

Review of Abbreviated Notice of Resource Area Delineation (ANRAD)

0 School Street
Manchester-by-the-Sea, MA

January 12, 2021

Prepared for:

Town of Manchester-by-the-Sea
Conservation Commission
Town Hall
Manchester by the Sea MA 01944

DeRosa Environmental Consulting, Inc.
167 Main Street, PO Box 716, Rowley MA 01969



January 12, 2021

BY ELECTRONIC MAIL & HAND DELIVERY



Chris Bertoni, Conservation Administrator
Conservation Commission
Town of Manchester-by-the-Sea
10 Central Street
Manchester, MA 01944
978-526-4397

bertonic@manchester.ma.us

**RE: Review of Abbreviated Notice of Resource Area
Delineation (ANRAD) Submittal**

0 School Street | Manchester-by-the-Sea MA

MassDEP File No.: 039-0834

Dear Ms. Bertoni & Members of the Commission:

Our office reviewed documents associated with the Abbreviated Notice of Resource Area Delineation submitted by Allen and Majors Associates Inc, on behalf of SLV School Street LLC (the Applicant) for land located off School Street, Manchester-by-the-Sea, Massachusetts. The purpose of this review is to assess the jurisdiction of wetland resource areas that may be present as defined under the Massachusetts Wetlands Protection Act (MGL Ch. 131 Sec. 40) and its Regulations at 310 CMR 10.00, as well as the local wetland protection bylaw (Article XVII).

Summary of Findings

The following is a summary of our findings which are substantiated by the information presented in the following sections of and attachments to this letter report.

1. We agree with the boundary determinations presented by the Applicant and their representatives and as shown on the Existing Conditions Plan Sheet V-101 and V-102, revised December 22, 2020, for the following wetland resource areas:
 - a. Bordering Vegetated Wetland:
 - i. Series A Wetland
 - ii. Series B Wetland
 - b. 200-foot Riverfront Area associated with Sawmill Brook

2. Based on the presence of low chroma soils associated with the ravine in the southern portion of the site as discussed in the narrative of this report. Additional work may need to wait for Spring 2021 to allow the herbaceous plant community to present itself.
3. We suspect that at least two (2) of these wetland areas (Series A and Series B Wetlands) may function as vernal pool breeding habitat based on the presence of breeding amphibians on adjacent properties and the mapped polygons by NHESP for rare and endangered species (PH 1799 and PH 1805).
4. Based on these findings we suggest that additional study is required regarding the function and value of the Series A and Series B wetland areas as vernal pool breeding habitat and the function and value of the upland areas of the site for non-breeding season habitat.
5. We recommend that the Commission request the Applicant prepare a detailed vernal pool habitat investigation to document the presence/absence of vernal pool species on the parcel and assess the function and value of the wetland areas and upland areas for use by vernal pool breeding species to be implemented during the Spring 2021 vernal pool season.
6. We suggest that the Existing Conditions Plan Sheets V-101 and V-102 be updated based on comments regarding Riverfront Area nomenclature and the addition of local buffer zones as described in the narrative of this letter report.

The following report summarizes the details and compiles the evidence used to make the above recommendations.

Scope of Work

Our efforts were framed by the Scope of Work prepared by the Manchester-by-the-Sea Conservation Commission (the Commission) in its Request for Peer Review of the Abbreviated Notice of Resource Area Delineation (ANRAD), distributed by Chris Bertoni, the Conservation Administrator.

The following report intends to fulfill the intent of this scope of work. We have summarized our findings in the following narrative and site plans as well as in a collection of Annotated Photos (Appendix A).

Review of Documentation

We have received the following documents for review and comment:


1. ANRAD Supplemental Information, from Allen & Majors, dated December 23, 2020

2. Supplemental Documentation for ANRAD Peer Review, School Street, Manchester MA, by Goddard Consulting LLC, dated December 21, 2020
3. ANRAD Supplementation Information, by Allen & Major, dated November 20, 2020
4. Riverfront Wetland Border Report, by Goddard Consulting, LLC, dated November 16, 2020

MassDEP File Number

The MassDEP issued DEP File No. 307-0726 and they have not requested any additional information, at this point in time.

Mass.gov | Executive Office of Energy & Environmental Affairs (EEA)
An official application of the Commonwealth of Massachusetts


Energy & Environmental Affairs
Data Portal

HOME
DASHBOARDS
SEARCH DATA ▼
HELP ▼

Wetlands NOI Project Information

Related links
There are no related links for displayed element.

NOI Number ⓘ
039-0834

Filing Date ⓘ
09/29/2020

Project Type

Comments
WAITING FOR FEE.

Applicant Information
SLV SCHOOL STREET, LLC

Filing Type ⓘ
Anrad Delineation

Project Address
O SCHOOL STREET

Technical Comments

Inland Resource Areas

Coastal Resource Areas

RESOURCE AREA ALTERED

PROPOSED ALTERATION

PROPOSED REPLACEMENT

RESOURCE AREA ALTERED

PROPOSED ALTERATION

PROPOSED REPLACEMENT

◀ PREVIOUS

SEARCH AGAIN

Our review of the information pertaining to the boundaries of wetland resource areas associated with the site locus is based on the review of the associated documents outlined above as well as two (2) site inspections conducted on December 3, 2020 and December 29, 2020. Our findings are summarized in the following sections of this report as well as attached figures, photos and diagrams of the parcels.

General Site Conditions

The property is covered by a full canopy including white pine as well as red oak, American beech and shagbark hickory. These species combine to form a nearly complete canopy over the parcels. The topography of the property is dramatic and replete with boulders and exposed ledge. The Sawmill River flows by the site to the north and wetland areas are found in the middle of the property as well as on the south side of property flowing off in the southerly direction. Route 128 borders the site to the south; School Street to the east and undeveloped areas to the west and north.

Lot Coverage During Inspections

We utilized STRAVA smart-phone application to track our serpentine coverage of the two (2) parcels (Figure 2a and Figure 2b). This tool allowed us to document the route we traveled while reviewing parcels and to determine the site was adequately covered on the ground. In this case we were able to observe the majority of the site from the course we traversed and suggest that we adequately covered the two (2) parcels and were able to more than adequately review the properties for the presence or absence of jurisdictional wetland resource areas and other important habitat features of the property.

Determination of Bordering Vegetated Wetland

WETLAND SERIES A AND SERIES B

After walking the entire wetland boundary on both the Series A and Series B wetland areas we concur with the wetland delineation in the field and as depicted on the Existing Site Plan, Sheets V-101 and V-102 prepared by Allen & Major Associated, dated, September 21, 2020 and revised on December 22, 2020. The wetland boundary is depicted by steep changes in slope and is readily discernible by the existence of a wetland plant community and evidence of saturation by leaf staining and water staining on exposed boulders and ledge within the wetland areas.

WETLAND SERIES C

Upon review of the Series C wetland, we questioned under what criteria the area was considered a jurisdictional wetland resource area. The plant community was dominated by upland plant material (principally white pine, hemlock, and gray birch). Only two (2) high bush blueberry shrubs were found that depicted the entire wetland plant community in this area. We requested that additional soil and vegetation sampling be conducted in the Series C wetland to verify if hydric soil conditions existed and if a wetland plant community was present within any of the boundary of the Series C Wetland. Based on our observations at the site and the subsequently submitted soil and vegetation information prepared by Goddard Consulting, LLC, (Supplemental Documentation for ANRAD Peer Review-School Street, Manchester MA, dated December 21, 2020) we conclude that the Series C

wetland is not jurisdictional under the State or the local wetland regulations and should not be depicted on the Existing Conditions Plan prepared by Allen & Major Associates. The Series C wetland was subsequently removed on the December 22, 2020 revised plan sheets, V-101 and V-102).

The absence of a wetland plant community and the absence of hydric soils in the area also preclude the Series C wetland from protection as an isolated vegetated wetland under the local bylaw at Section 2.12:

2.12 "Freshwater Wetlands" means wet meadows, marshes, swamps and bogs, and areas where the topography is low and flat and where soils are annually saturated such that groundwater, flowing or standing surface water or ice provides a significant part of the supporting substrate for a plant community. Freshwater Wetlands may border creeks, Rivers, Streams, Ponds, Lakes or other bodies of water or wetlands, or they may be isolated. Freshwater Wetlands also include that portion of any Bank, which touches any inland waters. The boundary of Freshwater Wetlands is the line within which the vegetation community is substantially characterized by wetland indicator plants, as defined in the Act and the MA Regulations and within which Hydric Soils (as hereinafter defined) or other indicators of wetland hydrology are present.

We also requested that Allan & Majors review the area for Isolated Land Subject to Flooding under the MassDEP WPA regulations but the area topographically was not large enough to store the ¼ acre foot of water as required at 310 CMR 10.57(2)(b):

(b) Isolated Land Subject to Flooding.

1. Isolated Land Subject to Flooding is an isolated depression or closed basin without an inlet or an outlet. It is an area which at least once a year confines standing water to a volume of at least ¼ acre-feet and to an average depth of at least six inches.

Based on these findings and our inspection of the Series C wetland area we were not able to support the finding that this area met the definition of wetland resource area under the Act or the local bylaw.

BUFFER ZONES

The Existing Condition Plans (Sheets V-101 and V-102) do not appear to show the boundaries of the local buffer zones which include the following dimensional setbacks from jurisdictional wetland resource areas:

- 30 foot no disturbance zone
- 50 foot no build zone
- 100-foot buffer zones

We recommend that the site plans be updated to show these dimensional setbacks from the following wetland series:

- Series A Wetland
- Series B Wetland

These areas are important for the protection of downgradient wetland resource areas including bordering vegetated wetlands as well as areas functioning as vernal pools.

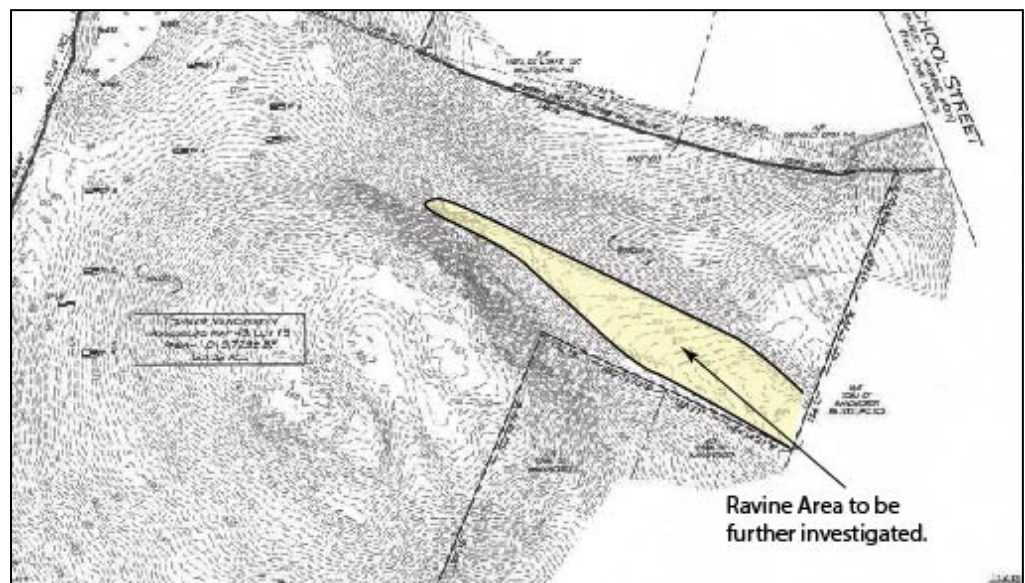
RAVINE AREA IN SOUTHERN PORTION OF THE PARCEL

The boundary of vegetated wetlands is determined by the presence of wetland soils and a wetland plant community. The findings reported by Goddard Consulting in their Supplemental Documentation for ANRAD Peer Review, dated December 21, 2020 reports the presence of low chroma soils in the B Horizon. This represents a hydric soil under the Act and the Bylaw. The absence of an associated wetland plant community could be based on the time of year the work was conducted.

TP 1-3

Test Pits 1-3 in the southeast portion of the property confirmed that upland conditions are present, despite the steep topography which creates a potential route for water to drain eastward towards School Street. Although low chroma colors were observed in the B Horizon at TPs 1 & 2, these soils do not qualify as hydric indicators. No other indicators of the presence of a stream or BVW such as wrack lines, water staining on rocks or trees, or presence of obligate indicator plants such as Sphagnum moss were observed. Further downslope (offsite) to the east (Town of Manchester property) there were no visible wetland conditions present all the way up to School Street.

This low lying, topographically flat area is covered by a dense canopy of oak, hickory, and beech. Little light is able to penetrate to the ground plane during the growing season which limits the distribution and



abundance of plant species able to occupy these areas. These species may be limited to ephemeral herbaceous species including ferns and herbs that are just not apparent in the winter months and may be persistent in the growing season. The bylaw limits the review of wetland boundary delineations from April 15 to October 1st of any year. It is our opinion that the determination of this

ravine area should be delayed until the spring/summer of 2021 to determine the presence/absence of a wetland plant community that may be associated with this ravine area.

4.4 Resource Area Review Periods.

4.4.1

Resource Area boundary delineations, however requested, shall be reviewed only between April 15 and October 1 of each year, unless the Commission grants a waiver due to low probability of error on a particular site. Delineations may be reviewed at the sole discretion of the Commission between October 2 and April 14, and shall be reviewed only when site conditions are such that the Commission believes they can adequately review the relevant resource area indicators (e.g., soils, vegetation, topography, hydrology). Where the Commission finds that the Wetland Indicator Species cannot be accurately evaluated because of recent or ongoing disturbance, the Commission may require that site soils and hydrology be examined, or that the delineation be postponed until such time that the natural plant community has regenerated and grown or until the end of the next growing season.

Accordingly, we recommend that additional investigation is required to demonstrate that this area is not functioning as a bordering vegetated wetland or isolated vegetated wetland that may escape detection during the non-growing season.

Riverfront Area Determination

We concur with Dan Wells of Goddard Consulting, LLC, regarding the boundary of Riverfront Area at the site and his depiction of “bankfull conditions” along Sawmill Brook (See Existing Conditions Plan, Sheet V-101, by Allen & Major, Associates, LLC., attached). We offer the following comments regarding the plan set:

- There is no need for the notation of the “100’ inner riparian riverfront” nor the “200’ outer riparian riverfront.” These designations were removed from the Wetlands Protection Act and only the 200-foot Riverfront Area is necessary to designate the boundary of the riverfront area.

The following citations from the MA Wetlands Protection Act support the conclusions regarding the definition of bankfull conditions and the riparian condition of a perennial stream:

10.58 (2)(a) 2. Mean Annual High-water Line of a river is the line that is apparent from visible markings or changes in the character of soils or vegetation due to the prolonged presence of water and that distinguishes between predominantly aquatic and predominantly terrestrial land. Field indicators of bankfull conditions shall be used to determine the mean annual high-water line. Bankfull field indicators include but are not limited to: changes in slope,

changes in vegetation, stain lines, top of point bars, changes in bank materials, or bank undercuts.

And,

10.58(2)(a) 3. The Riverfront Area is the area of land between a river's mean annual high-water line measured horizontally outward from the river and a parallel line located 200 feet away

Accordingly, we support the boundary of the Sawmill Brook as shown on the Existing Conditions Plan prepared by Allen & Major Associates, Sheet V-101 and as represented in the Riverfront Wetland Border Report, School Street, prepared by Goddard Consulting, LLC, dated, November 16, 2020. We concur that the wetland boundary is consistent with the concept of "bankfull conditions" and represents the riparian condition of the bank of Sawmill Brook.

Vernal Pool Habitat

In our opinion, the most important value of this site is its likely function as vernal pool habitat as well as upland habitat for vernal pool breeding species. Although there are no mapped vernal pools that have been certified through the NHESP process the site is surrounded by both certified and potential vernal pool species. Additionally, we have observed salamander egg masses in previous years within the A-Series wetland at the 0 School Street site.

SURROUNDING AREAS

Based on mapping by NHESP and MassGIS, both potential and certified vernal pools are present on properties bordering the 0 School Street properties (See, Summary of Vernal Pool Habitat, figure attached). Importantly, two (2) large NHESP polygons designating rare and endangered species habitat are also within close proximity to the 0 School Street site. Based on these observations it is very likely, in our professional opinion, that the wetland areas at the site similarly function as vernal pool habitat as well as the upland areas associated with these wetland areas.

NEED FOR ADDITIONAL VERNAL POOL STUDY

In our professional opinion it is paramount that additional study be conducted to verify the presence/absence of vernal pool breeding habitat at the site as well as the function and value of the upland areas of the site for non-breeding season habitat. Both habitats are required to maintain a population of potentially endangered species. It would be important for the commission to request the applicant and their representatives to prepare a vernal pool study plan for the spring of 2021 to determine the use of the site by breeding amphibians as both breeding areas (e.g., vernal pool habitat) as well as upland areas (non-breeding season habitat). The study should include but not be limited to drift fence and pit traps to determine direction to and from the pools and approximate

population density to determine how important this habitat is for resident amphibian species. Personnel with appropriate background and experience working with rare and endangered species should be retained to do this work.

ABILITY TO REQUEST FOR ADDITIONAL INFORMATION

The Manchester by the Sea Conservation Commission has authority, under the State Wetlands Protection Act (Chapter 131 § 40) and its regulations and under the Town of Manchester's Wetlands Bylaw (Article XVII) and its regulations, to request additional information from an applicant for the Commission to fulfill its obligation for proper review under the act and the bylaw. The Commission may make such requests in the context of their public hearing review of either a Notice of Intent to perform work or, as here, in the context of the public hearing review of an Abbreviated Notice of Resource Area Delineation (ANRAD).

The Commission may make such requests if the Commission considers, in its reasoned judgement, that such information is necessary for them to fulfill their obligations under the Act. They may also do so under the provisions of the Town Bylaw if they determine that more information is necessary for the Applicant to meet its burden of proof to move forward.



Series B Wetland is identified as a Potential Vernal Pool by the NHESP program.

For the Act see 310 CMR 10.05(4)(h): "...the issuing authority may also require the preparation of supporting materials by other professionals including, but not limited to, registered landscape architect, registered land surveyor, environmental scientist, geologist or hydrologist when in its judgment the complexity of the proposed work warrants the relevant specialized expertise";

and for the Bylaw see Section 8.3 of Manchester's Bylaw regulations: "An Applicant's failure to provide Credible Evidence to the Commission in accordance with the applicable burden of proof shall be sufficient cause for the Commission to...8.3.2 request permission to continue the hearing in order that the Applicant or others may present additional information.").

Accordingly, the Commission has the authority to request additional information from the Applicant for them to make a properly informed decision regarding jurisdiction and appropriate protection of portions of the property that may function to the benefit of breeding amphibians and potentially rare and endangered species.

PROTECTION OF VERNAL POOLS AND UPLAND HABITAT

Although the Act establishes that only vernal pools that are certified by the NHESP are presumed to be vernal pool habitat, there are also provisions that allow the presumption to be rebutted and the introduction of information that supports the function of a wetland as a vernal pool. The local bylaw also establishes time of year restrictions and that the determination of vernal pool areas be reviewed during the appropriate period when vernal pool species are active.

Under the local bylaw:

4.4.2 Vernal Pool Determinations shall be tied explicitly to the appropriate periods during which the evidence is most likely to be available, in that many of the indicators of vernal pool habitat are seasonal. In response to any challenge to the presumption of vernal pool habitat, the Commission may require that the determination be postponed until the appropriate time period consistent with the evidence being presented and may also require site visits as necessary to confirm the evidence.

And under the WPA:

10.57: continued

5. The only portions of this resource area which shall be presumed to be vernal pool habitat are those that have been certified as such by the Massachusetts Division of Fisheries and Wildlife, where said Division has forwarded maps and other information needed to identify the location of such habitat to the Conservation Commission and DEP prior to the filing of each Notice of Intent or Abbreviated Notice of Intent regarding that portion. Such presumption is rebuttable, and may be overcome upon a clear showing to the contrary. However, notwithstanding any other provision of 310 CMR 10.57, should an Environmental Impact Report be required for a proposed project as determined by 301 CMR 11.00: *MEPA Regulations* the performance standard established under this Section regarding vernal pool habitat shall only apply to proposed projects which would alter such habitats as have been identified prior to the time that the Secretary of the Executive Office of Energy and Environmental Affairs has determined, in accordance with the provisions of 301 CMR 11.09(4): *Eligible Projects*, that a final Environmental Impact Report for that project adequately and properly complies with the M.G.L. c. 30, § 6 through 62H (unless, subsequent to that determination, the Secretary requires supplemental information concerning vernal pool habitat, in accordance with the provisions of 301 CMR 11.17: *Transition Rules*).

6. The boundary of vernal pool habitat is that certified by the Massachusetts Division of Fisheries and Wildlife. In the event of a conflict of opinion, or the lack of a clear boundary delineation certified by the Division of Fisheries and Wildlife, the applicant may submit an opinion certified by a registered professional engineer, supported by

engineering calculations, as to the probable extent of said habitat. Said calculations shall be prepared in accordance with the general requirements set forth in 310 CMR 10.57(2)(a)3.a. through c., except that the maximum extent of said water shall be based upon the total volume (rather than peak rate) of run-off from the drainage area contributing to the vernal pool and shall be further based upon a design storm of 2 /10 6 (2.6) inches (rather than seven inches) of precipitation in 24 hours. Vernal pool habitat shall include the area within 100 feet of the boundary of the vernal pool itself, insofar as such area is contained within the boundaries of this resource area.

And,

10.58(4): continued

(d)(1)c. Proposed work does not impair the capacity of the riverfront area to provide important wildlife habitat functions. Work shall not result in an impairment of the capacity to provide vernal pool habitat identified by evidence from a competent source, but not yet certified. For work within an undeveloped riverfront area which exceeds 5,000 square feet, the issuing authority may require a wildlife habitat evaluation study under 310 CMR 10.60.

2(c). Preserving the capacity of the riverfront area to provide important wildlife habitat functions. Work shall not result in an impairment of the capacity to provide vernal pool habitat when identified by evidence from a competent source but not yet certified;

Accordingly, it is our professional opinion that the Commission has the authority to require the further study of the property to demonstrate the use of the wetland areas and upland areas as vernal pool habitat and may want to utilize this authority to require the Applicant to provide additional information pertaining to the function and value of the wetland resource areas at the property.

Findings & Recommendations

7. We agree with the boundary determinations presented by the Applicant and their representatives and as shown on the Existing Conditions Plan Sheet V-101 and V-102, revised December 22, 2020, for the following wetland resource areas:
 - a. Bordering Vegetated Wetland:
 - i. Series A Wetland
 - ii. Series B Wetland
 - b. 200-foot Riverfront Area associated with Sawmill Brook
8. Based on the presence of low chroma soils associated with the ravine in the southern portion of the site as discussed in the narrative of this report. Additional work may need to wait for Spring 2021 to allow the herbaceous plant community to present itself.

9. We suspect that at least two (2) of these wetland areas (Series A and Series B Wetlands) may function as vernal pool breeding habitat based on the presence of breeding amphibians on adjacent properties and the mapped polygons by NHESP for rare and endangered species (PH 1799 and PH 1805).
10. Based on these findings we suggest that additional study is required regarding the function and value of the Series A and Series B wetland areas as vernal pool breeding habitat and the function and value of the upland areas of the site for non-breeding season habitat.
11. We recommend that the Commission request the Applicant prepare a detailed vernal pool habitat investigation to document the presence/absence of vernal pool species on the parcel and assess the function and value of the wetland areas and upland areas for use by vernal pool breeding species to be implemented during the Spring 2021 vernal pool season.
12. We suggest that the Existing Conditions Plan Sheets V-101 and V-102 be updated based on comments regarding Riverfront Area nomenclature and the addition of local buffer zones as described in the narrative of this letter report.

Should you have any questions or comments, please call anytime at 978-265-9298.

Respectfully submitted,

DeRosa Environmental Consulting, Inc.



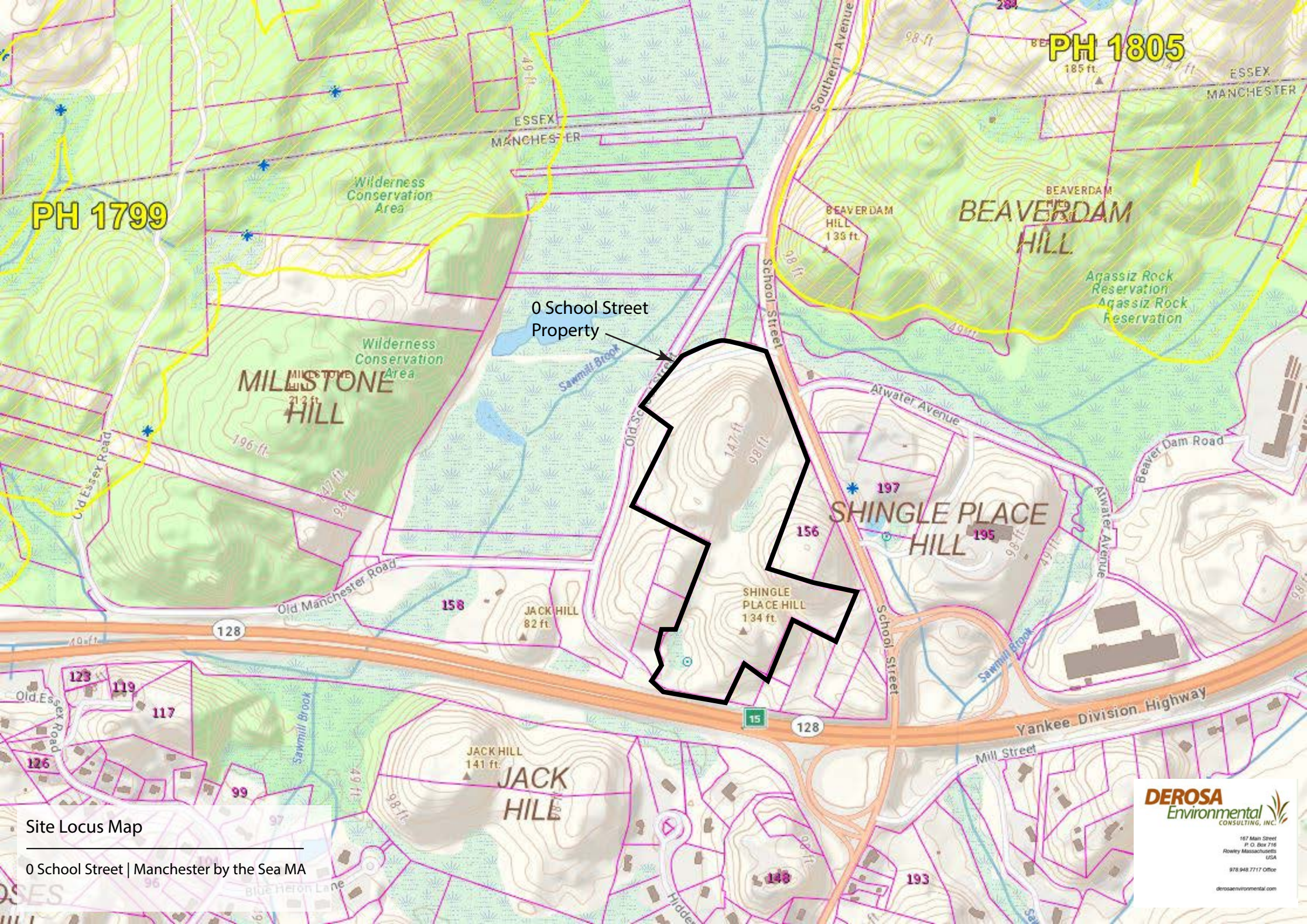
Michael J. DeRosa, Principal
Professional Wetland Scientist



MJD/mjd

Attachments:

1. Figure 1. Site Locus Map
2. Figure 2a. Strava Map – December 3, 2020
3. Figure 2b. Strava Map – December 29, 2020
4. Vernal Pool Habitat Map
5. Existing Conditions Plan Sheet V-101, revised December 22, 2020
6. Existing Conditions Plan Sheet V-102, revised December 22, 2020
7. Annotated Photos
8. Professional Qualifications



PH 1799

PH 1805

0 School Street Property

Site Locus Map

0 School Street | Manchester by the Sea MA

DEROSA
Environmental
CONSULTING, INC.

167 Main Street
P.O. Box 716
Rowley Massachusetts
USA

978.948.7717 Office
derosaenvironmental.com

STRAVA

lar Swamp
ervation Area

Cedar Swamp
Conservation Area

Cedar Swamp
Conservation Area

Aggasiz Rock
Cathedral Pines

Boardwalk

Cedar Swamp
Conservation Area

Cedar Swamp
Conservation Area

Cathedral Pines

Series C Wetland

Series A Wetland

23 m
Shingle Place Hill

Ravine Area

Series B Wetland

Cathedral Pines

Cathedral Pines

Distance
3.2 mi

Elev Gain
211 ft

Time
1h 56m
Yankee Division Hwy

Site Inspection | December 3, 2020
0 School Street | Manchester by the Sea MA

Intent was to review existing wetland resource areas and determine if there were any areas worthy of further investigation.

Ravine Area and Wetland Series C were identified as areas that needed additional investigation regarding wetland resource area indicators.

DEROSA
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CONSULTING, INC.

187 Main Street
P.O. Box 715
Fleetley Massachusetts
USA

978 948 7717 Office

derosaenvironmental.com

STRAVA

Cedar Swamp
Conservation Area

Site Inspection | December 29, 2020

0 School Street | Manchester by the Sea MA

Intent was to cover the
top of the hill areas to
determine if any areas of
ponded water or wetland
areas were evident. None
were located.

Aggasiz Rock

Cathedral Pines

Cedar Swamp
Conservation Area

Boardwalk

Old School St

20 m

Atwater Ave

dar Swamp
ervation Area

Distance
1.0 mi

Elev Gain
142 ft

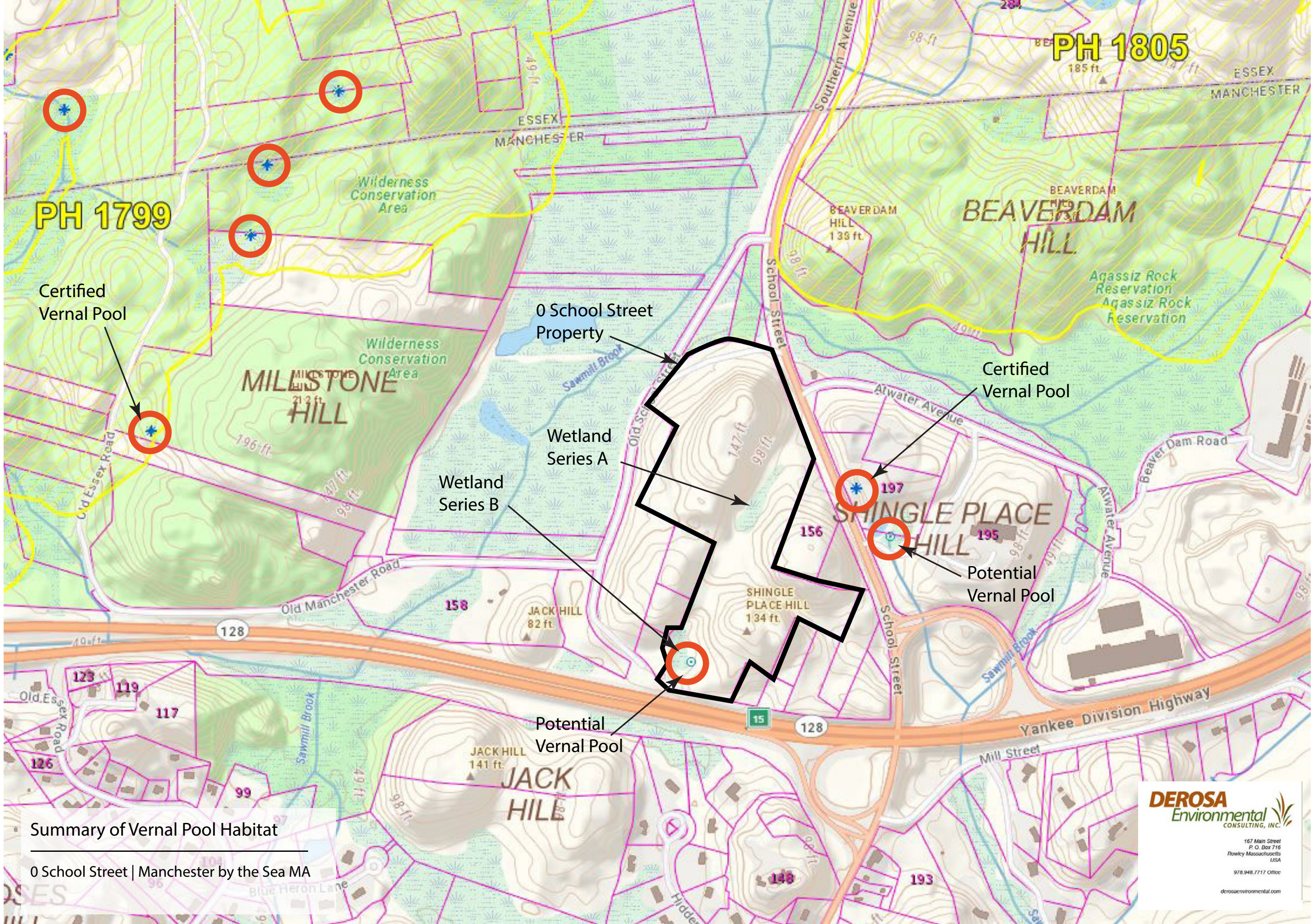
Time
33m 21s

DEROSA
Environmental
CONSULTING, INC.

167 Main Street
P.O. Box 716
Freetown Massachusetts
USA

978 948 7717 Office

derosaenvironmental.com



PH 1799

PH 1805

Certified
Vernal Pool

0 School Street
Property

Certified
Vernal Pool

Wetland
Series A

Wetland
Series B

Potential
Vernal Pool

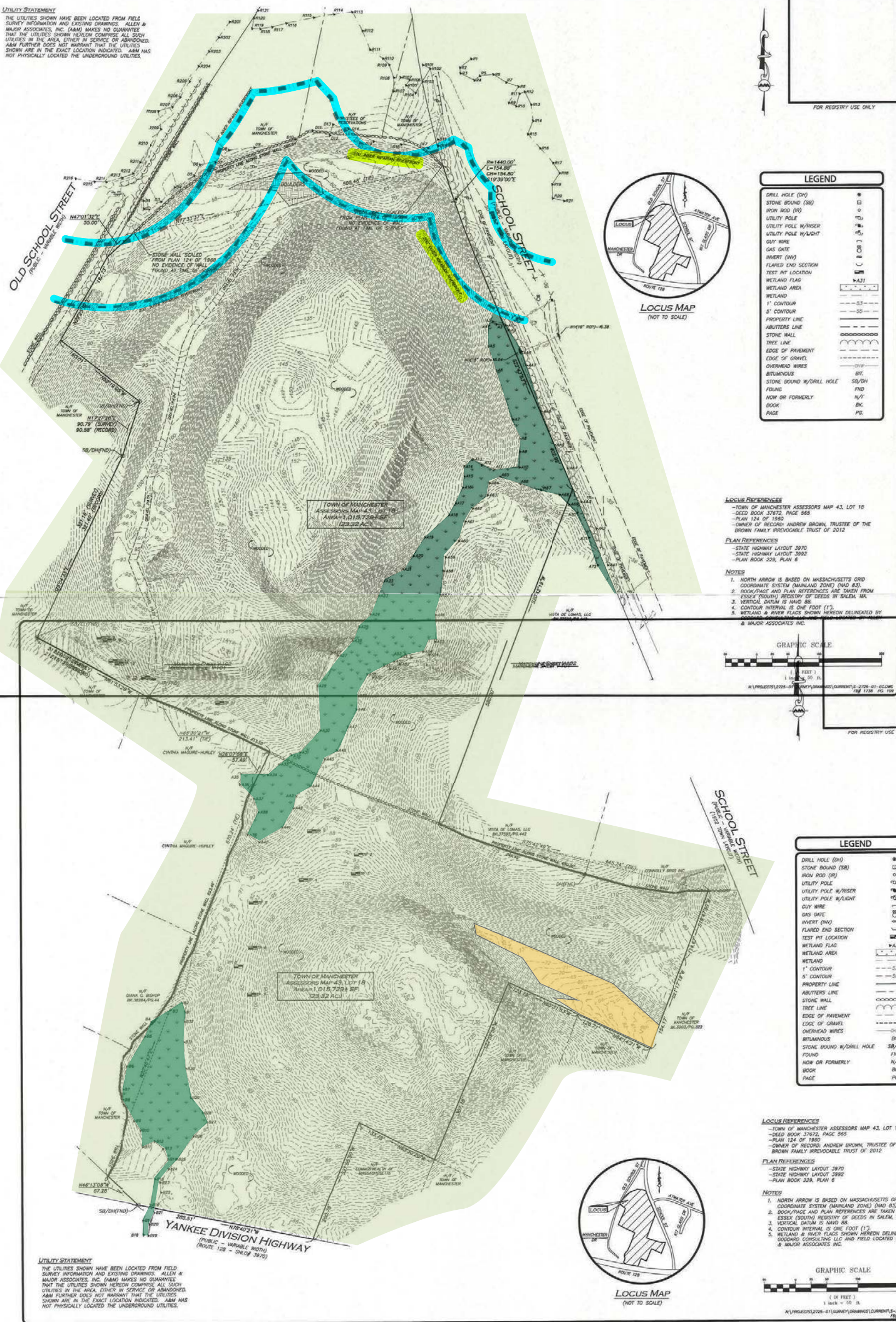
Potential
Vernal Pool

Summary of Vernal Pool Habitat

0 School Street | Manchester by the Sea MA

UTILITY STATEMENT

THE UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. ALLEN & MAJOR ASSOCIATES, INC. (A&M) MAKES NO GUARANTEE THAT THE UTILITIES SHOWN HEREON COMPOSE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. A&M FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. A&M HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.



WE HEREBY CERTIFY THAT:
THIS PLAN IS THE RESULT OF AN ACTUAL ON THE GROUND SURVEY PERFORMED ON OR BETWEEN NOVEMBER 21, 2019 AND DECEMBER 3, 2020.
THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS DATED JANUARY 1, 1976 AND REVISED JANUARY 12, 1988.
ACCORDING TO DEEDS AND PLANS OF RECORD, THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE LINES DIVIDING EXISTING OWNERSHIP, AND THE LINES OF THE STREETS OR WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS AND WAYS ALREADY ESTABLISHED, AND THAT NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.
THE ABOVE CERTIFICATION IS INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS FOR THE RECORDING OF PLANS AND IS NOT A CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT TOWN OF MANCHESTER ASSESSOR'S INFORMATION. THE ABOVE IS CERTIFIED TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF.

ALLEN & MAJOR ASSOCIATES, INC.

PROFESSIONAL LAND SURVEYOR FOR
ALLEN & MAJOR ASSOCIATES, INC.



REV	DATE	DESCRIPTION
4.	12/22/20	WETLAND LOCATION REVISION
3.	12/11/20	TEST PIT LOCATIONS ADDED
2.	11/19/20	REVERMONT BUFFERS ADDED
1.	11/19/20	WETLAND/WATER FLAGS ADDED

APPLICANT/OWNER:
SLV SCHOOL STREET, LLC
257 HILLSIDE AVENUE
NEEDHAM, MA 02494

PROJECT:
ASSESSORS MAP 43, LOT 18
SCHOOL STREET
MANCHESTER BY THE SEA, MA

PROJECT NO. 2725-01 DATE: 08/21/2020
SCALE: 1" = 80' DWG. NAME: 52725-01-EC
DRAWN BY: KAC CHECKED BY: NL

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering & land surveying
environmental consulting & landscape architecture
100 COMMERCIAL WAY, SUITE 2
WOBURN, MA 01801
TEL: (781) 935-6889
FAX: (781) 935-2696

WOBURN, MA • DANVER, MA • MANCHESTER, NH
THIS DRAWING HAS BEEN PREPARED IN ELECTRONIC FORMAT.
ELECTRONIC REPRESENTATION OR CONSULTANT MAY BE PROVIDED FOR THE PROJECT. THE PROJECTOR SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED TO THE PROJECTOR.

EXISTING CONDITIONS (V-102)
DRAWING TITLE: EXISTING CONDITIONS
SHEET NO.: V-102

THE ABOVE CERTIFICATION IS INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS FOR THE RECORDING OF PLANS AND IS NOT A CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT TOWN OF MANCHESTER ASSESSOR'S INFORMATION. THE ABOVE IS CERTIFIED TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF.

ALLEN & MAJOR ASSOCIATES, INC.

PROFESSIONAL LAND SURVEYOR FOR
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REV	DATE	DESCRIPTION
4.	12/22/20	WETLAND LOCATION REVISION
3.	12/11/20	REVERMONT BUFFERS ADDED
2.	11/19/20	REVERMONT BUFFERS ADDED
1.	11/19/20	WETLAND/WATER FLAGS ADDED

APPLICANT/OWNER:
SLV SCHOOL STREET, LLC
257 HILLSIDE AVENUE
NEEDHAM, MA 02494

PROJECT:
ASSESSORS MAP 43, LOT 18
SCHOOL STREET
MANCHESTER BY THE SEA, MA

PROJECT NO. 2725-01 DATE: 08/21/2020
SCALE: 1" = 80' DWG. NAME: 52725-01-EC
DRAWN BY: KAC CHECKED BY: NL

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering & land surveying
environmental consulting & landscape architecture
100 COMMERCIAL WAY, SUITE 2
WOBURN, MA 01801
TEL: (781) 935-6889
FAX: (781) 935-2696

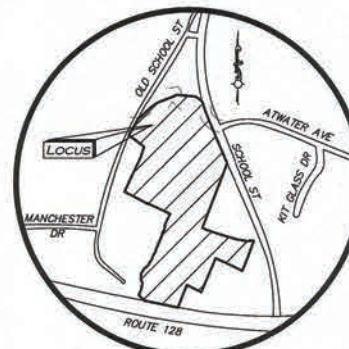
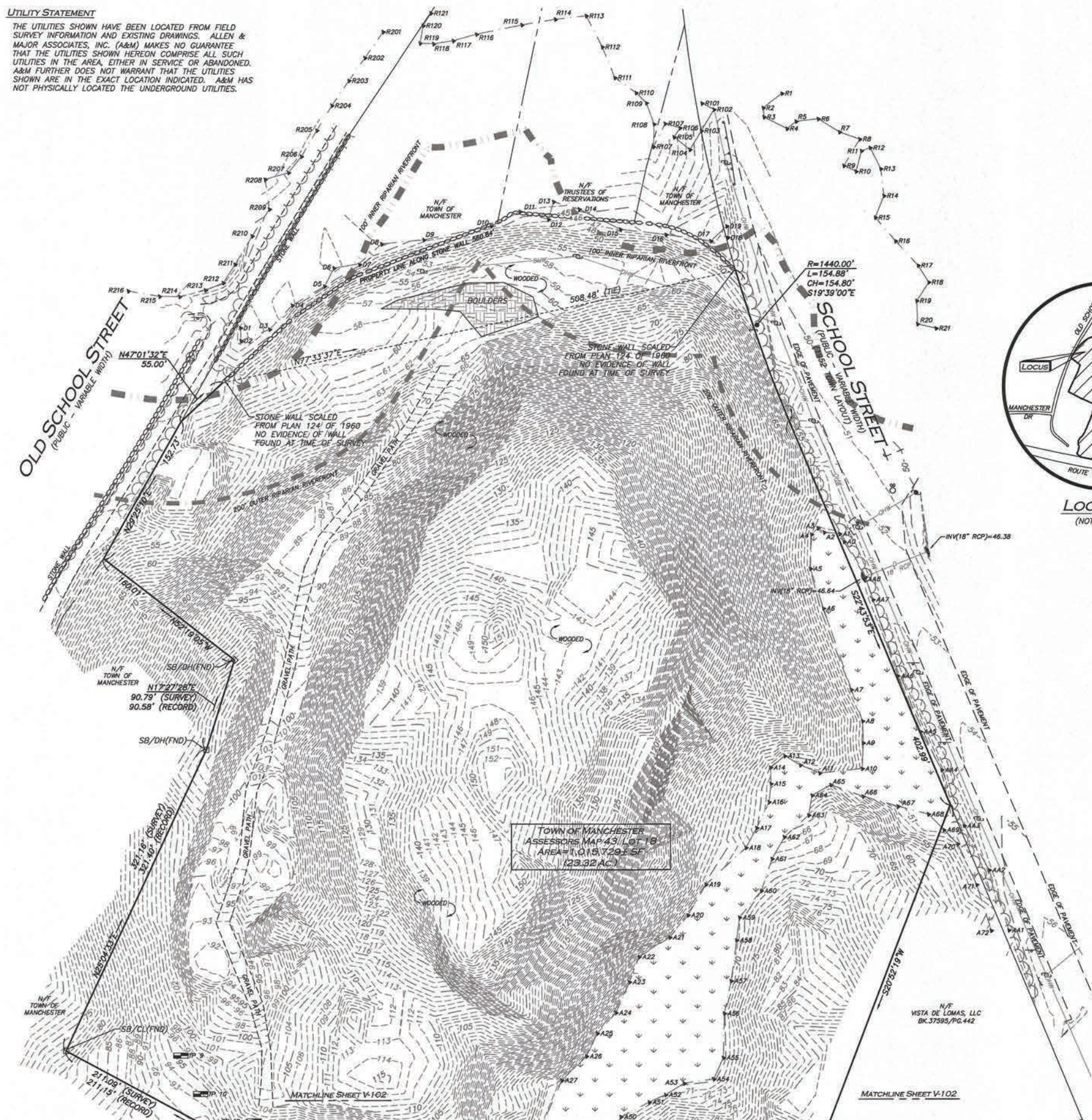
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EXISTING CONDITIONS (V-102)
DRAWING TITLE: EXISTING CONDITIONS
SHEET NO.: V-102

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LOCUS MAP
(NOT TO SCALE)

LEGEND

DRILL HOLE (DH)	●
STONE BOUND (SB)	○
IRON ROD (IR)	○
UTILITY POLE	○
UTILITY POLE W/ RISER	○
UTILITY POLE W/ LIGHT	○
GUY WIRE	—
GAS GATE	—
INVERT (INV)	—
FLARED END SECTION	—
TEST PIT LOCATION	—
WETLAND FLAG	—
WETLAND AREA	—
WETLAND	—
1' CONTOUR	—
5' CONTOUR	—
PROPERTY LINE	—
ABUTTERS LINE	—
STONE WALL	—
TREE LINE	—
EDGE OF PAVEMENT	—
EDGE OF GRAVEL	—
OVERHEAD WIRES	—
BITUMINOUS	—
STONE BOUND W/ DRILL HOLE	SB/DH
FOUND	FND
NOW OR FORMERLY	N/F
BOOK	BK.
PAGE	PG.

LOCUS REFERENCES

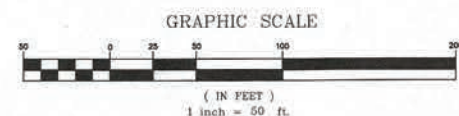
- TOWN OF MANCHESTER ASSESSORS MAP 43, LOT 18
- DEED BOOK 37672, PAGE 565
- PLAN 124 OF 1960
- OWNER OF RECORD: ANDREW BROWN, TRUSTEE OF THE BROWN FAMILY IRREVOCABLE TRUST OF 2012

PLAN REFERENCES

- STATE HIGHWAY LAYOUT 3970
- STATE HIGHWAY LAYOUT 3992
- PLAN BOOK 229, PLAN 6

NOTES

1. NORTH ARROW IS BASED ON MASSACHUSETTS GRID COORDINATE SYSTEM (MAINLAND ZONE) (NAD 83).
2. BOOK/PAGE AND PLAN REFERENCES ARE TAKEN FROM ESSEX (SOUTH) REGISTRY OF DEEDS IN SALEM, MA.
3. VERTICAL DATUM IS NAVD 88.
4. CONTOUR INTERVAL IS ONE FOOT (1').
5. WETLAND & RIVER FLAGS SHOWN HEREON DELINEATED BY GODDARD CONSULTING LLC AND FIELD LOCATED BY ALLEN & MAJOR ASSOCIATES, INC.



N:\PROJECTS\2725-01\SURVEY\DRAWINGS\CURRENT\S-2725-01-EC.DWG
FD# 1736 PG. 109

WE HEREBY CERTIFY THAT:

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THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS DATED JANUARY 1, 1976 AND REVISED JANUARY 12, 1988.
ACCORDING TO DEEDS AND PLANS OF RECORD, THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE LINES DIVIDING EXISTING OWNERSHIP, AND THE LINES OF THE STREETS OR WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS AND WAYS ALREADY ESTABLISHED, AND THAT NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.
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ALLEN & MAJOR ASSOCIATES, INC.

Dec 22, 2020
PROFESSIONAL LAND SURVEYOR FOR
ALLEN & MAJOR ASSOCIATES, INC.



REV	DATE	DESCRIPTION
4.	12/22/20	WETLAND LOCATION REVISION
3.	12/11/20	TEST PIT LOCATIONS ADDED
2.	11/19/20	RIVERFRONT BUFFERS ADDED
1.	11/18/20	WETLAND/RIVER FLAGS ADDED

APPLICANT/OWNER:
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257 HILLSIDE AVENUE
NEEDHAM, MA 02494

PROJECT:
ASSESSORS MAP 43, LOT 18
SCHOOL STREET
MANCHESTER BY THE SEA, MA

PROJECT NO.	2725-01	DATE:	09/21/2020
SCALE:	1" = 50'	DWG. NAME:	S-2725-01-EC
DRAFTED BY:	KAC	CHECKED BY:	NIL

PREPARED BY:

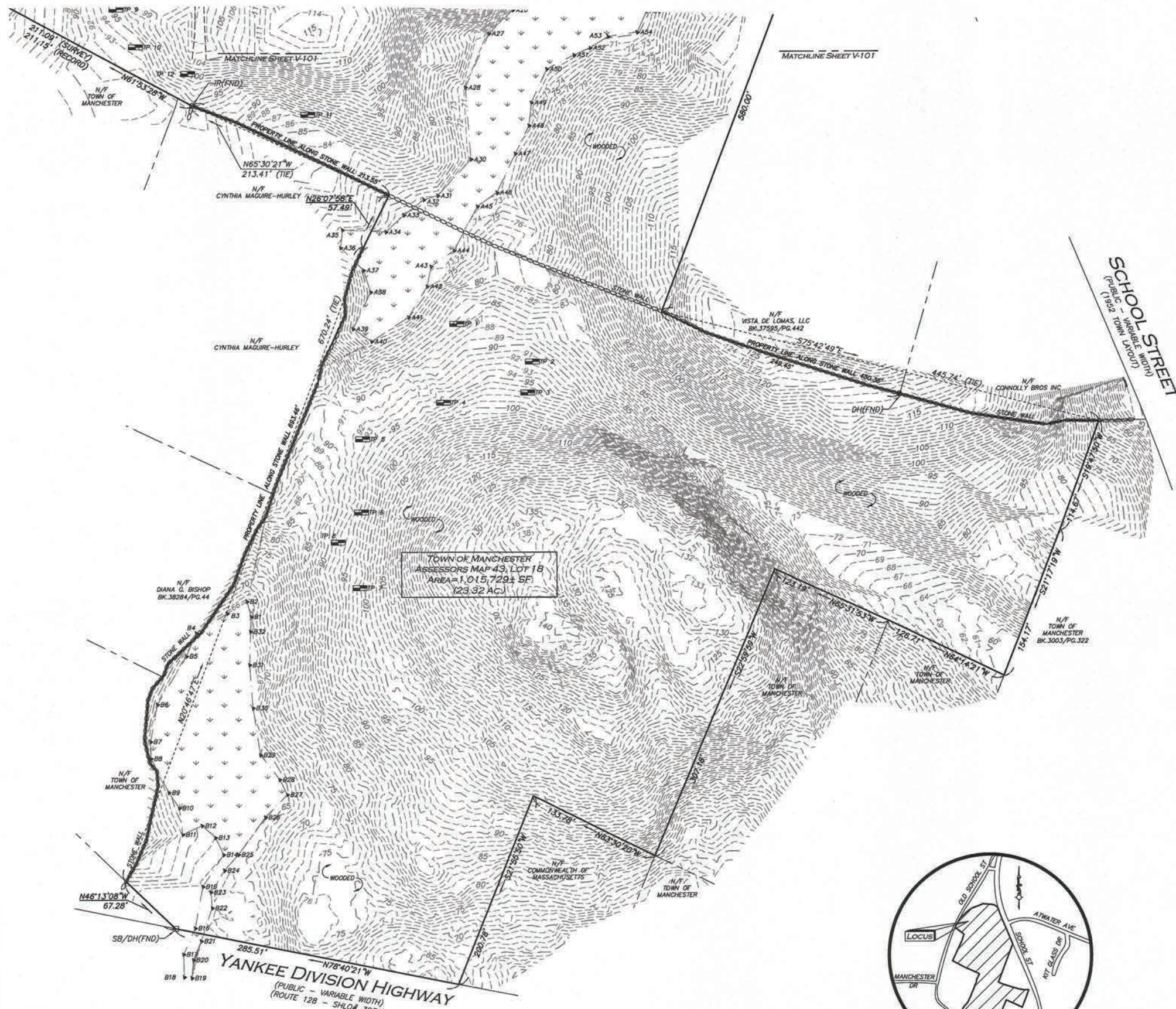
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DRAWING TITLE:	SHEET NO.
EXISTING CONDITIONS	V-101

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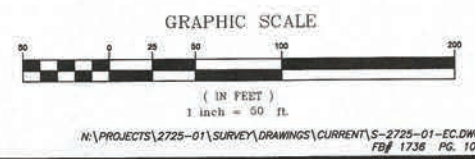
LEGEND	
DRILL HOLE (DH)	●
STONE BOUND (SB)	□
IRON ROD (IR)	○
UTILITY POLE	⊙
UTILITY POLE W/ RISER	⊕
UTILITY POLE W/ LIGHT	⊗
GUY WIRE	—
GAS GATE	—
INVERT (INV)	—
FLARED END SECTION	—
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WETLAND FLAG	—
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OVERHEAD WIRES	—
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STONE BOUND W/ DRILL HOLE	—
FOUND	—
NOW OR FORMERLY	—
BOOK	—
PAGE	—

- LOCUS REFERENCES**
- TOWN OF MANCHESTER ASSESSORS MAP 43, LOT 18
 - DEED BOOK 37672, PAGE 565
 - PLAN 124 OF 1960
 - OWNER OF RECORD: ANDREW BROWN, TRUSTEE OF THE BROWN FAMILY IRREVOCABLE TRUST OF 2012
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ALLEN & MAJOR ASSOCIATES, INC.

[Signature] 09/22/2020

PROFESSIONAL LAND SURVEYOR FOR ALLEN & MAJOR ASSOCIATES, INC.

[Seal] 12/22/20

4.	12/22/20	WETLAND LOCATION REVISION
3.	12/11/20	RIVERFRONT BUFFERS ADDED
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DRAFTED BY: KAC CHECKED BY: NIL

PREPARED BY:

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DRAWING TITLE: EXISTING CONDITIONS SHEET No. V-102

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Annotated Photos

December 3,2020
View of wetland Series A
depicting classic vernal pool
habitat and blue flags
depicting the boundary of
vegetated wetland
associated with this area.



December 3, 2020
View of Series A wetland
showing flooded condition.



December 3, 2020
View of potential vernal
pool and Series B wetland
area.



December 29, 2021
View of Sawmill River and
beaver activity to gray birch.



December 3, 2020
View of Series C wetland
area demonstrated not to
be jurisdiction based on soils
and plant community
assemblage.



December 3, 2020
View of steep, topographic features associated with the site and illustrating the microtopography important to non-breeding season habitat for vernal pool breeding amphibians.



December 3, 2020
View of area between steep slopes associated with the southern parcel. Soil morphology reported low chroma soils within the B horizon indicative of hydric soils. Additional explanation is required to demonstrate that this area is not functioning as a wetland resource area.



Michael J. DeRosa

151 Hay Street
Newbury, Massachusetts 01922

(978) 978-7717 – office
(978) 265-9298 – mobile

Education

Boston University MA, Energy and Environmental Studies with Water Resources Concentration (1993)	1987 to 1993
North Carolina State University MS Coursework in Ecology – Department of Entomology	1985 to 1986
Harvard University, School of Public Health Coursework in epidemiology and vector borne disease	1982 to 1985
University of Denver BA, Environmental Science with Ecology Emphasis, Philosophy Minor (1982)	1978 to 1982

Professional History

DeRosa Environmental Consulting, Inc. Principal, LSP, LEED AP BC&D	1994 to Present Ipswich, Massachusetts
--	--

- Founded and incorporated DeRosa Environmental Consulting, Inc., in May 1994.
- Provides environmental consulting services to engineers, architects, government agencies.
- Focus in three areas of inquiry: environmental consulting services, renewable energy & design services.

Hazardous Waste Consulting Services

- MA Licensed Site Professional (LSP License Number: 3452)
- Fully services MGL Chapter 21E and the Massachusetts Contingency Plan
- Phase 1 & Phase 2 Environmental Site Assessments: ASTM E1527 - 05
- Designs biological treatment systems for hazardous waste disposal sites and provides oversight for the installation, operation, and maintenance of soil and groundwater treatment systems

Ecological Consulting Services

- Environmental permitting, wetland delineation, presentation of project to review boards
- Designs and constructs wetland replication and landscape restoration projects
- Prepares wildlife impact assessments, vernal pool certifications, and ecological research
- Provides technical review services for permitting agencies during preconstruction review of proposed projects

Renewable Energy & Design Services

- LEED Accredited Professional BC&D
 - Assists engineers and architects in green building design
 - Assists with siting of large scale wind turbines
 - Design of Low Impact Development and LEED Site Design elements, rain gardens, water quality swales, constructed wetland basins
-

Web Engineering Associates, Inc.**1990 to 1994**

Technical Director, Environmental Engineering Division

Norwell, Massachusetts

- Developed quality control systems for field operations and division operations
- Prepared specifications and design plans for soil and groundwater treatment systems including pump and treat, air sparging, vapor extraction, and bioremediation treatment systems
- Responsible for business development and profitability of division
- Lead person for large remedial projects
- Principal corporate liaison with federal, state, and local regulatory agencies

Dennison Environmental, Inc.**1988 to 1990**

Operations Manager, Environmental Management Division

Woburn, Massachusetts

- Established and managed Environmental Management Services Division
- Full profit and loss responsibility
- Managed technical, marketing, financial, personnel, and accounting aspects of operations
- Managed corporate quality control for data collection, field operations, and report preparation
- Established cooperative teams with specialty consulting firms including bioremediation system design
- Prepared hazardous material site assessments for locations in all New England states

U. S. Environment Corporation**1988 to 1989**

Project Manager/Environmental Scientist

Hudson, New Hampshire

- Managed hazardous waste site assessments for real estate transfers
- Supervised hazardous materials site remediation projects for on and off site treatment methods
- Prepared reports and was principal liaison with clients and attorneys
- Trained and managed entry level personnel

Lelito Environmental Consultants, LLC**1987 to 1988**

Population Ecologist & Wetlands Specialist

North Falmouth, Massachusetts

- Assisted in the review of the wildlife habitat regulations under MA Wetlands Protection Act - 310 CMR 10.60
- Delineated wetlands under the MA Wetlands Protection Act and local bylaws
- Designed and constructed vegetated wetland replication projects
- Primary technical writer for wetland resource area reports, wetland replication plans, and, wildlife habitat assessments
- Prepared reports and presented findings at public hearings with regulatory agencies

North Carolina State University**1985 to 1987**

Research Assistant

Raleigh, North Carolina

- Conducted independent research regarding the role of migratory songbirds in the dissemination of the Lyme disease agent *Borellia burgdorferi* to new disease loci
 - Contributed to the writing of grant proposals to the U.S. Army, National Science Foundation, and World Health Organization
 - Co-authored articles published in reviewed scientific journals
-

Entropy Environmentalists, Inc.

Air Pollution Analyst

1985 to 1987

Research Triangle Park, North Carolina

- Sampled and analyzed air pollutants from stationary sources including nitrous oxides, sulfates and chlorides by USEPA Methods 1-8
- Performed USEPA quality assurance audits
- Compiled Laboratory Procedures Manual for EPA testing methodologies (92 pages)

Harvard University, School of Public Health

Senior Research Assistant

1983 to 1985

Boston, Massachusetts

- Independently researched the ecology/epidemiology of Lyme disease
- Organized and conducted field activities for data collected at study sites
- Collaborated with the Department of Biology at Boston University with similar research projects regarding small mammal ecology
- Applied research findings to the development of disease agent control programs
- Co-authored publications in reviewed scientific journals

The Trustees of Reservations

Naturalist – Crane Beach Reservation

1983 to 1985

Ipswich, Massachusetts

- Independently investigated and researched colonial nesting least terns and common terns at the Crane Beach Reservation
- Provided educational signage and literature regarding beach ecology
- Implemented proven management methods to protect colonies from predation and human impact

Training & Educational Speaking

- *Massachusetts Wetland Compliance (2010)* Halfmoon Seminars LLC., Eau Claire, Wisconsin. Wetland Preservation, Restoration, Creation and Enhancement.
- *Environmental Compliance in Massachusetts*. Webinar for the Property Managers of The Roman Catholic Archdiocese of Boston. (2009, 2010).
- *Invasive Species Control. (2010)*. Informational Seminar for regulatory agencies and public interest. Ipswich Town Hall with Bartlett Tree Company.
- *The Ecology of Invasive Species. (2011)*. North Shore Garden Club. Ipswich MA.
- Assist in science classes at Glen Urquhart School. Lectured on invasive species management, ecology, evolution. Conducted field trips and taught classes in vegetation sampling, identification, and basic population ecology.
- The Boston Architectural College. Assist with studio for The Fruitlands Museum in Harvard MA. Attend classroom lectures and field trips to study site. Discuss invasive plant impacts to landscape and ecological importance of site design considerations.

Certifications and Special Training

- Licensed Site Professional (LSP), Lic. No. 3452
 - LEED Accredited Professional (10342989)
 - Certified Ecologist, The Ecological Society of America (June 2002 – May 2007)
 - CERCLA 40 Hour Hazardous Materials Safety Training (OSHA 29 CFR 1910.120)
 - Confined Space Entry Training (OSHA 29 CFR 1910.146)
 - Management Training Workshop (Dun and Bradstreet)
 - Hazardous Materials Chemistry Seminar (University of Toledo)
-

Professional Memberships/Affiliations

- Affiliate to the Conservation Commission, Town of Ipswich (1995, 1996)
- National Ground Water Association (Active)
- Association of Ground Water Scientists and Engineers (Active)
- Massachusetts Association of Conservation Commissioners (Active)
- Association of Massachusetts Wetlands Scientists (Active)
- Society of Wetland Scientists (Active)

Community Service

- **Manager, World Computer Exchange, Solar Technologies Initiative.**
 - Five years of developing Computer Literacy programs at schools in Ejisu, Ghana.
 - Raised money to purchase and ship 100 desktop computers to Model School to populate two (2) computer classrooms.
 - Conduct training in basic computer operation, MS Word, MS Excel.
 - Continuing to develop fundraising and hardware acquisition to implement programs, training, and renewable energy systems.
 - Currently working to secure and ship solar panels to Ejisu Ghana to power the new Community Computer Center and Model School with solar energy.
 - **The Food Project, Boston MA.**
 - Designed containment barrier to isolate residually contaminated soils in greenhouse to allow The Food Project to work with local schools in the propagation of seeds for transplanting to their fields on the North Shore of Boston.
 - Volunteered time to provide permitting services to establish a new 7 acre agricultural field in Ipswich MA which expanded the regional footprint of The Food Project.
 - **The Town of Ipswich, MA**
 - Member of the Clark Pond Study Group to assess the current ecological health of local 20 acre freshwater pond.
 - Conduct a bathymetry study, water quality sampling, and document preparation.
 - Report results to Town in summary presentation and report.
 - **Cuvilly Arts and Earth Center, Ipswich MA**
 - Volunteered time to various projects on campus including permitting of new agricultural barn, permitting of additional out buildings, delineation of wetland resource areas.
 - Assist with the siting of wind turbine to generate electricity for campus and agricultural buildings
 - **Glen Urquhart School, Beverly MA**
 - Co-sponsored grant application with Audubon Society, Glen Urquhart School, and Endicott College to raise loosestrife beetles for release to invaded wetland areas. Successfully raised and released beetles to control purple loosestrife in local wetland areas. Program was funded for 5 consecutive years.
 - **Mentoring to High School and College Students**
 - Provide internship opportunities for high school and college students interested in environmental careers
 - Mentor and provide advice and guidance to students as they develop their course of study and college/university selection
-

Publications and Reports

Wetlands/Hydrology

- Madeja, J. B., M. J. DeRosa, 2010. Massachusetts Wetlands Compliance. Halfmoon Seminars, LLC., 754 Bartlett Avenue, Altoona, WI 54720
- DeRosa, M. J., C. H. Sham, E. Pritham, and E. Ettinger. 1992. Responses to the 1991 proposed revisions to the Federal Method for delineating jurisdictional wetland areas. Center for Energy and Environmental Studies, Boston University. January 1992. (33 pages).
- DeRosa, M. J. 1991. Protecting Wetlands: A case study of vernal pool protection. *Agora*. 5(3):28-29.
- DeRosa, M. J. 1990. Use of Vegetated Wetlands for the attenuation of stormwater runoff pollutants: Plant species communities and their capacity to attenuate pollutants. Center for Energy and Environmental Studies, Boston University. December, 1990. (23 pages).
- DeRosa, M. J. 1990. An Environmental Career. *Agora*. 4(3):24-25.
- DeRosa, M. J. 1989. Use of vegetated wetlands for the attenuation of stormwater runoff pollutants. Center for Energy and Environmental Studies. Boston University. April, 1989. (29 pages).
- DeRosa, M. J., and P. R. Lelito. 1988. Wildlife habitat and the Massachusetts Wetlands Protection Act Regulations. *MCLPA Newsletter*.

Ecology and Population Biology

- Adler, G.H., M.L. Wilson, and M.J. DeRosa. 1986. Influence of island area and isolation on population characteristics of (*Peromyscus leucopus*). *Journal of Mammalogy*. 67:406-409.
- Adler, G.H., M.L. Wilson, and M.J. DeRosa. 1987. Effects of adults on survival and recruitment of *Peromyscus leucopus*. *Canadian Journal of Zoology*. 65:2519-2523.
- DeRosa, M.J. 1982. Interspecific competition between red-winged and yellow-headed blackbirds during the breeding season. Senior Thesis, Department of Biology, University of Denver, Colorado.
- DeRosa, M.J. 1983. The 1983 tern progress report: Richard T. Crane, Jr., Memorial Reservation, Ipswich, Massachusetts. The Trustees of Reservations, Milton, Massachusetts.
- DeRosa, M.J. 1984. The 1984 tern progress report: Richard T. Crane, Jr., Memorial Reservation, Ipswich, Massachusetts. The Trustees of Reservations, Milton, Massachusetts.
- DeRosa, M.J. 1985. The 1985 tern progress report: Richard T. Crane, Jr., Memorial Reservation, Ipswich, Massachusetts. The Trustees of Reservations, Milton, Massachusetts.
- DeRosa, M.J. Microhabitat characteristics of least tern (*Sterna albafrons*) nest sites in Ipswich, Massachusetts.
- DeRosa, M. J. 1987. The evolution of interspecific avian brood parasitism in altricial birds. Department of Biology. North Carolina State University, Raleigh, NC
- Monahan, M.W., D.W. Cameron, and M.J. DeRosa. 1987. Male survivorship, female habitat selection, and nest success of red-winged blackbirds on the Lafayette Marsh, Boulder County, Colorado, in 1982: a final report. Denver Wildlife Research Center, Denver, Colorado.
- Wilson, M.L., M.J. DeRosa, J.F. Levine, and A. Spielman. 1985. Transport of deer tick (*Ixodes dammini*, Acari: Ixodidae) by fall migrating birds. In: Population Ecology of the Deer Tick, *Ixodes dammini*, by Mark L. Wilson, A Thesis Submitted to the Faculty of The Harvard School of Public Health. June 1985.
-

Various Topics

- DeRosa, M. J., and Paula A. Cutillo. 1993. Gaian Theory and Ecological Economics: Common ground for a sustainable economy. Center for Energy and Environmental Studies, Boston University. August 1993. (25 pages)
- DeRosa, M. J. 1990. Geochemistry of acid mine drainage and groundwater quality. Center for Energy and Environmental Studies. May 1990. (20 pages).
- DeRosa, M.J., M.E. Jackson, and J.F. Jones. 1986. Laboratory Procedures Manual. Entropy Environmentalists, Inc., Research Triangle Park, Raleigh, North Carolina (92 pages).
-