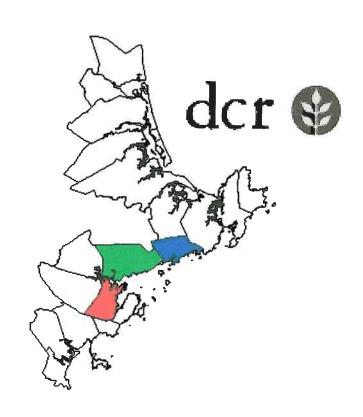
# Massachusetts Coastal Infrastructure Inventory and Assessment Project Massachusetts Department of Conservation and Recreation Office of Waterways

# **North Shore - North**

Manchester Beverly Salem



July 6, 2009

Prepared for:

Massachusetts Department of Conservation and Recreation Hingham, Massachusetts

Presented by:

**Bourne Consulting Engineering** Franklin, Massachusetts

In Association With:

**Waterfront Engineers** 



Bourne Consulting Engineering

Waterfront Engineers

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# **Section I**

# Coastal Hazards Infrastructure and Assessment Program

**INTRODUCTION** 

**PURPOSE** 

DEVELOPMENT OF MassGIS DATABASE ATTRIBUTES

DEVELOPMENT OF REPAIR / RECONSTRUCTION COSTS



# 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:
  - o No consideration on utility impacts water, electrical, sewer, gas
  - No consideration of roadway and bridge protection
  - o Evacuation routes were not considered within the investigation
  - o 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

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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

W	hei	re:

CCC

**DEP Community Number** 

**MMM** 

Community Map Number

BBB

Block Number (000 if no block numbering system)

PPP

Community Parcel Number

SSS

Structure Number

<u>Property Ownership:</u> 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

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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

<u>Basis of Ownership:</u> 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

<u>Structure Owner's Name:</u> 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.

<u>Primary Structure / Secondary Structure:</u> 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.

<u>Structure Material</u>: 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.

<u>Structure Height:</u> 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.

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<u>Priority Rating:</u> 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.

<u>FEMA Zone and Elevation:</u> 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.

<u>Structure Comments:</u> 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.

<u>Pictures:</u> 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.

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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

<u>USACE Permits:</u> 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:

<u>Structure Condition Ratings</u> – 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.

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• 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.

<u>Height of Structure</u> – 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

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

<u>Bulkhead / Seawall Structures</u> – 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.

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<u>Groins and Jetties</u> – 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.

<u>Coastal Beaches</u> – 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.

<u>Coastal Dunes</u> – 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.

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

<u>Engineering and Regulatory Approvals</u> – 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.

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# **EXHIBIT A**

# **Structure Condition Table** – 5 Level Rating System

Co	iminary ndition essment	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.	None
		Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm	
		Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present.	
В	Good	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
		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	
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.	Major
		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.	
		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	
F	Critical	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.	Immediate
		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.	

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# **EXHIBIT B**

# **Priority Rating System - 5** Level Rating System

Pric	eliminary ority Level sessment	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		
п	Low Priority	Inshore Structures Present with Limited potential for Significant Infrastructure Damage	Future Project Consideration		
Ш	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**

#### **REPAIR / REHABILITATION COSTING DATA**

September 14, 2006

Cost per linear foot of structure

STRUCTURE TYPE	STRUCTURE MATERIALS	STRUCTURE HEIGHT	A	8	RUCTURE CONDITION RA	ATING 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 Fest	\$0	\$165	\$825	\$1,650	\$1,848
	Tank but Live	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
	1	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
	K:	10 To 15 Feet	\$0	\$161	\$804	\$1,608	\$1,872
The second second selection of the second se		Over 15 Feet	\$0	\$202	\$1,008	\$2,017	\$2,380
	SAND	Under 5 Feet	\$0	\$26	\$132	\$264	\$264
COASTAL BEACH	1	5 To 10 Feet	\$0	\$127	\$634	\$1,267	\$1,267
	1	10 To 15 Feet	\$0	\$224	\$1,122	\$2,244	\$2,244
	N .	Over 15 Feet	\$0	\$396	\$1,980	\$3,960	\$3,960
	SAND	Under 5 Feet	\$0	\$18	\$93	\$186	\$186
COASTAL DUNE		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
ROIN	STONE	Under 5 Feet	\$0	\$132	\$664	\$1,328	\$1,460
		5 To 10 Feet	\$0	\$240	\$1,201	\$2,402	\$2,600
	Minister of the	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.



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# **Section II**

**Manchester** 



### Section II - Community Findings - Town of Manchester

#### COMMUNITY DESCRIPTION

The Town of Manchester consists of a land area of 7.84 square miles out of a total area of 18.25 square miles and had a population of 5228 in the 2000 census. The Town is located on the North Shore 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 12 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 Manchester, there were 21 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 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 Manchester

	Total	Str	icture Conditio			
Primary Structure (1)	Structures A	B	С	D	F	Total Length
Bulkhead / Seawall	12	3	8	1		2490
Revetment	9	1	5	2	1	4585
Breakwater						1505
Groin / Jetty						
Coastal Dune						
Coastal Beach						
	21	4	13	3	1	7075

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 Manchester's case there are a total of 21 structures which would require approximately \$ 9.3 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 \$ 6.3 million would be required to upgrade the Town's coastal protection.

BCE

#### STRUCTURE REPAIR / RECONSTRUCTION COST - Town of Manchester

	Total		Str	uctu	re Conditio	n	Rating				
Primary Structure (1)	Structures	<u> A</u>	 В		С		<u>D</u>		F	Tota	al Cost
Bulkhead / Seawall	12		\$ 205,920	\$	1,978,112	\$	189,750			\$	2,373,782
Revetment	9		\$ 135,762	\$	724,522	\$	5,340,192	9	786,621	\$	6,987,097
Breakwater										\$	-
Groin / Jetty										5	_
Coastal Dune										\$	_
Coastal Beach										\$	-
	21	\$ -	\$ 341,682	\$	2,702,634	\$	5,529,942	\$	786.621	S	9,360,879

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

### STRUCTURE OWNERSHIP / REPAIR COST - Town of Manchester

	Total		Stri	ıctu	re Conditio	n l	Rating	 		
Primary Structure (1)	Structures	Α	 B		С		D	F	Tota	al Cost
Town Owned	21		\$ 341,682	\$	2,702,634	\$	5,529,942	\$786,621	\$	9,360,879
Commonwealth of Massachusetts									\$	-
Federal Government Owned									\$	-
Unknown Ownership									\$	-
	21	\$ -	\$ 341,682	\$	2,702,634	\$	5,529,942	\$ 786,621	\$	9,360,879

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 Manchester'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.



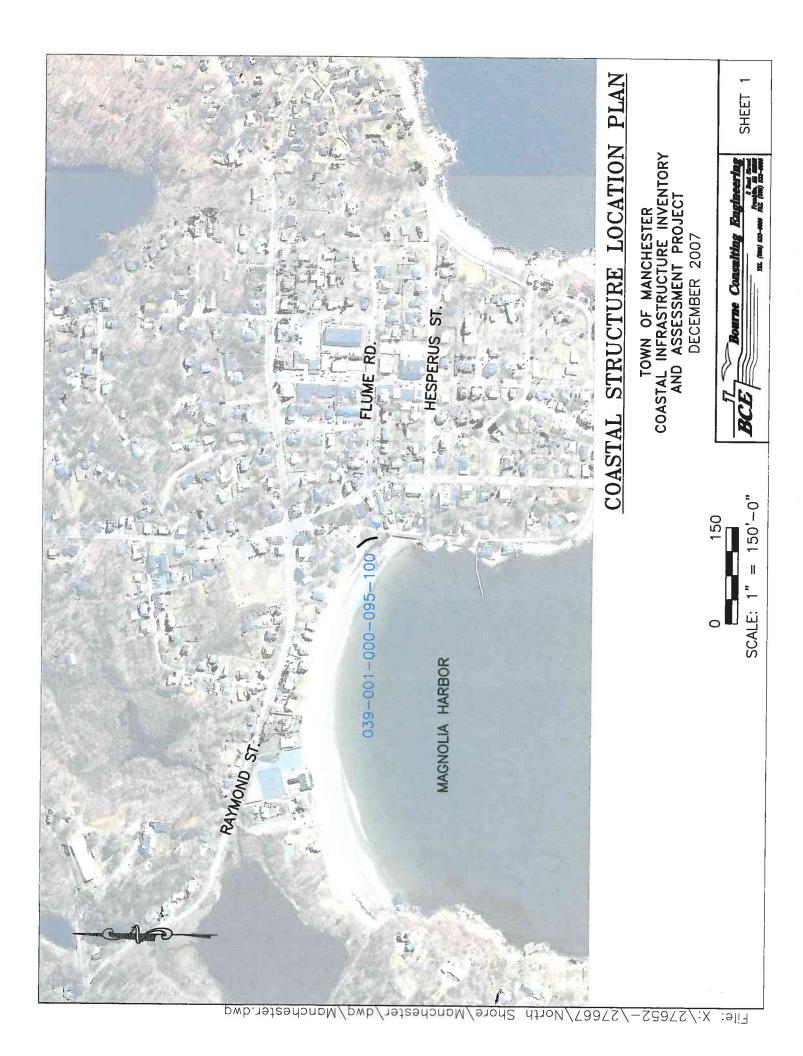
II-A-2

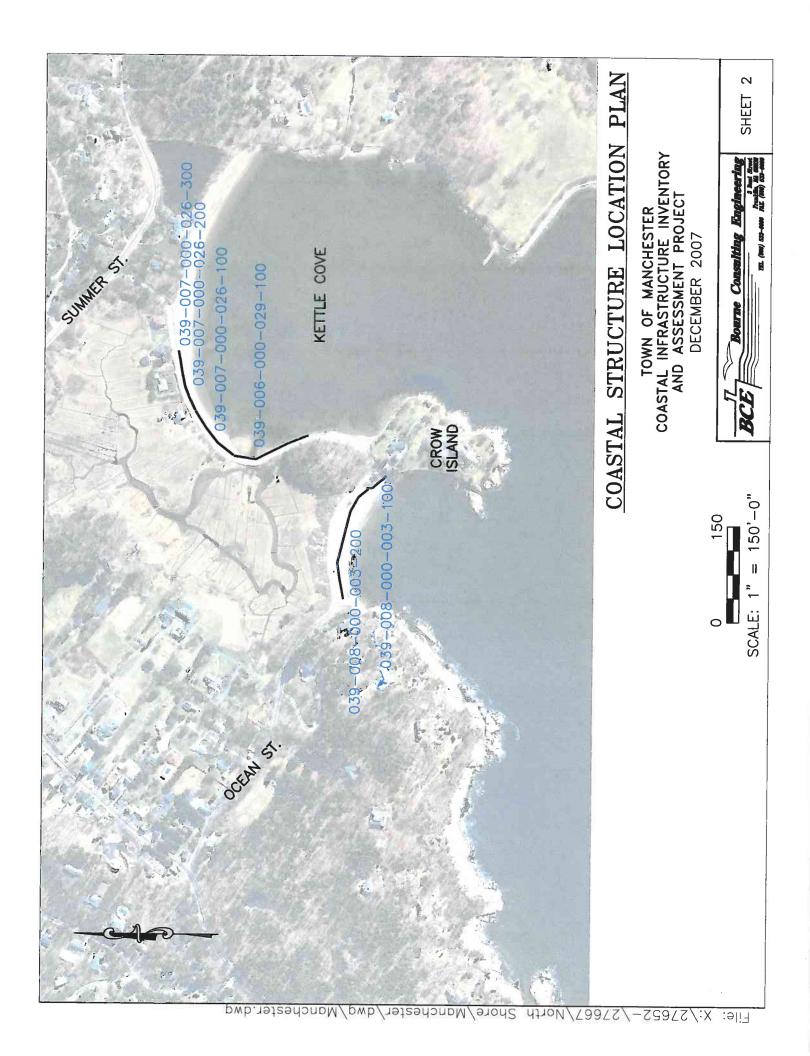
# Section II - Manchester

# Part B

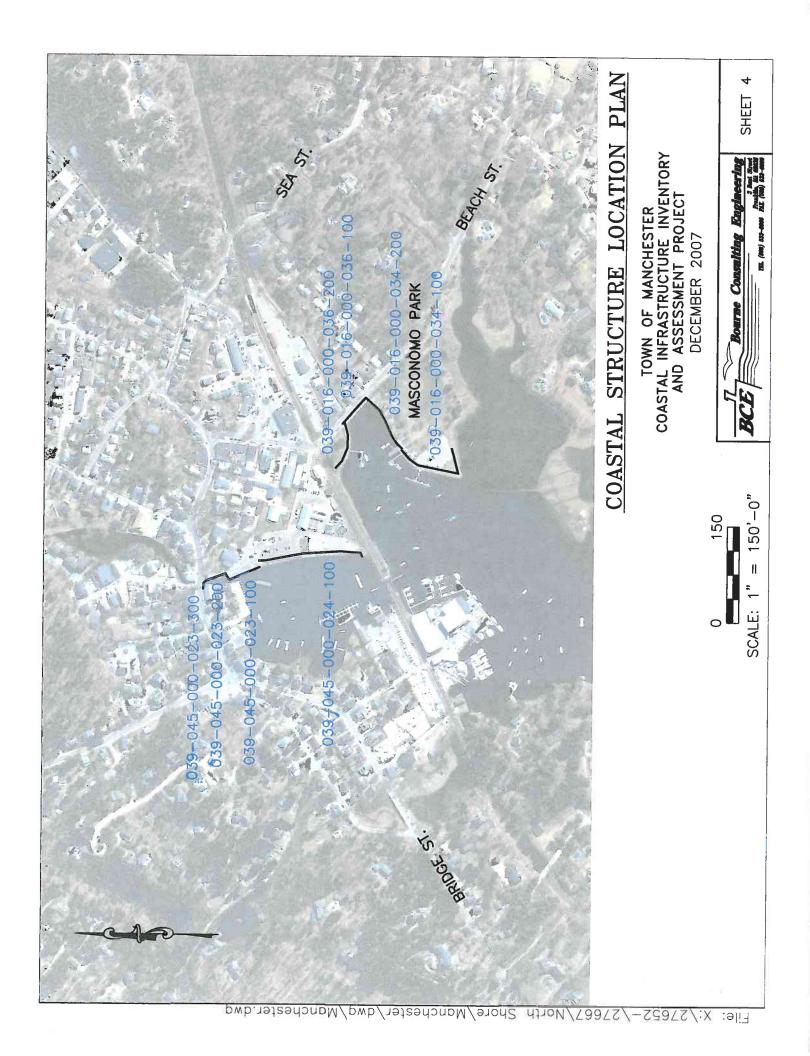
**Structure Assessment Reports** 













# **Structure Assessment Form**

Town: Manchester

Structure ID: 039-001-000-095-100

Property Owner:		Location:		Date:
Local	and the second s	Lobster Lane		6/22/2007
Presumed Structur	e Owner:	Based On Con	nment:	,
Local	Local Owner Name:			
Owner Name:			ure Record:	Estimated Reconstruction/Repair Cost:
Manchester	· · · · · · · · · · · · · · · · · · ·	Unkown	are Record.	\$72,072.00
	levation: FIRM Map Zone:	FIRM Map Elevat	ion:	
120	25 V2		17	
Feet Feet N	NAVD 88	Feet NG\	<b>V</b> D	
Primary Type:	Primary Material:	Primary Height:		
Revetment	Stone	5 to 10 Feet		
Secondary Type:	Secondary Material:	Secondary Height	t:	
1			_	
Condition Rating Level of Action Description	C Fair Moderate Structure is sound but may exhibit deterioration, section loss, crackin undermining, and/or scour. Structuto withstand major coastal storm with moderate damage. Actions taken to structure to provide full protection coastal storm and for extending life structure. Moderate wind or wave landform exists. Landform may not to fully protect shoreline during a nistorm. Actions taken to provide admaterial for full protection and extending the structure.	g, spalling, ure adequate vith little to to reinforce from major e of damage to t be sufficient najor coastal dition	Priority Rating Action Description	None Long Term Planning Considerations No Inshore Structures or Residential Dwelling Units Present
<b>Structure Image</b> 039-001-000-095-1		cture Documen	ts:	

### **Structure Assessment Form**

Town: Manchester

Structure ID: 039-006-000-029-100

Property Owner:		Location:			Date:		
Local		Black Beach			6/22/2007		
Presumed Structure	e Owner:	Based On Com	ment:	*	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
Local				The second secon			
Owner Name:		I Seeding to Change					
Manchester		Earliest Structu Unkown	ire Record:	Estimated Re	econstruction/Repair Cost: \$514,140.00		
					φ314,140.00		
	levation: FIRM Map Zone:	FIRM Map Elevation	on:		arras en contrarigad destrá discusión en en en enempresado de sucue regulario, ciunho dos é escrecis este este contrario como como contrario de entre en este contrario de entre entre contrario de entre entre contrario de entre e		
410	6 V2	1	14				
Feet Feet N	IAVD 88	Feet NGV	D		Sec A		
Primary Type:	Primary Material:	Primary Height:	<u> </u>	19-22-2			
Bulkhead/ Seawall	Stone	10 to 15 Feet					
Secondary Type:	Secondary Material:	Secondary Height:					
Structure Summary	/ : ubble seawall along the road, in fail						
Condition Rating	damage with recent pavement patc  C  Fair	and apparent and	Priority Rating	II Low Priority			
Level of Action	Moderate Structure is sound but may exhibit		Action	Future Project Consider			
Description	deterioration, section loss, crackin undermining, and/or scour. Structut to withstand major coastal storm v moderate damage. Actions taken structure to provide full protection coastal storm and for extending lift structure. Moderate wind or wave landform exists. Landform may no to fully protect shoreline during a n storm. Actions taken to provide ad material for full protection and extending the structure.	g, spalling, ure adequate with little to to reinforce from major e of damage to t be sufficient najor coastal dition	Description	Inshore Structures Prese potential for Significant I			
Structure Image 039-006-000-029-10		cture Document	'S:				
39-006-000-029-10							
39-006-000-029-10							
		•					

### **Structure Assessment Form**

Town: Manchester

Structure ID: 039-007-000-026-100

Property Owner:		Location:		Date:
Local	to the state of th	Black Beach		6/22/2007
Presumed Structur	e Owner:	Based On Con	nment:	,
Local				
Owner Name:		Earliest Struct	ure Record:	Estimated Reconstruction/Repair Cost:
Manchester		Unkown		\$366,366.00
Length: Top E	levation: FIRM Map Zone:	FIRM Map Elevati		
305	9 V2		14	
Feet Feet N	IAVD 88	Feet NG\	/D	
Primary Type:	Primary Material:	Primary Height:		
Revetment	Stone	5 to 10 Feet		
Secondary Type:	Secondary Material:	Secondary Height	: <u> </u>	
1 = = =				
Structure Summary				
A Stone revetment	with significant overtopping crest d	amage, in poor con	dition, causing red	duced protection for the roadway.
Condition	D		Priority	II
Rating	Poor		Rating	Low Priority
Level of Action Description	Major Structure exhibits advanced levels	of	Action	Future Project Consideration
Description	deterioration, section loss, crackin undermining, and/or scour. Struct strong risk of significant damage a failure during a major coastal storn should be monitored until repairs/reconstruction can be initiataken to reconstruct structure to recapacity to resist a major coastal standform eroded, stability threatel Landform not adequate to provide during major coastal storm. Action recreate landform to adequate limit protection from a major coastal storn.	g, spalling, ture has and possible m. Structure ated. Actions egain full storm. ned. protection s taken to its for full	Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage
Structure Image   039-007-000-026-1		octure Documen	ts:	

### **Structure Assessment Form**

Town: Manchester
Structure ID: 039-007-000-026-200

Property Owner:		Location:		Γ	Pate:
Local	· January - Janu	Black Beach	7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	ſ	6/22/2007
Presumed Structur	re Owner:	Based On Con	amont.	1	, ,,
Local	Te Owner.	Based Off Con	iment:		
		į			
wner Name:		Earliest Struct	ure Record:	Estimated Rec	onstruction/Repair Cost:
Manchester		1973			\$151,536.00
ength: Top 8	Elevation: FIRM Map Zone	e: FIRM Map Elevati	on:		
200			14		
Feet Feet	NAVD 88	; Feet NG\	/D		Salar
Primary Type:	Primary Material:	Primary Height:		1000	
Bulkhead/ Seawal		Under 5 Feet			
Secondary Type:	Secondary Material:	Secondary Height	•		
Revetment	Stone	Under 5 Feet			
itructure Summar	v ·				
a cast in place cor	ncrete seawall with toe stone reve	etment adjacent to the	road that may fail	in a storm. There is apparen	ot overtopping with the
vall footing expos	ed. There is an under cut void up	to 1.5 feet high at th	e west end.		and the second
Condition	С		Priority	II	
Rating	Fair		Rating	Low Priority	
Level of Action	Moderate		Action	Future Project Considerate	tion
Description	Structure is sound but may exh deterioration, section loss, crac undermining, and/or scour. Struto withstand major coastal storn moderate damage. Actions take structure to provide full protectic coastal storm and for extending structure. Moderate wind or wallandform exists. Landform may to fully protect shoreline during storm. Actions taken to provide material for full protection and extending storm.	king, spalling, ucture adequate m with little to en to reinforce on from major life of live damage to not be sufficient a major coastal addition	Description	Inshore Structures Presei potential for Significant In	
tructure Image 39-007-000-026-2		Tructure Documen		osed Shore 039-007-6	000-026-200-DCR2A

### **Structure Assessment Form**

Town: Manchester

Structure ID: 039-007-000-026-300

Property Owner:		Location:		Date	
Local		Black Beach			6/22/2007
Presumed Structure	e Owner:	" Based On Cor	nment:		
Local				the second second second	
Owner Name:		Earliest Struct	ture Records	Estimated Deconstr	uction/Repair Cost:
Manchester		Unkown	tare record.	LSuinated Recoilsu	\$39,917.00
Length: Top E	levation: FIRM Map Zone:	FIRM Map Elevat	ion:		
120 V2			14		
Feet Feet N	IAVD 88	Feet NG	VD		
Primary Type: Primary Material:		Primary Height:			
Revetment Stone		Under 5 Feet	_		
Secondary Type:	Secondary Material:	Secondary Heigh	t:		
		Jees Law y Height	<u></u>		i i
Structure Summary		•		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	etment adjacent ot the road, in fair	condition. There is	overtopping dama	age with dislanded crest stones	
			a renespping come	-50a. albioagea crest stories.	
Condition	C		D. I. II		
Rating	Fair		Priority	II Low Priority	
Level of Action	Moderate	Rating Action	Future Project Consideration		
Description  Structure is sound but may exhibit deterioration, section loss, cracking undermining, and/or scour. Structure to withstand major coastal storm we moderate damage. Actions taken to structure to provide full protection of coastal storm and for extending life structure. Moderate wind or wave landform exists. Landform may not to fully protect shoreline during a material for full protection and external full protection full protect		minor g, spalling, tre adequate with little to to reinforce from major to of damage to the sufficient thajor coastal dition		Inshore Structures Present wit potential for Significant Infrastr	
Structure Image 039-007-000-026-30		ucture Documen	its:		

### **Structure Assessment Form**

Town: Manchester
Structure ID: 039-008-000-003-100

Property Owner:		Location:			Date:	
ocal		Ocean Stre	et White Beach		6/22/2007	
Presumed Structur	re Owner:	Based On C	Comment:			
Local						
Owner Name:		Earliest Str	ucture Record:	Estimated	Reconstruction/Repair Cost:	
Manchester					\$189,750.00	
Length: Top E	Sevetion: ETDM Man Zono	: FIRM Map Elev	e mente menggangangkaladakan sama saman pengangganggangganggangganggangganggangga			
125			14	AND SERVICE STATE		
Feet Feet	Feet NAVD 88		IGVD			
Primary Type:	Primary Material:	Primary Height		2200		
Bulkhead/ Seawall			-			
Secondary Type:	Secondary Material:	5 to 10 Feet Secondary Hei	ght:			
			5			
Structure Summan	v :				State of	
Rating Level of Action Description	Poor  Major  Structure exhibits advanced levels of deterioration, section loss, cracking, spallir undermining, and/or scour. Structure has strong risk of significant damage and possi failure during a major coastal storm. Struct should be monitored until repairs/reconstruction can be initiated. Acti taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protectic during major coastal storm. Actions taken t recreate landform to adequate limits for full protection from a major coastal storm.		Priority Rating Action Description	None Long Term Planning No Inshore Structure: Units Present	Considerations s or Residential Dwelling	
Structure Image 139-008-000-003-1		ructure Docume	ents:			

### **Structure Assessment Form**

Town: Manchester

Structure ID: 039-008-000-003-200

Property Owner:		Location:		D	ate:
Local  Presumed Structure Owner:  Local  Owner Name:  Manchester  Length: Top Elevation: FIRM Map Zone: 605 10 V2		Ocean Street White Beach  Based On Comment:  Earliest Structure Record:			6/22/2007
				0,22,72	
				Estimated Reco	onstruction/Repair Cost:
		Unkown			\$786,621.00
		FIRM Map Elevation:		and the first additional designation of the control	
Feet Feet!	NAVD 88	1 Feet NG	VD		
Primary Type: Primary Material: Revetment Stone		Primary Height:  5 to 10 Feet			
Secondary Type:	Secondary Material:	•			
Cocondary Type.	Secondary Material:	Secondary Heigh	<u> </u>		
Structure Summar	v ·	•			- Anna
stones are scattered are scatt	t along top of beach with typical ove ed. Anticipate future damage to the	rtopping damage. adjacen <b>t road unl</b> o	ess it is rebuilt.	the revetment is totally destroy	/ed and random
Rating	Critical	Priority Rating	Low Priority Future Project Consideration		
Level of Action					Action
Description	Conditions of structure/landform memergency stabilization as failure potential loss of property and/or liferoded, loss of integrity. Structure critical levels of deterioration, sect cracking, spalling, undermining, at Structure provides little or no prote major coastal storm. Actions taker reconstruct structure to regain full Landform stability is severely commate of erosion/material loss may be and landform does not provide adeprotection from a major coastal stotaken to recreate landform to adec for full protection from a major coastal stotaken to recreate landform a	Description  Description  Description  Landform exhibits on loss, d/or scour. ction from a to totally apacity. romised, e increasing, quate m. Actions late limits		Inshore Structures Present potential for Significant Infi	
Structure Image		ıcture Documer	nts:		
039-008-000-003-2	00-PHO2B.JPG				

# **Structure Assessment Form**

Town: Manchester

Structure ID: 039-016-000-034-100

Property Owner:		Location:		Date:	
Local		Mascomono Pa	ark		6/22/2007
Presumed Structure Owner:		Based On Com	ment:	1	
			<u> </u>		
Owner Name:		Earliest Structu	ure Record:	Estimated Reconstruc	tion/Repair Cost
Manchester		Unkown		l l l l l l l l l l l l l l l l l l l	\$363,370.00
	Elevation: FIRM Map Zone:	FIRM Map Elevation	on:	The second secon	
465	A2		9		
	NAVD 88	Feet NGV	D	<b>三大年</b>	
Primary Type: Revetment	Primary Material:	Primary Height:	_		
•	Stone	10 to 15 Feet		4	
Secondary Type:	Secondary Material:	Secondary Height:			
]		1			
Structure Summar	y : retment in fair condition at the edge	of the park. There	is some erasien a		
A Storie Tubble Tev	condition at the eage	of the park. There	is some erosion a	ind crest stone movement.	
Condition	С		Priority	1	
Rating	Fair		Rating	None	
Level of Action	Moderate		Action	Long Term Planning Considerati	ons
Description	Structure is sound but may exhibit deterioration, section loss, crackir undermining, and/or scour. Struct to withstand major coastal storm anderate damage. Actions taken structure to provide full protection coastal storm and for extending lift structure. Moderate wind or wave landform exists. Landform may not of fully protect shoreline during a storm. Actions taken to provide acmaterial for full protection and extending the structure.	ng, spalling, ure adequate with little to to reinforce from major e of damage to to be sufficient major coastal dition	Description	No Inshore Structures or Reside Units Present	ntial Dwelling
Structure Image 139-016-000-034-1 139-016-000-034-1	00-PHO1A.JPG DEF	octure Document	:S: rch 20, 20 Plan	Accompanying 039-016-000-034	1-100-LIC1A

### **Structure Assessment Form**

Town: Manchester

Structure ID: 039-016-000-022-100

		Location:		Date:
Local		Proctor Street		6/22/2007
Presumed Structure Owner:		Based On Con	nment:	1
		" Earliest Struct	ure Record:	Estimated Reconstruction/Repair Cost:
		Unkown		\$181,830.00
ngth: Top Elevation: FIRM Map Zone:		FIRM Map Elevati	ion:	
	V2		11	
NAVD 88		Feet NG\	/D	
		Primary Height:		2、142、1766年20
Stone		10 to 15 Feet		
Second	dary Material:	Secondary Height	-1	
1		1		
stone seawall	with granite block cap and one missing toe	p adjacent to the st stone adjacent to t	reet, in fair conditi the road.	ion in a residential area. Some cap stones are
С			Priority	II
Fair			Rating	Low Priority
			Action	Future Project Consideration
deterioration, section loss, cracking, s undermining, and/or scour. Structure at to withstand major coastal storm with moderate damage. Actions taken to restructure to provide full protection from coastal storm and for extending life of structure. Moderate wind or wave dan landform exists. Landform may not be to fully protect shoreline during a major storm. Actions taken to provide additional countries of the structure of the structure of the structure.		g, spalling, ure adequate vith little to to reinforce from major e of damage to t be sufficient najor coastal ldition	Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage
		acture Documen	ts:	
	Prima Stone Secone  Y: estone seawall one mortar loss  C Fair Moderate Structure is s deterioration, undermining, to withstand r moderate dar structure. Molandform exis to fully protect storm. Actions material for fully	Primary Material:  Stone Secondary Material:  Stone Secondary Material:  stone seawall with granite block cape mortar loss and one missing toe of the properties of the proper	Proctor Street Based On Con  Earliest Struct Unkown  FIRM Map Zone: FIRM Map Elevati V2  NAVD 88  Primary Material: Primary Height: 10 to 15 Feet Secondary Material: Secondary Height Secondary Material: Secondary Height  Ty: The stone seawall with granite block cap adjacent to the stone mortar loss and one missing toe stone adjacent to the stone mortar loss and one missing toe stone adjacent to the stone mortar loss and one missing toe stone adjacent to the stone mortar loss and one missing toe stone adjacent to the stone mortar loss and one missing toe stone adjacent to the stone mortar loss and one missing toe stone adjacent to the stone mortar loss and one missing toe stone adjacent to the stone mortar loss and one missing toe stone adjacent to the stone mortar loss and one missing toe stone adjacent to the stone mortar loss and one missing toe stone adjacent to the stone mortar loss and one missing toe stone adjacent to the ston	Proctor Street  Based On Comment:  Earliest Structure Record:    Unkown

# **Structure Assessment Form**

Town: Manchester

Structure ID: 039-016-000-034-200

Property Owner:  Local  Presumed Structure Owner:  Local  Owner Name:			Date:	
		ark	6/22/	
		ment:		
			The state of the s	
		na Danasali		
		re Record:	Estimated Reconstruction/Repair Co	
	JOHROWII		\$413,820	
Elevation: FIRM Map Zone:	FIRM Map Elevation	on:		
A2		9	415	
NAVD 88	Feet NGV	D		
Primary Material:	Primary Height:			
		_		
•	•			
Secondary Material:	Secondary Height:	_		
	1			
in han condition at park entrance r	oad. There is differ	ential stone move	ment, block settling, wall bulges and a slight offsh	
C		Dutante	н	
		-	Low Priority	
Moderate		**	Future Project Consideration	
Structure is sound but may exhibit	minor pescription g, spalling, ure adequate vith little to to reinforce from major e of damage to t be sufficient najor coastal dition		Inshore Structures Present with Limited potential for Significant Infrastructure Damage	
undermining, and/or scour. Structive to withstand major coastal storm with moderate damage. Actions taken structure to provide full protection coastal storm and for extending lift structure. Moderate wind or wave landform exists. Landform may not of fully protect shoreline during a right storm. Actions taken to provide additional storm.			potential for Organicant milastructure Damage	
es: Stru	cture Document	s:		
	Primary Material:  Stone  Secondary Material:  Stone  Secondary Material:  C  Fair  Moderate  Structure is sound but may exhibit deterioration, section loss, crackin undermining, and/or scour. Struct to withstand major coastal storm v moderate damage. Actions taken structure to provide full protection coastal storm and for extending life structure. Moderate wind or wave landform exists. Landform may no to fully protect shoreline during a r storm. Actions taken to provide admaterial for full protection and external structure. Structure to provide admaterial for full protection and external structure. Structure during a r storm. Actions taken to provide admaterial for full protection and external structure.	Earliest Structurun Unkown  FIRM Map Zone:  FIRM Map Zone:  FIRM Map Elevation  Firmary Material:  Feet NGV  Primary Material:  Secondary Material:  Secondary Height:  Secondary Height:  Feet NGV  Primary Height:  Secondary Height:  Feet NGV  There is different in fair condition at park entrance road. The	Re Owner:  Based On Comment:  Elevation:  FIRM Map Zone:  A2  Primary Material:  Stone  Primary Height:  Secondary Material:  Secondary Height:  Secondary Material:  Secondary Height:  In fair condition at park entrance road. There is differential stone move 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.  Structure Documents:  Structure Documents:	

# **Structure Assessment Form**

Town: Manchester

Structure ID: 039-016-000-036-100

		Location:		Date:		
Local Presumed Structure Owner:  Local Owner Name: Manchester		Mascomono Park		6/22/2007		
		Based On Com	ment:			
		Earliest Structu	ure Record:	Estimated Reconstruction/Repair Cost:		
- idi ici ici ici		Olikowii	ar Lawrenghair an' annanana a	\$73,260.00		
ength: Top Elevation: FIRM Map Zone:		FIRM Map Elevation:		The Park to		
185	A2	9 Feet NGVD		A STATE OF THE PARTY OF THE PAR		
Feet Feet NA						
Primary Type:	Primary Material:	Primary Height:	_			
Bulkhead/ Seawall Stone		Over 15 Feet				
Secondary Type:	Secondary Material:	Secondary Height:	_			
Structure Summary	1	1				
some slight subsidel	wall with granite block cap in satisfance.	actory condition. It	is adjacent to Bea	ach Street with two areas of bituminous sidewalk with		
00.700.7077	В		Priority	II.		
	Good Minor		Rating	Low Priority		
20,000,110000	Structure observed to exhibit very	minor	Action  Description	Future Project Consideration Inshore Structures Present with Limited		
	problems, superficial in nature. Min to landform is present. Structure adequate to provide protection from coastal storm with no damage. Act to prevent / limit future deterioration life of structure.			potential for Significant Infrastructure Damage		
tructure Images		cture Document				

## **Structure Assessment Form**

Town: Manchester

Structure ID: 039-016-000-036-200

Property Owner:		Location:		Date:
Local		Mascomon	o Park	6/22/2007
Presumed Structure	e Owner:	Based On C	omment:	1
Local		53353 511 6		
1		J		
Owner Name: Manchester		Earliest Stru Unkown	cture Record:	Estimated Reconstruction/Repair Cost:
) idionesies		Johnsowii		\$199,267.00
Length: Top E	levation: FIRM Map Zoi	ne: FIRM Map Elev	ation:	
255		A2	9	
Feet Feet N	IAVD 88	Feet N	GVD	
Primary Type:	Primary Material:	Primary Height		
Revetment	Stone	10 to 15 Feet		
Secondary Type:	Secondary Material:	Secondary Heig	jht:	
				The state of the
Structure Summary	<b>:</b>			
Condition	ch is washing out. There is loca	iiized damage in the p	Priority	I
Rating	Fair		Rating	None
Level of Action	Moderate		Action	Long Term Planning Considerations
Description	Structure is sound but may ex deterioration, section loss, cra undermining, and/or scour. St to withstand major coastal sto moderate damage. Actions ta structure to provide full protect coastal storm and for extendir structure. Moderate wind or vlandform exists. Landform mato fully protect shoreline durin storm. Actions taken to provid material for full protection and	acking, spalling, ructure adequate rm with little to ken to reinforce tion from major ng life of vave damage to y not be sufficient g a major coastal e addition	Description	No Inshore Structures or Residential Dwelling Units Present
<b>Structure Image</b> 039-016-000-036-2		Structure Docume	ents: March 20, 20 Plan	Accompanying 039-016-000-036-200-LIC2A
039-016-000-036-2				
039-016-000-036-20	00-PHO2C.JPG			

## **Structure Assessment Form**

Town: Manchester

Structure ID: 039-017-000-024-100

Property Owner:		Loca	tion:			Date:	
Local	· · · · · · · · · · · · · · · · · · ·	Singir	ng Beach				6/22/2007
Presumed Structure	e Owner:	<b>Ba</b> sed	On Comment:			J	
Local				a_ ·		<u> </u>	
Owner Name:		) Fadie	st Structure Record:			Estimated Reconstruc	Hon/Donnie Coats
Manchester		1947	st Sudcture Record.		I	Esumated Reconstruct	\$4,973,826.00
				lanna Millian var sand, sarvay si najarang janggang, sa sikalahikan masar sand inasa na sanjar sangan janggang			aldette och av sam er lädlikkupelir och spyrillettellikkensantilleransensansens Aftir annahrlikkunsenji annahrlikken, metalaksen han sommen engugstalaksi mellek
ength: Top E	levation: FIRM Ma	v2 FIRM Ma	p Elevation:		The second	The state of the s	
	AVD 88	1	eet NGVD		J-8-7(47)		
rimary Type:	Primary Material:						
evetment	Stone	Primary I Over 15					27.3
econdary Type:	Secondary Materia	i: Secondar	v Height:				
			,				
tructure Summary	':			1			
evel of Action Description	Major Structure exhibits advance deterioration, section loss undermining, and/or scot strong risk of significant of failure during a major coashould be monitored until repairs/reconstruction cataken to reconstruct structure capacity to resist a major Landform eroded, stabilit Landform not adequate to during major coastal stor recreate landform to adequate to protection from a major coastal store.	s, cracking, spalling, ar. Structure has damage and possible estal storm. Structure in be initiated. Action cture to regain full coastal storm. y threatened. p provide protection m. Actions taken to quate limits for full	9	tion	Inshore Str	ect Consideration uctures Present with L r Significant Infrastruc	
ructure Image		Structure Do	cuments:				
9-017-000-024-1		MA-DCR	January 194	Propose		039-017-000-024	
9-017-000-024-1		MA-DCR	April 1965	Propose	d Shore	039-017-000-024	-100-DCR1B
55-517-500-024-11	oo-i HOTO, gru		,				

## **Structure Assessment Form**

Town: Manchester

Structure ID: 039-018-000-025-100

Property Owner:		Location:		Date:
Local		Lobster Cove		6/22/200
Presumed Structur	e Owner:	Based On Comment:		·
Local				
Owner Name:		Earliest Structure Rec	ord:	Estimated Reconstruction/Repair Cost:
Manchester		Unkown	20.00	\$68,006.00
Length: Top E	flevation: FIRM Map Zone: V2	FIRM Map Elevation:		
1 1	13 V2 NAVD 88	14 Feet NGVD		
Primary Type:	Primary Material:	Primary Height:		
Bulkhead/ Seawall		Under 5 Feet		
Secondary Type:	Secondary Material:	Secondary Height:		
Structure Summary			The same fairs	San Paris Control of the Control of
A mortared stone i cracking.	block wall on concrete footing adjace	ent to a street, in satisfacto	ory condition.	There is some mortar loss and some concrete
1				
Condition	C	Prior	rity	I
Rating	Fair Moderate	Ratir	**	None
Level of Action Description	Structure is sound but may exhibit	Actio	on cription	Long Term Planning Considerations  No Inshore Structures or Residential Dwelling
	deterioration, section loss, crackin undermining, and/or scour. Structuto withstand major coastal storm with moderate damage. Actions taken a structure to provide full protection coastal storm and for extending life structure. Moderate wind or wave landform exists. Landform may not of fully protect shoreline during a nistorm. Actions taken to provide admaterial for full protection and extending the structure.	re adequate vith little to to reinforce from major e of damage to t be sufficient najor coastal dition		Units Present
<b>Structure</b> Image 039-018-000-025-1		cture Documents:		

## **Structure Assessment Form**

Town: Manchester

Structure ID: 039-022-000-016-100

Property Owner:		Location:		Date:
Local		Tucks Point		6/22/2007
Presumed Structure	e Owner:	Based On Com	ment:	,
Local				
Owner Name:		" Earliest Structu	ıre Record:	Estimated Reconstruction/Repair Cost:
Manchester		Unkown		\$53,130.00
Length: Top E	levation: FIRM Map Zone:	FIRM Map Elevation	on:	
125	V2		11	
Feet Feet N	IAVD 88	Feet NGV	D	San Transfer of the Property of the
Primary Type:	Primary Material:	Primary Height:		
Bulkhead/ Seawall		Under 5 Feet	_	
Secondary Type:	Secondary Material:	Secondary Height:		23
	The state of the s	Jest Ada y Height		
Structure Summary	· :			
A mortared rubble The wall forms an	stone wall with granite cap in fair of access to park pier.	ondition. There are	e a few areas with	missing mortar and the mortar is typically cracked.
Condition	С		Priority	I
Rating	Fair		Rating	None
Level of Action	Moderate		Action	Long Term Planning Considerations
Description	Structure is sound but may exhibit deterioration, section loss, crackin undermining, and/or scour. Structuto withstand major coastal storm with moderate damage. Actions taken is structure to provide full protection coastal storm and for extending lift structure. Moderate wind or wave landform exists. Landform may no to fully protect shoreline during a material for full protection and extending lift protection and extending lift is structure.	g, spalling, ure adequate vith little to to reinforce from major e of damage to t be sufficient najor coastal dition	Description	No Inshore Structures or Residential Dwelling Units Present
Structure Image 039-022-000-016-10 039-022-000-016-10	00-PHO1A.JPG	cture Document	S:	

## **Structure Assessment Form**

Town: Manchester

Structure ID: 039-022-000-017-100

Property Owner:		Location:		Date:
Local		Tucks Point		6/22/2007
Presumed Structure	e Owner:	Based On Com	ment:	ď
Local	·····			
Owner Name:		Earliest Structu	ire Record:	Estimated Reconstruction/Repair Cost:
Manchester		Unkown	ine record.	\$49,896.00
Length: Top E	levation: FIRM Map Zone:	CIDM Man Flaunti		
150 Top L	levation: FIRM Map Zone: V2	FIRM Map Elevation	on: 11	
1 1	IAVD 88	Feet NGV		
Primary Type:	Primary Material:	Primary Height:		
Revetment	Stone	Under 5 Feet		
Secondary Type:	Secondary Material:	Secondary Height		
[	- Section / Flaterion	Secondary Height	<u>.                                      </u>	
Structure Summary	, .			
A granite block rev	etment with toe undercut at west e	end. There is a void	up to 8 inches hi	gh under the toe for approximately 10 feet. Overall,
it is in fair condition	n. The park toilet building is nearby	<b>/</b> .	,	granted the test of approximately 10 feet. Overally,
Condition	С		Priority	II
Rating	Fair		Rating	Low Priority
Level of Action	Moderate		Action	Future Project Consideration
Description	Structure is sound but may exhibit deterioration, section loss, cracking undermining, and/or scour. Struct to withstand major coastal storm moderate damage. Actions taken structure to provide full protection coastal storm and for extending lift structure. Moderate wind or wave landform exists. Landform may not of ully protect shoreline during a storm. Actions taken to provide acmaterial for full protection and extending the structure.	ng, spalling, ture adequate with little to to reinforce from major fe of damage to to be sufficient major coastal ddition	Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage
Structure Image  039-022-000-017-1		ucture Document	ıs:	

## **Structure Assessment Form**

Town: Manchester

Structure ID: 039-022-000-034-100

Property Owner:		Location:		Date:
Local		West Main Be	ach	6/22/2007
Presumed Structure	e Owner:	Based On Com	ment:	
Local				
Owner Name:		Earliest Struct	ure Record:	Estimated Reconstruction/Repair Cost:
Manchester		Unkown		\$551,760.00
The second second	evation: FIRM Map Zone:	FIRM Map Elevati		
440	V2		14	
	AVD 88	Feet NGV	'D	
Primary Type: Bulkhead/ Seawall	Primary Material:	Primary Height:		
•		10 to 15 Feet		
Secondary Type:	Secondary Material:	Secondary Height	<u>:</u>	
	1	L		
A cast in place con locations. Some re	crete seawall adjacent to the road i	n fair condition. Th wall may actually be	e face of wall is cr e a concrete venee	racked with exposed embedded stones at a few er over stone wall or cyclopean concrete.
Condition	С		Priority	1
Rating	Fair Moderate		Rating	None
Level of Action Description	Structure is sound but may exhibit	minor	Action	Long Term Planning Considerations
Description	deterioration, section loss, cracking undermining, and/or scour. Structive to withstand major coastal storm with moderate damage. Actions taken structure to provide full protection coastal storm and for extending lift structure. Moderate wind or wave landform exists. Landform may not of fully protect shoreline during a ristorm. Actions taken to provide admaterial for full protection and extending the structure.	g, spalling, ure adequate vith little to to reinforce from major e of damage to t be sufficient najor coastal ldition	Description	No Inshore Structures or Residential Dwelling Units Present
Structure Image 039-022-000-034-10 039-022-000-034-10	00-PHO1A.JPG	octure Documen	ts:	

## **Structure Assessment Form**

Town: Manchester

Structure ID: 039-045-000-023-100

Property Owner:		Location:		Date:
Local	and the second s	Town Hall		6/22/2007
Presumed Structure	e Owner:	Based On Com	ment:	-1_
Local				· · · · · · · · · · · · · · · · · · ·
Owner Name:		' Earliest Structu	re Record:	Estimated Reconstruction/Repair Cost:
Manchester		Unkown		\$69,300.00
	levation: FIRM Map Zone:	FIRM Map Elevation		
175	A2		9	
Feet Feet N	IAVD 88	Feet NGV	D	
Primary Type:	Primary Material:	Primary Height:		
Bulkhead/ Seawall		Over 15 Feet		The second second
Secondary Type:	Secondary Material:	Secondary Height:	_	
Structure Summary		1		
bedding under stor	ne steps, with the steps in poor cond	actory condition. The dition. A police stati	ere is minor deter on is approximat	riorating of the concrete cap and some loss of ely 100 feet away.
Condition	В		Priority	III
Rating	Good Minor		Rating	Moderate Priority
Level of Action Description	Structure observed to exhibit very	minor	Action	Consider for Active Project Improvement Listing
z coo priori	problems, superficial in nature. Mit to landform is present. Structure adequate to provide protection from coastal storm with no damage. Act to prevent / limit future deterioration life of structure.	nor erosion / landform m a major ctions taken	Description	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings ( <1 dwelling impacted / 100 feet of shoreline)
Structure Image 039-045-000-023-1	00-PHO1A.JPG	cture Document	s:	
039-045-000-023-1	00-PHO1B.JPG			
				The state of the s
				The state of the s
				Complete
				Table - (the control of the control

#### **Structure Assessment Form**

Town: Manchester

Structure ID: 039-045-000-023-200

Property Owner:		Location:		Date:	
Local		Town Hall			6/22/2007
Presumed Structure	e Owner:	Based On Com	ment:		
Local				77.10	
Owner Name:	The state of the s	Earliest Structu	re Record:	Estimated Reconstru	
Manchester		Unkown			\$63,360.00
160	Ilevation: FIRM Map Zone:  A2  NAVD 88  Primary Material:  Concrete	FIRM Map Elevation  Feet NGV  Primary Height:  Over 15 Feet	9		
Secondary Type:	Secondary Material:	Secondary Height	<u>.                                      </u>		The state of the s
Structure Summar	)	1 = ==		<b>《新教》</b>	
Condition Rating Level of Action Description	B Good Minor Structure observed to exhibit very problems, superficial in nature. Mi to landform is present. Structure adequate to provide protection fro coastal storm with no damage. At to prevent / limit future deterioration life of structure.	minor nor erosion / landform m a major ctions taken	Priority Rating Action  Description	III  Moderate Priority  Consider for Active Project Implicating Inshore Structures with potentia Infrastructure Damage and/or L Residential Dwellings (<1 dwell 100 feet of shoreline)	rovement I for imited
Structure Imag  039-045-000-023-2  039-045-000-023-2	200-PHO2A.JPG	ucture Documen	ts:		

## **Structure Assessment Form**

Town: Manchester

Structure ID: 039-045-000-023-300

Property Owner:		Location:		Date:
Local		Town Hall - W	all at Central Stree	et 6/22/2007
Presumed Structure	e Owner:	Based On Com	ment:	
Local			25,323	
Owner Name:		Earliest Structu	re Record:	Estimated Reconstruction/Repair Cost:
Manchester		Unkown		\$43,890.00
22	levation: FIRM Map Zone:	FIRM Map Elevation	on:	
35	A3		9	
Feet Feet N	IAVD 88	Feet NGV	D	
Primary Type:	Primary Material:	Primary Height:		
Bulkhead/ Seawall	Stone	10 to 15 Feet	<u></u>	
Secondary Type:	Secondary Material:	Secondary Height:		
			-	
Structure Summary	<b>,</b> :	•		
A stone seawall at	Central street, skim coated with mond there is seepage between stones.	rtar above high wat	erand with a gran	nite cap. The wall acts as a stream dam for the
adjacone sa cam di	id there is scepage between stories.	TITTAIL CONGRUON.		
Condition	С		Priority	II
Rating	Fair		Rating	Low Priority
Level of Action	Moderate		Action	Future Project Consideration
Description	Structure is sound but may exhibit deterioration, section loss, cracking undermining, and/or scour. Structuto withstand major coastal storm with moderate damage. Actions taken to structure to provide full protection of coastal storm and for extending life structure. Moderate wind or wave landform exists. Landform may not to fully protect shoreline during a mistorm. Actions taken to provide admaterial for full protection and extending the structure.	g, spalling, ure adequate vith little to to reinforce from major to of damage to t be sufficient najor coastal dition	Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage
Structure Image 039-045-000-023-3		cture Document	s:	

## **Structure Assessment Form**

Town: Manchester

Structure ID: 039-045-000-024-100

Property Owner:	4.00	Location:			Date:
Local		Town Hall Pa	rking Lot		6/22/2007
Presumed Structure	Owner:	Based On Cor	nment:		
Local					
Owner Name:		Earliest Struct	ture Record:	Estimated Re	econstruction/Repair Cost:
Manchester		Unkown			\$135,762.00
Activities to the second secon	evation: FIRM Map Zo	The second secon	ion:		
550 Fact NA	NAD 00	A2	9		
Feet Feet NA		Feet NG	VD		
Primary Type: Revetment	Primary Material: Stone	Primary Height: Over 15 Feet			
Secondary Type:	Secondary Material:	,	<b>.</b> .		
Secondary Type.	Secondary Material.	Secondary Heigh	L.		76
Structure Summary :	:				
	vith large stone face parallel v	with slope in good condi	tion. This structure	is adjacent to the wastewa	ter treatment plant.
1					
Condition	В		Priority	III	
	Good		Rating	Moderate Priority	
	Minor		Action	Consider for Active Proj Listing	ect Improvement
*   	Structure observed to exhibit problems, superficial in natur to landform is present. Struct adequate to provide protection coastal storm with no damage to prevent / limit future deteriation of life of structure.	e. Minor erosion cture / landform n from a major e. Actions taken	Description	Inshore Structures with Infrastructure Damage a Residential Dwellings (*100 feet of shoreline)	and/or Limited
Structure Images		Structure Documen	ıtcı		
039-045-000-024-100			gust 21, 1 Plan	Accompanying 039-045	-000-045-100-LIC1A
		·			
		•			

# Section II - Manchester

Part C

**Structure Photographs** 

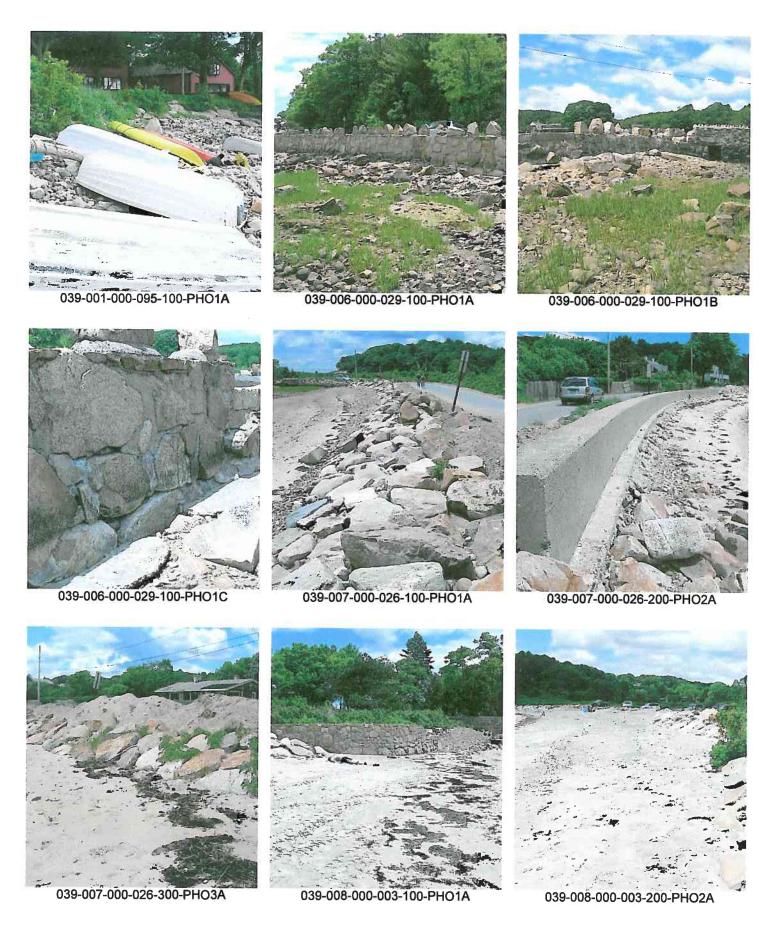


TOWN: MANCHESTER SOURCE: WFE - FIELD PHOTOGRAPHS LOCATION: Bourne Consulting Engineering DATE OF RESEARCH: AUGUST 2007

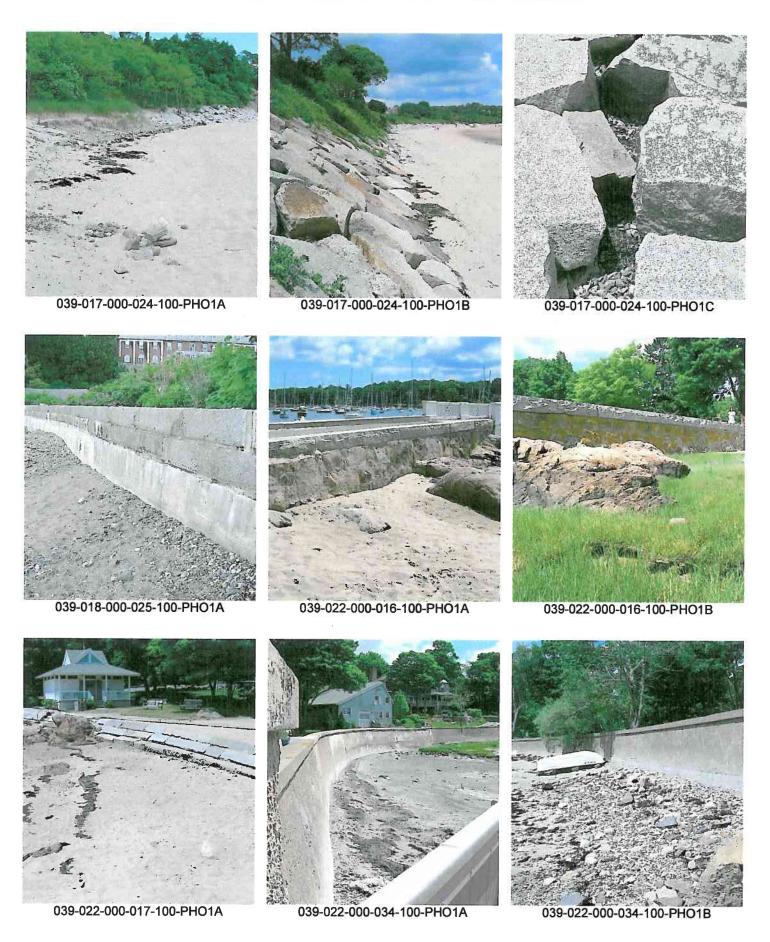
		Contract							
BCE Structure No	Document No	Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
039-001-000-095-100	039-001-000-095-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
039-006-000-029-100	039-006-000-029-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-006-000-029-100	039-006-000-029-100-PHO1B.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-006-000-029-100	039-006-000-029-100-PHO1C.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-007-000-026-100	039-007-000-026-100-PHO1A.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-007-000-026-200	039-007-000-026-200-PHO2A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-007-000-026-300	039-007-000-026-300-PHO3A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-008-000-003-100	039-008-000-003-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-008-000-003-200	039-008-000-003-200-PHO2A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-008-000-003-200	039-008-000-003-200-PHO2B.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-016-000-022-100	039-016-000-022-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-016-000-034-100	039-016-000-034-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-016-000-034-100	039-016-000-034-100-PHO1B.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-016-000-034-200	039-016-000-034-200-PHO2A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-016-000-036-100	039-016-000-036-100-PHO1A.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-016-000-036-200	039-016-000-036-200-PHO2A.JPG		Bourne Consulting Englneering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-016-000-036-200	039-016-000-036-200-PHO2B.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-016-000-036-200	039-016-000-036-200-PHO2C.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
039-017-000-024-100	039-017-000-024-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-017-000-024-100	039-017-000-024-100-PHO1B.JPG		Boume Consulting Engineering	-	October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
039-017-000-024-100	039-017-000-024-100-PHO1C.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-018-000-025-100	039-018-000-025-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey

TOWN: MANCHESTER SOURCE: WFE - FIELD PHOTOGRAPHS LOCATION: Bourne Consulting Engineering DATE OF RESEARCH: AUGUST 2007

BCE Structure No	Document No	Contract Drawing Number	Entity	Municipality	Date	TIUB	Sheets	Location	Description
039-022-000-016-100	039-022-000-016-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-022-000-016-100	039-022-000-016-100-PHO1B.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-022-000-017-100	039-022-000-017-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-022-000-034-100	039-022-000-034-100-PHO1A.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-022-000-034-100	039-022-000-034-100-PHO1B.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-045-000-023-100	039-045-000-023-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-045-000-023-100	039-045-000-023-100-PHO1B.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-045-000-023-200	039-045-000-023-200-PHO2A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-045-000-023-200	039-045-000-023-200-PHO2B.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-045-000-023-300	039-045-000-023-300-PHO3A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
039-045-000-024-100	039-045-000-024-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey









039-045-000-023-100-PHO1A



039-045-000-023-100-PHO1B



039-045-000-023-200-PHO2A



039-045-000-023-200-PHO2B



039-045-000-023-300-PHO3A



039-045-000-024-100-PHO1A

## Section II - Manchester

## 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



No Town Documents for the Town of Manchester

TOWN: MANCHESTER SOURCE: Town of Manchester LOCATION: TOWN DATE OF RESEARCH: JULY 2007

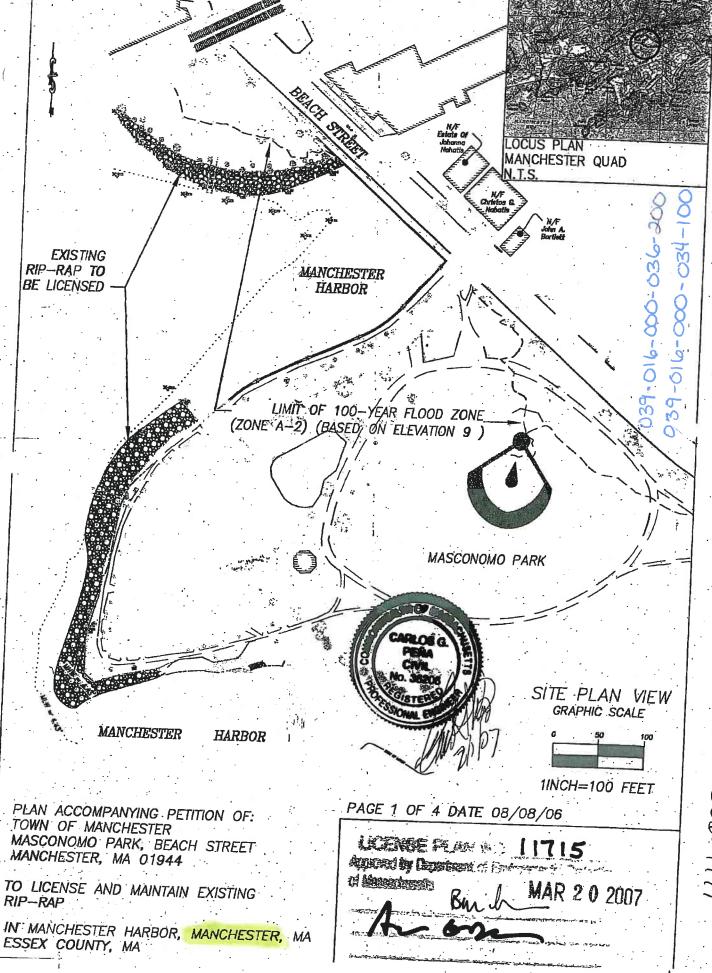
		Contract					-		
BCE Structure No	Document No	Drawing	Entity	Municipality	Date	Title	Sheets	Location	Description
		Number							

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

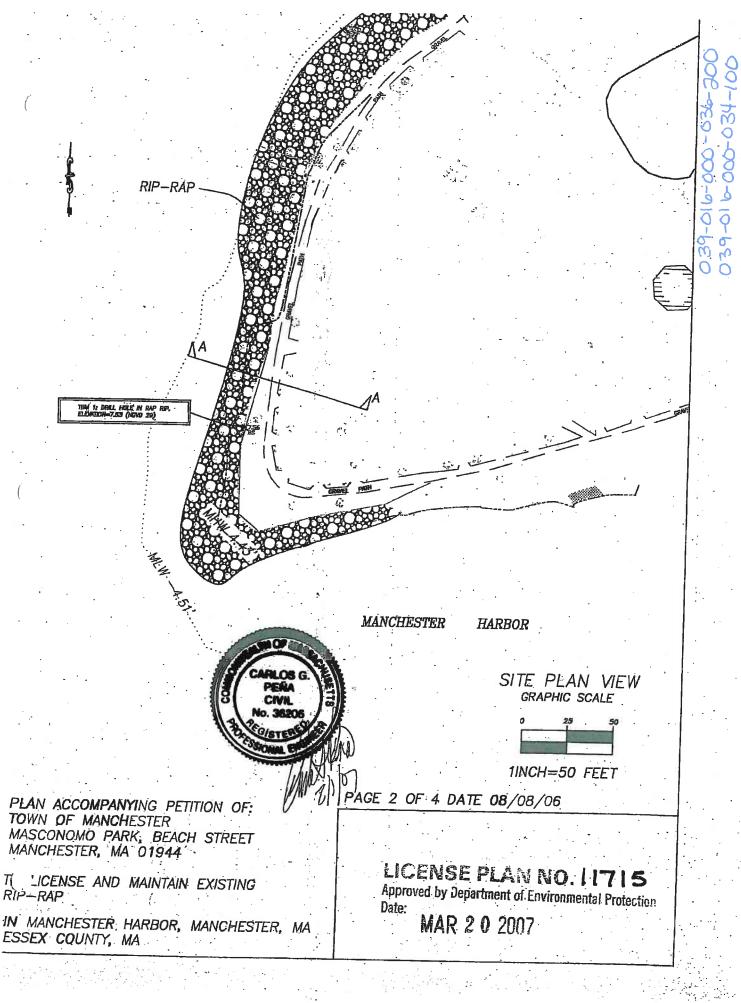
BCE Structure No	Document No	Contract/ Drawing Entity Number	Entity	Municipality	Date	Title	Sheets	Location	Description
039-007-000-026-200	039-007-000-026-200 039-007-000-026-200-DCR2A 2771	2771	MA-DCR	Manchester	March 1973	Proposed Shore Protection - Kettle Cove - Ocean Street Seawall Reconstruction	-	Ocean Street	Seawall
039-017-000-024-100	039-017-000-024-100 039-017-000-024-100-DCR1A	961	MA-DCR	Manchester	January 1947	Proposed Shore Protection - Singing Beach - January 1947 Manchester - Prepared for the DPW of Massachusetts - Division of Waterways	-	Singing Beach	Riprap
039-017-000-024-100	039-017-000-024-100 039-017-000-024-100-DCR1B 2460	2460	MA-DCR	Manchester	April 1965	Proposed Shore Protection - Stone Revetment - Singing Beach - Manchester - Prepared for the DPW of Massachusetts - Division of Waterways	٢	Singing Beach	Stone Revetment

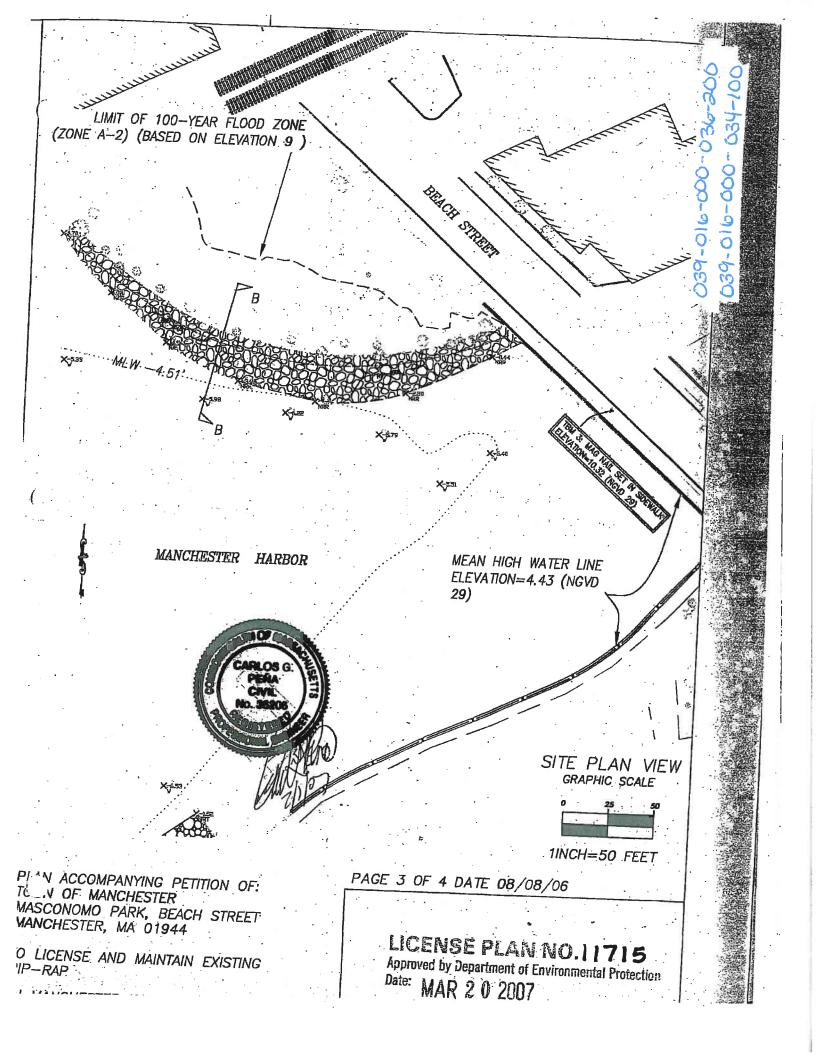
TOWN: MANCHESTER SOURCE: DEP LOCATION: BOSTON, MA DATE OF RESEARCH: JULY 2007

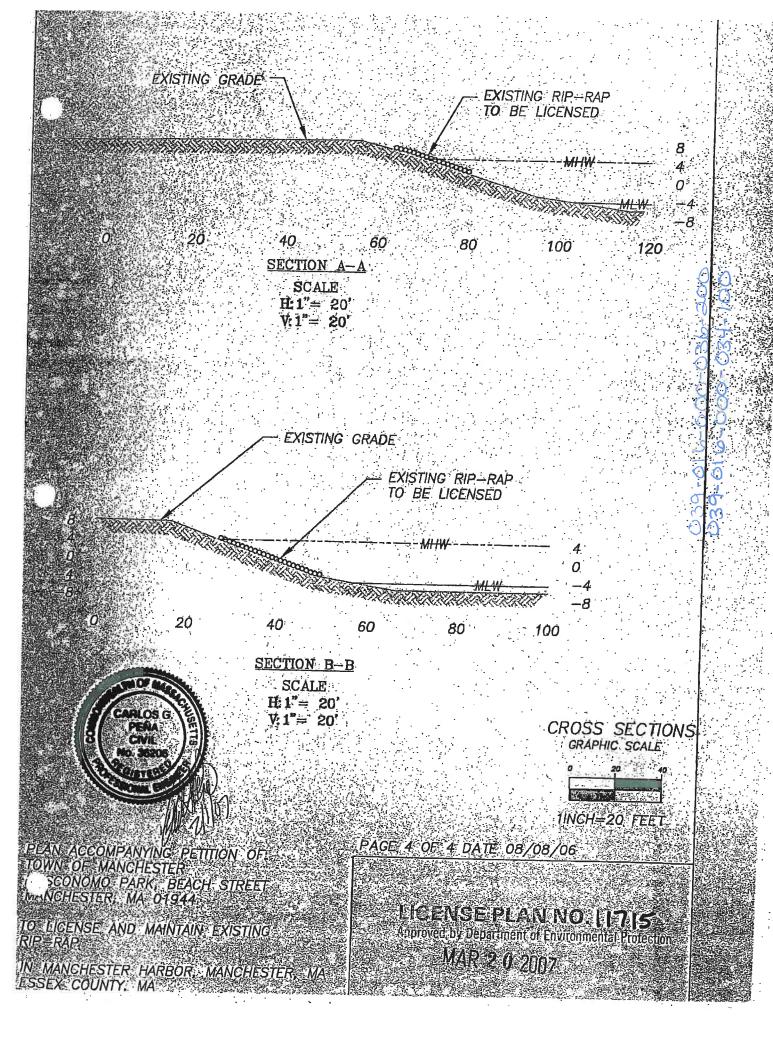
BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
039-016-000-034-100	039-016-000-034-100 039-016-000-034-100-LIC1A 11715		DEP	Manchester	March 20, 2007	Plan Accompanying Petitlon of Town of Manchester- March 20, 2007 Masconomo Park, Beach Shreet, Manchester, MA 01944 to License and Maintein Existing Riprap	4	Masconomo Park	Riprap
039-016-000-036-200	039-016-000-036-200   039-016-000-036-200-LIC2A   11715	11715	DEP	Manchester	March 20, 2007	Plan Accompanying Petition of Town of Manchester March 20, 2007 Masconomo Park, Beach Street Manchester, MA to License and Maintain Existing Riprap	4	Manchester Harbor	Rlprap
039-045-000-024-100	039-045-000-024-100   039-045-000-045-100-LIC1A   2226		DEP	Manchester	August 21, 1940	August 21, 1940 Extend and Fill Solid a Dike in the Inner Harbor	-	Inner Harbor	Dike

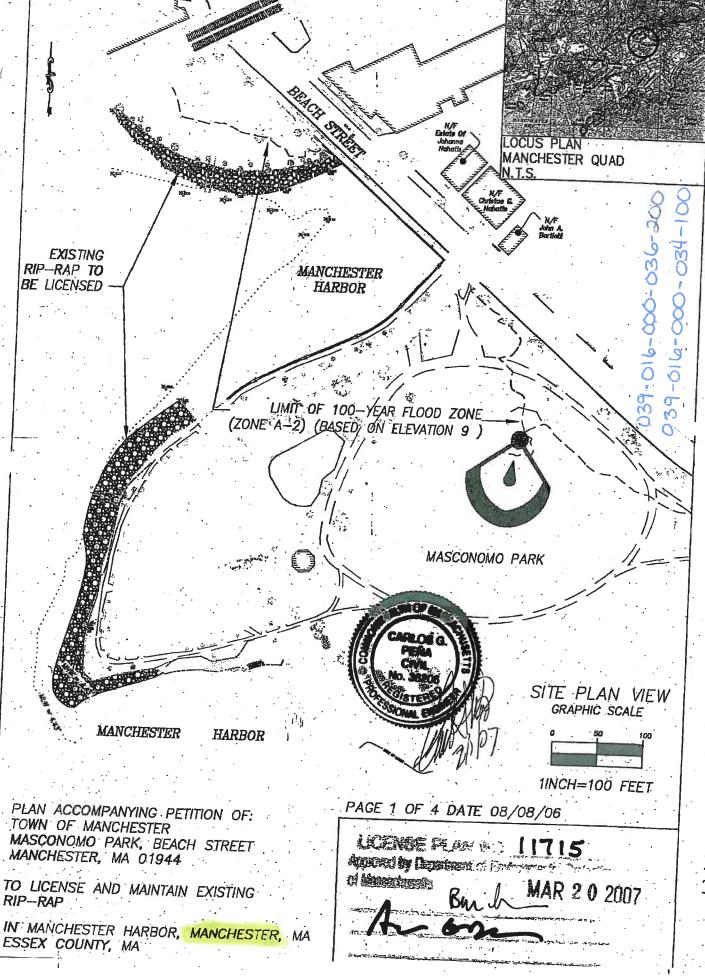


WO6-1777

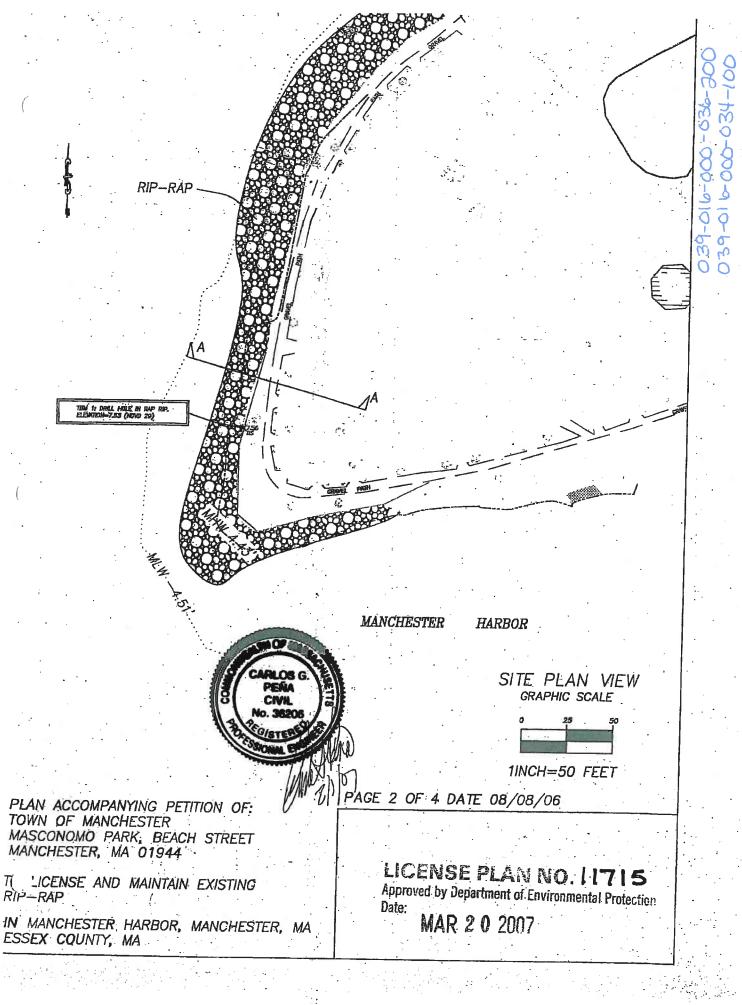


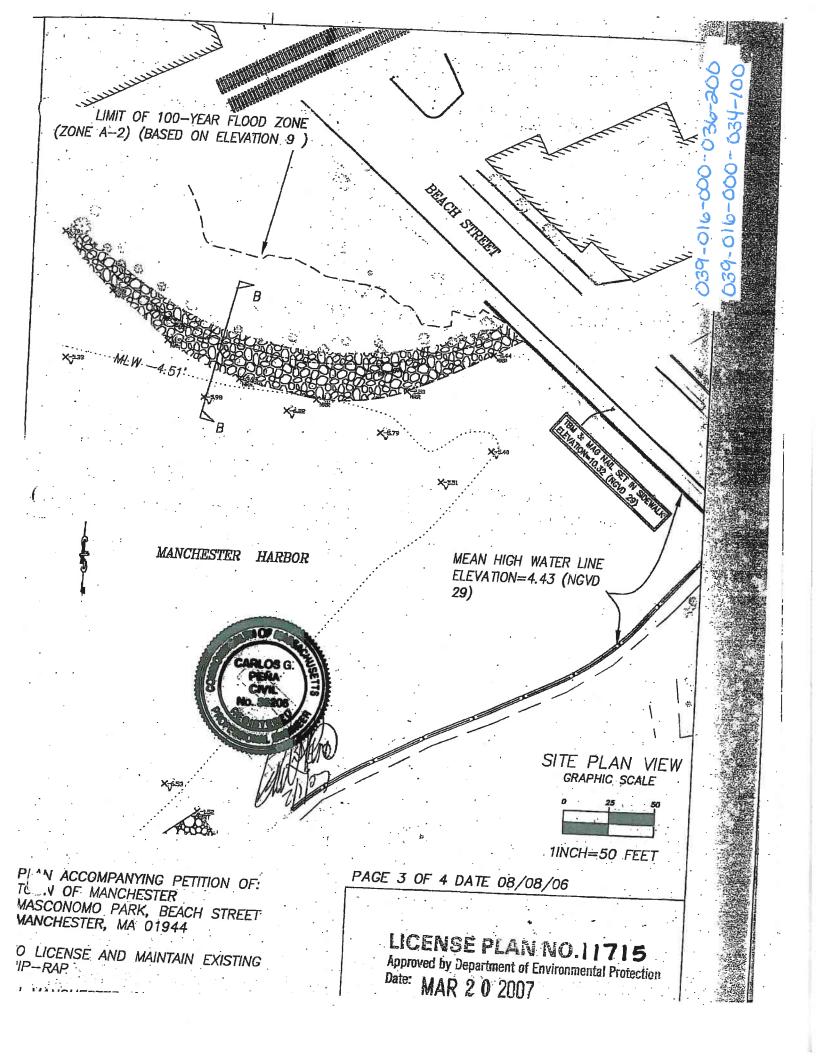


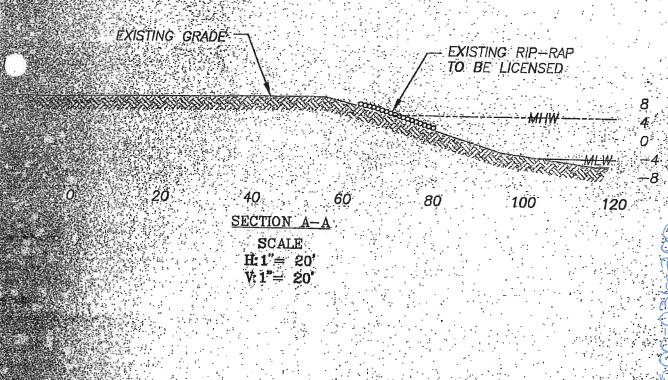


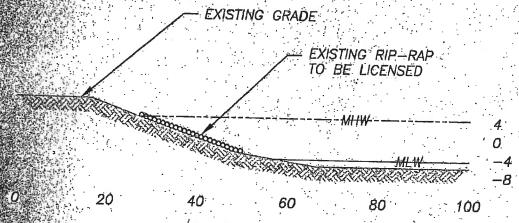


W06-1777











SECTION B-B SCALE

H: 1"= 20'

V: 1"= 20'

CROSS SECTIONS



1INCH=20 FEET

PAGE: 4 OF 4 DATE 08/08/06

PLAN ACCOMPANYING PETITION OF: TOWN OF MANCHESTER GEONOMO PARK, BEACH STREET MANCHESTER, MA 01944.

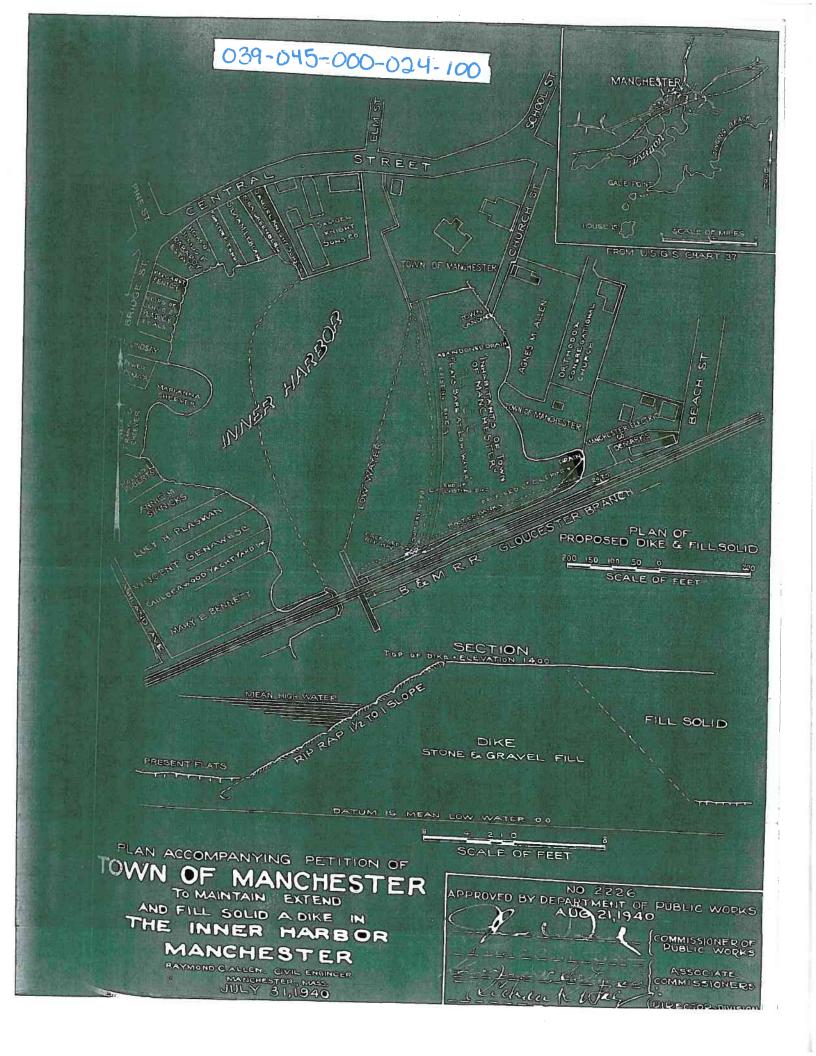
TO LICENSE AND MAINTAIN EXISTING RIP≗RAP:

MANCHESTER HARBOR, MANCHESTER, M. SEX COUNTY. MA

LIGENSEPLANINO (1715)

Approved: by Department of Environmental Protection

MAR 2 0 2007



# No USACE Permits for the Town of Manchester

TOWN: MANCHESTER SOURCE: US AGOE LOCATION: CONCORD, MA DATE OF RESEARCH: AUGUST 2007

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

# **Section III**

**Beverly** 



#### Section III - Community Findings - City of Beverly

#### **COMMUNITY DESCRIPTION**

The City of Beverly consists of a land area of 15.44 square miles out of a total area of 22.75 square miles and had a population of 39,862 in the 2000 census. The City is located on the North Shore 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 7 miles with the remaining shoreline semi-protected by offshore structures or landforms. The City 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 City 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 City of Beverly, there were 20 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 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 - City of Beverly

-	Total	Str	ucture Conditio	n Rating		
Primary Structure (1)	Structures A	В	С		F	Total Length
Bulkhead / Seawali	16	4	10	2		4805
Revetment						4003
Breakwater						
Groin / Jetty	3	3				520
Coastal Dune						320
Coastal Beach	1	1				755
	20	8	10	2		6080

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 City of Beverly's case there are a total of 20 structures which would require approximately \$6.8 million to bring all the coastal structures to "A" Rating. Most critical will be the structures in the "D" and "F" classifications as those are assumed to undergo some level of damage or failure during the next major coastal storm event. To reconstruct these structures, identified in the preliminary survey as being in poor condition, an estimated \$1.5 million would be required to upgrade the City's coastal protection.

BCE

III-A-1 City of Beverly

#### STRUCTURE REPAIR / RECONSTRUCTION COST - City of Beverly

	Total											_
Primary Structure (1)	Structures	<u>A</u>		В		С		D		F	Tota	I Cost
Bulkhead / Seawall	16		\$	418,361	\$	4,561,101	\$	1,474,268			\$	6,453,730
Revetment											\$	-
Breakwater											\$	_
Groin / Jetty	. 1		\$	153,290							\$	153,290
Coastal Dune											\$	-
Coastal Beach	3		\$	169,422							\$	169,422
	20	\$ -	\$	741,073	\$	4,561,101	\$	1,474,268	\$	-	\$	6,776,442

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

#### STRUCTURE OWNERSHIP / REPAIR COST - City of Beverly

	Total	Total Structure Condition Rating										
Primary Structure (1)	Structures	A		_В		C		D		F	Tota	l Cost
Town Owned	20		\$	669,465	\$	4,561,101	\$	1,474,268			\$	6,704,834
Commonwealth of Massachusetts Federal Government Owned											\$	-
Unknown Ownership											\$	-
Olikilowii Ownersiilp											\$	-
	20	\$ -	\$	669,465	\$	4,561,101	\$	1,474,268	\$		\$	6,704,834

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 City of Beverly'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.

BCE

III-A-2

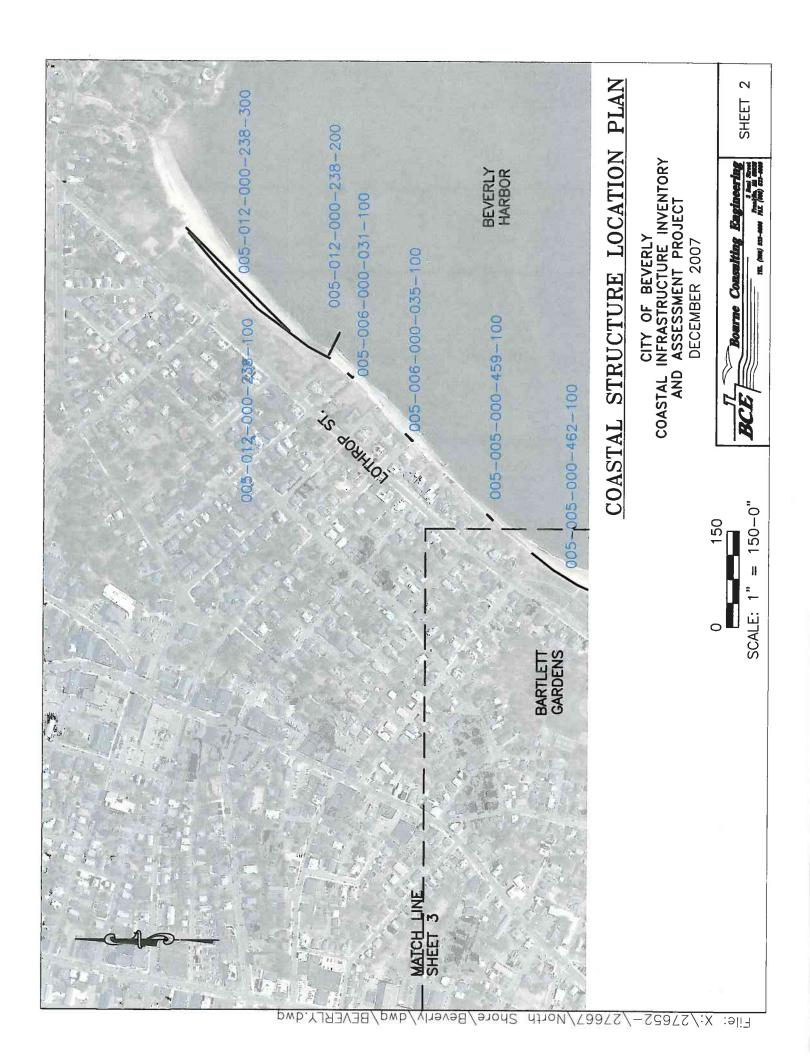
# **Section III - Beverly**

# Part B

**Structure Assessment Reports** 









## **Structure Assessment Form**

Town: Beverly

Structure ID: 005-001-000-085-100

Property Owner:		Location	1:		Date:	
Local		Harbor Ce	enter East			6/7/200
Presumed Structur	e Owner:	Based On	Comment:		,	
Local						
Owner Name:		, Earliest St	ructure Record:	Fs	stimated Reconstruction	n/Ponsir Coct
Beverly		1981	addio Nocordi	_		\$1,197,068.00
ength: Top E	levation: FIRM Map	Zone: FIRM Map Ele	evation:			
215	12.071.00	V4	13	A STATE OF THE STA	Carrier As	
Feet Feet N	IAVD 88	l Feet	NGVD		FIGURE	5
Primary Type:	Primary Material:	Primary Heigh				<b>9</b>
Bulkhead/ Seawall		Over 15 Feet		<b>建筑 数4</b>	AND ESTA	
Secondary Type:	Secondary Material					
Bulkhead/ Seawall		Secondary He 10 to 15 Feet				
	•	1-1 33 23 1000	-			
Structura Summa-	, ,					
A dry rubble stone under building, hor by 5 feet, and anot	v: wall with timber fender pile izontal timbers behind piles ther sinkhole is filled with on D	and a portion with a m	nass concrete ov ling appears to l	erlay repair. Sandbags be on the pile supported	fill a sinkhole at the l	filled and building, 2 feet
A dry rubble stone inder building, hor by 5 feet, and another condition Rating Level of Action	wall with timber fender pile izontal timbers behind piles ther sinkhole is filled with on D Poor Major Structure exhibits advance deterioration, section loss, undermining, and/or scour strong risk of significant da failure during a major coas should be monitored until repairs/reconstruction can	and a portion with a mushed stone. The build and levels of cracking, spalling, . Structure has amage and possible tal storm. Structure be initiated. Actions	iass concrete ov	erlay repair. Sandbags be on the pile supported  V  Immediate / I  Consider For Safety and W  Critical Inshor Potential for I  High Density of structure m stabilization a loss of proper	ifill a sinkhole at the I d pier.  Highest Priority  Immediate Action Du /elfare Issues  re Structures Present infrastructure Damage Residential Dwellings hay warrant emergences failure may result in	e to Public with and/or Condition cy
under building, nor	wall with timber fender pile izontal timbers behind piles ther sinkhole is filled with on D Poor Major Structure exhibits advance deterioration, section loss, undermining, and/or scour strong risk of significant da failure during a major coas should be monitored until	and a portion with a mushed stone. The build stone. The build stone and levels of cracking, spalling, structure has amage and possible stall storm. Structure be initiated. Actions ure to regain full coastal storm threatened. provide protection Actions taken to uate limits for full	lass concrete ovaling appears to last Priority Rating Action	erlay repair. Sandbags be on the pile supported  V  Immediate / I  Consider For Safety and W  Critical Inshor Potential for I  High Density of structure m stabilization a loss of proper	ifill a sinkhole at the I d pier.  Highest Priority  Immediate Action Du /elfare Issues  re Structures Present nfrastructure Damage Residential Dwellings hay warrant emergences failure may result in	e to Public with and/or Condition cy
A dry rubble stone inder building, hor by 5 feet, and another station in a condition in a condit	wall with timber fender pile izontal timbers behind piles ther sinkhole is filled with or D Poor Major Structure exhibits advance deterioration, section loss, undermining, and/or scour strong risk of significant da failure during a major coas should be monitored until repairs/reconstruction can taken to reconstruct structrocapacity to resist a major coand to during major coastal storm recreate landform to adequate to during major coastal storm recreate landform a major coastal storm recreate landform a major coand time time time time time time time time	and a portion with a mushed stone. The build stone. The build stone and levels of cracking, spalling, structure has amage and possible stall storm. Structure be initiated. Actions ure to regain full coastal storm threatened. provide protection Actions taken to uate limits for full	ass concrete ovaling appears to la Priority Rating Action  Descript	erlay repair. Sandbags be on the pile supported  V  Immediate / I  Consider For Safety and W  Critical Inshor Potential for I  High Density of structure m stabilization a loss of proper	ifill a sinkhole at the I d pier.  Highest Priority  Immediate Action Du /elfare Issues  re Structures Present infrastructure Damage Residential Dwellings hay warrant emergences failure may result in	e to Public with and/or Condition cy
A dry rubble stone inder building, hor by 5 feet, and another condition and action and action are been action as a condition are been as a condition a	wall with timber fender pile izontal timbers behind piles ther sinkhole is filled with or D  Poor  Major  Structure exhibits advance deterioration, section loss, undermining, and/or scour strong risk of significant da failure during a major coas should be monitored until repairs/reconstruction can taken to reconstruct structic capacity to resist a major of Landform eroded, stability Landform not adequate to during major coastal storm recreate landform to adequate to during major coastal storm recreate landform a major coastal storm recreate landform to adequate to during major coastal storm recreate	and a portion with a mushed stone. The build a devels of cracking, spalling, Structure has amage and possible stal storm. Structure be initiated. Actions ure to regain full coastal storm. threatened. provide protection Actions taken to uate limits for full astal storm.	ass concrete ovaling appears to la Priority Rating Action  Descript	erlay repair. Sandbags be on the pile supported  V  Immediate / I  Consider For Safety and W  Critical Inshor Potential for I  High Density of structure m stabilization a loss of proper	ifill a sinkhole at the I d pier.  Highest Priority  Immediate Action Du /elfare Issues  re Structures Present infrastructure Damage Residential Dwellings hay warrant emergences failure may result in	e to Public with e and/or Condition cy potential vellings
A dry rubble stone under building, hor by 5 feet, and another condition Rating Level of Action	wall with timber fender pile izontal timbers behind piles ther sinkhole is filled with or D Poor Major Structure exhibits advance deterioration, section loss, undermining, and/or scour strong risk of significant da failure during a major coas should be monitored until repairs/reconstruction can taken to reconstruct structic capacity to resist a major of Landform eroded, stability Landform not adequate to during major coastal storm recreate landform to adequate protection from a major coastal storm recreate landform to adequate to during maj	and a portion with a mushed stone. The build at levels of cracking, spalling, . Structure has amage and possible stal storm. Structure be initiated. Actions ure to regain full coastal storm. threatened. provide protection . Actions taken to late limits for full astal storm.	nents:	erlay repair. Sandbags be on the pile supported  V Immediate / I Consider For Safety and W Critical Inshor Potential for I High Density of structure or stabilization a loss of proper impacted / 10	ifill a sinkhole at the late pier.  Highest Priority  Immediate Action Durelfare Issues  re Structures Present Infrastructure Damage Residential Dwellings hay warrant emergences failure may result in the property and/or life. (>10 dw/o) feet of shoreline)	e to Public with and/or Condition y potential vellings

## **Structure Assessment Form**

Town: Beverly

Structure ID: 005-001-000-086-100

ocal		Location	) t		Date:
.v.ai		Beverly Ha	arbor		6/7/2007
Presumed Structure	e Owner:	, Based On	Comment:	,	
_ocal			Comment.		
		1			
Owner Name: Beverly	and the second s		ructure Record:	Estimated Re	construction/Repair Cost:
oeverly		Unkown			\$277,200.00
ength: Top E	levation: FIRM Map	Zone: FIRM Map Ele	evation:		
70		V4	13		
Feet Feet N	IAVD 88	Feet	NGVD	the last way	
rimary Type:	Primary Material:	Primary Heigh	nt-	2 / WBT 5	8
ulkhead/ Seawall		Over 15 Feet			
econdary Type:	Secondary Material:			1	The state of the s
	Secondary Pracerial.	- Secondary ne	igric.	Was a second	
ructure Summary					
	wall with mortared stone cap	in poor condition. Th	e ctonec appear to be	moving with disladant it	and that are late
pically with no ch	ninking and rounded unstable	stones. A parking lo	t is behind this structur	re.	
ondition	D		Priority	V	
ating	Poor		Rating	Immediate / Highest Prid	ority
evel of Action	Major		Action	Consider For Immediate Safety and Welfare Issu	Action Due to Public
Description	Structure exhibits advanced deterioration, section loss, undermining, and/or scour. strong risk of significant da failure during a major coast should be monitored until repairs/reconstruction can I taken to reconstruct structucapacity to resist a major coand taken to reconstruct structucapacity to resist a major coand taken to reconstruct structucapacity to resist a major coand taken to reconstruct adequate to puring major coastal storms recreate landform to adequate to protection from a major coand taken to reconstruction from taken to reconstruction from taken tak	cracking, spalling, Structure has mage and possible tal storm. Structure be initiated. Actions are to regain full oastal storm. threatened. provide protection Actions taken to eate limits for full	Description	Critical Inshore Structure Potential for Infrastructu High Density Residentia of structure may warrant stabilization as failure m loss of property and/or li impacted / 100 feet of sh	es Present with re Damage and/or I Dwellings Condition emergency ay result in potential fe. (>10 dwellings

## **Structure Assessment Form**

Town: **Beverly**Structure ID: 005-001-000-087-100

Property Owner:		Location:		Date:
Local		Beverly Harbo	Or .	6/7/2007
Presumed Structur	e Owner:	Based On Con	nment:	
Local				
Owner Name:		, Earliest Struct	ure Record:	Estimated Reconstruction/Repair Cost:
Beverly		Unkown		\$485,100.00
Length: Top E	levation: FIRM Map Zone:	FIRM Map Elevat	ion:	
245	V4		13	The second secon
Feet Feet N	NAVD 88	Feet NG	VD	
Primary Type:	Primary Material:	Primary Height:		三年一
Bulkhead/ Seawall	Stone	Over 15 Feet		THE STATE OF
Secondary Type:	Secondary Material:	Secondary Height	<u>t:</u>	
1 = = ===				
Structure Summary				
A granite block sea	awall with concrete cap in satisfactor  4 feet. The harbormaster office is	ry condition. There	e are a few fallen be	locks (small). There is a sinkhole at the pier
		dajacone to Wan, N	coulding in the riigh	i priority rating.
Condition	С		Priority	V
Rating	Fair		Rating	Immediate / Highest Priority
Level of Action	Moderate		Action	Consider For Immediate Action Due to Public Safety and Welfare Issues
Description	Structure is sound but may exhibit deterioration, section loss, crackin undermining, and/or scour. Structuto withstand major coastal storm v moderate damage. Actions taken structure to provide full protection coastal storm and for extending lift structure. Moderate wind or wave landform exists. Landform may no to fully protect shoreline during a n storm. Actions taken to provide admaterial for full protection and extending the structure of the structure of the structure.	g, spalling, ure adequate vith little to to reinforce from major e of damage to t be sufficient najor coastal dition	Description	Critical Inshore Structures Present with Potential for Infrastructure Damage and/or High Density Residential Dwellings Condition of structure may warrant emergency stabilization as failure may result in potential loss of property and/or life. (>10 dwellings impacted / 100 feet of shoreline )
Structure Image   005-001-000-087-1	00-PHO1A.JPG	cture Documen	ts:	

## **Structure Assessment Form**

Town: Beverly
Structure ID: 005-002-000-091-100

Condition   C   Rating   Fair   Rating   Ratin	Content   Cont	Property Owner:				
Presumed Structure Owner:    Downer Name:   Earliest Structure Record:   Estimated Reconstruction/Repair Cost:   Unkown   \$18,810.00	Presumed Structure Owner:    Based On Comment:				Park	The state of the s
Downer Name:   Earliest Structure Record:   Estimated Reconstruction/Repair Cost:   Beverty	Downer Name: Beverty    Division   Earliest Structure Record:   Estimated Reconstruction/Repair Cost:   Estimated Reconstruction/Repair Reconstruction/Repair Reconstruction/Repair Reconstruction/Repair Reconstruction/Repair Reconstruction/Repair Reconstruction/Repair Reconstruction/Repair Reconstruction/Repair Reconstruction	Local		Quincy Park	East	6/7/200
Owner Name:    Beverly	Devery Earliest Structure Record: Estimated Reconstruction/Repair Cost:   First	Presumed Structur	e Owner:	Based On Co	mment:	
Beverly	Beverly    Unknown   \$18,810.00	Local				3,37,200
Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation:  15	Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation:  15	Owner Name:		Earliest Struc	ture Record:	Estimated Reconstruction/Repair Cost
Feet Feet NAVD 88 Feet NGVD  Primary Type: Primary Material: Primary Height:  Bulkhead/ Seawall Concrete  Secondary Type: Secondary Material: Secondary Height:  Secondary Type: Secondary Material: Secondary Height:  Condition C Rating Fair Rating Rating Rating Rating Action Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or secour. Structure adequate to withstand major coastal storm with little to moderate damage. Action staken 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 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.  Structure Images: Structure Documents:	Feet Feet NAVD 88  Primary Type: Primary Material: Primary Height:  Bulkhead/ Seawall Concrete  Secondary Type: Secondary Material: Secondary Height:  A concrete parged seawall in satisfactory condition overall, but there is exposed rebar at the toe and concrete deterioration. There are several houses near the wall.  Condition  C Rating Fair Rating Moderate Priority Rating Moderate Priority Action  Description  Structure is sound but may exhibit minor delerioration, 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.  Structure Images: Structure Documents:	Beverly		Unkown		
Feet Feet NAVD 88 Feet NGVD  Primary Type: Primary Material: Primary Height:  Bulkhead/ Seawall Concrete  Secondary Type: Secondary Material: Secondary Height:  Secondary Type: Secondary Material: Secondary Height:  Condition C Rating Fair Rating Rating Rating Rating Action Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or secour. Structure adequate to withstand major coastal storm with little to moderate damage. Action staken 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 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.  Structure Images: Structure Documents:	Feet Feet NAVD 88  Primary Type: Primary Material: Primary Height:  Bulkhead/ Seawall Concrete  Secondary Type: Secondary Material: Secondary Height:  A concrete parged seawall in satisfactory condition overall, but there is exposed rebar at the toe and concrete deterioration. There are several houses near the wall.  Condition  C Rating Fair Rating Moderate Priority Rating Moderate Priority Action  Description  Structure is sound but may exhibit minor delerioration, 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.  Structure Images: Structure Documents:					
Feet Peet NaVD 88 Feet NGVD  Primary Type: Primary Material: Primary Height: [Oncrete   10 to 15 Feet]  Secondary Type: Secondary Material: Secondary Height: [Oncrete   10 to 15 Feet]  Secondary Type: Secondary Material: Secondary Height: [Oncrete   10 to 15 Feet]  Secondary Type: Secondary Material: Secondary Height: [Oncrete   10 to 15 Feet]  A concrete parged seawall in satisfactory condition overall, but there is exposed rebar at the toe and concrete deterioration. There are several houses near the wall.  Condition C Rating Rating Fair Rating Moderate Priority Rating Action  Description Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or socur. Structure adequate to withstand major coastal storn with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for exhending 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.  Structure Images: Structure Documents:	Feet Feet NAVD 88 Feet NGVD  Primary Type: Primary Material: Primary Height: Bulkhead/ Seawall Concrete	The second secon	The state of the s			
Primary Type: Primary Material: Primary Height:   Bulkhead/ Seawall   Concrete   10 to 15 Feet	Primary Type: Primary Material: Primary Height: 10 to 15 Feet  Secondary Type: Secondary Material: Secondary Height: Secondary Height: Secondary Type: Secondary Material: Secondary Height: Sec	1				
Structure Summary :   Secondary Material:   Secondary Height:	Bulkhead/ Seawall Secondary Type: Secondary Material: Secondary Height:  Secondary Type: Secondary Material: Secondary Height:  A concrete parged seawall in satisfactory condition overall, but there is exposed rebar at the toe and concrete deterioration. There are several nouses near the wall.  Condition  C Rating Fair Rating Moderate Priority Level of Action  Description  Structure is sound but may exhibit minor delerioration, 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.  Secondary Height:  Bracing Height:  Secondary Height:  Bracing Height:  Secondary Height:  Secondary Height:  Bracing				שעט	1200
Structure Summary:  A concrete parged seawall in satisfactory condition overall, but there is exposed rebar at the toe and concrete deterioration. There are several houses near the wall.  Condition  C	Secondary Type: Secondary Material: Secondary Height:  A concrete parged seawall in satisfactory condition overall, but there is exposed rebar at the toe and concrete deterioration. There are several houses near the wall.  Condition  C	17 44			r	CAMP OF THE PARTY
Structure Summary:  A concrete parged seawall in satisfactory condition overall, but there is exposed rebar at the toe and concrete deterioration. There are several houses near the wall.  Condition C Rating Fair Rating Moderate Priority Moderate  Level of Action 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.  Structure Images: Structure Documents:	A concrete parged seawall in satisfactory condition overall, but there is exposed rebar at the toe and concrete deterioration. There are several nouses near the wall.  Condition  C Rating Fair Rating Level of Action  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.  Structure Documents:  Structure Images:  Structure Documents:	•	a .			
A concrete parged seawall in satisfactory condition overall, but there is exposed rebar at the toe and concrete deterioration. There are several houses near the wall.  Condition C Priority III  Rating Fair Rating Moderate Priority  Level of Action Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with liftle 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.  Structure Images: Structure Documents:	A concrete parged seawall in satisfactory condition overall, but there is exposed rebar at the toe and concrete deterioration. There are several houses near the wall.  Condition C Rating Fair Rating Moderate Priority III  Level of Action 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.  Structure Images: Structure Documents:	Secondary Type:	Secondary Material:	Secondary Heigh	nt:	
A concrete parged seawall in satisfactory condition overall, but there is exposed rebar at the toe and concrete deterioration. There are several houses near the wall.  Condition C Priority III  Rating Fair Rating Moderate Priority  Level of Action Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with liftle 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.  Structure Images: Structure Documents:	A concrete parged seawall in satisfactory condition overall, but there is exposed rebar at the toe and concrete deterioration. There are several houses near the wall.  Condition C Rating Fair Rating Moderate Priority III  Level of Action 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.  Structure Images: Structure Documents:		ı			
Condition C Rating Fair Rating Moderate  Level of Action 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. Action staken 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.  Structure Images: Structure Documents:	Condition C Rating Fair Rating Moderate  Level of Action 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.  The priority Moderate Priority Moderate Priority Consider for Active Project Improvement Listing Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)  The priority Moderate Priority Moderate Priority Consider for Active Project Improvement Listing Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)  The priority Moderate Priority Moderate Priority Action Consider for Active Project Improvement Listing Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)  The priority Moderate Priority Moderate Priority Action Project Improvement Listing Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)			was all but the section		
Rating Fair Rating Moderate Priority  Level of Action 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. Action staken to reinforce 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.  Structure Images: Structure Documents:	Rating Fair Rating Moderate Priority  Level of Action  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.  Structure Images: Structure Documents:	houses near the w	all.	overall, but triere is e	exposed rebar at the	e toe and concrete deterioration. There <b>are</b> several
Rating   Fair   Rating   Moderate   Priority	Fair   Rating   Fair   Rating   Moderate   Consider for Active Project Improvement   Listing   Inshore Structures with potential for Infrastructure Damage and/or Limited   Noderate   Description   Noderate 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.   Structure Documents:   Structure Documents:   Structure Documents:   Structure Documents:   Structure Documents:     Structure Documents:	Condition	C		Priority	Ш
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.   Structure Images:   Structure Documents:	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.    Consider for Active Project Improvement Listing   Inshore Structures with potential for Infrastructure Damage and/or Limited   Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)	Rating	Fair		-	
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.  Structure Images:  Structure Documents:	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 with potential for Infrastructure Damage and/or Limited Residential Dwellings ( <1 dwelling impacted / 100 feet of shoreline)  To feet of shoreline)  Structure Images:  Structure Documents:	Level of Action	Moderate		• • •	
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.  Structure Images: Structure Documents:	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.  Structure Images: Structure Documents:		deterioration, section loss, crack	king, spalling,		Listing Inshore Structures with potential for
			to withstand major coastal storm moderate damage. Actions take structure to provide full protectic coastal storm and for extending structure. Moderate wind or wallandform exists. Landform may to fully protect shoreline during storm. Actions taken to provide	n with little to en to reinforce on from major life of we damage to not be sufficient a major coastal addition		Residential Dwellings ( <1 dwelling impacted /
	$\cdot$			ructure Docume	nts:	
				•		

## **Structure Assessment Form**

Town: **Beverly**Structure ID: 005-002-000-094-100

Property Owner:		Location:		Date:	
Local		Quincy Park West			6/7/2007
Presumed Structure	e Owner:	Based On Co	mment:		
Local					
Owner Name:		Earliest Struc	ture Record:	Estimated Reconstruction	n/Repair Cost:
Beverly		Unkown			\$10,032.00
The second secon	levation: FIRM Map Zone:	FIRM Map Eleva			THE PROPERTY OF THE PARTY OF TH
40	V2		16		
1	NAVD 88	Feet NG	GVD		
Primary Type: Bulkhead/ Seawall	Primary Material:  Concrete	Primary Height: 10 to 15 Feet		1 10 10 10 10 10 10 10 10 10 10 10 10 10	
•	•	•			
Secondary Type:	Secondary Material:	Secondary Heigh	nt:		ē. }≛
Structure Summary	· ·	1			
	v : with wave return face in satisfacto	ry condition. Then	e are several house	s near the wall.	····
		TAP MARKET		a real way really	
Condition Rating	B Good		Priority	III Moderate Priority	
Level of Action	Minor		Rating Action	Consider for Active Project Improve	ement
Description	Structure observed to exhibit very	minor		Listing	
	problems, superficial in nature. M to landform is present. Structure	/ landform	Description	Inshore Structures with potential fo Infrastructure Damage and/or Limit	r ed
	adequate to provide protection fro coastal storm with no damage. A	m a major		Residential Dwellings (<1 dwelling 100 feet of shoreline)	
	to prevent / limit future deterioration	on and extend		roo leet of Shoreline)	
	life of structure.				
					n processing and a second a second and a second a second and a second a second and a second a second a second
					the professional and the
			om Dright, den versteren som vittente treppe hans fall verstende der verstennen som v en verstende den verglich die der verdlich som de selbe vitzer versjammen bei der de stade den viel der verdlich	In the contract of the contrac	
Structure Image	es: Stru	acture Docume	nts:		ni,mi dabah sebasa sa
005-002-000-094-1	00-PHO1A.JPG				Privince
					lia dymezy, samje
					And the second s
					п даноски и на срвана
					Critical approximation
					delité de décembre
					operate de management de la companya de management de la companya

#### **Structure Assessment Form**

Town: Beverly

Structure ID: 005-002-000-118-100

			Ĺ	ocation:				Date	•	
Local				Water Street	t	1				6/7/2007
Presumed Structu	ire Owner	<b>*</b> 0	E	lased On Co	mment:			,		
Local				<u> </u>						<u> </u>
Owner Name:			, F	arliest Struc	ture Record:		Ect	imated Pecent	austion/D	nniu Coate
Beverly				947	ture Record.	-		imated Reconst		61,230.00
Length: Top	Elevation:	EIDM Man 7	e ETDA	4 Man Claud						
195	Lievauoii	FIRM Map Zo	V4	/ Map Elevat	14		The state of the s		A I	
Feet Feet	NAVD 88		ł	Feet NG				n Park		
Primary Type:		Primary Material:	Prim	ary Height:						
Groin/ Jetty		Stone		o 15 Feet					1	
Secondary Type:		Secondary Material:	Seco	ndary Heigh	nt:		A.		3	
						To all				
Structure Summa	ν:							***************************************	00	
Condition Rating	B Good				Priority Rating	II Low F	Priority			
Level of Action	Minor				Action	Futur	e Project	Consideration		
Level of Action Description	Structu probler to land adequa coastal to prev	ire observed to exhibit ms, superficial in natur form is present. Stru ate to provide protection I storm with no damag ent / limit future deteri tructure.	re. Minor ero cture / landf on from a ma e. Actions	orm ajor taken	Action Descripti	on Insho	re Struct	Consideration ures Present wit gnificant Infrasti	h Limited ructure Da	amage
	Structu probler to land adequa coastal to prev	ms, superficial in natur form is present. Stru ate to provide protection I storm with no damagent / limit future deteri	re. Minor ero cture / landf on from a ma e. Actions	orm ajor taken		on Insho	re Struct	ures Present wit	h Limited ructure Da	amage
Description  Structure Imag	Structure problem to land adequation previous life of s	ms, superficial in natural form is present. Struste to provide protection is storm with no damagent / limit future deteristructure.	re. Minor erocture / landfor from a me. Actions oration and	orm ajor taken	Descripti	on Insho	re Struct	ures Present wit	h Limited ructure Da	amage
	Structure problem to land adequation previous life of s	ms, superficial in natural form is present. Struate to provide protection is storm with no damagent / limit future deteristructure.	re. Minor ero cture / landf on from a m e. Actions oration and	orm ajor taken extend Documen	Descripti	on Insho	re Struct tial for S	ures Present wit	ructure Da	amage

#### **Structure Assessment Form**

Town: Beverly
Structure ID: 005-004-000-040-100

Property Owner:			Location:			Date:
Local			Ward Two Playground		The second secon	6/7/2007
Presumed Structure	e Owner	:	Based On Comment:			
Local						<u> </u>
Owner Name:			Earliest Structu	re Record:	Estimated F	Reconstruction/Repair Cost:
Beverly			Unkown			\$920,700.00
	levation:		FIRM Map Elevation			
465 Foot N	IAVD 00	A2		0		Sale Sale
	IAVD 88		Feet NGV	0		Total National Control
Primary Type:	-	Primary Material:	Primary Height:			VALUE OF THE PARTY
Bulkhead/ Seawall		Stone	Over 15 Feet			
Secondary Type:	-	Secondary Material:	Secondary Height:			
J			İ			
Structure Summary			***			
A mortared stone n missing mortar but	ubble wa no signs	all above beach in fair condi s of wall movement. This is	ition. There is some a high retaining wa	localized cracking Il with a playgrou	g, one small cap stone miss and behind.	sing at stairs, localized
Condition	С			Priority	ı	
Rating	Fair			Rating	None	TO THE PROPERTY OF THE PROPERT
Level of Action	Modera	ite		Action	Long Term Planning C	onsiderations
Description	deterior underm to withs modera structur coastal structur landfor to fully storm.	re is sound but may exhibit ration, section loss, cracking ining, and/or scour. Structustand major coastal storm wate damage. Actions taken the to provide full protection is storm and for extending life. Moderate wind or wave mexists. Landform may not protect shoreline during a mactions taken to provide adult for full protection and external stores.	g, spalling, ure adequate vith little to o reinforce from major e of damage to t be sufficient najor coastal dition	Description	No Inshore Structures Units Present	or Residential Dwelling
Structure Image 005-004-000-040-10			cture Document	S		
			•			

#### **Structure Assessment Form**

Town: Beverly
Structure ID: 005-005-000-459-100

Key: community-map-block-parcel-structure

Property Owner: Location: Date: Local Washington Street 6/7/2007 Presumed Structure Owner: **Based On Comment:** Local Owner Name: Earliest Structure Record: Estimated Reconstruction/Repair Cost: Beverly 1954 \$79,332.00 Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation: 50 V2 Feet Feet NAVD 88 Feet NGVD Primary Type: Primary Material: Primary Height: Bulkhead/ Seawall Stone 10 to 15 Feet Secondary Type: Secondary Material: Secondary Height: Stone Revetment Under 5 Feet Structure Summary: A granite block seawall with mortared joints and a toe stone revetment; both fair condition. There are mortar repairs on the wall. There are houses in the vicinity. С Condition **Priority** Ш Fair Rating Low Priority Rating Moderate Level of Action **Future Project Consideration** Action Structure is sound but may exhibit minor Description Inshore Structures Present with Limited Description deterioration, section loss, cracking, spalling, potential for Significant Infrastructure Damage 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. Structure Images: Structure Documents: 005-005-000-459-100-PHO1A.JPG MA-DCR November 1 Proposed Shore 005-005-000-459-100-DCR1A MA-DCR July 1958 Proposed Shore 005-005-000-459-100-DCR1B

### **Structure Assessment Form**

Town: Beverly
Structure ID: 005-005-000-462-100

Property Owner:		Location:		Date:
Local		Indepedence	Park	6/7/200
Presumed Structur	e Owner:	Based On Co	mment:	
Local				
Owner Name:		Earliest Struc	ture Record:	Estimated Reconstruction/Repair Cost:
Beverly		1947		\$95,634.00
	levation: FIRM Map Zone:	FIRM Map Eleva		Bea in a second
630	V2	1	16	
	NAVD 88	Feet NG	SVD	
Primary Type:	Primary Material:	Primary Height:	4	
Bulkhead/ Seawall	•	5 to 10 Feet		
Secondary Type:	Secondary Material:	Secondary Heigh	nt:	
Structure Summary	· /:	•		
	e block park seawall in satisfactory	condition. The raili	ng is missing along	the length of the wall.
			J	
Condition	В		D 1 1	
Rating	Good		Priority	l None
Level of Action	Minor		Rating Action	Long Term Planning Considerations
Description Description	Structure observed to exhibit very	minor	Action  Description	No Inshore Structures or Residential Dwelling
	to landform is present. Structure adequate to provide protection fro coastal storm with no damage. A to prevent / limit future deteriorati life of structure.	m a major ctions taken		Units Present
Structure Image		ucture Documer		
005-005-000-462-1	00-PHO1A.JPG MA	DCR F	ebruary 19 Prop	osed Stone 005-005-000-462-100-DCR1A

### **Structure Assessment Form**

Town: Beverly

Structure ID: 005-005-000-462-200

Property Owner:			Location:			Date:
Local	<u>, , , , , , , , , , , , , , , , , , , </u>		Wilson Avenue	2		6/7/2007
Presumed Structu	re Owner:		Based On Comment:			
ocal						
Owner Name:			   English Structure	ma Danaudi		
Beverly	<u> </u>		Earliest Structi 1952	ure Record:	Estimated	Reconstruction/Repair Cost: \$59,660.00
						\$3 <b>5,000.00</b>
	Elevation:	IRM Map Zone:	FIRM Map Elevati	on:	A SOCIAL PROPERTY OF THE PROPE	att det Constituen annekensig ger opport des sitte in een kommen mense van til bleve frammen gemeen in helicite mense een een een een een een een een een
190	1	V2		16		
Feet Feet	NAVD 88		Feet NGV	'D	**	
Primary Type:	Primary	Material:	Primary Height:			
Groin/ Jetty	Stone		10 to 15 Feet			
Secondary Type:	Secondar	y Material:	Secondary Height	:	(4) (4)	
tructure Summai	ry:					
Level of Action Description	Structure observed problems, superform is proposed adequate to prove coastal storm with the structure of the storm of the structure of the str	ed to exhibit very r ficial in nature. Min esent. Structure / ride protection from th no damage. Act future deterioration	or erosion landform n a major tions taken	Action Description	Future Project Consi Inshore Structures P potential for Significa	
t <b>ructure</b> Imag 05-005-000-462-7	es: 200-PHO2A.JPG	Struc   USAC	cture Document		osed Dredging 005-	005-000-462-200-COE2A

### **Structure Assessment Form**

Town: Beverly

Structure ID: 005-005-000-462-300

Property Owner:		Location:		Date:	
Local		Wilson Avenu	е		6/7/2007
Presumed Structure	e Owner:	Based On Con	nment:	,	
Local			. , , , , , , , , , , , , , , , , , , ,		
Owner Name:		Earliest Struct	ure Record:	Estimated Reconstruc	tion/Renair Cost
Beverly		Unkown			\$22,770.00
Length: Top E	levation: FIRM Map Zone: V2	FIRM Map Elevat	ion:		
1 1	VAVD 88	Feet NG			
Primary Type:	Primary Material:	Primary Height:			
Bulkhead/ Seawall		5 to 10 Feet	-	Frankling Property	E
Secondary Type:	Secondary Material:	Secondary Height	t:		
Structure Summary		oring mental and also	:		
deep and a house	nearby.	ssing mortar and ch	inking. There is a	sinkhole behind the wall, 2 feet by !	feet by 1 foot
1					
Condition Rating	C Fair		Priority	 	
Level of Action	Moderate		Rating Action	Low Priority Future Project Consideration	
Description	Structure is sound but may exhibit deterioration, section loss, cracking undermining, and/or scour. Struct to withstand major coastal storm moderate damage. Actions taken structure to provide full protection coastal storm and for extending listructure. Moderate wind or wave landform exists. Landform may not of fully protect shoreline during a storm. Actions taken to provide at material for full protection and extending and storm and extending and storm.	ng, spalling, ure adequate with little to to reinforce from major fe of o damage to bt be sufficient major coastal didition	Description	Inshore Structures Present with potential for Significant Infrastruc	Limited cture Damage
Structure Image		ucture Documen	ts:		

### **Structure Assessment Form**

Town: Beverly

Structure ID: 005-006-000-031-100

Property Owner:		Location:			Date:
Local		Ocean Aver	nue		6/7/2007
Presumed Structur	re Owner:	Based On Co	mment:		
Local	<u> </u>			A CONTRACT OF THE PARTY OF THE	
Owner Name:		] English Struct	tura Danaudi		
Beverly		1954	ture Record:	Estimated Re	construction/Repair Cost: \$50,160.00
				**************************************	450,100.00
	levation: FIRM Map				
40	141/2-00	V2	16		
Feet Feet M	NAVD 88	Feet NO	GVD		
Primary Type:	Primary Material:	Primary Height:			
Bulkhead/ Seawall	,	10 to 15 Feet		<b>一个一个</b>	N =
Secondary Type: Revetment	Secondary Material	Secondary Heigl	nt:	a e	
	Stone	1			
Structure Summan					
indicating significations in the vicin	nt sand Ioss. Fair overall co	ndition with concerns of p	ossible damage or f	. The stairs end 3 feet abovailure due to footing underm	e current beach level, ining. There are
Condition	С		Priority	II	
Rating	Fair		Rating	Low Priority	
Level of Action	Moderate		Action	Future Project Considera	ition
Description	Structure is sound but may deterioration, section loss, undermining, and/or scour to withstand major coastal moderate damage. Action structure to provide full procoastal storm and for exte structure. Moderate wind landform exists. Landform to fully protect shoreline distorm. Actions taken to primaterial for full protection.	cracking, spalling, . Structure adequate storm with little to s taken to reinforce stection from major nding life of or wave damage to may not be sufficient uring a major coastal svide addition	Description	Inshore Structures Prese potential for Significant II	
Structure Image 005-006-000-031-1		Structure Docume		osed Shore 005-006-	000-031-100-DCR1A

### **Structure Assessment Form**

Town: Beverly

Structure ID: 005-006-000-035-100

Property Owner:		Location:		Date:		
Local		Abbott Stree	et	6/7/2007		
Presumed Structur	re Owner:	Based On Co	Based On Comment:			
Local						
Owner Name:	and the second second		ture Record:	Estimated Reconstruction/Repair Cost:		
Beverly		1958		\$75,240.00		
	levation: FIRM Map Zor					
60		V2	16			
	NAVD 88	Feet NG	GVD			
Primary Type: Bulkhead/ Seawall	Primary Material:	Primary Height:	<del></del>			
	2	10 to 15 Feet				
Secondary Type:	Secondary Material:	Secondary Heigh	nt:			
I				14 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15		
Structure Summan			- 6			
a granite block sea	awall with mortared joints and s	ome mortar missing; i	n fair condition.	here are houses in the vicinity.		
1						
Condition	С		Priority	II		
Rating	Fair		Rating	Low Priority		
Level of Action Description	Moderate Structure is sound but may ex		Action	Future Project Consideration		
	deterioration, section loss, cra undermining, and/or scour. Sti to withstand major coastal sto moderate damage. Actions tal structure to provide full protect coastal storm and for extendin structure. Moderate wind or w landform exists. Landform may to fully protect shoreline during storm. Actions taken to provide material for full protection and	ructure adequate rm with little to ken to reinforce tion from major ag life of rave damage to y not be sufficient g a major coastal e addition	Description	potential for Significant Infrastructure Damage		
<b>Structure</b> Image 005-006-000-035-1		Structure Docume MA-DCR J		posed Shore 005-006-000-035-100-DCR1A		

#### **Structure Assessment Form**

Town: Beverly
Structure ID: 005-007-000-007A-100

Property Owner:		Location:		Date:
Local		Bay View Ave	nue	6/7/2007
Presumed Structur	re Owner:	Based On Com	ment:	
Local				
Owner Name:		Earliest Structu	re Record:	Estimated Reconstruction/Repair Cost:
Beverly		Unkown		\$138,600.00
	levation: FIRM Map Zone:	FIRM Map Elevation	on:	
70	V2	2	25	
Feet Feet M	NAVD 88	Feet NGV	D	
Primary Type:	Primary Material:	Primary Height:		
Bulkhead/ Seawall	Stone	Over 15 Feet		
Secondary Type:	Secondary Material:	Secondary Height:	:	
			·	
Structure Summar	<i>v</i> :			
A granite block sea		e east end for 6 line	ear feet. No other	signs of distress and it is founded on bedrock. In
fair condition.				TI DESCRIPTION OF DESCRIPTION
Condition	С		Priority	11
Rating	Fair		Rating	Low Priority
Level of Action	Moderate		Action	Future Project Consideration
Description	Structure is sound but may exhibit deterioration, section loss, crackin undermining, and/or scour. Structuto withstand major coastal storm with moderate damage. Actions taken is structure to provide full protection coastal storm and for extending life structure. Moderate wind or wave landform exists. Landform may not of fully protect shoreline during a nistorm. Actions taken to provide admaterial for full protection and extending the structure.	g, spalling, ure adequate vith little to to reinforce from major e of damage to t be sufficient najor coastal dition	Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage
Structure Image 005-007-000-007A-		cture Document	s:	

### **Structure Assessment Form**

Town: Beverly

Structure ID: 005-012-000-238-100

roperty Owner:			Location:		Date:
.ocal	•		Lyons Park Be	each	6/7/2007
resumed Structu	re Owner:		Based On Con	nment:	
.ocal					
wner Name:			Earliest Struct	ure Record:	Estimated Reconstruction/Repair Cost:
Beverly			1957		\$304,247.00
	Elevation:	FIRM Map Zone:	FIRM Map Elevat	ion:	
985		V4		14	
Feet Feet	NAVD 88		Feet NG	VD	W. Carlotte
rimary Type:		Primary Material:	Primary Height:		1
lulkhead/ Seawa		Concrete	5 to 10 Feet		
econdary Type:	S	econdary Material:	Secondary Heigh	t:	
levetment		Stone	10 to 15 Feet		·
tructure Summar	y:				The state of the s
concrete and st inor cracking ca	one park so p, some m	eawall ( mortared stone w inor spalling at the east er	ith concrete cap) indon the cap. A st	n satisfactory cond one toe revetment	ition. One portion of the seawall is all concrete, some is adjacent at the west end.
Condition	В			Duiquit	
Rating	Good			Priority Rating	None
level of Action	Minor			Action	Long Term Planning Considerations
Description	problem to landfo adequate coastal	e observed to exhibit very s, superficial in nature. Mi orm is present. Structure e to provide protection fro storm with no damage. An nt / limit future deterioration ructure.	nor erosion / landform m a major ctions taken	Description	No Inshore Structures or Residential Dwelling Units Present
ructure Imag			cture Documen		
05-012-000-238-	100-PHO1	A.JPG MA-	DCR M	arch 1957 Propo	osed Shore 005-012-000-238-100-DCR1A

## **Structure Assessment Form**

Town: Beverly

Structure ID: 005-012-000-238-200

Property Owner:		Location:			Date:
Local	<del>- Ale de la composition /del>	Lyons Park			6/7/2007
Presumed Structur	e Owner:	Based On Com	ment:		
Local					
Owner Name: Beverly		Earliest Structo	ure Record:	Estimated R	econstruction/Repair Cost: \$32,400.00
Feet Feet N Primary Type: Groin/ Jetty Secondary Type:	Primary Material:  Secondary Material:	FIRM Map Elevation Feet NGV Primary Height: 5 to 10 Feet Secondary Height	16 /D		
Structure Summary A quarry stone gro	in in a park setting, in satisfactory	condition.			
Condition Rating Level of Action Description	B Good Minor Structure observed to exhibit very problems, superficial in nature. M to landform is present. Structure adequate to provide protection frocoastal storm with no damage. A to prevent / limit future deteriorati	linor erosion e / landform om a major actions taken	Priority Rating Action  Description	III Moderate Priority Consider for Active Pro Listing Inshore Structures with Infrastructure Damage Residential Dwellings ( 100 feet of shoreline)	potential for
Structure Image		ucture Document		osed Shore 005-01	2-000-238-200-DCR2A

#### **Structure Assessment Form**

Town: Beverly

Structure ID: 005-012-000-238-300

Date: 6/7/200 econstruction/Repair Cost: \$169,422.00
econstruction/Repair Cost:
The second secon
The second secon
The second secon
φ105,π22.00
March Comment
No. of the last
m end.
ration
Infrastructure Damage

#### **Structure Assessment Form**

Town: **Beverly**Structure ID: 005-013-000-050A-100

Property Owner:		Location:		Date:	
Local		Woodbury	***************************************		6/7/2007
Presumed Structure	e Owner:	Based On Com	ment:		
Local					
Owner Name:	The state of the s	Earliest Structu	ure Record:	Estimated Reconstruc	tion/Repair Cost:
Beverly		Unkown			\$25,502.00
	levation: FIRM Map Zone:	FIRM Map Elevati	and the second		20 MOTO Van van 2000 van van 2000 van
60	V4		14		
Feet Feet N	NAVD 88	Feet NGV	'D		6,16
Primary Type:	Primary Material:	Primary Height:		A CONTRACTOR OF THE PARTY OF TH	100
Bulkhead/ Seawall	Stone	Under 5 Feet			
Secondary Type:	Secondary Material:	Secondary Height			
Structure Summary				mortar, and one sinkhole behind tha	**************************************
Condition Rating Level of Action Description	Fair Moderate Structure is sound but may exhibit deterioration, section loss, crackin undermining, and/or scour. Structuto withstand major coastal storm with moderate damage. Actions taken a structure to provide full protection coastal storm and for extending life structure. Moderate wind or wave landform exists. Landform may not of fully protect shoreline during a material for full protection and extending life structure.	g, spalling, ure adequate vith little to to reinforce from major e of damage to t be sufficient najor coastal dition	Priority Rating Action Description	None Long Term Planning Consideration No Inshore Structures or Resider Units Present	
Structure Image		cture Document	is:		

#### **Structure Assessment Form**

Town: Beverly

Structure ID: 005-013-000-213A-100

Property Owner:		Location:		Date:
Local		Ober Street		3/7/2007
Presumed Structure	e Owner:	Based On Com	ment:	,
Local				
Owner Name:		Earliest Structu	re Record:	Estimated Reconstruction/Repair Cost:
Beverly		Unkown		\$8,448.00
Length: Top E	levation: FIRM Map Zone:	FIRM Map Elevation	on:	
100	V4	1	.4	
Feet Feet N	IAVD 88	Feet NGV	D	
Primary Type:	Primary Material:	Primary Height:		
Bulkhead/ Seawall	Stone	Under 5 Feet		The state of the s
Secondary Type:	Secondary Material:	Secondary Height:	at <u>a</u>	A Committee of the Comm
Structure Summary				*
A mortared rubble	stone wall with irregular batter, in	overall satisfactory	condition.	A CONTRACTOR OF THE CONTRACTOR
1				
Condition	В		Priority	I
Rating	Good		Rating	None
Level of Action	Minor		Action	Long Term Planning Considerations
Description	Structure observed to exhibit very problems, superficial in nature. Min to landform is present. Structure adequate to provide protection fror coastal storm with no damage. Act to prevent / limit future deterioration life of structure.	nor erosion / landform m a major ctions taken	Description	No Inshore Structures or Residential Dwelling Units Present
Structure Image		cture Document	rs:	

#### **Structure Assessment Form**

Town: Beverly
Structure ID: 005-013-000-219-100

Property Owner:			Location:			Date:
Local			Lynch Park			6/7/2007
Presumed Structur	re Ownei	r:	Based On Co	mment:		
Local						
Owner Name:			Earliest Struc	ture Record:	Estimated Ro	econstruction/Repair Cost:
Beverly		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1963			\$2,744,887.00
Length: Top E	levation	FIRM Map Zone	e: FIRM Map Eleva	ion:		
1730		V4 and \	/2 14,15	,16		
Feet Feet I	NAVD 88		Feet NG	VD		
Primary Type:		Primary Material:	Primary Height:		19 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -	
Bulkhead/ Seawal		Stone	10 to 15 Feet		Provident Communication of the	
Secondary Type:		Secondary Material:	Secondary Heigh	t·		
Revetment		Stone	Under 5 Feet	<u></u>		
Structure Summar	v ·	-	,			Allenda Land Market Colombia
Level of Action Description	deterior undern to with modern structu coasta structu landfor to fully storm.	ate  are is sound but may exhoration, section loss, cracining, and/or scour. Structure stand major coastal storate damage. Actions take to provide full protection of the stand may be seen to provide full protection and for extending re. Moderate wind or warm exists. Landform may protect shoreline during Actions taken to provide all for full protection and exists.	eking, spalling, ucture adequate m with little to en to reinforce on from major plife of ave damage to not be sufficient a major coastal addition	Action Description	Long Term Planning Co No Inshore Structures o Units Present	
Structure Image 105-013-000-219-1 105-013-000-219-1	00-PHO	1A.JPG	tructure Documer	nts: ugust 1963 Prop	osed Shore 005-013	3-000-219-100-DCR1A

# **Section III - Beverly**

# Part C

**Structure Photographs** 



CITY: BEVERLY SOURCE: WFE - FIELD PHOTOGRAPHS LOCATION: Bourne Consulting Engineering DATE OF RESEARCH: JULY 2007

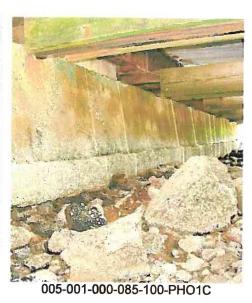
		Contract							
BCE Structure No	Document No	Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
005-001-000-085-100	005-001-000-085-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
005-001-000-085-100	005-001-000-085-100-PHO1B.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-001-000-085-100	005-001-000-085-100-PHO1C.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-001-000-086-100	005-001-000-086-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-001-000-087-100	005-001-000-087-100-PHO1A.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-001-000-087-100	005-001-000-087-100-PHO1B.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-002-000-091-100	005-002-000-091-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-002-000-094-100	005-002-000-094-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-002-000-118-100	005-002-000-118-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-004-000-040-100	005-004-000-040-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-005-000-459-100	005-005-000-459-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-005-000-462-100	005-005-000-462-100-PHO1A.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-005-000-462-200	005-005-000-462-200-PHO2A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-005-000-462-300	005-005-000-462-300-PHO3A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-006-000-031-100	005-006-000-031-100-PHO1A.JPG		Bourne Consulting Engineering	J	October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-006-000-035-100	005-006-000-035-100-PHO1A.JPG		Bourne Consulting Engineering	J	October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-007-000-007A-100	005-007-000-007A-100-PHO1A.JPG		Bourne Consulting Engineering	J	October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-012-000-238-100	005-012-000-238-100-PHO1A.JPG	ш	Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	+	Structure Location	Structure Condition Photo at Time of Survey
005-012-000-238-200	005-012-000-238-200-PHO2A.JPG	<u> </u>	Bourne Consulting Engineering	_5	October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
005-012-000-238-300	005-012-000-238-300-PHO3A.JPG	- ш	Bourne Consulting Engineering	J	October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-013-000-050A-100	005-013-000-050A-100-PHO1A.JPG	- W	Bourne Consulting Englneering	5	October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
005-013-000-213A-100	005-013-000-213A-100 005-013-000-213A-100-PHO1A.JPG	- 11	Boume Consuiting Engineering	3	October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey

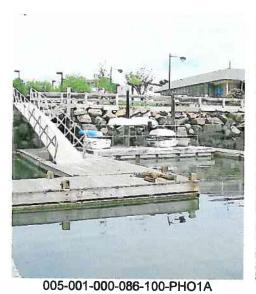
SOURCE: WFE - FIELD PHOTOGRAPHS LOCATION: Boume Consulting Engineer DATE OF RESEARCH: JULY 2007	LOCATION: Boume Consulting Engineering DATE OF RESEARCH: JULY 2007								
BCE Structure No	Document No	Contract/ Drawing Number	Entity	Entity Municipality	Date	Title	Sheets	Location	Description
005-013-000-219-100	005-013-000-219-100 005-013-000-219-100-PHO1A.JPG		Bourne Consulting Englineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
005-013-000-219-100	005-013-000-219-100 005-013-000-219-100-PHO1B.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey

## Massachusetts Coastal Infrastructure and Assessment

















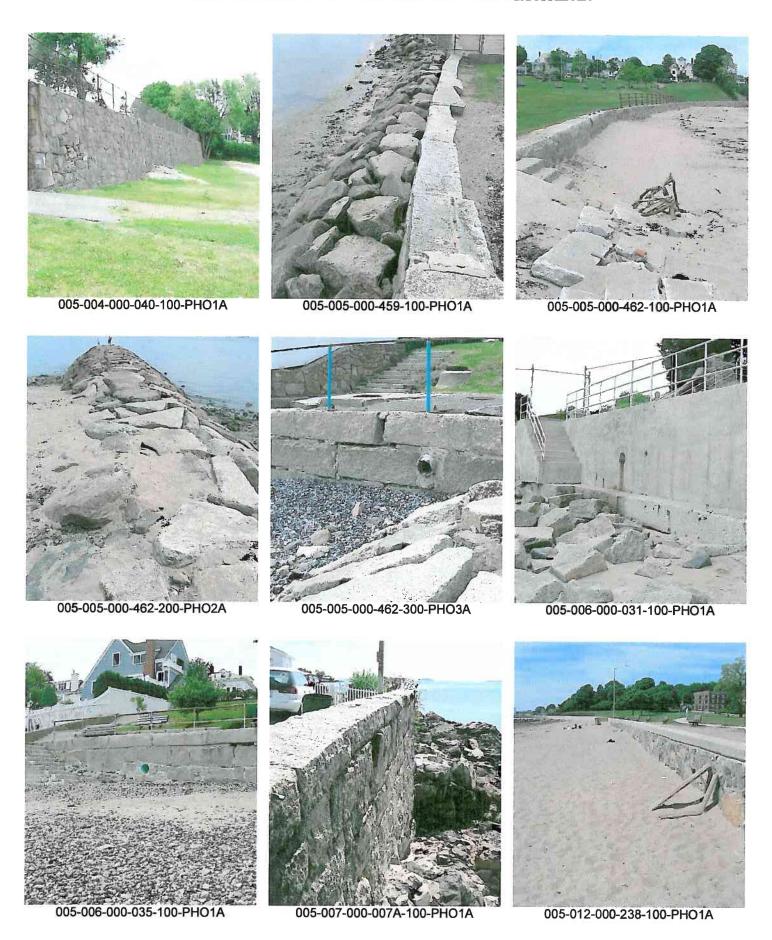


005-002-000-091-100-PHO1A

005-002-000-094-100-PHO1A

005-002-000-118-100-PHO1A

## **Massachusetts Coastal Infrastructure and Assessment**



## **Massachusetts Coastal Infrastructure and Assessment**



## **Section III - Beverly**

## Part D

## **Structure Documents**

CITY DOCUMENT LIST

MA DCR - DOCUMENT LIST

MA DEP - Ch 91 DOCUMENT LIST

• Copies of License Documents

USACE - PERMIT DOCUMENT LIST

• Copies of Permit Documents



No City Documents for the City of Beverly

CITY: BEVERLY SOURCE: City of Beverly LOCATION: CITY DATE OF RESEARCH: JULY 2007

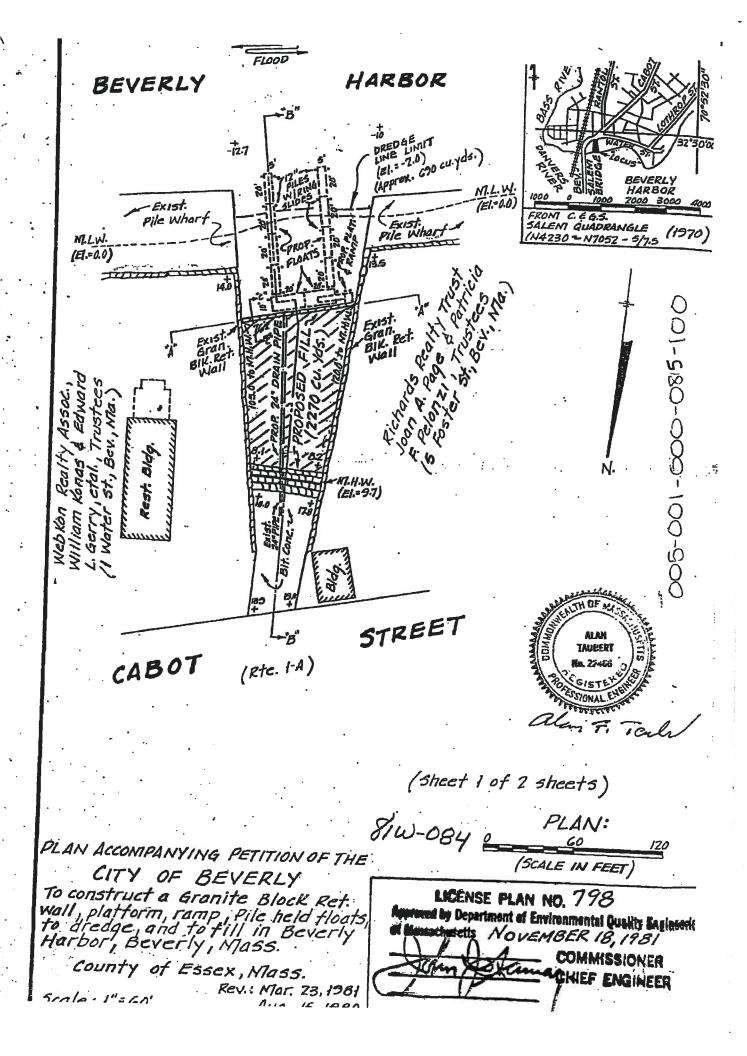
-			Ì	l						
CE Structure No	Document No	Drawing	Entity	Municipality	Date	Title	Sheets	Location	Dascription	

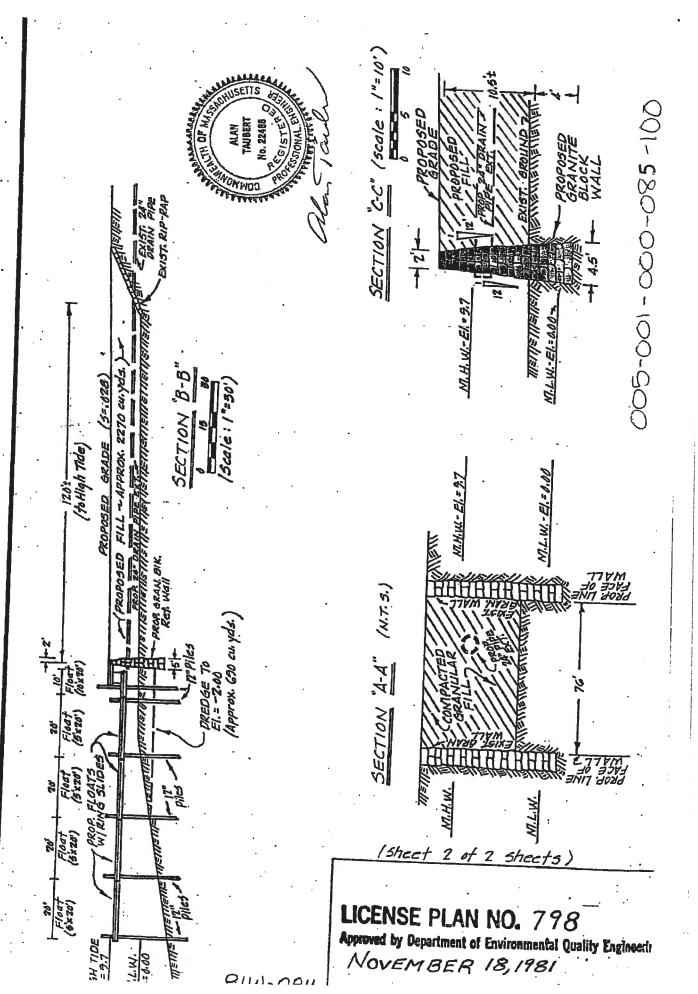
CITY: BEVERLY SOURCE: MA-DCR LOCATION: MA-DCR BOSTON and HINGHAM, MA DATE OF RESEARCH: JULY 2007

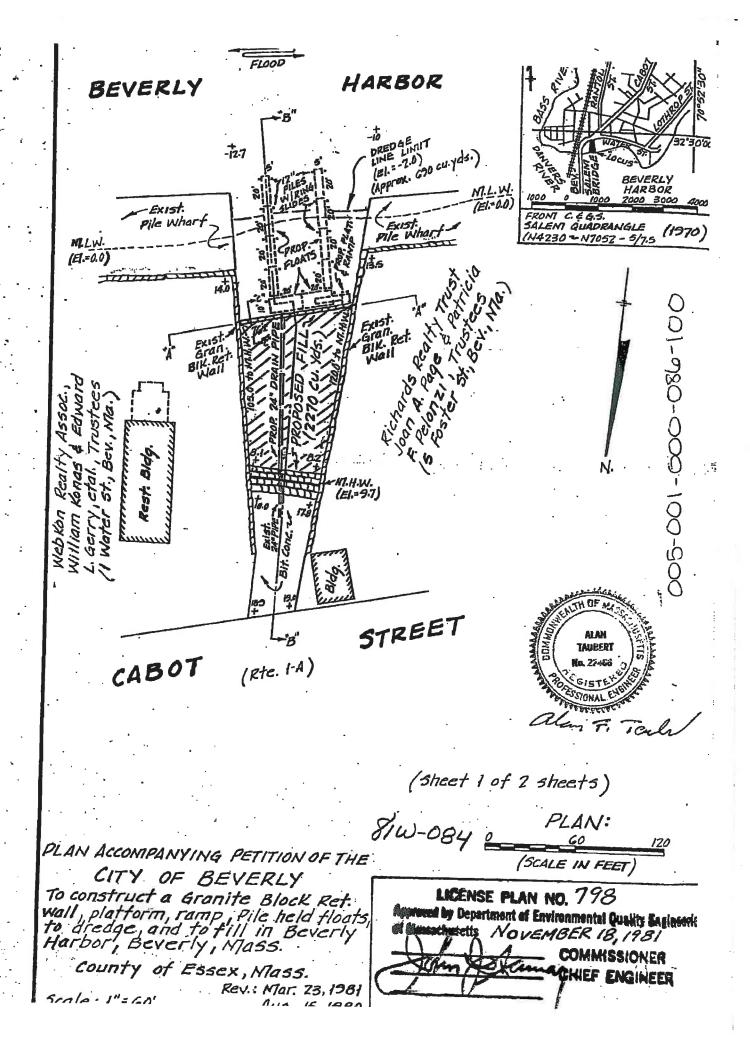
BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	ТИВ	Sheets	Location	Description
005-002-000-118-100	005-002-000-118-100-DCR1A	296	MA-DCR	Beverly	February 1947	Proposed Stone Jettles - Beverly Shore - Adjacent to Lothrop Street - Beverly - Prepared for the DPW of Massachusetts - Division of Waterways	-	Wilson Avenue and Water Street	Grains
005-005-000-459-100	005-005-000-459-100-DCR1A	1447	MA-DCR	Beverly	November 1954	Proposed Shore Protection - Seawall Repairs and Earth Fill - Beverly Harbor Shore - Washington and Oceans Streets - Beverly - Prepared for the DPW of Massachusetts - Division of Waterways	4	Washington and Ocean Street	Seawall Repairs
005-005-000-459-100	005-005-000-459-100-DCR1B	1960	MA-DCR	Beverly	July 1958	Proposed Shore Protection - Stone Mound and Seawalf Reconstruction - Violnity of Abbott Street - Beverty - Prepared for the DPW of Massachusetts - Division of Waterways	-	Central Street to Abbott Street	Stone Mound and Seawall
005-005-000-462-100	005-005-000-462-100-DCR1A	967	MA-DCR	Beverly	February 1947	Proposed Stone Jettles - Beverly Shore - Adjacent to Lothrop Street - Beverly - Prepared for the DPW of Massachusetts - Division of Waterways	-	Wilson Avenue and Water Street	Groins
005-006-000-031-100	005-006-000-031-100-DCR1A	1447	MA-DCR	Beverly	November 1954	Proposed Shore Protection - Seawall Repairs and Earth Fill - Beverly Harbor Shore - Washington and Ocean Streets - Beverly - Prepared for the DPW of Massachusetts - Division of Waterways	4	Washington and Ocean Streets	Seawall Repairs
005-006-000-035-100	005-006-000-035-100-DCR1A	1960	MA-DCR	Beverly	July 1958	Proposed Shore Protection - Stone Mound and Seawall Reconstruction - Vicinity of Abbott Street - Beverty - Prepared for the DPW of Massachusetts - Division of Waterways	-	Central Street to Abbott Street	Stone Mound and Seawall
005-012-000-238-100	005-012-000-238-100-DCR1A	1744	MA-DCR	Beverly	March 1957	Proposed Shore Protection - Stone Groin and Seawall Repairs - Dane Street Beach - Beverly - Prepared for the DPW of Massachusetts - Division of Wateways	-	Dane Street Beach	Groins and Seawall
005-012-000-238-200	005-012-000-238-200-DCR2A	1744	MA-DCR	Beverly	March 1957	Proposed Shore Protection - Stone Groin and Seawall Repairs - Dane Street Beach - Beverly - Prepared for the DPW of Massachusetts - Division of Wateways	-	Dane Street Beach	Groins and Seawall
005-012-000-238-300	005-012-000-238-300-DCR3A	1744	MA-DCR	Beverly	March 1957	Proposed Shore Protection - Stone Groin and Seawall Repairs - Dane Street Beach - Beverly - Prepared for the DPW of Massachusetts - Division of Waterways	-	Dane Street Beach	Groins and Seawall
005-013-000-219-100	005-013-000-219-100-DCR1A	2358	MA-DCR	Beverly	August 1963	Proposed Shore Protection - Seawall Repairs - Lynch Park - Beverly - Proposed Shore Protection - Stone Grotin and Seawall Repairs - Dane Street Beach - Beverly - Prepared for the DPW of Massachusetts - Division of Waterways	-	Lynch Park	Seawall Repairs

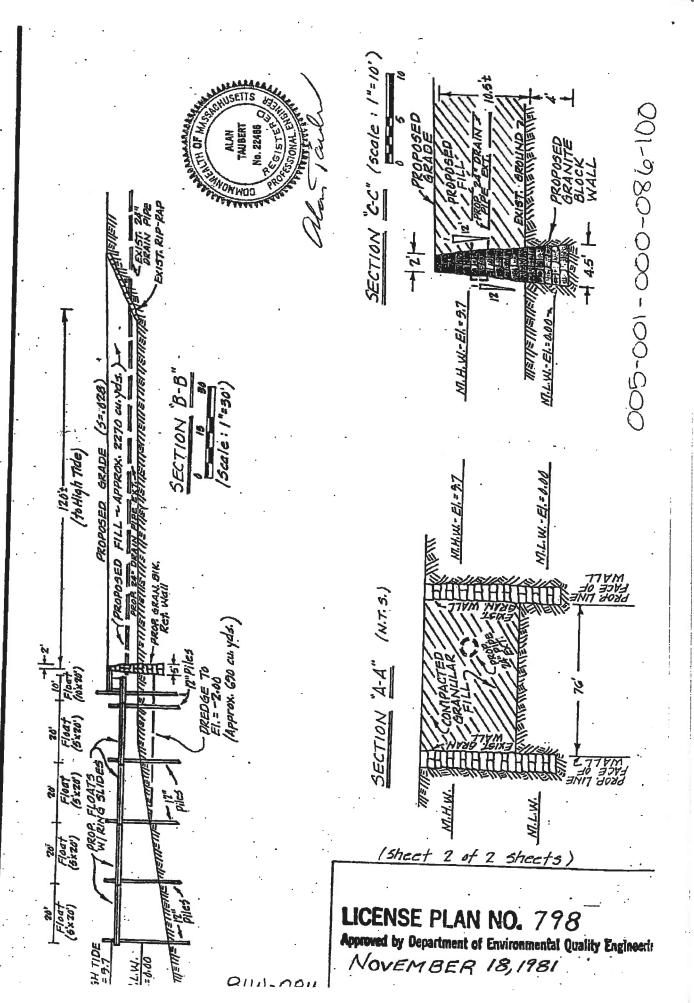
CITY: BEVERLY SOURCE: DEP LOCATION: BOSTON, MA DATE OF RESEARCH: JULY 2007 ä

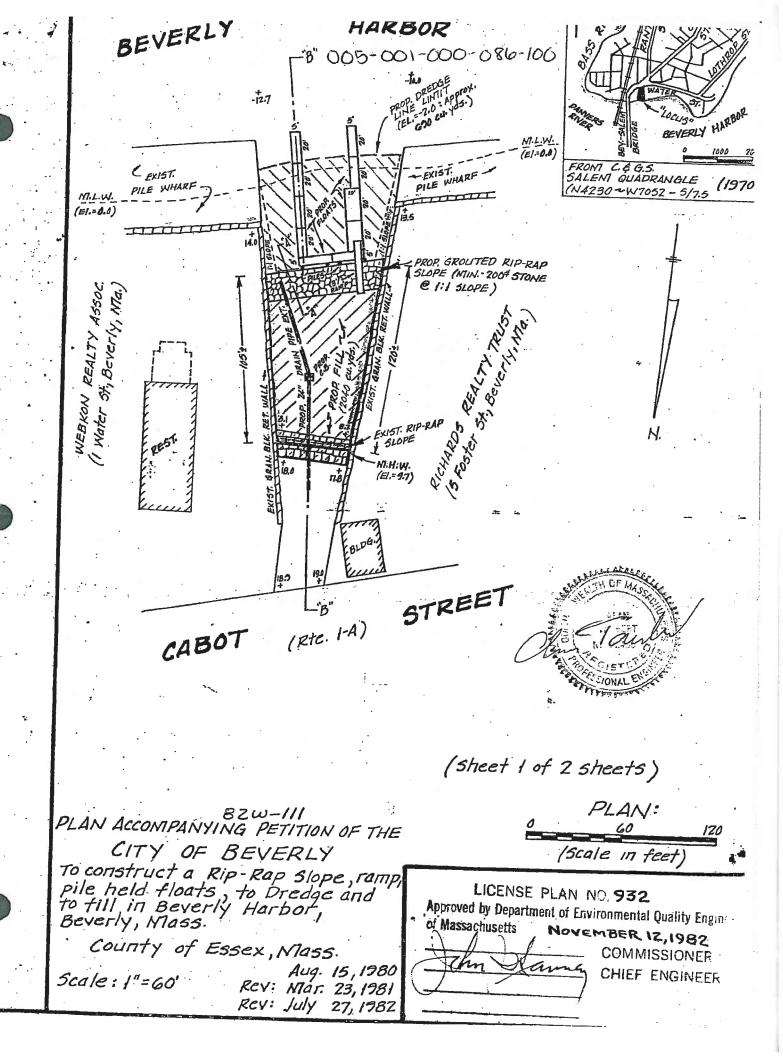
BCE Structure No	Document No	Contract/ Drawing I	Entity	Entity Municipality	Date	Title	Sheets	Location	Description
005-001-000-085-100	005-001-000-085-100   005-001-000-085-100-LIC1A	798	DEP	Beverly	November 1981	Plan Accompanying Petition of the City of Beverity - To Construct a Granile Block Retaining Wall, Platform, Ramp, Pilo Held Floets, to Dredge, and to Fill in Beverity Harbor, Beverly, Massachusetts	2	Water Street	Granite Retaining Wall
005-001-000-086-100	005-001-000-086-100 005-001-000-086-100-LIC1A	798	DEP	Beverly	November 1981	Plan Accompanying Pelition of the City of Beverity to Construct November 1981 a Granite Block Retaining Wall, Platform, Ramp, Pile Held Floats, to Dredge, and to Fill in Beverity Harbor, Beverly, Mass.	8	Cabot Street	Granite Block Retaining Wail
005-001-000-086-100	005-001-000-086-100 005-001-000-086-100-LIC1B	932	DEP	Beverly	November 12, 1982	Plan Accompanying Petition of The City of Beverly to Construct wember 12, 1982 a RipFresp Stops, Ramp, Pile Held Floats, To Dredge and To Fill in Beverly Harbor, Beverly, Mass	2	Cabot Street	Rip-Rap Slope

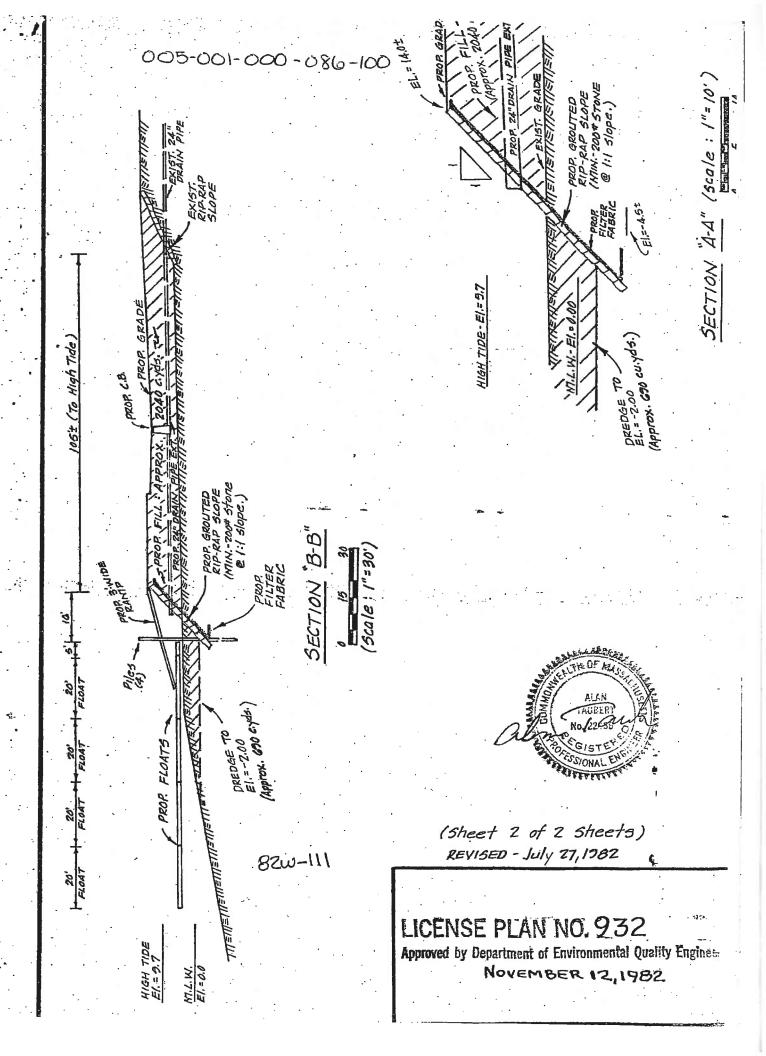




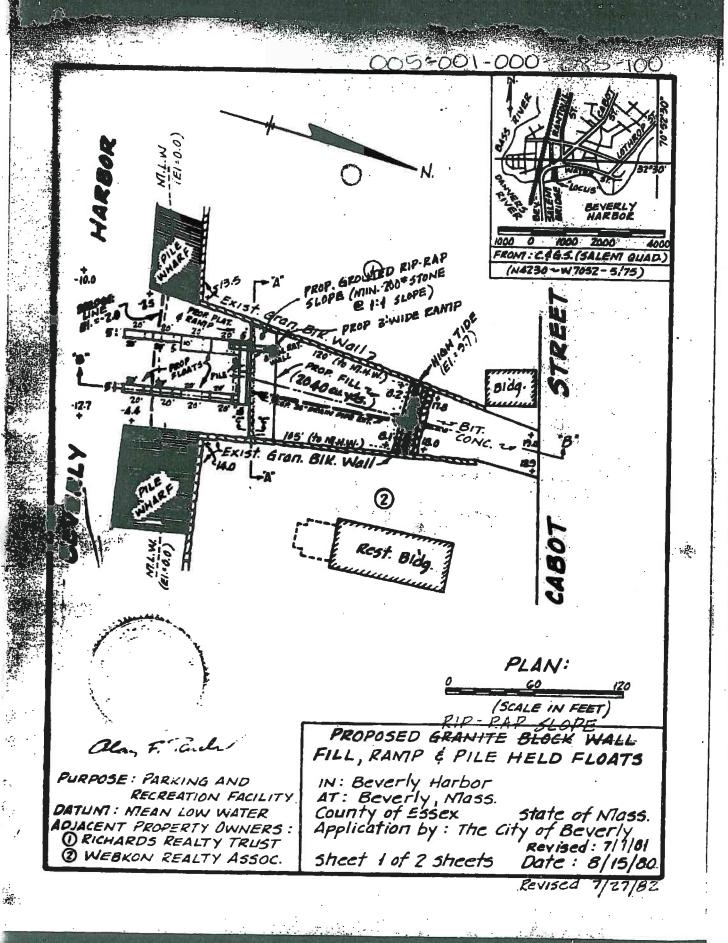








CITY: BEVERLY SOURCE: US ACOE LOCATION: CONCORD, MA DATE OF RESEARCH: AUGUST 2007	₹D, MA H: AUGUST 2007								
BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
005-001-000-085-100	005-001-000-085-100-COE1A	82-469	USACE	Beverly	July 1982	Proposed Riprap Slope, Fill, Ramp and Pile Held Floats	2	Water Street	Proposed Riprap Slope
005-002-000-118-100	005-002-000-118-100 005-002-000-118-100-COE1A	52-165	USACE	Beverly	June 1952	Proposed Dredging and Jetty Construction - Beverity Harbor - Beverity, Massachusetts - Application by the DPW of Massachusetts - Division of Walenways	-	Lothrop Street	Jetty Construction
005-005-000-462-200	005-005-000-462-200-COE2A	52-165	USACE	Вечену	June 1952	Proposed Dredging and Jetty Construction - Bevery Harbor - Bevery, Massachusetts - Application by the DPW of Massachusetts - Division of Wateways	-	Lothrop Street	Jetty Construction



12.1 105 (To High Tide SECTION RIP-RAP PROPOSED GRANITE BLOCK WALL 22 L IN: Beverly Harbor
AT: Beverly, Mass.
County of Essex State of Mass.
Application by: The City of Beverly
Revised: 7/1/81
2 of 7 Sheets Date: 8/15/80

AND BIVE 005-005-000-462-200 3a 14 8 39 PH 52 005-002-000-118-100 BOSTON, MASS. OPWERS HARBOR NOTE SECTION A 0 L'misting Arry 7 44.12.0 2 PROFILE OF JETTY NO. 1 HOT ALL 200 - Caristing Jarry APROLIMENT BISTING SHOWS PROFILE OF JETTY NO. 2 EL. 180 P PROPOSEO OREDGING & JETTY CONSTRUCTION BEVERLY HARBOR
BEVERLY - MASS.

MOSICATION BY

ORISION OF MASSACHUSETTS

OMISION OF WATERWAYS

JUNE 1952 T. TO MAKE SECTION B-B Sweet March

CLASU BIV. 005-005-000-462-200 Ja 14 8 39 PH 52 005-002-000-118-100 BOSTON, MASS. OWNERS HARBOR NOTE LOCATION MAP SECTION A 0 SCALE VINITOWALL Mishing Arry 7 4.12.01 PROFILE OF JETTY NO. 1 OF ALL 200 - Caristing Jarty SE. 12.0 x APPROPRIETE BUSYINE PROUNTS ? PROFILE OF JETTY NO. 2 EL. 18.0 9 PROPOSED DREDGING & JETTY CONSTRUCTION FL. P.O MANY BEVERLY HARBOR BEVERLY - MASS. MARLICATION SY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
JUNE 1952 SECTION 8-B True Mitwh

# **Section IV**

**Salem** 



#### Section IV - Community Findings - City of Salem

#### **COMMUNITY DESCRIPTION**

The City of Salem consists of a land area of 8.1 square miles out of a total area of 18.05 square miles and had a population of 40,407 in the 2000 census. The City is located on the North Shore 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 2 miles with the remaining shoreline semi-protected by offshore structures or landforms. The City 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 City 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 City of Salem, there were 42 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 8 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 - City of Salem

	Total	Stru	cture Conditio	n Rating		
Primary Structure (1)	Structures A	В	С	D	,F	Total Length
Bulkhead / Seawall	28	14	9	5		6540
Revetment	14	6	6	2		8030
Breakwater						0030
Groin / Jetty						
Coastal Dune						
Coastal Beach						
	42	20	15	7		14570

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 City of Salem's case there are a total of 42 structures which would require approximately \$11.7 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 \$6.7 million would be required to upgrade the City's coastal protection.

BCE

IV-A-1 City of Salem

#### STRUCTURE REPAIR / RECONSTRUCTION COST - City of Salem

	Total		Str	ıctı	re Conditio	n l	Rating			
Primary Structure (1)	Structures	Α.	 В		С		D	F	Tot	al Cost
Bulkhead / Seawall	28		\$ 521,347	\$	1,946,182	\$	3,519,912		\$	5,987,441
Revetment	14		\$ 950,174	\$	1,563,414	\$	3,206,115		\$	5,719,703
Breakwater									\$	
Groin / Jetty									\$	_
Coastal Dune						•			\$	-
Coastal Beach									\$	-
	42	\$ -	\$ 1,471,521	\$	3,509,596	\$	6,726,027	\$ -		11.707.144

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

#### STRUCTURE OWNERSHIP / REPAIR COST - City of Salem

	Total		Str	uct	ure Conditio	n Ra	iting			
Primary Structure (1)	Structures	A	В		<u> </u>		D	 F	Tot	al Cost
Town Owned	29		\$ 1,398,631	\$	2,696,001	\$	6,726,027		\$	10,820,659
Commonwealth of Massachusetts	2		\$ 64,178	\$	355,555				\$	419,733
Federal Government Owned									\$	-
Unknown Ownership	11		\$ 8,712	\$	458,040				\$	466,752
	42	\$ -	\$ 1,471,521	\$	3,509,596	\$	6,726,027	\$ 	\$	11,707,144

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 City of Salem'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.

BCE

IV-A-2

# **Section IV - Salem**

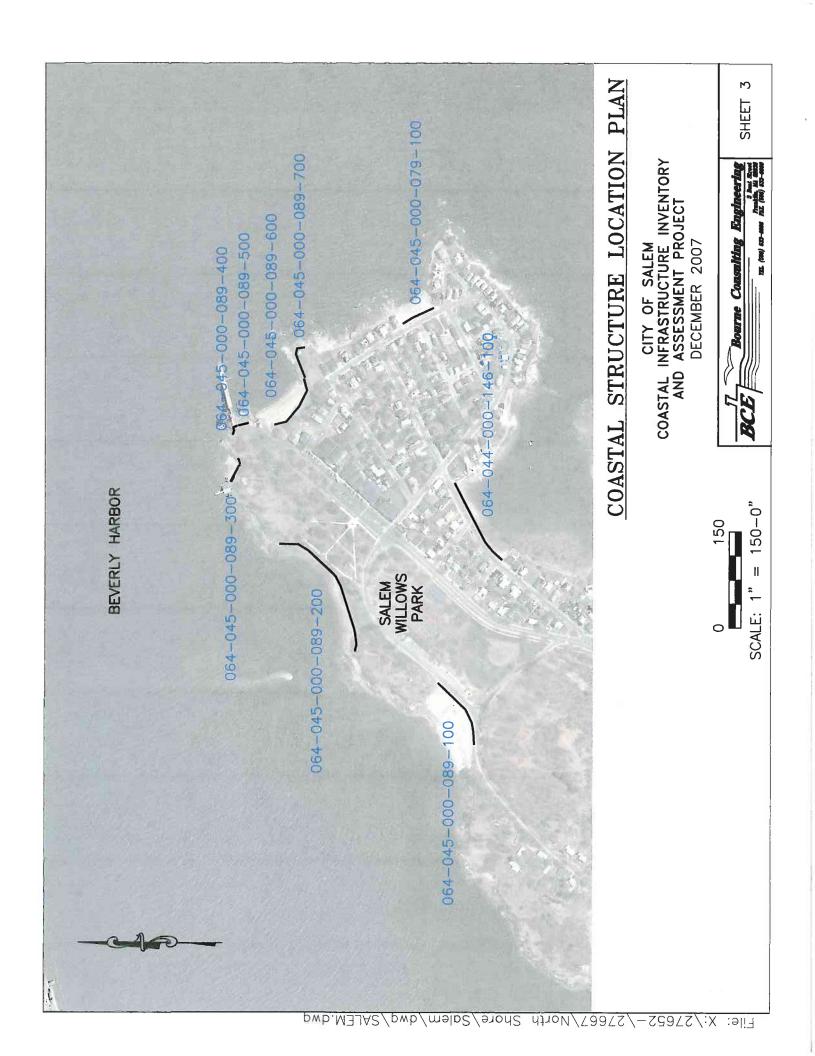
# Part B

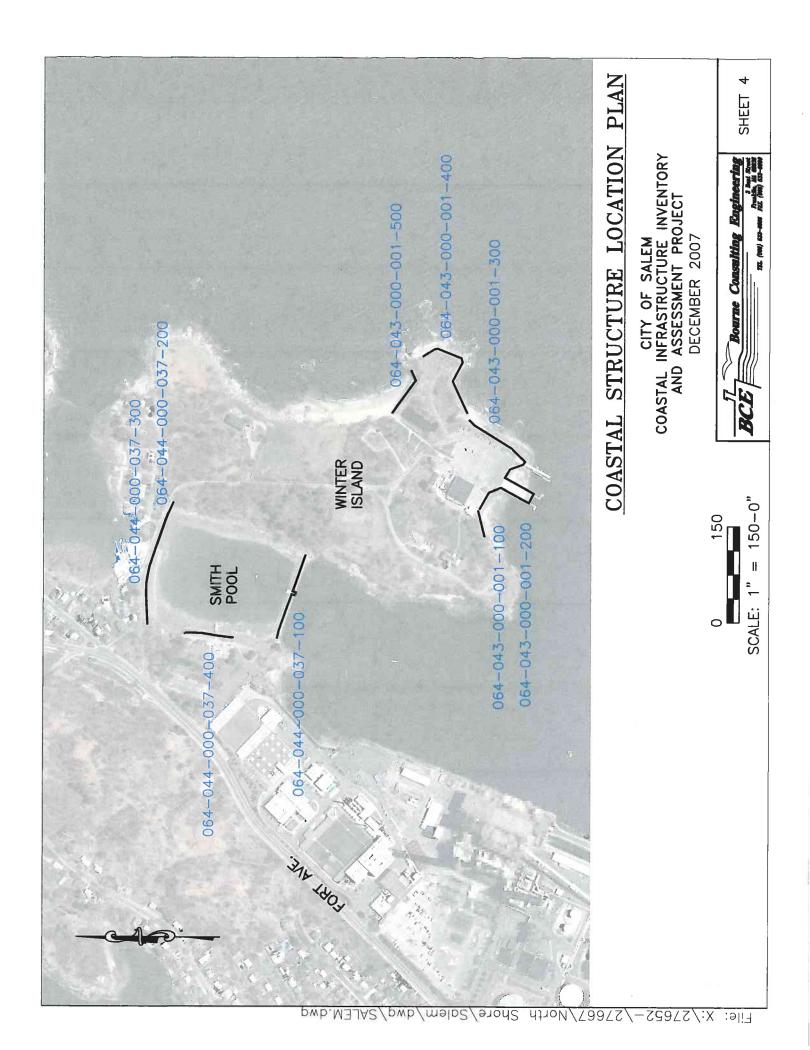
**Structure Assessment Reports** 

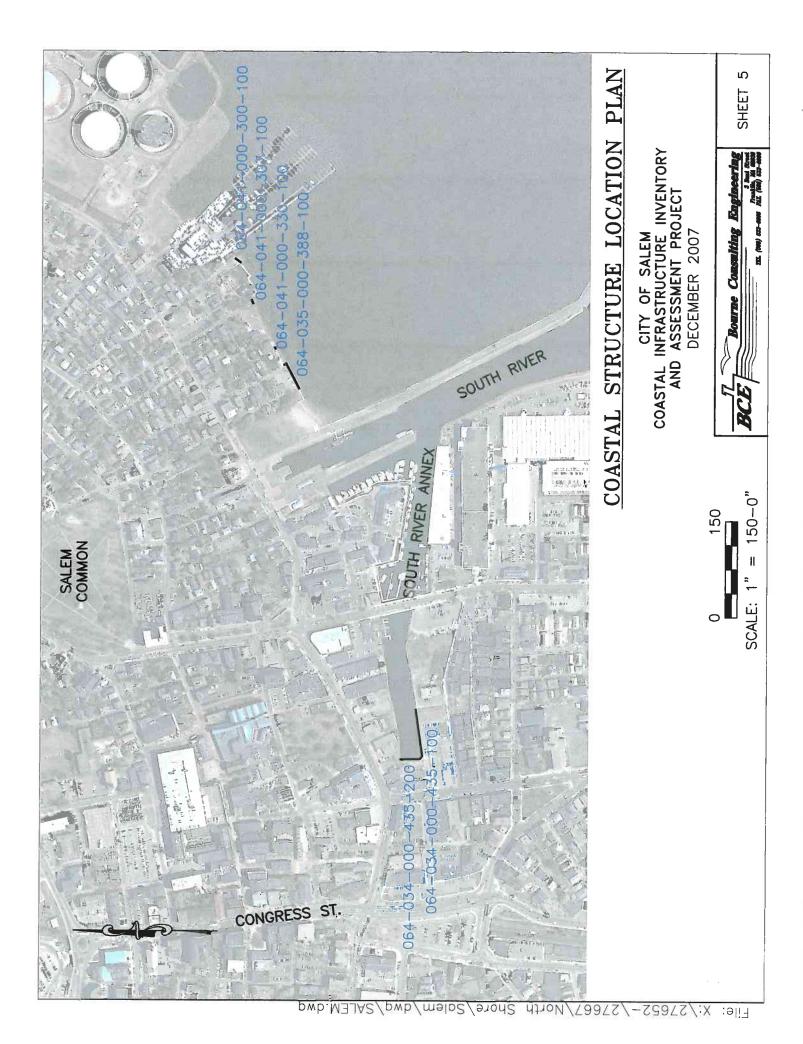


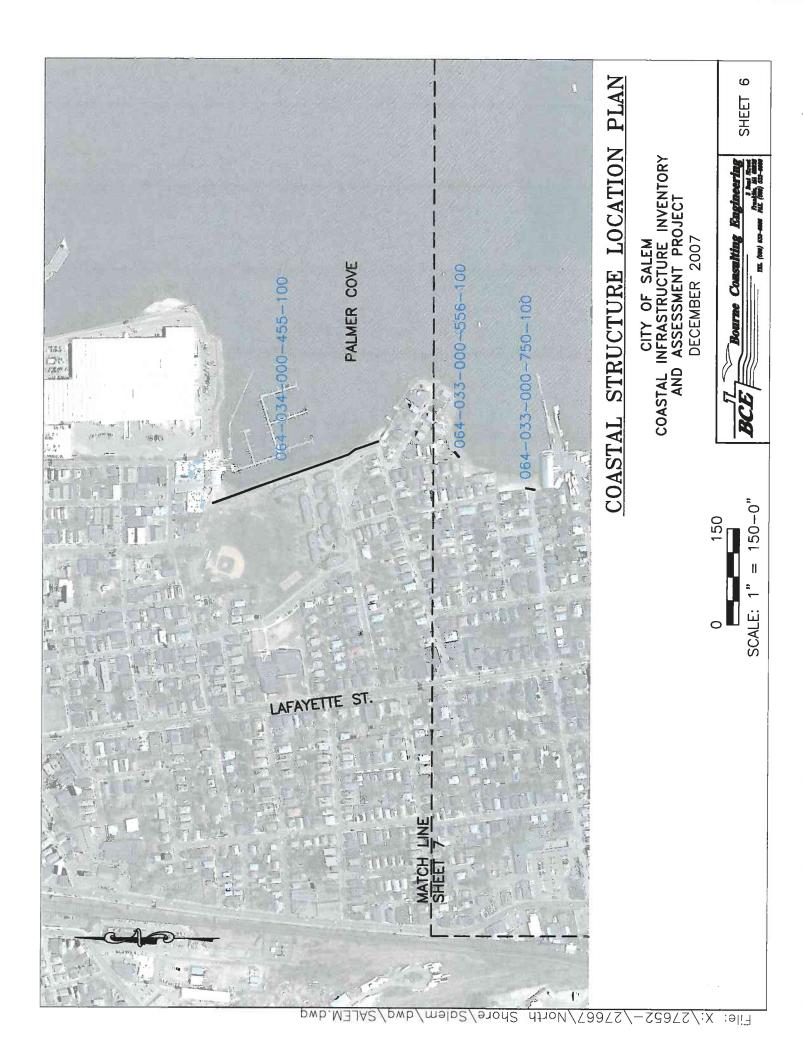
File: X:/27652-/27667/North Shore/Salem/dwg/SALEM.dwg



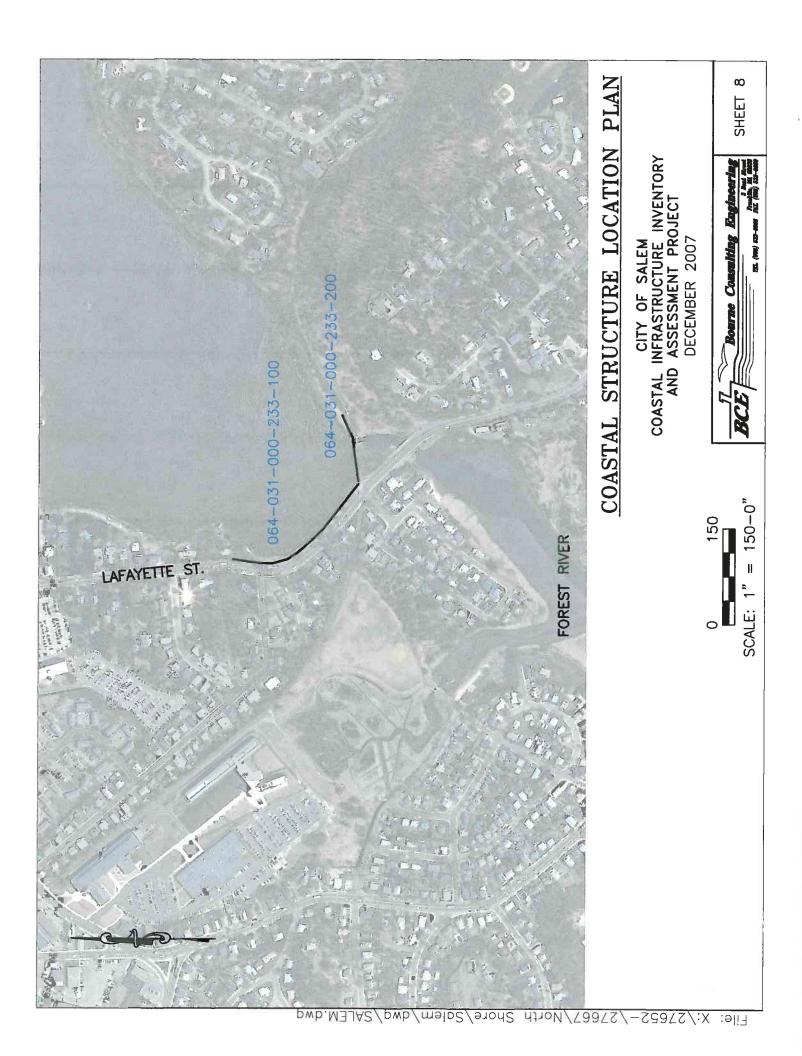












# **Structure Assessment Form**

Town: Salem

Structure ID: 064-027-000-471-100

Property Owner:		Location:		D	ate:
Local		Franklin Street	: Park		7/12/2007
Presumed Structure	e Owner:	Based On Com	ment:		
Local					
Owner Name:		Earliest Structu	re Record:	Estimated Reco	onstruction/Repair Cost:
Salem		Unkown			\$398,376.00
Length: Top E	levation: FIRM Map Zone:	FIRM Map Elevation	on:		
600	A2	1	10		
Feet Feet N	IAVD 88	Feet NGV	D		- A
Primary Type:	Primary Material:	Primary Height:			
Revetment	Stone	Under 5 Feet			
Secondary Type:	Secondary Material:	Secondary Height:			
			_		
Structure Summary	/:				Market Service Control
	evetment in front of a park lawn, wit	h over topping eros	ion typical. There	is significant erosion.	
Condition	D		Priority	1	
Rating	Poor		Rating	None	
Level of Action	Major		Action	Long Term Planning Cons	iderations
Description	Structure exhibits advanced levels deterioration, section loss, cracking undermining, and/or scour. Structure strong risk of significant damage a failure during a major coastal stome should be monitored until repairs/reconstruction can be initiated taken to reconstruct structure to recapacity to resist a major coastal standform eroded, stability threaten Landform not adequate to provide during major coastal storm. Actions recreate landform to adequate limit protection from a major coastal storm.	g, spalling, ure has nd possible n. Structure ted. Actions gain full storm. ned. protection s taken to ts for full	Description	No Inshore Structures or F Units Present	
Structure Image   064-027-000-471-1		cture Document	s:		

### **Structure Assessment Form**

Town: Salem
Structure ID: 064-028-000-018-100

				Key: community-map-block-parcel-structur
Property Owner: Local		Location: Kernwood P	ark	Date: 7/12/2007
resumed Structur ocal	e Owner:	Based On Co	omment:	
wner Name: alem		Earliest Struc 1967	cture Record:	Estimated Reconstruction/Repair Cost: \$321,321.00
Feet Feet Normany Type: Eventment Econdary Type:	Primary Material: Stone Secondary Material:  /: stone and concrete debris revetments	Feet NO Primary Height: 5 to 10 Feet Secondary Height	10 GVD ht:	ris revetment also alongside boat ramp and edge of
Condition Rating Level of Action Description	C Fair Moderate Structure is sound but may exh deterioration, section loss, crac undermining, and/or scour. Stru to withstand major coastal storn moderate damage. Actions tak structure to provide full protecti coastal storm and for extending structure. Moderate wind or wa landform exists. Landform may to fully protect shoreline during storm. Actions taken to provide material for full protection and e	ibit minor king, spalling, acture adequate m with little to en to reinforce on from major life of ave damage to not be sufficient a major coastal addition	Priority Rating Action Description	Low Priority Future Project Consideration Inshore Structures Present with Limited potential for Significant Infrastructure Damage
tructure Image 54-028-000-018-1		tructure Docume		osed Access 064-028-000-018-100-COE1A

### **Structure Assessment Form**

Town: Salem

Structure ID: 064-031-000-233-100

Property Owner:			Location:		1 4 6 A security of the securi	Date:
Local			Lafayette Stre	et		6/29/2007
Presumed Structure	e Owner:		Based On Com	nment:		
Local						
Owner Name: Salem			Earliest Struct	ure Record:	Estimated F	Reconstruction/Repair Cost: \$271,682.00
Feet Feet N Primary Type: Revetment Secondary Type: Bulkhead/ Seawall Structure Summary	Primary Mate Stone Secondary Ma Stone	iterial:	Feet NG\ Primary Height: Over 15 Feet Secondary Height Under 5 Feet	14 /D :		
A flat face placed s cap wall has minor	stone revetment paralle mortar loss and crack	el to slope, in ing. The wal	good condition, but I is in satisfactory co	t with localized cre andition. Adjacece	st erosion at west end. Thent to the main road.	ne mortared granite block
Condition	В			Priority	II	
Rating Level of Action	Good Minor			Rating Action	Low Priority Future Project Conside	oration
Description  Structure observed to exhibit very problems, superficial in nature. Min to landform is present. Structure adequate to provide protection fror coastal storm with no damage. Act to prevent / limit future deterioration life of structure.		nor erosion / landform m a major ctions taken		Inshore Structures Pre		
Structure Image 064-031-000-233-1		Stru	ucture Documen	ts:		

#### **Structure Assessment Form**

Town: Salem
Structure ID: 064-031-000-233-200

Property Owner:		Location:		Date	e:
Local		Old Railroad Be	ed		6/29/2007
Presumed Structur	e Owner:	Based On Com	ment:		
Local					
Owner Name:		Earliest Structu	re Record:	Estimated Recons	struction/Repair Cost:
Salem		Unkown			\$88,862.00
	levation: FIRM Map Zone:	FIRM Map Elevation	_		
360 Feet Feet	V3 NAVD 88	1	4		
		Feet NGVI	)		That
Primary Type: Revetment	Primary Material: Stone	Primary Height: Over 15 Feet	-		
Secondary Type:	Secondary Material:	Secondary Height:			1.45
			_		
Structure Summar	/:				New York Water
A dumped stone re	evetment with overgrown tree/shrub	covered crest; in sa	tisfactory condition	on.	
Condition Rating	B Good		Priority	1	
Level of Action	Minor		Rating Action	None  Long Term Planning Conside	erations
Description	Structure observed to exhibit very problems, superficial in nature. Mit to landform is present. Structure adequate to provide protection from coastal storm with no damage. Act to prevent / limit future deterioration life of structure.	minor nor erosion / landform m a major ctions taken	Description	No Inshore Structures or Res Units Present	
Structure Image 064-031-000-233-2		cture Documents	5:		

## **Structure Assessment Form**

Town: Salem

Structure ID: 064-033-000-556-100

Property Owner:		Location:		Date:
Local		Glover Street		6/29/2007
Presumed Structur	e Owner:	Based On Com	ment:	
Local				
Owner Name:		Earliest Structu	ire Record:	Estimated Reconstruction/Repair Cost:
Salem		Unkown		\$17,002.00
	levation: FIRM Map Zone:	FIRM Map Elevation	on:	
40	V3	1	4	
Feet Feet N	IAVD 88	Feet NGV	D	V <sub>a</sub> .
Primary Type:	Primary Material:	Primary Height:		
Bulkhead/ Seawall	Stone	Under 5 Feet		
Secondary Type:	Secondary Material:	Secondary Height:		
			-	
Structure Summary	<i>t</i> :			
A mortared granite deep) and (3 feet In fair condition.	block seawall leaning offshore at the long by 1 foot wide and 1 foot deep)	ne top. A few blocks are visible. It ma	are dislodged, ar y fail in a major st	nd sinkholes (5 feet long by 2 feet wide and 2 feet corm event. A large sewer main passes under wall.
Condition	С		Priority	II
Rating	Fair		Rating	Low Priority
Level of Action	Moderate		Action	Future Project Consideration
Description	Structure is sound but may exhibit deterioration, section loss, cracking undermining, and/or scour. Structut to withstand major coastal storm with moderate damage. Actions taken to structure to provide full protection in coastal storm and for extending life structure. Moderate wind or wave landform exists. Landform may not to fully protect shoreline during a mistorm. Actions taken to provide admaterial for full protection and exterior structure.	g, spalling, ure adequate with little to o reinforce from major e of damage to be sufficient najor coastal dition	Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage
<b>Structure Image</b> 064-033-000-556-10		cture Document	5:	

#### **Structure Assessment Form**

Town: Salem
Structure ID: 064-033-000-743-100

Key: community-map-block-parcel-structure Property Owner: Location: Date: Local Forest River Park 6/29/2007 Presumed Structure Owner: Based On Comment: Local Owner Name: Earliest Structure Record: Estimated Reconstruction/Repair Cost: Salem Unkown \$46,754.00 Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation: 110 ٧3 Feet NAVD 88 Feet Feet NGVD Primary Type: Primary Material: Primary Height: Bulkhead/ Seawall Concrete Under 5 Feet Secondary Type: Secondary Material: Secondary Height: Structure Summary: A cast in place concrete seawall along the municipal pool wall with previously broken areas and patched in several locations. There is exposed electrical conduit at base of the wall in one location. С Condition Ш **Priority** Fair Rating Rating Moderate Priority Level of Action Moderate Consider for Active Project Improvement Action Listing Structure is sound but may exhibit minor Description deterioration, section loss, cracking, spalling, Inshore Structures with potential for Description undermining, and/or scour. Structure adequate Infrastructure Damage and/or Limited to withstand major coastal storm with little to Residential Dwellings (<1 dwelling impacted / moderate damage. Actions taken to reinforce 100 feet of shoreline) 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. Structure Images: Structure Documents: 064-033-000-743-100-PHO1A.JPG

### **Structure Assessment Form**

Town: |Salem

Structure ID: 064-033-000-743-200

Property Owner:		Location:		Da	te:
Local		Forest River	Park		6/29/2007
* Presumed Structur	e Owner:	Based On Co	mment	1	
Local			machine.	- Page 1	<u> </u>
Oursey News					
Owner Name:	<del></del>	Earliest Struc	ture Record:	Estimated Recon	struction/Repair Cost:
1		Johnowii			\$840,180.00
Length: Top E	levation: FIRM I	Map Zone: FIRM Map Eleva	ation:		
335		V3	14		
Feet Feet N	IAVD 88	Feet NO	GVD	The same	
Primary Type:	Primary Materi	al: Primary Height:			
Bulkhead/ Seawall	Stone	10 to 15 Feet	<del></del>		
Secondary Type:	Secondary Mate	erial: Secondary Heigl	nt:		
Structure Summary					No. of the last of
A mortared rubble	stone seawall that is un	dercut and likely to fail soon o	on the south side.	It is in the park with lawn and is	a low priority risk.
Condition	D		Priority	1	
Rating	Poor		Rating	None	
Level of Action	Major		Action	Long Term Planning Consid	erations
Description	Structure exhibits adva	oss, cracking, spalling,	Description	No Inshore Structures or Re Units Present	
	undermining, and/or so strong risk of significan	our. Structure has nt damage and possible coastal storm. Structure			
	should be monitored u	ntil			
	repairs/reconstruction taken to reconstruct str	can be initiated. Actions			
	capacity to resist a ma	jor coastal storm.			
	Landform eroded, stab Landform not adequate	ility threatened. e to provide protection			
	during major coastal st	orm. Actions taken to			
	recreate landform to ac protection from a majo				
				,	
				on i fina ngalampahayan manandajana danksana mana hispada dalah mana — n	
Structure Image	9S:	Structure Docume	ntc:		
064-033-000-743-2		Structure Docume	116.		
064-033-000-743-2	00-PHO2B.JPG				

## **Structure Assessment Form**

Town: Salem
Structure ID: 064-033-000-743-300

Property Owner:		Location:			Date:
Local	<u> </u>	Forest River Pa	ark		6/29/2007
Presumed Structur	e Owner:	Based On Com	ment:		]
Local		30		The second secon	
Owner Name:		Earliest Structu	ire Record	Fetimated D	econstruction/Repair Cost:
Salem		Unkown	TO RECOID.	Latinated	\$446,292.00
	levation: FIRM Map Zone:	FIRM Map Elevation	on:		
525	V3	1	14	/	
Feet Feet N	IAVD 88	Feet NGV	D		
Primary Type:	Primary Material:	Primary Height:	_		
Bulkhead/ Seawall	Concrete	Under 5 Feet			
Secondary Type:	Secondary Material:	Secondary Height:			
Structure Summary					
long, with other se	crete seawall with toe undercut at t ctions also leaning offshore. This is	a park area.		en and leaning offshore, ap	proximately 40 linear feet
Condition Rating	D Poor		Priority	None	
Level of Action	Major		Rating Action	None Long Term Planning Co	onsiderations
Description	Structure exhibits advanced levels deterioration, section loss, crackin undermining, and/or scour. Struct strong risk of significant damage a failure during a major coastal storr should be monitored until repairs/reconstruction can be initiataken to reconstruct structure to recapacity to resist a major coastal standform eroded, stability threater Landform not adequate to provide during major coastal storm. Action recreate landform to adequate limit protection from a major coastal storm.	g, spalling, ure has and possible m. Structure  sted. Actions egain full storm. ned. protection s taken to ts for full	Description	No Inshore Structures of Units Present	
Structure Image 064-033-000-743-3 064-033-000-743-3	00-PHO3A.JPG	cture Document	<b>S</b> .		
33. 333 333 1100					

### **Structure Assessment Form**

Town: Salem
Structure ID: 064-033-000-748-100

Property Owner:		Location:		Date:
Unknown		Ocean Avenue		6/29/2007
Presumed Structure	e Owner:	Based On Com	ment:	
Unknown	and the same of th		**,	
Owner Name:		Earliest Struct	ure Record:	Estimated Reconstruction/Repair Cost:
Unknown		Unkown		\$420,090.00
	levation: FIRM Map Zone:	FIRM Map Elevati	on:	V/ = [1]
335	V3		14	
Feet Feet N	AVD 88	Feet NGV	/D	
Primary Type:	Primary Material:	Primary Height:		
Bulkhead/ Seawall	Stone	10 to 15 Feet		
Secondary Type:	Secondary Material:	Secondary Height	<u>:_</u>	
1	1	1		
Structure Summary				
lower face stones	th concrete cap wall in fair conditior and the stone steps are severely dar	n. The cap has mine maged. The street	or hairline cracking is adiacent with h	g and typical scaling. There is missing mortar from
	and one office of the option o	magear The Salect	io dojacene wiai n	ouses in the vicinity.
Condition	С		Priority	11
Rating	Fair		Rating	Low Priority
Level of Action	Moderate		Action	Future Project Consideration
Description	Structure is sound but may exhibit deterioration, section loss, crackin undermining, and/or scour. Structuto withstand major coastal storm v moderate damage. Actions taken structure to provide full protection coastal storm and for extending life structure. Moderate wind or wave landform exists. Landform may no to fully protect shoreline during a material for full protection and extending for full protection and extending the structure.	g, spalling, ure adequate vith little to to reinforce from major e of damage to t be sufficient najor coastal ldition	Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage
Structure Image 064-033-000-748-1		icture Documen	ts:	

## **Structure Assessment Form**

Town: Salem

Structure ID: 064-033-000-750-100

Property Owner:		Location:		Date:
Unknown		Willow Avenue		6/29/2007
Presumed Structur	e Owner:	Based On Con	nment:	
Unknown	·			
Owner Name:	<u> </u>	Earliest Struct	ure Record:	Estimated Reconstruction/Repair Cost:
Unknown	d accuming the strategic strategic strategic strategic specific color of the strategic color of the s	Unkown		\$37,950.00
	levation: FIRM Map Zone:	FIRM Map Elevati		
50 Fact Fact A	V3	1	14	
	IAVD 88	Feet NG\	/D	2000 (2000)
Primary Type:	Primary Material:	Primary Height:	_	Totalla La
Bulkhead/ Seawall	Stone	5 to 10 Feet		
Secondary Type:	Secondary Material:	Secondary Height	:	
1	1	1		
Structure Summary				7007 2
street end with sor	ne houses in the vicinity.	ome mortar is crack	ed and missing, ar	nd a stone dislodged. It is in fair condition. At a
O Per				
Condition Rating	C Fair		Priority	 
Level of Action	Moderate	Rating Action		Low Priority Future Project Consideration
Description	Structure is sound but may exhibit deterioration, section loss, crackin undermining, and/or scour. Structuto withstand major coastal storm with moderate damage. Actions taken is structure to provide full protection coastal storm and for extending life structure. Moderate wind or wave landform exists. Landform may not of fully protect shoreline during a nistorm. Actions taken to provide admaterial for full protection and extending life structure.	g, spalling, ure adequate vith little to to reinforce from major e of damage to t be sufficient najor coastal dition	Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage
Structure Image  064-033-000-750-1		cture Documen	ts:	

# **Structure Assessment Form**

Town: Salem

Structure ID: 064-034-000-435-100

Property Owner:		Location:		Date:
Local		Peabody Street		6/29/2007
Presumed Structur	re Owner:	Based On Con	ament.	, , , , , , , , , , , , , , , , , , , ,
Local			mene.	
Owner Name:		J	D	
Salem		Earliest Struct Unkown	ure Record:	Estimated Reconstruction/Repair Cost: \$1,049,400.00
				4 41,015,100.00
Length: Top E	Elevation: FIRM Map Zone:	FIRM Map Elevati		
1	A2	10		and the second
	NAVD 88	Feet NG\	/D	
Primary Type: Primary Material:  Bulkhead/ Seawall Stone		Primary Height:		The state of the s
•	•	Over 15 Feet		
Secondary Type:	Secondary Material:	Secondary Height		
Charlet up Comme	1	1		
A granite block sea		nent and bulges: in	poor condition O	One sinkhole 2 feet long by 6 feet wide and 4 feet
deep. Remnants	of steel sheet pile toe wall with corro	sion holes through	the sheets. Locate	red on a vacant lot.
Condition Rating	D Poor		Priority	I No.
Level of Action	Major		Rating Action	None Long Term Planning Considerations
Description	Structure exhibits advanced levels	of	Description 1	No Inshore Structures or Residential Dwelling
Description	deterioration, section loss, crackin undermining, and/or scour. Struct strong risk of significant damage a failure during a major coastal storn should be monitored until repairs/reconstruction can be initiataken to reconstruct structure to recapacity to resist a major coastal standform eroded, stability threater Landform not adequate to provide during major coastal storm. Action recreate landform to adequate limit protection from a major coastal storm.	g, spalling, ure has and possible m. Structure atted. Actions again full storm. ned. protection s taken to ts for full	Description	Units Present
Structure Image 064-034-000-435-1		cture Documen	ts:	

### **Structure Assessment Form**

Town: Salem

Structure ID: 064-034-000-435-200

Property Owner:		Location:		Date:
Local		South River	Annex	6/29/2007
Presumed Structur	e Owner:	Based On Co	mment:	•
Local			<u> </u>	<u> </u>
Owner Name:		! Earliest Struc	ture Record:	Estimated Reconstruction/Repair Cost:
Salem		Unkown	ture Record.	\$180,180.00
Length: Top E	levation: FIRM Map 2	Zone: FIRM Map Eleva	tion: 10	
1	IAVD 88	Feet NG		
Primary Type:			NVD	THE RESERVE TO SERVE THE PARTY OF THE PARTY
Bulkhead/ Seawall	Primary Material: Steel	Primary Height: Over 15 Feet		
Secondary Type:	Secondary Material:	Secondary Heigh	nt•	
Secondary Type:	Secondary Material.	Secondary Heigh	it	
r Structure Summary	, ·	,		
A steel U sheetpile rod elevation.	bulkhead with cast in place	concrete cap in fair condi	tion. There are high	h water corrosion holes in webs and flanges at the tie
Condition	С		Priority	II
Rating	Fair		Rating	Low Priority
Level of Action	Moderate		Action	Future Project Consideration
Description	Structure is sound but may deterioration, section loss, undermining, and/or scour. to withstand major coastal smoderate damage. Actions structure to provide full prot coastal storm and for exten structure. Moderate wind o landform exists. Landform r to fully protect shoreline dur storm. Actions taken to promaterial for full protection a	cracking, spalling, Structure adequate storm with little to taken to reinforce ection from major ding life of r wave damage to nay not be sufficient ring a major coastal vide addition	Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage
Structure Image		Structure Docume		
064-034-000-435-2	00-PHO2A.JPG	DEP	une 11, 194 Plan	Accompanying   064-034-000-435-200-LIC2A

### **Structure Assessment Form**

Town: |Salem

Structure ID: 064-034-000-455-100

Local Presumed Structur Local				Date:		
		Lafayette Plac	ce	6/29/2007		
Local	e Owner:	Based On Con	nment:	,		
			<u> </u>	The same of the sa		
Owner Name:		* Earliest Struct	ture Record:	Estimated Reconstruction/Repair Cost		
Salem		Unkown		\$301,501.00		
	levation: FIRM Map Zone:	FIRM Map Elevat	ion:			
910	V3	3	14	THE RESERVE OF THE PARTY OF THE		
Feet Feet N	NAVD 88	Feet NG	VD			
Primary Type: Primary Material:		Primary Height:				
Revetment Stone		Over 15 Feet				
Secondary Type:	Secondary Material:	Secondary Heigh	t:			
Bulkhead/ Seawall		Under 5 Feet				
Structure Summary				The state of the s		
Rating Good  Level of Action  Description  Structure observed to exhibit very problems, superficial in nature. M to landform is present. Structure adequate to provide protection from coastal storm with no damage. A to prevent / limit future deterioration life of structure.		Minor erosion re / landform rom a major Actions taken	Rating Action Description	Low Priority Future Project Consideration Inshore Structures Present with Limited potential for Significant Infrastructure Damage		
tructure Image	es: Sti 00-PHO1A.JPG DE	ructure Documen		Accompanying   064-034-000-455-100-LIC1A		

### **Structure Assessment Form**

Town: Salem
Structure ID: 064-035-000-388-100

Local Daniel Street 7/12/2007   Presumed Structure Owner: Based On Comment:   Local Cowner Name: Earliest Structure Record: Estimated Reconstruction/Repair Cost:   Salem 1997 \$65,340.00	Property Owner:		Location:	A Company of the Comp	Date:	
Downer Name:   Earliest Structure Record:   Estimated Reconstruction/Repair Cost:   1997   \$65,340.00	Local		Daniel Stree	et		7/12/2007
Owner Name:    Salem	Presumed Structu	re Owner:	Based On Co	omment:	,	
Salem    1997   Structure Summary :   A mortared granite block seawall with parapet wall at a street end. Some lower blocks dislodged and patching repairs are apparent. There is a parking lot behind wall and some mortar cracks in parapet wall. The condition is satisfactory.    Structure Summary :   A mortared granite block seawall with parapet wall at a street end. Some lower blocks dislodged and patching repairs are apparent. There is a parking lot behind wall and some mortar cracks in parapet wall. The condition is satisfactory.    Condition   B   Rating   Cood   Rating   Low Priority   II   Low Priority   Low Priority   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.    Structure Images:   Structure Documents:   Structure Documents:	Local					
Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation:  165 Feet Feet NAVD 88 Frimary Type: Primary Material: Over 15 Feet  Secondary Type: Secondary Material: Secondary Height:  Structure Summary:  A mortared granite block seawall with parapet wall at a street end. Some lower blocks dislodged and patching repairs are apparent. There is a parking lot behind wall and some mortar cracks in parapet wall. The condition is satisfactory.  Condition  B Rating Good Level of Action 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.  Structure Images: Structure Documents:	Owner Name:		Earliest Struc	cture Record:	Estimated Reconstruction	/Repair Cost:
Feet   Feet NAVD 88   Feet NGVD	Salem		1997			
Feet Navi 88 Feet Navi 88 Feet Navi 88 Feet Navi 89 Frimary Type: Bulkhead/ Seawall Stone Diver 15 Feet Secondary Type: Secondary Material: Primary Height: Secondary Type: Secondary Material: Secondary Height: Secondary Type: Secondary Material: Secondary Height: Secondary Height: Secondary Type: Secondary Material: Secondary Height:			FIRM Map Eleva			ghi che si si di Bibili di menumen a prografia i membrih ni mengeni supermeninkan perdenin delikati. Mangalah di melandah di melandah di melandah di melanman pengenjangan delikati dan dan mengenjangan delikati d
Structure Summary :   Secondary Material:   Secondary Height:	1 1		Feet NO			
Structure Summary :   Secondary Material:   Secondary Height:	Primary Type:	Primary Material:	Primary Height:			
Structure Summary:  A mortared granite block seawall with parapet wall at a street end. Some lower blocks dislodged and patching repairs are apparent. There is a parking lot behind wall and some mortar cracks in parapet wall. The condition is satisfactory.  Condition  B  Rating  Good  Rating  Level of Action  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.  Structure Images:  Structure Documents:	Bulkhead/ Seawal	Stone				
A mortared granite block seawall with parapet wall at a street end. Some lower blocks dislodged and patching repairs are apparent. There is a parking lot behind wall and some mortar cracks in parapet wall. The condition is satisfactory.  Condition  B  Condition  B  Good  Rating  Good  Level of Action  Minor  Description  Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.  Structure Images:  Structure Documents:	Secondary Type:	Secondary Material:	Secondary Heigl	ht:		
A mortared granite block seawall with parapet wall at a street end. Some lower blocks dislodged and patching repairs are apparent. There is a parking lot behind wall and some mortar cracks in parapet wall. The condition is satisfactory.  Condition  B  Condition  B  Good  Rating  Good  Level of Action  Minor  Description  Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.  Structure Images:  Structure Documents:						
Condition B Priority II  Rating Good Rating Low Priority  Level of Action Minor Action 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.  Structure Images: Structure Documents:	Structure Summar	y:				
Rating Good Rating Low Priority  Level of Action Minor Action 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.  Structure Images: Structure Documents:	parking lot behind	e Diock seawaii with parapet waii at I wall and some mortar cracks in par	a street end. Sor rapet wall. The con	ne lower blocks dist idition is satisfactor	odged and patching repairs are apparent y.	t. There is a
Rating Good Rating Low Priority Level of Action Minor 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.  Structure Images: Structure Documents:	Condition	В		Priority	II	
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.    Structure Images:   Structure Documents:   Structure Docu	Rating	Good		_		
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.  Structure Images: Structure Documents:	Level of Action	Minor		**		
	Description	problems, superficial in nature. M to landform is present. Structure adequate to provide protection fro coastal storm with no damage. A to prevent / limit future deterioration	inor erosion / landform om a major ctions taken	Description	Inshore Structures Present with Limi potential for Significant Infrastructure	ted Damage
			ıcture Docume	nts:		
			•			

#### **Structure Assessment Form**

Town: Salem

Structure ID: 064-036-000-473-100

Local  Presumed Structure On			n:		Date:
	Local		Collins Cove Park		7/12/2007
Local	wner:	Based Or	Comment:		1
Local					
Owner Name:		! Farliest S	tructure Record:		stimated Reconstruction/Repair Cost:
Salem		1958	ducture Record.	ī j	\$174,570.00
Length: Top Eleva	tion: FIRM Map Z	one: FIRM Map El	evation:		
230 V3		V3	13	-11	456 y.i.
Feet Feet NAVI	88	Feet	NGVD		The same of the sa
Primary Type:	Primary Material:	Primary Heig	ht:		
Bulkhead/ Seawall	Stone	5 to 10 Feet			
Secondary Type:	Secondary Material:	Secondary H	eight:		
Structure Summary :					
fallen out near east en	ck wall with concrete cap. d. There is a lawn behind	une mortar is crack wall.	ked, <b>som</b> e mortar	is missing and toe co	ncrete is exposed. One stone has
Condition C			Priority	1	
Rating Fa			Rating	None	
Lever of Henon	oderate ructure is sound but may e	avhihit minor	Action		Planning Considerations Structures or Residential Dwelling
de un to mo str co str lan to	terioration, section loss, c dermining, and/or scour. S withstand major coastal si oderate damage. Actions to ucture to provide full prote astal storm and for extend ucture. Moderate wind or dform exists. Landform m fully protect shoreline duri rm. Actions taken to proviterial for full protection an	racking, spalling, Structure adequate torm with little to taken to reinforce ection from major ling life of wave damage to tay not be sufficient tag a major coastal tide addition	Descripti	Units Preser	
Structure Images:		Structure Docur	ments:		
064-036-000-473-100-PHO1A.JPG		MA-DCR	September 1	Proposed Shore	064-036-000-473-100-DCR1A
		DEP	June 1985	Plan Accompanying	064-036-000-473-100-LIC1A
		DEP	September 2	Plan Accompanying	064-036-000-473-100-LIC1B

### **Structure Assessment Form**

Town: Salem
Structure ID: 064-036-000-473-200

		Location:		37	Date:
Local		Collins Cove	Park		7/12/2007
Presumed Structure	e Owner:	Based On Co	mment:		1
Local					
Owner Name:		Earliest Struc	ture Record:	E	stimated Reconstruction/Repair Cost:
Salem		Unkown		Ī	\$147,147.00
Length: Top E	levation: FIRM Map Zone	: FIRM Map Eleva	tion		
245 Top 2		3	13		100
Feet Feet N	IAVD 88	Feet NG	SVD		
Primary Type:	Primary Material:	Primary Height:			
Revetment	Stone	5 to 10 Feet			
Secondary Type:	Secondary Material:	Secondary Heigh	nt:		
1					
Structure Summary				MOCHENIUS E. M.	Fig. 1. The second seco
crest subsidence.	etment in front of a park baseba It is in fair condition.	field. Crest stones h	iave rotated, and	d there is some loss	of joint fill stones with localized
Condition	C		Priority	1	
Rating	Fair Moderate		Rating	None	Nanciae Considerations
Level of Action Description	Structure is sound but may exh	ibit minor	Action		Planning Considerations Structures or Residential Dwelling
Description	deterioration, section loss, crac undermining, and/or scour. Stru	king, spalling, cture adequate	Description	Units Preser	
	to withstand major coastal storn moderate damage. Actions take structure to provide full protecti coastal storm and for extending structure. Moderate wind or wallandform exists. Landform may to fully protect shoreline during storm. Actions taken to provide material for full protection and extending storm.	en to reinforce on from major life of ve damage to not be sufficient a major coastal addition			

## **Structure Assessment Form**

Town: Salem

Structure ID: 064-036-000-473-300

Property Owner:	,	Location:		Da	nte:	
Local		Collins Cove F	Park		7/12/2007	
Presumed Structur	e Owner:	Based On Con	nment:			
Local						
Owner Name:		# Earliest Struct	ure Record:	Estimated Rose	nstruction/Repair Cost:	
Salem		1958	die Record.	LSullated Reco	\$299,284.00	
Length: Top E	levation: FIRM Map Zone		ion: 13			
1 1	IAVD 88	Feet NG				
Primary Type:	Primary Material:	Primary Height:				
Bulkhead/ Seawall Concrete		Under 5 Feet	<del></del>			
Secondary Type:	Secondary Material:	Secondary Height	t:	C. 4		
Revetment	Stone	Under 5 Feet		64		
Structure Summary				LOUR FOR SALES		
There are some vo	urn concrete seawall with rubble ids under the concrete wall. It is	stone toe protection t at a park,and in fair	that has unravelled condition.	in some areas.		
Condition	С		Priority	1		
Rating	Fair		Rating	None		
Level of Action Description	Moderate		Action	Long Term Planning Consider		
deterioration, section loss, crackin undermining, and/or scour. Structure to withstand major coastal storm with moderate damage. Actions taken structure to provide full protection coastal storm and for extending lift structure. Moderate wind or wave landform exists. Landform may not fully protect shoreline during a right storm. Actions taken to provide admaterial for full protection and extending the storm.		cture adequate n with little to en to reinforce on from major life of ve damage to not be sufficient a major coastal addition	Description	No Inshore Structures or R Units Present	esidential Dwelling	
Structure Image 064-036-000-473-3		ructure Documen A-DCR Se	ts: eptember 1 Propo	osed Shore   064-036-00	0-473-300-DCR3A	

#### **Structure Assessment Form**

Town: Salem
Structure ID: 064-036-000-473-400

Property Owner:		Location:			Date:	
Local		Collins Cove	Park		7/12/2007	
Presumed Structure Owner:		Based On Co	mment:		·	
Owner Name:		Earliest Struc	ture Record:	Estimated R	econstruction/Repair Cost:	
Salem		1958			\$74,382.00	
	levation: FIRM Map Zor	ne: FIRM Map Eleva	tion:			
175		V3	13	SERVICE CONTRACTOR		
Feet Feet N	NAVD 88	Feet NO	GVD			
rimary Type:	Primary Material:	Primary Height:			42.27	
ulkhead/ Seawall	Stone	Under 5 Feet				
econdary Type:	Secondary Material:	Secondary Heigl	nt:	- Amilia		
cavement 8 feet b	stone wall with missing mortar, y 3 feet. It is in fair condition.	Located at a street en	d park.  Priority	11		
Rating	Fair		Rating	Low Priority		
Level of Action Description	Moderate Structure is sound but may ex		Action  Description	Future Project Conside Inshore Structures Pre		
	deterioration, section loss, craundermining, and/or scour. St to withstand major coastal stormoderate damage. Actions ta structure to provide full protect coastal storm and for extendir structure. Moderate wind or vlandform exists. Landform mato fully protect shoreline durin storm. Actions taken to provide material for full protection and	tructure adequate orm with little to ken to reinforce ction from major ng life of wave damage to by not be sufficient g a major coastal de addition		potential for Organicani	Infrastructure Damage	
tructure Image	es:	Structure Docume	nts:	overne genegii in reige fillere remedenne oggenet y gypremente-den ee -effect e-glischt skyl de -effekt e-jockwa	entre programment per empression de des des des des des des des des des	
		MA-DCR	September 1 Prop	osed Shore 064-03	6-000-473-400-DCR4A	

#### **Structure Assessment Form**

Town: Salem

Structure ID: 064-036-000-474-100

Property Owner:		Location:			Date:
Local		Collins Street			7/12/2007
Presumed Structure	e Owner:	Based On Cor	mment:		
Local					
Owner Name:		Earliest Struct	ture Record:	Estimated Re	econstruction/Repair Cost:
Salem		1958			\$695,970.00
Length: Top E	evation: FIRM Map Zone	: FIRM Map Elevat	ion:		
555	V	3	13		
Feet Feet N	AVD 88	Feet NG	VD		
Primary Type:	Primary Material:	Primary Height:		1	
Bulkhead/ Seawall	Stone	10 to 15 Feet			30.77
Secondary Type:	Secondary Material:	Secondary Heigh	t:		
				14	
Structure Summary	:			The water that the same of the	
A mortared rubble condition with som	stone wall with 4 foot high concre e damage to the stairs. The stre	ete cap with some me et is located behind t	ortar loss. There is he wall.	some cap cracking and spa	Illing. It is in fair
Condition	С		Priority	Ħ	
Rating	Fair		Rating	Low Priority	
Level of Action	Moderate		Action	Future Project Consider	ation
Description	Structure is sound but may exhi deterioration, section loss, crack undermining, and/or scour. Stru to withstand major coastal storm moderate damage. Actions take structure to provide full protectic coastal storm and for extending structure. Moderate wind or war landform exists. Landform may to fully protect shoreline during a storm. Actions taken to provide material for full protection and extending the storm of the structure of the store of the structure.	king, spalling, cture adequate n with little to en to reinforce on from major life of we damage to not be sufficient a major coastal addition	Description	Inshore Structures Pres potential for Significant	
Structure Image		ructure Documen	nts:		
064-036-000-474-10	00-PHO1A.JPG M	A-DCR Se	eptember 1 Prop	osed Shore 064-036	-000-474-100-DCR1A
			,		

#### **Structure Assessment Form**

Town: Salem
Structure ID: 064-037-000-042-100

Property Owner:		Location:		Date:	
Local		Hubon Street	et	the state of the s	/2007
Presumed Structur	re Owner:	Based On Co	omment:	,	
Local				<u> </u>	
Owner Name:		J Farliest Stru	cture Record:	Estimated December which /December	
Salem		Unkown	cture Record.	Estimated Reconstruction/Repair C \$37,950	
Length: Top E	levation: FIRM Map Zone		ation:		
1	NAVD 88	Feet N		<b>****</b>	the design opposition than the
Primary Type:					
Bulkhead/ Seawall	Primary Material: Stone	Primary Height: 5 to 10 Feet			And the state of t
Secondary Type:	Secondary Material:	Secondary Heig	ht:		The other states of the states
Coolings / Type.	Secondary Platerial.	Secondary Helg	HIL.		
Structure Summary	v:	•			acognish tracey
A mortared granite immediately adjace	e block wall that is failing, leaning ent to the north end has cracks in	offshore and stones concrete block join	s are falling out with ts at building corner	sinkholes behind. The building on top of wall over wall.	Compressional designs, development
Condition	D		Priority	HI	A Company of the Comp
Rating	Poor		Rating	Moderate Priority	of the state of th
Level of Action	Major		Action	Consider for Active Project Improvement	Neilly-resources-received
Description  Structure exhibits advanced levels deterioration, section loss, cracking undermining, and/or scour. Structure strong risk of significant damage a failure during a major coastal storm should be monitored until repairs/reconstruction can be initiat taken to reconstruct structure to re capacity to resist a major coastal standform eroded, stability threaten Landform not adequate to provide during major coastal storm. Actions recreate landform to adequate limit protection from a major coastal store.		cting, spalling, acture has and possible form. Structure titated. Actions regain full all storm. tened. de protection ons taken to mits for full	Description	Listing Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings ( <1 dwelling impacted / 100 feet of shoreline)	
<b>Structure</b> Image 1064-037-000-042-1		ructure Docume	ents:		

#### **Structure Assessment Form**

Town: Salem

Structure ID: 064-041-000-300-100

Property Owner:			Location:		Date:
Unknown			Turner Street		7/12/20
Presumed Structure Owner: Unknown Owner Name:		Based On Com	ment:		
		Earliest Structu	re Decord:	Estimated Reconstruction/Respir Co.	
Unknown			Unkown	ire Record.	Estimated Reconstruction/Repair Cost \$8,712.00
	Elevation:	FIRM Map Zone:	FIRM Map Elevation	on:	
40		V3	1	.3	
Feet Feet I	NAVD 88		Feet NGV	D	
Primary Type:		ary Material:	Primary Height:		
Bulkhead/ Seawal	Ston	e	5 to 10 Feet	_	
Secondary Type:	Secor	ndary Material:	Secondary Height:		A CONTRACTOR OF THE PARTY OF TH
Revetment	Ston		Under 5 Feet		
Structure Summar	y :				
is in fair condition.  Condition  Rating  Level of Action	B Good Minor			Priority Rating Action	II Low Priority Future Project Consideration
Description  Structure observed to exhibit very problems, superficial in nature. Mi to landform is present. Structure adequate to provide protection fro coastal storm with no damage. At to prevent / limit future deterioration life of structure.		nor erosion / landform n a major tions taken	Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage	
Structure Image 964-041-000-300-1			cture Document	s:	

#### **Structure Assessment Form**

Town: Salem
Structure ID: 064-041-000-307-100

Key: community-map-block-parcel-structure Property Owner: Location: Date: Local Hardy Street 7/12/2007 Presumed Structure Owner: Based On Comment: Local Owner Name: Earliest Structure Record: Estimated Reconstruction/Repair Cost: Salem Unkown \$6,270.00 Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation: 25 **V3** 13 Feet Feet NAVD 88 Feet NGVD Primary Type: Primary Material: Primary Height: Bulkhead/ Seawall Stone 10 to 15 Feet Secondary Type: Secondary Material: Secondary Height: Structure Summary: A dry set granite block wall at a street end, in satisfactory condition with a few chinking stones missing. В Condition **Priority** Good Rating Low Priority Rating Minor Level of Action Action **Future Project Consideration** Description Structure observed to exhibit very minor Inshore Structures Present with Limited Description problems, superficial in nature. Minor erosion potential for Significant Infrastructure Damage 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. Structure Images: Structure Documents: 064-041-000-307-100-PHO1A.JPG

#### **Structure Assessment Form**

Town: Salem

Structure ID: 064-041-000-330-100

Property Owner:		Location:		Date	
Local		Daniels Cour	t		7/12/2007
Presumed Structur	e Owner:	Based On Cor	nment:	j	
Local					
Owner Name:		* Earliest Struct	ure Record:	Estimated Reconstr	uction/Renair Cost:
Salem		Unkown			\$3,267.00
	levation: FIRM Map Zone:	FIRM Map Elevat	ion:		
15	V	1	13		
Feet Feet N	NAVD 88	Feet NG	VD		
Primary Type: Bulkhead/ Seawall	Primary Material: Stone	Primary Height: 5 to 10 Feet	_		
Secondary Type:	Secondary Material:	Secondary Heigh	<b>+</b> •		and the second s
Revetment	Stone	Under 5 Feet	<u> </u>		- And Andrews
Structure Summary	y:				APProbampes
		ne revetment at a st	reet end. The wall	is in satisfactory condition and the	revetment in fair
Condidon.					
Condition	В		Priority	II	
Rating	Good		Rating	Low Priority	ed-eller oppmen.
Level of Action	Minor		Action	Future Project Consideration	and the state of t
Description	Description  Structure observed to exhibit very problems, superficial in nature. Mit to landform is present. Structure adequate to provide protection from coastal storm with no damage. Act to prevent / limit future deterioration life of structure.		Description	Inshore Structures Present wit potential for Significant Infrasti	n Limited ructure Damage
<b>Structure Image</b> 064-041-000-330-1		ucture Documer	its:		The state of the s
					ne de provincia de la constitución de la constituci
					шили
					and and the second seco
					beforeveiline
					RECENTATION OF THE PROPERTY OF
					- Service - Serv
					10.00

#### **Structure Assessment Form**

Town: Salem
Structure ID: 064-042-000-003-100

Szetela Lar Based On O Earliest Str Unkown		7/12/200
Earliest Str		
	ucture Record:	
	ucture Record:	
Unkown		Estimated Reconstruction/Repair Cost:
		\$2,807,739.00
e: FIRM Map Ele	vation:	
/3	13	
Feet M	NGVD	
Primary Heigh		
10 to 15 Feet		
Secondary Hei	ght:	The state of the s
	Priority Rating	I None
els of	Action	Long Term Planning Considerations
eking, spalling, ucture has le and possible torm. Structure hitiated. Actions o regain full hal storm. Attened. Ide protection ions taken to limits for full storm.	Description	No Inshore Structures or Residential Dwelling Units Present
		Accompanying 064-042-000-003-100-LIC1A
	1 1	,
		ucture Documents: P September 1 Plan

# **Structure Assessment Form**

Town: Salem
Structure ID: 064-043-000-001-100

Property Owner:			Location:			Date:
Local	Local		Winter Island			7/12/2007
Presumed Structure Owner:		Based On Con	nment:		,	
Local						
Owner Name:	. 11.23		Earliest Struct	ure Record:	Estimated F	Reconstruction/Repair Cost:
Salem			Unkown	PM-09, hallillit va kannasser orangi oransek (right 1998) eran asatoransek (right 1998).	2	\$21,252.00
The same of the sa	levation:	FIRM Map Zone:	FIRM Map Elevat			A TOTAL PROPERTY OF THE PARTY O
140 Feet Feet N	IAVD 88	V3	4	13	MANUAL S	
			Feet NG\	<i>I</i> D		
Primary Type: Bulkhead/ Seawall		mary Material: one	Primary Height:	<u> </u>	The second of the	
•	•		5 to 10 Feet			
Secondary Type:	Sec	condary Material:	Secondary Height			
	1		1			
Structure Summary		concrete con There	como media del	iounting - 60		
deterioration/spalls	s. It is in a	park and in satisfactory	condition.	ioration, emoresce	ence <b>and</b> vegetation. There	e is also some concrete cap
I Condition	В			Dest ente	11	p. de de constante de la const
Rating	Good			Priority Rating	Low Priority	matald registration
Level of Action	Minor			Action	Future Project Conside	eration
Description	problems, to landform adequate to coastal sto	observed to exhibit very superficial in nature. Min is present. Structure to provide protection from with no damage. At / limit future deteriorationature.	nor erosion / landform m a major tions taken	Description	Inshore Structures Pre potential for Significant	sent with Limited LInfrastructure Damage
Structure Image   064-043-000-001-1			cture Documen	ts:		
			•			
						in minimum and an artist and an artist and an artist and an artist and artist artist and artist and artist artist and artist artist and artist artist artist and artist

#### **Structure Assessment Form**

064-043-000-001-200-PHO2A.JPG

Town: Salem Structure ID: 064-043-000-001-200

Key: community-map-block-parcel-structure Property Owner: Location: Date: Local Winter Island 7/12/2007 Presumed Structure Owner: Based On Comment: Local Owner Name: **Earliest Structure Record:** Estimated Reconstruction/Repair Cost: Salem 1995 \$192,535.00 Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation: 780 ٧3 13 Feet NAVD 88 Feet Feet NGVD Primary Type: Primary Material: Primary Height: Revetment Stone Over 15 Feet Secondary Type: Secondary Material: Secondary Height: Structure Summary: A placed stone revetment along park shore and boat ramp, in good condition. Condition Priority Good Rating Low Priority Rating Level of Action Minor **Future Project Consideration** Action Structure observed to exhibit very minor Inshore Structures Present with Limited Description Description problems, superficial in nature. Minor erosion potential for Significant Infrastructure Damage 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. Structure Images: Structure Documents:

June 1995

Plan to Accompany

Prepared By: Bourne Consulting Engineering

064-043-000-001-200-LIC2A

## **Structure Assessment Form**

Town: Salem
Structure ID: 064-043-000-001-300

Property Owner:		Location:			Date:
Local		Winter Island		**************************************	7/12/2007
Presumed Structur	re Owner:	rner: Based On Comment:			The state of the s
Local			3		
Owner Name:		Earliest Struct	ure Record:	Estimated R	econstruction/Repair Cost;
Salem		Unkown			\$162,162.00
the second secon	levation: FIRM Map Zone:	FIRM Map Elevati	on:		
270	V2		14		2
Feet Feet N	NAVD 88	Feet NG\	/D		4
Primary Type:	Primary Material:	Primary Height:			
Revetment	Stone	5 to 10 Feet			
Secondary Type:	Secondary Material:	Secondary Height		<b>二次</b> 不可以	
	1	J		A TANK	
A dumped rubble	y : stone revetment with a lawn area be	hind There is som	e soil erosion alon	og crost and disladand steel	This is fall as a fill.
, and a second	some revealight way a lawn area be	anno. There is son	ie soli erosion alon	ig crest and dislouged stone	es. It is in fair condition.
	_				
Condition	C Fair		Priority	1	
Rating Level of Action	Moderate		Rating Action	None	proidorations
		minor	Action  Description	Long Term Planning Considerations  No Inshore Structures or Residential Dwelling	
Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling undermining, and/or scour. Structure adeq to withstand major coastal storm with little moderate damage. Actions taken to reinforstructure to provide full protection from maccoastal storm and for extending life of structure. Moderate wind or wave damage landform exists. Landform may not be suff to fully protect shoreline during a major coastorm. Actions taken to provide addition material for full protection and extended life.			Description	Units Present	
Structure Image   064-043-000-001-3		cture Documen	ts:		

## **Structure Assessment Form**

Town: Salem

Structure ID: 064-043-000-001-400

Property Owner:		Location:		Date:
Local	Local		j	7/12/2007
Presumed Structure Owner:		Based On Co	mment:	•
Local				
Owner Name:		earliest Struc	ture Record:	Estimated Reconstruction/Repair Cost:
Salem		Unkown		\$418,070.00
	levation: FIRM Map 2	The second second		
535	1	V2	18	And the second second second
	IAVD 88	Feet NG	SVD -	
Primary Type:	Primary Material:	Primary Height:		
Revetment	Stone	10 to 15 Feet		
Secondary Type:	Secondary Material:	Secondary Heigh	nt:	
Structure Summary	1	1		
localized unravelled	d areas, approximately 10 fee	. There is a park lawn be et by 15 feet each.		e unravelling.Some overtopping erosion with two
Condition Rating	C Fair		Priority	l None
Level of Action	Moderate		Rating Action	Long Term Planning Considerations
Description	Structure is sound but may deterioration, section loss, undermining, and/or scour. to withstand major coastal smoderate damage. Actions structure to provide full prot coastal storm and for extenstructure. Moderate wind o landform exists. Landform r to fully protect shoreline dui storm. Actions taken to promaterial for full protection a	cracking, spalling, Structure adequate storm with little to taken to reinforce ection from major ding life of r wave damage to nay not be sufficient ing a major coastal vide addition	Description	No Inshore Structures or Residential Dwelling Units Present
Structure Image   064-043-000-001-4	00-PHO4A.JPG	Structure Documen	nts:	

#### **Structure Assessment Form**

Town: Salem
Structure ID: 064-043-000-001-500

Property Owner:	-time-hand di river dan van toer antare militika fijell-ausk keril di riverlik die kraf di Amerika euskarassa saassa	Location:		Date:	
Local		Winter Island		7/12/2007	
Presumed Structur	e Owner:	Based On Comment:			
Local					
Owner Name:		Earliest Structi	ura Pacardi	Estimated Research strips / Panals Costs	
Salem	· · · · · · · · · · · · · · · · · · ·	Unkown	ure Record.	Estimated Reconstruction/Repair Cost: \$159,159.00	
		1			
	levation: FIRM Map Zone:	FIRM Map Elevati			
265	V2	1	18		
	NAVD 88	Feet NGV	/D		
Primary Type: Revetment	Primary Material:	Primary Height:	_		
•	Stone	5 to 10 Feet			
Secondary Type:	Secondary Material:	Secondary Height		3 3 3	
		1			
Structure Summan		and creet upravelle	ad with over-toppin	ng erosion. There is a park shrub area behind and	
the revetment is in	fair condition.	i and crest unitavelle	eu with over-toppii	ig erosion. There is a park strub area bening and	
i					
Condition	C		Priority	I .	
Rating	Fair		Rating	None	
Level of Action Description	Moderate Structure is sound but may exhibi	t minor	Action  Description	Long Term Planning Considerations  No Inshore Structures or Residential Dwelling	
	deterioration, section loss, crackir undermining, and/or scour. Struct to withstand major coastal storm moderate damage. Actions taken structure to provide full protection coastal storm and for extending lift structure. Moderate wind or wave landform exists. Landform may not of fully protect shoreline during a storm. Actions taken to provide acmaterial for full protection and extending the storm of the st	ure adequate with little to to reinforce from major fe of d damage to bt be sufficient major coastal ddition		Units Present	
Structure Imag  064-043-000-001-5		ucture Documen	its:		

#### **Structure Assessment Form**

Town: Salem

Structure ID: 064-044-000-037-100

Property Owner:		Location:			Date:
State		Salem State College Marine Lab			6/29/2007
Presumed Structure Owner:		Based On Cor	mment:		
State			· · · · · · · · · · · · · · · · · · ·		
Owner Name:		Earliest Struct	ture Record:	Estimated R	Reconstruction/Repair Cost:
Salem State Colleg	e Marine Lab	Unkown			\$355,555.00
	levation: FIRM Map Zone:	FIRM Map Elevat			
455	A4	Foot NC	11		<u> </u>
Feet Feet NAVD 88  Primary Type: Primary Material:  Revetment Stone  Secondary Type: Secondary Material:		Feet NGVD Primary Height: 10 to 15 Feet Secondary Height:			
A tidal dam at Cat concrete between	cove. A stone dike with concrete constones and there is some scaling on	ap and with some s concrete, and one	steel sheet pile at t spall. In fair cond	he weir structure. It is mis	ssing some revetment joint
Condition	C		Priority	H	
Rating Level of Action	Fair Moderate		Rating	Moderate Priority	
		Action t minor		Consider for Active Project Improvement Listing	
Description  Structure is sound but may exhibit deterioration, section loss, cracking undermining, and/or scour. Structure to withstand major coastal storm we moderate damage. Actions taken it structure to provide full protection is coastal storm and for extending life structure. Moderate wind or wave landform exists. Landform may not to fully protect shoreline during a material for full protection and extending for full protection and extending the structure.		g, spalling, ure adequate vith little to to reinforce from major e of damage to t be sufficient najor coastal dition	Description	Inshore Structures with Infrastructure Damage Residential Dwellings ( 100 feet of shoreline)	
Structure Image 064-044-000-037-10		cture Documen	nts:		

# **Structure Assessment Form**

Town: Salem
Structure ID: 064-044-000-037-200

Property Owner:			Location:			Date:
Local	ocal		Cat Cove			6/29/2007
Presumed Structure Owner:		Based On Com	nment:			
Local						
Owner Name:			Earliest Struct	ure Record:	Estimated R	econstruction/Repair Cost:
Salem			Unkown			\$100,320.00
	levation:	FIRM Map Zone:	FIRM Map Elevati			
400 Foot A	IAVD OO	A2	1	10		
	IAVD 88		Feet NGV	/D		
Primary Type: Bulkhead/ Seawall	_	rimary Material:	Primary Height: 10 to 15 Feet	<del></del>	- A	
Secondary Type:	,	econdary Material:				
Secondary Type.	Ī	condary Placerial.	Secondary Height	<u>:                                     </u>		
Structure Summary	· :		•			
spails and delamin	ation with	all with cantilever sidewa rebar exposed. The wall	lk in satisfactory co is adjacent to the r	oad.	e a few cracks and scaling.	The wall cap has some
Condition Rating	B Good			Priority	 	
Level of Action	Minor			Rating Action	Low Priority Future Project Conside	ration
Description  Structure observed to exhibit very problems, superficial in nature. Mit to landform is present. Structure adequate to provide protection from coastal storm with no damage. At to prevent / limit future deterioration life of structure.		inor erosion  / landform  m a major  ctions taken		Inshore Structures Pres potential for Significant	sent with Limited Infrastructure Damage	
<b>Structure</b> Image 064-044-000-037-2			cture Document	ts:		

#### **Structure Assessment Form**

Town: Salem
Structure ID: 064-044-000-037-300

Key: community-map-block-parcel-structure Property Owner: Location: Date: Local Cat Cove 6/29/2007 Presumed Structure Owner: Based On Comment: Local Owner Name: Earliest Structure Record: Estimated Reconstruction/Repair Cost: Salem Unkown \$101,970.00 Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation: 250 A2 10 Feet Feet NAVD 88 Feet NGVD Primary Type: Primary Material: Primary Height: Bulkhead/ Seawall Stone 10 to 15 Feet Secondary Type: Secondary Material: Secondary Height: Revetment Stone 10 to 15 Feet Structure Summary: A mortared stone seawall with concrete cap, cracks in cap, and a sidewalk subsidence behind the wall. The wall continues inland away from water along the road and is not mapped. It has a toe stone revetment. Both are in satisfactory condition. Condition IH **Priority** Good Rating Moderate Priority Rating Minor Level of Action Consider for Active Project Improvement Action Listing Description Structure observed to exhibit very minor problems, superficial in nature. Minor erosion Inshore Structures with potential for Description Infrastructure Damage and/or Limited to landform is present. Structure / landform adequate to provide protection from a major Residential Dwellings (<1 dwelling impacted / coastal storm with no damage. Actions taken 100 feet of shoreline) to prevent / limit future deterioration and extend life of structure. Structure Images: Structure Documents: 064-044-000-037-300-PHO3A.JPG

## **Structure Assessment Form**

Town: Salem
Structure ID: 064-044-000-037-400

State   Cat Cove   6/29/2007  Presumed Structure Owner: Based On Comment:  State   Cat Cove   Based On Comment:  State   Cat Cove   Cat Cove   G/29/2007  Based On Comment:   Earliest Structure Record:   Estimated Reconstruction/Repair Cost:   Cos				<del> </del>	Key. Community-ma	p-block-parcel-structure
Presumed Structure Owner:  State    State   Earliest Structure Record:   Estimated Reconstruction/Repair Cost:   Unknown   \$64,178,00	Property Owner:		Location:		Dat	e:
State  Owner Name: Salem State College  Earliest Structure Record: Unknown  FIRM Map Zone:  FIRM Map Elevation:  Feet NGVD Feet NGVD Feet NGVD Feet NGVD Feet NGVD Finary Type: Primary Material: Secondary Type: Secondary Type: Secondary Material: Secondary Height: Secondary Type: Secondary Material: Secondary Height: Secondary Type: Secondary Material: Secondary Height: Structure Summary: A stone revetment with smaller toe stone and possible a repair overlay of smaller stone. It is near a driveway and lab buildings. It is in satisfactory condition.  Condition B Good Rating Good Rating Good Rating Good Rating Good Rating Future Project Consideration Inshore Structures Present with Limited potential for Significant Infrastructure Damage or coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.  Structure Images: Structure Images: Structure Documents:	State		Cat Cove			6/29/2007
Downer Name: Salem State College  Earliest Structure Record:  Fire Map Zone:  Fire Map Elevation:  Fire Feet NAVD 88  Feet NGVD  Frimary Type:  Frimary Material:  Secondary Type:  Secondary Type:  Secondary Material:  Secondary Height:  Secondary Type:  Secondary Material:  Secondary Height:  Secondary Type:  A stone revetment with smaller toe stone and possible a repair overlay of smaller stone. It is near a driveway and lab buildings. It is in satisfactory condition.  Condition  B  Good  Good  Rating  Good  Good  Rating  Good  Structure Summary:  Action  Description  Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure I 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.  Structure Images:  Structure Images:  Structure Documents:	Presumed Structur	re Owner:	Based On Cor	mment:	•	
Salem State College  Unknown  Section 10  Feet Navior 10  Feet	State					
Salem State College  Unknown  Section 10  Feet Navior 10  Feet	Owner Name:		Farliest Struct	hire Record:	Estimated Recon	struction/Banair Costs
Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation:  260		је		ture Record.	Estillated Recor	
Feet Feet NAVD 88 Feet NGVD  Primary Type: Primary Material: Primary Height: Over 15 Feet  Secondary Type: Secondary Material: Secondary Height: Over 15 Feet  Secondary Type: Secondary Material: Secondary Height: Over 15 Feet  Secondary Type: Secondary Material: Secondary Height: Over 15 Feet  A stone revetment with smaller toe stone and possible a repair overlay of smaller stone. It is near a driveway and lab buildings. It is in satisfactory condition  Condition B Rating Good Rating Low Priority II Rating Low Priority Action Future Project Consideration  Description Structure observed to exhibit very minor problems, superficial in nature. Minor reason to landform is present. Structure Inafform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.  Structure Images: Structure Documents:						20-7 all 2017 - margar expression for discovery interpretation and production and expression and
Feet NaVD 88 Feet NGVD  Primary Type: Primary Material: Primary Height:  Secondary Type: Secondary Material: Secondary Height:  Secondary Type: Secondary Material: Secondary Height:  Secondary Type: Secondary Material: Secondary Height:  A stone revetment with smaller toe stone and possible a repair overlay of smaller stone. It is near a driveway and lab buildings. It is in satisfactory condition.  Condition B Rating Good Rating Low Priority Rating Low Priority  Evel of Action Minor Structure Observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure I 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.  Structure Images: Structure Documents:			FIRM Map Elevat			
Primary Type: Primary Material: Primary Height:	J					No.
Revetment   Stone   Over 15 Feet   Secondary Type:   Secondary Material:   Secondary Height:   A stone revetment with smaller toe stone and possible a repair overlay of smaller stone. It is near a driveway and lab buildings. It is in satisfactory condition.    Condition   B				VD		3.44
Secondary Type: Secondary Material: Secondary Height:  A stone revetment with smaller toe stone and possible a repair overlay of smaller stone. It is near a driveway and lab buildings. It is in satisfactory condition.  Condition  B  Rating  Good  Rating  Low Priority  Level of Action  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.  Structure Images: Structure Documents:						
A stone revetment with smaller toe stone and possible a repair overlay of smaller stone. It is near a driveway and lab buildings. It is in satisfactory condition.  Condition  B Rating Good Rating Low Priority II Rating Low Priority Level of Action 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.  Structure Images: Structure Documents:		·	•			
A stone revetment with smaller toe stone and possible a repair overlay of smaller stone. It is near a driveway and lab buildings. It is in satisfactory condition.  Condition  B  Rating  Good  Rating  Low Priority  II  Rating  Low Priority  II  Rating  Low Priority  II  Retire 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.  Structure Images:  Structure Documents:	Secondary Type:	Secondary Material:	Secondary Heigh	t:		T ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (
A stone revetment with smaller toe stone and possible a repair overlay of smaller stone. It is near a driveway and lab buildings. It is in satisfactory condition.  Condition  B  Rating  Good  Rating  Low Priority  II  Rating  Low Priority  II  Rating  Low Priority  II  Retire 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.  Structure Images:  Structure Documents:	-	1	1		到五层	
Condition B Rating Good Rating Low Priority 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.  Structure Images: Structure Documents:						
Rating Good Rating Low Priority  Level of Action Minor Action 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.  Structure Images: Structure Documents:	satisfactory condti	on.	a repair overlay of	smaller stone. It	. Is near a driveway and Iab build	ngs. It is in
Rating Good Rating Low Priority Level of Action Minor Action 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.  Structure Images: Structure Documents:	Condition	В		Priority	II -	
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.  Structure Images:  Structure Documents:	Rating	Good		-		
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.  Structure Images:  Structure Documents:	Level of Action				Future Project Consideration	1
	Description	problems, superficial in nature. Mit to landform is present. Structure adequate to provide protection from coastal storm with no damage. Act to prevent / limit future deterioration	nor erosion / landform m a major ctions taken	Description		
			cture Documer	nts:		

#### **Structure Assessment Form**

Town: Salem

Structure ID: 064-044-000-146-100

Property Owner:		Location:	***	Date:
Local		Columbus Ave	nue	7/12/2007
Presumed Structur	e Owner:	Based On Com	ment:	
Local				
Owner Name:		Earliest Structi	ure Record:	Estimated Reconstruction/Repair Cost:
Salem		Unkown	are record.	\$71,346.00
Length: Top E	levation: FIRM Map Zone:	CIDM Man Flourti		
470	A2	FIRM Map Elevati	10	
Feet Feet N	IAVD 88	Feet NGV	'D	
Primary Type:	Primary Material:	Primary Height:		
Bulkhead/ Seawall	Stone	5 to 10 Feet	3.4.	
Secondary Type:	Secondary Material:	Secondary Height		
A mortared rubble		ar' in satisfactory of	anditon Thoro are	e 6 small sinkholes in the bituminous walk,
approximately 6 in	ches in diameter. There is a walk a	nd grass strip, then	road behind.	e o small shikholes in the dituminous walk,
Condition	В			
Condition Rating	Good		Priority Rating	II Low Priority
Level of Action	Minor		Action	Future Project Consideration
Description	Structure observed to exhibit very problems, superficial in nature. Mi to landform is present. Structure adequate to provide protection from coastal storm with no damage. At to prevent / limit future deterioration life of structure.	nor erosion / landform m a major ctions taken	Description	Inshore Structures Present with Limited potential for Significant Infrastructure Damage
Structure Image		cture Document	ts:	
		•		

#### **Structure Assessment Form**

Town: Salem
Structure ID: 064-045-000-079-100

Key: community-map-block-parcel-structure Property Owner: Location: Date: Local Beach Avenue 7/12/2007 Presumed Structure Owner: Based On Comment: Local Owner Name: Earliest Structure Record: Estimated Reconstruction/Repair Cost: Salem Unkown \$15,206.00 Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation: 180 V2 Feet Feet NAVD 88 Feet NGVD Primary Type: Primary Material: Primary Height: Bulkhead/ Seawall Stone Under 5 Feet Secondary Type: Secondary Material: Secondary Height: Structure Summary: A mortared stone seawall with concrete cap in good condition. A sidewalk and street are behind with one cap spall and some mortar cracking. В Condition **Priority** Good Rating Low Priority Rating Minor Level of Action Action **Future Project Consideration** Structure observed to exhibit very minor Description Inshore Structures Present with Limited Description problems, superficial in nature. Minor erosion potential for Significant Infrastructure Damage 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. Structure Images: Structure Documents: 064-045-000-079-100-PHO1A.JPG

#### **Structure Assessment Form**

Town: Salem
Structure ID: 064-045-000-089-100

Property Owner:			Location:			Date:
Local			Willows Park			7/12/2007
Presumed Structur	e Owner	:	Based On Com	ment:		
Local						
Owner Name:			Earliest Structu	re Record:	Estimated Ro	econstruction/Repair Cost:
Salem			Unkown			\$32,525.00
	levation:	FIRM Map Zone:	FIRM Map Elevation	on:	The second secon	
385		V3		12		Land to the land
Feet Feet N	88 dvai		Feet NGV	D		
Primary Type:		Primary Material:	Primary Height:			
Bulkhead/ Seawall		Concrete	Under 5 Feet			
Secondary Type:		Secondary Material:	Secondary Height			The same
				<del></del>		Act of the last
Structure Summary	y :					AMERICAN TELEPROPERTY.
Condition Rating Level of Action Description	problem to land adequation coastal to prevent	re observed to exhibit very ns, superficial in nature. Mir form is present. Structure ate to provide protection fror storm with no damage. Acent / limit future deterioratio tructure.	nor erosion / landform n a major ctions taken	Priority Rating Action Description	II Low Priority Future Project Consider Inshore Structures Pres potential for Significant	ent with Limited
Structure Image 064-045-000-089-1			cture Document	rs:		

#### **Structure Assessment Form**

Town: |Salem

Structure ID: 064-045-000-089-200

Property Owner:		Location:		Date:	
Local		Willows Park	•		7/12/2007
Presumed Structure	e Owner:	Based On Co	omment:	,	
Local			<u> </u>		
Owner Name:		f Farliest Stru	cture Record:	Estimated Research	ustian/Dennis Costs
Salem	<u></u>	2007	cture Record.	Estimated Reconstru	\$1,146,090.00
	and fill-differen in consequence to the contract of the contra		galago e que a gala per en calabra de la composición de la composición de la composición de la composición de La composición de la		
ength: Top E	levation: FIRM Map Zono			A STATE OF THE STA	
1	IAVD 88	/3	12	2	
		Feet NO	340		
Primary Type: Bulkhead/ Seawall	Primary Material: Stone	Primary Height: 5 to 10 Feet			14
	,	•			
Secondary Type:	Secondary Material:	Secondary Heig	ht:		
	1	ı			
Structure Summary  A mortared stone r		granite cap. It is up	ider renair. There a	re sinkholes and it is leaning offsho	re. Thoro are
some stones displa	aced and it is in poor condition.	g. a capr 10 to th	repair. There a	. Samurous and it is icaning offshio	ic. There are
Condition	D		Priority	I	
Rating	Poor		Rating	None	
Level of Action	Major		Action	Long Term Planning Considera	
Description	Structure exhibits advanced lever deterioration, section loss, crace undermining, and/or scour. Structured strong risk of significant damage failure during a major coastal such should be monitored until repairs/reconstruction can be in taken to reconstruct structure to capacity to resist a major coast Landform eroded, stability three Landform not adequate to providuring major coastal storm. Acrecreate landform to adequate protection from a major coastal	cking, spalling, ructure has ge and possible torm. Structure nitiated. Actions o regain full last storm. attened. Ide protection tions taken to limits for full	Description	No Inshore Structures or Resid Units Present	ential Dwelling
tructure Image 64-045-000-089-2		tructure Docume		wali Plan &   064-045-000-0	89-200-TWN
		,			

#### **Structure Assessment Form**

Town: |Salem

Structure ID: 064-045-000-089-300

Property Owner:		Location:		Date	2:
Local		Willows Park			7/12/2007
Presumed Structure	e Owner:	Based On Comm	nent:	,	
Local				1.10.00	
Owner Name:		Earliest Structur	e Record:	Estimated Recons	truction/Repair Cost:
Salem		Unkown			\$20,493.00
Feet Feet N Primary Type: Bulkhead/ Seawall Secondary Type: Structure Summary	Secondary Material:	FIRM Map Elevation  12 Feet NGVE Primary Height: 5 to 10 Feet Secondary Height:  The lawn and path of	<del>2</del> 5	Territorial.	
This raise rabble	Storic Hall III Sausiactory Cornaldon.	me lawn and paul	ore beriniu ule w	all.	
Condition Rating Level of Action Description	B Good Minor Structure observed to exhibit very problems, superficial in nature. Min to landform is present. Structure adequate to provide protection from coastal storm with no damage. Act to prevent / limit future deterioration life of structure.	minor nor erosion / landform n a major tions taken	Priority Rating Action Description	I None Long Term Planning Conside No Inshore Structures or Res Units Present	
Structure Image 064-045-000-089-3		cture Documents	5;		

#### **Structure Assessment Form**

Town: Salem

Structure ID: 064-045-000-089-400

Property Owner:			Location:			Date:
Local	<u>, , , , , , , , , , , , , , , , , , , </u>		Willows Park			7/12/2007
Presumed Structur	e Owner:		Based On Com	ment:		
Local	<del></del>					
Owner Name: Salem			Earliest Struct	ure Record:	Estimated R	econstruction/Repair Cost: \$12,276.00
60	Sto	ondary Material:	FIRM Map Elevation Feet NGV Primary Height: Under 5 Feet Secondary Height 5 to 10 Feet	15 /D		
Structure Summar	y :			ncrete infill. It is i	n satisfactory condition and	includes the pier
Condition Rating Level of Action Description	problems, s to landform adequate to coastal stor	bserved to exhibit very of superficial in nature. Mire is present. Structure is provide protection from with no damage. Act limit future deterioration ture.	nor erosion / landform n a major tions taken	Priority Rating Action Description	I None Long Term Planning Co No Inshore Structures o Units Present	
Structure Image 064-045-000-089-4			cture Documen	ts:		

#### **Structure Assessment Form**

Town: Salem
Structure ID: 064-045-000-089-500

Property Owner:		Location:		Date:
Local		Willows Park	·	7/12/2007
Presumed Structur	re Owner:	Based On Com	ment:	
Local			M 42	
Owner Name:		Earliest Structu	re Record:	Estimated Reconstruction/Repair Cost:
Salem		1958		\$13,794.00
	Elevation: FIRM Map Zone:	FIRM Map Elevation	the same of the sa	
55	V2		.5	
Feet Feet I	NAVD 88	Feet NGV	D	
Primary Type:	Primary Material:	Primary Height:	·	
Bulkhead/ Seawal	•	10 to 15 Feet		
Secondary Type:	Secondary Material:	Secondary Height:	_	
Structure Summar				
condition.	ncrete seawall with repair mass cond	crete in front of the c	original spalled co	ncrete. It is in a park area and is in satisfactory
l				1970
Condition	В		Priority	[
Rating	Good		Rating	None
Level of Action	Minor		Action	Long Term Planning Considerations
Description	Structure observed to exhibit very problems, superficial in nature. Mi to landform is present. Structure adequate to provide protection fro coastal storm with no damage. A to prevent / limit future deterioration life of structure.	inor erosion / landform m a major ctions taken	Description	No Inshore Structures or Residential Dwelling Units Present
Structure Image		ıcture Document	s:	
064-045-000-089-5	00-PHO5A.JPG MA-	DCR Ser	otember 1 Prop	osed Shore 064-045-000-089-500-DCR5A
		•		

#### **Structure Assessment Form**

Town: |Salem

Structure ID: 064-045-000-089-600

Property Owner:		Location:		Date:	
Local		Willows Park			7/12/2007
Presumed Structure	Owner:	Based On Cor	mment:	,	
Local				<u> </u>	
Owner Name:		Earliest Struct	ture Record:	Estimated Reconstru	iction/Repair Cost:
Salem		Unkown			\$48,576.00
the second section of	evation: FIRM Map Zone:	FIRM Map Elevat	ion:	The Commission of the Commissi	
320	V	2	15	<b>□</b> = a .	
Feet Feet NA	AVD 88	Feet NG	VD		
Primary Type:	Primary Material:	Primary Height:			
Bulkhead/ Seawall	Concrete	5 to 10 Feet			
Secondary Type:	Secondary Material:	Secondary Heigh	t:		4
Structure Summary	:				7h
A cast in place conc satisfactory conditio	crete seawall with park road behi	nd. It has weathered	concrete, with so	me cracks and toe exposed at south	end. It is in
	В		Priority	II	
Rating	Good		Rating	Low Priority	
	Minor Structure observed to exhibit ve		Action	Future Project Consideration	
	problems, superficial in nature. I to landform is present. Structuradequate to provide protection fi coastal storm with no damage. to prevent / limit future deterioral life of structure.	re / landform rom a major Actions taken		potential for Significant Infrastru	icture Damage
Structure Image				** The second se	
Structure Image: 064-045-000-089-60		ructure Documer	its:		
040 000 000-00	1100A.31 G				

#### **Structure Assessment Form**

Town: Salem
Structure ID: 064-045-000-089-700

Property Owner:		Location:		Date:
Local		Willows Park		7/12/2007
Presumed Structure	e Owner:	Based On Comme	ent:	,
Local				The state of the s
Owner Name:		Earliest Structure	Record:	Estimated Reconstruction/Repair Cost:
Salem		Unkown		\$31,416.00
	levation: FIRM Map Zone:	FIRM Map Elevation:	о обору на выполня на том продосного не	
200 Fact 1	V2	15		The state of the s
	IAVD 88	Feet NGVD		
Primary Type:	Primary Material:	Primary Height:		
Revetment	Stone	10 to 15 Feet		
Secondary Type:	Secondary Material:	Secondary Height:		
	1	1		
Structure Summary				
A rubble stone rev	etment in front of park lawn area in	satisfactory condition.		
Condition	В	Į.	Priority	1
Rating	Good		Rating	None
Level of Action	Minor		ction	Long Term Planning Considerations
Description	Structure observed to exhibit very problems, superficial in nature. Mi to landform is present. Structure adequate to provide protection fro coastal storm with no damage. At to prevent / limit future deterioration life of structure.	nor erosion / landform m a major ctions taken	Description	No Inshore Structures or Residential Dwelling Units Present
				-
Structure Image 1064-045-000-089-7		cture Documents:		
,				

# **Section IV - Salem**

# Part C Structure Photographs



CITY: SALEM SOURCE: WFE - FIELD PHOTOGRAPHS LOCATION: Bourne Consulting Engineering DATE OF RESEARCH: JULY 2007

		Contract							
BCE Structure No	Document No	Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
064-027-000-471-100	064-027-000-471-100-PHO1A.JPG		Bourne Consulting Englneering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
064-028-000-018-100	064-028-000-018-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-031-000-233-100	064-031-000-233-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-031-000-233-200	064-031-000-233-200-PHO2A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-033-000-556-100	064-033-000-556-100-PHO1A.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-033-000-743-100	064-033-000-743-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-033-000-743-200	064-033-000-743-200-PHO2A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-033-000-743-200	064-033-000-743-200-PHO2B.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-033-000-743-300	064-033-000-743-300-PHO3A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-033-000-743-300	064-033-000-743-300-PHO3B.JPG		Boume Consulting Engineering	-	October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-033-000-748-100	064-033-000-748-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-033-000-750-100	064-033-000-750-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-034-000-435-100	064-034-000-435-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-034-000-435-200	064-034-000-435-200-PHO2A.JPG		Boume Consulting Englneering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-034-000-455-100	064-034-000-455-100-PHO1A.JPG		Bourne Consulting Engineering	3	October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-035-000-388-100	064-035-000-388-100-PHO1A.JPG		Bourne Consulting Englneering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-036-000-473-100	064-036-000-473-100-PHO1A.JPG		Bourne Consulting Englneering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
064-036-000-473-200	064-036-000-473-200-PHO2A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
064-036-000-473-300	064-036-000-473-300-PHO3A.JPG		Bourne Consulting Engineering	J	October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
064-036-000-473-400	064-036-000-473-400-PHO4A.JPG		Boume Consulting Engineering	<u> </u>	October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
064-036-000-474-100	064-036-000-474-100-PHO1A.JPG		Bourne Consulting Englneering	J	October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
064-037-000-042-100	064-037-000-042-100-PHO1A.JPG		Bourne Consulting Engineering	J	October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey

CITY: SALEM SOURCE: WFE - FIELD PHOTOGRAPHS LOCATION: Bourne Consulting Engineering DATE OF RESEARCH: JULY 2007

BCE Structure No	Document No	Contract/ Drawing	Entity	Municipality	Date	Title	Sheets	Location	Description
064-041-000-300-100	064-041-000-300-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-041-000-307-100	064-041-000-307-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	+	Structure Location	Structure Condition Photo at Time of Survey
064-041-000-330-100	064-041-000-330-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-042-000-003-100	064-042-000-003-100-PHO1A.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-042-000-003-100	064-042-000-003-100-PHO1B.JPG	**	Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-043-000-001-100	064-043-000-001-100-PHO1A.JPG	-	Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-043-000-001-200	064-043-000-001-200-PHO2A.JPG	477	Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-043-000-001-300	064-043-000-001-300-PHO3A.JPG	47	Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-043-000-001-400	064-043-000-001-400-PHO4A.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-043-000-001-400	064-043-000-001-400-PHO4B.JPG	234	Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-043-000-001-500	064-043-000-001-500-PHO5A.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-044-000-037-100	064-044-000-037-100-PHO1A.JPG	45	Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-044-000-037-200	064-044-000-037-200-PHO2A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-044-000-037-300	064-044-000-037-300-PHO3A.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-044-000-037-400	064-044-000-037-400-PHO4AJPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-044-000-146-100	064-044-000-146-100-PHO1A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
064-045-000-079-100	064-045-000-079-100-PHO1A.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
064-045-000-089-100	064-045-000-089-100-PHO1A.JPG		Boume Consulting Engineering	-	October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
064-045-000-089-200	064-045-000-089-200-PHO2A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
064-045-000-089-300	064-045-000-089-300-PHO3A.JPG		Boume Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-045-000-089-400	064-045-000-089-400-PHO4A.JPG		Boume Consulting Engineering	-	October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-045-000-089-500	064-045-000-089-500-PHO5A.JPG		Bourne Consulting Engineering	J	October 2007	DIGITAL IMAGE	4-	Structure Location	Structure Condition Photo at Time of Survey

CITY: SALEM SOURCE: WFE - FIELD PHOTOGR LOCATION: Bourne Consulting En DATE OF RESEARCH: JULY 2007	CITY: SALEM SOURCE: WFE - FIELD PHOTOGRAPHS LOCATION: Bourne Consulting Engineering DATE OF RESEARCH: JULY 2007								3 of 3
BCE Structure No	Document No	Contract/ Drawing Number	Entity	Entity Municipality	Date	Title	Sheets	Location	Description
064-045-000-089-600	064-045-000-089-600 064-045-000-089-600-PHO6A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey
064-045-000-089-700	064-045-000-089-700 064-045-000-089-700-PHO7A.JPG		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	-	Structure Location	Structure Condition Photo at Time of Survey





064-033-000-743-300-PHO3B



064-033-000-748-100-PHO1A



4-033-000-750-100-PHO1A



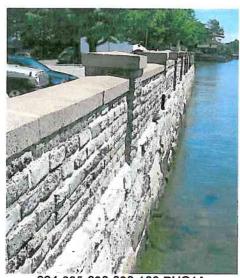
064-034-000-435-100-PHO1A



064-034-000-435-200-PHO2A



064-034-000-455-100-PHO1A



064-035-000-388-100-PHO1A



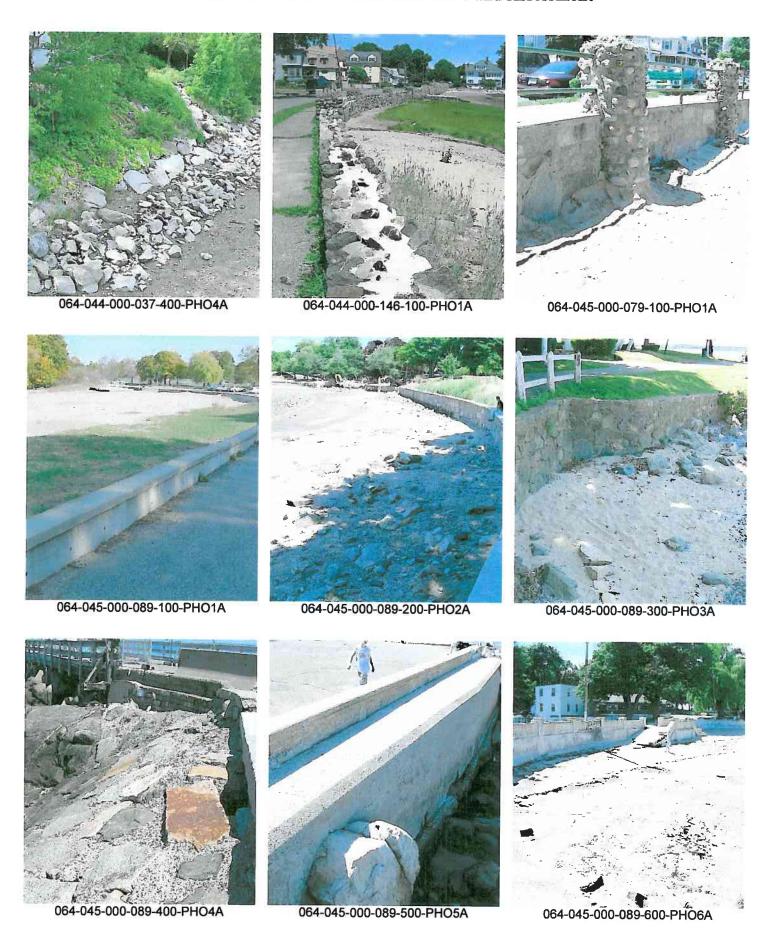
064-036-000-473-100-PHO1A

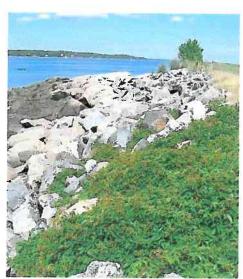


064-036-000-473-200-PHO2A









064-045-000-089-700-PHO7A

# **Section IV - Salem**

# Part D

# **Structure Documents**

CITY DOCUMENT LIST

MA DCR - DOCUMENT LIST

MA DEP – Ch 91 DOCUMENT LIST

• Copies of License Documents

USACE - PERMIT DOCUMENT LIST

• Copies of Permit Documents



CITY: SALEM SOURCE: City of Salem LOCATION: TOWN DATE OF RESEARCH: JULY 2007

		Combination					ľ			
ICE Structure No	Document No		Entity	Entity Municipality	Date	Title	Sheets	Location	Description	
4-045-000-089-200	064-045-000-089-200-TWN		Salem	Salem	April 2007	Seawall Plan & Profile; Seawall Improvement Project; Salem Willows Park	8	Willows Park, Salam	Vine Associates full siza drawings generally depicting seawal reconstruction at Salem Willows Park - field observation incidated this project is currently under construction	

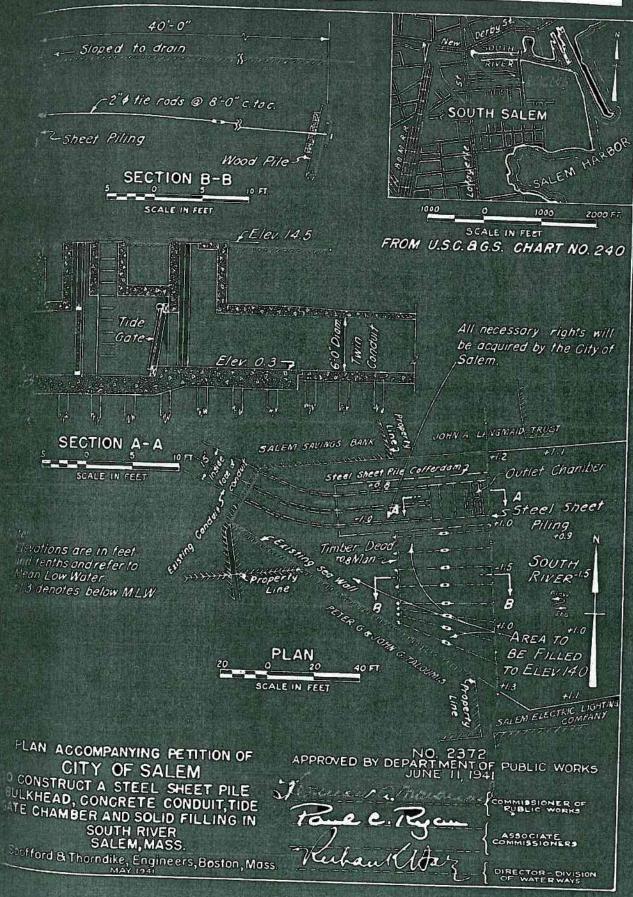
CITY: SALEM
SOURCE: MA-DCR
LOCATION: MA-DCR BOSTON and HINGHAM, MA
DATE OF RESEARCH: JULY 2007

		1							
BCE Structure No	Document No	Drawing Number	Entity	Municipality	Date	Тие	Sheets	Location	Description
064-036-000-473-100	064-036-000-473-100-DCR1A	1998	MA-DCR	Salem	September 1958	Proposed Shore Protection - Salem, Massachusetts - New Concrete Wall and Repairs September 1958 to Existing Stone Seawall - Collins Cove - Prepared for the DPW of Massachusetts - Ovision of Wateways	ю	Collins Cove	Seawalls
064-036-000-473-300	064-036-000-473-300-DCR3A	1998	MA-DCR	Salem	September 1958	Proposed Shore Protection - Salem, Massachusetts - New Concrete Wall and Repairs September 1958 to Existing Stone Seawall - Collins Cove - Prepared for the DPW of Massachusetts - Division of Waterways	19983	Collins Cove	Seawalls
064-036-000-473-400	064-036-000-473-400-DCR4A	1998	MA-DCR	Salem	September 1958	Proposed Shore Protection - Salem, IMA - New Concrete Seawall and Repairs to Existing Stone Seawall - Collins Cove - Prepared for the DPW of Massachusetts - Division of Waterways	3	Collins Cove	Seawalls
064-036-000-474-100	064-036-000-474-100-DCR1A	1998	MA-DCR	Salem	September 1958	Proposed Shore Protection - Salem, MA - New Concrete Wall and Repairs to Existing Stone Seawal: Collins Cove - Prepared for the DPW of Massachusetts - Division of Waterways	က	Collins Cove	Seawalls
064-045-000-089-500	064-045-000-089-500-DCR5A	1999	MA-DCR	Salem	September 1958	Proposed Shore Protection - Salem, MA - September 1958 Concrete Seawall at Pier - Prepared for the DPW of Massachusetts - Division of Waterways	4	Salem Willows	Seawall

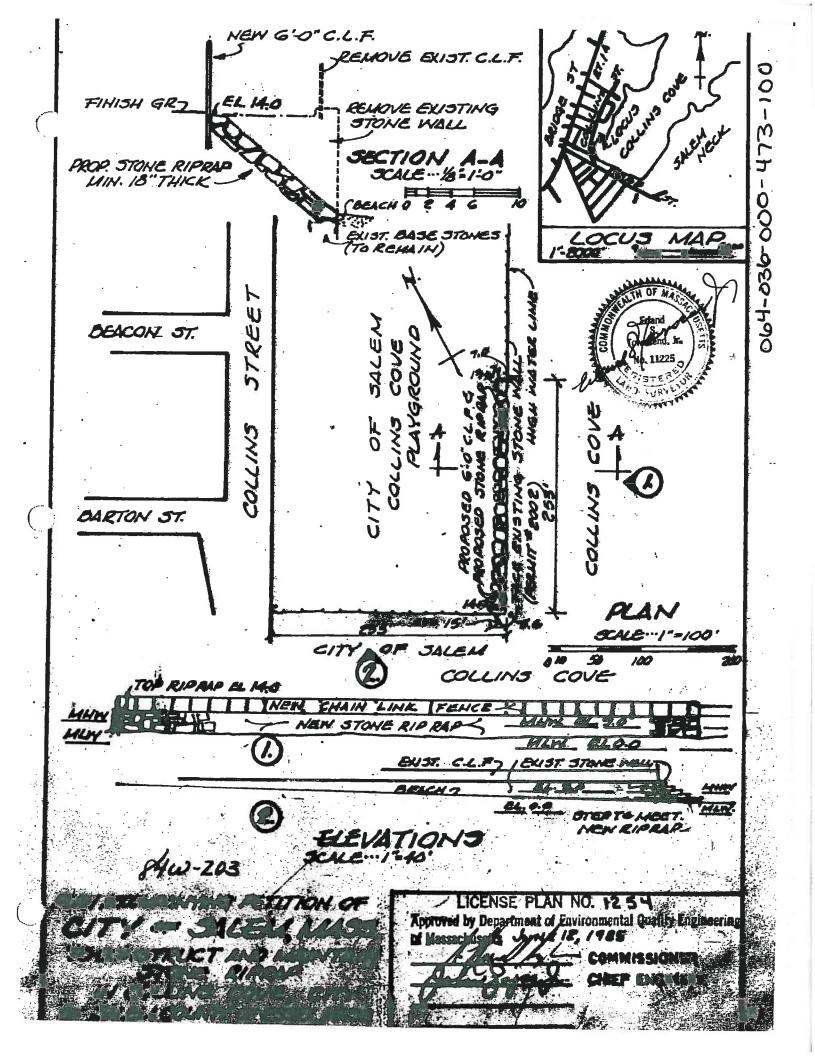
CITY: SALEM SOURCE: DEP LOCATION: BOSTON, MA DATE OF RESEARCH: JULY 2007

		,							
BCE Structure No	Document No	Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
064-034-000-435-200	064-034-000-435-200   064-034-000-435-200-LIC2A	2372	DEP	Salem	June 11, 1941	Plan Accompanying Petition of City of Salem To Construct a Steel Sheet Plie Bulkhead, Concrete Condult, Tide Gate Chamber and Solld Filling in South River	-	South River	Bulkhead
064-034-000-455-100	064-034-000-455-100 064-034-000-455-100-LIC1A	2219	OEP	Salem	July 31, 1940	Plan Accompanying Petition of City of Salem For Riprap Fills and Pler Palmers Cove	2	Palmers Cove	Riprap
064-036-000-473-100	064-036-000-473-100 064-036-000-473-100-LIC1A	1254	DEP	Salem	June 1985	Plan Accompanying Pelliton of City of Salem, Massachusetts - To Construct and Maintain Stone Riprap in Collins Cove, City of Salem, County of Essex, Mass.	-	Collins Cove	Riprap
064-036-000-473-100	064-036-000-473-100 064-036-000-473-100-LiC1B	2002	DEP	Salem	September 27, 1938	Plan Accompanying Petition of Salem to Build Wall and Fill Flats	-	Collins Cave	Seawall
064-036-000-473-200	064-036-000-473-200 064-036-000-473-200-LIC2A	2002	DEP	Salem	September 27, 1938	September 27, 1938 Plan Accompanying petition of City of Salem to build Wall and Fill Flats Collins Cove	-	Collins Cove	Revelment
064-036-000-473-200	064-036-000-473-200 064-036-000-473-200-LIC2B	2102	DEP	Salem	August 9, 1939	Plan Accompanying Petition of City of Salem To Build Wall, Float and Fill Flats Collins Cove	2	Collins Cove	Revetment
064-036-000-473-200	064-036-000-473-200 064-036-000-473-200-LIC2C	1254	DEP	Salem	June 12, 1985	Plan Accompanying Petition of City of Salem, Mass to Construct and Maintain Stone Riprap in Collins Cove	-	Collins Cove	Riprap
064-042-000-003-100	064-042-000-003-100-LIC1A	2525	DEP	Salem	September 1, 1942	Plan Accompanying Petition of City of Salem to Make Solid Fill In Collins Cove	-	Collins Cove	Revetment
064-043-000-001-200	064-043-000-001-200   064-043-000-001-200-LIC2A	4729	DEP	Salem	June 1995	Plan to Accompany Petition of Commonwealth of Massachusetts Public Access Board - To Construct and to Maintain Concrete Boat Ramp, Riprap, Piles and Ploat Systems at Willers Island in Salem Harbor, City of Salem, Essex County, Massachusetts	ю	East of Cet Cove	Riprap

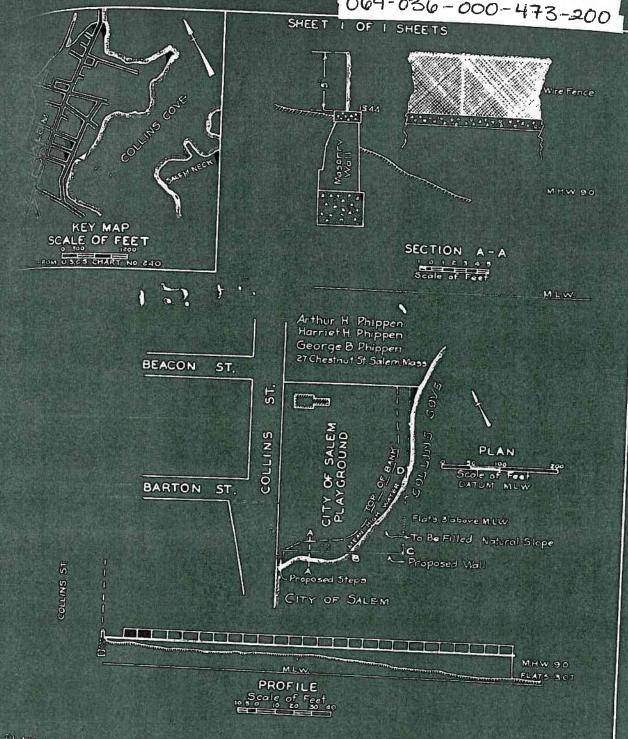
## 064-034-000-435-200



064-034-000-455-100 SHEET I OF 2 SHEETS ST. CONGRESS LEAVITT ST CITY OF SALEM See Permit No. 1492 Dept Public Works For Present Bulkhead & Fill AYETTE PL ST. GREEN ST. LEACH so Scale ... IN ACCOMPANYING PETITION OF APPROVED BY DEPARTMENT OF PUBLIC WORKS
JULY 31, 1940 CITY OF SALEM OR RIPRAP FILL & PIER PUBLIC WORKS PALMERS COVE SALEM, MASS. DIRECTOR - DIV SION



064-036-000-473-100



CITY OF SALEM
TO BUILD WALL & FILL FLATS
COLLINS COVE
SALEM, MASS.

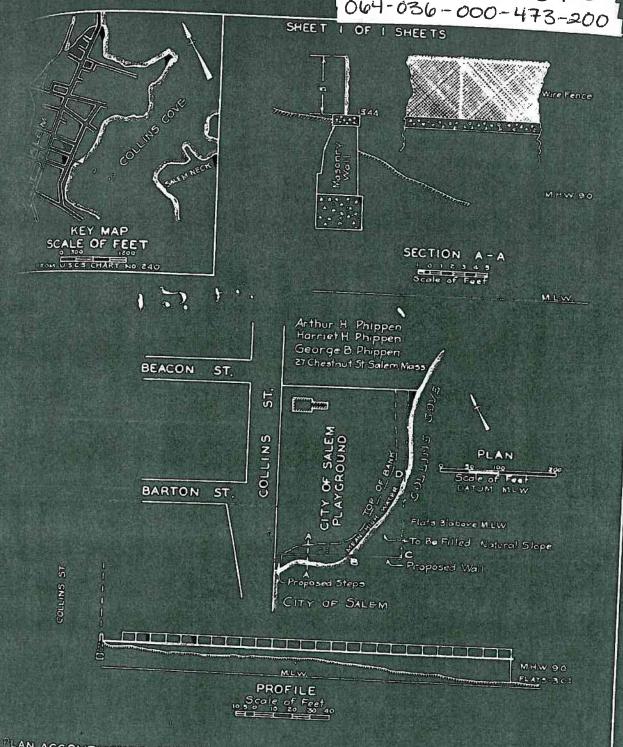
APPROVED BY DEPARTMENT OF PUBLIC WORKS
SEPTEMBER 27, 1938

COMMISSIONER OF PUBLIC WORKS

man Control

ASSOCIATE

064-036-000-473-100 064-036-000-473-200



PLAN ACCOMPANYING PETITION OF CITY OF SALEM TO BUILD WALL & FILL FLATS COLLINS COVE SALEM, MASS.

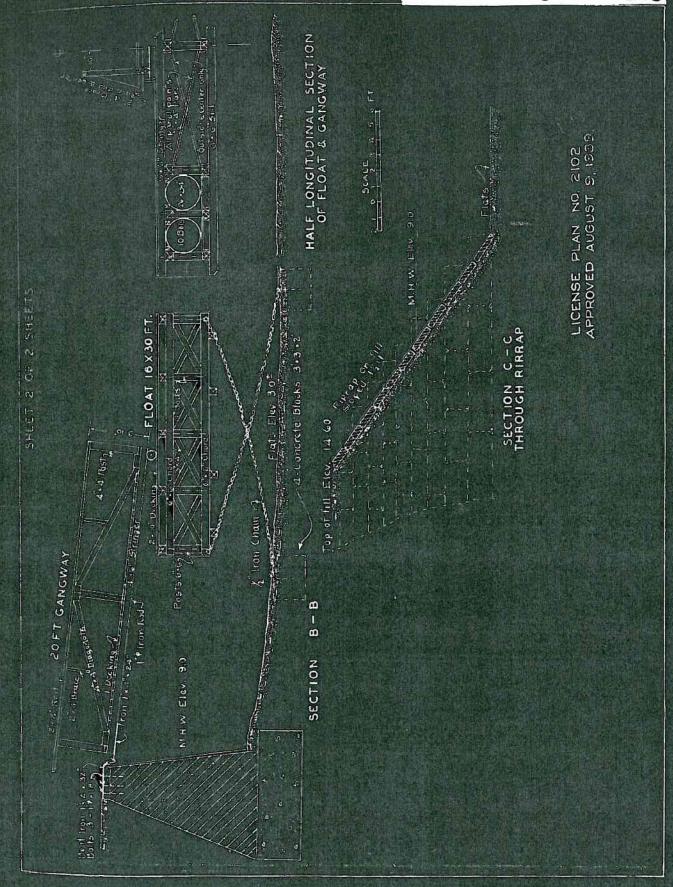
NO. 2002 APPROVED BY DEPARTMENT OF PUBLIC WORKS SEPTEMBER 27, 1938

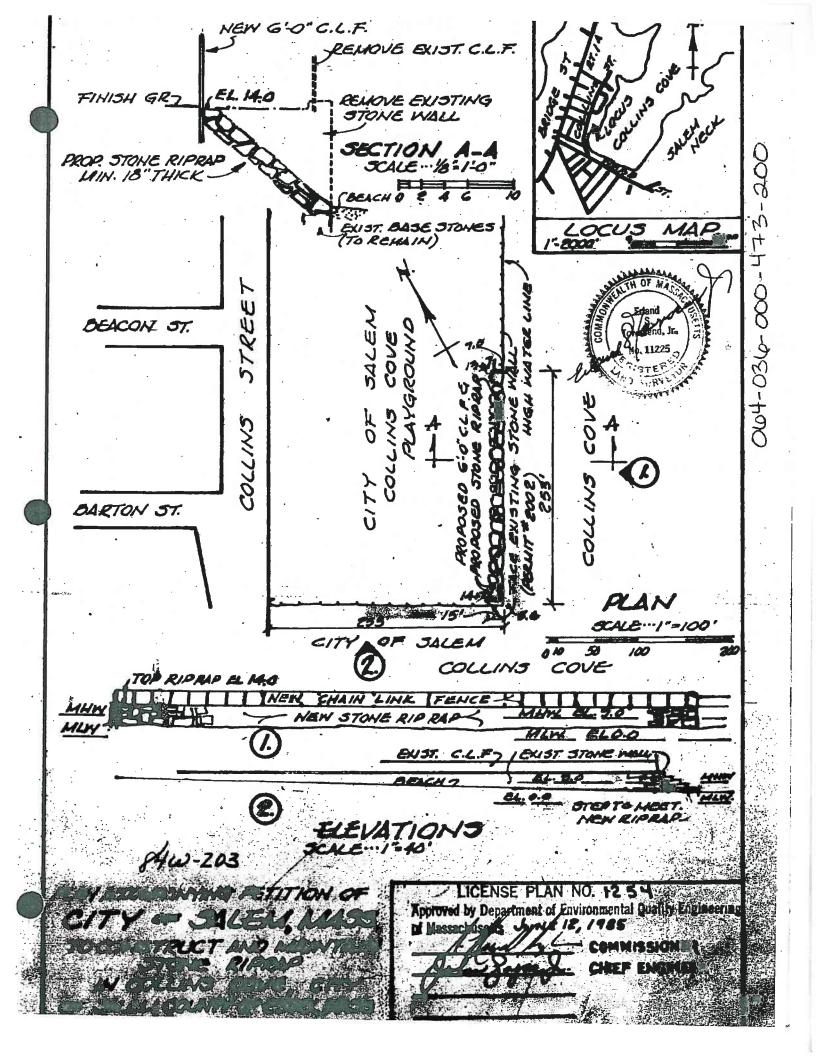
COMMISSIONER OF

ASSOCIATE COMMISSIONERS

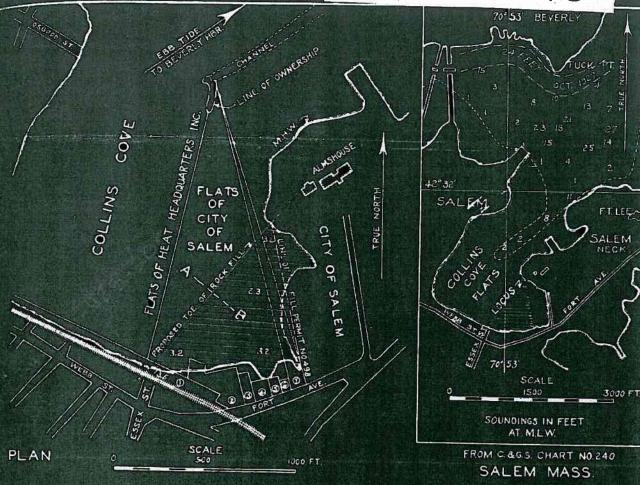
64-036-000-473-200 NO. ZIOZ APPROVED BY DEPARTMENT OF PUBLIC WORKS AUGUST 9, 1939 AGEOGIATE COMMISSIONE FO A THE PARTY OF THE PROPERTY OF PLAN George & Priguest 27 Chealing Si Salem, Mass. BEYCON LS ST. SHEET ! OF & SHEETS ANEAN LIGH WATER CITY OF SALEM PLAYGROUND OF BANK COLLINS NOTAAB .72 PROFILE HEW THEST TO BUILD WALL, FLOAT & FILL FLATS PLAN ACCOMPANYING PETITION OF ELEVATION NIL W Elev 00 SALEM COLLINS COVE SALE 1.1, MASS . EIKY 90 CITY OF MHW A-A CONCRETE SECTION STONE MASONRY

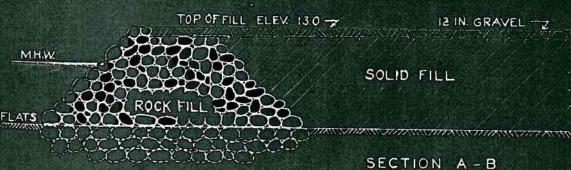
4





064-042-000-003-100





NAMES OF OWNERS

STON & MAINE R.R. SALAM LIVINGSTON NICLIN B BAKER ETAL IN JOBRIEN LIAM H. BAGLEY

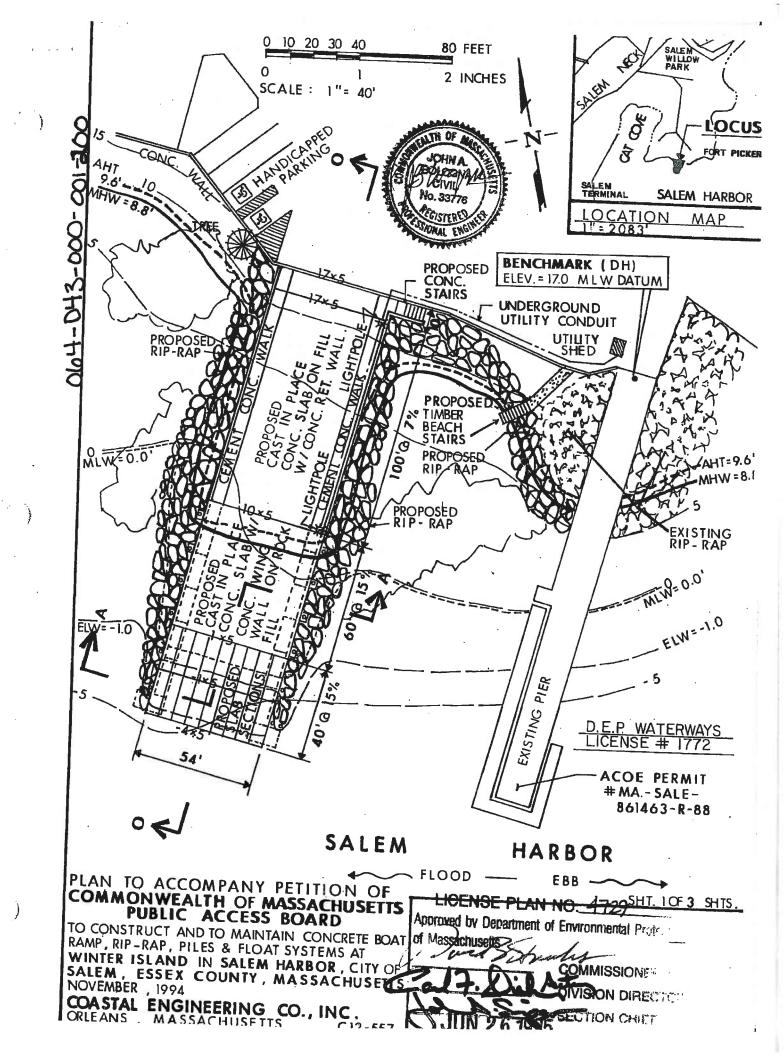
NORTH STATION, BOSTON, MASS.
271 LAFAYETTE ST., SALEM, MASS.
5 WARREN AVE., DANVERS, MASS.
25 WISTERIA ST., SALEM, MASS.
11 FORT AVE., SALEM, MASS.
13 FORT AVE., SALEM, MASS. A WILLIAMS 13 FORT AVE., SALEM MASS.

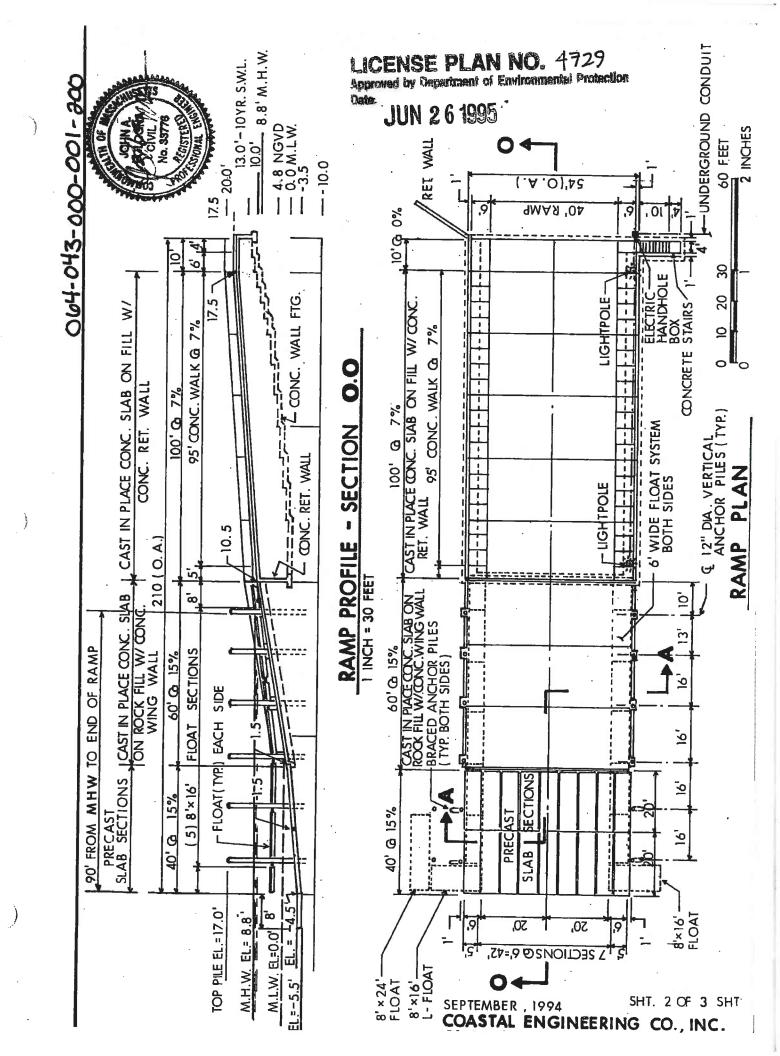
ELEVATIONS ABOVE MLW

SCALE 20 FT.

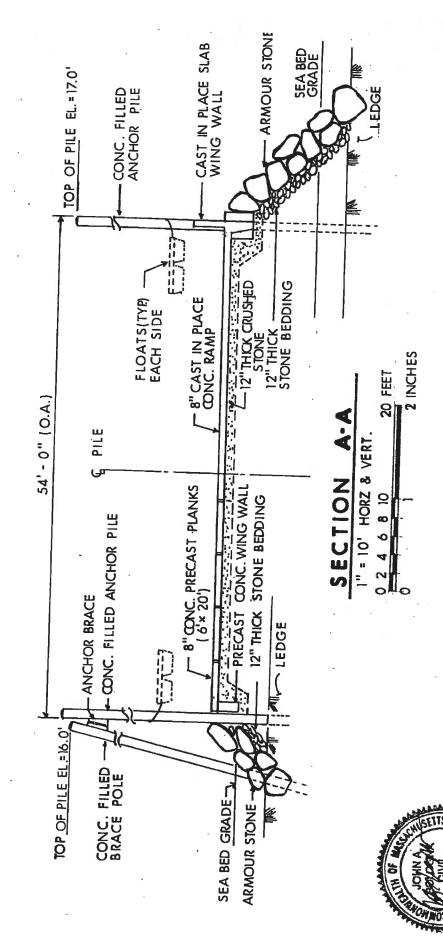
PLAN ACCOMPANYING PETITION OF CITY OF SALEM TO MAKE SOLID FILL IN COLLINS COVE SALEM, MASS.

NO 2525 APPROVED BY DEPARTMENT OF PUBLIC WORKS SEPTEMBER 1,1942





)



LICENSE PLAN NO. 4729
Approved by Department of Environmental Protection
Date: JUN 26 1995

NOVEMBER , 1994

COASTAL ENGINEERING CO., INC.

ORLEANS . MASSACHUSETTS CO.

CITY: SALEM SOURCE: US ACOE LOCATION: CONCORD, MA DATE OF RESEARCH: AUGUST 2007

Description	Revetment
Location	Кептиоод Ауепце
Sheets	2
Title	Proposed Access Ramp and Facilities - Danvers River - Salem, Massachusetts - Application by DPW of Massachusetts - Division of Waterways
Date	July 1967
Municipality	Salem
Entity	USACE
Contract/ Drawing Number	67-221
Document No	64-028-000-018-100-COE1A
BCE Structure No	064-028-000-018-100

0 6 7 0 1 9 8

04-028-000-018-100

NOTE ELEVATIONS ARE IN FEET AND TENTHS ABOVE THE PLANE OF MEAN LOW WATER MINUS FIGURES SHOW DEPTHS BELOW THE SAME PLANE LOCATION OF PROPOSED WORK SHOWN IN RED KEY PLAN 1:20000 500 1000 1500 2000 MERNWOOD. PROPOSED ACCESS RAMP & FACILITIES DANVERS RIVER SALEM. MASS Application By DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS DIVISION OF WATERWAYS

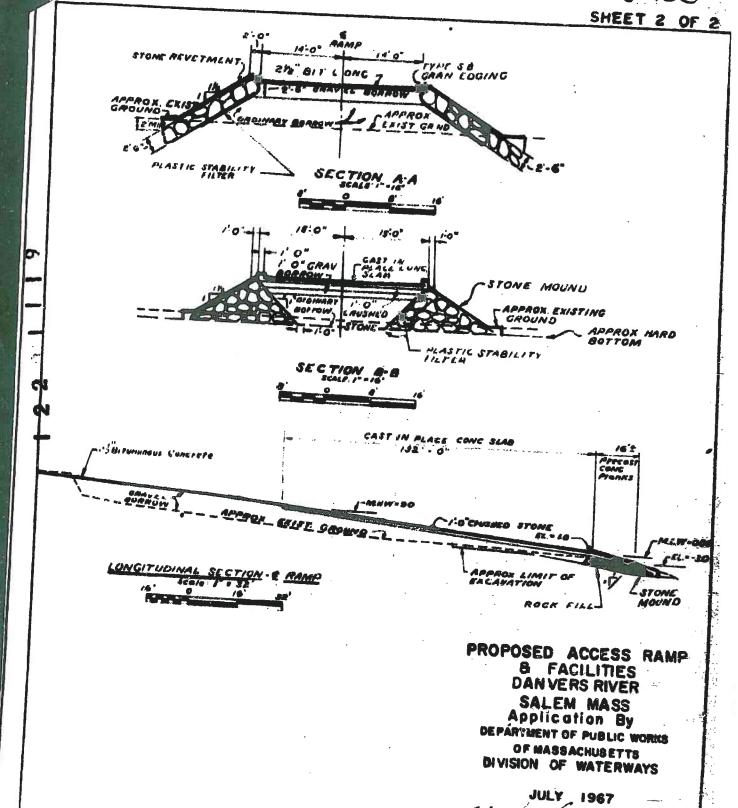
PLAN

067 0199

## 064-028-000-018-100

DEPUTY CHIEF

ENGINEER WATERWAYS ACC. NO. 04656-B



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