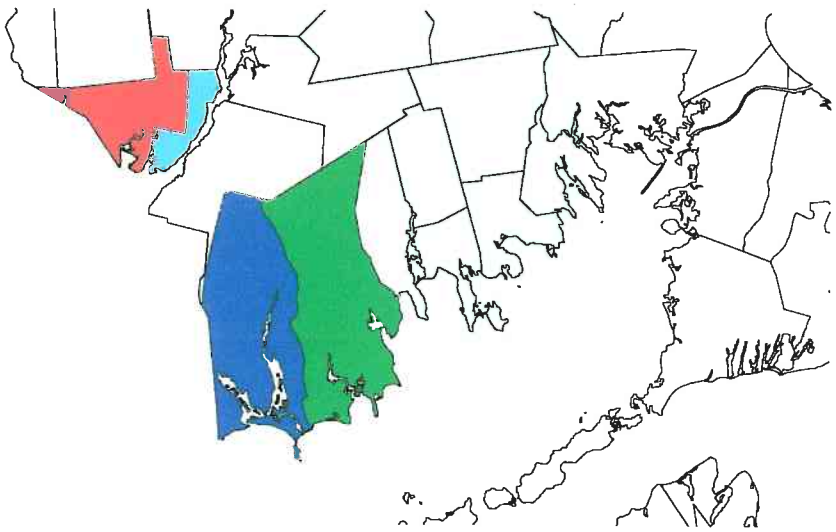
Massachusetts Coastal Infrastructure
Inventory and Assessment Project
Coastal Hazards Commission

South Coastal

dcr

Swansea
Somerset
Westport
Dartmouth



July 6,2009

Prepared for:

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Hingham, Massachusetts

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BCE **Bourne Consulting Engineering**
Waterfront Engineers

South Coastal

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Section I

Coastal Hazards Infrastructure and Assessment Program

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Massachusetts Coastal Infrastructure Inventory and Assessment Project Coastal Hazards Commission

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 Massachusetts coastline has been broken up into 4 major regions consisting of the North Shore, Boston, South Coast, and the Cape and Islands. The South Shore (the Towns of Hull, Cohasset, Seekonk, Hingham, Plymouth, Kingston, Scituate and Duxbury) was previously evaluated by Bourne Consulting Engineering as a demonstration project in 2006.

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, specified areas of field assessments, and research. Assisting ***BCE*** was Applied Coastal Research and Engineering Inc.of Mashpee, MA, Childs Engineering Corporation, of Medfield, MA., and Waterfront Engineer LLC of Stratham, NH.

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 was the performance of a demonstration project for coastal structures located on the South Shore. The demonstration project identified existing structures, their general conditions, ability to provide coastal protection and the probable cost for repairs. The information collected and developed has been incorporated into the MassGIS system to allow use for developing a 20 Year Coastal Infrastructure Plan.

The demonstration project served as a basis for the current statewide inventory assessment of all Commonwealth coastal structures and the needs for their maintenance and/or repair.

Goals of Study

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

- To identify all the coastal structures the state either owns or has responsibility to maintain for the 4 regions 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.
    - 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, and MA-DCR Division of Urban Parks and Recreation in

Boston, MA. No investigation of state archives was performed. Research at MA DEP Chapter 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-BBB-PPP-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 federal.

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 was 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 are 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	F
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	$132	$664	$1,328	$1,460
		5 To 10 Feet	$0	$240	$1,201	$2,402	$2,600
		10 To 15 Feet	$0	$314	$1,564	$3,128	$3,392
		Over 15 Feet	$0	$494	$2,468	$4,937	$5,333

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

Section II

Swansea

Section II – Community Findings – Town of Swansea

COMMUNITY DESCRIPTION

The Town of Swansea consists of a land area of 23.07 square miles out of a total area of 25.54 square miles and had a population of 15,901 in the 2000 census. The Town is located on the south coast of Massachusetts and its location can be seen on this report's cover. The estimated length of shoreline that is directly exposed to open ocean waves is 4.7 miles with the remaining shoreline semi-protected by offshore structures or landforms. 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 Swansea, there were 7 structures which had public or unknown ownership which provide significant coastal protection. The location of the structures can be seen in Sheets 1 through Sheet 3 in Section II-B 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 Swansea

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Length
Bulkhead / Seawall	1				1		145
Revetment	5		4	1			1745
Breakwater							
Groin / Jetty							
Coastal Dune							
Coastal Beach	1	1					2000
	7	1	4	1	1		3890

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 Swansea's case there are a total of 6 structures which would require approximately $ 797,860 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 $ 220,000 would be required to upgrade the Town's coastal protection.

STRUCTURE REPAIR / RECONSTRUCTION COST - Town of Swansea

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Cost
Bulkhead / Seawall	1				$ 220,110		$ 220,110
Revetment	5		$ 362,855	$ 214,896			$ 577,751
Breakwater							$ -
Groin / Jetty							$ -
Coastal Dune							$ -
Coastal Beach	1	$-					$ -
	7	$-	$ 362,855	$ 214,896	$ 220,110	$ -	$ 797,861

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 Swansea the breakdown of structures by assumed ownership is as follows:

STRUCTURE OWNERSHIP / REPAIR COST - Town of Swansea

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Cost
Town Owned	7	$-	$ 362,855	$ 214,896	$ 220,110		$ 797,861
Commonwealth of Massachusetts							$ -
Federal Government Owned							$ -
Unknown Ownership							$ -
	7	$-	$ 362,855	$ 214,896	$ 220,110	$ -	$ 797,861

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 II-B which contains Structure Assessment Reports for each individual structure found.

SUMMARY

The enclosed reports and associated documents reflects the Town of Swansea'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 II - Swansea

Part B

Structure Assessment Reports

BCE

COASTAL STRUCTURE LOCATION PLAN

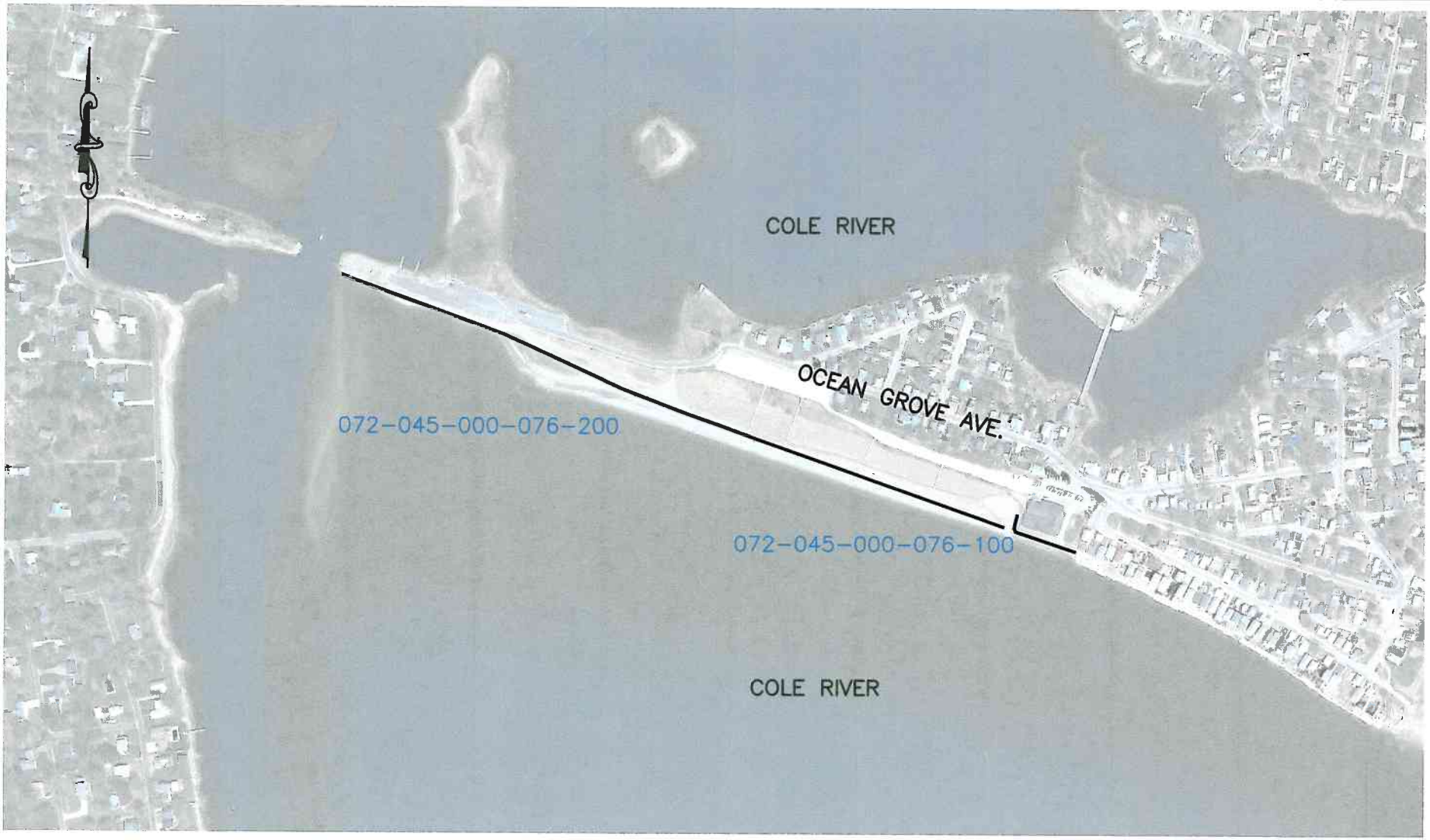
TOWN OF SWANSEA
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150
SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering

SHEET 1

File: X:\27652-\27667\South Coast\Swansea\dwg\Swansea.dwg



COASTAL STRUCTURE LOCATION PLAN

TOWN OF SWANSEA
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
3 Pond Street
Franklin, MA 02038
TEL. (508) 553-0000 FAX (508) 553-0000

SHEET 2

File: X:\27652-\27667\South Coast\Swansea\dwg\Swansea.dwg

COASTAL STRUCTURE LOCATION PLAN

TOWN OF SWANSEA
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
3 Reed Street
Franklin, MA 02038
TEL. (508) 533-4000 FAX. (508) 533-4000

SHEET 3

File: X:\27652-\27667\South Coast\Swansea\dwg\Swansea.dwg

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Swansea

Structure ID: 072-045-000-076-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Ocean Grove Beach	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Swansea	1993	$214,896.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
275 Feet	Feet NAVD 88	V17	21 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The dumped riprap has a slope of 1 on 1. The stones are approximately 3 feet by 2 feet by 2 feet in size. There is crushed stone at the crest. There is a building behind the revetment, and the town beach is adjacent and in front of the structure. There is moderate erosion at the top. There is some stone movement. No visible scour.

Condition Rating	C Fair	*Priority Rating*	II Low Priority
Level of Action	Moderate	*Action*	Future Project Consideration
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.	*Description*	Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

072-045-000-076-100-PHO1A.JPG

Structure Documents:

DEP	March 9, 199	Plan Accompanying	072-045-000-076-100-LIC1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Swansea

Structure ID: 072-045-000-076-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Ocean Grove Beach	5/12/2009

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Swansea	2000	$0.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
2000 Feet	Feet NAVD 88	V17	21 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Coastal Beach	Sand	Under 5 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Sandy beach with some areas of 1 foot diameter cobbles, that shows signs of recent beach nurishment. Behind is a parking lot and houses. There is no sign of erosion or storm damage.

Condition Rating	A Excellent	*Priority Rating*	III Moderate Priority
Level of Action	None	*Action*	Consider for Active Project Improvement Listing
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.	*Description*	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

072-045-000-076-200-PHO2A.JPG

072-045-000-076-200-PHO2B.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Swansea

Structure ID: 072-046-000-077-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Lands End Way	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Swansea	Unkown	$220,110.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
145 Feet	Feet NAVD 88	V17	18 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The stone block seawall has stones that are approximately 4 feet by 2 feet by 2 feet in size. The wall has failed and fallen on top of itself at one side. The stones have fallen off throughout. There is no sign of scour. There is a small gravel beach in front and adjacent to the structure.

Condition Rating	D Poor
Level of Action Description	Major 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 Description	Long Term Planning Considerations No Inshore Structures or Residential Dwelling Units Present

Structure Images:

072-046-000-077-100-PHO1A.JPG

072-046-000-077-100-PHO1B.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Swansea

Structure ID: 072-052-000-267-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Route 103	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Swansea	Unkown	$113,546.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
460 Feet	Feet NAVD 88	A13	16 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The placed riprap is at a 1 on 2 slope with stones that are approximately 4 feet by 2 feet by 2 feet in size. The stones are not placed tightly together. There is some signs of movement. The revetment is used to protect the Route 103 bridge abutments and adjacent banks. Mean high water reaches mid-height of the 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:

072-052-000-267-100-PHO1A.JPG

072-052-000-267-100-PHO1B.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Swansea

Structure ID: 072-052-000-304-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Route 103	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Swansea	Unkown	$86,394.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
350 Feet	Feet NAVD 88	A13	16 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The placed riprap is at a slope of 1 on 2. The stones are approximately 4 feet by 2 feet by 2 feet. The stones are not placed tightly together. There is some sign of movement. The riprap protects the abutments for the Route 103 bridge and ajdacent banks. Mean high water is at mid-height of the slope.

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:

072-052-000-304-100-PHO1A.JPG

072-052-000-304-100-PHO1B.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Swansea

Structure ID: 072-053-000-185-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Route 195	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Swansea	Unkown	$78,989.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
320 Feet	Feet NAVD 88	A11	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The structure is in front of the east bridge abutment for Route 195 is at a 1 on 1 slope with stones that are approximately 4 feet by 2 feet by 2 feet in size. There is no sign of erosion or stone movement.

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:

072-053-000-185-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Swansea

Structure ID: 072-058-000-001-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Route 195

Date: 7/5/2007

Presumed Structure Owner: Local

Based On Comment:

Owner Name: Swansea

Earliest Structure Record: Unkown

Estimated Reconstruction/Repair Cost: $83,926.00

Length: 340 Feet

Top Elevation: Feet NAVD 88

FIRM Map Zone: A11

FIRM Map Elevation: 15 Feet NGVD

Primary Type: Revetment

Primary Material: Stone

Primary Height: Over 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:

Structure Summary :

The 4 feet by 2 feet by 2 feet stones are placed at a 1 on 1 slope to protect the west bridge abutment for Route 195. There is no sign of erosion or stone movment.

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: 072-058-000-001-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

Section II - Swansea

Part C

Structure Photographs

TOWN: SWANSEA
SOURCE: BCE - FIELD PHOTOGRAPHS
LOCATION: Bourne Consulting Engineering
DATE OF RESEARCH: SEPTEMBER 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
072-045-000-076-100	072-045-000-076-100-PHO1A.jpg		Bourne Consulting Engineering	Swansea	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
072-045-000-076-200	072-045-000-076-200-PHO2A.jpg		Bourne Consulting Engineering	Swansea	Apr-07	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
072-045-000-076-200	072-045-000-076-200-PHO2B.jpg		Bourne Consulting Engineering	Swansea	Apr-07	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
072-046-000-077-100	072-046-000-077-100-PHO1A.jpg		Bourne Consulting Engineering	Swansea	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
072-046-000-077-100	072-046-000-077-100-PHO1B.jpg		Bourne Consulting Engineering	Swansea	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
072-052-000-267-100	072-052-000-267-100-PHO1A.jpg		Bourne Consulting Engineering	Swansea	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
072-052-000-267-100	072-052-000-267-100-PHO1B.jpg		Bourne Consulting Engineering	Swansea	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
072-052-000-304-100	072-052-000-304-100-PHO1A.jpg		Bourne Consulting Engineering	Swansea	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
072-052-000-304-100	072-052-000-304-100-PHO1B.jpg		Bourne Consulting Engineering	Swansea	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
072-053-000-185-100	072-053-000-185-100-PHO1A.jpg		Bourne Consulting Engineering	Swansea	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
072-058-000-001-100	072-058-000-001-100-PHO1A.jpg		Bourne Consulting Engineering	Swansea	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey

072-045-000-076-100-PHO1A

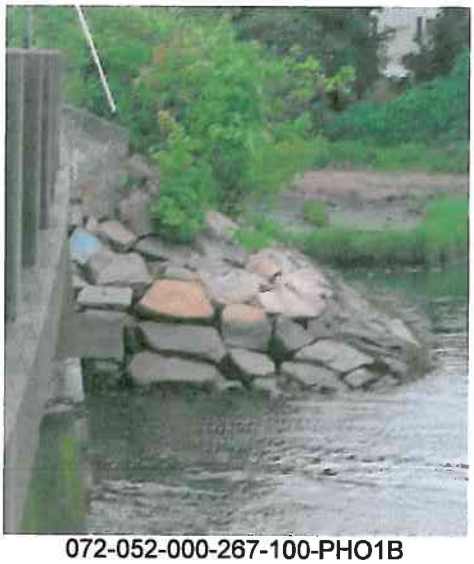
072-045-000-076-200-PHO2A

072-045-000-076-200-PHO2B

072-046-000-077-100-PHO1A

072-046-000-077-100-PHO1B

072-052-000-267-100-PHO1A



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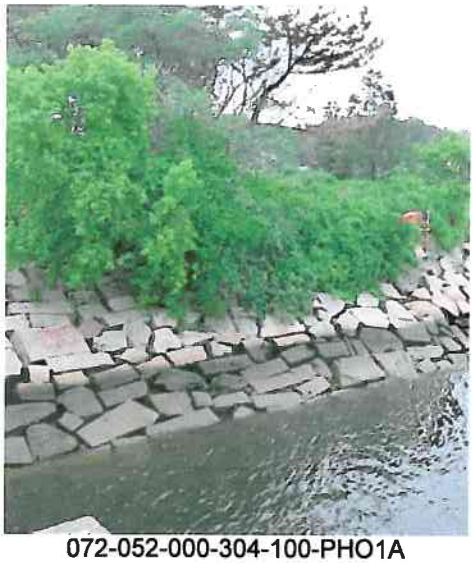

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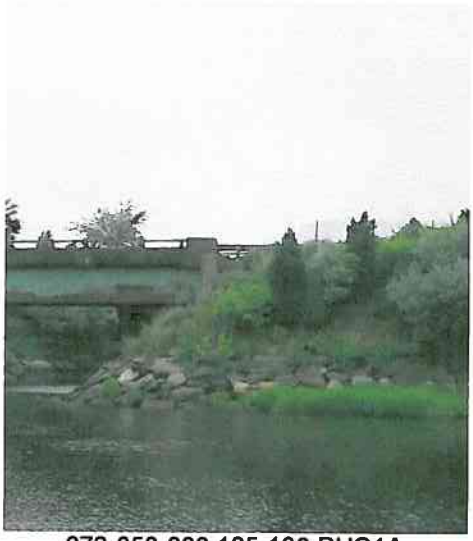


072-053-000-185-100-PHO1A

072-058-000-001-100-PHO1A

Section II - Swansea

Part D

Structure Documents

TOWN DOCUMENT LIST

MA DCR - DOCUMENT LIST

MA DEP – Ch 91 DOCUMENT LIST

- Copies of License Documents

USACE – PERMIT DOCUMENT LIST

- Copies of Permit Documents

TOWN: Swansea
SOURCE: Town of Swansea
LOCATION: TOWN
DATE OF RESEARCH: JULY 2007

No Town Documents for the Town of Swansea

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description

TOWN: SWANSEA
SOURCE: MA-DCR
LOCATION: MA-DCR BOSTON and HINGHAM, MA
DATE OF RESEARCH: JULY 2007

No MA - DCR Documents for the Town of Swansea

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description

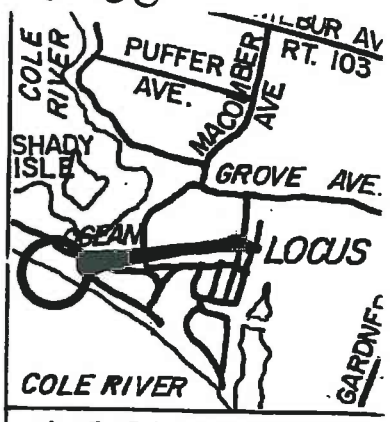
TOWN: SWANSEA
SOURCE: DEP
LOCATION: BOSTON, MA
DATE OF RESEARCH: JULY 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
072-045-000-076-100	072-045-000-076-100-LIC1A	3314	DEP	Swansea	March 9, 1993	Plan Accompanying Petition of Town of Swansea to Construct and Maintain Shoreline Protection in Cole River and Mount Hope Bay	3	Ocean Grove Avenue	Construct and Maintain Shoreline Protection

075-045-000-076-100

GENERAL NOTES

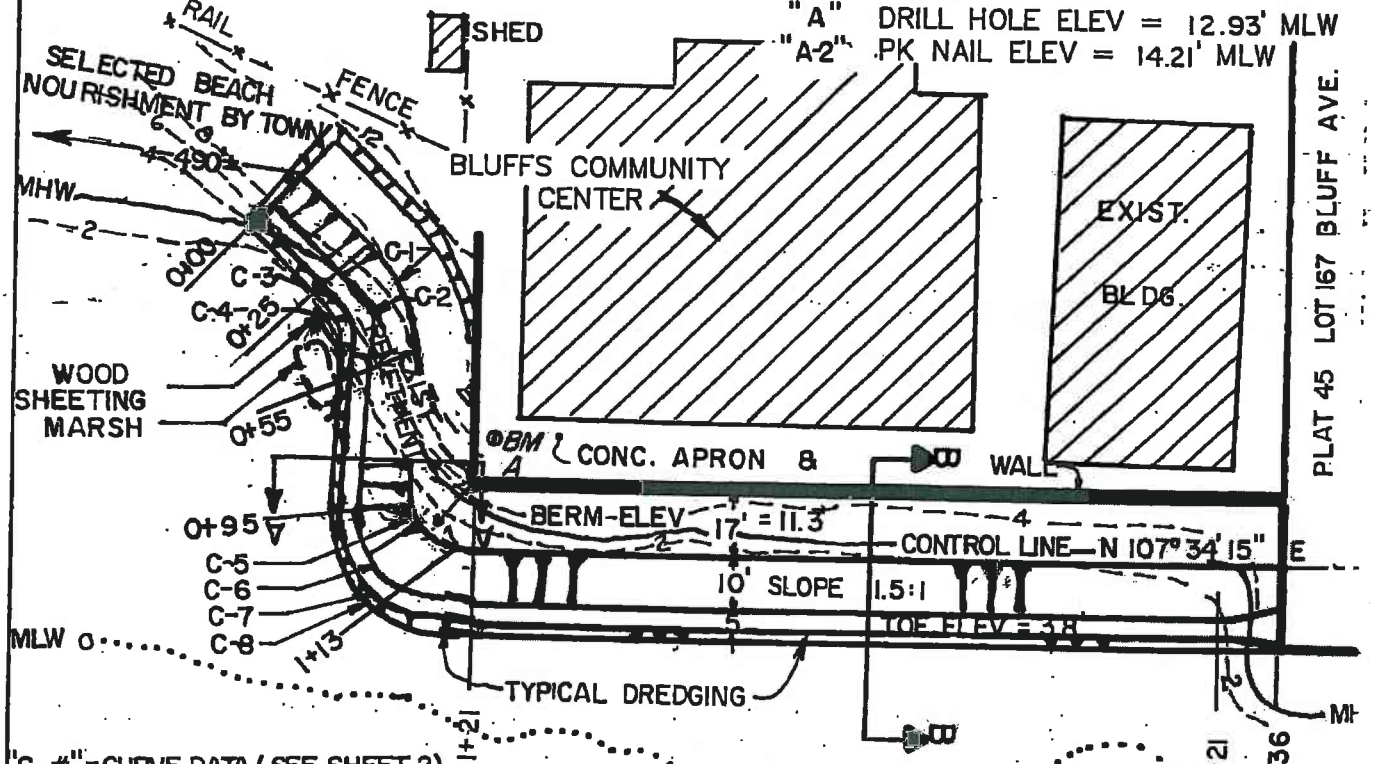
1. SITE: BLUFFS COMMUNITY CENTER
   OCEAN GROVE AVENUE, SWANSEA, MA
2. ASSESSORS IDENTIFICATION: PLAT 48, LOT 76
3. ELEVATIONS: BASED ON MEAN LOW WATER DATUM
4. MASSACHUSETTS D.E.P. : FILE # SE 72-250
   SUPERCEDING ORDER OF CONDITIONS DATED FEB 26, 1993
5. DEPARTMENT OF THE ARMY PERMIT NO. DACW - 33.
6. PROPOSED WORK IS CONSISTENT WITH MASSACHUSETTS COASTAL ZONE MANAGEMENT PLAN REQUIREMENTS.
7. NO STRUCTURES IN NAVIGABLE WATERS ARE ADJACENT TO THE PROPOSED SITE.
8. PROPOSED WORK IS CONSISTENT WITH TOWN BY-LAWS.



LOCUS MAP

●BM A-2

BENCH MARKS
DRILL HOLE ELEV = 12.93' MLW
PK NAIL ELEV = 14.21' MLW



"C-#"=CURVE DATA (SEE SHEET 2)

Cole River — Mt. Hope Bay

Ebb — TIDAL — Flood

PLAN

SCALE
100 80 60 40 20 0 50 100 FEET

SCALE: 1" = 50

PLAN ACCOMPANYING PETITION OF
TOWN OF SWANSEA
TO CONSTRUCT AND MAINTAIN
SHORELINE PROTECTION
IN COLE RIVER & MT. HOPE BAY

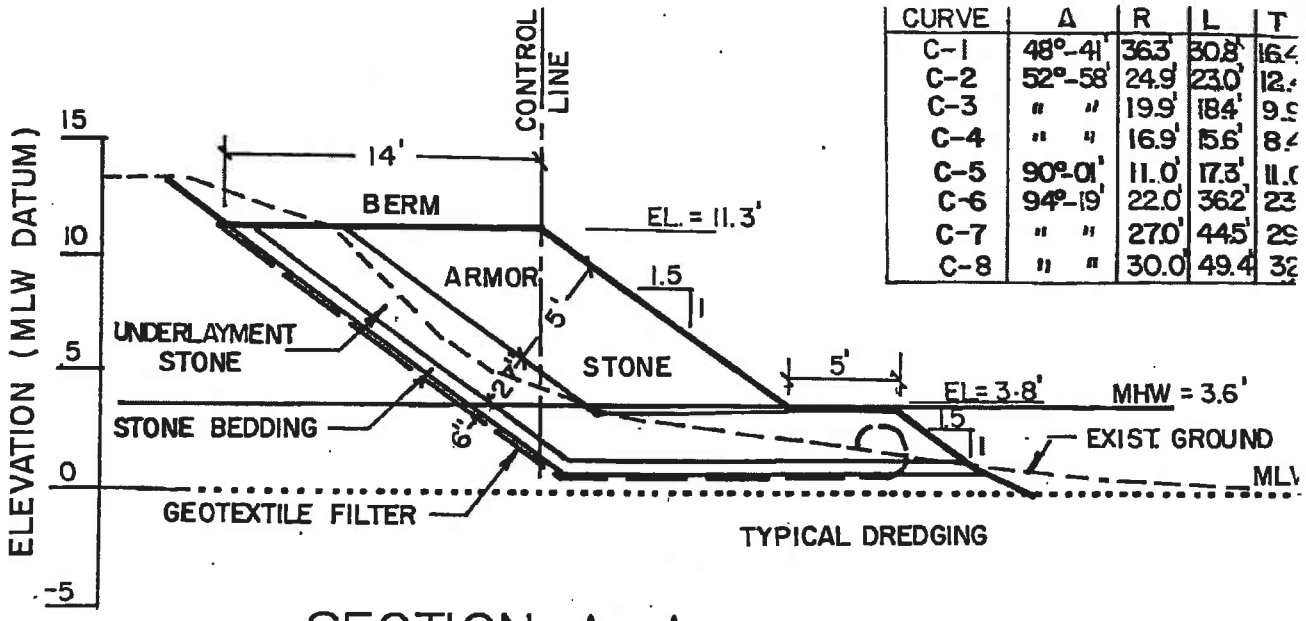
LICENSE PLAN NO. 3314
Approved by Department of Environmental Protection of Massachusetts

COMMISSIONER

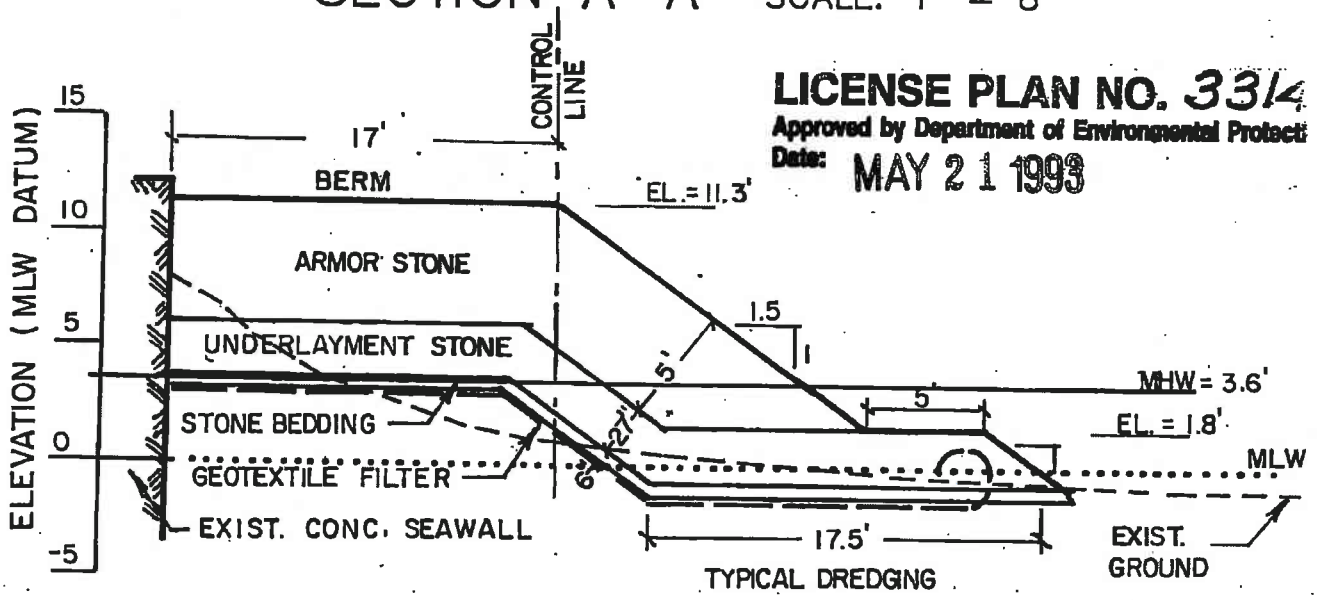
DIRECTOR

072-045-000-076-100

CURVE	Δ	R	L	T
C-1	48°-41'	36.3'	30.8'	16.4
C-2	52°-58'	24.9'	23.0'	12.4
C-3	" "	19.9'	18.4'	9.9
C-4	" "	16.9'	15.6'	8.4
C-5	90°-01'	11.0'	17.3'	11.0
C-6	94°-19'	22.0'	36.2'	23
C-7	" "	27.0'	44.5'	29
C-8	" "	30.0'	49.4'	32



SECTION A–A SCALE: 1" = 8'



LICENSE PLAN NO. 3314
Approved by Department of Environmental Protection
Date: MAY 21 1993

SECTION B–B SCALE: 1" = 8'

NOTES & SPECIFICATIONS

1. EXISTING STONE MEETING UNDERLAYMENT SPEC. SHALL BE REUSED. CONCRETE AND DEBRIS SHALL BE REMOVED. CHINK VOIDS IN EXISTING STONE TO 3" ABOVE SURFACE PRIOR TO PLACEMENT OF GEOTEXTILE AND STONE BEDING.
2. ARMOR STONE SIZE: 1700 – 2900 LBS (50% > 2300 LBS)
3. UNDERLAYMENT STONE SIZE: 179 – 290 LBS (50% > 230 LBS)
4. STONE BEDDING SIZE: 1–1/2" CRUSHED STONE
5. CONTRACTOR'S WORK LIMITS EXTENDS 40 FEET SEWARD OF CONTROL LINE.
6. ESTIMATED DREDGING QUANTITY = 326 CY. DISPOSAL SITE: TOWN VETERAN'S MEMORIAL PARK, G.A.R. HIGHWAY, ROUTE 6, SWANSEA, MA
7. ELEVATIONS: BASED ON MEAN LOW WATER DATUM

PLAN ACCOMPANYING PETITION OF

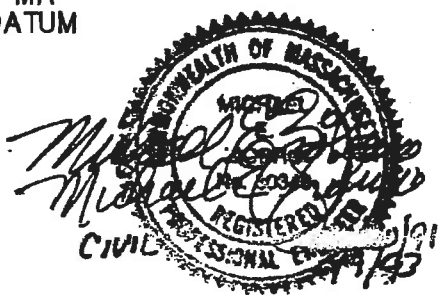
TOWN OF SWANSEA

TO CONSTRUCT AND MAINTAIN

SHORELINE PROTECTION

IN COLE RIVER & MT. HOPE BAY

COUNTY OF BRISTOL SWANSEA MA



075-045-000-076-100

LOT – MAP 48

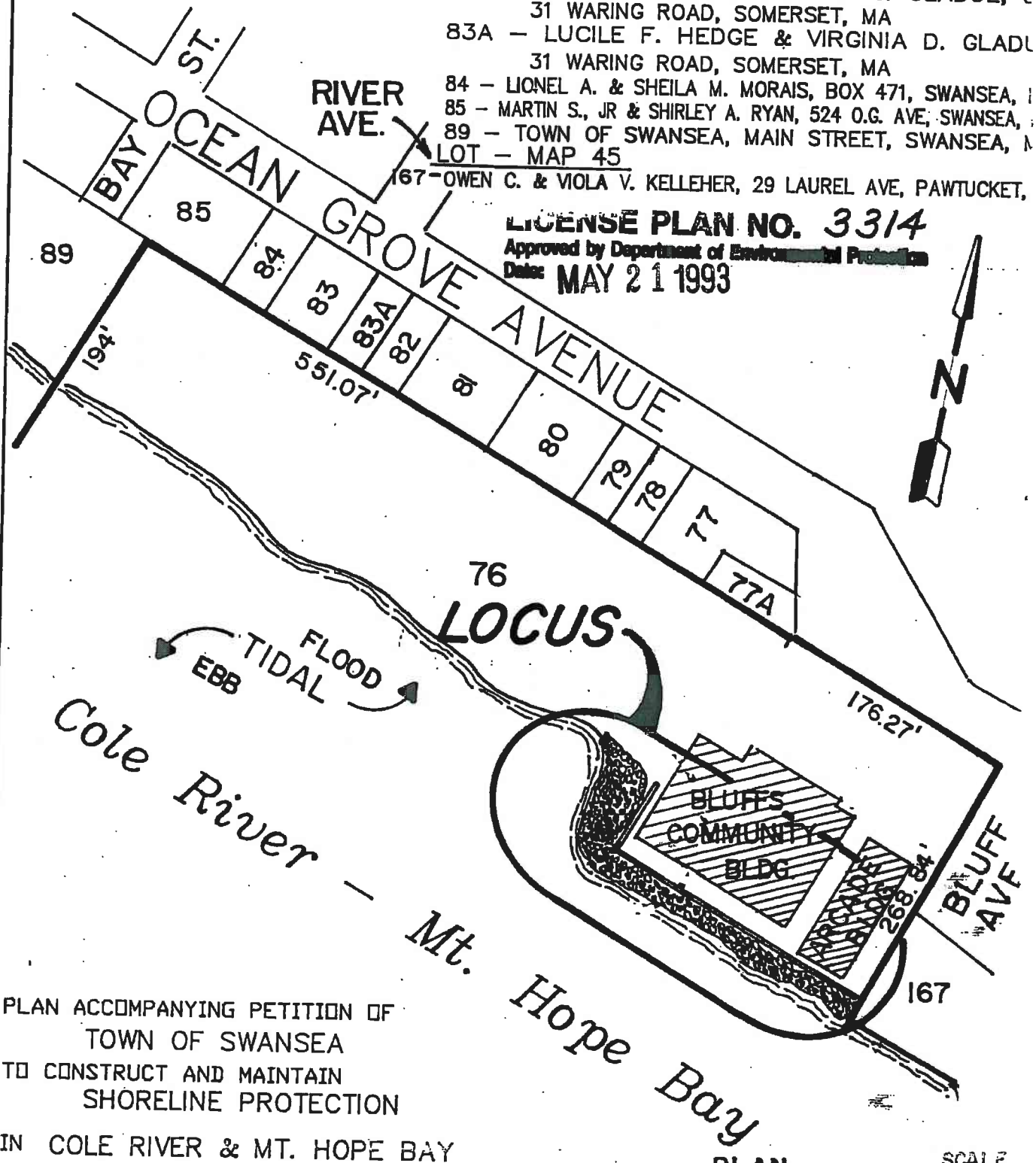
76 – LOCUS – OCEAN GROVE AVE. (O.G.AVE), SWANSEA,
77 – CAROLYN M. REDFERN, 8 WALTER LA, SWANSEA,
77A – TIMOTHY HALEY & JANET MARIE COS
474 OCEAN GROVE AVE., SWANSEA, MA
78 – **JANICE M. MIGNEAULT** , 486 O.G.AVE, SWANSEA,
79 – KEITH E. JACOBSON , 276 MILL ST, NEWTONVILLE,
80 – CONRAD W. RIOUX, 496 O.G. AVE., SWANSEA,
81 – EARL F. & LOIS E. BRITLAND, 502 O.G.AVE, SWANSEA,
82 – NICOLE E. LETENDRE, 506 O.G.AVE, SWANSEA,
83 – LUCILE F. HEDGE & PHILIP J. GLADUE,
31 WARING ROAD, SOMERSET, MA
83A – LUCILE F. HEDGE & VIRGINIA D. GLADU
31 WARING ROAD, SOMERSET, MA
84 – LIONEL A. & SHEILA M. MORAIS, BOX 471, SWANSEA,
85 – MARTIN S., JR & SHIRLEY A. RYAN, 524 O.G. AVE, SWANSEA,
89 – TOWN OF SWANSEA, MAIN STREET, SWANSEA,

LOT – MAP 45

167 – OWEN C. & VIOLA V. KELLEHER, 29 LAUREL AVE, PAWTUCKET,

COMMONWEALTH OF MASSACHUSETTS
MICHAEL E. [illegible]
REGISTERED PROFESSIONAL ENGINEER
CIVIL
12/13/91
3/4/93

LICENSE PLAN NO. 3314
Approved by Department of Environmental Protection
Date: MAY 21 1993



PLAN ACCOMPANYING PETITION OF
TOWN OF SWANSEA
TO CONSTRUCT AND MAINTAIN
SHORELINE PROTECTION
IN COLE RIVER & MT. HOPE BAY
COUNTY OF BRISTOL, SWANSEA, MA

SCALE PLAN FEET

SCALE 1"=100'

TOWN: SWANSEA
SOURCE: US ACOE
LOCATION: CONCORD, MA
DATE OF RESEARCH: AUGUST 2007

No USACE - Permit Documents for the Town of Swansea

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description

Section III

Somerset

Section III – Community Findings – Town of Somerset

COMMUNITY DESCRIPTION

The Town of Somerset consists of a land area of 8.11 square miles out of a total area of 11.98 square miles and had a population of 18,234 in the 2000 census. The Town is located on the south coast of Massachusetts and its location can be seen on this report's cover. The estimated length of shoreline is 6.6 miles that are directly exposed to open ocean with the remaining shoreline forming a semi-protected bay with the neighboring town of Fall River. 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 Somerset, there were 12 structures which had public or unknown ownership which provide significant coastal protection. The location of the structures can be seen in Sheets 1 through Sheet 5 in Section III-B 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 Somerset

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Length
Bulkhead / Seawall	4		1	2	1		810
Revetment	7		3	3	1		1995
Breakwater							
Groin / Jetty							
Coastal Dune							
Coastal Beach	1		1				230
	12		5	5	2		3035

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 Swansea's case there are a total of 12 structures which would require approximately $ 2.8 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 $ 1.8 million would be required to upgrade the Town's coastal protection.

STRUCTURE REPAIR / RECONSTRUCTION COST - Town of Somerset

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Cost
Bulkhead / Seawall	4		$ 25,806	$ 429,660	$ 250,800		$ 706,266
Revetment	7		$ 21,014	$ 480,480	$ 1,591,590		$ 2,093,084
Breakwater							$ -
Groin / Jetty							$ -
Coastal Dune							$ -
Coastal Beach	1		$ 10,212				$ 10,212
	12	$-	$ 57,032	$ 910,140	$ 1,842,390	$ -	$ 2,809,562

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 Somerset the breakdown of structures by assumed ownership is as follows:

STRUCTURE OWNERSHIP / REPAIR COST - Town of Somerset

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Cost
Town Owned	11		$ 50,432	$ 910,140	$ 1,842,390		$ 2,802,962
Commonwealth of Massachusetts	1		$ 6,600				$ 6,600
Federal Government Owned							$ -
Unknown Ownership							$ -
	12	$-	$ 57,032	$ 910,140	$ 1,842,390	$ -	$ 2,809,562

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-B which contains Structure Assessment Reports for each individual structure found.

SUMMARY

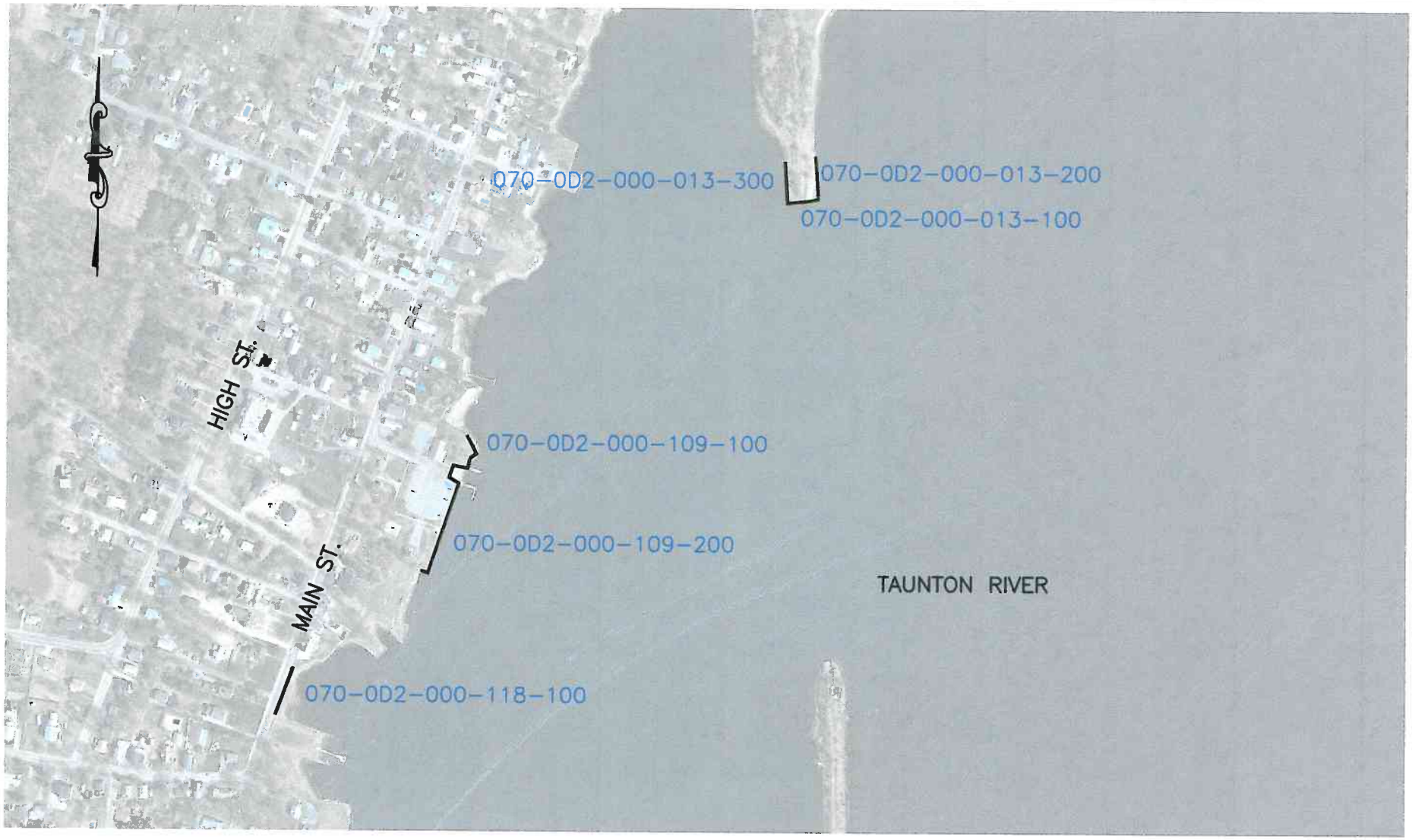
The enclosed reports and associated documents reflects the Town of Somerset's coastal structure information that will eventually be input into a state-wide GIS database and will be accessible through MassGIS. This data, when compiled state-wide, will be critical in the development of both short term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

Part B

Structure Assessment Reports



COASTAL STRUCTURE LOCATION PLAN

TOWN OF SOMERSET
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
3 Bank Street
Franklin, MA 02038
TEL. (508) 553-0000 FAX. (508) 553-0000

SHEET 1

File: X:\27652-\27667\South Coast\Somerset\dwg\Somerset.dwg

COASTAL STRUCTURE LOCATION PLAN

TOWN OF SOMERSET
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering

SHEET 2

File: X:\27652-\27667\South Coast\Somerset\dwg\Somerset.dwg

COASTAL STRUCTURE LOCATION PLAN

TOWN OF SOMERSET
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150
SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering

SHEET 3

File: X:\27652-\27667\South Coast\Somerset\dwg\Somerset.dwg

COASTAL STRUCTURE LOCATION PLAN

TOWN OF SOMERSET
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
3 Pond Street
Franklin, MA 02038
TEL. (508) 553-0000 FAX. (508) 553-0000

SHEET 4

File: X:\27652-\27667\South Coast\Somerset\dwg\Somerset.dwg

COASTAL STRUCTURE LOCATION PLAN

TOWN OF SOMERSET
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
3 Bond Street
Franklin, MA 02038
TEL. (508) 533-4088 FAX. (508) 533-4089

SHEET 5

File: X:\27652-\27667\South Coast\Somerset\dwg\Somerset.dwg

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Somerset

Structure ID: 070-0A8-000-001-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
State	Route 6 Bridge	7/5/2007

Presumed Structure Owner:	Based On Comment:
State	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
MHD	Unkown	$6,600.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
100 Feet	Feet NAVD 88	V11	20 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Revetment	Stone	Under 5 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The dumped riprap has stones that are approximately 200 pounds. Behind and adjacent to the riprap is a bridge abutment. There is no sign of scour at the toe.

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:

070-0A8-000-001-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Somerset

Structure ID: 070-0B1-000-001-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Riverside Street	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Somerset	Unkown	$1,591,590.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
1325 Feet	Feet NAVD 88	19	V17 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The dumped riprap is on a 1 on 1 to a 1 on 3 slope. Most stones are 1 foot diameter. There are some larger concrete slabs randomly placed throughout. There is minor scour at the toe. There is a road and houses behind the structure. There is a small boat ramp located in the middle of the 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	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:

070-0B1-000-001-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Somerset

Structure ID: 070-0C9-000-301-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Riverside Street	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Somerset	Unkown	$250,800.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
100 Feet	Feet NAVD 88	16	A13 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The stone block seawall is built in front of a road and adjacent to a concrete culvert. Some stones are 1 foot in diameter and are mortared. The remaining stones are 4 feet by 1 foot by 1 foot. There is some visible setting, shifting and rotating.

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:

070-0C9-000-301-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Somerset

Structure ID: 070-0D1-000-049-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Pierce Park	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Somerset	Unkown	$10,212.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
230 Feet	Feet NAVD 88	20	V17 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Coastal Beach	Sand	Under 5 Feet

Secondary Type:	Secondary Material:	Secondary Height:
Coastal Dune	Sand	Under 5 Feet

Structure Summary :

The small beach has a 1 on 15 slope with sand dunes behind it. The beach is filled and graded well. There is a park located behind the beach.

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:

070-0D1-000-049-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Somerset

Structure ID: 070-0D1-000-071-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Dublin Street	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Somerset	Unkown	$5,405.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
45 Feet	Feet NAVD 88	16	A13 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The dumped riprap is 1 foot in diameter with a 1 on 2 to a 1 on 3 slope. The structure is in place to protect the road behind it. There is no visible erosion or 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:

070-0D1-000-071-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Somerset

Structure ID: 070-0D1-000-072-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	South Street Culvert	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Somerset	Unkown	$9,009.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
75		16	A13
Feet	Feet NAVD 88		Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The dumped riprap is 1 foot down with a 1 on 2 to a 1 on 3 slope. There is no erosion or scour visible. There are culverts adjacent on both sides.

Condition Rating	B Good	*Priority Rating*	I None
Level of Action	Minor	*Action*	Long Term Planning Considerations
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*	No Inshore Structures or Residential Dwelling Units Present

Structure Images:

070-0D1-000-072-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Somerset

Structure ID: 070-0D2-000-013-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Mallard Point	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Somerset	Unkown	$50,160.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
40 Feet	Feet NAVD 88	B	17 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The stone block seawall has a cast in place top. The structure is an abandoned train bridge abuttment. The stones are approximately 4 feet by 2 feet by 2 feet and are set offset. The cast in place wall is 4 feet high by 4 feet wide. There are many cracks and spalling in the cast in place wall.

Condition Rating	C
Level of Action	Fair
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	I
Action	None
Description	Long Term Planning Considerations
	No Inshore Structures or Residential Dwelling Units Present

Structure Images:

070-0D2-000-013-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Somerset

Structure ID: 070-0D2-000-013-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Mallard Point	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Somerset	Unkown	$210,210.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
175 Feet	Feet NAVD 88	B	17 Feet NGVD

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

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

Structure Summary :

The dumped riprap is on a slope. The stones are approximately 300 to 400 pounds in size. Some section loss and stone movement are visible. In front of the slope is approximately 10 to 15 stones of the same size lined up. They are there possibly to protect the riprap toe behind them.

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:

070-0D2-000-013-200-PHO2A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Somerset

Structure ID: 070-0D2-000-013-300

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Mallard Point	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Somerset	Unkown	$210,210.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
175 Feet	Feet NAVD 88	B	17 Feet NGVD

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

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

Structure Summary :

The sloped dumped riprap has stones that are approximately 300 to 400 pounds. There is some visible section loss and stone movement throughout. In front of the the slope there is approximately 10 to 15 stones lined up, possibly to protect the riprap toe behind them.

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:

070-0D2-000-013-300-PHO3A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Somerset

Structure ID: 070-0D2-000-109-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Waterfront Park	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Somerset	1984	$379,500.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
500 Feet	Feet NAVD 88	18	V17 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The stone blocks are approximately 3 feet by 1 foot in size with a concrete walkway above and parking lot behind it. There is a boat ramp located at one end of the structure. There is some stone settling, and a few stones are missing. There are areas of erosion and underimine.

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:

070-0D2-000-109-100-PHO1A.JPG

Structure Documents:

USACE	September 1	Waterfront	070-0D2-000-109-100-COE1A
DEP	January 9, 1	Plan Accompanying	070-0D2-000-109-100-LIC1A
DEP	March 29, 19	Plans Accompanying	070-0D2-000-109-100-LIC1B

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Somerset

Structure ID: 070-0D2-000-109-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Waterfront Park	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Somerset	1984	$60,060.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
100 Feet	Feet NAVD 88	18	V17 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The dumped riprap is on a 1 on 1 slope with stones that are approximately 3 feet by 2 feet by 2 feet in size. The stones have signs of movement and settling.

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:

070-0D2-000-109-200-PHO2A.JPG

Structure Documents:

USACE	September 1	Waterfront	070-0D2-000-109-200-COE2A
DEP	January 9, 1	Plan Accompanying	070-0D2-000-109-200-LIC2A
DEP	March 29, 19	Plans Accompanying	070-0D2-000-109-200-LIC2B

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Somerset

Structure ID: 070-0D2-000-118-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Main Street	7/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Somerset	Unkown	$25,806.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
170 Feet	Feet NAVD 88		Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The stone bulkhead protects the street, walkway and houses behind it. The stones are approximately 3 feet by 2 feet in size. There is some stone heaving.

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:

070-0D2-000-118-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

Section III - Somerset

Part C

Structure Photographs

TOWN: SOMERSET
SOURCE: BCE - FIELD PHOTOGRAPHS
LOCATION: Bourne Consulting Engineering
DATE OF RESEARCH: SEPTEMBER 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
070-0A8-000-001-100	070-0A8-000-001-100-PHO1A.jpg		Bourne Consulting Engineering	Somerset	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
070-0B1-000-001-100	070-0B1-000-001-100-PHO1A.jpg		Bourne Consulting Engineering	Somerset	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
070-0C9-000-301-100	070-0C9-000-301-100-PHO1A.jpg		Bourne Consulting Engineering	Somerset	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
070-0D1-000-049-100	070-0D1-000-049-100-PHO1A.jpg		Bourne Consulting Engineering	Somerset	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
070-0D1-000-071-100	070-0D1-000-071-100-PHO1A.jpg		Bourne Consulting Engineering	Somerset	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
070-0D1-000-072-100	070-0D1-000-072-100-PHO1A.jpg		Bourne Consulting Engineering	Somerset	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
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070-0D2-000-013-200	070-0D2-000-013-200-PHO2A.jpg		Bourne Consulting Engineering	Somerset	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
070-0D2-000-013-300	070-0D2-000-013-300-PHO3A.jpg		Bourne Consulting Engineering	Somerset	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
070-0D2-000-109-100	070-0D2-000-109-100-PHO1A.jpg		Bourne Consulting Engineering	Somerset	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
070-0D2-000-109-200	070-0D2-000-109-200-PHO2A.jpg		Bourne Consulting Engineering	Somerset	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
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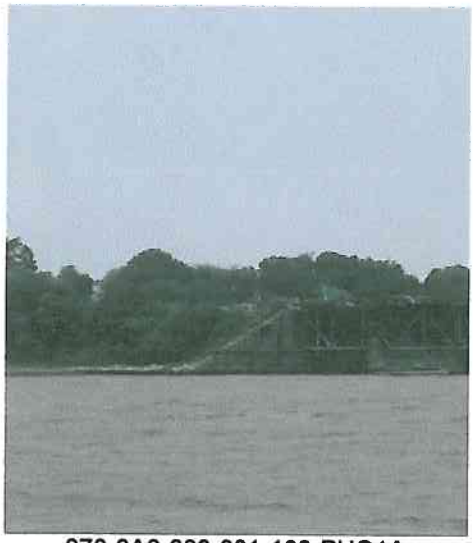

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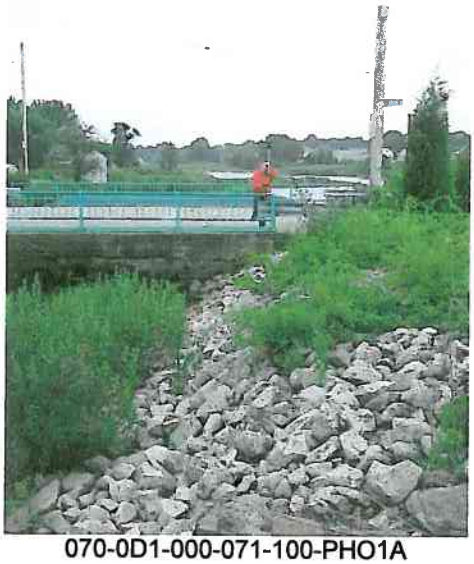

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070-0D2-000-013-300-PHO3A

070-0D2-000-109-100-PHO1A

070-0D2-000-109-200-PHO2A

070-0D2-000-118-100-PHO1A

Section III - Somerset

Part D

Structure Documents

TOWN DOCUMENT LIST

MA DCR - DOCUMENT LIST

MA DEP – Ch 91 DOCUMENT LIST

- Copies of License Documents

USACE – PERMIT DOCUMENT LIST

- Copies of Permit Documents

TOWN: SOMERSET
SOURCE: Town of Somerset
LOCATION: TOWN
DATE OF RESEARCH: JUNE 2007

No Town Documents for the Town of Somerset

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description

TOWN: SOMERSET
SOURCE: MA-DCR
LOCATION: MA-DCR BOSTON and HINGHAM, MA
DATE OF RESEARCH: JULY 2007

No MA - DCR Documents for the Town of Somerset

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description

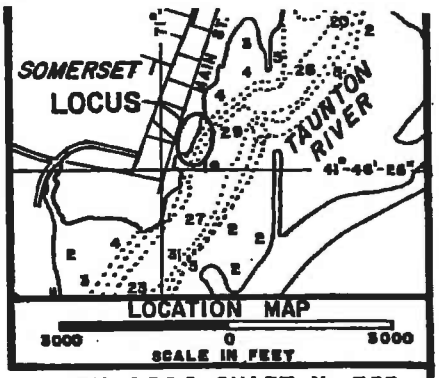
TOWN: SOMERSET
SOURCE: DEP
LOCATION: BOSTON, MA
DATE OF RESEARCH: JULY 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
070-0D2-000-109-100	070-0D2-000-109-100-LIC1A	1185	DEP	Somerset	January 9, 1985	Plan Accompanying Petition of Town of Somerset Board of Selectmen to Construct and Maintain Waterfront Improvement at Village Waterfront Park In the Taunton River, Town of Somerset, County of Bristol, Mass.	3	Main Street	Waterfront Improvements - Including the Existing Seawall
070-0D2-000-109-100	070-0D2-000-109-100-LIC1B	2589	DEP	Somerset	March 29, 1996	Plans Accompanying Petition of Town of Somerset Board of Selectmen to Provide Additional Floats and Pilings at Village Waterfront Park, In the Taunton River, Town of Somerset, County of Bristol, Mass.	3	Main Street	New Floats Around Existing Seawall
070-0D2-000-109-200	070-0D2-000-109-200-LIC2A	1185	DEP	Somerset	January 9, 1985	Plan Accompanying Petition of Town of Somerset Board of Selectment to Construct and Maintain Waterfront Improvements at Village Waterfront Park In the Taunton River, Town of Somerset, County of Bristol, Massachusetts	3	Main Street	Waterfront Improvements - Including the Existing Seawall
070-0D2-000-109-200	070-0D2-000-109-200-LIC2B	2589	DEP	Somerset	March 29, 1996	Plans Accompanying Petition of Town of Somerset Board of Selectment to Provide Additional Floats and Pilings at Village Waterfront Park, In the Taunton River, Town of Somerset, County of Bristol, MA	3	Main Street	New Floats Around Existing Seawall

070-002-000-109-100
070-002-000-109-200

PLAN

100 50 0 100
SCALE IN FEET



FROM C.&G.S. CHART No. 353

SOUNDINGS AND ELEVATIONS ARE IN FEET AND REFER TO MEAN LOW WATER.

N/F
JOSEPH & ANNE GANEM
336 MAIN STREET
SOMERSET, MA.

M.H.W.
M.L.W.
E.L.W.
PROPOSED WALKWAY
EXISTING RIP-RAP TO BE SURFACE DRESSED.
TOWN OF SOMERSET
140 WOOD STREET
SOMERSET, MA.
PROPOSED DOCK/FLOAT SYSTEM
REBUILD COLAPSED WALL & REMOVE RIP-RAP
PROPOSED WALKWAY
EXISTING SEAWALL
TAUNTON RIVER
EBB
FLOOD
N/F
JOHN & SHEILA R. ASHCROFT
200 MAIN STREET
SOMERSET, MA.

COMMONWEALTH OF MASSACHUSETTS
ANTHONY A. CAPUTO
No. 29640
REGISTERED
LAND SURVEYOR

Anthony A. Caputo

SHEET 1 OF 3

84w-111

PLAN ACCOMPANYING PETITION OF
TOWN OF SOMERSET
BOARD OF SELECTMEN

TO CONSTRUCT AND MAINTAIN WATERFRONT IMPROVEMENTS AT VILLAGE WATERFRONT PARK IN THE TAUNTON RIVER, TOWN OF SOMERSET, COUNTY OF BRISTOL, MASS.

LICENSE PLAN NO. 1185

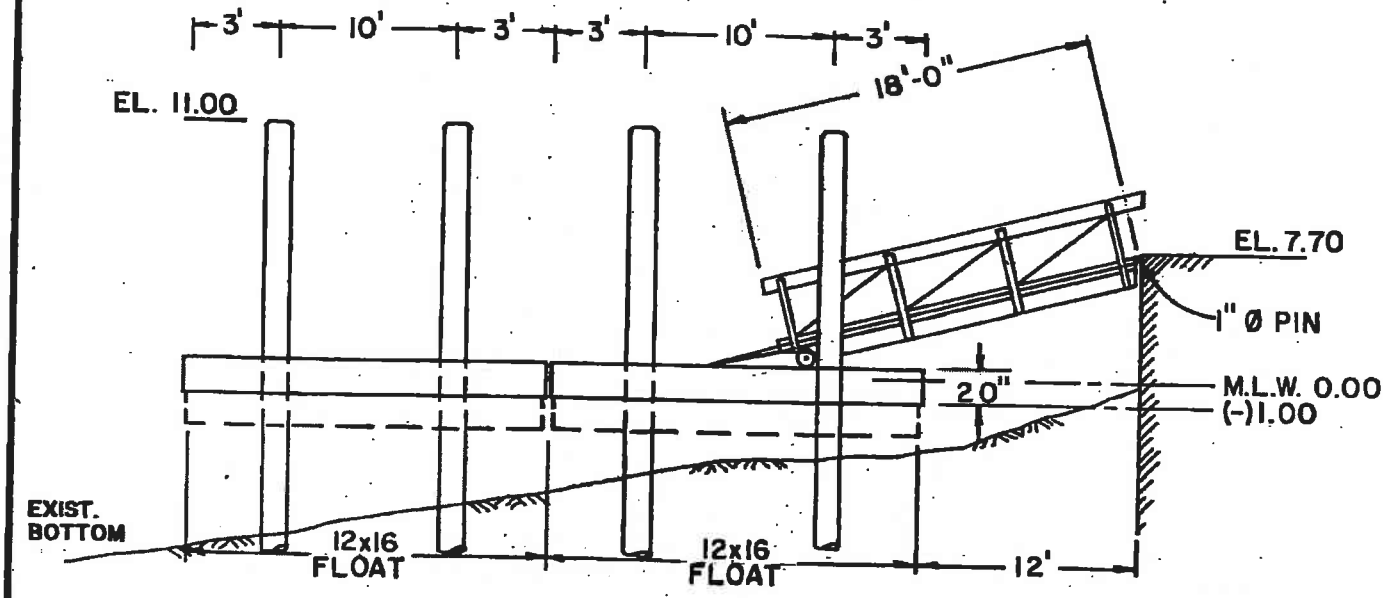
Approved by Department of Environmental Quality Engineering of Massachusetts JANUARY 9, 1985

COMMISSIONER

CHIEF ENGINEER

DIVISION DIRECTOR

070-0D2-000-109-100
070-0D2-000-109-206



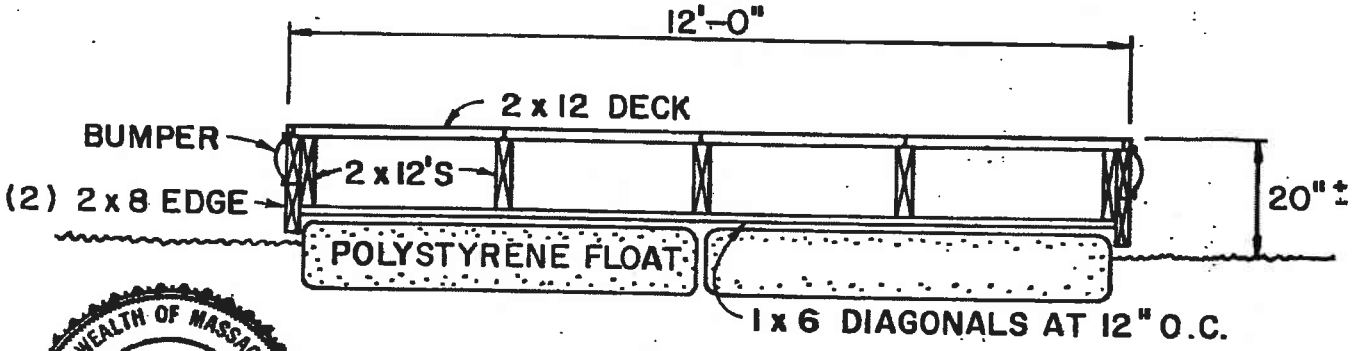
ELEVATION OF FLOAT & RAMP

12" BELOW M.L.W.

SCALE 1/8"=1'-0"

1 0 1 2 3 4 5 6 7 8

SCALE IN FEET



TYPICAL SECTION

SCALE 3/8"=1'-0"

1 0 1 2 3 4 5

SCALE IN FEET

COMMONWEALTH OF MASSACHUSETTS
RODNEY W. WICK
No. 27837
REGISTERED PROFESSIONAL ENGINEER

84w-111

SHEET 2 OF 3

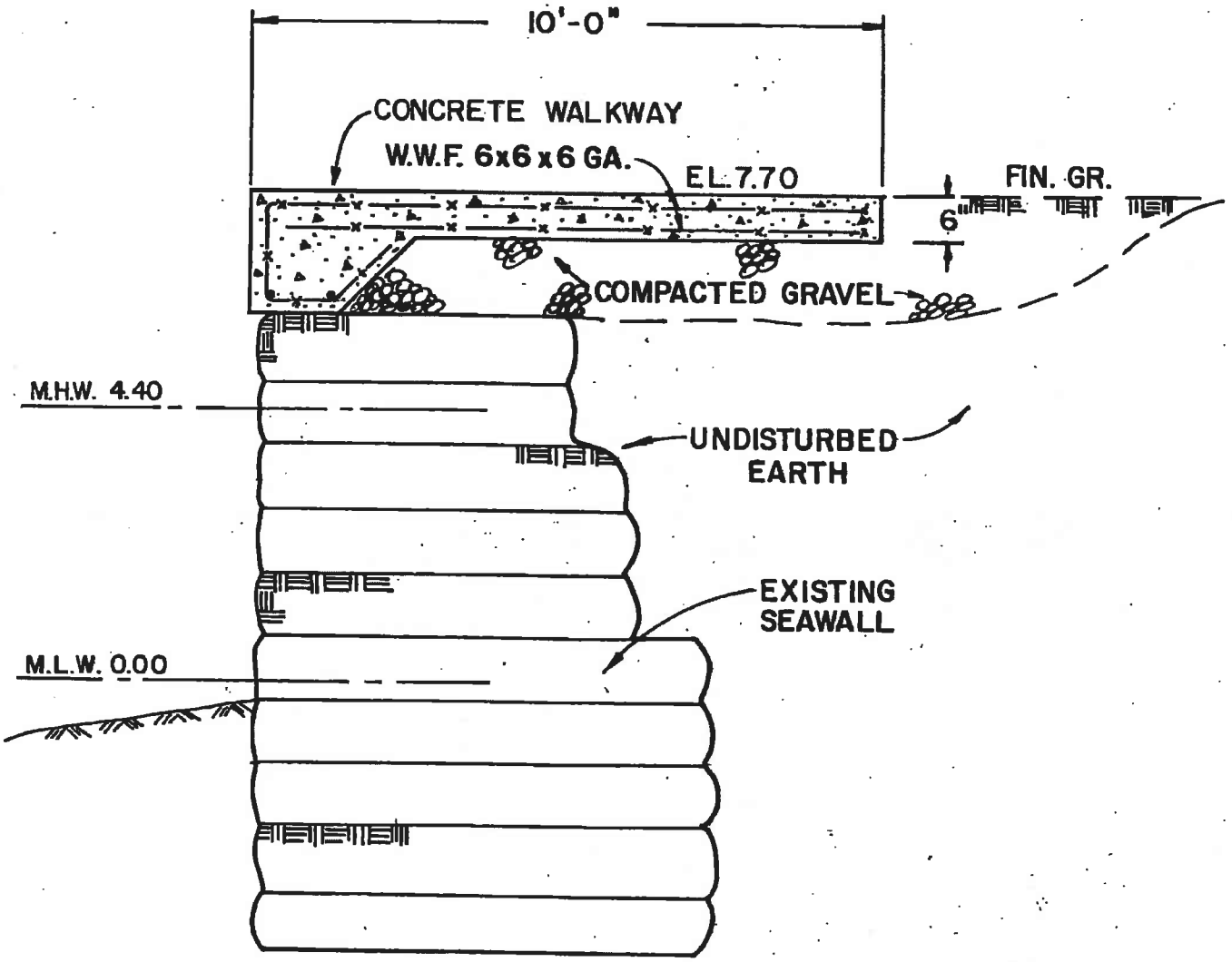
PLAN ACCOMPANYING PETITION OF
TOWN OF SOMERSET
BOARD OF SELECTMEN
TO CONSTRUCT AND MAINTAIN WATERFRONT IMPROVEMENTS AT VILLAGE WATERFRONT PARK IN THE TAUNTON RIVER, TOWN OF SOMERSET, COUNTY OF BRISTOL, MASS.

LICENSE PLAN NO. 1185

Approved by Department of Environmental Quality Engineering

JANUARY 9, 1985

070-0D2-000-109-100
070-0D2-000-109-200



SECTION A-A

SCALE 3/8"=1'-0"

1 0 1 2 3 4 5

SCALE IN FEET

COMMONWEALTH OF MASSACHUSETTS
RODNEY W. WICK
No. 27837
REGISTERED PROFESSIONAL ENGINEER

84w-111

SHEET 3 OF 3

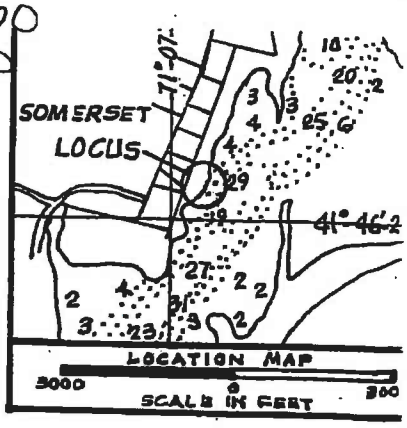
PLAN ACCOMPANYING PETITION OF
TOWN OF SOMERSET
BOARD OF SELECTMEN

TO CONSTRUCT AND MAINTAIN WATERFRONT IMPROVEMENTS AT VILLAGE WATERFRONT PARK IN THE TAUNTON RIVER, TOWN OF SOMERSET, COUNTY OF BRISTOL, MASS.

LICENSE PLAN NO. 1185

Approved by Department of Environmental Quality Engineering
JANUARY 9, 1985

070-0D2-000-109-100
070-0D2-000-109-200



N

PLAN

100 50 0 100
SCALE IN FEET

N/F
JOSEPH & ANNE GANEM
336 MAIN STREET
SOMERSET, MA.

SOUNDINGS & ELEVATIONS ARE IN FEET AND REFER TO MEAN LOW WATER.

M.H.W.
M.L.W.
E.L.W.

TOWN OF SOMERSET
300 MAIN STREET
SOMERSET, MA.

EXISTING FLOATS AND PILINGS

PROPOSED NEW FLOATS AND NEW PILINGS

35'

RIVER

SEE ENLARGED PLAN SHEET 2 OF 3

EXISTING STRUCTURES AUTHORIZED UNDER LICENSE No. 1185

TAUNTON

EXISTING SEAWALL

N/F
JOHN & SHEILA R. ASHCROFT
200 MAIN ST.
SOMERSET, MA.

EBB
FLOOD

COMMONWEALTH OF MASSACHUSETTS
BRANT SEALS HAWORTH
No. 23800
REGISTERED PROFESSIONAL ENGINEER

Brant S. Haworth

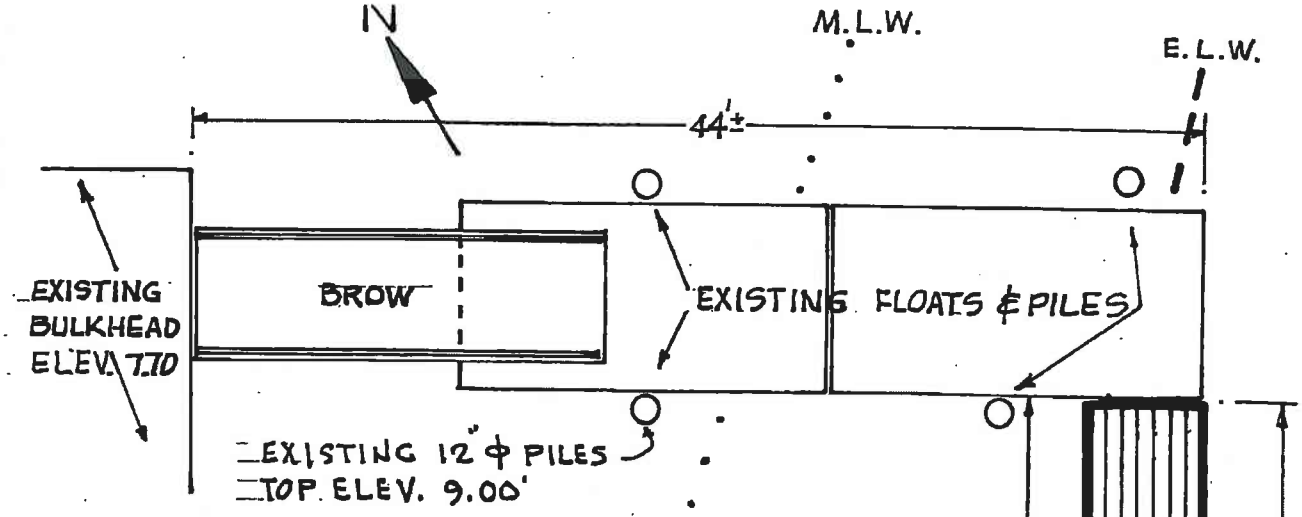
PLANS ACCOMPANYING PETITION OF
TOWN OF SOMERSET
BOARD OF SELECTMEN
TO PROVIDE ADDITIONAL FLOATS & PILINGS AT VILLAGE WATERFRONT PARK, IN THE TAUNTON RIVER, TOWN OF SOMERSET, COUNTY OF BRISTOL, MASS.

SHEET 1 OF 3

LICENSE PLAN NO. 2389
Approved by Department of Environmental Protection
of Massachusetts

COMMISSIONER
DIRECTOR
SECTION CHIEF

MAR 29 1991



LICENSE PLAN NO. 2589

Approved by Department of Environmental Protection

Date: MAR 29 1991

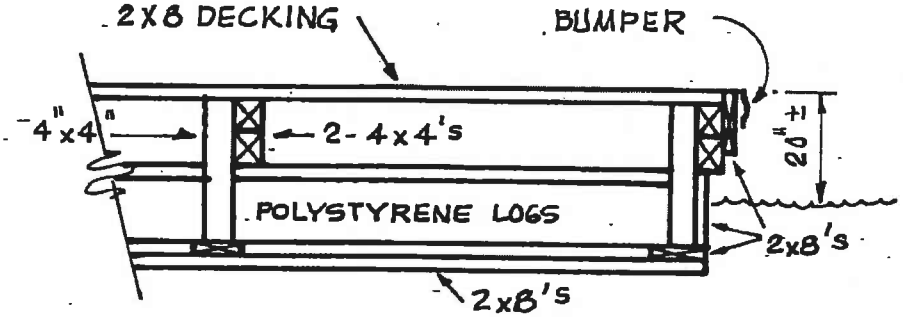
ENLARGED PLAN

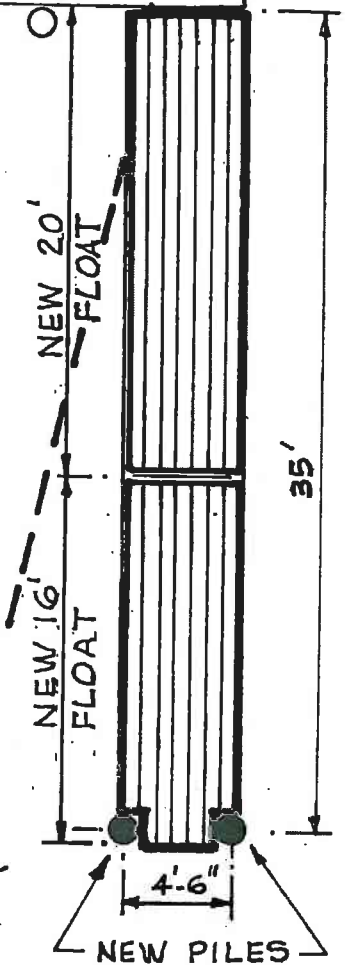
SCALE: 1/8"=1'-0"

5' 0 5 10

SCALE IN FEET

NOTES: 1. ALL TIMBERS & LUMBER TO BE PRESSURE TREATED.
2. ALL HARDWARE & FASTENERS TO BE HOT DIPPED GALVANIZED.





TYPICAL SECTION

SCALE: 1/2"=1'-0

1 0 1 2 3 4

SCALE IN FEET

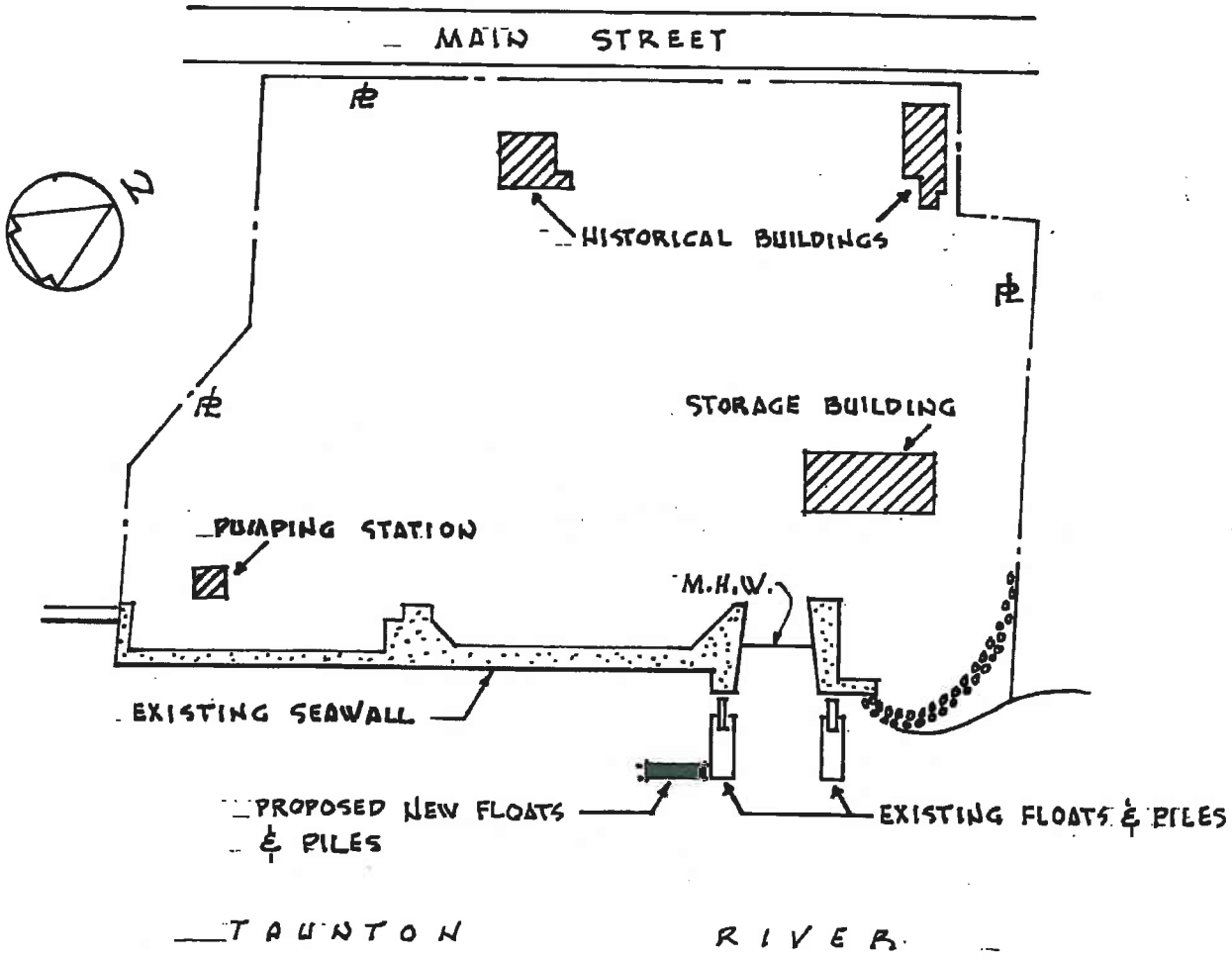
PLANS ACCOMPANYING PETITION OF
TOWN OF SOMERSET
BOARD OF SELECTMEN
TO PROVIDE ADDITIONAL FLOATS & PILINGS AT VILLAGE WATERFRONT PARK, IN THE TAUNTON RIVER, TOWN OF SOMERSET, COUNTY OF BRISTOL MASS.

Brant S. Haworth

070-0D2-000-109-100
070-0D2-000-109-200

SITE PLAN

100 50 0 100
SCALE IN FEET



LICENSE PLAN NO. 2589

Approved by Department of Environmental Protection

Date: MAR 29 1991

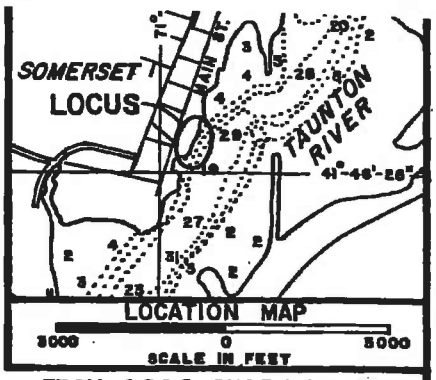
COMMONWEALTH OF MASSACHUSETTS
BRANT SEALS HAWORTH
No. 23800
REGISTERED PROFESSIONAL ENGINEER

Brant S. Haworth

PLANS ACCOMPANYING PETITION OF
TOWN OF SOMERSET
BOARD OF SELECTMEN
TO PROVIDE ADDITIONAL FLOATS & PILINGS AT VILLAGE WATERFRONT PARK, IN THE TAUNTON RIVER, TOWN OF SOMERSET, COUNTY OF BRISTOL, MASS.

SHEET 2 OF 3

070-0D2-000-109-100
070-0D2-000-109-200

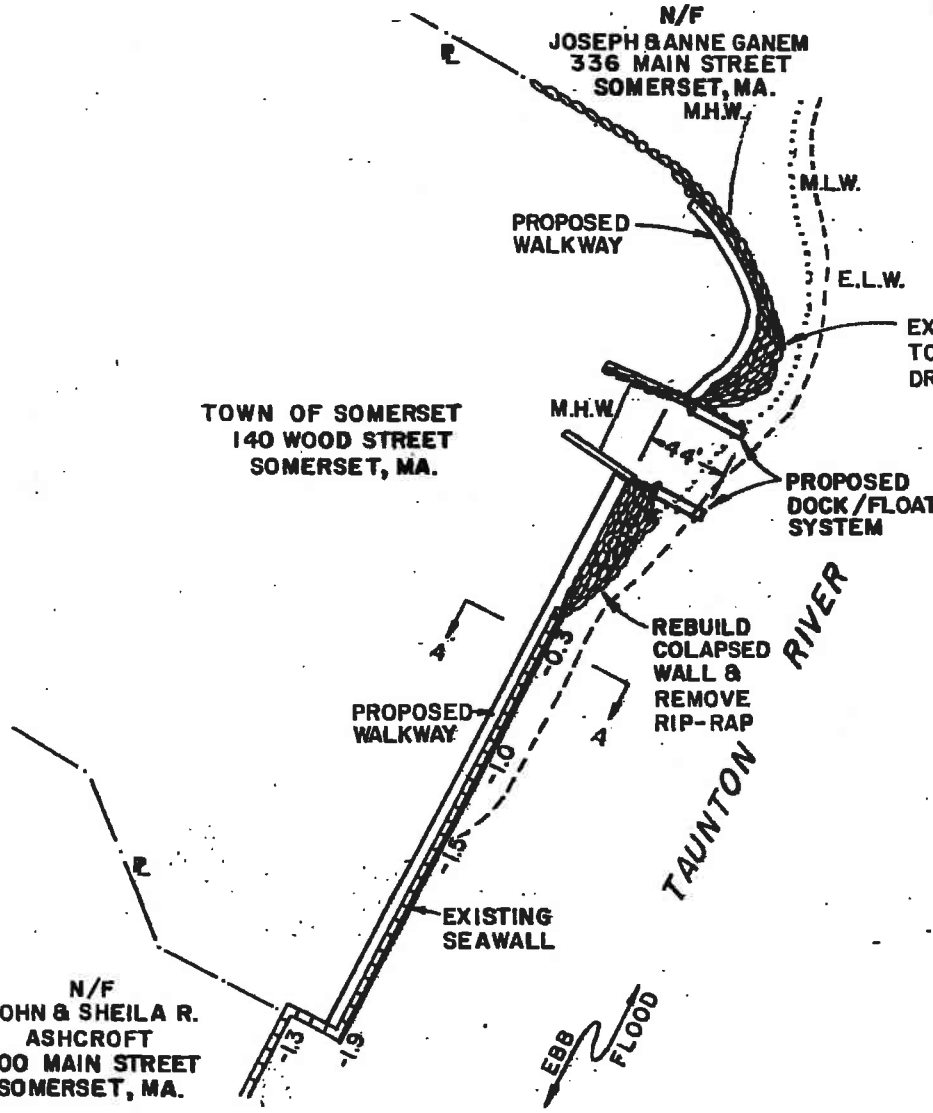


FROM C.&G.S. CHART No. 353

SOUNDINGS AND ELEVATIONS ARE IN FEET AND REFER TO MEAN LOW WATER.

PLAN

100 50 0 100
SCALE IN FEET



COMMONWEALTH OF MASSACHUSETTS
ANTHONY A. CAPUTO
No. 29640
REGISTERED LAND SURVEYOR

Anthony A. Caputo

SHEET 1 OF 3

84w-111

PLAN ACCOMPANYING PETITION OF
TOWN OF SOMERSET
BOARD OF SELECTMEN

TO CONSTRUCT AND MAINTAIN WATERFRONT IMPROVEMENTS AT VILLAGE WATERFRONT PARK IN THE TAUNTON RIVER, TOWN OF SOMERSET, COUNTY OF BRISTOL, MASS.

LICENSE PLAN NO. 1185

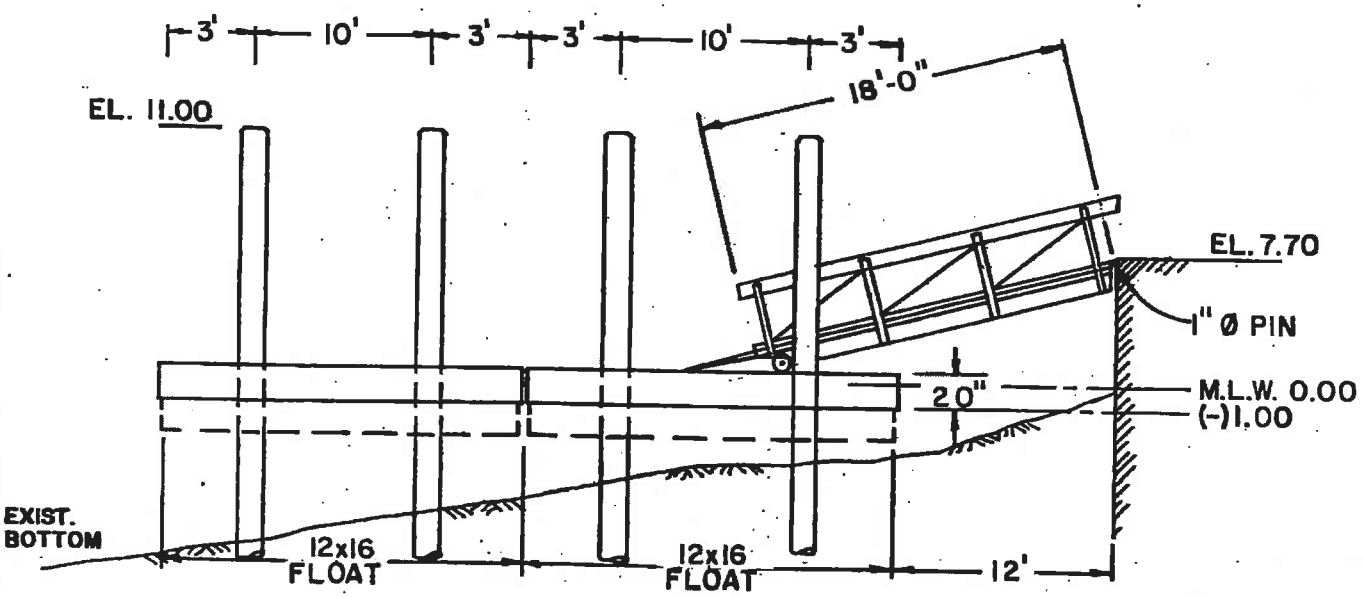
Approved by Department of Environmental Quality Engineering of Massachusetts January 9, 1985

COMMISSIONER

CHIEF ENGINEER

Frederick Eckel DIVISION DIRECTOR

070-0D2-000-109-100
070-0D2-000-109-206



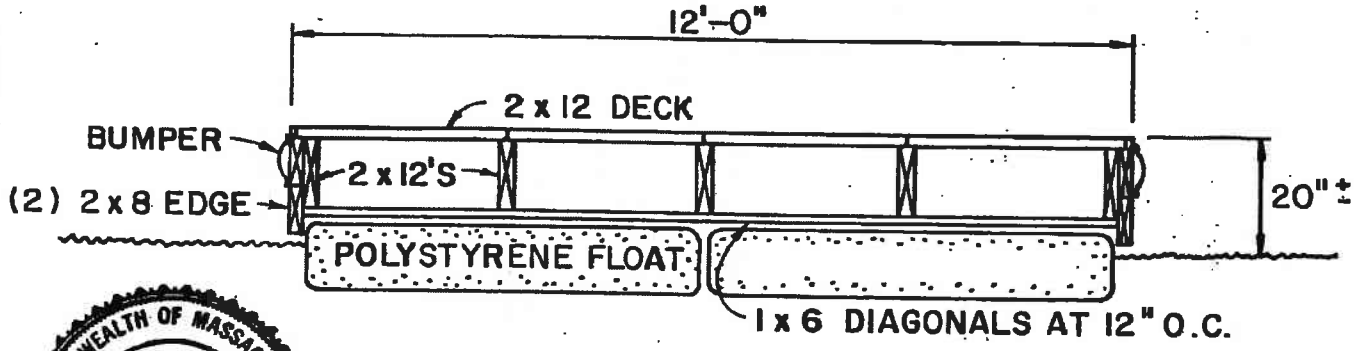
ELEVATION OF FLOAT & RAMP

12" BELOW M.L.W.

SCALE 1/8"=1'-0"

1 0 1 2 3 4 5 6 7 8

SCALE IN FEET



TYPICAL SECTION

SCALE 3/8"=1'-0"

1 0 1 2 3 4 5

SCALE IN FEET

COMMONWEALTH OF MASSACHUSETTS
RODNEY W. WICK
No. 27837
REGISTERED PROFESSIONAL ENGINEER

84w-111

SHEET 2 OF 3

PLAN ACCOMPANYING PETITION OF
TOWN OF SOMERSET
BOARD OF SELECTMEN

TO CONSTRUCT AND MAINTAIN WATERFRONT IMPROVEMENTS AT VILLAGE WATERFRONT PARK IN THE TAUNTON RIVER, TOWN OF SOMERSET, COUNTY OF BRISTOL, MASS.

LICENSE PLAN NO. 1185

Approved by Department of Environmental Quality Engineering

JANUARY 9, 1985

010-0D2-000-109-100
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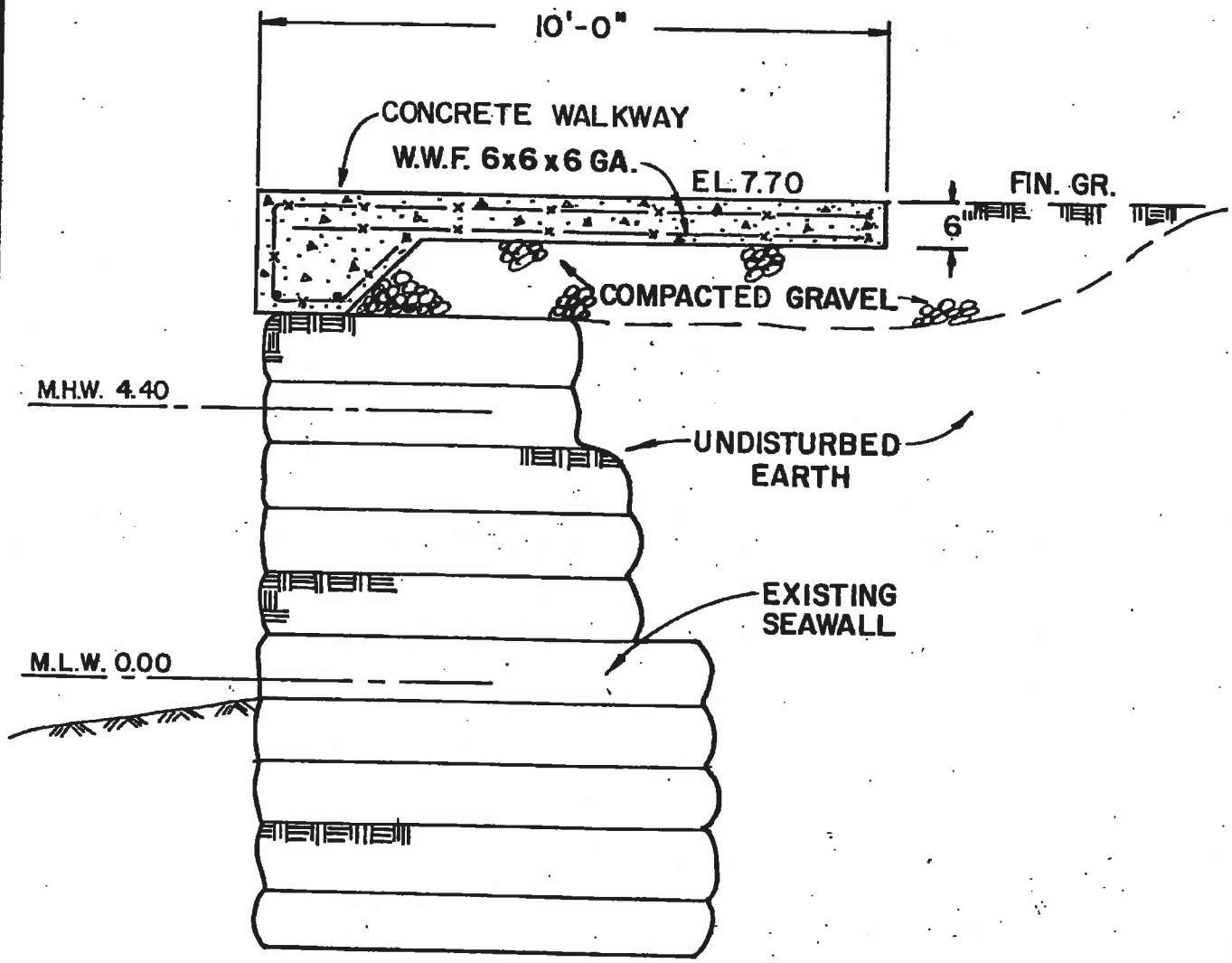


SECTION A-A

SCALE 3/8"=1'-0"

1 0 1 2 3 4 5

SCALE IN FEET

COMMONWEALTH OF MASSACHUSETTS
RODNEY W. WICK
No. 27837
REGISTERED PROFESSIONAL ENGINEER

84w-111

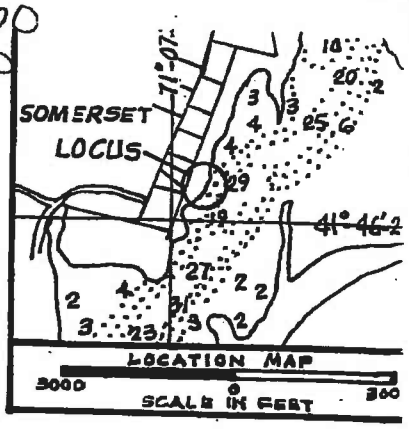
SHEET 3 OF 3

PLAN ACCOMPANYING PETITION OF
TOWN OF SOMERSET
BOARD OF SELECTMEN
TO CONSTRUCT AND MAINTAIN WATERFRONT IMPROVEMENTS AT VILLAGE WATERFRONT PARK IN THE TAUNTON RIVER, TOWN OF SOMERSET, COUNTY OF BRISTOL, MASS.

LICENSE PLAN NO. 1185

Approved by Department of Environmental Quality Engineering
JANUARY 9, 1985

070-0D2-000-109-100
070-0D2-000-109-200



N

PLAN

100 50 0 100
SCALE IN FEET

N/F
JOSEPH & ANNE GANEM
336 MAIN STREET
SOMERSET, MA.

SOUNDINGS & ELEVATIONS ARE IN FEET AND REFER TO MEAN LOW WATER.

M.H.W.
M.L.W.
E.L.W.

TOWN OF SOMERSET
300 MAIN STREET
SOMERSET, MA.

EXISTING FLOATS AND PILINGS

PROPOSED NEW FLOATS AND NEW PILINGS

35'

RIVER

SEE ENLARGED PLAN SHEET 2 OF 3

EXISTING STRUCTURES AUTHORIZED UNDER LICENSE No. 1185

TAUNTON

EXISTING SEAWALL

N/F
JOHN & SHEILA R. ASHCROFT
200 MAIN ST.
SOMERSET, MA.

EBB
FLOOD

COMMONWEALTH OF MASSACHUSETTS
BRANT SEALS HAWORTH
No. 23800
REGISTERED PROFESSIONAL ENGINEER

Brant S. Haworth

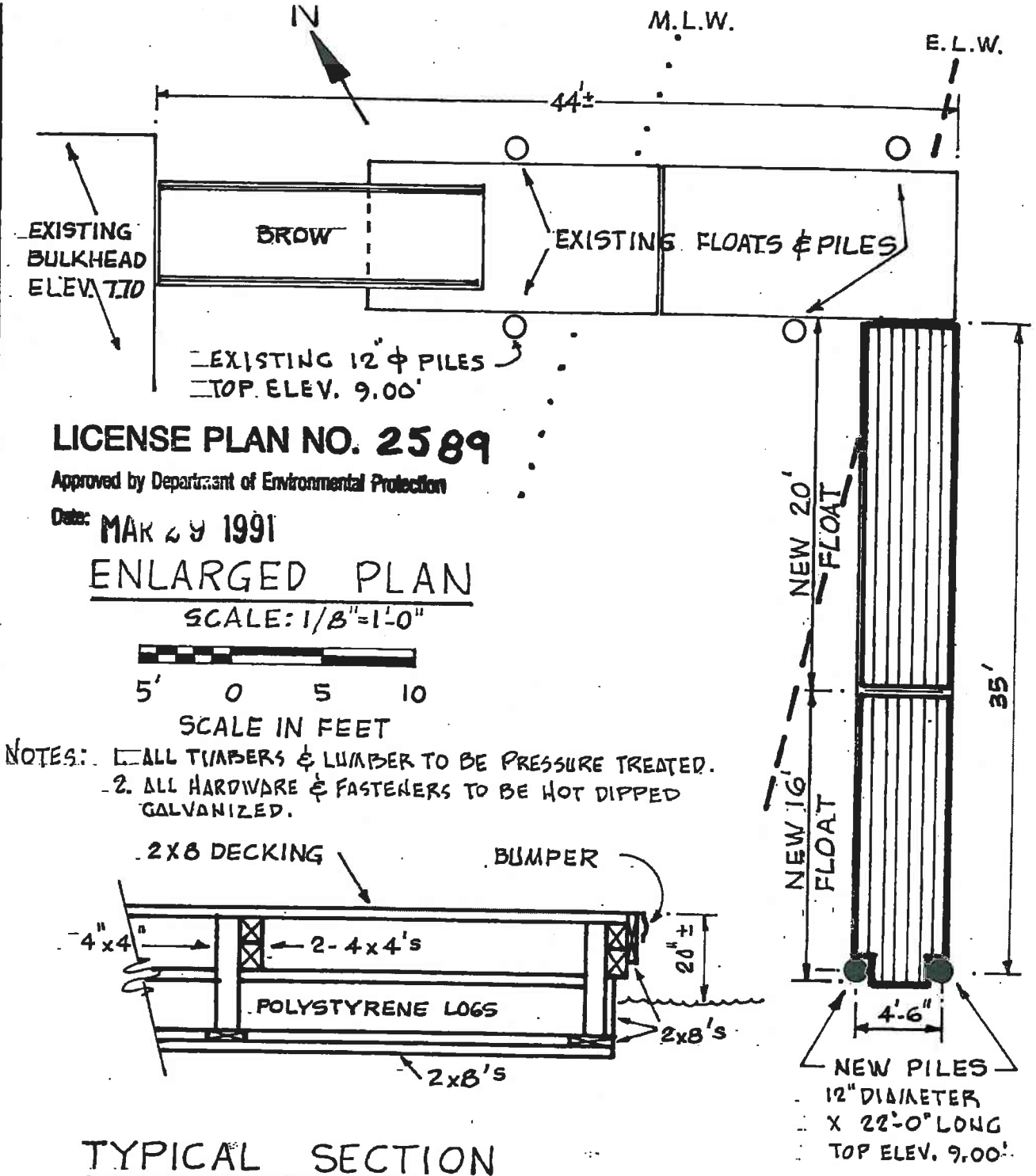
PLANS ACCOMPANYING PETITION OF
TOWN OF SOMERSET
BOARD OF SELECTMEN
TO PROVIDE ADDITIONAL FLOATS & PILINGS AT VILLAGE WATERFRONT PARK, IN THE TAUNTON RIVER, TOWN OF SOMERSET, COUNTY OF BRISTOL, MASS.

SHEET 1 OF 3

LICENSE PLAN NO. 2589
Approved by Department of Environmental Protection of Massachusetts

COMMISSIONER
DIRECTOR
SECTION CHIEF

JUNE 29 1990



LICENSE PLAN NO. 2589

Approved by Department of Environmental Protection

Date: MAR 29 1991

ENLARGED PLAN

SCALE: 1/8"=1'-0"

5' 0 5 10

SCALE IN FEET

NOTES: 1. ALL TIMBERS & LUMBER TO BE PRESSURE TREATED.
2. ALL HARDWARE & FASTENERS TO BE HOT DIPPED GALVANIZED.

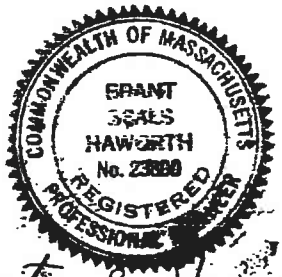
TYPICAL SECTION

SCALE: 1/2"=1'-0

1 0 1 2 3 4

SCALE IN FEET

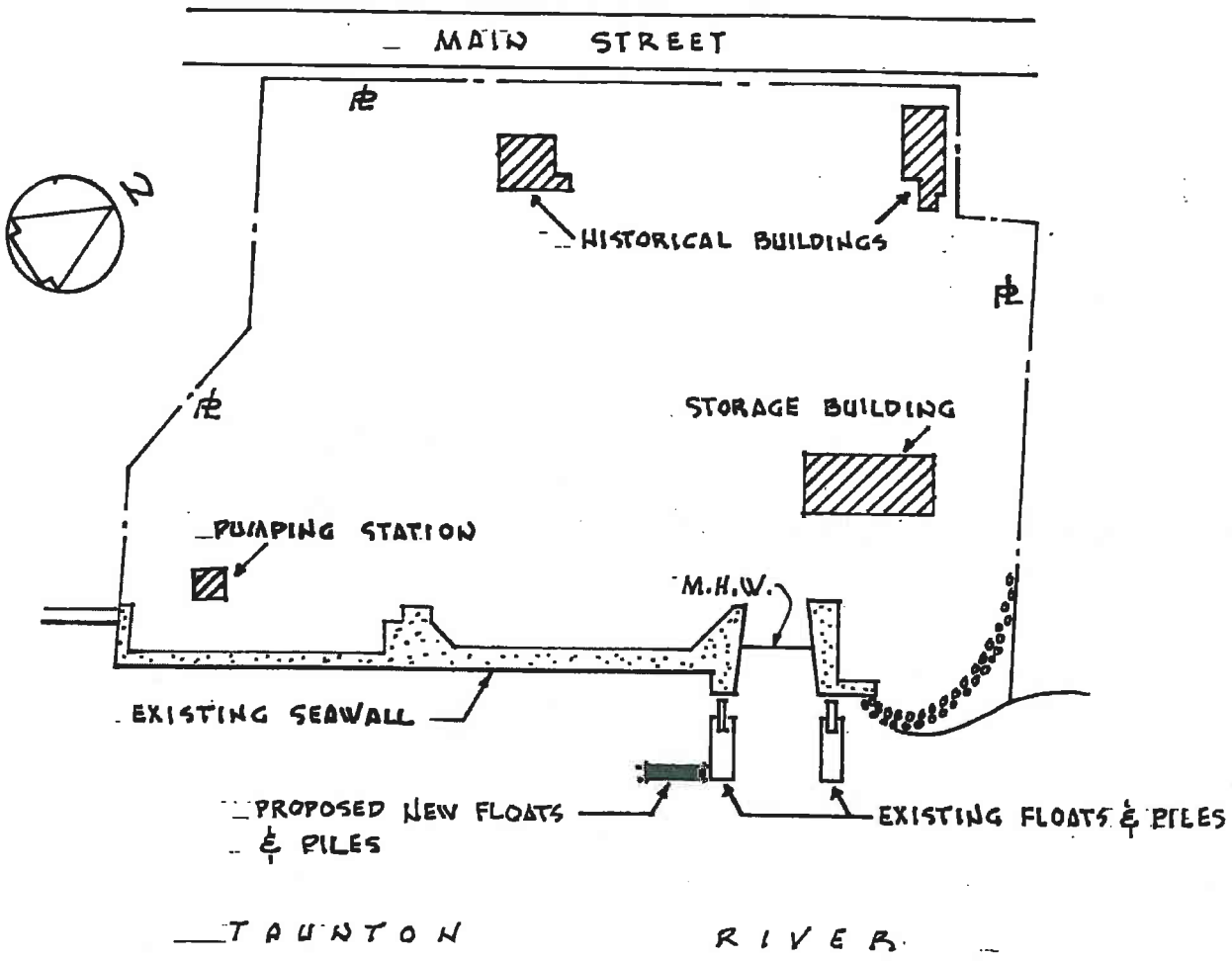
PLANS ACCOMPANYING PETITION OF
TOWN OF SOMERSET
BOARD OF SELECTMEN
TO PROVIDE ADDITIONAL FLOATS & PILINGS AT VILLAGE WATERFRONT PARK, IN THE TAUNTON RIVER, TOWN OF SOMERSET, COUNTY OF BRISTOL, MASS.



Brant S. Haworth

070-0D2-000-109-100
070-0D2-000-109-200

SITE PLAN



LICENSE PLAN NO. 2589

Approved by Department of Environmental Protection

Date: MAR 29 1991

COMMONWEALTH OF MASSACHUSETTS
BRANT SEALS HAWORTH
No. 23800
REGISTERED PROFESSIONAL ENGINEER

Brant S. Haworth

PLANS ACCOMPANYING PETITION OF
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TO PROVIDE ADDITIONAL FLOATS & PILINGS AT VILLAGE WATERFRONT PARK, IN THE TAUNTON RIVER, TOWN OF SOMERSET, COUNTY OF BRISTOL, MASS.

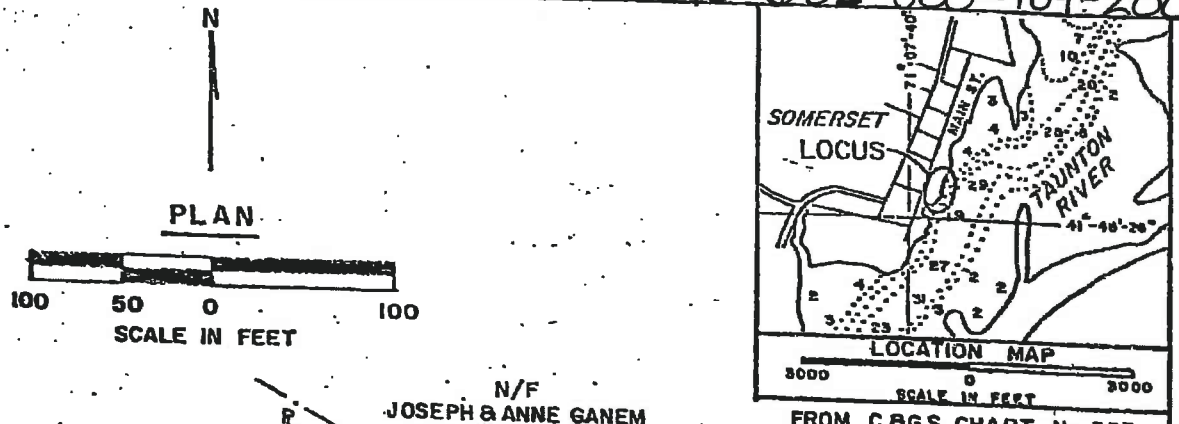
SHEET 3 OF 3

TOWN: SOMERSET
SOURCE: US ACOE
LOCATION: CONCORD, MA
DATE OF RESEARCH: AUGUST 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
070-0D2-000-109-100	070-0D2-000-109-100-COE1A	84-240	USACE	Somerset	September 1984	Waterfront Improvements In Taunton River at Town of Somerset, County of Bristol, Commonwealth of Massachusetts	3	Main Street	Seawall and Boat Ramp
070-0D2-000-109-200	070-0D2-000-109-200-COE2A	84-240	USACE	Somerset	September 1984	Waterfront Improvements In Taunton River at Town of Somerset, County of Bristol, Commonwealth of Massachusetts	3	Main Street	Seawall and Boat Ramp

070-0D2-000-109-100
070-0D2-000-109-200

9 3 7 1 3 5 8



FROM C.&G.S. CHART No. 353

SOUNDINGS AND ELEVATIONS ARE IN FEET AND REFER TO MEAN LOW WATER.

N

PLAN

100 50 0 100

SCALE IN FEET

N/F
JOSEPH & ANNE GANEM
336 MAIN STREET
SOMERSET, MA.

M.H.W.

M.L.W.

PROPOSED WALKWAY

E.L.W.

EXISTING RIP-RAP TO BE SURFACE DRESSED.

TOWN OF SOMERSET
140 WOOD STREET
SOMERSET, MA.

M.H.W.

PROPOSED DOCK/FLOAT SYSTEM

REBUILD COLAPSED WALL & REMOVE RIP-RAP

PROPOSED WALKWAY

TAUNTON RIVER

EXISTING SEAWALL

N/F
JOHN & SHEILA R. ASHCROFT
200 MAIN STREET
SOMERSET, MA.

EBB

FLOOD

COMMONWEALTH OF MASSACHUSETTS
ANTHONY A. CAPUTO
No. 29640
REGISTERED LAND SURVEYOR

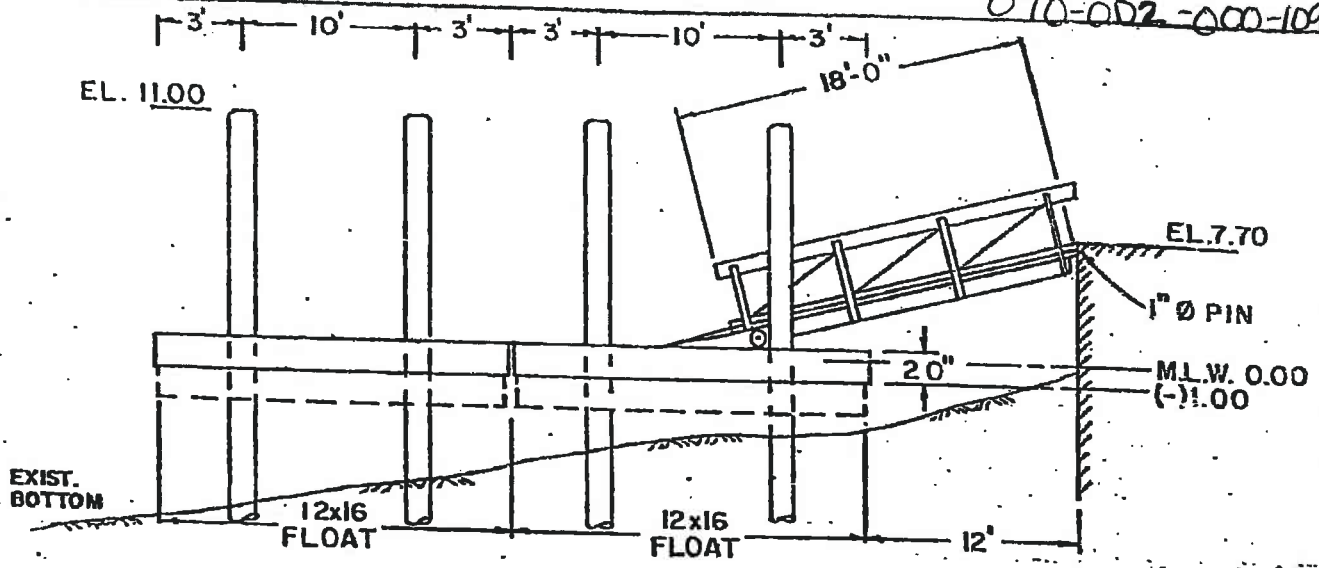
Anthony A. Caputo

SHEET 1 OF 3

WATERFRONT IMPROVEMENTS
IN TAUNTON RIVER
AT TOWN OF SOMERSET
COUNTY OF BRISTOL
COMMONWEALTH OF
MASSACHUSETTS

APPLICATION BY:
TOWN OF SOMERSET
BOARD OF SELECTMEN
JUNE 1984

070-002-000-109-100
070-002-000-109-200



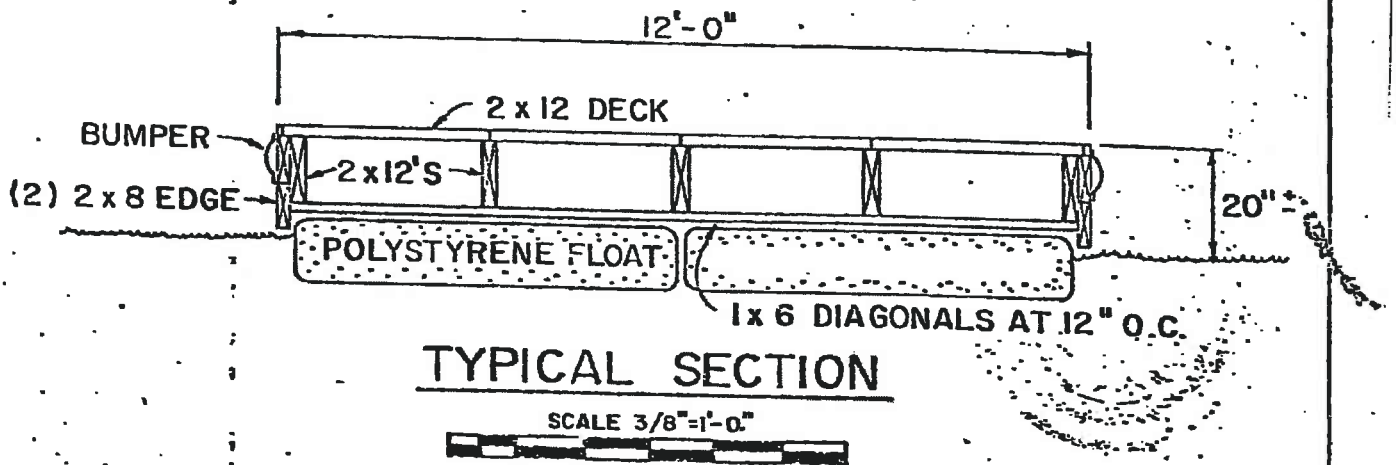
ELEVATION OF FLOAT & RAMP

12" BELOW M.L.W.

SCALE 1/8"=1'-0"

1 0 1 2 3 4 5 6 7 8

SCALE IN FEET



TYPICAL SECTION

SCALE 3/8"=1'-0"

1 0 1 2 3 4 5

SCALE IN FEET

9371359

SHEET 2 OF 3

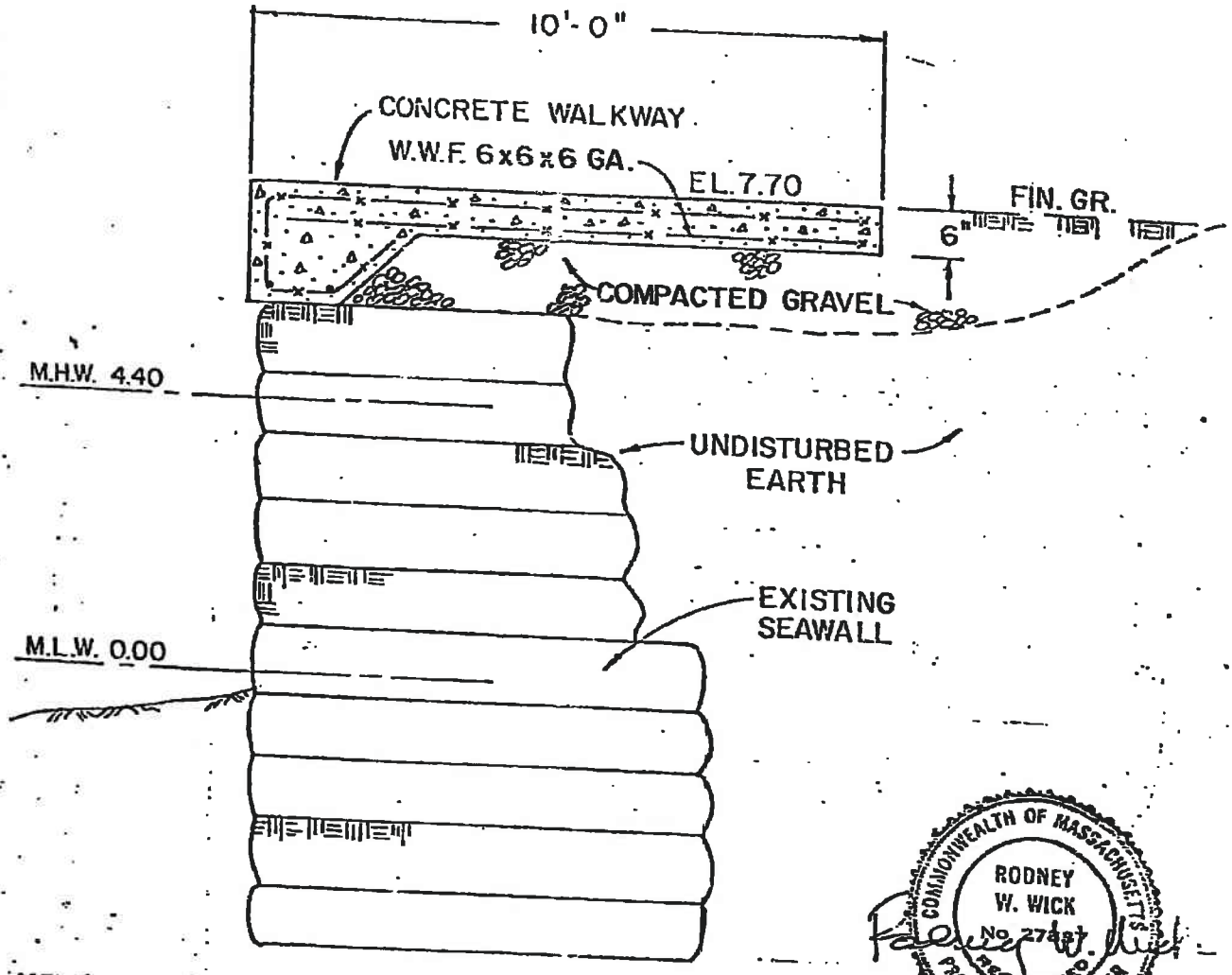
COMMONWEALTH OF MASSACHUSETTS
RODNEY W. WICK
No. 27802
REGISTERED PROFESSIONAL ENGINEER

WATERFRONT IMPROVEMENTS
IN TAUNTON RIVER
AT TOWN OF SOMERSET
COUNTY OF BRISTOL
COMMONWEALTH OF
MASSACHUSETTS

APPLICATION BY:
TOWN OF SOMERSET
BOARD OF SELECTMEN
JUNE 1984

070-002-000-109-100
070-002-000-109-200

937-1360



COMMONWEALTH OF MASSACHUSETTS
RODNEY W. WICK
No. 27457
REGISTERED PROFESSIONAL ENGINEER

SECTION A-A

SCALE 3/8" 1'-0"

1 0 1 2 3 4 5
SCALE IN FEET

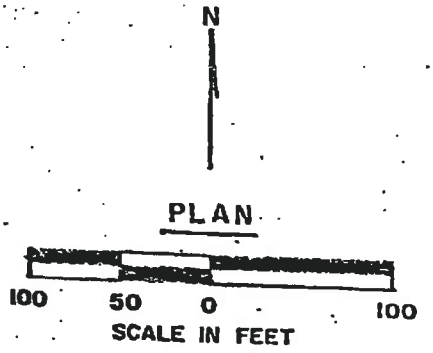
SHEET 3 OF 3

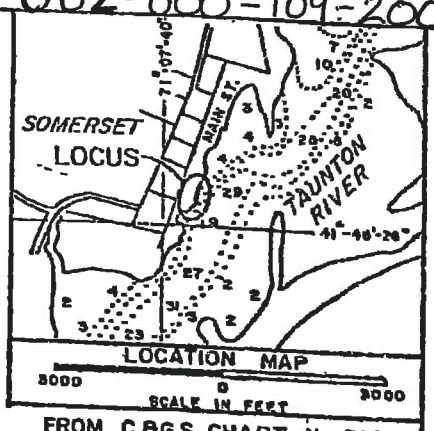
WATERFRONT IMPROVEMENTS
IN TAUNTON RIVER
AT TOWN OF SOMERSET
COUNTY OF BRISTOL
COMMONWEALTH OF
MASSACHUSETTS

APPLICATION BY:
TOWN OF SOMERSET
BOARD OF SELECTMEN
JUNE 1984

070-0D2-000-109-100
070-0D2-000-109-200

9371358





FROM C.&G.S. CHART No. 353

SOUNDINGS AND ELEVATIONS ARE IN FEET AND REFER TO MEAN LOW WATER.

N/F
JOSEPH & ANNE GANEM
336 MAIN STREET
SOMERSET, MA.

M.H.W.
M.L.W.
E.L.W.
PROPOSED WALKWAY
EXISTING RIP-RAP TO BE SURFACE DRESSED.
PROPOSED DOCK/FLOAT SYSTEM
REBUILD COLAPSED WALL & REMOVE RIP-RAP
PROPOSED WALKWAY
EXISTING SEAWALL
TOWN OF SOMERSET
140 WOOD STREET
SOMERSET, MA.
TAUNTON RIVER
N/F
JOHN & SHEILA R. ASHCROFT
200 MAIN STREET
SOMERSET, MA.
EBB
FLOOD

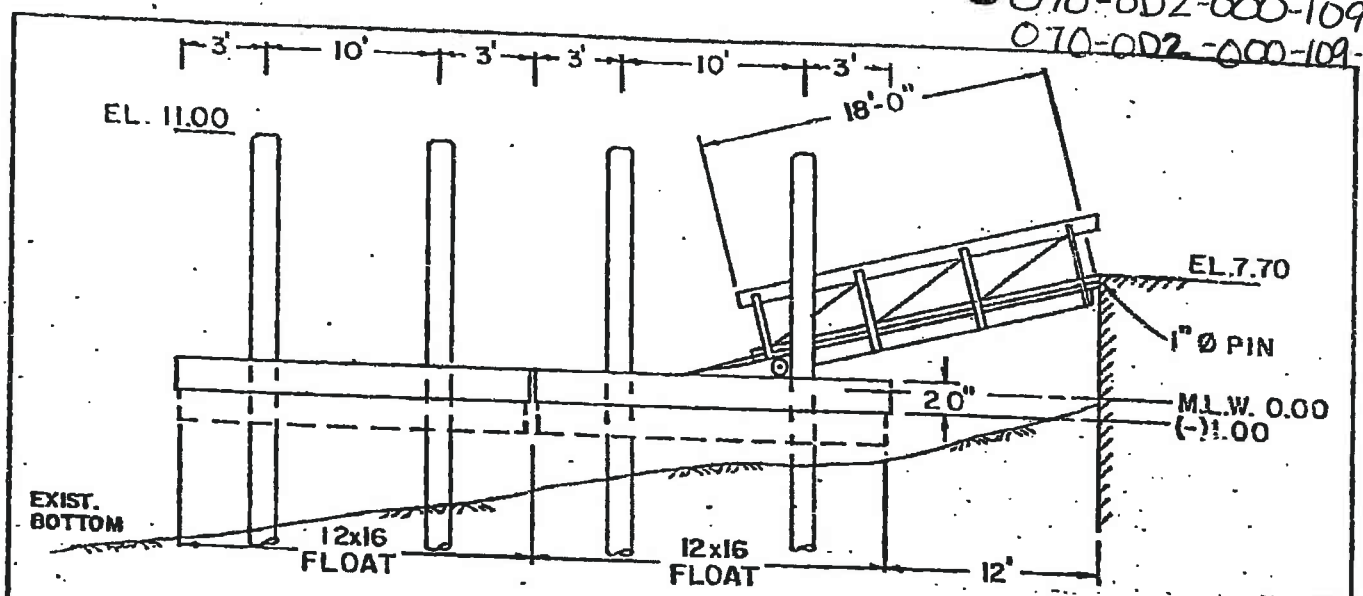
COMMONWEALTH OF MASSACHUSETTS
ANTHONY A. CAPUTO
No. 29640
REGISTERED
LAND SURVEYOR

Anthony A. Caputo

SHEET 1 OF 3

WATERFRONT IMPROVEMENTS
IN TAUNTON RIVER
AT TOWN OF SOMERSET
COUNTY OF BRISTOL
COMMONWEALTH OF
MASSACHUSETTS
APPLICATION BY:
TOWN OF SOMERSET
BOARD OF SELECTMEN
JUNE 1984

070-002-000-109-100
070-002-000-109-200



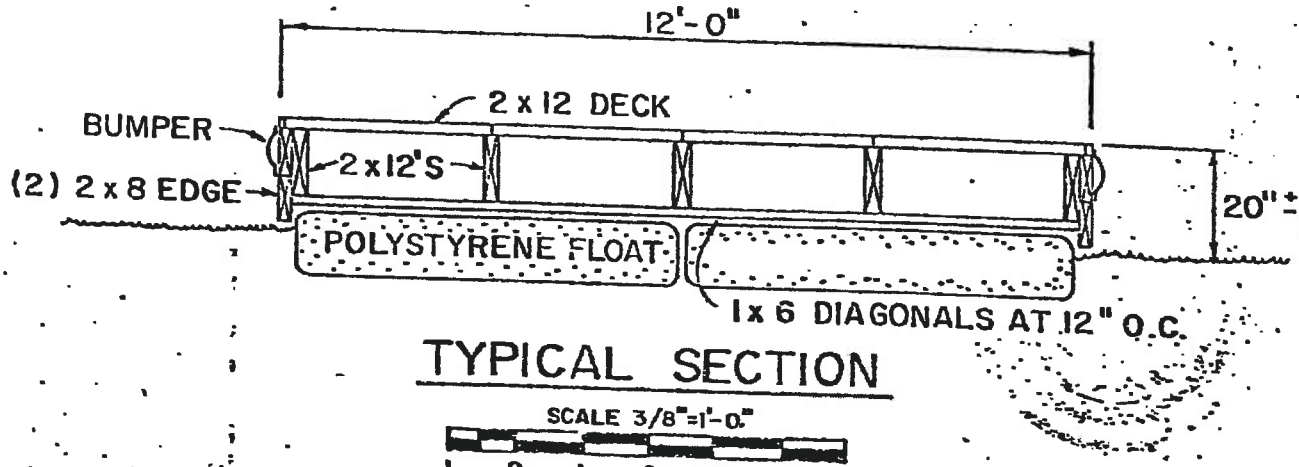
ELEVATION OF FLOAT & RAMP

12" BELOW M.L.W.

SCALE 1/8"=1'-0"

1 0 1 2 3 4 5 6 7 8

SCALE IN FEET



TYPICAL SECTION

SCALE 3/8"=1'-0"

1 0 1 2 3 4 5

SCALE IN FEET

SHEET 2 OF 3

COMMONWEALTH OF MASSACHUSETTS
RODNEY W. WICK
No. 27882
REGISTERED PROFESSIONAL ENGINEER

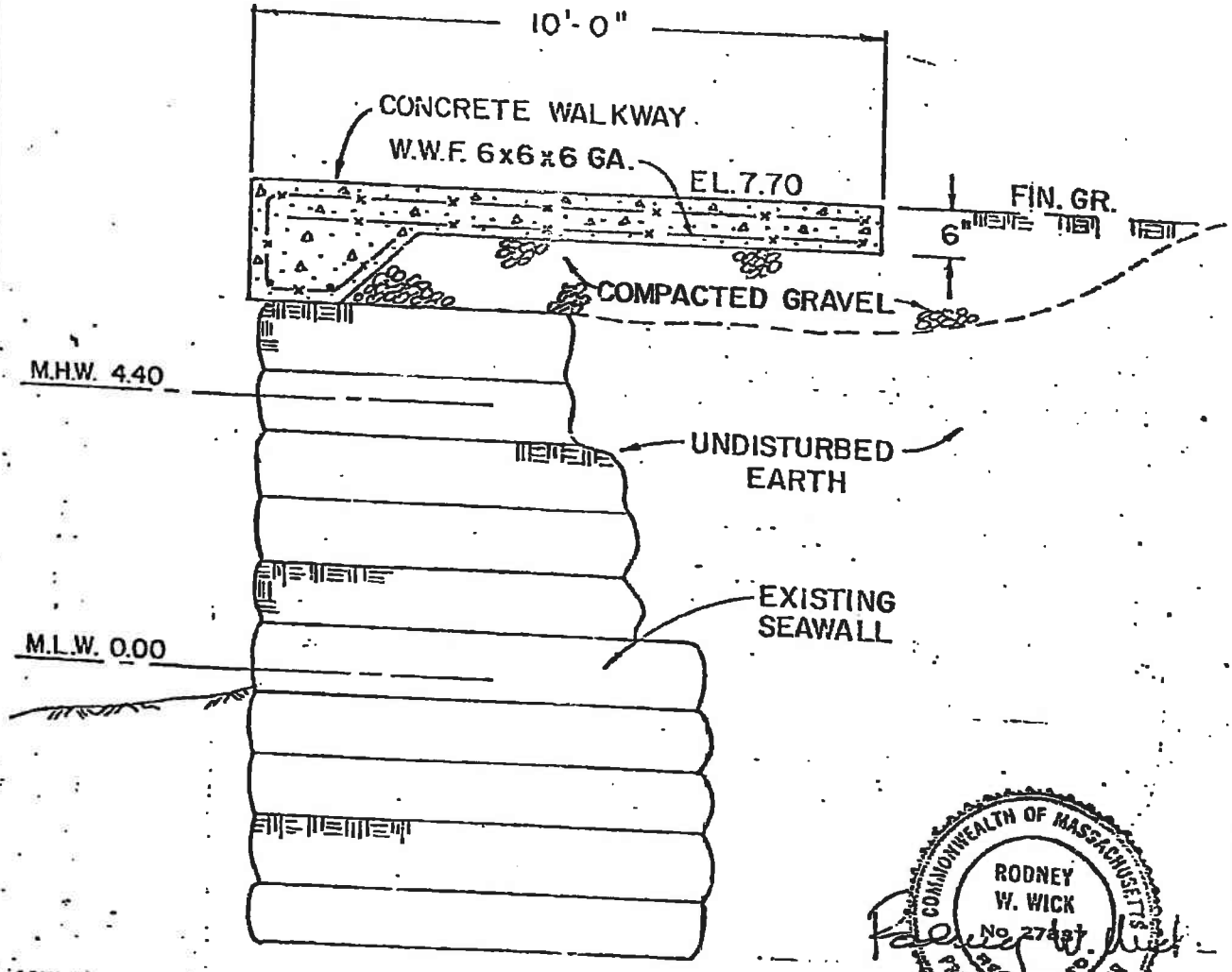
WATERFRONT IMPROVEMENTS
IN TAUNTON RIVER
AT TOWN OF SOMERSET
COUNTY OF BRISTOL
COMMONWEALTH OF
MASSACHUSETTS

APPLICATION BY:
TOWN OF SOMERSET
BOARD OF SELECTMEN
JUNE 1984

937 1359

070-002-000-109-100
070-002-000-109-200

937 1360



COMMONWEALTH OF MASSACHUSETTS
RODNEY W. WICK
No. 27487
REGISTERED PROFESSIONAL ENGINEER

SECTION A-A

SCALE 3/8" 1'-0"

1 0 1 2 3 4 5

SCALE IN FEET

SHEET 3 OF 3

WATERFRONT IMPROVEMENTS
IN TAUNTON RIVER
AT TOWN OF SOMERSET
COUNTY OF BRISTOL
COMMONWEALTH OF
MASSACHUSETTS

APPLICATION BY:
TOWN OF SOMERSET
BOARD OF SELECTMEN
JUNE 1984

Section IV

Westport

Section IV – Community Findings – Town of Westport

COMMUNITY DESCRIPTION

The Town of Westport consists of a land area of 50.06 square miles out of a total area of 64.4 square miles and had a population of 14183 in the 2000 census. The Town is located south coast of Massachusetts and its location can be seen on this report's cover. The estimated length of shoreline is 8.2 miles that are directly exposed to open ocean. 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 even.

STRUCTURE INVENTORY

Within the Town of Westport, there were 14 structures which had public or unknown ownership which provide significant coastal protection. The location of the structures can be seen in Sheets 1 through Sheet 7 in Section IV-B 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 Westport

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Length
Bulkhead / Seawall	3		1	2			617
Revetment	6		5	1			5325
Breakwater	1				1		65
Groin / Jetty	2		2				380
Coastal Dune							
Coastal Beach	2			2			17375
	14		8	5	1		23762

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 Westport's case there are a total of 14 structures which would require approximately $ 12.4 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 $ 86,300 would be required to upgrade the Town's coastal protection.

STRUCTURE REPAIR / RECONSTRUCTION COST - Town of Westport

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Cost
Bulkhead / Seawall	3		$ 80,817	$ 256,113			$ 336,930
Revetment	6		$ 882,519	$ 66,528			$ 949,047
Breakwater	1				$ 86,315		$ 86,315
Groin / Jetty	2		$ 55,560				$ 55,560
Coastal Dune							$ -
Coastal Beach	2			$ 11,008,800			$ 11,008,800
	14	$-	$ 1,018,896	$ 11,331,441	$ 86,315	$ -	$ 12,436,652

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 Westport, the breakdown of structures by assumed ownership is as follows:

STRUCTURE OWNERSHIP / REPAIR COST - Town of Westport

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Cost
Town Owned	8		$ 363,813	$ 1,127,313	$ 86,315		$ 1,577,441
Commonwealth of Massachusetts	6		$ 655,083	$ 10,204,128			$ 10,859,211
Federal Government Owned							$ -
Unknown Ownership							$ -
	14	$-	$ 1,018,896	$ 11,331,441	$ 86,315	$ -	$ 12,436,652

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 IV-B which contains Structure Assessment Reports for each individual structure found.

SUMMARY

The enclosed reports and associated documents reflects the Town of Westport'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 IV - Westport

Part B

Structure Assessment Reports

COASTAL STRUCTURE LOCATION PLAN

TOWN OF WESTPORT
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

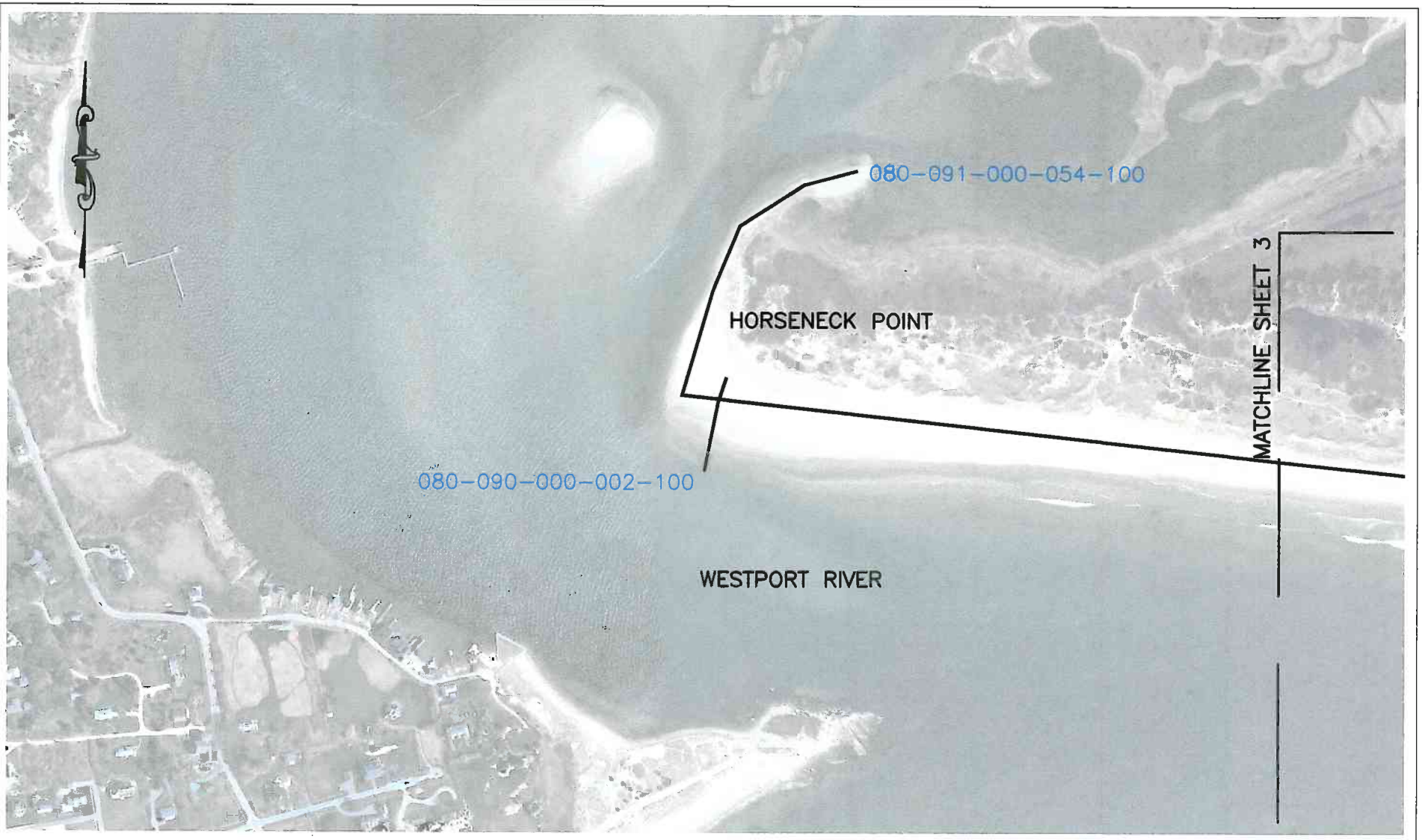
0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
9 Bond Street
Franklin, MA 02038
TEL. (508) 533-4069 FAX. (508) 533-4069

SHEET 1

File: X:\27652-\27667\South Coast\Westport\dwg\Westport.dwg



COASTAL STRUCTURE LOCATION PLAN

TOWN OF WESTPORT
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

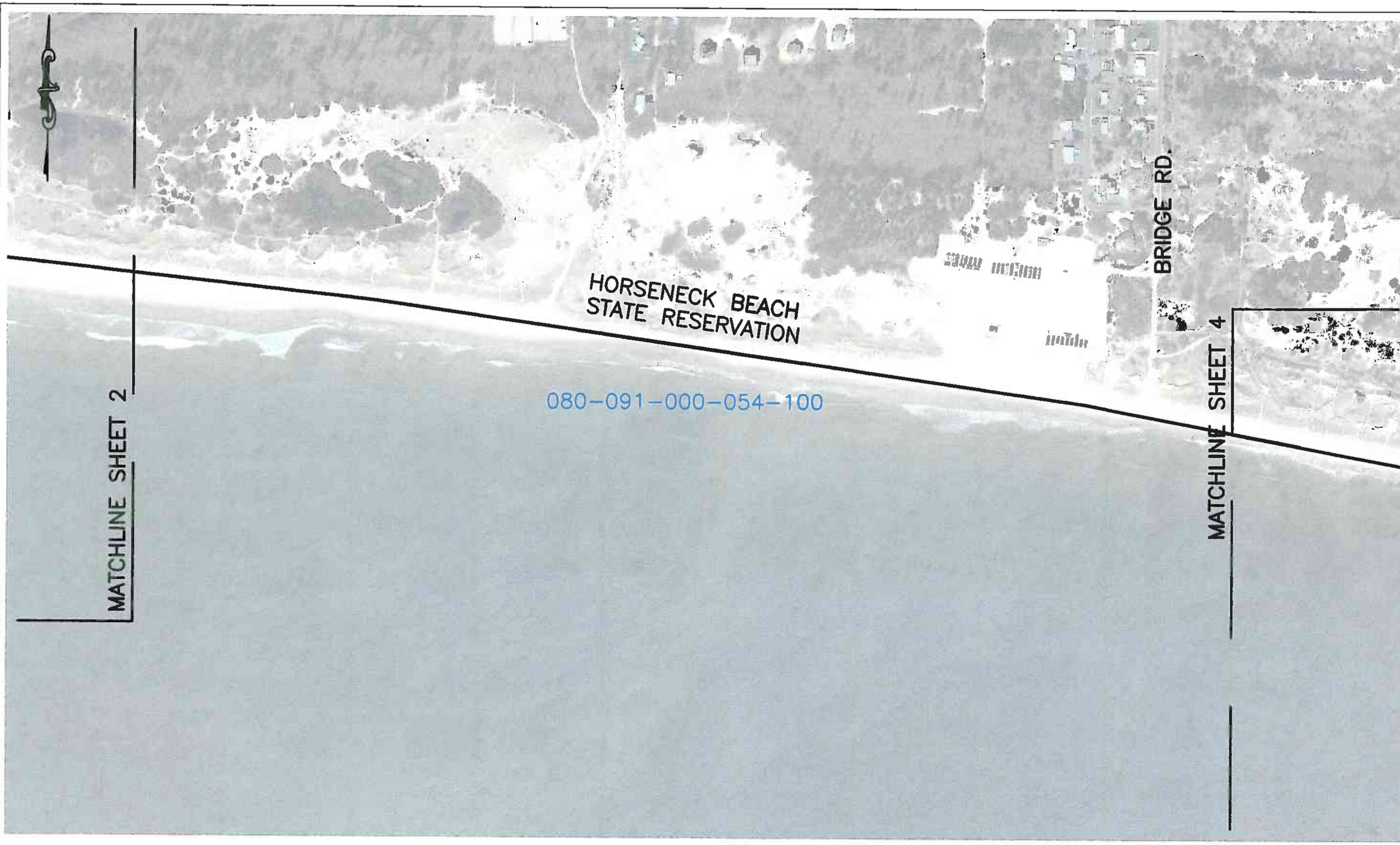
0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
3 Bank Street
Franklin, MA 02038
TEL. (508) 533-4068 FAX. (508) 533-4069

SHEET 2

File: X:\27652-\27667\South Coast\Westport\dwg\Westport.dwg



COASTAL STRUCTURE LOCATION PLAN

TOWN OF WESTPORT
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150
SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering

SHEET 3

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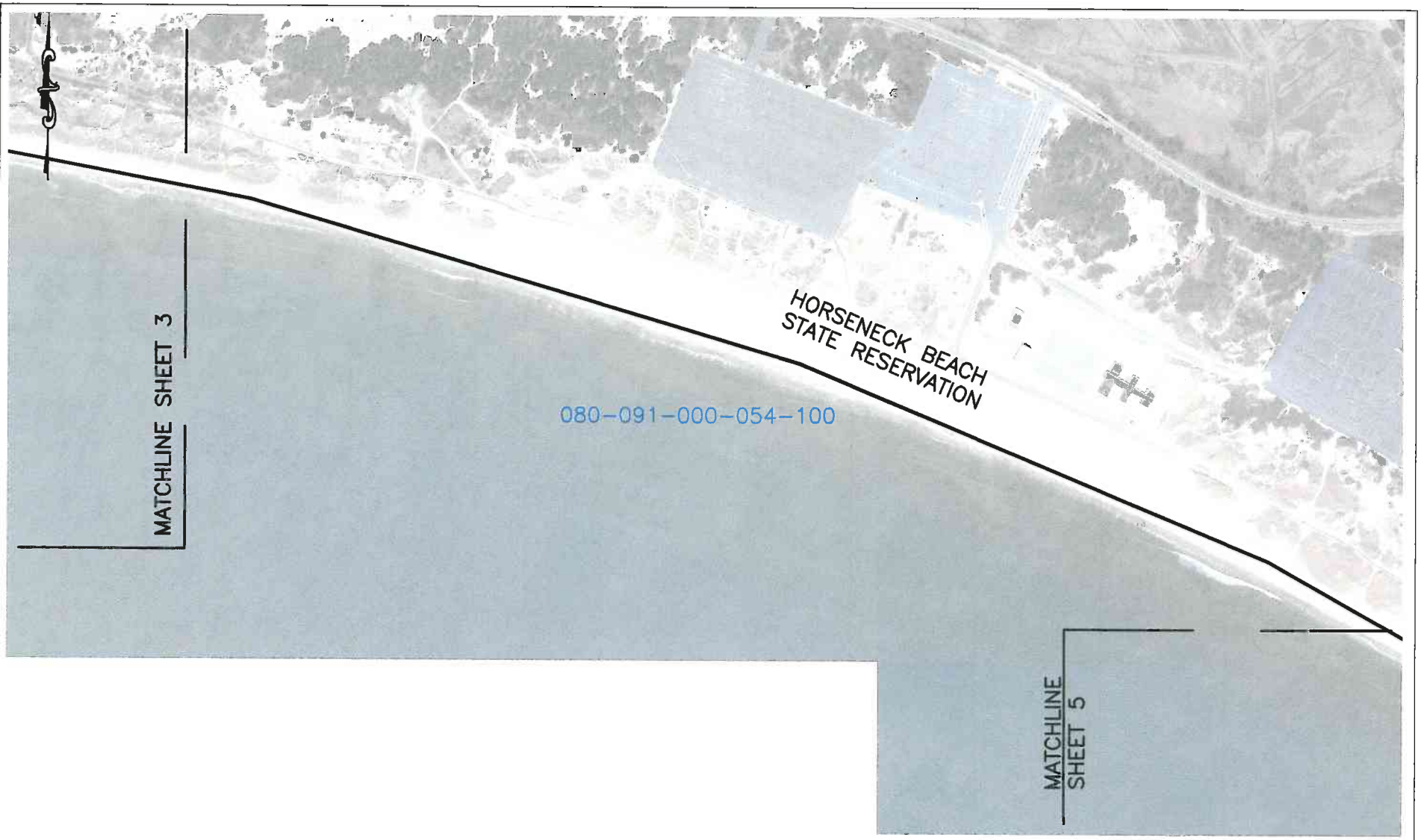

COASTAL STRUCTURE LOCATION PLAN

TOWN OF WESTPORT
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
3 Beal Street
Franklin, MA 02038
TEL. (508) 533-8600 FAX. (508) 533-8660

SHEET 4

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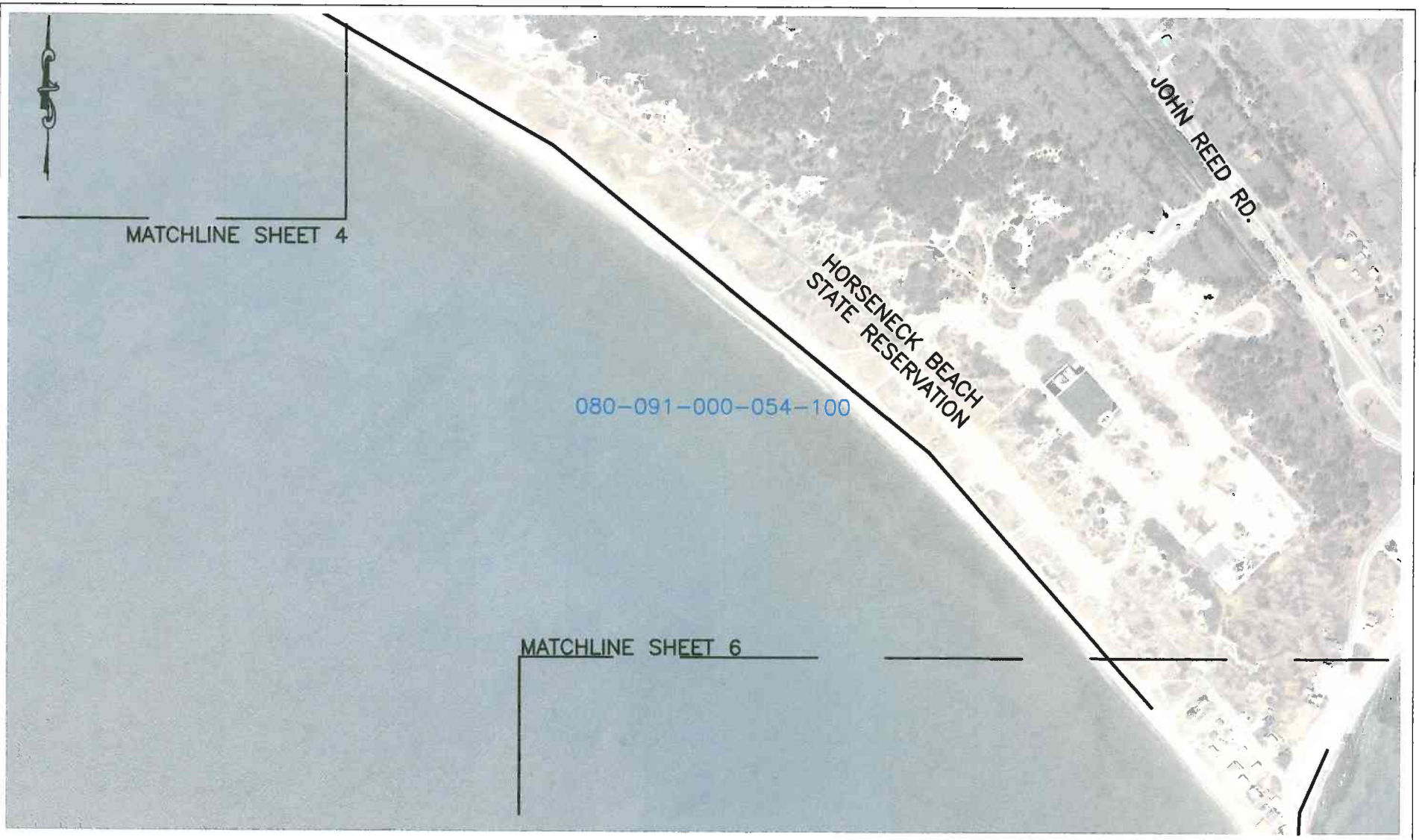


COASTAL STRUCTURE LOCATION PLAN

TOWN OF WESTPORT
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

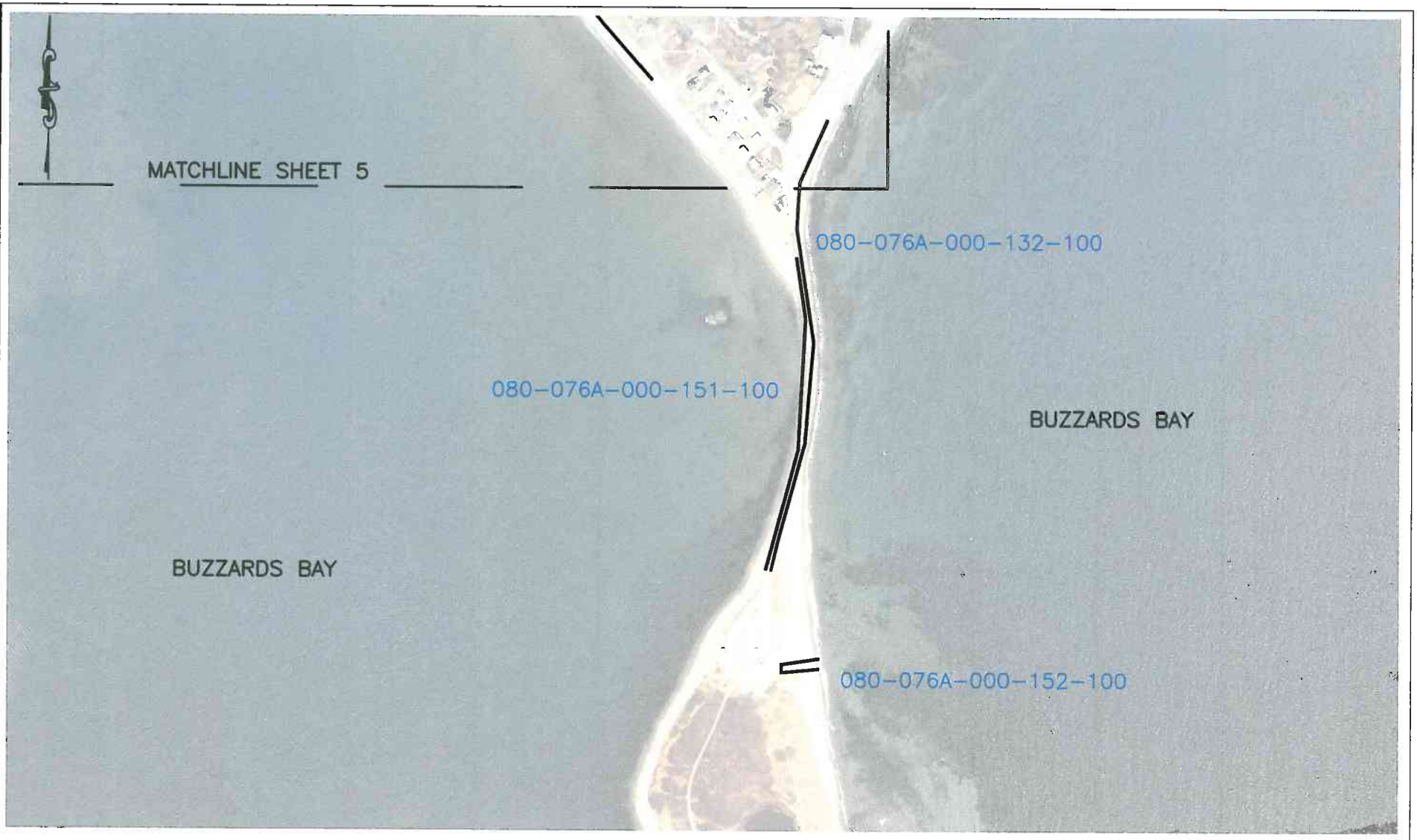
0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
2 Bank Street
Franklin, MA 02038
TEL. (508) 533-4069 FAX. (508) 533-4089

SHEET 5

File: X:\27652-\27667\South Coast\Westport\dwg\Westport.dwg



COASTAL STRUCTURE LOCATION PLAN

TOWN OF WESTPORT
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering

SHEET 6

File: X:\27652-\27667\South Coast\Westport\dwg\Westport.dwg

COASTAL STRUCTURE LOCATION PLAN

TOWN OF WESTPORT
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
3 Bond Street
Franklin, MA 02038
TEL. (508) 533-8600 FAX. (508) 533-8660

SHEET 7

File: X:\27652-\27667\South Coast\Westport\dwg\Westport.dwg

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Westport

Structure ID: 080-058-000-061-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
State	Route 88 Bridge	6/28/2007

Presumed Structure Owner:	Based On Comment:
State	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
	Unkown	$370,260.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
1500 Feet	Feet NAVD 88	A11	14 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The placed riprap is on a 1 to 1 slope. The stones are approximately 4 feet by 2 feet by 2 feet in size. The riprap protects the bridge abutment and road leading to the bridge. The stones are well placed and interlocked. There is no sign of scour or movement.

Condition Rating	B Good	*Priority Rating*	IV High Priority
Level of Action	Minor	*Action*	Consider for Next Project Construction Listing
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*	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:

080-058-000-061-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Westport

Structure ID: 080-058-000-061-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
State	Route 88 Bridge	6/28/2007

Presumed Structure Owner:	Based On Comment:
State	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
MHD	Unkown	$160,446.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
650 Feet	Feet NAVD 88	A11	14 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The placed riprap with stones of approximately 4 feet by 2 feet by 2 feet size is on a 1 to 1 slope. The riprap protects the bridge abutment and road leading to the bridge. The stones are well placed and interlocked with no sign of scour or movement.

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:

080-058-000-061-200-PHO2A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Westport

Structure ID: 080-076A-000-082-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Westport Point	6/28/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Westport	Unkown	$871,200.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
1375 Feet	Feet NAVD 88	V14	19 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Coastal Beach	Sand	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Coastal beach with cobble stones that are at a 1 on 5 slope. There is a road located behind the beach and a sandy beach located in front. The slope is not uniform and there are areas of low spots.

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:

080-076A-000-082-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Westport

Structure ID: 080-076A-000-132-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Gooseberry Neck	6/28/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Westport	1999	$192,192.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
1600 Feet	Feet NAVD 88	V14	19 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The placed riprap is at a 1 on 2 slope. The stones are approximately 4 feet by 2 feet by 2 feet in size. The toe is buried. There is no scour. There is minor stone movement and section loss. Behind the structure is the only road out to the point. High tide line is midway up the riprap.

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:

080-076A-000-132-100-PHO1A.JPG

Structure Documents:

MA-DCR	August 1999	Proposed Causeway	080-076A-000-132-100-DCR1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Westport

Structure ID: 080-076A-000-151-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Gooseberry Neck	6/28/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Westport	1999	$132,132.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
1100 Feet	Feet NAVD 88	V14	19 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The placed riprap is at a 1 on 2 slope. The stones are approximately 4 feet by 2 feet by 2 feet in size. The toe is buried. There is no scour. There is minor stone movement and section loss. Behind the structure is the only road out to the point. High tide line is midway up the riprap.

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:

080-076A-000-151-100-PHO1A.JPG

Structure Documents:

MA-DCR	August 1999	Proposed Causeway	080-076A-000-151-100-DCR1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Westport

Structure ID: 080-076A-000-152-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
State	Gooseberry Neck	6/28/2007

Presumed Structure Owner:	Based On Comment:
State	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
MA-DCR	1981	$66,528.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
200 Feet	Feet NAVD 88	V14	16 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Revetment	Stone	Under 5 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The dumped riprap is adjacent to the boat ramp. Stones average 4 feet by 2 feet by 2 feet in size. The stones show signs of movement and section loss. The cast in place ramp is located between the riprap.

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:

080-076A-000-152-100-PHO1A.JPG

Structure Documents:

USACE	June 2, 1981	Gooseberry Neck	080-076A-000-152-100-COE1A
MA-DCR	9/1/1982	Boat Ramp -	080-076A-000-152-100-DCR1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Westport

Structure ID: 080-083-000-001-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Main Road	6/28/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Westport	1957	$221,958.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
177 Feet	Feet NAVD 88	A11	13 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The stone block seawall is mortared together. The stones have settled. There is some movement and section loss. Asphalt and concrete on top of the stones. The structure is a pier.

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:

080-083-000-001-100-PHO1A.JPG

Structure Documents:

MA-DCR	April 1957	Proposed Harbor	080-083-000-001-100-DCR1A
MA-DCR	June 2000	Proposed Harbor	080-083-000-001-100-DCR1B

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Westport

Structure ID: 080-083-000-002-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Main Road	6/28/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Westport	1957	$27,489.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
175 Feet	Feet NAVD 88	A11	13 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

There are dumped stones with asphalt on top of them with a timber pier built around them. The stones are approximately 100 to 200 pounds.

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:

080-083-000-002-100-PHO1A.JPG

Structure Documents:

MA-DCR	April 1957	Proposed Harbor	080-083-000-002-100-DCR1A
MA-DCR	June 2000	Proposed Harbor	080-083-000-002-100-DCR1B

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Westport

Structure ID: 080-083-000-002-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Main Road	6/28/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Westport	1957	$34,155.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
45 Feet	Feet NAVD 88		Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The stone block bulkhead has stones that are approximately 4 feet by 2 feet by 2 feet in size. There is an asphalt road above the stones connecting to the pier. There is no visible scour. There is some stone settling at the toe.

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:

080-083-000-002-200-PHO2A.JPG

080-083-000-002-200-PHO2B.JPG

Structure Documents:

MA-DCR	April 1957	Proposed Harbor	080-083-000-002-200-DCR2A
MA-DCR	June 2000	Proposed Harbor	080-083-000-002-200-DCR2B

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Westport

Structure ID: 080-090-000-002-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
State	Horseneck Point	6/28/2007

Presumed Structure Owner:	Based On Comment:
State	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
MA-DCR	Unkown	$43,560.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
330 Feet	Feet NAVD 88	V14	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Dumped riprap groin. Stones are approximately 4 feet by 2 feet by 2 feet. Not all stones are visible. The structure is 90 percent buried by sand.

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:

080-090-000-002-100-PHO1A.JPG

080-090-000-002-100-PHO1B.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Westport

Structure ID: 080-090-000-054-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
State	Horseneck Beach	4/23/2009

Presumed Structure Owner:	Based On Comment:
State	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
MA-DCR		$10,137,600.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
16000 Feet	Feet NAVD 88	V14	15 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Coastal Beach	Sand	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Sandy beach with highi dunes behind. Beach is a popular habitat for nesting protected birds. The are west end of the beach show signs of recent nurishment.

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:

080-090-000-054-100-PHO1A.JPG

080-090-000-054-100-PHO1B.JPG

080-090-000-054-100-PHO1C.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Westport

Structure ID: 080-091-000-061-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
State	Bridge Road	6/28/2007

Presumed Structure Owner:	Based On Comment:
State	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
MHD	1995	$80,817.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
395 Feet	Feet NAVD 88	A11	12 Feet NGVD

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

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

Structure Summary :

The cast in place seawall surrounds the town boat ramp. There is riprap coming off the seawall. The wall is 1 foot wide by 1 foot high inshore and by 5 feet high outshore. The riprap is placed at a 1 on 1 slope. The stones are approximately 4 feet by 2 feet by 2 feet. The toe is well burried. There is no sign of scour. There is a parking lot behind the structures, and a boat ramp and floats in the middle of them.

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:

080-091-000-061-100-PHO1A.JPG

Structure Documents:

DEP	November 1	Plan to Accompany	080-091-000-061-100-LIC1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Westport

Structure ID: 080-091-000-061-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Bridge Boad	6/28/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Westport	1995	$86,315.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
65 Feet	Feet NAVD 88	A11	14 Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Breakwater	Stone	Under 5 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The breakwater is in place to protect the boat ramp. The structure is 2 feet wide, constructed of cobbles and mortar. There is some section loss and scour at the base of the structure. There are also cracks in the mortar.

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

Structure Images:

080-091-000-061-200-PHO2A.JPG

Structure Documents:

DEP	Nov 1995	Plan to Accompany	080-091-000-061-200-LIC2A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Westport

Structure ID: 080-091-000-061-300

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Bridge Road

Date: 6/28/2007

Presumed Structure Owner: Local

Based On Comment:

Owner Name: Westport

Earliest Structure Record: 1995

Estimated Reconstruction/Repair Cost: $12,000.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
50 Feet	Feet NAVD 88	A11	14 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The dumped riprap groin has stones that are approximately 2 feet by 1 foot by 1 foot in size. There is no sign of movement or 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	II Low Priority
Action	Future Project Consideration
Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

080-091-000-061-300-PHO3A.JPG

Structure Documents:

DEP	Nov 1995	Plan to Accompany	080-091-000-061-300-LIC3A

Prepared By: Bourne Consulting Engineering

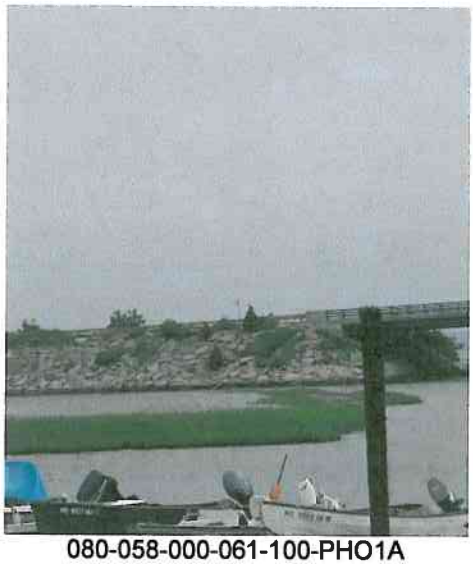
Section IV - Westport

Part C

Structure Photographs

TOWN: WESTPORT
SOURCE: BCE - FIELD PHOTOGRAPHS
LOCATION: Bourne Consulting Engineering
DATE OF RESEARCH: SEPTEMBER 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
080-058-000-061-100	080-058-000-061-100-PHO1A.jpg		Bourne Consulting Engineering	Westport	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-058-000-061-200	080-058-000-061-200-PHO2A.jpg		Bourne Consulting Engineering	Westport	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-076A-000-082-100	080-076A-000-082-100-PHO1A.jpg		Bourne Consulting Engineering	Westport	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-076A-000-132-100	080-076A-000-132-100-PHO1A.jpg		Bourne Consulting Engineering	Westport	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-076A-000-151-100	080-076A-000-151-100-PHO1B.jpg		Bourne Consulting Engineering	Westport	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-076A-000-152-100	080-076A-000-152-100-PHO1A.jpg		Bourne Consulting Engineering	Westport	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-083-000-001-100	080-083-000-001-100-PHO1A.jpg		Bourne Consulting Engineering	Westport	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-083-000-002-100	080-083-000-002-100-PHO1A.jpg		Bourne Consulting Engineering	Westport	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-083-000-002-200	080-083-000-002-200-PHO2A.jpg		Bourne Consulting Engineering	Westport	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-083-000-002-200	080-083-000-002-200-PHO2B.jpg		Bourne Consulting Engineering	Westport	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-090-000-002-100	080-090-000-002-100-PHO1A.jpg		Bourne Consulting Engineering	Westport	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-090-000-002-100	080-090-000-002-100-PHO1B.jpg		Bourne Consulting Engineering	Westport	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-090-002-054-100	080-090-002-054-100-PHO1A.jpg		Bourne Consulting Engineering	Westport	April 2009	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-090-002-054-100	080-090-002-054-100-PHO1B.jpg		Bourne Consulting Engineering	Westport	April 2009	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-090-002-054-100	080-090-002-054-100-PHO1C.jpg		Bourne Consulting Engineering	Westport	April 2009	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-091-000-061-100	080-091-000-061-100-PHO1A.jpg		Bourne Consulting Engineering	Westport	April 2009	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-091-000-061-200	080-091-000-061-200-PHO2A.jpg		Bourne Consulting Engineering	Westport	April 2009	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
080-091-000-061-300	080-091-000-061-100-PHO3A.jpg		Bourne Consulting Engineering	Westport	April 2009	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey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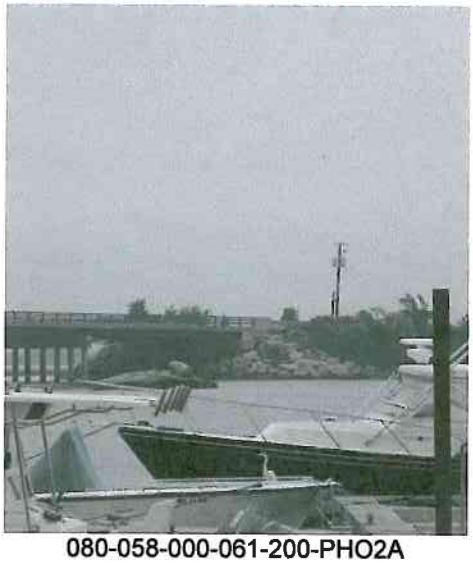
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080-076A-000-082-100-PHO1A


080-076A-000-132-100-PHO1A


080-076A-000-151-100-PHO1A


080-076A-000-152-100-PHO1A


080-083-000-001-100-PHO1A


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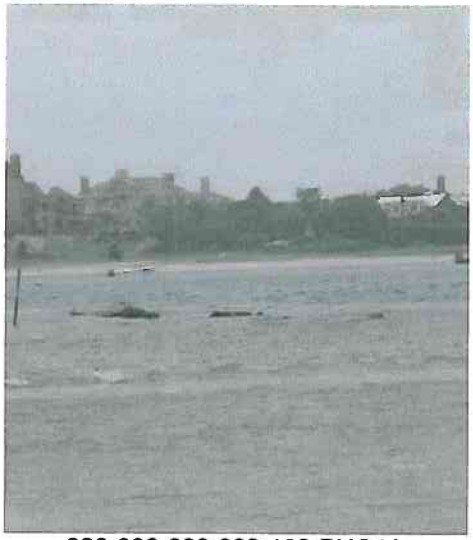
080-083-000-002-200-PHO2B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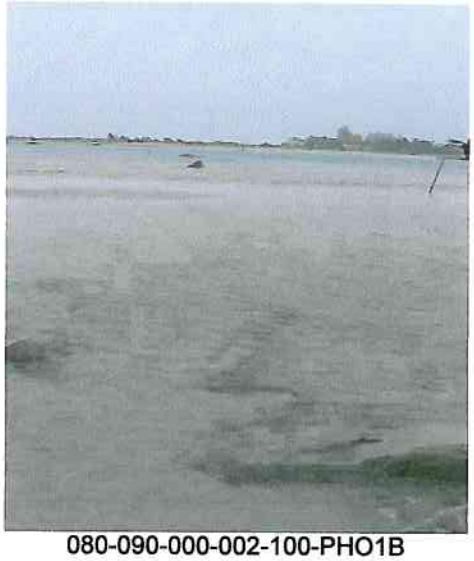
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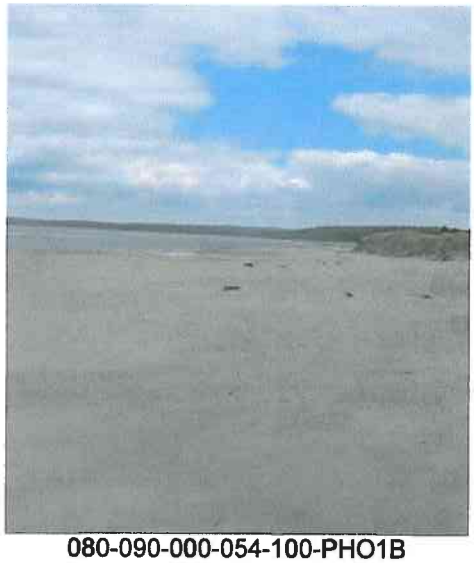
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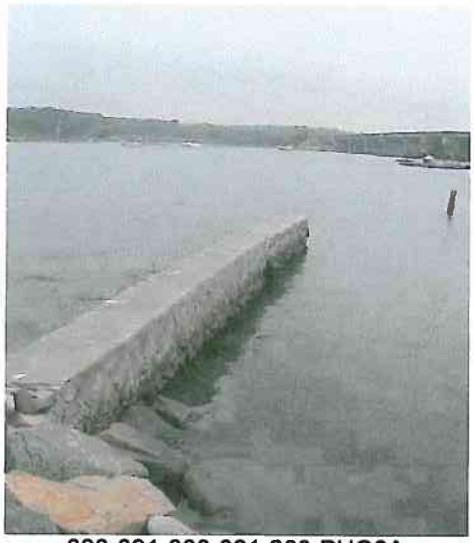
080-090-000-054-100-PHO1C


080-091-000-061-100-PHO1A


080-091-000-061-200-PHO2A


080-091-000-061-300-PHO3A

Section IV - Westport

Part D

Structure Documents

TOWN DOCUMENT LIST

MA DCR - DOCUMENT LIST

MA DEP – Ch 91 DOCUMENT LIST

- Copies of License Documents

USACE – PERMIT DOCUMENT LIST

- Copies of Permit Documents

TOWN: WESTPORT
SOURCE: Town of Westport
LOCATION: TOWN
DATE OF RESEARCH: JUNE 2007

No Town Documents for the Town of Westport

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description

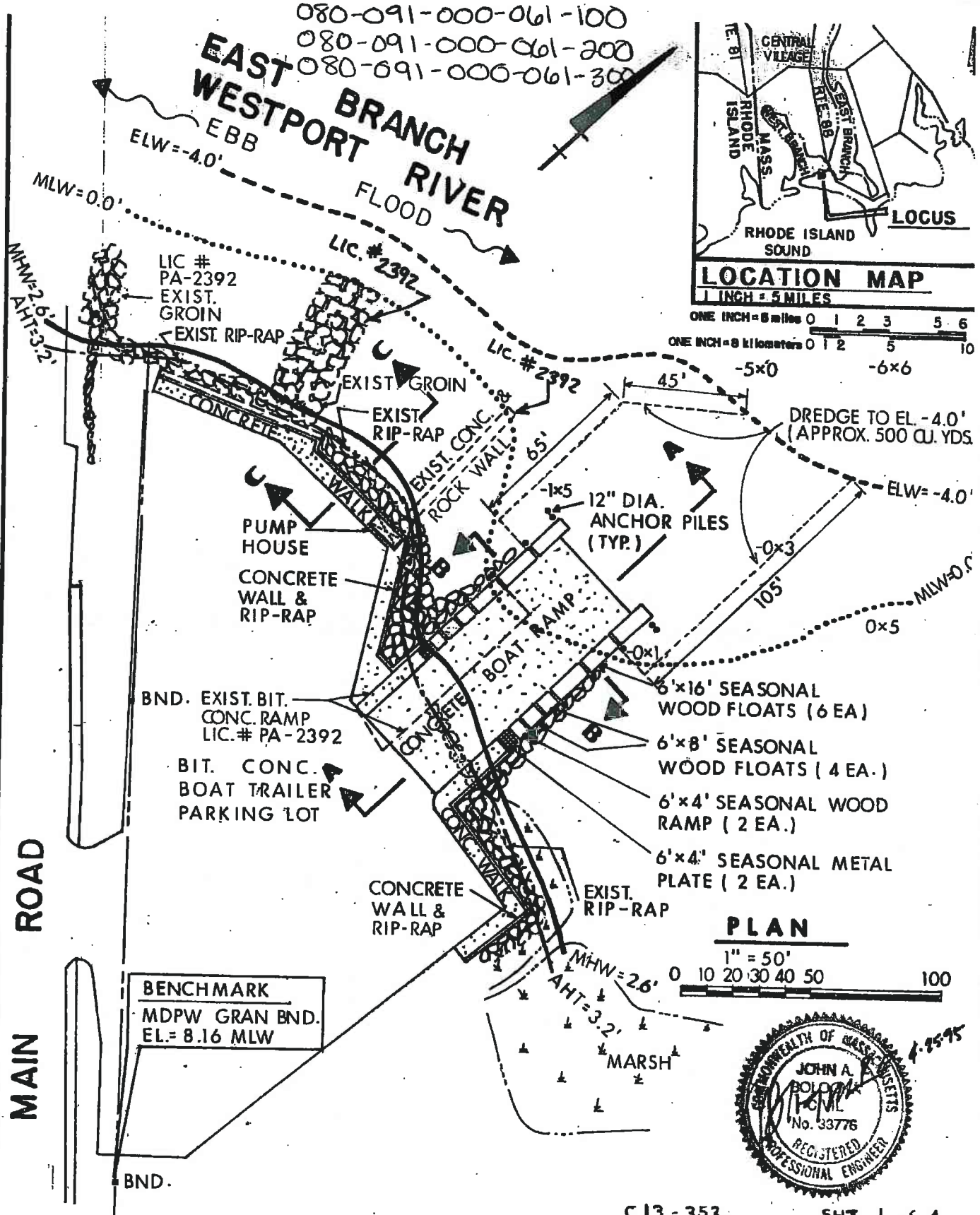
TOWN: WESTPORT
SOURCE: MA - DCR
LOCATION: MA - DCR BOSTON and HINGHAM, MA
DATE OF RESEARCH: JULY 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
080-076A-000-132-100	080-076A-000-132-100-DCR1A	3397	MA-DCR	Westport	August 1999	Proposed Causeway Rehabilitation - Gooseberry Neck - Horseneck Beach Reservation - Prepared for DPW of MA - Division of Waterways	10	Gooseberry Neck	Riprap
080-076A-000-151-100	080-076A-000-151-100-DCR1A	3397	MA-DCR	Westport	August 1999	Proposed Causeway Rehabilitation - Gooseberry Neck - Horseneck Beach State Reservation - Prepared for DPW of MA - Division of Waterways	10	Gooseberry Neck	Riprap
080-076A-000-152-100	080-076A-000-152-100-DCR1A	81W-112-912	MA-DCR	Westport	9/1/1982	Boat Ramp - Gooseberry Neck	3		
080-083-000-001-100	080-083-000-001-100-DCR1A	1755	MA-DCR	Westport	April 1957	Proposed Harbor Improvements - Jetty Reconstruction, Timber Walkway and Finger Piers	2	Main Road	Jetty Reconstruction
080-083-000-001-100	080-083-000-001-100-DCR1B	3421	MA-DCR	Westport	June 2000	Proposed Harbor Improvements - Rehabilitation of Town Wharfs - Westport Harbor	24	Main Road	Wharfs
080-083-000-002-100	080-083-000-002-100-DCR1A	1755	MA-DCR	Westport	April 1957	Proposed Harbor Improvements - Jetty Reconstruction, Timber Walkway and Finger Piers	2	Main Road	Jetty Reconstruction
080-083-000-002-100	080-083-000-002-100-DCR1B	3421	MA-DCR	Westport	June 2000	Proposed Harbor Improvements - Rehabilitation of Town Wharfs - Westport Harbor	24	Main Road	Wharfs
080-083-000-002-200	080-083-000-002-200-DCR2A	1755	MA-DCR	Westport	April 1957	Proposed Harbor Improvements - Jetty Reconstruction, Timber Walkway and Finger Piers	2	Main Road	Jetty Reconstruction
080-083-000-002-200	080-083-000-002-200-DCR2B	3421	MA-DCR	Westport	June 2000	Proposed Harbor Improvements - Rehabilitation of Town Wharfs - Westport Harbor	24	Main Road	Wharfs

TOWN: WESTPORT
SOURCE: DEP
LOCATION: BOSTON, MA
DATE OF RESEARCH: JULY 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
080-091-000-061-100	080-091-000-061-100-LIC1A	5037	DEP	Westport	November 1995	Plan to Accompany Petition of Commonwealth of Massachusetts Public Access Board to Construct and Maintain a Concrete Boat Ramp, Riprap, Piles and Float System at the East Branch of the Westport River in the Town of Westport, Bristol County, Massachusetts	4	Main Road	Construct and Maintain Concrete Boat Ramp, Riprap, Piles and Float System
080-091-000-061-200	080-091-000-061-200-LIC2A	5037	DEP	Westport	Nov 1995	Plan to Accompany Petition of Commonwealth of Massachusetts Public Access Board to Construct and Maintain a Concrete Boat Ramp, Riprap, Piles and Float System at the East Branch of the Westport River in the Town of Westport, Bristol County, Massachusetts	4	Main Road	Construct and Maintain Concrete Boat Ramp, Riprap, Piles and Float System
080-091-000-061-300	080-091-000-061-300-LIC3A	5037	DEP	Westport	Nov 1995	Plan to Accompany Petition of Commonwealth of Massachusetts Public Access Board to Construct and Maintain a Concrete Boat Ramp, Riprap, Piles and Float System at the East Branch of the Westport River in the Town of Westport, Bristol County, Massachusetts	4	Main Road	Construct and Maintain Concrete Boat Ramp, Riprap, Piles and Float System

080-091-000-061-100
080-091-000-061-200
080-091-000-061-300



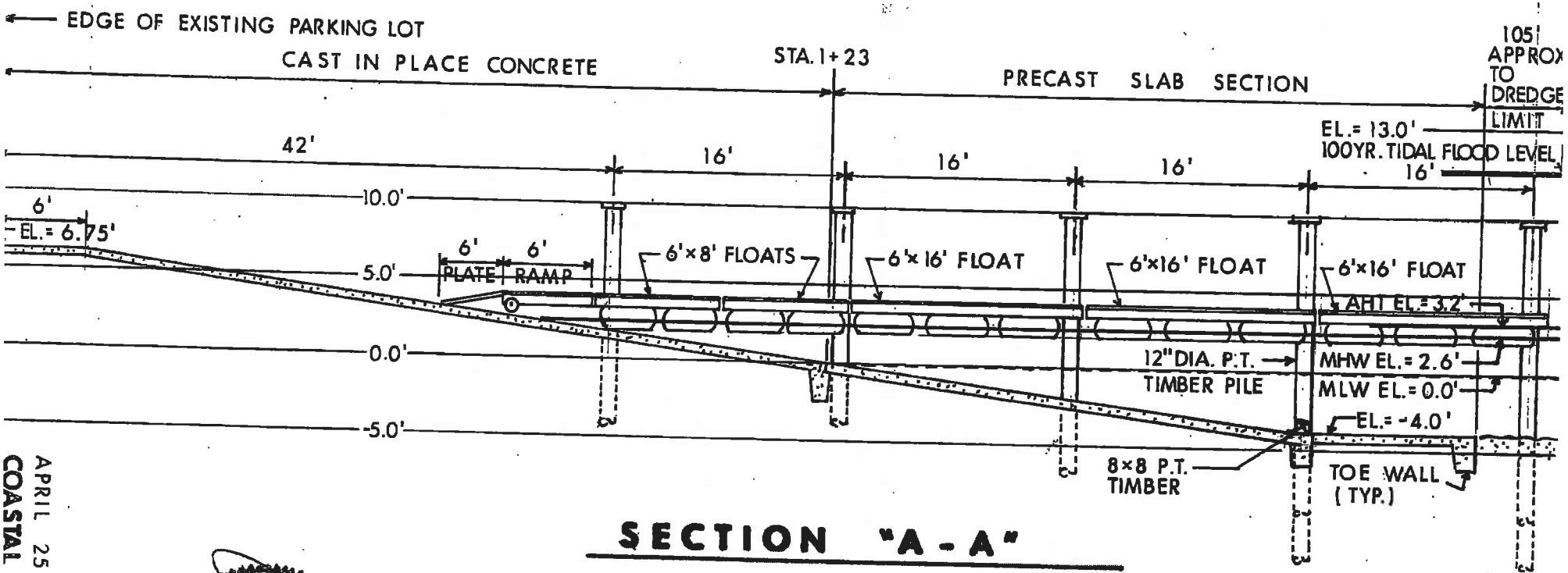
COMMONWEALTH OF MASSACHUSETTS
JOHN A. BOLOGNA
No. 33776
REGISTERED PROFESSIONAL ENGINEER
4-25-95

C 13 - 353 SHT. 1 of 4

PLAN TO ACCOMPANY PETITION OF **COMMONWEALTH OF MASSACHUSETTS PUBLIC ACCESS BOARD** TO CONSTRUCT AND MAINTAIN A CONCRETE BOAT RAMP, RIP-RAP, PILES AND FLOAT SYSTEM AT THE EAST BRANCH OF THE **WESTPORT RIVER** IN THE **TOWN OF WESTPORT, BRISTOL COUNTY, MASSACHUSETTS**
COASTAL ENGINEERING CO., INC.
ORLEANS, MASS. APRIL 25, 1995

LICENSE PLAN NO. 5037
Approved by Department of Environmental Protection of Massachusetts

DIVISION DIRECTOR
SECTION CHIEF
NOV 01 1995



SECTION "A - A"

0 5 10 20 30 FEET

0 1 2 3 INCHES

SCALE : 1" = 10' HORZ. & VERT.

COMMONWEALTH OF MASSACHUSETTS
JOHN A. [illegible]
No. 33776
REGISTERED PROFESSIONAL ENGINEER
4-25-95

APRIL 25, 1995

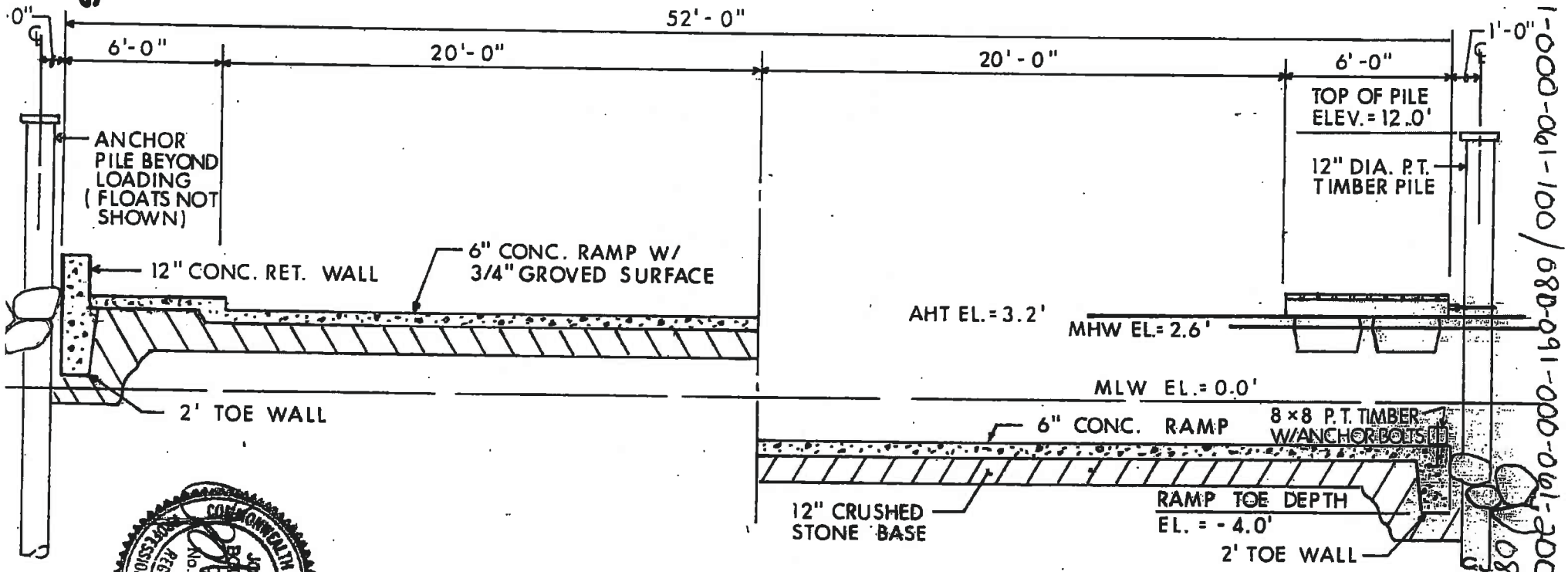
COASTAL ENGINEERING CO. INC.

SHT. 2 of 4

LICENSE PLAN NO. 5037
Approved by Department of Environmental Protection
Date: NOV 01 1995

080-091-000-061-100
080-091-000-061-200
080-091-000-061-300

APRIL 25, 1995
COASTAL ENGINEERING CO., INC.
ORLEANS, MASS



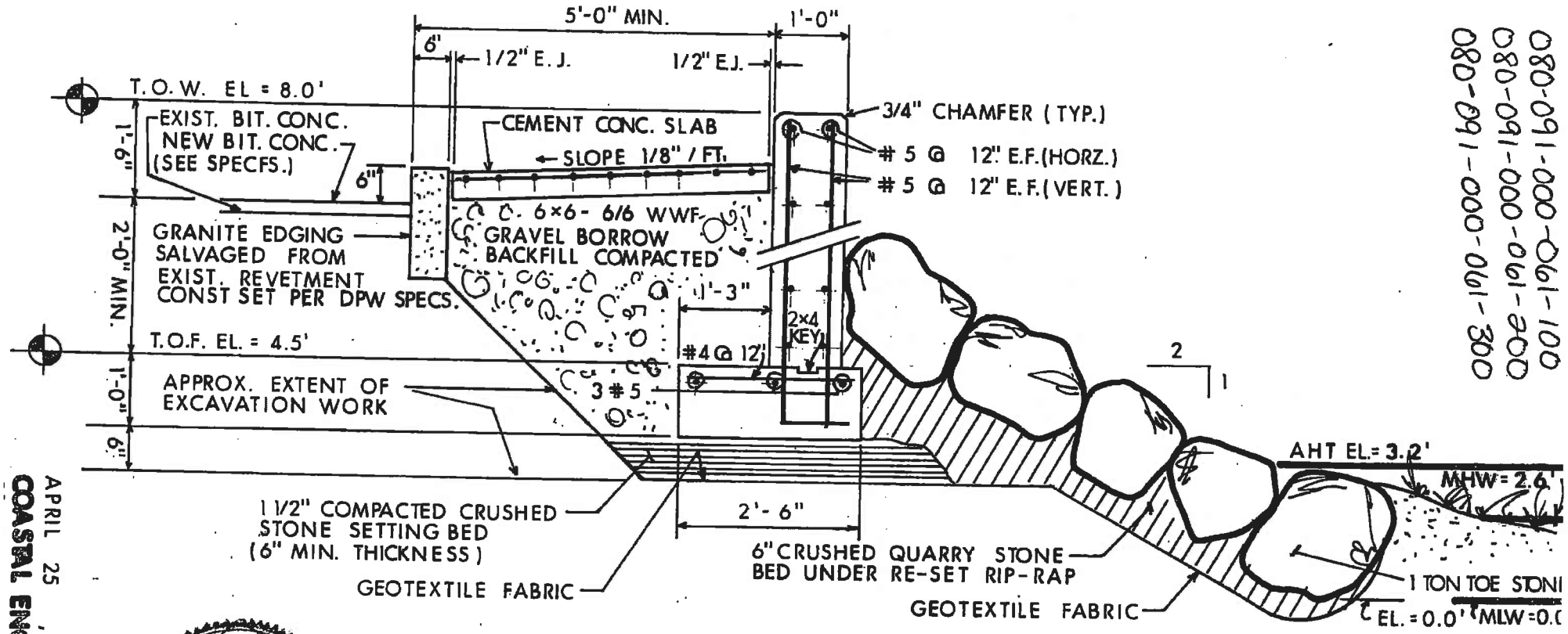
SECTION "B-B"

0 2 4 6 8 10 12 14 16 FEET
0 1 2 3 INCHES

COMMONWEALTH OF MASSACHUSETTS
JOHN A. BOLOGNA
No. 33776
REGISTERED PROFESSIONAL ENGINEER
4-25-95

LICENSE PLAN NO. 5037
Approved by Department of Environmental Protection
Date: NOV 01 1995

080-091-000-041-100 / 080-091-000-041-200 / 080-091-000-041-300



SECTION "C-C"

1/2" = 1'-0"

080-091-000-061-100
080-091-000-061-200
080-091-000-061-300

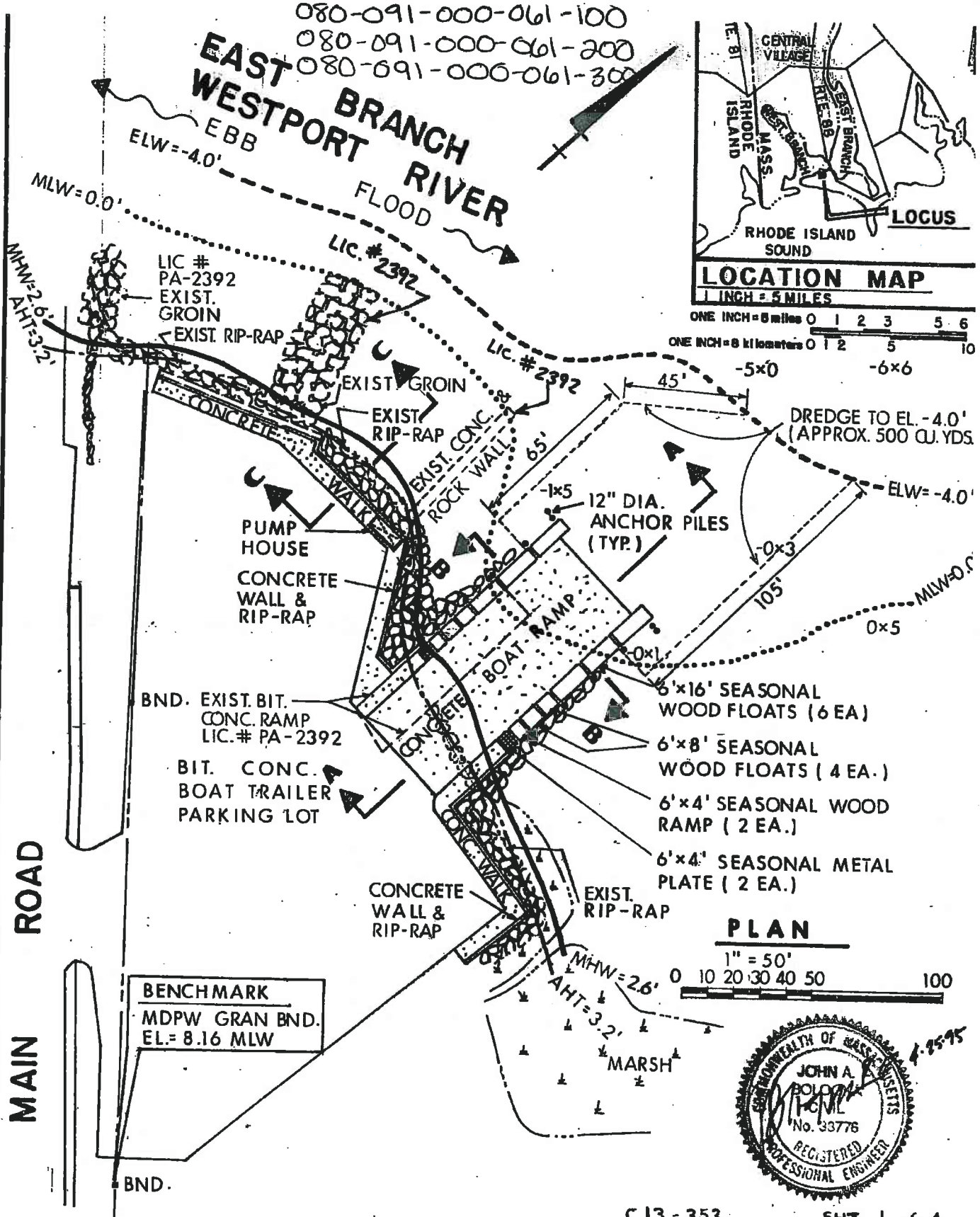
APRIL 25, 1995 SHT. 4 of 4

COASTAL ENGINEERING CO., INC.

COMMONWEALTH OF MASSACHUSETTS
JOHN A. BOLDUC JR.
No. 33776
REGISTERED PROFESSIONAL ENGINEER

LICENSE PLAN NO. 5037
Approved by Department of Environmental Protection
Date: NOV 01 1995

080-091-000-061-100
080-091-000-061-200
080-091-000-061-300



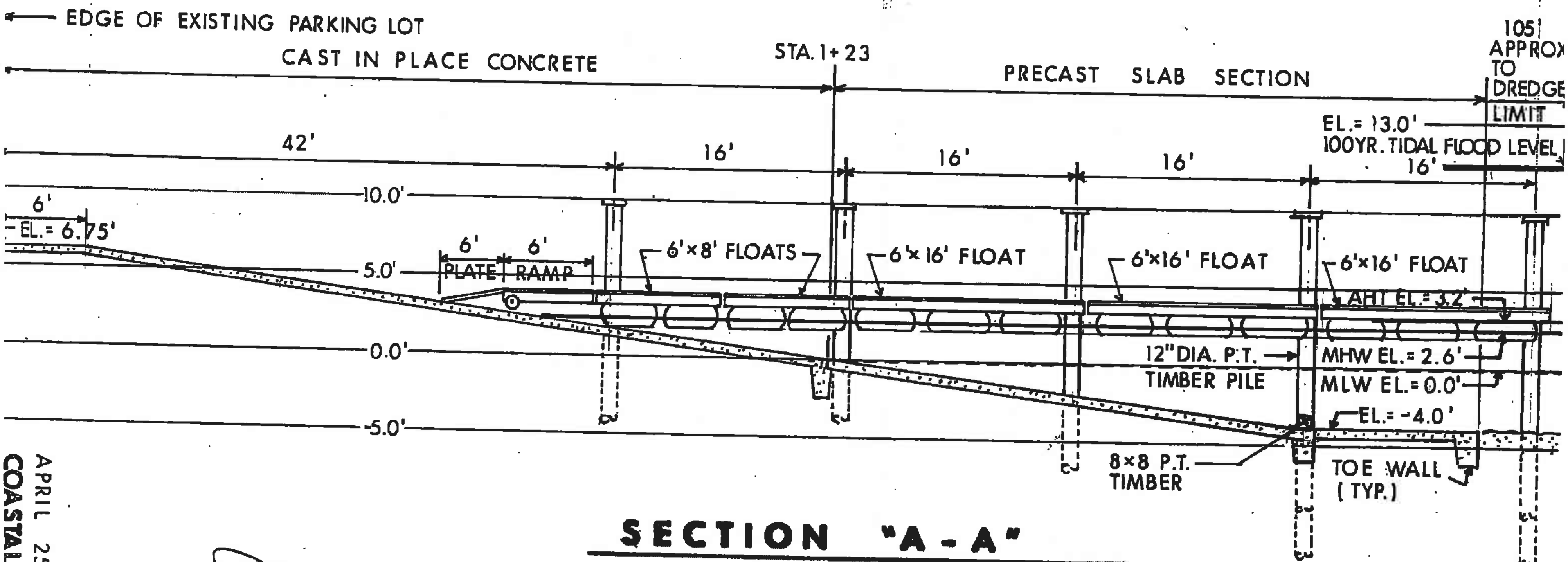
C 13 - 353 SHT. 1 of 4

PLAN TO ACCOMPANY PETITION OF **COMMONWEALTH OF MASSACHUSETTS PUBLIC ACCESS BOARD** TO CONSTRUCT AND MAINTAIN A CONCRETE BOAT RAMP, RIP-RAP, PILES AND FLOAT SYSTEM AT THE EAST BRANCH OF THE **WESTPORT RIVER** IN THE **TOWN OF WESTPORT, BRISTOL COUNTY, MASSACHUSETTS**

COASTAL ENGINEERING CO., INC.
ORLEANS, MASS. APRIL 25, 1995

LICENSE PLAN NO. 5037
Approved by Department of Environmental Protection of Massachusetts

COMMISSIONER
DIVISION DIRECTOR
SECTION CHIEF
NOV 01 1995



SECTION "A - A"

0 5 10 20 30 FEET
0 1 2 3 INCHES
SCALE : 1" = 10' HORZ. & VERT.

080-091-000-061-100
080-091-000-061-200
080-091-000-061-300

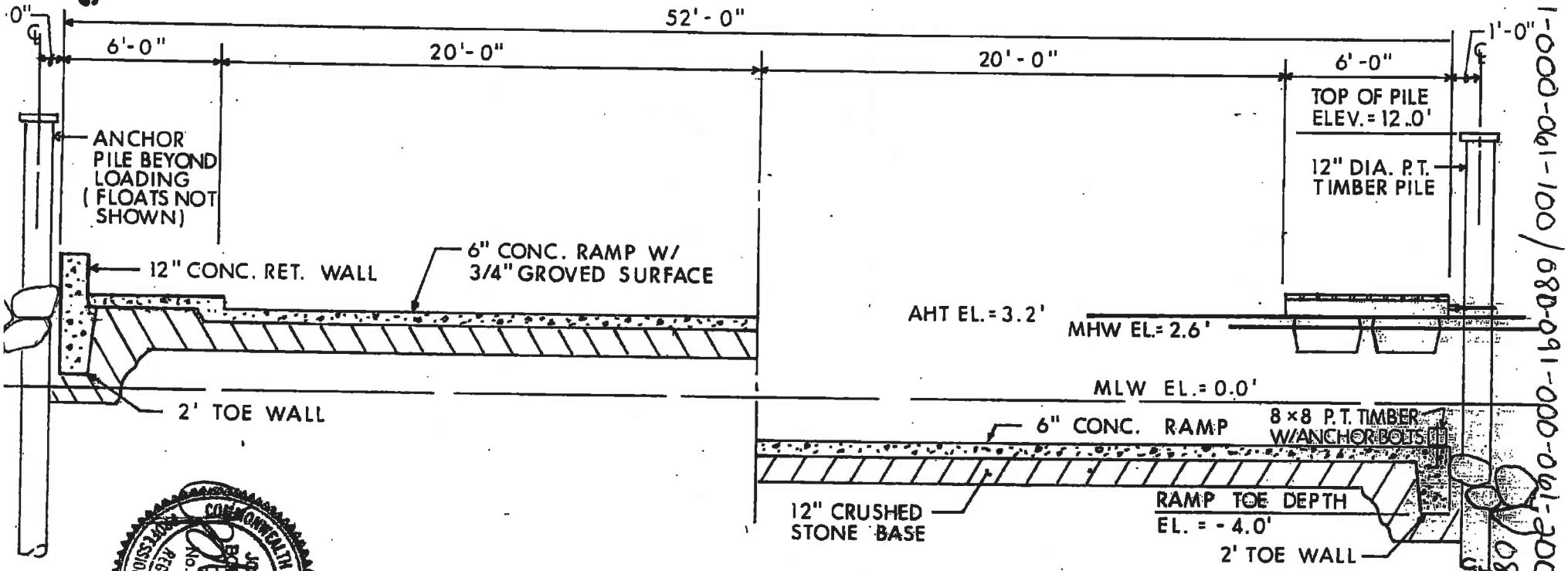
LICENSE PLAN NO. 5037
Approved by Department of Environmental Protection
Date: NOV 01 1995

COMMONWEALTH OF MASSACHUSETTS
JOHN A. BOLOGNA
No. 33776
REGISTERED PROFESSIONAL ENGINEER
4-25-95

SHT. 2 of 4

APRIL 25, 1995
COASTAL ENGINEERING CO INC

APRIL 25, 1995
COASTAL ENGINEERING CO., INC.
ORLEANS, MASS



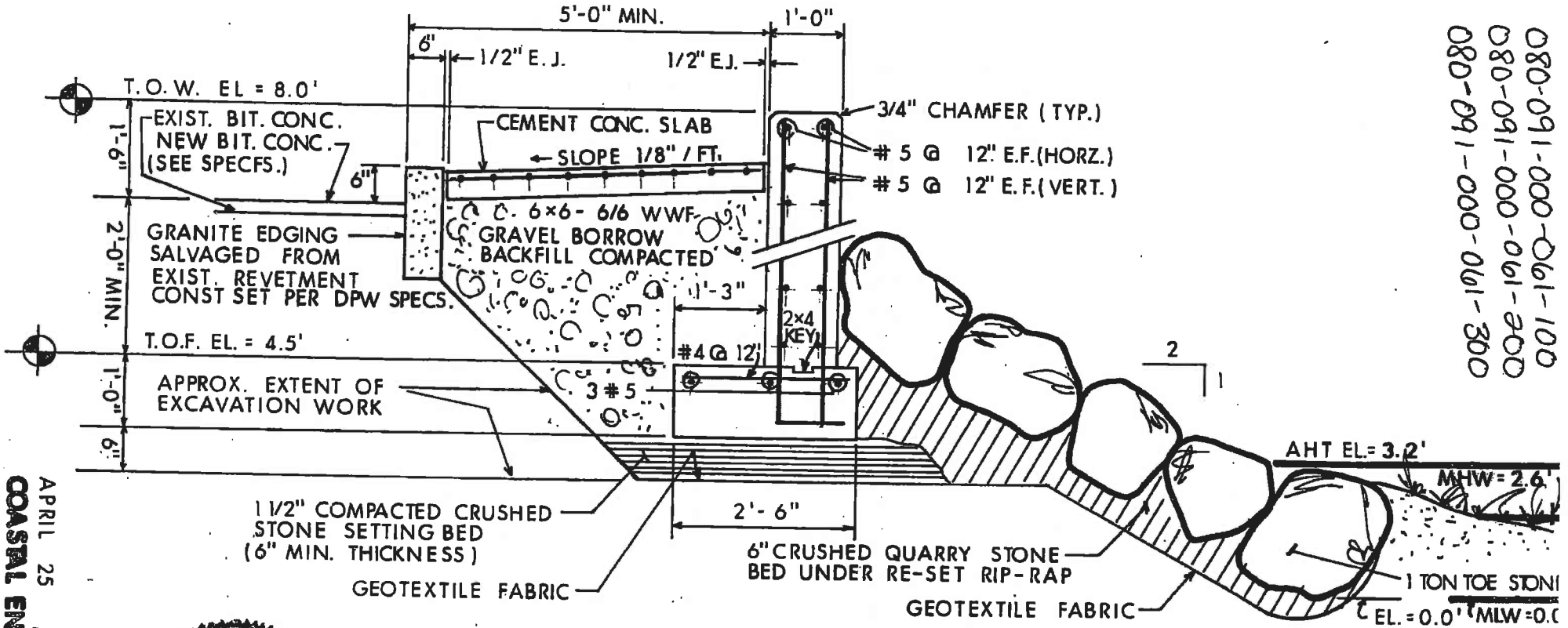
SECTION "B-B"

0 2 4 6 8 10 12 14 16 FEET
0 1 2 3 INCHES

COMMONWEALTH OF MASSACHUSETTS
JOHN A. BOLGER
No. 33776
REGISTERED PROFESSIONAL ENGINEER
4-25-95

LICENSE PLAN NO. 5037
Approved by Department of Environmental Protection
Date: NOV 01 1995

080-091-000-061-100 / 080-091-000-061-200 / 080-091-000-061-300



SECTION "C-C"

1/2" = 1'-0"

080-091-000-061-100
080-091-000-061-200
080-091-000-061-300

COMMONWEALTH OF MASSACHUSETTS
JOHN A. BOBOWICZ
No. 33776
REGISTERED PROFESSIONAL ENGINEER
4-26-95

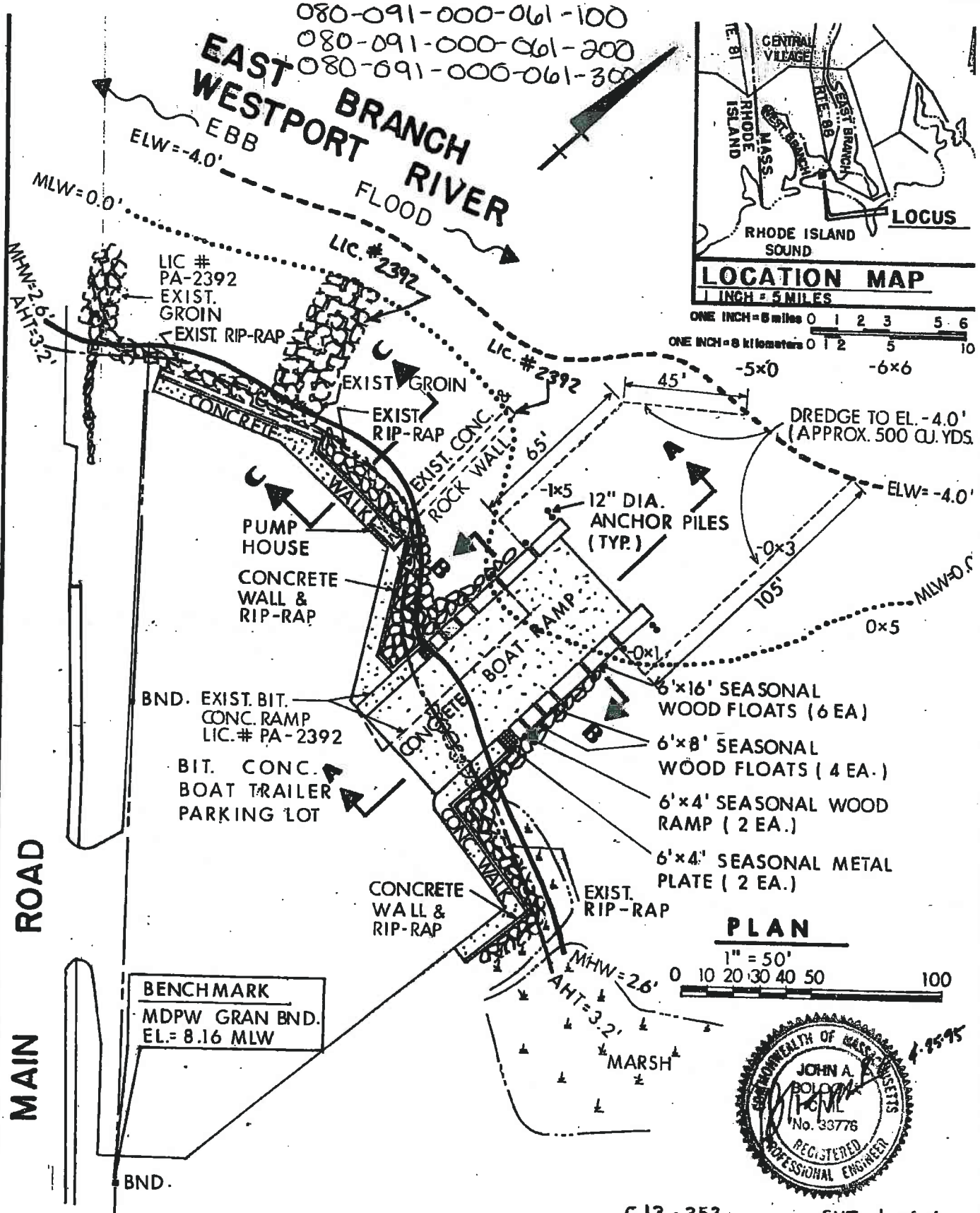
LICENSE PLAN NO. 5037
Approved by Department of Environmental Protection
Date: NOV 01 1995

APRIL 25, 1995

SHT. 4 of 4

COASTAL ENGINEERING CO., INC.

080-091-000-061-100
080-091-000-061-200
080-091-000-061-300



LOCATION MAP
1 INCH = 5 MILES
ONE INCH = 5 miles 0 1 2 3 5 6
ONE INCH = 8 kilometers 0 1 2 5 10

PLAN
1" = 50'
0 10 20 30 40 50 100

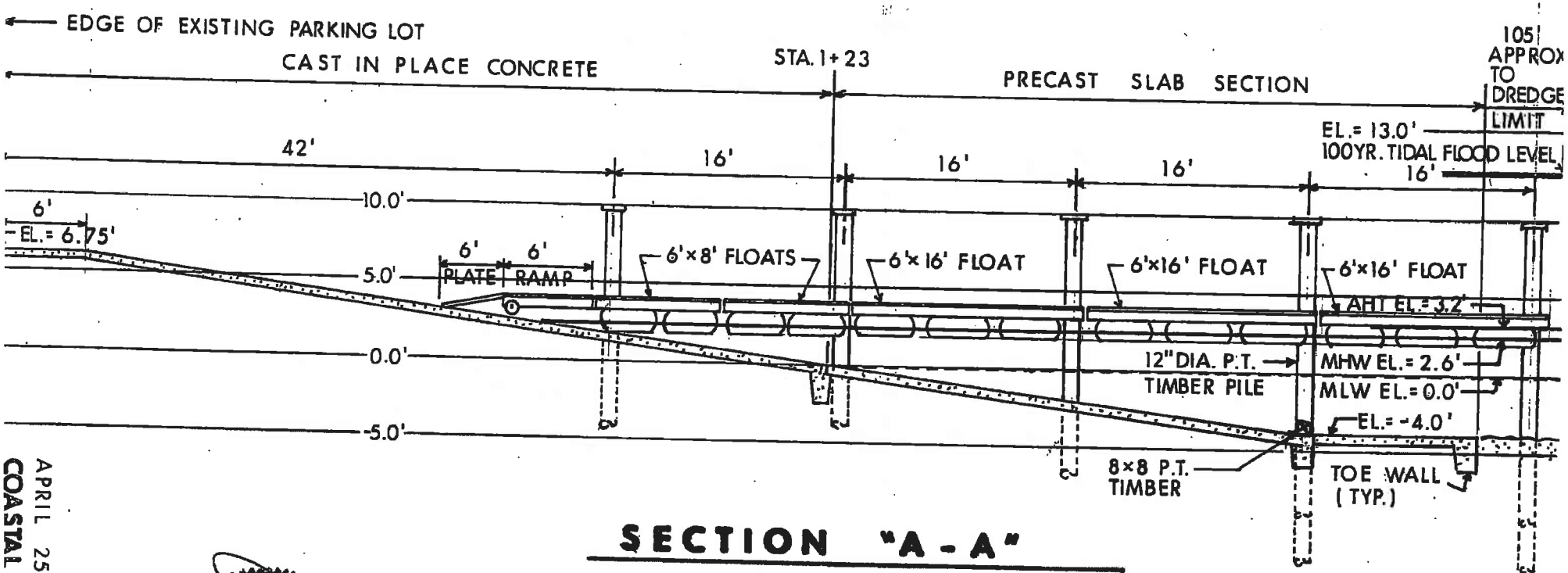
JOHN A. BOLOGNA
No. 33776
REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS
4-25-95

C 13 - 353 SHT. 1 of 4

PLAN TO ACCOMPANY PETITION OF **COMMONWEALTH OF MASSACHUSETTS PUBLIC ACCESS BOARD** TO CONSTRUCT AND MAINTAIN A CONCRETE BOAT RAMP, RIP-RAP, PILES AND FLOAT SYSTEM AT THE EAST **BRANCH** OF THE **WESTPORT RIVER** IN THE **TOWN** OF **WESTPORT, BRISTOL COUNTY, MASSACHUSETTS**
COASTAL ENGINEERING CO., INC.
ORLEANS, MASS. APRIL 25, 1995

LICENSE PLAN NO. 5037
Approved by Department of Environmental Protection of Massachusetts

DIVISION DIRECTOR
SECTION CHIEF
NOV 01 1995



SECTION "A - A"

0 5 10 20 30 FEET

0 1 2 3 INCHES

SCALE : 1" = 10' HORZ. & VERT.

APRIL 25, 1995

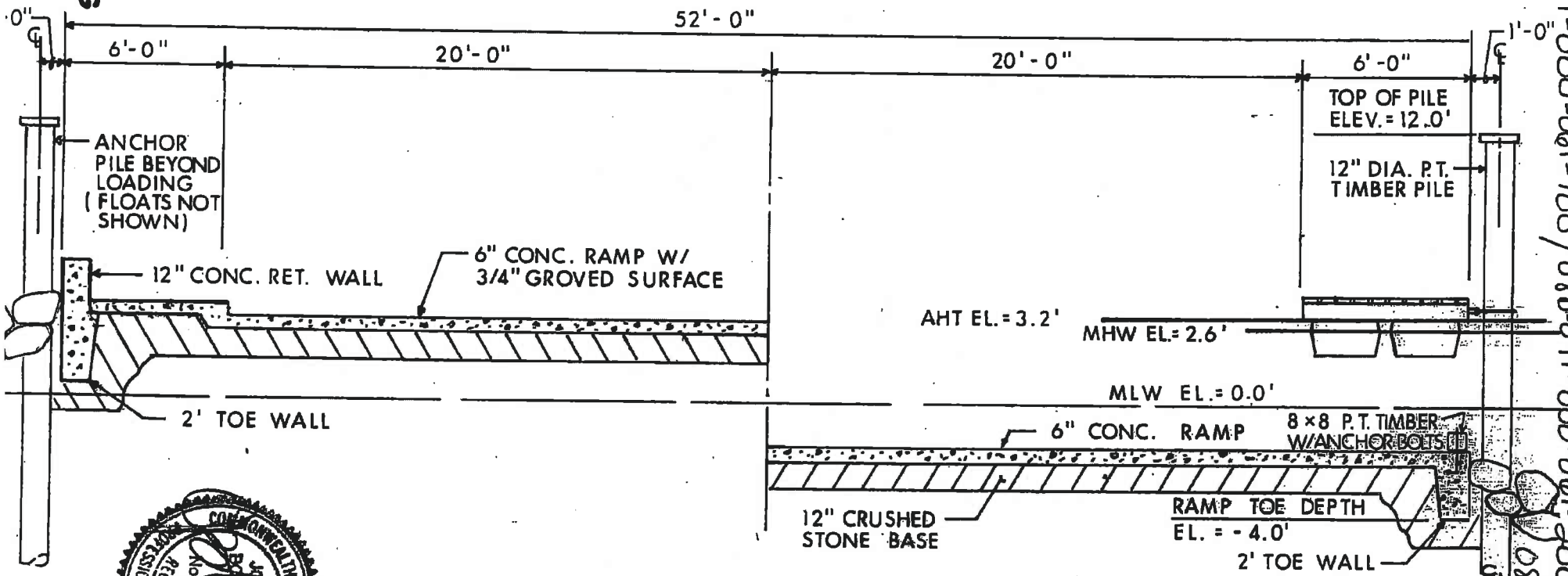
SHT. 2 of 4

COMMONWEALTH OF MASSACHUSETTS
JOHN A. BOSCO
No. 33776
REGISTERED PROFESSIONAL ENGINEER

LICENSE PLAN NO. 5037
Approved by Department of Environmental Protection
Date: NOV 01 1995

080-091-000-061-100
080-091-000-061-200
080-091-000-061-300

APRIL 25, 1995
COASTAL ENGINEERING CO., INC.
ORLEANS, MASS



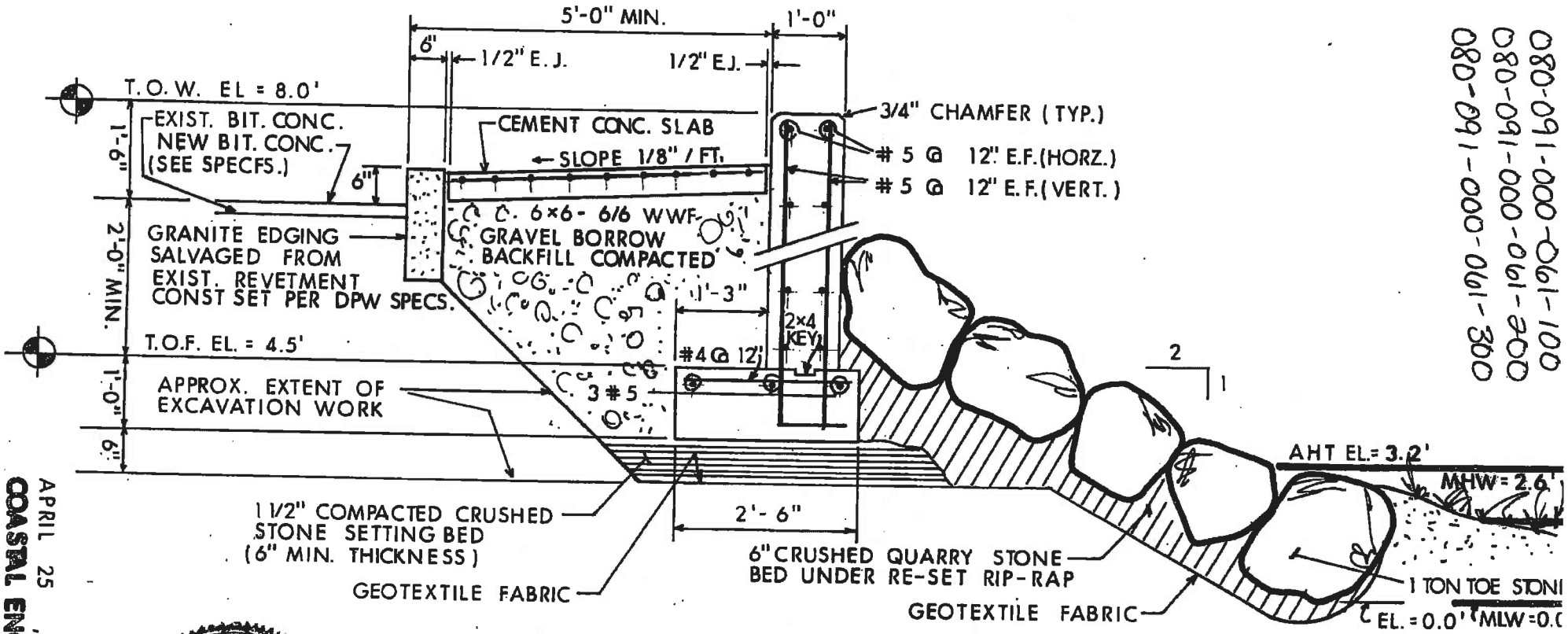
SECTION "B-B"

0 2 4 6 8 10 12 14 16 FEET
0 1 2 3 INCHES

COMMONWEALTH OF MASSACHUSETTS
JOHN A. BARON
No. 33746
REGISTERED PROFESSIONAL ENGINEER
4-25-95

LICENSE PLAN NO. 5037
Approved by Department of Environmental Protection
Date: NOV 01 1995

080-091-000-061-100 / 080-091-000-061-300 / 080-091-000-061-300



080-091-000-061-100
080-091-000-061-200
080-091-000-061-300

SECTION "C-C"

1/2" = 1'-0"

APRIL 25, 1995 SHT. 4 of 4

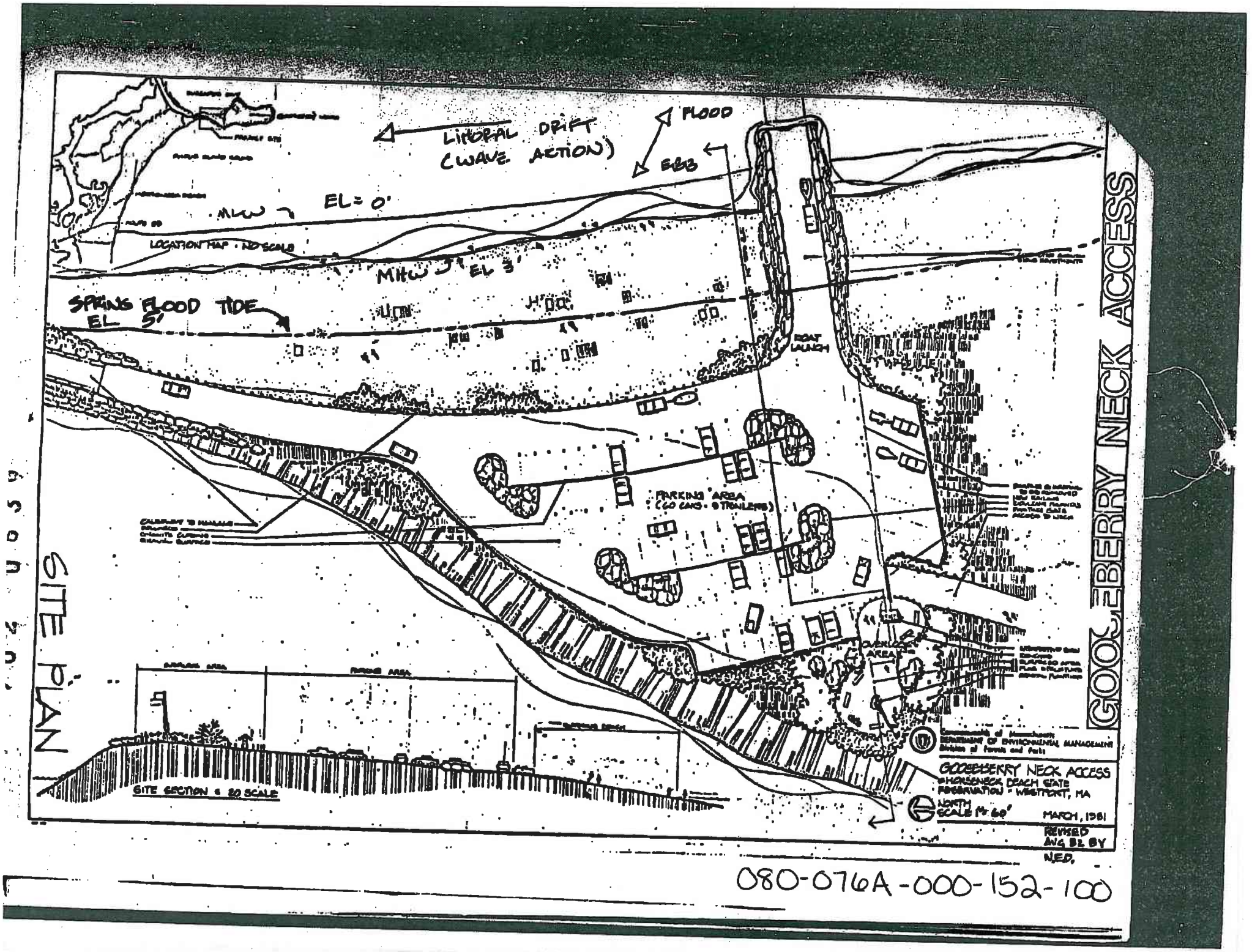
COASTAL ENGINEERING CO., INC.

COMMONWEALTH OF MASSACHUSETTS
JOHN A. BOLOGNANI
No. 33776
REGISTERED PROFESSIONAL ENGINEER
4.25.95

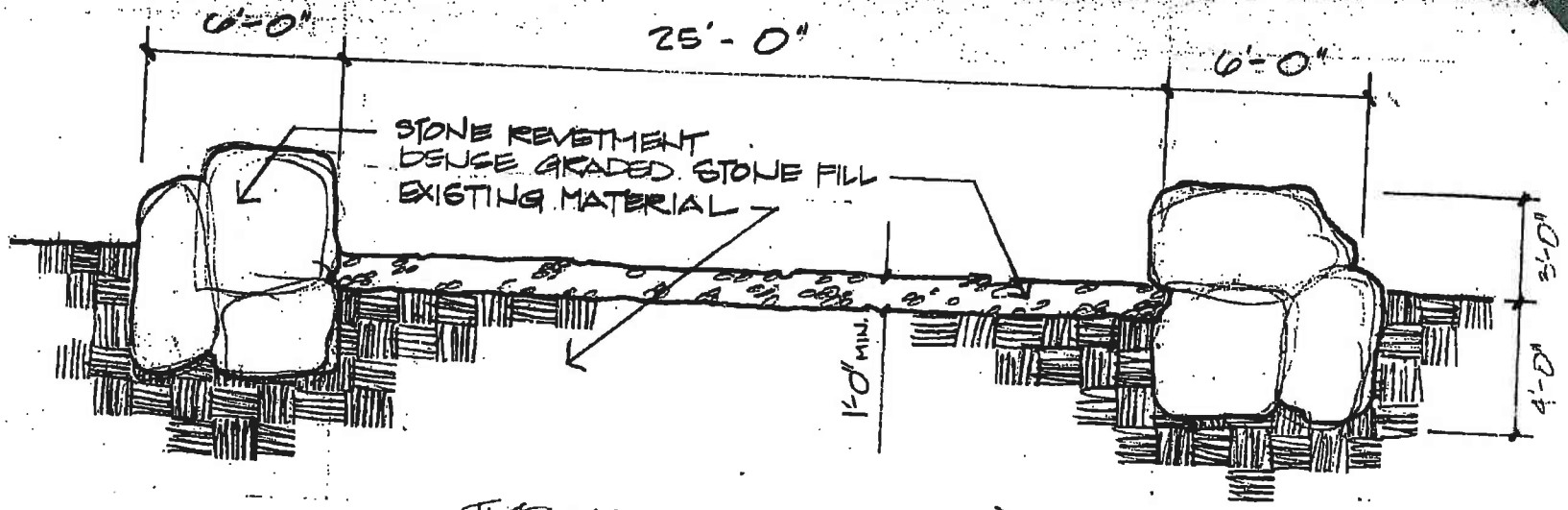
LICENSE PLAN NO. 5037
Approved by Department of Environmental Protection
Date: NOV 01 1995

TOWN: WESTPORT
SOURCE: US ACOE
LOCATION: CONCORD, MA
DATE OF RESEARCH: AUGUST 2007

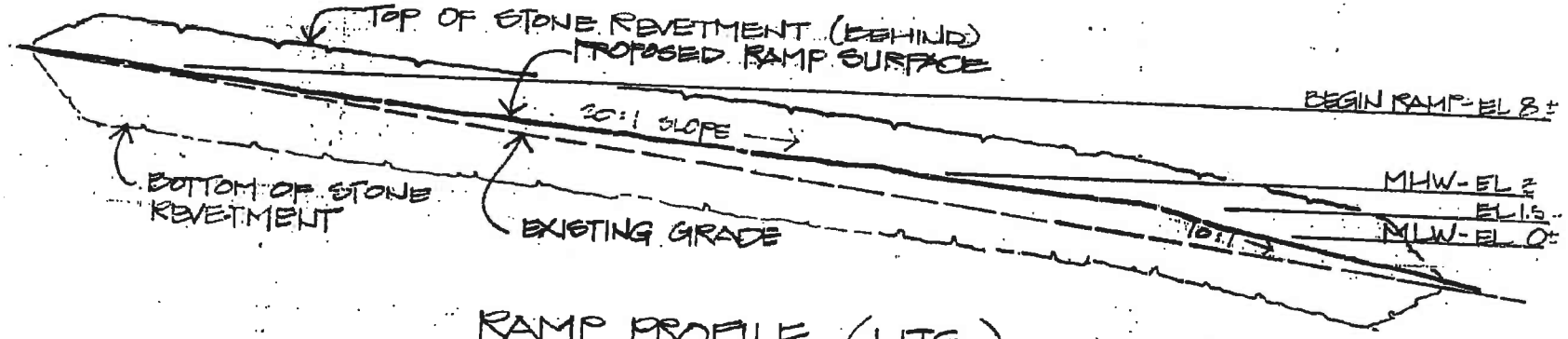
BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
080-076A-000-152-100	080-076A-000-152-100-COE1A	82-311	USACE	Westport	June 2, 1981	Gooseberry Neck Access - Horseneck Beach State Park Reservation - Westport, Massachusetts	2	Gooseberry Neck	Boat Ramp



080-076A-000-152-100



TYPICAL SECTION (N.T.S.)



RAMP PROFILE (N.T.S.)

BOAT RAMP - GOOSEBERRY NECK
MASS. DEPT. OF ENVIRONMENTAL MANAGEMENT

080-076A-000-152-100

Section V

Dartmouth

Section V – Community Findings – Town of Dartmouth

COMMUNITY DESCRIPTION

The Town of Dartmouth consists of a land area of 61.53 square miles out of a total area of 63.95 square miles and had a population of 30,666 in the 2000 census. The Town is located on the south coast of Massachusetts and its location can be seen on this report's cover. The estimated length of shoreline is 14.5 miles that are directly exposed to open ocean. 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 Dartmouth, there were 8 structures which had public or unknown ownership which provide significant coastal protection. The location of the structures can be seen in Sheets 1 through Sheet 6 in Section V-B 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 Dartmouth

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Length
Bulkhead / Seawall	1				1		1250
Revetment	4		2	2			515
Breakwater	1		1				930
Groin / Jetty	1		1				100
Coastal Dune							
Coastal Beach	1				1		4500
	8		4	2	2		7295

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 Dartmouth's case there are a total of 8 structures which would require approximately $ 12.6 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 $ 12 million would be required to upgrade the Town's coastal protection.

STRUCTURE REPAIR / RECONSTRUCTION COST - Town of Dartmouth

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Cost
Bulkhead / Seawall	1				$ 6,451,500		$ 6,451,500
Revetment	4		$ 47,124	$ 168,010			$ 215,134
Breakwater	1		$ 223,200				$ 223,200
Groin / Jetty	1		$ 24,000				$ 24,000
Coastal Dune							$ -
Coastal Beach	1				$ 5,702,400		$ 5,702,400
	8	$-	$ 294,324	$ 168,010	$ 12,153,900	$ -	$ 12,616,234

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 Dartmouth the breakdown of structures by assumed ownership is as follows:

STRUCTURE OWNERSHIP / REPAIR COST - Town of Dartmouth

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Cost
Town Owned	8		$ 294,324	$ 168,010	$ 6,451,500		$ 6,913,834
Commonwealth of Massachusetts					$ 5,702,400		$ 5,702,400
Federal Government Owned							$ -
Unknown Ownership							$ -
	8	$-	$ 294,324	$ 168,010	$ 12,153,900	$ -	$ 12,616,234

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 V-B which contains Structure Assessment Reports for each individual structure found.

SUMMARY

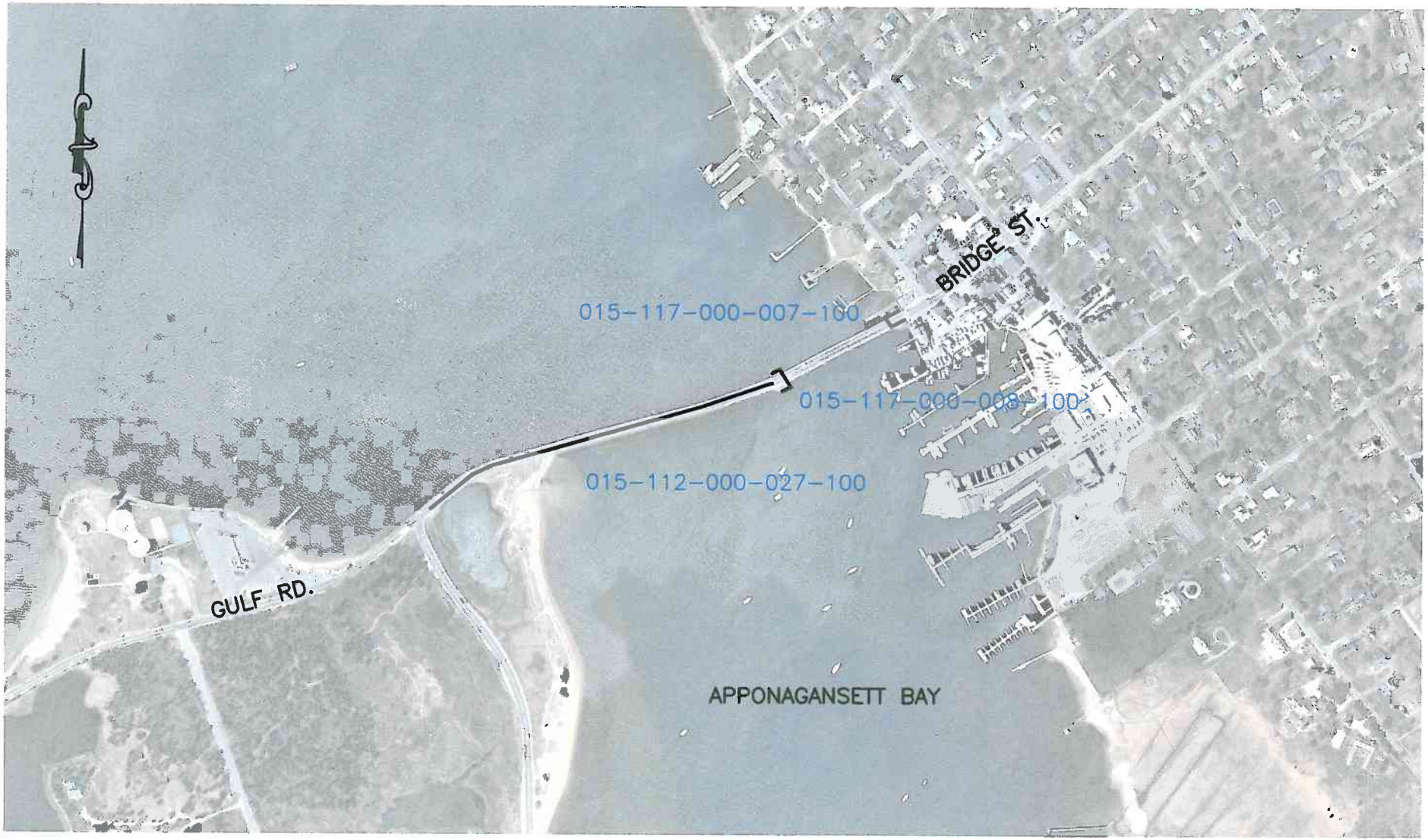
The enclosed reports and associated documents reflects the Town of Dartmouth's coastal structure information that will eventually be input into a state-wide GIS database and will be accessible through MassGIS. This data, when compiled state-wide, will be critical in the development of both short term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

Part B

Structure Assessment Reports



COASTAL STRUCTURE LOCATION PLAN

TOWN OF DARTMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

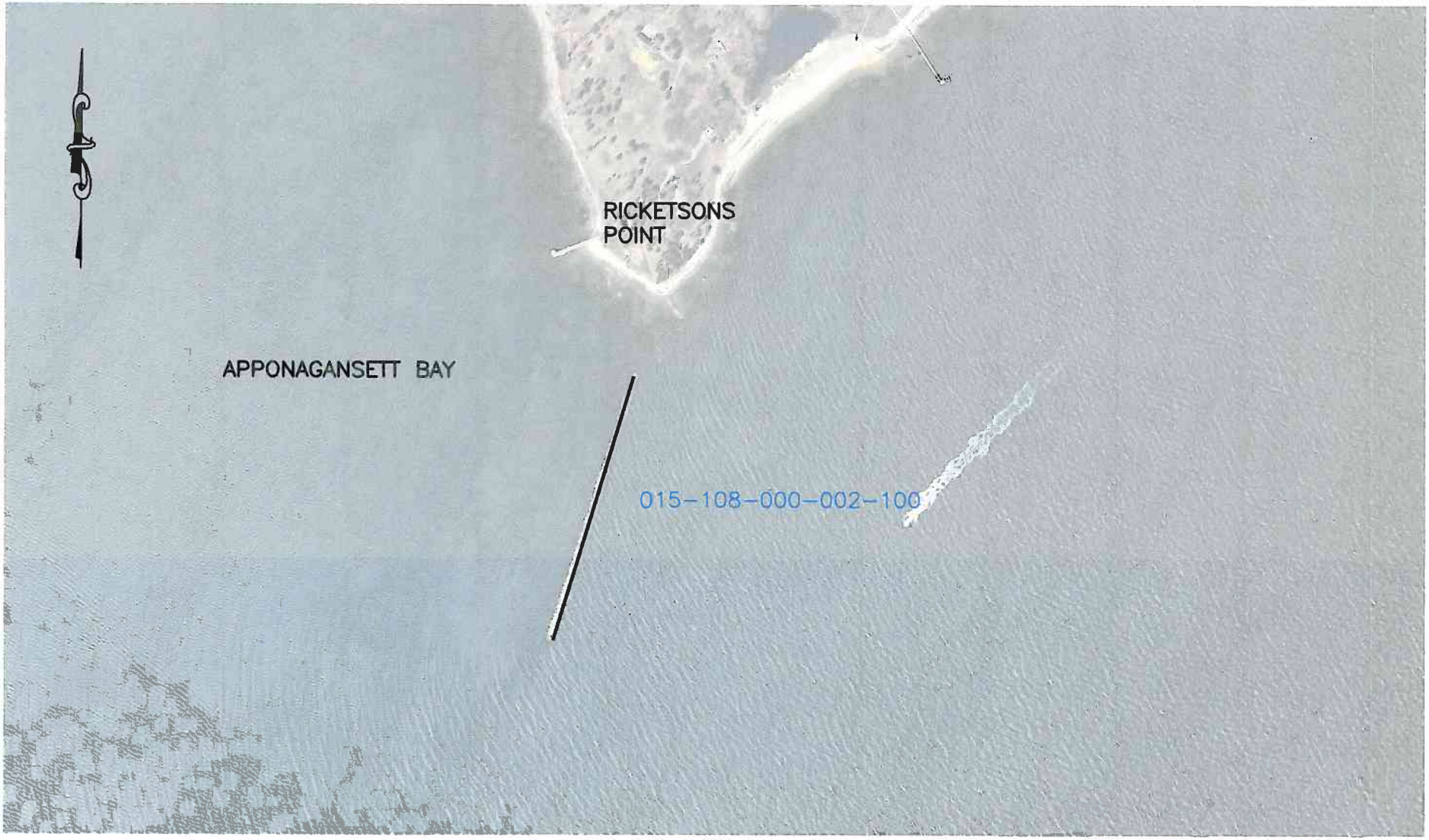
0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
2 Bond Street
Franklin, MA 02038
TEL. (508) 553-4000 FAX (508) 553-4009

SHEET 1

File: X:\27652-\27667\South Coast\Dartmouth\dwg\Dartmouth.dwg



COASTAL STRUCTURE LOCATION PLAN

TOWN OF DARTMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
3 Beal Street
Franklin, MA 02038
TEL. (508) 553-0000 FAX. (508) 553-0000

SHEET 2

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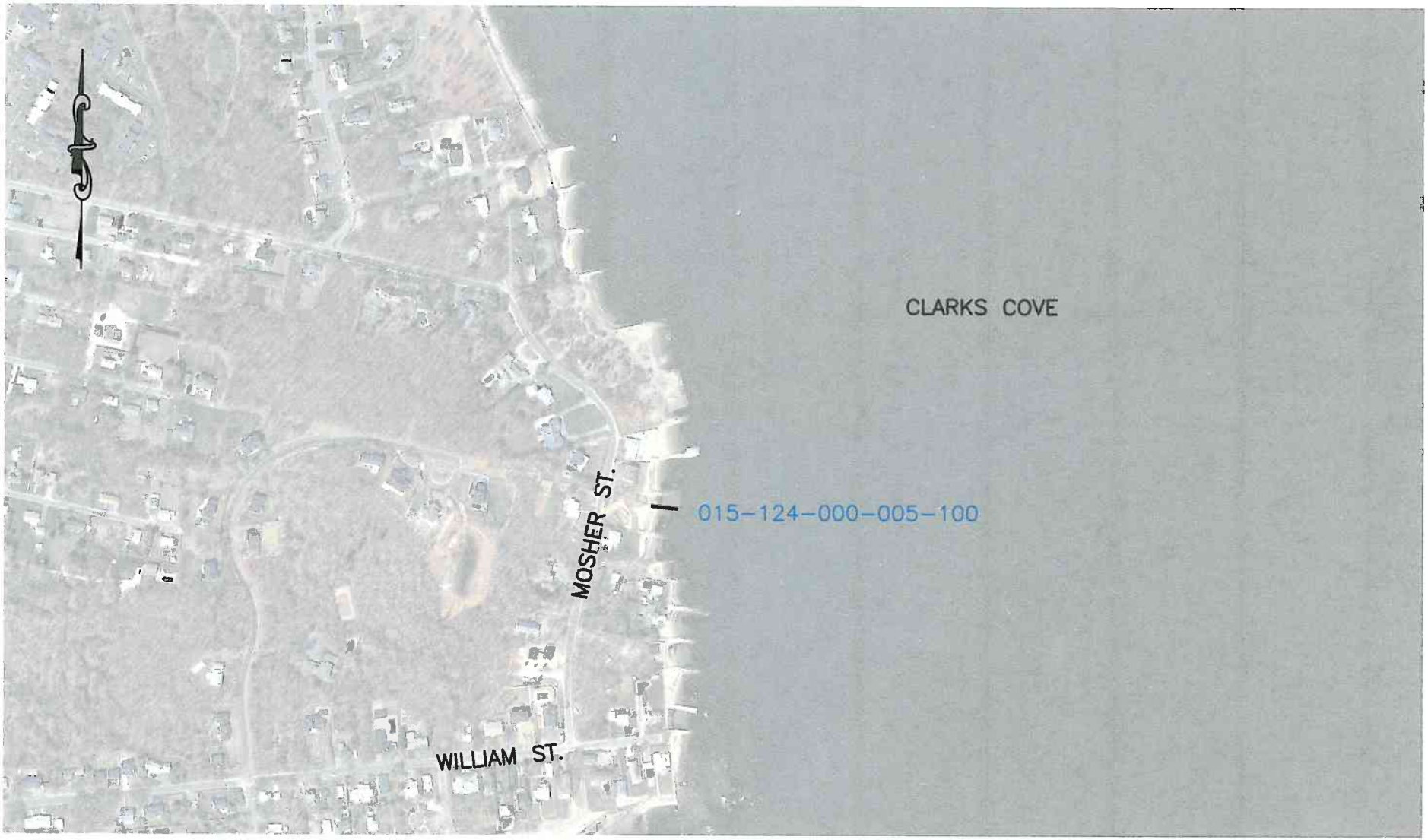


COASTAL STRUCTURE LOCATION PLAN

TOWN OF DARTMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
3 Bond Street
Franklin, MA 02038
TEL. (508) 533-0600 FAX. (508) 533-0600

SHEET 3

File: X:\27652-\27667\South Coast\Dartmouth\dwg\Dartmouth.dwg

COASTAL STRUCTURE LOCATION PLAN

TOWN OF DARTMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

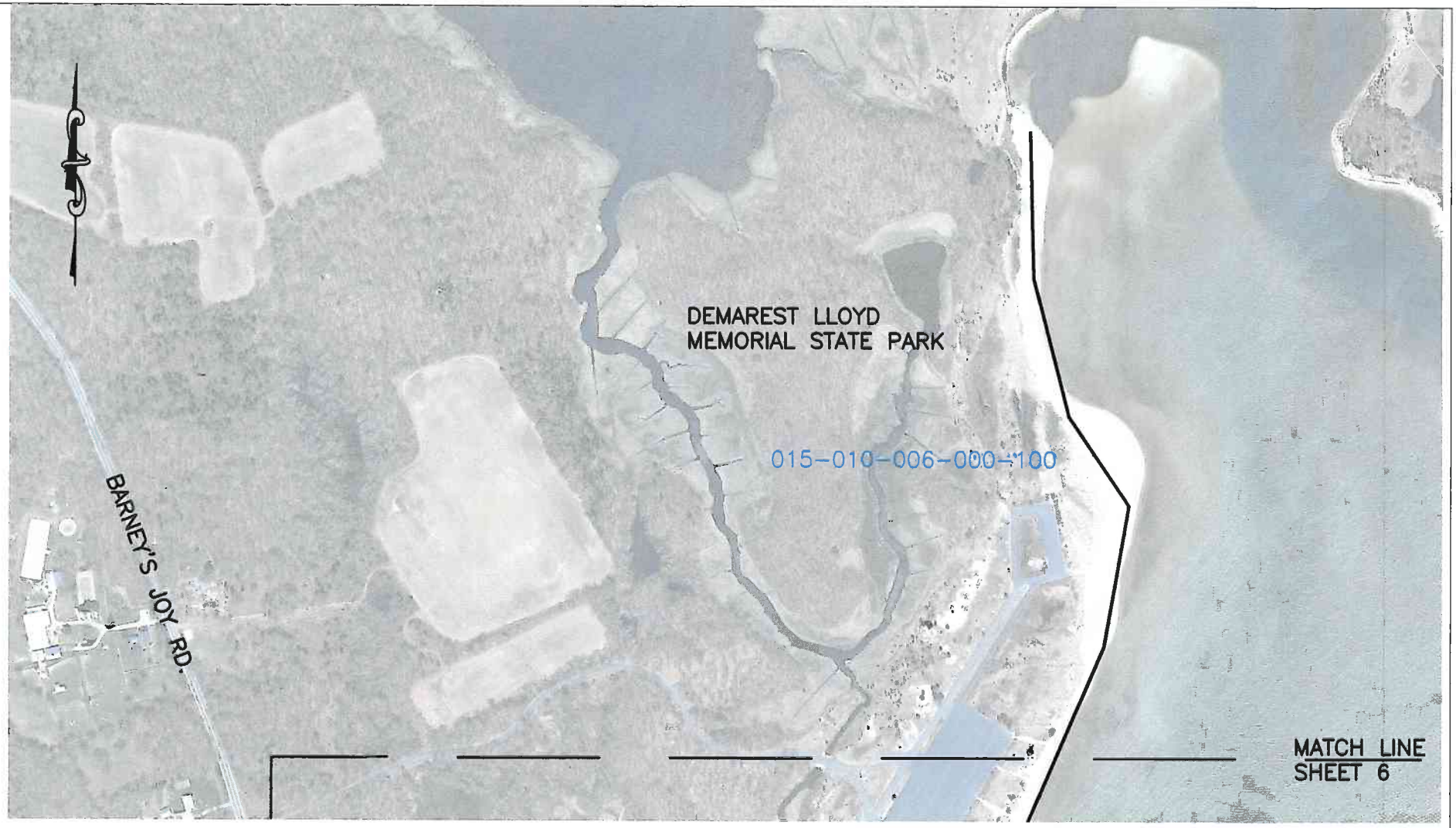
0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering

SHEET 4

File: X:\27652-\27667\South Coast\Dartmouth\dwg\Dartmouth.dwg



COASTAL STRUCTURE LOCATION PLAN

TOWN OF DARTMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

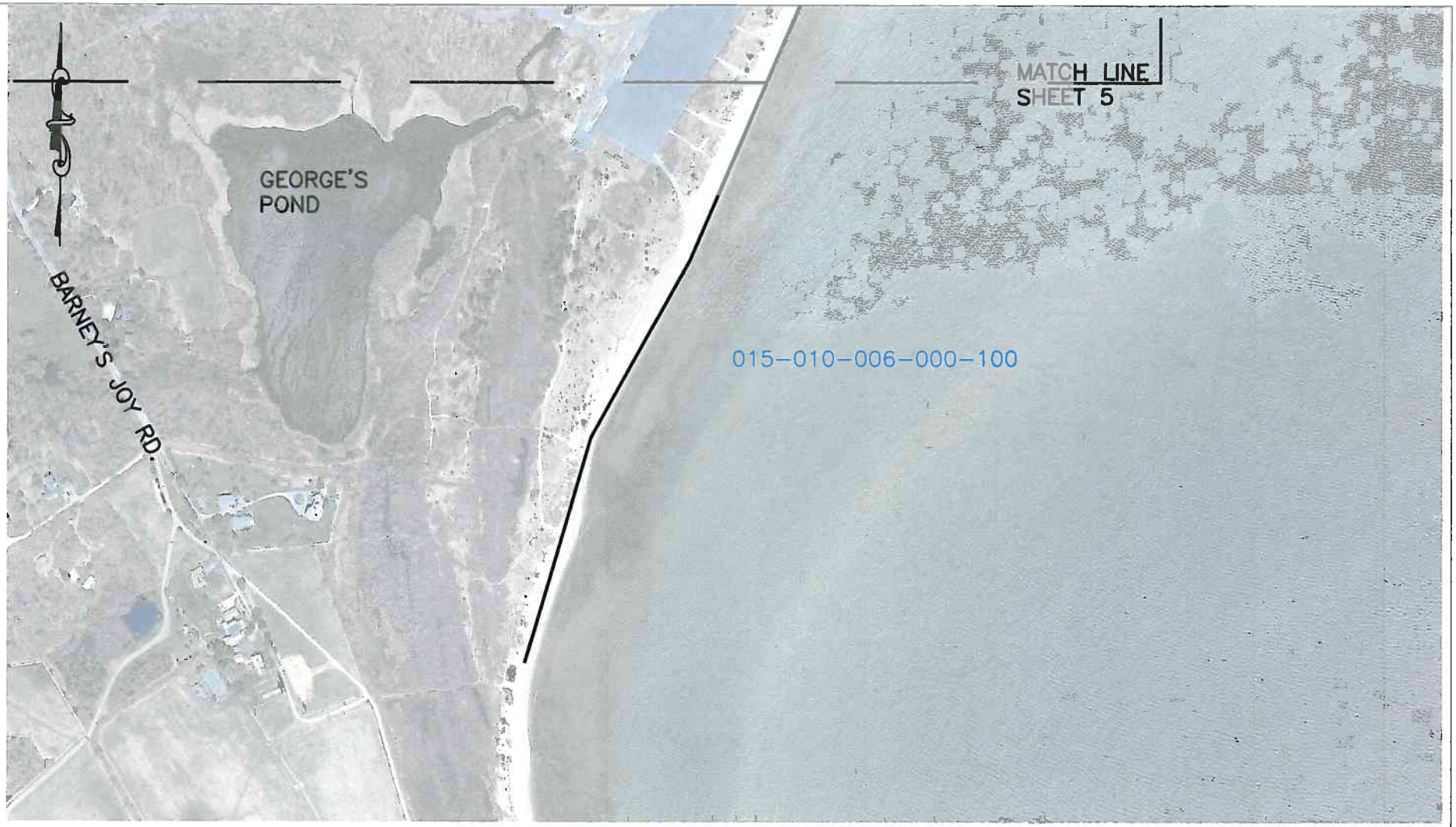
0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
3 Bond Street
Franklin, MA 02038
TEL. (508) 553-4000 FAX. (508) 553-4004

SHEET 5

File: X:\27652-\27667\South Coast\Dartmouth\dwg\Dartmouth.dwg



COASTAL STRUCTURE LOCATION PLAN

TOWN OF DARTMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
JULY 2007

0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
3 Bank Street
Franklin, MA 02038
TEL. (508) 553-0000 FAX. (508) 553-0000

SHEET 6

File: X:\27652-\27667\South Coast\Dartmouth\dwg\Dartmouth.dwg

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Dartmouth

Structure ID: 015-010-006-000-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
State	Demarest Lloyd Beach	4/23/2009

Presumed Structure Owner:	Based On Comment:
State	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
MA-DCR	Unkown	$5,702,400.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
4500 Feet	Feet NAVD 88		Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Coastal Beach	Sand	5 to 10 Feet

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Beach mostly consisting of 4 inch to 6 inch diameter cobbles. One small area is sandy. Beach has an approximately 1 to 100 slope. There is a small berm and dunes behind the beach, then parking and picnic areas. Signs of erosion from strong currents.

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:

015-010-006-000-100-PHO1A.JPG

015-010-006-000-100-PHO1B.JPG

015-010-006-000-100-PHO1C.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Dartmouth

Structure ID: 015-011-000-001-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Plummer Memorial Bridge	6/28/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Dartmouth	Unkown	$89,866.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
115 Feet	Feet NAVD 88	V13	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The dumped riprap with a 1 to 2 slope. The stones are approximately 3 feet by 2 feet by 2 feet in size. The filter fabric is visible. Stones have shifted and moved. There is some section loss. The toe is still intact; the stones are not buried.

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:

015-011-000-001-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Dartmouth

Structure ID: 015-011-000-087-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Plummer Memorial Bridge	6/28/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Dartmouth	Unkown	$78,144.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
100 Feet	Feet NAVD 88	V13	16 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The dumped riprap has stones that are approximately 3 feet by 2 feet by feet in size and are on a 1 to 2 slope. The filter fabric is visible. Stones have shifted and moved. There is some section loss. The toe is still intact and the stones are buried.

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:

015-011-000-087-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Dartmouth

Structure ID: 015-108-000-002-100

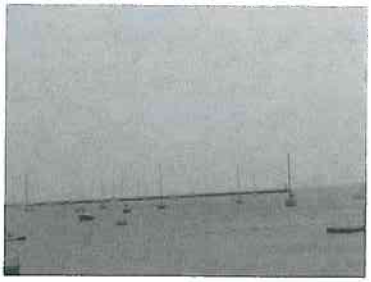
Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Padamaran Harbor Breakwater	6/28/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Dartmouth	1954	$223,200.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
930 Feet	Feet NAVD 88	V13	18 Feet NGVD



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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

A detached stone breakwater that protects the mouth of Padanaram Harbor. The stones are approximately 5 feet by 2 feet by 2 feet. Some stone movement and settling.

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:

015-108-000-002-100-PHO1A.JPG

Structure Documents:

USACE	June 24, 195	Proposed	015-108-000-002-100-COE1A
MA-DCR	May 1954	Proposed Harbor	015-108-000-002-100-DCR1A
MA-DCR	July 1955	Proposed Harbor	015-108-000-002-100-DCR1B

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Dartmouth

Structure ID: 015-112-000-027-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Padanaram Bridge	6/28/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Dartmouth	Unkown	$6,451,500.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
1250 Feet	Feet NAVD 88	V13	16 Feet NGVD

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

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

Structure Summary :

The 100 to 200 pound stones are mortared together to form a causeway. There are many areas of erosion at the top. The eroded holes have been filled with asphalt. The wall has scour throughout at the base. Some areas have riprap of the same size stones at the base.

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:

015-112-000-027-100-PHO1A.JPG

015-112-000-027-100-PHO1B.JPG

015-112-000-027-100-PHO1C.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Dartmouth

Structure ID: 015-117-000-007-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Bridge Street	6/28/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Dartmouth	1982	$23,562.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
150 Feet	Feet NAVD 88	V13	16 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The dumped riprap has stones that are approximately 3 feet by 2 feet by 2 feet in size. The stones are at a 1 on 1 slope. The stones are dumped around the bridge abutment. The toe is intact and there is no visible movement.

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:

015-117-000-007-100-PHO1A.JPG

Structure Documents:

USACE	December 2	Proposed Expansion	015-117-000-007-100-COE1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Dartmouth

Structure ID: 015-117-000-008-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Bridge Street	6/28/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Dartmouth	Unkown	$23,562.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
150 Feet	Feet NAVD 88	A11	13 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The placed riprap has stones that are approximately 3 feet by 2 feet by 2 feet in size. The stones are at a 1 on 1 slope. The stones are placed around the bridge abutment. The toe is intact and there is no visible movement.

Condition Rating	B Good	*Priority Rating*	IV High Priority
Level of Action	Minor	*Action*	Consider for Next Project Construction Listing
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*	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:

015-117-000-008-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Dartmouth

Structure ID: 015-124-000-005-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Mosher Street	6/28/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Dartmouth	Unkown	$24,000.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
100 Feet	Feet NAVD 88	V13	18 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The dumped stone groin has stones of approximately 2 feet by 1 foot by 1 foot size. The groin protects a concrete drainage pipe from the street. Mean high water is approximately mid length of the groin.

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:

015-124-000-005-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

Section V - Dartmouth

Part C

Structure Photographs

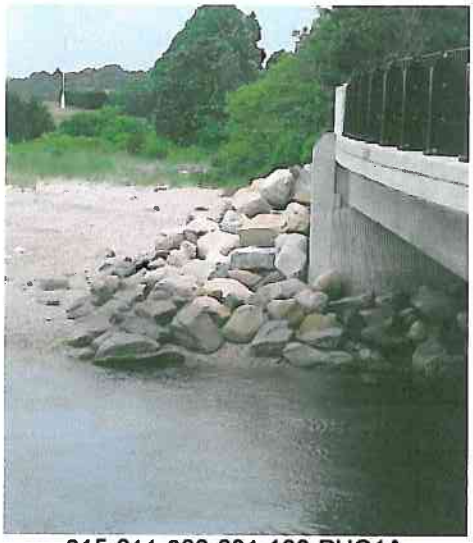
TOWN: DARTMOUTH
SOURCE: BCE - FIELD PHOTOGRAPHS
LOCATION: Bourne Consulting Engineering
DATE OF RESEARCH: SEPTEMBER 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
015-010-006-000-100	015-010-006-000-100-PHO1A.jpg		Bourne Consulting Engineering	Dartmouth	April 2009	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
015-010-006-000-100	015-010-006-000-100-PHO1B.jpg		Bourne Consulting Engineering	Dartmouth	April 2009	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
015-010-006-000-100	015-010-006-000-100-PHO1C.jpg		Bourne Consulting Engineering	Dartmouth	April 2009	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
015-011-000-001-100	015-011-000-001-100-PHO1A.jpg		Bourne Consulting Engineering	Dartmouth	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
015-011-000-087-100	015-011-000-087-100-PHO1A.jpg		Bourne Consulting Engineering	Dartmouth	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
015-108-000-002-100	015-108-000-002-100-PHO1A.jpg		Bourne Consulting Engineering	Dartmouth	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
015-112-000-027-100	015-112-000-027-100-PHO1A.jpg		Bourne Consulting Engineering	Dartmouth	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
015-112-000-027-100	015-112-000-027-100-PHO1B.jpg		Bourne Consulting Engineering	Dartmouth	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
015-112-000-027-100	015-112-000-027-100-PHO1C.jpg		Bourne Consulting Engineering	Dartmouth	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
015-117-000-007-100	015-117-000-007-100-PHO1A.jpg		Bourne Consulting Engineering	Dartmouth	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
015-117-000-008-100	015-117-000-008-100-PHO1A.jpg		Bourne Consulting Engineering	Dartmouth	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey
015-124-000-005-100	015-124-000-005-100-PHO1A.jpg		Bourne Consulting Engineering	Dartmouth	August 2007	DIGITAL IMAGE	1	Structure Location	Structure Condtion Photo at Time of Survey

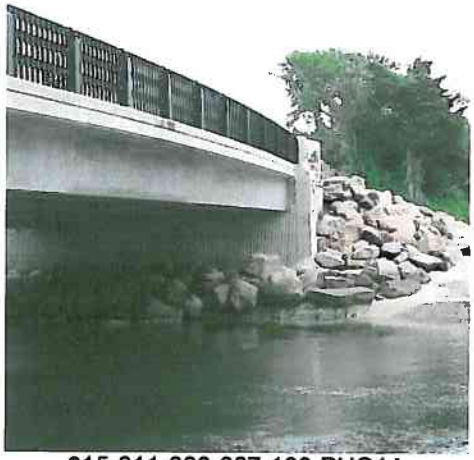
015-010-006-000-100-PHO1A

015-010-006-000-100-PHO1B

015-010-006-000-100-PHO1C



015-011-000-001-100-PHO1A



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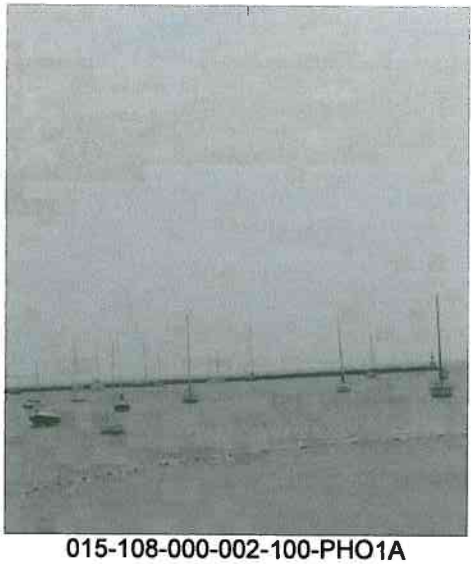
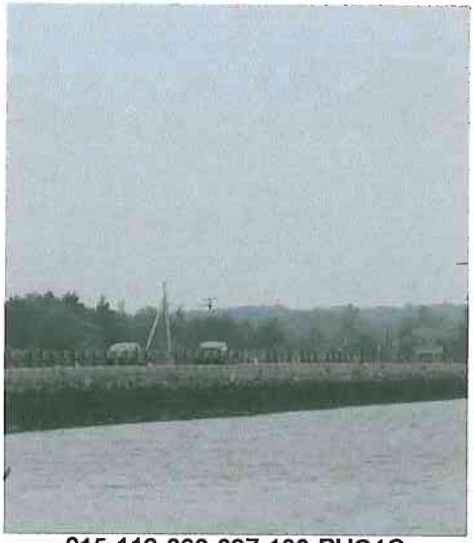


015-108-000-002-100-PHO1A

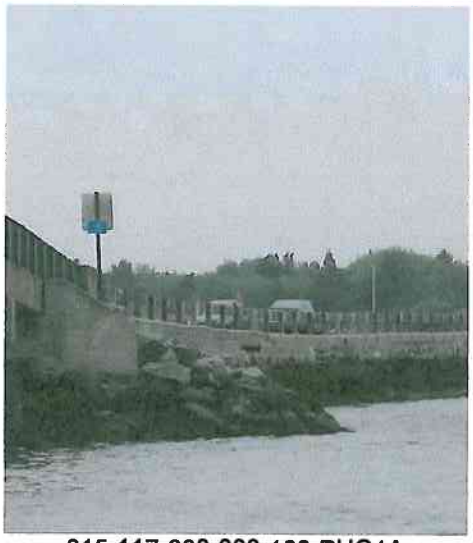
015-112-000-027-100-PHO1A

015-112-000-027-100-PHO1B



015-112-000-027-100-PHO1C

015-117-000-007-100-PHO1A



015-117-000-008-100-PHO1A

015-124-000-005-100-PHO1A

Section V - Dartmouth

Part D

Structure Documents

TOWN DOCUMENT LIST

MA DCR - DOCUMENT LIST

MA DEP – Ch 91 DOCUMENT LIST

- Copies of License Documents

USACE – PERMIT DOCUMENT LIST

- Copies of Permit Documents

TOWN: DARTMOUTH
SOURCE: Town of Dartmouth
LOCATION: TOWN
DATE OF RESEARCH: SEPTEMBER 2007

No Town Documents for the Town of Dartmouth

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description

TOWN: DARTMOUTH
SOURCE: MA-DCR
LOCATION: MA-DCR BOSTON and HINGHAM, MA
DATE OF RESEARCH: JULY 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
015-108-000-002-100	015-108-000-002-100-DCR1A	1380	MA-DCR	Dartmouth	May 1954	Proposed Harbor Improvements - Reconstruction and Extension of Padanaram Breakwater - Dartmouth - Prepared for DPW of MA - Division of Waterways	2	Padanaram Breakwater	Padanaram Breakwater
015-108-000-002-100	015-108-000-002-100-DCR1B	1534	MA-DCR	Dartmouth	July 1955	Proposed Harbor Improvements - Reconstruction and Expansion of Padanaram Breakwater - Dartmouth - Prepared for DPW of MA - Division of Waterways	1	Padanaram Breakwater	Padanaram Breakwater

TOWN: DARTMOUTH
SOURCE: DEP
LOCATION: BOSTON, MA
DATE OF RESEARCH: JULY 2007

No MA - DEP Ch. 91 Documents for the Town of Dartmouth

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description

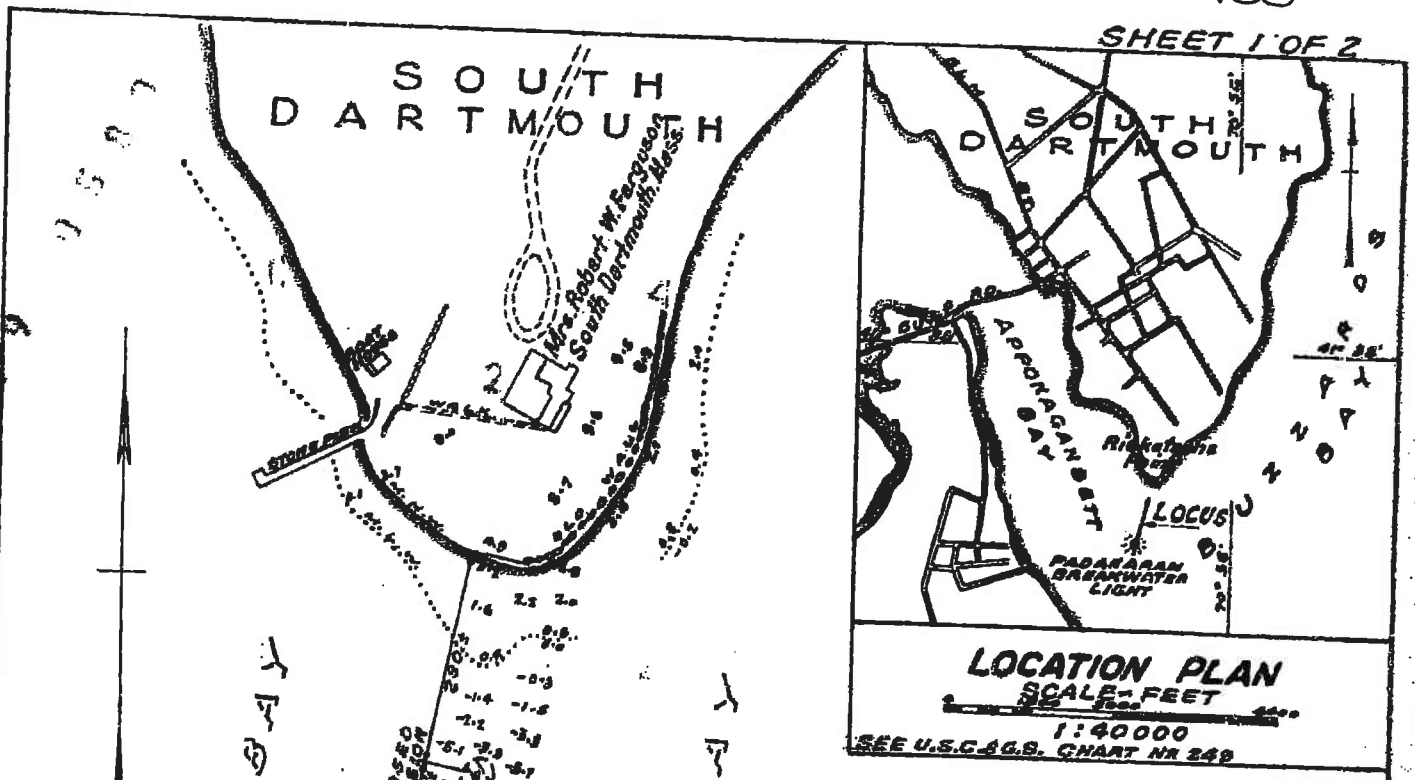
TOWN: DARTMOUTH
SOURCE: US ACOE
LOCATION: CONCORD, MA
DATE OF RESEARCH: AUGUST 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
015-108-000-002-100	015-108-000-002-100-COE1A	54-164	USACE	Dartmouth	June 24, 1954	Proposed Reconstruction and Extension - Padanaram Breakwater - Apponagansett Bay, Darmouth, MA	2	Apponagansett Bay	Breakwter
015-117-000-007-100	015-117-000-007-100-COE1A	83-310	USACE	Dartmouth	December 23, 1982	Proposed Expansion of Existing Public Launching Ramp and Stone Protection in Apponagansett River - Near Padanaram Bridge, Bristol County, MA	2	Gulf Road	Riprap and Boat Ramp

0 9 1 2 0 1 4

015-108-000-002-100

SHEET 1 OF 2



PLAN
SCALE - FEET
1 : 3000

LOCATION PLAN
SCALE - FEET
1 : 40000
SEE U.S.C.&G.S. CHART NR 248

NOTE

ELEVATIONS ARE IN FEET AND TENTHS ABOVE PLANE OF MEAN LOW WATER. MINUS FIGURES SHOW DEPTHS BELOW THE SAME PLANE.

LOCATION OF PROPOSED WORK SHOWN IN RED.

EXISTING STONE IN TOP COURSE TO BE REMOVED AND INCORPORATED WITH NEW STONE TO FORM A COMPACT MASS. (SEE SECTIONS YY AND ZZ.)

PROPOSED
RECONSTRUCTION AND EXTENSION
PADANARAM BREAKWATER
APPONAGANSETT BAY
DARTMOUTH — MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS

JUNE 1954

SCALES SHOWN

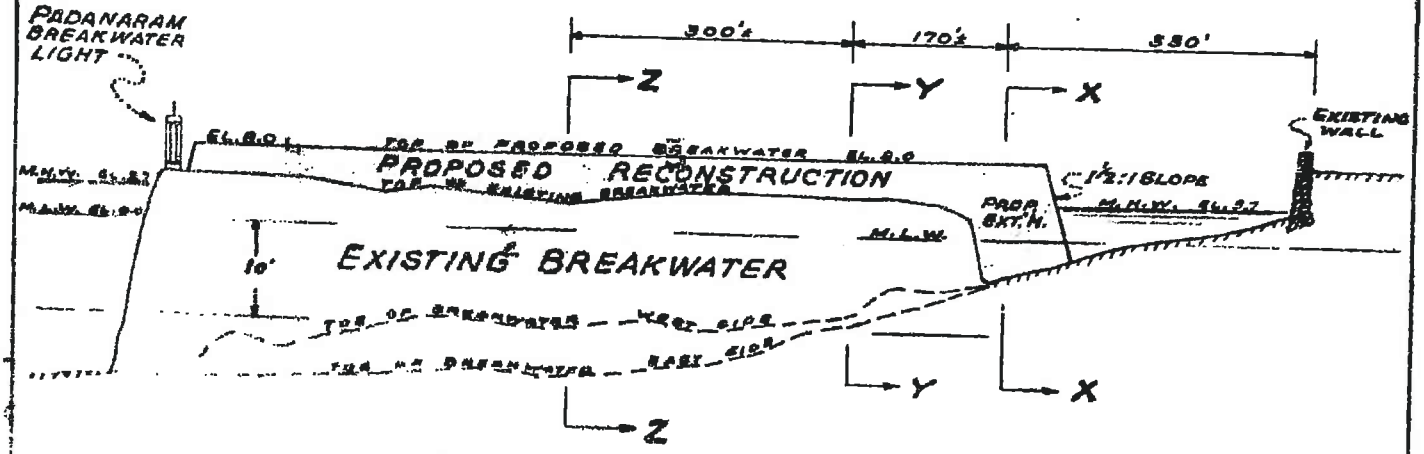
Robert W. MacKinnon
DISTRICT WATERWAYS ENGINEER

ACC. 03253-A

0 9 1 2 0 1 5

015-108-000-002-100

SHEET 2 OF 2

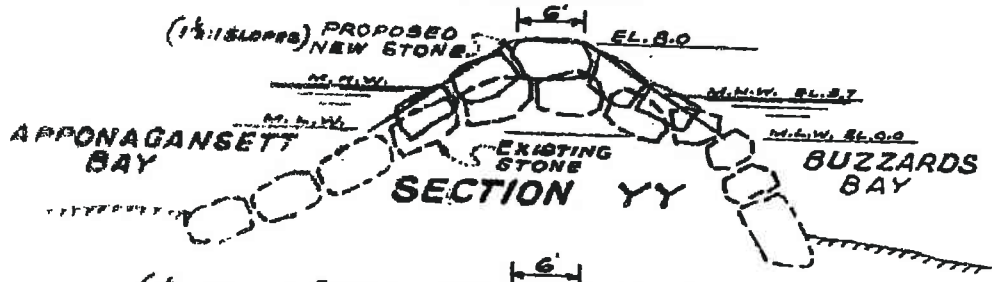


PROFILE OF BREAKWATER

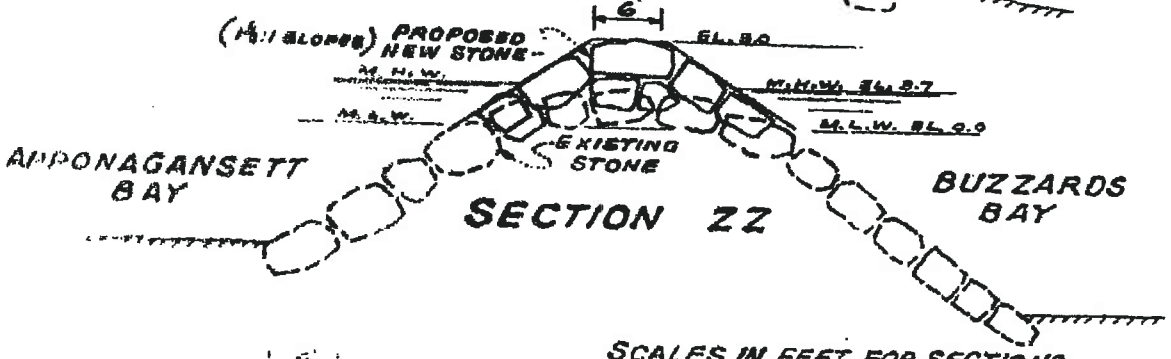
SCALE IN FEET

HOR. 0 50 100 200 1" = 200'

VER. 0 5 10 20 1" = 20'



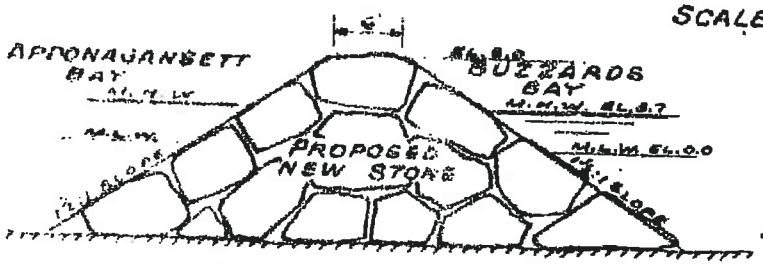
SECTION YY



SECTION ZZ

SCALES IN FEET FOR SECTIONS

1"=16'



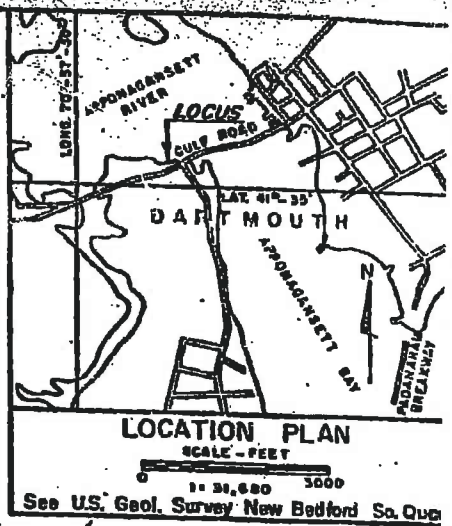
SECTION XX "EXTENSION"

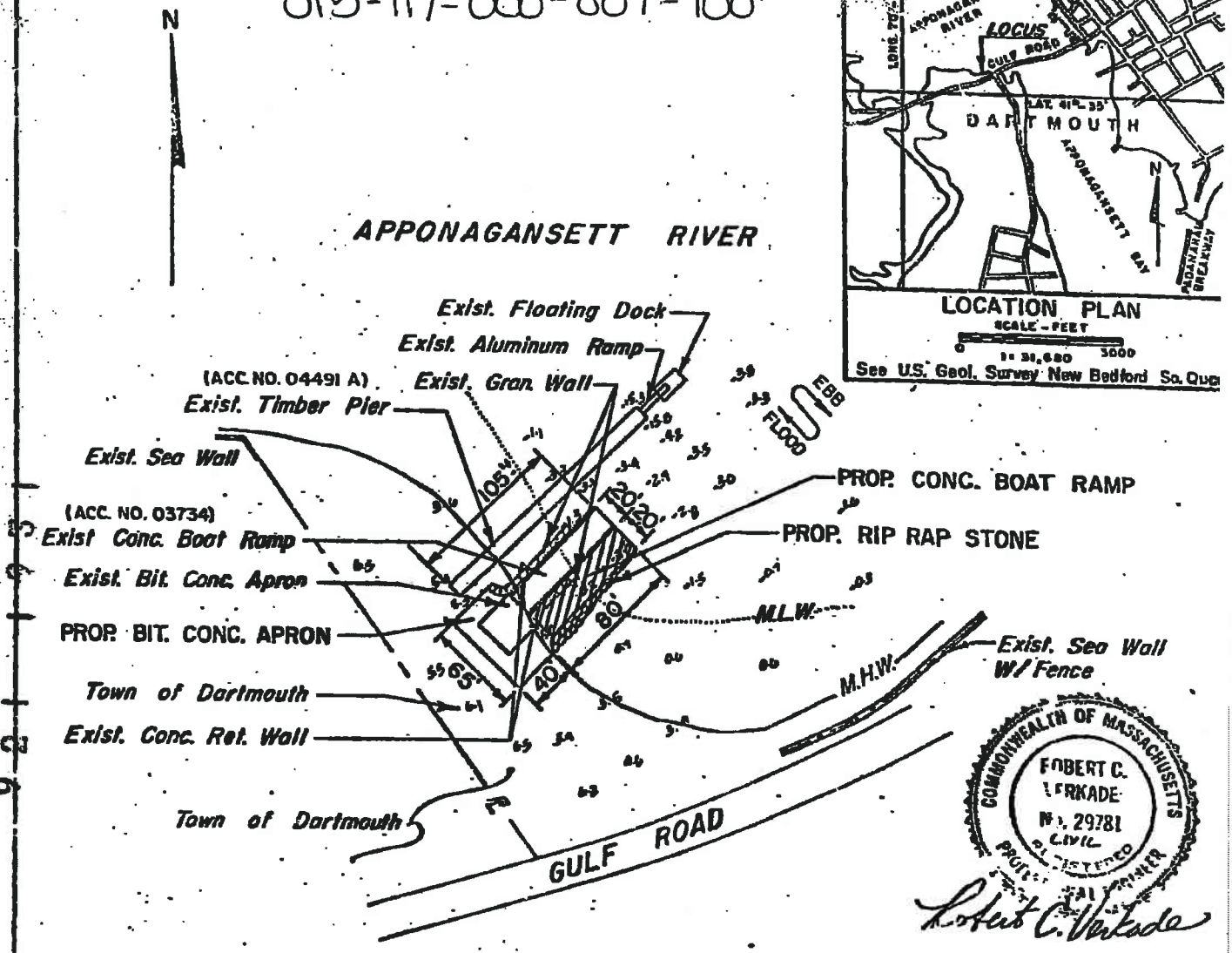
PROPOSED
RECONSTRUCTION AND EXTENSION
PADANARAM BREAKWATER
APPONAGANSETT BAY
DARTMOUTH — MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
JUNE 1954
SCALES SHOWN

Robert R. MacKinnon
DISTRICT WATERWAYS ENGINEER

015-117-000-007-100





COMMONWEALTH OF MASSACHUSETTS
ROBERT C. VERKADE
No. 29781
CIVIL
REGISTERED
PROFESSIONAL ENGINEER

Robert C. Verkade

PLAN

SCALE: 1" = 100'

0 50 100 200

NOTE:

Soundings are in feet and tenths and refer to Mean Low. Water.

This plan prepared for license purposes only not for construction.

Purpose- Public Use

PREPARED BY TIBBETTS ENGINEERING CORP. NEW BEDFORD, MASS.

PROPOSED EXPANSION OF EXISTING PUBLIC LAUNCHING RAMP AND STONE PROTECTION

IN APPONAGANSETT RIVER

NEAR PADANARAM BRIDGE

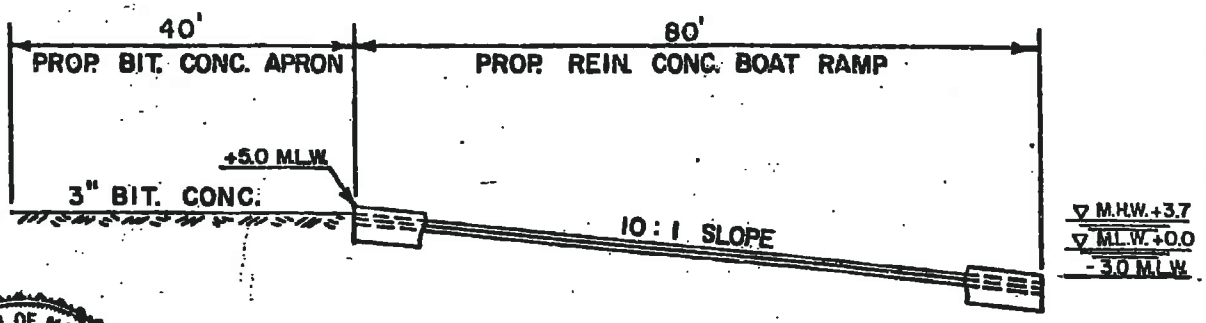
BRISTOL COUNTY, STATE OF MASSACHUSETTS

APPLICATION BY MASSACHUSETTS D.E.Q.E.

DIVISION OF WATERWAYS

SHEET 1 OF 2 DATE: 12/23/82

015-017-000-007-100



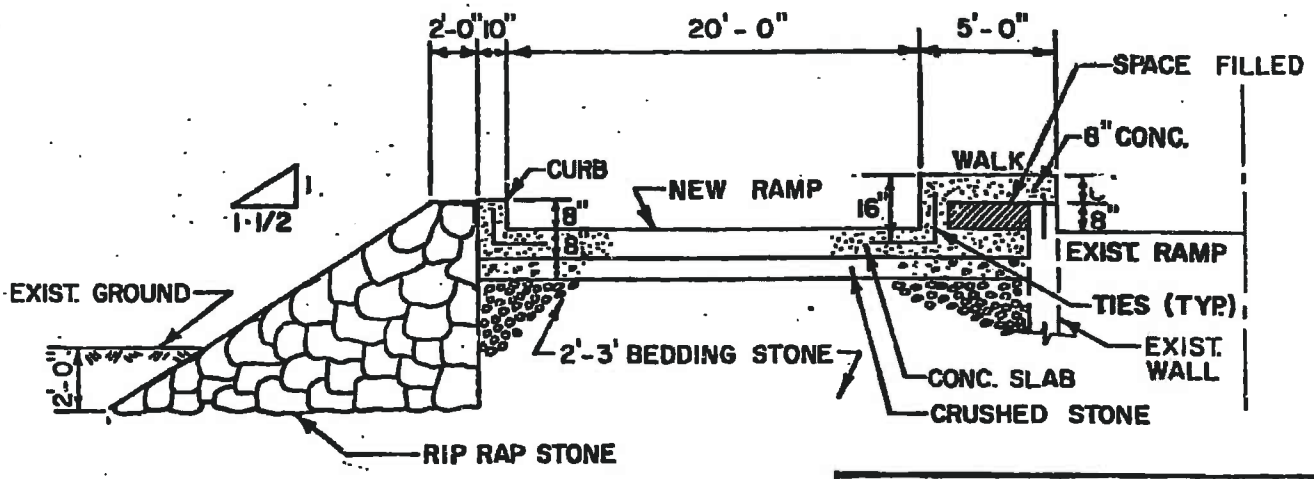
RAMP PROFILE

SCALE : 1" = 20'

0 10 20 40

COMMONWEALTH OF MASSACHUSETTS
ROBERT C. VERKADE
No. 29781
CIVIL
REGISTERED PROFESSIONAL ENGINEER

Robert C. Verkade



TYPICAL SECTION

N.T.S.

PROPOSED EXPANSION OF EXISTING PUBLIC LAUNCHING RAMP AND STONE PROTECTION

IN APPONAGANSETT RIVER

NEAR PADANARAM BRIDGE

BRISTOL COUNTY, STATE OF MASSACHUSETTS

APPLICATION BY MASSACHUSETTS D.E.Q.E.

DIVISION OF WATERWAYS

SHEET 2 OF 2 DATE: 12/23/82

PREPARED BY TIBBETTS ENGINEERING CORP. NEW BEDFORD, MASS.