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The State of New Hampshire

Department of Environmental Services

Robert R. Scott, Commissioner

110

January 4, 2021

His Excellency, Governor Christopher T. Sununu
and The Honorable Council
State House
Concord, NH 03301

REQUESTED ACTION

Approve the Town of Merrimack's request to perform work on Naticook Lake in Merrimack as outlined below. This request is pursuant to New Hampshire Department of Environmental Services (NHDES) file # 2020-01237. This project will not have significant impact on, or adversely affect, the values of Naticook Lake:

Replace an existing 6 foot x 65 foot and 6 foot x 64 foot seasonal pier connected by a 6 foot x 80 foot connecting walkway in a "U" configuration and accessed by a 6 foot x 6 foot wooden ramp, dredge approximately 150 cubic yards of material from 5,665 square feet of lake bed to restore an existing public swimming area, replenish and perch an existing public beach area along an average of 1,593 linear feet of frontage along Naticook Lake, in Merrimack.

The NHDES imposed the following conditions as part of this approval:

1. In accordance with Env-Wt 307.16, all work shall be done in accordance with the revised plans revision dated October 16, 2020 by Merrimack Public Works, as received by the NH Department of Environmental Services (NHDES) on October 30, 2020.
2. This permit shall not be effective until it has been recorded in the Hillsborough County Registry of Deeds and a copy of the recorded permit has been provided to the department as required pursuant to RSA 482-A:3, and Env-Wt 314.02.
3. All dredging activities shall meet all of the conditions listed in Rule Env-Wt 307.10(a) through (n).
4. In accordance with Env-Wt 307.10(d), dredged materials shall be disposed of out of jurisdictional areas, except clean sand used exclusively for beach replenishment pursuant to Env-Wt 307.10(e).
5. All development activities associated with any project shall be conducted in compliance with applicable requirements of RSA 483-B and Env-Wq 1400 during and after construction as required pursuant to RSA 483-B:3.
6. Pursuant to RSA 483-B:9, V, (a)(2)(d)(v), this permit does not authorize the removal of trees or saplings within the waterfront buffer that would result in a tree and sapling point score below the minimum required per RSA 483-B:9, V, (a)(2)(D)(iv).
7. Activities that produce suspended sediment in jurisdictional areas that provide value as bird migratory areas or fish and shellfish spawning or nursery areas, shall be done so as to avoid and minimize discharges of dredged material or placement of fill material during spawning or breeding seasons by using water quality protection techniques as specified in Env-Wt 307 and timing of project as specified in Env-Wt 307.10(g) or (h), as applicable.
8. Water quality control measures capable of minimizing erosion; collecting sediment and suspended and floating materials; and filtering fine sediment shall be selected and implemented as appropriate based on the size and nature of the project and the physical characteristics of the site, including slope, soil type, vegetative cover, and proximity to jurisdictional areas as required pursuant to Env-Wt 307.03(c).

9. Work authorized shall be carried out in accordance with Env-Wt 307 such that appropriate turbidity controls are in place to protect water quality, that no turbidity escapes the immediate dredge area, and that appropriate turbidity controls shall remain until suspended particles have settled and water at the work site has returned to normal clarity.
10. No activity shall be conducted in such a way as to cause or contribute to any violation of surface water quality standards specified in RSA 485-A:8 or Env-Wq 1700; ambient groundwater quality standards established under RSA 485-C; limitations on activities in a sanitary protective area established under Env-Dw 302.10 or Env-Dw 305.10; or any provision of RSA 485-A, Env-Wq 1000, RSA 483-B, or Env-Wq 1400 that protects water quality as required pursuant to Env-Wt 307.03(a).
11. Pursuant to RSA 482-A:14, RSA 482-A:14-b, and RSA 482-A:14-c, the NHDES is authorized to take appropriate compliance actions should it be determined that, based upon additional information which becomes available, any of the structures depicted as "existing" on the plans submitted by or on behalf of the permittee were not previously permitted or grandfathered.

EXPLANATION

The NHDES approved this project on November 18, 2020. The NHDES supported its decision with the following findings:

1. This is a major impact project per Administrative Rule Env-Wt 523.04(c), dredging of more than 30 cubic yards in public waters.
2. This project will improve the usefulness and reduce the environmental impacts of an existing public recreation facility providing access to Naticook Lake.
3. The NHDES finds that because the project is not of significant public interest and will not significantly impair the resources of Naticook Lake a public hearing under RSA 482-A:8 is not required.
4. The material to be removed from the lake bed consists of sediment eroded from the existing beach.
5. This project in combination with work approved in accordance with RSA 483-B to be conducted in adjacent shorelands will reduce the erosion of materials into Naticook lake.
6. The NHDES finds that the project as proposed and conditioned meets the requirements of RSA 482-A and the Wetlands Program Code of Administrative Rules Chapters Env-Wt 100 - 900. No waivers of RSA 482-A or the Wetlands Program Code of Administrative Rules Chapters Env-Wt 100 - 900 were requested or approved under this permit action.

Application file documents are being forwarded to the Governor and the Executive Council in connection with their consideration of this matter pursuant to RSA 482-A:3, II(a), as it is a major project in public waters of the state.

We respectfully request your approval of this item.

Robert R. Scott
Commissioner

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

STANDARD DREDGE AND FILL WETLANDS PERMIT APPLICATION

Water Division/Land Resources Management

Wetlands Bureau

Check the Status of your Application

RSA/Rule: RSA 482-A/Env-Wt 100-900

APPLICANT'S NAME: TOWN OF MERRIMACK, NH **TOWN NAME:** TOWN OF MERRIMACK, NH

RECEIVED Administrative Use Only MAY 28 2020 6/3/2020 NHDES LAND RESOURCES MANAGEMENT	INCOMPLETE Administrative Use Only JUN 04 2020	Administrative Use Only	File 2020-01237
			Check No. 2212757
			Amount: $400.00
			Initials: DB

A person may request a waiver to requirements in Rules Env-Wt 100-900 to accommodate situations where strict adherence to the requirements would not be in the best interests of the public or the environment. A person may also request a waiver of standard for existing dwellings over water pursuant to RSA 482-A:26, III (b). For more information, please consult the request form.

SECTION 1 - REQUIRED PLANNING FOR ALL PROJECTS (Env-Wt 306.05; RSA 482-A:3, I(d)(2))

Please use the Wetland Permit Planning Tool (WPPT), the Natural Heritage Bureau (NHB) DataCheck Tool, the Aquatic Resource Mapper, or other sources to assist in identifying key features such as: priority resource areas (PRAs), protected species or habitats, coastal areas, designated rivers, or designated prime wetlands.

Has the required planning been completed? ☒ Yes ☐ No

Does the property contain a PRA? ☐ Yes ☒ No. If yes, provide the following information:

- Does the project qualify for an Impact Classification Adjustment or a Project-Type Exception (See Env-Wt 407.02 and Env-Wt 407.04)? ☐ Yes ☐ No
- Protected species or habitat? ☐ Yes ☐ No. If yes, species or habitat name(s): ☐
- NHB Project ID #: ☐
- Bog? ☐ Yes ☐ No
- Floodplain wetland contiguous to a tier 3 or higher watercourse? ☐ Yes ☐ No
- Designated Prime Wetland or duly-established 100-foot buffer? ☐ Yes ☐ No
- Sand dune, tidal wetland, tidal water, or undeveloped tidal buffer zone? ☐ Yes ☐ No

Is the property within a Designated River corridor? ☐ Yes ☒ No. If yes, provide the following information:

- Name of Local River Management Advisory Committee (LAC): ☐
- A copy of the application was sent to the LAC on Month: ☐ Day: ☐ Year: ☐

For stream crossing projects, provide watershed size: N/A

For dredging projects, is the subject property contaminated? ☐ Yes ☒ No
If yes, list contaminant: ☐

Is there potential to impact impaired waters, class A waters, or outstanding resource waters? ☒ Yes ☒ No

SECTION 2 - PROJECT DESCRIPTION (Env-Wt 311.04(i))
Provide a brief description of the project and the purpose of the project, outlining the scope of work to be performed and whether impacts are temporary or permanent. DO NOT reply "See attached" in the space provided below.

Wasserman Park, a Town owned beach area, has not had any restoration work performed since 1994. The project will involve several different restoration phases (not necessarily in this order):

Phase 1 - the construction of a perched beach to keep the beach sand from running into the water. Total shoreland disturbance of 7,050 square feet, upland area, no wetland impact.

Phase 2 - The dredging of material within the dock area of Naticook Lake to restore the swimming area - Temporary disturbance of 1,700 and a dredging area of 5,665 sq. ft. for a total of 7,365 square feet, wetland disturbance.

Phase 3 - Replacement 200 Linear Feet of existing docks under ENV-Wt 513.24 (2).

Phase 4 - The construction of the second area of perched beach to keep the beach sand from running into the water. Total shoreland (upland area) of 6,975 sq. ft.

SECTION 3 - PROJECT LOCATION
Separate wetland permit applications must be submitted for each municipality within which wetland impacts occur.

ADDRESS: 116 Naticook Road	TOWN/CITY: Merrimack, NH
TAX MAP/BLOCK/LOT/UNIT: 3B-261	
US GEOLOGICAL SURVEY (USGS) TOPO MAP WATERBODY NAME: Naticook Lake ☐ N/A	
(Optional) LATITUDE/LONGITUDE in decimal degrees (to five decimal places):	71.530064° North 42.820001° West

SECTION 4 - APPLICANT (DESIRED PERMIT HOLDER) INFORMATION (Env-Wt 311.04(a))
If the applicant is a trust or a company, then complete with the trust or company information.

NAME: Town of Merrimack, NH		
MAILING ADDRESS: 6 Baboosic Lake Road		
TOWN/CITY: Merrimack	STATE: NH	ZIP CODE: 03054
EMAIL ADDRESS: ecabanel@merrimacknh.gov	FAX:	PHONE: (603) 424-5137

ELECTRONIC COMMUNICATION: By initialing here: EC, I hereby authorize NHDES to communicate all matters relative to this application electronically.

SECTION 5 - AUTHORIZED AGENT INFORMATION (Env-Wt 311.04(c))
☒ N/A

LAST NAME, FIRST NAME, M.I.: Tuomala, Dawn B.		
COMPANY NAME: Town of Merrimack	MAILING ADDRESS: 6 Baboosic Lake Road	
TOWN/CITY: Merrimack	STATE: NH	ZIP CODE: 03054
EMAIL ADDRESS: dtuomala@merrimacknh.gov	FAX:	PHONE: (603) 424-5137

ELECTRONIC COMMUNICATION: By initialing here DBT, I hereby authorize NHDES to communicate all matters relative to this application electronically.

SECTION 6 - PROPERTY OWNER INFORMATION (IF DIFFERENT THAN APPLICANT) (Env-Wt 311.04(b))

If the owner is a trust or a company, then complete with the trust or company information.

☒ Same as applicant

NAME:		
MAILING ADDRESS:		
TOWN/CITY:	STATE:	ZIP CODE:
EMAIL ADDRESS:	FAX:	PHONE:

ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize NHDES to communicate all matters relative to this application electronically.

SECTION 7 - RESOURCE-SPECIFIC CRITERIA ESTABLISHED IN Env-Wt 400, Env-Wt 500, Env-Wt 600, Env-Wt 700, OR Env-Wt 900 HAVE BEEN MET (Env-Wt 313.01(a)(3))

Describe how the resource-specific criteria have been met for each Chapter listed above (please attach information about stream crossings, coastal resources, prime wetlands, or non-tidal wetlands and surface waters).

The project involves improving and restoring the beach area and swimming area of a long standing facility. The last restoration was done 26 years ago (see attached plan). The project will greatly improve the quality of the facility that is open to the public.

The beaches are being redeveloped so that they will have perched beaches to prevent the sand from running off into the lake. The existing vegatation will be maintained in the area. The trees within the beach area will be preserved. the work will all be done within the existing area as were previously permitted in 1994. The area is not being expanded only improved for the public safety.

The existing swimming docks will be replaced as they are decades old and need to be updated. The existing docks will remain in the same locate and will not extend any further into the lake than they presently are. They are not used for boat slips but for swimming lessons. Under Env-Wt 513.24 (b) the project is a minimum impact since this is the replacement of an existing legal structure.

Under Env-Wt 523 - The dredging project is necessary to maintain the infrastructure of the swimming facility for the public. The project is within the existing dock area and is not being expanded, the impact area has a total of temporary and permanent impacts of 7,365 sq. ft. To take out all of the sand accumulation in the swimming area it is estimated to be about 150 yards of material.

SECTION 8 - AVOIDANCE AND MINIMIZATION

Impacts within wetland jurisdiction must be avoided to the maximum extent practicable (Env-Wt 313.03(a)). If all impacts cannot be avoided, a functional assessment is required for minor and major projects (Env-Wt 311.03(b)(10)). Any project with unavoidable jurisdictional impacts must then be minimized as described in the Wetlands Best Management Practice Techniques For Avoidance and Minimization and the Wetlands Permitting: Avoidance, Minimization and Mitigation Fact Sheet.

Please refer to the application checklist to ensure that you have attached all documents related to avoidance and minimization, as well as functional assessment (where applicable). You can use the Avoidance and Minimization Checklist, the Avoidance and Minimization Narrative, or your own avoidance and minimization narrative.

SECTION 9 - MITIGATION REQUIREMENT (Env-Wt 311.02)

If unavoidable jurisdictional impacts require mitigation, a mitigation pre-application meeting must occur at least 30 days but not more than 90 days prior to submitting this Standard Dredge and Fill Permit Application.

Mitigation Pre-Application Meeting Date: Month: ☐ Day: ☐ Year: ☐

(☒ N/A - Mitigation is not required)

SECTION 10 - THE PROJECT MEETS COMPENSATORY MITIGATION REQUIREMENTS (Env-Wt 313.01(a)(1)c).

Have you submitted a compensatory mitigation proposal that meets the requirements of Env-Wt 800 for all permanent impacts that will remain after avoidance and minimization demonstration? ☐ Yes ☐ No

(☒ N/A - Mitigation is not required)

SECTION 11 - IMPACT AREA (Env-Wt 311.04(g))

For each jurisdictional area that will be/has been impacted, provide square feet (SF) and, if applicable, linear feet (LF) of impact, and note whether the impact is after-the-fact (ATF; i.e., work was started or completed without required permitting).

For intermittent and ephemeral* streams, the linear footage of impact is measured along the thread of the channel. **Please note, installation of a stream crossing in an ephemeral stream may be undertaken without a permit per Rule Env-Wt 309.02(d), however other dredge or fill impacts should be included below.*

For perennial streams/rivers, the linear footage of impact is calculated by summing the lengths of disturbances to the channel and banks.

Permanent impacts are impacts that will remain after the project is complete (e.g., changes in grade or surface materials).

Temporary impacts are impacts not intended to remain (and will be restored to pre-construction conditions) after the project is completed.

JURISDICTIONAL AREA		PERMANENT			TEMPORARY		
		SF	LF	ATF	SF	LF	ATF
Wetlands	Forested Wetland			☐			☐
	Scrub-shrub Wetland			☐			☐
	Emergent Wetland			☐			☐
	Wet Meadow			☐			☐
	Vernal Pool			☐			☐
	Designated Prime Wetland			☐			☐
	Duly-established 100-foot Prime Wetland Buffer			☐			☐
Surface Water	Intermittent / Ephemeral* Stream			☐			☐
	Perennial Stream or River			☐			☐
	Lake / Pond	5665		☐	1700		☐
	Docking - Lake / Pond		200	☐			☐
	Docking – River			☐			☐
n	Bank - Intermittent Stream			☐			☐

	Bank - Perennial Stream / River			☐			☐
	Bank/shoreline - Lake / Pond	14,025		☒			☐
Tidal	Tidal Waters			☐			☐
Tidal	Tidal Marsh			☐			☐
Tidal	Sand Dune			☐			☐
Tidal	Undeveloped Tidal Buffer Zone (TBZ)			☐			☐
Tidal	Previously-developed TBZ			☐			☐
Tidal	Docking - Tidal Water			☐			☐
	TOTAL						

SECTION 12 - APPLICATION FEE (RSA 482-A:3, I)

☐ **MINIMUM IMPACT FEE:** Flat fee of $400

☒ **NON-ENFORCEMENT RELATED, PUBLICLY-FUNDED AND SUPERVISED RESTORATION PROJECTS, REGARDLESS OF IMPACT CLASSIFICATION:** Flat fee of $400 (refer to RSA 482-A:3, 1(c) for restrictions)

☐ **MINOR OR MAJOR IMPACT FEE:** Calculate using the table below:

Permanent and temporary (non-docking):	SF	× $0.40 =	$
Seasonal docking structure:	SF	× $2.00 =	$
Permanent docking structure:	SF	× $4.00 =	$
Projects proposing shoreline structures (including docks) add $400 =			$
		Total =	$

The application fee for minor or major impact is the above calculated total or $400, whichever is greater = $ 400

SECTION 13 - PROJECT CLASSIFICATION (Env-Wt 306.05)

Indicate the project classification.

☐ Minimum Impact Project	☒ Minor Project	☐ Major Project

SECTION 14 - REQUIRED CERTIFICATIONS (Env-Wt 311.11)

Initial each box below to certify:

Initials: DBT	To the best of the signer's knowledge and belief, all required notifications have been provided.
Initials: DBT	The information submitted on or with the application is true, complete, and not misleading to the best of the signer's knowledge and belief.
Initials: DBT	The signer understands that: • The submission of false, incomplete, or misleading information constitutes grounds for NHDES to: 1. Deny the application. 2. Revoke any approval that is granted based on the information. And 3. If the signer is a certified wetland scientist, licensed surveyor, or professional engineer licensed to practice in New Hampshire, refer the matter to the joint board of licensure and certification established by RSA 310-A:1. • The signer is subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641. • The signature shall constitute authorization for the municipal conservation commission and the Department to inspect the site of the proposed project, except for minimum impact trail projects, where the signature shall authorize only the Department to inspect the site pursuant to RSA 482-A:6, II.
Initials:	If the applicant is not the owner of the property, each property owner signature shall constitute certification by the signer that he or she is aware of the application being filed and does not object to the filing.

SECTION 15 - REQUIRED SIGNATURE (Env-Wt 311.04(d); Env-Wt 311.11)

SIGNATURE (OWNER):	PRINT NAME LEGIBLY: EILEEN CABANEL	DATE: 5/13/2020
SIGNATURE (APPLICANT, IF DIFFERENT FROM OWNER):	PRINT NAME LEGIBLY:	DATE:
SIGNATURE (AGENT, IF APPLICABLE):	PRINT NAME LEGIBLY: DAWN B. TUOMALA, PE, LLS, CWS	DATE: 5/13/2020

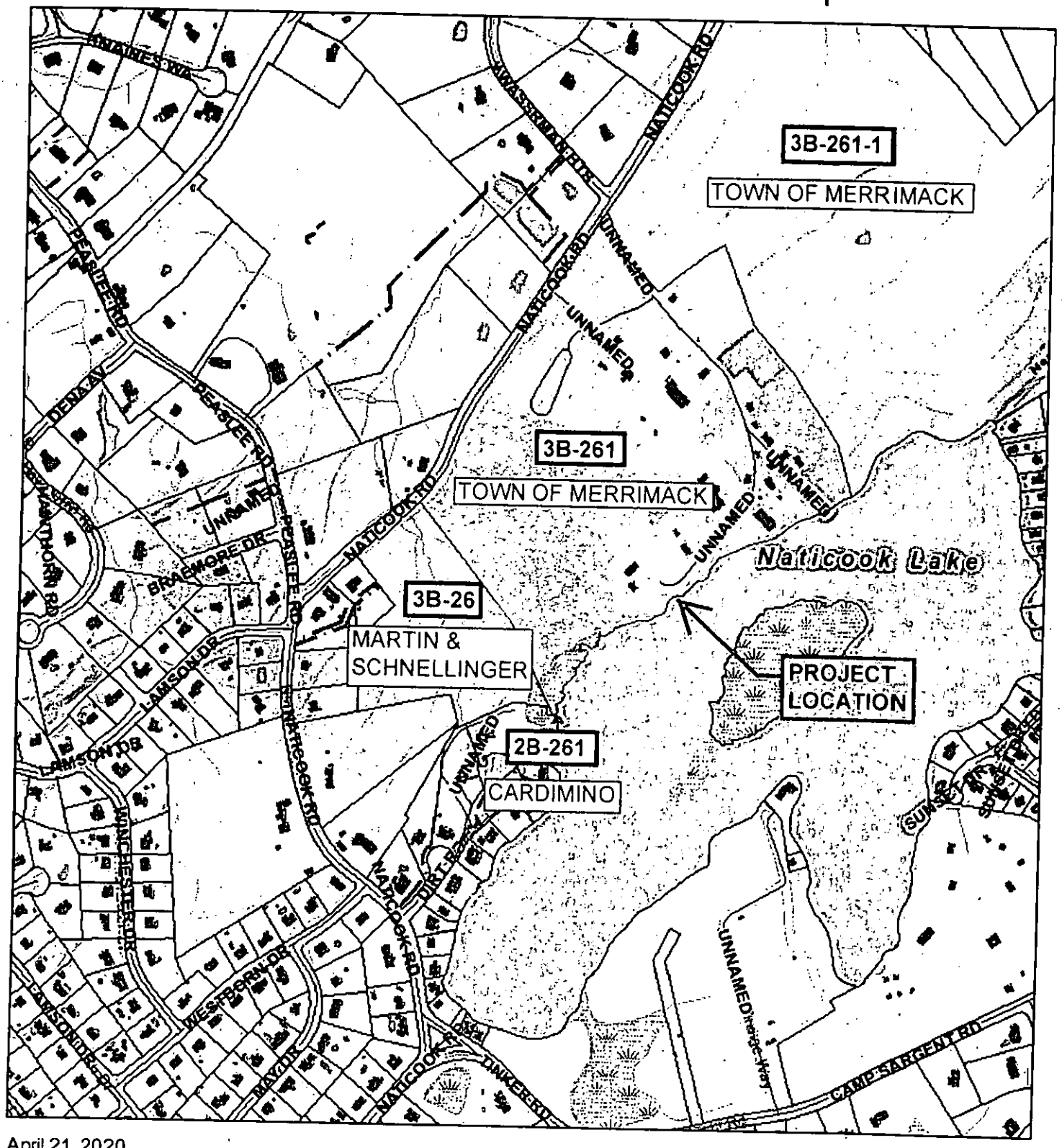
SECTION 16 - TOWN / CITY CLERK SIGNATURE (Env-Wt 311.04(f))	
As required by RSA 482-A:3, I(a),(1), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.	
TOWN/CITY CLERK SIGNATURE: Brenda S DuLong - Deputy	PRINT NAME LEGIBLY: ~~DIANE TRIPPETT~~ Brenda S DuLong Deputy Tax Clerk
TOWN/CITY: MERRIMACK	DATE: 5/13/2020

DIRECTIONS FOR TOWN/CITY CLERK:
Per RSA 482-A:3, I(a)(1)

1. IMMEDIATELY sign the original application form and four copies in the signature space provided above.
2. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
3. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board. And
4. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:
Submit the single, original permit application form bearing the signature of the Town/City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery at the address at the bottom of this page.

Wasserman Park Tax Map



April 21, 2020

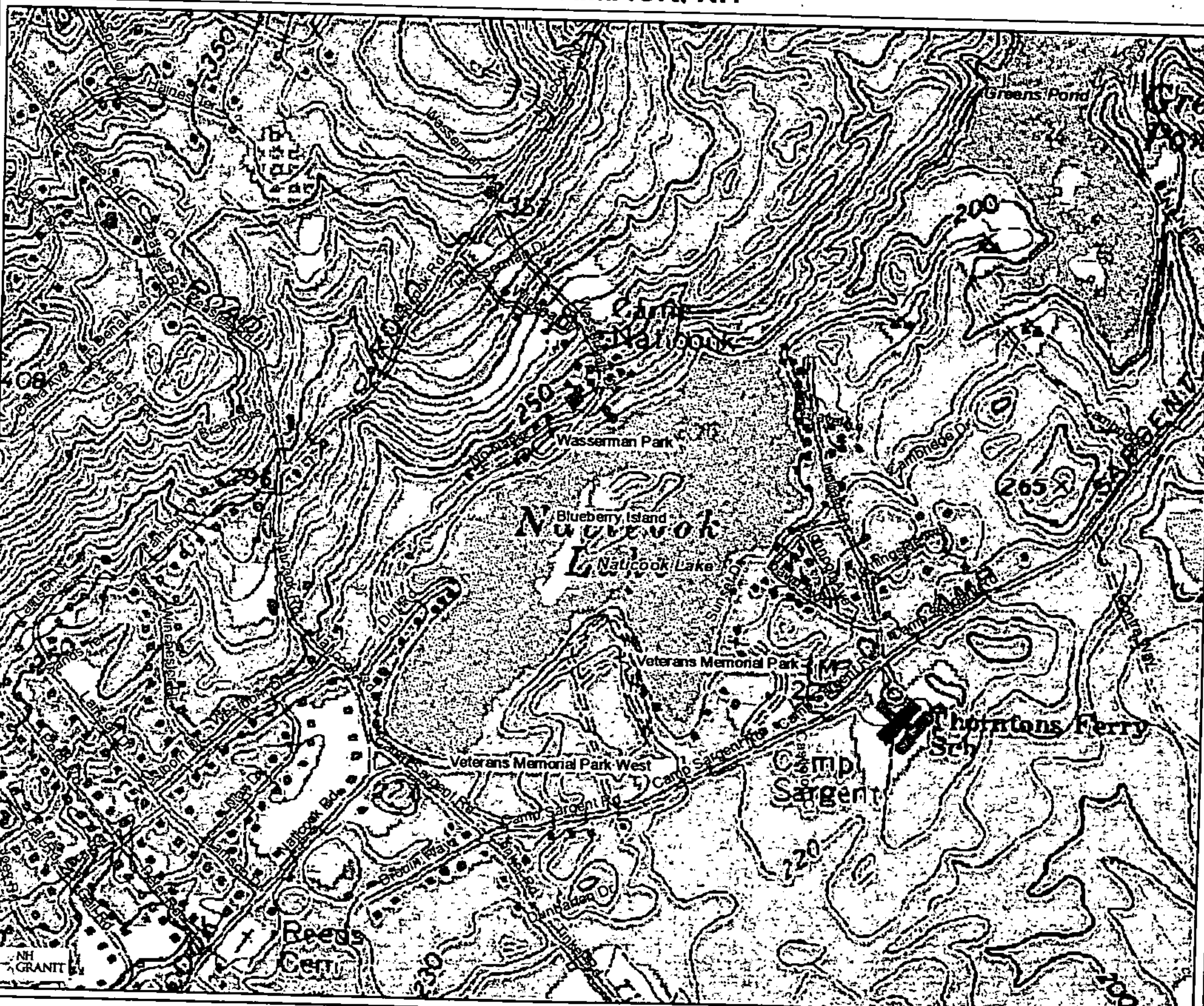
1:9,600

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

WASSERMAN PARK
MERRIMACK, NH



Legend

- State
- County
- City/Town

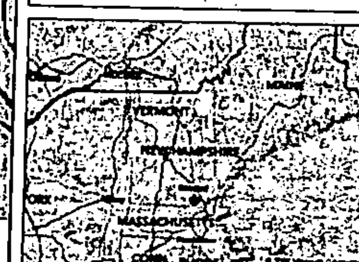
Map Scale

1: 10,000

© NH GRANIT, www.granit.unh.edu

Map Generated: 4/24/2020

Notes



NEW HAMPSHIRE NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

To: Dawn Tuomala, Town of Merrimack
6 Baboosic Lake Road
Merrimack, NH 03054

From: NH Natural Heritage Bureau

Date: 4/27/2020 (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau of request submitted 4/16/2020

NHB File ID: NHB20-1053 **Applicant:** Dawn Tuomala

Location: Merrimack
Tax Maps: 3B-261

Project Description: Replenish Beach Sand creating 2 perched beach areas while preserving the existing large pine trees. To replace the existing docks and to dredge under the docks to restore the swimming area.

The NH Natural Heritage database has been checked by staff of the NH Natural Heritage Bureau and/or the NH Nongame and Endangered Species Program for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government.

It was determined that, although there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, we do not expect that it will be impacted by the proposed project. This determination was made based on the project information submitted via the NHB Datacheck Tool on 4/16/2020, and cannot be used for any other project.

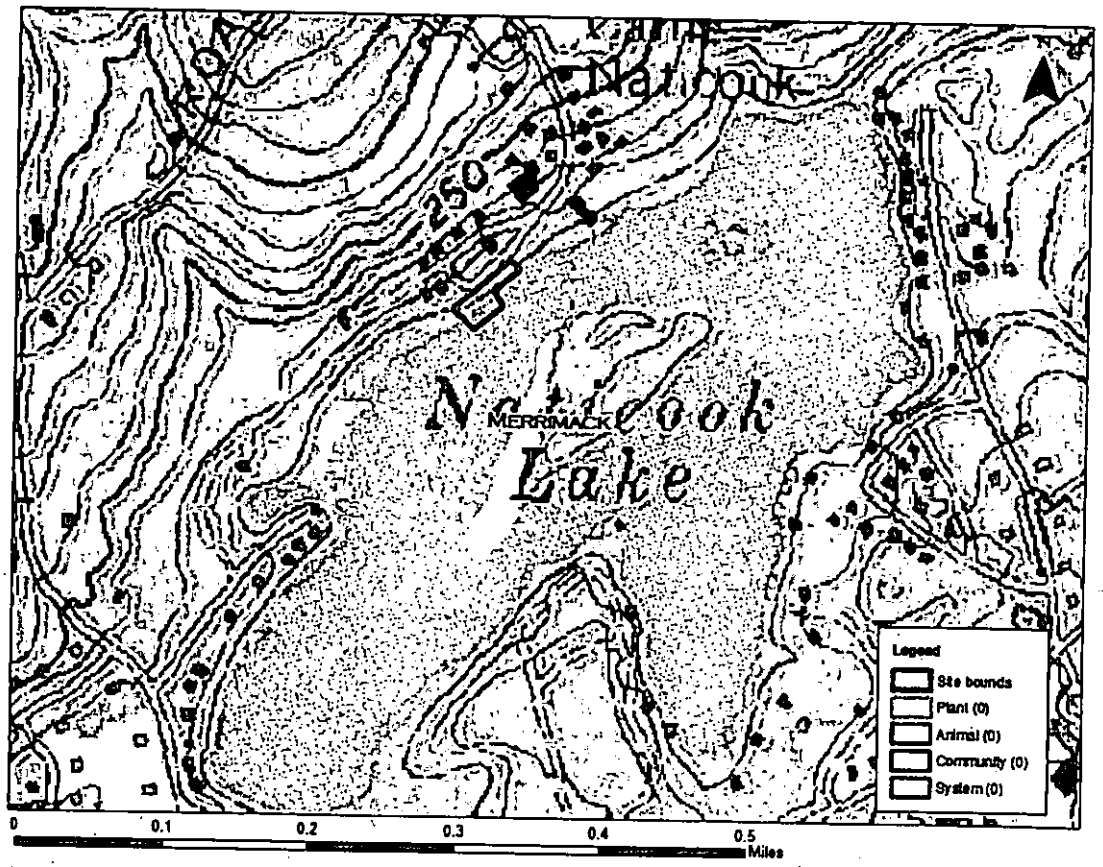
Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

NEW HAMPSHIRE NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

MAP OF PROJECT BOUNDARIES FOR: **NHB20-1053**

NHB20-1053



Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

TOWN OF MERRIMACK, New Hampshire

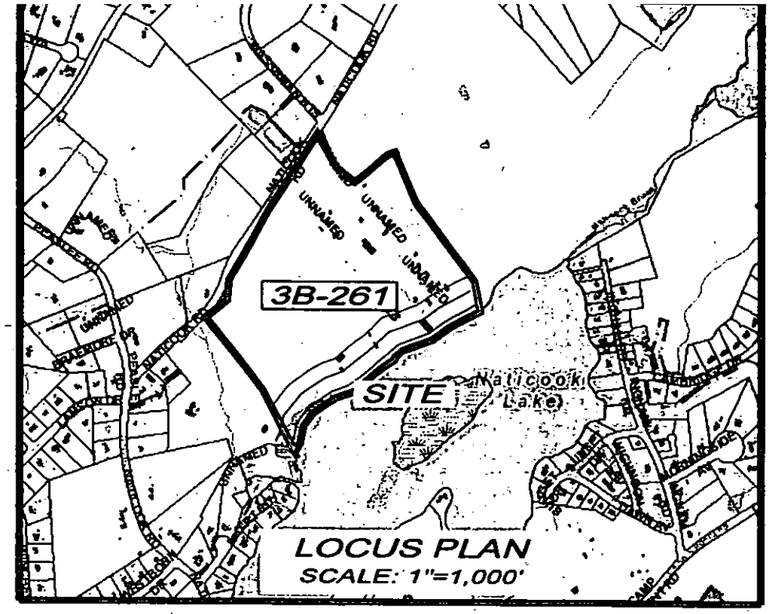
Public Works Department
6 Baboosic Lake Road
Merrimack, NH 03054

www.merrimacknh.gov
TEL: (603) 424-5137
FAX: (603) 424-1408

May 13, 2020

Wasserman Park
Abutters List Prepared for
Wetlands and Shoreland Application

Lot	Owner/Address
3B-261 3B-261-1	Town of Merrimack 6 Baboosic Lake Road Merrimack, NH 03054
3B-262	Angela B. Martin Andrew A. Schnellinger
2B-261	Peter A. & Laurie J. Cardimino



SHEET INDEX

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SHEET 4	PHASE 2 - LAKE DREDGING
SHEET 5	PHASE 3 - DOCK REPLACEMENT
SHEET 6	PHASE 4 - BEACH RESTORATION
SHEET 7	EROSION CONTROL PLAN

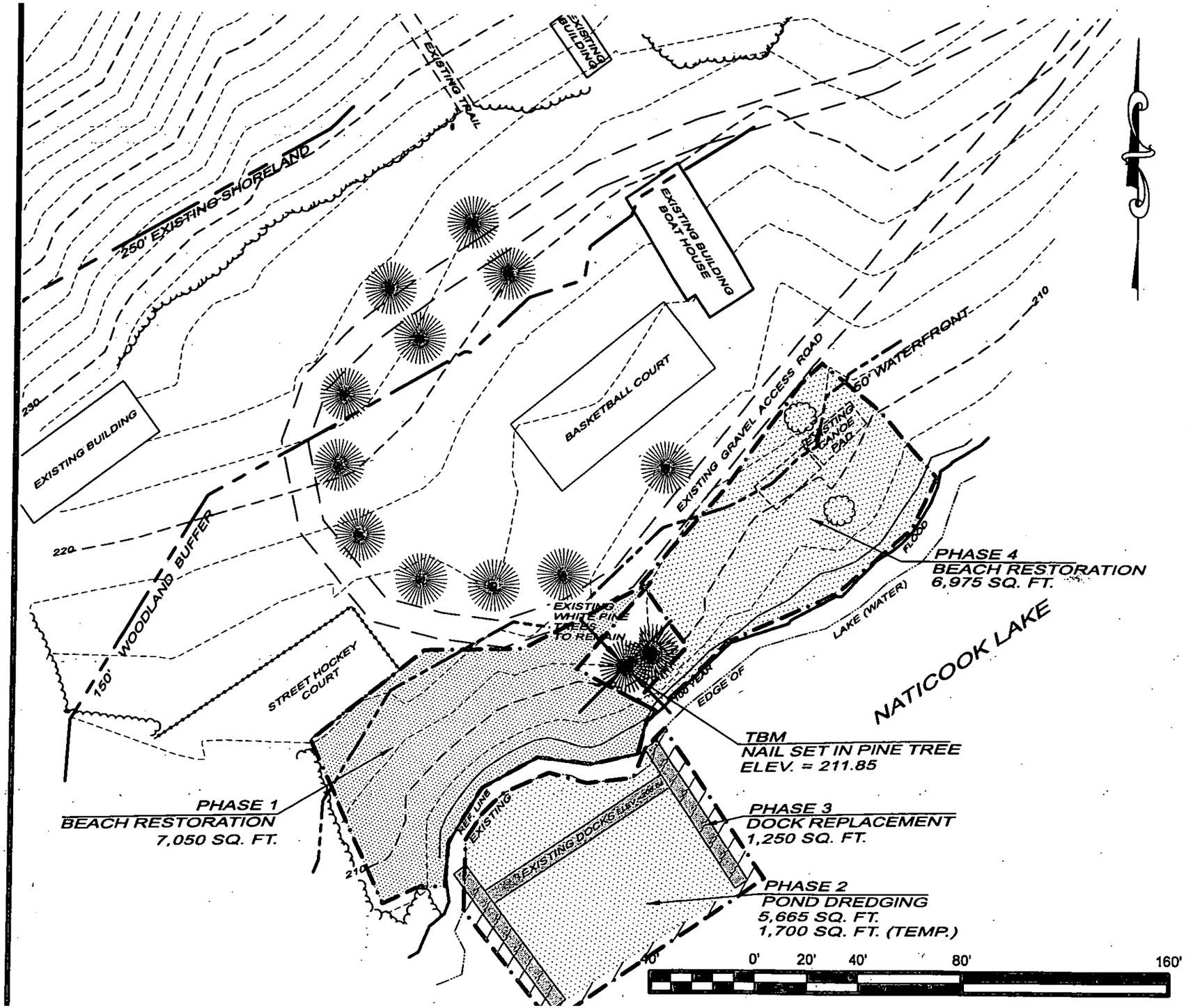
OCT 30 20

STATE OF NEW HAMPSHIRE - DAWN B. TUOMALA No. 11071 - LICENSED PROFESSIONAL ENGINEER

STATE OF NEW HAMPSHIRE - DAWN B. TUOMALA No. 104 - CERTIFIED WETLAND SCIENTIST

WASSERMAN PARK
BEACH RESTORATION PLAN
116 NATICOOK ROAD, MERRIMACK, NH

SCALE:	AS SHOWN	LOCATION PLAN
DATE DRAWN	04/21/2020	
REVISED:	10/16/2020	
DRAWN BY: MERRIMACK PUBLIC WORKS		SHEET NO. 1



LEGEND:

- EXISTING PINE TREE
- EXISTING DECIDUOUS TREE
- EXISTING CONTOUR
- EDGE OF EXISTING GRAVEL DRIVE
- HIGH WATER MARK & 100 YEAR FLOOD
- 50' WATER FRONT BUFFER
- 150' WOODLAND BUFFER
- 250' PROTECTED SHORELAND

PHASE 1: BEACH RESTORATION
CREATE A PERCHED BEACH TO PREVENT THE SAND FROM WASHING INTO THE LAKE.
SAVE THE 4 LARGE PINE TREES
7,050 SQ. FT.

PHASE 2: POND DREDGING AT THE DOCKS TO REMOVE THE SAND
7,050 SQ. FT. - TOTAL
(5,665 SQ. FT. - PERMANENT & 1,700 TEMP)

PHASE 3: DOCK REPLACEMENT
1,250 TOTAL SQ. FT.

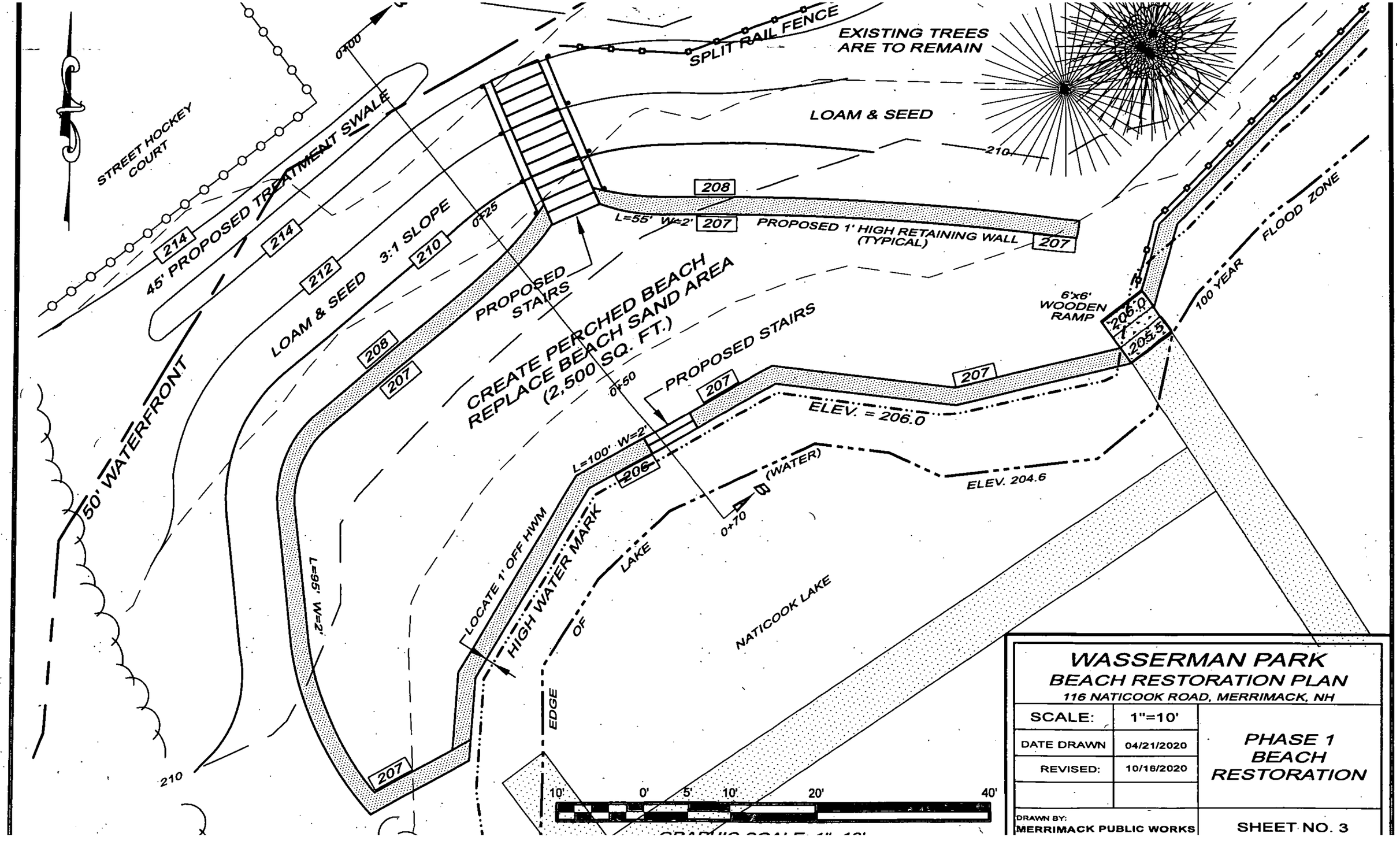
PHASE 4: BEACH RESTORATION
CREATE A PERCHED BEACH TO PREVENT THE SAND FROM WASHING INTO THE LAKE.
6,975 SQ. FT.

NOTES:

1. THE OWNER OF RECORD IS THE TOWN OF MERRIMACK, 6 BABOOSIC LAKE ROAD, MERRIMACK, NH 03054.
2. THE PARCEL IS LOCATED AT 116 NATICOOK ROAD AND IS TAX MAP 3B - LOT 261.
3. WETLANDS WERE DELINEATED IN ACORDANCE WITH THE US ARMY CORPS OF ENGINEERS 1987 WETLANDS DELINEATION MANUAL Y-87-1 AND REGIONAL SUPPLEMENT FOR NORTHEAST AND NORTH-CENTRAL REGION AND FIELD INDICATORS FOR HYDRIC SOILS IN NEW ENGLAND, BY DAWN B. TUOMALA, PE, LLS, CWS IN AUGUST 2016.
4. THE PURPOSE OF THE PLAN IS TO RESTORE THE EXISTING BEACH AREAS; TO DREDGE OUT THE POND UNDER THE DOCKS AND TO REPLACE THE EXISTING DOCKS. WORK HAS NOT BEEN DONE TO THIS AREA SINCE 1994. THE PARK WAS FORMERLY KNOWN AS NATICOOK CAMPERS AND HAS BEEN IN EXISTANCE FOR OVER 50 YEARS.
5. THE TOWN ENGINEER WILL OVERSEE ALL CONSTRUCTION FOR THE PROJECT.

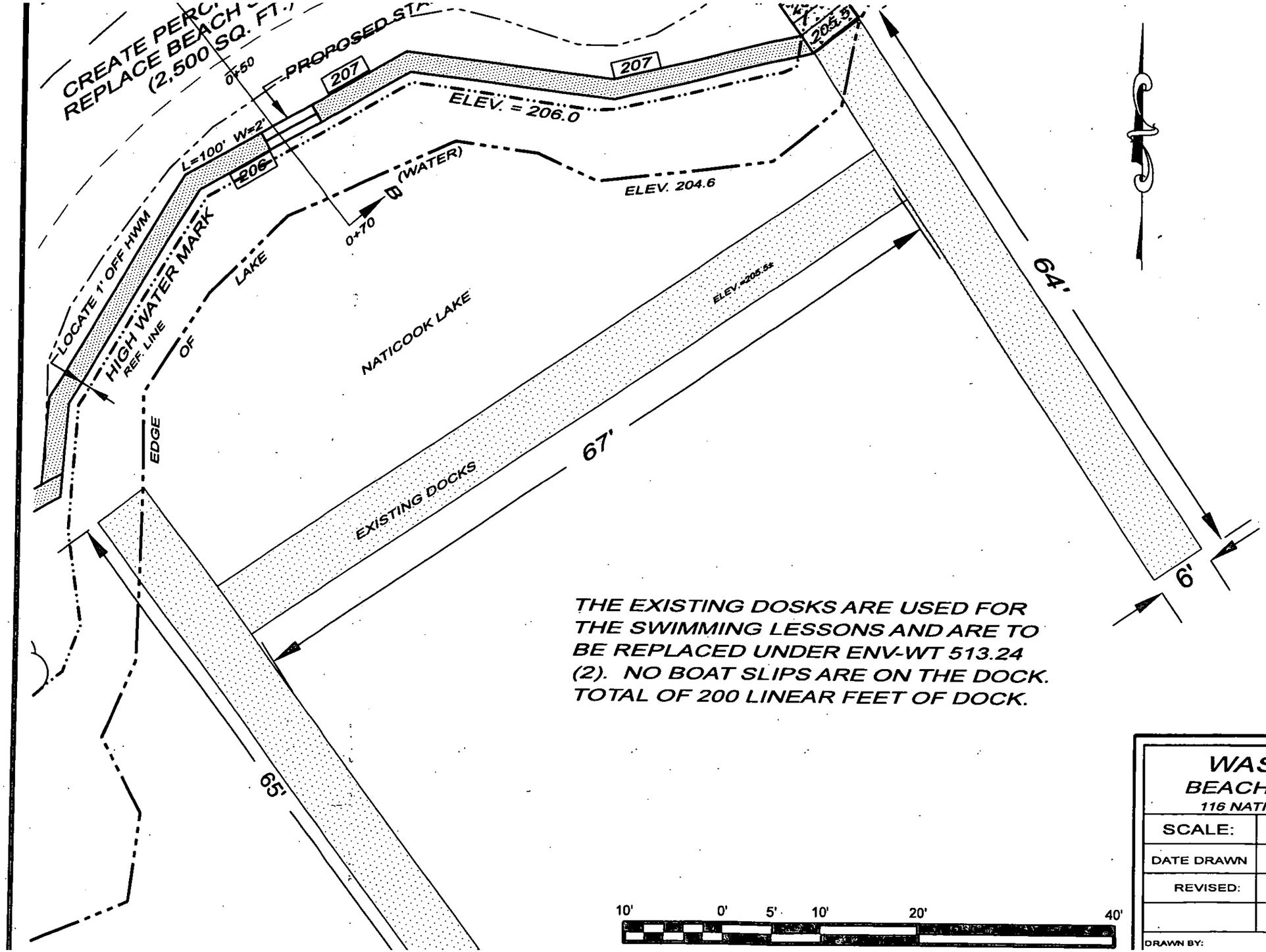
WASSERMAN PARK
BEACH RESTORATION PLAN
116 NATICOOK ROAD, MERRIMACK, NH

SCALE:	1"=40'	EXISTING CONDITIONS & PHASING PLAN
DATE DRAWN	04/21/2020	
REVISED:	10/16/2020	
DRAWN BY:		SHEET NO. 2



WASSERMAN PARK
BEACH RESTORATION PLAN
116 NATICOOK ROAD, MERRIMACK, NH

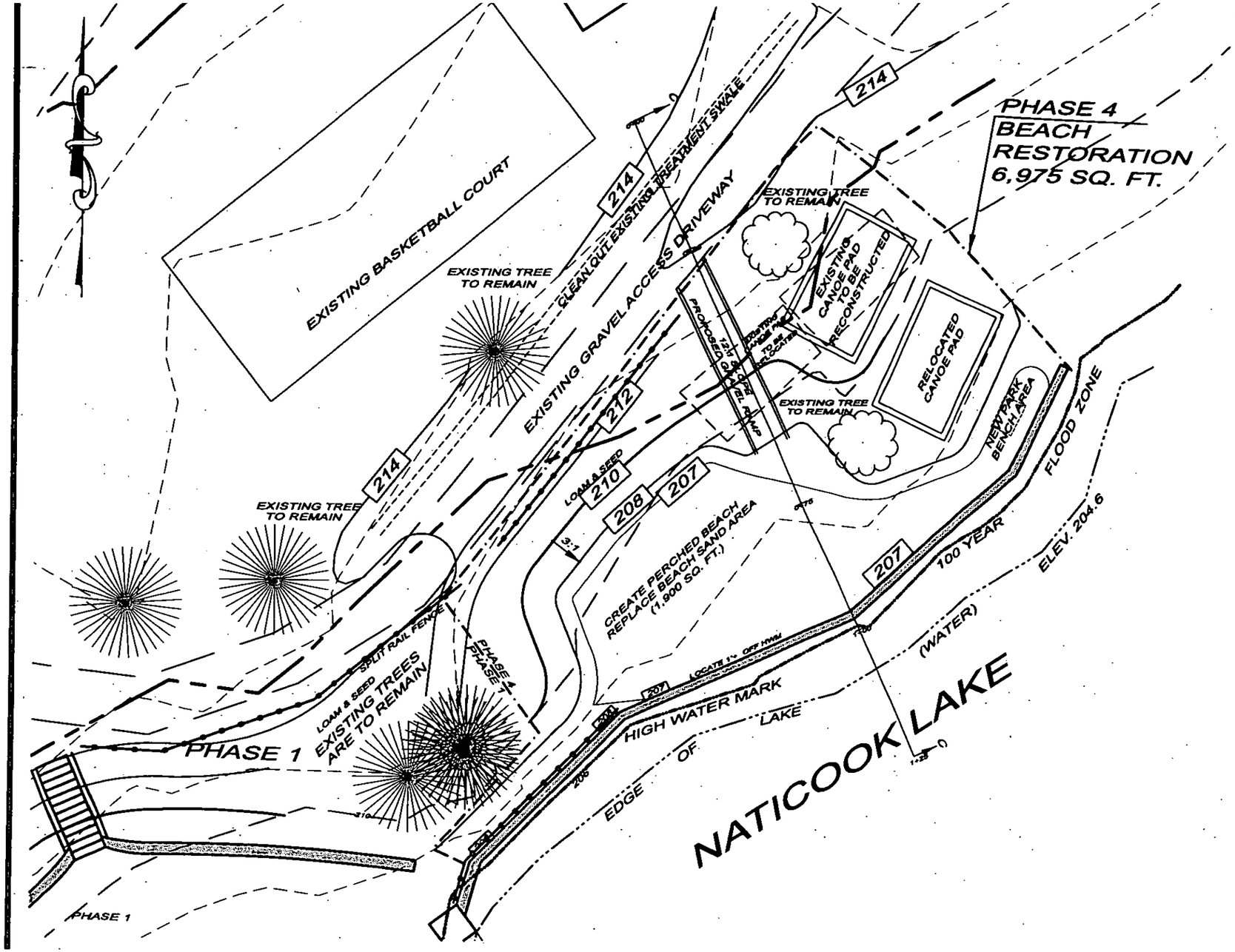
SCALE:	1"=10'	PHASE 1 BEACH RESTORATION
DATE DRAWN	04/21/2020	
REVISED:	10/16/2020	
DRAWN BY: MERRIMACK PUBLIC WORKS		SHEET NO. 3



THE EXISTING DOSKS ARE USED FOR THE SWIMMING LESSONS AND ARE TO BE REPLACED UNDER ENV-WT 513.24 (2). NO BOAT SLIPS ARE ON THE DOCK. TOTAL OF 200 LINEAR FEET OF DOCK.

10' 0' 5' 10' 20' 40'

WASSERMAN PARK BEACH RESTORATION PLAN 116 NATICOOK ROAD, MERRIMACK, NH		
SCALE:	1"=10'	PHASE 3 DOCK REPLACEMENT
DATE DRAWN	04/21/2020	
REVISED:	10/16/2020	
DRAWN BY:		



20' 0' 10' 20' 40' 80'

GRAPHIC SCALE: 1"=20'

NOTES:

1. RECONSTRUCT THE EXISTING CANOE PAD AREA. CREATE A CONCRETE BLOCK (OR WOOD) EXTERIOR ENCLOSURE AND REPLACE THE EXISTING MULCH WITH PEA STONE FOR BETTER INFILTRATION. CREATE A LEVEL SURFACE TO KEEP THE MATERIAL IN PLACE.
2. RELOCATE THE SECOND CANOE PAD TO BELOW THE FIRST ONE. CONSTRUCT THE SAME AS THE FIRST ONE.
3. CREATE A PERCHED BEACH AREA.
4. CREATE A 1:12 GRAVEL RAMP DOWN TO THE SAND AREA.
5. ALL OF THE EXISTING TREES ARE TO REMAIN AS PART OF THIS PROJECT.
6. A NEW PARK BENCH WAS RECENTLY INSTALLED, RELOCATE THAT AS NEEDED.
7. CONSTRUCT A SPLIT RAIL FENCE AT THE TOP OF THE SLOPE.
8. RE-DEFINE THE TREATMENT SWALE ON THE WEST SIDE OF THE GRAVEL DRIVE. GRADE DRIVEWAY AS NEEDED.

WASSERMAN PARK
BEACH RESTORATION PLAN
116 NATICOOK ROAD, MERRIMACK, NH

SCALE:	1"=20'	PHASE 4 BEACH RESTORATION
DATE DRAWN	04/21/2020	
REVISED:	10/16/2020	
DRAWN BY: MERRIMACK PUBLIC WORKS		SHEET NO. 6

Dig Safe System, Inc.

Quick Reference Installation Guide

www.AquaDam.net – 800.682.9283

Task: Fill both sides of the AquaDam at the same time and rate – the stability of the AquaDam depends on (2) equalized internal columns of water.

Consequence of Failure: Unintended movement (leaning, rolling) or in extreme cases, burst inner tubing.

Two blue-color hoses are used to fill the two AquaDam inner tubes

Task: Make a Turn – The AquaDam must not be filled above surrounding water level. Pull the material of the AquaDam on the inside edge of the turn, to get slack into the inside of the turn, re-orienting the AquaDam roll. Turn down the pump(s) filling the side of the AquaDam along the inside of the turn to help form this turn.

Consequence of Failure: AquaDam installation along unintended/undesired alignment.

One turn has been made, and another is about to be made

Task: Stop pumping when AquaDam is full. AquaDam is full when design height is achieved at lowest point along path of dam

Consequence of Failure: AquaDam will fill to design height, at the lowest spot along its path. If it is over-filled, sections of AquaDam on elevated ground will continue to fill, exerting additional pressure on the AquaDam at the lowest point along its path. The AquaDam will burst not long after exceeding its design height. Under-filling is acceptable; Over-filling is not an option.

62 tall men, 108, 150, and 218 tall AquaDam (foreground to background)

This is not intended to be a full installation guide. Please refer to the full installation guide available at www.AquaDam.net for more details. Your site conditions may vary from those depicted, and may require different installation techniques. No guarantees are offered or implied.
Copyright 2019 - Aqua Dam Inc - "Water Controlling Water"
www.AquaDam.net – 1.800.682.9283

Quick Reference Installation Guide

www.AquaDam.net – 800.682.9283

Task: Tie the starting end of the AquaDam to an anchor-point. Black seatbelt is used to tie the AquaDam to the Excavator in the picture at right

Consequence of Failure: Open starting end of the AquaDam slips down the bank, possibly reducing achievable height of the main body of the unit.

Task: Control Lines (white rope in picture) are laid beneath the AquaDam, back over the AquaDam, tied to the anchor point at the start end, with the other end of the rope held by a person, to control the rate that the AquaDam unrolls.

Consequence of Failure: AquaDam unrolls in an uncontrolled manner, subject to influence from surrounding water flow.

Task: Identify high- and low-ground – Start the dam at high ground. Avoid low ground where possible.

Consequence of Failure: Possible reduction in achievable AquaDam height, controllable water depth, or both.

Task: Elevate the open end of the outer sleeve of the AquaDam higher than the filled elevation of the main body of the AquaDam, using berm, bank, or "Starter AquaDam".

Consequence of Failure: Reduction in achievable AquaDam height, controllable water depth, or both.

8ft tall, 100ft long AquaDam sits at the top of the starting bank

8'x100' long AquaDam has been unrolled down the starting bank.

Task: Use 2"x6" boards, 1-3ft in length, to form temporary bracing along the downhill side of the AquaDam, prior to and during filling. The dam will resist down-slope movement when full, but may require the bracing support during the filling process.

Consequence of Failure: Unintended lateral/downhill movement of the AquaDam during installation process.

Many 2-board braces are in place along the side of the partially filled AquaDam.

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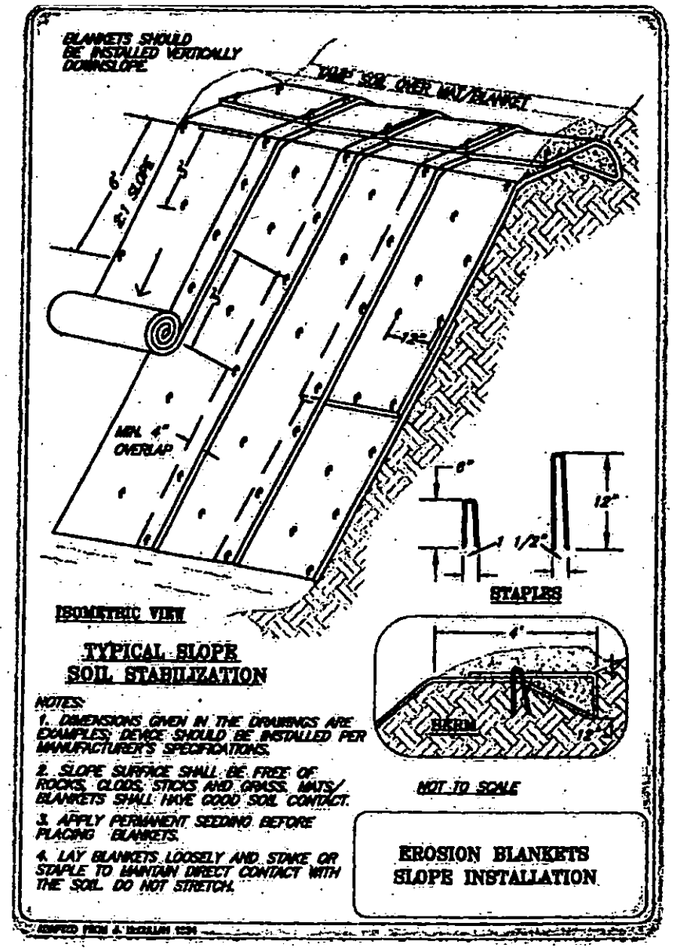
Copyright 2019 - Aqua Dam Inc - "Water Controlling Water"
www.AquaDam.net – 1.800.682.9283

NOTES:

1. THE AQUA DAM IS THE TURBIDITY CURTAIN THAT WE ARE PROPOSING TO USE AT THIS TIME.
2. TO PROTECT THE WATER QUALITY THE CURTAIN SHALL BE INSTALLED AROUND THE EXTERIOR OF THE DOCK AND SHALL ENCOMPASS THE ENTIRE LAKE AREA.
3. THE DREDGED MATERIAL SHALL BE PLACED IN A TEMPORARY SEDIMENT BASIN. THE MATERIAL IS TO THEN BE TRUCKED TO ANOTHER LOCATIN ON THE SITE THAT IS OUTSIDE THE 250' SHORELAND AREA AND IS NOT WITHIN ANOTHER WETLAND.
4. THE HEAVY EQUIPMENT SHALL NOT BE STORED, MAINTAINED, REPAIRED OR REFUELED WITHIN THE JURISDICTIONAL AREAS.
5. THE EQUIPMENT OPERATOR SHALL INSPECT THE EQUIPMENT DAILY FOR LEAKING FUEL OR HYDRAULIC FLUID AT LEAST DAILY OR AS NEEDED.
6. A SWAMP MAT CAN BE USED TO MINIMIZE THE IMPACT TO THE LAKE. THE EQUIPMENT SHALL NOT PROCEED ANY FURTHER THAN THE HORIZONTAL DOCK.
7. THE TURBIDITY CURTAIN SHALL REMAIN IN PLACE UNTIL ALL OF THE WORK HAS BEEN STABILIZED. THE CURTAIN SHALL NOT BE REMOVED UNTIL AFTER THE CONTAINED WATER HAS RETURNED TO BACKGROUND CLARITY AND THE REMOVAL SHALL NOT CAUSE ANY DEGRADATION OF THE SURROUNDING WATER.
8. THE PROJECT SHALL BE OVERSEEN BY THE TOWN ENGINEER.

WASSERMAN PARK
BEACH RESTORATION PLAN
116 NATICOOK ROAD, MERRIMACK, NH

SCALE:	AS SHOWN	DETAIL SHEET TURBIDITY CURTAIN
DATE DRAWN	04/21/2020	
REVISED:	10/16/2020	
DRAWN BY:		



NOTES:

1. ALL EROSION CONTROL MEASURES ARE TO BE PUT INTO PLACE PRIOR TO BEGINNING ANY WORK.

2. THE EROSION CONTROL MEASURES ARE TO REMAIN IN PLACE UNTIL ALL OF THE WORK HAS BEEN STABILIZED.

3. ALL WORK SHALL BE CONDUCTED UNDER THE SUPERVISION OF THE TOWN ENGINEER.

4. THE PROJECT IS TO BE DONE IN THE FALL WHILE THE LAKE IS AT ITS LOWEST LEAVE AND AFTER THE SUMMER SEASON IS OVER. THE VEGATATION WILL BE DYING OFF AND THE FISH GOING DEEPER INTO THE LAKE.

CONVEYANCE SWALE

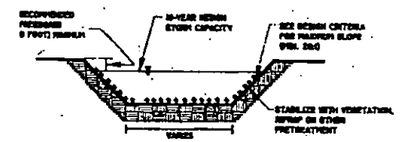
3. CONVEYANCE SWALES

General Description

Conveyance swales are stabilized channels designed to convey runoff at non-erosive velocities. They may be stabilized using vegetation, riprap, or a combination, or with an alternative lining designed to accommodate design flows while protecting the integrity of the sides and bottom of the channel. Conveyance channels may provide incidental water quality benefits, but are not specifically designed to provide treatment. Conveyance swales are not considered a Treatment or Pretreatment Practice under the AoT regulations, unless they are also designed to meet the requirements of an acceptable Treatment/Pretreatment Practice as described elsewhere in this Chapter.

Example Design

Section



Adapted from MassHighway (2004)

Maintenance Requirements

- Grassed channels should be inspected periodically (at least annually) for sediment accumulation, erosion, and condition of surface lining (vegetation or riprap). Repairs, including stone or vegetation replacement, should be made based on this inspection.
- Remove sediment and debris annually, or more frequently as warranted by inspection.
- Mow vegetated channels based on frequency specified by design. Mowing at least once per year is required to control establishment of woody vegetation. It is recommended to cut grass no shorter than 4 inches.

Design References

- EPA (1999e)

Design Criteria

Design Parameter	Criteria
Shape	Trapezoidal or parabolic
Side Slopes	3:1 or flatter (if not lined with riprap) 2:1 (if lined with riprap) Alternative slopes may be possible with properly designed turf reinforcement. Such design should be documented.
Design Capacity	10-year, 24-hour storm

GRASS TREATMENT SWALE

Maintenance Requirements

- Inspect annually for erosion, sediment accumulation, vegetation loss, and presence of invasive species.
- Perform periodic mowing; frequency depends on location and type of grass. Do not cut shorter than Water Quality Flow depth (maximum 4-inches).
- Remove debris and accumulated sediment, based on inspection.
- Repair eroded areas, remove invasive species and dead vegetation, and reseed with applicable grass mix as warranted by inspection.

Design References

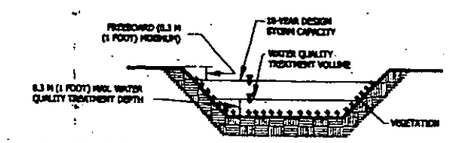
- Minton (2005)

Design Criteria

Design Parameter	Criteria
Minimum Length	≥ 100 feet (not including portions in a roadside ditch)
Bottom Width	4 to 8 feet (widths up to 16 feet are allowable with dividing berm/structure such that neither channel width exceeds 8 feet)
Longitudinal Slope	0.5% to 2% without check dams 2% to 5% with check dams
Maximum Side Slopes	3:1
Flow Depth	4 inches maximum at the WQF
Hydraulic Residence Time	> 10 minutes during the WQF
Design Discharge Capacity	10-year, 24-hour storm without overtopping

Example Design

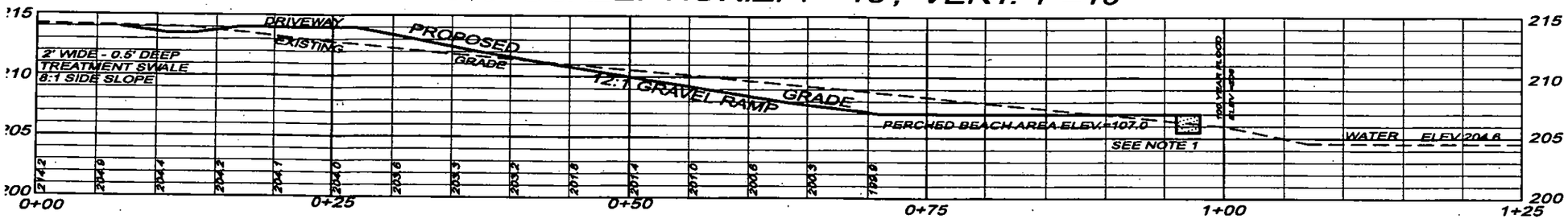
Section



Adapted from MassHighway (2004)

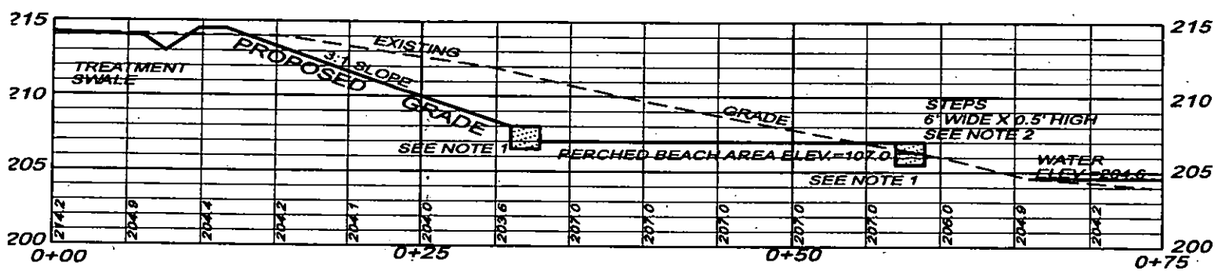
WASSERMAN PARK BEACH RESTORATION PLAN 116 NATICOOK ROAD, MERRIMACK, NH		
SCALE:	AS SHOWN	DRAINAGE & EROSION CONTROL DETAIL SHEET
DATE DRAWN	04/21/2020	
REVISED:	10/16/2020	
DRAWN BY: MERRIMACK PUBLIC WORKS		SHEET NO. 8

PROFILE C-C SCALE: HORIZ. 1"=10'; VERT. 1"=10'



PHASE 4 PERCHED BEACH CROSS SECTION

PROFILE B-B SCALE: HORIZ. 1"=10'; VERT. 1"=10'

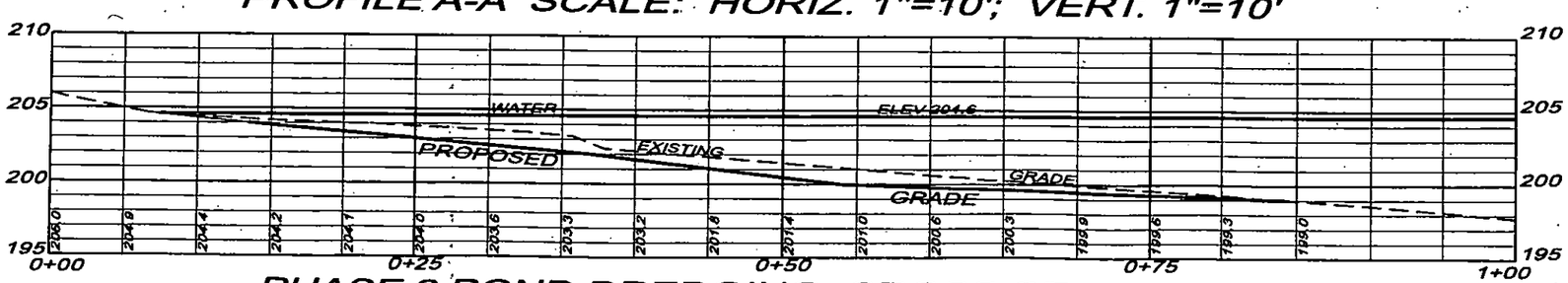


PHASE 1 PERCHED BEACH CROSS SECTION

NOTES:

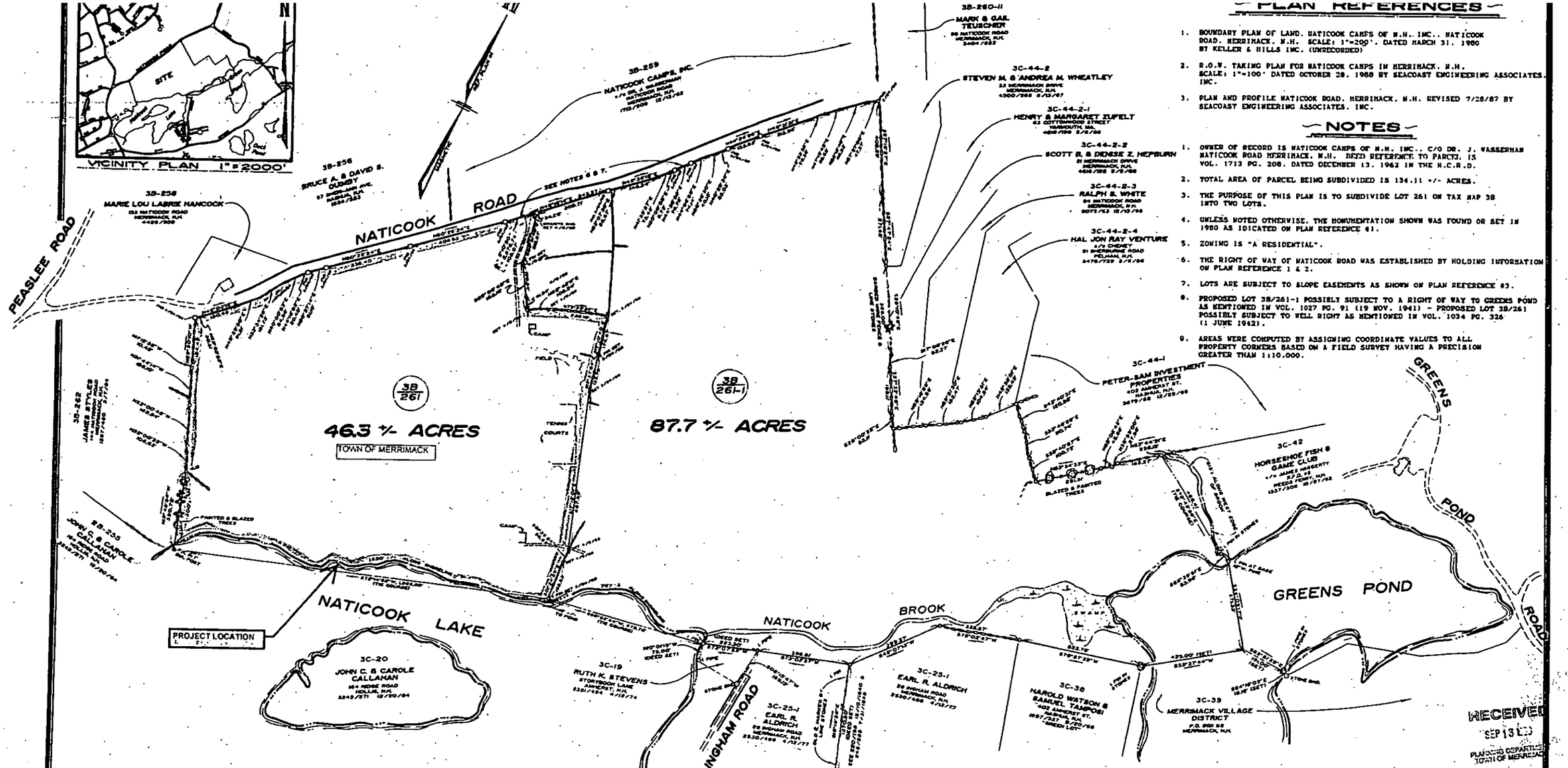
1. THE RETAINING WALLS ARE ANTICIPATED TO BE MADE OUT OF GRANITE BLOCKS THAT WE HAVE SAVED FROM PREVIOUS PROJECTS. IF THERE ISN'T ENOUGH BLOCKS THEN WE WILL GO WITH A MANUFACTURED PRODUCT SUCH AS REDI-ROCK.
2. THE STAIRS WILL ALSO BE CONSTUCTED FROM EITHER WOOD OR THE GRANITE DEPENDING UPON THE COSTS.
3. THERE WILL BE AT LEAST A ONE FOOT DIFFERENCE BETWEEN THE HWM AND THE CONSTRUCTION OF THE RETAINING WALL.

PROFILE A-A SCALE: HORIZ. 1"=10'; VERT. 1"=10'



PHASE 2 POND DREDGING CROSS SECTION

WASSERMAN PARK BEACH RESTORATION PLAN 116 NATICOOK ROAD, MERRIMACK, NH		
SCALE:	AS SHOWN	CROSS SECTIONS
DATE DRAWN	04/21/2020	
REVISED:	10/16/2020	
DRAWN BY: MERRIMACK PUBLIC WORKS		SHEET NO. 2



PLAN REFERENCES

1. BOUNDARY PLAN OF LAND. NATICOOK CAMPS OF N.H. INC., NATICOOK ROAD, MERRIMACK, N.H. SCALE: 1"=200'. DATED MARCH 31, 1980 BY KELLER & HILLS INC. (UNRECORDED)
2. R.O.W. TAKING PLAN FOR NATICOOK CAMPS IN MERRIMACK, N.H. SCALE: 1"=100' DATED OCTOBER 28, 1988 BY SEACOAST ENGINEERING ASSOCIATES, INC.
3. PLAN AND PROFILE NATICOOK ROAD, MERRIMACK, N.H. REVISED 7/28/87 BY SEACOAST ENGINEERING ASSOCIATES, INC.

NOTES

1. OWNER OF RECORD IS NATICOOK CAMPS OF N.H. INC., C/O DR. J. WASSERMAN NATICOOK ROAD MERRIMACK, N.H. DEED REFERENCE TO PARCEL IS VOL. 1713 PG. 208, DATED DECEMBER 13, 1962 IN THE H.C.R.D.
2. TOTAL AREA OF PARCEL BEING SUBDIVIDED IS 134.11 +/- ACRES.
3. THE PURPOSE OF THIS PLAN IS TO SUBDIVIDE LOT 261 ON TAX MAP 3B INTO TWO LOTS.
4. UNLESS NOTED OTHERWISE, THE MONUMENTATION SHOWN WAS FOUND OR SET IN 1980 AS IDICATED ON PLAN REFERENCE #1.
5. ZONING IS "A RESIDENTIAL".
6. THE RIGHT OF WAY OF NATICOOK ROAD WAS ESTABLISHED BY HOLDING INFORMATION ON PLAN REFERENCE 1 & 2.
7. LOTS ARE SUBJECT TO SLOPE EASEMENTS AS SHOWN ON PLAN REFERENCE #3.
8. PROPOSED LOT 3B/261-1 POSSIBLY SUBJECT TO A RIGHT OF WAY TO GREENS POND AS MENTIONED IN VOL. 1027 PG. 91 (19 NOV. 1941) - PROPOSED LOT 3B/261 POSSIBLY SUBJECT TO WELL RIGHT AS MENTIONED IN VOL. 1034 PG. 326 (1 JUNE 1942).
9. AREAS WERE COMPUTED BY ASSIGNING COORDINATE VALUES TO ALL PROPERTY CORNERS BASED ON A FIELD SURVEY HAVING A PRECISION GREATER THAN 1:10,000.

I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY MADE IN 1980 AND 1989, USING A THEODOLITE AND E.D.M. AND HAVING A PRECISION GREATER THAN 1:10,000.

No. 661 GEORGE F. KELLER

LEGEND

- o DENOTES DRILL HOLE UNLESS NOTED OTHERWISE
- □ DENOTES CONCRETE BOUND FOUND UNLESS NOTED OTHERWISE

APPROVED BY THE MERRIMACK PLANNING BOARD

CHAIRMAN _____ DATE 9/13/89

SECRETARY _____ DATE 9/13/89

REVISIONS			
DATE	NO	DESCRIPTION	BY
7-28-90	1	ADD NOTE #8	RAS
9-27-90	2	REVISE CONFIGURATION, ADD NOTE #9, REVISE AREAS TO NEAREST 0.1ACRE	D.J.S.

RECEIVED SEP 13 1989 PLANNING DEPARTMENT TOWN OF MERRIMACK

SUBDIVISION PLAN: MAP 3B, LOT 261

NATICOOK CAMPS OF N.H., INC.

NATICOOK ROAD

MERRIMACK, N.H.

PREPARED FOR:

TOWN OF MERRIMACK, N.H.

FEET / METERS

SCALE: 1" = 200' APRIL 10, 1989

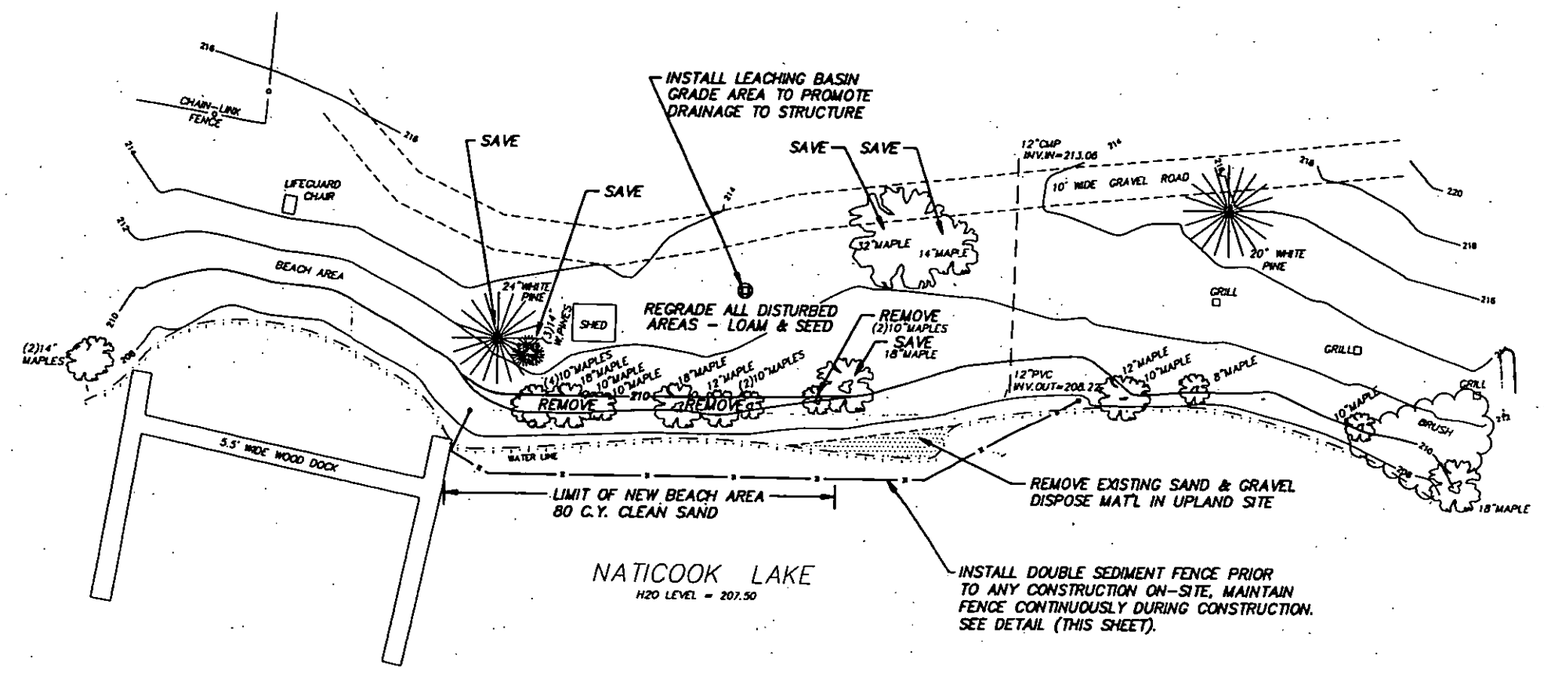
PREPARED BY:

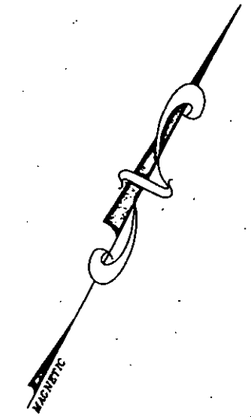
GEORGE F. KELLER INC.

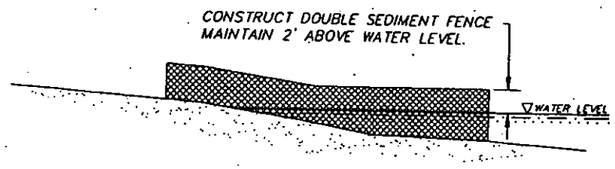
LAND SURVEYORS PLANNERS CIVIL ENGINEERS

P.O. BOX 636, DANIEL WEBSTER HIGHWAY

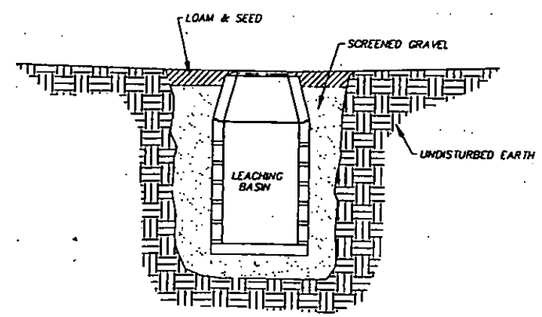
MERRIMACK, NEW HAMPSHIRE 03054 PH. 1-603-424-1000







FENCE DETAIL
NOT TO SCALE



LEACHING BASIN DETAIL
NOT TO SCALE

DATE	NO.	DESCRIPTION	BY

NATICOOK LAKE BEACH RESTORATION

WASSERMAN PARK

MERRIMACK, N.H.

PREPARED FOR:

TOWN OF MERRIMACK
DEPARTMENT OF RECREATION
MERRIMACK, N.H.

SCALE: 1"=20' OCTOBER 21, 1994

1 inch = 20 feet

1 inch = 6.096 meters

PREPARED BY:

GEORGE F. KELLER INC.

LAND SURVEYORS PLANNERS CIVIL ENGINEERS
P.O. BOX 536, 636 DANIEL WEBSTER HIGHWAY
MERRIMACK, NEW HAMPSHIRE 03054 (603) 424-1000

23.83	TOWN OF MERRIMACK	D					862303.DWG