01	0.00
24.00	0.00	1	214.50	0.00	0.00	0.00
25.00	0.00	0	214.50	0.00	0.00	0.00
26.00	0.00	0	214.50	0.00	0.00	0.00
27.00	0.00	0	214.50	0.00	0.00	0.00
28.00	0.00	0	214.50	0.00	0.00	0.00
29.00	0.00	0	214.50	0.00	0.00	0.00
30.00	0.00	0	214.50	0.00	0.00	0.00

POND EMPTY AT 25 hours.

Stage-Area-Storage for Pond 2P: Rain Garden 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
214.50	173	0
214.51	175	2
214.52	177	3
214.53	179	5
214.54	181	7
214.55	183	9
214.56	184	11
214.57	186	13
214.58	188	14
214.59	190	16
214.60	192	18
214.61	194	20
214.62	196	22
214.63	198	24
214.64	200	26
214.65	202	28
214.66	204	30
214.67	207	32
214.68	209	34
214.69	211	36
214.70	213	39
214.71	215	41
214.72	217	43
214.73	219	45
214.74	221	47
214.75	223	49
214.76	225	52
214.77	228	54
214.78	230	56
214.79	232	59
214.80	234	61
214.81	236	63
214.82	239	66
214.83	241	68
214.84	243	70
214.85	245	73
214.86	247	75
214.87	250	78
214.88	252	80
214.89	254	83
214.90	257	85
214.91	259	88
214.92	261	91
214.93	263	93
214.94	266	96
214.95	268	98 1" RUNOFF
214.96	270	101
214.97	273	104
214.98	275	107
214.99	278	109
215.00	280	112
215.01	284	115
215.02	289	118
215.03	293	121
215.04	297	124
215.05	302	127
215.06	306	130
215.07	311	133
215.08	315	136
215.09	320	139
215.10	324	142
215.11	329	146
215.12	333	149
215.13	338	152
215.14	343	156
215.15	347	159
215.16	352	163
215.17	357	166
215.18	362	170
215.19	367	173
215.20	372	177 OVERFLOW
215.21	376	181
215.22	381	185
215.23	386	188
215.24	391	192
215.25	396	196
215.26	401	200
215.27	407	204
215.28	412	208
215.29	417	213
215.30	422	217
215.31	427	221
215.32	433	225
215.33	438	230
215.34	443	234
215.35	449	239
215.36	454	243
215.37	459	248
215.38	465	252
215.39	470	257
215.40	476	262
215.41	482	266
215.42	487	271
215.43	493	276
215.44	498	281
215.45	504	286
215.46	510	291
215.47	516	296
215.48	521	302
215.49	527	307
215.50	**533**	**312**

Stage-Area-Storage for Pond 3P: Porous Pavement

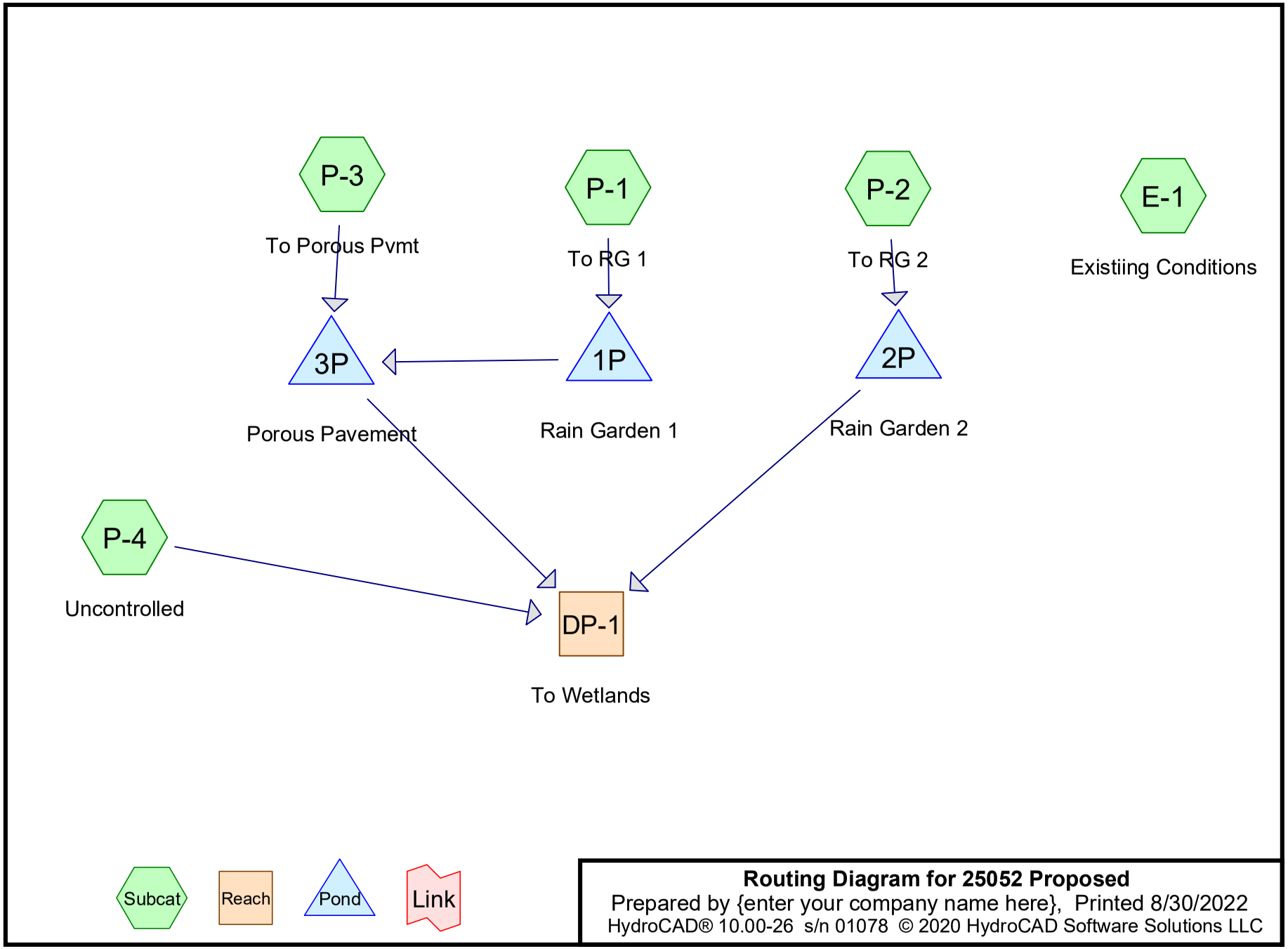
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
214.40	1,000	0	215.44	2,000	402
214.42	1,000	8	215.46	2,000	408
214.44	1,000	16	215.48	2,000	414
214.46	1,000	24	215.50	2,100	420
214.48	1,000	32	215.52	2,123	422
214.50	1,000	40	215.54	2,149	425
214.52	1,000	48	215.56	2,177	428
214.54	1,000	56	215.58	2,207	432
214.56	1,000	64	215.60	2,240	436
214.58	1,000	72	215.62	2,275	442
214.60	1,000	80	215.64	2,313	448
214.62	1,000	88	215.66	2,353	454
214.64	1,000	96	215.68	2,395	462
214.66	1,000	104	215.70	2,440	470
214.68	1,000	112	215.72	2,487	479
214.70	1,000	120	215.74	2,537	489
214.72	1,000	128	215.76	2,589	501
214.74	1,000	136	215.78	2,643	513
214.76	1,000	144	215.80	**2,700**	**526**
214.78	1,000	152			
214.80	1,000	160			
214.82	1,000	168			
214.84	1,000	176			
214.86	1,000	184			
214.88	1,000	192			
214.90	1,000	200			
214.92	1,000	208			
214.94	1,000	216			
214.96	1,000	224			
214.98	1,000	232			
215.00	1,000	240			
215.02	1,000	248			
215.04	1,000	256			
215.06	1,000	264			
215.08	1,000	272			
215.10	1,000	280			
215.12	1,000	288			
215.14	1,000	296			
215.16	1,000	304			
215.18	1,000	312			
215.20	1,000	320			
215.22	1,000	328			
215.24	1,000	336			
215.26	1,000	344			
215.28	1,000	352			
215.30	2,000	360			
215.32	2,000	366			
215.34	2,000	372			
215.36	2,000	378			
215.38	2,000	384			
215.40	2,000	390			
215.42	2,000	396			

1" RUNOFF

overflow

Hydrograph for Pond 3P: Porous Pavement

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	214.40	0.00	0.00	**0.00**
1.00	0.00	0	214.40	0.00	0.00	0.00
2.00	0.00	0	214.40	0.00	0.00	0.00
3.00	0.00	0	214.40	0.00	0.00	0.00
4.00	0.00	0	214.40	0.00	0.00	0.00
5.00	0.00	0	214.40	0.00	0.00	0.00
6.00	0.00	0	214.40	0.00	0.00	0.00
7.00	0.01	1	214.40	0.01	0.01	0.00
8.00	0.01	1	214.40	0.01	0.01	0.00
9.00	0.01	1	214.40	0.01	0.01	0.00
10.00	0.02	2	214.40	0.02	0.02	0.00
11.00	0.02	2	214.41	0.02	0.02	0.00
12.00	**0.20**	**73**	**214.58**	**0.06**	**0.06**	0.00
13.00	**0.03**	**347**	**215.27**	**0.06**	**0.06**	0.00
14.00	0.02	225	214.96	0.06	0.06	0.00
15.00	0.01	78	214.60	0.06	0.06	0.00
16.00	0.01	1	214.40	0.01	0.01	0.00
17.00	0.01	1	214.40	0.01	0.01	0.00
18.00	0.01	1	214.40	0.01	0.01	0.00
19.00	0.00	0	214.40	0.00	0.00	0.00
20.00	0.00	0	214.40	0.00	0.00	0.00
21.00	0.00	0	214.40	0.00	0.00	0.00
22.00	0.00	0	214.40	0.00	0.00	0.00
23.00	0.00	0	214.40	0.00	0.00	0.00
24.00	0.00	0	214.40	0.00	0.00	0.00
25.00	0.00	0	214.40	0.00	0.00	0.00
26.00	0.00	0	214.40	0.00	0.00	0.00
27.00	0.00	0	214.40	0.00	0.00	0.00
28.00	0.00	0	214.40	0.00	0.00	0.00
29.00	0.00	0	214.40	0.00	0.00	0.00
30.00	0.00	0	214.40	0.00	0.00	0.00



Routing Diagram for 25052 Proposed

Prepared by {enter your company name here}, Printed 8/30/2022

DGT Associates
Surveying & Engineering

1071 Worcester Rd.
Framingham, MA 01701
508.879.0030
www.dgtassociates.com

SECTION 3

EXISTING AND PROPOSED STORMWATER MODEL

ROUTING DIAGRAM

EXISTING AND PROPOSED HYDROCAD MODEL CALCULATIONS
FOR THE 1 INCH, 2, 10, 25 AND 100 YEAR STORMS

EXISTING AND PROPOSED WATERSHED MAPS

for

PROPOSED SINGLE FAMILY HOUSE PROJECT

Estate of Gunther Rudenberg
Wayside Inn Road
Sudbury, MA 01776

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.331	61	>75% Grass cover, Good, HSG B (P-1, P-2, P-3, P-4)
0.036	98	Paved parking, HSG B (P-3)
0.048	98	Roofs, HSG B (P-1, P-2)
0.007	98	Unconnected pavement, HSG B (P-1, P-2)
0.430	55	Woods, Good, HSG B (E-1)
0.852	**62**	**TOTAL AREA**

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

Subcatchment E-1: Existiing Conditions Runoff Area=18,725 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=55 Runoff=0.00 cfs 0.000 af

Subcatchment P-1: To RG 1 Runoff Area=3,523 sf 33.69% Impervious Runoff Depth=0.02"
Tc=6.0 min CN=73 Runoff=0.00 cfs 0.000 af

Subcatchment P-2: To RG 2 Runoff Area=2,898 sf 40.72% Impervious Runoff Depth=0.04"
Tc=6.0 min CN=76 Runoff=0.00 cfs 0.000 af

Subcatchment P-3: To Porous Pvmt Runoff Area=1,680 sf 94.05% Impervious Runoff Depth=0.63"
Tc=6.0 min CN=96 Runoff=0.03 cfs 0.002 af

Subcatchment P-4: Uncontrolled Runoff Area=10,282 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=61 Runoff=0.00 cfs 0.000 af

Reach DP-1: To Wetlands Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 1P: Rain Garden 1 Peak Elev=214.50' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond 2P: Rain Garden 2 Peak Elev=214.50' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond 3P: Porous Pavement Peak Elev=214.41' Storage=3 cf Inflow=0.03 cfs 0.002 af
Discarded=0.03 cfs 0.002 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.002 af

Total Runoff Area = 0.852 ac Runoff Volume = 0.002 af Average Runoff Depth = 0.03"
89.36% Pervious = 0.761 ac 10.64% Impervious = 0.091 ac

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

Subcatchment E-1: Existiing Conditions Runoff Area=18,725 sf 0.00% Impervious Runoff Depth=0.25"
Tc=6.0 min CN=55 Runoff=0.04 cfs 0.009 af

Subcatchment P-1: To RG 1 Runoff Area=3,523 sf 33.69% Impervious Runoff Depth=0.98"
Tc=6.0 min CN=73 Runoff=0.09 cfs 0.007 af

Subcatchment P-2: To RG 2 Runoff Area=2,898 sf 40.72% Impervious Runoff Depth=1.15"
Tc=6.0 min CN=76 Runoff=0.09 cfs 0.006 af

Subcatchment P-3: To Porous Pvmt Runoff Area=1,680 sf 94.05% Impervious Runoff Depth=2.75"
Tc=6.0 min CN=96 Runoff=0.12 cfs 0.009 af

Subcatchment P-4: Uncontrolled Runoff Area=10,282 sf 0.00% Impervious Runoff Depth=0.44"
Tc=6.0 min CN=61 Runoff=0.08 cfs 0.009 af

Reach DP-1: To Wetlands Inflow=0.08 cfs 0.009 af
Outflow=0.08 cfs 0.009 af

Pond 1P: Rain Garden 1 Peak Elev=214.88' Storage=86 cf Inflow=0.09 cfs 0.007 af
Discarded=0.01 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.007 af

Pond 2P: Rain Garden 2 Peak Elev=214.90' Storage=85 cf Inflow=0.09 cfs 0.006 af
Discarded=0.01 cfs 0.006 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.006 af

Pond 3P: Porous Pavement Peak Elev=214.49' Storage=35 cf Inflow=0.12 cfs 0.009 af
Discarded=0.06 cfs 0.009 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.009 af

Total Runoff Area = 0.852 ac Runoff Volume = 0.040 af Average Runoff Depth = 0.56"
89.36% Pervious = 0.761 ac 10.64% Impervious = 0.091 ac

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

Subcatchment E-1: Existiing Conditions Runoff Area=18,725 sf 0.00% Impervious Runoff Depth=0.88"
Tc=6.0 min CN=55 Runoff=0.34 cfs 0.032 af

Subcatchment P-1: To RG 1 Runoff Area=3,523 sf 33.69% Impervious Runoff Depth=2.12"
Tc=6.0 min CN=73 Runoff=0.20 cfs 0.014 af

Subcatchment P-2: To RG 2 Runoff Area=2,898 sf 40.72% Impervious Runoff Depth=2.37"
Tc=6.0 min CN=76 Runoff=0.18 cfs 0.013 af

Subcatchment P-3: To Porous Pvmt Runoff Area=1,680 sf 94.05% Impervious Runoff Depth=4.33"
Tc=6.0 min CN=96 Runoff=0.18 cfs 0.014 af

Subcatchment P-4: Uncontrolled Runoff Area=10,282 sf 0.00% Impervious Runoff Depth=1.25"
Tc=6.0 min CN=61 Runoff=0.31 cfs 0.025 af

Reach DP-1: To Wetlands Inflow=0.31 cfs 0.026 af
Outflow=0.31 cfs 0.026 af

Pond 1P: Rain Garden 1 Peak Elev=215.36' Storage=238 cf Inflow=0.20 cfs 0.014 af
Discarded=0.02 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.014 af

Pond 2P: Rain Garden 2 Peak Elev=215.23' Storage=190 cf Inflow=0.18 cfs 0.013 af
Discarded=0.02 cfs 0.012 af Primary=0.04 cfs 0.001 af Outflow=0.06 cfs 0.013 af

Pond 3P: Porous Pavement Peak Elev=214.64' Storage=95 cf Inflow=0.18 cfs 0.014 af
Discarded=0.06 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.014 af

Total Runoff Area = 0.852 ac Runoff Volume = 0.098 af Average Runoff Depth = 1.37"
89.36% Pervious = 0.761 ac 10.64% Impervious = 0.091 ac

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

Subcatchment E-1: Existiing Conditions Runoff Area=18,725 sf 0.00% Impervious Runoff Depth=1.52"
Tc=6.0 min CN=55 Runoff=0.68 cfs 0.054 af

Subcatchment P-1: To RG 1 Runoff Area=3,523 sf 33.69% Impervious Runoff Depth=3.09"
Tc=6.0 min CN=73 Runoff=0.29 cfs 0.021 af

Subcatchment P-2: To RG 2 Runoff Area=2,898 sf 40.72% Impervious Runoff Depth=3.38"
Tc=6.0 min CN=76 Runoff=0.26 cfs 0.019 af

Subcatchment P-3: To Porous Pvmt Runoff Area=1,680 sf 94.05% Impervious Runoff Depth=5.53"
Tc=6.0 min CN=96 Runoff=0.22 cfs 0.018 af

Subcatchment P-4: Uncontrolled Runoff Area=10,282 sf 0.00% Impervious Runoff Depth=2.01"
Tc=6.0 min CN=61 Runoff=0.53 cfs 0.039 af

Reach DP-1: To Wetlands Inflow=0.54 cfs 0.043 af
Outflow=0.54 cfs 0.043 af

Pond 1P: Rain Garden 1 Peak Elev=215.61' Storage=364 cf Inflow=0.29 cfs 0.021 af
Discarded=0.04 cfs 0.021 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.021 af

Pond 2P: Rain Garden 2 Peak Elev=215.28' Storage=209 cf Inflow=0.26 cfs 0.019 af
Discarded=0.02 cfs 0.015 af Primary=0.13 cfs 0.004 af Outflow=0.15 cfs 0.019 af

Pond 3P: Porous Pavement Peak Elev=214.78' Storage=152 cf Inflow=0.22 cfs 0.018 af
Discarded=0.06 cfs 0.018 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.018 af

Total Runoff Area = 0.852 ac Runoff Volume = 0.151 af Average Runoff Depth = 2.13"
89.36% Pervious = 0.761 ac 10.64% Impervious = 0.091 ac

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

Subcatchment E-1: Existiing Conditions Runoff Area=18,725 sf 0.00% Impervious Runoff Depth=3.20"
Tc=6.0 min CN=55 Runoff=1.57 cfs 0.115 af

Subcatchment P-1: To RG 1 Runoff Area=3,523 sf 33.69% Impervious Runoff Depth=5.35"
Tc=6.0 min CN=73 Runoff=0.51 cfs 0.036 af

Subcatchment P-2: To RG 2 Runoff Area=2,898 sf 40.72% Impervious Runoff Depth=5.71"
Tc=6.0 min CN=76 Runoff=0.44 cfs 0.032 af

Subcatchment P-3: To Porous Pvmt Runoff Area=1,680 sf 94.05% Impervious Runoff Depth=8.12"
Tc=6.0 min CN=96 Runoff=0.32 cfs 0.026 af

Subcatchment P-4: Uncontrolled Runoff Area=10,282 sf 0.00% Impervious Runoff Depth=3.91"
Tc=6.0 min CN=61 Runoff=1.07 cfs 0.077 af

Reach DP-1: To Wetlands Inflow=1.43 cfs 0.089 af
Outflow=1.43 cfs 0.089 af

Pond 1P: Rain Garden 1 Peak Elev=215.86' Storage=581 cf Inflow=0.51 cfs 0.036 af
Discarded=0.06 cfs 0.033 af Primary=0.11 cfs 0.003 af Outflow=0.17 cfs 0.036 af

Pond 2P: Rain Garden 2 Peak Elev=215.37' Storage=246 cf Inflow=0.44 cfs 0.032 af
Discarded=0.03 cfs 0.019 af Primary=0.38 cfs 0.013 af Outflow=0.40 cfs 0.032 af

Pond 3P: Porous Pavement Peak Elev=215.33' Storage=368 cf Inflow=0.32 cfs 0.029 af
Discarded=0.11 cfs 0.029 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.029 af

Total Runoff Area = 0.852 ac Runoff Volume = 0.285 af Average Runoff Depth = 4.02"
89.36% Pervious = 0.761 ac 10.64% Impervious = 0.091 ac

Summary for Subcatchment E-1: Existiing Conditions

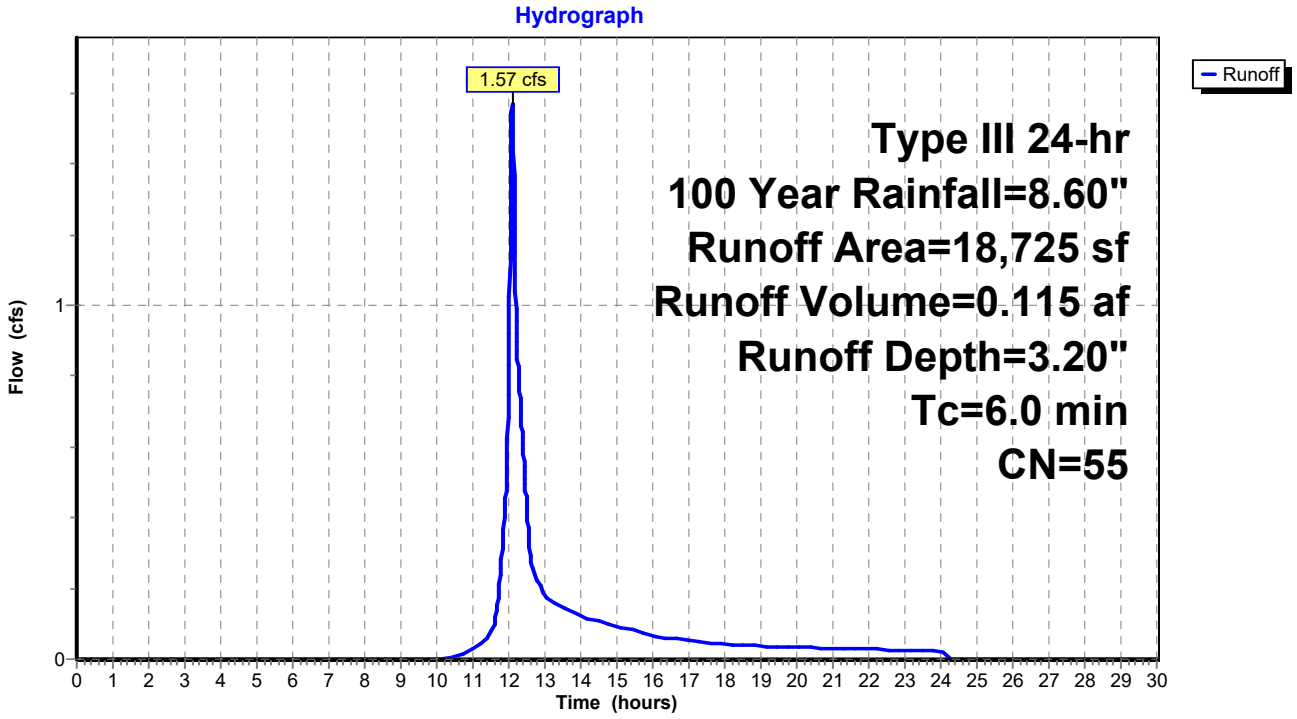
Runoff = 1.57 cfs @ 12.09 hrs, Volume= 0.115 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.60"

Area (sf)	CN	Description
18,725	55	Woods, Good, HSG B
18,725		100.00% Pervious Area

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

Subcatchment E-1: Existiing Conditions



Summary for Subcatchment P-1: To RG 1

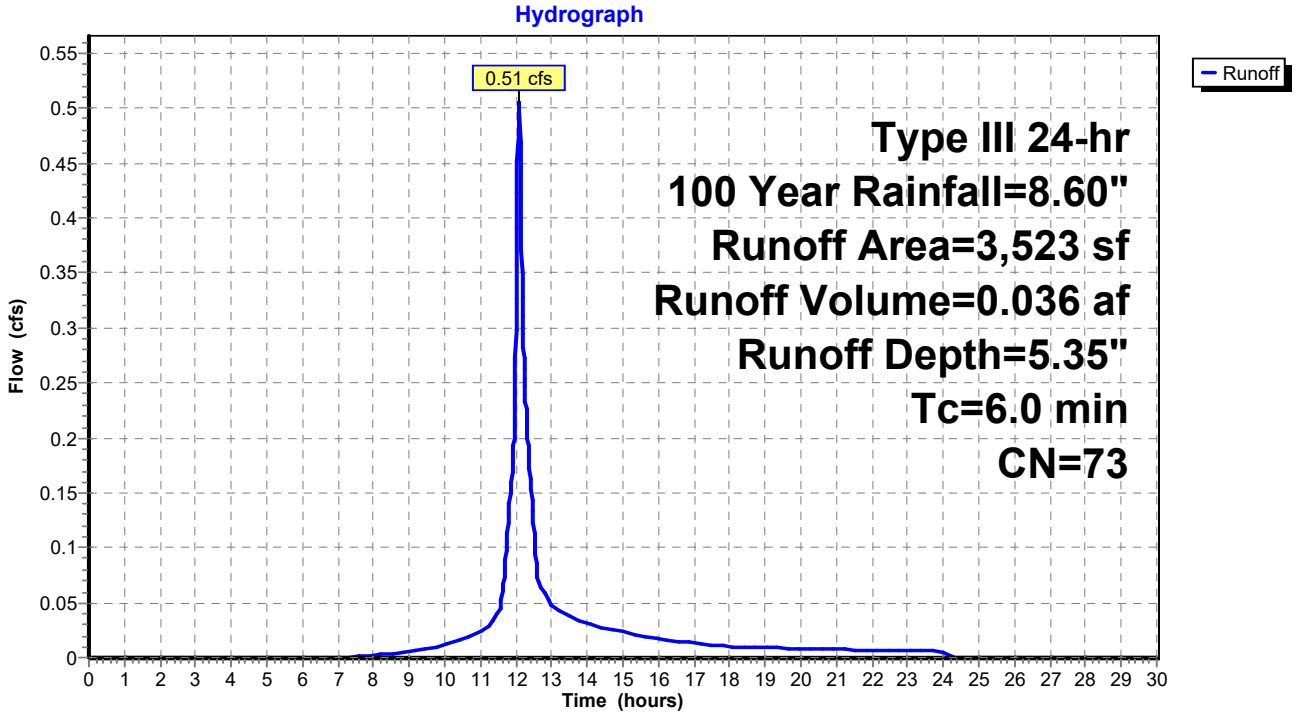
Runoff = 0.51 cfs @ 12.09 hrs, Volume= 0.036 af, Depth= 5.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.60"

Area (sf)	CN	Description
951	98	Roofs, HSG B
236	98	Unconnected pavement, HSG B
2,336	61	>75% Grass cover, Good, HSG B
3,523	73	Weighted Average
2,336		66.31% Pervious Area
1,187		33.69% Impervious Area
236		19.88% Unconnected

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

Subcatchment P-1: To RG 1



Summary for Subcatchment P-2: To RG 2

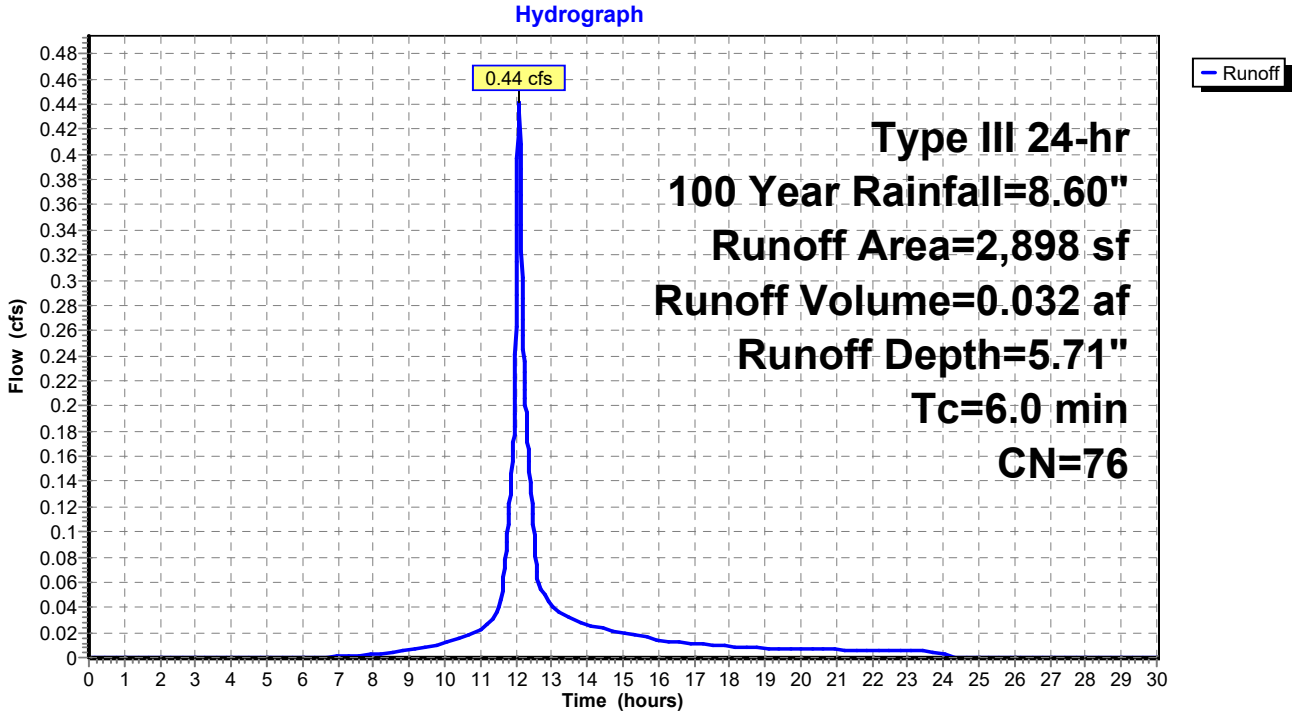
Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.032 af, Depth= 5.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.60"

Area (sf)	CN	Description
1,125	98	Roofs, HSG B
55	98	Unconnected pavement, HSG B
1,718	61	>75% Grass cover, Good, HSG B
2,898	76	Weighted Average
1,718		59.28% Pervious Area
1,180		40.72% Impervious Area
55		4.66% Unconnected

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

Subcatchment P-2: To RG 2



Summary for Subcatchment P-3: To Porous Pvmt

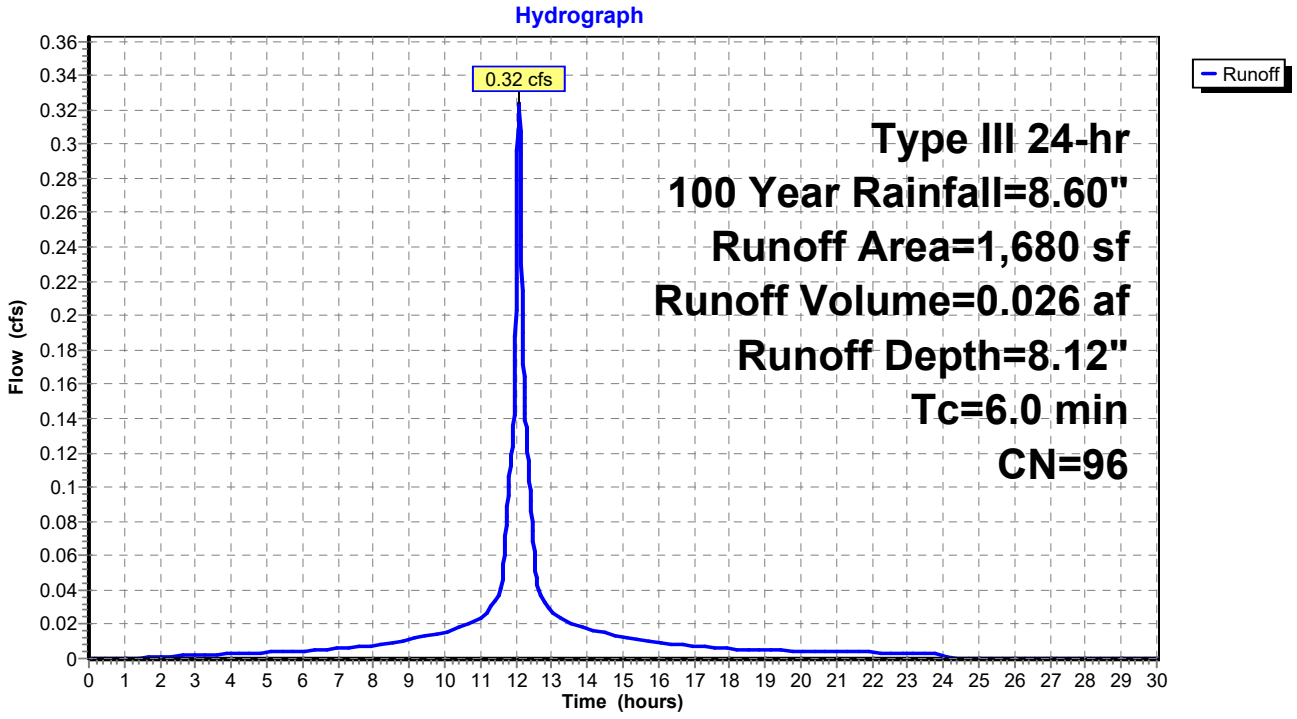
Runoff = 0.32 cfs @ 12.08 hrs, Volume= 0.026 af, Depth= 8.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.60"

Area (sf)	CN	Description
1,580	98	Paved parking, HSG B
100	61	>75% Grass cover, Good, HSG B
1,680	96	Weighted Average
100		5.95% Pervious Area
1,580		94.05% Impervious Area

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

Subcatchment P-3: To Porous Pvmt



Summary for Subcatchment P-4: Uncontrolled

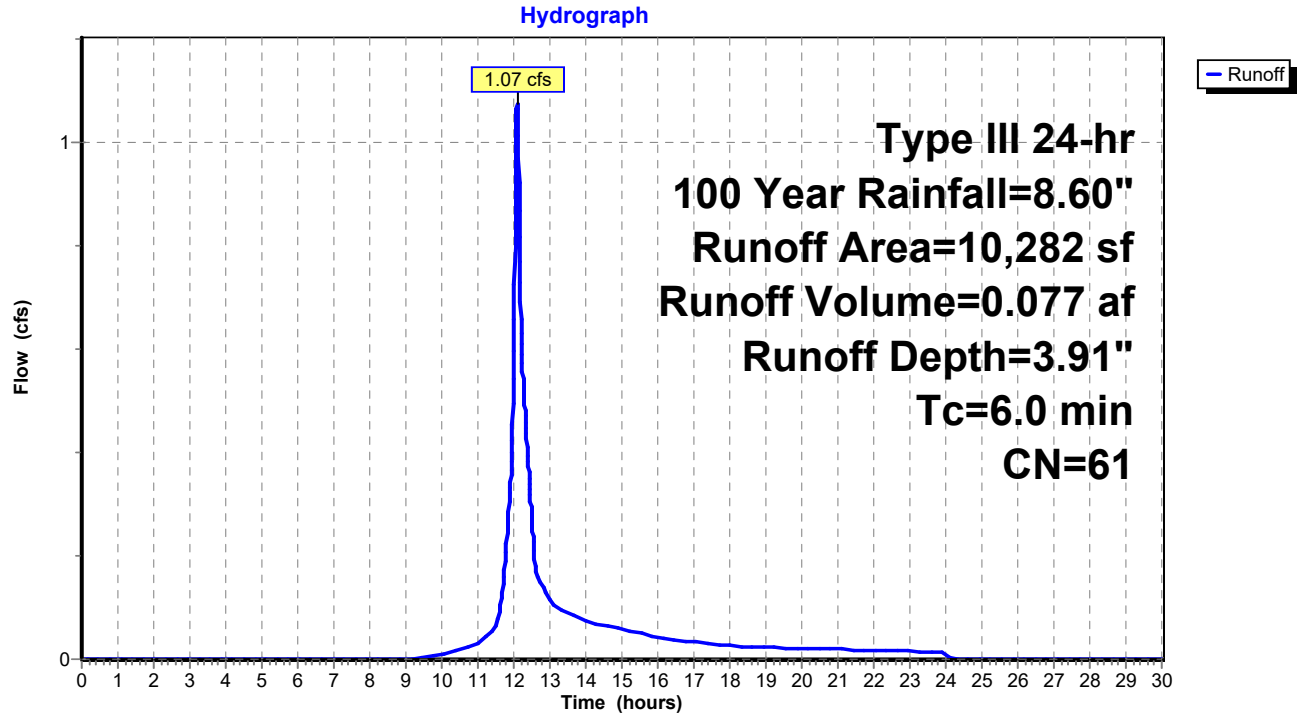
Runoff = 1.07 cfs @ 12.09 hrs, Volume= 0.077 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.60"

Area (sf)	CN	Description
10,282	61	>75% Grass cover, Good, HSG B
10,282		100.00% Pervious Area

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

Subcatchment P-4: Uncontrolled

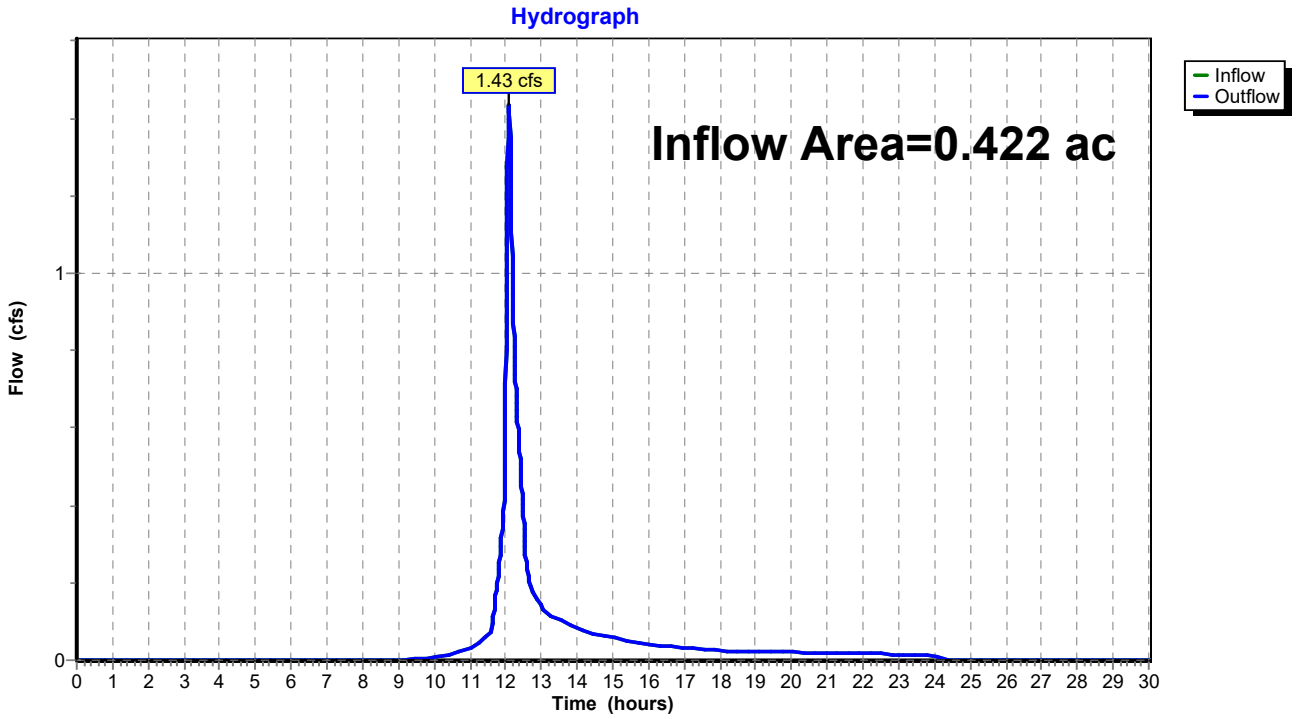


Summary for Reach DP-1: To Wetlands

Inflow Area = 0.422 ac, 21.47% Impervious, Inflow Depth = 2.54" for 100 Year event
Inflow = 1.43 cfs @ 12.10 hrs, Volume= 0.089 af
Outflow = 1.43 cfs @ 12.10 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP-1: To Wetlands



Summary for Pond 1P: Rain Garden 1

Inflow Area = 0.081 ac, 33.69% Impervious, Inflow Depth = 5.35" for 100 Year event
Inflow = 0.51 cfs @ 12.09 hrs, Volume= 0.036 af
Outflow = 0.17 cfs @ 12.38 hrs, Volume= 0.036 af, Atten= 66%, Lag= 17.7 min
Discarded = 0.06 cfs @ 12.38 hrs, Volume= 0.033 af
Primary = 0.11 cfs @ 12.38 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 215.86' @ 12.38 hrs Surf.Area= 1,105 sf Storage= 581 cf

Plug-Flow detention time= 128.2 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 128.2 min (943.7 - 815.4)

Volume	Invert	Avail.Storage	Storage Description
#1	214.50'	762 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

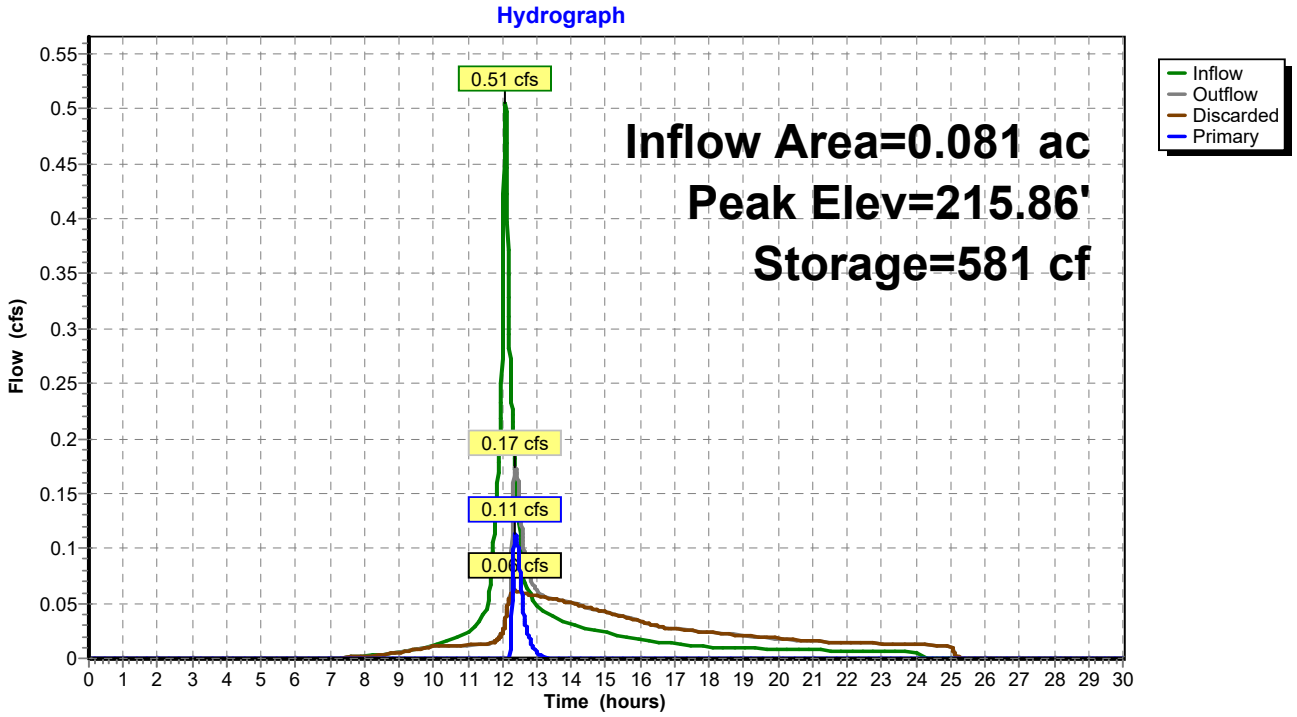
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
214.50	200	55.0	0	0	200
215.00	267	66.0	116	116	310
215.50	493	83.0	187	303	515
216.00	1,420	160.0	458	762	2,005

Device	Routing	Invert	Outlet Devices
#1	Primary	215.80'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.20 Width (feet) 0.00 22.00
#2	Discarded	214.50'	**2.400 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.06 cfs @ 12.38 hrs HW=215.86' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.11 cfs @ 12.38 hrs HW=215.86' (Free Discharge)
↑—**1=Custom Weir/Orifice** (Weir Controls 0.11 cfs @ 0.62 fps)

Pond 1P: Rain Garden 1



Summary for Pond 2P: Rain Garden 2

Inflow Area = 0.067 ac, 40.72% Impervious, Inflow Depth = 5.71" for 100 Year event
Inflow = 0.44 cfs @ 12.09 hrs, Volume= 0.032 af
Outflow = 0.40 cfs @ 12.12 hrs, Volume= 0.032 af, Atten= 8%, Lag= 2.1 min
Discarded = 0.03 cfs @ 12.12 hrs, Volume= 0.019 af
Primary = 0.38 cfs @ 12.12 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 215.37' @ 12.12 hrs Surf.Area= 457 sf Storage= 246 cf

Plug-Flow detention time= 61.2 min calculated for 0.032 af (100% of inflow)
Center-of-Mass det. time= 61.2 min (870.3 - 809.1)

Volume	Invert	Avail.Storage	Storage Description
#1	214.50'	312 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

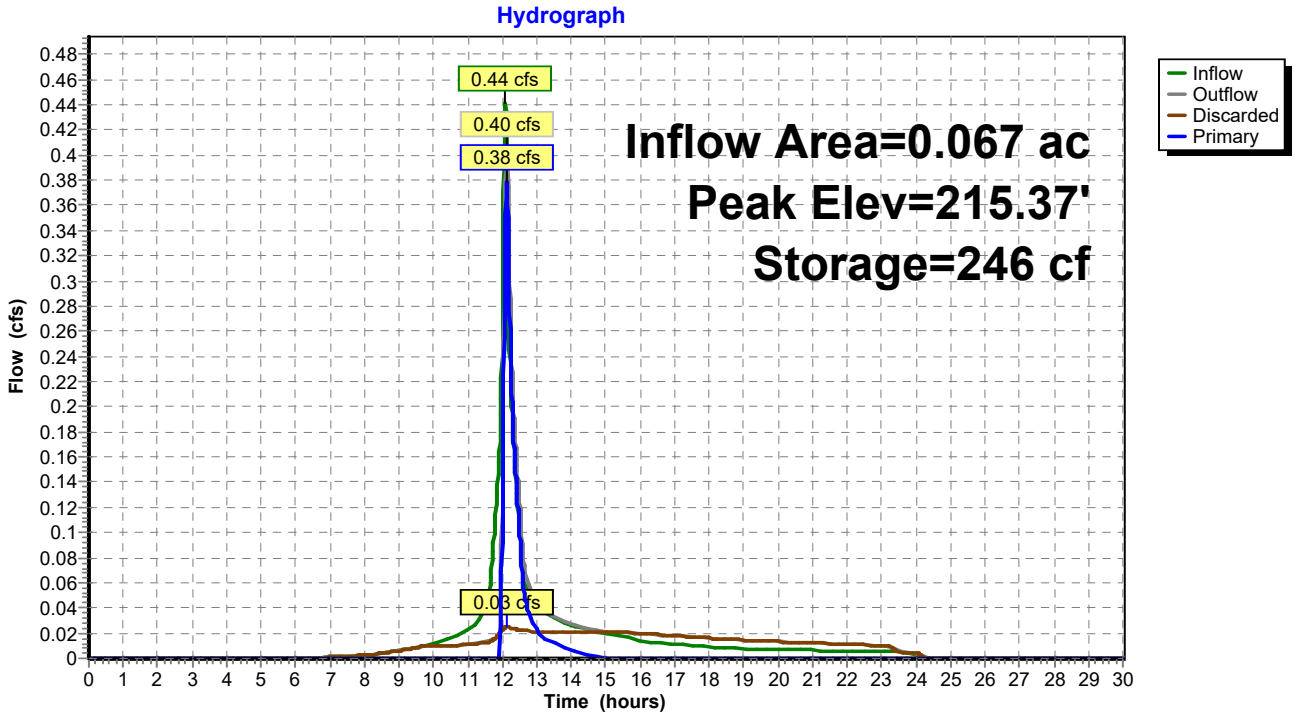
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
214.50	173	63.0	0	0	173
215.00	280	74.0	112	112	298
215.50	533	95.0	200	312	583

Device	Routing	Invert	Outlet Devices
#1	Primary	215.20'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	214.50'	**2.400 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 12.12 hrs HW=215.37' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.38 cfs @ 12.12 hrs HW=215.37' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.38 cfs @ 1.14 fps)

Pond 2P: Rain Garden 2



Summary for Pond 3P: Porous Pavement

Inflow Area = 0.119 ac, 53.18% Impervious, Inflow Depth = 2.93" for 100 Year event
Inflow = 0.32 cfs @ 12.08 hrs, Volume= 0.029 af
Outflow = 0.11 cfs @ 12.48 hrs, Volume= 0.029 af, Atten= 66%, Lag= 23.8 min
Discarded = 0.11 cfs @ 12.48 hrs, Volume= 0.029 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 215.33' @ 12.56 hrs Surf.Area= 2,000 sf Storage= 368 cf

Plug-Flow detention time= 37.0 min calculated for 0.029 af (100% of inflow)
Center-of-Mass det. time= 37.0 min (787.8 - 750.9)

Volume	Invert	Avail.Storage	Storage Description
#1	214.40'	360 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 900 cf Overall x 40.0% Voids
#2	215.30'	60 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) 200 cf Overall x 30.0% Voids
#3	215.50'	106 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)
		526 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
214.40	1,000	0	0
215.30	1,000	900	900

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
215.30	1,000	130.0	0	0	1,000
215.50	1,000	130.0	200	200	1,026

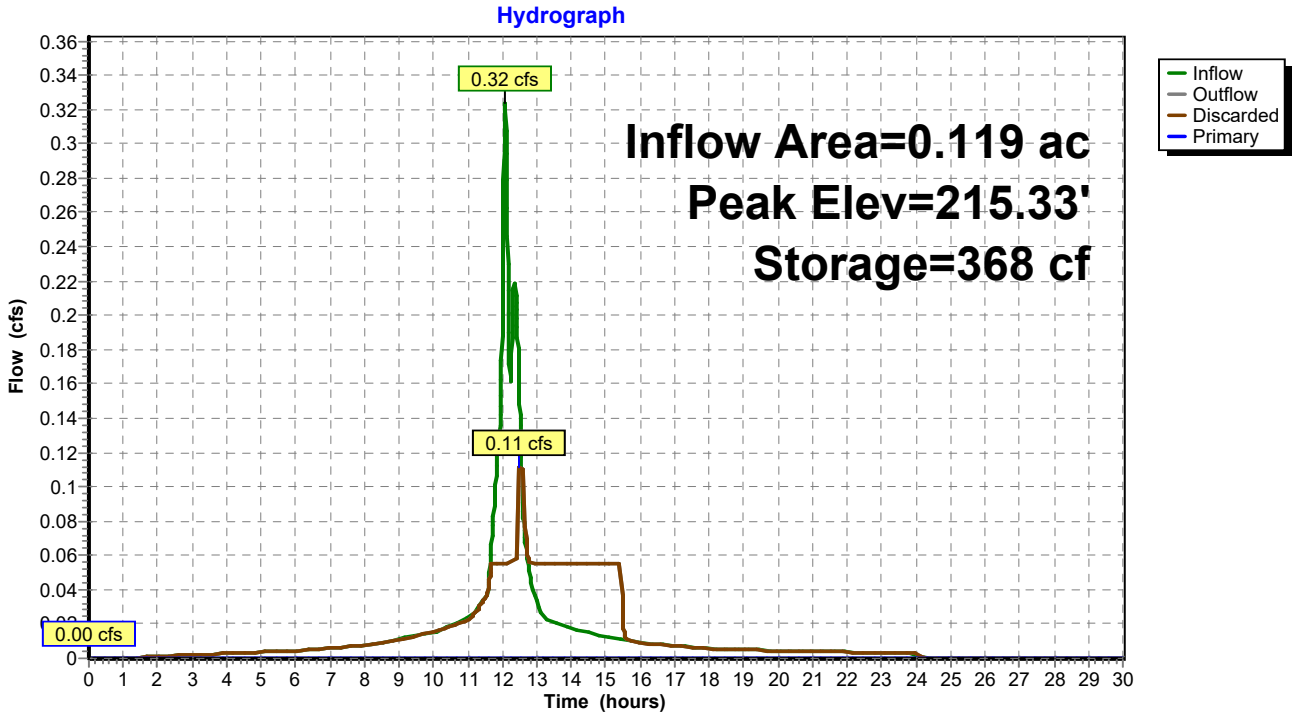
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
215.50	100	40.0	0	0	100
215.80	700	105.0	106	106	850

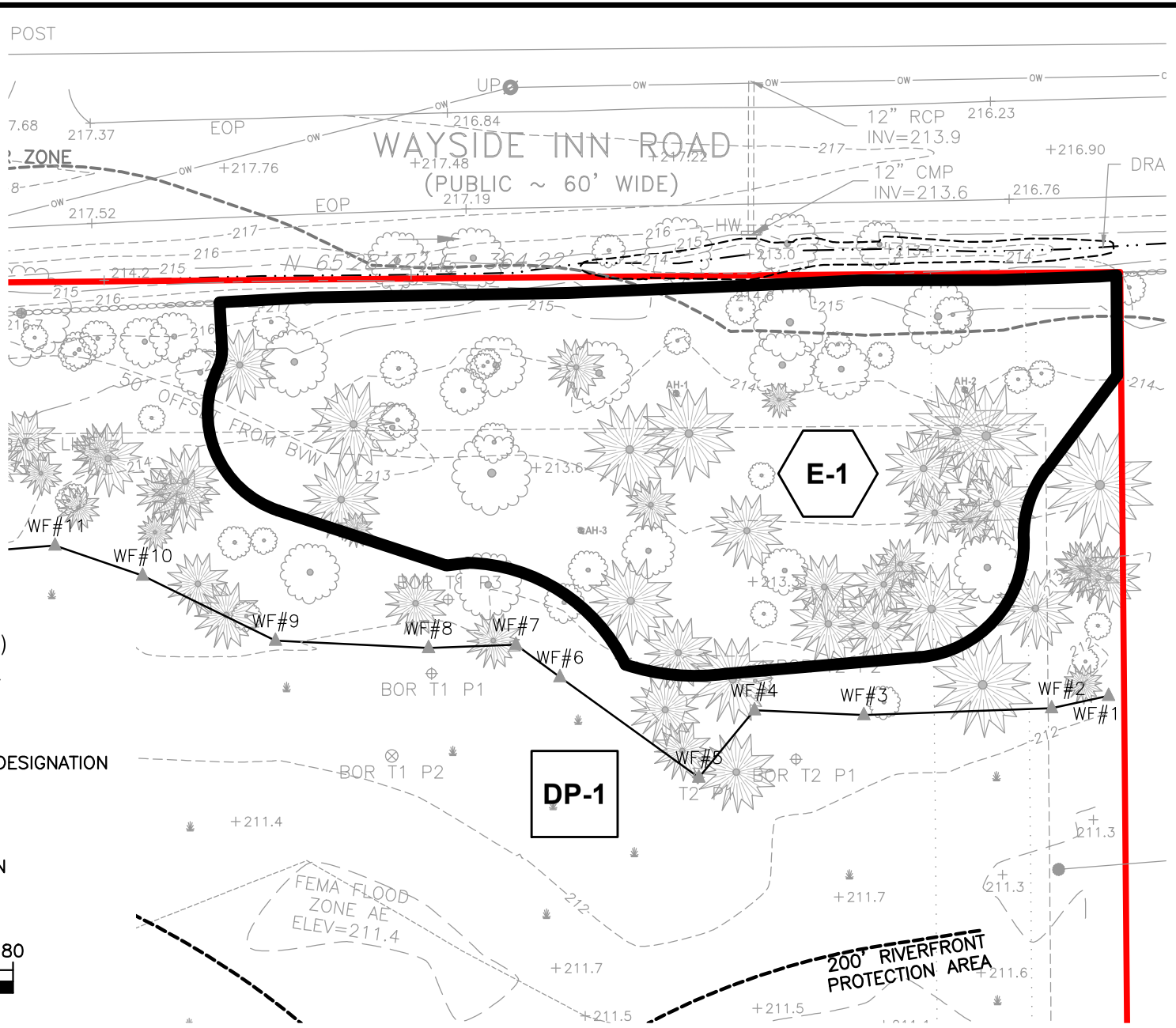
Device	Routing	Invert	Outlet Devices
#1	Discarded	214.40'	**2.400 in/hr Exfiltration over Surface area**
#2	Primary	215.70'	**3.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.11 cfs @ 12.48 hrs HW=215.30' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=214.40' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: Porous Pavement





LEGEND

(EXISTING CONDITIONS WATERSHED MAP)

SUBCATCHMENT BOUNDARY

E-1 EXISTING SUBCATCHMENT DESIGNATION

DP-1 DESIGN POINT DESIGNATION

0 20 40 80

SCALE: 1"=40'

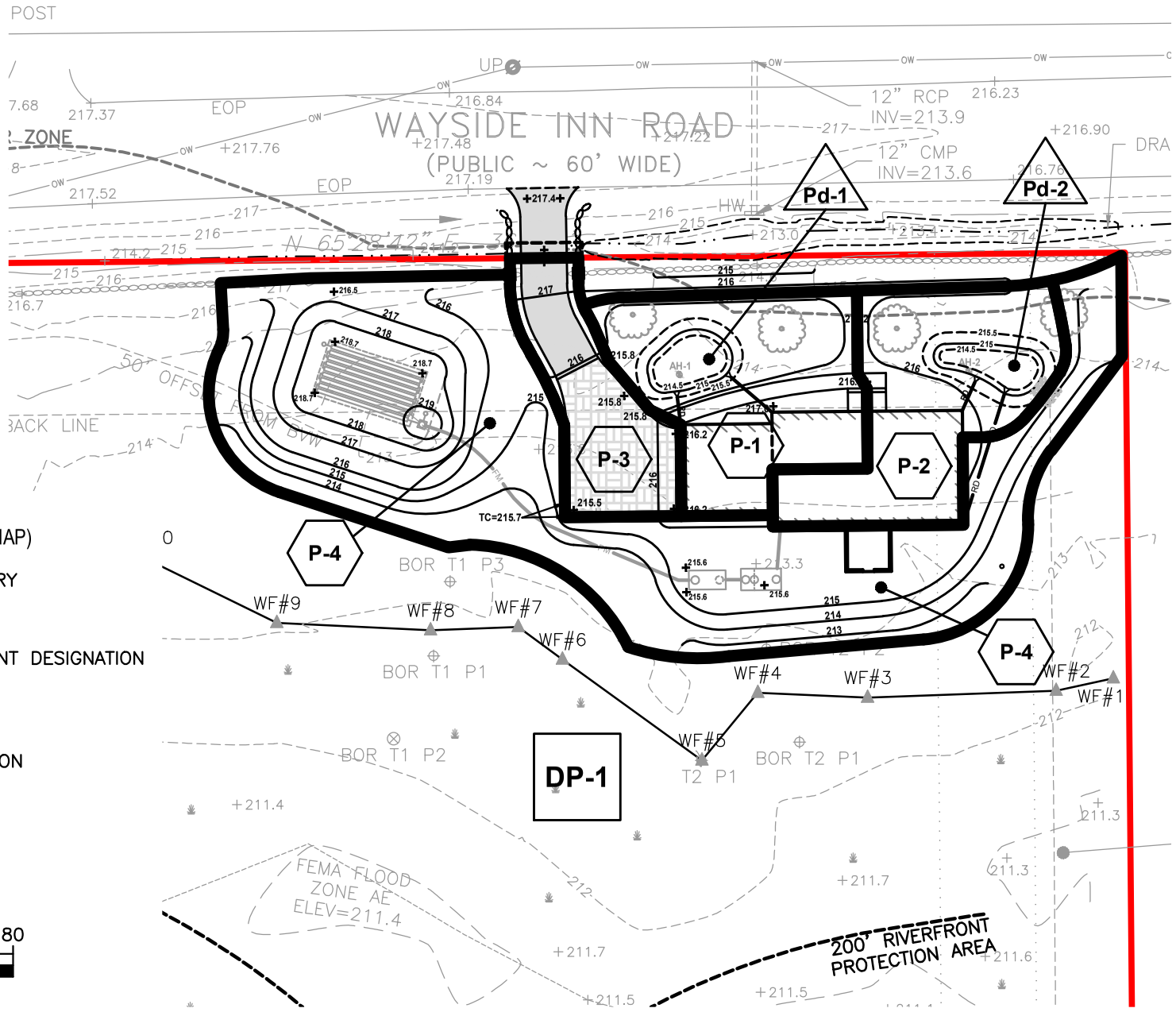
DGT Associates
1071 Worcester Road
Framingham, MA 01701
508-879-0030
www.DGTassociates.com

EXISTING CONDITIONS WATERSHED MAP
AT
219 WAYSIDE INN ROAD
IN
SUDBURY, MA 01776

DATE:	8/17/2022
DRAFTED BY:	FJS
SCALE:	1" = 40'

WSD-EX

25052



LEGEND

(PROPOSED CONDITIONS WATERSHED MAP)

SUBCATCHMENT BOUNDARY

P-1 PROPOSED SUBCATCHMENT DESIGNATION

DP-1 DESIGN POINT DESIGNATION

Pd-1 POND DESIGNATION

0 20 40 80

SCALE: 1"=40'

DGT Associates
1071 Worcester Road
Framingham, MA 01701
508-879-0030
www.DGTassociates.com

PROPOSED CONDITIONS WATERSHED MAP
AT
219 WAYSIDE INN ROAD
IN
SUDBURY, MA 01776

DATE:	8/17/2022
DRAFTED BY:	FJS
SCALE:	1" = 40'

WSD-PR

25052

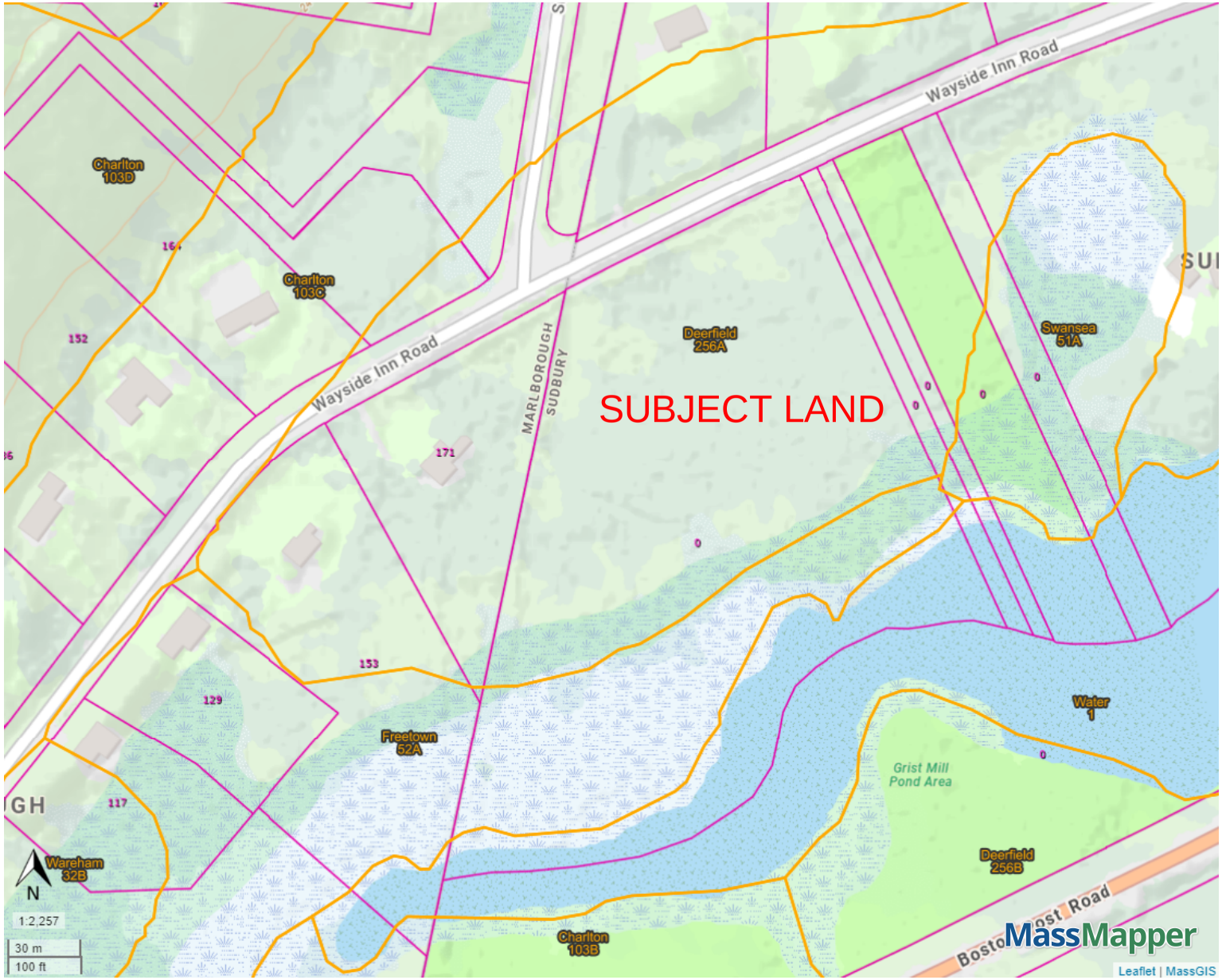
APPENDIX 1

SOILS INFORMATION

- **NRCS SOILS MAP and DESCRIPTION**
- **SOILS REPORT FOR SEPTIC Dated 7/6/2020**
- **STORMWATER MGT - SOIL DATA 4/1/2022**

(see Site Plan for test locations).

Soils Map



Soils Outlines NRCS

Property Tax Parcels

256A—Deerfield loamy sand, 0 to 3 percent slopes

This very deep, nearly level, moderately well drained soil is in depressions on glacial stream terraces and deltas. The areas of this soil are irregular in shape and range from 6 to 450 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layers:
0 to 1 inch, slightly decomposed leaf litter
1 to 11 inches, very dark gray loamy sand

Subsoil:
11 to 17 inches, yellowish brown loamy sand
17 to 25 inches, yellowish brown sand with distinct strong brown masses of iron accumulation

Substratum:
25 to 65 inches, light brownish gray coarse sand with prominent strong brown masses of iron accumulation

Included with this soil in mapping are areas, generally smaller than 6 acres each, of Sudbury soils in similar landscape positions as the Deerfield soils, and Wareham soils at slightly lower elevations. Minor soils comprise about 10 percent of the map unit.

Major soil properties—

Permeability: moderate to rapid in the surface layers, rapid in the subsoil, very rapid in the substratum
Available water capacity: moderate
Soil reaction: very strongly acid to moderately acid
Depth to bedrock: more than 60 inches
Depth to seasonal high water table: 1.5 to 3 feet, December-April
Hydrologic group: B

Most areas of this soil are woodland. A few small areas are used for commercial and industrial development.

This soil is suited for the cultivation of silage corn, well suited for the production of sweet corn, and limited in its use for hay and pasture. The seasonal high water table delays farming and limits root growth in the spring. This soil must be irrigated during dry periods for optimal crop growth. The main management concern is the prevention of overgrazing, particularly during droughty periods, as this reduces the hardiness and density of desirable plants. Proper stocking rates, timely grazing, and restricting use during adverse moisture periods help maintain plant densities.

Potential productivity for both eastern white pine and northern red oak is moderate. Seedling mortality is moderate because of moisture stress caused by the droughtiness of the soil. Minimizing disturbance to retain leaf cover and designing regeneration cuts to optimize shade and reduce evapotranspiration will help to retain the limited soil moisture. Thinning crowded stands to standard stocking levels will allow more vigorous new growth. Diseased, poorly formed, and otherwise undesirable trees should receive priority for removal during thinning. Shelterwood cutting, seed-tree cutting, and clearcutting may be used to establish regeneration or to provide suitable planting sites. Removal or control of competing vegetation may be necessary for optimum growth of newly established seedlings.

This map unit has moderate limitations as a site for dwellings without basements, due to wetness. It has severe limitations for dwellings with basements. Constructing buildings with basement floors above the seasonal high water table will help to avoid

interior damage caused by wetness. Footing drains around foundations will help to remove excess subsurface water. Landscaping designed to drain surface water away from buildings will provide added protection from moisture. Constructing roads on raised, coarse-textured base material and providing adequate side ditches and culverts will help to overcome the moderate wetness limitation and protect the roads from frost damage.

This map unit has severe limitations for septic tank absorption fields, as the soil readily absorbs but may not adequately filter sewage effluent, which can lead to pollution of ground water. Shallow depth to the saturated zone is a further severe limitation; placing distribution lines in a mound of more suitable fill material will help to overcome the wetness limitation.

This map unit has poor potential for woodland wildlife habitat.

Capability subclass: 3w

256B—Deerfield loamy sand, 3 to 8 percent slopes

This very deep, gently sloping, moderately well drained soil is in depressions on glacial stream terraces and deltas. The areas of this soil are irregular in shape and range from 6 to 60 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layers:
0 to 1 inch, slightly decomposed leaf litter
1 to 11 inches, very dark gray loamy sand

Subsoil:
11 to 17 inches, yellowish brown loamy sand
17 to 25 inches, yellowish brown sand with distinct strong brown masses of iron accumulation

Substratum:
25 to 65 inches, light brownish gray coarse sand with prominent strong brown masses of iron accumulation

Included with this soil in mapping are areas, generally smaller than 6 acres each, of Sudbury soils in similar landscape positions as the Deerfield soils, and Wareham soils at slightly lower elevations. Minor soils comprise about 10 percent of the map unit.

Major soil properties—

Permeability: moderate to rapid in the surface layers, rapid in the subsoil, very rapid in the substratum
Available water capacity: moderate
Soil reaction: very strongly acid to moderately acid
Depth to bedrock: more than 60 inches
Depth to seasonal high water table: 1.5 to 3 feet, December-April
Hydrologic group: B

Most areas of this map unit are woodland. A few small areas are used for commercial and industrial development.

This map unit is suited for the cultivation of silage corn, well suited for sweet corn, and of limited use for hay and pasture. The seasonal high water table delays farming and limits root growth in the spring. This map unit must be irrigated during dry periods for optimal crop growth. The main management concern is the prevention of overgrazing, particularly during droughty periods, as this reduces the hardiness and

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot No. 219 Wayside Inn Road, Sudbury, MA

On-site Review

Test By: Fredric King, PE, SE

Test Hole Number AH-01 Date: 4/1/2022 Time: Morning Weather Fair

Location (identify on site plan) see plan

Land Use Vacant Woodland Slope (%) 1 to 3 Surface Stones None

Vegetation Wooded

Landform Outwash Terrace

Position on landscape (sketch on the back) see sketch

Distances from:

Open Water Body	450+	Feet	Drainageway	Dry ditch 33 ft	Feet
Possible Wet Area	80 feet	Feet	Property Line	28 ft. (front)	Feet
Drinking Water Well	None	Feet	Other		

DEEP OBSERVATION HOLE LOG*

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0 – 11	A	Fine SL	10 YR 3/2	None	
11 – 16	Bw	Loamy Sand	10 YR 5/4	10 YR 5/8 Start @ 14" Com	Massive, friable
16 – 20	C	Sand (m-c)	10 YR 4/3	10 YR 5/8 Many	Gravelly w/ cobbles

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Outwash Depth to Bedrock: ND

Depth to Groundwater: Standing Water in the Hole: Saturated @18 Weeping from Pit Face: None

Estimated Seasonal High Ground Water: At 14 inches (elev. 212.5)

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot No. 219 Wayside Inn Road, Sudbury, MA

On-site Review

Test By: Fredric King, PE, SE

Test Hole Number AH-02 Date: 4/1/2022 Time: Morning Weather Fair

Location (identify on site plan) see plan

Land Use Vacant Woodland Slope (%) 1 to 3 Surface Stones None

Vegetation Wooded

Landform Outwash Terrace

Position on landscape (sketch on the back) see sketch

Distances from:

Open Water Body	450+	Feet	Drainageway	Dry ditch 32 ft	Feet
Possible Wet Area	85 feet	Feet	Property Line	27 ft. (front)	Feet
Drinking Water Well	None	Feet	Other		

DEEP OBSERVATION HOLE LOG*

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0 – 14	A	Fine SL	10 YR 3/2	None	
14 – 21	Bw	Loamy Sand	10 YR 5/6	10 YR 5/8 Start @ 20" Com	Massive, friable
21 – 23	C	Sand (m-c)	10 YR 4/3	10 YR 5/8 Many	Gravelly w/ cobbles

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Outwash Depth to Bedrock: ND

Depth to Groundwater: Standing Water in the Hole: None Weeping from Pit Face: None

Estimated Seasonal High Ground Water: At 20 inches (elev. 212.4)

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot No. 219 Wayside Inn Road, Sudbury, MA

On-site Review

Test By: Fredric King, PE, SE

Test Hole Number AH-03 Date: 4/1/2022 Time: Morning Weather Fair

Location (identify on site plan) see plan

Land Use Vacant Woodland Slope (%) 1 to 3 Surface Stones None

Vegetation Wooded

Landform Outwash Terrace

Position on landscape (sketch on the back) see sketch

Distances from:

Open Water Body	450+	Feet	Drainageway	Dry ditch 63 ft	Feet
Possible Wet Area	40 feet	Feet	Property Line	60 ft. (front)	Feet
Drinking Water Well	None	Feet	Other		

DEEP OBSERVATION HOLE LOG*

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0 – 15	A	Fine SL	10 YR 3/2	None	
15 – 18	A2	Fine SL	10 YR 2/1	None	Massive, friable
18 – 24	C	Sand (m-c)	10 YR 4/4	Low chroma 10 YR 5/8 Many	Gravelly w/ cobbles

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Outwash Depth to Bedrock: ND

Depth to Groundwater: Standing Water in the Hole: 18” Weeping from Pit Face: None

Estimated Seasonal High Ground Water: At 15 inches (elev. 212.4)

DGT Associates
Surveying & Engineering

1071 Worcester Rd.
Framingham, MA 01701
508.879.0030
www.dgtassociates.com

July 6, 2020 25052

William Murphy, Director
Sudbury Health Department
275 Old Lancaster Road
Sudbury, MA 01776

SENT VIA E-MAIL

RE: 219 Wayside Inn Road, Sudbury – Soil Test Report

Dear Bill:

Attached for your records

The soil testing at the subject parcel of land was completed on July 2, 2020. The testing was performed by myself and was witnessed by Bob Landry for your office. The backhoe was provided by D. J. Morris.

The testing consisted of two deep hole tests and two percolations tests. Attached for your records is a copy of the soil test report and the sketch plan showing the approximate locations of the tests. At this time we are scheduling the survey of the location and elevations of the tests.

Note that we found that the subsoil (B horizon) consisted of a clean, fine to medium sand that varied in thickness. The C horizon is a gravelly sand with cobbles. As expected, the estimated seasonal high groundwater was relatively shallow. Since the B horizon was very good material, we performed a perc test in each of the B horizon and the C horizon so that the B horizon can stay in place, rather than have it excavated and replaced with Title 5 sand.

Thank you for your assistance in scheduling the testing. Contact me if you have any questions. We will also send a hard copy to your office by mail.

Sincerely,
DGT Associates

Fredric W. King

Fredric W. King, P.E.
Senior Engineer

Enclosure: Soil Test Report

CC: Elizabeth Rudenberg

Job No.
No. 25052 **Date:** 7/6/2020

Commonwealth of Massachusetts
Sudbury **, Massachusetts**

Soil Suitability Assessment for On-site Sewage Disposal

Performed By: Fredric W. King, P.E. **Date:** 7/2/2020

Witnessed By: Bob Landry for Sudbury Board of Health

Location Address or Lot # 219 Wayside Inn Road, Sudbury, MA New Construction ☑ Repair ☐	Owner's Name, H. Gunther Rudenberg Estate (Elizabeth Rudenberg P.R. Address, and 259 Foreside Road, Falmouth, ME 04105 Telephone # 207-781-2223

Office Review

Published Soil Survey Available : No ☐ Yes ☑
Year Published 2009 Publication Scale Soil Map Unit Deerfield Loamy Sar
Drainage Class Well Drained Soil Limitations Shallow Groundwater
Surficial Geologic Report Available: No ☐ Yes ☑
Year Published Publication Scale 1:24000
Geologic Material (Map Unit) Glacial Outwash
Landform Glacial Outwash stream terrrace.
Flood Insurance Rate Map:
Above 500 year flood boundary No ☐ Yes ☑
Within 500 year flood boundary No ☐ Yes ☐
Within 100 year flood boundary No ☐ Yes ☑ Rear portion of parcel
Wetland Area: Yes (Area flagged in Rear portion of lotel)
National Wetland Inventory Map (map unit) Not Reviewed
Wetlands Conservancy Program Map (map unit) Not Reviewed.

Current Water Resource Conditions (USGS): Month
Range: Above Normal ☐ Normal ☐ Below Normal ☑
Other References Reviewed:

Location Address or Lot No. 219 Wayside Inn Road, Sudbury, MA

On-site Review

Deep Hole Number TH-01 Date: July 2, 2020 Time: Morning Weather Fair

Location (identify on site plan) see sketch

Land Use Vacant Woodland Slope (%) 1 to 3 Surface Stones None

Vegetation Wooded

Landform Outwash Terrace

Position on landscape (sketch on the back) see sketch

Distances from:

Open Water Body	250	Feet	Drainageway	Dry ditch 25 ft	Feet
Possible Wet Area	60 feet	Feet	Property Line	25 ft.	Feet
Drinking Water Well	None	Feet	Other		

DEEP OBSERVATION HOLE LOG*

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0 – 8	A	Loamy Sand	10 YR 3/2	None	
8 – 23	Bw	Sand (f-m)	10 YR 5/6	None	Massive, friable
23 – 77	C	Sand (m-c)	10 YR 4/3	10 YR 5/8 Many begin at 23 inches	Gravelly w/ cobbles

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Outwash Depth to Bedrock: + 77

Depth to Groundwater: Standing Water in the Hole: 37 inches Weeping from Pit Face: None

Estimated Seasonal High Ground Water: At 23 inches

Location Address or Lot No. 219 Wayside Inn Road, Sudbury, MA

On-site Review

Deep Hole Number TH-02 Date: July 2, 2020 Time: Morning Weather Fair

Location (identify on site plan) see sketch

Land Use Vacant Woodland Slope (%) 1 to 3 Surface Stones

Vegetation Wooded with some underb

Landform Outwash Terrace

Position on landscape (sketch on the back)

Distances from (Approximate):

Open Water Body	250	Feet	Drainageway	Dry ditch 25 ft	
Possible Wet Area	70 feet	Feet	Property Line	25 ft.	
Drinking Water Well	None	Feet	Other		

DEEP OBSERVATION HOLE LOG*

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)	
0 – 9	A	Loamy Sand	10 YR 3/2	None		
9 – 20	Bw	Sand (f-m)	10 YR 5/2	None	Massive, friable	
20 – 77	C	Sand (m-c)	10 YR 4/3	10 YR 5/6 Many begin at 20 inches	Gravelly w/ cobbles	

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Outwash Depth to Bedrock: + 77

Depth to Groundwater: Standing Water in the Hole: 37 inches Weeping from Pit Face: None

Estimated Seasonal High Ground Water: At 20 inches

Location Address or Lot No. 219 Wayside Inn Road, Sudbury, MA

COMMONWEALTH OF MASSACHUSETTS

Sudbury Massachusetts

Percolation Test*

Date: July 2, 2020 Time: 10:00 am

Observation Hole #	Perc 01	Perc 02
Depth of Perc (to top of 12“ of water)	16 inches	18 inches
Start Pre-soak	10:05	10:22
End Pre-soak	10:15 (25 gal)	10:37
Time at 12"	10:15	10:37
Time at 9"	10:16:30	10:45
Time at 6”	10:18	10:57
Time (9"-6")	1.5 minutes	12 minutes
Rate Min./Inch	< 2 MPI	4 MPI

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

Site Passed [X] Site Failed [ ]

Performed By: Fredric King

Witnessed By: Bob Landry

Comments: Perc 01 in the B Horizon. Perc 02 is in the C Horizon

Job No.

Location Address or Lot No. 219 Wayside Inn Road, Sudbury, Ma

Determination for Seasonal High Water Table

Method Used:

- ☐ Depth observed standing in observation hole inches
- ☐ Depth weeping from side of observation hole inches
- ☒ Depth to soil mottles TH 01 = 23" Inches TH 02 = 20 inches
- ☐ Ground water adjustment feet

Index Well Number Reading Date Index well level

Adjustment factor Adjusted ground water level

Depth of naturally Occurring Pervious Material

Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? Yes

If not, what is the depth of naturally occurring pervious material? _____

Certification

I certify that on Lic # 1232 (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 Fredric W. King Date July 6, 2020

TOWN LINE (APPROXIMATE)
ROAD BOUND(F)

UNDERGROUND GAS MARKER POST

12" RCP
INV=213.9

WAYSIDE INN ROAD

12" CMP
INV=213.6

DRAINAGE SWALE

SIGN

N 65°28'40" E 364.28'

100' OFFSET FROM BVW

50' OFFSET FROM BVW

TP 01
PERC 01

TP 02
Perc 02

BUILDING SETBACK LINE

~~PROPOSED~~ TEST PIT LOCATIONS

WF#14 WF#13 WF#12 WF#11 WF#10 WF#9 WF#8 WF#7 WF#6 WF#5 WF#4 WF#3 WF#2 WF#1

BORDERING VEGETATED WETLAND

BOR T1 P1
BOR T1 P2
BOR T1 P3
BOR T2 P1
BOR T2 P2

200' RIVERFRONT PROTECTION AREA

FEMA FLOOD ZONE AE ELEV=211.4

UNDERGROUND GAS LINE EASEMENT
TENNESSEE GAS PIPELINE

SKETCH SHOWING ~~PROPOSED~~ TEST LOCATIONS
6-3-2020 DGT

(APPROXIMATE) 07-06-2020

SCALE
0 10 20 30 40 50
1" = 30 FT

TEST PIT
PERC TEST

APPENDIX 2

STORMWATER
OPERATION & MAINTENANCE
And
POLLUTION SOURCE CONTROL

STORMWATER MANAGEMENT SYSTEM

OPERATION AND MAINTENANCE PLAN
and
LONG TERM POLLUTION PREVENTION

Rudenberg Estate – Single Family House Project
Wayside Inn Road, in Sudbury, MA

INTRODUCTION

The Stormwater Management System for the proposed single family house project at Wayside Inn Road in Sudbury, MA contains "Stormwater Best Management Practices" (BMP's) that have been designed to protect the environment from stormwater related impacts to surface waters and groundwater. Stormwater Best Management Practices are defined as devices that temporarily store, treat and convey stormwater runoff to reduce flooding, remove pollutants, and provide other amenities for the protection of surface and groundwater resources and the general environment.

As with any stormwater BMPs, they must be inspected and maintained on a regular basis in order for the system to function properly as designed. Good maintenance practices help ensure that the stormwater BMP's are in proper working order when they are needed to perform under storm conditions and will maximize the useful life of the facilities. BMP's that are not properly maintained soon become less effective and may lead to costly repairs to bring the BMP's back to a good condition. Proper maintenance also helps avoid failures of the systems and resulting environmental damage or long-term degradation of valuable natural resource areas.

This manual has been prepared for the operation and maintenance of the planned stormwater management system. At the completion of the project, the responsibility for the maintenance and operation of the system will be the Owner / Operator of the property. This project is being designed and permitted to prepare the property for sale. The current owners, (Estate of Gunther Rudenberg, will not be building the project. The future owners will be responsible for the operation and maintenance of the planned stormwater management systems. The future owners have not been determined at this time.

The Stormwater BMP proposed for this single-family home site includes the following:

- Two Rain Gardens (aka Bioretention Basins) located off the front corners of the house, that will receive stormwater runoff and snow melt from the roof area and the front walk and entry pad.
- Pervious Paver system for the driveway runoff.

Routine inspections and some of the routine maintenance tasks will be performed by the owner. Outside contractors may be hired for some items, such as vacuum sweeping and major repairs and replacement of the pervious pavers.

This manual is intended to be used as the management document for the system. It contains specific plans of the components of the stormwater management system. These include descriptions of the purpose and function of each component, inspection and maintenance requirements and check lists and report forms for record keeping. The manual also contains background information, descriptions of environmental concerns and information necessary for an understanding of the reasons for the proper management of the stormwater management system.

The first step in the process of implementing the operation and maintenance requirements needs to include the following:

1. Training of the Owner
2. Administration Tasks: Budget Planning, Resource Allocation, etc.
3. Preparation of an as-built plan or site map that shows the built location of the facility.

TOWN OF SUDBURY REQUIREMENTS

Note that the Town of Sudbury Planning Board or its designee shall be allowed to enter the property at reasonable times and in a reasonable manner for the purpose of inspection. A copy of this O&M Manual shall remain on file with the Planning Board and Conservation Commission.

A copy of the regular inspection reports shall be submitted to and maintained by the Planning Board or its designated Reviewing Agent as may be required under the various permits and approvals issued for the project.

The owner of the stormwater management system must notify the Planning Board or its designated Reviewing Agent of any changes in ownership or assignment of financial responsibility as may be required under the various permits and approvals issued for the Workshop Project.

MASSACHUSETTS STORMWATER MANAGEMENT STANDARDS

Following construction of the Stormwater Management System, the Operation and Maintenance Plan must be implemented for the system to remain in compliance with the Stormwater Management Standards and Town of Sudbury requirements.

STORMWATER BEST MANAGEMENT PRACTICES (BMP's)

The Stormwater BMP's designed into the project include the following:

STORMWATER BMP's	# Units
Rain Gardens	2

Pervious Paver System 1

The following pages describe the inspection, routine maintenance and non routine maintenance which are required for each BMP. The inspection and maintenance requirements are based on the recommendations from the Stormwater Management Standards Handbook, Volume 1, 2, 3, February 2008, MassDEP.

BUDGET:

Due to the simple nature of the system, the routine O& M costs for this item can be part of the regular site maintenance for the property with no significant additional cost.

STORMWATER MANAGEMENT SYSTEM OPERATION & MAINTENANCE

The stormwater management systems designed for the proposed house project are passive system that do not require any operational procedures to be followed during a storm event to operate as intended. There are no valves to turn, weirs to set, pumps to be turned on, or other manual activity required. What is necessary to assure that the system functions properly are the performance of regular inspections and maintenance tasks.

The Best Management Practice for this project consists of two small Rain Gardens located off the two front corners of the house, and a Pervious Paver System for 1000 sq. ft. of the driveway. The rain gardens will receive runoff from the roof area and the front walkway. and the precipitation the falls directly into the basin. The pervious paver system will receive the precipitation that falls onto the pervious paver system and some runoff from the adjacent asphalt paved driveway. The Operation and Maintenance requirements for these systems involve the following:

Inspections	A process by which you can evaluate if the BMP's are in acceptable condition and are still effective.
Maintenance	Tasks required for the upkeep and repair of the BMP's to keep them in good working order. This is broken down into routine maintenance tasks, and non-routine maintenance and repairs.
Record Keeping	Documentation of the Inspections and Maintenance that has been performed. This is important and useful for: 1.) Proving that the tasks are performed. 2.) Use in scheduling and planning of repairs and maintenance. 3.) Documenting possible future problems and recommending corrective measures. 4.) Planning manpower and equipment needs. 5.) Making adjustments to the O&M Plan where warranted for the stormwater system to function as intended.

The inspection and maintenance requirements for each stormwater BMP are based on the recommendations contained in the MassDEP Stormwater Management Handbook, Volume Two, Chapter 2, Structural BMP Specifications; February 2008. It is recommended that the procedures described for each BMP be followed strictly for the first two years of operation. During that initial two-year period, the observations and experience gained from monitoring this stormwater management system will provide the information necessary to adjust the O&M procedures for the most efficient management of the system. Adjustment of the Operation and Maintenance Procedures may require the approval from the Town of Sudbury.

Note that the descriptions of the maintenance requirements include the basic items needed or required for the tasks. The inspectors and maintenance personnel must also be made aware of other work-related safety precautions and regulations such as OSHA confined space rules, traffic safety, protective clothing, and safety equipment that must be utilized in the performance of the prescribed tasks.

INSPECTION AND MAINTENANCE REQUIREMENTS FOR BMP's

BIORETENTION BASINS (RAIN GARDENS)

DESCRIPTION AND FUNCTION

Bioretention is a technique that uses soils, plants, and microbes to treat stormwater before it is infiltrated and/or discharged. Bioretention cells are shallow depressions filled with sandy soil topped with a thick layer of special bioretention soil and planted with dense native vegetation. The runoff percolates through the soil media that acts as a filter. The root systems of the vegetation keep the soil pores open to allow the infiltration into the soil media.

There are two types of bioretention cells: those that are designed solely as organic filtering bioretention areas and those configured to recharge groundwater in addition to acting as a filter/exfiltrating bioretention area. This project contains the latter type and there are 2 basins on this site.

INSPECTIONS

Bioretention areas require careful attention while plants are being established and seasonal landscaping maintenance thereafter. Inspect pretreatment devices and bioretention cells regularly for sediment build-up, structural damage, and standing water. Overall, the bioretention areas should be inspected monthly in a general manner by brief observation. Thorough inspections with report forms shall be twice per year. The areas should be inspected for trash and debris, vegetative health, stability, and soil erosion. The overflow area must be inspected for condition.

ROUTINE MAINTENANCE

Remove and replace dead vegetation semi-annually or as needed based on the inspections. Removal of trash and debris should take place monthly with replacement of the mulch occurring when infiltration is blocked, and extended ponding is occurring (more than 72 hours following a rain event). Mow the basin and prune the vegetation 1-2 times per year. Other tasks include fertilizing (only when necessary), liming, watering, pruning, and weed and pest control if necessary, to maintain the health of the vegetated cover. Keep overflow area clear of debris.

NON-ROUTINE MAINTENANCE

These are structural repairs and replacement of system components. Typical items for this BMP may include:

- Major repairs to vegetation
- Replace the bioretention soil media and vegetation. (3-5 years unless draining satisfactorily)
- Repair erosion of areas creating an improperly functioning BMP
- Rototilling of the surface to break up surface compaction and replanting (rarely required if well maintained).

MAINTENANCE EQUIPMENT

- Typical lawn and vegetation maintenance equipment (mower, rakes, pruners, etc.)
- Shovels, trash bags, and wheelbarrow for removal of sediment, leaf litter and debris.

PERVIOUS PAVER SYSTEM

TYPES

1. Access Drive - "Uni-Eco-Stone"

INSPECTIONS

The pervious pavers system should be inspected on a monthly basis or two to three days after a rainfall event to ensure that there is no ponding, upheaval of the pavers, and checl of the structural integrity of the pavers.

MAINTENANCE

Proper design and installation, including the use of the specific size aggregates to fill in the voids, coupled with a scheduled maintenance program can minimize the loss of porosity over time. The amount and type of traffic the pavement is subject to influences how often cleaning is required. The pavement should be kept clean of leaves and excess sand and debris. For winter traction control, sand must not be used as the sand will clog the pores. It is recommended that snow be plowed off the surface and the surface may be treated with an "ice melt" product or brine solution for ice control. No sodium based salts may be used for ice control. Calcium chloride or magnesium chloride or pre-treatment brine solution are acceptable.

The pervious paver system is only 1,000 sq. ft. So, routine sweeping with a stiff bristle broom and or leaf blower can be used to keep the surface pores from clogging. This should be done at least twice per year. Once or more in the fall after leaf-fall when necessary, and then again in the springtime after the melting of snow to clean the sand and mud tracked in from winter roads.

When necessary to restore infiltration rate, hire a contractor sweeper to clean the pavement with a hydro-vac. This should be done in the springtime after the melting of snow to clean the sand tracked in from winter roads. And then refill the stone gaps with the fine stone that is removed during vacuuming. It is recommended to plan to hydro-vac the surface once every 3 to 5 years.

MAINTENANCE EQUIPMENT

Grounds equipment
(rakes, brooms, leaf blower, etc.)
Hydro-vac

NON-ROUTINE MAINTENANCE

These are repairs and replacement of system paving stones as necessary and may include the following.

- Removing the surface stone and remove any clogged setting bed stone and reset.
- Repairs to curbing and edging.

LONG TERM POLLUTION PREVENTION (SOURCE CONTROL)

In accordance with the standards for a General Stormwater Permit under the Sudbury Stormwater Bylaw Regulations, the following pollution source control measures are required to be employed on the site. Specific reference is made to Section 6.0 J.1.f. We have included the listing of Items in italics and have added specific information as necessary for the specific project.

1. *Store lawn and deicing chemicals under cover.*
   - For this project, it is recommened to keep these materials within the garage. See also Item 10 below.

2. *Apply fertilizers and pesticides sparingly to prevent washoff.*
   - Note that the lawn areas have been kept to a minimum. All other areas are to be planted with native trees, shrubs and ground cover that should not require any fertilization after the initial planting period when the areas are in full cover.

3. *Use of slow-release nitrogen and low phosphorus fertilizers is encouraged.*

4. *No fertilization or pesticide application in or near any wetland resource area.*
   - Note that the planting areas near the wetlands are to be planted with native shrubs and groundcovers to provide a natural buffer between the developed area and the wetlands. These areas will not need any fertilization following initial establishment as described in Item 2 above.

5. *Pick up pet waste, dispose of in the toilet or trash.*

6. *Store, use and dispose of household hazardous wastes properly.*

7. *Limit exterior washing of vehicles to locations that drain to pervious surfaces and away from storm drains.*
   For this project, the driveway area will consist of a pervious paver system. A short section of driveway will also drain to this paver system. Washing of vehicles on this surface is not recommended as the detergents in the rinse water will eventually drain to groundwater. It is recommended that outdoor car washing at this site be avoided and the owner should use off-site car washing facilities.

8. *Maintain vehicles and clean up fluid spills/drips from pavement areas.*
   - The owner needs to regularly check their vehicles for fluid leaks and have the vehicles regularly maintained.

9. *Pump and maintain septic system.*
   - The owner must regularly maintain the septic system per the recommendations of the Board of Health.

10. *Use alternative deicers such as calcium chloride and magnesium chloride in lieu of sodium based deicers.*
    - This is particularly important at this site due to the pervious paver system. Non-sodium based brine pretreatment solution is also acceptable.

11. *No coal tar based pavement sealants are to be used on any site subject to the General Stormwater Management Permit (GSMP).*

SPECIAL SNOW REMOVAL REQUIRENENTS

In addition to the information on snow removal contained in the pervious paver O&M section and in the foregoing Source Control section, the following conditions shall apply.

Plow or snow-blow snow to the sides of the driveway and the turn-around area with the following conditions:

- Do not deposit snow into the Town drain ditch along Wayside Inn Road.
- Do not plow or throw snow into the wetland area or onto buffer plantings off the end of the driveway.

STORMWATER MANAGEMENT SYSTEM

INSPECTION AND MAINTENANCE FORMS

CONTENTS:

INSPECTION FORMS
- Bioretention Basins
- Pervious Pavers

MAINTENANCE / REPAIR RECORD FORM

BIORETENTION BASINS

Routine Inspection Checklist - Inspection semi-annually Da

	Slope Integrity	Sediment Depth	Vegetation	Erosion	Ponding
Rain Garden #1					
Rain Garden #2					

PERVIOUS PAVER SYSTEM

Routine Inspection Checklist - Inspected monthly or two to three days after a rainfall. Date _____

	Structural Integrity	Draining Properly	Ponding	Debris	Comments
"Uni-Eco-Stone"					

* Presence of hydrocarbons is a clearly visible layer of oil, gasoline, grease, hydraulic fluid, etc., floating on the surface or a strong odor of gas or oil

ESTATE OF H. GUNTHER RUDENBERG
WAYSIDE INN ROAD, SUDBURY, MA
STORMWATER SYSTEM MAINTENANCE RECORD

Date of Maintenance: _____ Performed By: _____

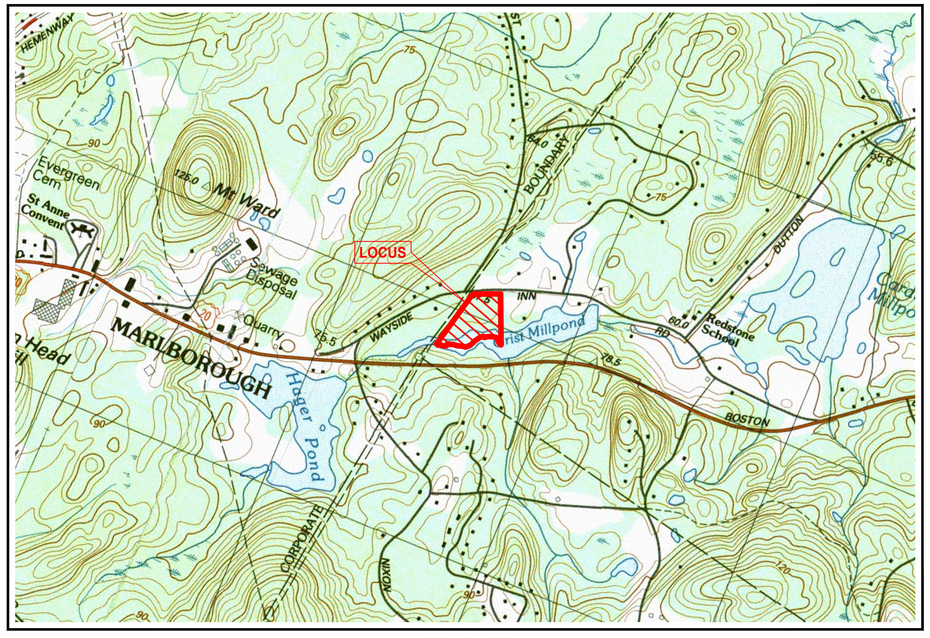
Maintenance / repair tasks were performed on the following on-site BMP structures:

Stormwater Structure Work Performed. _____

Other Comments:

SITE PLAN

H. GUNTHER RUDENBERG ESTATE
Wayside Inn Road
Sudbury, Massachusetts

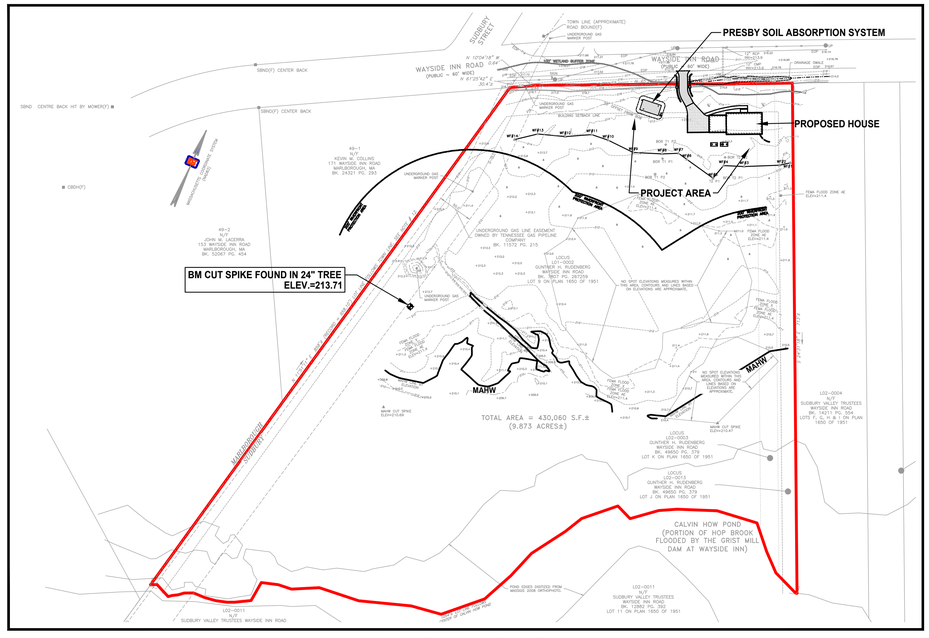


LOCUS MAP

SCALE:1"=1000'

0 500 1000 2000

SCALE: 1"=1000'



OVERALL SITE MAP

SCALE:1"=100'

0 50 100 200

SCALE: 1"=100'

SHEET INDEX

C-1	TITLE SHEET
C-2	EXISTING CONDITIONS PLAN
C-3	EROSION & SEDIMENT CONTROL PLAN, NOTES, AND SITE CLEARING PLAN
C-4	PROPOSED SITE PLAN
C-5	LANDSCAPE PLANTING SCHEME
C-6	SITE DETAILS

DGT Associates
Surveying & Engineering

Framingham
Boston ● Worcester

1071 Worcester Road
Framingham, MA 01701
508-879-0030

www.DGTassociates.com

ASSESSORS PARCEL:

L01-0002
L02-0003
L02-0013

RECORD OWNER AND APPLICANT:
H. GUNTHER RUDENBERG ESTATE
ELIZABETH RUDENBERG P.R.
249 FORESIDE ROAD
FALMOUTH, MAINE 04105

COMMONWEALTH OF MASSACHUSETTS
FREDRIC W. KING
No. 38089
CIVIL
REGISTERED PROFESSIONAL ENGINEER

NO.	APP	DATE	DESCRIPTION

DATE: **AUGUST 8, 2022**

SCALE: **AS NOTED**

DESIGN:	DRAFTED:	CHECKED:
FWK	**LTV/FJS**	**FWK**

PROJECT TITLE:

PROPOSED RESIDENTIAL SITE PLAN

219* WAYSIDE INN ROAD
SUDBURY, MA 01776
***ADDRESS NUMBER NOT OFFICIAL**

SHEET TITLE:

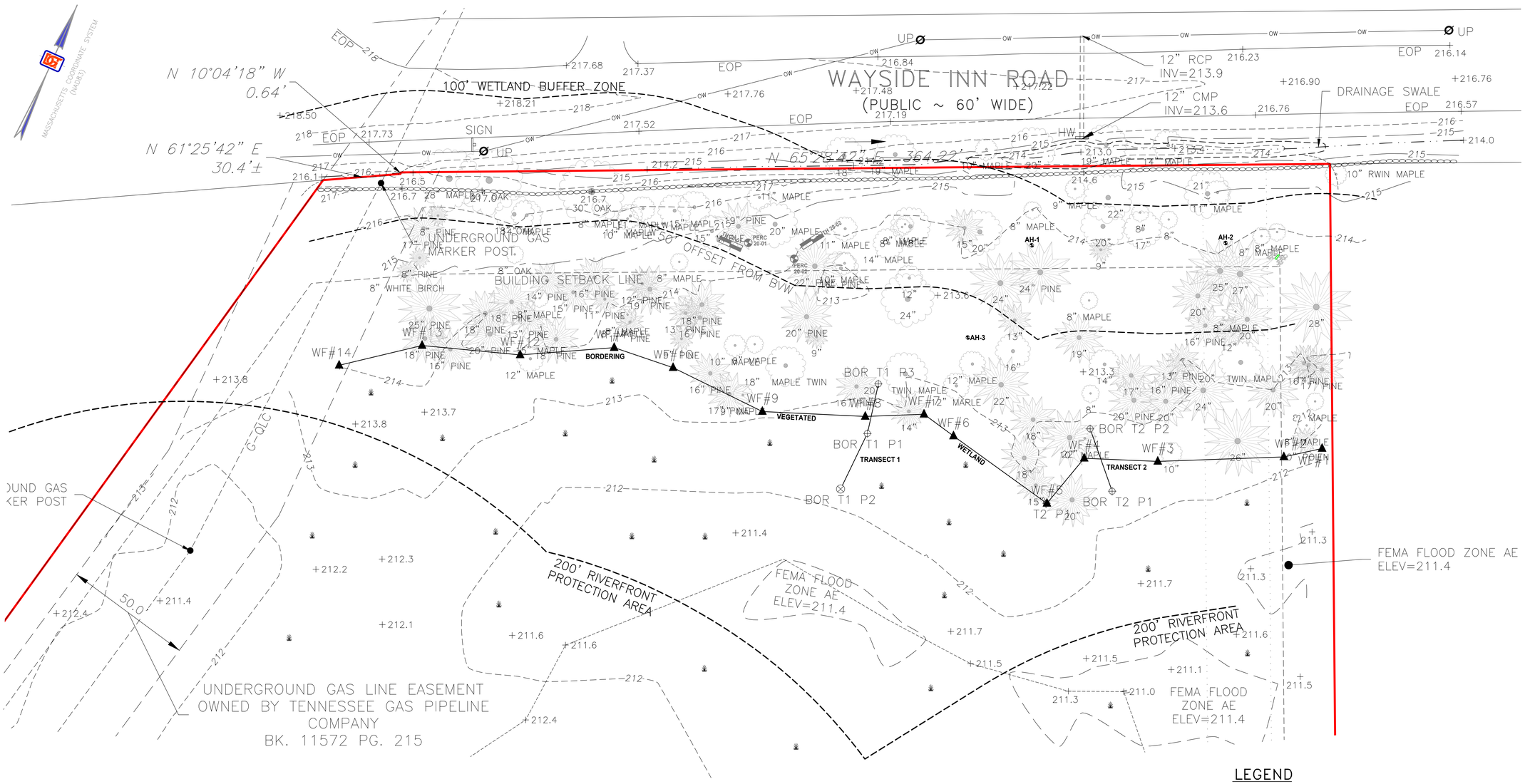
TITLE SHEET

SHEET: **1 OF 6**

PROJECT NO.: **25052**

C-1

G:\Carlson Jobs\25052\Dwg\25052-Eng-Wp.dwg



NOTES

	ASSESSOR'S PARCEL	RECORD OWNER	DEED
1.	L01–0002	GUNTHER H. RUDENBERG	BK. 7807 PG. 267
	L02–0003	GUNTHER H. RUDENBERG	BK. 49650 PG. 379
	L02–0013	GUNTHER H. RUDENBERG	BK. 49650 PG. 379

2. ELEVATIONS REFER TO THE NAVD88 DATUM, DETERMINED BY GPS OBSERVATIONS USING GEOID 12B.
3. THIS PARCEL FALLS WITHIN ZONING DISTRICT WAYSIDE IN HISTORIC PRESERVATION (WI) AND ALSO WITHIN THE WATER RESOURCE PROTECTION DISTRICT ZONE III.
4. OWNERS OF ADJOINING PROPERTIES ARE ACCORDING TO CURRENT ASSESSOR'S RECORDS.
5. SEE MIDDLESEX SOUTH DISTRICT REGISTRY OF DEEDS FOR RECORD DOCUMENTS.
6. TOPOGRAPHIC FEATURES, SITE DETAILS AND SIGNIFICANT IMPROVEMENTS DEPICTED HEREON, WERE OBTAINED FROM A FIELD SURVEY CONDUCTED BY DGT ASSOCIATES DURING APRIL 2020.
7. THIS TOPOGRAPHIC SURVEY BY DGT ASSOCIATES WAS PREPARED TO MEET NATIONAL MAP ACCURACY STANDARDS AT A SCALE OF 1"=20' HORIZONTALLY AND A 1 FOOT CONTOUR INTERVAL VERTICALLY. ANY REPRODUCTIONS OR RESCALING MAY AFFECT THE MAP ACCURACY.
8. WETLAND FLAGGING WAS CONDUCTED ON MARCH 12, 2020 BY FREDRIC KING OF DGT ASSOCIATES, INC. 1071 WORCESTER ROAD, FRAMINGHAM, MA 01701.
9. THIS PARCEL LIES IN ZONE "X–UNSHADED" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AND ZONE AE (SPECIAL FLOOD HAZARD AREA WITH A 1% ANNUAL CHANCE OF FLOODING) AT ELEVATION 211.4 AS DETERMINED BY TOPOGRAPHIC SURVEY AND COMPARISON TO THE FLOOD PROFILE DATA CONTAINED IN FEMA FLOOD INSURANCE STUDY NUMBER 25017CV001C DATED JULY 6, 2016.
10. LEGAL STATUS OF EASEMENTS, WAYS, AND RESTRICTIONS NOT DETERMINED BY THIS SURVEY.
11. LOCATION OF UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON FIELD LOCATION OF VISIBLE STRUCTURES AND COMPILING INFORMATION FROM UTILITY RECORDS. THE LOCATION SHOWN SHALL BE CONSIDERED APPROXIMATE. BEFORE ANY CONSTRUCTION, THE LOCATION OF UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR IN ACCORDANCE WITH CH. 82, SEC. 40 AS AMENDED, ALL UTILITY COMPANIES AND APPLICABLE GOVERNMENT AGENCIES MUST BE CONTACTED CONTACT "DIG–SAFE" AT 1–888–344–7233 OR 811.
12. THE LOCATION OF THE TOWN LINE, AND THEREFORE THE WESTERLY LOT LINE OF LOCUS, IS TAKEN FROM THE CALCULATED POSITIONS OF THE TOWN CORNERS PROVIDED BY THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION. THESE TOWN CORNER POSITIONS ARE APPROXIMATE ONLY, AND SHOULD NOT BE USED FOR PRECISE POSITIONING.
13. THIS PLAN SHEET SHOWS THE EXISTING CONDITIONS AT THE NORTH PORTION OF THE SITE. ALL EXISTING TREES 8" DBH AND LARGER ARE SHOWN WITHIN THE UPLAND AREA OF THE SITE, NORTH OF THE WETLAND LINE. THIS INCLUDES THE AREA WITHIN THE ROAD RIGHT OF WAY ON THE SOUTH SIDE OF THE ROAD. EXISTING TREES SOUTH OF THE WETLAND LINE ARE NOT SHOWN.

PLAN REFERENCES

1. PLAN 1650 OF 1951
2. PLAN 1204 OF 1958
3. PLAN 1621 OF 1958
4. PLAN 1897 OF 1960
5. PLAN 495 OF 1968
6. PLAN 690 OF 1974
7. 1897 STATE HIGHWAY LAYOUT OF BOSTON AND WORCESTER STAGE ROAD (LAYOUT NO. 257)
8. 1897 STATE HIGHWAY LAYOUT OF NORTHBOROUGH ROAD (LAYOUT NO. 260)
9. 1930 STATE HIGHWAY DISCONTINUANCE OF BOSTON POST ROAD (LAYOUT NO. 2675)
10. 1930 STATE HIGHWAY DISCONTINUANCE OF BOSTON POST ROAD (LAYOUT NO. 2676)

LEGEND

100	EXISTING CONTOUR ELEVATION
B.M.	BENCH MARK
BOR	BORING
BP	BOLLARD OR GUARD POST
EOP	EDGE OF PAVEMENT
HW	HEAD WALL
MAHW#3	MEAN ANNUAL HIGH WATER FLAG
	SIGN
+125.3	SPOT ELEVATION
TH 20–	SOIL TEST HOLE
PERC 20–	PERCOLATION TEST
T1 P1	WETLAND TRANSECT BORING
UP	UTILITY POLE
W/	WITH
WF#2	WETLAND FLAG
	STONEWALL
OW	OVERHEAD WIRE
8"	EXISTING DECIDIOUS TREE W/ DBH
8"	EXISTING CONIFER TREE W/ DBH

BOUNDARY MONUMENTS OR MARKERS

(F)		FOUND
(S)		SET
CBDH	■	CONCRETE BOUND WITH DRILL HOLE
CBND	■	CONCRETE BOUND
DH	○	DRILL HOLE
SBDH	■	STONE BOUND WITH DRILL HOLE
SBND	■	STONE BOUND
SSM	●	STEEL SURVEY MARKER

20 0 10 20 40 80

SCALE: 1" = 20'

DGT Associates
Surveying & Engineering

Framingham
Boston ● Worcester

1071 Worcester Road
Framingham, MA 01701
508-879-0030

www.DGTassociates.com

ASSESSORS PARCEL:
L01-0002
L02-0003
L02-0013

RECORD OWNER AND APPLICANT:
H. GUNTHER RUDENBERG ESTATE
ELIZABETH RUDENBERG P.R.
249 FORESIDE ROAD
FALMOUTH, MAINE 04105

COMMONWEALTH OF MASSACHUSETTS
FREDRIC W. KING
No. 38089
CIVIL
REGISTERED PROFESSIONAL ENGINEER

NO.	APP	DATE	DESCRIPTION

DATE: **AUGUST 8, 2022**

SCALE: **1" = 20'**

DESIGN:	DRAFTED:	CHECKED:
FWK	**LTV/FJS**	**FWK**

PROJECT TITLE:

PROPOSED RESIDENTIAL SITE PLAN

219* WAYSIDE INN ROAD
SUDBURY, MA 01776
***ADDRESS NUMBER NOT OFFICIAL**

SHEET TITLE:

EXISTING CONDITIONS PLAN

SHEET: **2 OF 6**

PROJECT NO.: **25052**

C-2

G:\Carlson Jobs\25052\Dwg\25052-Eng-Wo.dwg

EROSION & SEDIMENT CONTROL NOTES & PERFORMANCE STANDARDS

1. CONSTRUCTION PERIOD EROSION AND SEDIMENT CONTROL

1.1 THE PURPOSE OF THE CONSTRUCTION PERIOD EROSION AND SEDIMENT CONTROL PLAN IS TO MINIMIZE THE INTRODUCTION OF SEDIMENTS ONTO PUBLIC RIGHT OF WAYS, WETLAND RESOURCE AREAS, ABUTTING PROPERTIES, AND TO POST–DEVELOPMENT STORMWATER BMP'S RESULTING FROM THE LAND DISTURBANCE ACTIVITIES DURING CONSTRUCTION.

1.2 THE EROSION AND SEDIMENT CONTROL NOTES AND PERFORMANCE STANDARDS LISTED ON THIS SHEET SHALL BE IMPLEMENTED.

1.3 INSPECTIONS SHALL BE CONDUCTED BY THE GENERAL CONTRACTOR ON A WEEKLY BASIS, OR FOLLOWING SIGNIFICANT STORM EVENTS (RAINFALL OF 0.5" OR MORE) THAT CAN AFFECT THE EROSION AND SEDIMENT CONTROL PRACTICES IMPLEMENTED AT THE SITE. THE PURPOSE OF THE INSPECTIONS IS TO EVALUATE THE EFFECTIVENESS OF THE CONTROLS AND ANY REQUIRED MAINTENANCE ACTIVITIES. IF AN EROSION/SEDIMENT CONTROL MEASURE IS FOUND TO BE INADEQUATE FOR PROPERLY CONTROLLING SEDIMENT, AN ADEQUATE MEASURE SHALL BE DESIGNED AND IMPLEMENTED. A COPY OF THE WRITTEN INSPECTIONS SHALL BE KEPT ON FILE AT THE CONSTRUCTION SITE.

1.4 DURING CONSTRUCTION, PROPOSED STORMWATER MANAGEMENT STRUCTURES SHALL BE PROTECTED FROM SEDIMENT. ALL PROPOSED NEW STORMWATER MANAGEMENT FEATURES THAT INFILTRATE RUNOFF ARE PARTICULARLY SENSITIVE TO DAMAGE BY SEDIMENT. INFILTRATION TECHNOLOGIES ARE NOT DESIGNED TO HANDLE THE HIGH CONCENTRATIONS OF SEDIMENTS TYPICALLY FOUND IN CONSTRUCTION SITE RUNOFF, AND MUST BE PROTECTED FROM CONSTRUCTION RELATED SEDIMENT LOADINGS. SITE RUNOFF FROM UNSTABILIZED AREAS SHALL NOT BE DISCHARGED INTO THE PROPOSED INFILTRATION SYSTEMS UNTIL THE TRIBUTARY DRAINAGE AREA IS STABLE OR THE RUNOFF IS TREATED TO BE ESSENTIALLY FREE FROM SEDIMENT TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL PROVIDE TEMPORARY BY–PASS SYSTEMS AS NECESSARY TO PREVENT CONSTRUCTION SITE RUNOFF FROM ENTERING THE INFILTRATION SYSTEMS. THE INFILTRATION SYSTEMS SHALL REMAIN OFF–LINE AND PROTECTED. CLEAN ROOF RUNOFF MAY DISCHARGE INTO THE INFILTRATION SYSTEMS IF IT IS PIPED DIRECTLY TO THE SYSTEM AND NOT DIRECTED OVER DISTURBED AREAS.

1.5 NO STOCKPILING IS ALLOWED WITHIN THE FOOTPRINT OF THE PROPOSED INFILTRATION SYSTEM OR THE FOOTPRINT OF THE PROPOSED SOIL ABSORPTION FIELD. CONTRACTOR IS TO LOCATE AND STAKE THE PROPOSED AREAS FOR THESE SYSTEMS PRIOR TO THE START OF CONSTRUCTION.

1.6 NO PARKING IS ALLOWED OVER THE FOOTPRINT OF THE PROPOSED SOIL ABSORPTION SYSTEM AT ANYTIME DURING THE CONSTRUCTION PROCESS.

2. GENERAL PERFORMANCE STANDARDS

2.1 THE CONTRACTOR SHALL INSTALL, ROUTINELY INSPECT, AND MAINTAIN ALL EROSION AND SEDIMENT CONTROLS SUCH THAT THEY ARE IN PROPER WORKING ORDER DURING THE CONSTRUCTION PROJECT UNTIL SUCH TIME AS ALL AREAS OF THE SITE TRIBUTARY TO THOSE CONTROLS ARE IN A PERMANENTLY STABILIZED CONDITION.

2.2 THE CONTRACTOR SHALL MANAGE THE SITE SUCH THAT EROSION AND SEDIMENT FROM RUNOFF AND WIND BLOWN DUST ARE CONTROLLED AND ALWAYS MINIMIZED. THE CONTROLS SHOWN ON THIS PLAN INCLUDE THE INITIAL SETUP AND BASIC INFORMATION. TO MEET THE REQUIREMENT OF BEST MANAGEMENT PRACTICES, THE CONTRACTOR MUST MANAGE THE SITE PROPERLY WHICH MAY INCLUDE, BUT NOT BE LIMITED TO: MINIMIZING AREAS OF EXPOSED SOILS; INSTALLING TEMPORARY COVER; MAKE NECESSARY ADJUSTMENTS TO THE EROSION CONTROL INSTALLATIONS TO IMPROVE FUNCTION; PROVIDE TEMPORARY SEDIMENT BASINS; INSTALL ADDITIONAL EROSION CONTROLS WHERE NECESSARY.

2.3 DESIGN, INSTALLATION AND MAINTENANCE OF SEDIMENT AND EROSION CONTROLS SHALL BE IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES FOLLOWING THE GUIDELINES INCLUDED IN THE FOLLOWING:

- "STORMWATER MANAGEMENT FOR CONSTRUCTION ACTIVITIES, DEVELOPING POLLUTION PREVENTION PLANS AND BEST MANAGEMENT PRACTICES" U.S. ENVIRONMENTAL PROTECTION AGENCY, OCTOBER 1992.
- "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS, A GUIDE FOR PLANNERS, DESIGNERS AND MUNICIPAL OFFICIALS", MASS. EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS, MAY 2003.
- U.S.D.A. NATURAL RESOURCES AND CONSERVATION SERVICES (NRCS) GUIDELINES.

2.4 THE EROSION CONTROL WORK SHOWN ON THIS PLAN MAY ALSO BE SUBJECT TO PERMITS AND APPROVALS BY OTHER STATE AND LOCAL AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE CONDITIONS AND REQUIREMENTS OF THOSE PERMITS AND APPROVALS.

3. FEDERAL NPDES PHASE II COMPLIANCE

3.1 THIS PROJECT IS NOT SUBJECT TO THE FEDERAL CLEAN WATER ACT REQUIREMENTS FOR CONSTRUCTION SITES ADMINISTERED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA).

4. PERIMETER EROSION CONTROL BARRIER AND LIMIT OF WORK

4.1 PRIOR TO ANY DISTURBANCE OR ALTERATIONS OF ANY AREA ON THE SITE, A SEDIMENT BARRIER SHALL BE INSTALLED IN THE LOCATIONS SHOWN ON THE PLAN.

4.2 INSTALL THE FIBER LOGS IN THE LOCATIONS AS SHOWN ON THE PLANS. IN THOSE AREAS WHERE THE TOPOGRAPHY INDICATES THAT STORMWATER RUNOFF WILL BE CONCENTRATED (AT LOW POINTS), ADDITIONAL FIBER LOGS OR SILT FENCES AS NECESSARY SHALL BE STAKED ON THE UPGRADIENT SIDE OF THE BARRIER FOR ADDED FILTRATION AND PROTECTION. THE REQUIRED LOCATIONS FOR THE ADDED BARRIER INSTALLATION WILL BE SELECTED BY THE ENGINEER AND / OR THE AUTHORIZED INSPECTOR UPON COMPLETION OF THE PERIMETER EROSION CONTROL INSTALLATION.

4.3 ONCE INSTALLED, THE EROSION CONTROL BARRIER SHALL BE MAINTAINED IN PLACE UNTIL ALL AREAS UPGRADIENT FROM THE BARRIERS HAVE BEEN PERMANENTLY STABILIZED.

4.4 ALL DISTURBED AREAS NOT OTHERWISE DEVELOPED OR WHERE SPECIAL STABILIZATION MEASURES OR LANDSCAPE PLANTINGS ARE PROPOSED SHALL BE LOAMED AND SEEDED. SIX INCHES OF LOAM TOPSOIL (MIN. COMPACTED DEPTH) SHALL BE APPLIED UNLESS, OTHERWISE SPECIFIED.

4.5 THE PERIMETER EROSION CONTROL BARRIER IS ALSO A LIMIT OF WORK. ALL AREAS OUTSIDE THE LIMIT ARE TO BE LEFT UNDISTURBED. DURING THE SITE WORK, ALL PERSONS AND EQUIPMENT SHALL STAY OUT OF THESE AREAS TO PRESERVE THE EXISTING VEGETATION AND SOIL COVER.

5.0 CONSTRUCTION ENTRANCE

5.1 AT THE START OF SITE WORK, A STONE CONSTRUCTION ENTRANCE SHALL BE INSTALLED AT THE ACCESS TO THE SITE FROM THE ROADWAY TO CONTROL THE TRACKING OF MUD OFF THE SITE. THE ENTRANCE SHALL BE MAINTAINED UNTIL THE SITE IS IN A STABILIZED CONDITION WHEN THE POSSIBILITY OF VEHICLES TRACKING MUD OFF SITE HAS BEEN ELIMINATED. PRIOR TO INSTALLATION OF THE STONE CONSTRUCTION ENTRANCE, A TEMPORARY CULVERT AND PRELIMINARY DRIVEWAY SHALL BE INSTALLED AS SHOWN. ALTERNATIVELY, THE PERMANENT OPEN BOX CULVERT AND DRIVEWAY WORK MAY BE INSTALLED FIRST AND FILL INSTALLED TO PROVIDE THE ACCESS WAY. INSTALL THE STONE CONSTRUCTION ENTRANCE ON THAT PREPARED DRIVEWAY SURFACE.

5.2 THE CONTRACTOR SHALL SWEEP THE ADJACENT ROADWAYS WHEN MUD, DUST, DIRT, DEBRIS, ETC. HAS SHOWN SIGNS OF BUILDUP ON THE ROADWAYS EXITING THE SITE. THE CONTRACTOR SHALL PAY PARTICULAR ATTENTION TO THIS MATTER AND IMMEDIATE ATTENTION IS ALWAYS REQUIRED.

6.0 DEWATERING OF EXCAVATIONS

6.1 DISCHARGE FROM DEWATERING PUMPS OR TEMPORARY TRENCH OR EXCAVATION DRAINS SHALL NOT BE DISCHARGED DIRECTLY TO THE ON–SITE DRAINAGE SYSTEM. DISCHARGES SHALL BE DIRECTED TO A TREATMENT SYSTEM CONSISTING OF A SEDIMENT BASIN, STRAW BALE SEDIMENT BASIN, FILTER BAG SYSTEM OR OTHER APPROVED METHOD TO FILTER THE DISCHARGE WATER AND PREVENT EROSION.

7.0 SOIL STOCKPILES

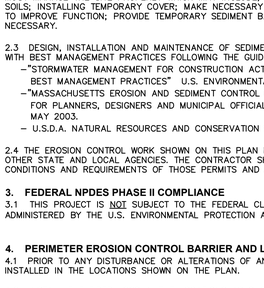
7.1 STOCKPILES OF SOIL MATERIALS SHALL BE PLACED WITHIN AREAS THAT ARE PROTECTED BY PERIMETER EROSION CONTROLS, OR SHALL BE SURROUNDED BY PROPER SILT FENCING, FIBER LOGS, OR STAKED STRAW BALES.

7.2 STOCKPILES THAT ARE TO BE IN PLACE FOR EXTENDED PERIODS OF TIME (MORE THAN 30 DAYS) SHALL BE COVERED OR OTHERWISE TEMPORARILY STABILIZED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.

8.0 DUST CONTROL

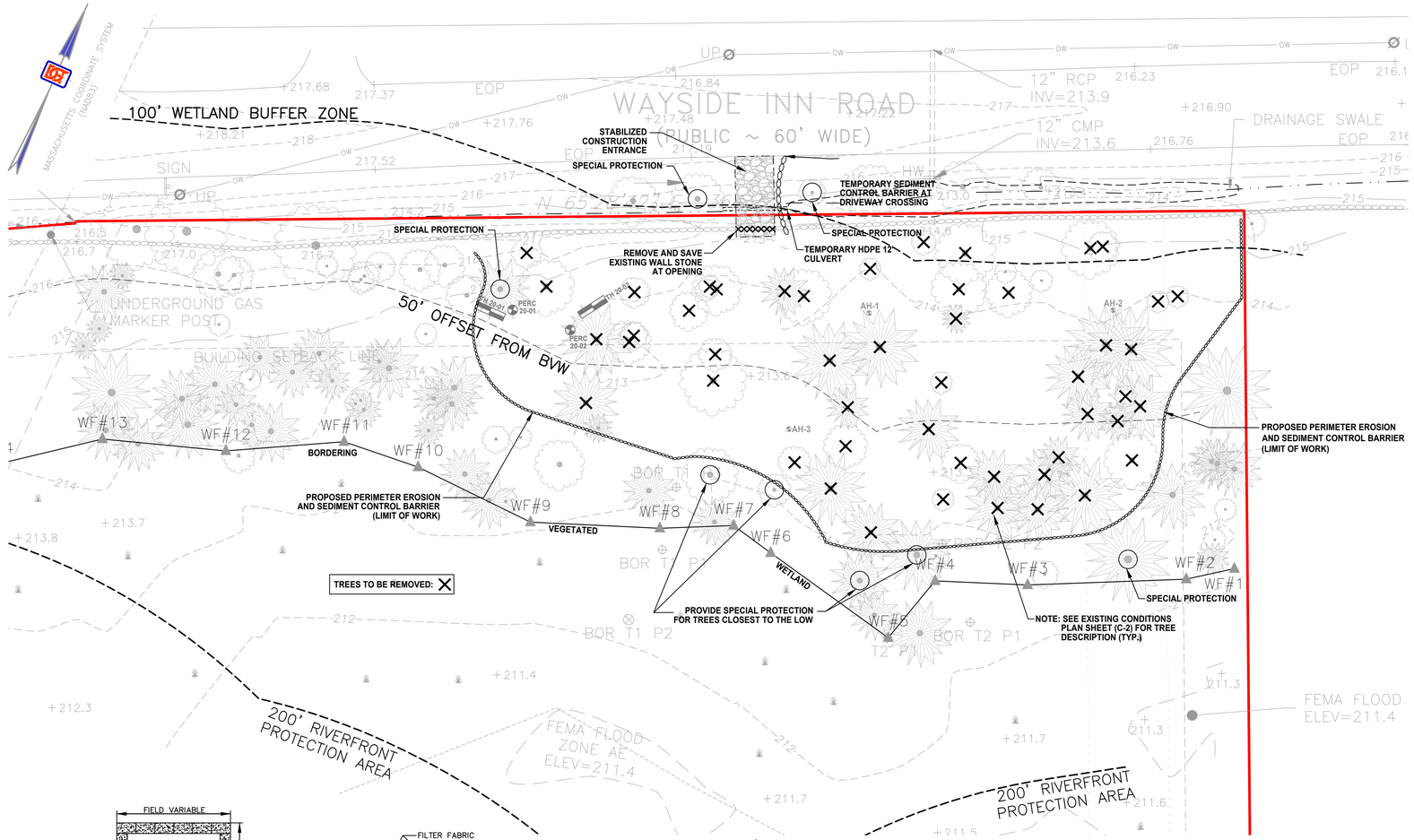
8.1 THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES DURING SITE WORK TO MINIMIZE WIND BLOWN DUST FROM EXPOSED SOIL SURFACES. MEASURES INCLUDE BUT ARE NOT LIMITED TO:

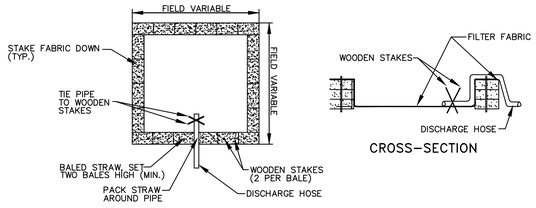
– SPRINKLING WATER ON EXPOSED SURFACES
– APPLICATION OF TEMPORARY COVER SUCH AS HYDRO MULCH AND TACKIFIER, STRAW MATTING, JUTE NETTING ETC.



PERIMETER EROSION CONTROLS STAKED FIBER LOG AND SILT FENCE SEDIMENT BARRIER DETAIL

(NO SCALE)



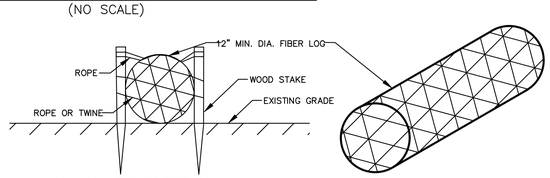


NOTE: NUMBER OF BALES MAY VARY DEPENDING ON SITE CONDITIONS

DEWATERING OF EXCAVATIONS NOTES:
1. DISCHARGE FROM DEWATERING PUMPS OR TEMPORARY TRENCH OR EXCAVATION DRAINS SHALL NOT DISCHARGE DIRECTLY TO STORM DRAIN SYSTEMS OR SEWAGE DISPOSAL SYSTEM. THE DISCHARGES SHALL BE DIRECTED INTO A CONSTRUCTED SEDIMENT BASIN OR A STRAW BALE SETTLING BASIN, STILLING BASIN, FILTER BAG, FRAC TANK OR SIMILAR DEVICE.

STRAW BALE SETTLING BASIN DETAIL

(NO SCALE)

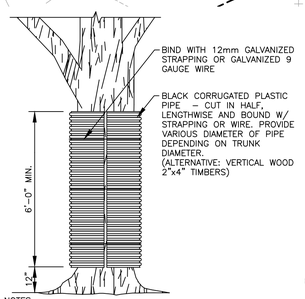


INSTALLATION NOTES FOR FIBER LOGS:

1. LAY THE FIBER LOG AT THE UPHILL BASE OF THE SILT FENCE (WHERE APPLICABLE).
2. INSTALL APPROXIMATELY 4–6 WOOD STAKES THROUGH THE TWINE/NETTING ALONG THE FIBER LOG AS NEEDED TO HOLD THE LOG IN PLACE.
3. DRIVE THE STAKE INTO THE GROUND DEEP ENOUGH TO HOLD THE LOG.
4. IN PAVED AREAS SECURE FIBER LOG WITH CONCRETE BLOCKS OR SAND BAGS.
5. FIBER FILL SHALL BE COMPOST

FIBER LOG DETAIL

(NO SCALE)

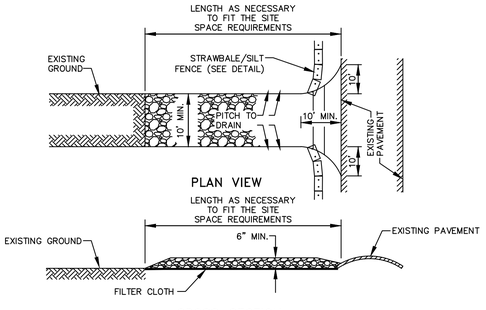


NOTES:

PROTECT ALL TREES AS DIRECTED BY THE ENGINEER.

TREE PROTECTION DETAIL

(NO SCALE)



CONSTRUCTION SPECIFICATIONS:

1. STONE SIZE – USE 2" TO 4" WASHED, ANGULAR STONE
2. THICKNESS – NOT LESS THAN SIX (6) INCHES.
3. WIDTH – TEN (10) FEET MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
4. FILTER CLOTH – SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
5. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF WAY MUST BE REMOVED IMMEDIATELY.
6. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

(NO SCALE)

20 0 10 20 40 80

SCALE: 1" = 20'

DGT Associates
Surveying & Engineering

Framingham
Boston • Worcester

1071 Worcester Road
Framingham, MA 01701
508-879-0030

www.DGTassociates.com

ASSESSORS PARCEL:

L01-0002
L02-0013

RECORD OWNER AND APPLICANT:
H. GUNTHER RUDENBERG ESTATE
ELIZABETH RUDENBERG P.R.
249 FORESIDE ROAD
FALMOUTH, MAINE 04105

COMMONWEALTH OF MASSACHUSETTS
FREDRIC W. KING
No. 38089
CIVIL
REGISTERED PROFESSIONAL ENGINEER

NO.	APP	DATE	DESCRIPTION

DATE: **AUGUST 8, 2022**

SCALE: **AS NOTED**

DESIGN:	DRAFTED:	CHECKED:
FWK	**LTV/FJS**	**FWK**

PROJECT TITLE:

PROPOSED RESIDENTIAL SITE PLAN

219* WAYSIDE INN ROAD
SUDBURY, MA 01776
***ADDRESS NUMBER NOT OFFICIAL**

SHEET TITLE:

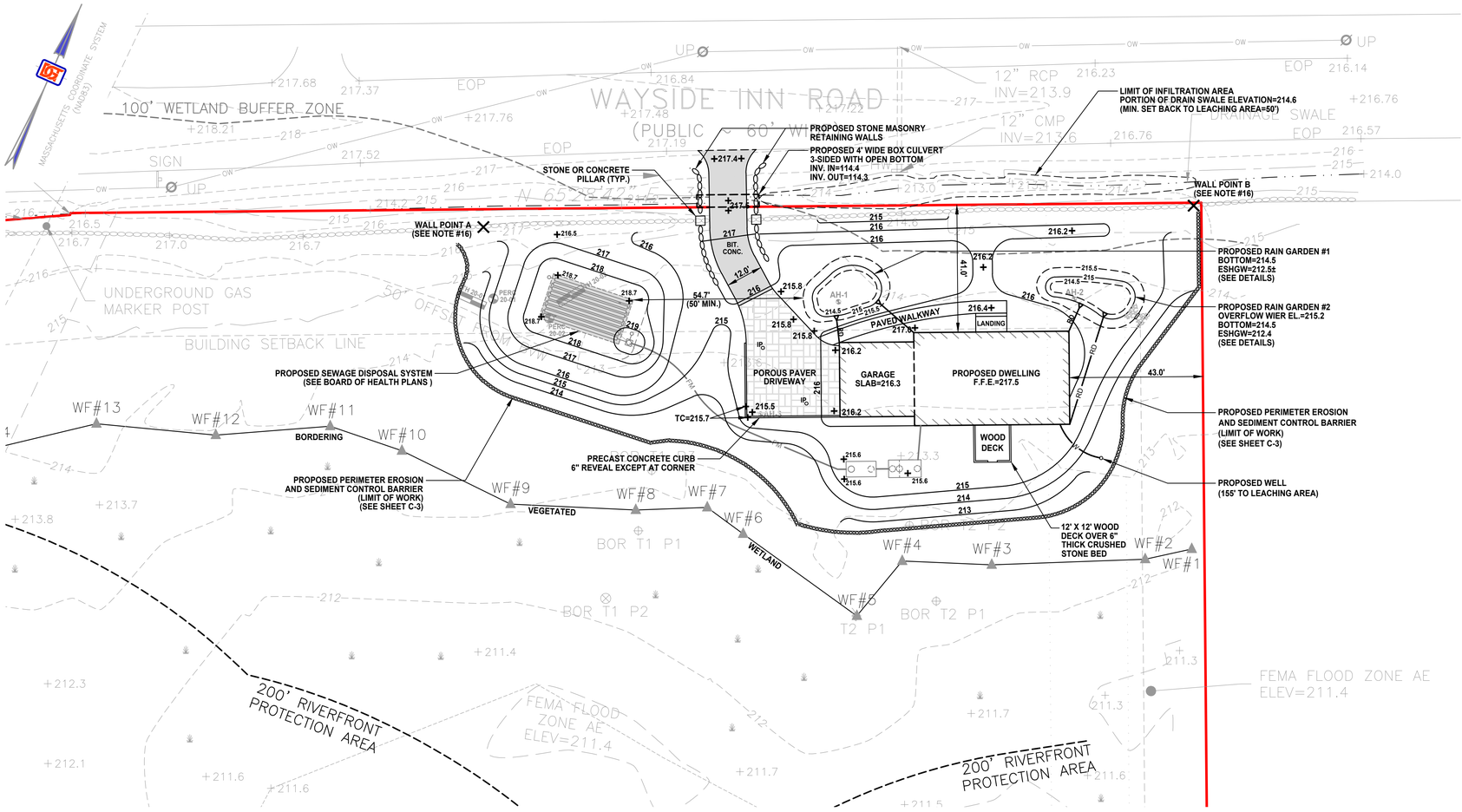
EROSION & SEDIMENT CONTROL, NOTES, AND SITE CLEARING PLAN

SHEET: **3 OF 6**

PROJECT NO.: **25052**

C-3

G:\Carlson Jobs\25052\dwg\25052-Erg-Wy.dwg



GENERAL NOTES

1. SEE SHEET C–2 FOR EXISTING CONDITIONS NOTES AND INFORMATION.
2. THE CONTRACTOR SHALL VERIFY THE LOCATION AND RELATIVE ELEVATION OF THE BENCHMARKS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER.
3. IN CASES WHERE LEDGE, BURIED FOUNDATIONS OR BOULDERS ARE PRESENT, DGT ASSOCIATES SHALL NOT BE RESPONSIBLE FOR THE AMOUNT OF ROCK OR CONCRETE ENCOUNTERED.
4. DGT ASSOCIATES SHALL BE NOTIFIED OF ANY SIGNIFICANT DIFFERENCES IN THE EXISTING CONDITIONS OR UTILITIES THAT MAY AFFECT THE CONSTRUCTION SHOWN ON THIS PLAN FOR ANY NECESSARY PLAN REVISIONS.
5. THIS PLAN IS NOT INTENDED TO SHOW AN ENGINEERED BUILDING FOUNDATION DESIGN WHICH WOULD INCLUDE DETAILS AND ELEVATIONS FOR FOOTINGS, FOUNDATION WALL DESIGN. COORDINATE WITH THE ARCHITECTURAL AND STRUCTURAL PLANS.
6. THE PROPOSED BUILDING CONFIGURATION AS SHOWN HEREON SHALL BE CONSIDERED CONCEPTUAL AND SHALL BE VERIFIED WITH THE FINAL ARCHITECTURAL PLANS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AND/OR REPLACEMENT OF ANY EXISTING FEATURES DAMAGED DURING CONSTRUCTION THAT ARE NOT INTENDED FOR DEMOLITION AND/OR REMOVAL HEREON.
8. SAFETY MEASURES, CONSTRUCTION METHODS AND CONTROL OF WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
9. THE CONTRACTOR SHALL MAINTAIN A PASSABLE ROADWAY (WAYSIDE INN ROAD) AT ALL TIMES FOR PEDESTRIAN AND VEHICULAR TRAFFIC.
10. RIM ELEVATIONS SHOWN HEREON FOR NEW STRUCTURES ARE PROVIDED TO ASSIST THE CONTRACTOR WITH MATERIAL TAKEOFFS. FINAL RIM ELEVATIONS SHALL MATCH PAVEMENT, GRADING, LANDSCAPING, UNLESS SPECIFICALLY INDICATED OTHERWISE.
11. PERIMETER ROOF DRAIN LEADERS ARE TO BE 6" HDPE (ADS–12, DOUBLE WALL).
12. WHERE NEW PAVING MEETS EXISTING PAVING, MEET LINE AND GRADE OF EXISTING.
13. CONSTRUCTION ACTIVITIES SHALL CONFORM TO THE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
14. ALL WATER, AND SEWER WORK OUTSIDE OF THE BUILDING SHALL BE PERFORMED BY A CONTRACTOR QUALIFIED TO PERFORM THE WORK IN THE TOWN OF SUDBURY. UTILITY WORK SHALL BE IN COMPLIANCE WITH THE TOWN OF SUDBURY CONSTRUCTION STANDARDS.
15. FOR INFORMATION ON THE PROPOSED SEPTIC SYSTEM, SEE SEPARATE PLAN ENTITLED "PROPOSED SEWAGE DISPOSAL SYSTEM" DATED REVISED 11/10/2021, DGT ASSOCIATES.
16. FRONT STONE WALL: REPAIR AND REALIGN EXISTING STONE WALL FOR A UNIFORM APPEARANCE AT THE FRONT OF THE SITE IN THE SAME LOCATION SHOWN ON THIS PLAN FROM WALL POINT "A" TO WALL POINT "B". STONES REMOVED FOR THE DRIVEWAY ARE TO BE SAVED AND USED IN THE DRIVEWAY BORDER.

LEGEND

EXISTING		PROPOSED
100	CONTOUR ELEVATION	100
	UNDERGROUND ROOF DRAIN LINE	RD
	UNDERGROUND WATER LINE	W
	UNDERGROUND SEWER FORCE MAIN	FM
OW	OVERHEAD WIRES	OW
UP	UTILITY POLE	
	ROOF DRAIN	RD
PERC	PERCOLATION TEST	
AH–#	AUGER HOLE	
TH–#	TEST PIT	
WF#	WETLAND FLAG	
+123.2	SPOT GRADE	+123.2
CONC.	CONCRETE	CONC.
BIT.	BITUMINOUS	BIT.
	TOP OF CURB ELEVATION	TC=0.0
	LANDSCAPE AREAS	LS
	CORRUGATED METAL PIPE	CMP
	HIGH DENSITY POLYETHYLENE	HDPE
EOP	EDGE OF PAVEMENT	
	FIRST FLOOR ELEVATION	F.F.E.
	REINFORCED CONCRETE PIPE	RCP
	INVERT	INV.
	POLYVINYL CHLORIDE	PVC
	MINIMUM	MIN.
	TYPICAL	TYP.
	ESTIMATED SEASON HIGH GROUNDWATER	ESHGW
	EROSION AND SEDIMENT CONTROL BARRIER	
	INSPECTION PORT	IP

20 0 10 20 40 80

SCALE: 1" = 20'

DGT Associates
Surveying & Engineering

Framingham
Boston ● Worcester

1071 Worcester Road
Framingham, MA 01701
508-879-0030

www.DGTassociates.com

ASSESSORS PARCEL:
L01-0002
L02-0013

RECORD OWNER AND APPLICANT:
H. GUNTHER RUDENBERG ESTATE
ELIZABETH RUDENBERG P.R.
249 FORESIDE ROAD
FALMOUTH, MAINE 04105

COMMONWEALTH OF MASSACHUSETTS
FREDRIC W. KING
No. 38089
CIVIL
REGISTERED PROFESSIONAL ENGINEER

NO.	APP	DATE	DESCRIPTION

DATE: **AUGUST 8, 2022**

SCALE: **1" = 20'**

DESIGN:	DRAFTED:	CHECKED:
FWK	**LTV/FJS**	**FWK**

PROJECT TITLE:

PROPOSED RESIDENTIAL SITE PLAN

219* WAYSIDE INN ROAD
SUDBURY, MA 01776
***ADDRESS NUMBER NOT OFFICIAL**

SHEET TITLE:

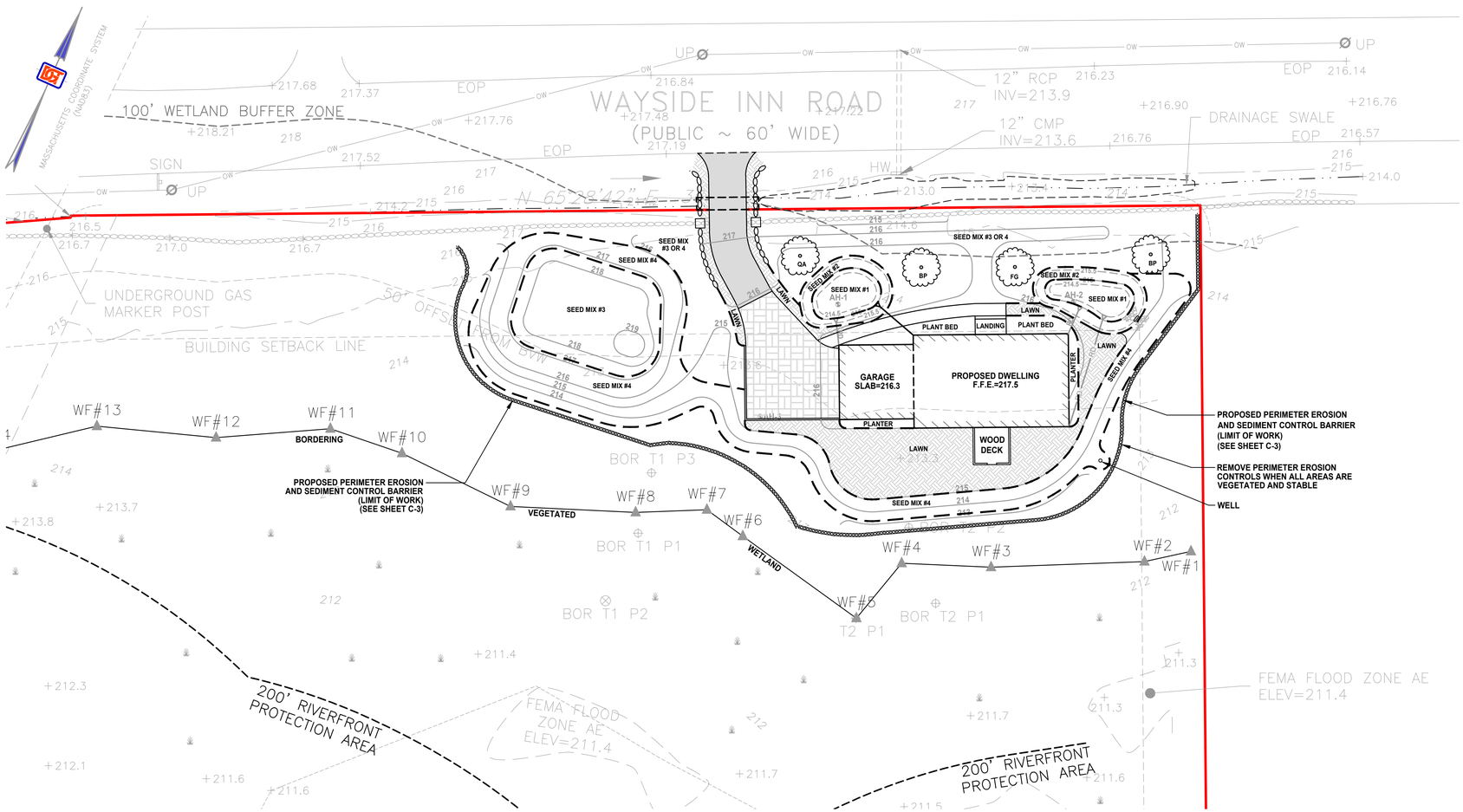
PROPOSED SITE PLAN

SHEET: **4 OF 6**

PROJECT NO.: **25052**

C-4

G:\Carlson Jobs\25052\Dwg\25052-Eng-Wp.dwg



SEED MIXES

#1 NEW ENGLAND WET MIX	WETLAND SPECIES FOR THE BOTTOM OF THE RAIN GARDEN
#2 NEW ENGLAND EROSION CONTROL–RESTORATION MIX FOR DETENTION BASIN AND MOIST SITE	FOR INSIDE SLOPES OF THE RAIN GARDEN ALONG WITH SHRUB PLANTING
#3 NEW ENGLAND SHOWY WILDFLOWER MIX	PROVIDE AN OPEN FLOWERING MEADOW
#4 NEW ENGLAND CONSERVATION WILDLIFE MIX	SLOPE STABILITY AND NO MAINTENANCE GROUND COVER FOR GENERAL AREA WITH SHRUB PLANTINGS AND FOR WILDLIFE HABITAT.

TREES

BP	PAPER BIRCH	BETULA PAPYRIFERA
FG	AMERICAN BEECH	FAGUS GRANDIFOLIA
QA	WHITE OAK	QUERCUS ALBA

TYPICAL UPLAND SHRUBS

KL	MOUNTAIN LAUREL	KALMIA LATIFOLIA
RM	ROSEBAY RHODODENDRON	RHODODENDRON MAXIMUM
RV	VIRGINIA ROSE	ROSA VIRGINIANA
CR	GRAY DOGWOOD	CORNUS RACEMOSA
HV	WITCH HAZEL	HAMAMELIS VIRGINIANA
AC	SERVICEBERRY	AMELANCHIER CANADENSIS
CA	AMERICAN HAZELNUT	CORYLUS AMERICANA
VA	MAPLE LEAVED VIBURNUM	VIBURNUM ACERIFOLIUM

SHRUBS FOR INSIDE SLOPE OF RAIN GARDEN

CAM	SILKY DOGWOOD	CORNUS AMOMUM
IV	WINTER BERRY HOLLY	ILEX VERTICILLATA
VC	HIGH BUSH BLUEBERRY	VACCINIUM CORYMBOSUM

PURPOSE

PLANTING NOTES

1. SHRUB PLANTING IN AREAS NOT TO BE MAINTAINED IN AN OPEN CONDITION
2. THE INTENT IS TO PROVIDE AN ATTRACTIVE MIX OF NATIVE SHRUBS TO FORM A TRANSITION BORDER WITH WILDLIFE HABITAT VALUE IN BETWEEN THE AREAS TO BE MAINTAINED IN OPEN (LAWN AND OPEN WILDFLOWERS) CONDITION AND THE SURROUNDING UNDISTURBED WOODLAND.
3. ALL SHRUBS AND TREE SPECIES ARE TO BE NATIVE SPECIES THAT GROW WELL IN UPLANDS AND WETLAND BUFFER.
4. IT IS RECOMMENDED THAT SHRUB PLANTINGS BE PLANT PLUGS OR ONE GALLON SIZE INSTALLED AT TWICE THE DESIRED DENSITY. THIS IS TO ENSURE SURVIVAL AT THE DESIRED DENSITY.

20 0 10 20 40 80

SCALE: 1" = 20'

DGT Associates
Surveying & Engineering

Framingham
Boston ● Worcester

1071 Worcester Road
Framingham, MA 01701
508-879-0030

www.DGTassociates.com

ASSESSORS PARCEL:
L01-0002
L02-0003
L02-0013

RECORD OWNER AND APPLICANT:
H. GUNTHER RUDENBERG ESTATE
ELIZABETH RUDENBERG P.R.
249 FORESIDE ROAD
FALMOUTH, MAINE 04105

COMMONWEALTH OF MASSACHUSETTS
FREDRIC W. KING
No. 38089
CIVIL
REGISTERED PROFESSIONAL ENGINEER

NO.	APP	DATE	DESCRIPTION

DATE: **AUGUST 8, 2022**

SCALE: **1" = 20'**

DESIGN:	DRAFTED:	CHECKED:
FWK	**LTV/FJS**	**FWK**

PROJECT TITLE:

PROPOSED RESIDENTIAL SITE PLAN

219* WAYSIDE INN ROAD
SUDBURY, MA 01776
***ADDRESS NUMBER NOT OFFICIAL**

SHEET TITLE:

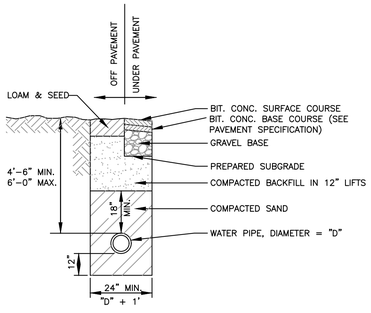
LANDSCAPE PLANTING SCHEME

SHEET: **5 OF 6**

PROJECT NO.: **25052**

C-5

G:\Contract Jobs\25052\Dwg\25052-Eng-Wp.dwg

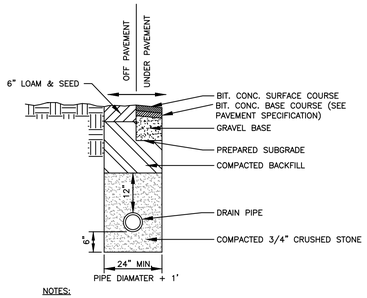


NOTES:

1. TRENCH BACKFILL SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS AS CONTAINED IN MASSACHUSETTS HIGHWAY DEPARTMENT; STANDARDS AND SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, 1988.

TYPICAL WATER PIPE BEDDING DETAIL

(NO SCALE)

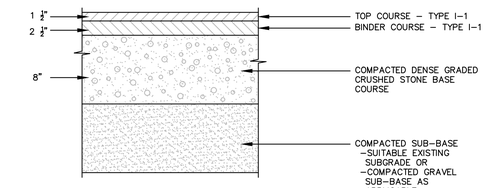


NOTES:

1. TRENCH BACKFILL SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS AS CONTAINED IN MASSACHUSETTS HIGHWAY DEPARTMENT; STANDARDS AND SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, 1988.

TYPICAL DRAIN PIPE BEDDING

(NO SCALE)

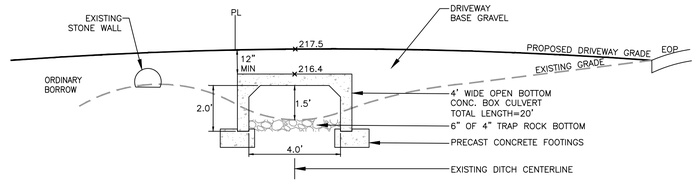


NOTES:

1. COMPACTED DENSE GRADED CRUSHED STONE BASE COURSE TO CONFORM TO MASS. HIGHWAY DEPT. SPEC. M 2.01.7
2. COMPACTED BORROW TO CONFORM TO MASS. HIGHWAY DEPT. SPEC. M 1.01.0 WITH NO STONES LARGER THAN 6 INCHES.
3. BITUMINOUS CONCRETE SHALL BE CLASS 1, TYPE 1-1.
4. AT AREAS OF LEDGE/BEDROCK, REMOVE LEDGE TO A DEPTH OF 18 INCHES MINIMUM BELOW PAVEMENT COURSE.
5. COMPACTED BASE TO EXTEND 12 INCHES MINIMUM BEYOND THE EDGE OF PAVEMENT.

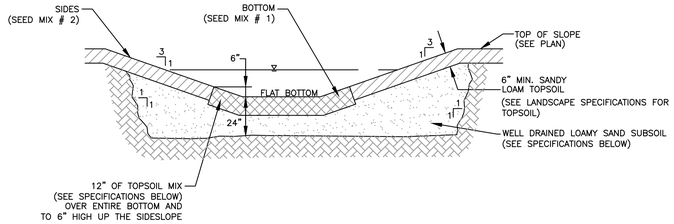
DRIVEWAY BITUMINOUS CONCRETE PAVEMENT

(NO SCALE)



CULVERT SECTION

(NO SCALE)



NOTES:

1. REMOVE EXISTING TOPSOIL AND SUBSOIL TO THE ELEVATION OF THE FINISHED SUBGRADE BELOW THE PROPOSED LOAM. IF THE NATURAL MATERIAL MEETS THE REQUIREMENTS FOR LOAMY SAND IN NOTE 2 BELOW, THE EXCAVATION IS NOT NECESSARY. OTHERWISE REMOVE THE UNSUITABLE SOIL TO THE DEPTHS SHOWN AND BACKFILL WITH THE MATERIAL PER NOTE 2.
2. LOAMY SAND SHALL CONSIST OF WELL DRAINING MINERAL SOIL CONSISTING OF 80 TO 90 PERCENT FINE TO MEDIUM SAND, AND 10 TO 20 PERCENT SILT AND CLAY WITH NOT MORE THAN 5 PERCENT CLAY. USDA TEXTURAL CLASS.
3. SEE LANDSCAPE PLANS FOR OTHER PLANTINGS.
4. RAIN GARDEN TOPSOIL MIX SHALL MEET THE FOLLOWING SPECIFICATIONS.
   A. THE ENGINEERED SOIL MIX FOR THE BOTTOM OF RAIN GARDEN SHOULD BE A MIXTURE OF 40% SAND, 20-30% TOPSOIL, AND 30-40% COMPOST.
   B. THE SOIL MIX MUST BE UNIFORM, FREE OF STONES, STUMPS, ROOTS OR SIMILAR OBJECTS LARGER THAN 2 INCHES. CLAY CONTENT SHOULD NOT EXCEED 5%.
   C. SOIL PH SHOULD GENERALLY BE BETWEEN 5.5-6.5, A RANGE THAT IS OPTIMAL FOR MICROBIAL ACTIVITY AND ADSORPTION OF NITROGEN, PHOSPHORUS, AND OTHER POLLUTANTS.
   D. USE SOILS WITH 1.5% TO 3% ORGANIC CONTENT AND MAXIMUM 500-PPM SOLUBLE SALTS.
   E. THE SAND COMPONENT SHOULD BE GRAVELY SAND THAT MEETS ASTM D 422.

SIEVE SIZE	PERCENT PASSING
2-INCH	100
3/4-INCH	70-100
¾-INCH	50-80
U.S. NO. 40	15-40
U.S. NO. 200	0-3

   F. THE TOPSOIL COMPONENT SHALL BE A SANDY LOAM, LOAMY SAND OR LOAM TEXTURE.
   G. THE COMPOST COMPONENT MUST BE PROCESSED FROM YARD WASTE IN ACCORDANCE WITH MASSDEP GUIDELINES (SEE HTTP://WWW.MASS.GOV/DEP/RECYCLE/REDUCE//LEAFGUID.DOC). THE COMPOST SHALL NOT CONTAIN BIOSOLIDS.
5. SHRUB PLANTINGS FOR THE RAIN GARDEN, IF DESIRED BY THE OWNER, SHALL BE WET-TOLERANT SPECIES THAT ARE NATIVE TO MASSACHUSETTS.

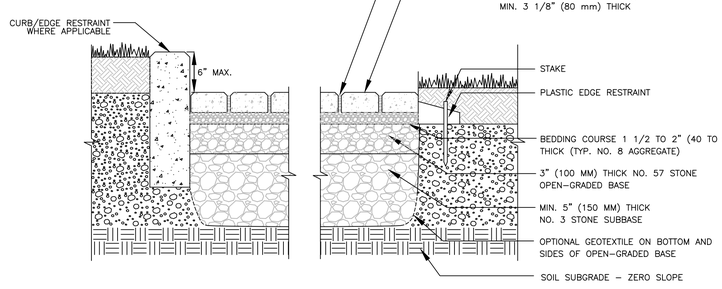
SEED MIX #1 – NEW ENGLAND WETLAND SEED MIX.

SEED MIX #2 – NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS.

NOTE THAT THE ABOVE SEED MIXES IDENTIFIED FOR USE ON THIS PROJECT ARE BY NEW ENGLAND WETLANDS PLANTS, INC. AND INDICATE THE PLANT SPECIES MIX AND INTENT OF FINISHED COVER. SEED MIXES BY OTHER PRODUCERS MEETING THE INTENT OF THE LISTED MIXES MAY BE USED IF APPROVED AS EQUAL BY THE LANDSCAPE ARCHITECT.

RAIN GARDEN #1 & #2 DETAIL

(NO SCALE)

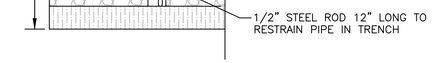


NOTES:

1. 2 3/8" (60 MM) THICK PAVERS MAY BE USED IN PEDESTRIAN APPLICATIONS.
2. STONE SIZES REFER TO ASTM/AASHTO STONE SIZES

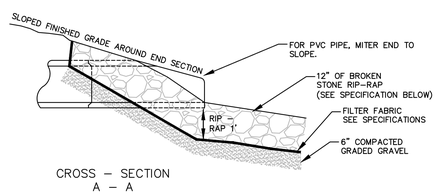
PERMEABLE PAVERS WITH FULL EXFILTRATION TO SOIL SUBGRADE DETAIL

(NO SCALE)

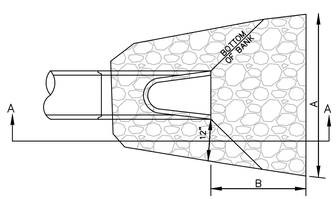


OBSERVATION WELL IN PERMABLE PAVER DRIVEWAY

(NO SCALE)



CROSS – SECTION
A – A



PLAN VIEW

PIPE SIZE (IN.)	A (MIN.)	B* (MIN.) SEE PLAN
6" OR LESS	4'	3'

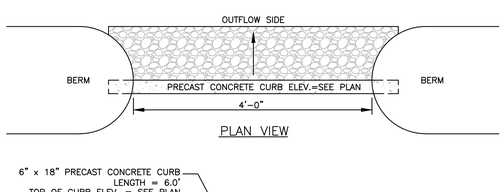
NOTE:

RIP-RAP SHALL CONSIST OF EVENLY GRADED 2" TO 4" ANGULAR BROKEN STONE, (AVG. STONE SIZE = 3") WITH A THICKNESS OF 12 INCHES. SIZE DESIGNATION REFERS TO MEAN SPHERICAL DIAMETER.

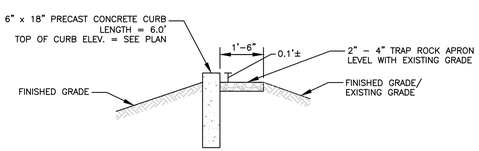
LENGTH OF RIP-RAP TO BE PER THIS DETAIL UNLESS OTHERWISE SHOWN ON THE PLANS.

PIPE END SECTION WITH RIP – RAP APRON

(NO SCALE)

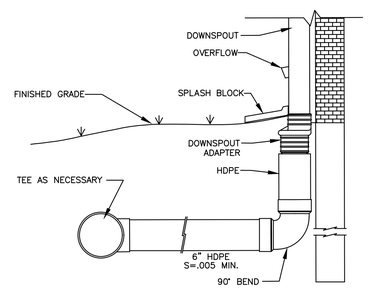


PLAN VIEW



OVERFLOW WEIR DETAIL

(NO SCALE)



ROOF DRAIN DETAIL

(NO SCALE)

20 0 10 20 40 80

SCALE: 1" = 20'

DGT Associates
Surveying & Engineering

Framingham
Boston ● Worcester

1071 Worcester Road
Framingham, MA 01701
508-879-0030

www.DGTassociates.com

ASSESSORS PARCEL:

L01-0002
L02-0003
L02-0013

RECORD OWNER AND APPLICANT:
H. GUNTHER RUDENBERG ESTATE
ELIZABETH RUDENBERG P.R.
249 FORESIDE ROAD
FALMOUTH, MAINE 04105

COMMONWEALTH OF MASSACHUSETTS
FREDRIC W. KING
No. 38089
CIVIL
REGISTERED PROFESSIONAL ENGINEER

NO.	APP	DATE	DESCRIPTION

DATE: **AUGUST 8, 2022**

SCALE: **AS NOTED**

DESIGN:	DRAFTED:	CHECKED:
FWK	**LTV/FJS**	**FWK**

PROJECT TITLE:

PROPOSED RESIDENTIAL SITE PLAN

219* WAYSIDE INN ROAD
SUDBURY, MA 01776
***ADDRESS NUMBER NOT OFFICIAL**

SHEET TITLE:

SITE DETAILS

SHEET: **6 OF 6**

PROJECT NO.: **25052**

C-6

G:\Carlson Jobs\25052\Dwg\25052-Eng-Wp.dwg