South Shore Coastal Infrastructure Inventory and Assessment Demonstration Project

Coastal Hazards Commission

Town of Hingham

Prepared for:
Office of Coastal Zone Management
Boston, MA

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Section I – Coastal Hazards Infrastructure and Assessment Program

INTRODUCTION

The Project and Client

The Commonwealth of Massachusetts has initiated a Coastal Hazards Commission (CHC) to identify the vulnerability of the state to coastal hazards. As one of five working groups working under the CHC, the 20-Yr Infrastructure Plan was to establish a prioritization for the repair of coastal structures. The focus areas of the Working Group include:

- Publicly owned infrastructure
- Infrastructure for which State is responsible
- Inventory of public hazards infrastructure
- Evaluation on conditions
- Development for a prioritization of work
- Estimation of capital and maintenance costs

The 20-Yr Infrastructure Working Group is led by Representative Frank Hynes with CZM as the lead State Agency overseeing the management of the project. The region included in the demonstration project was identified as the South Shore and included the eight communities of Hingham, Hull, Cohasset, Scituate, Marshfield, Duxbury, Kingston and Plymouth.

Consultant Team

The consultant team that performed the demonstration project was led by Bourne Consulting Engineering (***BCE***) of Franklin, MA who was responsible for overall project management, research and field assessments. Assisting ***BCE*** was Applied Coastal Research and Engineering, Inc. of Mashpee, MA who was responsible for field assessments and GIS data conversion. Alpha Land Surveying and Engineering of Middleboro, MA also supported the Team with field GPS survey.

PURPOSE

Study Purpose

CZM seeks to identify the capacity of Massachusetts coastal structures to resist major coastal storms and prevent storm damage. In working toward this goal, CZM has initiated a program to perform an assessment of Commonwealth owned and/or maintained coastal structures. The first phase of this program is the performance of a demonstration project for coastal structures located on the South Shore. The demonstration project will identify existing structures, their general conditions, ability to provide coastal protection and the probable cost for repairs. The information collected and developed will be incorporated into the MassGIS system to allow use for developing a 20 Year Coastal Infrastructure Plan.

As this is a demonstration project, it will serve as the basis for development of a statewide inventory and assessment of all Commonwealth coastal structures and the needs for their maintenance and/or repair. Incorporated into this project will be the identification of issues and limitations of the investigation and

assessment to achieve the overall goals and what should be included in future investigations/assessments of coastal structures for the other regions.

Goals of Study

The goals of the South Shore Coastal Infrastructure Inventory and Assessment Project include:

- To be used as the model to go forward for assessment of coastal structures for the remainder of the coastal regions
- To identify areas of research and/or assessment that need to be modified for future phases that were not included within the demonstration project
- Complete the study with the final report by November 15, 2006 for submission to the Coastal Hazards Commission
- To identify all the coastal structures the state either owns or has responsibility to maintain for the eight communities included within the study
- Of the structures identified, determine the structure location and characteristics, the structure condition relative to providing coastal protection and the structure importance in relation to what it is protecting.
- To the degree possible, identify the structure elevation and the FIRM mapping flood elevation and category.
- To the degree possible, identify structure owner and available documents from local, state and federal agencies.
- To establish an estimated cost to rehabilitate the coastal structures to provide the level of project established in the structure's original design.
- Provide the information in a format compatible for incorporation into the MassGIS system

Limit of Study

Due to the time constraints and the amount of effort necessary to collect, process and compile the information, the following are identified as limitations of the information presented:

- All property ownership was taken as presumed. No legal investigation of ownership was performed during the project. Property ownership is based on town assessor maps. Where structures were located outshore of assessor map defined property lines, it was assumed to be Town land unless other information indicated otherwise. Where structures were located outshore of Mean Low Water, property is assumed to be State owned.

- The structure ownership was based on assessor maps and research at the local, state and federal levels. Where there was indication of public work on a structure on Town land or on private property, the structure was presumed to be Town owned. Where the structure was on state property, the structure was presumed to be state owned. Where ownership of the structure was not clear but was located on private property, the structure ownership was defined as unknown.

- The study included town and state owned structures as it was assumed that most town owned structures received state funding at some level for construction and/or maintenance.
    - Federal structures were identified but no assessment of conditions or priority was performed.
    - Structures that were determined to be private were not included.
    - Undocumented structures considered to be on private land, but having the potential to have been publicly built and/or maintained, were identified as having an "unknown ownership".

- The prioritizing of structures was based primarily on risk to general infrastructure and density of housing. Infrastructure included was buildings. The study did not consider all infrastructure issues including:
  - No consideration on utility impacts – water, electrical, sewer, gas
  - No consideration of roadway and bridge protection
  - Evacuation routes were not considered within the investigation
  - Location of Emergency Shelters were not included in priority assessments
- Research was performed at the local, state and federal levels. The local research was limited to location and documenting available coastal structure contract drawings. Research at DCR was restricted to available historic construction plans for coastal structures at the MA-DCR Waterways office in Hingham, MA. No investigation of state archives was performed. Research at MA DEP Chp 91 and USACE was limited to recorded permits and licenses found in their files. No investigation was performed at the Registry of Deeds.

DEVELOPMENT OF MassGIS DATABASE ATTRIBUTES

The specific attributes that would be incorporated into the MassGIS system were developed based on the scope of work and the goals to be achieved. The following was established to standardize the data collection and presentation and to allow total flexibility for sorting by attributes in the final GIS database. The attributes identified below were input into a MS Access database which was used to manage the data from all eight communities within a single file.

Database Attributes

- Attribute Descriptions/Definitions

Structure Number: A unique structure number was given to each coastal structure. The number was based on existing numbering systems that include the State Department of Environmental Protection community number followed by the local community assessor's parcel numbering system. The last three digits of the number represent the structure within the parcel. Where structures extend over several parcels, the structure is referenced to a parcel that is approximately in the center of the structure. Where Town assessor's references include letters, those are also included within the structure number. Some communities have block numbering within their numbering system and these are included. Communities without block numbering still have the block numbering included but these are illustrated as all zeros for that specific segment.

Structures that are on Town property, which would otherwise not have a parcel number, are referenced to a parcel that is in the immediate vicinity of the coastal structure.

On this basis, the following is the general numbering convention:

CCC-MMM-PPP-BBB-SSS

Where:	CCC	DEP Community Number
	MMM	Community Map Number
	BBB	Block Number (000 if no block numbering system)
	PPP	Community Parcel Number
	SSS	Structure Number

Property Ownership: All property ownership was on a "presumed" basis as no legal verification of ownership was performed. The ownership of the property was classified under four basic areas which were private ownership (Private), Town ownership (Local), Commonwealth of Massachusetts ownership (State), federal government ownership (Federal) or unknown. Property ownership was based on Town assessor's maps. Where the location was located above Mean Low Water, and not within a defined parcel, the property ownership was presumed to be the Town unless documentation was found to indicate otherwise. Where a structure was located offshore of Mean Low Water, the property ownership was presumed to be the state.

Structure Ownership: The ownership of all structures is presumed as no verification of ownership was performed. Ownership of the structure was determined by research into historic state and federal permits and the entity indicated on the permits as the applicant. Where no other information was found, the following was utilized:

- Structures located on private land but appearing to be significant structures were identified as owned by the Town or as "Unknown". Unknown was used were there was a question of local or private ownership.
- Structures on Town property were assumed to be owned by the Town
- Structures that were located off-shore were presumed to be federally owned
- Structures that were identified as being privately owned were eliminated from the database

Basis of Ownership: The basis of structure ownership was provided to give rationale to the structure ownership and identified the research resource that identified the ownership or the methodology otherwise used. The responses utilized were limited to the following:

- DPW – DPW Employee Interview
- DCR - Contract Drawings
- DEP – Ch 91 License
- USACE – Permits
- Property Ownership
- Offshore Structure

Structure Owner's Name: Ownerships names reflect the presumed owner of publicly owned structures. As this was for public structures only, the ownership was restricted to the community name, the state agency or the federal agency.

Earliest Structure Record: The year of the oldest document located for the structure. The information is determined from the document research performed on the structure from local, state and federal agencies. If no documents could be found than this entry is denoted as 'Unknown". Where documentation of the structure could be found, the date from the oldest document was utilized.

Primary Structure / Secondary Structure: Many of the coastal structures consisted of combined structures which were rated separately. It was typically found that one structure was significantly more predominant (Ex. Bulkhead/Seawall) and was therefore identified as the Primary Structure while a smaller structure might exist in front (ex. Revetment) of it. The type, height and material of each structure are identified separately. The condition of each structure was based on the Primary Structure. Where there was no secondary structure, the fields were left blank.

Structure Type: The structure type was categorized into five basic coastal structure categories which were Bulkhead/Seawall, Revetment, Coastal Beach, Coastal Dune, and Jetty/Groin.

Structure Material: The identification of the coastal structure's material of construction was performed and represents the primary material. Stone structures consisted of both mortared and non-mortared conditions.

Structure Height: Each type of structure was categorized by its visible height in feet which was broken into four specific ranges which are:

< 5 feet 5 to 10 feet 10 to 15 feet >15 feet

Structure Condition: A preliminary assessment of the condition for each structure was performed by the field teams. This was by visual observation only and no detailed investigation was performed. The condition assessments were based on a predefined five level rating system that ranged from Rating A for Excellent Condition to Rating F for Critical Condition. A detailed listing of the conditions and their definitions can be seen in Exhibit A.

Priority Rating: In order to account for the need for protection at any one site, a five level priority rating system was established. This allowed for consideration of public infrastructure protection, density of residential housing for development of structure overall importance for coastal protection. The ratings range from Level 1 for no infrastructure or residence protection to Level 5 for critical inshore infrastructure protection and/or high density residential. The detailed listing and definitions for the priority categories can be seen in Exhibit B.

Structure Repair / Reconstruction Cost: A preliminary estimation of construction costs to maintain or repair structures was made based on the preliminary field assessment of the structures. A Repair Cost Matrix was developed based on structure type, condition, height and material and can be seen in Exhibit C. Once each structure's type, height, and material classifications were determined, the cost per foot for the structure was determine from the Repair Cost Matrix and multiplied by the length of the structure to obtain the estimated repair/restoration cost. The cost matrix repair costs include a 20 percent construction cost contingency as well as 10 percent costs for engineering and permitting.

Structure Length: The length of each structure is provided and utilized in the development of the repair/reconstruction costs. The lengths are given to the nearest foot and taken as the linear distance along the structure, as determined by the GPS location, which takes into account structure angles and curvature.

Structure Elevation: The elevation of structures was determined in feet from existing information where available. The datum used is NAVD 88 and elevations are to the nearest foot. From a previous study much of the south shore coastal structures had elevations defined based on LIDAR mapping data. Where available structure documentation with elevations was found, in areas with no LIDAR data, the information was included within the structure information. Where there was no LIDAR information or existing documentation, the item has been left blank.

> LIDAR (Light Detection and Ranging) is technology that is currently being used for high-resolution topographic mapping by mounting a LIDAR sensor, integrated with Global Positioning System (GPS) and inertial measurement unit (IMU) technology, to the bottom of aircraft and measuring the pulse return rate to determine surface elevations.

FEMA Zone and Elevation: For each structure the FEMA Flood Insurance Rate Maps (FIRM) were researched for their Flood Zone designation and their Base Flood Elevation from the most recent FIRM maps for the specific Town. The elevations are provided in feet on the same datum as the FIRM maps (NGVD) with no adjustments or conversions.

Structure Comments: The engineering team provided a brief description and comment on the structure at the time of the field assessments which is provided in support of the condition rating that was given for the structure.

Pictures: At the time of the field assessments, digital photographs were taken to provide a general overview of the structure. The number of pictures were limited to a maximum of six. The first photograph for each structure is shown on the Structure Assessment Form. The list of all photographs is provided on the form.

Town Documents: Town documents represent the structure information that could be found in the Town's DPW/Engineering Department records. Where particular records could be found, a table of document information was developed and included within the database with limited descriptions.

MA - DCR Documents: MA-DCR documents represent the structure information that could be found within DCR – Waterways office in Hingham Where particular records could be found, a table of document information was developed and included within the database with limited descriptions.

MA - DEP Chp. 91 Licenses: MA-DEP Chapter 91 license documents represent the structure information that could be found within MA-DEP Chp 91 records in Boston. Where particular records could be found, they were scanned as pdf files and attached to the structure through the GIS database information. In addition, a table of license document information was developed and included within the database with limited descriptions

USACE Permits: USACE Permits represent the structure information that could be found within the Army Corp of Engineers regulatory office in Concord, MA. Where particular records could be found, they were scanned as pdf files and attached to the structure through the GIS database information. In addition, a table of license document information was developed and included within the database with limited descriptions.

DEVELOPMENT OF REPAIR / RECONSTRUCTION COSTS

A matrix to be used within the database has been developed to assess likely rehabilitation/repair costs to restore the coastal structures to their original design condition. No attempt was made to assess the level of exposure and associated level of protection that might be required to meet current design standards for these structures. These costs are only an estimation to bring these structures back to their original design intent based on 2006 construction costs.

The development of the cost matrix is based on the following:

Structure Condition Ratings – The condition of the coastal structures was determined in the field by the survey crew which was led by an engineer with waterfront structure assessment and design experience. The definitions of the rating criteria utilized for the assessments is presented elsewhere.

The cost implications for each rating condition are as follows:

- A Rating Structures not requiring any maintenance, repair or rehabilitation cost and would not be expected to experience damage if subject to a major coastal storm event
- B Rating Structures requiring limited or no repair and would be expected to experience only minor damage if subject to a major coastal storm event. The

value of these maintenance costs is assumed to be 10 percent of the construction cost.

- C Rating — Structures requiring moderate to significant level of repair or reconstruction and would be expected to experience significant damage if subject to a major coastal storm event. The structure is presumed to be effective under a major storm event. The value of the repair costs is assumed to be 50 percent of the construction cost.
- D Rating — Structures requiring significant level of rehabilitation or total reconstruction and would be expected to experience significant damage or possibly fail if subject to a major coastal storm event. The value of the repair costs is assumed to be 100 percent of the construction cost.
- F Rating — Structures requiring complete reconstruction and would expect to provide little or no protection from a major coastal storm event. The value of the repair costs is assumed to be 100 percent of the construction cost plus a cost for removal/disposal of the original structure.

Height of Structure – Height of a structure is a major factor in the structure cost and therefore was identified as a significant factor is assessing rehabilitation/repair construction costs. The structures were broken down into four major categories which were:

< 5'	Structures that were less than five feet in height
5'-10'	Structures five to 10 feet in height
10'-15'	Structures over 10 feet to 15 feet in height
> 15'	Structures greater than 15 feet in height – assumed 20 feet typical

Length of Structure – Length is based on field GPS location with measurements rounded to the nearest foot.

Bulkhead / Seawall Structures – These structures are assumed to be constructed out of concrete, steel, stone or wood with each having its own criteria for establishing costs. For each structure type the following was assumed:

- Concrete Seawalls – These walls were assumed to be gravity structures with the volume of concrete used based on the bottom width being one-half of the structure height. Costs of construction were based on a per cubic yard estimate that varied from $350 to $630 per cubic yard depending on the structure height. Values for excavation and demolition of existing structure were also included.
- Stone Seawalls - These walls were treated the same as concrete seawalls and assumed to be gravity structures with the volume of the structure based on the bottom width being one-half of the structure height. Costs of construction were based on a per cubic yard estimate that varied from $350 to $630 per cubic yard depending on the structure height. Values for excavation and demolition of existing structure were also included.
- Steel Bulkheads – Steel bulkheads were presumed to be constructed with steel sheet piling. Tie back systems were presumed for structures 10 feet or greater in height. Shorter walls were assumed to have a cantilever design. The total depth of sheeting was presumed to be two times the exposed height. The cost for construction varied from $40 per square foot to $60 per square foot plus the cost of excavation and demolition.

- Timber Bulkheads – Timber bulkheads were presumed to be constructed with timber piles at eight foot on center, horizontal wales and vertical four inch sheathing. The unit costs for installed materials used were $1,500 per pile and $7.50 per bfm.

Revetment Structures – Revetment structures were presumed to be constructed of dry placed (no concrete) stone with a two on one slope and a horizontal toe and crown equal to the thickness layer established for each height condition. The total thickness of the revetment layers varied from six to ten feet with the cost of armor and under-layer stone assumed to be $50 per ton and the crushed stone base to be $15 per ton.

Groins and Jetties – Groins and jetties were assumed to be the same materials and construction as the revetment structures but would have two sides and therefore double the quantities.

Coastal Beaches – Costs for restoration of Coastal beaches presumed the placement of beach renourishment sands at a 1-on-20 slope over the existing beach conditions. The cost for deposition of sand assumed relatively close source of material and utilized $20 per cubic yard for the material installed.

Coastal Dunes – Restoration of coastal dunes assumed a cross section of renourished sand with a one-on-four slope on one side of a 25 foot width at the defined dune height. The cost for deposition of sand assumed relatively close source of material and utilized $20 per cubic yard for the material installed.

Contingency – A contingency of 20 percent was added to all costs to reflect the unknowns associated with this level of rehabilitation/repair estimating.

Engineering and Regulatory Approvals – A ten percent increase to the cost matrix prices was assessed to represent the engineering design and regulatory approval requirements for the restoration of these structures.

EXHIBIT A

Structure Condition Table – 5 Level Rating System

Preliminary Condition Assessment		Definition Based Upon Perceived Immediacy of Action and Potential to Cause Damage if Not Corrected	Level of Action Required
A	Excellent	Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm	None
B	Good	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure	Minor
C	Fair	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide additional material for full protection and extended life	Moderate
D	Poor	Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.	Major
F	Critical	Conditions of structure/landform may warrant emergency stabilization as failure may result in potential loss of property and/or life. Landform eroded, loss of integrity Structure exhibits critical levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure provides little or no protection from a major coastal storm. Actions taken to totally reconstruct structure to regain full capacity. Landform stability is severely compromised, rate of erosion/material loss may be increasing, and landform does not provide adequate protection from a major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.	Immediate

EXHIBIT B

Priority Rating System - 5 Level Rating System

Preliminary Priority Level Assessment		Level Based Upon Perceived Immediacy of Action and Presence of Potential Risk to Inshore Structures if Not Corrected	Level of Action Required
I	None	No Inshore Structures or Residential Dwelling Units Present	Long Term Planning Considerations
II	Low Priority	Inshore Structures Present with Limited potential for Significant Infrastructure Damage	Future Project Consideration
III	Moderate Priority	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)	Consider for Active Project Improvement Listing
IV	High Priority	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)	Consider for Next Project Construction Listing
V	Immediate / Highest Priority	Critical Inshore Structures Present with Potential for Infrastructure Damage and/or High Density Residential Dwellings Conditions of structure may warrant emergency stabilization as failure may result in potential loss of property and/or life. (>10 dwellings impacted / 100 feet of shoreline)	Consider For Immediate Action Due to Public Safety and Welfare Issues

CZM SOUTH SHORE COASTAL INFRASTRUCTURE INVENTORY AND ASSESMENT PROJECT

EXHIBIT C

September 14, 2006

REPAIR / REHABILITATION COSTING DATA

Cost per linear foot of structure

STRUCTURE TYPE	STRUCTURE MATERIALS	STRUCTURE HEIGHT	STRUCTURE CONDITION RATING A	B	C	D	E
BULKHEAD/ SEAWALL	CONCRETE	Under 5 Feet	$0	$84	$425	$850	$983
		5 To 10 Feet	$0	$152	$759	$1,518	$1,782
		10 To 15 Feet	$0	$251	$1,254	$2,508	$2,970
		Over 15 Feet	$0	$396	$1,980	$3,960	$4,752
	STEEL	Under 5 Feet	$0	$54	$273	$546	$680
		5 To 10 Feet	$0	$165	$825	$1,650	$1,848
		10 To 15 Feet	$0	$251	$1,254	$2,508	$2,772
		Over 15 Feet	$0	$343	$1,716	$3,432	$3,795
	STONE	Under 5 Feet	$0	$84	$425	$850	$983
		5 To 10 Feet	$0	$152	$759	$1,518	$1,782
		10 To 15 Feet	$0	$251	$1,254	$2,508	$2,970
		Over 15 Feet	$0	$396	$1,980	$3,960	$4,752
	WOOD	Under 5 Feet	$0	$86	$431	$862	$994
		5 To 10 Feet	$0	$127	$632	$1,265	$1,463
		10 To 15 Feet	$0	$161	$804	$1,608	$1,872
		Over 15 Feet	$0	$202	$1,008	$2,017	$2,380
COASTAL BEACH	SAND	Under 5 Feet	$0	$26	$132	$264	$264
		5 To 10 Feet	$0	$127	$634	$1,267	$1,267
		10 To 15 Feet	$0	$224	$1,122	$2,244	$2,244
		Over 15 Feet	$0	$396	$1,980	$3,960	$3,960
COASTAL DUNE	SAND	Under 5 Feet	$0	$18	$93	$186	$186
		5 To 10 Feet	$0	$48	$238	$476	$476
		10 To 15 Feet	$0	$79	$395	$790	$790
		Over 15 Feet	$0	$132	$660	$1,320	$1,320
REVETMENT	STONE	Under 5 Feet	$0	$66	$333	$664	$730
		5 To 10 Feet	$0	$120	$601	$1,201	$1,300
		10 To 15 Feet	$0	$157	$781	$1,564	$1,696
		Over 15 Feet	$0	$247	$1,234	$2,468	$2,666
GROIN	STONE	Under 5 Feet	$0	$157	$664	$1,328	$1,460
		5 To 10 Feet	$0	$157	$1,201	$2,402	$2,600
		10 To 15 Feet	$0	$157	$1,564	$3,128	$3,392
		Over 15 Feet	$0	$157	$2,468	$4,937	$5,333

NOTE: Repair / Rehabilitation Costs include 10% for engineering and regulatory approvals and 20 % construction contingency.

Section II

Town of Hingham

Community Findings

Section II – Community Findings – Town of Hingham

COMMUNITY DESCRIPTION

The Town of Hingham consists of a land area of 22.5 square miles out of a total area of 25.0 square miles and had a population of 19,882 in the 2000 census. The Town is located on the South Shore of Massachusetts and its location can be seen on this report's cover. The estimated length of shoreline is 10 miles that are protected by the Hull peninsula from open ocean waves. The Town is protected from major coastal storms by both natural and man-made shoreline structures that require maintenance to insure the long term protection of its coastline. The man-made and publicly owned structures that protect the Town were investigated for their ability to provide adequate protection from major coastal storms. Structures have been identified as publicly owned, including coastal dunes and beaches, based on evidence of investment of public funds made to create/enhance/maintain these structures. The assessment did not include floating or pile supported structures as they are assumed not to provide any significant coastal protection from major storm events.

STRUCTURE INVENTORY

Within the Town of Hingham, there were 34 structures which had public, state or unknown ownership which provide significant coastal protection. The location of the structures can be seen in Sheets 1 through Sheet 4 in Section III of this report. The structures were categorized by their type and by their structural condition based on a preliminary field assessment. The distribution of structures by type and condition can be seen in the following table:

STRUCTURE TYPE AND QUANTITY - Town of Hingham

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Length (feet)
Bulkhead / Seawall	19	2	8	7	2		6260
Revetment	13		6	5	2		6214
Groin / Jetty	2		1	1			155
Coastal Dune							
Coastal Beach							
	34	2	15	13	4		12629

Within the above table, the total length of each type of structure is also provided. The structures are listed by the type which is providing the primary coastal protection. Many sites have multiple structure types at the same location (i.e. revetment in front of seawall). These secondary structures, although not identified within these tables, are included in the development of repair/rehabilitation costs.

The development of repair costs has been included by structure type and by condition. In the Town of Hingham's case there are a total of 32 structures which would require approximately $6.8 million to bring all the coastal structures to "A" Rating. Most critical will be the structures in the "D" and "F" classifications as those are assumed to undergo some level of damage or failure during the next major coastal storm event. To reconstruct these structures, identified in the preliminary survey as being in poor condition, an estimated $1.4 million would be required to upgrade the Town's coastal protection.

STRUCTURE REPAIR / RECONSTRUCTION COST - Town of Hingham

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Cost
Bulkhead / Seawall	19		$ 554,076	$3,105,264	$ 473,616		$ 4,132,956
Revetment	13		$ 501,039	$1,134,168	$ 894,340		$ 2,529,547
Groin / Jetty	2		$ 10,210	$ 108,108			$ 118,318
Coastal Dune							$ -
Coastal Beach							$ -
	34	$-	$ 1,065,325	$4,347,540	$ 1,367,956	$ -	$ 6,780,821

Based on the limited research within the scope of this project research, the presumed ownership of the structures was established on an initial basis and would be subject to more intense review in future tasks. Structures identified as being owned privately were excluded from further consideration. Although ownership of the land on which the structure was located was a factor, the structure ownership was treated as a separate issue from land ownership. For the Town of Hingham the breakdown of structures by assumed ownership is as follows:

STRUCTURE OWNERSHIP / REPAIR COST - Town of Hingham

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Cost
Town Owned	26		$ 995,183	$3,982,750	$ 473,616		$ 5,451,549
Commonwealth of Massachusetts	6		$ 55,292	$ 244,079	$ 894,340		$ 1,193,711
Federal Government Owned							$ -
Unknown Ownership	2		$ 14,850	$ 120,711			$ 135,561
							$ -
	34	$-	$ 1,065,325	$4,347,540	$ 1,367,956	$ -	$ 6,780,821

The identification of presumed ownership was not based on the investigation of legal documents but relied on property ownership and from construction and regulatory documents that were found. A more detailed investigation of legal documents and agreements would be required where structure ownership is disputed. A more detailed identification of structure type, length, condition and location can be found in Section III which contains Structure Assessment Reports for each individual structure found.

SUMMARY

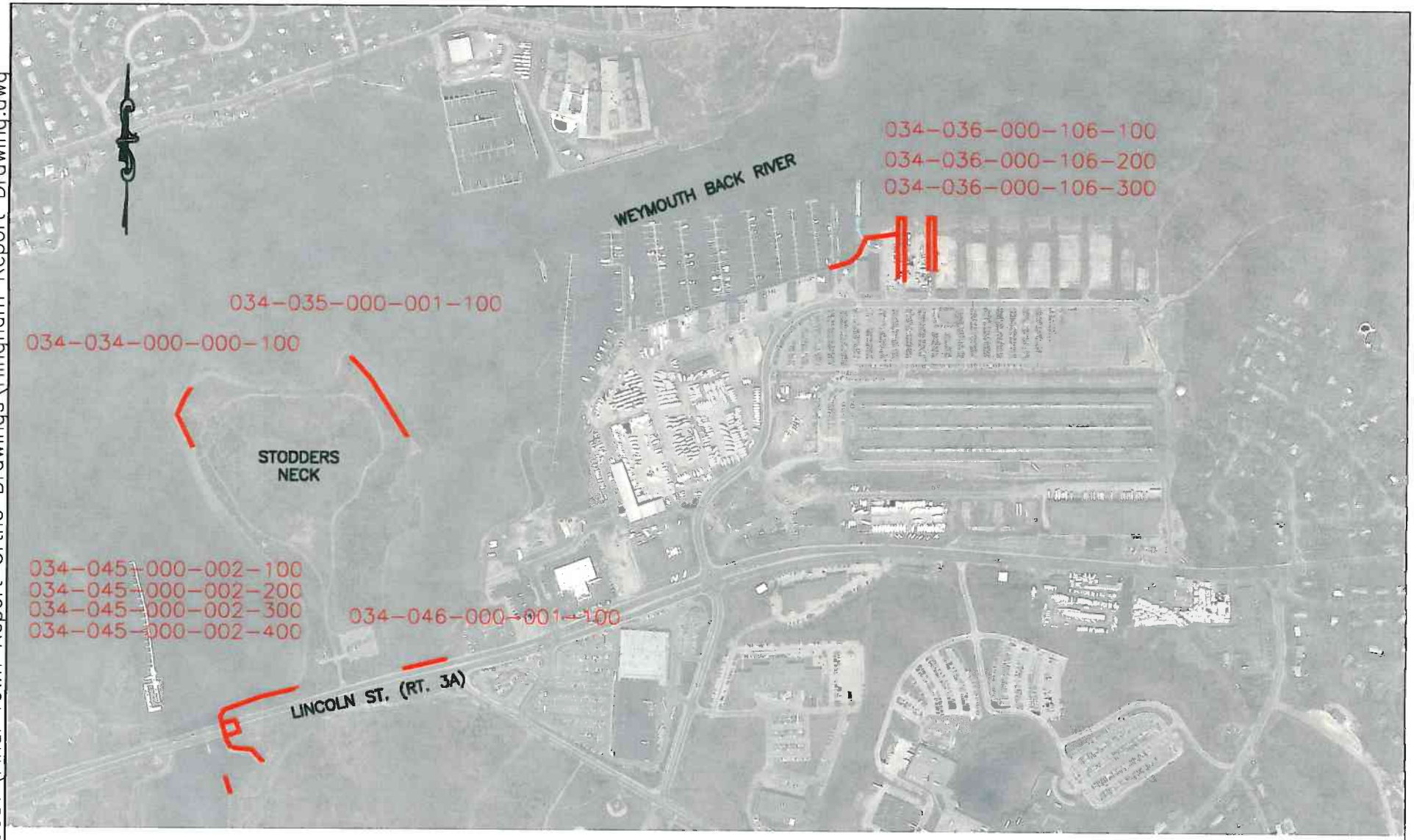
The enclosed reports and associated documents reflects the Town of Hingham's coastal structure information that will eventually be input into a state-wide GIS database and will be accessible through MassGIS. This data, when compiled state-wide, will be critical in the development of both short term and long term planning for maintaining and improving Massachusetts coastal protection.

This database will also provide relatively quick access to identify available documentation for these structures as well as the ability to be updated as coastal structure improvements are made.

Section III

Town of Hingham

Structure Assessment Reports



COASTAL STRUCTURE LOCATION PLAN

TOWN OF HINGHAM

SOUTH SHORE COASTAL INFRASTRUCTURE INVENTORY AND ASSESSMENT DEMONSTRATION PROJECT

AUGUST 2006

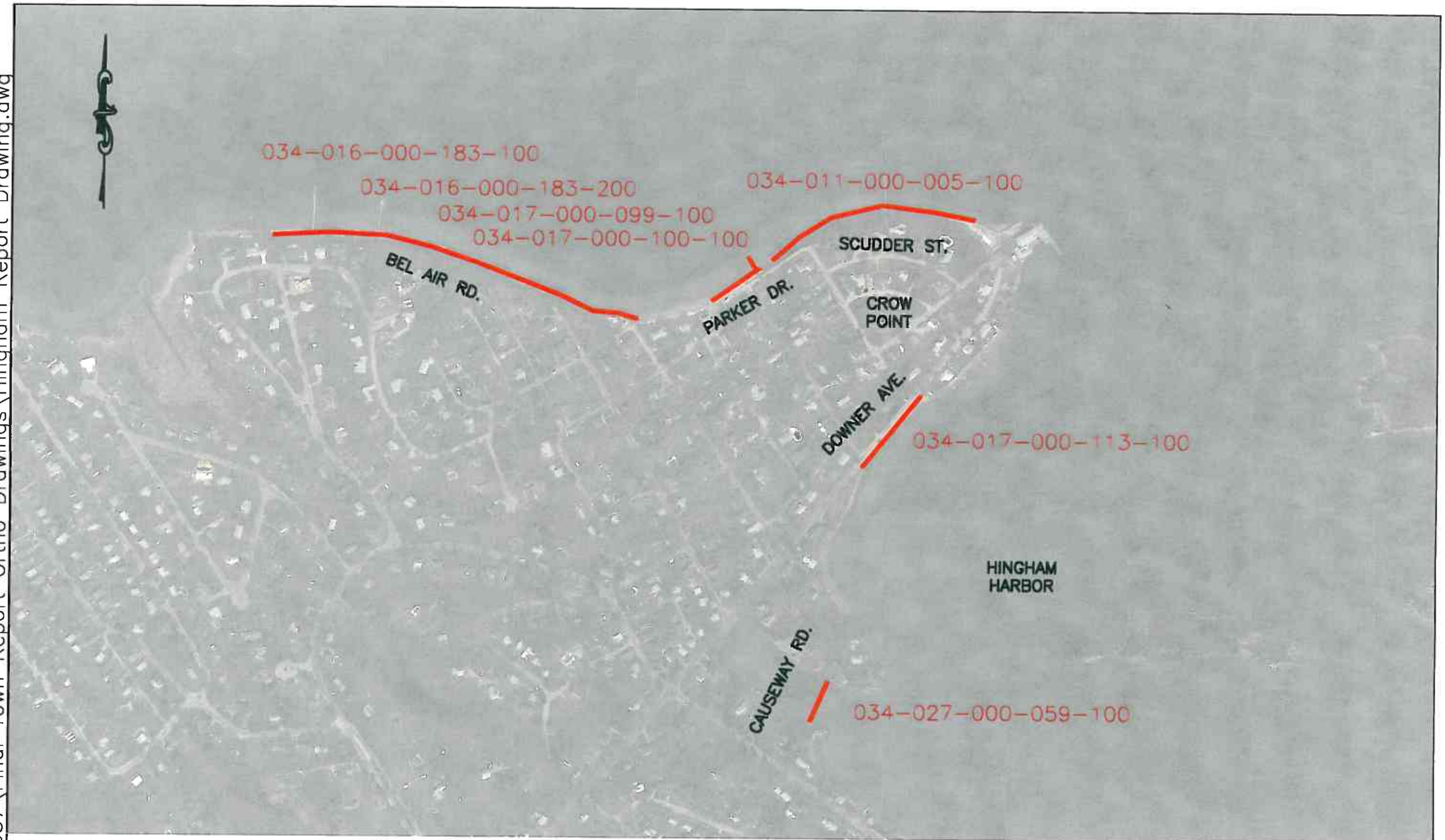
0 200

SCALE: 1" = 200'

BCE Bourne Consulting Engineering

SHEET 1 OF 4

File: X:\26600-\26637\Final Town Report Ortho Drawings\Hingham Report Drawing.dwg



COASTAL STRUCTURE LOCATION PLAN

TOWN OF HINGHAM

SOUTH SHORE COASTAL INFRASTRUCTURE INVENTORY AND ASSESSMENT DEMONSTRATION PROJECT

AUGUST 2006

0 200
SCALE: 1" = 200'

BCE Bourne Consulting Engineering

SHEET 2 OF 4

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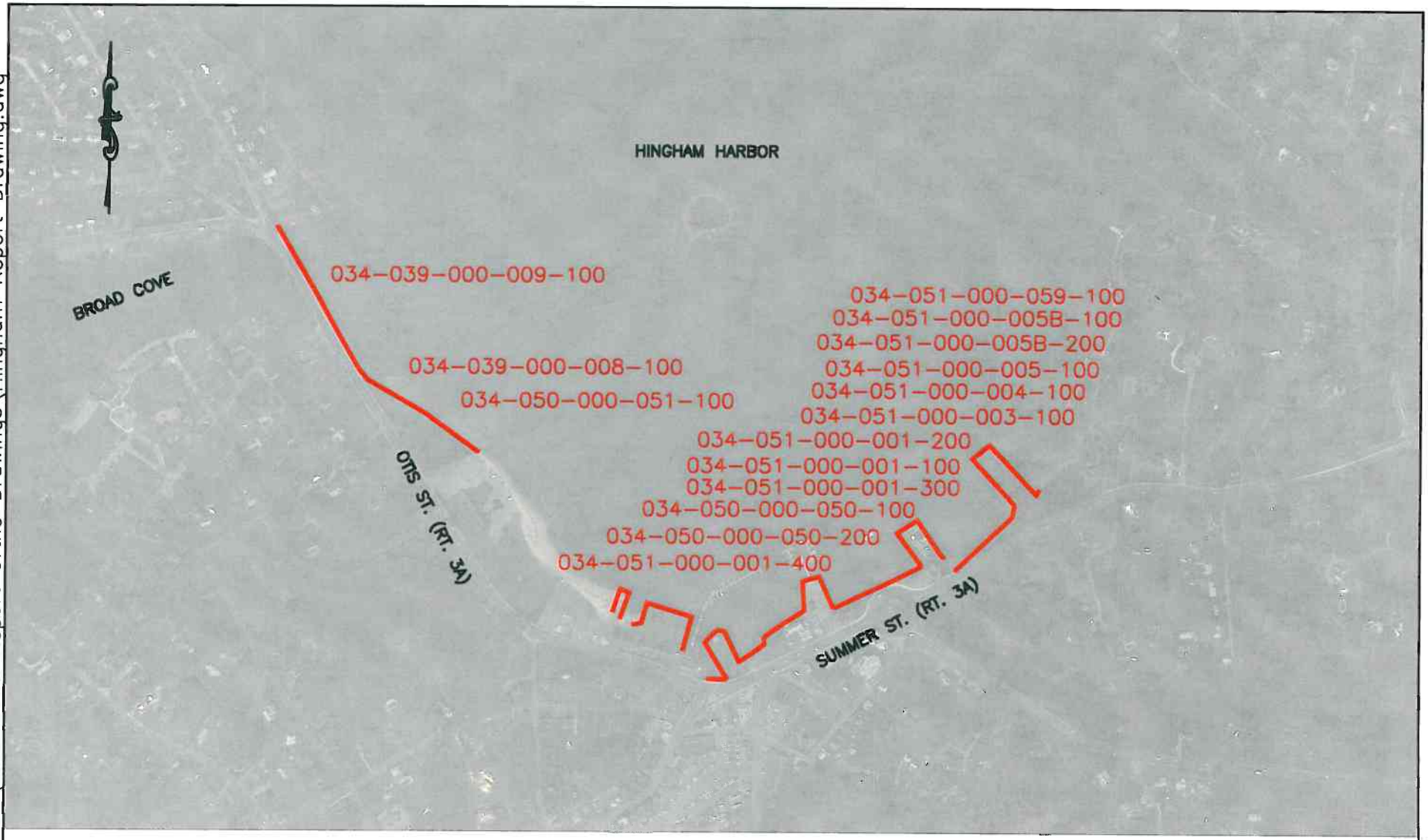


COASTAL STRUCTURE LOCATION PLAN

TOWN OF HINGHAM

SOUTH SHORE COASTAL INFRASTRUCTURE INVENTORY AND ASSESSMENT DEMONSTRATION PROJECT

AUGUST 2006

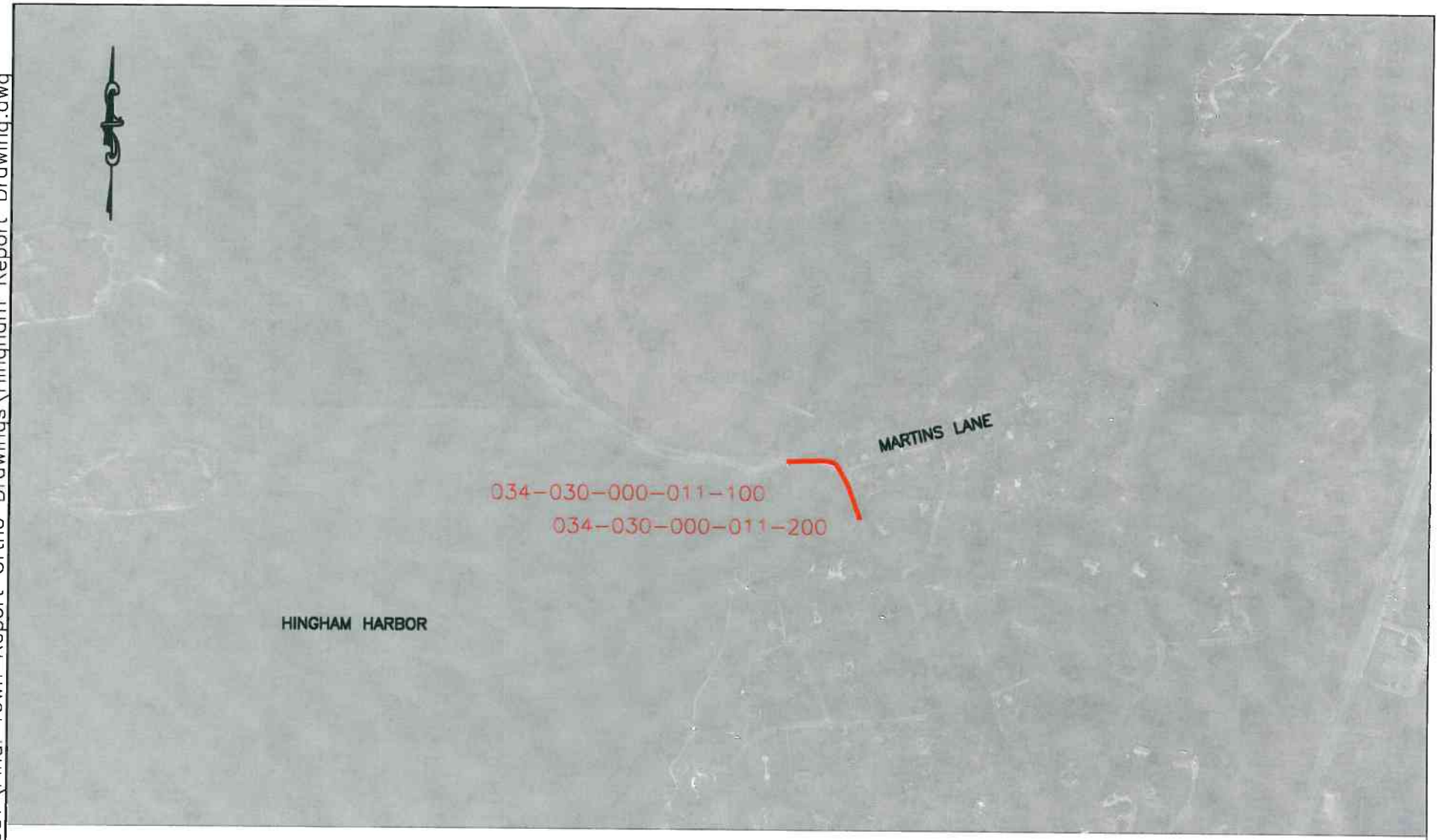
0 200

SCALE: 1" = 200'

BCE Bourne Consulting Engineering

SHEET 3 OF 4

File: X:\26600-\26637\Final Town Report Ortho Drawings\Hingham Report Drawing.dwg



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COASTAL STRUCTURE LOCATION PLAN

TOWN OF HINGHAM

SOUTH SHORE COASTAL INFRASTRUCTURE INVENTORY AND ASSESSMENT DEMONSTRATION PROJECT

AUGUST 2006

0 200

SCALE: 1" = 200'

BCE Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-011-000-005-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Scudder St.	8/16/2006

Presumed Structure Owner:	Based On Comment:
Local	DCR – Contract Drawings

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Hingham	1955	$157,865.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
1005 Feet	Feet NAVD 88	V4	14 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Revetment	Stone	10 to 15 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Placed rip rap slope along steep earth bank. 45 degree slope toed into cobble beach. 5 feet wide crest. Stone size is 1 to 3 ton.

Condition Rating	B Good
Level of Action	Minor
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority Rating	III Moderate Priority
Action	Consider for Active Project Improvement Listing
Description	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

- 034-011-000-005-100-PHO1A.jpg
- 034-011-000-005-100-PHO1B.jpg
- 034-011-000-005-100-PHO1C.jpg

Structure Documents:

MA DPW	JUN 1955	PROPOSED SHORE	034-011-000-005-100-DCR1A
MA DPW	SEP 1956	PROPOSED SHORE	034-011-000-005-100-DCR1B
MA DPW	APR 1957	PROPOSED SHORE	034-011-000-005-100-DCR1C
MA DPW			034-011-000-005-100-TWN1A
MA DPW			034-011-000-005-100-TWN1B
MA DPW			034-011-000-005-100-TWN1C

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-016-000-183-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Bell Air Rd.	8/16/2006

Presumed Structure Owner:	Based On Comment:
Local	DCR – Contract Drawings

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Hingham	1958	$31,878.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
210 Feet	Feet NAVD 88	V4	15 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Concrete	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:
Revetment	Stone	

Structure Summary :

Concrete seawall (30 inches high) behind placed rip rap slope. Concrete wall is tilted outshore slightly with some cracking. Revetment with 1 to 1 slope. Top is jumbled due to placing of concrete wall. Toed in well.

Condition Rating	B Good
Level of Action	Minor
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority Rating	IV High Priority
Action	Consider for Next Project Construction Listing
Description	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

- 034-016-000-183-100-PHO1A.jpg
- 034-016-000-183-100-PHO1B.jpg
- 034-016-000-183-100-PHO1C.jpg
- 034-016-000-183-100-PHO1D.jpg
- 034-016-000-183-100-PHO1E.jpg

Structure Documents:

MA DPW	SEP 1958	PROPOSED SHORE	034-016-000-183-100-DCR1A
MA DPW	MAR 1960	CROW POINT,	034-016-000-183-100-DCR1B
MA DEQE	SEP 1972	PROPOSED SHORE	034-016-000-183-100-DCR1C
MA DPW			034-016-000-183-100-TWN1A
MA DPW			034-016-000-183-100-TWN1B
MA DPW	APR 11 198		034-016-000-183-100-TWN1C

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-016-000-183-200

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Bell Air Rd.

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: DCR – Contract Drawings

Owner Name: Hingham

Earliest Structure Record: 1958

Estimated Reconstruction/Repair Cost: $182,582.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
1520 Feet	Feet NAVD 88	V4	15 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Revetment	Stone	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Placed rip rap slope (1 vertical to 2 horizontal) using 1000 to 2000 lb stones. Toed into cobble beach. Earth slope continues up inshore of revetment.

Condition Rating	B Good
Level of Action	Minor
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority Rating	IV High Priority
Action	Consider for Next Project Construction Listing
Description	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-017-000-099-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Bell Air Rd.	8/16/2006

Presumed Structure Owner:	Based On Comment:
Local	Property Ownership

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Hingham	0	$40,379.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
266 Feet	Feet NAVD 88	V4	15 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Concrete	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Concrete seawall with wave return face. Minor spalling and deterioration of outshore face. Weep drains about 8 feet on center.

Condition Rating	B Good
Level of Action	Minor
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority Rating	III Moderate Priority
Action	Consider for Active Project Improvement Listing
Description	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

- 034-017-000-099-100-PHO1A.jpg
- 034-017-000-099-100-PHO1B.jpg
- 034-017-000-099-100-PHO1C.jpg

Structure Documents:

MA DPW	JUL 1966	PROPOSED SHORE	034-017-000-099-100-DCR1A
MA DPW			034-017-000-099-100-TWN1A
MA DPW	JUL 1966	PROPOSED SHORE	034-017-000-099-100-COE1A

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-017-000-100-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Bell Air Rd.	8/16/2006

Presumed Structure Owner:	Based On Comment:
Local	Property Ownership

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Hingham	0	$10,210.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
65 Feet	Feet NAVD 88	V4	15 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Groin/ Jetty	Stone	Under 5 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Placed rip rap groin with 1 to 2 high side slopes. Crest about 5 feet wide. Approximately 1000 lb stones.

Condition Rating	B Good
Level of Action	Minor
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority Rating	III Moderate Priority
Action	Consider for Active Project Improvement Listing
Description	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-017-000-100-100-PHO1A.jpg

Structure Documents:

MA DPW	JUL 1966	PROPOSED SHORE	034-017-000-100-100-DCR1A
MA DPW			034-017-000-100-100-TWN1A
MA DPW	JUL 1966	PROPOSED SHORE	034-017-000-100-100-COE1A

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-017-000-113-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Downer Ave.

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $322,575.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
425 Feet	Feet NAVD 88	V4	14 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Stone	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone seawall mortared with concrete. Base of wall has concrete mortar washed out (approximately mean hight water). Patching of asphalt behind seawall where fill loss has occurred. Road located approximately 5 feet behind and multiple houses beyond road.

Condition Rating	C Fair
Level of Action	Moderate
Description	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority Rating	IV High Priority
Action	Consider for Next Project Construction Listing
Description	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

034-017-000-113-100-PHO1A.jpg

034-017-000-113-100-PHO1B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-027-000-059-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Causeway Rd.

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $309,672.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
204 Feet	Feet NAVD 88	A5	12 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Stone	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Structure appeared to have been built as stone seawall. Currently toppled and loose. Salt water trapped behind to form pond. Appeared built to protect wetlands and house around pond. Revetment on east (outshore) side of structure.

Condition Rating	D Poor
Level of Action	Major
Description	Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

Priority Rating	III Moderate Priority
Action	Consider for Active Project Improvement Listing
Description	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-027-000-059-100-PHO1A.jpg

034-027-000-059-100-PHO1B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-030-000-011-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Martins Lane

Date: 8/16/2006

Presumed Structure Owner: Unknown

Based On Comment:

Owner Name:

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $14,850.00

Length: 225 Feet

Top Elevation: Feet NAVD 88

FIRM Map Zone: A3

FIRM Map Elevation: 11 Feet NGVD

Primary Type: Revetment

Primary Material: Stone

Primary Height: Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:

Structure Summary :

Low revetment slope with 200 to 1000 lb. stones. Located at mean high water.

Condition Rating	B Good
Level of Action	Minor
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority Rating	I None
Action	Long Term Planning Considerations
Description	No Inshore Structures or Residential Dwelling Units Present

Structure Images:

034-030-000-011-100-PHO1A.jpg

034-030-000-011-100-PHO1B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-030-000-011-200

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Martins Lane

Date:

Presumed Structure Owner: Unknown

Based On Comment:

Owner Name:

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $120,711.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
284 Feet	Feet NAVD 88	A3	11 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Stone	Under 5 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Mortared stone block seawall with welands outshore and town road inshore. Horizontal movement of top stones near south end (overhaul lower portion of wall). Fill loss along inshore face of wall.

Condition Rating	C Fair
Level of Action	Moderate
Description	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority Rating	III Moderate Priority
Action	Consider for Active Project Improvement Listing
Description	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-030-000-011-200-PHO2A.jpg

034-030-000-011-200-PHO2B.jpg

034-030-000-011-200-PHO2C.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-034-000-000-100

Key: community-map-block-parcel-structure

Property Owner: State

Location: Stodders Neck

Date: 8/16/2006

Presumed Structure Owner: State

Based On Comment: Property Ownership

Owner Name: Commonwealth of Mass.

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $375,976.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
313 Feet	Feet NAVD 88	A4	12 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Revetment	Stone	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Dumped rip rap scattered across earth slope at mean high water. Stone size 50 to 300 lb.

Two placed rip rap structures in length with 1000 to 2000 lb. stones. These are satisfactory condition.

Condition Rating	D Poor
Level of Action	Major
Description	Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

Priority Rating	I None
Action	Long Term Planning Considerations
Description	No Inshore Structures or Residential Dwelling Units Present

Structure Images:

034-034-000-000-100-PHO1A.jpg

034-034-000-000-100-PHO1B.jpg

034-034-000-000-100-PHO1C.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-035-000-001-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Stodders Neck

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $55,255.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
460 Feet	Feet NAVD 88	V5	13 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Revetment	Stone	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Placed rip rap slope (1 vertical by 2 horizontal) at top of coastal beach. Portions are toed in (about half of length). No evidence of scour.

Condition Rating	B Good
Level of Action	Minor
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority Rating	I None
Action	Long Term Planning Considerations
Description	No Inshore Structures or Residential Dwelling Units Present

Structure Images:

034-035-000-001-100-PHO1A.jpg

034-035-000-001-100-PHO1B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-036-000-106-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Weymouth Back River

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $664,620.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
530 Feet	Feet NAVD 88	A4	12 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Concrete	10 to 15 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Concrete seawall forming wharves formerly for Hingham Shipyard concrete ramps between wharves. Heavy spalling & deterioration of concrete with exposed and corroded reinforcing.

Condition Rating	C Fair
Level of Action	Moderate
Description	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority Rating	I None
Action	Long Term Planning Considerations
Description	No Inshore Structures or Residential Dwelling Units Present

Structure Images:

034-036-000-106-100-PHO1A.jpg

034-036-000-106-100-PHO1B.jpg

Structure Documents:

MA DPW

MA DPW

034-036-000-106-100-TWN1A

034-036-000-106-100-TWN1B

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-036-000-106-200

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Weymouth Back River

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $136,937.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
228 Feet	Feet NAVD 88	A4	12 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Revetment	Stone	5 to 10 Feet
Secondary Type:	**Secondary Material:**	**Secondary Height:**

Structure Summary :

Dumped rip rap slope along bank. Stone size 100 to 1000 lbs.

Condition Rating	C Fair
Level of Action	Moderate
Description	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority Rating	III Moderate Priority
Action	Consider for Active Project Improvement Listing
Description	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-036-000-106-200-PHO2A.jpg

034-036-000-106-200-PHO2B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-036-000-106-300

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Weymouth Back River

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $0.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
161 Feet	Feet NAVD 88	A4	12 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Concrete	Over 15 Feet
Secondary Type:	**Secondary Material:**	**Secondary Height:**

Structure Summary :

Concrete seawall with timber fender system. Minor cracking in concrete cap. Wall face is not even (constructed that way).

Condition	A
Rating	Excellent
Level of Action	None
Description	Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm.

Priority	III
Rating	Moderate Priority
Action	Consider for Active Project Improvement Listing
Description	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-036-000-106-300-PHO3A.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-039-000-008-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Otis St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $258,258.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
430 Feet	Feet NAVD 88	V4	14 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Revetment	Stone	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Placed rip rap slope (45 degree) along coastal bank with park and road directly inshore. Slope toed into beach. Stone size 500 to 2000lb. Northern 100 feet is smaller stone and loose with some erosion.

Condition Rating	C
	Fair
Level of Action	Moderate
Description	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority Rating	II
	Low Priority
Action	Future Project Consideration
Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

034-039-000-008-100-PHO1A.jpg

034-039-000-008-100-PHO1B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-039-000-009-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Otis St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $494,894.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
824 Feet	Feet NAVD 88	V4	14 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Revetment	Stone	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Placed rip rap slope (45 degree) about 10 feet high. Toed into beach, but some locations are scoured out. Some stones loose or dislodged. Fill at top of wall washed out. Top of wall not well defined. Road directly behind revetment.

Condition Rating	C Fair
Level of Action	Moderate
Description	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority Rating	III Moderate Priority
Action	Consider for Active Project Improvement Listing
Description	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-039-000-009-100-PHO1A.jpg

034-039-000-009-100-PHO1B.jpg

034-039-000-009-100-PHO1C.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-045-000-002-100

Key: community-map-block-parcel-structure

Property Owner: State

Location: Lincoln St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: State

Based On Comment: Property Ownership

Owner Name: Commonwealth of Mass.

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $55,292.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
352 Feet	Feet NAVD 88	A4	12 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Revetment	Stone	10 to 15 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Dumped rip rap slope (1 vertical by 3 horizontal) with stone size from 100 t o 2000 lb. Minor erosion at top of revetment.

Condition Rating	B Good
Level of Action	Minor
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority Rating	IV High Priority
Action	Consider for Next Project Construction Listing
Description	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

034-045-000-002-100-PHO1A.jpg

034-045-000-002-100-PHO1B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-045-000-002-200

Key: community-map-block-parcel-structure

Property Owner: State

Location: Lincoln St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: State

Based On Comment: Property Ownership

Owner Name: Commonwealth of Mass.

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $0.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
189 Feet	Feet NAVD 88	A4	12 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Concrete	Over 15 Feet

Secondary Type:	Secondary Material:	Secondary Height:
Revetment	Stone	Over 15 Feet

Structure Summary :

Concrete bridge pier foundation in excellent condition. Placed rip rap slope (1 vertical by 1 horizontal) between bridge pier abutters. 500 to 2000 lb stones.

Condition Rating	A Excellent
Level of Action	None
Description	Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm.

Priority Rating	V Immediate / Highest Priority
Action	Consider For Immediate Action Due to Public Safety and Welfare Issues
Description	Critical Inshore Structures Present with Potential for Infrastructure Damage and/or High Density Residential Dwellings Condition of structure may warrant emergency stabilization as failure may result in potential loss of property and/or life. (>10 dwellings impacted / 100 feet of shoreline)

Structure Images:

034-045-000-002-200-PHO2A.jpg

034-045-000-002-200-PHO2B.jpg

034-045-000-002-300-PHO2C.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-045-000-002-300

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
State	Lincoln St. (Rt. 3A)	8/16/2006
Presumed Structure Owner:	**Based On Comment:**	
State	Property Ownership	
Owner Name:	**Earliest Structure Record:**	**Estimated Reconstruction/Repair Cost:**
Commonwealth of Mass.	0	$135,971.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
174 Feet	Feet NAVD 88	A3	12 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Revetment	Stone	10 to 15 Feet
Secondary Type:	**Secondary Material:**	**Secondary Height:**

Structure Summary :

Placed stone block slope (2 to 3 ton) on earth and crushed stone slope. Gaps between stones and some erosion above top of revetment. Portions are dumped stones.

Condition Rating	C Fair
Level of Action Description	Moderate Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority Rating	II Low Priority
Action Description	Future Project Consideration Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

034-045-000-002-300-PHO3A.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-045-000-002-400

Key: community-map-block-parcel-structure

Property Owner: State

Location: Lincoln St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: State

Based On Comment: Property Ownership

Owner Name: Commonwealth of Mass.

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $108,108.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
90 Feet	Feet NAVD 88	A3	12 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Groin/ Jetty	Stone	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Dumped stone blocks piled about 4 feet above mean high water.

Condition Rating	C
	Fair
Level of Action	Moderate
Description	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority Rating	I
	None
Action	Long Term Planning Considerations
Description	No Inshore Structures or Residential Dwelling Units Present

Structure Images:

034-045-000-002-500-PHO4A.jpg

034-045-000-002-500-PHO4B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-046-000-001-100

Key: community-map-block-parcel-structure

Property Owner: State

Location: Lincoln St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: State

Based On Comment: Property Ownership

Owner Name: Commonwealth of Mass.

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $518,364.00

Length: 210 Feet

Top Elevation: Feet NAVD 88

FIRM Map Zone: A4

FIRM Map Elevation: 12 Feet NGVD

Primary Type: Revetment

Primary Material: Stone

Primary Height: Over 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:

Structure Summary :

Earth slope (near vertical) with small stones at base of slope. Stone size 4 inches to 12 inches and dumped poorly.

Condition Rating	D
	Poor
Level of Action	Major
Description	Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

Priority Rating	IV
	High Priority
Action	Consider for Next Project Construction Listing
Description	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

034-046-000-001-100-PHO1A.jpg

034-046-000-001-100-PHO1B.jpg

034-046-000-001-100-PHO1C.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-050-000-050-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Summer St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: DEP – Ch 91 License

Owner Name: Hingham

Earliest Structure Record: 1986

Estimated Reconstruction/Repair Cost: $35,195.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
293 Feet	9 Feet NAVD 88	V4	14 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Revetment	Concrete	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Public boat ramp (concrete) with revetment on south side and precast barriers on north side (some revetment). Some cracking of concrete ramp. Exposed, corroded reinforcing at top of ramp (approximately mean high water). Toe of ramp buried in sand.

Condition Rating	B Good
Level of Action	Minor
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority Rating	I None
Action	Long Term Planning Considerations
Description	No Inshore Structures or Residential Dwelling Units Present

Structure Images:

- 034-050-000-050-100-PHO1A.jpg
- 034-050-000-050-100-PHO1B.jpg
- 034-050-000-050-100-PHO1C.jpg

Structure Documents:

DEP CH.91	OCT 22 198	PLAN	034-050-000-050-100-LIC1A
TOWN	JUN 1986	PROPOSED	034-050-000-050-100-COE1A
TOWN	MAR 1994	BOAT RAMP	034-050-000-050-100-COE2A

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-050-000-050-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Summer St. (Rt. 3A)	8/16/2006

Presumed Structure Owner:	Based On Comment:
Local	DEP – Ch 91 License

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Hingham	1986	$131,168.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
523 Feet	9 Feet NAVD 88	V4	14 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Stone	10 to 15 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone block seawall (dryset) for park and town landing. Some fill loss inshore of seawall. No noted movement or bulging.

Condition Rating	B Good	*Priority Rating*	II Low Priority
Level of Action	Minor	*Action*	Future Project Consideration
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.	*Description*	Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

034-050-000-050-200-PHO2A.jpg

034-050-000-050-200-PHO2B.jpg

034-050-000-050-200-PHO2C.jpg

Structure Documents:

DEP CH.91	OCT 22 198	PLAN	034-050-000-050-200-LIC2A
DEP CH.91	JAN 5 1990	PLANS	034-050-000-050-200-LIC2B

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-050-000-051-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Otis St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $108,108.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
180 Feet	Feet NAVD 88	A3	11 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Revetment	Stone	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Dumped rip rap along coastal bank. Coastal beach outshore. Stone size varied from 4 inches diameter to 8 inches diameter.

Condition Rating	C Fair
Level of Action	Moderate
Description	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority Rating	I None
Action	Long Term Planning Considerations
Description	No Inshore Structures or Residential Dwelling Units Present

Structure Images:

034-050-000-051-100-PHO1A.jpg

034-050-000-051-100-PHO1B.jpg

Structure Documents:

TOWN	FEB 2001	HINGHAM BEACH	034-050-000-051-100-COE1A

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-051-000-001-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Summer St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $77,748.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
310 Feet	15 Feet NAVD 88	A3	11 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Stone	10 to 15 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone block seawall (dryset) with 30 inch wide concrete cap and railing. Minor fill loss inshore of seawall.

Condition	B
Rating	Good
Level of Action	Minor
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority	II
Rating	Low Priority
Action	Future Project Consideration
Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

034-051-000-001-100-PHO1A.jpg

034-051-000-001-100-PHO1B.jpg

Structure Documents:

DEP CH.91 | APR 10 200 | PLANS | 034-051-000-001-100-LIC1A

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-051-000-001-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Summer St. (Rt. 3A)	8/16/2006

Presumed Structure Owner:	Based On Comment:
Local	Property Ownership

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Hingham	0	$163,944.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
108 Feet	8 Feet NAVD 88	A3	11 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Stone	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone block seawal (dry set). Eastern portion failed previously and repaired with dumped rip rap (1 to 3 ton stones). Median strip between seawall and Route 3A. Remaining seawall is stable, although heavy fill loss inshore.

Condition	D
Rating	Poor
Level of Action	Major
Description	Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

Priority	III
Rating	Moderate Priority
Action	Consider for Active Project Improvement Listing
Description	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-051-000-001-200-PHO2A.jpg

034-051-000-001-200-PHO2B.jpg

Structure Documents:

DEP CH.91	APR 10 200	PLANS	034-051-000-001-200-LIC2A

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-051-000-001-300

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Summer St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $57,182.00

Length: 228 Feet

Top Elevation: 10 Feet NAVD 88

FIRM Map Zone:

FIRM Map Elevation: Feet NGVD

Primary Type: Bulkhead/ Seawall

Primary Material: Stone

Primary Height: 10 to 15 Feet

Secondary Type: Revetment

Secondary Material: Stone

Secondary Height:

Structure Summary :

Same as adjacent structure with inclusion of dumped rip rap at base of wall. Stone size is 100 to 1000 lb. Slope is 8 feet wide by 5 feet high.

Condition Rating	B Good
Level of Action	Minor
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority Rating	II Low Priority
Action	Future Project Consideration
Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

034-051-000-001-300-PHO3A.jpg

034-051-000-001-300-PHO3B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-051-000-001-400

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Summer St. (Rt. 3A)	8/16/2006

Presumed Structure Owner:	Based On Comment:
Local	Property Ownership

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Hingham	0	$24,077.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
96 Feet	15 Feet NAVD 88	A3	11 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Concrete	10 to 15 Feet

Secondary Type:	Secondary Material:	Secondary Height:
Bulkhead/ Seawall	Stone	

Structure Summary :

Concrete wall constructed on top of mortared stone foundation for Route 3A. Outshore face is satisfactory condition, constructed 1970.

Condition Rating	B Good
Level of Action	Minor
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority Rating	IV High Priority
Action	Consider for Next Project Construction Listing
Description	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

034-051-000-001-400-PHO4A.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-051-000-003-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Summer St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: DEP – Ch 91 License

Owner Name: Hingham

Earliest Structure Record: 2001

Estimated Reconstruction/Repair Cost: $283,404.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
226 Feet	15 Feet NAVD 88	A3	11 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Stone	10 to 15 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone block seawall (dryset) that leans inshore noticeably (possible constructed this way). 3 foot wide concrete slabs directly inshore of wall which are broken and deteriorated along outshore face. Significant fill loss behind seawall (5 feet wide by 2 to 4 feet diameter). Building and park directly inshore.

Condition Rating	C Fair
Level of Action	Moderate
Description	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority Rating	III Moderate Priority
Action	Consider for Active Project Improvement Listing
Description	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-051-000-003-100-PHO1A.jpg

034-051-000-003-100-PHO1B.jpg

Structure Documents:

DEP CH.91	APR 10 200	PLANS	034-051-000-003-100-LIC1A

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-051-000-004-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Summer St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

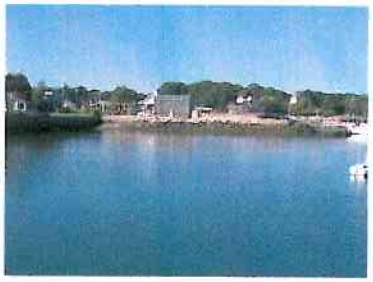
Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $481,536.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
384 Feet	Feet NAVD 88	A5	11 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Concrete	10 to 15 Feet

Secondary Type:	Secondary Material:	Secondary Height:
Revetment	Stone	



Structure Summary :

12 inch wide concrete seawall with revetment slope outshore. Concrete seawall is mixture of cast in place sections and stacked precast sections. Peastone fill inshore. Concrete is spalling at top with precast sections moved or loose. Revetment is 100 lb to 1000 lb stones dumped along face (1 vertical to 2 horizontal)

Condition Rating	C Fair
Level of Action	Moderate
Description	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority Rating	III Moderate Priority
Action	Consider for Active Project Improvement Listing
Description	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-051-000-004-100-PHO1A.jpg

034-051-000-004-100-PHO1B.jpg

034-051-000-004-100-PHO1C.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-051-000-005-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Summer St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $112,860.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
450 Feet	13 Feet NAVD 88	A3	11 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Stone	10 to 15 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone block seawall (dryset) with route 3A rotary directly inshore. 2 feet wide by 1 foot high concrete cap. Some fill loss behind seawall in median strip. (1 foot wide by 1 to 2 foot diameter)

Condition Rating	B Good
Level of Action	Minor
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority Rating	IV High Priority
Action	Consider for Next Project Construction Listing
Description	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

034-051-000-005-100-PHO1A.jpg

034-051-000-005-100-PHO1B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-051-000-005B-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Summer St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $315,744.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
416 Feet	8 Feet NAVD 88	A3	11 Feet NGVD

Primary Type: Bulkhead/ Seawall

Primary Material: Stone

Primary Height: 5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:

Structure Summary :

Stone block seawall (dryset) with paved walkway inshore. Heavy fill loss behind. A few stones appeared to be "pushed" outshore (horizontal movement). Very western end along side Route 3A.

Condition Rating	C
	Fair
Level of Action	Moderate
Description	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority Rating	II
	Low Priority
Action	Future Project Consideration
Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images: 034-051-000-005B-100-PHO1A.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-051-000-005B-200

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Summer St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: DEP – Ch 91 License

Owner Name: Hingham

Earliest Structure Record: 1990

Estimated Reconstruction/Repair Cost: $78,784.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
519 Feet	10 Feet NAVD 88	A3	11 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Stone	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone block seawall (dryset) around filled wharf. Heavy fill loss at outshore end. Patching with dumped stone (1 inch or less) and concrete to fill washed out areas. Minor movement of stones noted.

Condition Rating	B Good
Level of Action	Minor
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority Rating	III Moderate Priority
Action	Consider for Active Project Improvement Listing
Description	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-051-000-005B-200-PHO2A.jpg

034-051-000-005B-200-PHO2B.jpg

Structure Documents:

DEP CH.91	DEC 27 198	PLANS	034-051-000-005B-200-LIC2A

Prepared By: Bourne Consulting Engineering

CZM South Shore Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Hingham

Structure ID: 034-051-000-059-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Summer St. (Rt. 3A)

Date: 8/16/2006

Presumed Structure Owner: Local

Based On Comment: Property Ownership

Owner Name: Hingham

Earliest Structure Record: 0

Estimated Reconstruction/Repair Cost: $916,674.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
731 Feet	10 Feet NAVD 88	A3	11 Feet NGVD

Primary Type: Bulkhead/ Seawall

Primary Material: Stone

Primary Height: 10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:

Structure Summary :

Stone block seawall (dry set) around park area. Major fill loss behind seawall (4 feet wide by 1 to 2 foot deep). Many voids (typical 6 inches by 2 to 4 feet long)

Condition Rating	C Fair
Level of Action	Moderate
Description	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority Rating	II Low Priority
Action	Future Project Consideration
Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

034-051-000-059-100-PHO1A.jpg

034-051-000-059-100-PHO1B.jpg

034-051-000-059-100-PHO1C.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

Section IV

Town of Hingham

Structure Photographs

TOWN: HINGHAM
SOURCE: BCE - FIELD PHOTOGRAPHS
LOCATION: Bourne Consulting Engineering
DATE OF RESEARCH: AUGUST 2006

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
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034-016-000-183-100	034-016-000-183-100-PHO1B.jpg		Bourne Consulting Engineering	HINGHAM	August 2006	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
034-016-000-183-100	034-016-000-183-100-PHO1C.jpg		Bourne Consulting Engineering	HINGHAM	August 2006	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
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TOWN: HINGHAM
SOURCE: BCE - FIELD PHOTOGRAPHS
LOCATION: Bourne Consulting Engineering
DATE OF RESEARCH: AUGUST 2006

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TOWN: HINGHAM
SOURCE: BCE - FIELD PHOTOGRAPHS
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South Shore Coastal Infrastructure and Assessment

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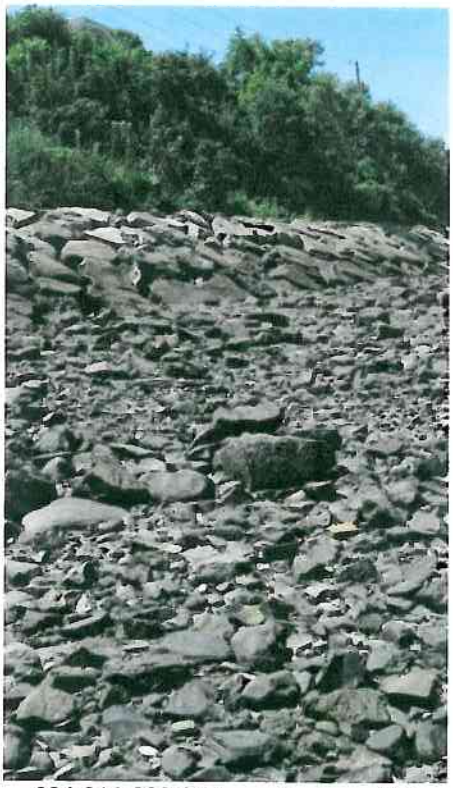

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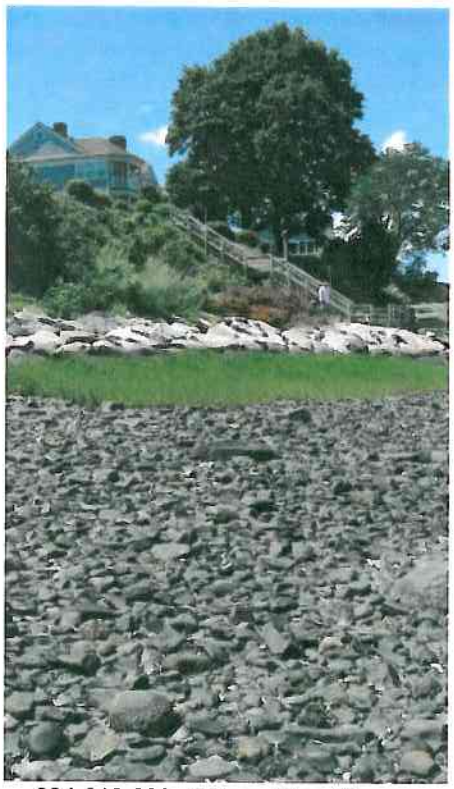

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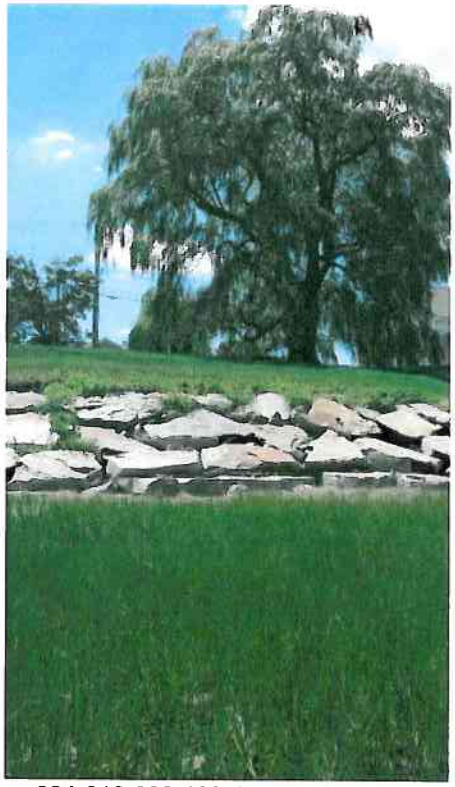

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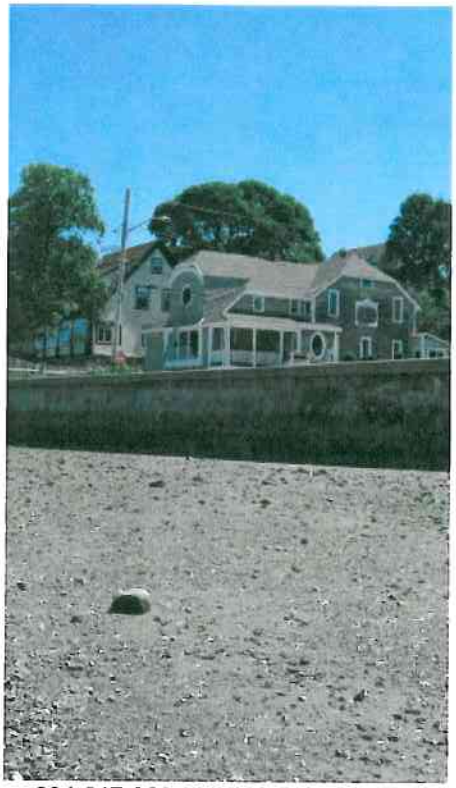

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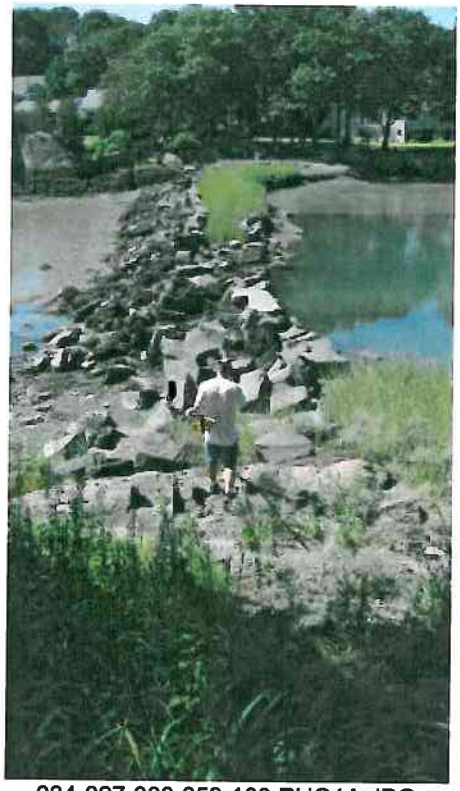

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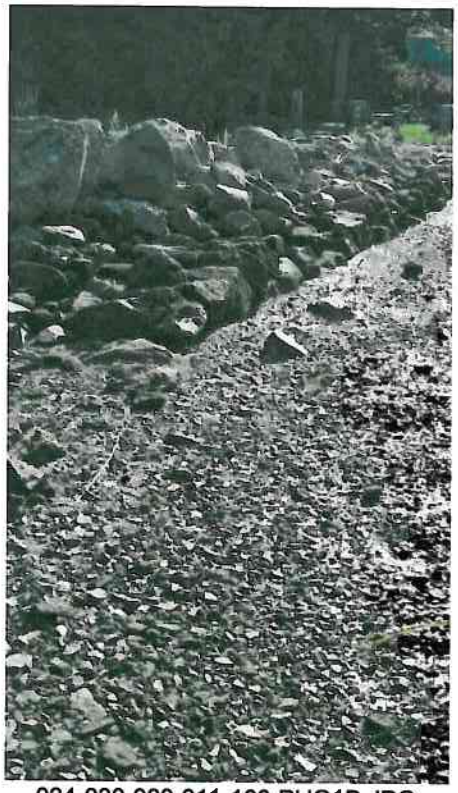

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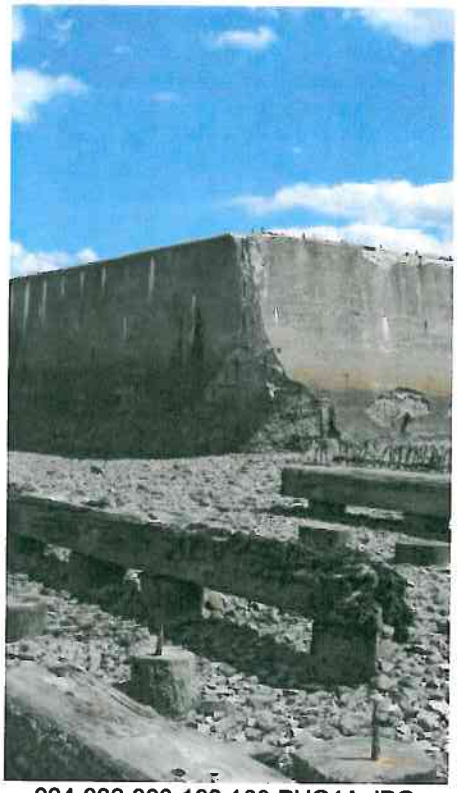

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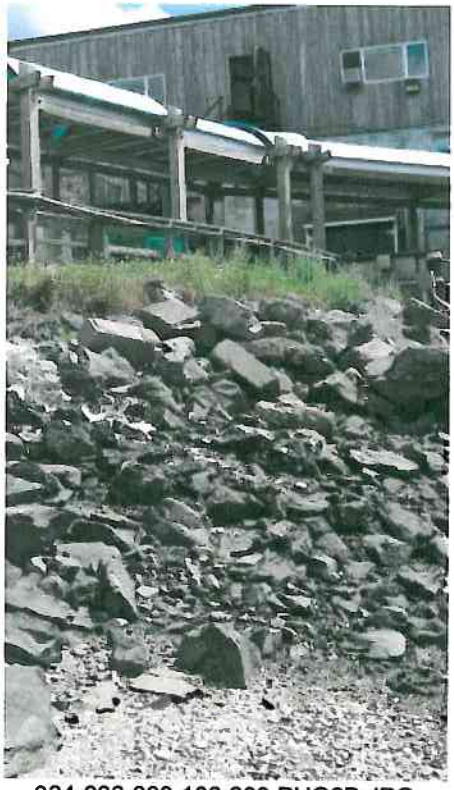

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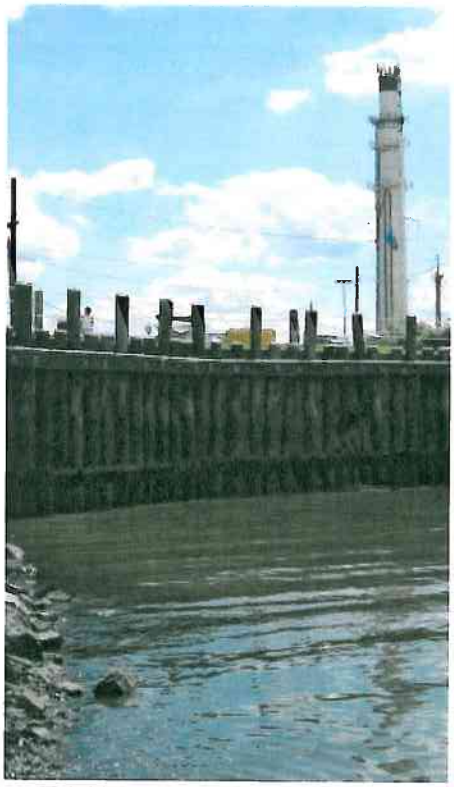

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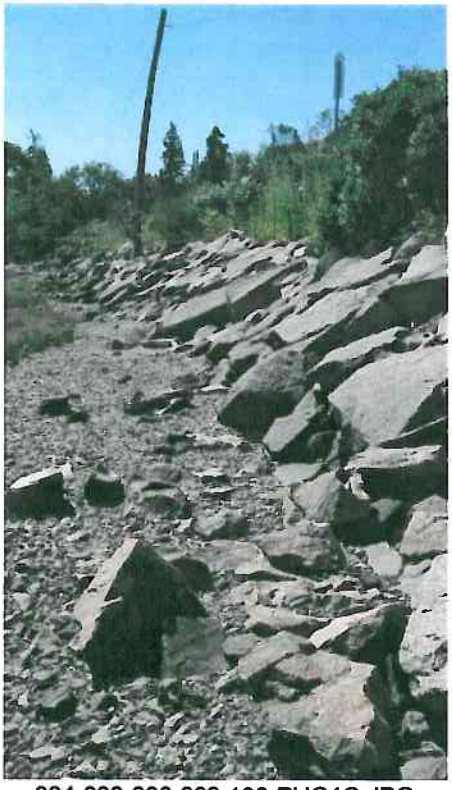

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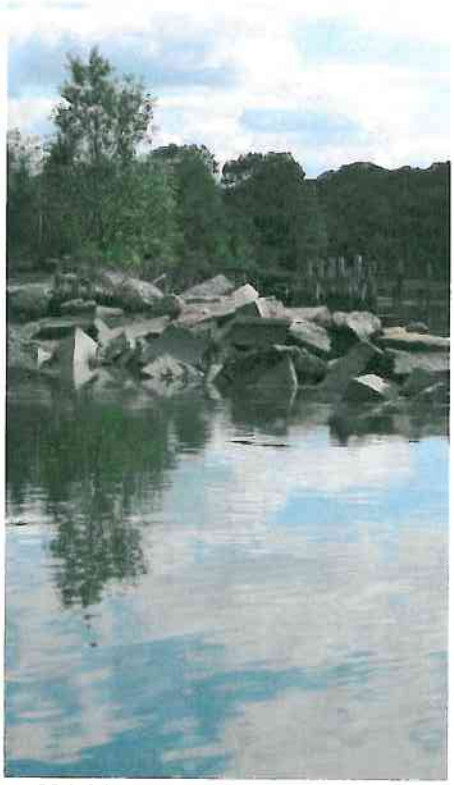

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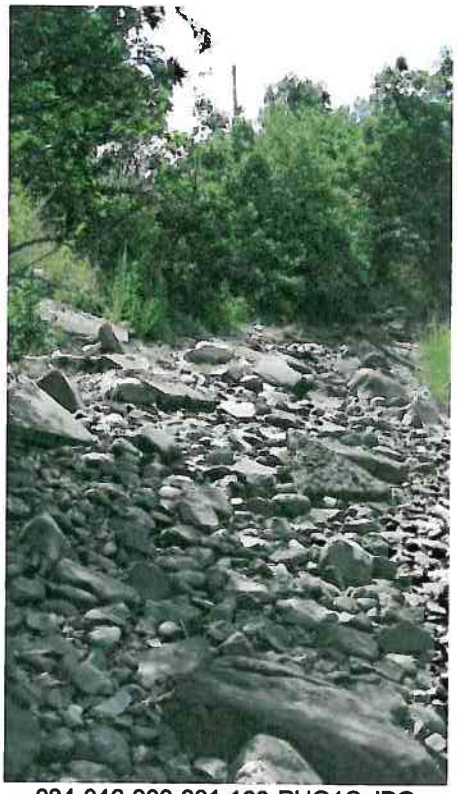

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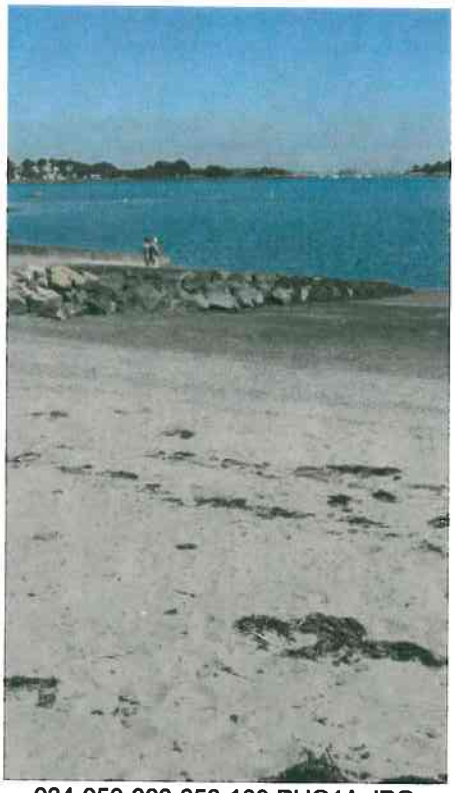

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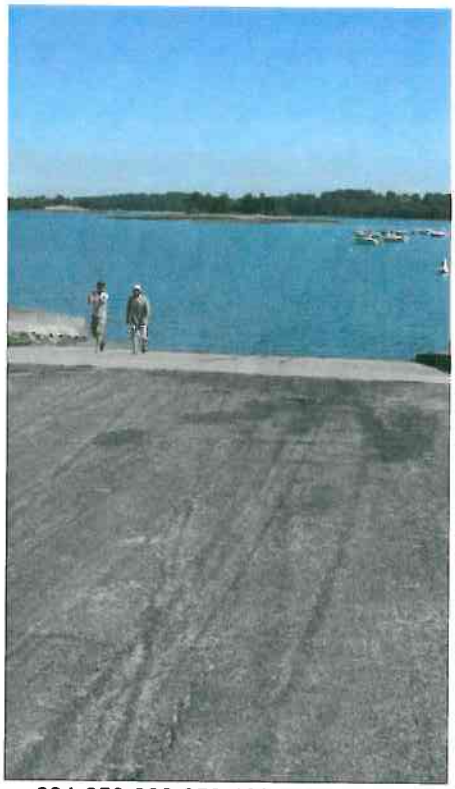

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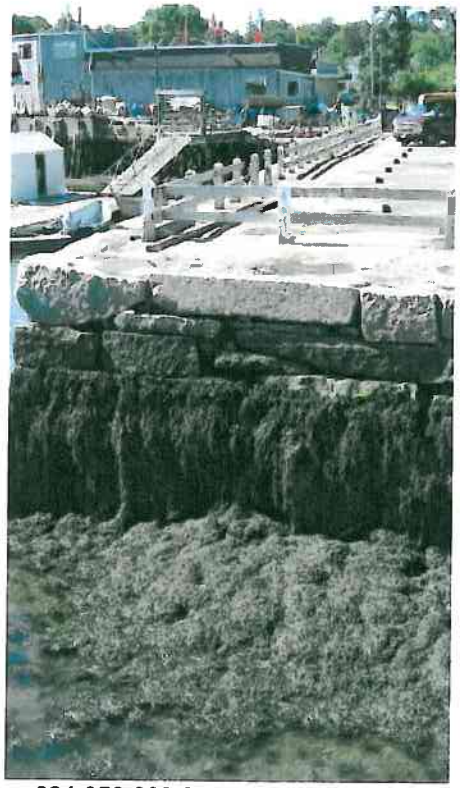

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034-050-000-051-100-PHO1B.JPG

034-051-000-001-100-PHO1A.JPG

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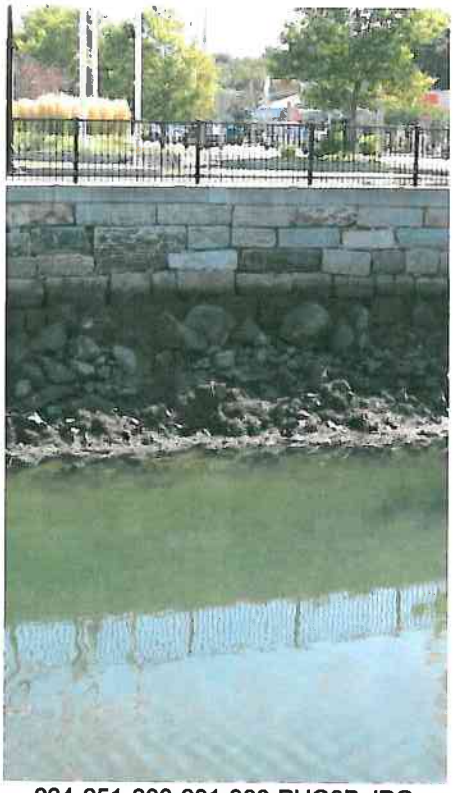

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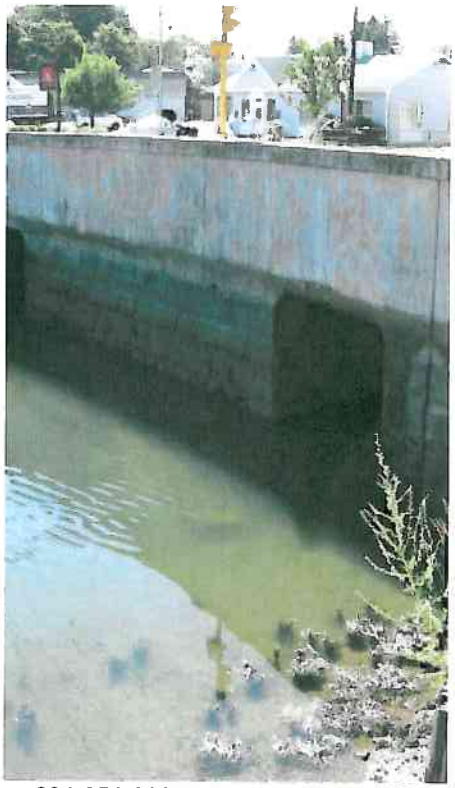

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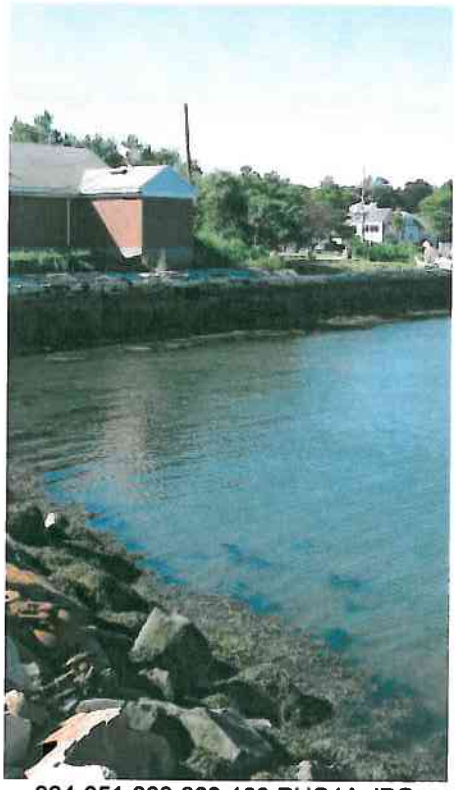

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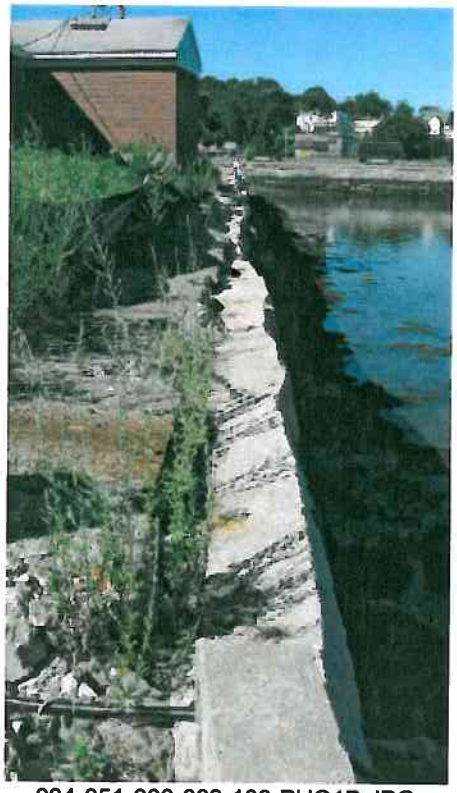

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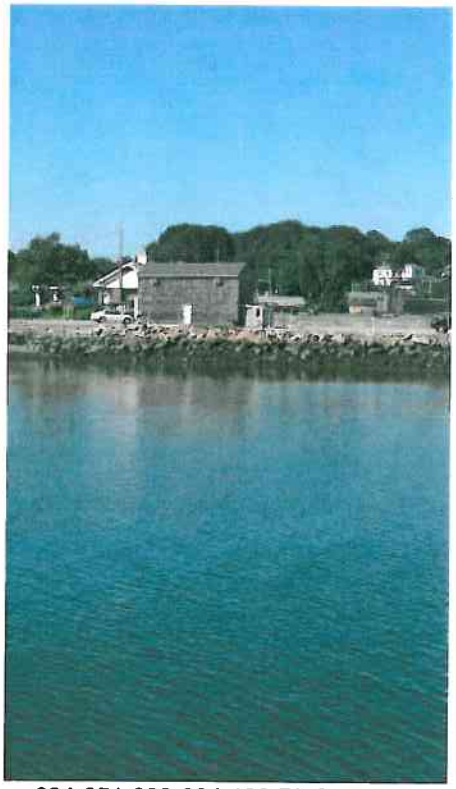

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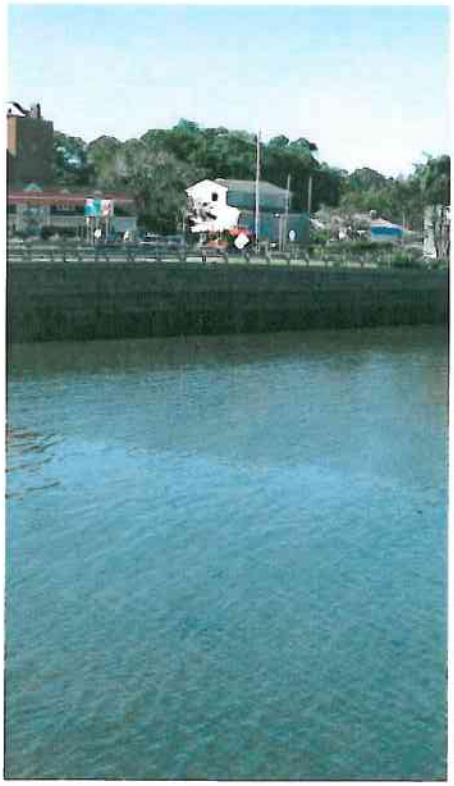

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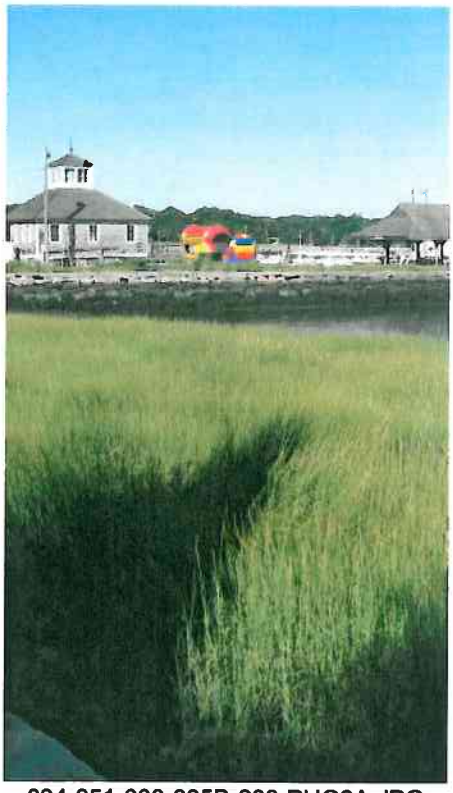

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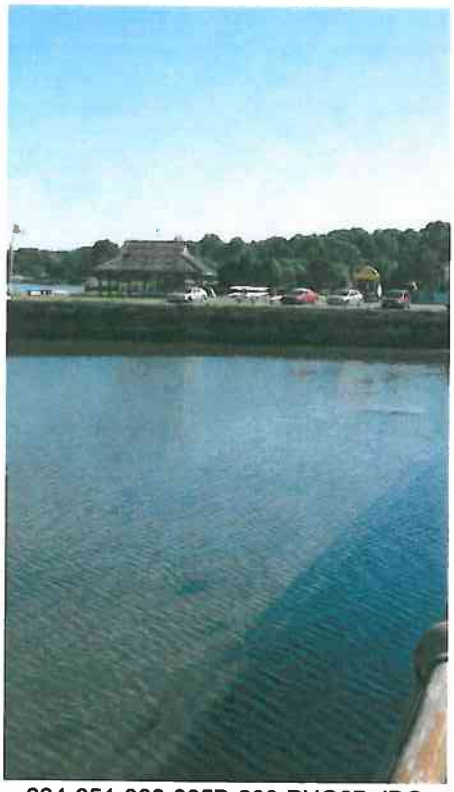

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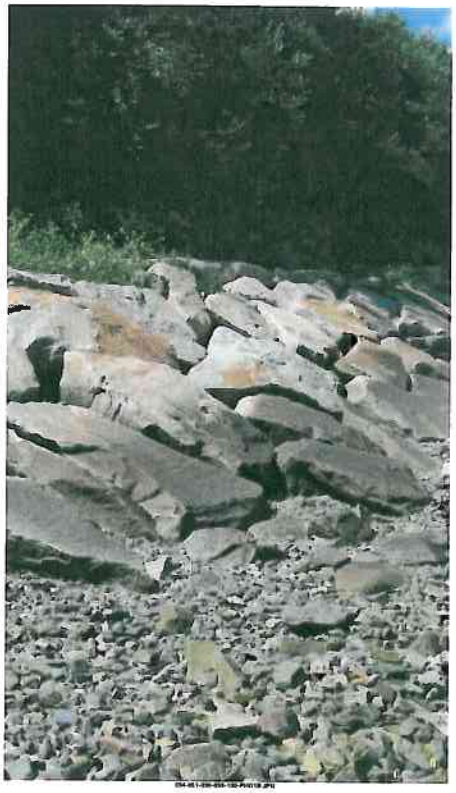


Section V

Town of Hingham

Structure Research

TOWN DOCUMENT LIST

MA DCR - DOCUMENT LIST

MA DEP – Chp 91 DOCUMENT LIST

- Copies of License Documents

USACE – PERMIT DOCUMENT LIST

- Copies of Permit Documents

TOWN: HINGHAM
SOURCE: TOWN OF HINGHAM
LOCATION: HINGHAM MA
DATE OF RESEARCH: AUGUST 2006

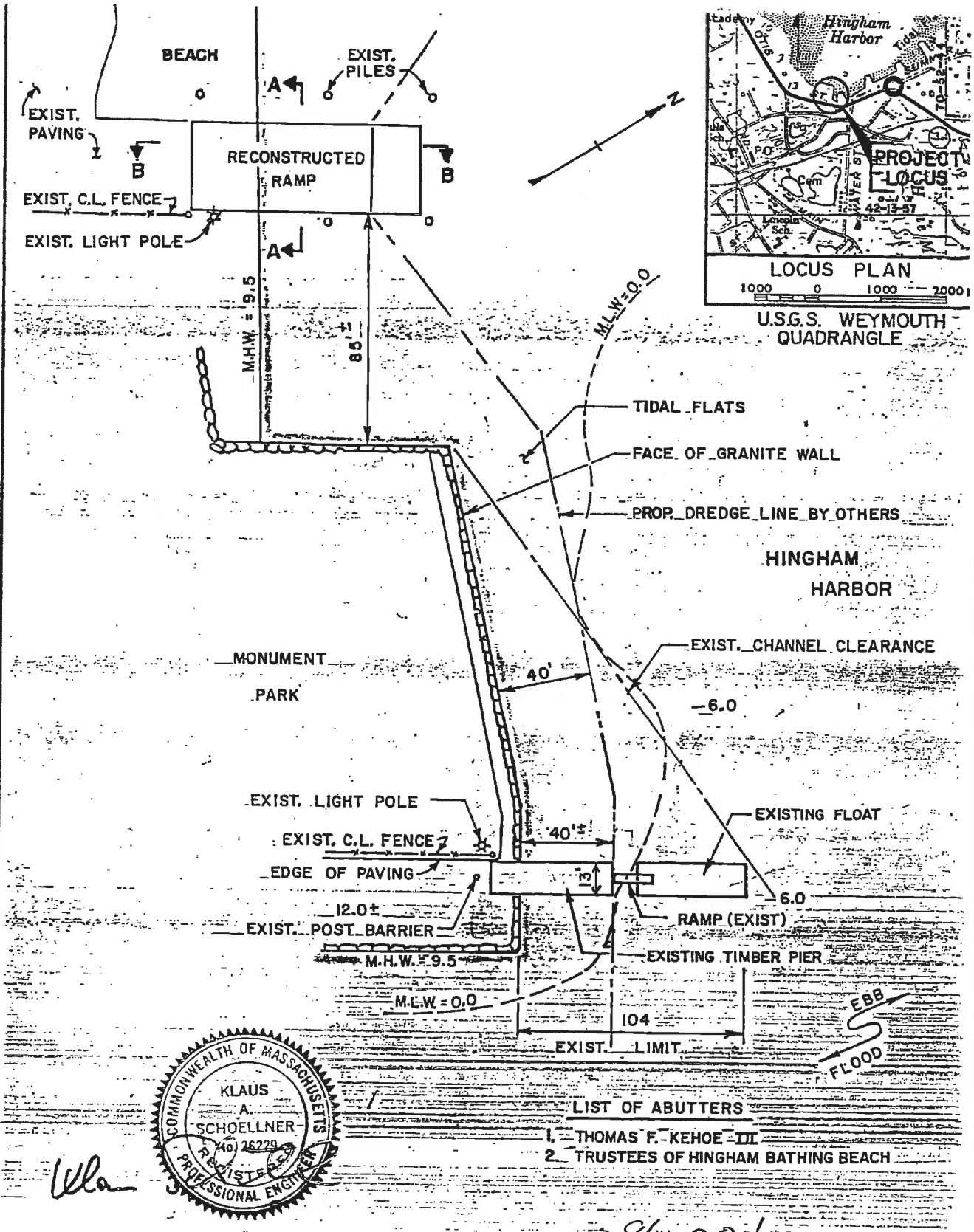
BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
034-011-000-005-100	034-011-000-005-100-TWN1A	1527	MA DPW	HINGHAM			*	MERRILL STREET	STONE MOUND CONSTRUCTION
034-011-000-005-100	034-011-000-005-100-TWN1B	1655	MA DPW	HINGHAM			*	MERRILL STREET	SHORE PROTECTION, STONE MOUND
034-011-000-005-100	034-011-000-005-100-TWN1C	1754	MA DPW	HINGHAM			*	MERRILL STREET	SHORE PROTECTION, STONE MOUND
034-016-000-183-100	034-016-000-183-100-TWN1A	1956	MA DPW	HINGHAM			*	INTERSECTION OF BELAIR ROAD AND BELAIR DRIVE	STONE MOUND, VICINITY OF BELAIR ROAD
034-016-000-183-100	034-016-000-183-100-TWN1B	2097	MA DPW	HINGHAM			*	INTERSECTION OF BELAIR ROAD AND BELAIR DRIVE	SHORE PROTECTION, STONE MOUND
034-016-000-183-100	034-016-000-183-100-TWN1C	2763	MA DPW	HINGHAM	APR 11 1983		*	INTERSECTION OF HOWE STREET AND JARVIS AVE	SHORE PROTECTION, STONE MOUND
034-017-000-099-100	034-017-000-099-100-TWN1A	2545	MA DPW	HINGHAM			*	INTERSECTION OF PARKER DRIVEWAY AND CUSHING AVE	SHORE PROTECTION, CONCRETE SEAWALL
034-017-000-100-100	034-017-000-100-100-TWN1A	2545	MA DPW	HINGHAM			*	INTERSECTION OF PARKER DRIVEWAY AND CUSHING AVE	SHORE PROTECTION, CONCRETE SEAWALL
034-036-000-106-100	034-036-000-106-100-TWN1A	3087	MA DPW	HINGHAM			*	PRIVATE SHIPYARD ADJACENT TO LINCOLN STREET	READVERTISED AS CONT. NO 3178
034-036-000-106-100	034-036-000-106-100-TWN1B	3138	MA DPW	HINGHAM			5	PRIVATE SHIPYARD ADJACENT TO LINCOLN STREET	COMMUNITY PIER REHABILITATION (READVERTISED TO 3087)

TOWN: HINGHAM
SOURCE: MA-DCR - OFFICE OF WATERWAYS
LOCATION: MA-DCR - OFFICE OF WATERWAYS, HINGHAM, MA
DATE OF RESEARCH: AUGUST 2006

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
034-011-000-005-100	034-011-000-005-100-DCR1A	1527	MA DPW	HINGHAM	JUN 1955	PROPOSED SHORE PROTECTION, STONE MOUND CONSTRUCTION, CROW POINT, HINGHAM	1	PARKER'S DRIVE, EAST OF CUSHING DRIVE	ORIG. CONST.
034-011-000-005-100	034-011-000-005-100-DCR1B	1655	MA DPW	HINGHAM	SEP 1956	PROPOSED SHORE PROTECTION, STONE MOUND CONSTRUCTION, CROW POINT, HINGHAM	1	MALCOLM STREET EAST 300 FEET	
034-011-000-005-100	034-011-000-005-100-DCR1C	1754	MA DPW	HINGHAM	APR 1957	PROPOSED SHORE PROTECTION, STONE MOUND CONSTRUCTION, CROW POINT, HINGHAM	1	MALCOLM STREET WEST 150 FEET	
034-016-000-183-100	034-016-000-183-100-DCR1A	1856	MA DPW	HINGHAM	SEP 1958	PROPOSED SHORE PROTECTION, BELAIR ROAD, CROW POINT	1	EAST OF INTERSECTION OF BELAIR ROAD AND BELAIR DRIVE	STONE MOUND, VICINITY OF BELAIR ROAD
034-016-000-183-100	034-016-000-183-100-DCR1B	2097	MA DPW	HINGHAM	MAR 1960	CROW POINT, VICINITY BELAIR ROAD	1	NORTH-EASTERN END COASTAL SEGMENT BELAIR ROAD	SHORE PROTECTION, STONE MOUND
034-016-000-183-100	034-016-000-183-100-DCR1C	2763	MA DEQE	HINGHAM	SEP 1972	PROPOSED SHORE PROTECTION, STONE MOUND, CROW POINT	1	INTERSECTION OF HOWARD ROAD AND JARVIS AVE	ORIG. CONST.
034-017-000-099-100	034-017-000-099-100-DCR1A	2545	MA DPW	HINGHAM	JUL 1966	PROPOSED SHORE PROTECTION, CONCRETE SEAWALL, CROW POINT	1	INTERSECTION OF PARKER DRIVEWAY AND CUSHING AVE	SHORE PROTECTION, CONCRETE SEAWALL, INCLUDES GROIN EAST END OF STRUCTURE
034-017-000-100-100	034-017-000-100-100-DCR1A	2545	MA DPW	HINGHAM	JUL 1966	PROPOSED SHORE PROTECTION, CONCRETE SEAWALL, CROW POINT	1	INTERSECTION OF PARKER DRIVEWAY AND CUSHING AVE	SHORE PROTECTION, CONCRETE SEAWALL, INCLUDES GROIN EAST END OF STRUCTURE

TOWN: HINGHAM
SOURCE: MA-DEP CHAPTER 91 LICENSE
LOCATION: MA-DEP MAIN OFFICE, BOSTON, MA
DATE OF RESEARCH: AUGUST 2006

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
034-050-000-050-100	034-050-000-050-100-LIC1A	1549	DEP CH.91	HINGHAM	OCT 22 1988	PLAN ACCOMPANYING PETITION OF TOWN OF HINGHAM TO DEMOLISH EXISTING LAUNCH RAMP. TO CONSTRUCT AND MAINTAIN NEW RAMP IN THE TIDEWATERS OF HINGHAM HARBOR	2	TOWN PIER AND BOAT RAMP, SOUTHERN TERMINUS OF OTIS STREET	
034-050-000-050-200	034-050-000-050-200-LIC2A	1549	DEP CH.91	HINGHAM	OCT 22 1988	PLAN ACCOMPANYING PETITION OF TOWN OF HINGHAM TO DEMOLISH EXISTING LAUNCH RAMP. TO CONSTRUCT AND MAINTAIN NEW RAMP IN THE TIDEWATERS OF HINGHAM HARBOR	2	TOWN PIER AND BOAT RAMP, SOUTHERN TERMINUS OF OTIS STREET	
034-050-000-050-200	034-050-000-050-200-LIC2B	2227	DEP CH.91	HINGHAM	JAN 5 1990	PLANS ACCOMPANYING THE PETITION OF TOWN OF HINGHAM TO REPAIR AND MAINTAIN EXISTING SEAWALL; WALKWAY & SOLID FILL, HINGHAM HARBOR	2	SOUTHERN TERMINUS OF OTIS STREET	
034-051-000-001-100	034-051-000-001-100-LIC1A	8777	DEP CH.91	HINGHAM	APR 10 2001	PLANS ACCOMPANYING THE PETITION OF: HINGHAM HARBOR DEVELOPMENT COMMITTEE RECONSTRUCTION OF BULKHEADS AT 4 SUMMER STREET, HINGHAM, MA	8	4 SUMMER STREET	
034-051-000-001-200	034-051-000-001-200-LIC2A	8777	DEP CH.91	HINGHAM	APR 10 2001	PLANS ACCOMPANYING THE PETITION OF: HINGHAM HARBOR DEVELOPMENT COMMITTEE RECONSTRUCTION OF BULKHEADS AT 4 SUMMER STREET, HINGHAM, MA	8	4 SUMMER STREET	
034-051-000-003-100	034-051-000-003-100-LIC1A	8777	DEP CH.91	HINGHAM	APR 10 2001	PLANS ACCOMPANYING THE PETITION OF: HINGHAM HARBOR DEVELOPMENT COMMITTEE RECONSTRUCTION OF BULKHEADS AT 4 SUMMER STREET, HINGHAM, MA	8	4 SUMMER STREET	
034-051-000-005B-200	034-051-000-005B-200-LIC2A	2211	DEP CH.91	HINGHAM	DEC 27 1989	PLANS ACCOMPANYING THE PETITION OF TOWN OF HINGHAM TO REPAIR AND MAINTAIN SEAWALL AND WALKWAY HINGHAM HARBOR, COUNTY OF PLYMOUTH, MA SEPTEMBER 1989, NUCCI VINE ASSOCIATES, INC.	2	BETWEEN BARNES WHARF AND STEAMBOAT WHARF	



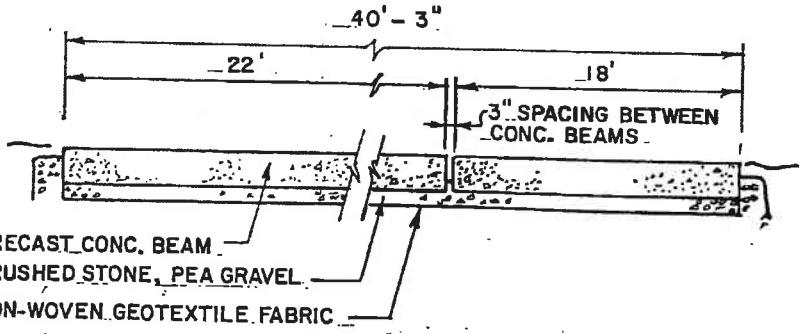
034-50-50-100 034-50-50-200

86-001

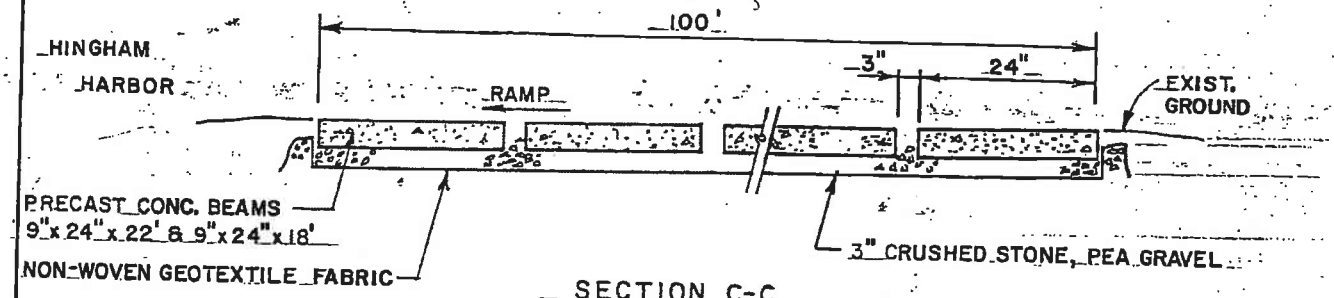
PLAN ACCOMPANYING PETITION OF:
TOWN OF HINGHAM
TO DEMOLISH EXISTING LAUNCH RAMP, TO CONSTRUCT & MAINTAIN NEW RAMP
IN THE TIDEWATERS OF HINGHAM HARBOR
TOWN OF HINGHAM
COUNTY OF PLYMOUTH
STATE OF MASSACHUSETTS

LICENSE PLAN NO.: 1549
Approved by Department of Environmental Quality Engineering of Massachusetts
COMMISSIONER
DIVISION DIRECTOR
SECTION CHIEF

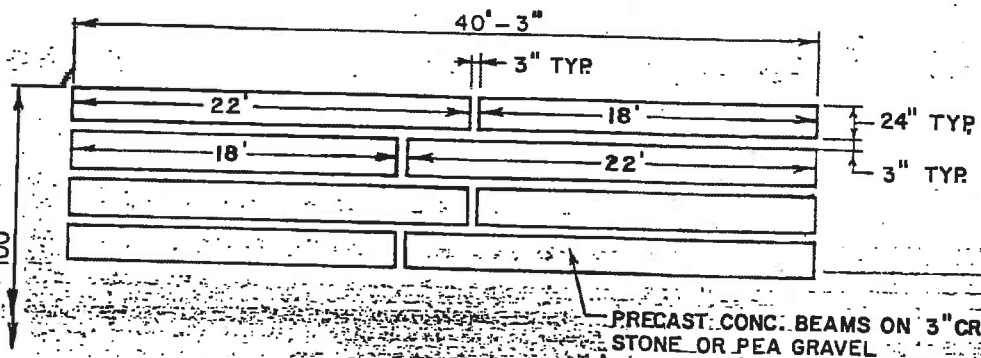
1052



SECTION A-A
N.T.S.



SECTION C-C
N.T.S.



PLAN OF RECONSTRUCTED RAMP
N.T.S.

COMMONWEALTH OF MASSACHUSETTS
KLAUS A. SCHOELLNER
No. 26225
REGISTERED PROFESSIONAL ENGINEER

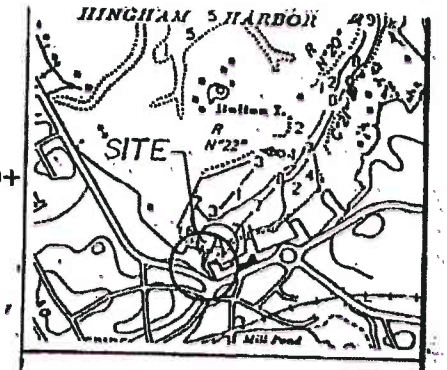
LICENSE PLAN NO. 1549
Approved by Department of Environmental Quality Engineering
Date: OCTOBER 22, 1986

86-001

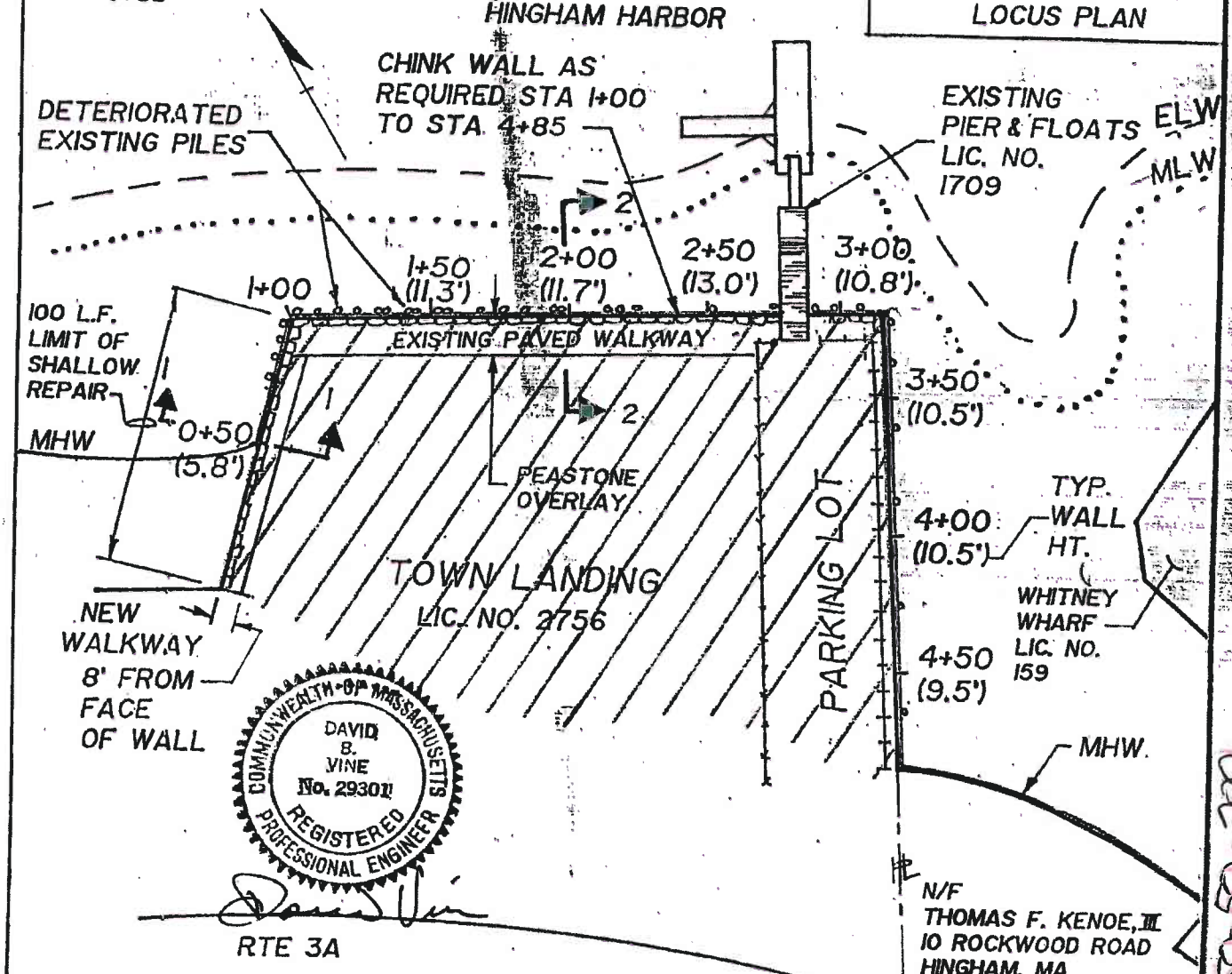
2072

NOTES:

1. DATUM: MLW=0, MHW=9.5, ELW=-1.0
2. TOWN OF HINGHAM OWNS TOWN LANDING SITE
3. LICENSE NO. 2756 (1903) LICENSED THE SEAWALL FROM APPROXIMATE STATION 0+76 TO STATION 2+60+ AND 2425 CUBIC YARDS OF FILL DISPLACING MEAN TIDE.
4. NO DREDGING OR FILLING PROPOSED. PROJECT TO LICENSE 8000± CUBIC YARDS DISPLACING MEAN TIDE, NOT LICENSED IN 1903.
5. WALL TO BE REPAIRED & MAINTAINED STA 0+00 TO 4+85



LOCUS PLAN



SITE PLAN

0 25 50 75
SCALE IN FEET

SHEET 1 OF 2

PLANS ACCOMPANYING THE PETITION OF
TOWN OF HINGHAM
TO REPAIR AND MAINTAIN EXISTING
SEAWALL; WALKWAY & SOLID FILL
HINGHAM HARBOR
COUNTY OF PLYMOUTH, MA
OCTOBER 23, 1989
NUCCI VINE ASSOCIATES, INC.

LICENSE PLAN NO. 2227
Approved by Department of Environmental Protection of Massachusetts

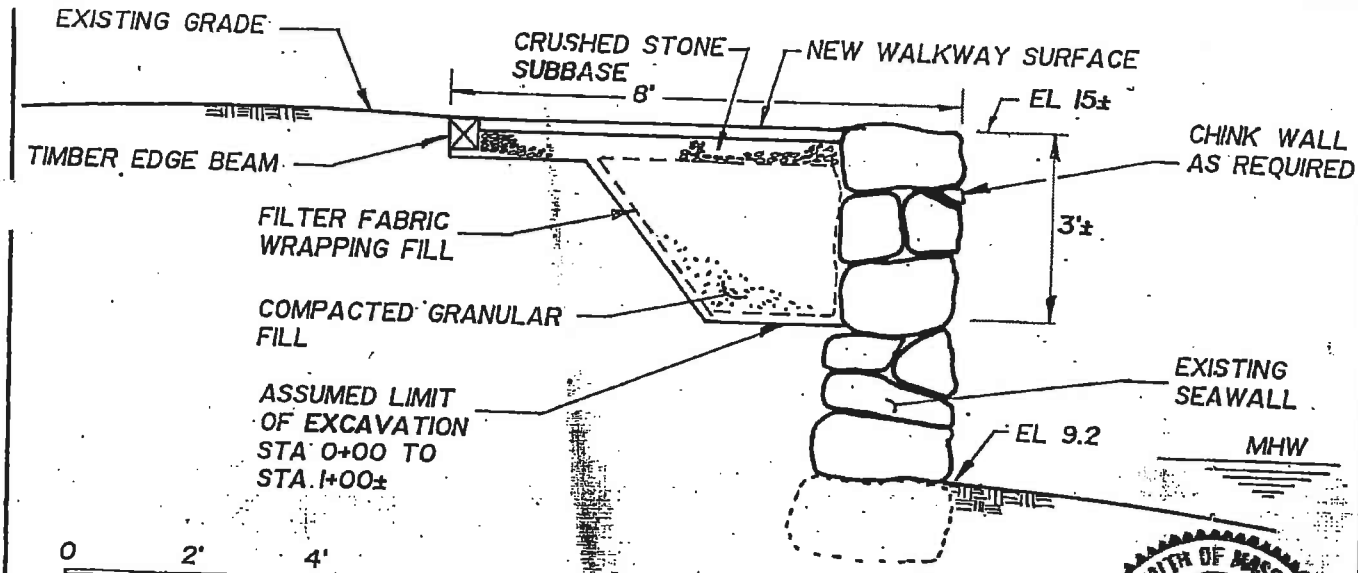
COMMISSIONER

DIVISION DIRECTOR

SECTION CHIEF

JAN - 5 1990

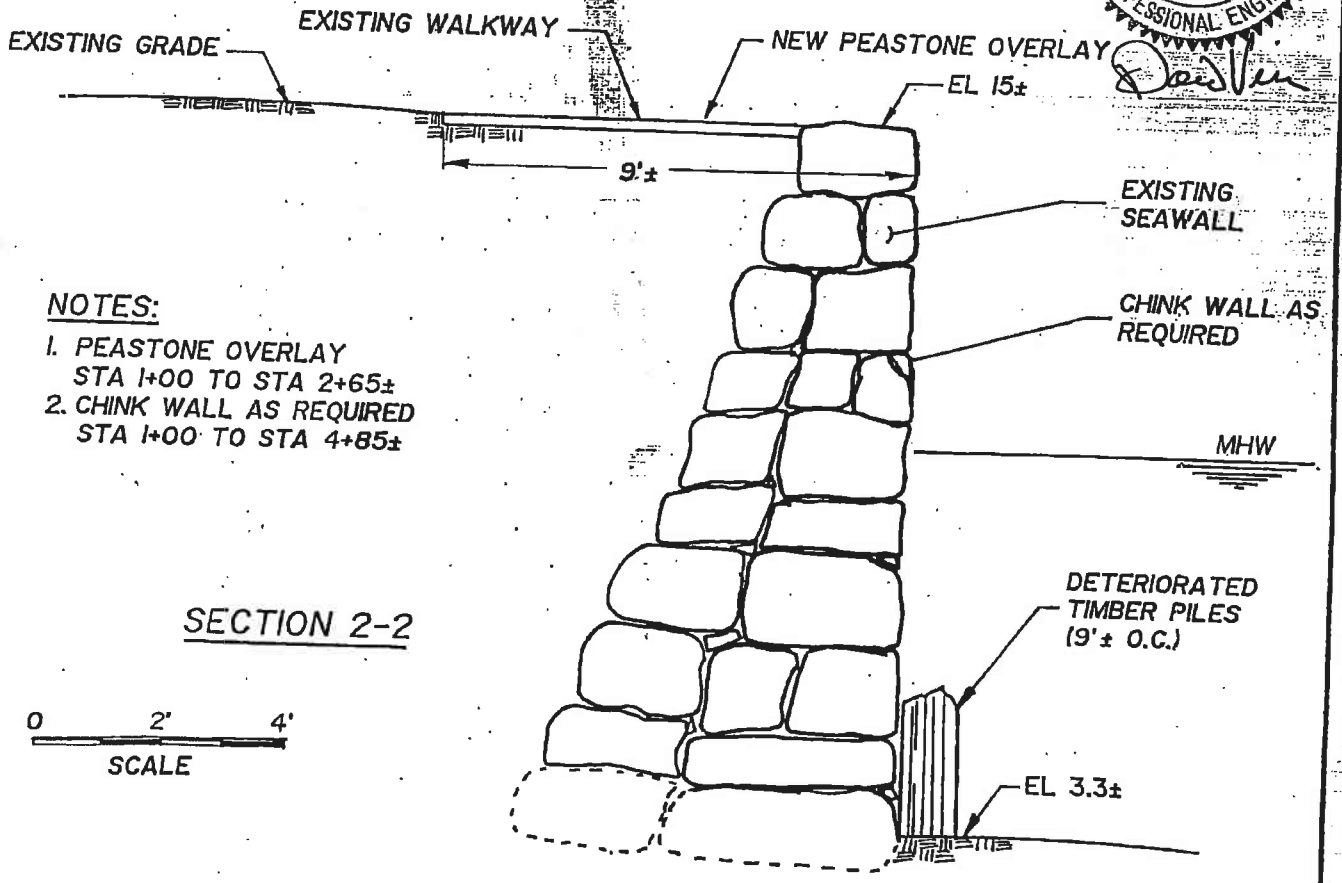
034-50-50-200



SECTION 1-1

SHALLOW SEAWALL REPAIR

COMMONWEALTH OF MASSACHUSETTS
DAVID B. VINE
No. 29301
REGISTERED PROFESSIONAL ENGINEER



NOTES:

1. PEASTONE OVERLAY STA 1+00 TO STA 2+65±
2. CHINK WALL AS REQUIRED STA 1+00 TO STA 4+85±

SECTION 2-2

0 2' 4'
SCALE

SHEET 2 OF 2

PLANS ACCOMPANYING THE PETITION OF
TOWN OF HINGHAM
TO REPAIR AND MAINTAIN EXISTING
SEAWALL AND WALKWAY & SOLID FILL
HINGHAM HARBOR
COUNTY OF PLYMOUTH, MA
OCTOBER 23, 1989
NUCCI VINE ASSOCIATES, INC.

LICENSE PLAN NO. 2227

Approved by Department of Environmental Protection

Date: JAN - 5 1990

0341-60-50-A90

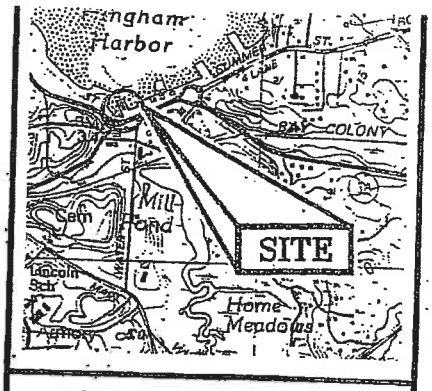
89-297

1) REPAIR OF 244 FT. OF GRANITE BULKHEAD.

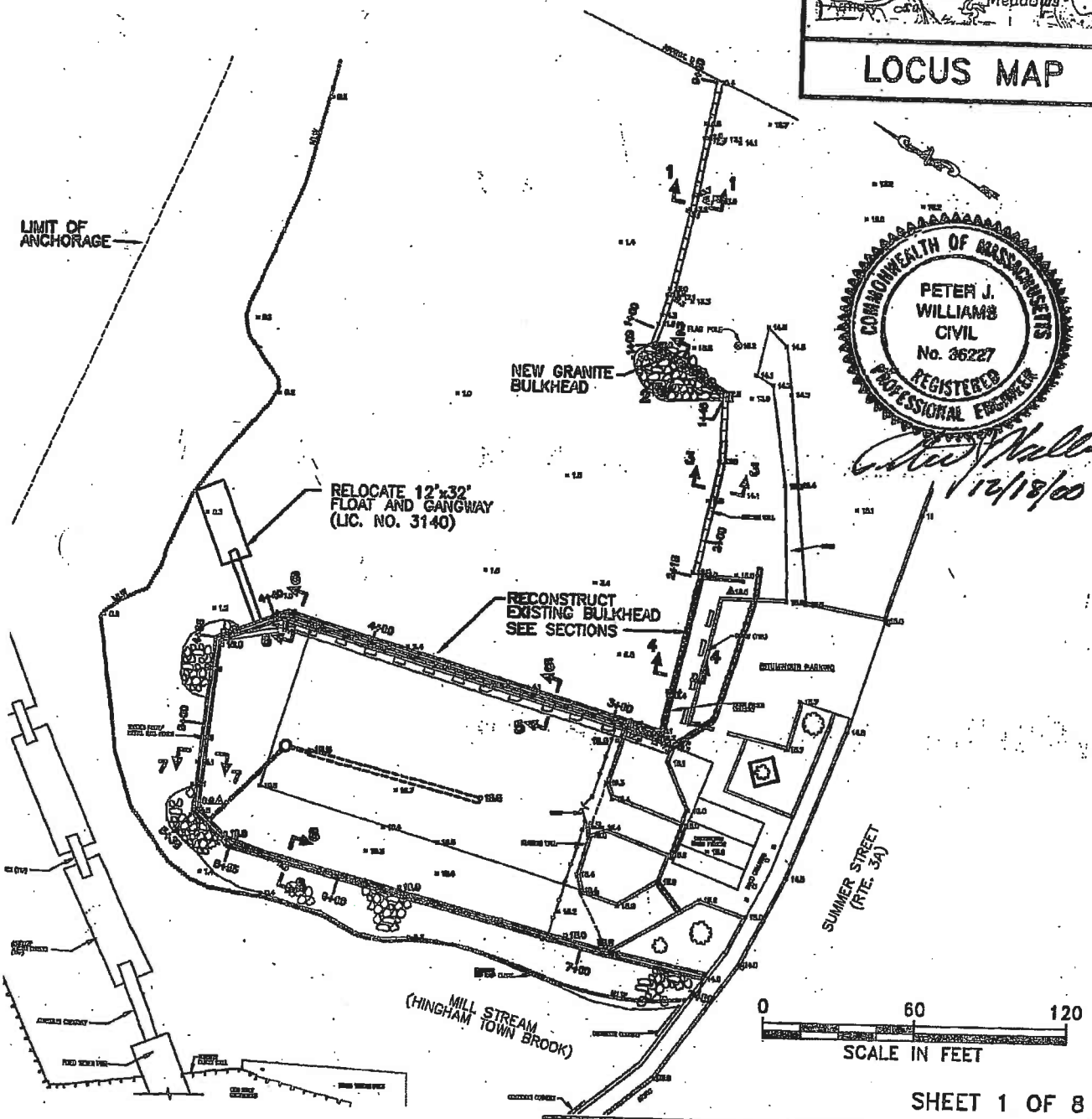
2) RECONSTRUCTION OF 470 FT. OF GRANITE BULKHEAD.

3) CONSTRUCTION OF 36 FT. OF GRANITE BULKHEAD TO REPLACE EXISTING REVETMENT.

4) RELOCATION OF PRIOR AUTHORIZED GANGWAY AND FLOAT.



LOCUS MAP



COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

12/18/00

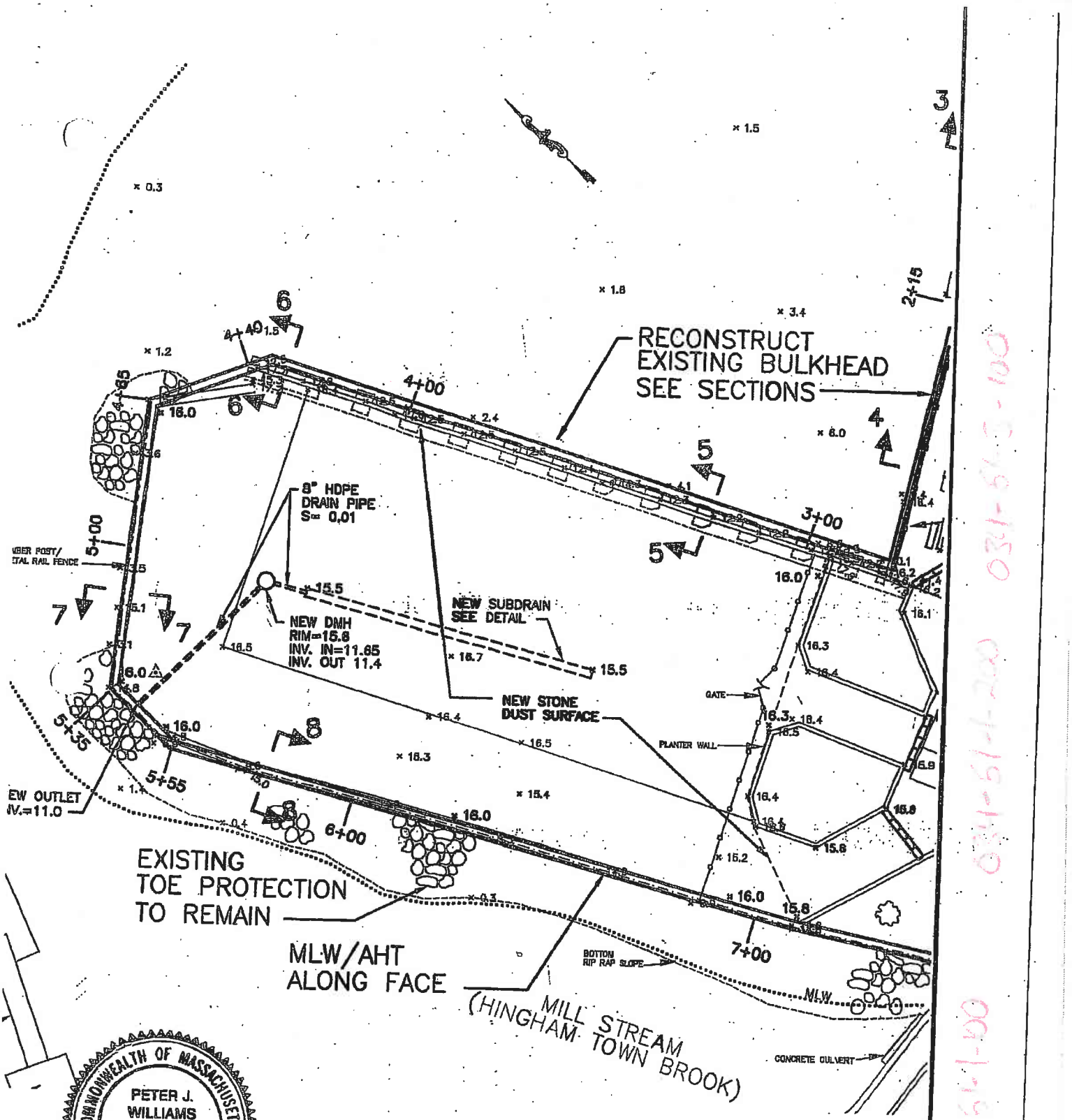
SHEET 1 OF 8

SITE PLAN

PLANS ACCOMPANYING PETITION OF:
HINGHAM HARBOR DEVELOPMENT COMMITTEE
RECONSTRUCTION OF BULKHEADS
AT 4 SUMMER STREET HINGHAM, MA

LICENSE PLAN NO. 8777
Approved by Department of Environmental Protection of Massachusetts
APR 10 2001

034-51-1-00 034-51-1-200 034-51-3-100



WHARF PLAN

NOTES:

1. SURVEY PERFORMED BY NUCCI MARINE ASSOCIATES, INC. JULY 2000.

DATUM:

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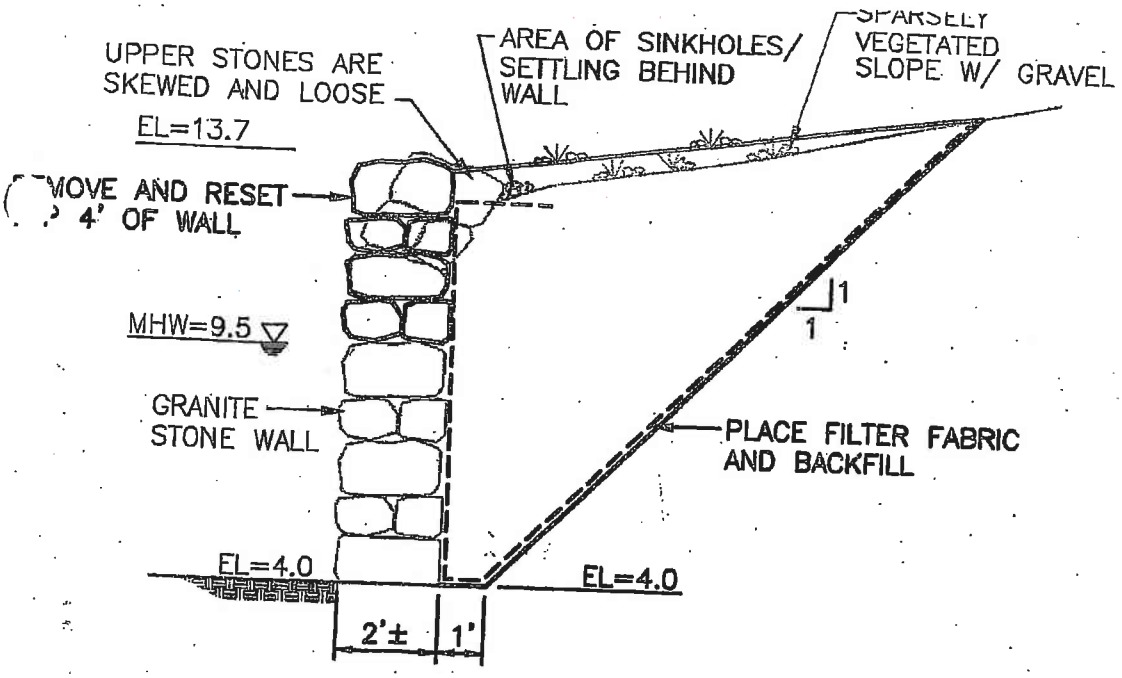
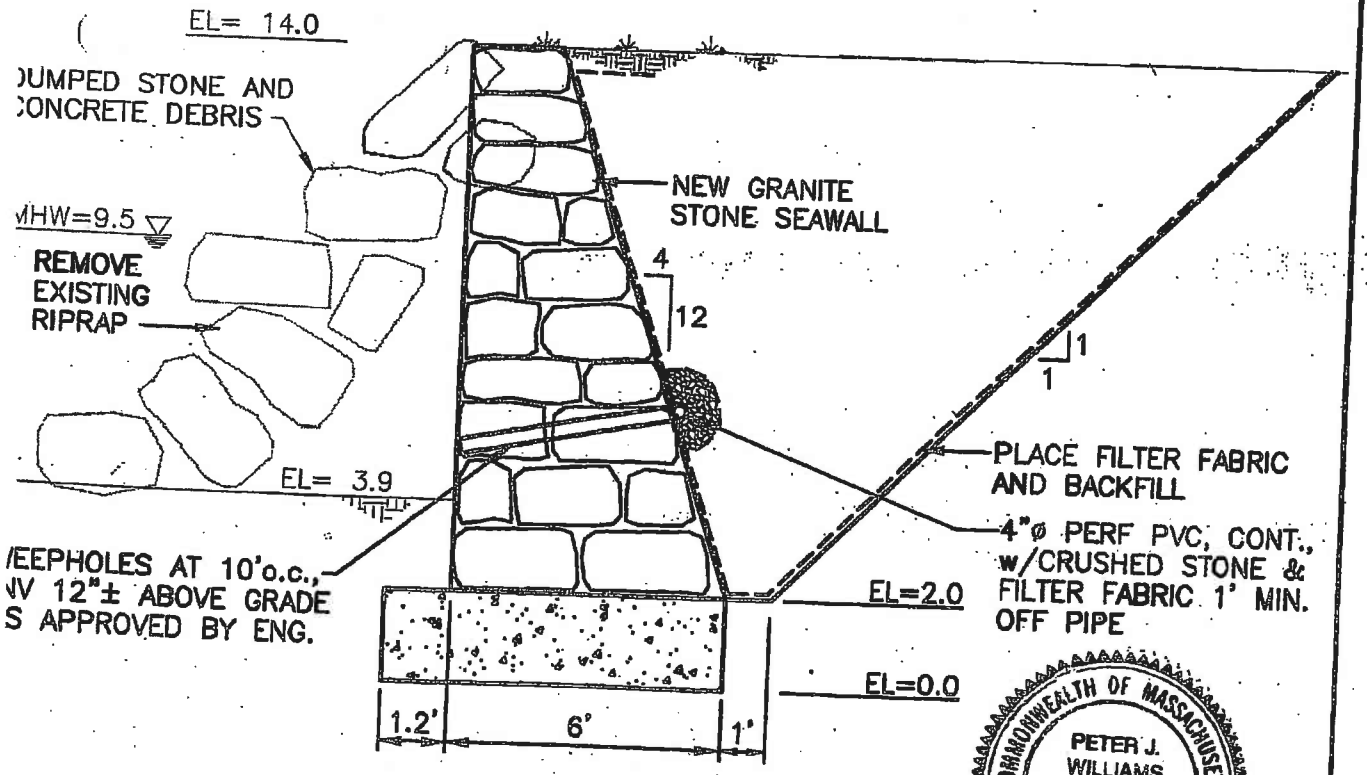
MHW=9.5
MLW=0.0

0 30 60
SCALE IN FEET



PROPOSED SECTION 1
STATION 0+00 TO 1+09
SCALE: 1"=4'

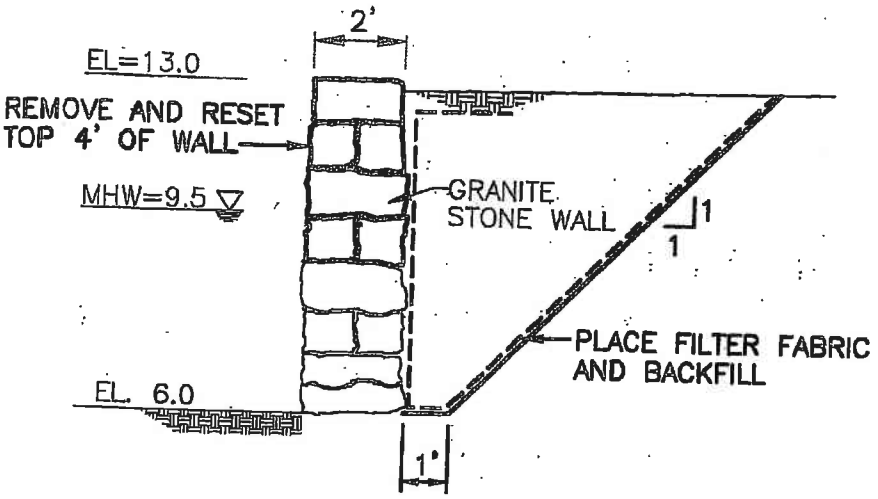
LICENSE PLAN NO. 8777
Approved by Department of Environmental Protection
Date: APR 10 2001



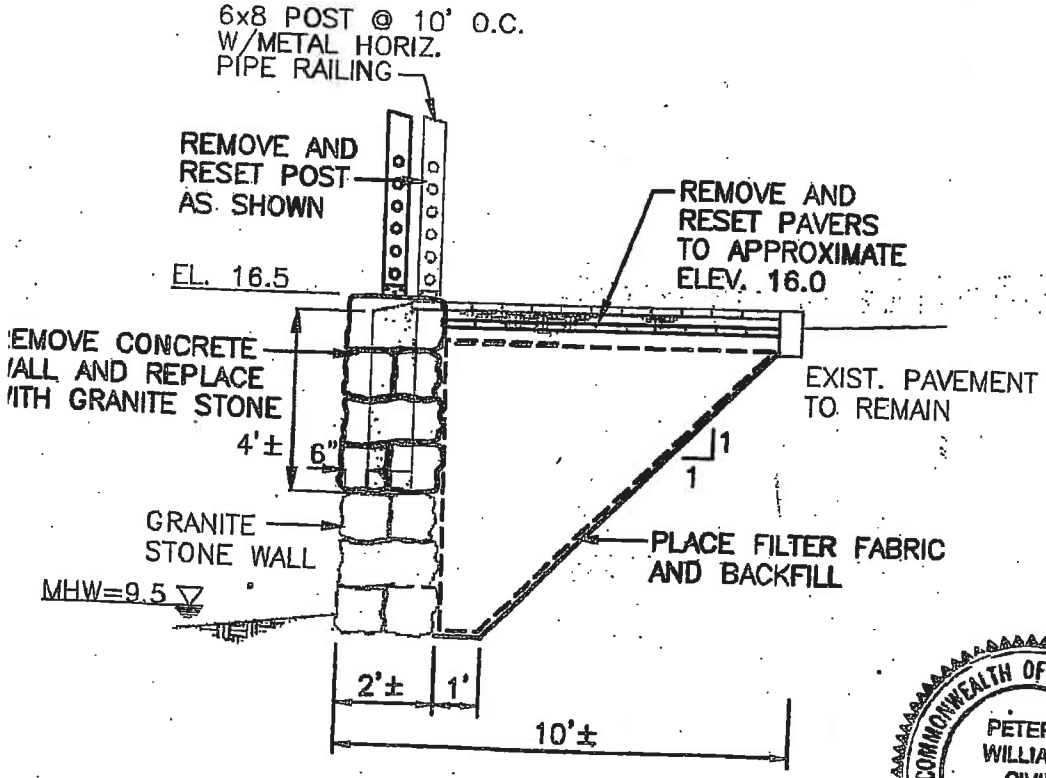
PROPOSED SECTION 2
STATION 1+09 TO 1+45
SCALE: 1"=4'

COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

12/18/00



PROPOSED SECTION 3
STATION 1+45 TO 2+15
SCALE: 1"=4'



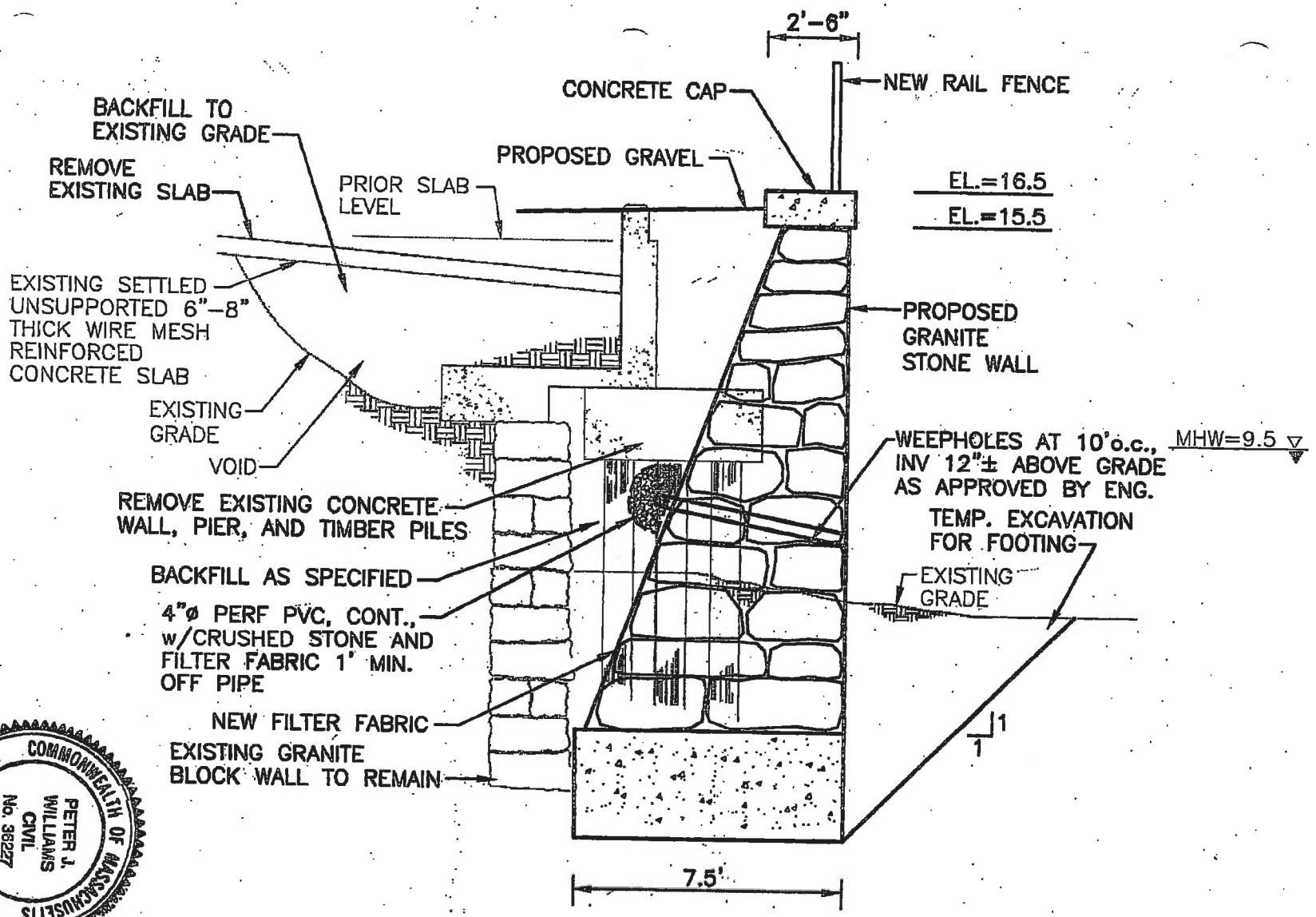
PROPOSED SECTION 4
STATION 2+15 TO 2+80
SCALE: 1"=4'

LICENSE PLAN NO. 8777
Approved by Department of Environmental Protection
Date APR 10 2001

COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

11/15/00

034-51-1-100 034-51-1-200 034-51-1-300



COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
No. 36227
CIVIL
REGISTERED PROFESSIONAL ENGINEER

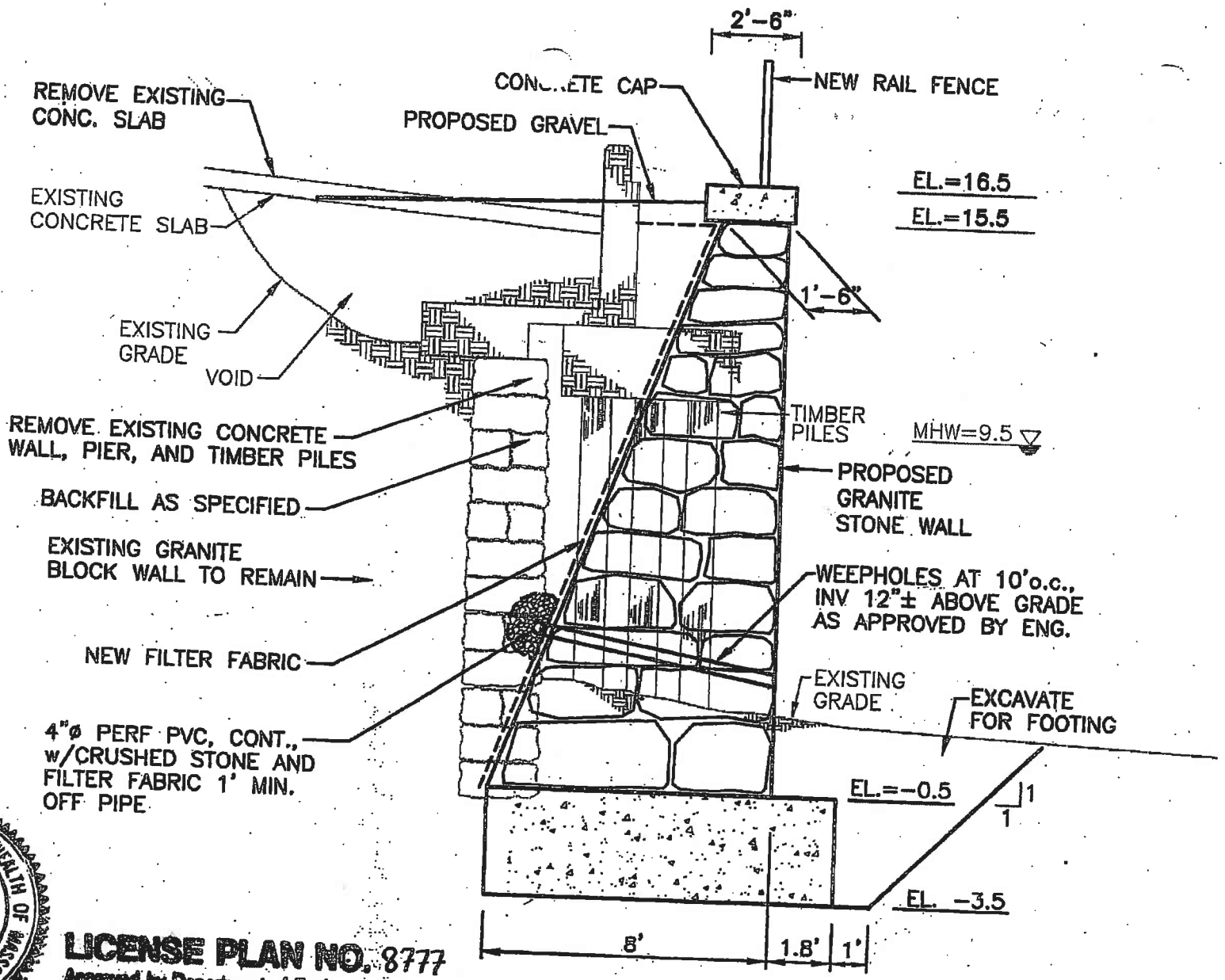
SHEET 5 OF 8

0 4 8
SCALE IN FEET

PROPOSED SECTION 5
STATION 2+80 TO 4+20
SCALE: 1"=4'

LICENSE PLAN NO. 8777
Approved by Department of Environmental Protection
Date: APR 10 2001

034-51-1-100 034-51-1-200 034-51-3-100



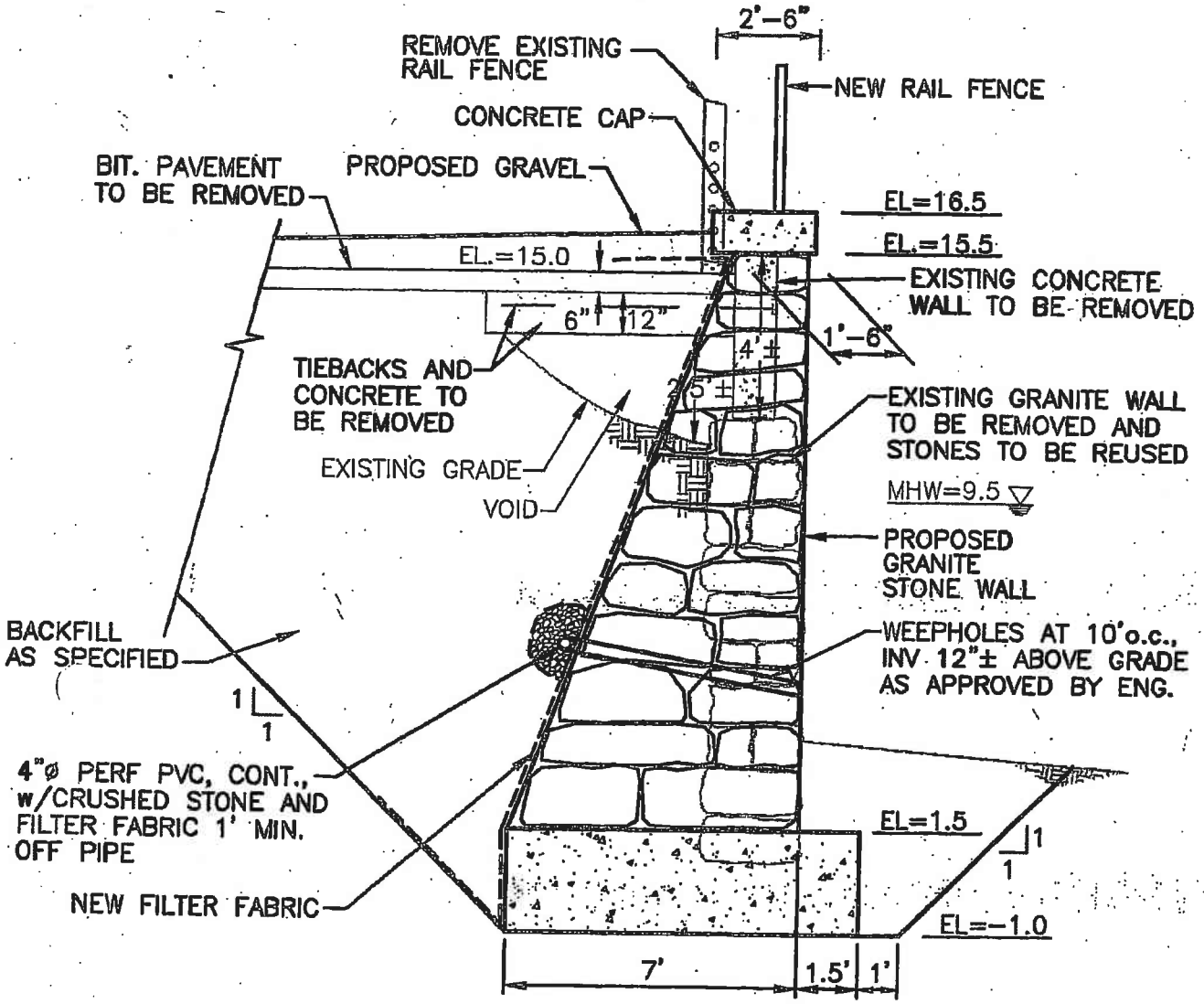
PROPOSED SECTION 6
STATION 4+20 TO 4+40
SCALE: 1"=4'

COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
No. 36227
CIVIL
REGISTERED PROFESSIONAL ENGINEER

LICENSE PLAN NO. 8777
Approved by Department of Environmental Protection
Date: APR 10 2001

SHEET 5 OF 8

054-51.1-100 054-51.1-200 054-51.2-100

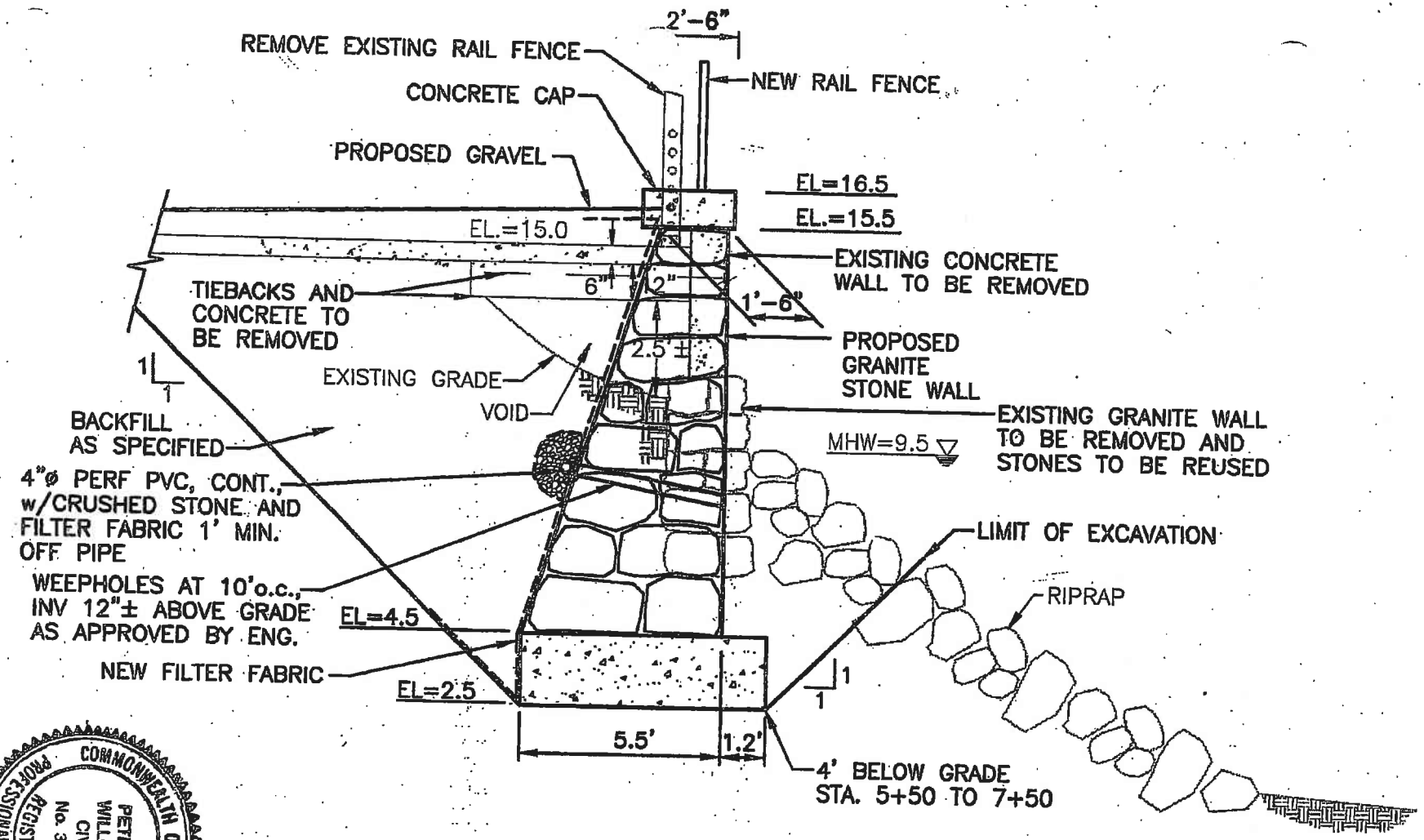


COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

12/18/00

PROPOSED SECTION 7
STATION 4+40 TO 5+35
SCALE: 1"=4'

LICENSE PLAN NO. 8777
Approved by Department of Environmental Protection
Date: APR 10 2001



COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

12/18/00

PROPOSED SECTION 8
STATION 5+35 TO 7+45
SCALE: 1"=4'

LICENSE PLAN NO. 8777
Approved by Department of Environmental Protection
Date:
APR 10 2001

SHEET 8 OF 8

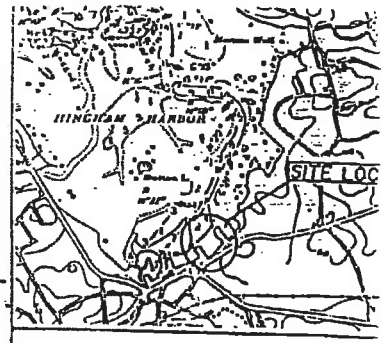
034-51-1-100 034-51-2-100 034-51-3-100

COMMONWEALTH OF MASSACHUSETTS
DAVID B. VINE
No. 29301
REGISTERED PROFESSIONAL ENGINEER

HINGHAM HARBOR

EXTREME LOW WATER

MLW



LOCUS PLAN

N.

STEAMBOAT WHARF

LIC. NO. 407

LIC. NO 641

BARNES WHARF

NOTES:

1. DATUM : MLW = 0.0; MHW = 9.5; ELW = -1.0
2. TOWN OF HINGHAM OWNS STEAMBOAT AND BARNES WHARVES AND LAND BETWEEN TO RECEIVE REPAIRS.
3. ALL REPAIRS TO EXISTING WALL TO BE INKIND. SHALLOW REPAIRS (SECTION 2-2) TO BE PERFORMED ALONG LENGTH OF WALL, EXCEPT WITHIN AREAS DESIGNATED AS REMOVE AND RESET (SECTION 1-1).
4. NO DREDGING OR FILLING PROPOSED.

EXISTING SEAWALL

REMOVE & RESET REPAIRS (TYP.)

LIMIT OF UNLICENSED STRUCTURE
SEAWALL REPAIRS (450 L.F.)

MHW

1

2

1

2

8' WALKWAY

EXISTING SIDEWALK

BRUSH

BRUSH

SUMMER STREET

0 40 80
SCALE IN FEET

SITE PLAN

SHEET 1 OF 2

LICENSE PLAN NO. 2241

Approved by Department of Environmental Protection of Massachusetts

COMMISSIONER

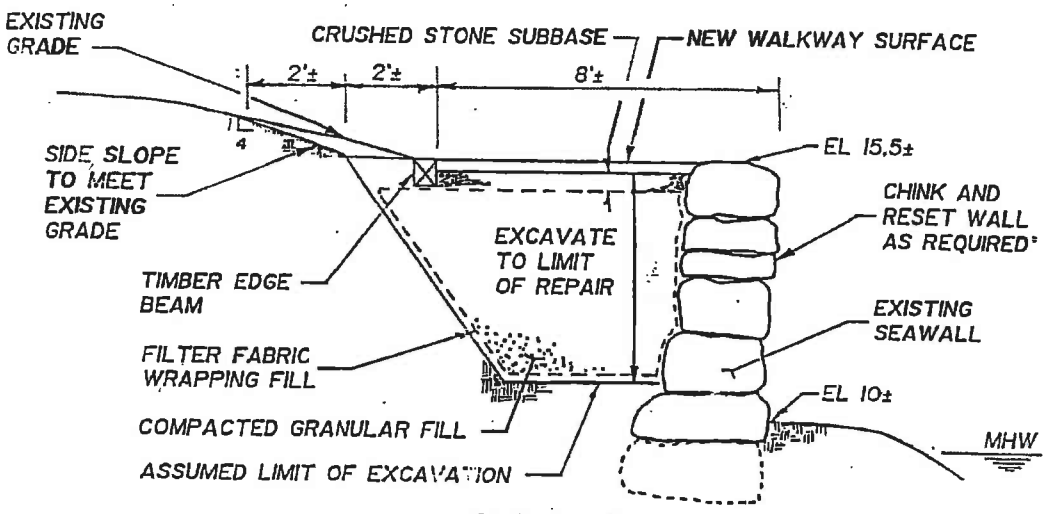
DIRECTOR

SECTION CHIEF

DEC 27 1989
DATE

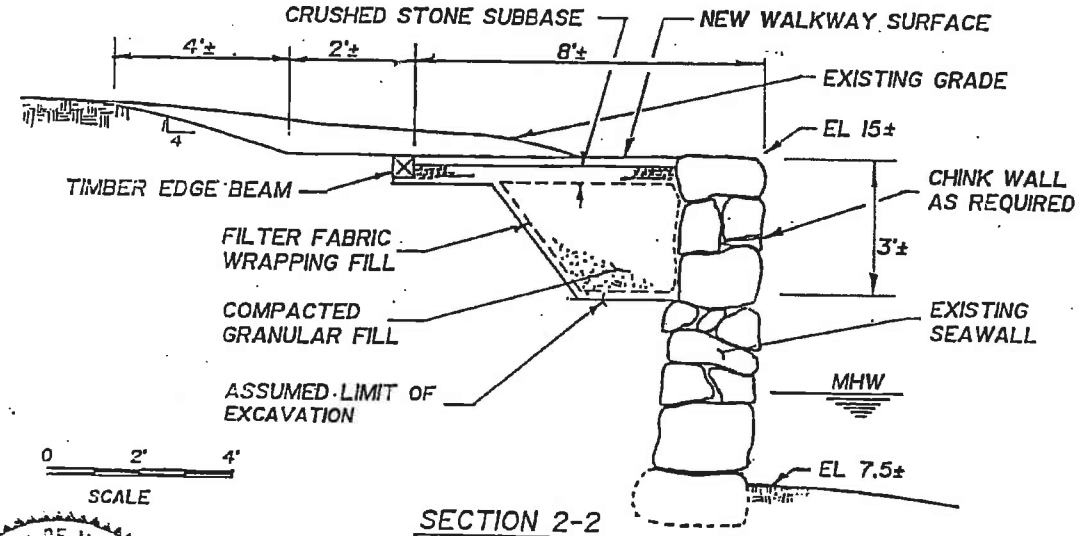
PLANS ACCOMPANTING THE PETITION OF
TOWN OF HINGHAM
TO REPAIR AND MAINTAIN
SEAWALL AND WALKWAY
HINGHAM HARBOR
COUNTY OF PLYMOUTH, MA
SEPTEMBER 1989
NUCCI VINE ASSOCIATES, INC.

034-51-5B-200



SECTION 1-1

REMOVE & RESET SEAWALL REPAIR



SECTION 2-2

SHALLOW SEAWALL REPAIR

COMMONWEALTH OF MASSACHUSETTS
DAVID B. VINE
No. 29301
REGISTERED PROFESSIONAL ENGINEER

054-51-5B-200

SHEET 2 OF 2

PLANS ACCOMPANYING THE PETITION OF
TOWN OF HINGHAM
TO REPAIR AND MAINTAIN
SEAWALL AND WALKWAY
HINGHAM HARBOR
COUNTY OF PLYMOUTH, MA
SEPTEMBER 1989
NUCCI VINE ASSOCIATES, INC

LICENSE PLAN NO. 2211

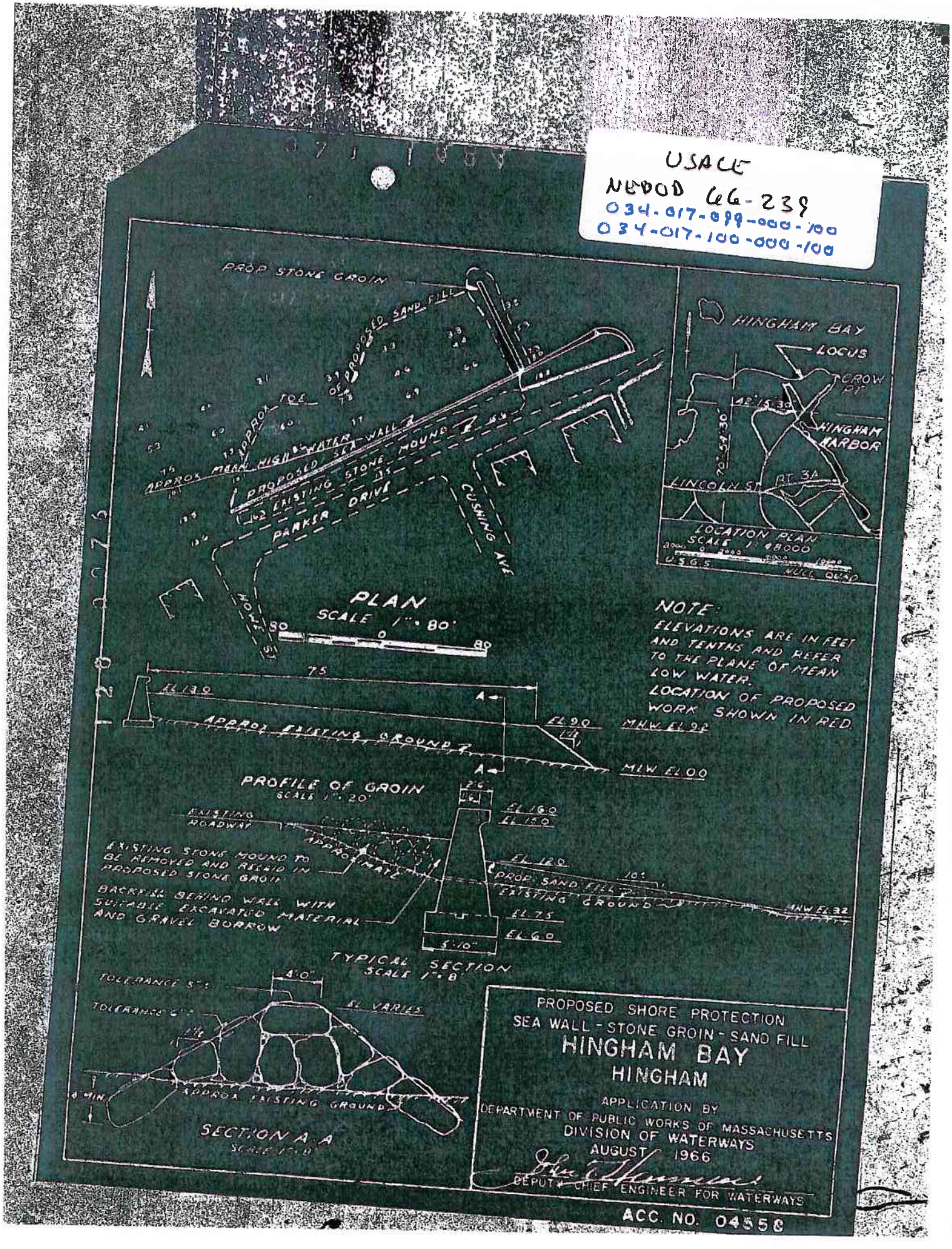
Approved by Department of Environmental Protection

Date: DEC 27 1989

TOWN: HINGHAM
SOURCE: U.S. - ARMY CORPS OF ENGINEERS
LOCATION: U.S.A.C.E. - NEW ENGLAND DISTRICT, CONCORD, MA
DATE OF RESEARCH: AUGUST 2006

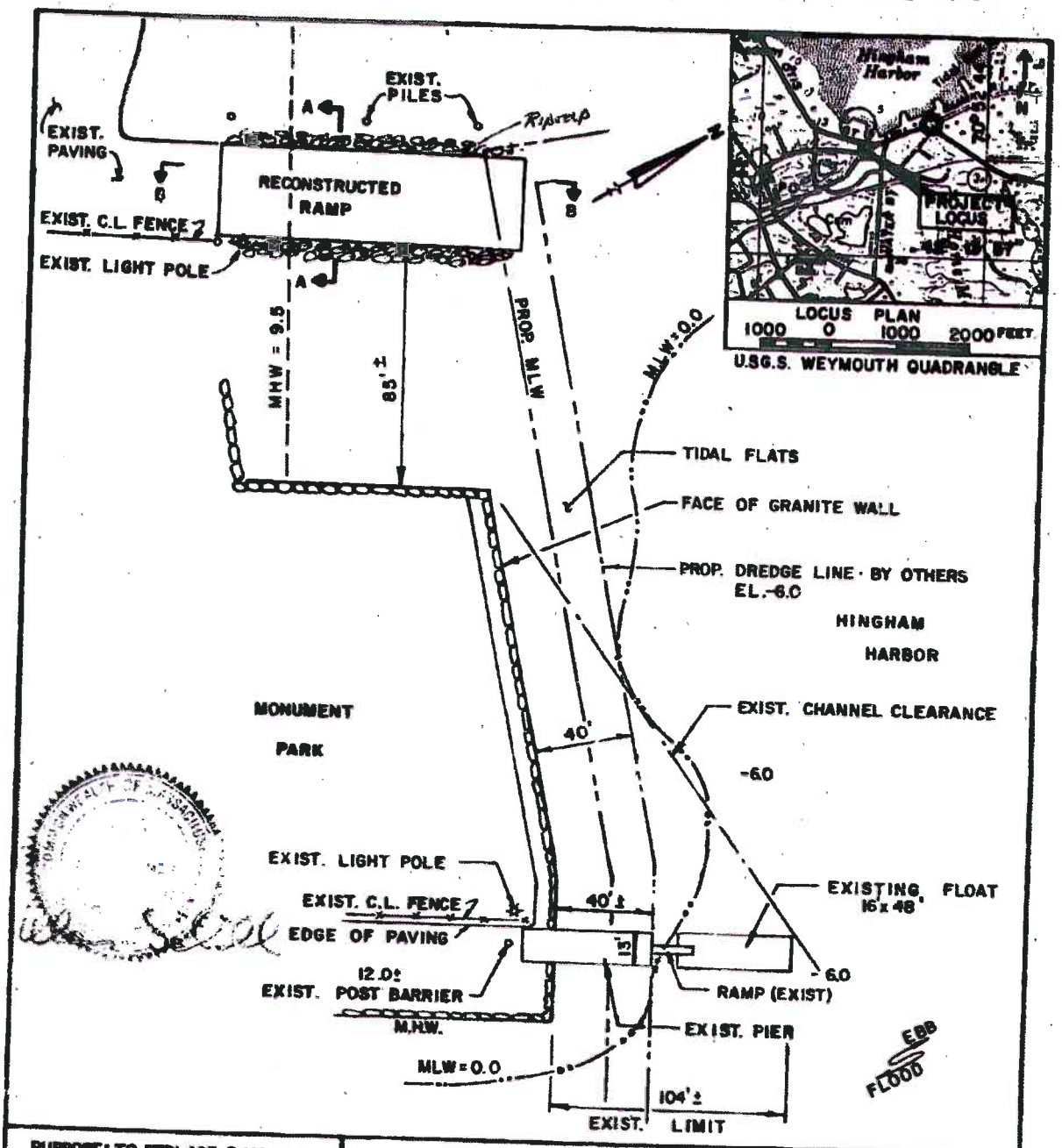
BCE Structure No	Document No	Permit/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
034-017-000-099-100	034-017-000-099-100-COE1A	NEDOD 66-239	MA DPW	HINGHAM	JUL 1966	PROPOSED SHORE PROTECTION, CONCRETE SEAWALL, STONE GROIN, SAND FILL, HINGHAM BAY	1	INTERSECTION OF PARKER DRIVEWAY AND CUSHING AVE	SHORE PROTECTION, CONCRETE SEAWALL, INCLUDES GROIN EAST END OF STRUCTURE
034-017-000-100-100	034-017-000-100-100-COE1A	2545	MA DPW	HINGHAM	JUL 1966	PROPOSED SHORE PROTECTION, CONCRETE SEAWALL, STONE GROIN, SAND FILL, HINGHAM BAY	1	INTERSECTION OF PARKER DRIVEWAY AND CUSHING AVE	SHORE PROTECTION, CONCRETE SEAWALL, INCLUDES GROIN EAST END OF STRUCTURE
034-050-000-050-100	034-050-000-050-100-COE1A	MA-HULL-86-376	TOWN	HINGHAM	JUN 1986	PROPOSED RECONSTRUCTION LAUNCH RAMP	2	OFF OTIS STREET, EAST OF IRON HORSE PARK	BOAT RAMP REPAIR
034-050-000-050-100	034-050-000-050-100-COE2A	199400032	TOWN	HINGHAM	MAR 1994	BOAT RAMP REPAIRS	2	OFF OTIS STREET, EAST OF IRON HORSE PARK	
034-050-000-051-100	034-050-000-051-100-COE1A	200100339	TOWN	HINGHAM	FEB 2001	HINGHAM BEACH BANK STABILIZATION	4	OFF OTIS STREET, ADJACENT TO THE BATH HOUSE	NEW RIP RAP
034-051-001-000-100	034-051-001-000-100-COE1A	200302469	TOWN	HINGHAM	SEPT 2000	WHITNEY WHARF, HINGHAM HARBOR	9	OTIS STREET, HINGHAM HARBOR	SEAWALL REPAIRS
034-051-001-000-200	034-051-001-000-200-COE1A	200302469	TOWN	HINGHAM	SEPT 2000	WHITNEY WHARF, HINGHAM HARBOR	9	OTIS STREET, HINGHAM HARBOR	SEAWALL REPAIRS
034-051-003-000-100	034-051-003-000-100-COE1A	200302469	TOWN	HINGHAM	SEPT 2000	WHITNEY WHARF, HINGHAM HARBOR	9	OTIS STREET, HINGHAM HARBOR	SEAWALL REPAIRS

USACE
NEDOD 66-239
034-017-099-000-100
034-017-100-000-100



USACE # MA-HUW-86-276

034-050-000-050-100



PURPOSE: TO REPLACE & MAINTAIN A TOWN LAUNCH RAMP.

DATUM: MLW = 0.0

ADJACENT PROPERTY OWNERS:
THOMAS F. KENDE III
TRUSTEES OF HINGHAM BATHING BEACH

PLAN VIEW

60 40 20 0 60 Ft.

TOWN OF HINGHAM
HINGHAM, MA.

PROPOSED RECONSTRUCTED LAUNCH RAMP

IN: HINGHAM HARBOR

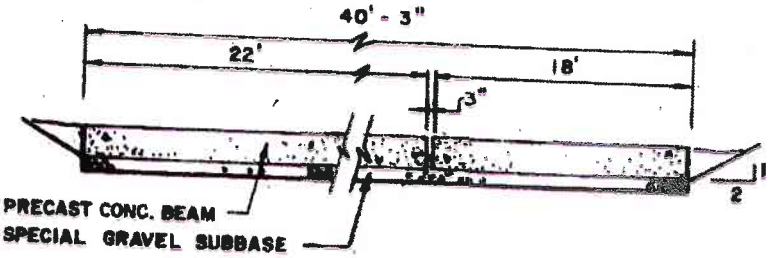
AT: HINGHAM

COUNTY OF: PLYMOUTH, STATE: MA.

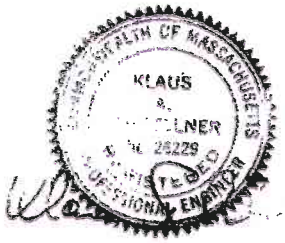
APPLICATION BY: TOWN OF HINGHAM

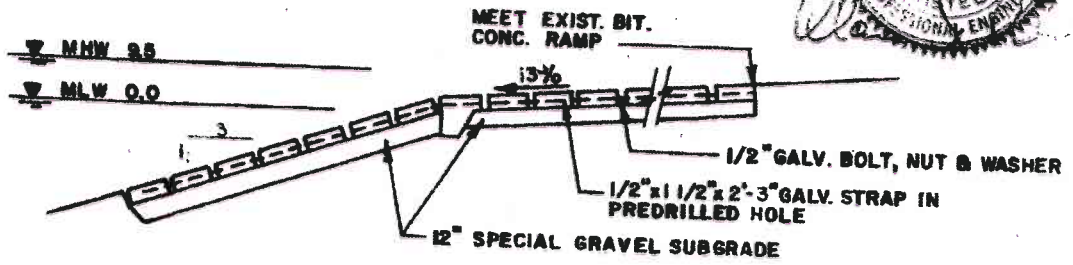
REV. 6-4-86

SHEET 2 OF 3 DATE 10-21-85

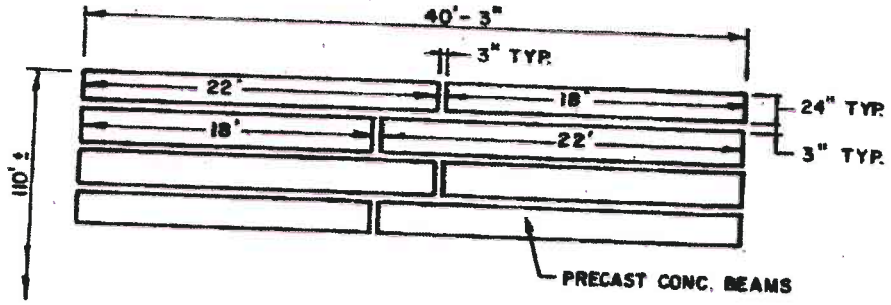


SECTION A-A





SECTION B-B

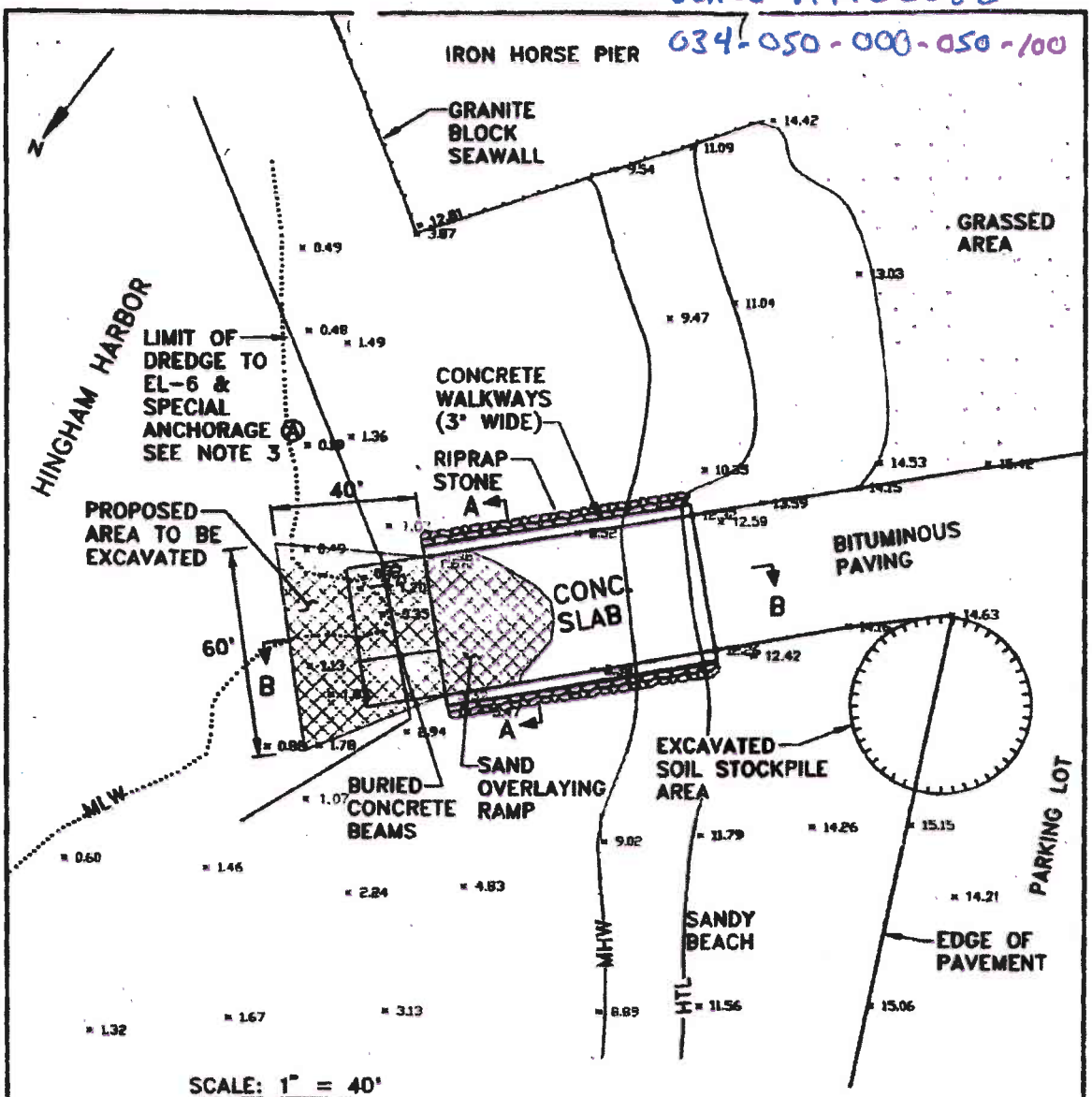


PLAN OF RECONSTRUCTED RAMP

PURPOSE: TO REPLACE & MAINTAIN A TOWN LAUNCH RAMP. DATUM: MLW = 0.0 ADJACENT PROPERTY OWNERS THOMAS F. KEHOE III TRUSTEES OF HINGHAM BATHING BEACH	BOAT LAUNCH RAMP NOT TO SCALE TOWN OF HINGHAM HINGHAM, MA.	PROPOSED RECONSTRUCTED LAUNCH RAMP IN: HINGHAM HARBOR AT: HINGHAM COUNTY OF: PLYMOUTH, STATE: MA. APPLICATION BY: TOWN OF HINGHAM SHEET 3 OF 3 REV.: 4-1-86 DATE 10-21-85

USACE 199400032

034-050-000-050-100



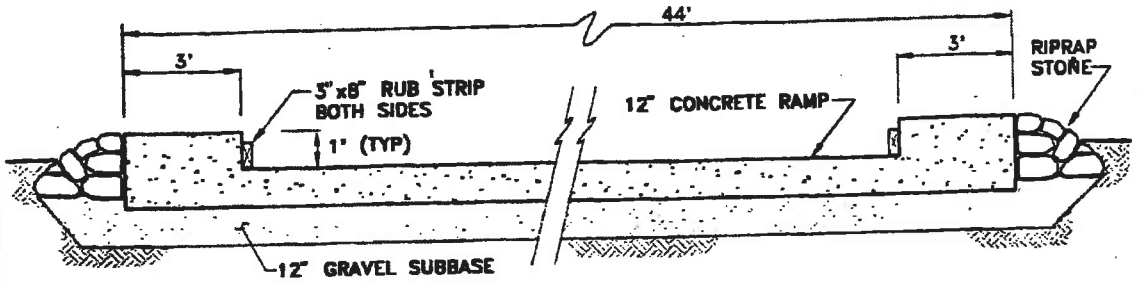
NOTES:

1. PROJECT TO EXCAVATE APPROX. 300 CUBIC YARDS SOIL BY LAND OPERATED CLAM SHELL DRAG LINE, DISPOSING MATERIAL AT TOWN LANDFILL, ALL BELOW MHW & HTL.
2. DATUM MLW=0.0, MHW=9.0, HIGH TIDE LEVEL(HTL)=11.0
3. BURIED STRUCTURE & ANCHORAGE LIMIT PER RECONSTRUCTION OF BOAT RAMP DEQE LIC. No. 1549 (1986) & NO 1709 (1987)

SITE PLAN

BOAT RAMP REPAIRS
HINGHAM HARBOR
HINGHAM MASSACHUSETTS
PLYMOUTH COUNTY

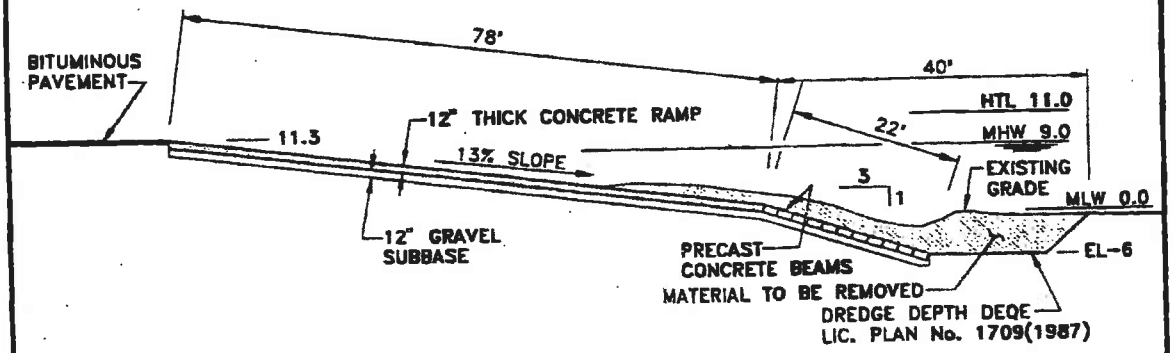
APPLICATION BY:
TOWN OF HINGHAM
SHEET 2 OF 3 REV: 3/18/94



SECTION A–A

SCALE: 1" = 4'

0 1' 2' 3' 4'



SECTION B–B

SCALE: 1" = 20'

0 5' 10' 15' 20'

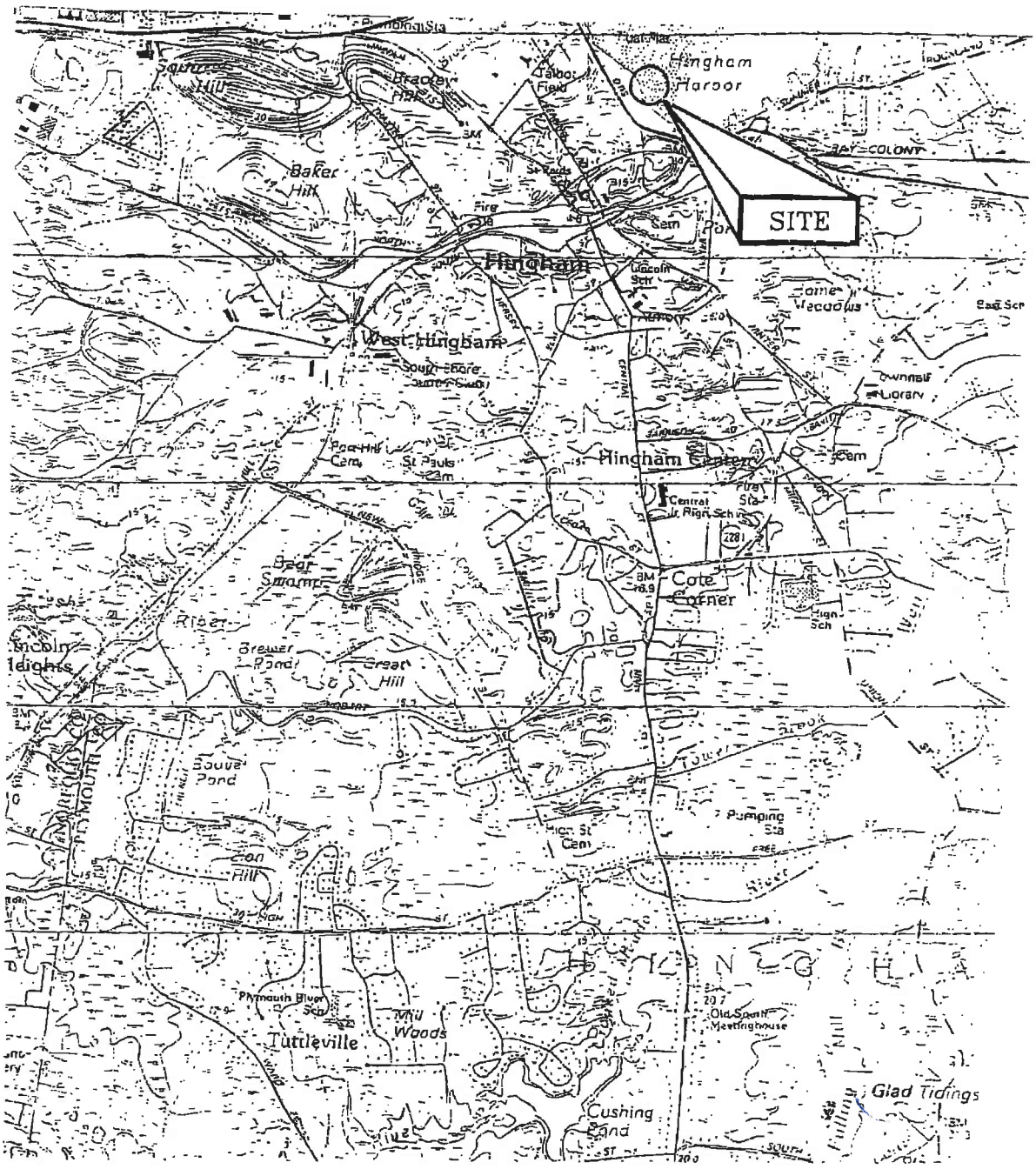
SECTIONS

BOAT RAMP REPAIRS
HINGHAM HARBOR
HINGHAM MASSACHUSETTS
PLYMOUTH COUNTY

APPLICATION BY:
TOWN OF HINGHAM
SHEET 3 OF 3 12/10/93

USACE 200100339

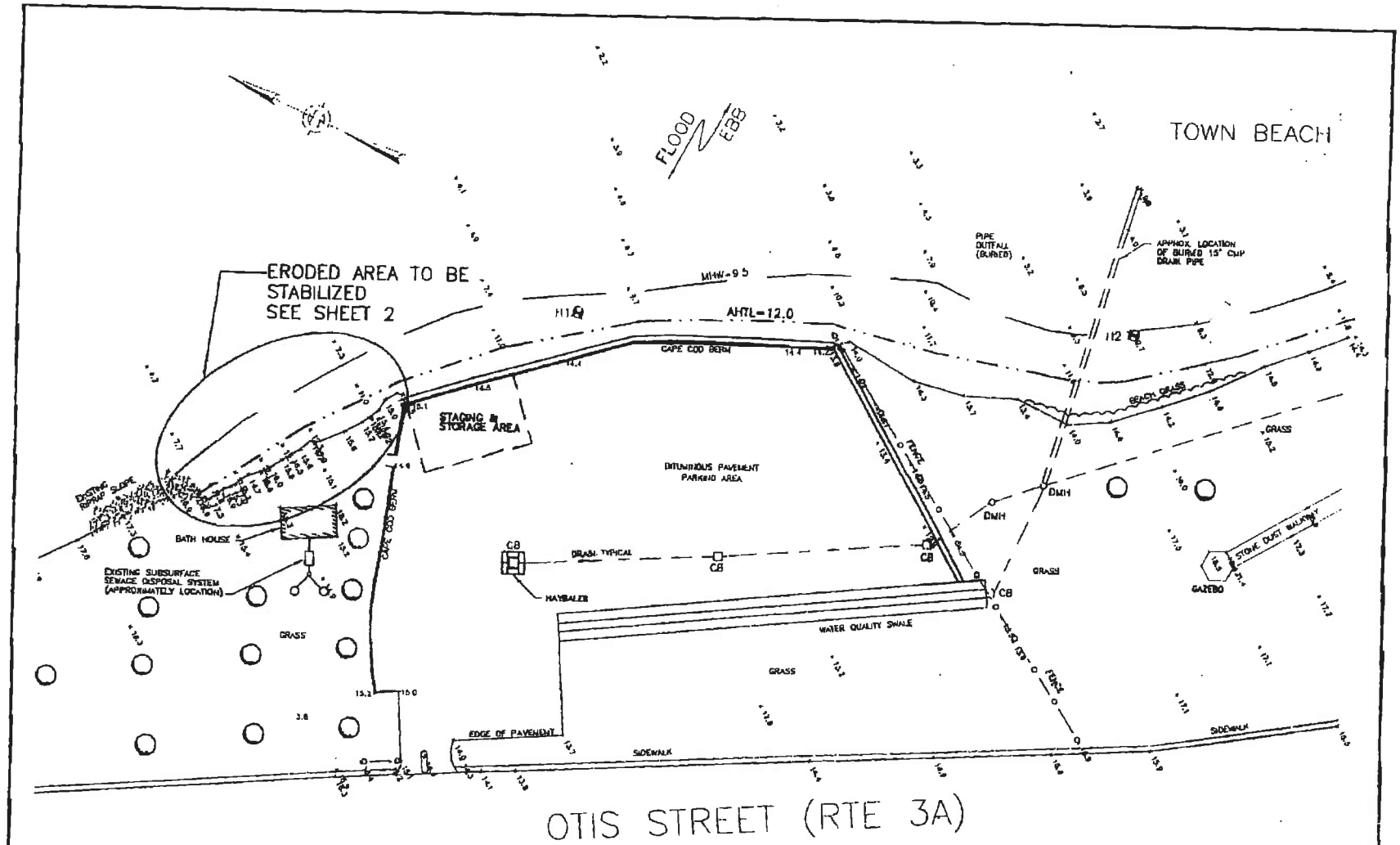
034-050-000-051-100



SCALE: 1" = 2083'

DATUM: MLW = 0.0 MHW = 9.5 AHTL = 12.0	LOCUS PLAN HINGHAM BEACH BANK STABILIZATION	AT: OTIS STREET HINGHAM COUNTY: PLYMOUTH APPLICATION BY: TOWN OF HINGHAM 210 CENTRAL STREET HINGHAM, MA DATE: FEB. 2001 SHEET 1 OF 4

NUCCI VINE ASSOCIATES, INC. HINGHAM, MASSACHUSETTS



0 100 200
SCALE IN FEET

DATUM: MLW = 0.0
MHW = 9.5
AHTL = 12.0

SITE PLAN

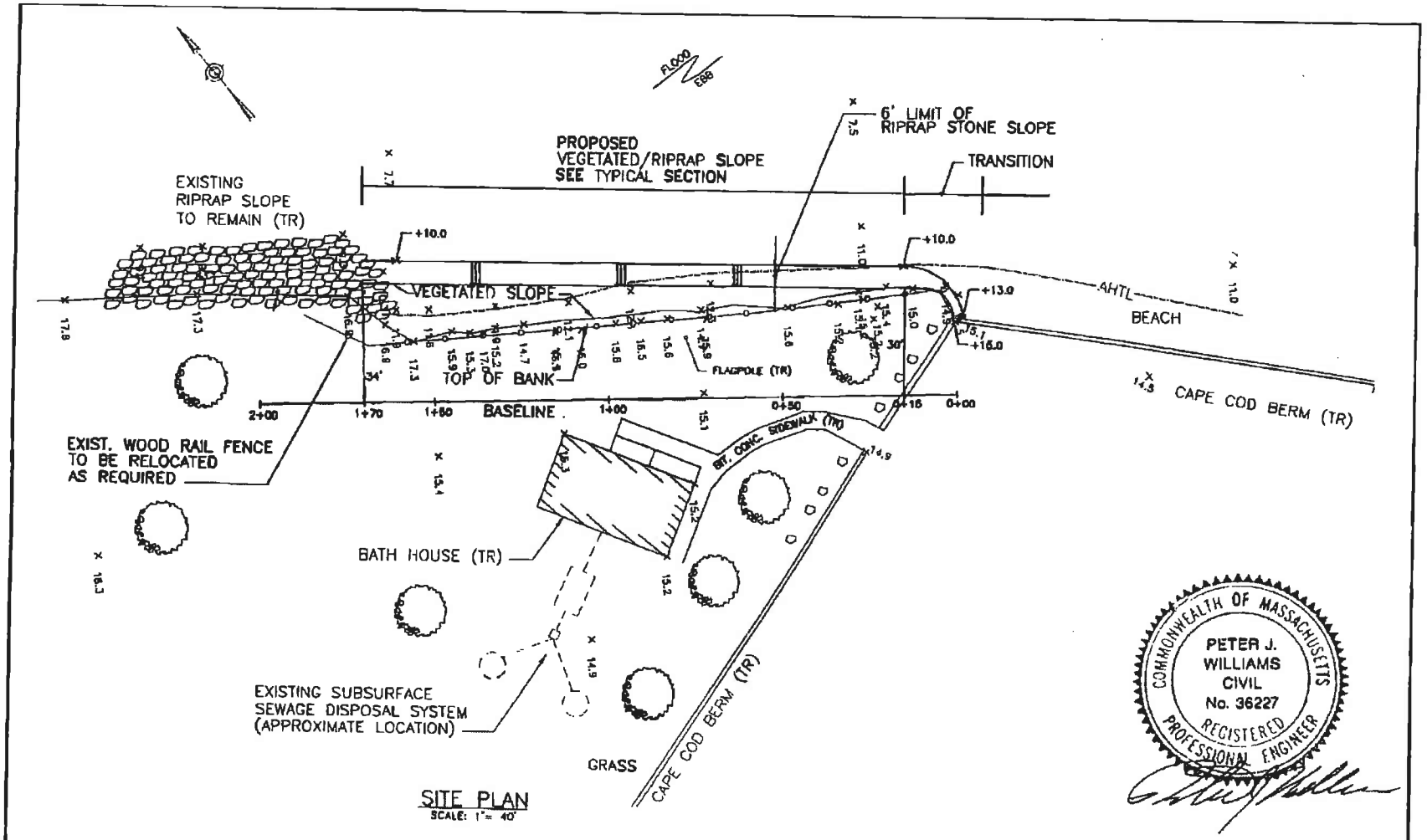
HINGHAM BEACH BANK STABILIZATION

AT: OTIS STREET HINGHAM
COUNTY: PLYMOUTH

APPLICATION BY:
TOWN OF HINGHAM
210 CENTRAL STREET
HINGHAM, MA

DATE: FEB. 2001 SHEET 2 OF 4

NORTHEAST ASSOCIATES OF HINGHAM, MASSACHUSETTS



SITE PLAN
SCALE: 1" = 40'

COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

0 40 80
SCALE IN FEET

DATUM: MLW = 0.0
MHW = 9.5
AHTL = 12.0

TYPICAL SECTION

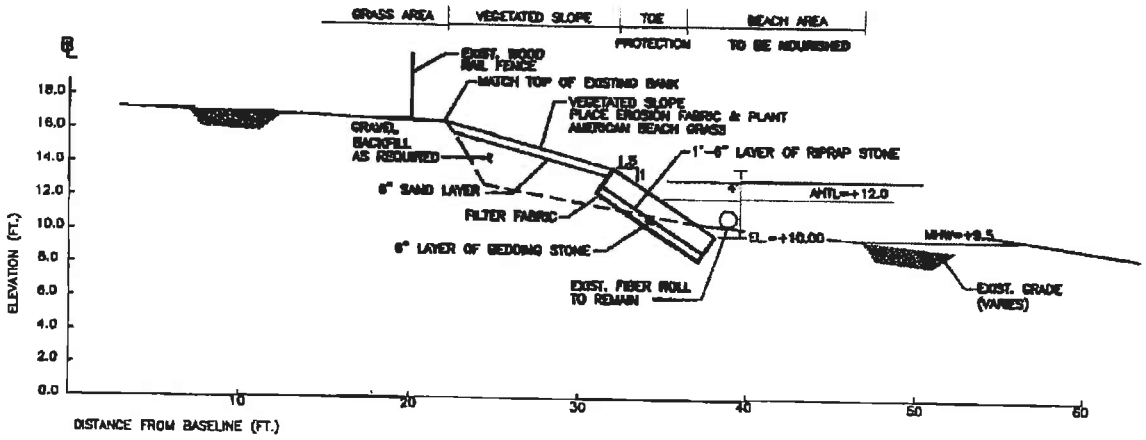
HINGHAM BEACH BANK STABILIZATION

AT: OTIS STREET HINGHAM
COUNTY: PLYMOUTH

APPLICATION BY:
TOWN OF HINGHAM
210 CENTRAL STREET
HINGHAM, MA

DATE: 4/13/2001 SHEET 3 OF 4

NUCCI VINE ASSOCIATES, INC HINGHAM, MASSACHUSETTS



TYPICAL SECTION
SCALE: 1" = 5'

COMMONWEALTH OF MASSACHUSETTS
PETER J WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

4/10/01

0 10 20
SCALE IN FEET

DATUM: MLW = 0.0
MHW = 9.5
AHTL = 12.0

TYPICAL SECTION

HINGHAM BEACH BANK STABILIZATION

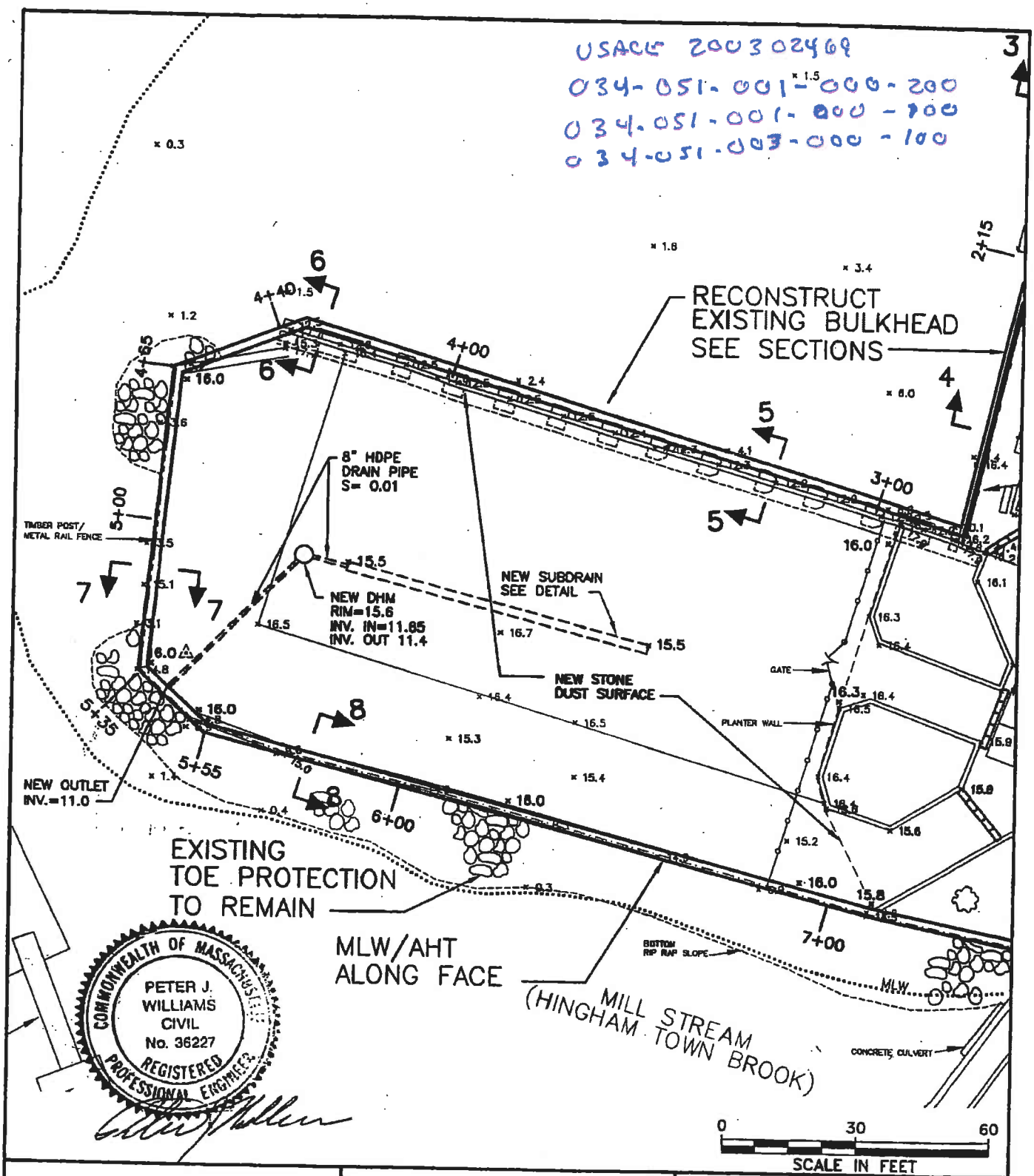
AT: OTIS STREET HINGHAM
COUNTY: PLYMOUTH

APPLICATION BY:
TOWN OF HINGHAM
210 CENTRAL STREET
HINGHAM, MA

DATE: APR. 2001 SHEET 4 OF 4

NUCCI VINE ASSOCIATES, INC. HINGHAM, MASSACHUSETTS

USACE 200302469
034-051-001-000-200
034.051-001-000-100
034-051-003-000-100



COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

DATUM: MLW = 0.0
MHW = 9.5
HTL = 11.5

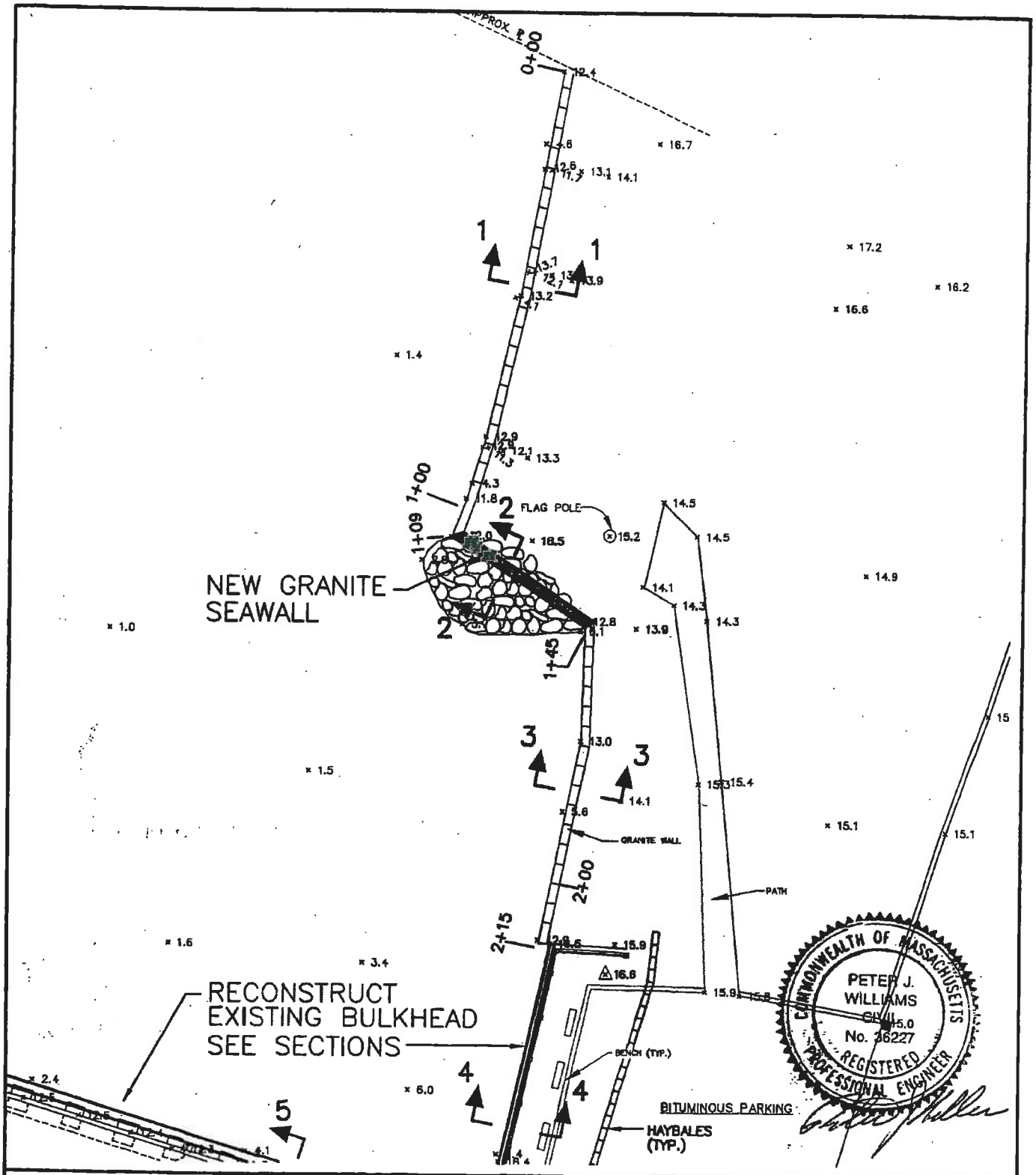
WHARF PLAN

AT: WHITNEY WHARF, HINGHAM HBR.
COUNTY: PLYMOUTH

APPLICATION BY:
TOWN OF HINGHAM
210 CENTRAL STREET
HINGHAM, MA.

DATE: 9/29/00 SHEET 2 OF 10

NUCCI VINE ASSOCIATES, INC. HINGHAM, MASSACHUSETTS



DATUM: MLW = 0.0
MHW = 9.5
HTL = 11.5

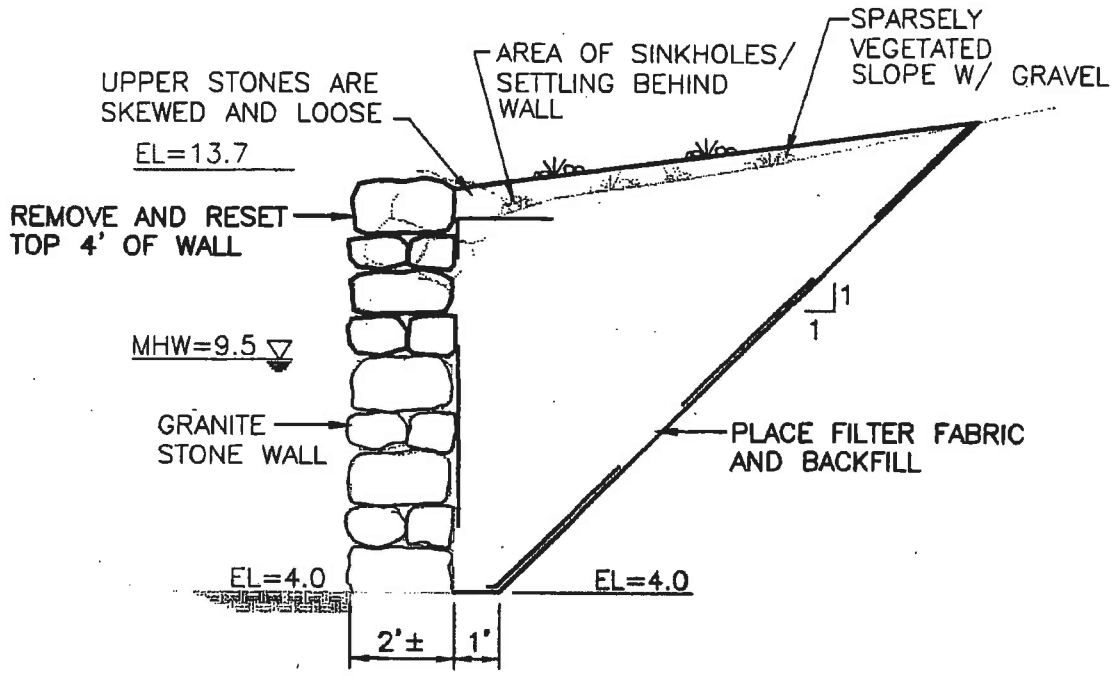
WALL PLAN

0 30 60
SCALE IN FEET

AT: WHITNEY WHARF, HINGHAM HBR.
COUNTY: PLYMOUTH

APPLICATION BY:
TOWN OF HINGHAM
210 CENTRAL STREET
HINGHAM, MA.

DATE: 9/29/00 SHT 2A OF 10



PROPOSED SECTION 1
STATION 0+00 TO 1+09
SCALE: 1"=4'

COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

0 4 8
SCALE IN FEET

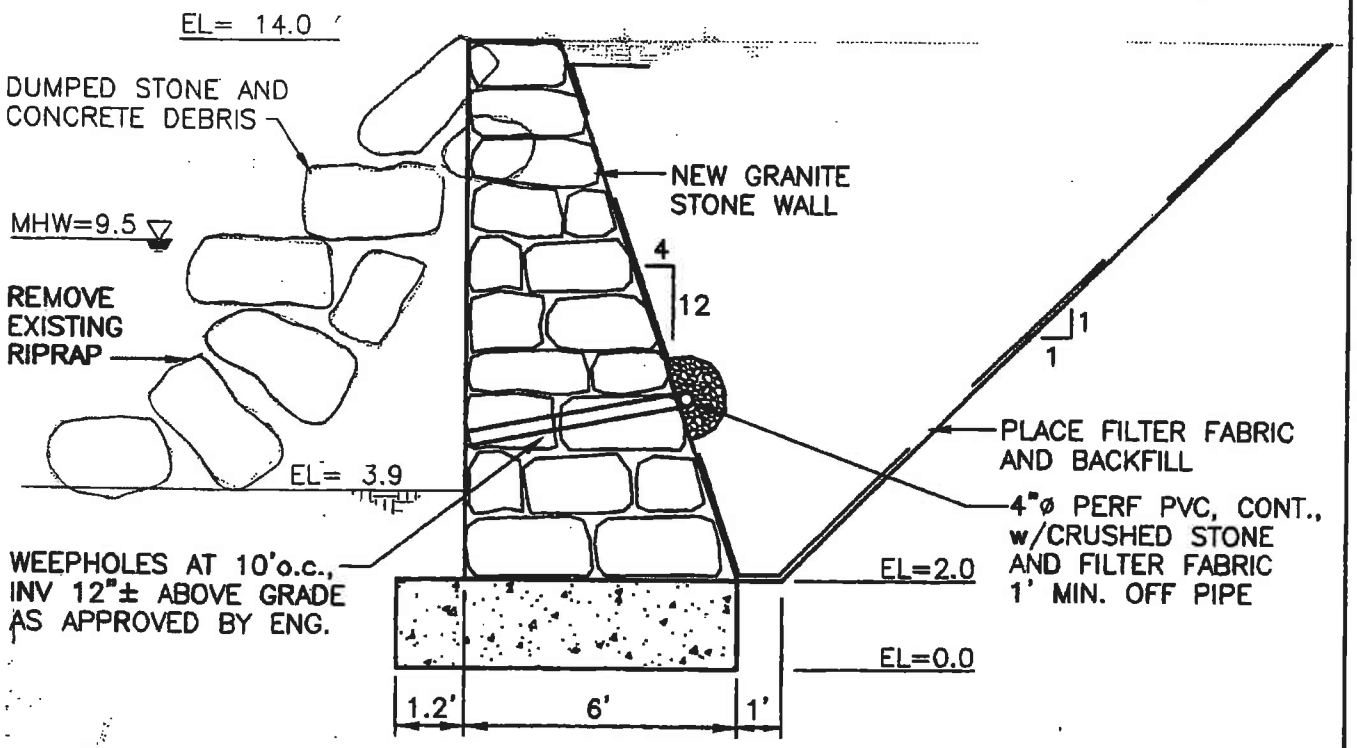
DATUM: MLW = 0.0
MHW = 9.5
HTL = 11.5

SECTION 1

AT: WHITNEY WHARF, HINGHAM HBR.
COUNTY: PLYMOUTH

APPLICATION BY:
TOWN OF HINGHAM
210 CENTRAL STREET
HINGHAM, MA.

DATE: SEPT. 2000 SHEET 3 OF 10

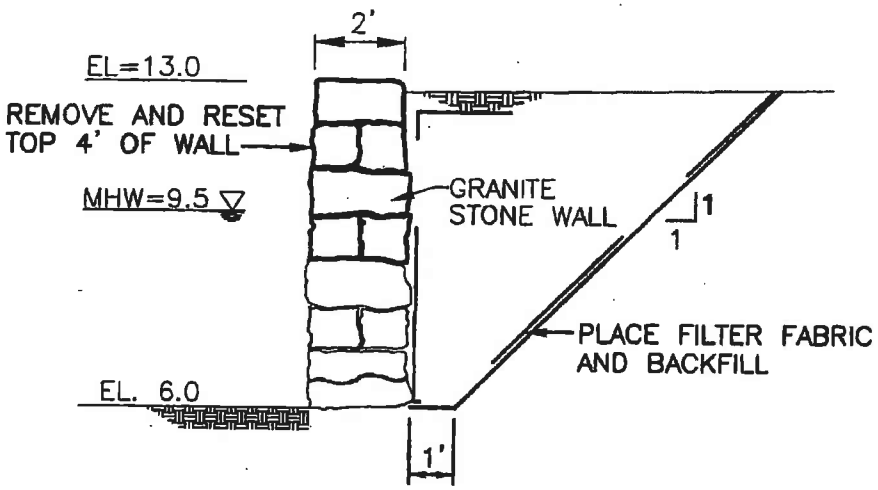


PROPOSED SECTION 2
STATION 1+09 TO 1+45
SCALE: 1"=4'

COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

0 4 8
SCALE IN FEET

DATUM: MLW = 0.0 MHW = 9.5 HTL = 11.5	SECTION 2	AT: WHITNEY WHARF, HINGHAM HBR. COUNTY: PLYMOUTH APPLICATION BY: TOWN OF HINGHAM 210 CENTRAL STREET HINGHAM, MA. DATE: SEPT. 2000 SHEET 4 OF 10

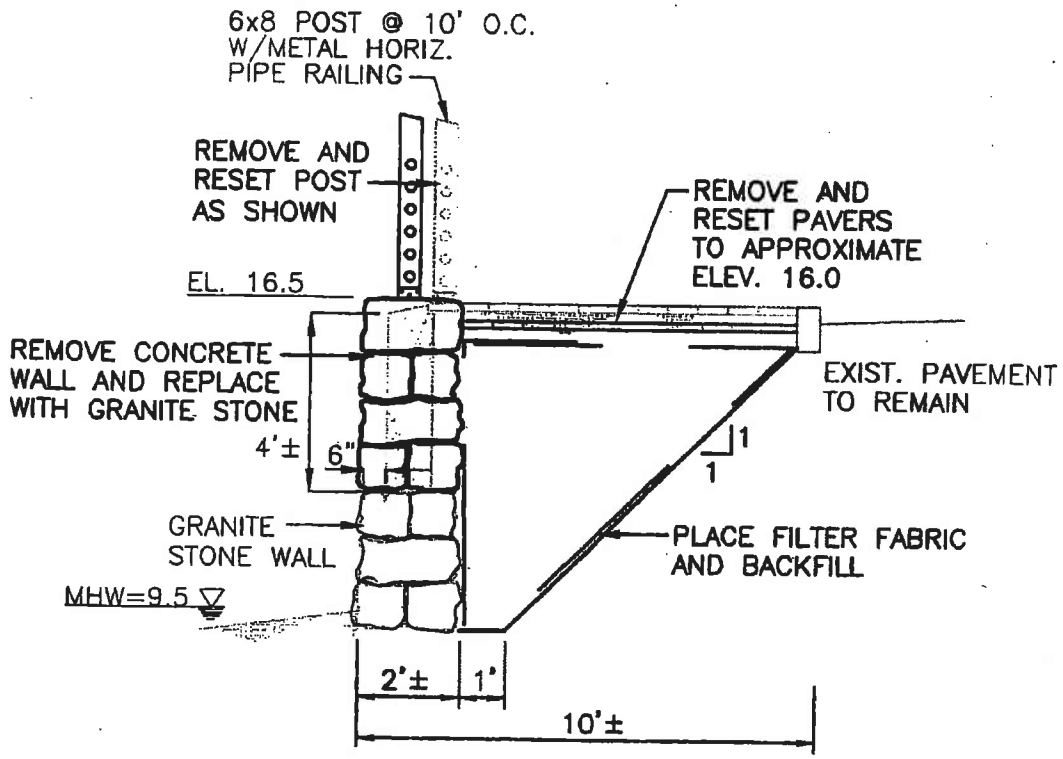


PROPOSED SECTION 3
STATION 1+45 TO 2+15
SCALE: 1"=4'

COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

0 4 8
SCALE IN FEET

DATUM: MLW = 0.0 MHW = 9.5 HTL = 11.5	SECTION 3	AT: WHITNEY WHARF, HINGHAM HBR. COUNTY: PLYMOUTH APPLICATION BY: TOWN OF HINGHAM 210 CENTRAL STREET HINGHAM, MA. DATE: SEPT. 2000 SHEET 5 OF 10



PROPOSED SECTION 4
STATION 2+15 TO 2+80

SCALE: 1"=4'

COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

0 4 8
SCALE IN FEET

DATUM: MLW = 0.0 MHW = 9.5 HTL = 11.5	SECTION 4	AT: WHITNEY WHARF, HINGHAM HBR. COUNTY: PLYMOUTH APPLICATION BY: TOWN OF HINGHAM 210 CENTRAL STREET HINGHAM, MA. DATE: SEPT. 2000 SHEET 6 OF 10

NUCCI VINE ASSOCIATES, INC. HINGHAM, MASSACHUSETTS

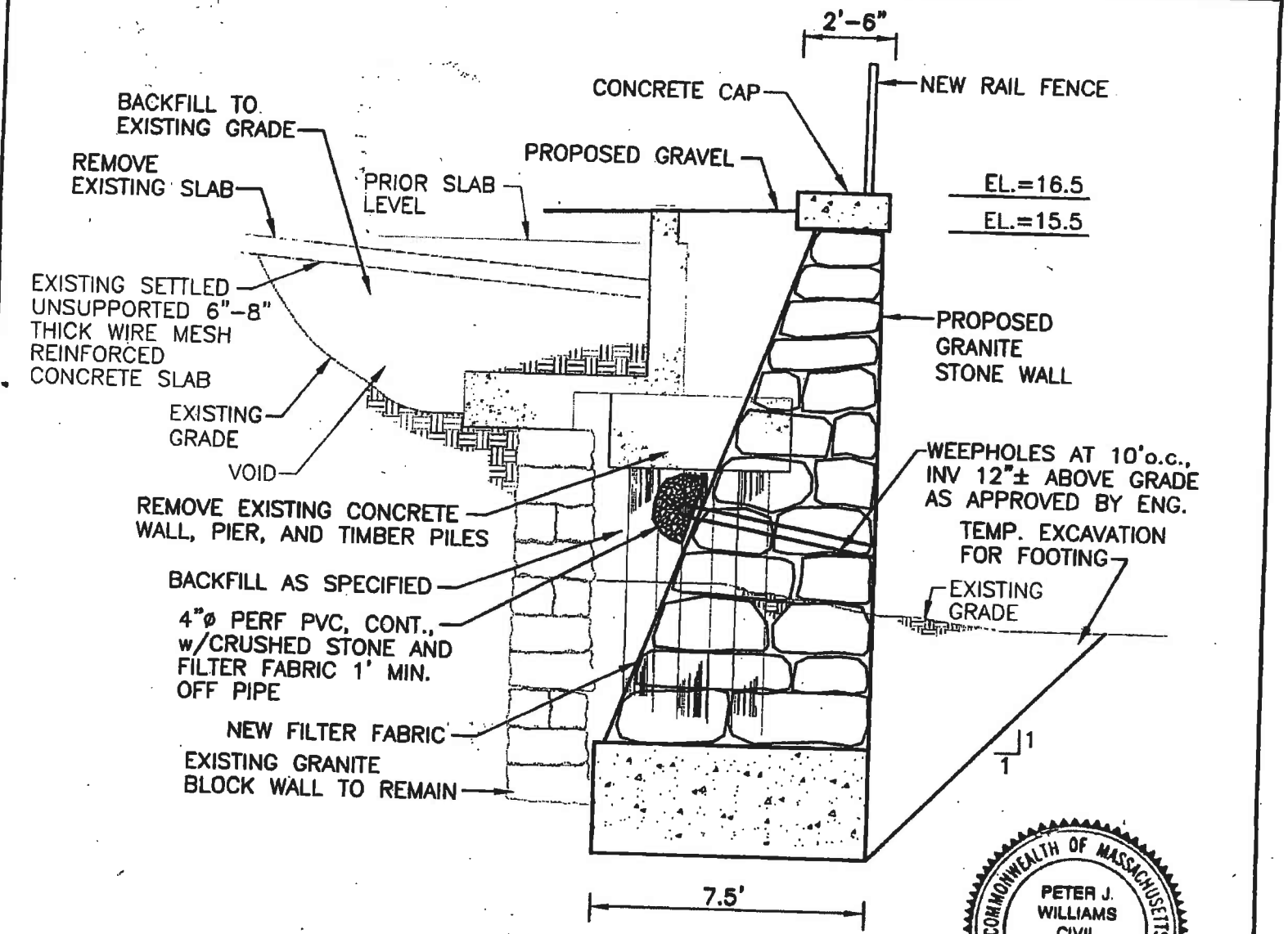
DATUM: MLW = 0.0
MHW = 9.5
HTL = 11.5

SECTION 5

AT: WHITNEY WHARF, HINGHAM HBR.
COUNTY: PLYMOUTH

APPLICATION BY:
TOWN OF HINGHAM
210 CENTRAL STREET
HINGHAM, MA.

DATE: 9/29/00 SHEET 7 OF 10



PROPOSED SECTION 5
STATION 2+80 TO 4+20

SCALE: 1"=4'

COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

NUCCI VINE ASSOCIATES, INC. HINGHAM, MASSACHUSETTS

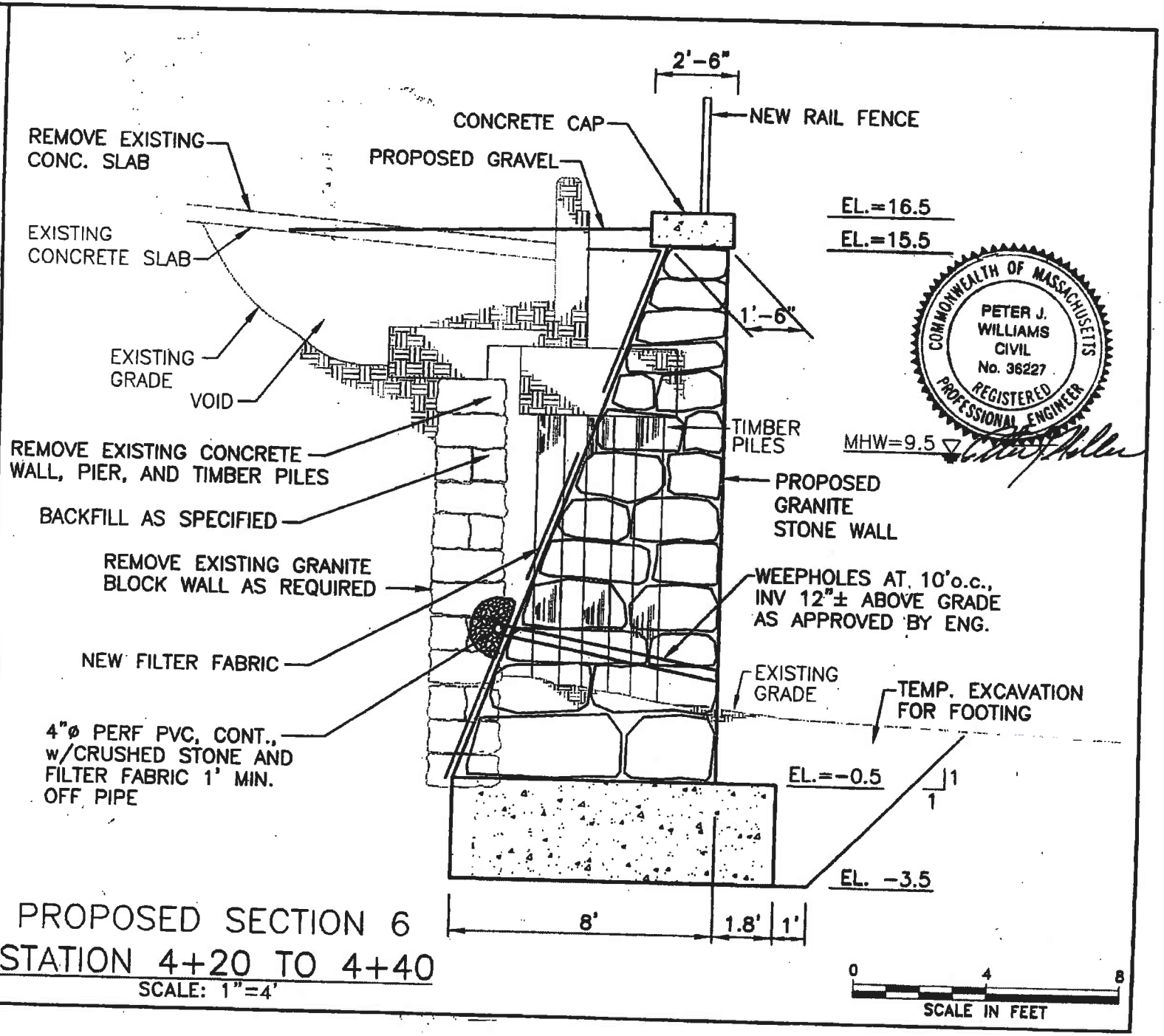
DATUM: MLW = 0.0
MHW = 9.5
HTL = 11.5

SECTION 6

AT: WHITNEY WHARF, HINGHAM HBR.
COUNTY: PLYMOUTH

APPLICATION BY:
TOWN OF HINGHAM
210 CENTRAL STREET
HINGHAM, MA.

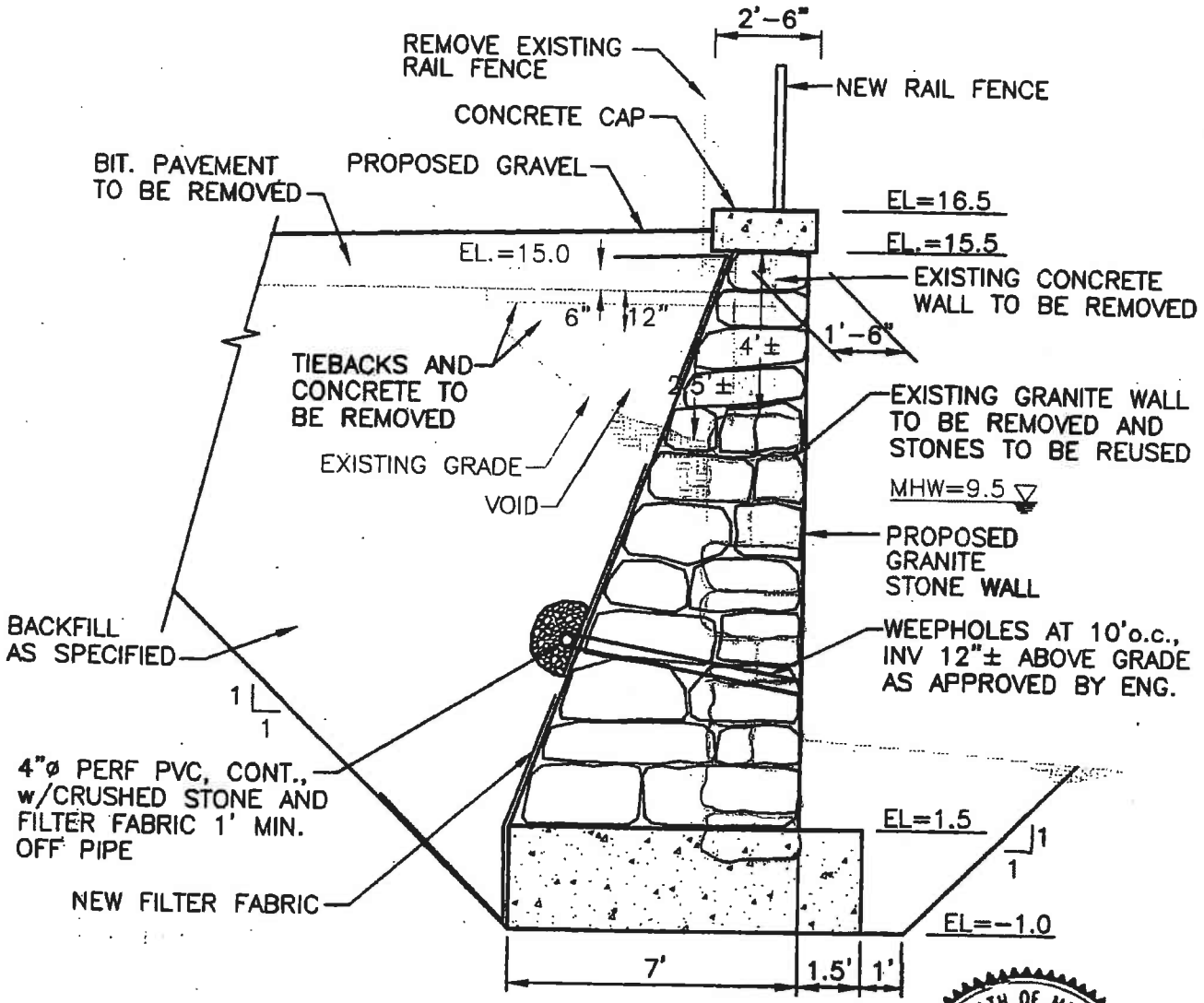
DATE: 9/29/00 SHEET 8 OF 10



COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

PROPOSED SECTION 6
STATION 4+20 TO 4+40

SCALE: 1"=4'



PROPOSED SECTION 7
STATION 4+40 TO 5+35

SCALE: 1"=4'

COMMONWEALTH OF MASSACHUSETTS
PETER J. WILLIAMS
CIVIL
No. 36227
REGISTERED PROFESSIONAL ENGINEER

0 4 8
SCALE IN FEET

DATUM: MLW = 0.0 MHW = 9.5 HTL = 11.5	SECTION 7	AT: WHITNEY WHARF, HINGHAM HBR. COUNTY: PLYMOUTH APPLICATION BY: TOWN OF HINGHAM 210 CENTRAL STREET HINGHAM, MA. DATE: SEPT. 2000 SHEET 9 OF 10

NUCCI VINE ASSOCIATES, INC. HINGHAM, MASSACHUSETTS

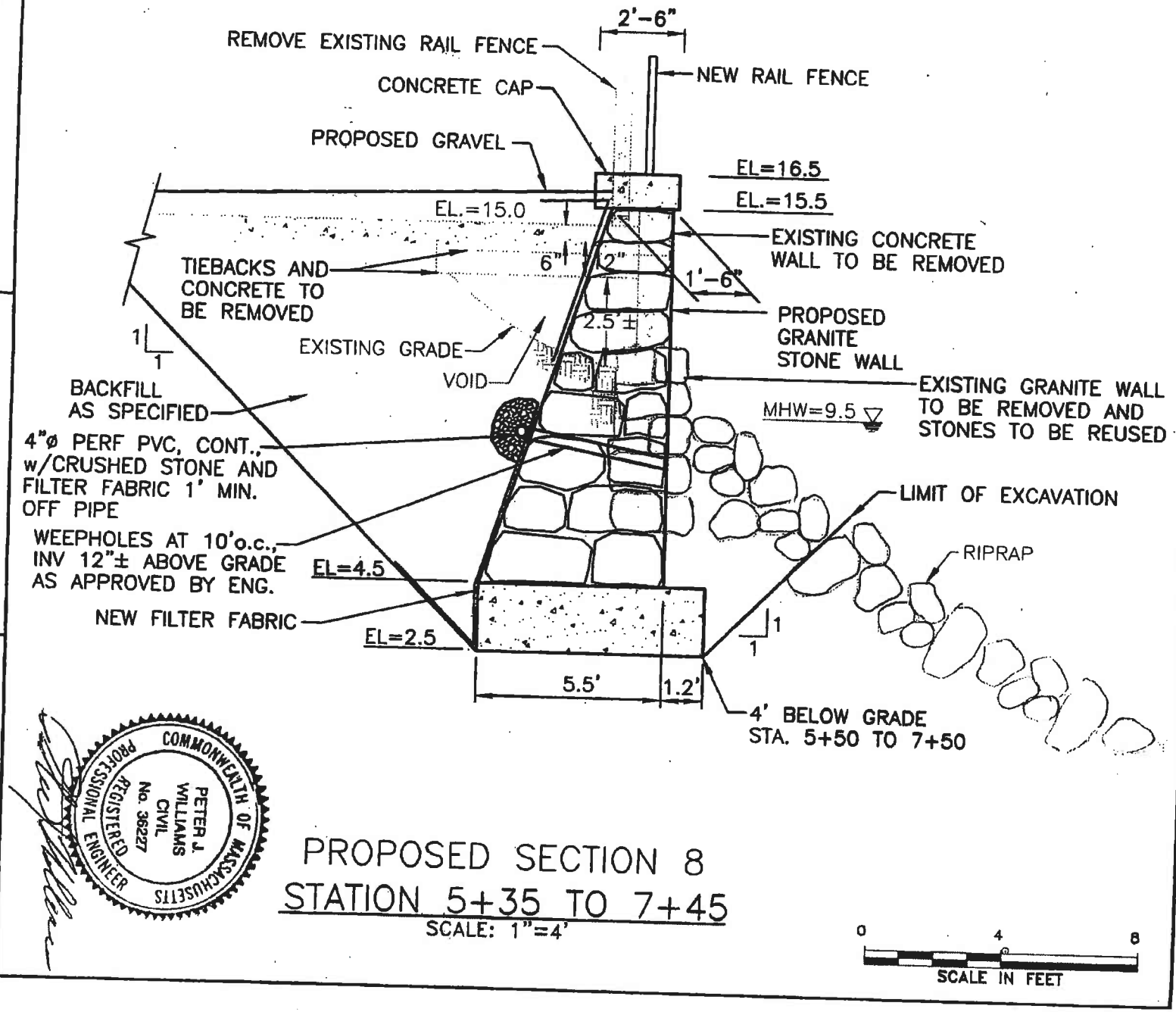
DATUM: MLW = 0.0
MHW = 9.5
HTL = 11.5

SECTION 8

AT: WHITNEY WHARF, HINGHAM HBR.
COUNTY: PLYMOUTH

APPLICATION BY:
TOWN OF HINGHAM
210 CENTRAL STREET
HINGHAM, MA.

DATE: SEPT. 2000 SHEET 10 of 10



PROPOSED SECTION 8
STATION 5+35 TO 7+45
SCALE: 1"=4'