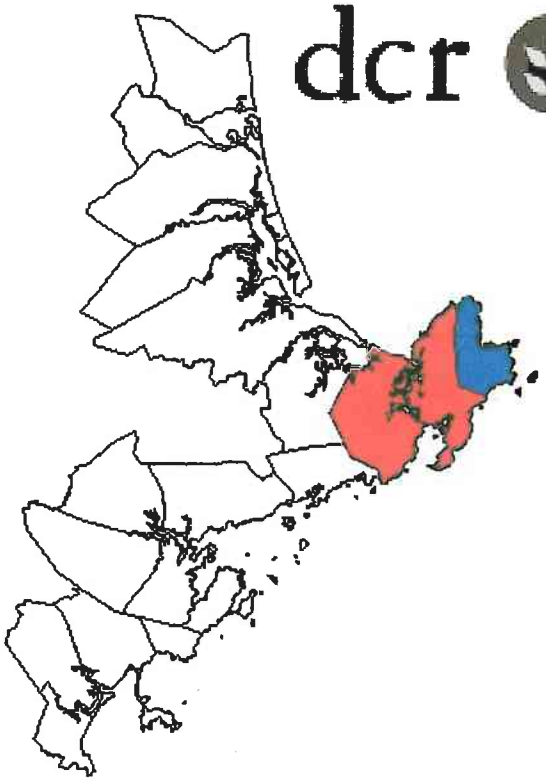
Massachusetts Coastal Infrastructure
Inventory and Assessment Project
Massachusetts Department of Conservation and Recreation
Office of Waterways

Cape Ann

Gloucester
Rockport



July 6, 2009

Prepared for:

Massachusetts Department of Conservation and Recreation
Hingham, Massachusetts

Presented by:

Bourne Consulting Engineering
Franklin, Massachusetts

BCE **Bourne Consulting Engineering**
Waterfront Engineers

MASSACHUSETTS COASTAL INFRASTRUCTURE INVENTORY AND ASSESSMENT PROJECT

Cape Ann

TABLE OF CONTENTS

Section III - Rockport

Part A - Community Findings

- **COMMUNITY DESCRIPTION**
- **STRUCTURE INVENTORY**
- **SUMMARY OF FINDINGS**

Part B - Structure Assessment Reports

Part C - Structure Photographs

Part D - Structure Documents

- **TOWN DOCUMENT LIST**
  - Document Table
- **MA DCR – DOCUMENT LIST**
  - Document Table
- **MA DEP – CH 91 DOCUMENT LIST**
  - Document Table
  - Copies of License Documents
- **USACE – PERMIT DOCUMENT LIST**
  - Document Table
  - Copies of Permit Documents

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:
    - No consideration on utility impacts – water, electrical, sewer, gas
    - No consideration of roadway and bridge protection
    - Evacuation routes were not considered within the investigation
    - Location of Emergency Shelters were not included in priority assessments

- Research was performed at the local, state and federal levels. The local research was limited to location and documenting available coastal structure contract drawings. Research at DCR was restricted to available historic construction plans for coastal structures at the MA-DCR Waterways office in Hingham, MA, and MA-DCR Division of Urban Parks and Recreation in

Boston, MA. No investigation of state archives was performed. Research at MA DEP Chapter 91 and USACE was limited to recorded permits and licenses found in their files. No investigation was performed at the Registry of Deeds.

DEVELOPMENT OF MassGIS DATABASE ATTRIBUTES

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

Database Attributes

- Attribute Descriptions/Definitions

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

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

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

CCC-MMM-BBB-PPP-SSS

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

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

Structure Ownership: The ownership of all structures is presumed as no verification of ownership was performed. Ownership of the structure was determined by research into historic state and federal

permits and the entity indicated on the permits as the applicant. Where no other information was found, the following was utilized:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

DEVELOPMENT OF REPAIR / RECONSTRUCTION COSTS

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

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

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

The cost implications for each rating condition are as follows:

- A Rating Structures not requiring any maintenance, repair or rehabilitation cost and would not be expected to experience damage if subject to a major coastal storm event
- B Rating Structures requiring limited or no repair and would be expected to experience only minor damage if subject to a major coastal storm event. The value of these maintenance costs is assumed to be 10 percent of the construction cost.
- C Rating Structures requiring moderate to significant level of repair or reconstruction and would be expected to experience significant damage if subject to a major coastal storm event. The structure is presumed to be effective under a major storm event. The value of the repair costs is assumed to be 50 percent of the construction cost.
- D Rating Structures requiring significant level of rehabilitation or total reconstruction and would be expected to experience significant damage or possibly fail if subject to a major coastal storm event. The value of the repair costs is assumed to be 100 percent of the construction cost.

- F Rating Structures requiring complete reconstruction and would expect to provide little or no protection from a major coastal storm event. The value of the repair costs is assumed to be 100 percent of the construction cost plus a cost for removal/disposal of the original structure.

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

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

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

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

- Concrete Seawalls – These walls were assumed to be gravity structures with the volume of concrete used based on the bottom width being one-half of the structure height. Costs of construction were based on a per cubic yard estimate that varied from $350 to $630 per cubic yard depending on the structure height. Values for excavation and demolition of existing structure were also included.
- Stone Seawalls - These walls were treated the same as concrete seawalls and assumed to be gravity structures with the volume of the structure based on the bottom width being one-half of the structure height. Costs of construction were based on a per cubic yard estimate that varied from $350 to $630 per cubic yard depending on the structure height. Values for excavation and demolition of existing structure were also included.
- Steel Bulkheads – Steel bulkheads were presumed to be constructed with steel sheet piling. Tie back systems were presumed for structures 10 feet or greater in height. Shorter walls were assumed to have a cantilever design. The total depth of sheeting was presumed to be two times the exposed height. The cost for construction varied from $40 per square foot to $60 per square foot plus the cost of excavation and demolition.
- Timber Bulkheads – Timber bulkheads were presumed to be constructed with timber piles at eight foot on center, horizontal wales and vertical four inch sheathing. The unit costs for installed materials used were $1,500 per pile and $7.50 per bfm.

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

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

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

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

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

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

EXHIBIT A

Structure Condition Table – 5 Level Rating System

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

EXHIBIT B

Priority Rating System - 5 Level Rating System

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

CZM SOUTH SHORE COASTAL INFRASTRUCTURE INVENTORY AND ASSESMENT PROJECT

EXHIBIT C

September 14, 2006

REPAIR / REHABILITATION COSTING DATA

Cost per linear foot of structure

STRUCTURE TYPE	STRUCTURE MATERIALS	STRUCTURE HEIGHT	STRUCTURE CONDITION RATING A	B	C	D	F
BULKHEAD/ SEAWALL	CONCRETE	Under 5 Feet	$0	$84	$425	$850	$983
		5 To 10 Feet	$0	$152	$759	$1,518	$1,782
		10 To 15 Feet	$0	$251	$1,254	$2,508	$2,970
		Over 15 Feet	$0	$396	$1,980	$3,960	$4,752
	STEEL	Under 5 Feet	$0	$54	$273	$546	$680
		5 To 10 Feet	$0	$165	$825	$1,650	$1,848
		10 To 15 Feet	$0	$251	$1,254	$2,508	$2,772
		Over 15 Feet	$0	$343	$1,716	$3,432	$3,795
	STONE	Under 5 Feet	$0	$84	$425	$850	$983
		5 To 10 Feet	$0	$152	$759	$1,518	$1,782
		10 To 15 Feet	$0	$251	$1,254	$2,508	$2,970
		Over 15 Feet	$0	$396	$1,980	$3,960	$4,752
	WOOD	Under 5 Feet	$0	$86	$431	$862	$994
		5 To 10 Feet	$0	$127	$632	$1,265	$1,463
		10 To 15 Feet	$0	$161	$804	$1,608	$1,872
		Over 15 Feet	$0	$202	$1,008	$2,017	$2,380
COASTAL BEACH	SAND	Under 5 Feet	$0	$26	$132	$264	$264
		5 To 10 Feet	$0	$127	$634	$1,267	$1,267
		10 To 15 Feet	$0	$224	$1,122	$2,244	$2,244
		Over 15 Feet	$0	$396	$1,980	$3,960	$3,960
COASTAL DUNE	SAND	Under 5 Feet	$0	$18	$93	$186	$186
		5 To 10 Feet	$0	$48	$238	$476	$476
		10 To 15 Feet	$0	$79	$395	$790	$790
		Over 15 Feet	$0	$132	$660	$1,320	$1,320
REVETMENT	STONE	Under 5 Feet	$0	$66	$333	$664	$730
		5 To 10 Feet	$0	$120	$601	$1,201	$1,300
		10 To 15 Feet	$0	$157	$781	$1,564	$1,696
		Over 15 Feet	$0	$247	$1,234	$2,468	$2,666
GROIN	STONE	Under 5 Feet	$0	$132	$664	$1,328	$1,460
		5 To 10 Feet	$0	$240	$1,201	$2,402	$2,600
		10 To 15 Feet	$0	$314	$1,564	$3,128	$3,392
		Over 15 Feet	$0	$494	$2,468	$4,937	$5,333

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

Section II

Gloucester

Section II – Community Findings – City of Gloucester

COMMUNITY DESCRIPTION

The City of Gloucester consists of a land area of 25.97 square miles out of a total area of 41.5 square miles and had a population of 30,273 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 20 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 Gloucester, there were 33 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 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 - City of Gloucester

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Length
Bulkhead / Seawall	22	2	8	9	3		9335
Revetment	8		6	2			4070
Breakwater	3		1	2			3615
Groin / Jetty							
Coastal Dune							
Coastal Beach							
	33	2	15	13	3		17020

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 Gloucester's case there are a total of 31 structures which would require approximately $ 18 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 $ 6.4 million would be required to upgrade the City's coastal protection.

STRUCTURE REPAIR / RECONSTRUCTION COST - City of Gloucester

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Cost
Bulkhead / Seawall	22		$ 1,158,254	$ 4,026,891	$ 6,393,420		$ 11,578,565
Revetment	8		$ 482,235	$ 1,982,554			$ 2,464,789
Breakwater	3		$ 1,111,500	$ 3,369,366			$ 4,480,866
Groin / Jetty							$ -
Coastal Dune							$ -
Coastal Beach							$ -
	33	$ -	$ 2,751,989	$ 9,378,811	$ 6,393,420	$ -	$ 18,524,220

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

STRUCTURE OWNERSHIP / REPAIR COST - City of Gloucester

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Cost
Town Owned	26		$ 1,137,450	$ 7,142,698	$ 6,393,420		$ 14,673,568
Commonwealth of Massachusetts	5		$ 434,729	$ 2,236,113			$ 2,670,842
Federal Government Owned	1		$ 1,111,500				$ 1,111,500
Unknown Ownership	1			$ 68,310			$ 68,310
	33	$ -	$ 2,683,679	$ 9,447,121	$ 6,393,420	$ -	$ 18,524,220

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

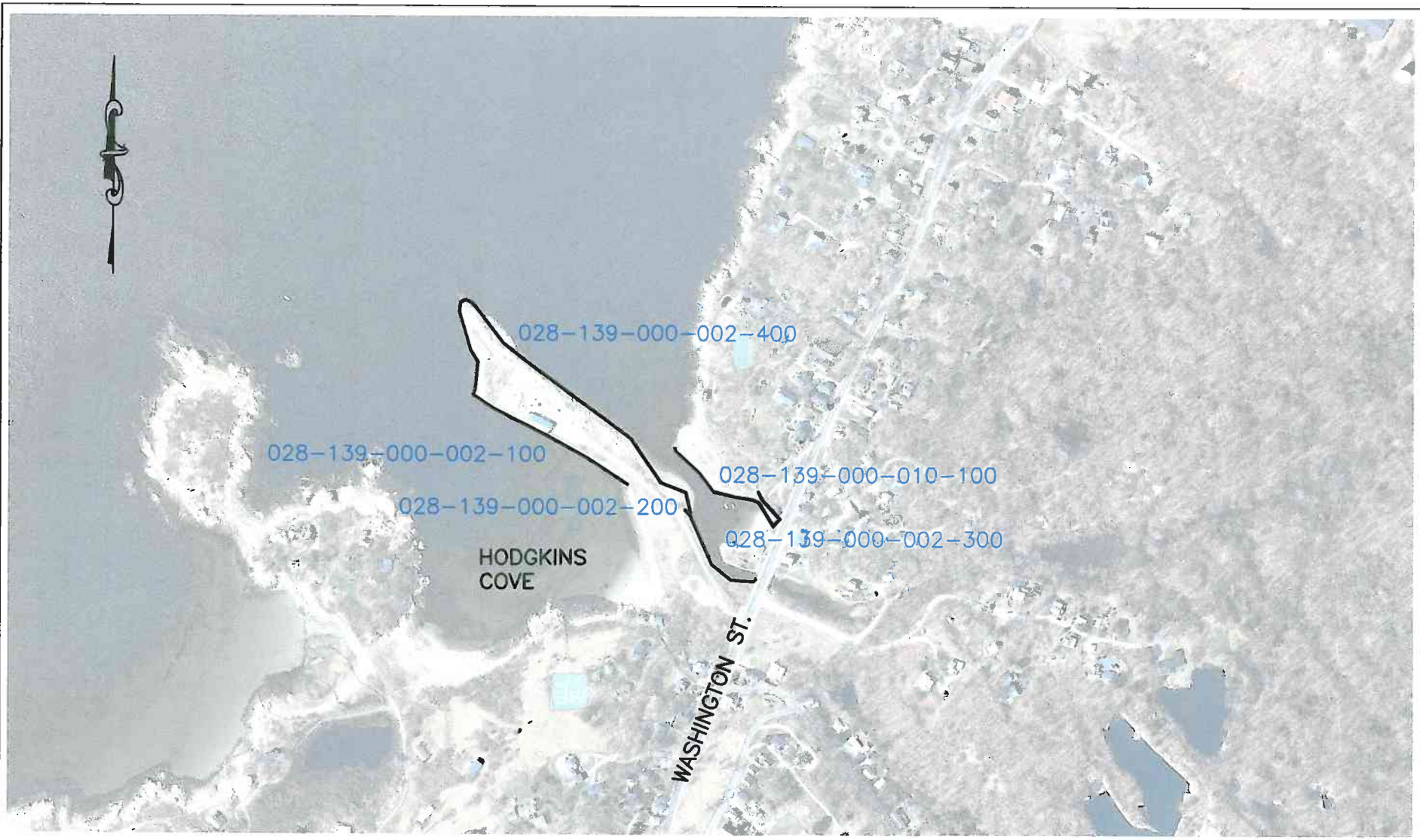
The enclosed reports and associated documents reflects the City of Gloucester's coastal structure information that will eventually be input into a state-wide GIS database and will be accessible through MassGIS. This data, when compiled state-wide, will be critical in the development of both short term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

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

Section II - Gloucester

Part B

Structure Assessment Reports



COASTAL STRUCTURE LOCATION PLAN

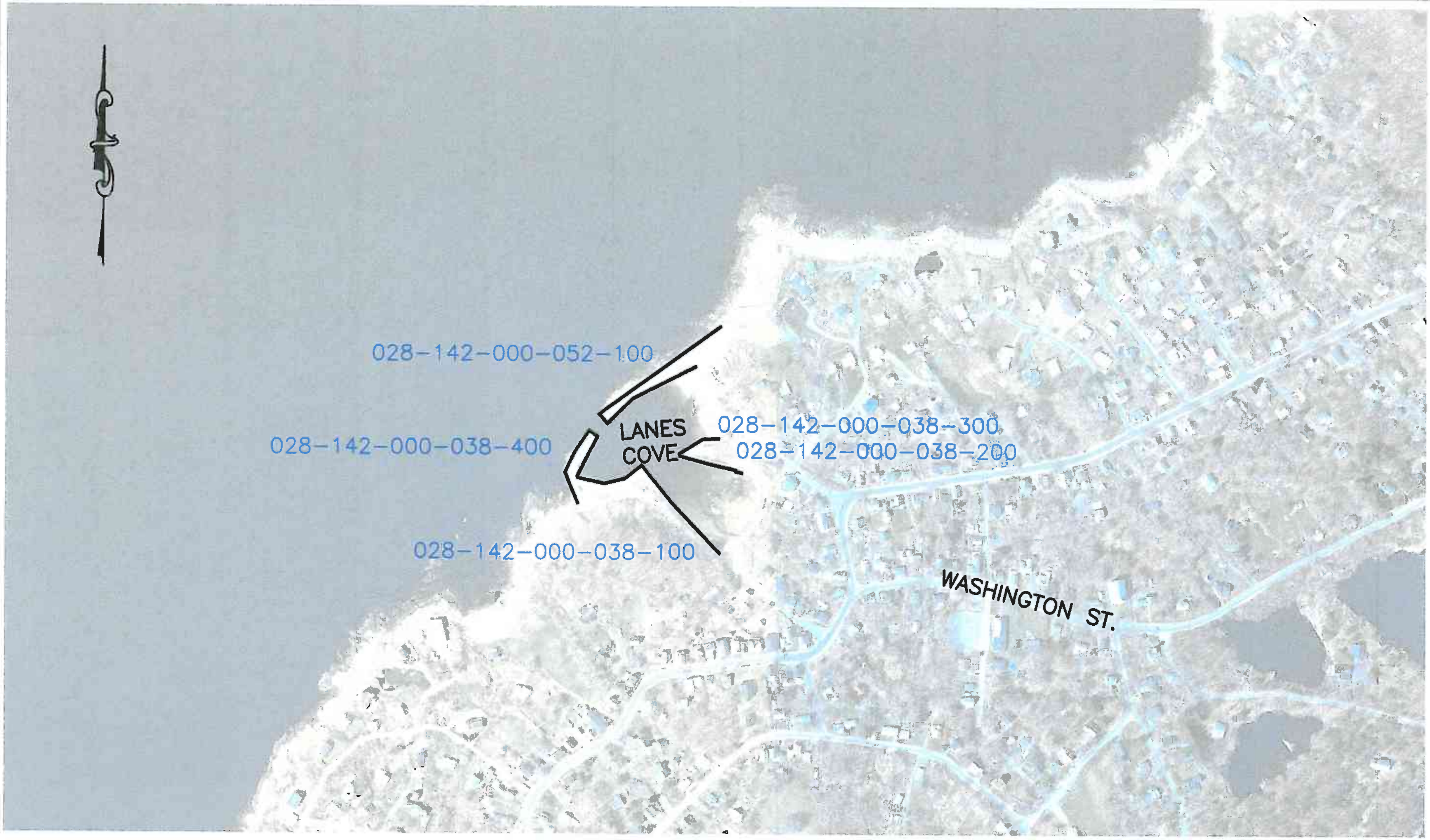
CITY OF GLOUCESTER
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

0 150
SCALE: 1" = 150-0"

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

SHEET 1

File: X:\27652-\27667\North Shore\Gloucester\dwg\Gloucester.dwg



COASTAL STRUCTURE LOCATION PLAN

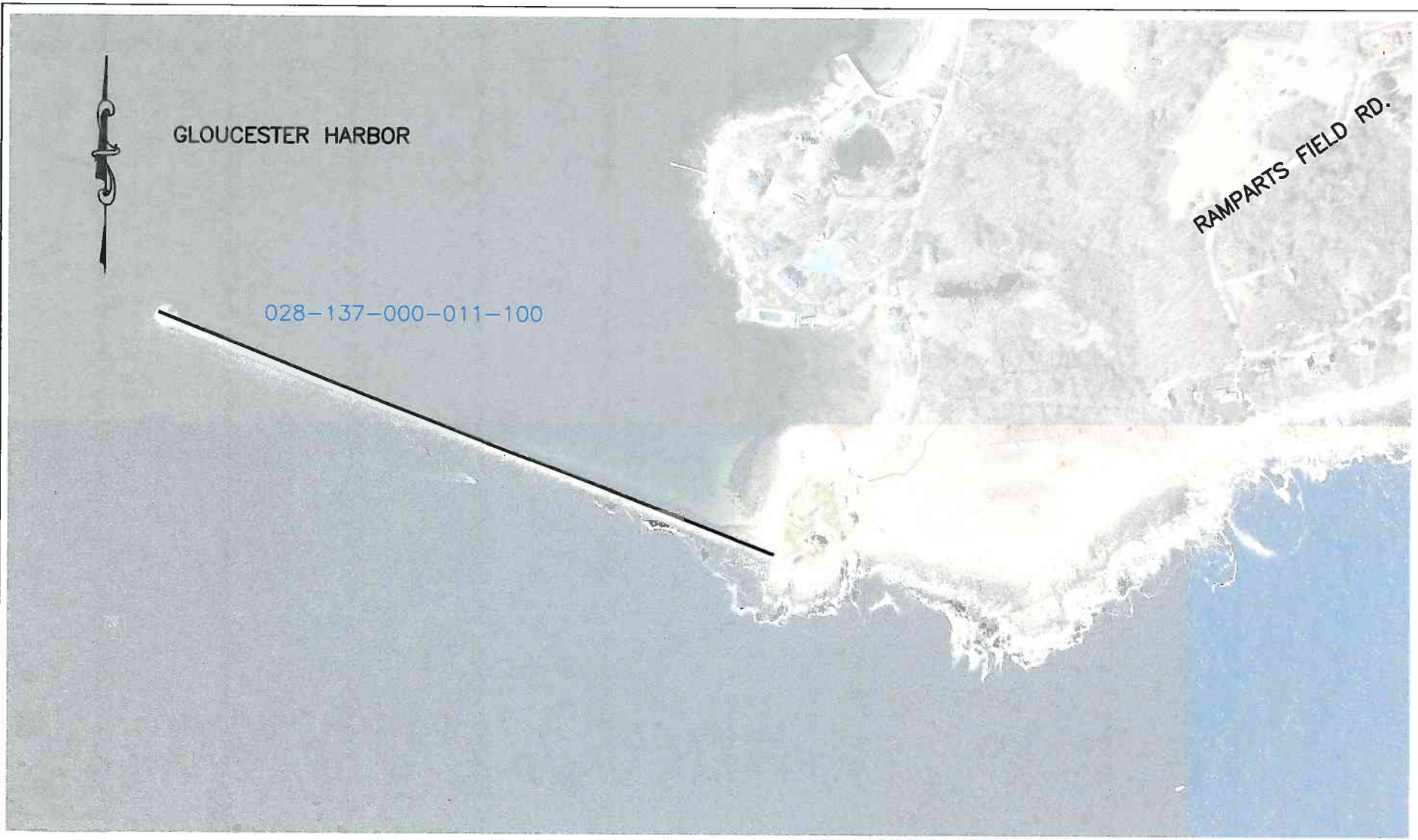
CITY OF GLOUCESTER
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

0 150
SCALE: 1" = 150–0"

BCE Bourne Consulting Engineering

SHEET 2

File: X:\27652-\27667\North Shore\Gloucester\dwg\Gloucester.dwg



COASTAL STRUCTURE LOCATION PLAN

CITY OF GLOUCESTER
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

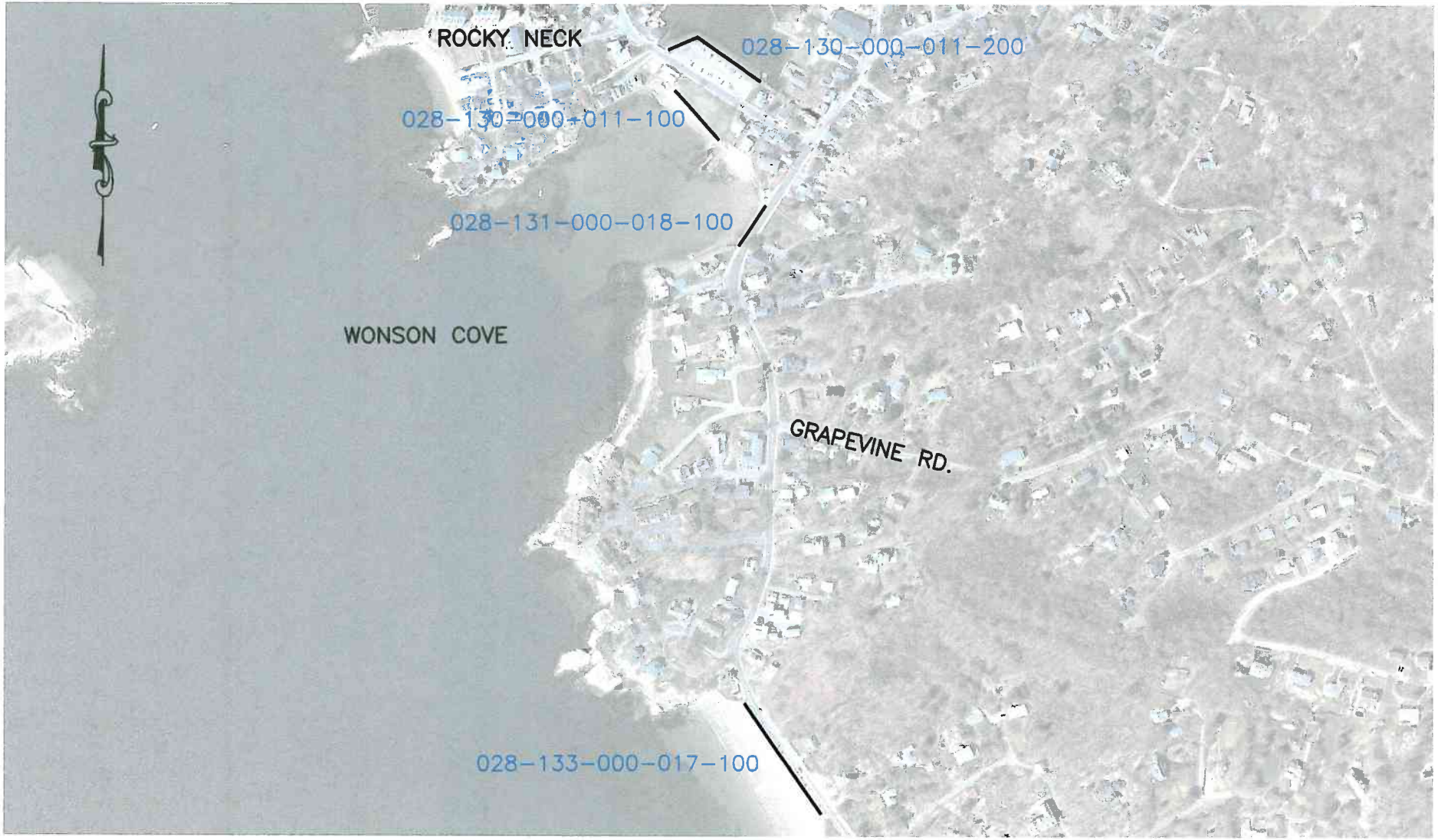
0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
3 East Street
Franklin, MA 02038
TEL. (508) 533-8666 FAX. (508) 533-8668

SHEET 3

File: X:\27652-\27667\North Shore\Gloucester\dwg\Gloucester.dwg



COASTAL STRUCTURE LOCATION PLAN

CITY OF GLOUCESTER
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering

SHEET 4

File: X:\27652-\27667\North Shore\Gloucester\dwg\Gloucester.dwg

COASTAL STRUCTURE LOCATION PLAN

CITY OF GLOUCESTER
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

0 150
SCALE: 1" = 150-0"

BCE Bourne Consulting Engineering
3 Bond Street
Franklin, MA 02038
TEL. (508) 533-8600 FAX. (508) 533-8616

SHEET 5

File: X:\27652-\27667\North Shore\Gloucester\dwg\Gloucester.dwg

COASTAL STRUCTURE LOCATION PLAN

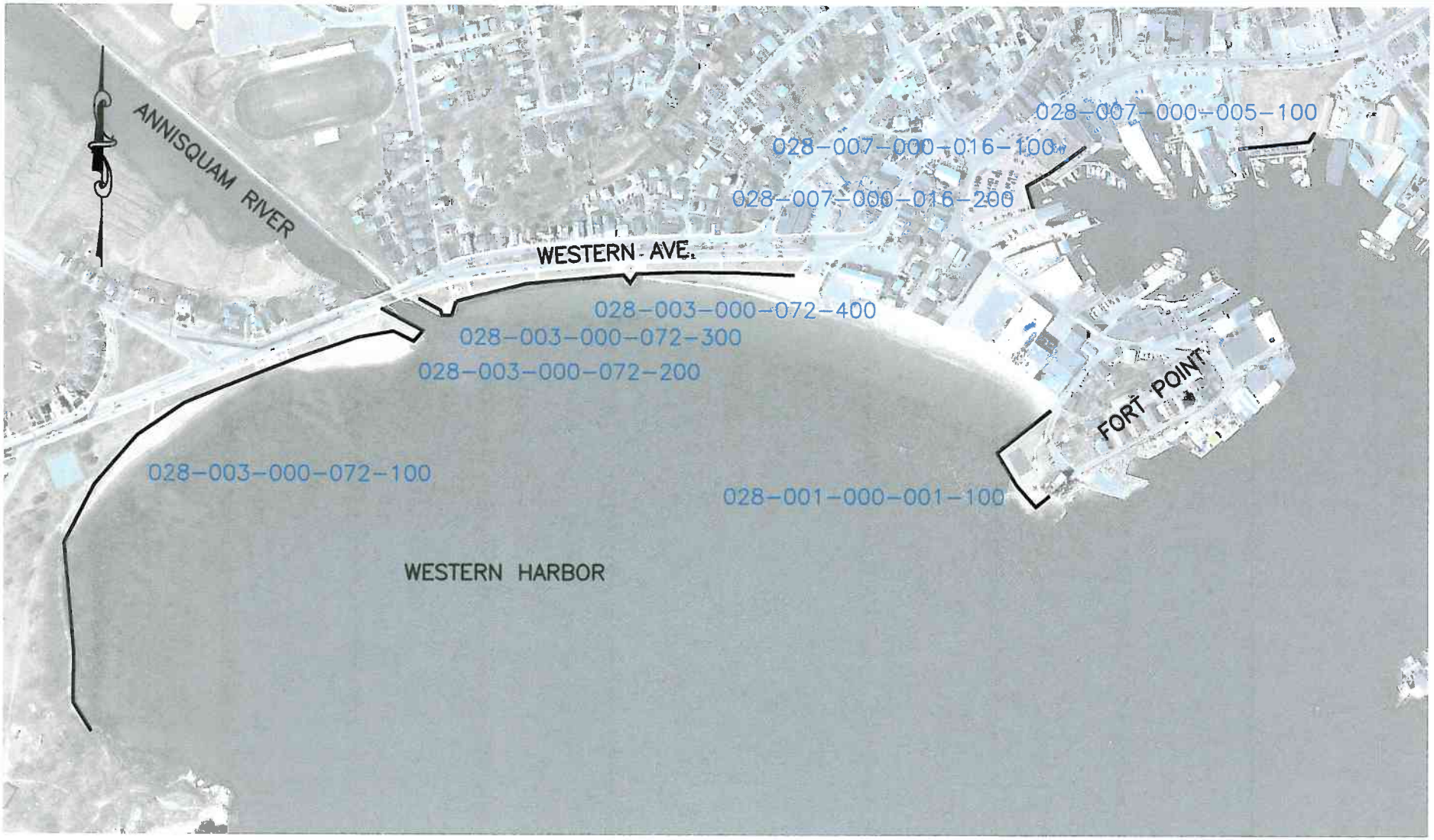
CITY OF GLOUCESTER
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

0 150
SCALE: 1" = 150-0"

BCE Bourne Consulting Engineering
3 Bank Street
Franklin, MA 02038
TEL. (508) 533-4069 FAX (508) 533-4070

SHEET 6

File: X:\27652-\27667\North Shore\Gloucester\dwg\Gloucester.dwg



COASTAL STRUCTURE LOCATION PLAN

CITY OF GLOUCESTER
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

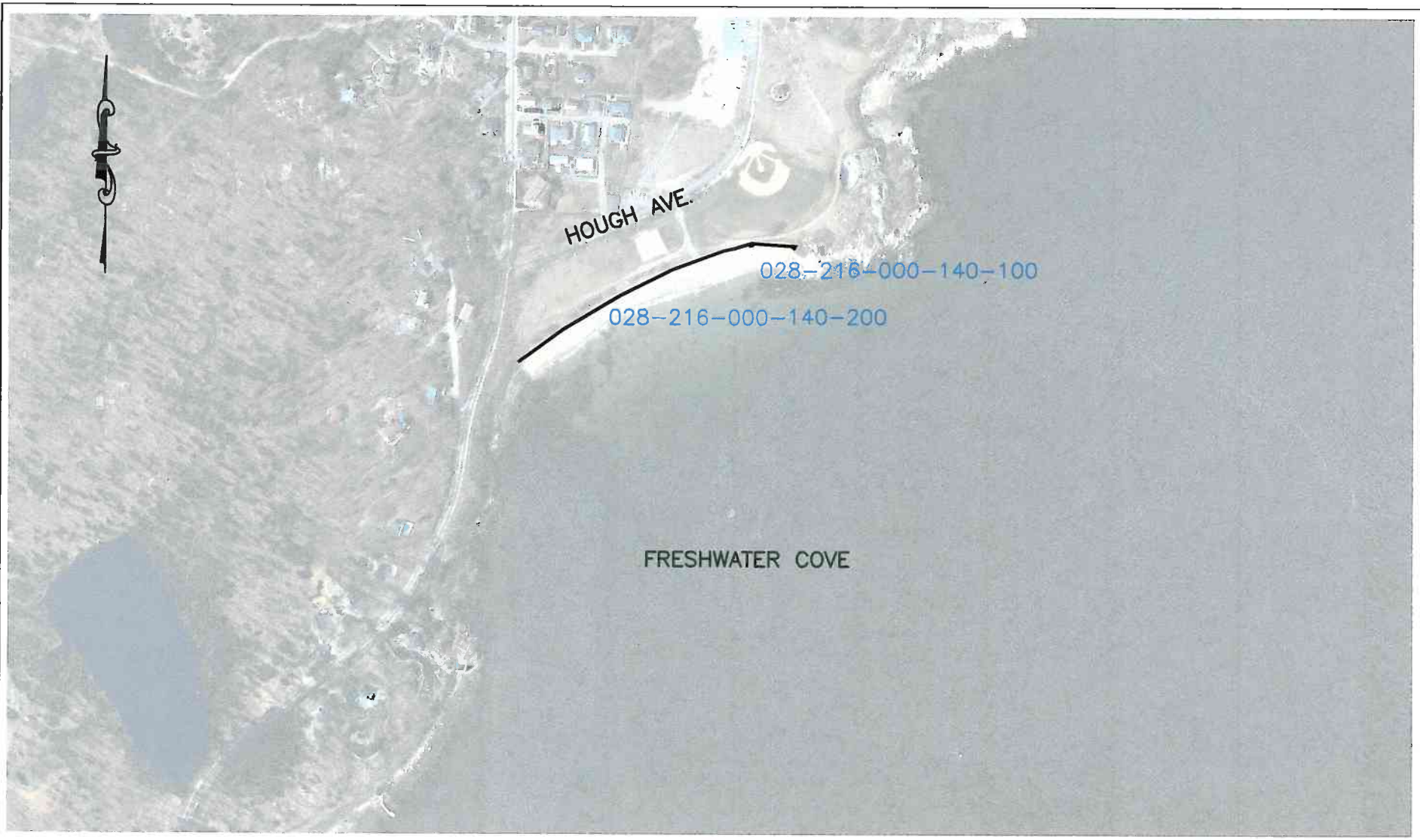
0 150

SCALE: 1" = 150-0"

BCE Bourne Consulting Engineering

SHEET 7

File: X:\27652-\27667\North Shore\Gloucester\dwg\Gloucester.dwg



COASTAL STRUCTURE LOCATION PLAN

CITY OF GLOUCESTER
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

0 150

SCALE: 1" = 150-0"

BCE Bourne Consulting Engineering

SHEET 8

File: X:\27652-\27667\North Shore\Gloucester\dwg\Gloucester.dwg

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-001-000-001-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Fort Point	6/5/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1954	$0.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
510 Feet	Feet NAVD 88	V2	13 Feet NGVD

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

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

Structure Summary :

Seawall is cast in place. Construction appears new. Behind the wall there is a playground and park. Riprap in front of the wall is approximately 25 feet wide. Stones are 6 feet by 2 feet by 3 feet, varying to 100 pound stone dumped riprap. No signs of scour or undermine. The top of the wall has drainage scuppers. The wall is 2 feet higher than grade at the back of the wall.

Condition Rating	A Excellent	*Priority Rating*	I None
Level of Action	None	*Action*	Long Term Planning Considerations
Description	Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm.	*Description*	No Inshore Structures or Residential Dwelling Units Present

Structure Images:

028-001-000-001-100-PHO1A.jpg

028-001-000-001-100-PHO2B.jpg

Structure Documents:

USACE	July 2001	City of Gloucester -	028-001-000-001-100-COE1A
MA-DCR	April 1954	Proposed Seawall at	028-001-000-001-100-DCR1A
MA-DCR	August 2000	Inspection of Stone	028-001-000-001-100-DCR1B

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-003-000-072-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Stacey Boulevard - West	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1952	$5,078,700.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
2025 Feet	Feet NAVD 88	V2	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone mortared seawall with boardwalk, monuments, houses and road behind. There are areas with stone loss about every 100 feet with 5 feet width holes behind the top of the wall that are exposing the wall to the bottom. Small (100 to 200 pound) riprap has been placed in front of these areas.

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

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

Structure Images:

028-003-000-072-100-PHO1A.jpg

028-003-000-072-100-PHO1B.jpg

Structure Documents:

USACE	September 2	Reconstruction of	028-003-000-072-100-COE1A
MA-DCR	July 1952	Proposed Seawall	028-003-000-072-100-DCR1A
Gloucester	June 1955	Hurricane Damage	028-003-000-072-100-TWN1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-003-000-072-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Stacey Boulevard - West	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1952	$0.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
280 Feet	Feet NAVD 88	V2	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The newly constructed seawall is stone mortarted. The seawall is adjacent to a bridge over the channel to the Annisquam River. There is a roadway behind the structure.

Condition Rating	A Excellent	*Priority Rating*	IV High Priority
Level of Action	None	*Action*	Consider for Next Project Construction Listing
Description	Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm.	*Description*	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

028-003-000-072-200-PHO2A.jpg

Structure Documents:

USACE	September 2	Reconstruction of	028-003-000-072-200-COE2A
USACE	June 2002	City of Gloucester -	028-003-000-072-200-COE2B
MA-DCR	July 1952	Proposed Seawall	028-003-000-072-200-DCR2A
MA-DCR	May 1958	Proposed Wall	028-003-000-072-200-DCR2B
Gloucester	June 1955	Hurricane Damage	028-003-000-072-200-TWN2A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-003-000-072-300

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Stacey Boulevard - East	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1952	$712,800.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
180 Feet	Feet NAVD 88	V2	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The seawall is comprised of two parts. The bottom of the wall is five to six stones high with a cast in place wall on top of it. The stones are approximately 5 feet by 2 feet. There is settling of the boardwalk behind the wall and undermining holes visible.

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

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

Structure Images:

- 028-003-000-072-300-PHO3A.jpg
- 028-003-000-072-300-PHO3B.jpg
- 028-003-000-072-300-PHO3C.jpg

Structure Documents:

MA-DCR	July 1952	Proposed Seawall	028-003-000-072-300-DCR3A
MA-DCR	May 1958	Proposed Wall	028-003-000-072-300-DCR3B
MA-DCR	June 1958	Proposed Bank	028-003-000-072-300-DCR3C
Gloucester	June 1955	Hurricane Damage	028-003-000-072-300-TWN3A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-003-000-072-400

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Stacey Boulevard - East	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1955	$752,123.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
1170 Feet	Feet NAVD 88	V2	15 Feet NGVD

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

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

Structure Summary :

Monuments, boardwalk, houses and road are behind the stone block seawall. Five to six stones high (5 feet by 2 feet) for about half the wall then cast in place at the top of the wall. No scour visible. Riprap is approximately 5 feet by 5 feet by 5 feet dumped and stops about 2 feet below the cast in place wall.

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

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

Structure Images:

028-003-000-072-400-PHO4A.jpg

028-003-000-072-400-PHO4B.jpg

Structure Documents:

MA-DCR	June 1955	Hurricane Damage	028-003-000-072-400-DCR4A
Gloucester	June 1955	Hurricane Damage	028-003-000-072-400-TWN4A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-007-000-005-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Lobster Pier	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1968	$559,746.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
275 Feet	Feet NAVD 88	A2	10 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:
Revetment	Concrete	10 to 15 Feet

Structure Summary :

Steel sheetpile wall fronted by dumped riprap. The top are half ton stones. Sheetpile has heavy corrosion at tidal zone. Erosion behind the concrete cap on the sheetpile (3 feet by 2 feet). No sign of cracking. Above is timber pier.

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

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

Structure Images:

- 028-007-000-005-100-PHO1A.jpg
- 028-007-000-005-100-PHO1B.jpg
- 028-007-000-005-100-PHO1C.jpg

Structure Documents:

USACE	January 198	Proposed Site	028-007-000-005-100-COE1A
DEP	August 21, 1	Plan Accompanying	028-007-000-005-100-LIC1A
DEP	June 22, 198	Plan Accompanying	028-007-000-005-100-LIC1B

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-007-000-016-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	St. Peter's Marina	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1980	$38,260.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
155 Feet	Feet NAVD 88	A2	10 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Riprap is below timber pier. Concrete cap above the riprap. The stones are approximately 2 feet by 2 feet by 5 feet. No signs of movement or shifting.

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

Structure Images:

028-007-000-016-100-PHO1A.jpg

Structure Documents:

DEP	July 10, 198	Plan Accompanying	028-007-000-016-100-LIC1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-007-000-016-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Town Landing	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1954	$200,640.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
160 Feet	Feet NAVD 88	A2	10 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone block seawall is comprised of 2 feet by 2 feet stones. Toe of the wall is exposed at low tide. Stones are shifted and settled. Half of the wall is cast in place wall with wave return face, and half has a concrete cap. Gangway to the town landing floats is connected.

Condition Rating	C	*Priority Rating*	I
	Fair		None
Level of Action	Moderate	*Action*	Long Term Planning Considerations
Description	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.	*Description*	No Inshore Structures or Residential Dwelling Units Present

Structure Images:

- 028-007-000-016-200-PHO2A.jpg
- 028-007-000-016-200-PHO2B.jpg
- 028-007-000-016-200-PHO2C.jpg

Structure Documents:

USACE	July 1954	Proposed Seawall	028-007-000-016-200-COE2A
DEP	July 23, 195	Construct Riprap and	028-007-000-016-200-LIC2A
Gloucester	1/9/2007	Illustrative Plan -	028-007-000-016-200-TWN2A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-009-000-014-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Solomon Jacobs Park	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1972	$263,340.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
210 Feet	Feet NAVD 88	A2	10 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Top is concrete walkway and park. The dry set stone seawall is comprised of stones that are on average 2 feet by 2 feet by 6 feet. There is stone movement, shifting, and bowing out.

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

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

Structure Images:

028-009-000-014-100-PHO1A.jpg

028-009-000-014-100-PHO1B.jpg

Structure Documents:

USACE	May 26, 197	Proposed Shore and	028-009-000-014-100-COE1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-053-000-016-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Head of the Harbor	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1979	$29,621.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
120 Feet	Feet NAVD 88	A2	10 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Placed riprap with stones that are on average between 0.5 to 1 ton. 1 on 1 slope. There are no signs of movement or shifting. The stones are placed and locked in well. Park behind revetment.

Condition Rating	B Good	*Priority Rating*	I None
Level of Action	Minor	*Action*	Long Term Planning Considerations
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.	*Description*	No Inshore Structures or Residential Dwelling Units Present

Structure Images:

028-053-000-016-100-PHO1A.jpg

Structure Documents:

USACE	March 1979	Plan Accompanying	028-053-000-016-100-COE1A
DEP	February 19	Plans Accompanying	028-053-000-016-100-LIC1A
DEP	May 24, 197	Plan Accompanying	028-053-000-016-100-LIC1B

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-054-000-108-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
State	State Fish Pier	6/6/2007

Presumed Structure Owner:	Based On Comment:
State	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
MA-DCR	1976	$338,171.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
1370 Feet	Feet NAVD 88	A2	10 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Dumped riprap revetment circling the state pier. Unable to see materials under or behind wall. The slope is 1 on 2 to 1 on 1. Stones are 50 to 100 pounds. Riprap comes to grade level. Parking lot, building, and storage area behind. The timber pier off of it.

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

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

Structure Images:

028-054-000-108-100-PHO1A.jpg
028-054-000-108-100-PHO1B.jpg
028-054-000-108-100-PHO1C.jpg

Structure Documents:

USACE	June 9, 1976	Proposed Expansion	028-054-000-108-100-COE1A
MA-DCR	September 2	Gloucester State Fish	028-054-000-108-100-DCR1A
MA-DCR		State Fish Pier	028-054-000-108-100-DCR1B
DEP	May 1990	Plans Accompanying	028-054-000-108-100-LIC1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-054-000-108-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	State Fish Pier	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1976	$69,300.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
175 Feet	Feet NAVD 88	10	A2 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone bulkhead with 2 feet by 2 feet stones with a concrete cap. Behind the wall is a parking lot and the Environmental Policy Organization Building. Some movement of stones. Chinking is still in place.

Condition Rating	B Good	*Priority Rating*	IV High Priority
Level of Action	Minor	*Action*	Consider for Next Project Construction Listing
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.	*Description*	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

028-054-000-108-200-PHO2A.jpg

Structure Documents:

USACE	June 9, 1976	Proposed Expansion	028-054-000-108-200-COE2A
MA-DCR	September 2	Gloucester State Fish	028-054-000-108-200-DCR2A
MA-DCR	N/A	State Fish Pier	028-054-000-108-200-DCR2B
DEP	May 1987	Plans Accompanying	028-054-000-108-200-LIC2A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-058-000-040-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Cripple Cove Public Landing	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	2000	$10,210.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
85 Feet	Feet NAVD 88	A2	10 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Placed riprap with stones approximately 4 feet by 2 feet by 2 feet. The toe is exposed at low tide. On the top of the revetment is a walkway and park. No scour or movement visible.

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

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

Structure Images:

028-058-000-040-100-PHO1A.jpg

Structure Documents:

USACE	July 2001	City of Gloucester -	028-058-000-040-100-COE1A
MA-DCR	August 2000	Inspection of Stone	028-058-000-040-100-DCR1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-058-000-040-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Cripple Cove Public	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	2001	$50,160.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
200 Feet	Feet NAVD 88	A2	10 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone bulkhead with stone approximately 6 feet by 3 feet by 2 feet. The top of the wall is mortared. Some mortar is lost. Behind the wall is a playground, and in front is the gangway for a public landing. Some riprap at the toe. No scour visible.

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

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

Structure Images:

028-058-000-040-200-PHO2A.jpg

028-058-000-040-200-PHO2B.jpg

Structure Documents:

USACE	July 2001	City of Gloucester -	028-058-000-040-200-COE2A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-064-000-061-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	East Main Street	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	2000	$42,636.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
170 Feet	Feet NAVD 88	A2	10 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone block mortared seawall. The stones are approximately 1.5 feet in length by 1 foot in height. A sidewalk, road and houses are behind the wall. A sandy beach is in front of the wall. There is no sign of scour or undermine.

Condition Rating	B Good	*Priority Rating*	IV High Priority
Level of Action	Minor	*Action*	Consider for Next Project Construction Listing
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.	*Description*	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

028-064-000-061-100-PHO1A.jpg

Structure Documents:

USACE	April 2000	City of Gloucester -	028-064-000-061-100-COE1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-079-000-001-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Robinson Landing	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1965	$601,920.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
240 Feet	Feet NAVD 88	A2	10 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone block seawall with 2 feet by 2 feet by 6 feet stones. The corner of the wall is unraveling. The back of the wall has erosion and undermining. There is a small park behind the seawall.

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

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

Structure Images:

028-079-000-001-100-PHO1A.jpg

Structure Documents:

MA-DCR	July 1965	Proposed Shore	028-079-000-001-100-DCR1A
MA-DCR	April 2000	Construction of Stone	028-079-000-001-100-DCR1B

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-130-000-011-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Rocky Neck Avenue	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1958	$45,012.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
220 Feet	Feet NAVD 88	V2	12 Feet NGVD

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

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

Structure Summary :

Precast concrete wall with riprap in front. Precast wall is 4 feet high by 4 feet wide. There is some cracking at the edges. Dumped riprap is 5 feet by 2 feet by 2 feet; in front is a sandy beach. Some undermining under and behind the wall. Behind is a walkway, small park, and road to Rocky Neck.

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

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

Structure Images:

028-130-000-011-100-PHO1A.jpg

Structure Documents:

MA-DCR	May 1958	Proposed Seawall	028-130-000-011-100-DCR1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-130-000-011-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Rocky Neck Avenue	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	Unkown	$57,334.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
365 Feet	Feet NAVD 88	A2	10 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Placed stone riprap revetment. 5 feet by 2 feet by 2 feet at the top. 1 on 2 slope. Behind is parking lot and the only road to Rocky Neck. Toe is intact. No stone movement found. Mean high water is approximately half way up the slope.

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

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

Structure Images:

028-130-000-011-200-PHO2A.jpg

Structure Documents:

DEP	August 11, 1	Plan Accompanying	028-130-000-011-200-LIC2A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-131-000-018-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Wonson Cove	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1958	$125,235.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
165 Feet	Feet NAVD 88	A2	10 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Mortared stone seawall with sidewalk and road behind it. The concrete cap is approximately 2 feet wide. Some cracks and loose mortar visible, but no scour.

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

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

Structure Images:

028-131-000-018-100-PHO1A.jpg

Structure Documents:

MA-DCR	May 1958	Proposed Seawall	028-131-000-018-100-DCR1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-133-000-017-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Unknown	Niles Beach	6/6/2007

Presumed Structure Owner:	Based On Comment:
Unknown	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
	Unkown	$68,310.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
450 Feet	Feet NAVD 88	V2	12 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The stone seawall is mortared. There is parking lot above the wall and a road behind the wall. No scour found. 2 feet by 1 foot stones. Sandy beach in front.

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

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

Structure Images:

028-133-000-017-100-PHO1A.jpg

028-133-000-017-100-PHO1B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-137-000-011-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Federal	Dog Bar Breakwater	6/6/2007

Presumed Structure Owner:	Based On Comment:
Federal	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
USCG	Unkown	$1,111,500.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
2250 Feet	11 Feet NAVD 88	V2	20 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The breakwater is at the mouth of the Gloucester Harbor. The stones are 9 feet by 3 feet by 3 feet and rectangular. The riprap on the ocean side is placed and is 9 feet by 4 feet by 5 feet with a 1 on 1 slope. Five of the riprap stones have been pusehd out of place by storm action.

Condition Rating	B Good	*Priority Rating*	V Immediate / Highest Priority
Level of Action	Minor	*Action*	Consider For Immediate Action Due to Public Safety and Welfare Issues
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.	*Description*	Critical Inshore Structures Present with Potential for Infrastructure Damage and/or High Density Residential Dwellings Condition of structure may warrant emergency stabilization as failure may result in potential loss of property and/or life. (>10 dwellings impacted / 100 feet of shoreline)

Structure Images:

028-137-000-011-100-PHO1A.jpg

028-137-000-011-100-PHO1B.jpg

028-137-000-011-100-PHO1C.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-139-000-002-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
State	University of Massachusetts - Marine Station	6/6/2007

Presumed Structure Owner:	Based On Comment:
State	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
University of Massachusetts	Unkown	$790,020.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
630 Feet	10 Feet NAVD 88	V2	12 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone block seawall with stones that average 7 feet by 2 feet by 2 feet. Erosion behind the wall and stones have shifted and settled. Slope 1 on 1 to 1 on 0.5 The wall is in better condition inshore.

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

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

Structure Images:

028-139-000-002-100-PHO1A.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-139-000-002-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
State	University of Massachusetts - Marine Station	6/6/2007

Presumed Structure Owner:	Based On Comment:
State	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
University of Massachusetts	Unkown	$131,670.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
105 Feet	7 Feet NAVD 88	V2	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone block bulkhead with stones averaging 7 feet by 2 feet by 2 feet. Erosion behind wall and stones have shifted and settled. Slope 1 on 1 to 1 on 0.5. The stones have unraveled on the inshore end of the wall.

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

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

Structure Images:

028-139-000-002-200-PHO2A.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-139-000-002-300

Key: community-map-block-parcel-structure

Property Owner: State

Location: University of Massachusetts - Marine Station

Date: 6/6/2007

Presumed Structure Owner: State

Based On Comment:

Owner Name: University of Massachusetts

Earliest Structure Record: Unkown

Estimated Reconstruction/Repair Cost: $96,558.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
385 Feet	9 Feet NAVD 88	V2	12 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone block bulkhead with stones averaging 7 feet by 2 feet by 2 feet. Erosion behind wall and stones have shifted and settled. Slope is 1 on 1 to 1 on 0.5.

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

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

Structure Images:

028-139-000-002-300-PHO3A.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-139-000-002-400

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
State	University of Massachusetts - Marine Station	6/6/2007

Presumed Structure Owner:	Based On Comment:
State	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
University of Massachusetts	Unkown	$1,314,423.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
1065 Feet	7 Feet NAVD 88	V2	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Dumped riprap with stones of varying size. The average stone size is 3 feet by 3 feet by 3 feet. The stones have unraveled, shifted and setteled in many parts.

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

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

Structure Images:

028-139-000-002-400-PHO4A.jpg

028-139-000-002-400-PHO4B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-139-000-010-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Washington Street	6/6/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	Unkown	$758,670.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
605 Feet	7 Feet NAVD 88	V2	12 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone block seawall with stones approximately 7 feet by 3 feet by 2 feet. The stones have shifted and moved. The wall breaks for the boat ramp behind it. A good amount of hardware is heavily corroded.

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

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

Structure Images:

028-139-000-010-100-PHO1A.jpg

028-139-000-010-100-PHO1B.jpg

028-139-000-010-100-PHO1C.jpg

028-139-000-010-100-PHO1D.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-142-000-038-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Lanes Cove	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	Unkown	$796,290.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
635 Feet	4 Feet NAVD 88	V3	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone bulkhead 5 feet by 3 feet by 3 feet. There is undermining, shifting, and settling located behind the breakwater in the cove. The south side has come unraveled and is falling into the water. There is erosion and heaving of stones. There is a storage area for fishing equipment and a park behind the bulkhead.

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

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

Structure Images:

028-142-000-038-100.PHO1B.jpg

028-142-000-038-100-PHO1A.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-142-000-038-200

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Lanes Cove

Date: 6/7/2007

Presumed Structure Owner: Local

Based On Comment:

Owner Name: Gloucester

Earliest Structure Record: Unkown

Estimated Reconstruction/Repair Cost: $401,280.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
320 Feet	4 Feet NAVD 88	V3	12 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stones are undermining, settling, shifting and rotating. They are approximately 4 feet by 2 feet by 2 feet. A storage area for fishing equipment and a parking lot are located above the middle structure in the cove.

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

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

Structure Images:

028-142-000-038-200-PHO2A.jpg

028-142-000-038-200-PHO2B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-142-000-038-300

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Lanes Cove

Date: 6/7/2007

Presumed Structure Owner: Local

Based On Comment:

Owner Name: Gloucester

Earliest Structure Record: Unkown

Estimated Reconstruction/Repair Cost: $8,639.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
55 Feet	4 Feet NAVD 88	V3	12 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Dumped riprap is approximately 200 pounds. Some erosion along the top. The toe is still intact.

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

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

Structure Images:

028-142-000-038-300-PHO3A.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-142-000-038-400

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Lanes Cove

Date: 6/7/2007

Presumed Structure Owner: Local

Based On Comment:

Owner Name: Gloucester

Earliest Structure Record: Unkown

Estimated Reconstruction/Repair Cost: $1,135,464.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
460 Feet	9 Feet NAVD 88	V3	12 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone breakwater with stones approximately 4 feet by 3 feet by 2 feet. The corners appear to have been unraveled and repaired using staples. The breakwater protects the cove behind it and the channel adjacent to it. There is a 20 foot landing behind the breakwater, followed by a 15 foot bulkhead. Inshore the stones have signs of rotation and movement.

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

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

Structure Images:

028-142-000-038-400-PHO4A.jpg

028-142-000-038-400-PHO4B.jpg

028-142-000-038-400-PHO4C.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-142-000-052-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Lanes Cove	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Gloucester	1988	$2,233,902.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
905 Feet	7 Feet NAVD 88	V3	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The stone breakwater is approximately 4 feet by 3 feet by 1 feet. There is some visible stone heave and bowing out, along with some settling and unraveling. The breakwater protects the cove and channel. Adjacent to the breakwater is a 20 foot wall connected to a 20 foot landing which is connectd to a 15 foot wall. There is erosion along the inshore base. There is approximately 100 feet of dumped riprap.

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

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

Structure Images:

028-142-000-052-100-PHO1A.jpg

028-142-000-052-100-PHO1B.jpg

028-142-000-052-100-PHO1C.jpg

028-142-000-052-100-PHO1D.jpg

Structure Documents:

Gloucester	5/3/1988	Proposed Ramp	028-142-000-052-100-TWN1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-216-000-140-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Crescent Beach

Date: 6/6/2007

Presumed Structure Owner: Local

Based On Comment:

Owner Name: Gloucester

Earliest Structure Record: Unkown

Estimated Reconstruction/Repair Cost: $34,155.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
225 Feet	Feet NAVD 88	V2	16 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Mortared stone seawall. Some areas with loss of mortar. No scour found. The top is approximately 2 feet wide. Cobble and sand beach fronting. There are two stair beach accesses.

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

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

Structure Images:

028-216-000-140-100-PHO1A.jpg

028-216-000-140-100-PHO1B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Gloucester

Structure ID: 028-216-000-140-200

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Crescent Beach

Date: 6/6/2007

Presumed Structure Owner: Local

Based On Comment:

Owner Name: Gloucester

Earliest Structure Record: 1913

Estimated Reconstruction/Repair Cost: $668,131.00

Length: 855 Feet

Top Elevation: Feet NAVD 88

FIRM Map Zone: V2

FIRM Map Elevation: 16 Feet NGVD

Primary Type: Revetment

Primary Material: Stone

Primary Height: 10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:

Structure Summary :

The stone riprap revetment has stones of approximately 5 feet by 3 feet by 2 feet size. The slope is 1 on 1.5. There is a good amount of erosion at the top. Some sections of understone have washed out leaving large gaps in the understone exposing geotextile. The toe is intact. There is a cobble beach in front of the revetment.

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

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

Structure Images:

028-216-000-140-200-PHO2A.jpg

028-216-000-140-200-PHO2B.jpg

028-216-000-140-200-PHO2C.jpg

Structure Documents:

Gloucester	3/21/1913	Proposed	028-216-000-140-200-TWN2A

Prepared By: Bourne Consulting Engineering

Section II - Gloucester

Part C

Structure Photographs

CITY: GLOUCESTER
SOURCE: BCE - FIELD PHOTOGRAPHS
LOCATION: Bourne Consulting Engineering
DATE OF RESEARCH: JULY 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
028-001-000-001-100	028-001-000-001-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-001-000-001-100	028-001-000-001-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-003-000-072-100	028-003-000-072-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-003-000-072-100	028-003-000-072-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-003-000-072-200	028-003-000-072-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-003-000-072-300	028-003-000-072-300-PHO3A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-003-000-072-300	028-003-000-072-300-PHO3B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-003-000-072-300	028-003-000-072-300-PHO3C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-003-000-072-400	028-003-000-072-400-PHO4A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-003-000-072-400	028-003-000-072-400-PHO4B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-007-000-005-100	028-007-000-005-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-007-000-005-100	028-007-000-005-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-007-000-005-100	028-007-000-005-100-PHO1C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-007-000-016-100	028-007-000-016-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-007-000-016-200	028-007-000-016-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-007-000-016-200	028-007-000-016-200-PHO2B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-007-000-016-200	028-007-000-016-200-PHO2C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-009-000-014-100	028-009-000-014-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-009-000-014-100	028-009-000-014-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-053-000-016-100	028-053-000-016-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-054-000-108-100	028-054-000-108-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-054-000-108-100	028-054-000-108-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey

CITY: GLOUCESTER
SOURCE: BCE - FIELD PHOTOGRAPHS
LOCATION: Bourne Consulting Engineering
DATE OF RESEARCH: JULY 2007

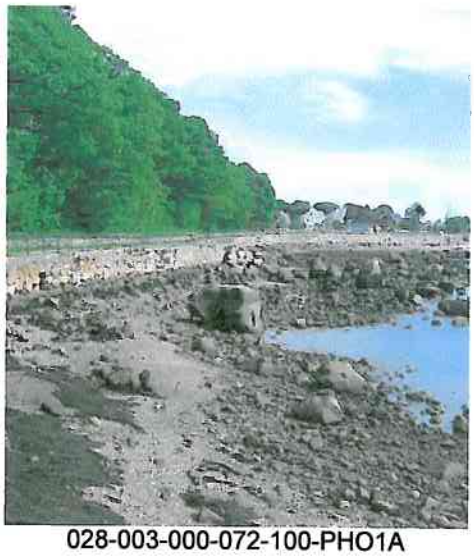
BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
028-054-000-108-100	028-054-000-108-100-PHO1C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-054-000-108-200	028-054-000-108-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-058-000-040-100	028-058-000-040-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-058-000-040-200	028-058-000-040-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-058-000-040-200	028-058-000-040-200-PHO2B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-064-000-061-100	028-064-000-061-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-079-000-001-100	028-079-000-001-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-130-000-011-100	028-130-000-011-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-130-000-011-200	028-130-000-011-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-131-000-018-100	028-131-000-018-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-133-000-017-100	028-133-000-017-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-133-000-017-100	028-133-000-017-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-137-000-011-100	028-137-000-011-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-137-000-011-100	028-137-000-011-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-137-000-011-100	028-137-000-011-100-PHO1C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-139-000-002-100	028-139-000-002-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-139-000-002-200	028-139-000-002-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-139-000-002-300	028-139-000-002-300-PHO3A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-139-000-002-400	028-139-000-002-400-PHO4A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-139-000-002-400	028-139-000-002-400-PHO4B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-139-000-010-100	028-139-000-010-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-139-000-010-100	028-139-000-010-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey

CITY: GLOUCESTER
SOURCE: BCE - FIELD PHOTOGRAPHS
LOCATION: Bourne Consulting Engineering
DATE OF RESEARCH: JULY 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
028-139-000-010-100	028-139-000-010-100-PHO1C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-139-000-010-100	028-139-000-010-100-PHO1D.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-142-000-038-100	028-142-000-038-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-142-000-038-100	028-142-000-038-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-142-000-038-200	028-142-000-038-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-142-000-038-200	028-142-000-038-200-PHO2B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-142-000-038-300	028-142-000-038-300-PHO3A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-142-000-038-400	028-142-000-038-400-PHO4A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-142-000-038-400	028-142-000-038-400-PHO4B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-142-000-038-400	028-142-000-038-400-PHO4C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-142-000-052-100	028-142-000-052-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-142-000-052-100	028-142-000-052-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-142-000-052-100	028-142-000-052-100-PHO1C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-142-000-052-100	028-142-000-052-100-PHO1D.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-216-000-140-100	028-216-000-140-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-216-000-140-100	028-216-000-140-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-216-000-140-200	028-216-000-140-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-216-000-140-200	028-216-000-140-200-PHO2B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
028-216-000-140-200	028-216-000-140-200-PHO2C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey

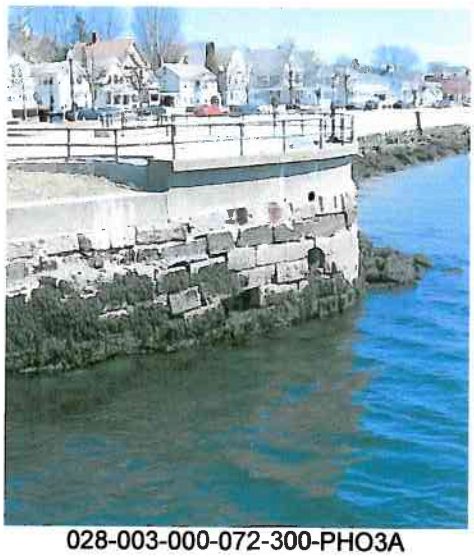

028-001-000-001-100-PHO1A

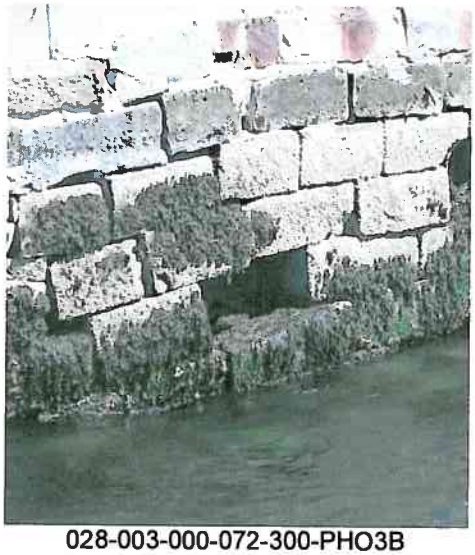

028-001-000-001-100-PHO1B

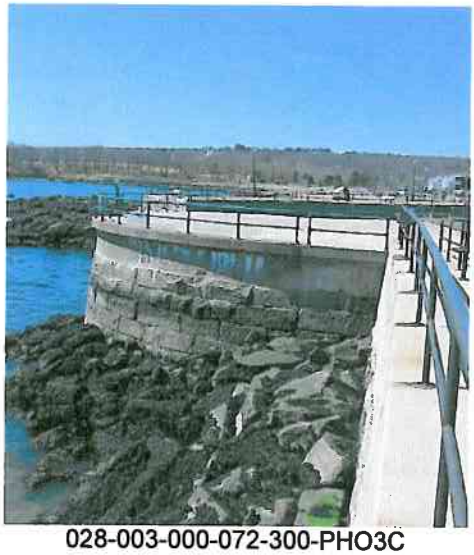

028-003-000-072-100-PHO1A


028-003-000-072-100-PHO1B


028-003-000-072-200-PHO2A


028-003-000-072-300-PHO3A


028-003-000-072-300-PHO3B


028-003-000-072-300-PHO3C


028-003-000-072-400-PHO4A


028-003-000-072-400-PHO4B


028-007-000-005-100-PHO1A


028-007-000-005-100-PHO1B


028-007-000-005-100-PHO1C


028-007-000-016-100-PHO1A


028-007-000-016-200-PHO2A


028-007-000-016-200-PHO2B


028-007-000-016-200-PHO2C

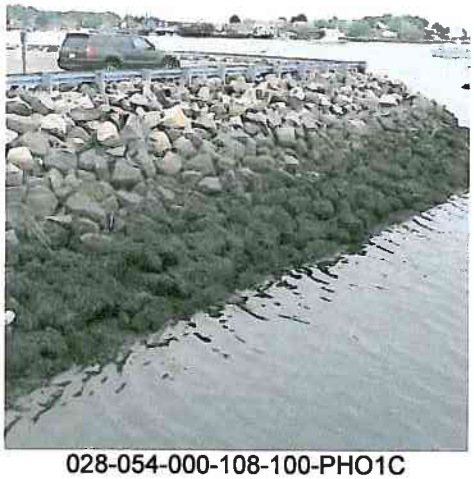
028-009-000-014-100-PHO1A

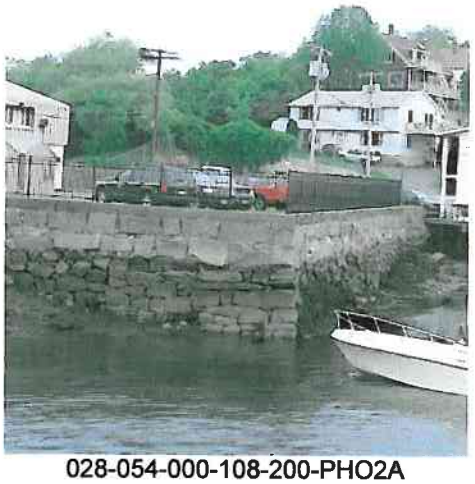

028-009-000-014-100-PHO1B


028-053-000-016-100-PHO1A


028-054-000-108-100-PHO1A


028-054-000-108-100-PHO1B


028-054-000-108-100-PHO1C


028-054-000-108-200-PHO2A


028-058-000-040-100-PHO1A


028-058-000-040-200-PHO2A

028-058-000-040-200-PHO2B


028-064-000-061-100-PHO1A


028-079-000-001-100-PHO1A


028-130-000-011-100-PHO1A


028-130-000-011-200-PHO2A


028-131-000-018-100-PHO1A


028-133-000-017-100-PHO1A

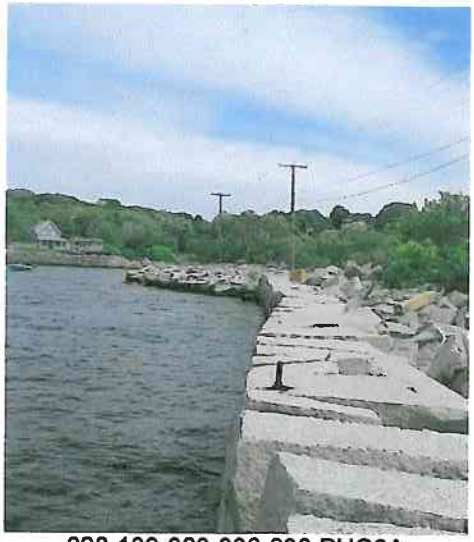

028-133-000-017-100-PHO1B


028-137-000-011-100-PHO1A


028-137-000-011-100-PHO1B


028-137-000-011-100-PHO1C

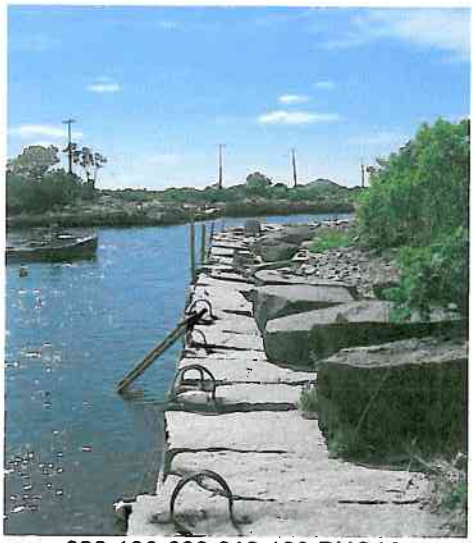

028-139-000-002-100-PHO1A

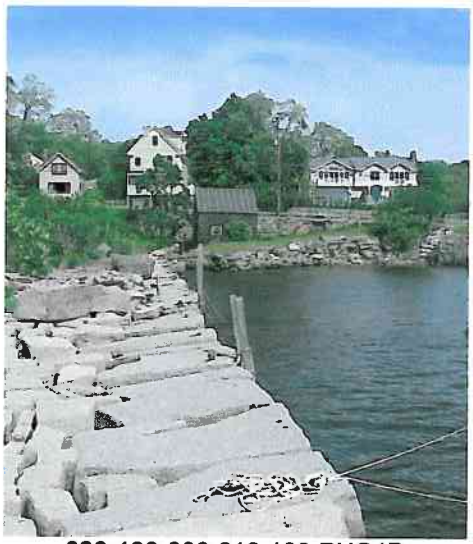

028-139-000-002-200-PHO2A


028-139-000-002-300-PHO3A


028-139-000-002-400-PHO4A


028-139-000-002-400-PHO4B


028-139-000-010-100-PHO1A


028-139-000-010-100-PHO1B


028-139-000-010-100-PHO1C


028-139-000-010-100-PHO1D

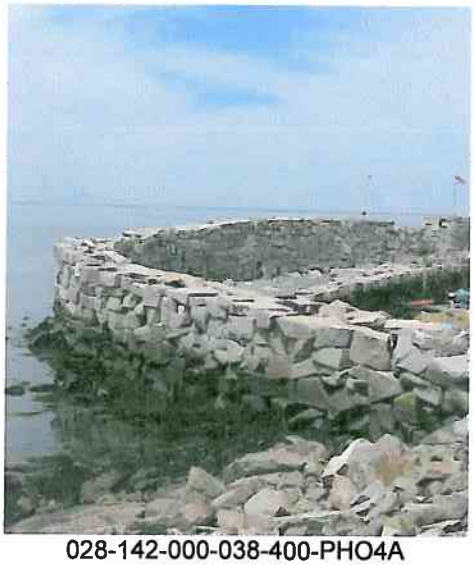

028-142-000-038-100-PHO1A


028-142-000-038-100-PHO1B


028-142-000-038-200-PHO2A


028-142-000-038-200-PHO2B


028-142-000-038-300-PHO3A


028-142-000-038-400-PHO4A


028-142-000-038-400-PHO4B


028-142-000-038-400-PHO4C


028-142-000-052-100-PHO1A


028-142-000-052-100-PHO1B


028-142-000-052-100-PHO1C


028-142-000-052-100-PHO1D


028-216-000-140-100-PHO1A


028-216-000-140-100-PHO1B


028-216-000-140-200-PHO2A


028-216-000-140-200-PHO2B


028-216-000-140-200-PHO2C

Section II - Gloucester

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: GLOUCESTER
SOURCE: City of Gloucester
LOCATION: CITY
DATE OF RESEARCH: JULY 2007

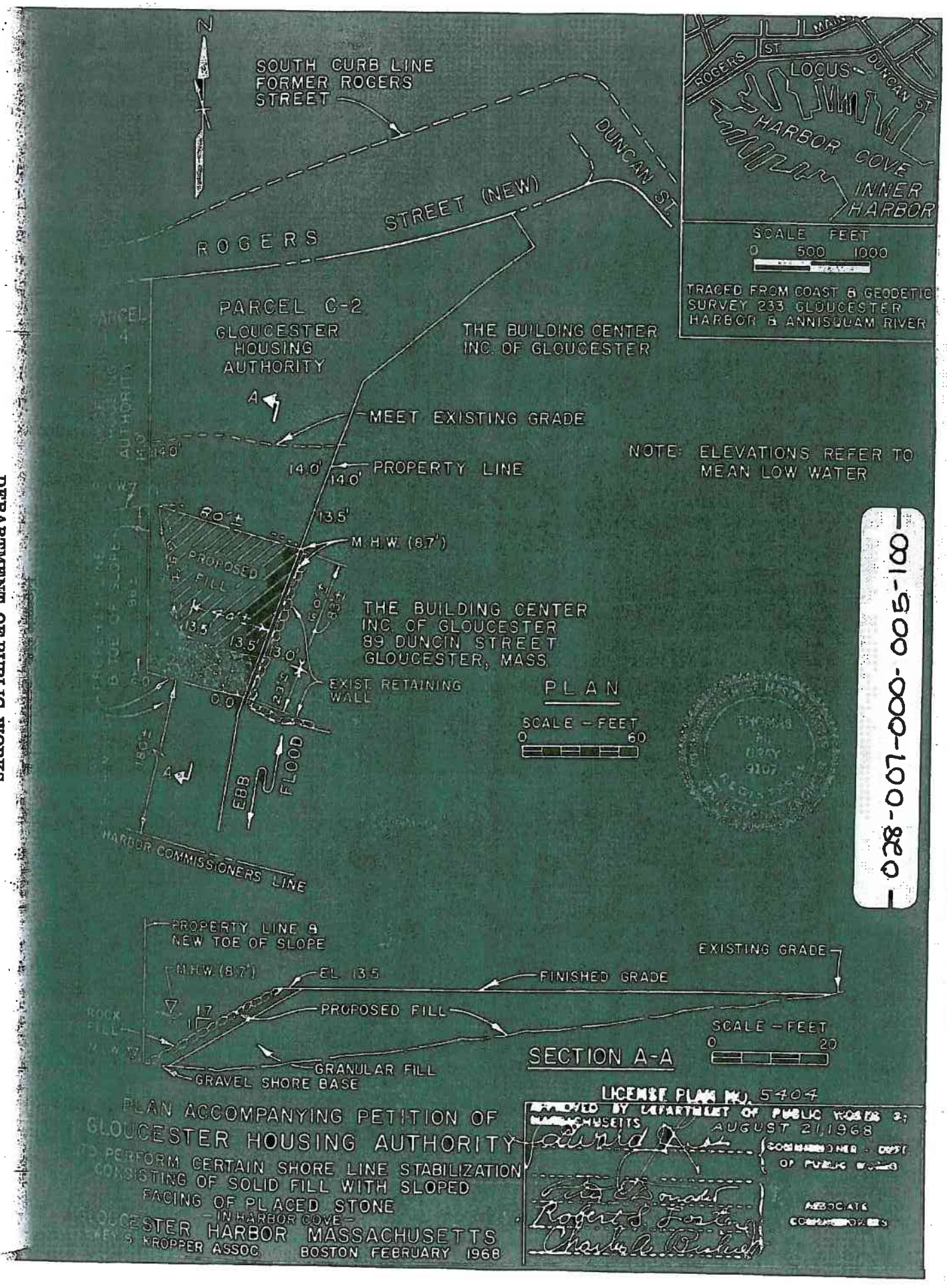
BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
028-003-000-072-100	028-003-000-072-100-TWN1A	1528	Gloucester	Gloucester	June 1955	Hurricane Damage Repairs - Fisherman Municipal Park and Stage Fort park	2		Repair
028-003-000-072-200	028-003-000-072-200-TWN2A	1528	Gloucester	Gloucester	June 1955	Hurricane Damage Repairs - Fisherman's Municipal Park and State Fort Park	2		
028-003-000-072-300	028-003-000-072-300-TWN3A	1528	Gloucester	Gloucester	June 1955	Hurricane Damage Repairs - Fisherman's Municipal Park and State Fort Park	2		
028-003-000-072-400	028-003-000-072-400-TWN4A	1528	Gloucester	Gloucester	June 1955	Hurricane Damage Repairs - Fisherman's Municipal Park and Stage Fort Park	2		Repair
028-007-000-016-200	028-007-000-016-200-TWN2A		Gloucester	Gloucester	1/9/2007	Illustrative Plan - Saint Peter's Square	1	Rogers Street	Plan View of Square
028-142-000-052-100	028-142-000-052-100-TWN1A	40832	Gloucester	Gloucester	5/3/1968	Proposed Ramp	3	Lanes Cove Landing	
028-216-000-140-200	028-216-000-140-200-TWN2A	135-A	Gloucester	Gloucester	3/21/1913	Proposed Improvements at Stage Fort Park	1		Wall Concrete

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

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
028-001-000-001-100	028-001-000-001-100-DCR1A	1390	MA-DCR	Gloucester	April 1954	Proposed Seawall at Harbor Cove - Gloucester, MA - Prepared for DPW of MA - Division of Waterways	2	Harbor Cove - Fort Point	Seawall
028-001-000-001-100	028-001-000-001-100-DCR1B	3409	MA-DCR	Gloucester	August 2000	Inspection of Stone Bulkhead	5	Stacey Boulevard, Fort Square, Cripple Cove	Bulkhead
028-003-000-072-100	028-003-000-072-100-DCR1A	1261	MA-DCR	Gloucester	July 1952	Proposed Seawall Repairs - Annisquam Canal - Gloucester - Prepared for DPW of MA - Division of Waterways	1	Annisquam Canal - East Side	Seawall
028-003-000-072-200	028-003-000-072-200-DCR2A	1261	MA-DCR	Gloucester	July 1952	Proposed Seawall Repairs - Annisquam Canal - Gloucester, MA - Prepared for the DPW of Massachusetts - Division of Waterways	1	Annisquam Canal - East Side	Seawall
028-003-000-072-200	028-003-000-072-200-DCR2B	1900	MA-DCR	Gloucester	May 1958	Proposed Wall Repairs - Annisquam Canal - Gloucester, MA - Prepared for the DPW of Massachusetts - Division of Waterways	4	Annisquam Canal - East Side	Wall Repairs
028-003-000-072-300	028-003-000-072-300-DCR3A	1261	MA-DCR	Gloucester	July 1952	Proposed Seawall Repairs - Annisquam Canal - Gloucester, MA - Prepared for the DPW of MA - Division of Waterways	1	Annisquam Canal - East Side	Seawall
028-003-000-072-300	028-003-000-072-300-DCR3B	1900	MA-DCR	Gloucester	May 1958	Proposed Wall Repairs - Annisquam Canal - Gloucester, MA - Prepared for DPW of Massachusetss - Division of Waterways	4	Annisquam Canal - East Side	Wall Repairs
028-003-000-072-300	028-003-000-072-300-DCR3C	2047	MA-DCR	Gloucester	June 1958	Proposed Bank Protection - Annisquam Canal - Gloucester, MA - Prepared for DPW of Massachusetts - Division of Waterways	2	Annisquam Canal	Concrete Wall
028-003-000-072-400	028-003-000-072-400-DCR4A	1528	MA-DCR	Gloucester	June 1955	Hurricane Damage Repairs - Fisherman's Memorial Park and State Fort Park - Gloucester - Prepared for DPW of MA - Division of Waterways	1	Western Avenue	Seawall
028-054-000-108-100	028-054-000-108-100-DCR1A	3571	MA-DCR	Gloucester	September 2005	Gloucester State Fish Pier Survey - Topo Suvery	6	2 State Pier	Pier Existing Conditions
028-054-000-108-100	028-054-000-108-100-DCR1B	GSFP-3	MA-DCR	Gloucester		State Fish Pier Development Plan	1	State Fish Pier	Riprap
028-054-000-108-200	028-054-000-108-200-DCR2A	3571	MA-DCR	Gloucester	September 2005	Gloucester State Fish Pier Suvery - Topo Survey	6	2 State Pier	Pier Existing Conditions
028-054-000-108-200	028-054-000-108-200-DCR2B	GSFP-3	MA-DCR	Gloucester		State Fish Pier Development Plan	1	State Fish Pier	Riprap
028-058-000-040-100	028-058-000-040-100-DCR1A	3409	MA-DCR	Gloucester	August 2000	Inspection of Stone Bulkhead	5	Stacey Boulevard, Fort Square, Cripple Cove	Bulkhead
028-079-000-001-100	028-079-000-001-100-DCR1A	2472	MA-DCR	Gloucester	July 1965	Proposed Shore Protection - Seawall and Stone Revetment - Annisquam River - Gloucester - Prepared for DPW of MA - Division of Waterways	1	Annisquam River	Seawall and Stone Revetment
028-079-000-001-100	028-079-000-001-100-DCR1B	3415	MA-DCR	Gloucester	April 2000	Construction of Stone Bulkhead, Robinson's Landing	2000	East Main Street	Bulkhead
028-130-000-011-100	028-130-000-011-100-DCR1A	1935	MA-DCR	Gloucester	May 1958	Proposed Seawall Construction - Wonson's Cove - Gloucester - Prepared for DPW of MA - Division of Waterways	1	Wonson's Cove	Seawall
028-131-000-018-100	028-131-000-018-100-DCR1A	1935	MA-DCR	Gloucester	May 1958	Proposed Seawall Construction - Wonson's Cove - Gloucester - Prepared for DPW of MA - Division of Waterways	1	Wonson's Cove	Seawall

CITY: GLOUCESTER
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
028-007-000-005-100	028-007-000-005-100-LIC1A	5404	DEP	Gloucester	August 21, 1968	Plan Accompanying Petition of Gloucester Housing Authority to Perform Certain Shore Line Stabilization Consisting of Solid Fill with Sloped Facing of Placed Stone - In Harbor Cove - Gloucester Harbor, Massachusetts	1	Duncan Street	Riprap Slope
028-007-000-005-100	028-007-000-005-100-LIC1B	1087	DEP	Gloucester	June 22, 1984	Plan Accompanying Petition of Gloucester Redevelopment Authority	2	Gloucester Inner Harbor	Rip Rap
028-007-000-016-100	028-007-000-016-100-LIC1A	872	DEP	Gloucester	July 10, 1980	Plan Accompanying Petition of the City of Gloucester to Construct and maintain a Wood Wharf and Maintain Existing Floats, Piles, Ramps and Riprap in Gloucester Harbor, City of Gloucester, Essex County, Massachusetts	2	Roger Street	Riprap Under Pier
028-007-000-016-200	028-007-000-016-200-LIC2A	3992	DEP	Gloucester	July 23, 1957	Construct Riprap and Solid Fill Harbor Cove, Gloucester Harbor	1	Harbor Cove	RipRap
028-053-000-016-100	028-053-000-016-100-LIC1A	771-	DEP	Gloucester	February 1962	Plans Accompanying Petition of the Gloucester Redevelopment Authority to Construct and Maintain Riprap Dike, Fill, Concrete Piers, Timber Pile Fenders, Extend Existing Drainage Lines and Dredge at Inner Harbor, Gloucester, County of Essex, Massachusetts	3	East Main Street and Parker Street	Riprap
028-053-000-016-100	028-053-000-016-100-LIC1B	589	DEP	Gloucester	May 24, 1979	Plan Accompanying Petition of the Gloucester Housing Authority	1	Gloucester Inner Harbor at Parker Street	Riprap
028-054-000-108-100	028-054-000-108-100-LIC1A	2511	DEP	Gloucester	May 1990	Plans Accompanying Petition of Massachusetts DEM Division of Waterways to Construct Finger Pier, Dredge, Fill and Place Riprap in Gloucester Harbor, City of Gloucester, County of Essex, MA	5	Inner Harbor	Fill and Riprap
028-054-000-108-200	028-054-000-108-200-LIC2A	1319	DEP	Gloucester	N/A	Plans Accompanying Petition of Head of the Harbor Nominee Trust to Construct and Maintain Floats, Ramp, and Piles in Gloucester Harbor City of Gloucester, Essex County, Massachusetts	3	Roger Street and East Main Street	Shows Existing Stone Riprap and Bulkhead
028-130-000-011-200	028-130-000-011-200-LIC2A	4854	DEP	Gloucester	August 11, 1964	Plan Accompanying Petition of the City of Gloucester, MA to Dispose of Surplus Clay, Boulder and Ledge Material in Smith Cove, Gloucester Harbor - Gloucester, MA	1	Smith Cove	Riprap Slope

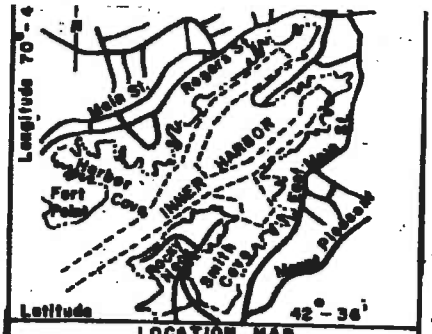


028-000-000-005-100

DEPARTMENT OF PUBLIC WORKS

028-007-000-005-100

N/F
GLOUCESTER REDEVELOPMENT
AUTHORITY



PROPOSED STEEL BULKHEAD EXTENSION

EXIST. WOODEN FOUNDATION

M.H.W. +4.45

EXIST. WOODEN BULKHEAD

M.L.W. -4.35

EXIST. STEEL & WOOD BULKHEAD

212'

(DOCK)

PROPOSED WHARF

200'

42'

60'

20'

14'

22'

PROP. RIPRAP

(PIER)

(PIER)

N/F THE BUILDING CENTER INC., OF GLOUCESTER

HARBOR COMMISSIONER'S LINE

GLOUCESTER HARBOR
INNER HARBOR

NOTES:

ALL ELEVATIONS SHOWN REFER TO NATIONAL GEODETIC VERTICAL DATUM (N.G.V.D.) 1929.

PLAN

40 0 40

HORIZONTAL SCALE IN FEET

84w-050

PLAN ACCOMPANYING PETITION OF
GLOUCESTER REDEVELOPMENT AUTHORITY
TO CONSTRUCT AND MAINTAIN A WHARF, AND RIPRAP FILL
IN GLOUCESTER INNER HARBOR
CITY OF GLOUCESTER, COUNTY OF ESSEX, MASSACHUSETTS

SHEET NO. 1 OF 2

LICENSE PLAN NO. 1087

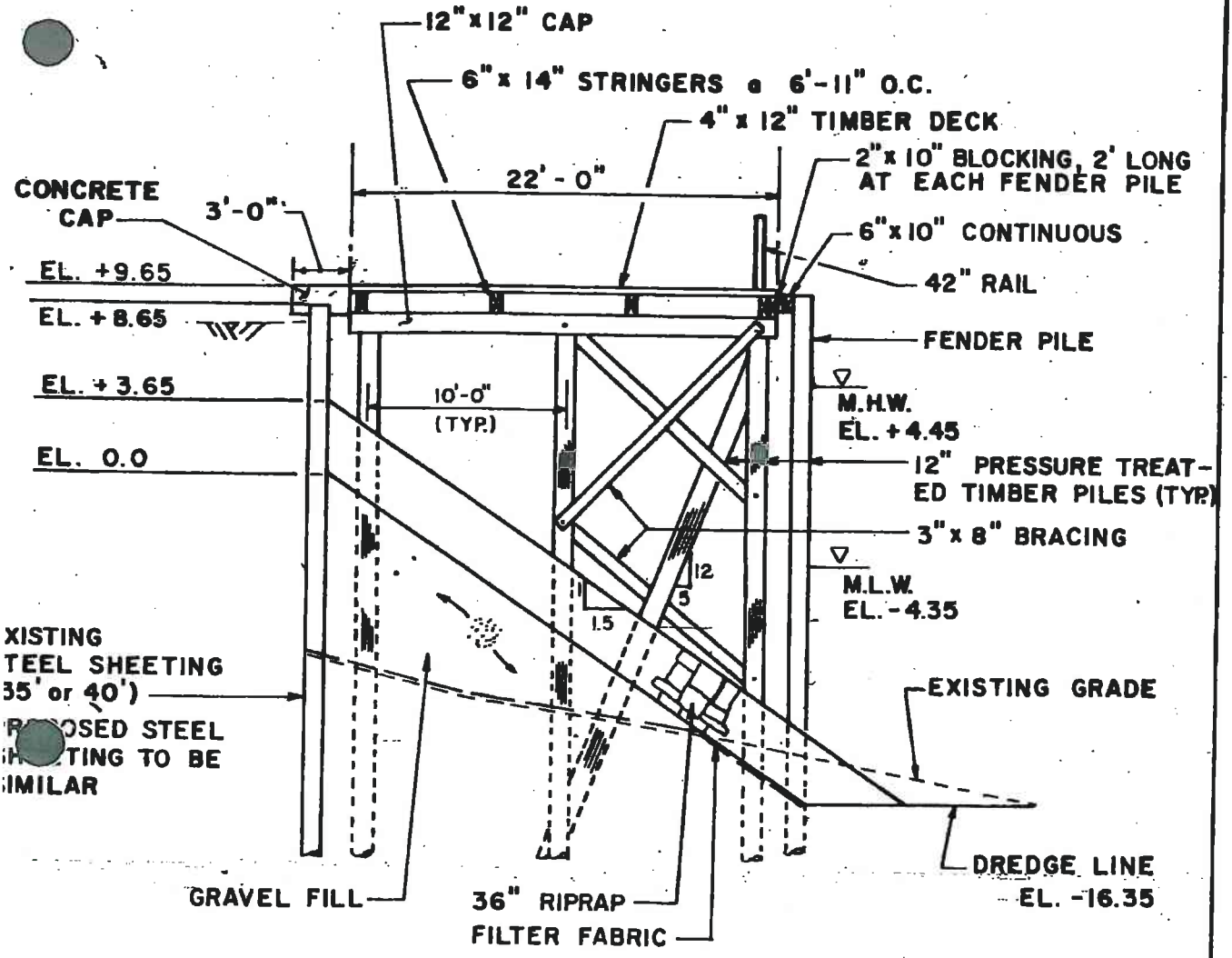
Approved by Department of Environmental Quality Engineering of Massachusetts June 22, 1984

COMMISSIONER

CHIEF ENGINEER

DIVISION DIRECTOR

028-007-000-005-100



SECTION A-A

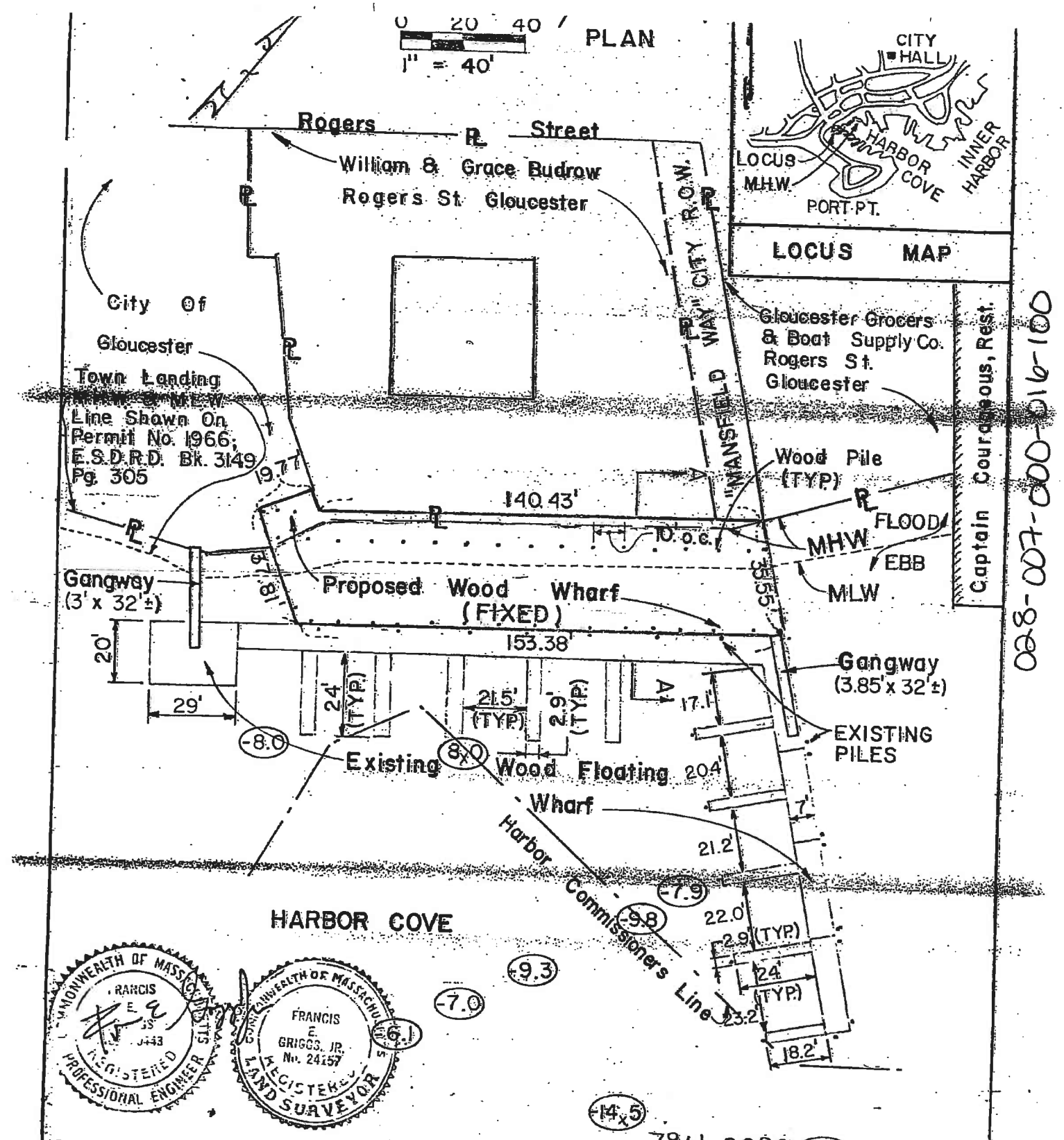
LICENSE PLAN NO. 1087
Approved by Department of Environmental Quality Engineering
JUNE 22, 1984

NOTES: 84w-030

1. ALL ELEVATIONS SHOWN REFER TO NATIONAL GEODETIC VERTICAL DATUM (N.G.V.D.) 1929

8 0 8
SCALE IN FEET

SHEET NO. 2 OF 2



79W-0098

PLAN ACCOMPANING PETITION OF
THE CITY OF GLOUCESTER
TO CONSTRUCT AND MAINTAIN A WOOD
WHARF AND MAINTAIN EXISTING FLOATS,
PILES, RAMPS, AND RIPRAP IN GLOUC-
ESTER HARBOR, CITY OF GLOUCESTER,
ESSEX COUNTY, MASS.
SHEET 1 OF 2

LICENSE PLAN NO. 672
Approved by Department of Environmental Quality Engineering
JULY 10, 1980
COMMISSIONER
CHIEF ENGINEER

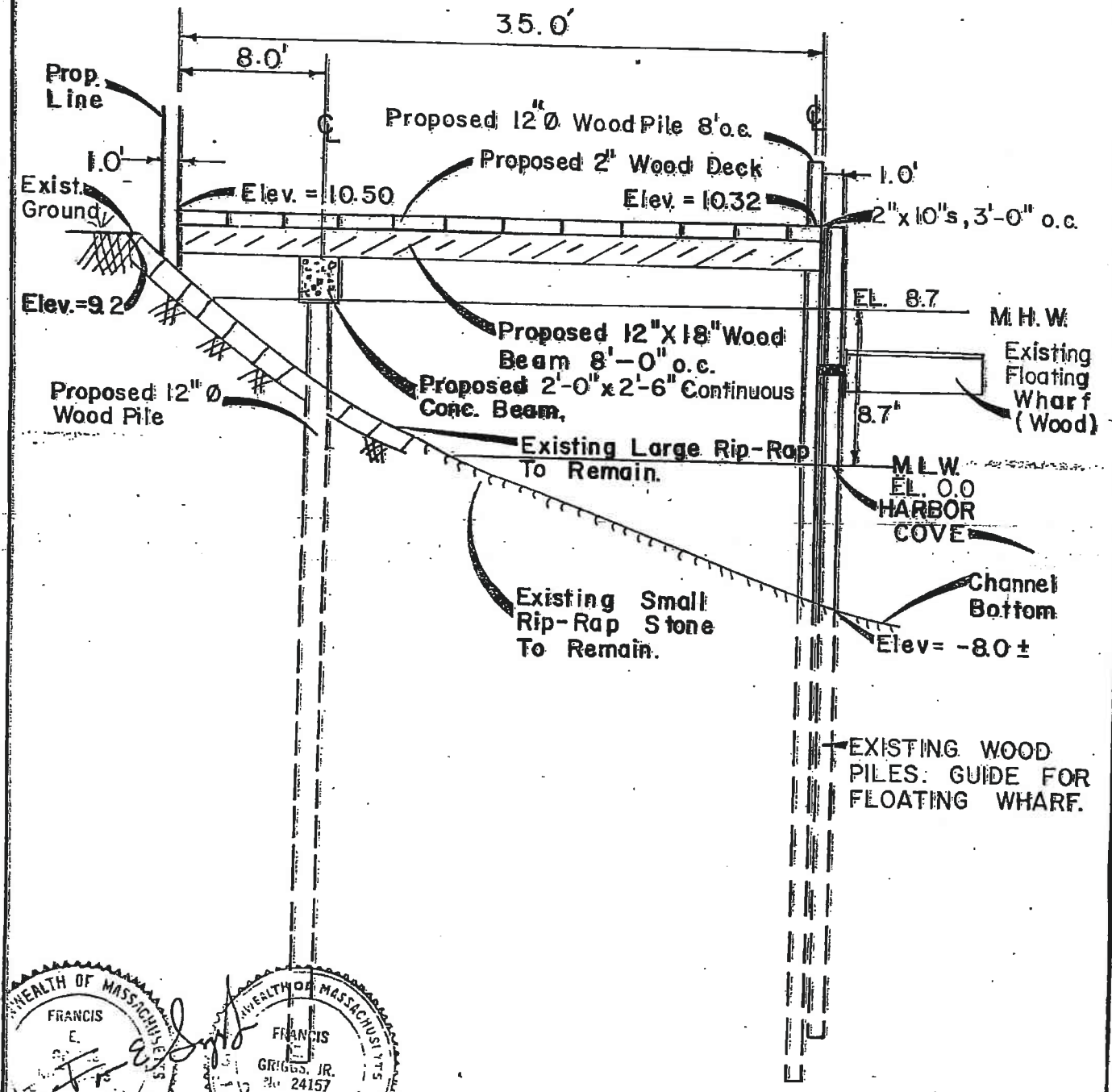
08-007-000-016-100

SECTION A – A

028-007-000-016-1001

0 4 6 8

1" = 8'



COMMONWEALTH OF MASSACHUSETTS
FRANCIS E. [illegible]
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS
FRANCIS GRIGGS, JR.
No. 24157
REGISTERED LAND SURVEYOR

79W-0098

CITY OF GLOUCESTER

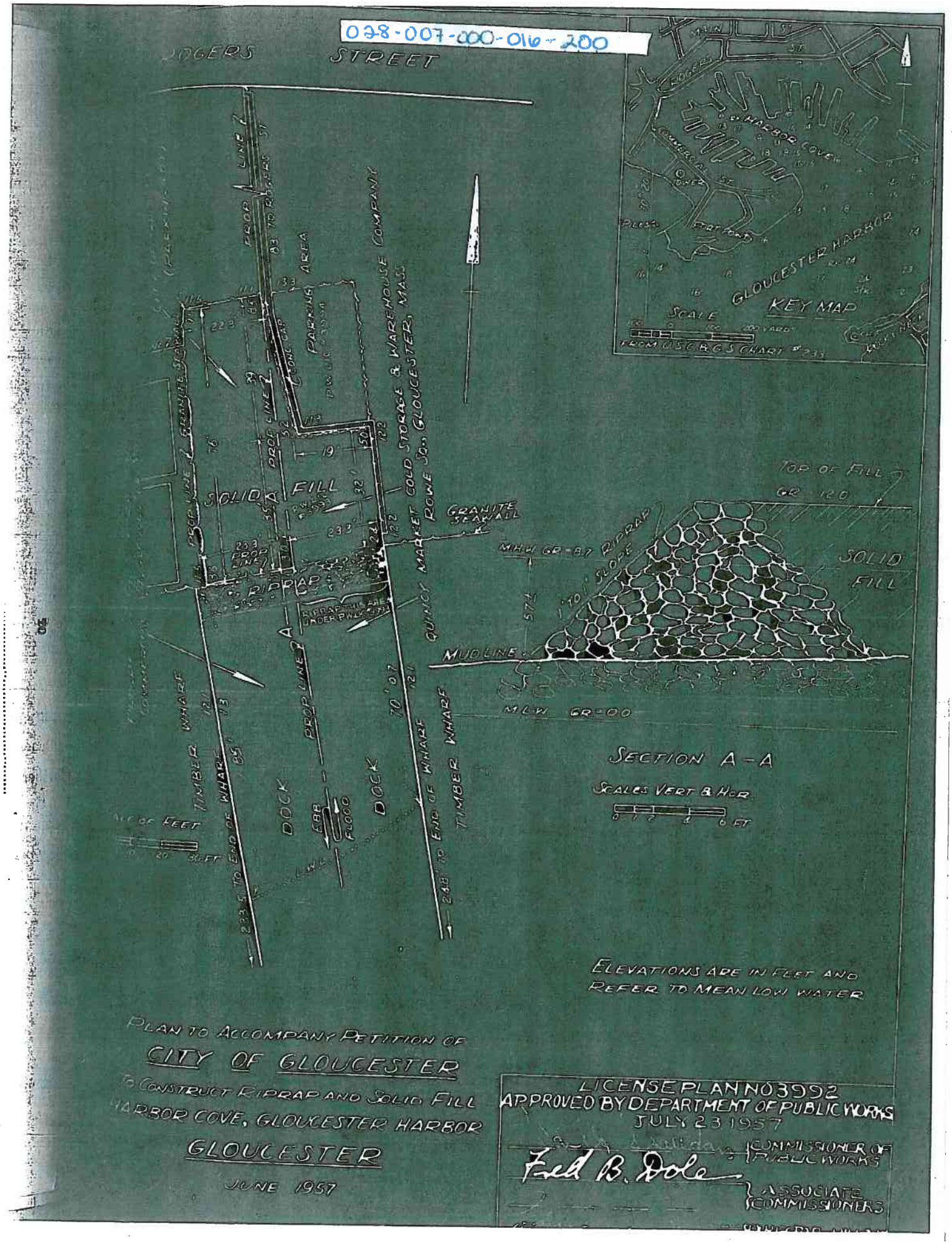
SHEET 2 OF 2

LICENSE PLAN NO. 672

Approved by Department of Environmental Quality Engineering

JULY 10, 1980

028-007-000-016-200



PLAN TO ACCOMPANY PETITION OF

CITY OF GLOUCESTER

TO CONSTRUCT RIPRAP AND SOLID FILL

HARBOR COVE, GLOUCESTER HARBOR

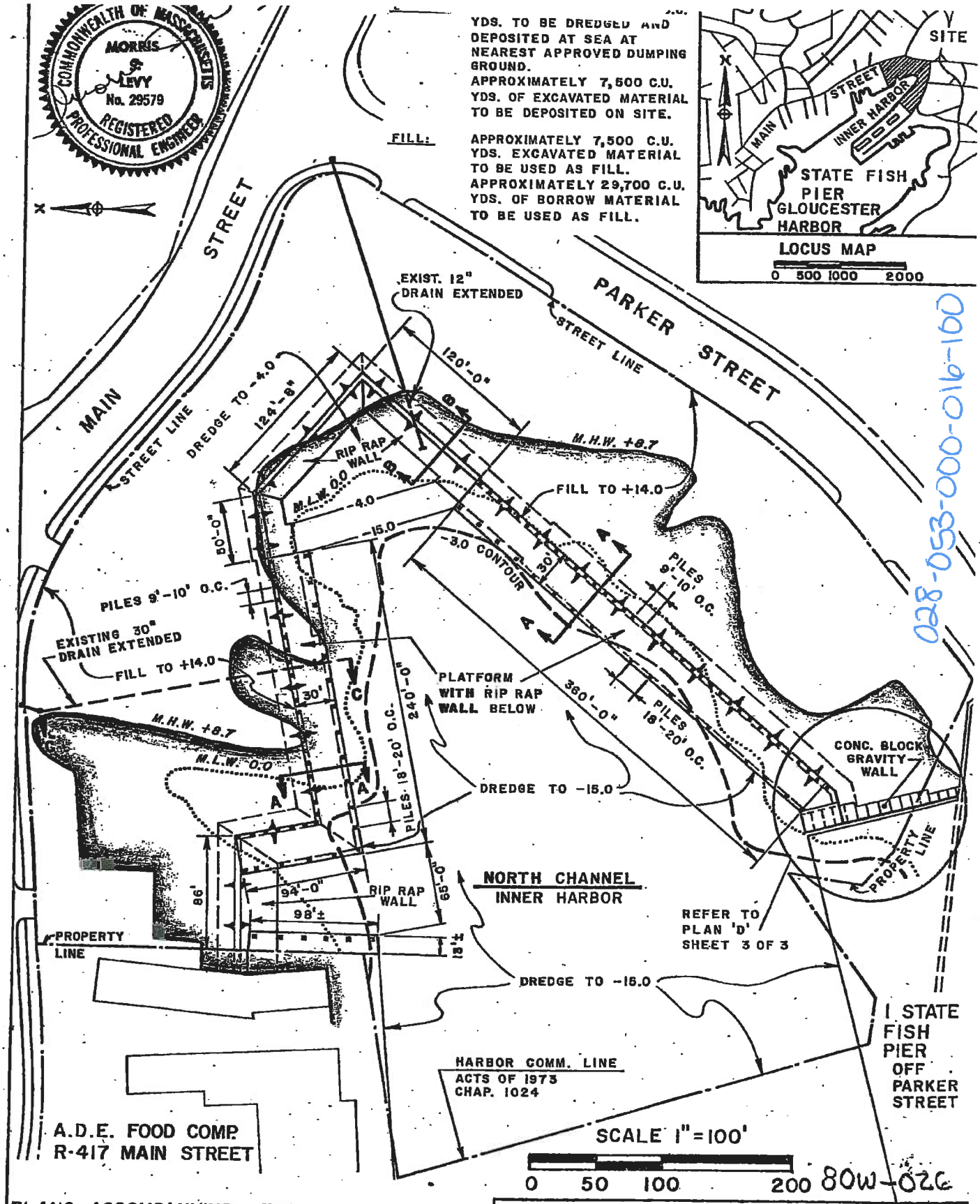
GLOUCESTER

JUNE 1957

LICENSE PLAN NO 3992
APPROVED BY DEPARTMENT OF PUBLIC WORKS
JULY 23 1957

Fred B. Dole — COMMISSIONER OF PUBLIC WORKS

ASSOCIATE COMMISSIONERS



028-053-000-016-160

80W-026

PLANS ACCOMPANYING PETITION OF THE GLOUCESTER REDEVELOPMENT AUTHORITY TO CONSTRUCT & MAINTAIN RIP RAP DIKE, FILL, CONCRETE PIERS, TIMBER PILE FENDERS, EXTEND EXISTING DRAINAGE LINES AND DREDGE, AT INNER HARBOR, GLOUCESTER, COUNTY OF ESSEX, MASSACHUSETTS

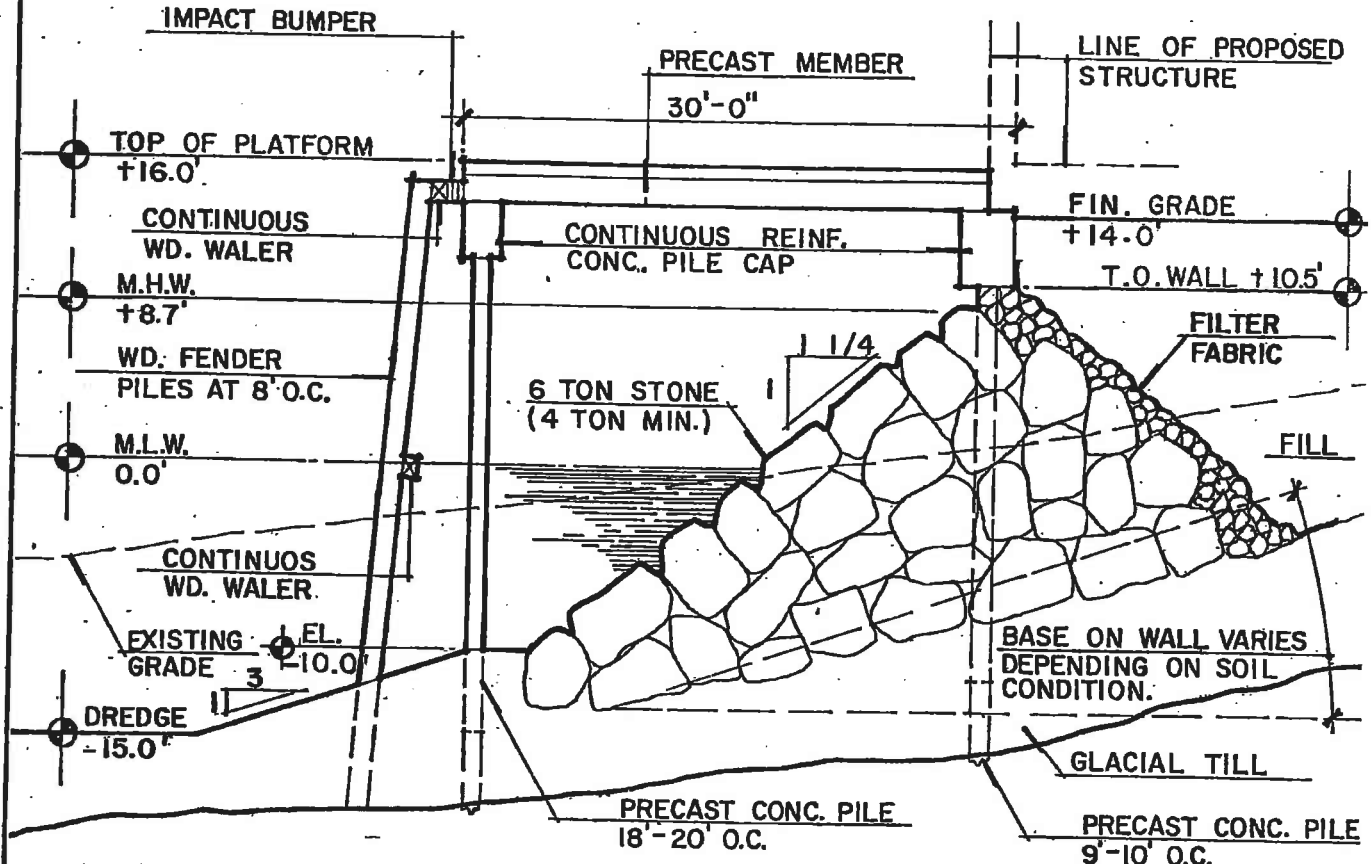
LICENSE PLAN NO. 771

Approved by Department of Environmental Quality Engineering of Massachusetts FEBRUARY 5, 1982

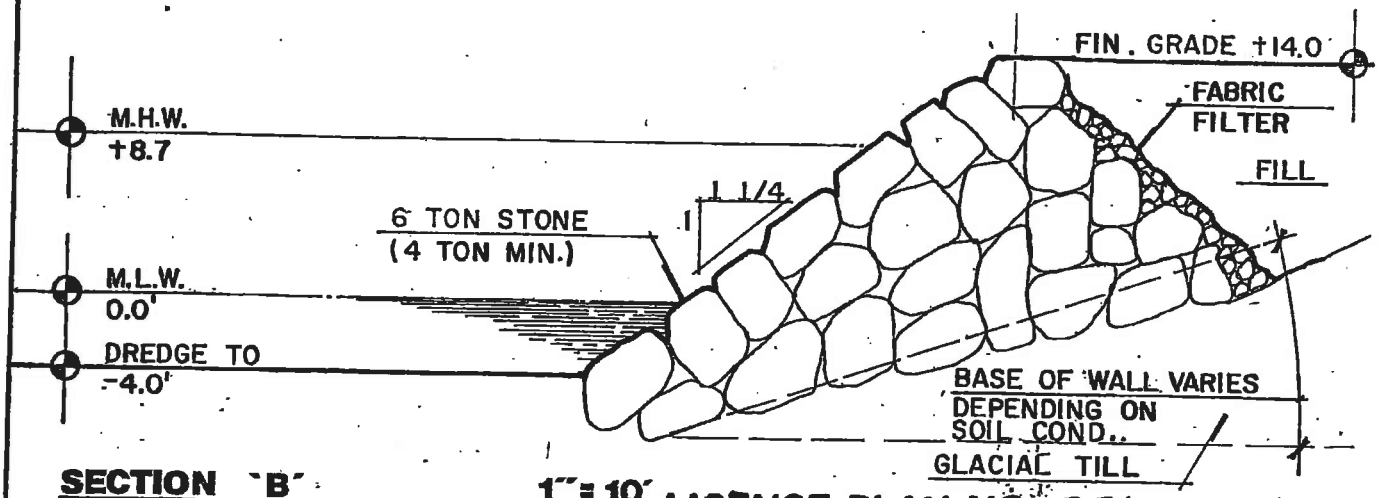
COMMISSIONER

CHIEF ENGINEER

028-053-000-016-100



PLATFORM SECTION "A" 1" = 10'



SECTION "B" 1" = 10'

ELEVATIONS BASED ON M.L.W. = 0.0'

LICENSE PLAN NO. 771

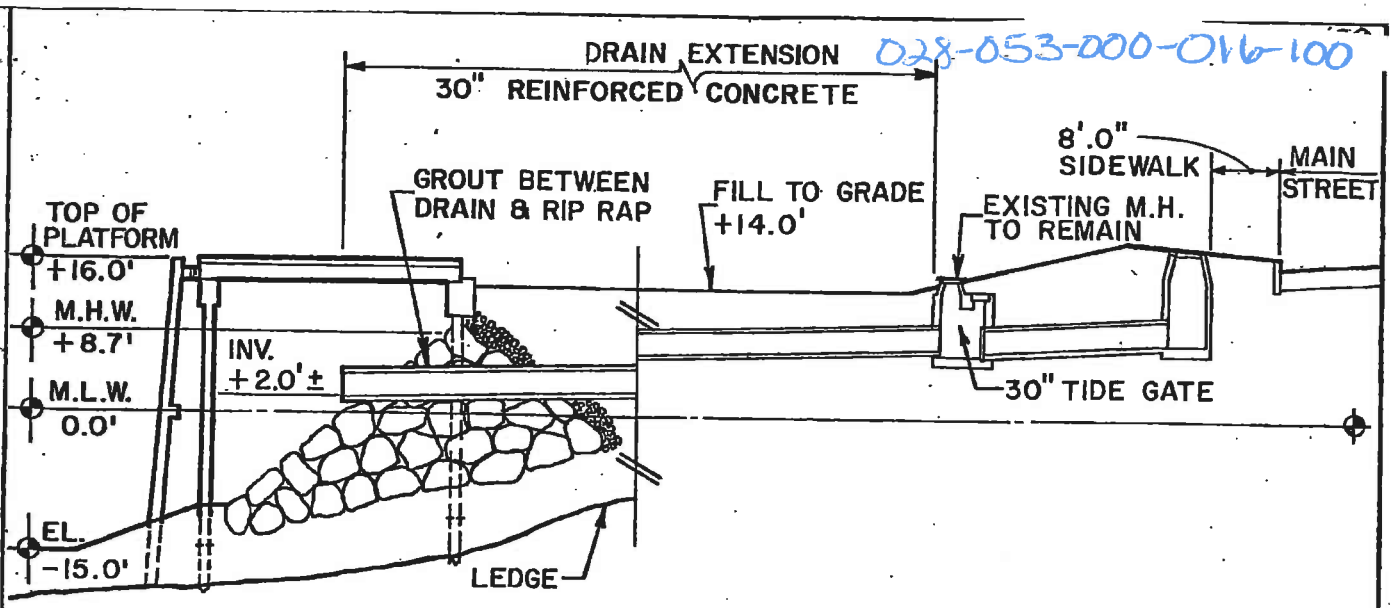
Approved by Department of Environmental Quality Engineering

FEBRUARY 5, 1982

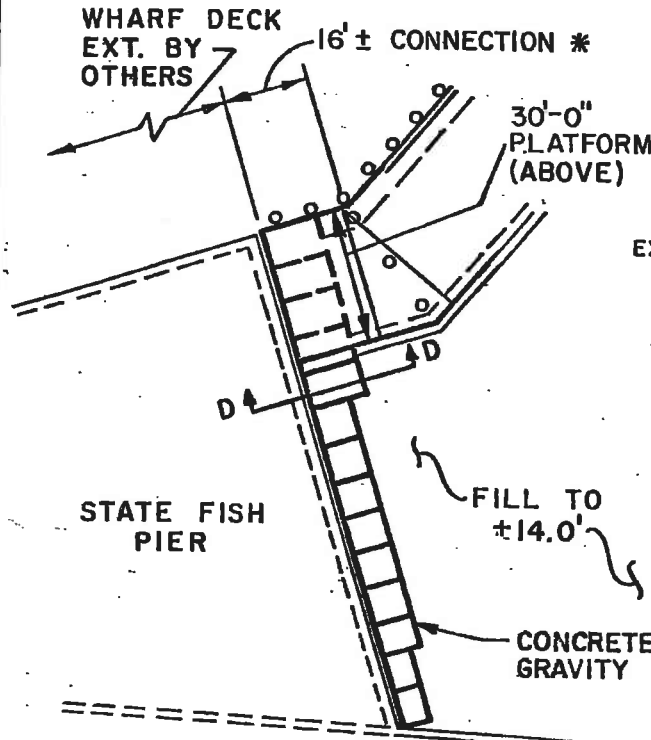
COMMONWEALTH OF MASSACHUSETTS
MORRIS S. LEVY
NO. 29579
REGISTERED PROFESSIONAL ENGINEER

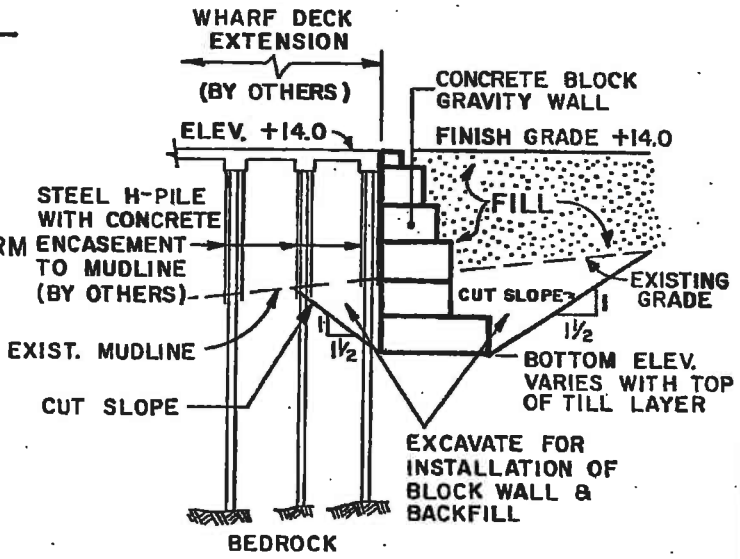
PLANS ACCOMPANYING PETITION OF THE GLOUCESTER REDEVELOPMENT AUTHORITY TO CONSTRUCT & MAINTAIN RIP RAP DIKE, FILL, CONCRETE PIERS, TIMBER PILE FENDERS, EXTEND EXISTING DRAINAGE LINES AND DREDGE, AT INNER HARBOR, GLOUCESTER,

028-053-000-016-100



SECTION 'C' 1"=20'





SECTION 'D' 1"=20'

* ACTUAL DIMENSION TO BE DETERMINED UPON COMPLETION OF STATE FISH PIER CONSTRUCTION

PLAN 'D' 1"=40'

LICENSE PLAN NO.

Approved by Department of Environmental Quality Engineering

COMMONWEALTH OF MASSACHUSETTS
MORRIS LEVY
No. 29579
REGISTERED PROFESSIONAL ENGINEER

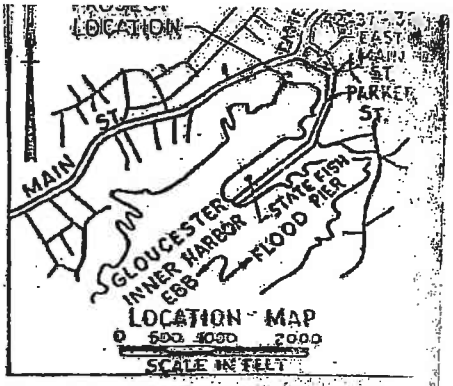
PLANS ACCOMPANYING PETITION OF THE GLOUCESTER REDEVELOPMENT AUTHORITY TO CONSTRUCT & MAINTAIN RIP RAP DIKE, FILL, CONCRETE PIERS, TIMBER PILE FENDERS, EXTEND EXISTING DRAINAGE LINES AND DREDGE, AT INNER HARBOR, GLOUCESTER.

LICENSE PLAN NO. 771

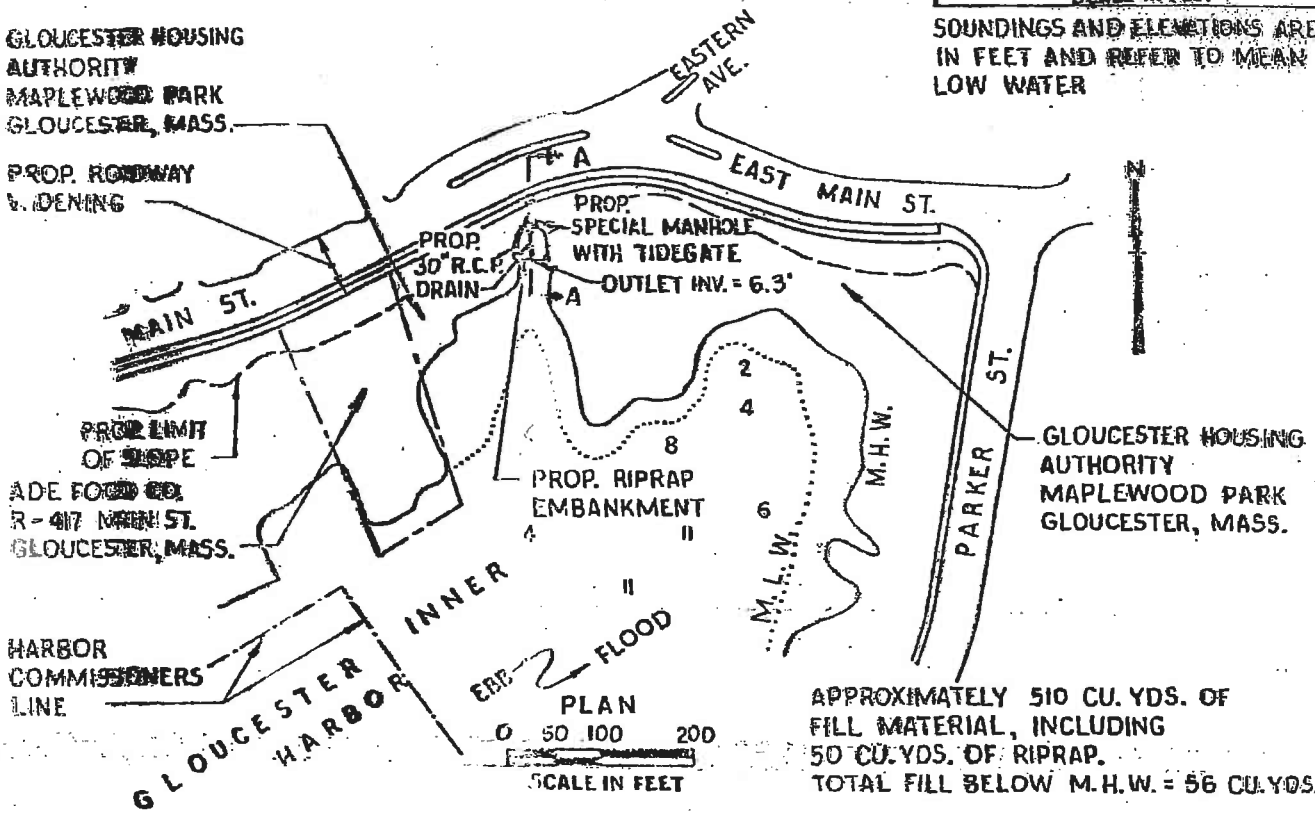
028-053-000-016-100

BERTRAM BERGER #23041 REGISTERED LAND SURVEYOR COMMONWEALTH OF MASSACHUSETTS

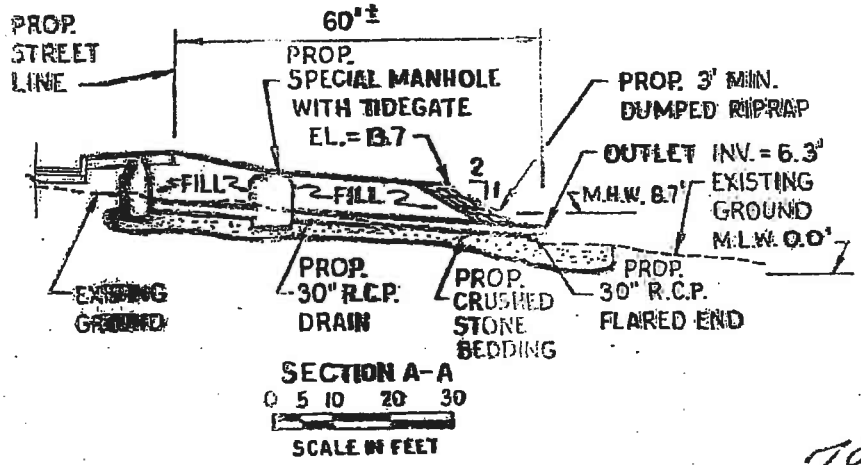
Bertram Berger R.L.S.



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



APPROXIMATELY 510 CU. YDS. OF FILL MATERIAL, INCLUDING 50 CU. YDS. OF RIPRAP.
TOTAL FILL BELOW M.H.W. = 56 CU. YDS.



PLAN ACCOMPANYING PETITION OF THE GLOUCESTER HOUSING AUTHORITY TO CONSTRUCT A 30" R.C. DRAIN AND FILL A PORTION OF THE GLOUCESTER INNER HARBOR
ESSEX COUNTY
GLOUCESTER, MASSACHUSETTS
MARCH, 1979

TGW-0031

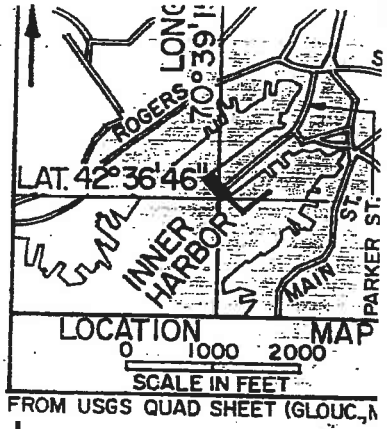
SHEET 1 OF 1

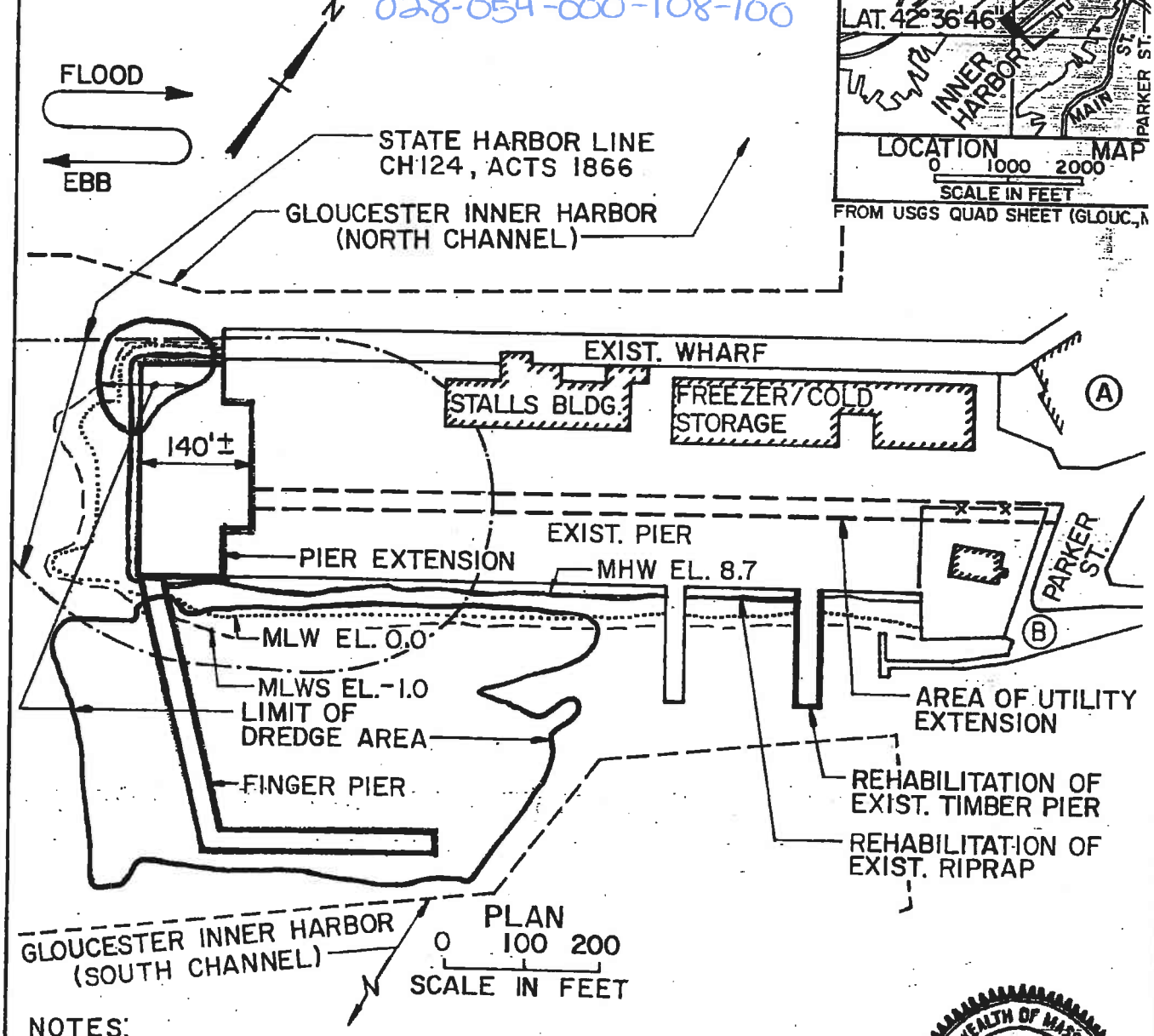
LICENSE PLAN NO. 569
Approved by Department of Environmental Quality Engineering of Massachusetts May 24, 1979
COMMISSIONER
CHIEF ENGINEER

Ⓐ - [illegible] MONTAGNINO, TRUSTEE, HEAD OF HARBOR
11 PARKER ST., GLOUCESTER, MA.

Ⓑ - PHILIP & LOIS BUDROSE
43 PARKER ST., GLOUCESTER, MA.

028-054-000-108-100





NOTES:

1. APPROXIMATELY 4,000 C.Y. OF GRANULAR FILL AND 7,000 C.Y. OF STONE RIPRAP TO BE PLACED AT PIER EXTENSION
2. APPROXIMATELY 46,000 C.Y. OF EARTH AND 2,000 C.Y. OF ROCK TO BE DREDGED FROM SITE
3. APPROXIMATELY 1,200 C.Y. OF STONE RIPRAP TO BE PLACED IN REHAB OF EXISTING RIPRAP

COMMONWEALTH OF MASSACHUSETTS
JAMES G. ROURKE 23686
REGISTERED PROFESSIONAL ENGINEER

SHEET 1 OF 5 MAY, 199

PLANS ACCOMPANYING PETITION OF MASS. DEPT. OF ENVIROMENTAL MANAGEMENT DIVISION OF WATERWAYS TO CONSTRUCT FINGER PIER, DREDGE, FILL AND PLACE RIPRAP IN GLOUCESTER HARBOR, CITY OF GLOUCESTER, COUNTY OF ESSEX, MA.
FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS
LEXINGTON, MASS.

LICENSE PLAN NO. 2511
Approved by Department of Environmental Protection
of Massachusetts

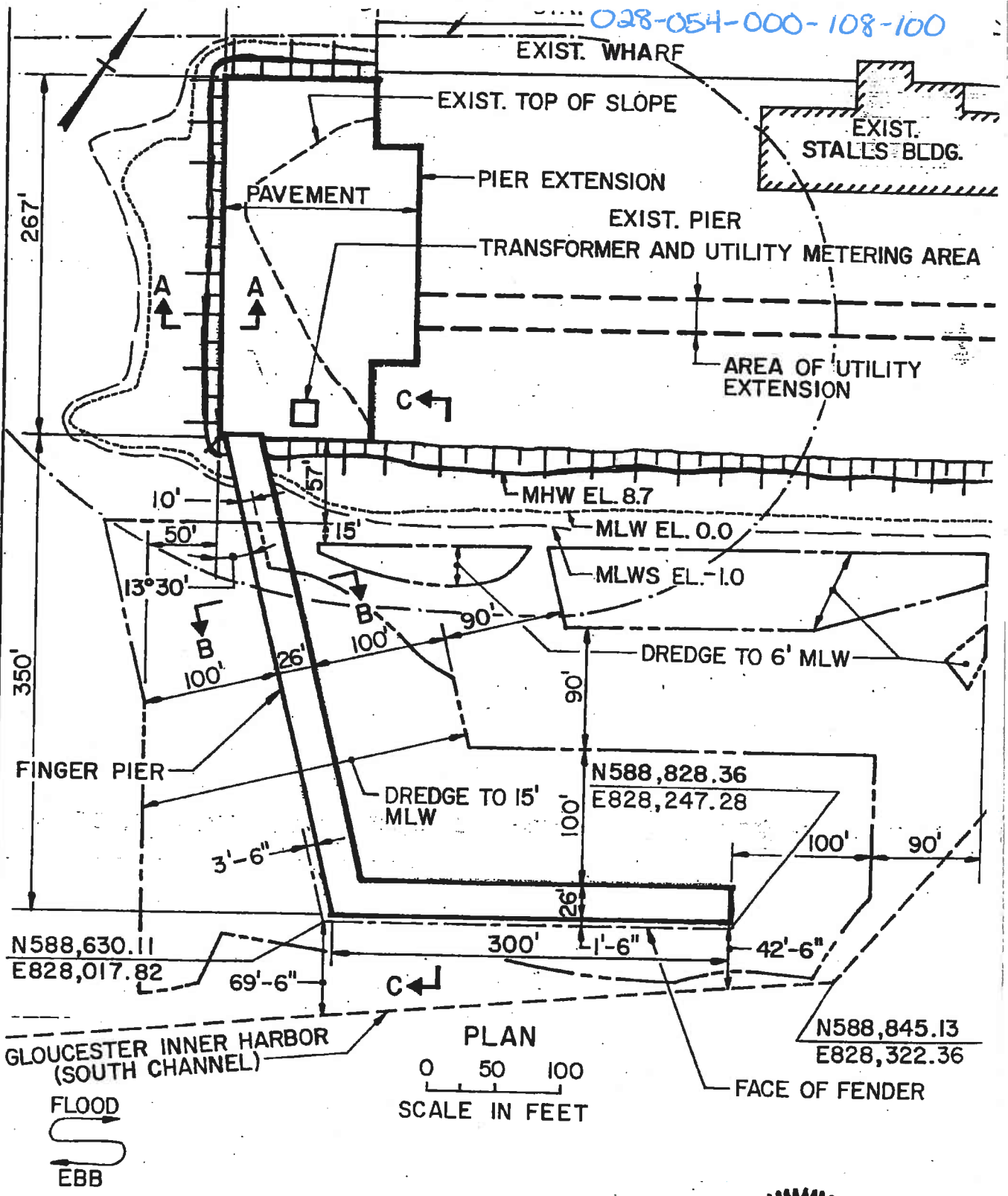
COMMISSIONER

DIVISION DIRECTOR

SECTION CHIEF

NOV 30 1990

028-054-000-108-100



COMMONWEALTH OF MASSACHUSETTS
JAMES G. ROURKE 23685
REGISTERED PROFESSIONAL ENGINEER

LICENSE PLAN NO. 2511

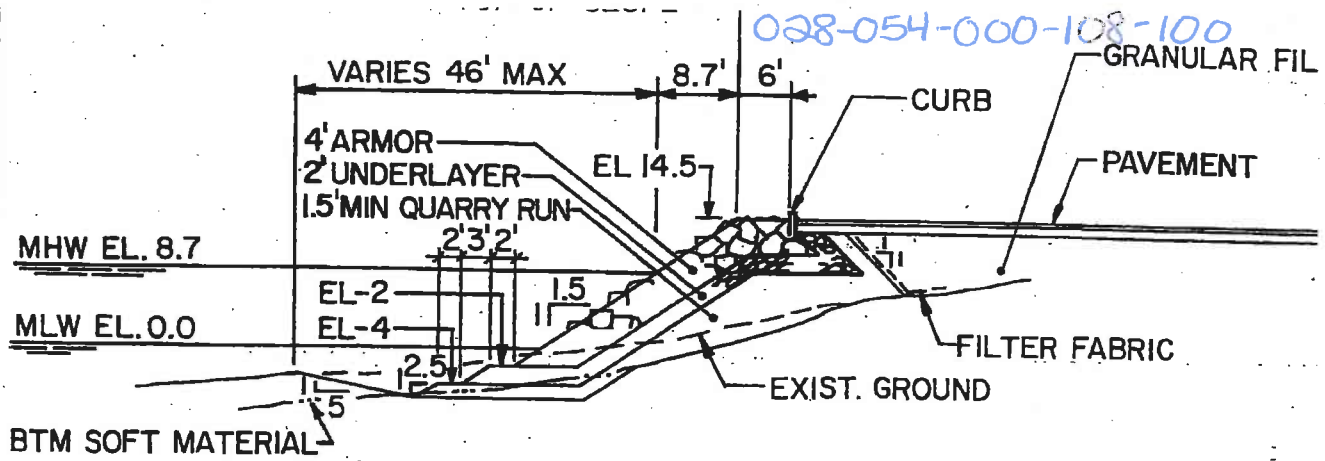
Approved by Department of Environmental Protection

Date: NOV 30 1990

FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS
LEXINGTON, MASS.

SHEET 2 OF 5 MAY 1990

028-054-000-108-100



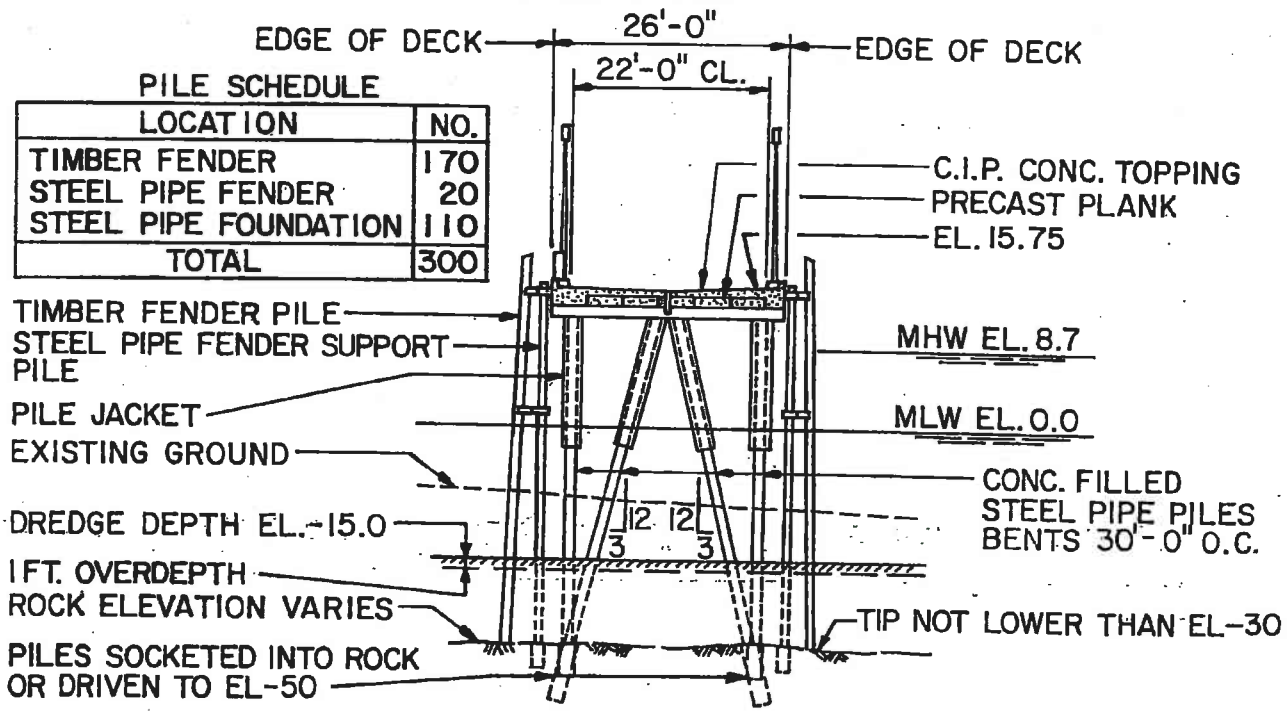
PIER EXTENSION SECTION A-A

0 10 20

SCALE IN FEET

PILE SCHEDULE

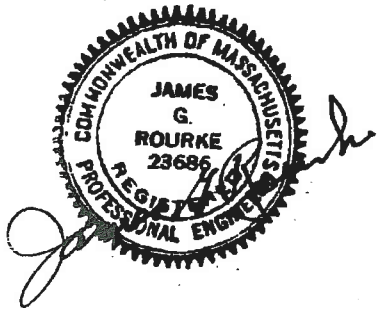
LOCATION	NO.
TIMBER FENDER	170
STEEL PIPE FENDER	20
STEEL PIPE FOUNDATION	110
TOTAL	300



TYPICAL PIER SECTION B-B

0 10 20

SCALE IN FEET



LICENSE PLAN NO. 2511

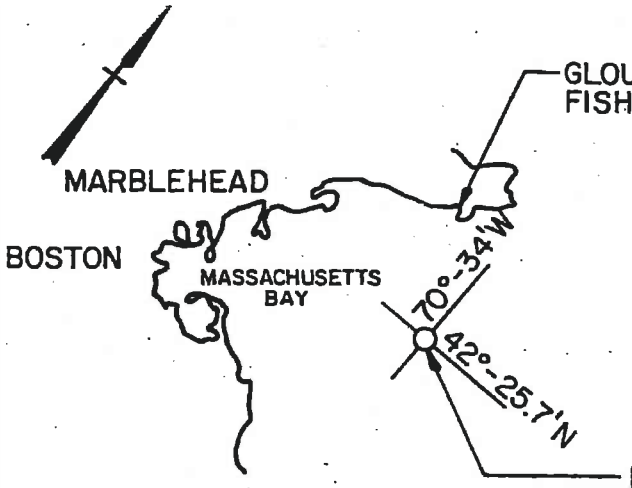
Approved by Department of Environmental Protection

Date: NOV 30 1990

FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS
LEXINGTON, MASS.

SHEET 3 OF 5 MAY 199

028-054-000-108-100



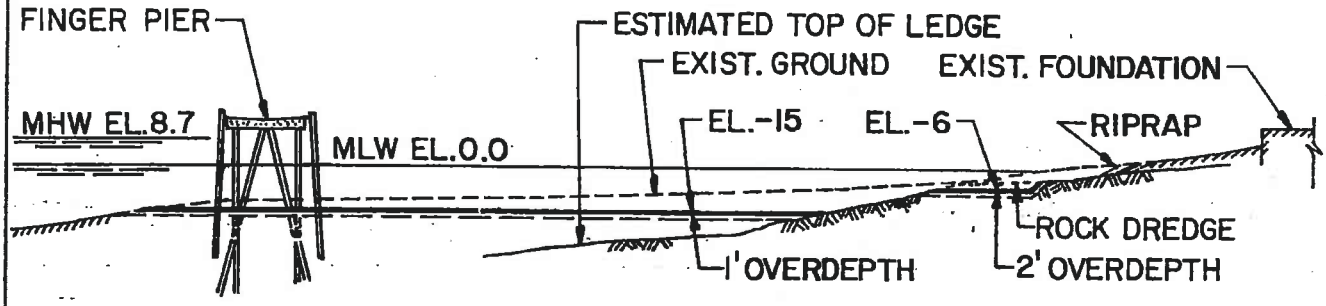
DREDGE DISPOSAL SITE

0 5 10

SCALE IN MILES

NOTES:

1. EARTH DREDGE SIDESLOPES 10 HORIZONTAL TO 1 VERTICAL
2. ROCK DREDGE SIDESLOPES 1 HORIZONTAL TO 1 VERTICAL
3. APPROXIMATE VOLUME OF EARTH DREDGING IS 46,000 C.Y.
4. APPROXIMATE VOLUME OF ROCK DREDGING IS 2,000 C.Y.



TYPICAL DREDGE SECTION C-C

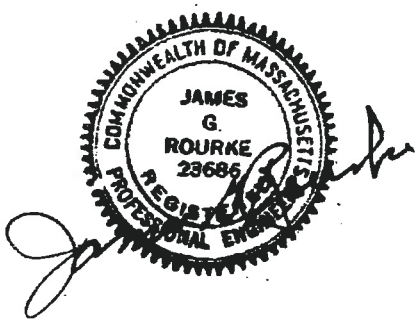
0 20 40 60

SCALE IN FEET

LICENSE PLAN NO. 2511

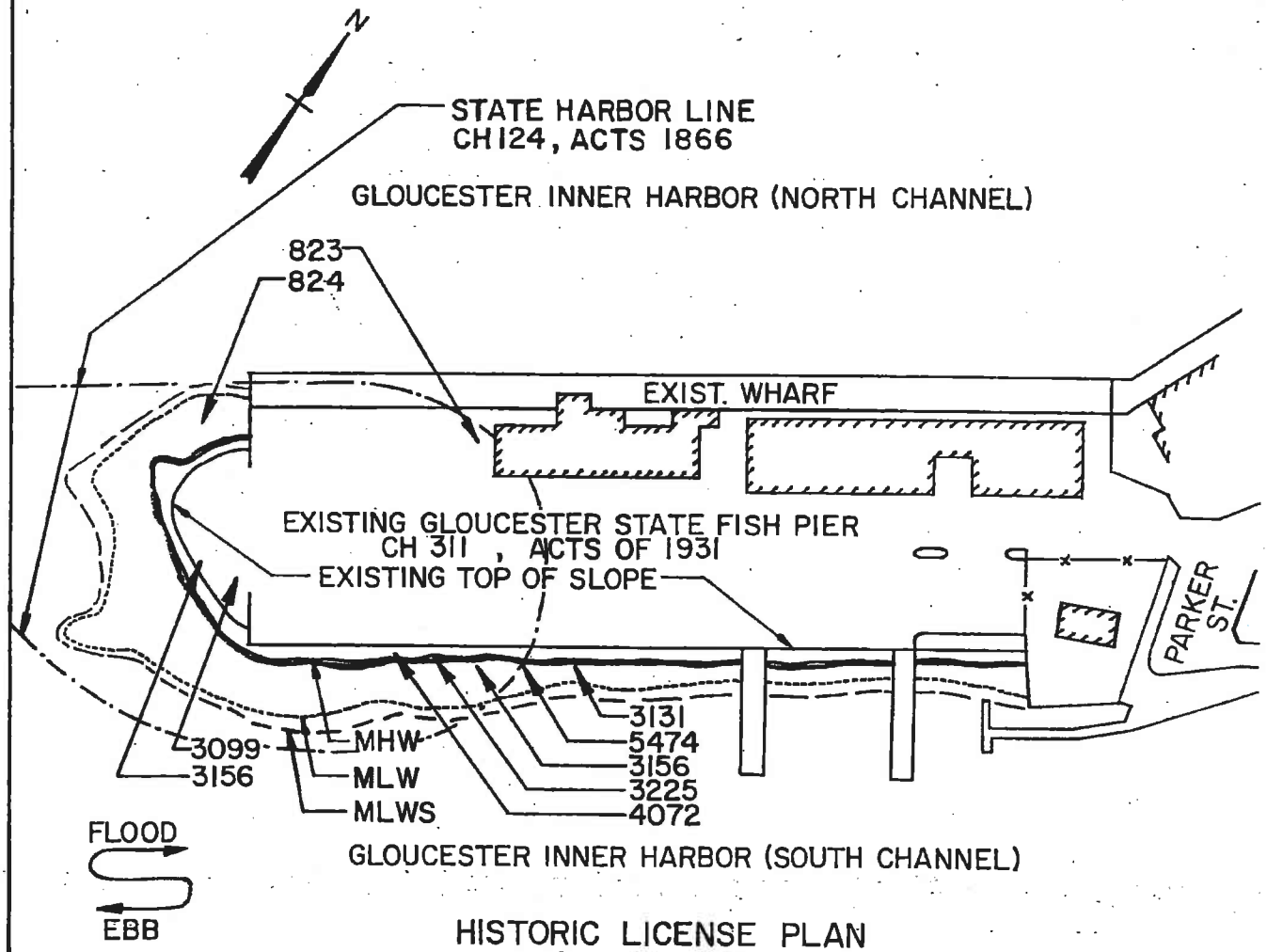
Approved by Department of Environmental Protection

Date: NOV 30 1990



FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS
LEXINGTON, MASS.

028-054-000-108-100



HISTORIC LICENSE PLAN

0 100 200

SCALE IN FEET

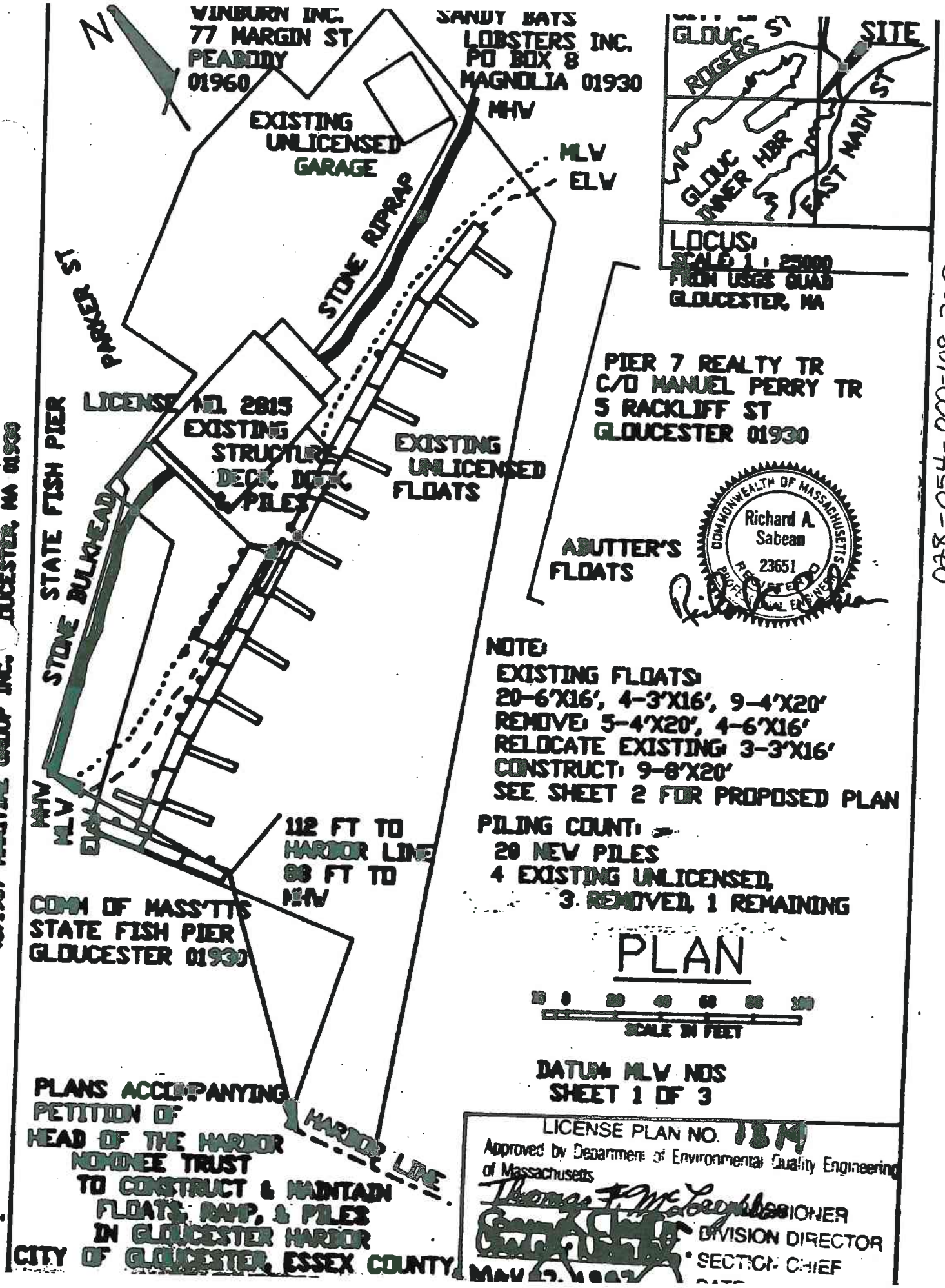
LICENSE PLAN NO. 2511

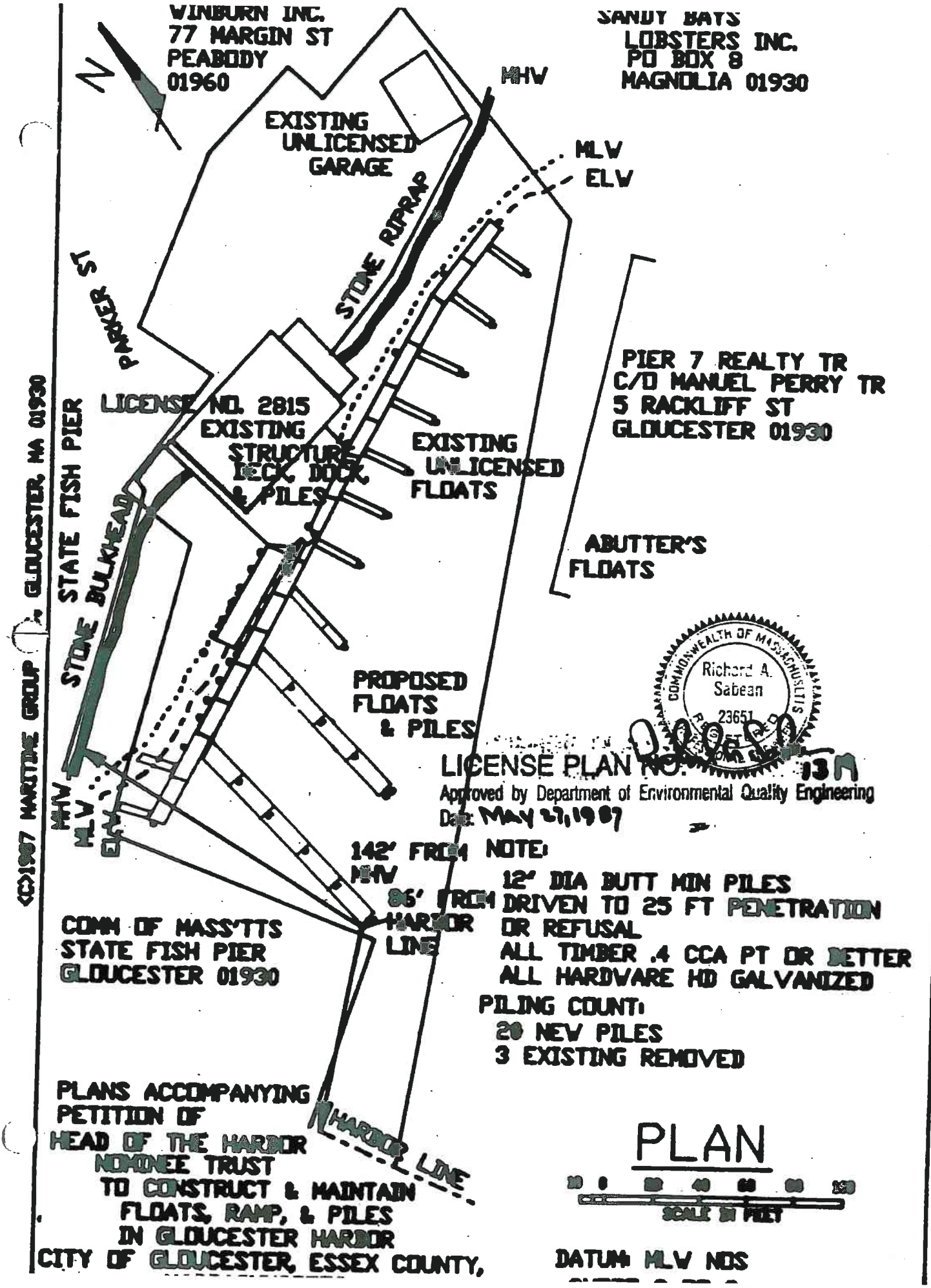
Approved by Department of Environmental Protection

Date: NOV 30 1990

COMMONWEALTH OF MASSACHUSETTS
JAMES G. ROURKE 23686
REGISTERED PROFESSIONAL ENGINEER

FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS





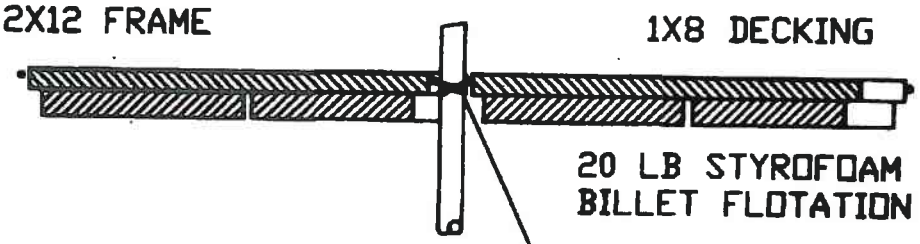
028-054-000-108-200

4X12 BACKERS IN WAY OF CLEATS-2 FT LONG MIN

2X12 FRAME

1X8 DECKING

20 LB STYROFOAM
BILLET FLOTATION



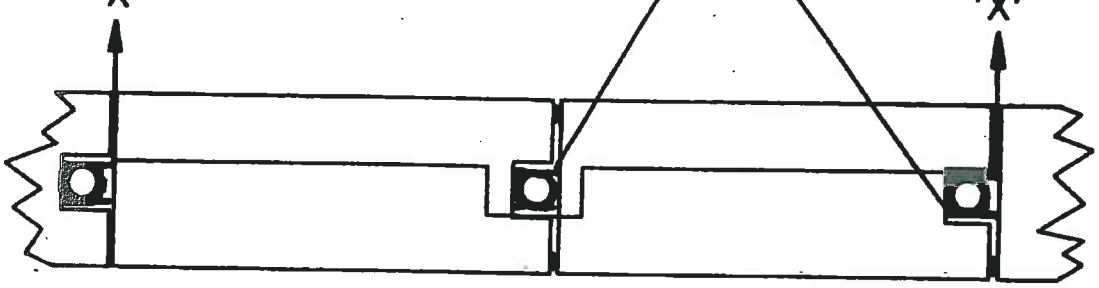
SECTION 'X'-'X'

1 0 2 4 6 8 10
SCALE IN FEET

3/8 DIA HD GALV
CHAIN BRIDLE

'X'

'X'



PLAN - 8 FT X 20 FT FLOATS

1 0 2 4 6 8 10
SCALE IN FEET

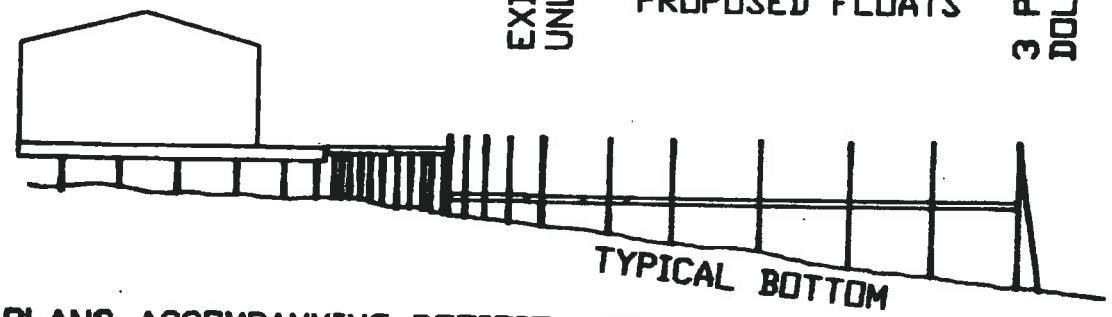
EXISTING STRUCTURE,
DECK, DOCK, & PILES
LIC. NO. 2815

EXISTING UNLIC. FLOATS

LICENSE PLAN NO. 1319
Approved by Department of Environmental Quality Engineering
Date: MAY 22 1987

PROPOSED FLOATS

3 PILE DOLPHIN



DECK
EL 13.0
MHW
EL 8.6
MLW
EL 0.0
ELW
EL -1.0

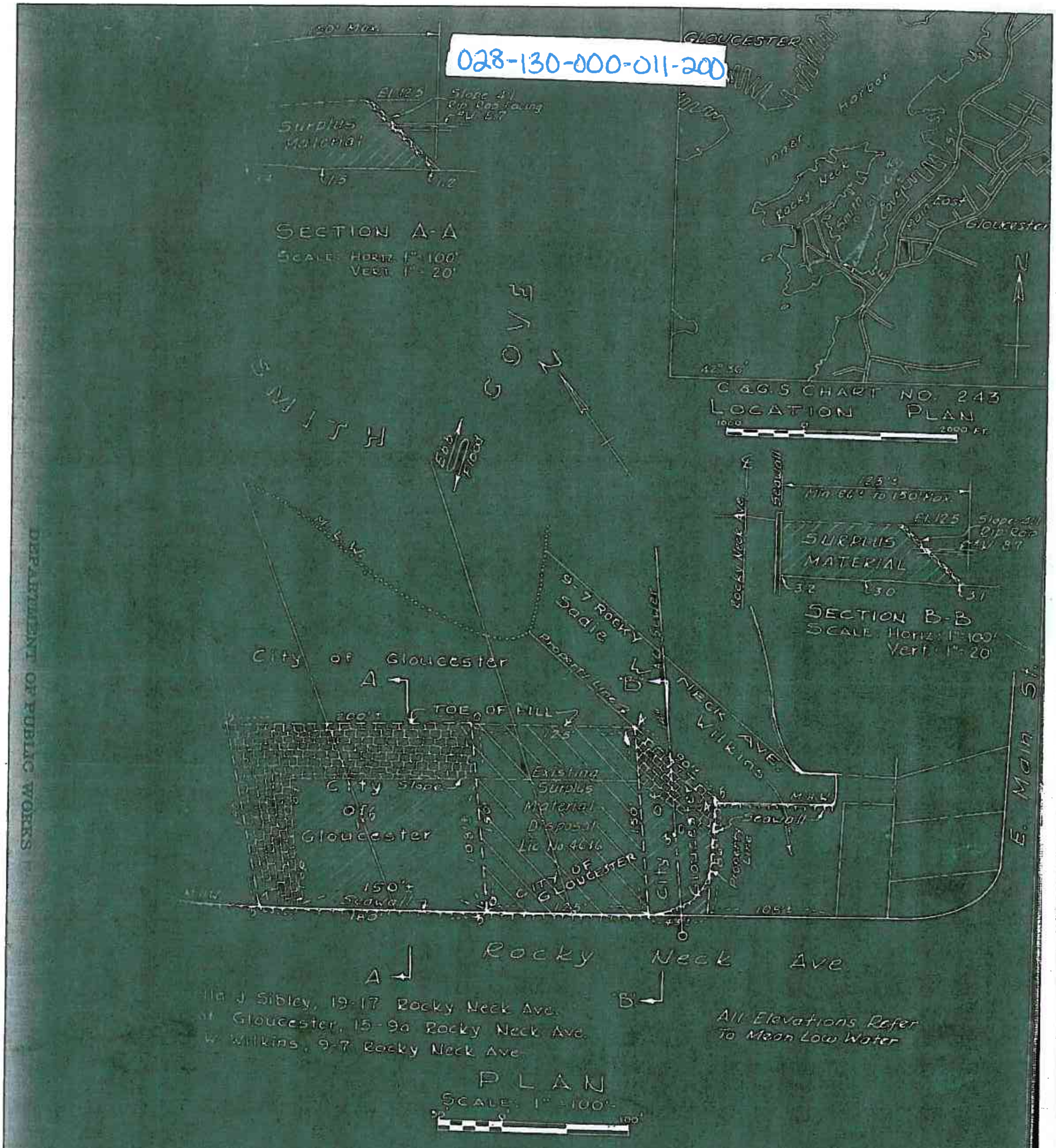
PLANS ACCOMPANYING PETITION OF
HEAD OF THE HARBOR
NOMINEE TRUST
TO CONSTRUCT & MAINTAIN
FLOATS, RAMP, & PILES
IN GLOUCESTER HARBOR
CITY OF GLOUCESTER, ESSEX COUNTY
MASSACHUSETTS

WESTERLY ELEVATION

10 0 20 40 60 80 100
SCALE IN FEET

DATUM: MLW NOS

028-130-000-011-200



J. Sibley, 19-17 Rocky Neck Ave.
Gloucester, 15-9a Rocky Neck Ave.
W. Wilkins, 9-7 Rocky Neck Ave.

ACCOMPANYING PETITION OF
CITY OF GLOUCESTER, MASS.
TO DISPOSE OF SURPLUS BOULDER & LEDGE MATERIAL
IN
SMITH COVE, GLOUCESTER HARBOR
GLOUCESTER, MASS.

LICENSE PLAN NO. 4854
APPROVED BY DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS, AUGUST 11, 1964

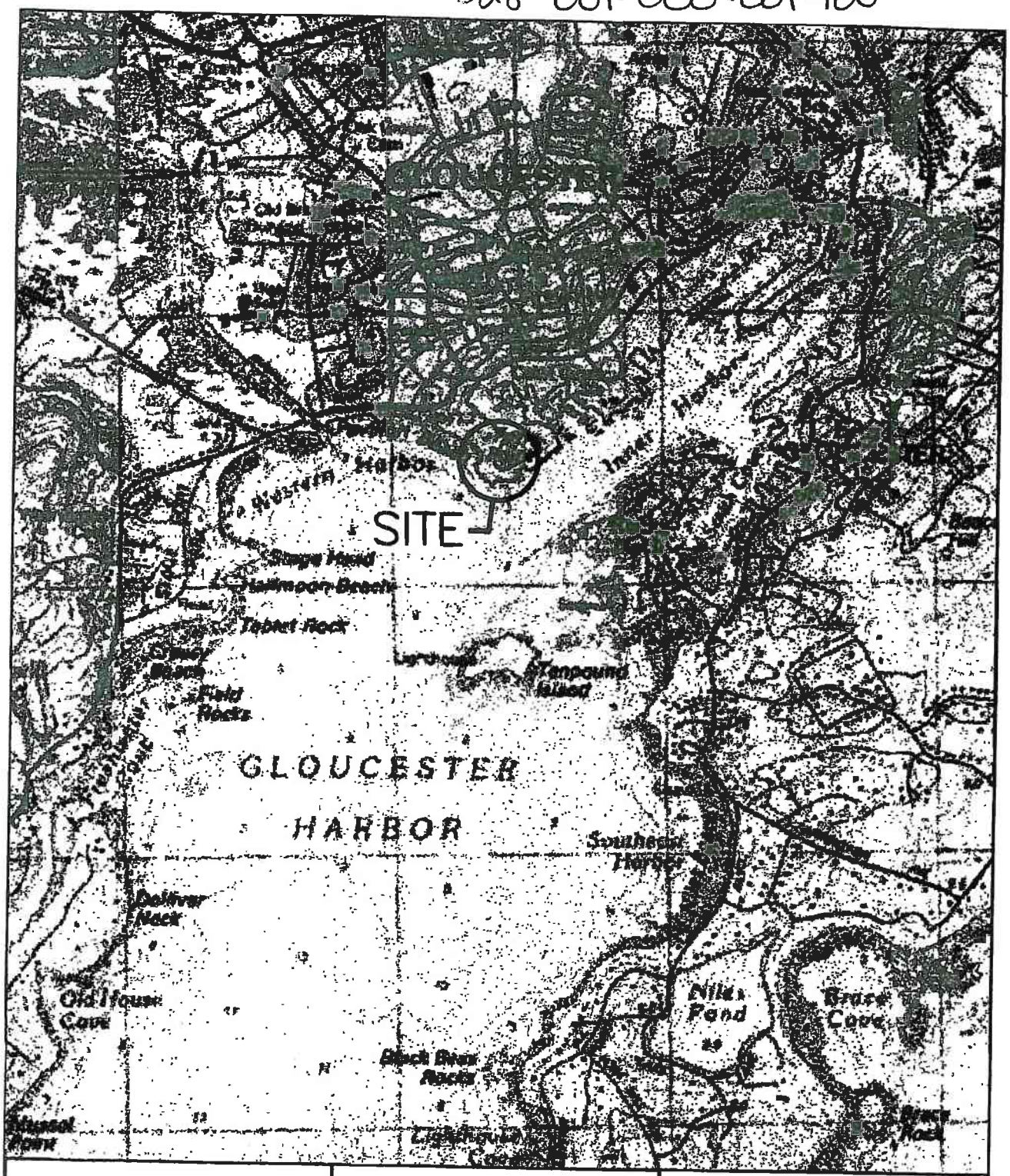
[signature] COMMISSIONER - DEPT. OF PUBLIC WORKS

Thomas Wargent
R. K. Dwight
A. C. Poselli
[signature]
ASSOCIATE COMMISSIONERS

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

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
028-001-000-001-100	028-001-000-001-100-COE1A	200002537	USACE	Gloucester	July 2001	City of Gloucester - Fort Square Seawall	8	Fort Square	New Bulkhead and Repairs to Existing Bulkhead
028-003-000-072-100	028-003-000-072-100-COE1A	200002536	USACE	Gloucester	September 2000	Reconstruction of Stone Bulkhead - Stacy Boulevard, Gloucester Harbor, Gloucester	12	Stacy Boulevard	Stone Bulkhead Reconstruction
028-003-000-072-100	028-003-000-072-100-COE1B	200201357	USACE	Gloucester	June 2002	City of Gloucester - Stacey Boulevard	10	Stacey Boulevard - Annisquam Canal	Seawall
028-003-000-072-200	028-003-000-072-200-COE2A	200002536	USACE	Gloucester	September 2000	Reconstruction of Stone Bulkhead - Stacey Boulevard - Gloucester Harbor, Gloucester, MA	12	Stacey Boulevard	Stone Bulkhead Reconstruction
028-007-000-005-100	028-007-000-005-100-COE1A	19840164	USACE	Gloucester	January 1984	Proposed Site Construction on Gloucester Harbor at Gloucester, MA	1	Rogers Street and Parsons Street	Steel Bulkhead
028-007-000-016-200	028-007-000-016-200-COE2A	3256	USACE	Gloucester	July 1954	Proposed Seawall Harbor Cove - Gloucester Harbor, Gloucester, Massachusetts	1	Harbor Cove	Seawall
028-009-000-014-100	028-009-000-014-100-COE1A	73-121	USACE	Gloucester	May 26, 1972	Proposed Shore and Marine Work in Gloucester Harbor at Gloucester, County of Essex, State of Massachusetts	10	Harbor Loop	Riprap and Granite Wall
028-053-000-016-100	028-053-000-016-100-COE1A	79-233	USACE	Gloucester	March 1979	Plan Accompanying Application of the Gloucester Housing Authority to Construct a 30" R.C. Drain and Fill a Portion of the Gloucester Inner Harbor	1	East Main Street and Eastern Avenue	Riprap and Fill
028-054-000-108-100	028-054-000-108-100-COE1A	78-476	USACE	Gloucester	June 9, 1976	Proposed Expansion of Docking Facilities in Gloucester Inner Harbor at Gloucester, County of Essex, Massachusetts	7	State Pier	Wharf Extension, Riprap
028-054-000-108-200	028-054-000-108-200-COE2A	78-476	USACE	Gloucester	June 9, 1976	Proposed Expansion of Docking Facilities in Gloucester Inner Harbor at Gloucester, County of Essex, Massachusetts	7	State Pier	Wharf Extension and Riprap
028-058-000-040-100	028-058-000-040-100-COE1A	200002538	USACE	Gloucester	July 2001	City of Gloucester - Cripple Cove Seawall	6	East Main Street	Revetment and Seawall Repairs
028-058-000-040-200	028-058-000-040-200-COE2A	200002538	USACE	Gloucester	July 2001	City of Gloucester - Cripple Cove Seawall	6	East Main Street	Revetment and Seawall Repairs
028-064-000-061-100	028-064-000-061-100-COE1A	200000986	USACE	Gloucester	April 2000	City of Gloucester - Robinson's Landing	3	Smith Cove	Bulkhead

028-001-000-001-100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

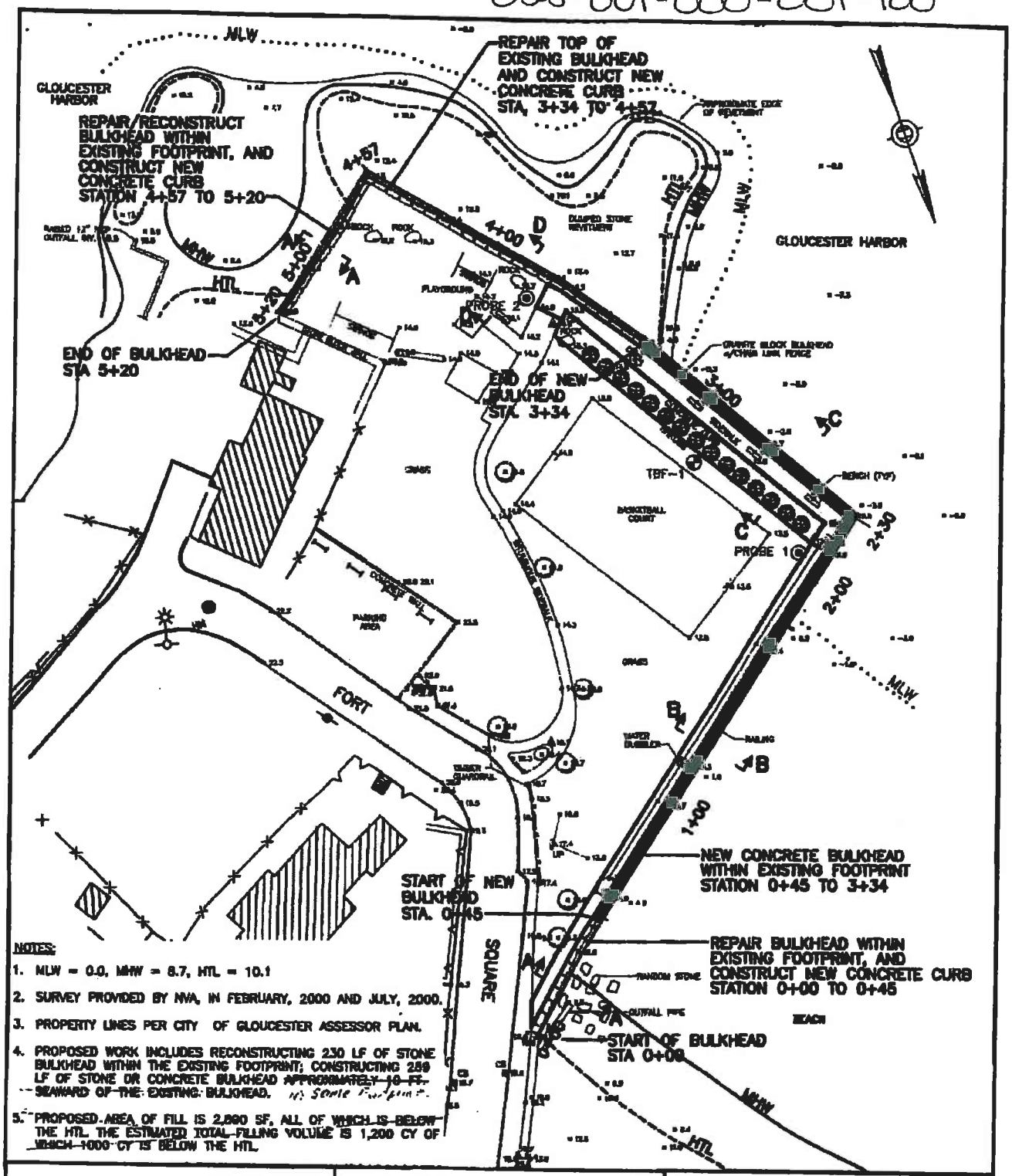
LOCUS PLAN

AT: GLOUCESTER HARBOR
FORT SQUARE
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: JULY. 2001 SHEET 1 OF 8

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-001-000-001-100



NOTES:

1. MLW = 0.0, MHW = 8.7, HTL = 10.1
2. SURVEY PROVIDED BY NVA, IN FEBRUARY, 2000 AND JULY, 2000.
3. PROPERTY LINES PER CITY OF GLOUCESTER ASSESSOR PLAN.
4. PROPOSED WORK INCLUDES RECONSTRUCTING 230 LF OF STONE BULKHEAD WITHIN THE EXISTING FOOTPRINT; CONSTRUCTING 289 LF OF STONE OR CONCRETE BULKHEAD APPROXIMATELY 10 FT SEAWARD OF THE EXISTING BULKHEAD. w/ Stone Footprint
5. PROPOSED AREA OF FILL IS 2,800 SF, ALL OF WHICH IS BELOW THE HTL. THE ESTIMATED TOTAL FILLING VOLUME IS 1,200 CY OF WHICH 1000 CY IS BELOW THE HTL.

DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

50 0 50
SCALE IN FEET

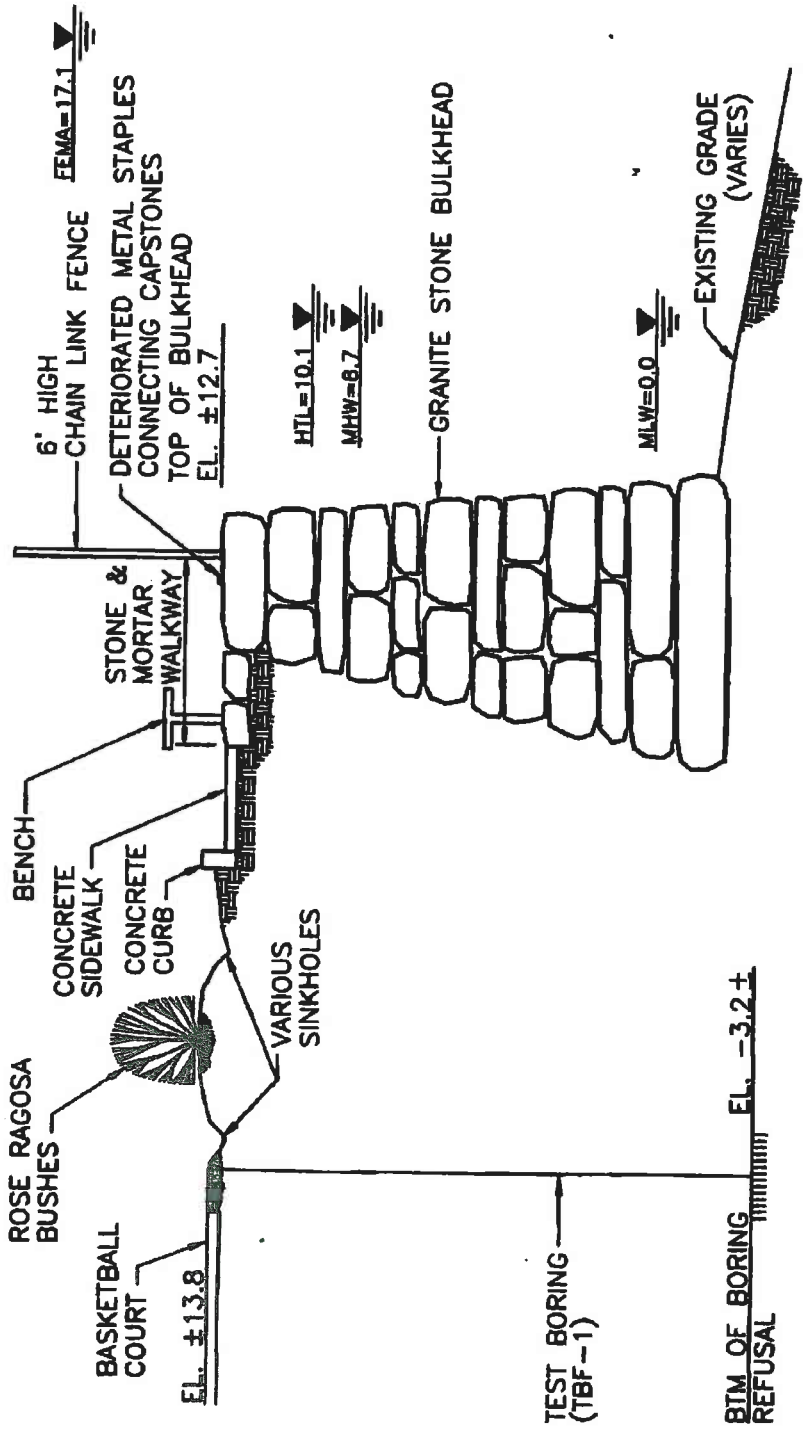
PROPOSED WORK PLAN

AT: GLOUCESTER HARBOR
FORT SQUARE
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: JULY, 2001 SHEET 2 OF 8

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-001-000-001-100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

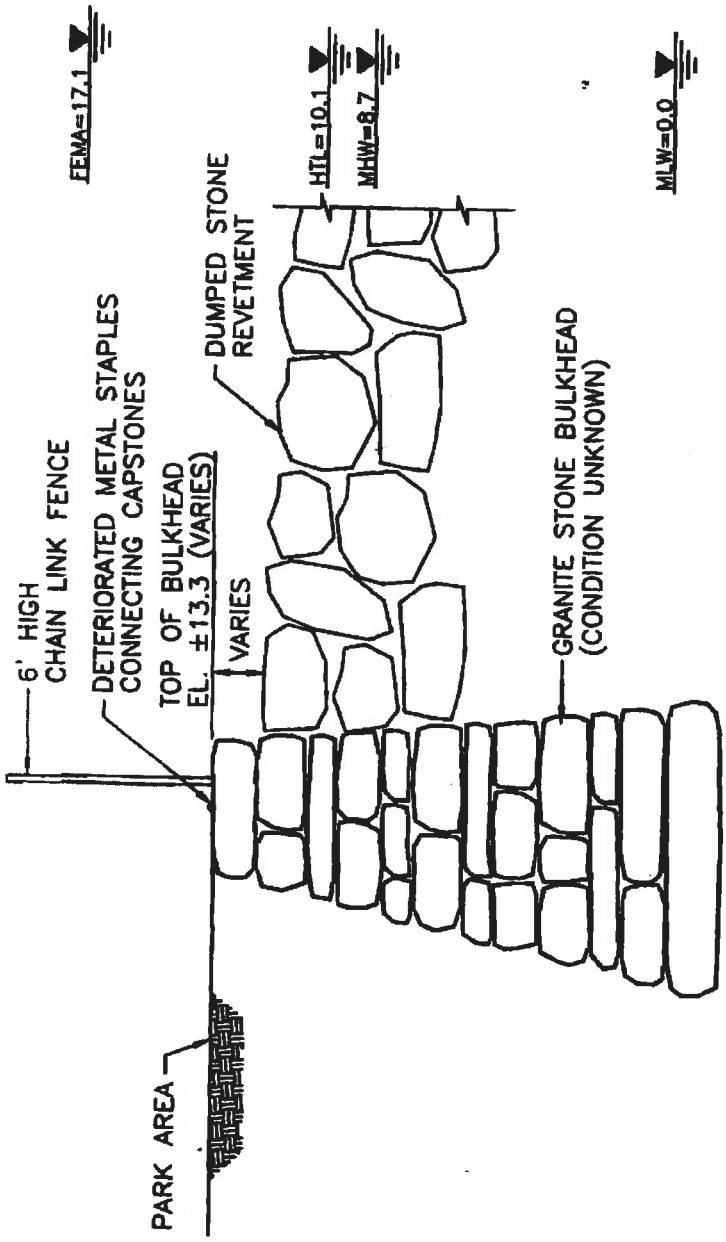
TYPICAL EXISTING BULKHEAD SECTION

STA. 0+00 TO 3+30
STA. 4+57 TO 5+20

AT: GLOUCESTER HARBOR
FORT SQUARE
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS
DATE: APRIL. 2001 SHEET 3 OF 8

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-001-000-001-100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

TYPICAL EXISTING BULKHEAD SECTION STA. 3+30 TO 4+57

AT: GLOUCESTER HARBOR
FORT SQUARE

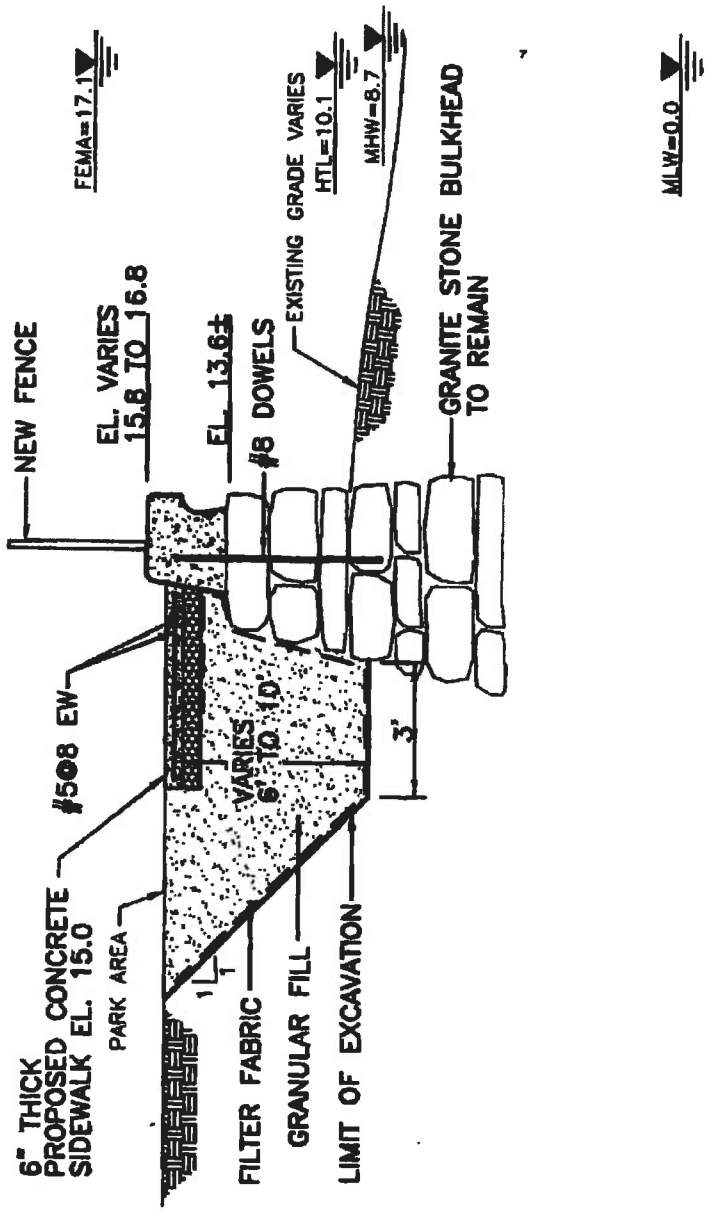
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: APRIL 2001 SHEET 4 OF 8

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-001-000-001-100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

PROPOSED BULKHEAD SECTION A–A
STA. 0+00 TO 0+45
STA. 4+57 TO 5+20

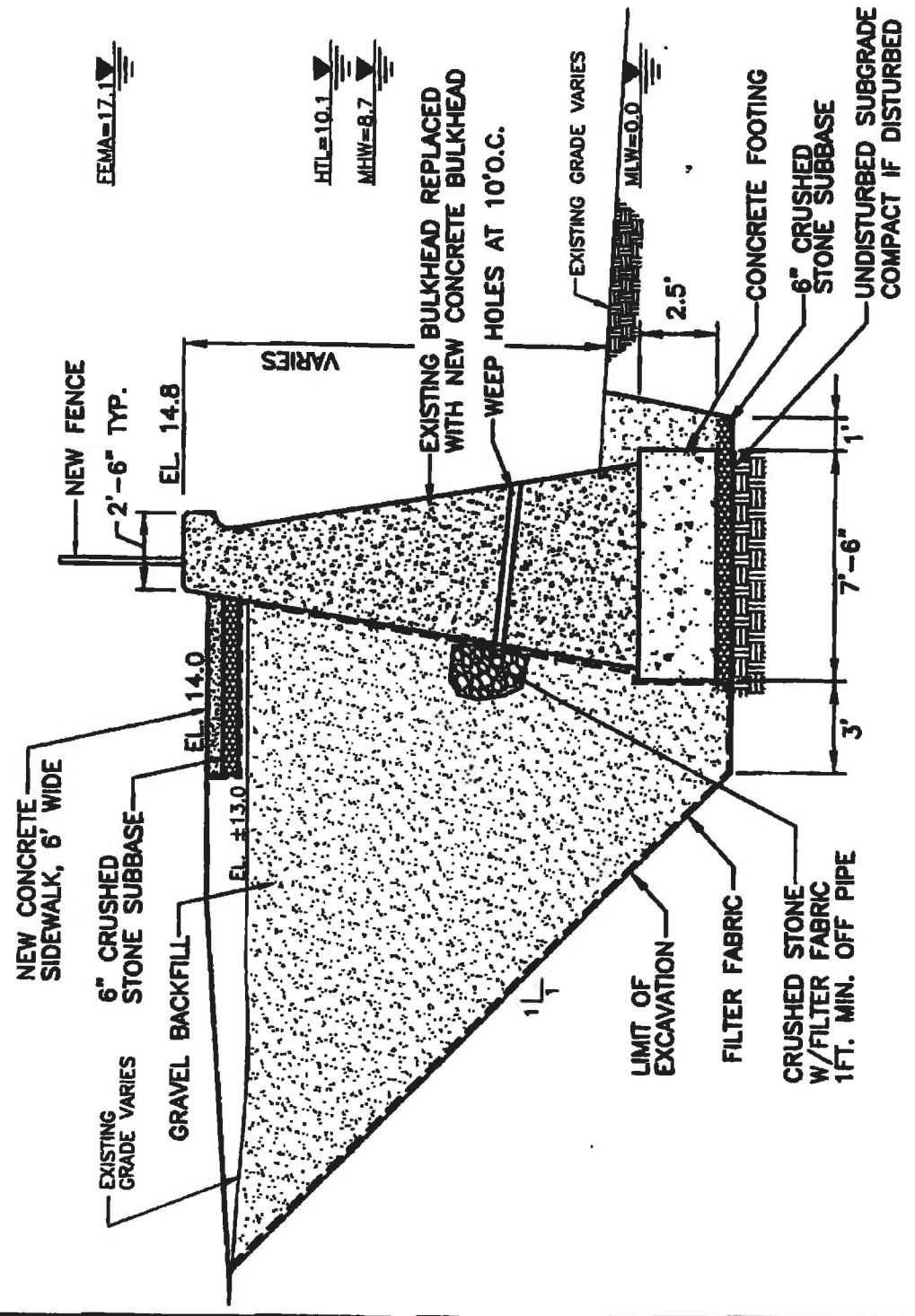
AT: GLOUCESTER HARBOR
FORT SQUARE
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: APRIL 2001 SHEET 5 OF 8

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-001-000-001-100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

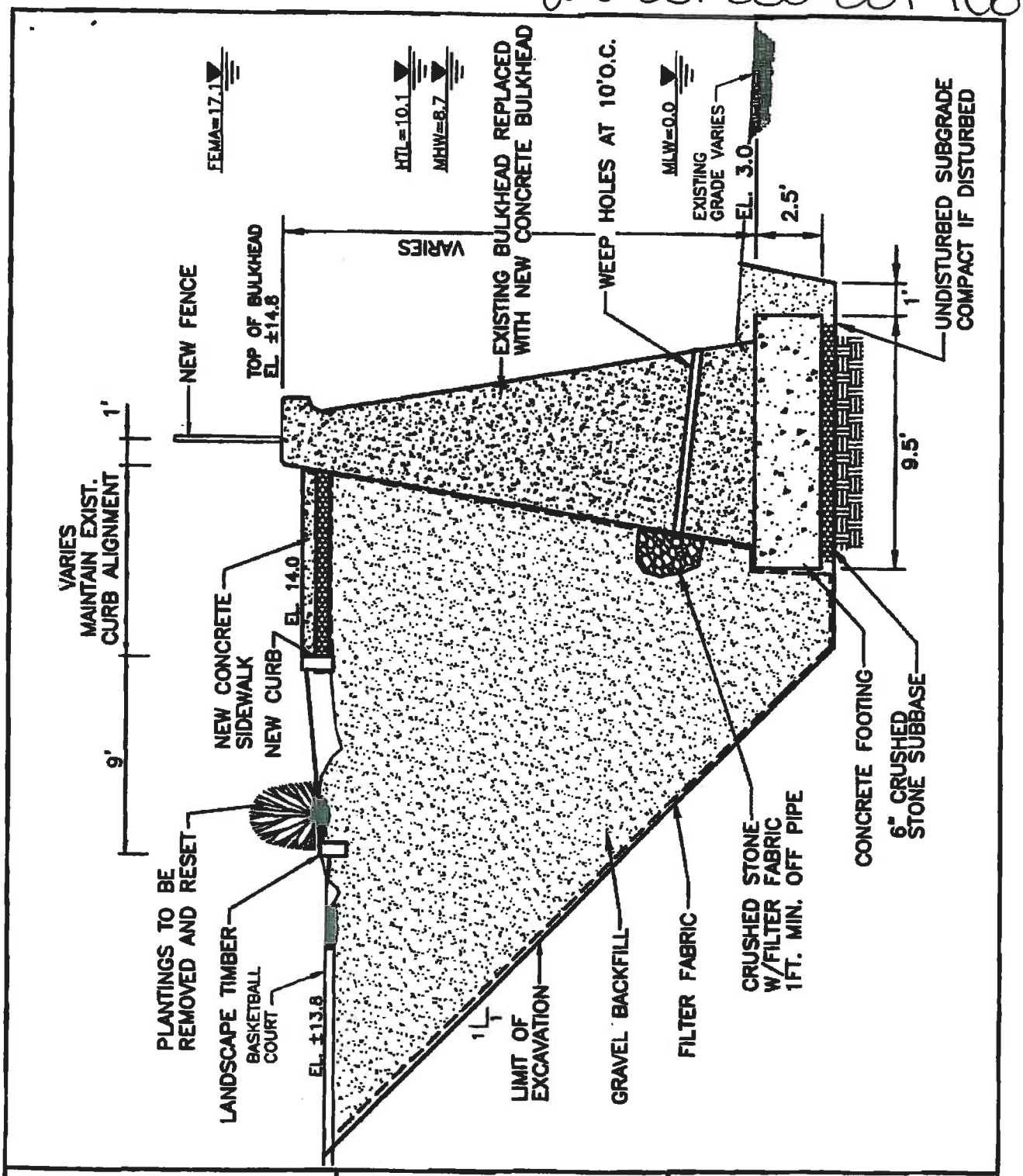
5 0 5
SCALE IN FEET

PROPOSED BULKHEAD SECTION B–B STA. 0+45 TO 1+80

AT: GLOUCESTER HARBOR
FORT SQUARE
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS
DATE: APRIL 2001 SHEET 6 OF 8

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-001-000-001-100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

8 0 8
SCALE IN FEET

PROPOSED BULKHEAD SECTION C–C STA. 1+80 TO 3+34

AT: GLOUCESTER HARBOR
FORT SQUARE

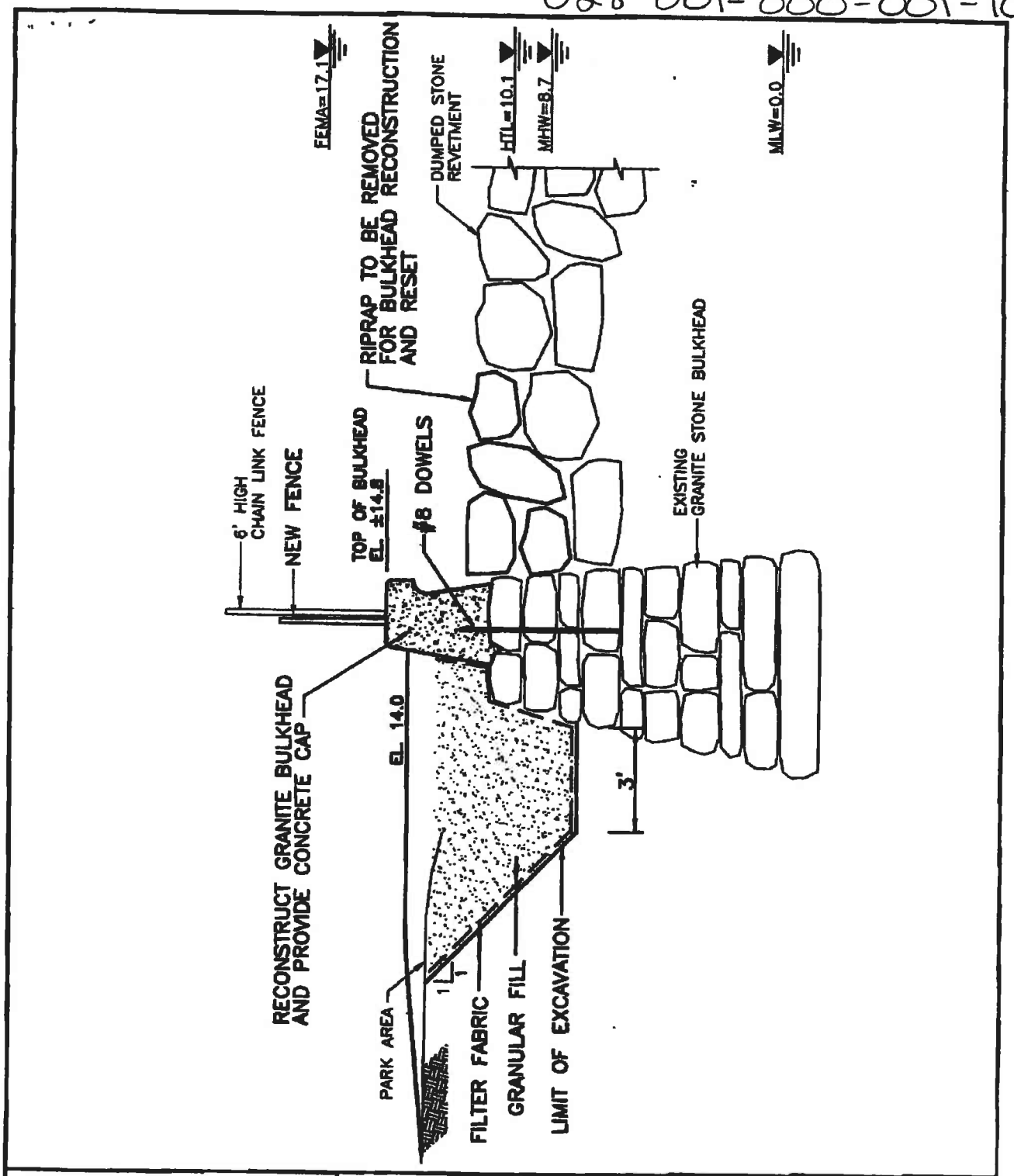
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: APRIL 2001 SHEET 7 OF 8

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-001-000-001-100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

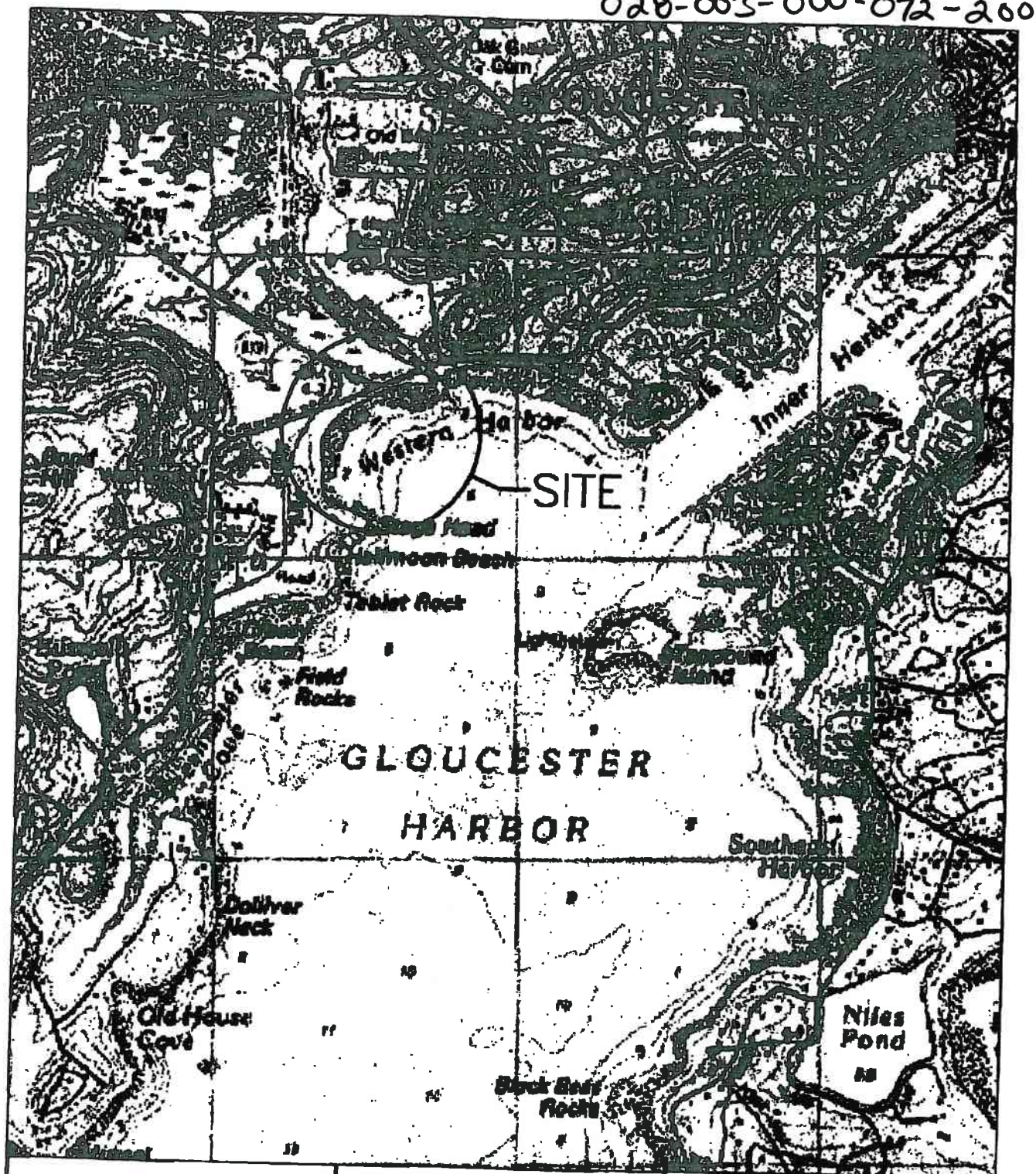
5 0 5
SCALE IN FEET

PROPOSED BULKHEAD SECTION D–D STA. 3+34 TO 4+57

AT: GLOUCESTER HARBOR
FORT SQUARE
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS
DATE: APRIL. 2001 SHEET 8 OF 8

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100
028-003-000-072-200



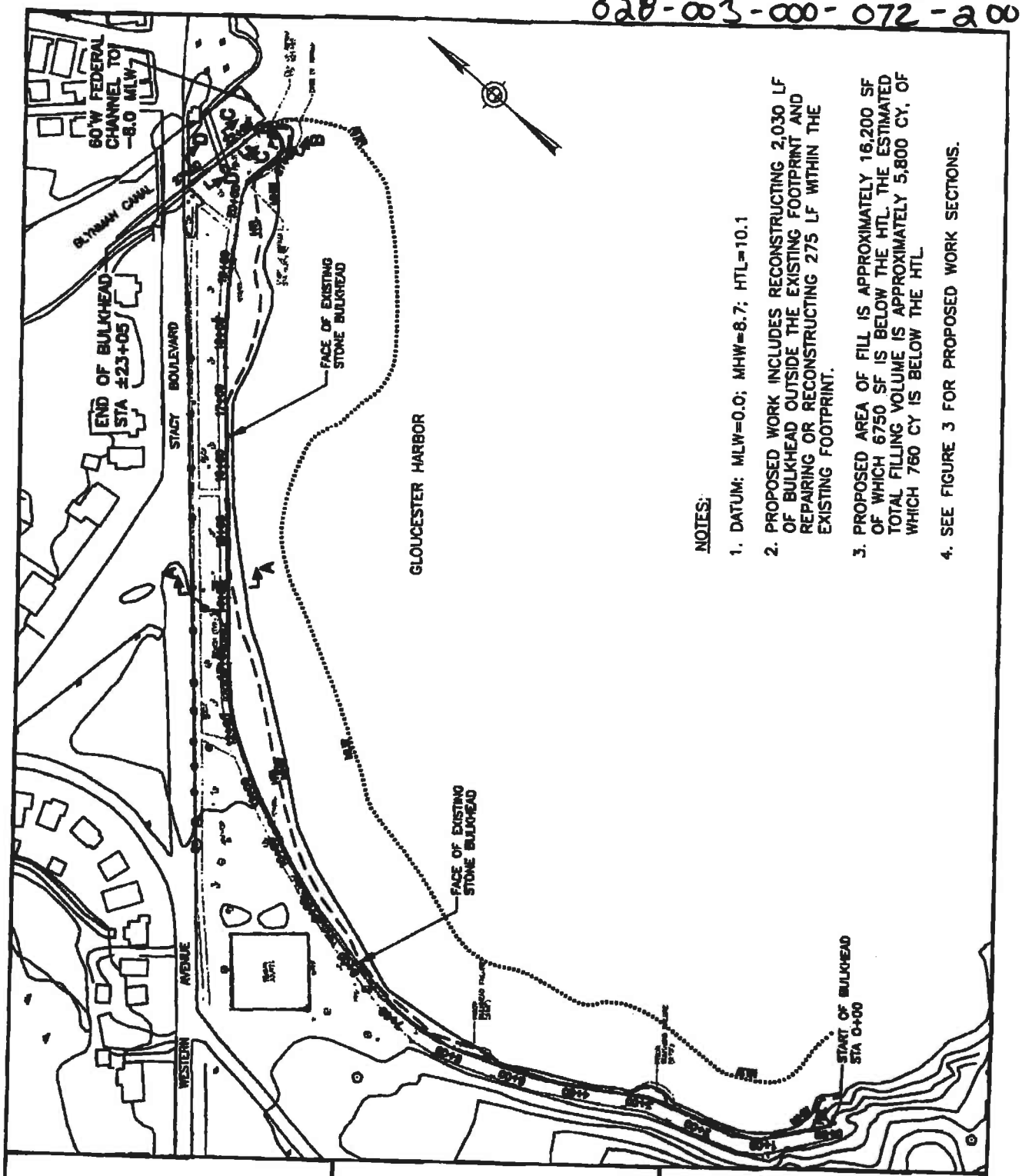
DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

LOCUS PLAN

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS
DATE: SEPT 2000 SHEET 1 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100
028-003-000-072-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

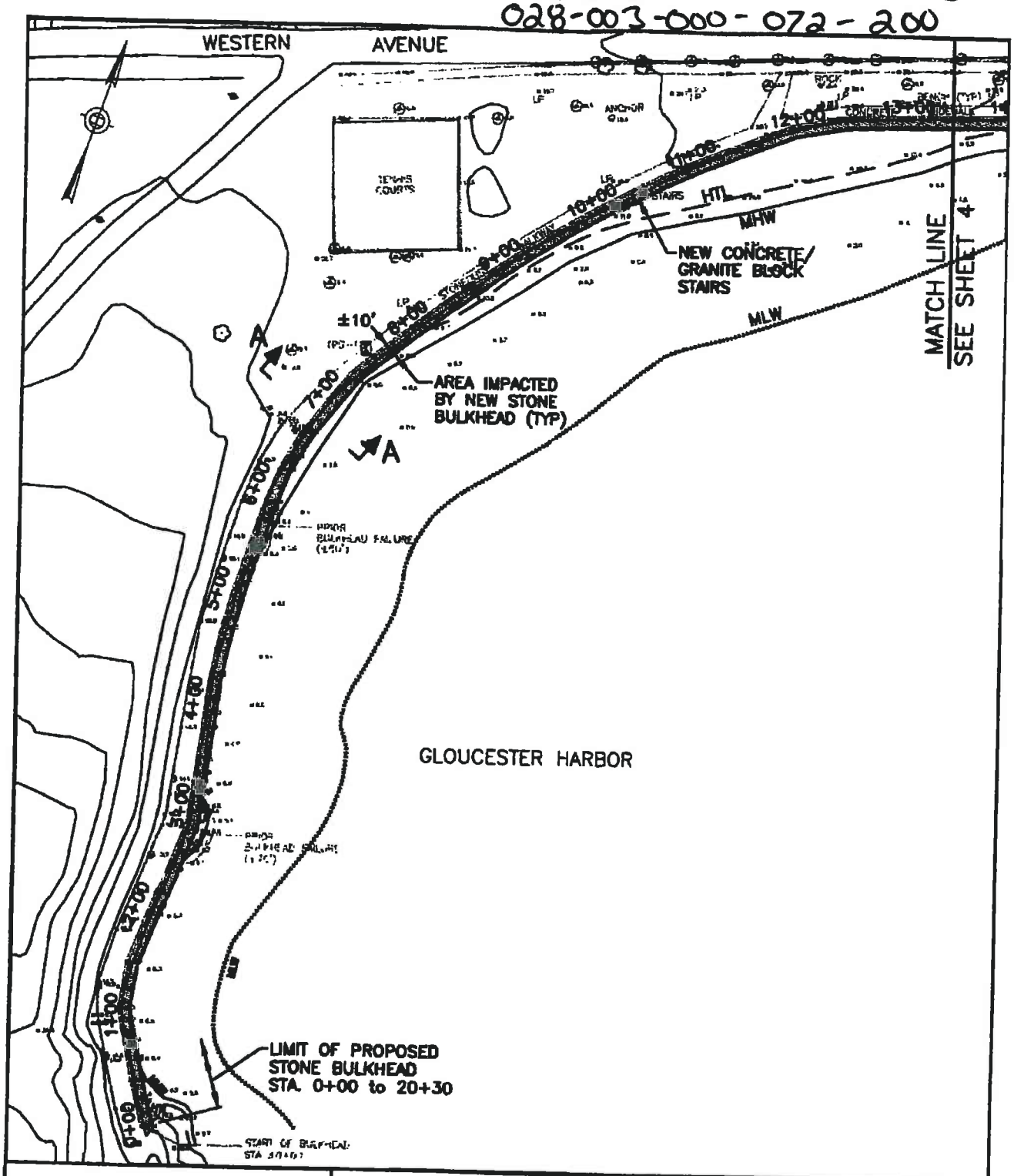
200 0 200
SCALE IN FEET

EXISTING CONDITIONS PLAN

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS
DATE: SEPT 2000 SHEET 2 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100
028-003-000-072-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

120 0 120
SCALE IN FEET

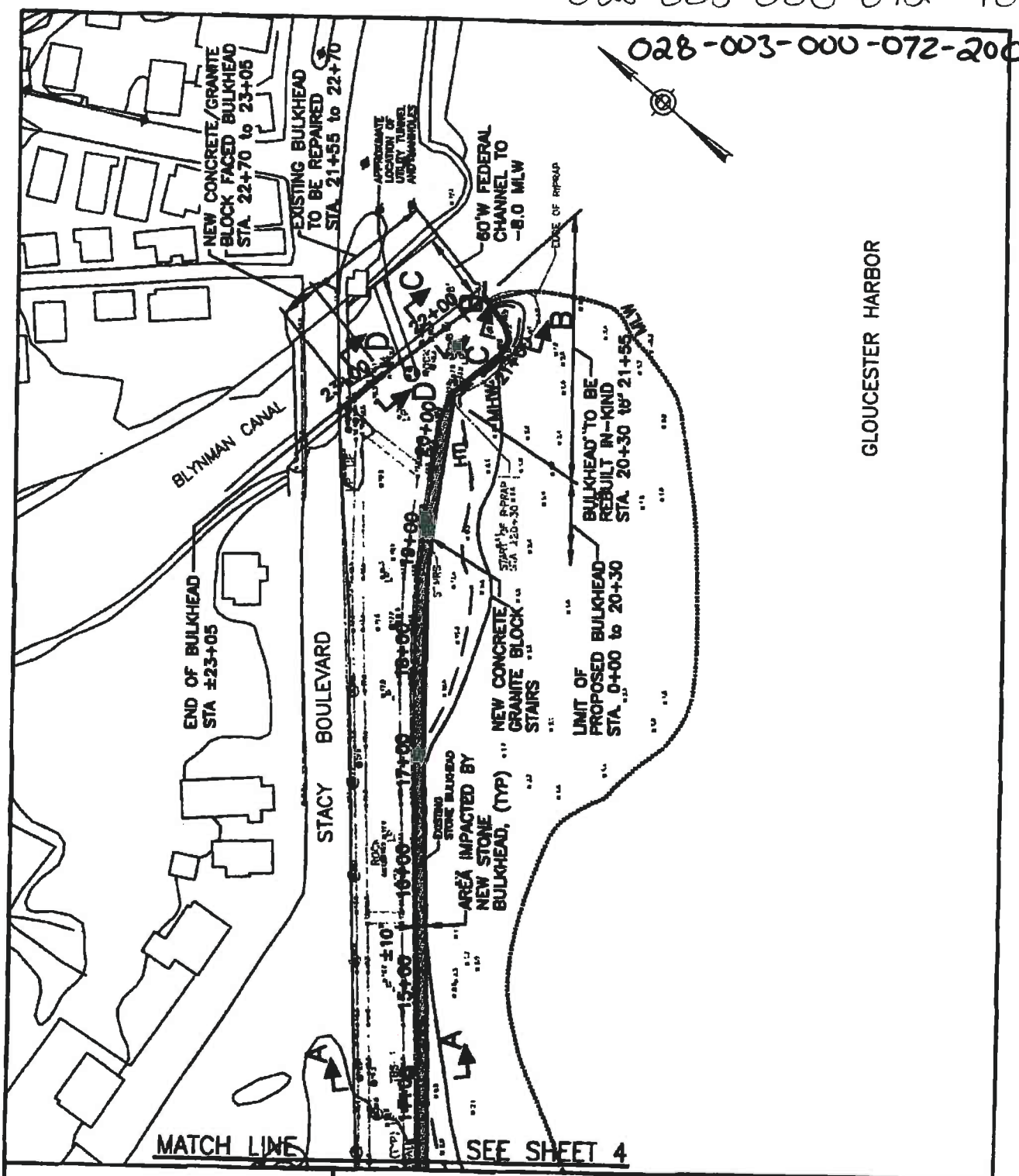
PROPOSED WORK PLAN
STA. 0+00 TO 13+50

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS
DATE: SEPT 2000 SHEET 3 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100

028-003-000-072-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

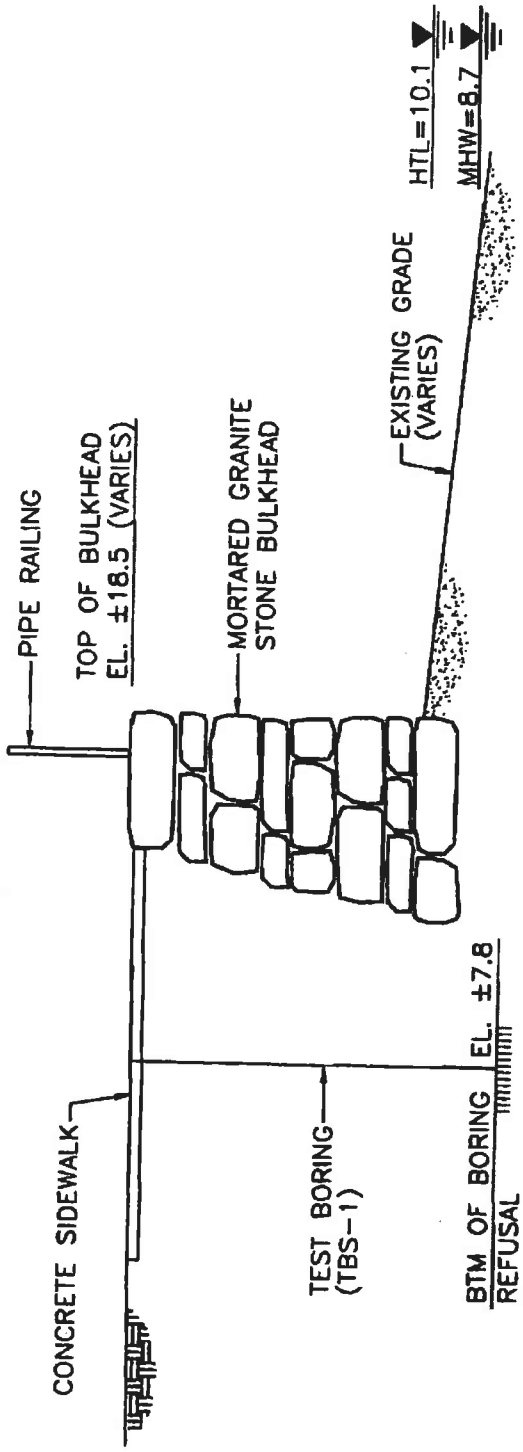
120 0 120
SCALE IN FEET

PROPOSED WORK PLAN
STA. 13+50 TO 23+05

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS
DATE: SEPT 2000 SHEET 4 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100
028-003-000-072-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

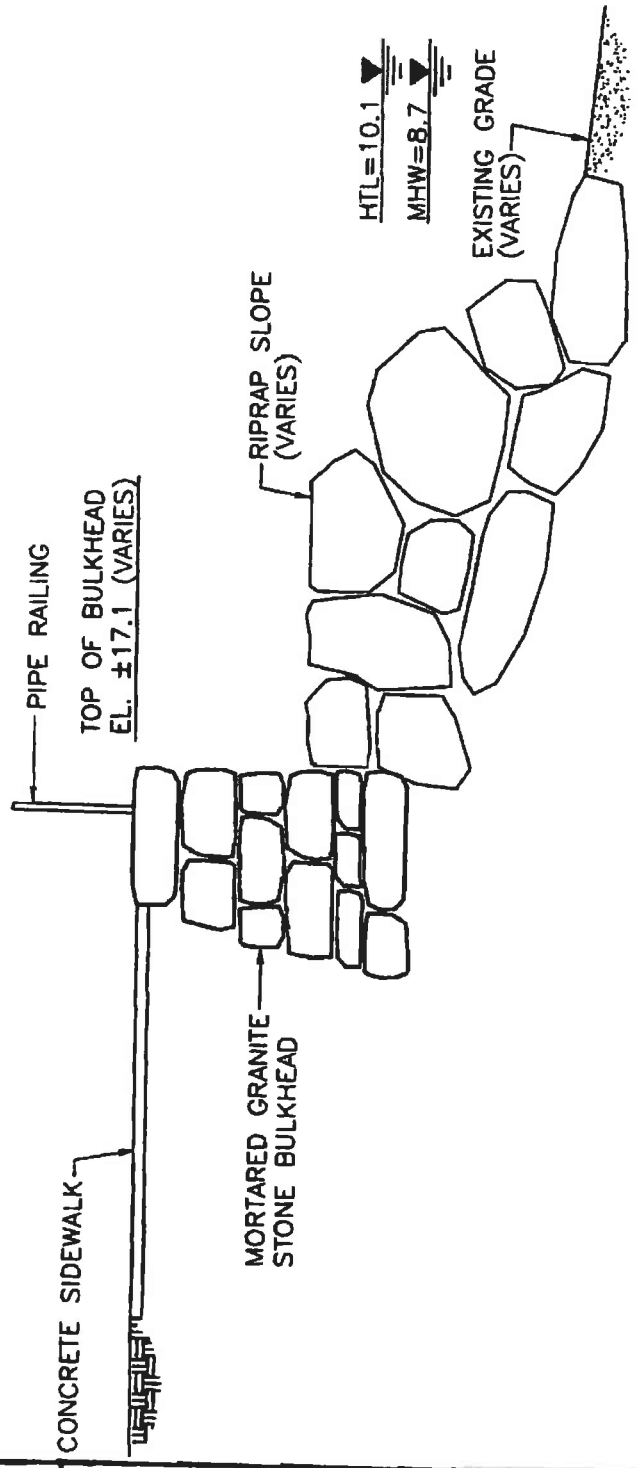
EXISTING SECTION A-A STA 0+00 TO 20+30

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 5 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100
028-003-000-072 - 200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

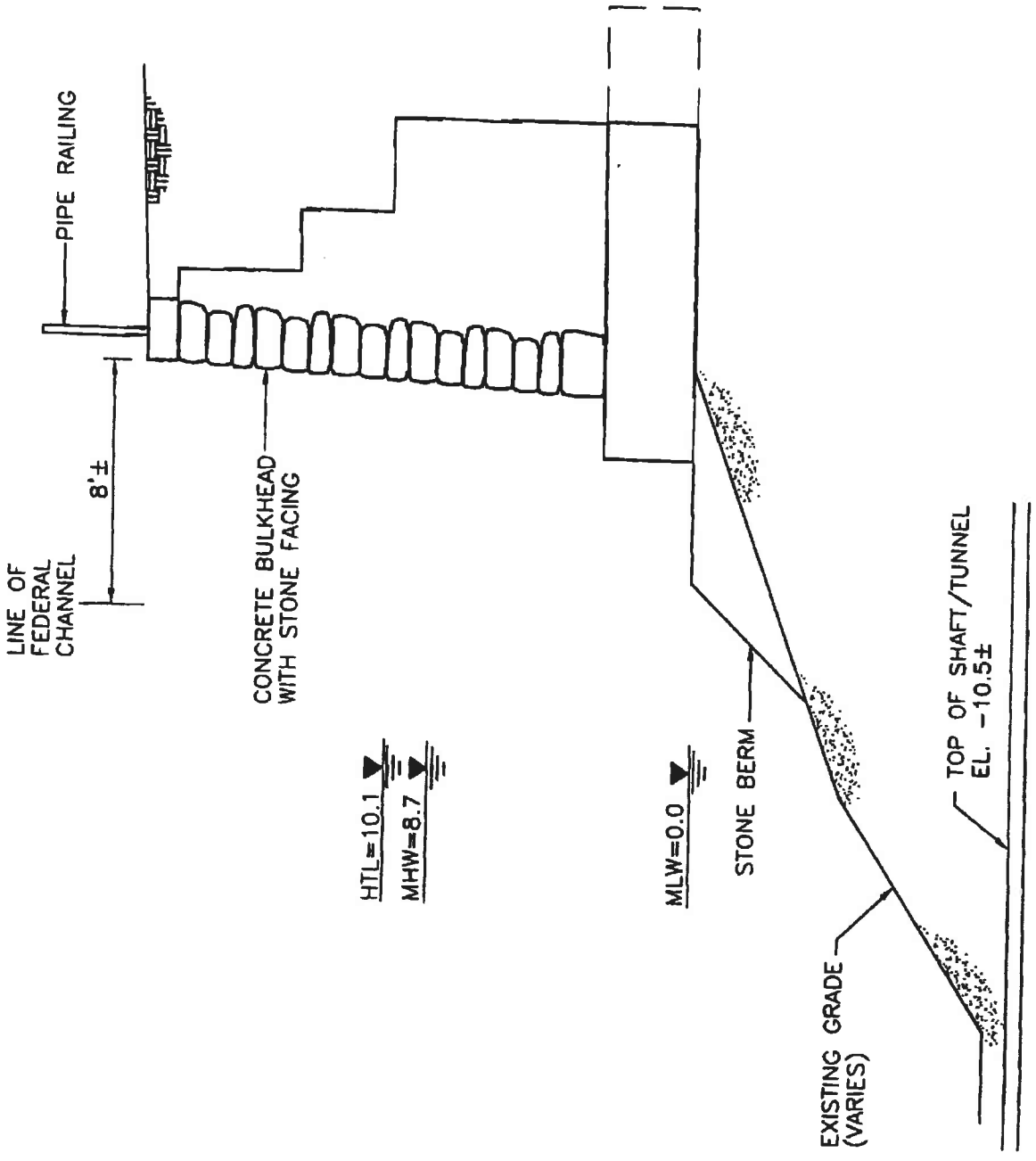
5 0 5
SCALE IN FEET

EXISTING SECTION B–B STA 20+30 TO 21+55

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS
DATE: SEPT 2000 SHEET 6 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100
028-003-000-072- 200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

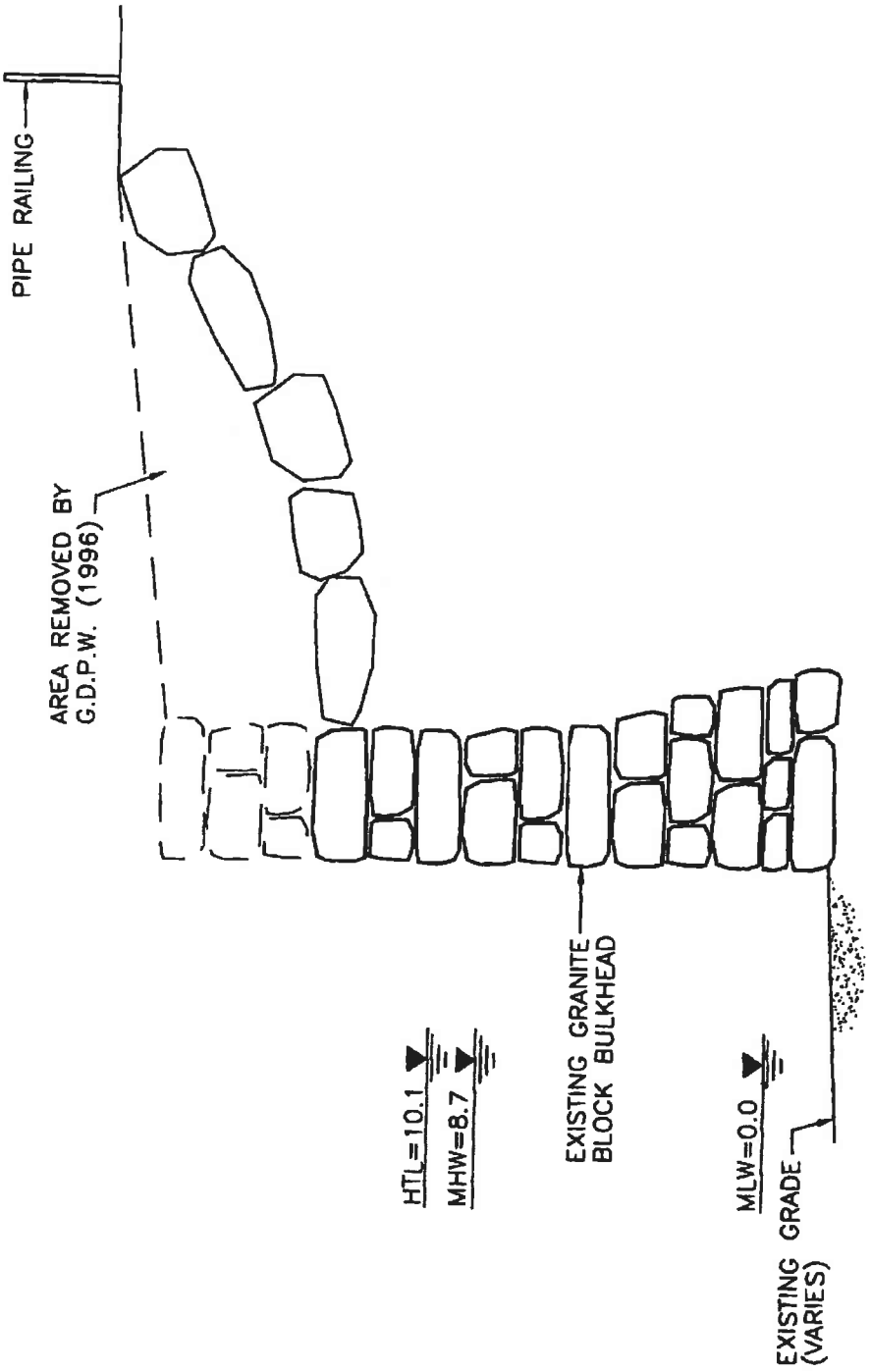
EXISTING SECTION C–C STA 21+55 TO 22+70

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 7 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100
028-003-000-072 - 200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

EXISTING SECTION D-D STA 22+70 TO 23+05

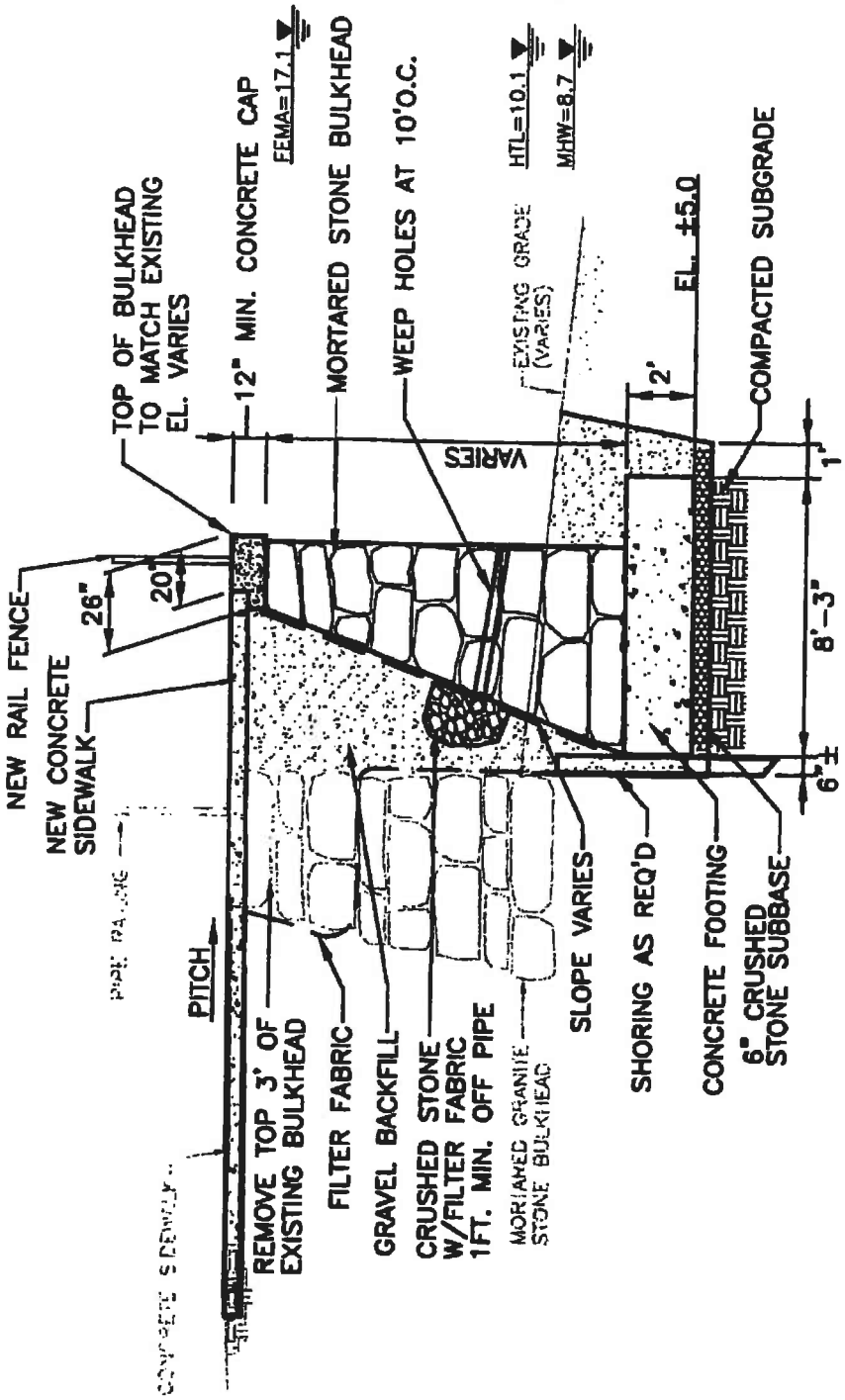
AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 8 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100

028-003-000-072-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

PROPOSED SECTION A–A STA 0+00 TO 20+30

AT: GLOUCESTER HARBOR
STACY BOULEVARD

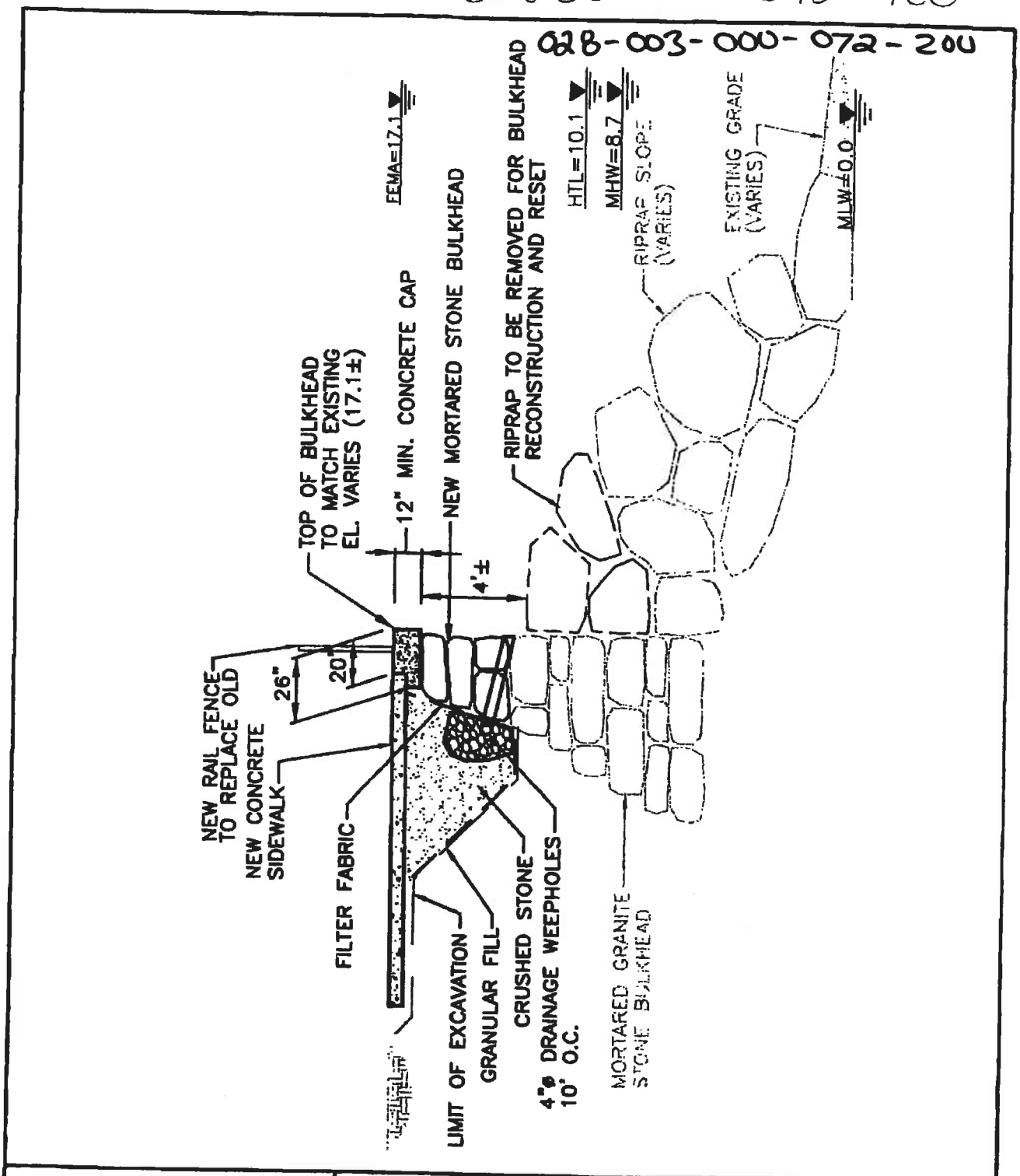
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 9 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

PROPOSED SECTION B–B STA 20+30 TO 21+55

AT: GLOUCESTER HARBOR
STACY BOULEVARD

COUNTY: ESSEX

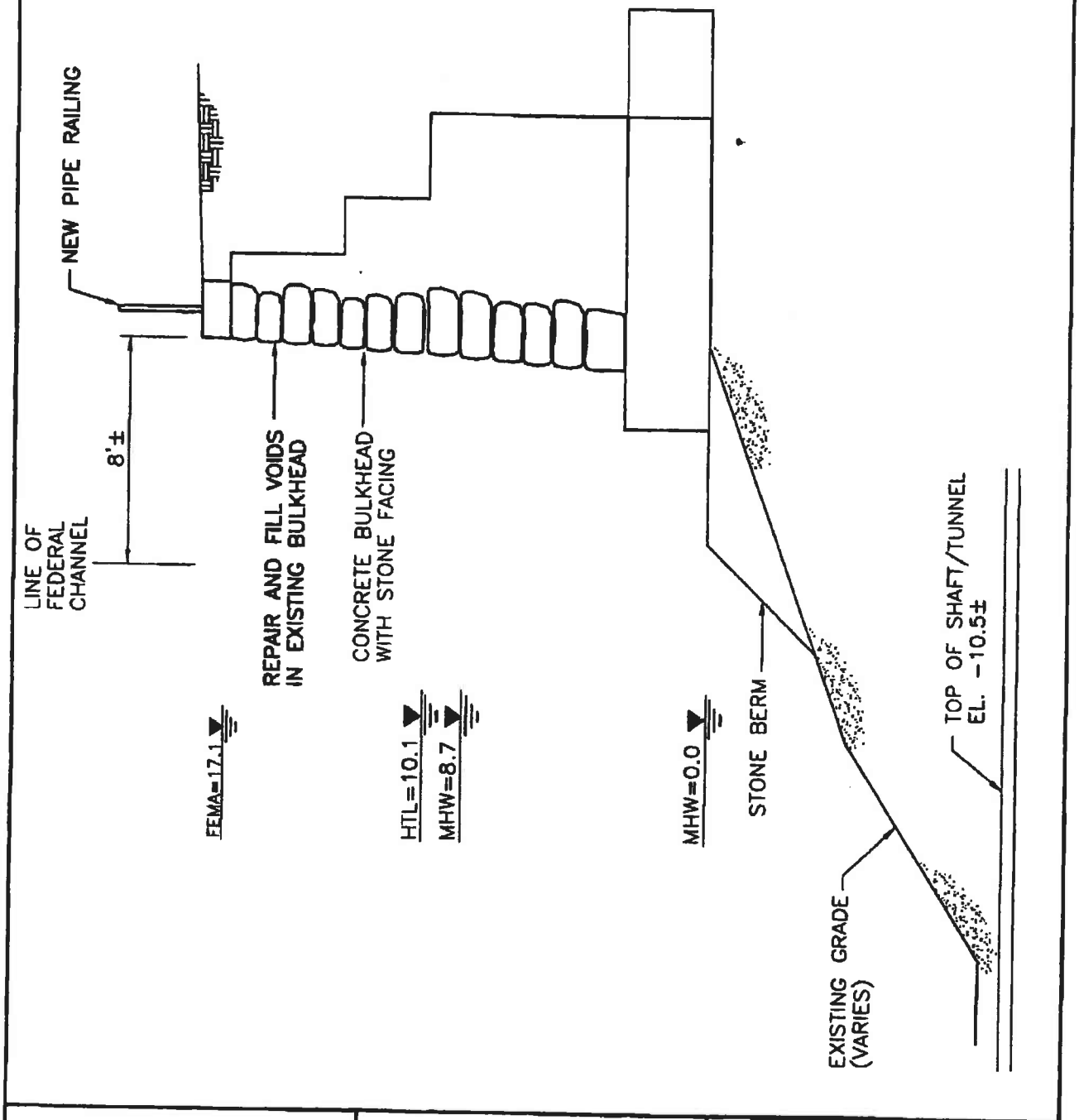
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 10 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100

028-003-000-072 -200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

PROPOSED SECTION C–C STA 21+55 TO 22+70

AT: GLOUCESTER HARBOR
STACY BOULEVARD

COUNTY: ESSEX

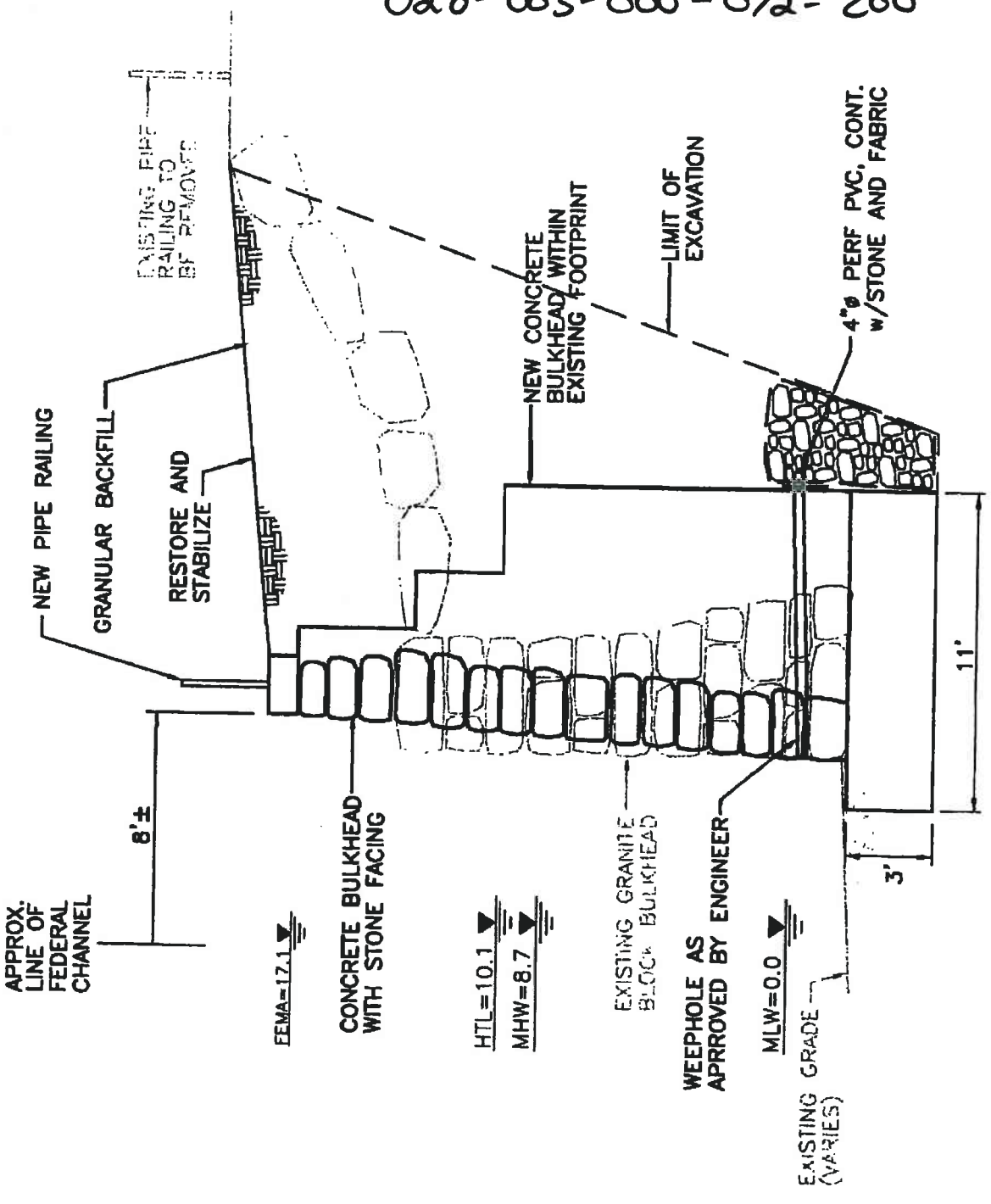
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 11 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100

028-003-000-072-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

PROPOSED SECTION B-B
STA 22+70 TO 23+05

AT: GLOUCESTER HARBOR
STACY BOULEVARD

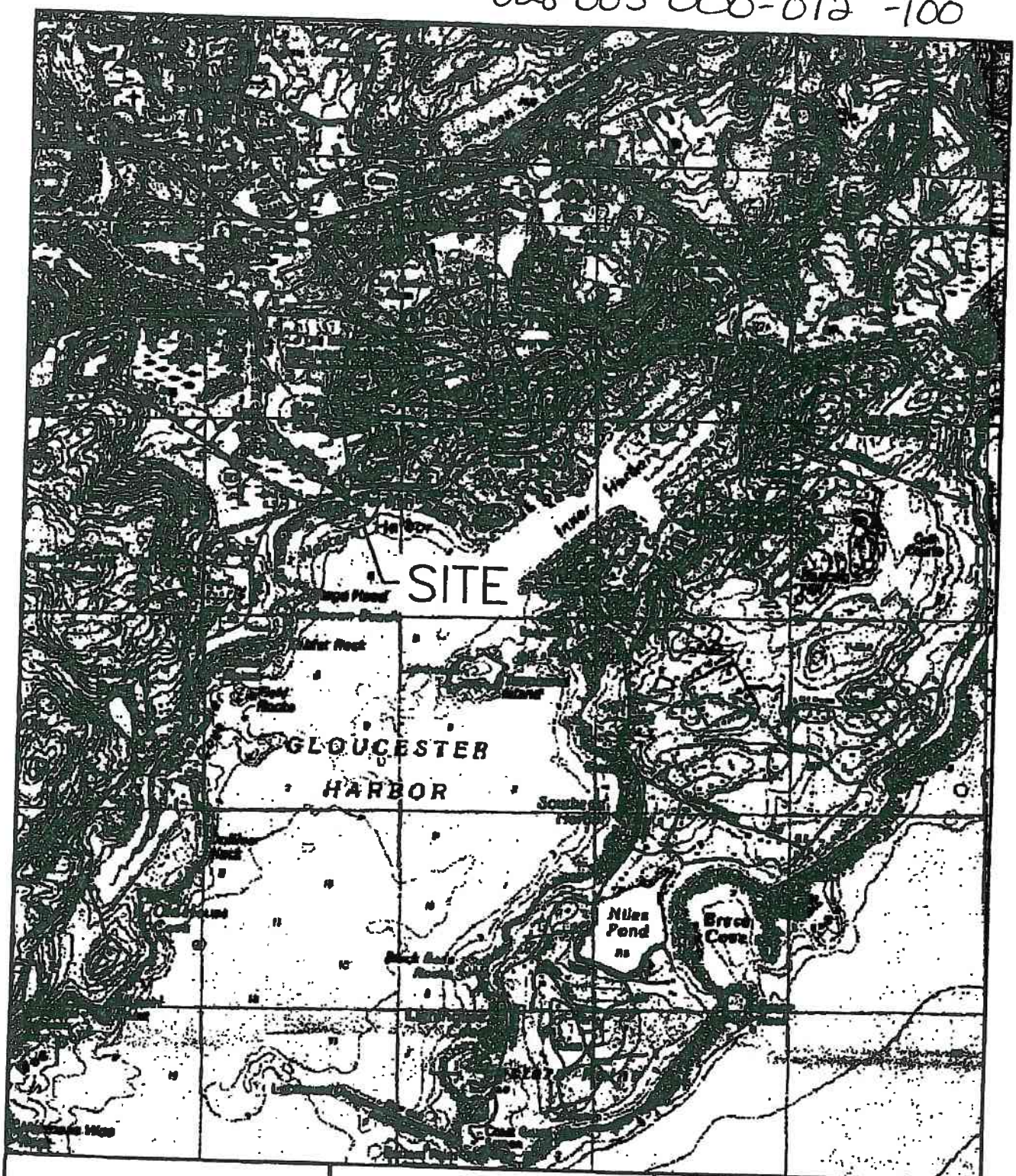
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 12 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100



LOCUS PLAN

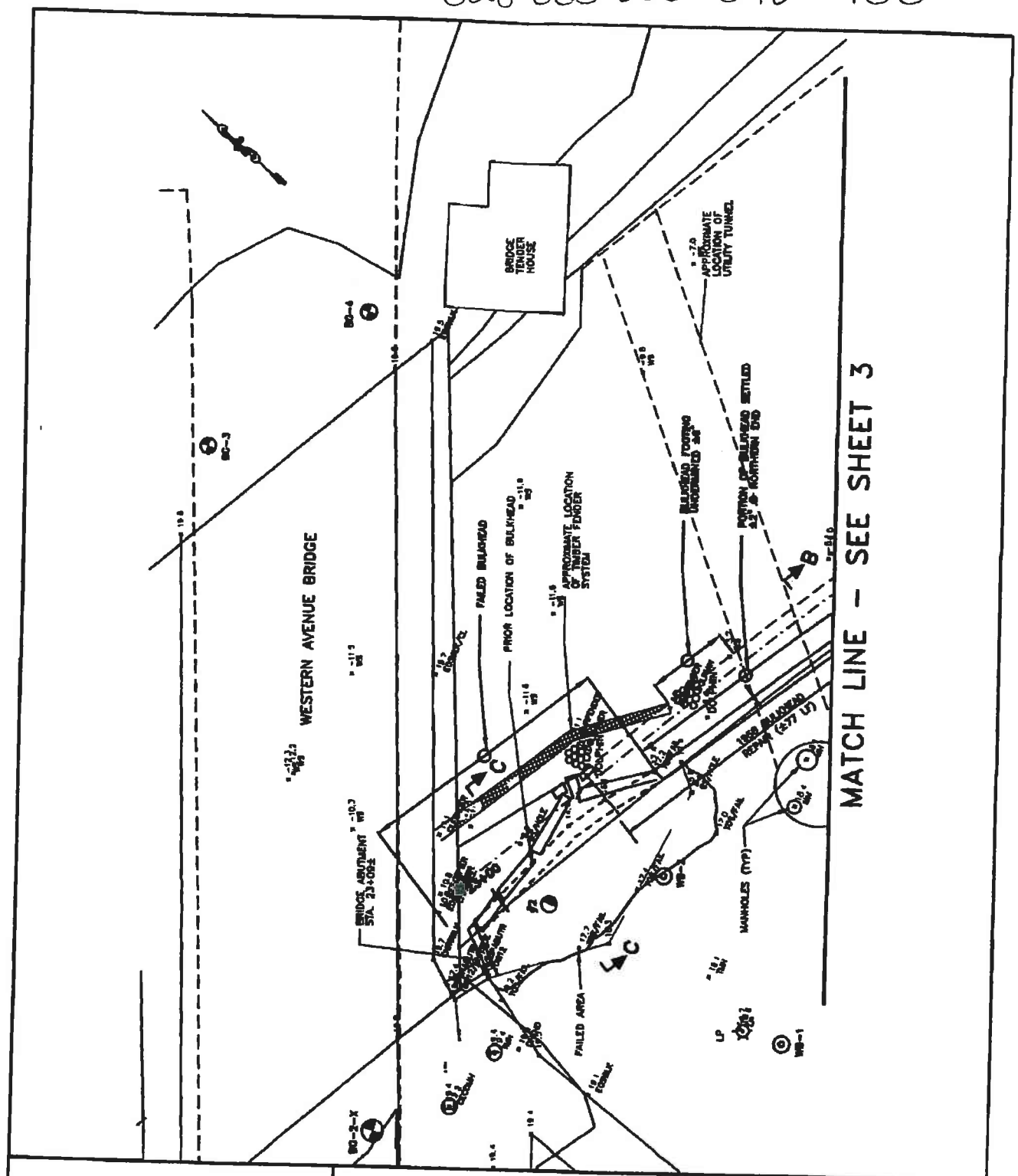
AT: ANNISQUAM RIVER
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MA.

DATE: JUNE 2002 SHEET 1 OF 10

VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

20 0 20
SCALE IN FEET

EXISTING CONDITIONS PLAN

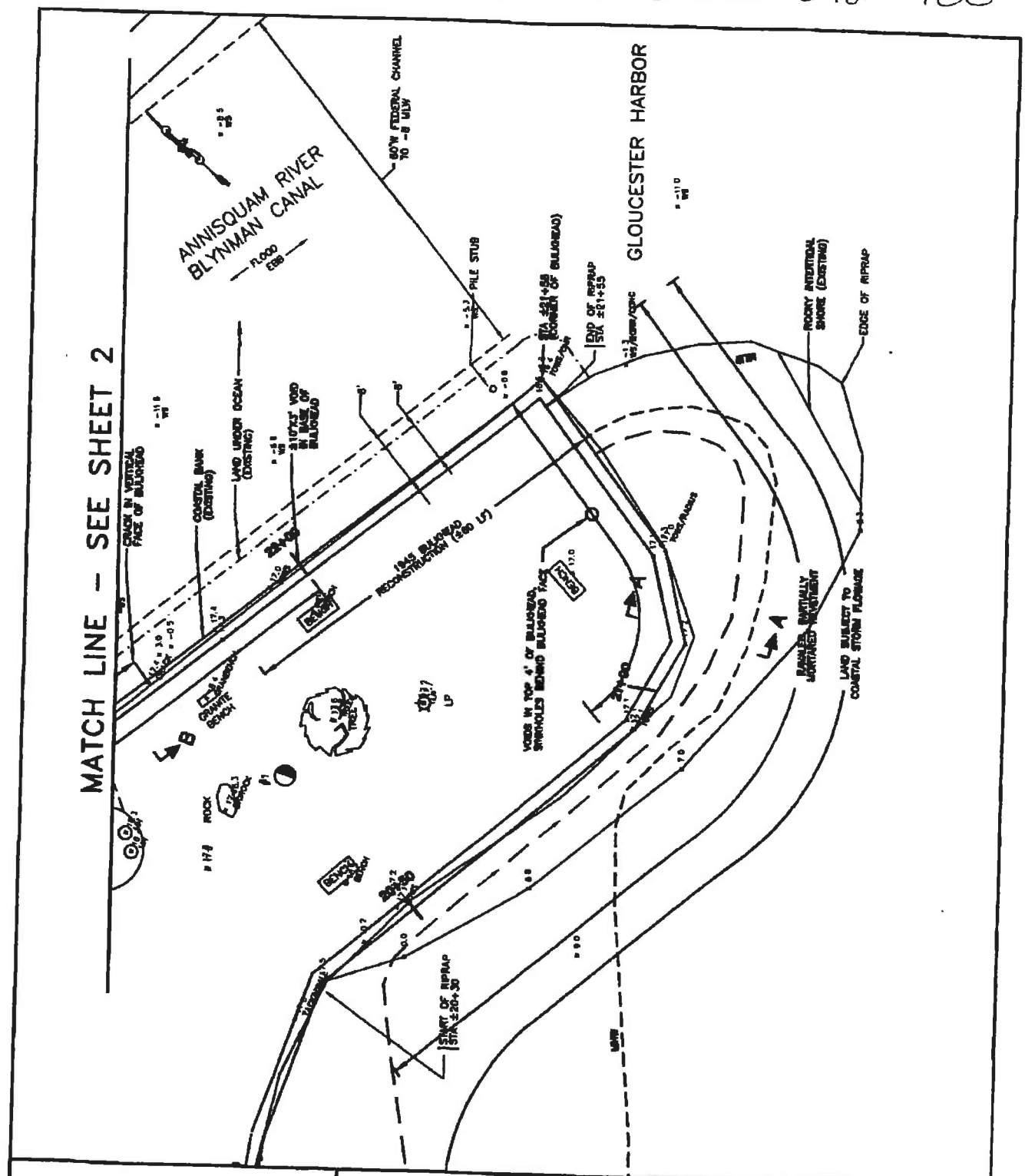
AT: ANNISQUAM RIVER
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MA.

DATE: JUNE 2002 SHEET 2 OF 10

VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

20 0 20
SCALE IN FEET

EXISTING CONDITIONS PLAN

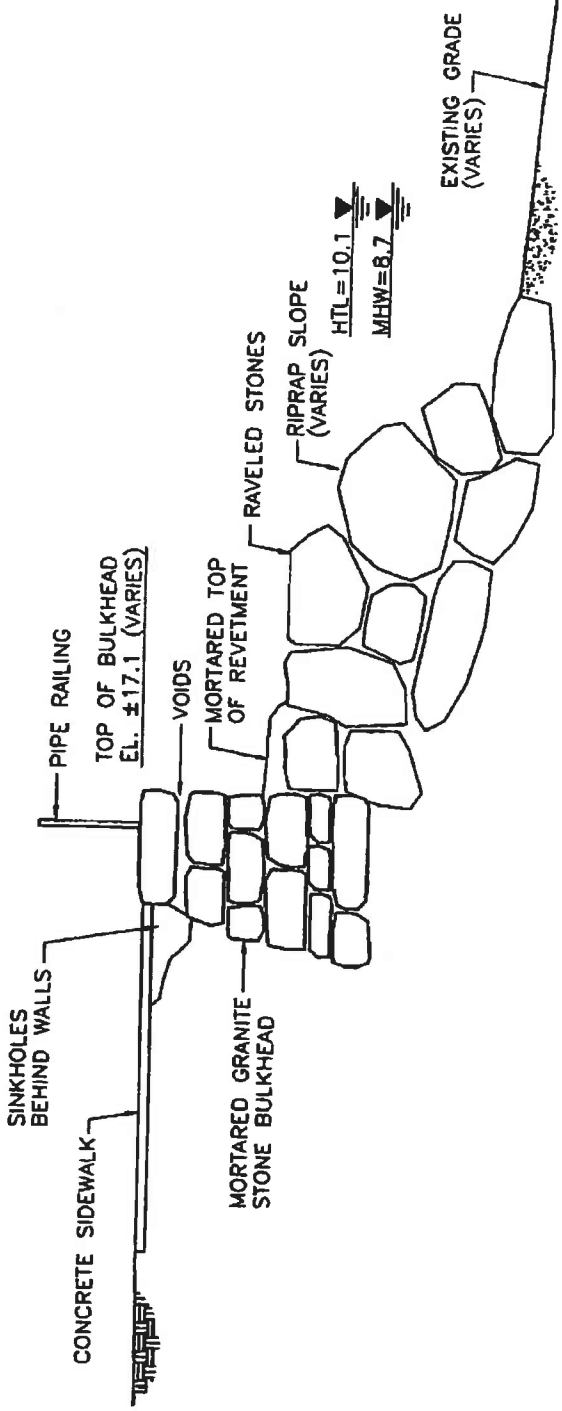
AT: ANNISQUAM RIVER
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MA.

DATE: JUNE 2002 SHEET 3 OF 10

VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003--000-072 -100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

6 0 6
SCALE IN FEET

SECTION A
STA 20+30 to 21+55

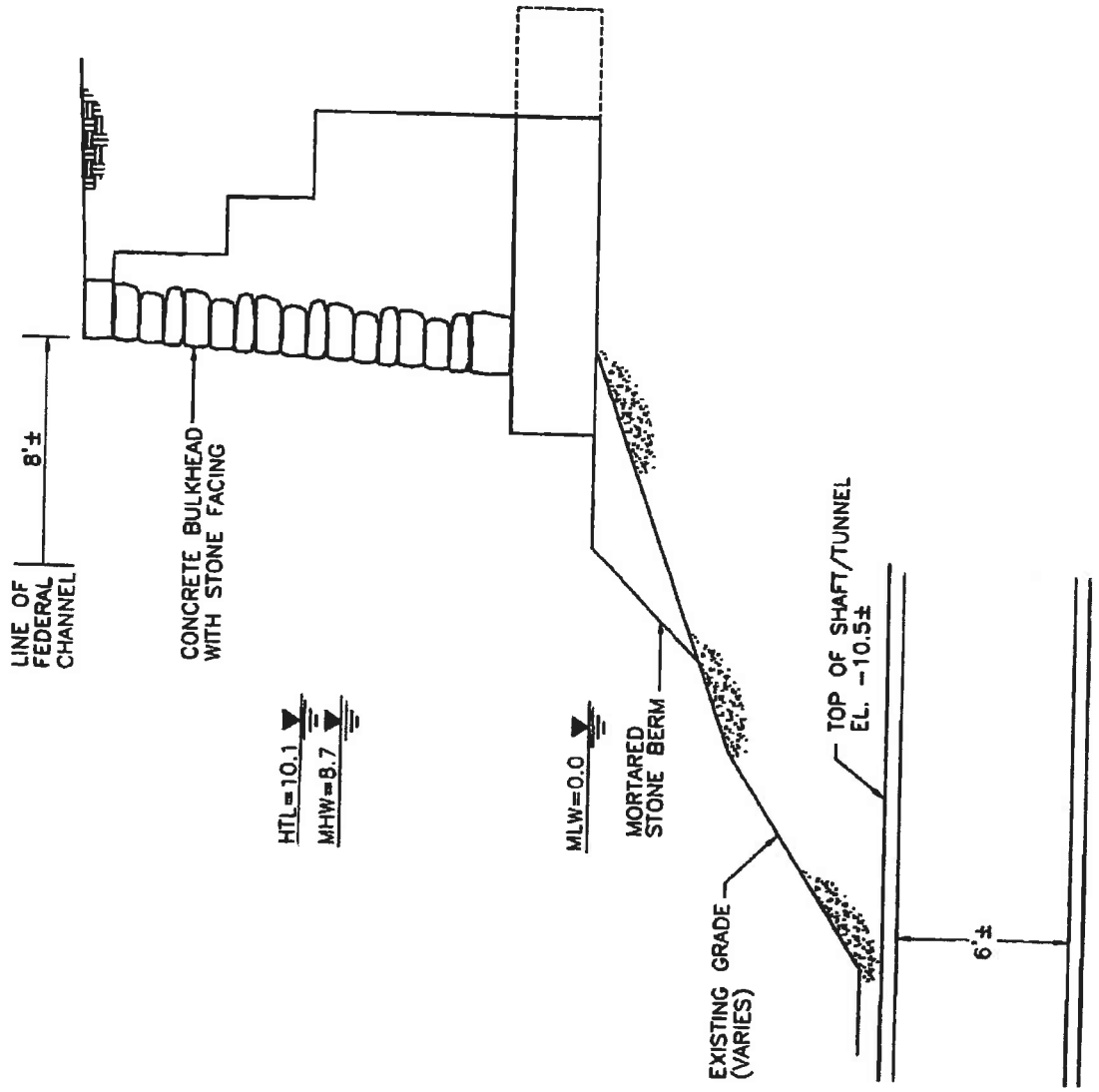
AT: ANNISQUAM RIVER
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MA.

DATE: JUNE 2002 SHEET 4 OF 10

VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

6 0 6
SCALE IN FEET

SECTION B
STA 21+55 to 22+69

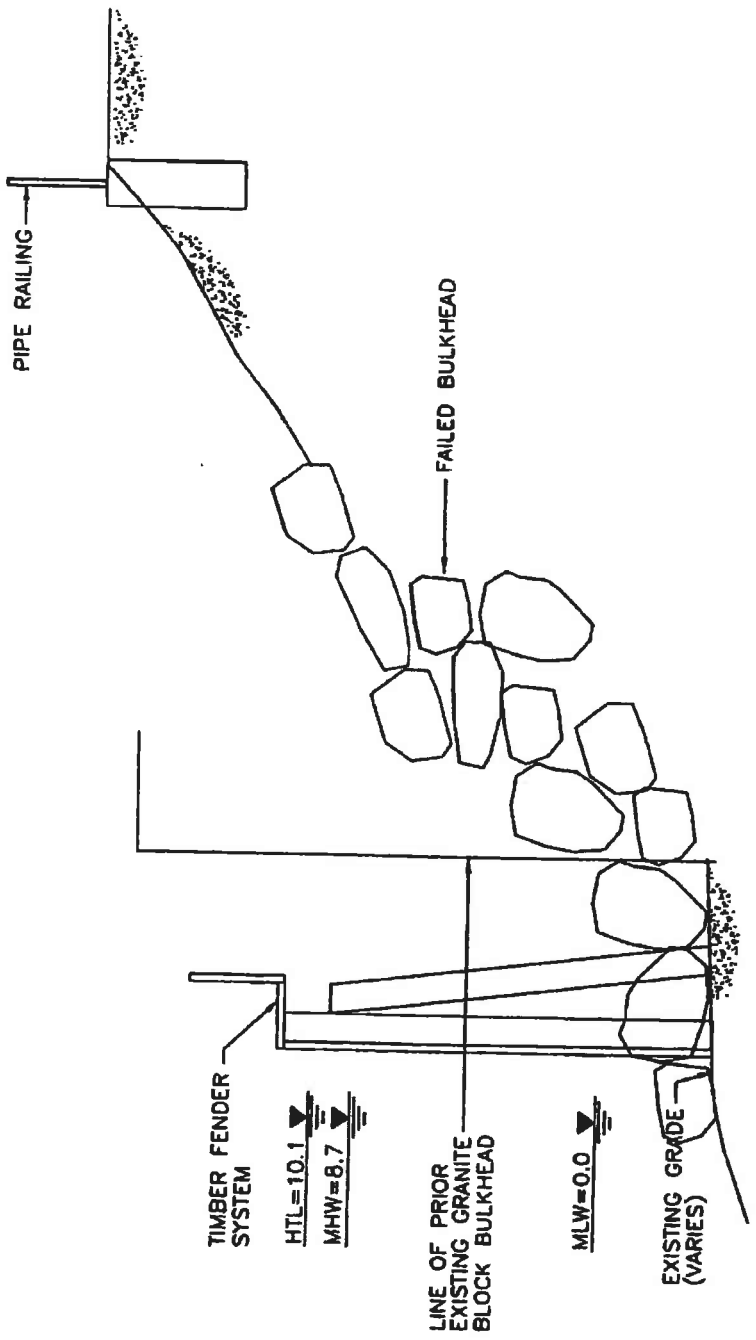
AT: ANNISQUAM RIVER
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MA.

DATE: JUNE 2002 SHEET 5 OF 10

VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

6 0 6
SCALE IN FEET

SECTION C
STA 22+69 to 23+09

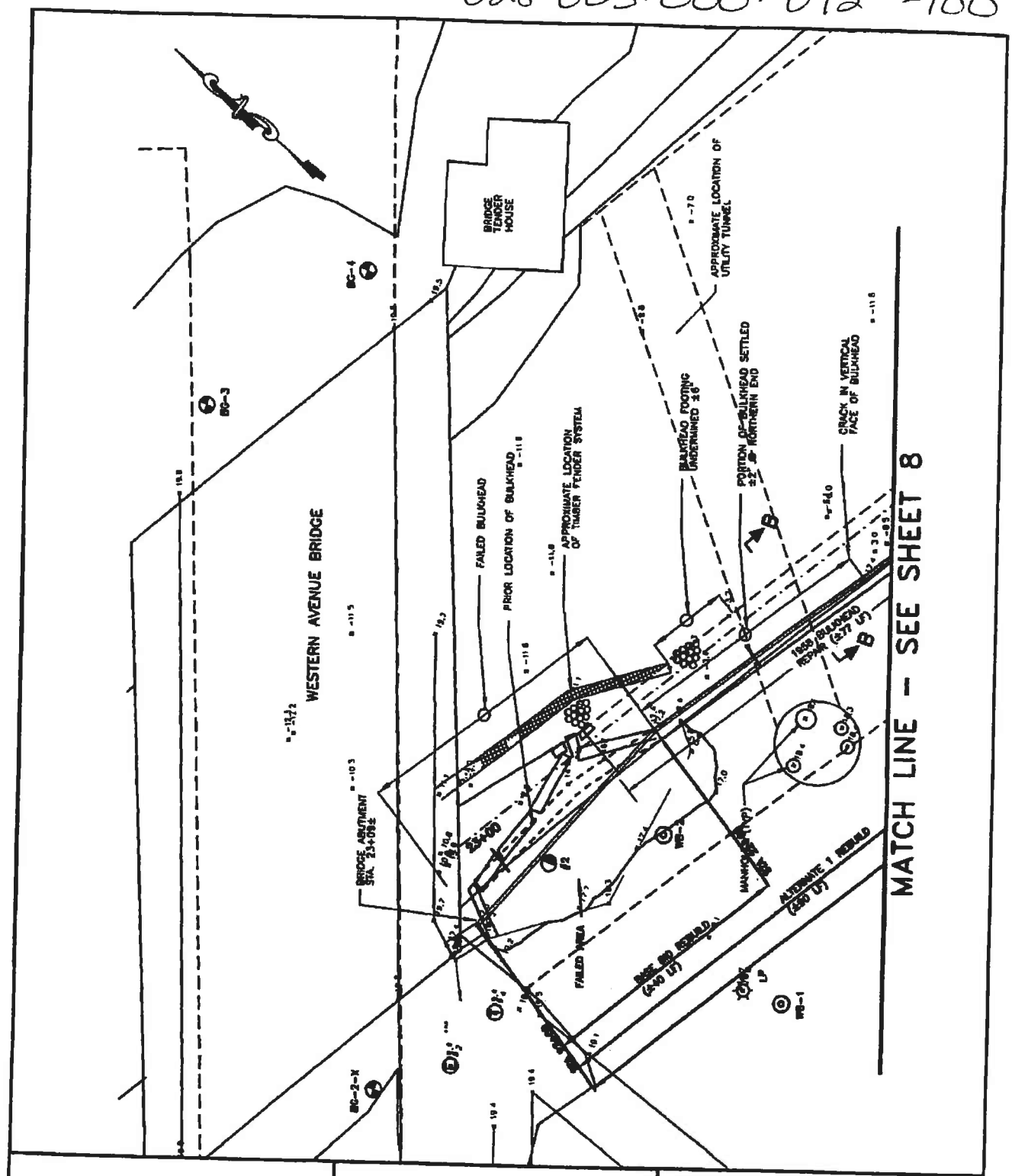
AT: ANNISQUAM RIVER
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MA.

DATE: JUNE 2002 SHEET 6 OF 10

VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

20 0 20
SCALE IN FEET

PROPOSED WORK PLAN

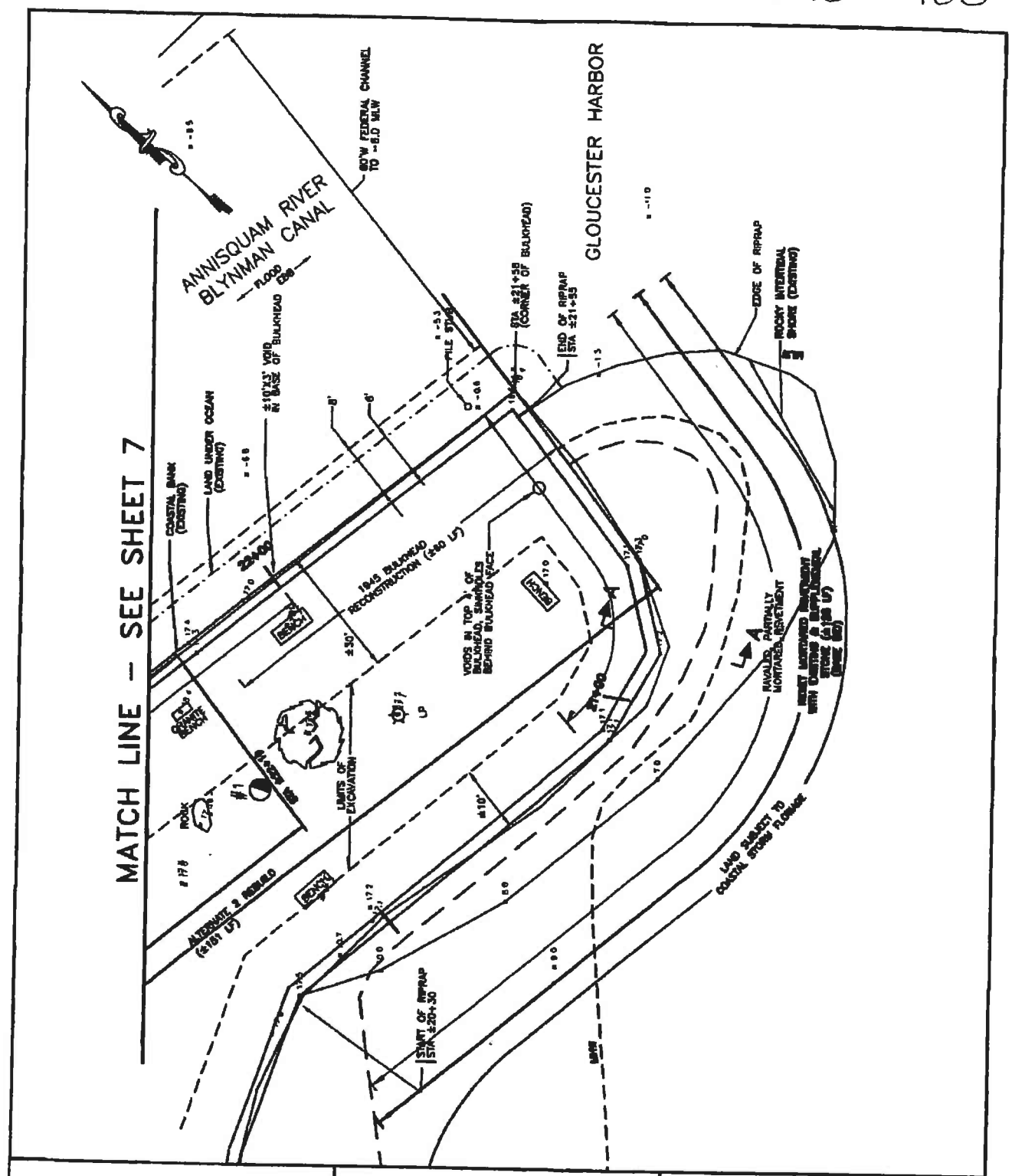
AT: ANNISQUAM RIVER
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MA.

DATE: JUNE 2002 SHEET 7 OF 10

VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 1-100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

20 0 20
SCALE IN FEET

PROPOSED WORK PLAN

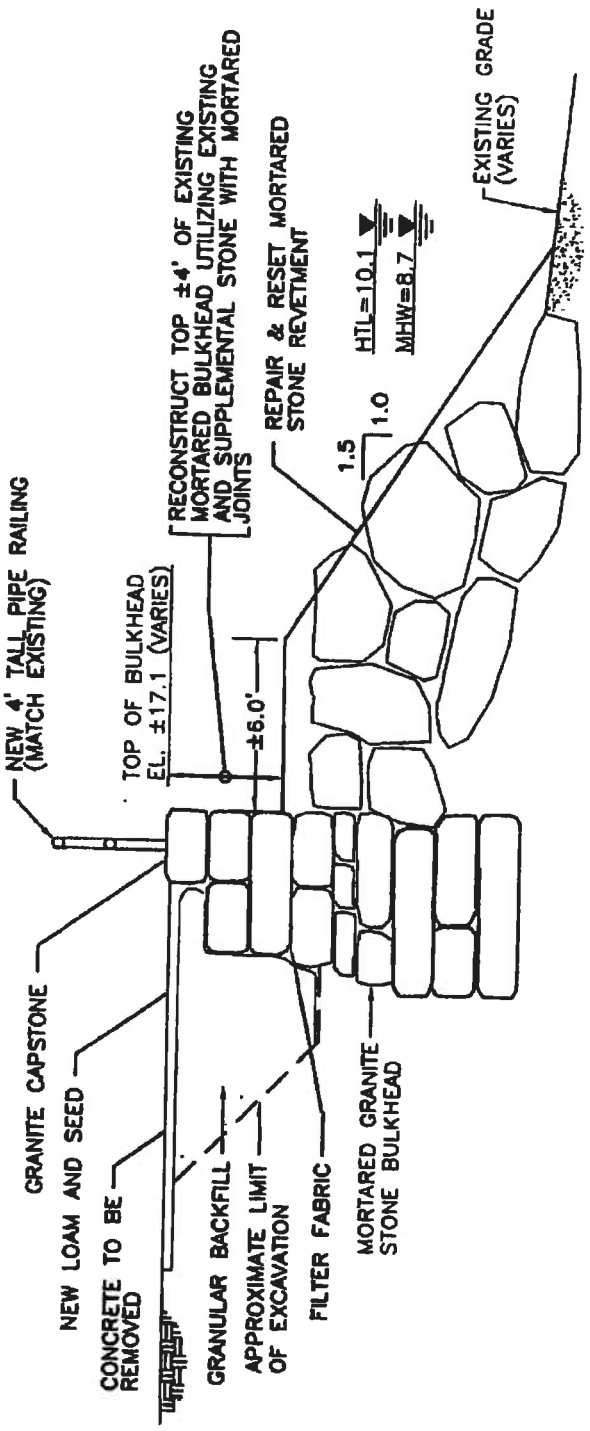
AT: ANNISQUAM RIVER
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MA.

DATE: JUNE 2002 SHEET 8 OF 10

VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

6 0 6
SCALE IN FEET

PROPOSED SECTION A
STA. 20+30 to 21+58

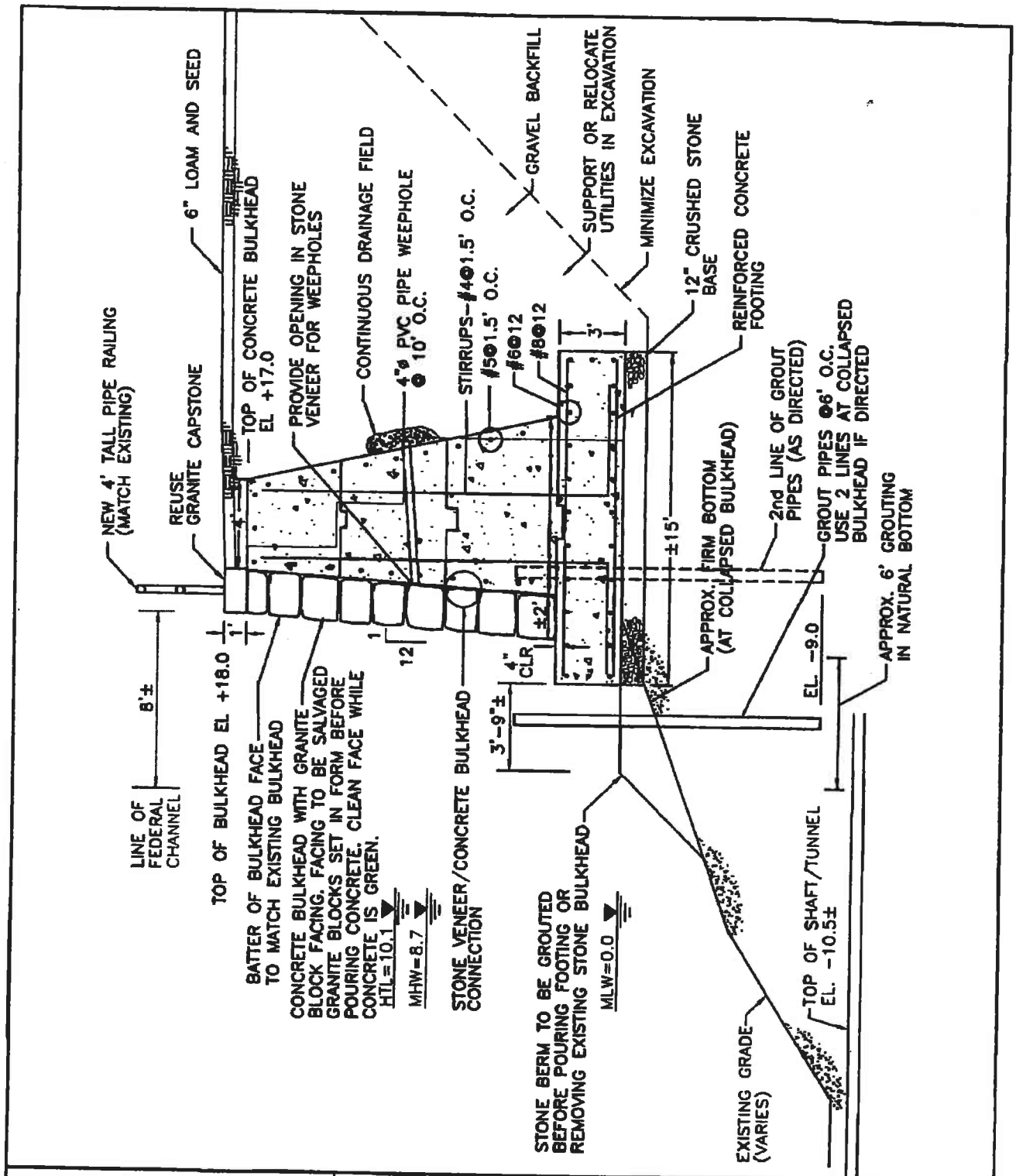
AT: ANNISQUAM RIVER
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MA.

DATE: JUNE 2002 SHEET 9 OF 10

VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

6 0 6
SCALE IN FEET

PROPOSED SECTION B
STA 21+58 to 23+09

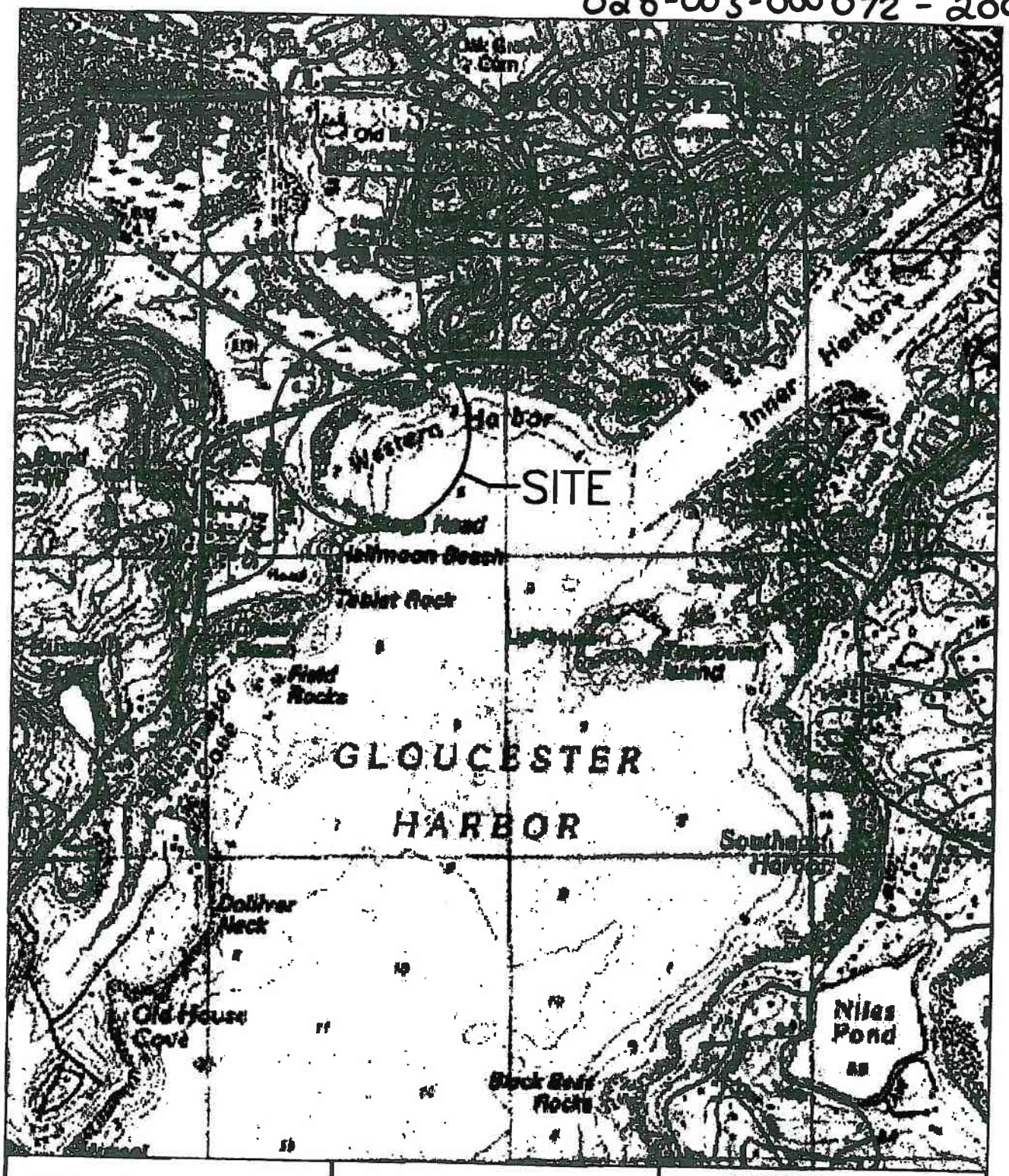
AT: ANNISQUAM RIVER
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MA.

DATE:JUNE 2002 SHEET 10 OF 10

VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-0721 -100
028-003-000 072 - 200



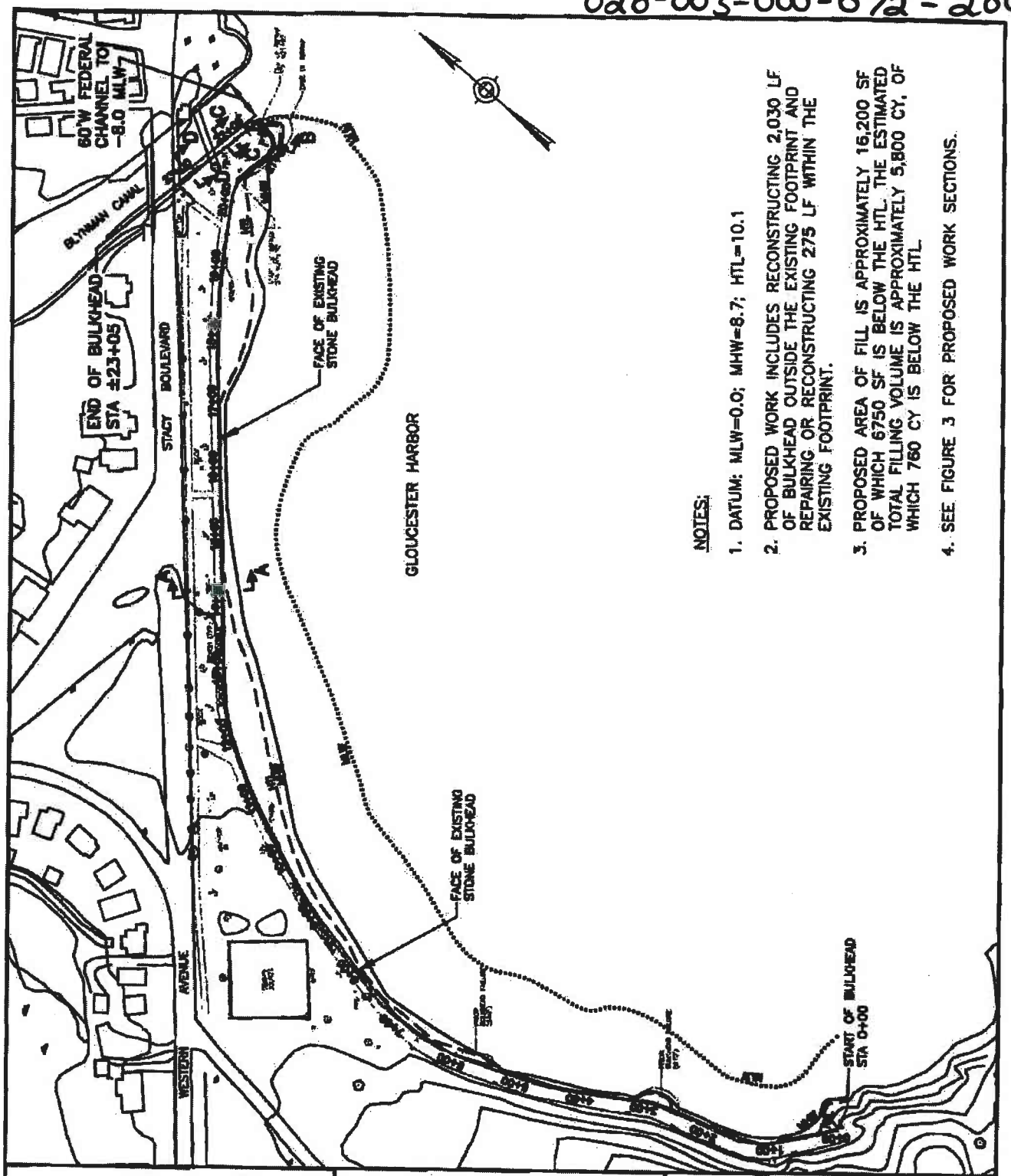
DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

LOCUS PLAN

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS
DATE: SEPT 2000 SHEET 1 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072L -100
028-003-000-072 -200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

200 0 200
SCALE IN FEET

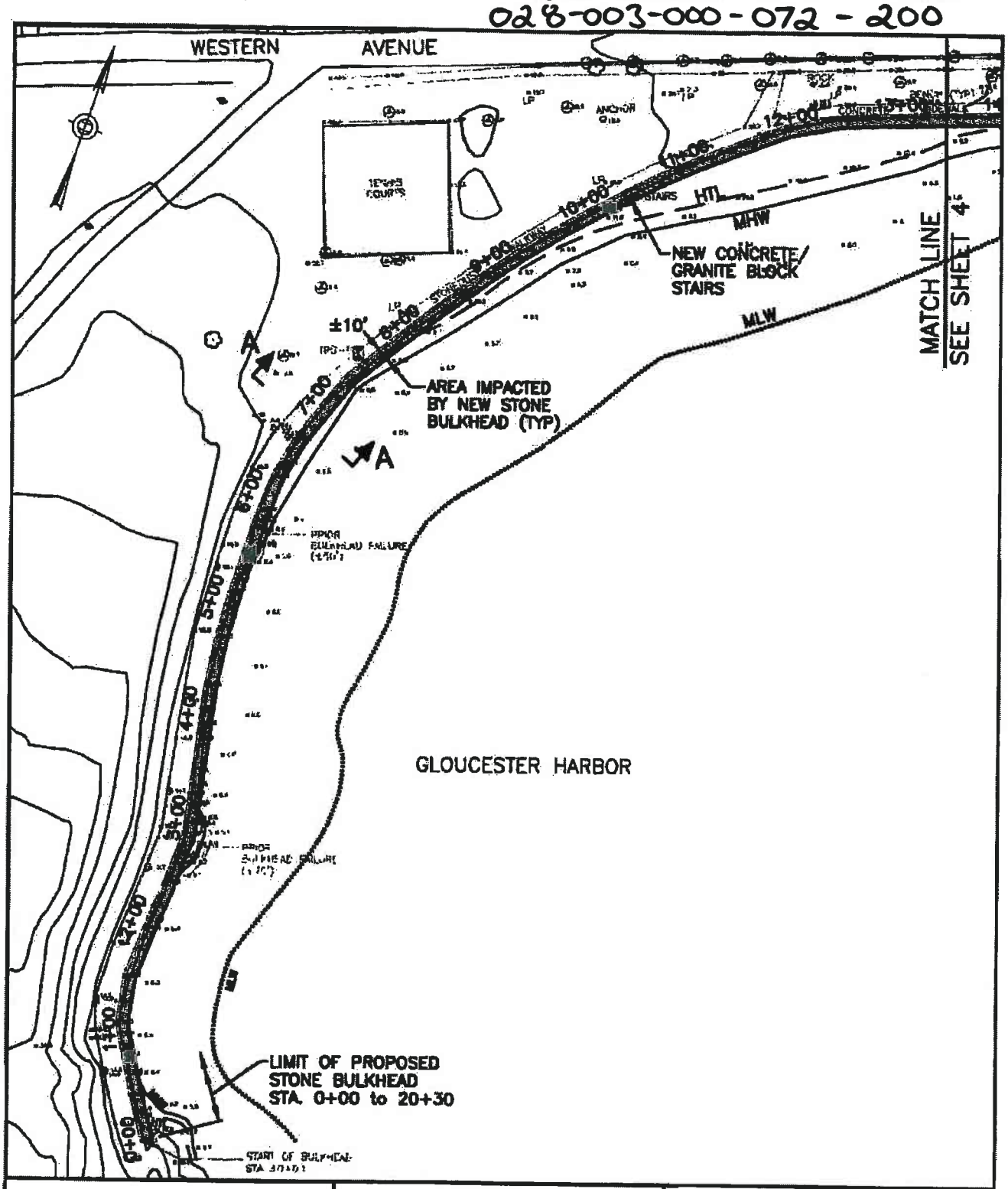
EXISTING CONDITIONS PLAN

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 2 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100
028-003-000-072 - 200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

120 0 120
SCALE IN FEET

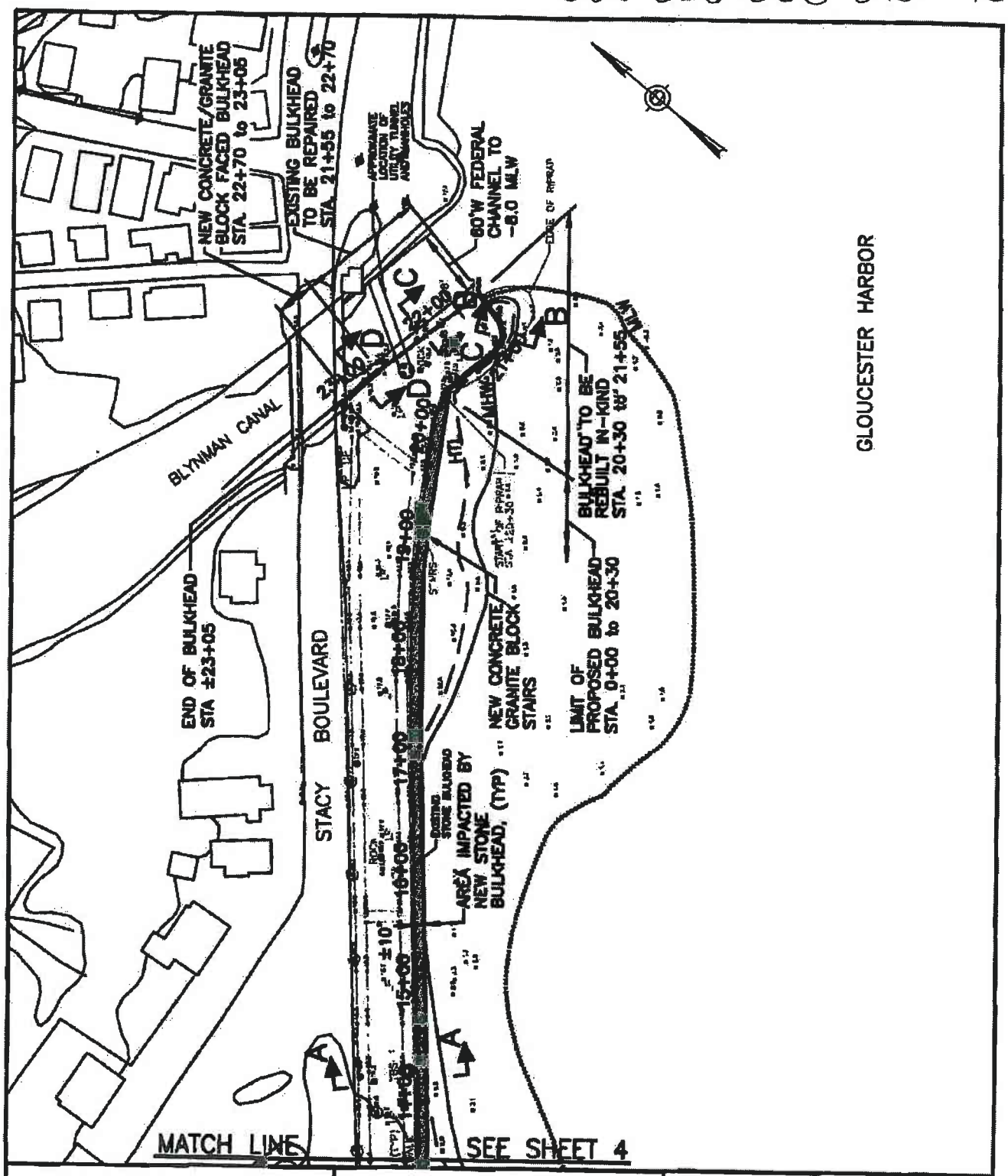
PROPOSED WORK PLAN
STA. 0+00 TO 13+50

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 3 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072-200
028-003-000-072 -100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

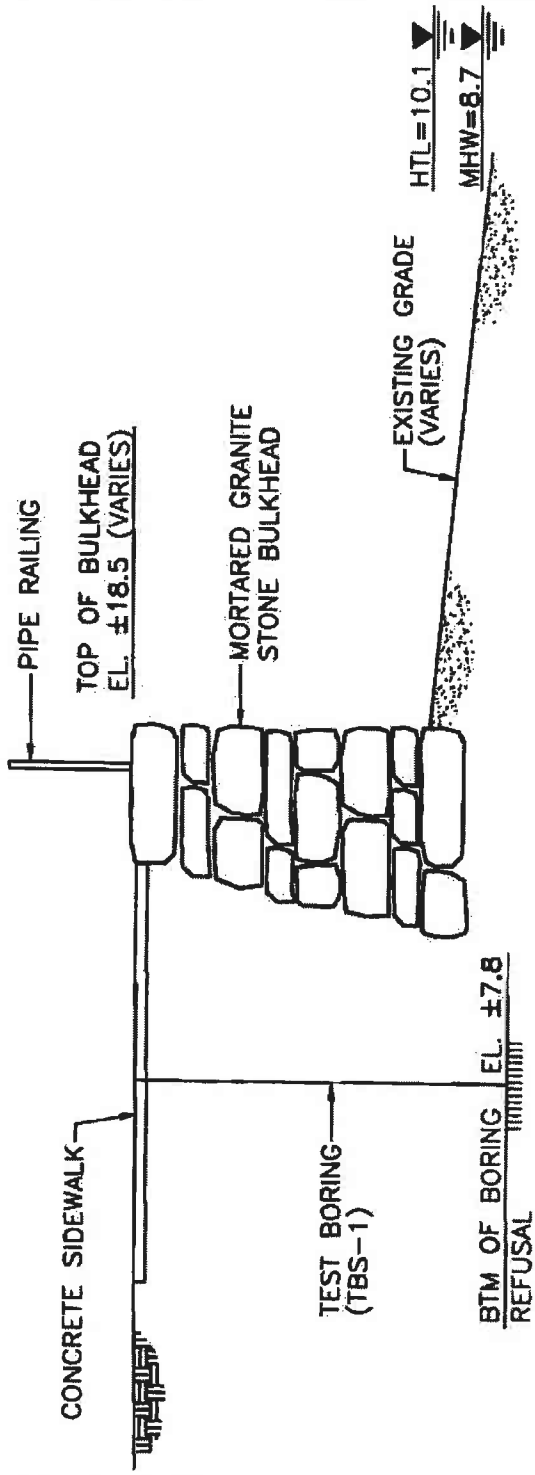
120 0 120
SCALE IN FEET

PROPOSED WORK PLAN
STA. 13+50 TO 23+05

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS
DATE: SEPT 2000 SHEET 4 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -200
028-003-000-072 -100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

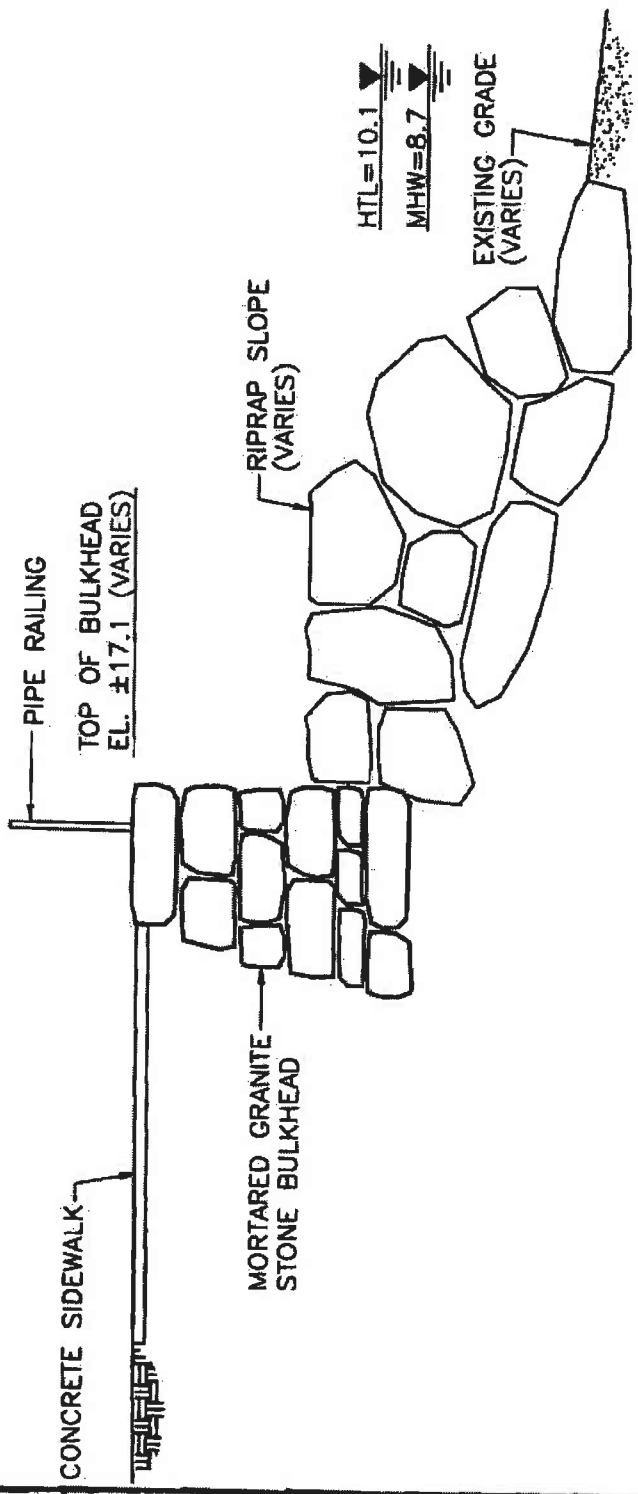
EXISTING SECTION A-A STA 0+00 TO 20+30

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 5 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100
028-003-000-072-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

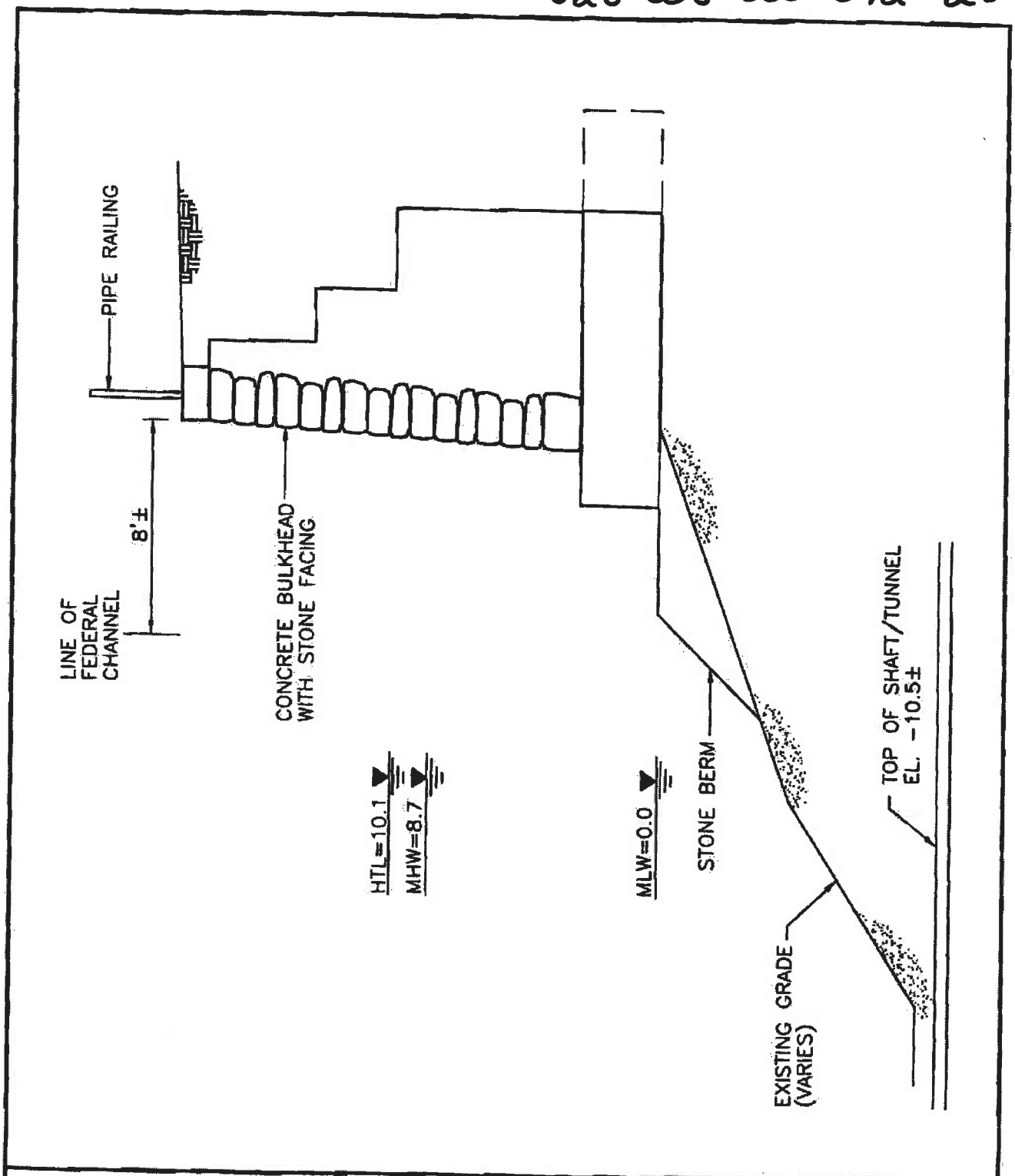
EXISTING SECTION B–B STA 20+30 TO 21+55

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 6 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100
028-003-000-072-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

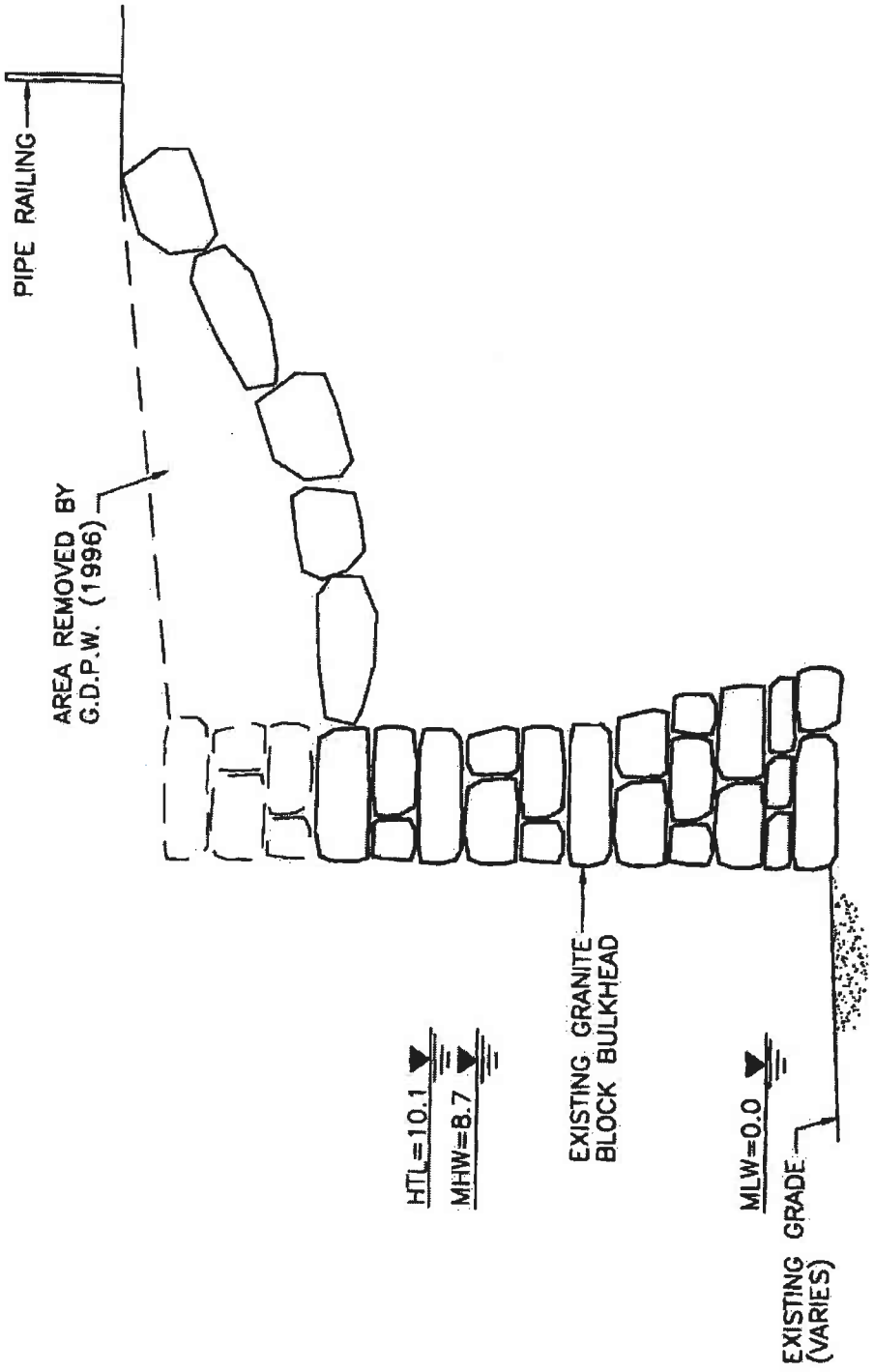
5 0 5
SCALE IN FEET

EXISTING SECTION C–C STA 21+55 TO 22+70

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS
DATE: SEPT 2000 SHEET 7 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 -100
028-003-000-072 - 200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

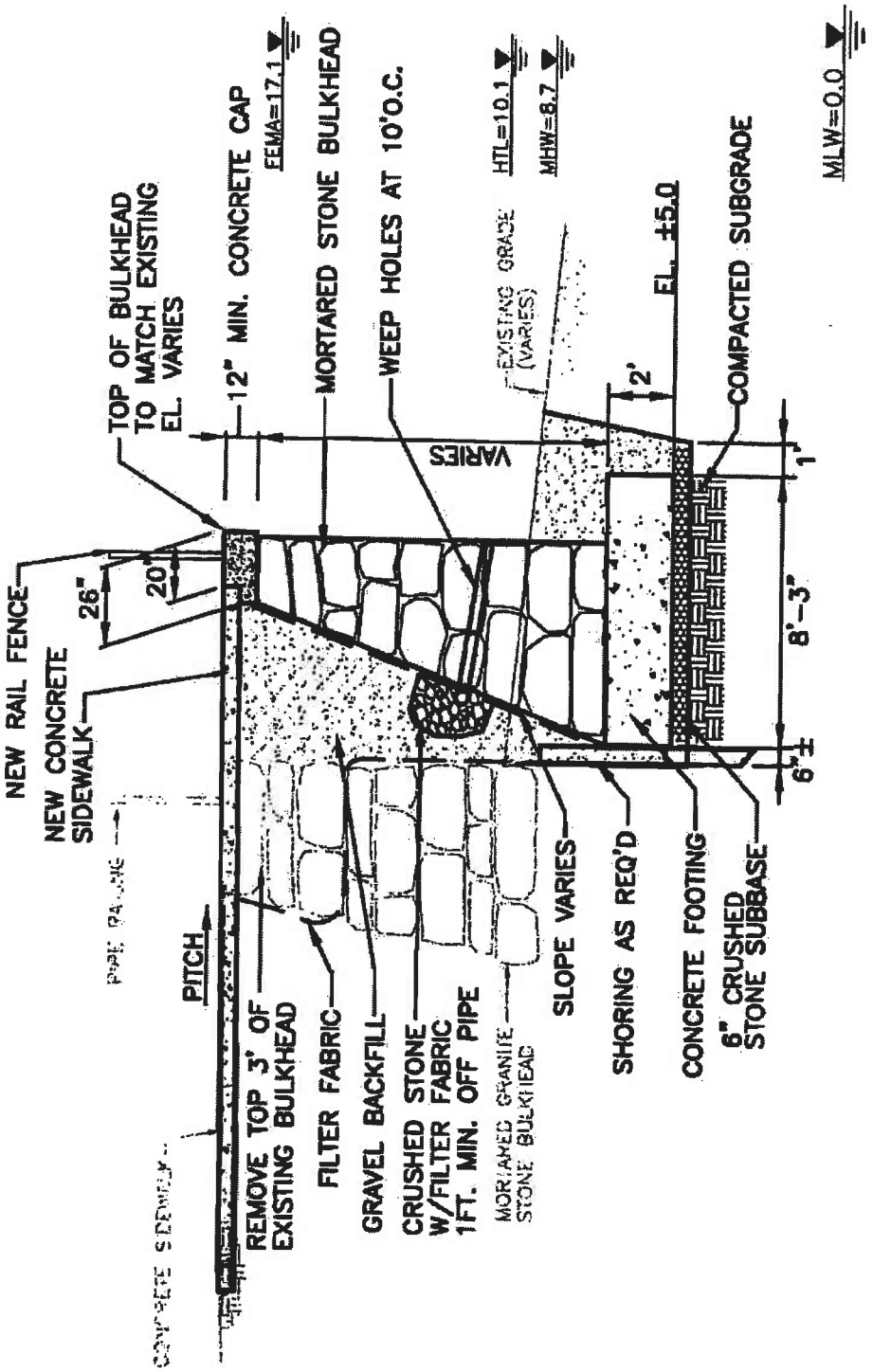
EXISTING SECTION D–D STA 22+70 TO 23+05

AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 8 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 - 200
028-003-000-072 -100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

PROPOSED SECTION A–A STA 0+00 TO 20+30

AT: GLOUCESTER HARBOR
STACY BOULEVARD

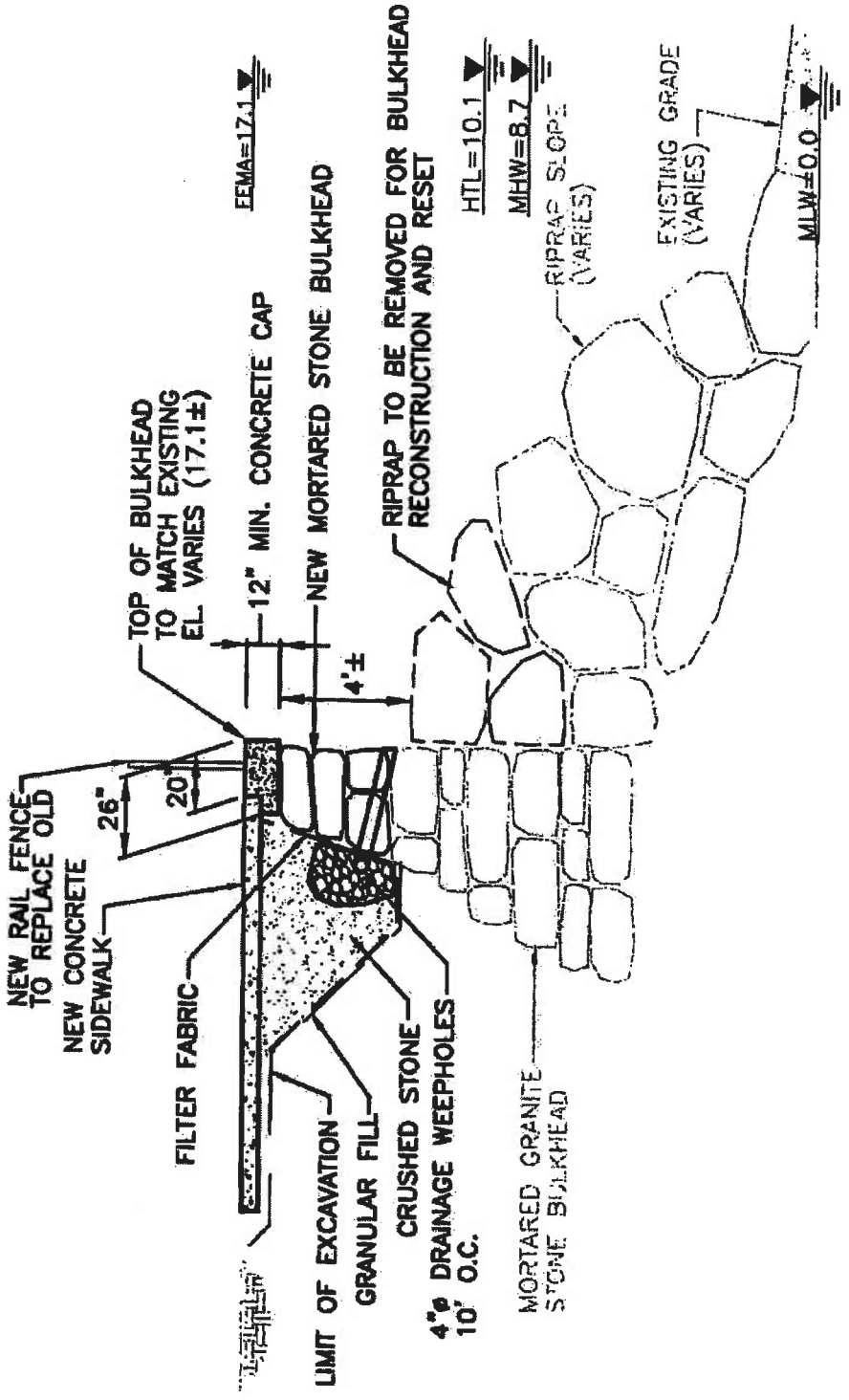
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 9 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072-200
028-003-000-072 -100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

PROPOSED SECTION B–B STA 20+30 TO 21+55

AT: GLOUCESTER HARBOR
STACY BOULEVARD

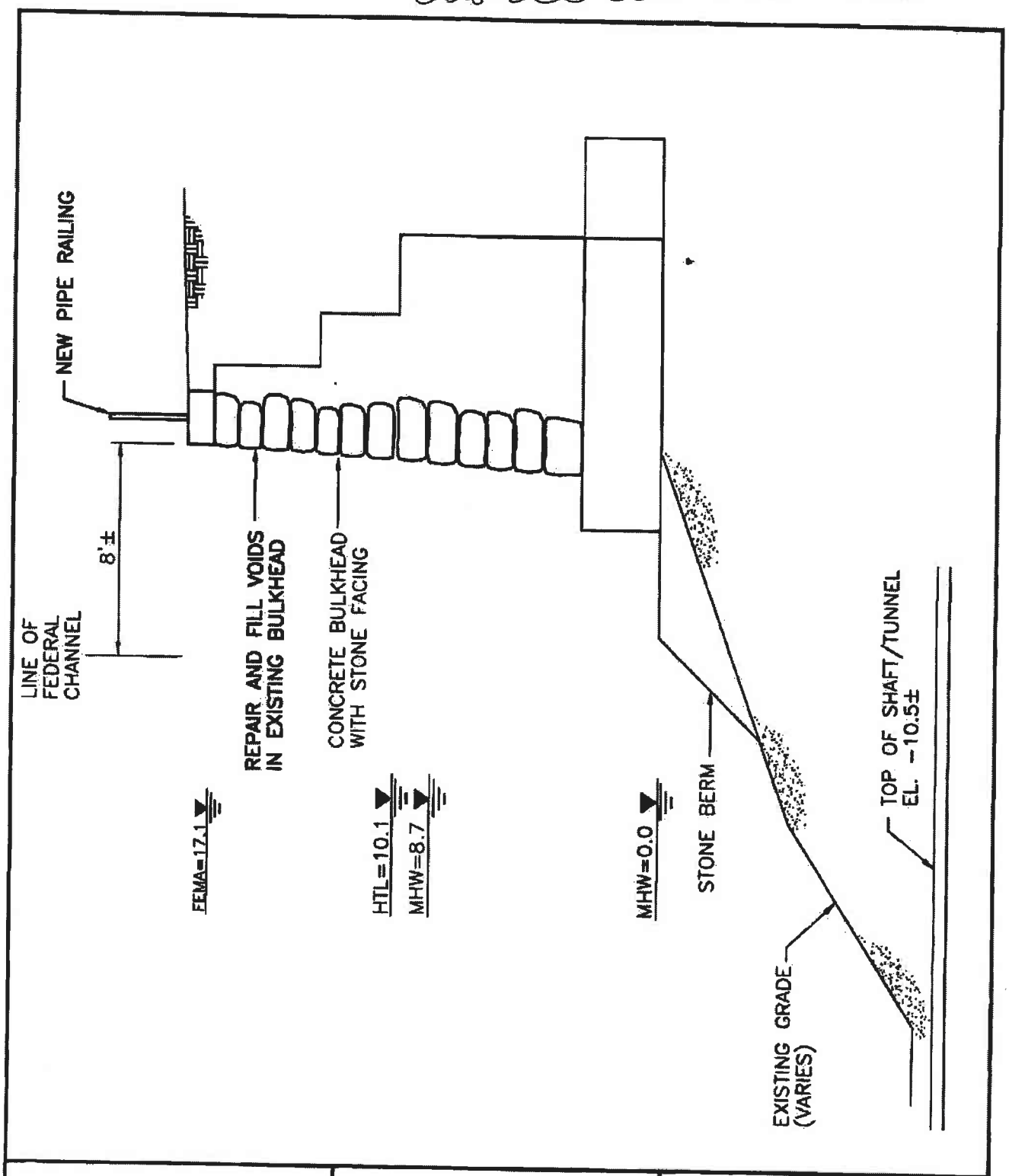
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 10 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 - 200
028-003-000-072 -100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

PROPOSED SECTION C–C STA 21+55 TO 22+70

AT: GLOUCESTER HARBOR
STACY BOULEVARD

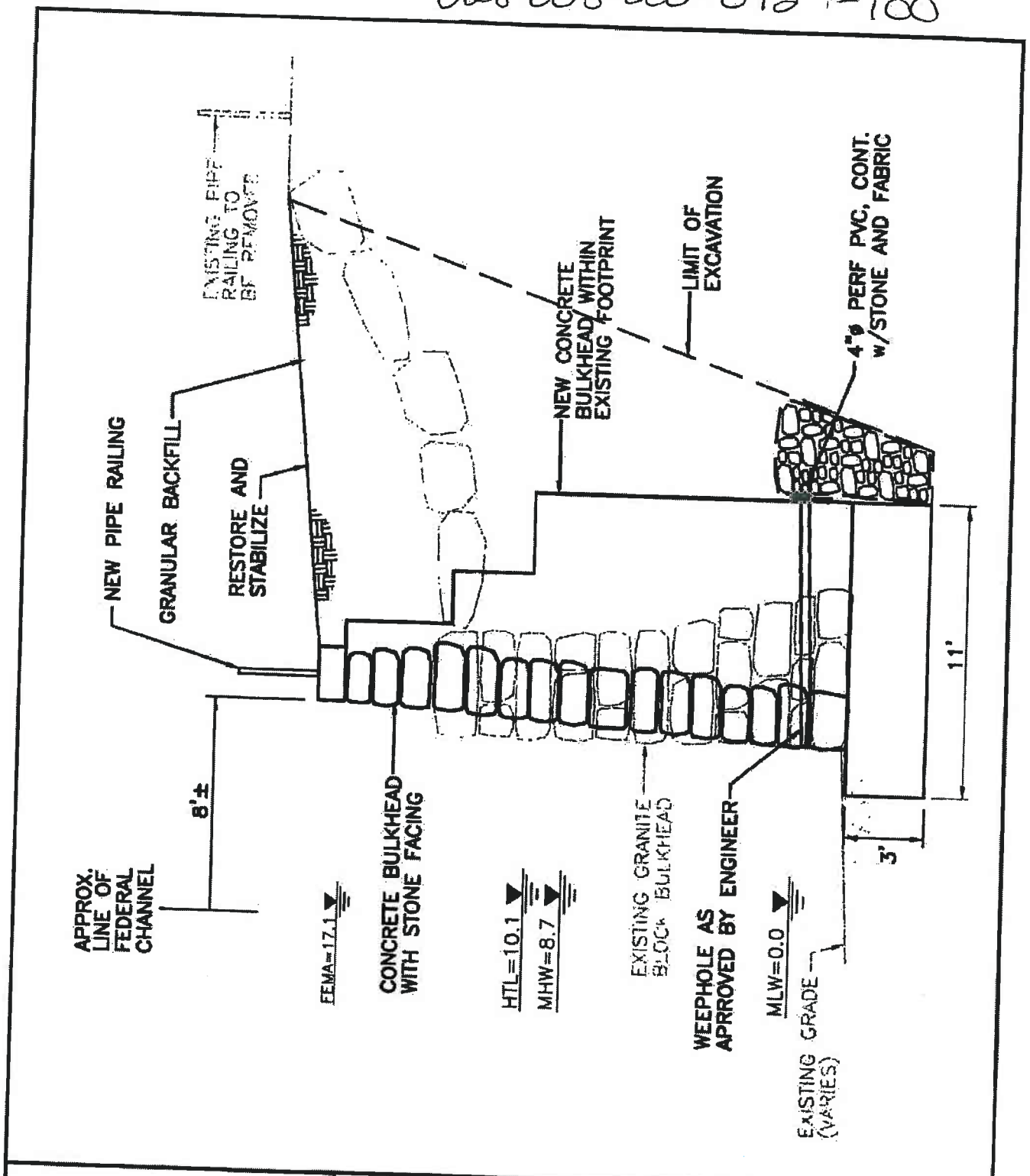
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: SEPT 2000 SHEET 11 OF 12

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-003-000-072 - 200
028-003-000-072 - 100



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

PROPOSED SECTION B–B
STA 22+70 TO 23+05

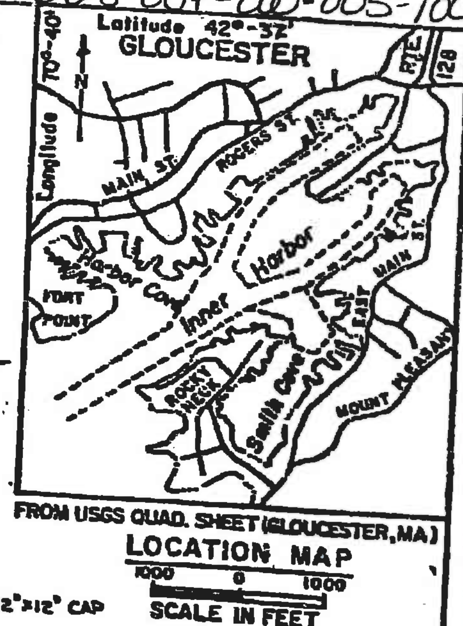
AT: GLOUCESTER HARBOR
STACY BOULEVARD
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS
DATE: SEPT 2000 SHEET 12 OF 12

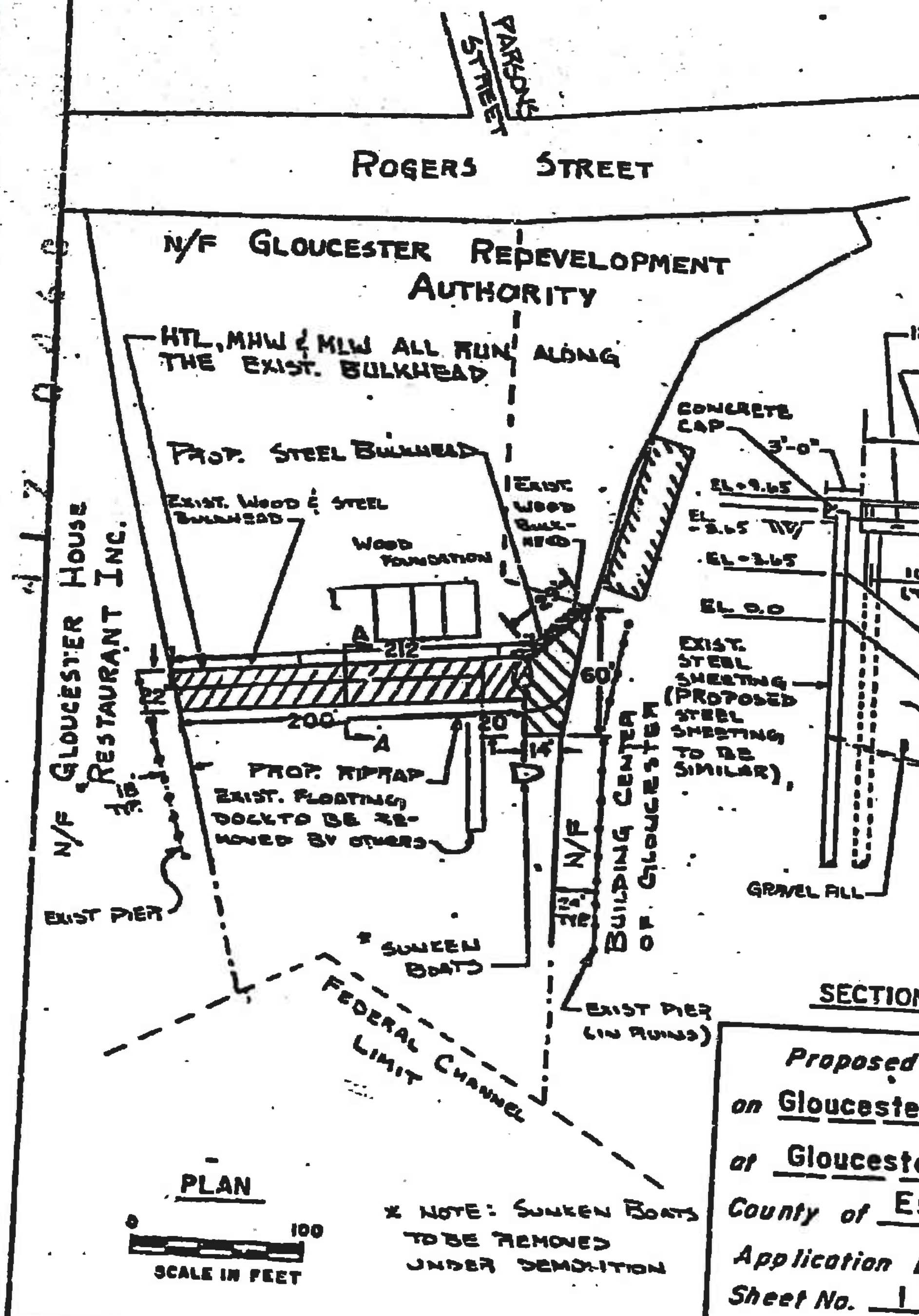
NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-007-000-005-100

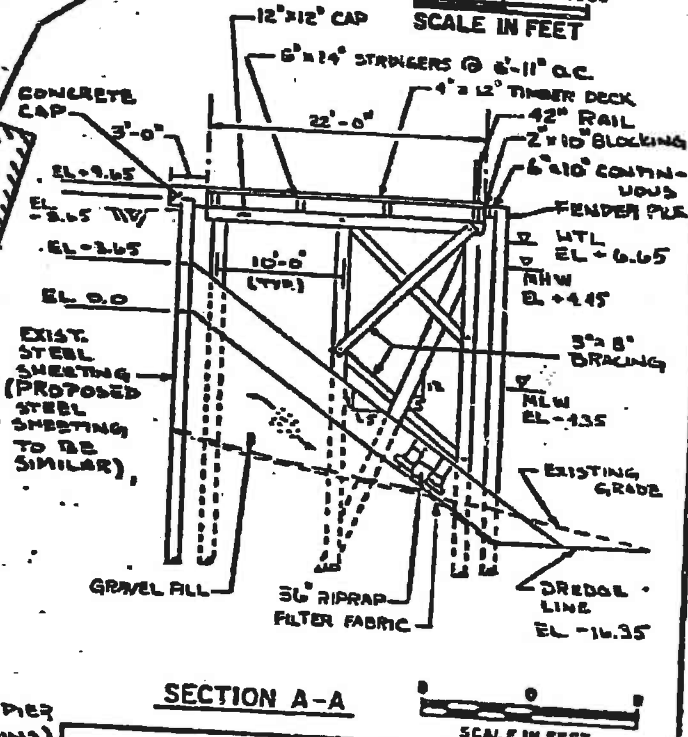
NOTE: ALL ELEVATIONS SHOWN REFER TO NATIONAL GEODETIC VERTICAL DATUM (N.G.V.D.) 1929.

APPROX. 630 cy OF GRAVEL BORROW AND 805 cy OF RIPRAP ARE TO BE PLACED BELOW THE HIGH TIDE LINE (H.T.L.)




PARSONS STREET
ROGERS STREET
N/F GLOUCESTER REDEVELOPMENT AUTHORITY
HTL, MHW & MLW ALL RUN ALONG THE EXIST. BULKHEAD
PROP. STEEL BULKHEAD
EXIST. WOOD & STEEL BULKHEAD
WOOD FOUNDATION
EXIST. WOOD BULKHEAD
A
212
200
A
20
14
60
22
PROP. RIPRAP
EXIST. FLOATING DOCK TO BE REMOVED BY OTHERS
18 TYP.
EXIST PIER
* SUNKEN BOATS
24 TYP.
N/F GLOUCESTER HOUSE RESTAURANT INC.
N/F BUILDING CENTER OF GLOUCESTER
EXIST PIER (IN RUINS)
FEDERAL CHANNEL LIMIT
PLAN
0 100
SCALE IN FEET

* NOTE: SUNKEN BOATS TO BE REMOVED UNDER DEMOLITION


12"x12" CAP
6"x24" STRINGERS @ 6'-11" O.C.
4"x12" TIMBER DECK
42" RAIL
2"x10" BLOCKING
6"x10" CONTINUOUS
FENDER PILE
CONCRETE CAP
3'-0"
22'-0"
EL +9.65
EL +3.65 TW
EL +3.65
10'-0" (TYP.)
EL 0.0
HTL EL +6.65
MHW EL +4.45
3"x8" BRACING
EXIST. STEEL SHEETING (PROPOSED STEEL SHEETING TO BE SIMILAR)
MLW EL -.35
EXISTING GRADE
GRAVEL FILL
36" RIPRAP
FILTER FABRIC
DREDGE LINE EL -16.35
SECTION A-A
SCALE IN FEET

Proposed Site Construction

on Gloucester Harbor

at Gloucester

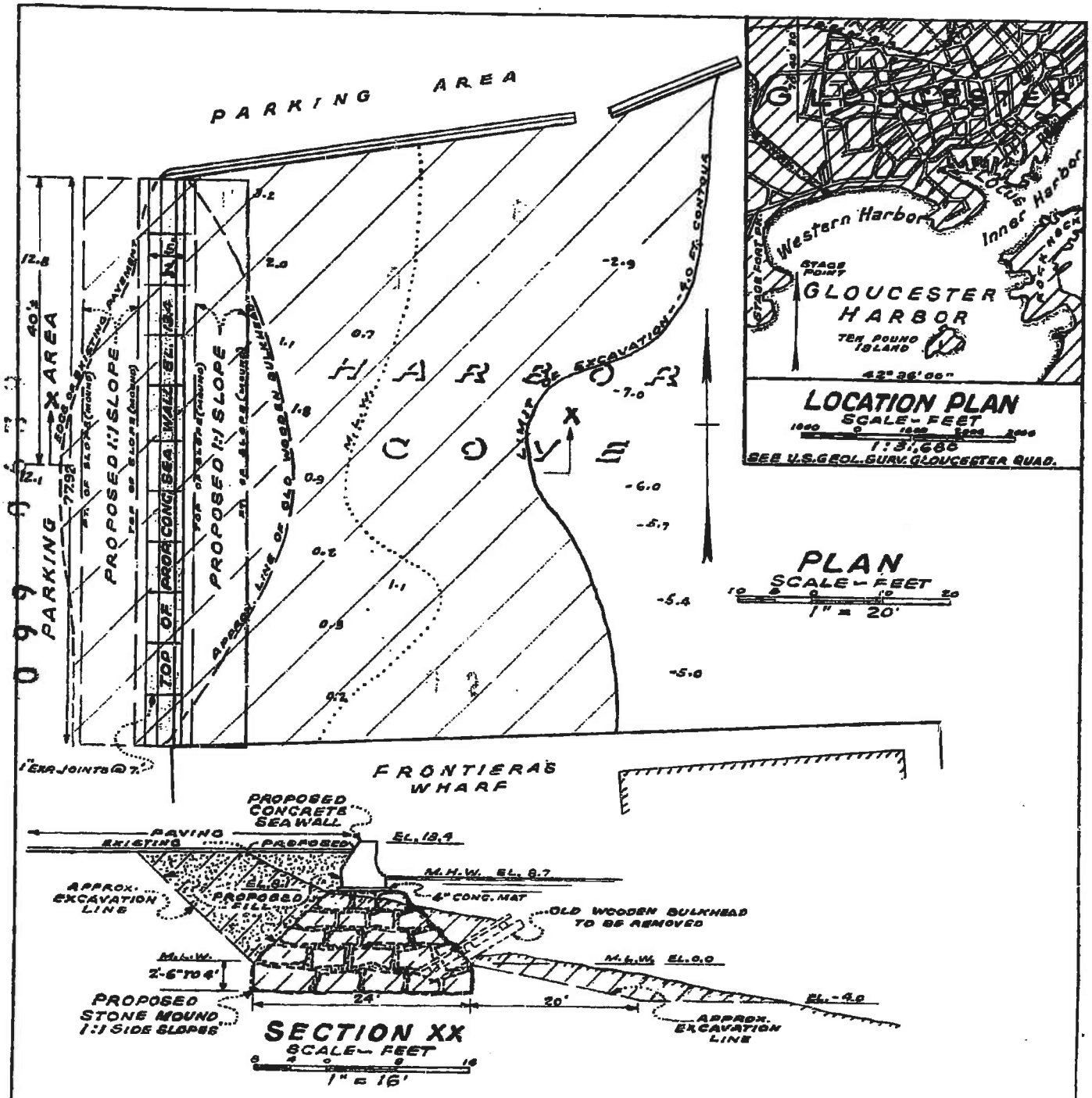
County of Essex *State* Ma

Application by Gloucester Redevelopment Authority

Sheet No. 1 *of* 1 *Date* January, 1984

0 9 2 0 0 0 2 8

028-007-000-016-200



NOTE

ELEVATIONS ARE IN FEET AND TENTHS AND SHOW HEIGHTS ABOVE THE PLANE OF MEAN LOW WATER. MINUS FIGURES INDICATE DEPTHS BELOW THE SAME PLANE.
LOCATION OF PROPOSED WORK IS SHOWN IN RED, EXCEPT AREA TEMPORARILY EXCAVATED.
HATCH LINES INDICATE PROPOSED EXCAVATION (ON SECTION)
TEMPORARY EXCAVATION WITH ADEQUATE SLOPE TO BE MADE FOR PLACEMENT OF INNER FOOT OF SLOPE OF STONE MOUND. BACK FILL THEN TO BE PLACED AS SHOWN ON SECTION.

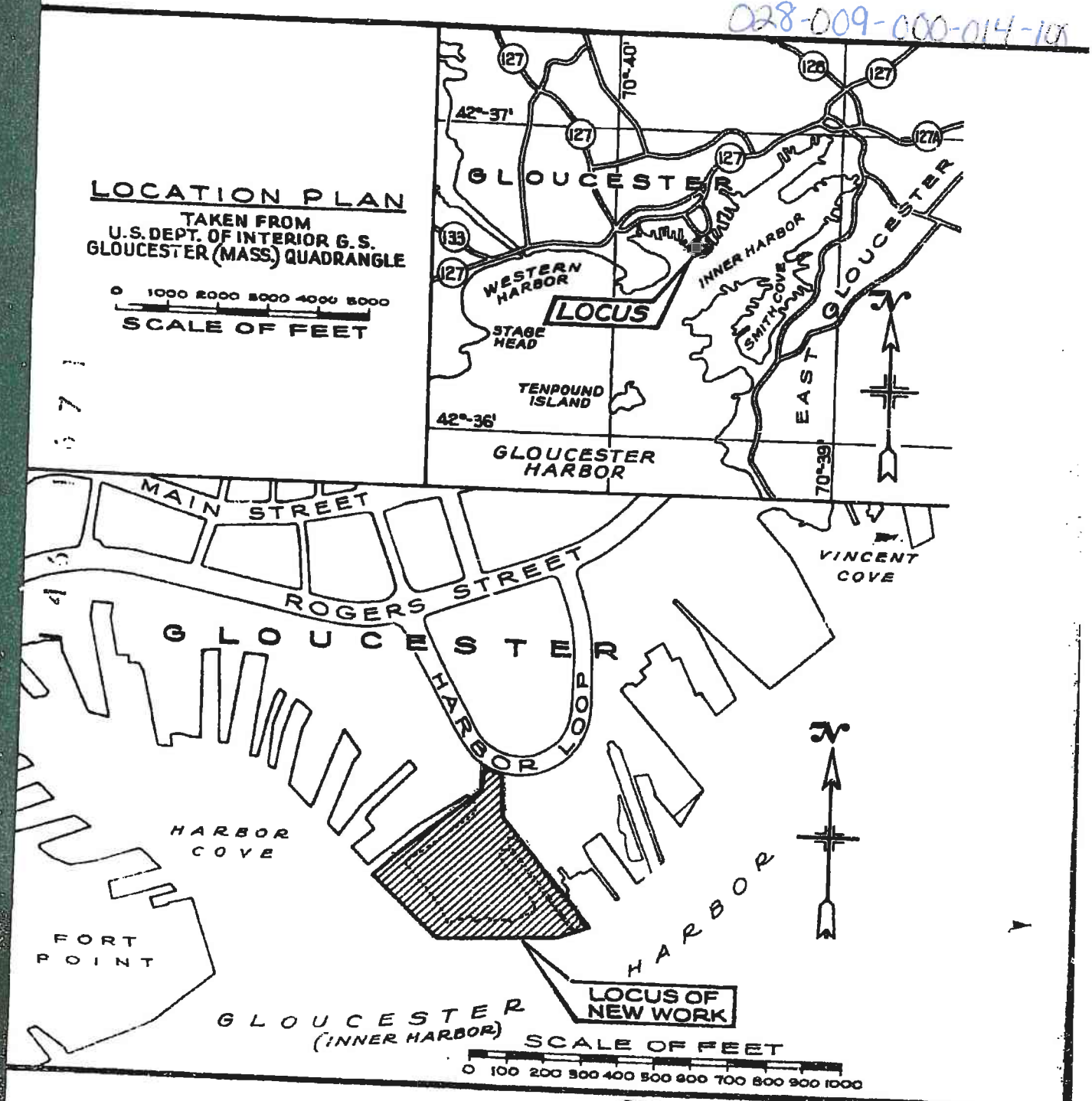
PROPOSED SEAWALL
HARBOR COVE
GLOUCESTER HARBOR
GLOUCESTER - MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
JULY 1954
SCALES SHOWN

DISTRICT WATERWAYS ENGINEER.

Acc 8226

038 0687

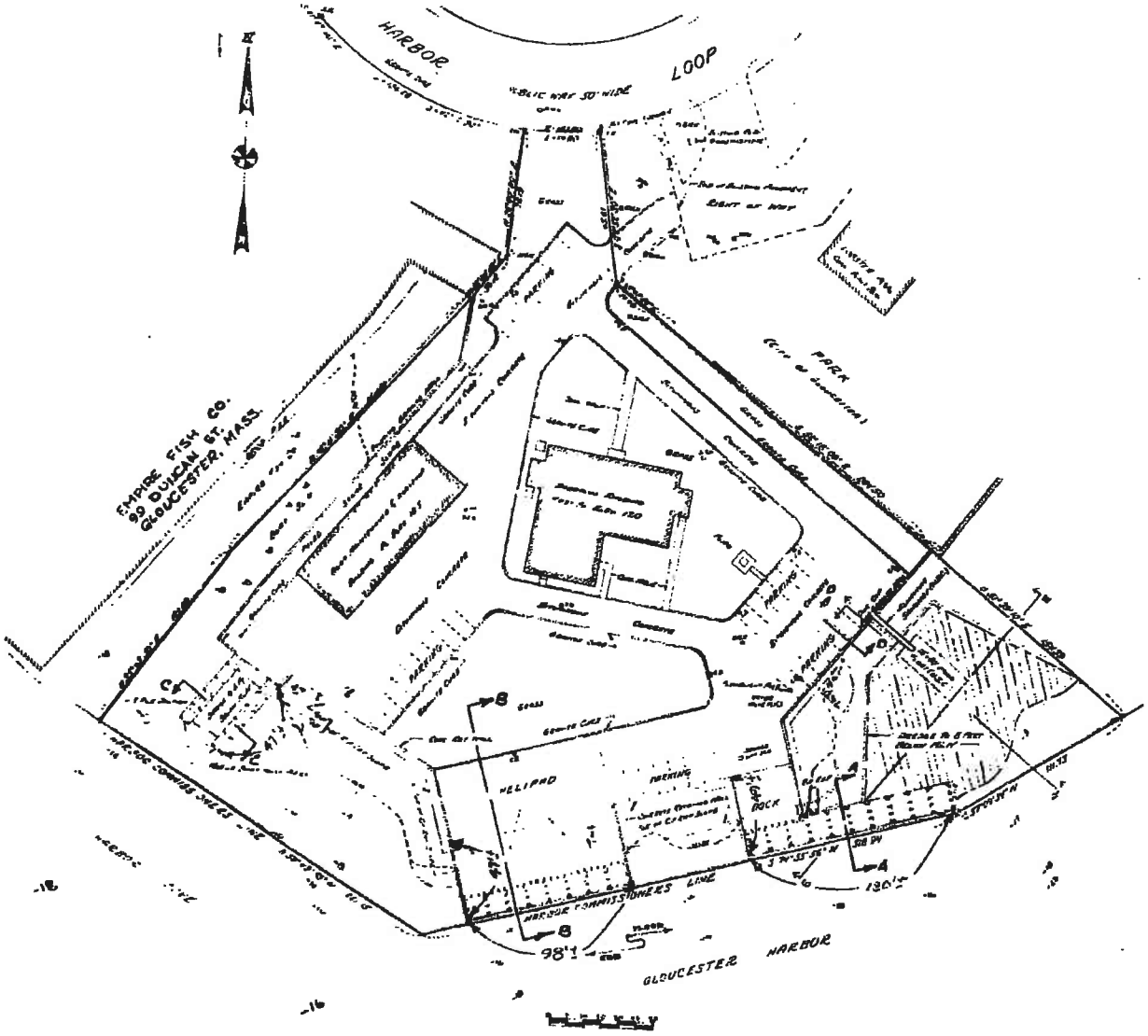
028-009-000-014-10



Proposed SHORE & MARINE WORK
in GLOUCESTER HARBOR
at GLOUCESTER
County of ESSEX *State of* MASS
Application by U S COAST GUARD
FIRST DISTRICT
BOSTON, MASS.

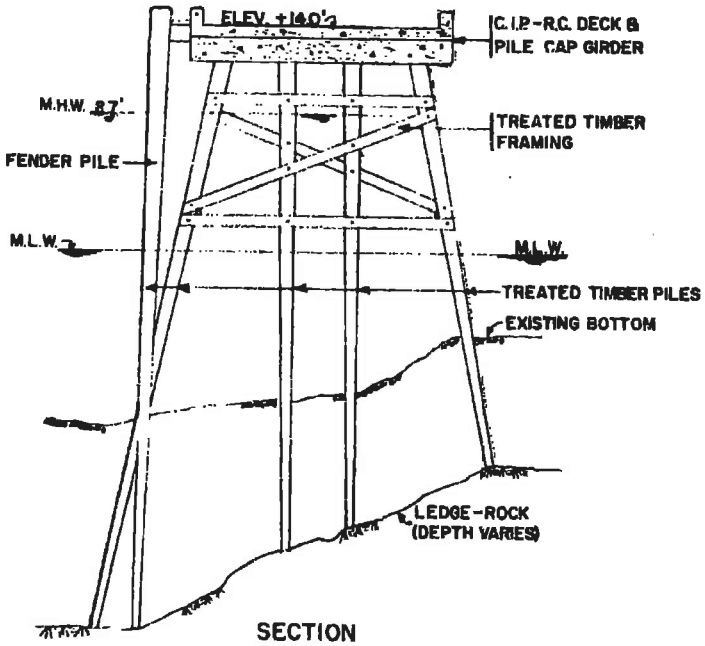
0 3 8 0 6 8 8

028-009-000-014-100

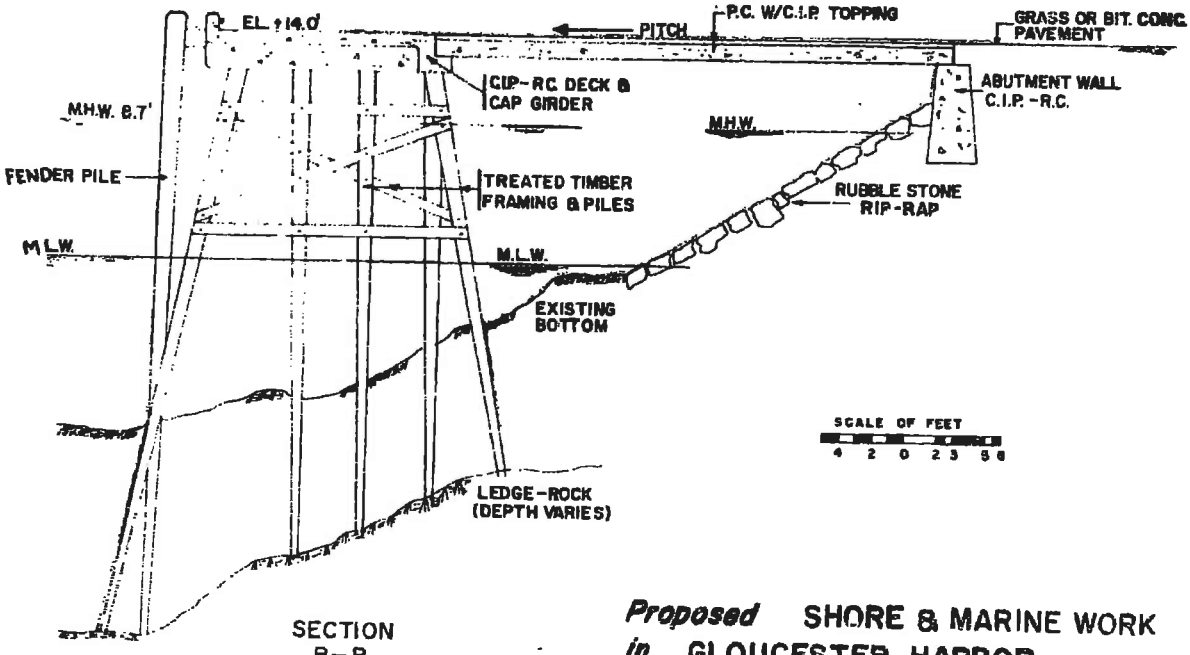


Proposed SHORE & MARINE WORK
in GLOUCESTER HARBOR
at GLOUCESTER
County of ESSEX *State of* MASS
Application by U S COAST GUARD
FIRST DISTRICT
BOSTON MASS

Sheet 2 *of* 7 *Date* 4/72



SECTION
A-A



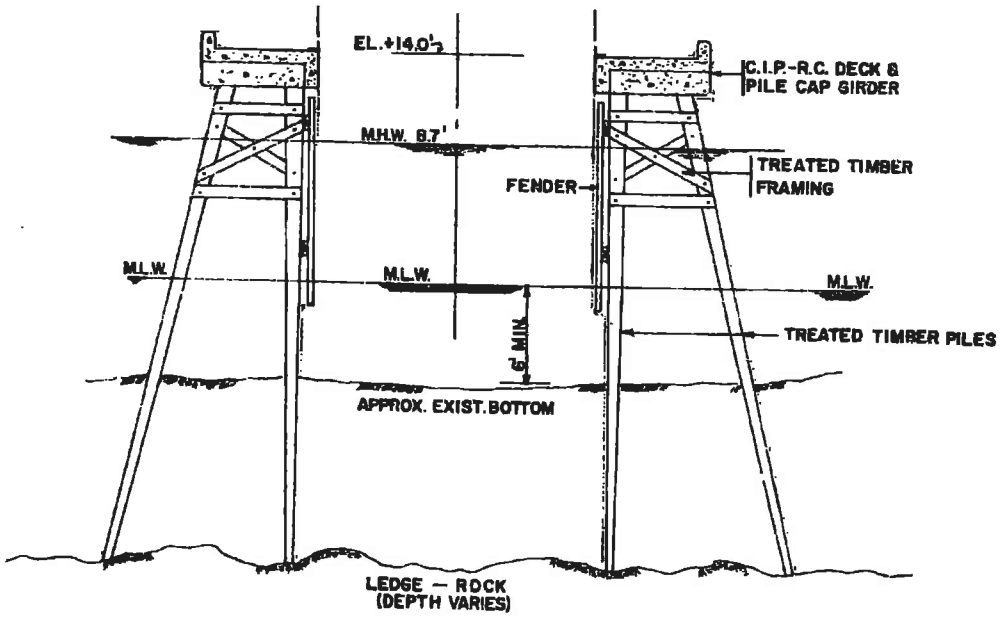
SECTION
B-B

Proposed SHORE & MARINE WORK
in GLOUCESTER HARBOR
at GLOUCESTER
County of ESSEX *State of* MASS
Application by US COAST GUARD
FIRST DISTRICT
BOSTON MASS

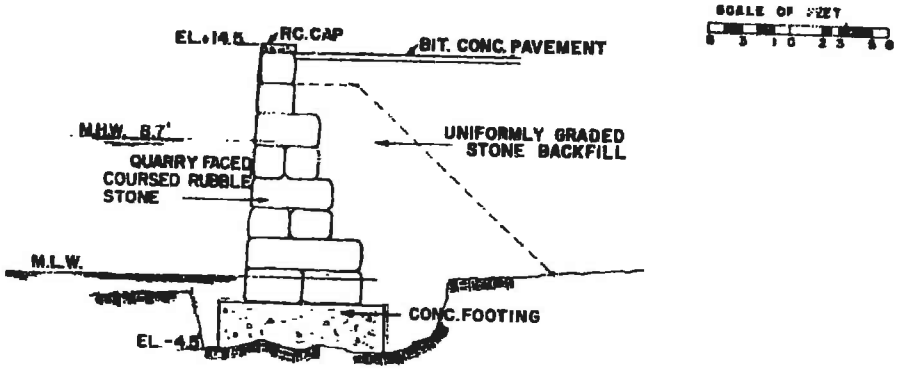
Sheet 3 of 7 *Date 4/72*

038 0690

038-009-000-014-100



SECTION
C – C



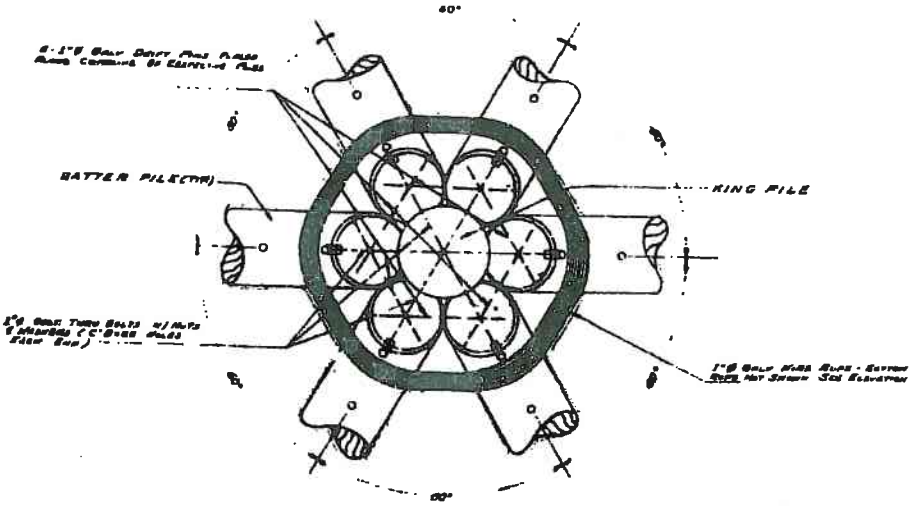
SECTION
D – D

Proposed SHORE & MARINE WORK
in GLOUCESTER HARBOR
at GLOUCESTER
County of ESSEX *State of* MASS
Application by US COAST GUARD
FIRST DISTRICT
BOSTON MASS

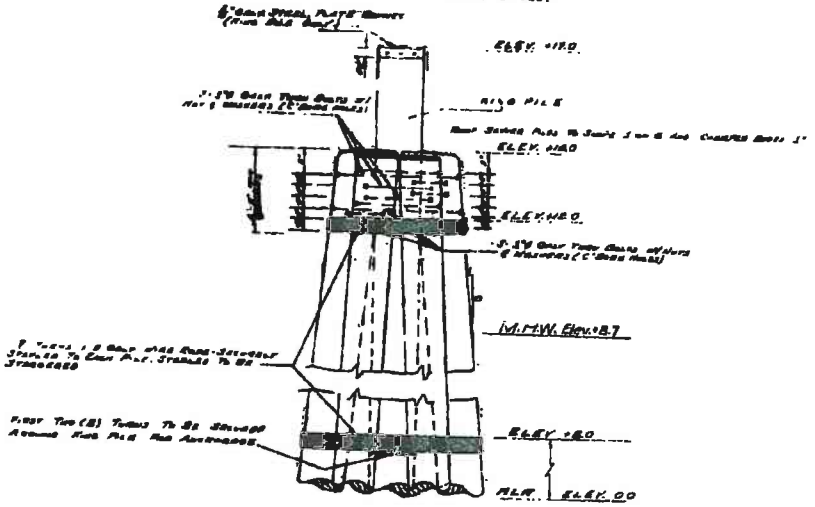
Sheet 4 of 7 *Date* 4/72

033 0691

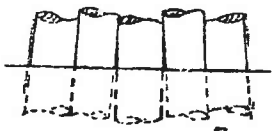
028-009-000-014-100



DOLPHIN PLAN
SCALE:



DOLPHIN ELEVATION
SCALE:

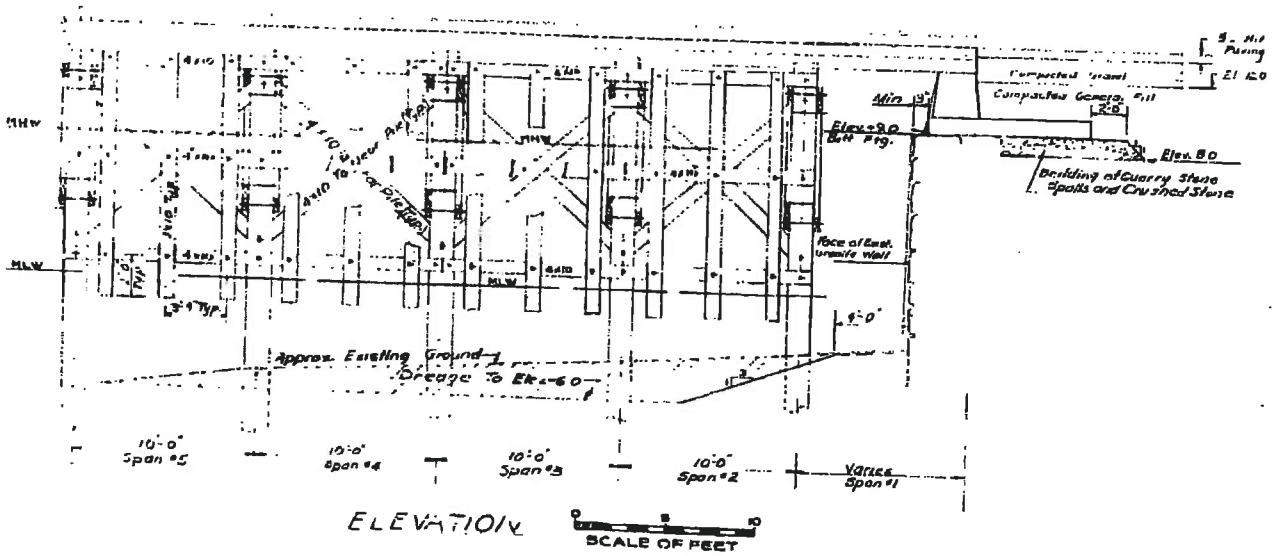


Proposed SHORE & MARINE WORK
in GLOUCESTER HARBOR
at GLOUCESTER
County of ESSEX *State of* MASS
Application by U S COAST GUARD
FIRST DISTRICT
BOSTON MASS

Sheet 5 *of* 7 *Date* 4/72

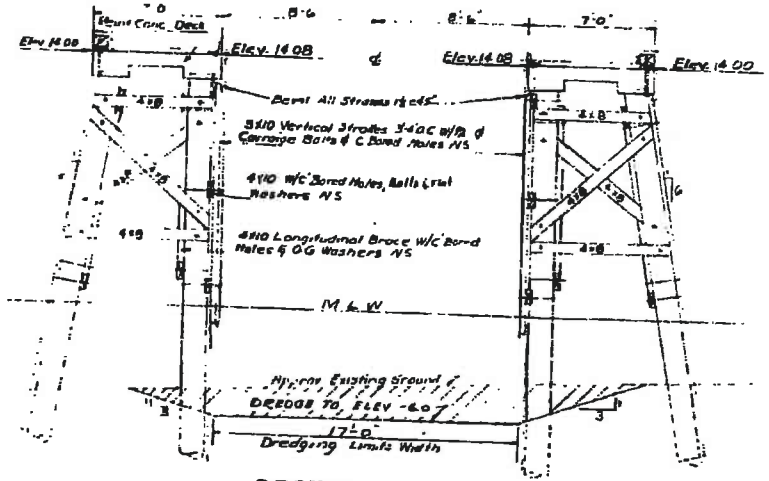
0 3 3 0 6 9 2

028-009-000-014-100



ELEVATION

SCALE OF FEET



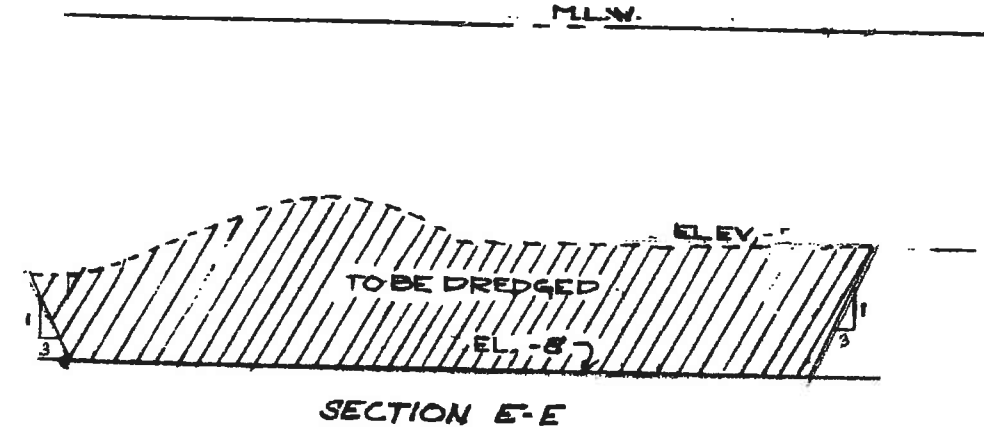
SECTION

SCALE OF FEET

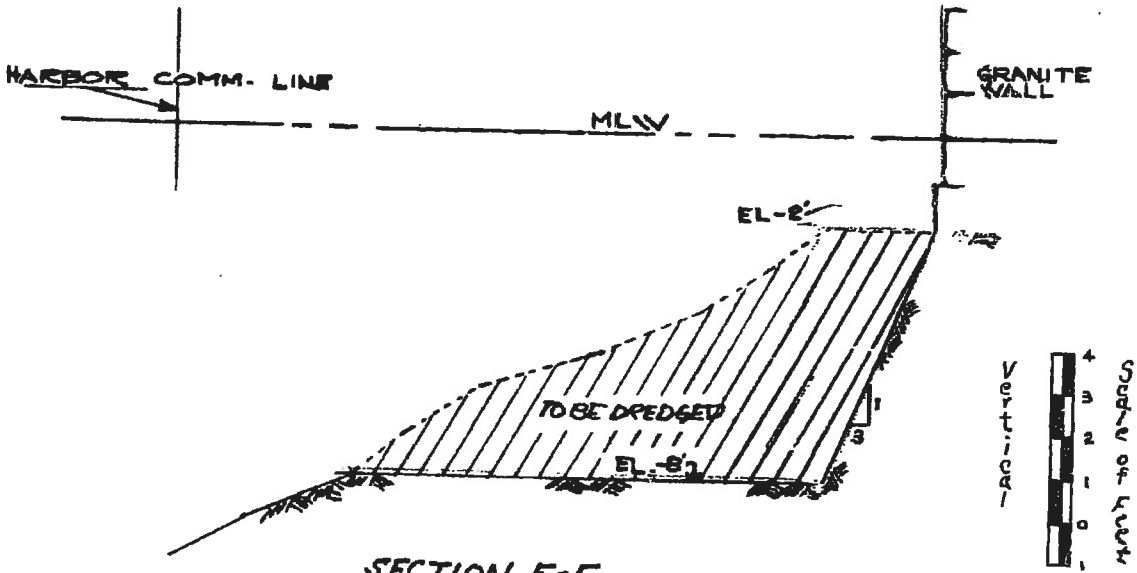
Proposed SHORE & MARINE WORK
in GLOUCESTER HARBOR
at GLOUCESTER
County of ESSEX *State of* MASS
Application by U S COAST GUARD

038 0693

038-009-000-014-100



SECTION E-E



SECTION F-F

Scale of Feet

30 20 10 0 30

Horizontal

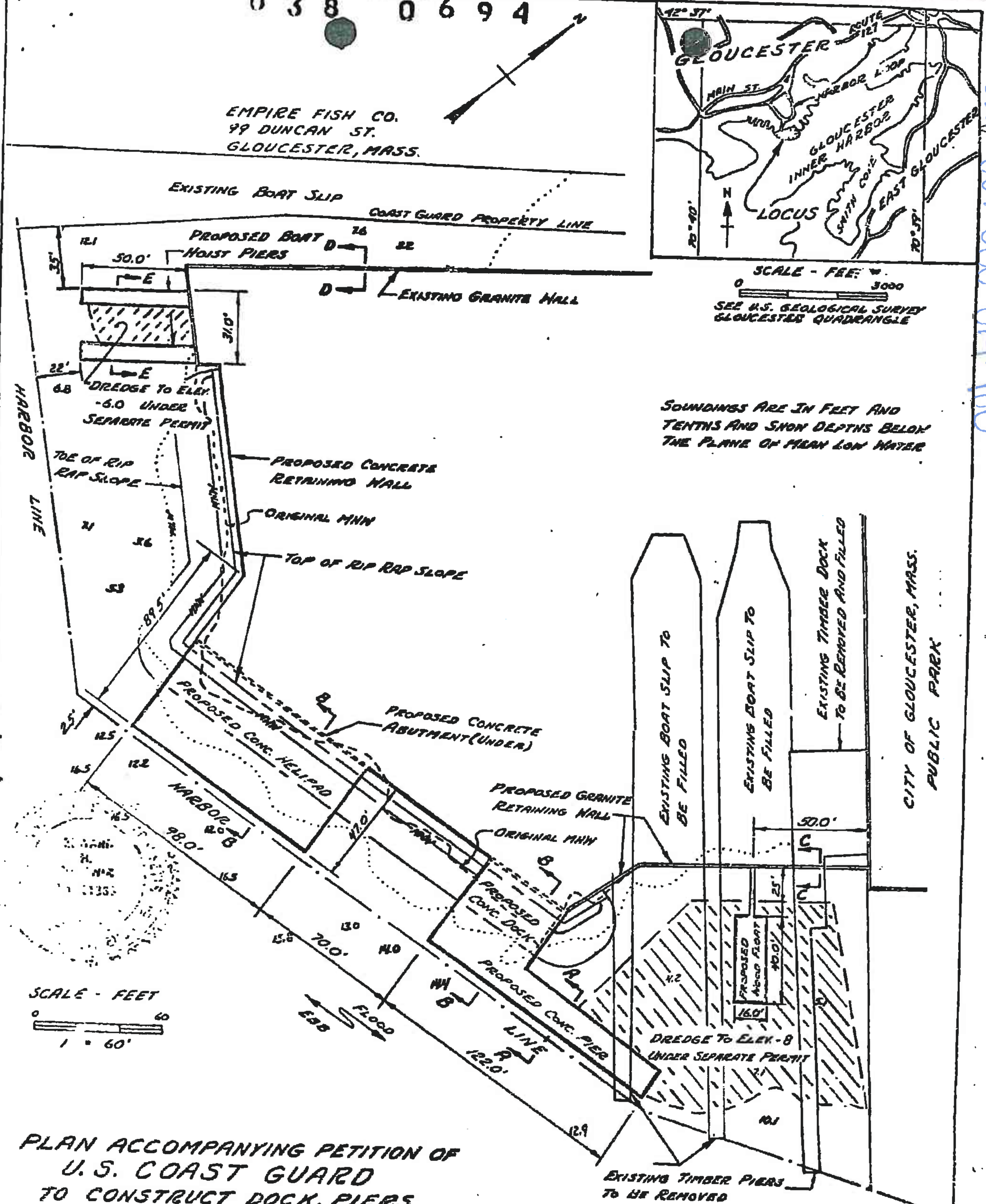
Dredged Sections Under Boat Float

Proposed SHORE & MARINE WORK
in GLOUCESTER HARBOR
at GLOUCESTER
County of ESSEX *State of* MASS
Application by U S COAST GUARD
FIRST DISTRICT
BOSTON MASS

Sheet 7 *of* 7

Date 4/72

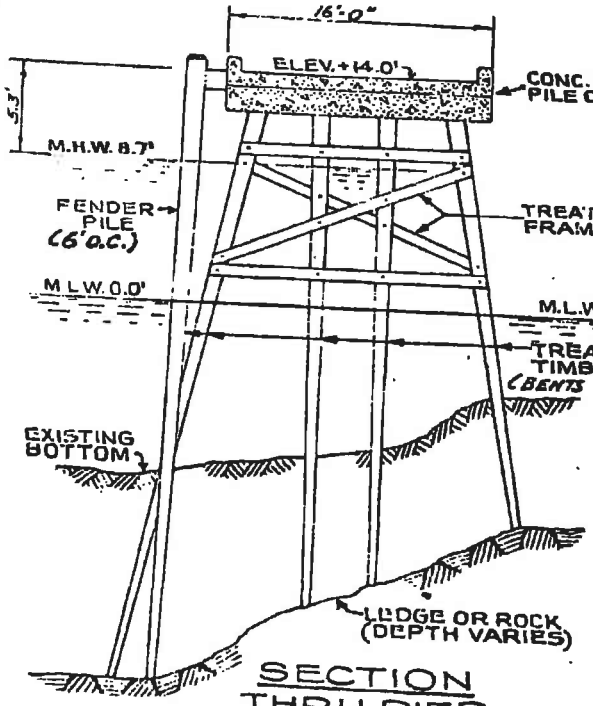
038 0694



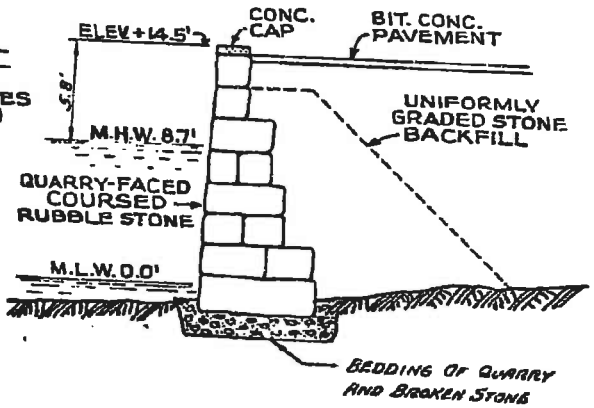
PLAN ACCOMPANYING PETITION OF
U.S. COAST GUARD
TO CONSTRUCT DOCK, PIERS,
WALLS, RIP RAP SLOPE & FILL
IN
GLOUCESTER HARBOR
GLOUCESTER, MASS.
OCTOBER, 1972

038 0695

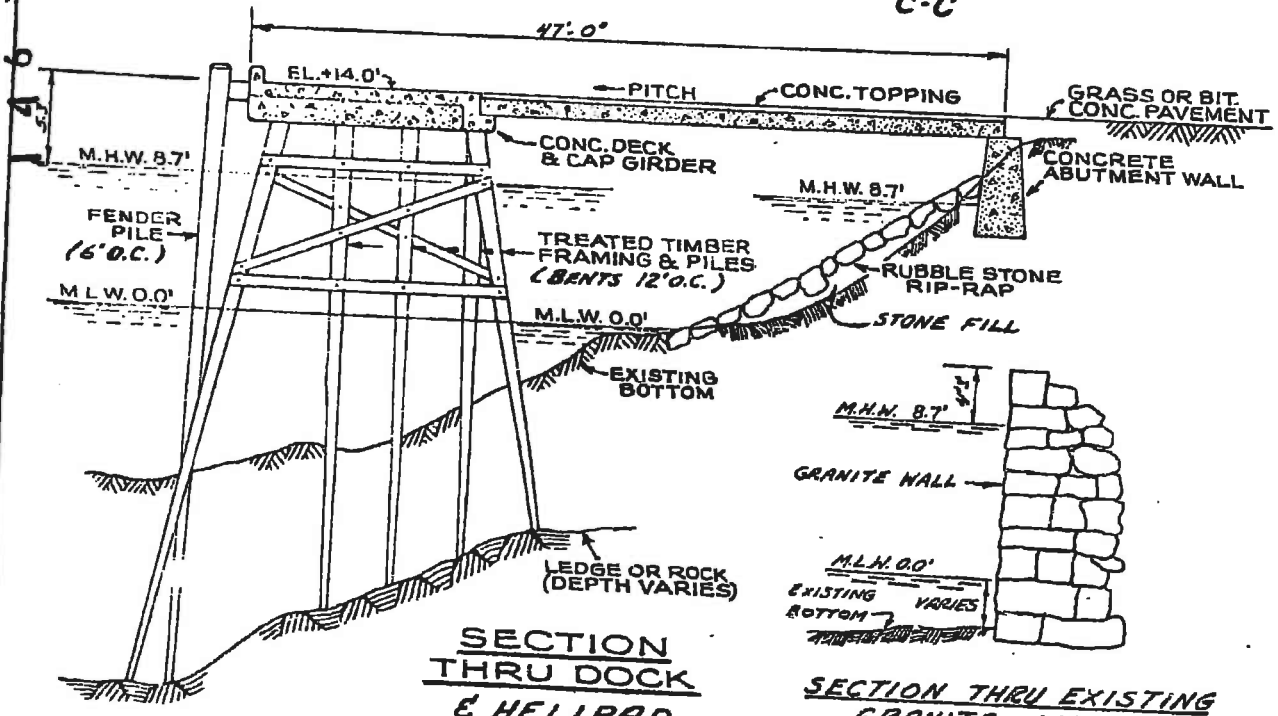
038-009-000-014-100



SECTION THRU PIER
A-A



SECTION THRU RETAINING WALL
C-C



SECTION THRU DOCK & HELIPAD
B-B

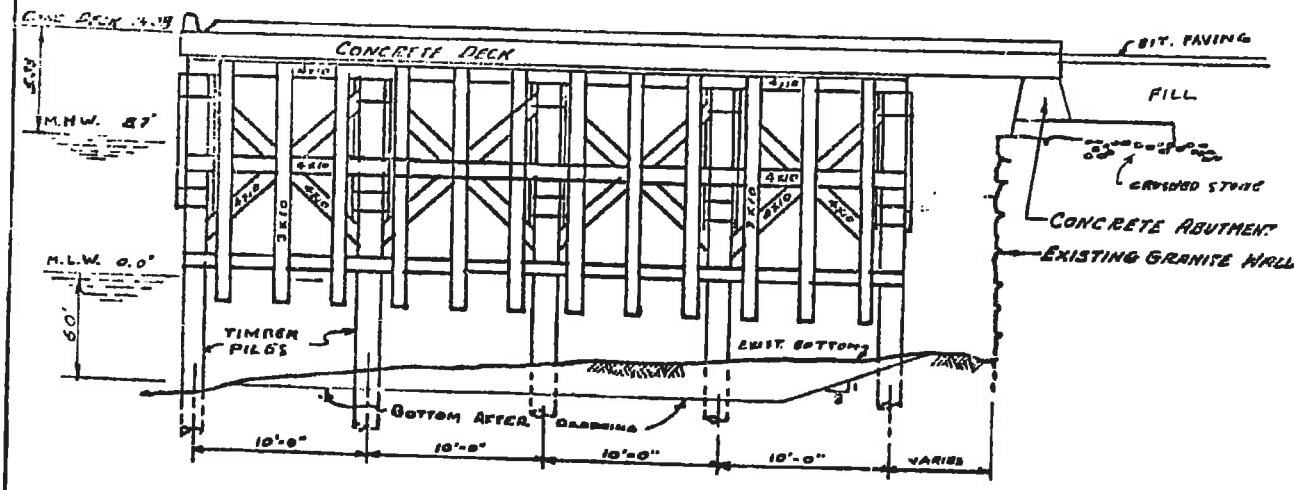
SECTION THRU EXISTING GRANITE WALL
D-D

SCALE - FEET
0 5 10
1" = 10'

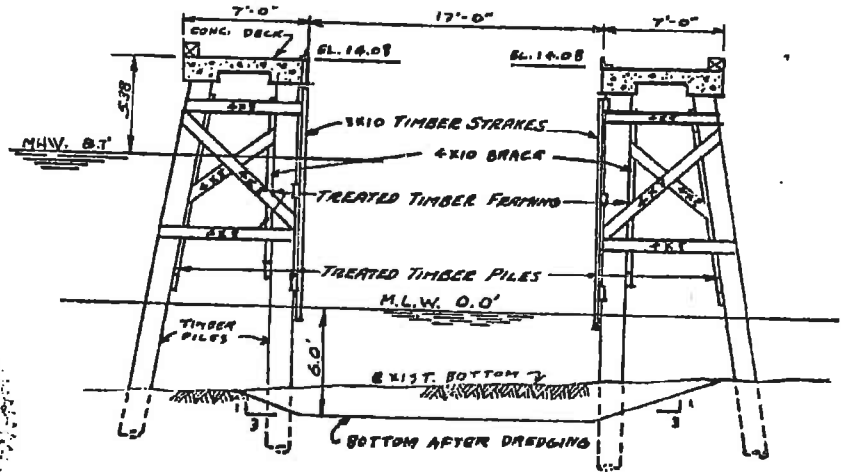
038 0696

028-009-000-014-100

146 16777



ELEVATION OF BOAT HOIST PIERS



SECTION THRU BOAT HOIST PIERS

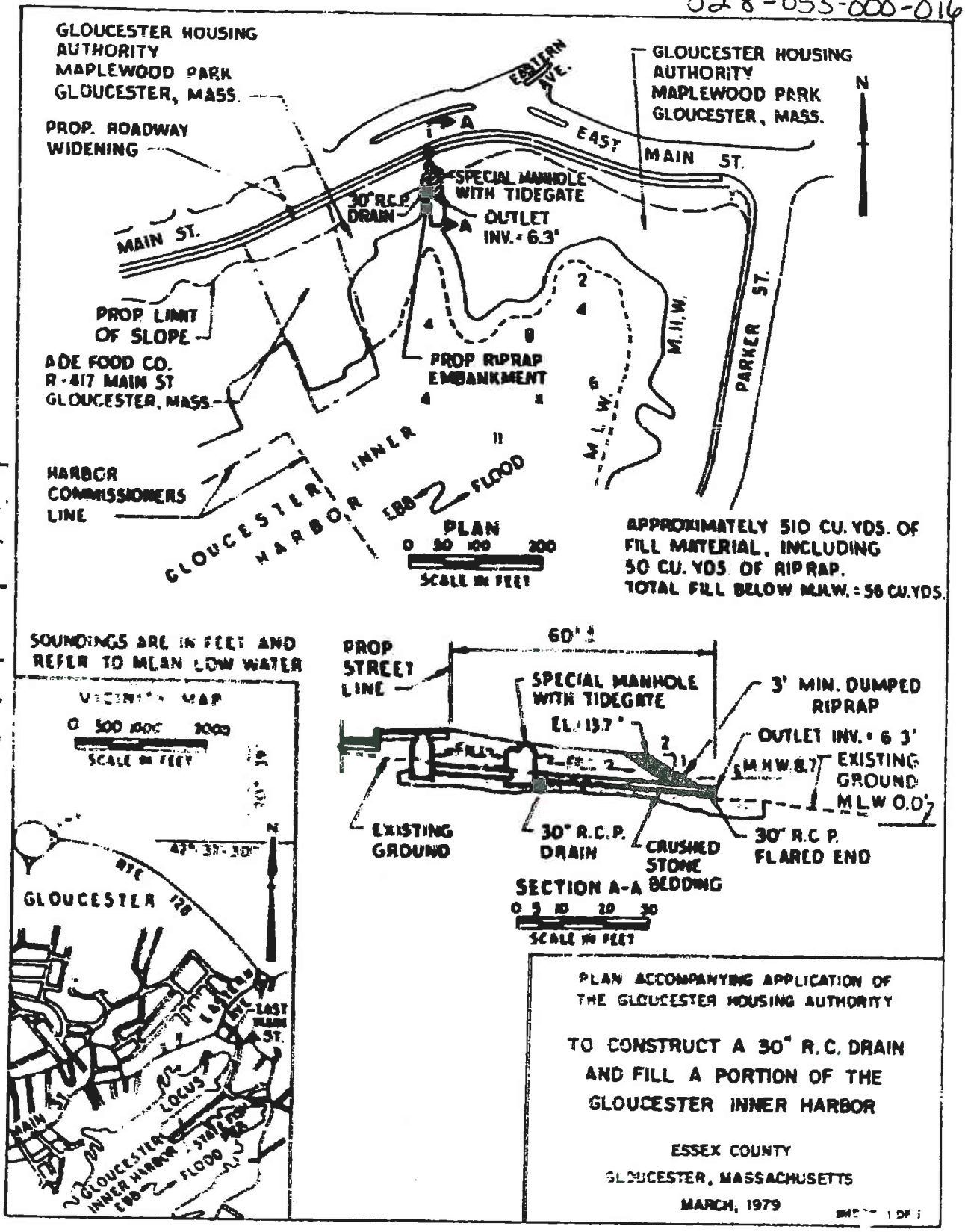
E-E

SCALE - FEET

1" = 10'

LG-55 - GIO
FAY, SPOFFORD AND THORNDIKE INC.

028-053-000-016-100



PLAN ACCOMPANYING APPLICATION OF THE GLOUCESTER HOUSING AUTHORITY

TO CONSTRUCT A 30" R.C. DRAIN AND FILL A PORTION OF THE GLOUCESTER INNER HARBOR

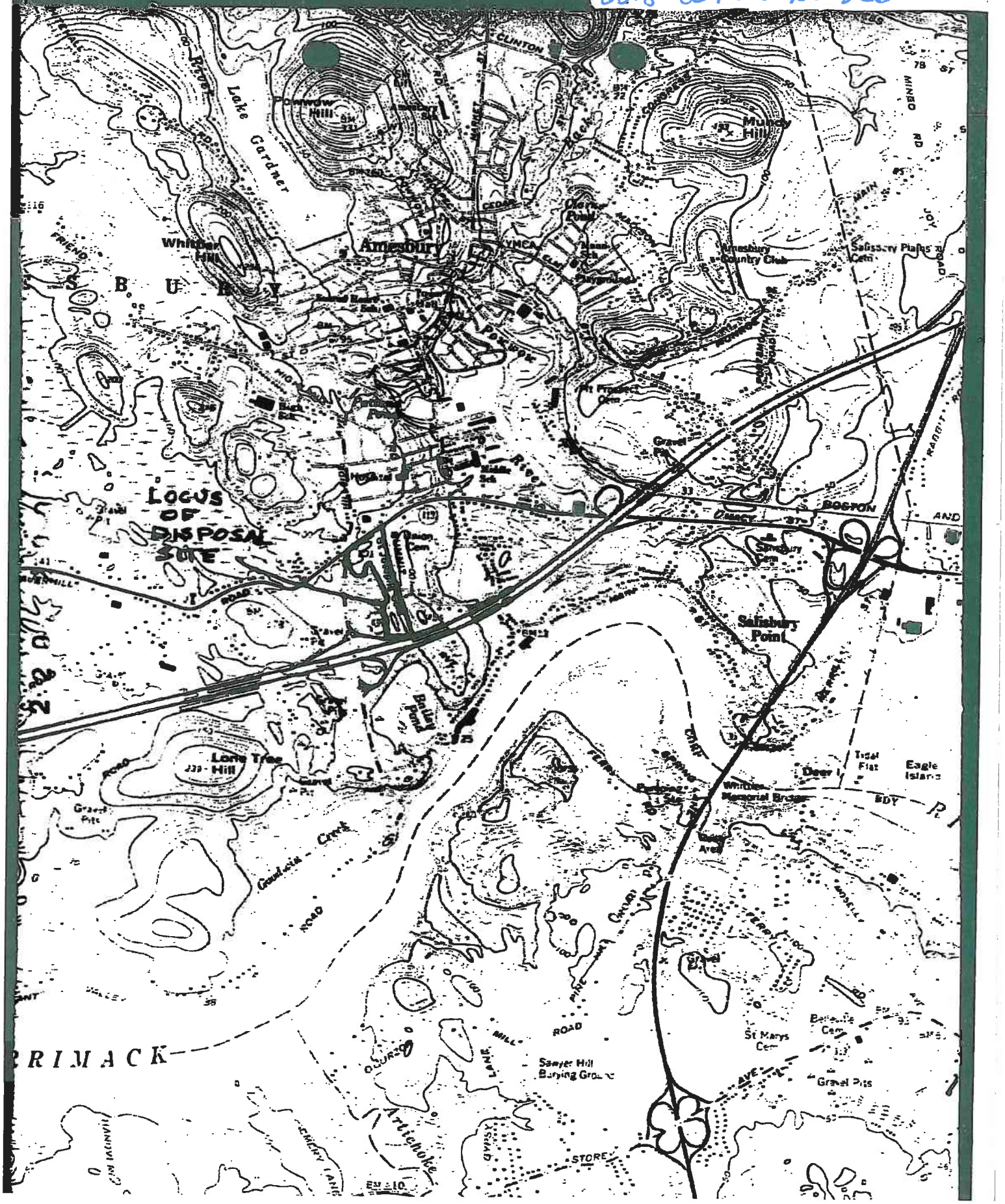
ESSEX COUNTY

GLOUCESTER, MASSACHUSETTS

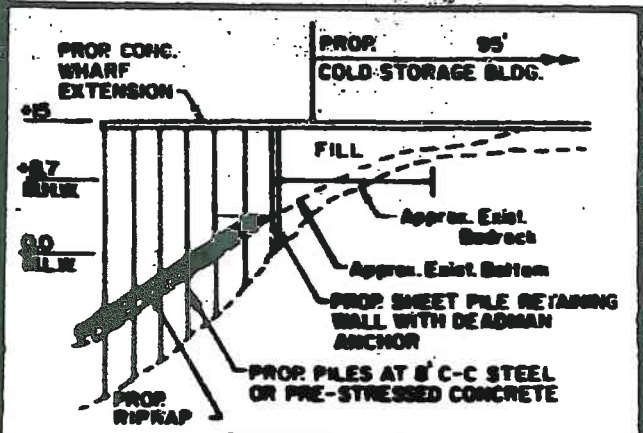
MARCH, 1979

SHEET 1 OF 1

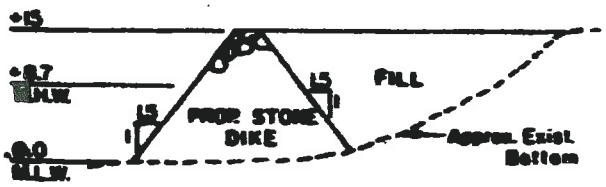
028-054-000-108-100
028-054-000-108-200



028-054-000-108-100
028-054-000-108-200

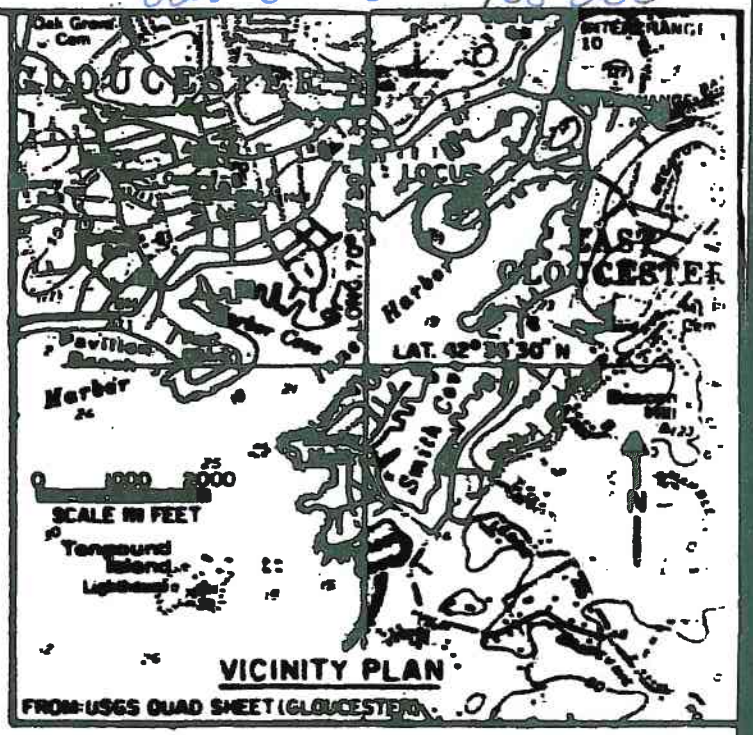


SECTION A-A



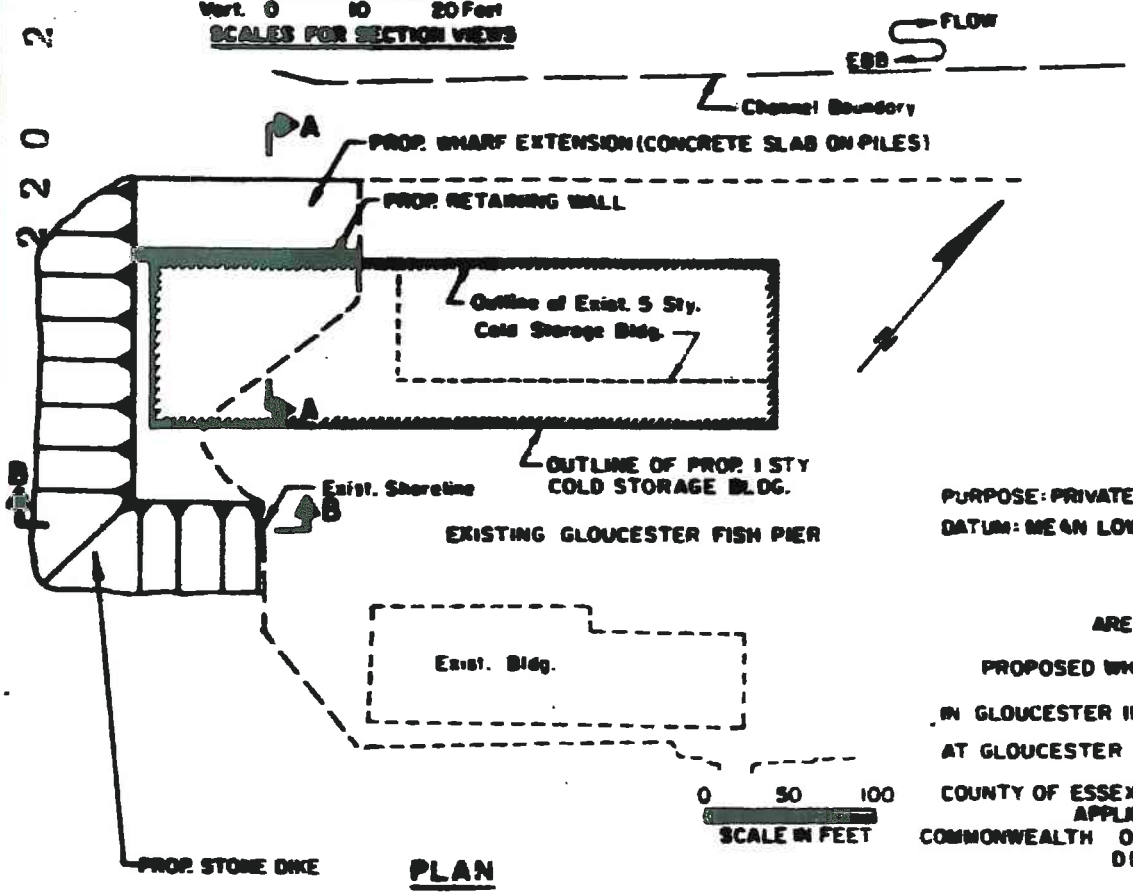
SECTION B-B

Horiz. 0 20 40 Feet
Vert. 0 10 20 Feet
SCALES FOR SECTION VIEWS



VICINITY PLAN

FROM: USGS QUAD SHEET (GLOUCESTER)



PLAN

PURPOSE: PRIVATE WHARF EXTENSION
DATUM: MEAN LOW WATER

AREA 'A'

PROPOSED WHARF EXTENSION

IN GLOUCESTER INNER HARBOR

AT GLOUCESTER

COUNTY OF ESSEX STATE: MASS

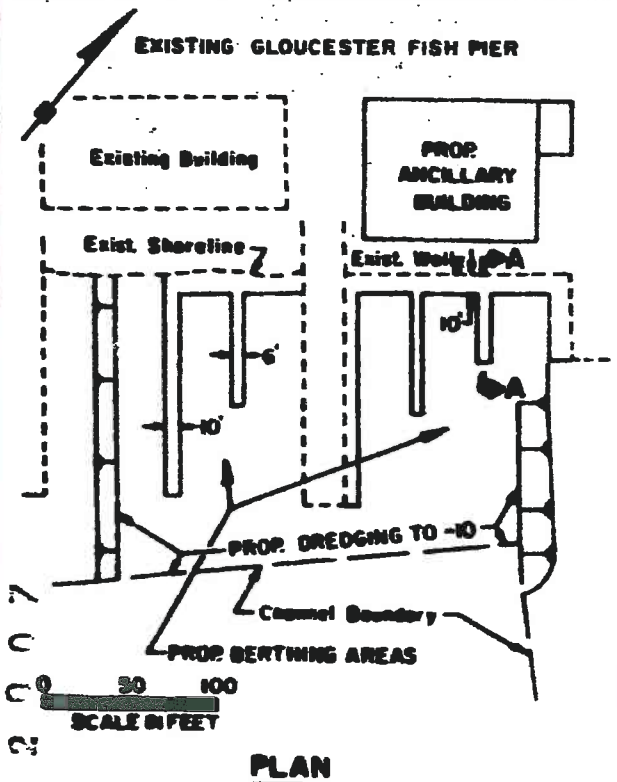
APPLICANT:

COMMONWEALTH OF MASSACHUSETTS

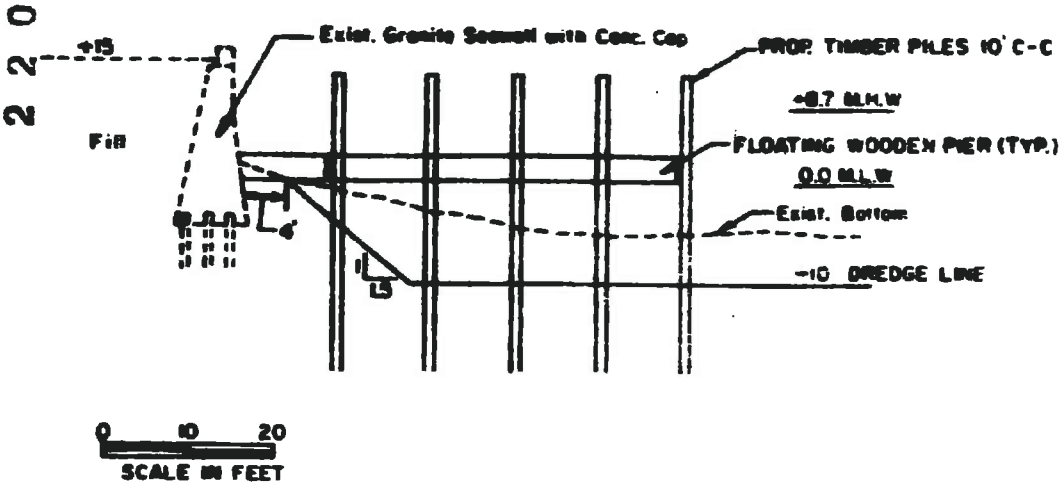
DEQE

SHEET 1 OF 3 DATE: 6/9/76

028-054-000-108-100
028-054-000-108-200



PLAN



SECTION A-A

AREA "B"

PROPOSED BERTHING FACILITIES

IN GLOUCESTER INNER HARBOR

AT GLOUCESTER

COUNTY OF ESSEX STATE MASS

APPLICANT:

COMMONWEALTH OF MASSACHUSETTS

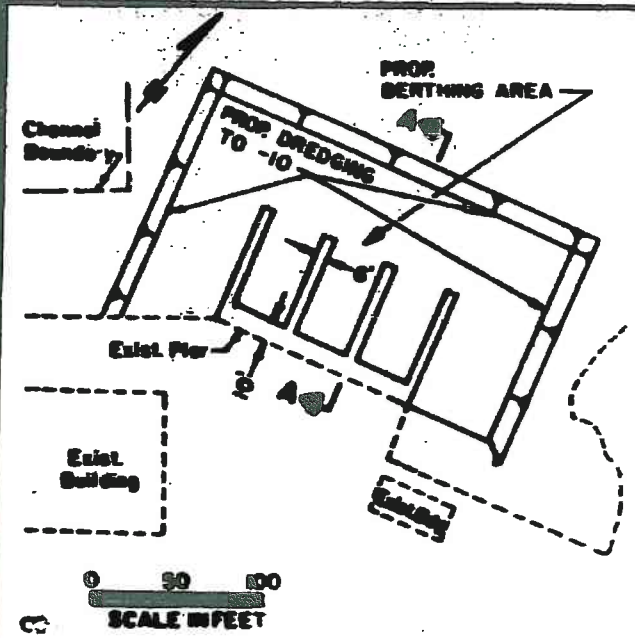
DEQE

PURPOSE: PUBLIC BERTHING FACILITIES

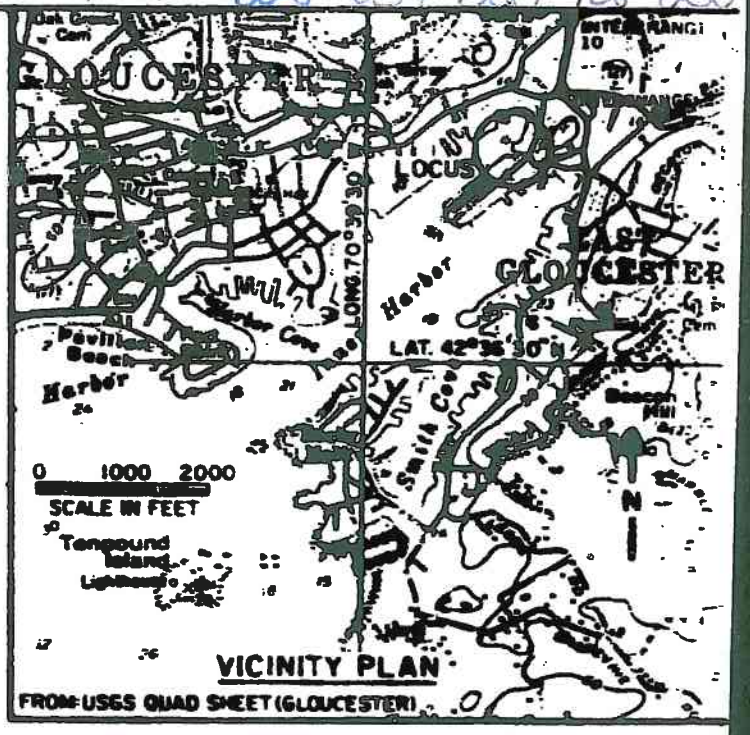
DATUM: MEAN LOW WATER

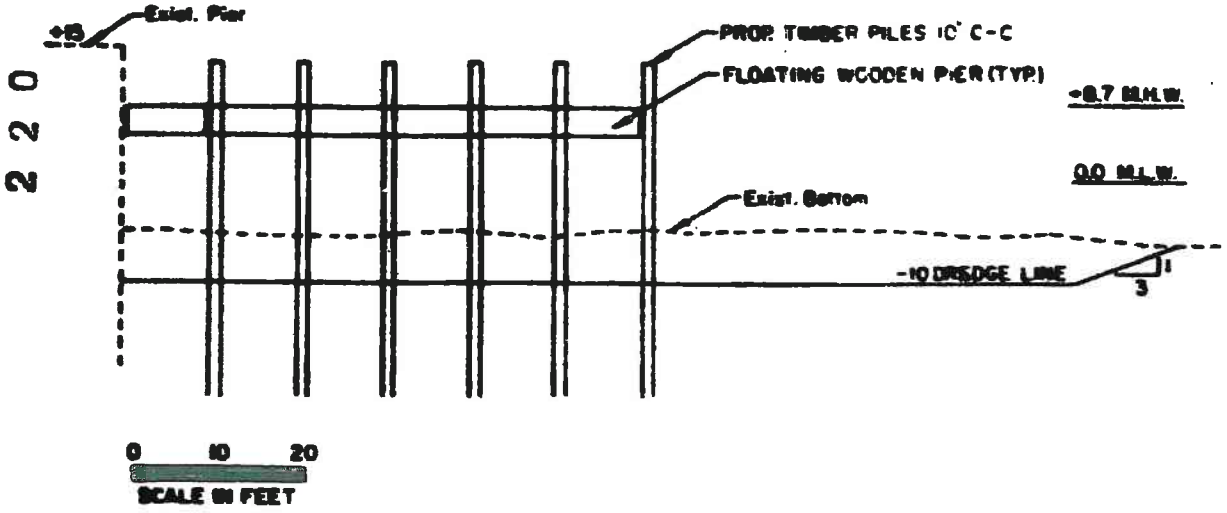
SHEET 2 OF 3 DATE: 6/9/76

028-054-000-108-100
028-054-000-108-200



PLAN





SECTION A-A

AREA "C"

PROPOSED BERTHING FACILITIES

IN GLOUCESTER INNER HARBOR

AT GLOUCESTER

COUNTY OF ESSEX STATE: MASS

APPLICANT:

COMMONWEALTH OF MASSACHUSETTS

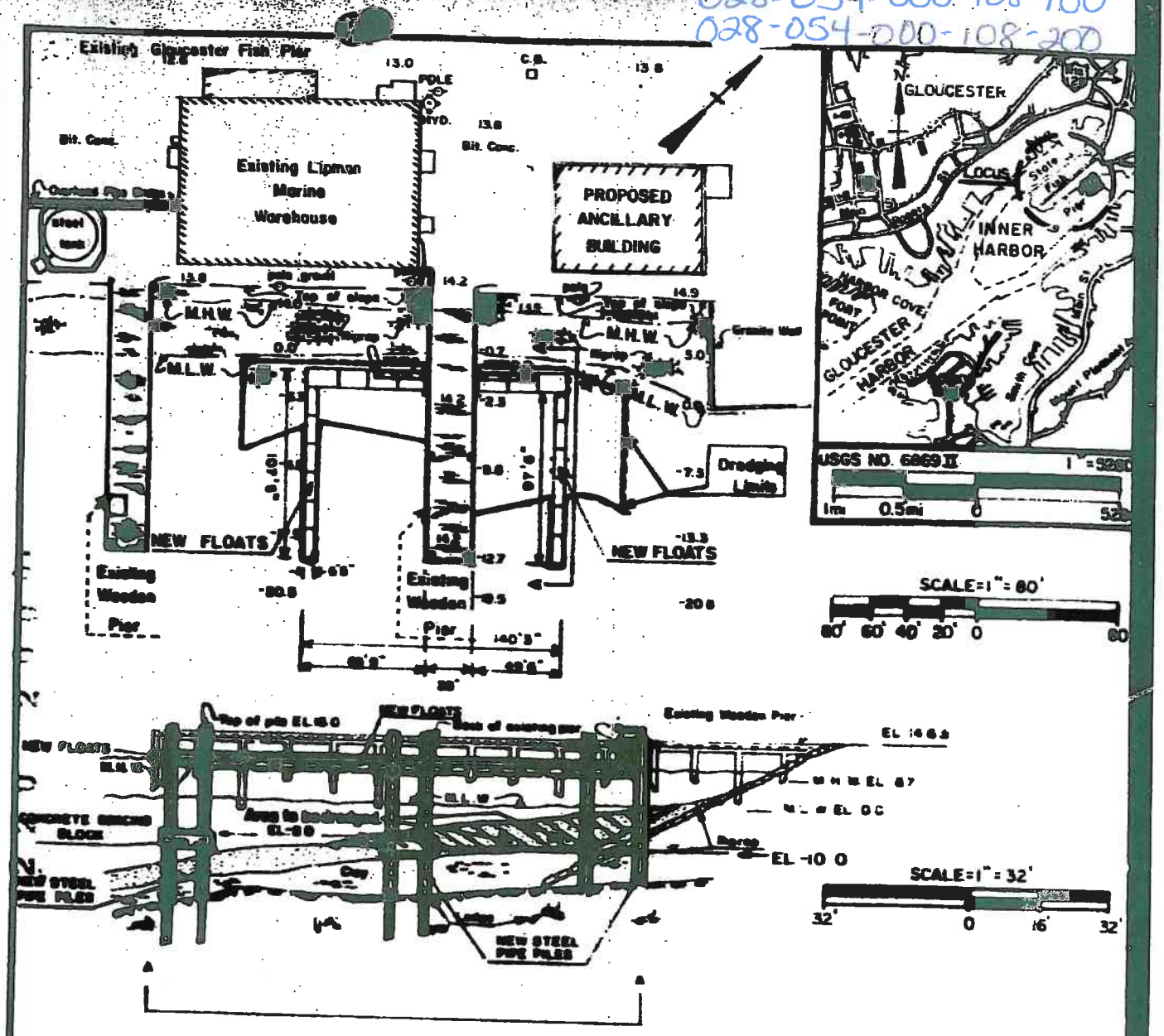
DEQE

PURPOSE: PUBLIC BERTHING FACILITIES

DATUM: MEAN LOW WATER

SHEET 3 OF 3 DATE: 6/9/76

028-054-000-108-100
028-054-000-108-200



NOTES:

1/ DREDGE TO EL.-10.0

2/ EST. DREDGED MATERIAL 4,000 Cu.yds.

3/ TYPE OF MATERIAL TO BE DREDGED IS ORGANIC SILT, SED. SAMPLE NO.'s 2420 & 2421.

4/ METHOD OF HANDLING WILL BE MECHANICAL.

5/ THE DISPOSAL SITE IS LOCATED AT ST. JOSEPH's CEM. IN AMESBURY OR OTHER SATISFACTORY LAND DISPOSAL.

6/ SOUNDINGS ARE IN FEET AND TENTHS AND REFER TO DEPTHS BELOW THE PLANE OF MEAN LOW WATER.

PROPOSED EXSPANSION OF DOCKING FACILITIES

IN GLOUCESTER INNER HARBOR

AT GLOUCESTER, MASS.

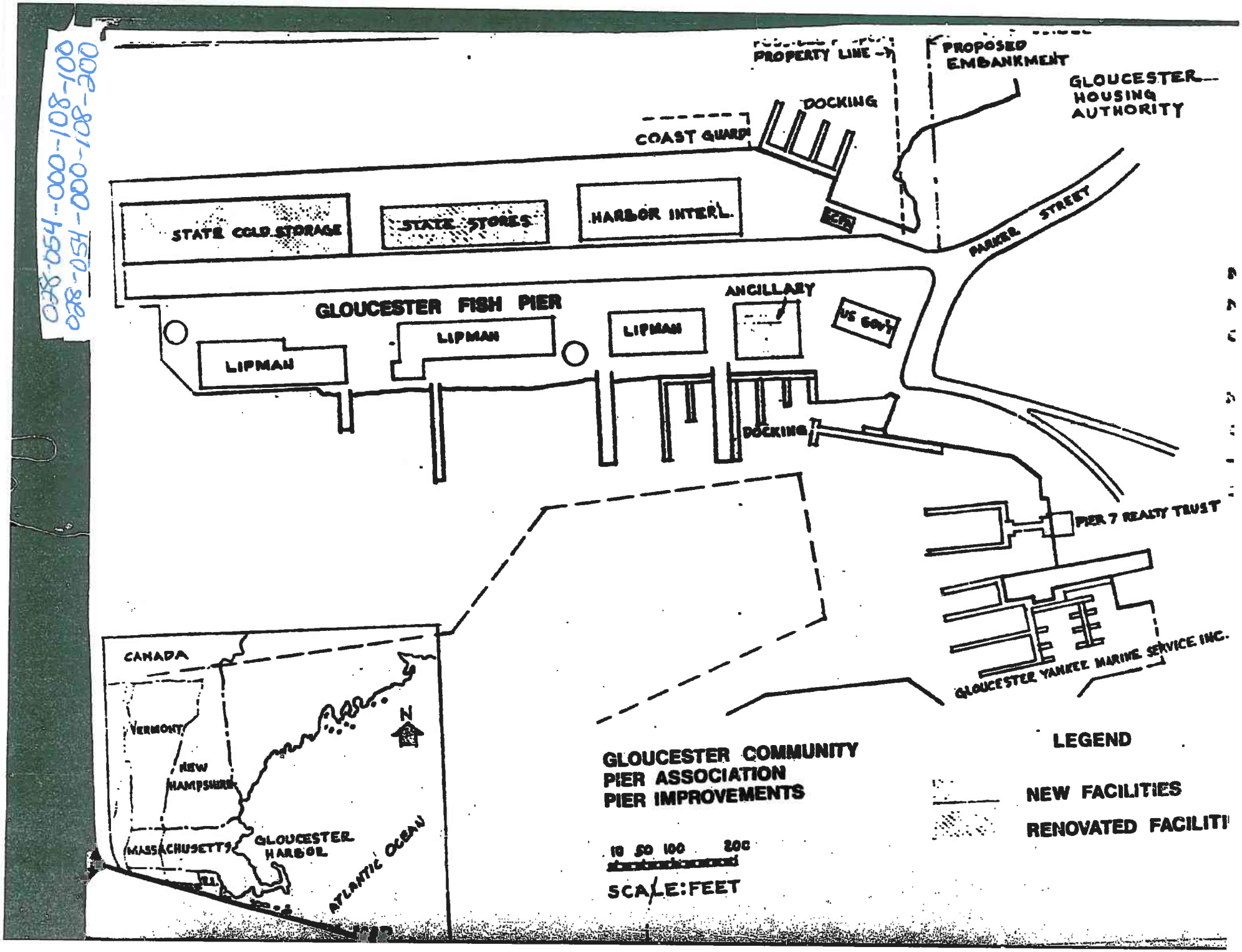
COUNTY OF ESSEX STATE MASS

APPLICATION BY

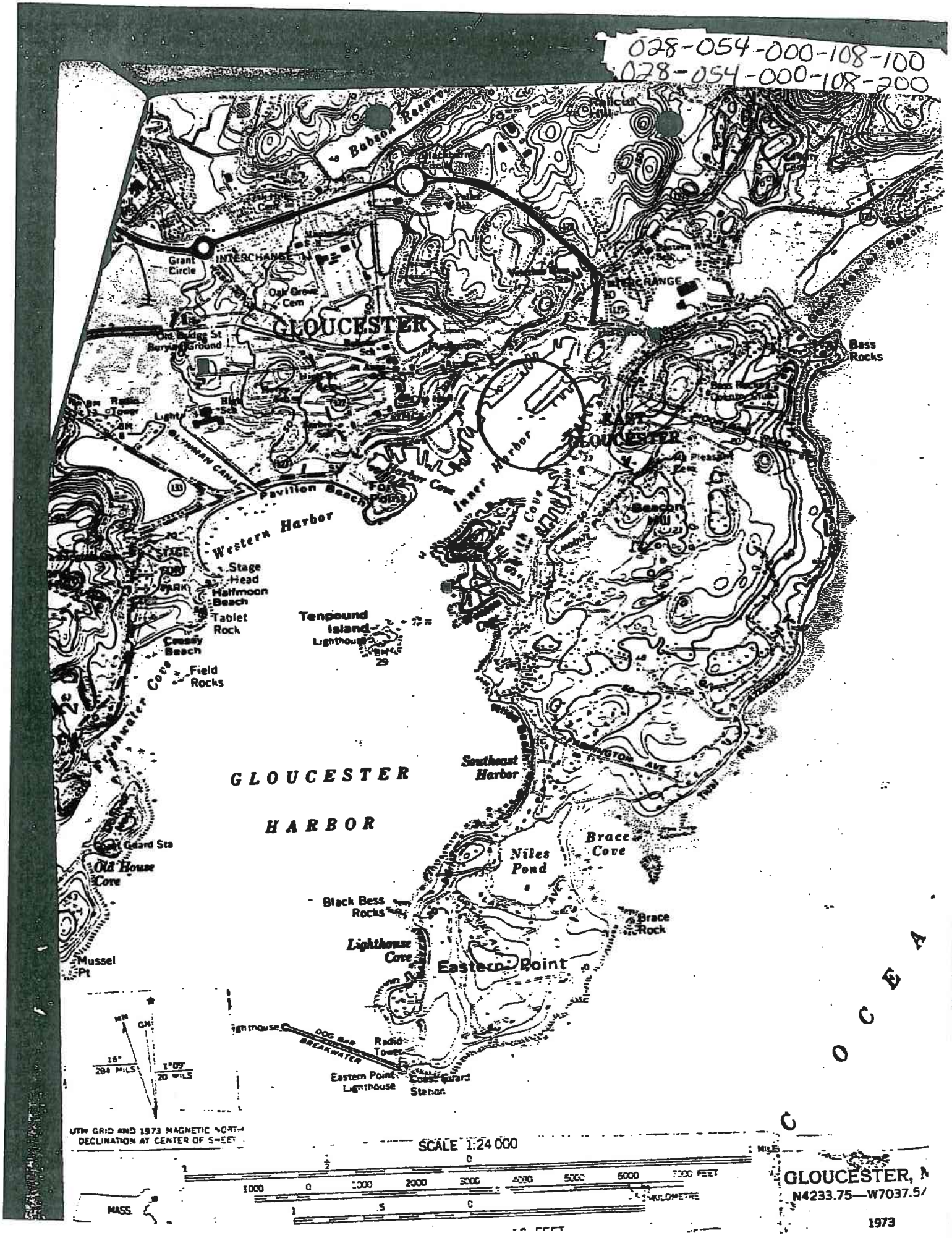
COMMONWEALTH OF MASSACHUSETTS

BBC/DEQE

SHEET 1 OF 1 AUG. 10, 1978


PROPERTY LINE
PROPOSED EMBANKMENT
GLOUCESTER HOUSING AUTHORITY
DOCKING
COAST GUARD
STATE COLD STORAGE
STATE STORES
HARBOR INTER'L.
PARKER STREET
GLOUCESTER FISH PIER
ANCILLARY
LIPMAN
LIPMAN
LIPMAN
DOCKING
PIER 7 REALTY TRUST
GLOUCESTER YANKEE MARINE SERVICE INC.
CANADA
VERMONT
NEW HAMPSHIRE
MASSACHUSETTS
GLOUCESTER HARBOR
ATLANTIC OCEAN
N
GLOUCESTER COMMUNITY
PIER ASSOCIATION
PIER IMPROVEMENTS
10 50 100 200
SCALE: FEET
LEGEND
NEW FACILITIES
RENOVATED FACILITI

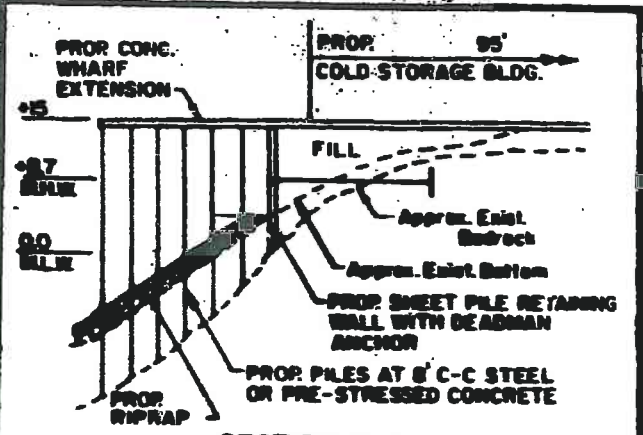
028-054-000-108-100
028-054-000-108-200



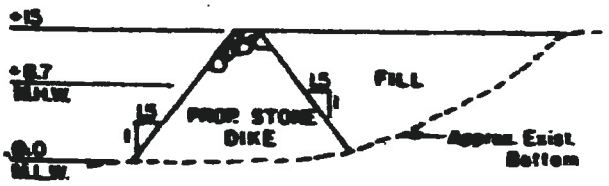

028-054-000-108-100
028-054-000-108-200
LOCUS OF DISPOSAL SITE
Powwow Hill
Whittier Hill
Merrimack River
Lake Gardner
Clinton
Amesbury
Munroe Hill
Oleftas Point
Amesbury Country Club
Salisbury Plains Cem
Gravel Pit
Salisbury Point
Bailey Pond
Long Hill
Whittier Memorial Bridge
Tidal Flat
Eagle Island
Gravel Pits
Goodwin Creek
Sawyer Hill Burying Ground
St Marys Cem
Artichoke
MERRIMACK

028-054-000-108-100

028-054-000-108-200



SECTION A-A

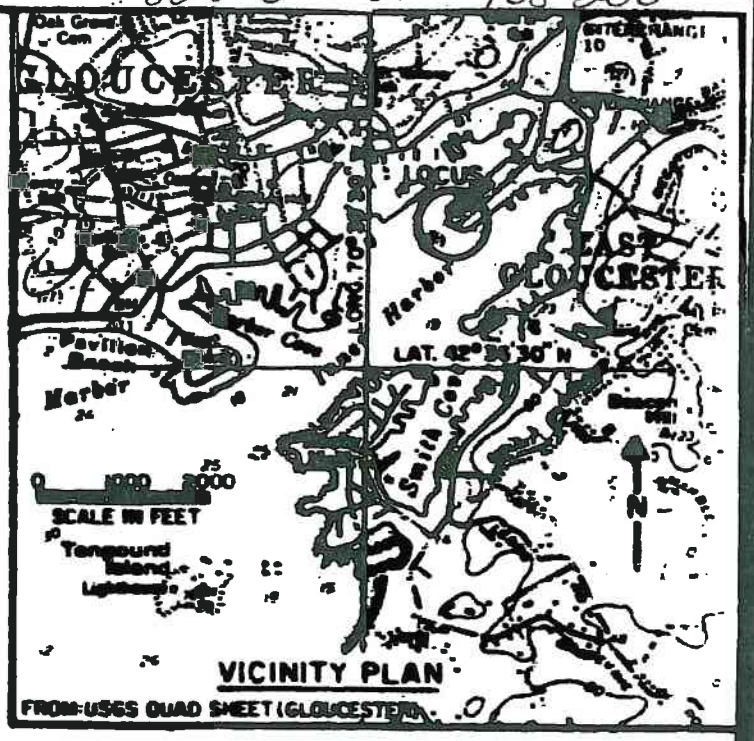


SECTION B-B

Horiz. 0 20 40 Feet

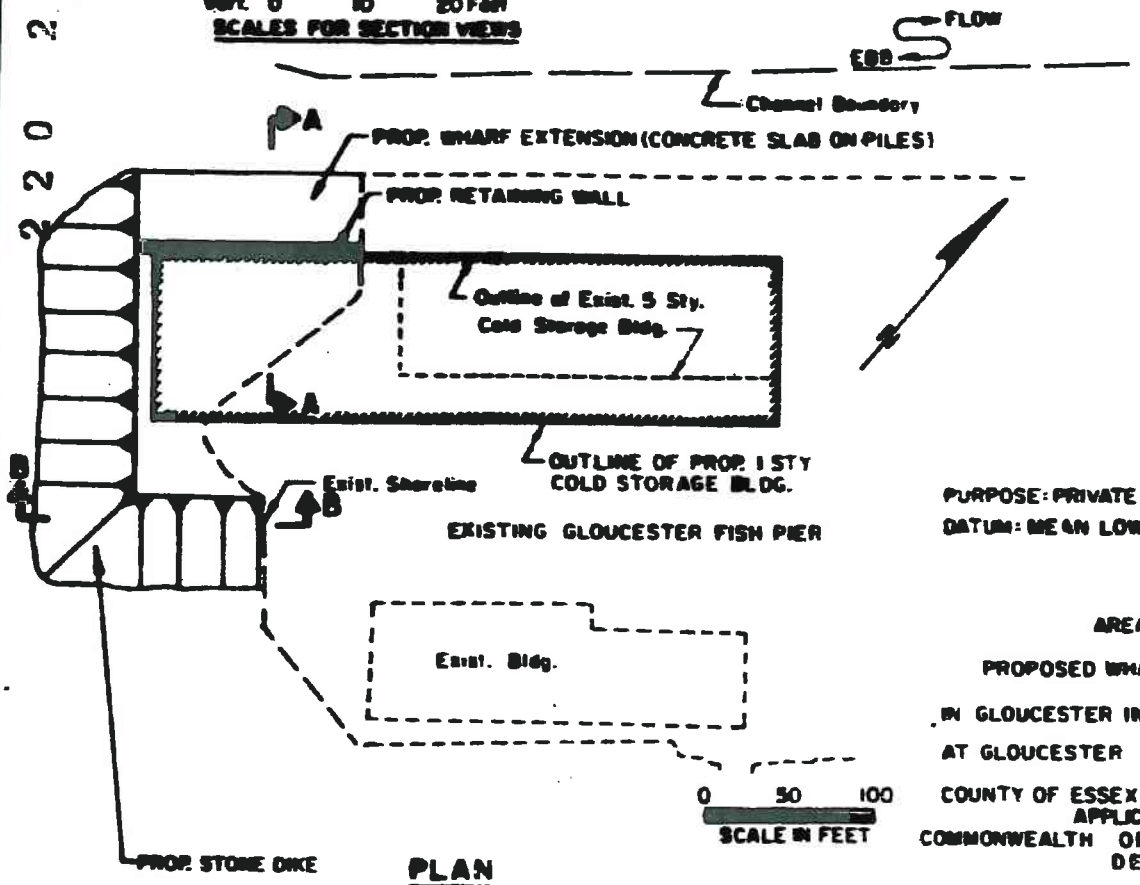
Vert. 0 10 20 Feet

SCALES FOR SECTION VIEWS



VICINITY PLAN

FROM: USGS QUAD SHEET (GLOUCESTER)



PLAN

PURPOSE: PRIVATE WHARF EXTENSION

DATUM: MEAN LOW WATER

AREA 'A'

PROPOSED WHARF EXTENSION

IN GLOUCESTER INNER HARBOR

AT GLOUCESTER

COUNTY OF ESSEX STATE: MASS

APPLICANT:

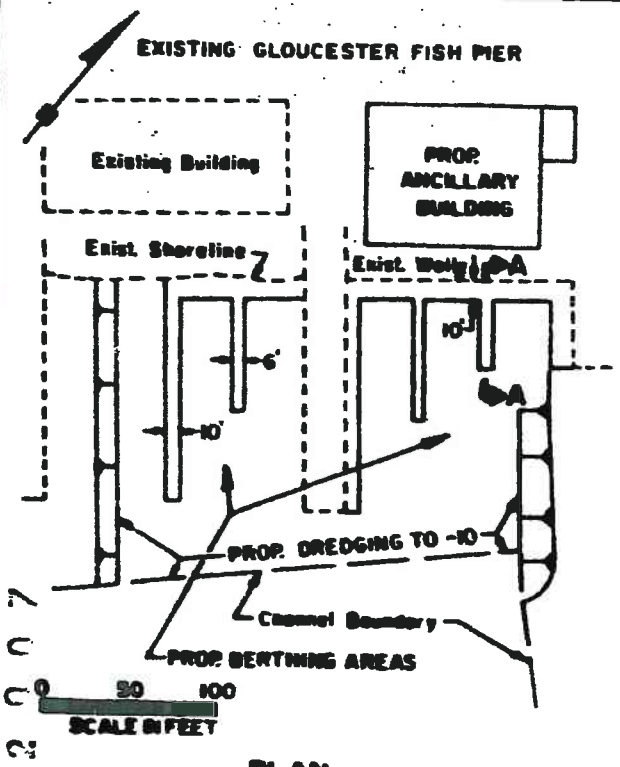
COMMONWEALTH OF MASSACHUSETTS

DEQE

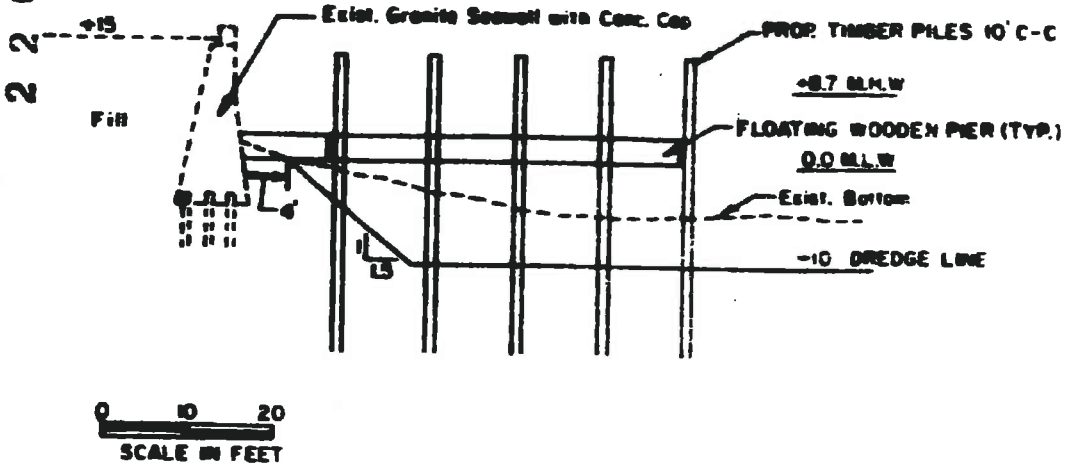
SHEET 1 OF 3 DATE: 6/9/76

028-054-000-108-100

028-054-000-108-200



PLAN



SECTION A-A

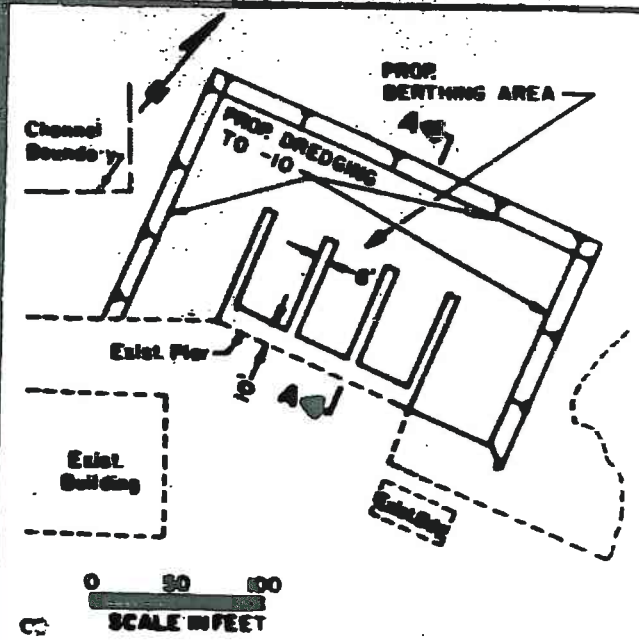
PURPOSE: PUBLIC BERTHING FACILITIES
DATUM: MEAN LOW WATER

AREA "B"

PROPOSED BERTHING FACILITIES
IN GLOUCESTER INNER HARBOR
AT GLOUCESTER
COUNTY OF ESSEX STATE MASS
APPLICANT:
COMMONWEALTH OF MASSACHUSETTS
DEQE

SHEET 2 OF 3 DATE: 6/9/76

028-054-000-108-100
028-054-000-108-200



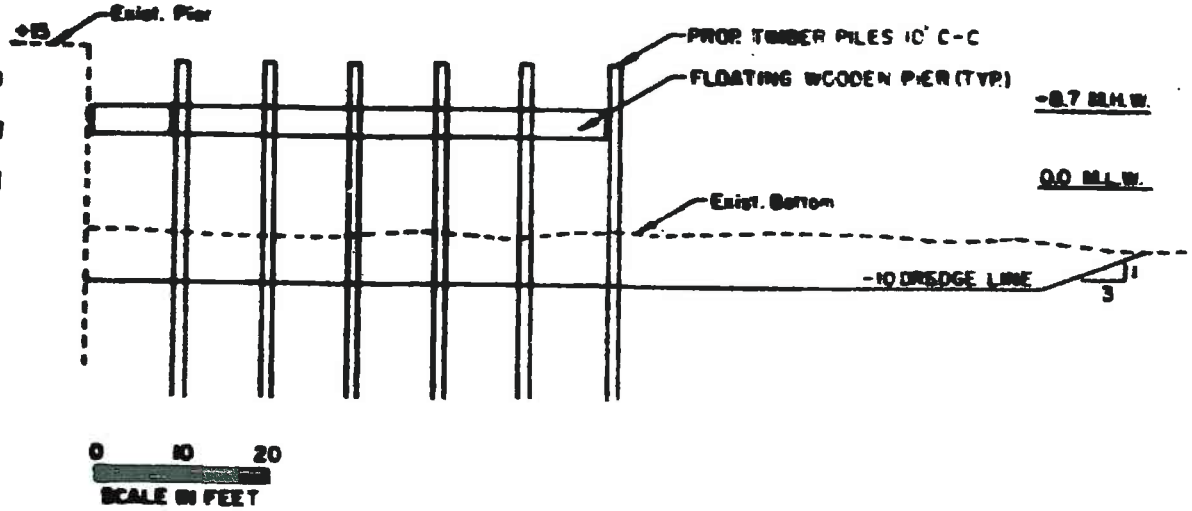
PLAN

VICINITY PLAN

FROM USGS QUAD SHEET (GLOUCESTER)

2003

220



SECTION A-A

PURPOSE: PUBLIC BERTHING FACILITIES

DATUM: MEAN LOW WATER

AREA "C"

PROPOSED BERTHING FACILITIES

IN GLOUCESTER INNER HARBOR

AT GLOUCESTER

COUNTY OF ESSEX STATE: MASS

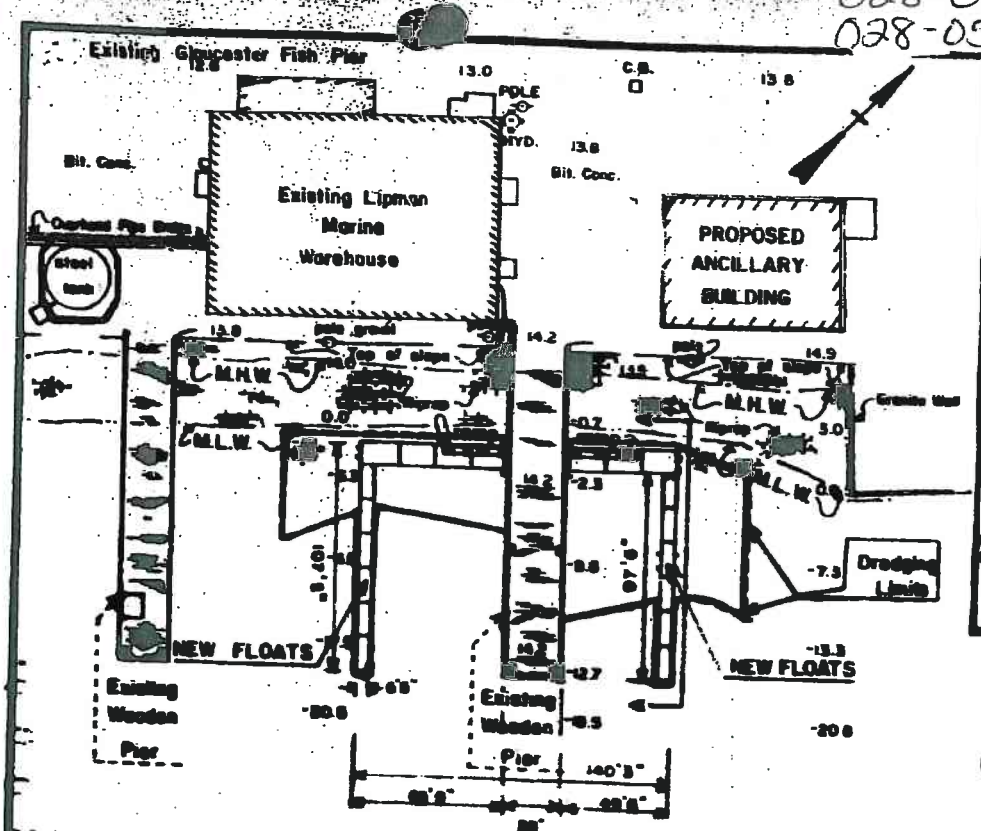
APPLICANT:

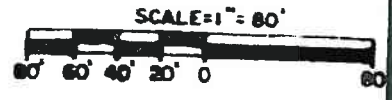
COMMONWEALTH OF MASSACHUSETTS

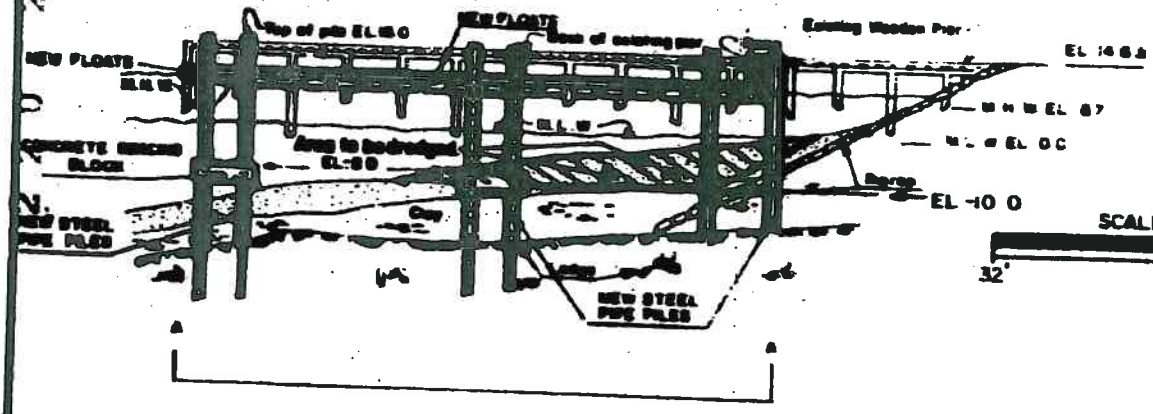
DEQE

SHEET 3 OF 3 DATE: 6/9/76

028-054-000-108-100
028-054-000-108-200







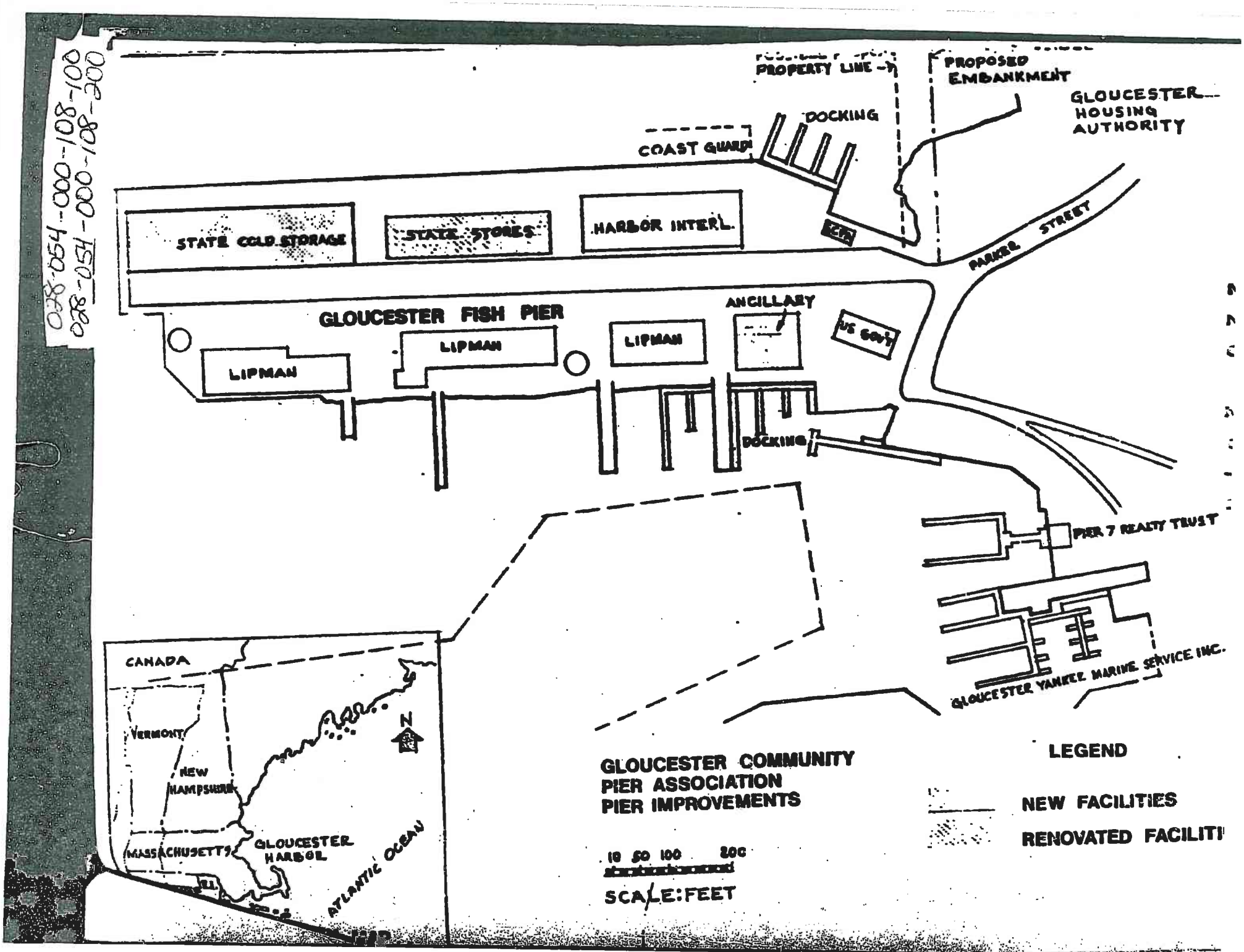
NOTES:
1/ DREDGE TO EL.-10.0.
2/ EST. DREDGED MATERIAL 4,000 Cu.yds.
3/ TYPE OF MATERIAL TO BE DREDGED IS ORGANIC SILT, BED. SAMPLE NO.'s 2420 & 2421.
4/ METHOD OF HANDLING WILL BE MECHANICAL.
5/ THE DISPOSAL SITE IS LOCATED AT ST. JOSEPH's CEM. IN AMESBURY OR OTHER SATISFACTORY LAND DISPOSAL.
6/ SOUNDINGS ARE IN FEET AND TENTHS AND REFER TO DEPTHS BELOW THE PLANE OF MEAN LOW WATER.

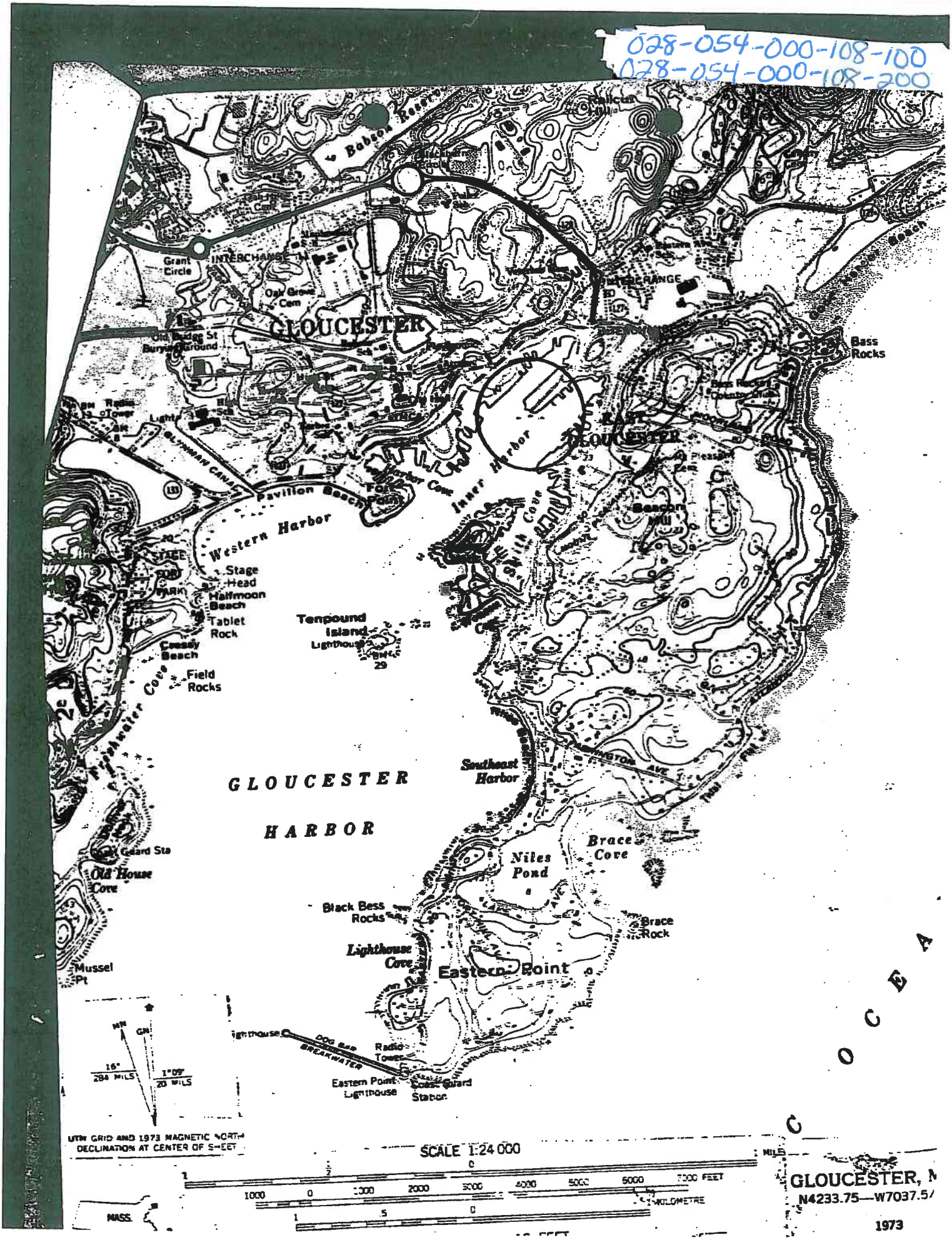
PROPOSED EXSPANSION OF DOCKING FACILITIES

IN GLOUCESTER INNER HARBOR
AT GLOUCESTER, MASS.
COUNTY OF ESSEX STATE MASS

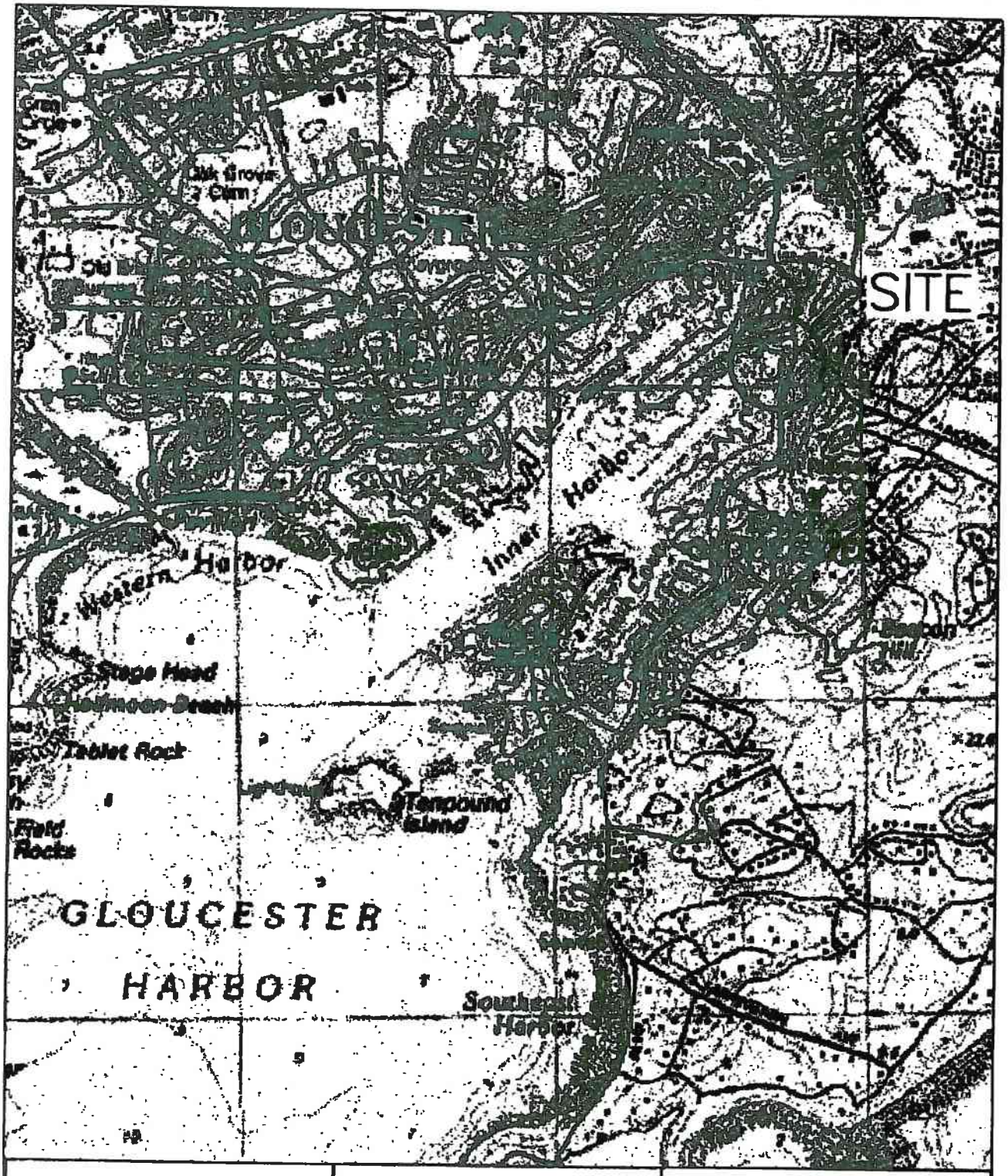
APPLICATION BY
COMMONWEALTH OF MASSACHUSETTS
BBC/DEQE

SHEET 1 OF 1 AUG. 10, 1978


028-054-000-108-100
028-054-000-108-200
PROPERTY LINE
PROPOSED EMBANKMENT
GLOUCESTER HOUSING AUTHORITY
DOCKING
COAST GUARD
STATE COLD STORAGE
STATE STORES
HARBOR INTERL.
ICE
PARKER STREET
GLOUCESTER FISH PIER
ANCILLARY
LIPMAN
LIPMAN
LIPMAN
DOCKING
PIER 7 REALTY TRUST
GLOUCESTER YANKEE MARINE SERVICE INC.
CANADA
VERMONT
NEW HAMPSHIRE
MASSACHUSETTS
GLOUCESTER HARBOR
ATLANTIC OCEAN
RI
N
GLOUCESTER COMMUNITY
PIER ASSOCIATION
PIER IMPROVEMENTS
10 50 100 200
SCALE: FEET
LEGEND
NEW FACILITIES
RENOVATED FACILITI


028-054-000-108-100
028-054-000-108-200
GLOUCESTER
EAST GLOUCESTER
GLOUCESTER HARBOR
Western Harbor
Inner Harbor
Southeast Harbor
Pavilion Beach
Stage Head
Halfmoon Beach
Tablet Rock
Tenpound Island
Lighthouse
Cressy Beach
Field Rocks
Freshwater Cove
Old House Cove
Coast Guard Sta
Mussel Pt
Black Bess Rocks
Lighthouse Cove
Eastern Point
Niles Pond
Brace Cove
Brace Rock
Bass Rocks
Beacon Hill
Eastern Point Lighthouse
Coast Guard Station
Radio Tower
Grant Circle
INTERCHANGE
Oak Grove Cem
Old Burying Ground
Ravenswood Park
Stage Park
Pleasant
Ocean
SCALE 1:24 000
GLOUCESTER, N
N4233.75—W7037.5/
1973

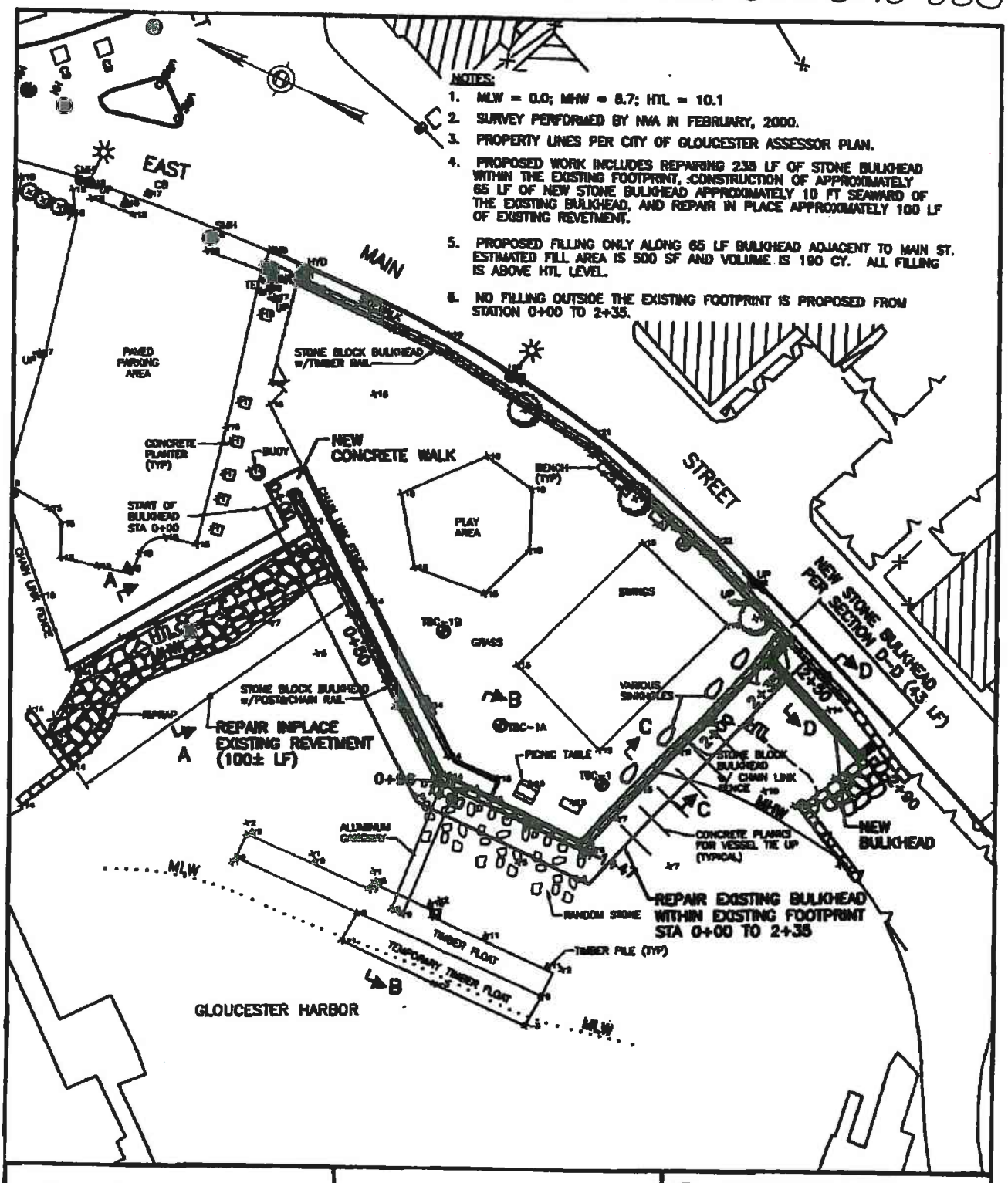
028-058-000-040-100
028-058-000-040-200



DATUM: MLW = 0.0 MHW = 8.7 HTL = 10.1	**LOCUS PLAN**	AT: GLOUCESTER HARBOR CRIPPLE COVE COUNTY: ESSEX APPLICATION BY: CITY OF GLOUCESTER GLOUCESTER, MASSACHUSETTS DATE: JULY 2001 SHEET 1 OF 6

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-058-000-040-100
028-058-000-040-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

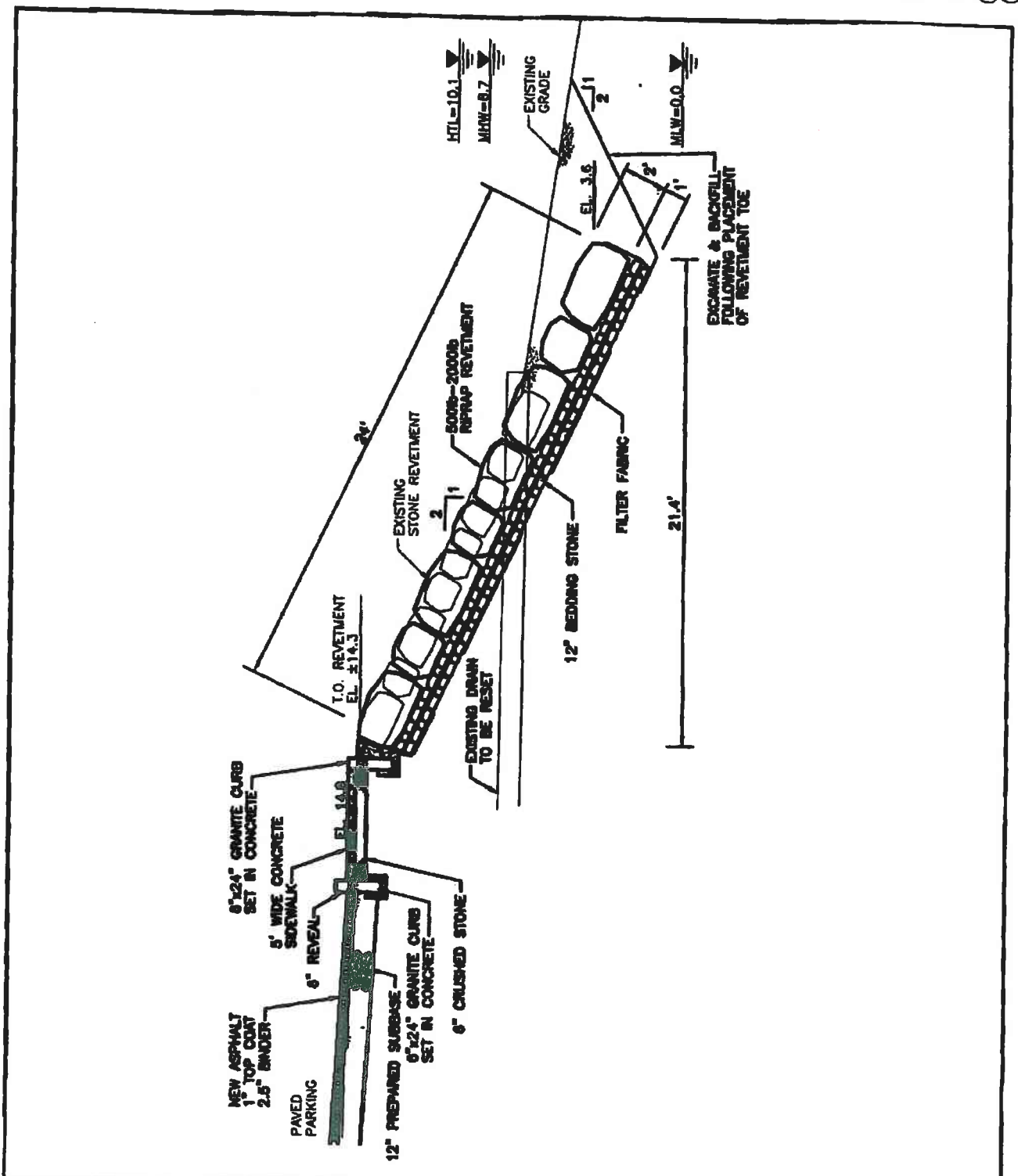
40 0 40
SCALE IN FEET

PROPOSED WORK PLAN

AT: GLOUCESTER HARBOR
CRIPPLE COVE
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS
DATE: JULY 2001 SHEET 2 OF 6

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-058-000-040-100
028-058-000-040-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

6 0 6
SCALE IN FEET

PROPOSED REVETMENT REPAIR SECTION A–A

AT: GLOUCESTER HARBOR
CRIPPLE COVE

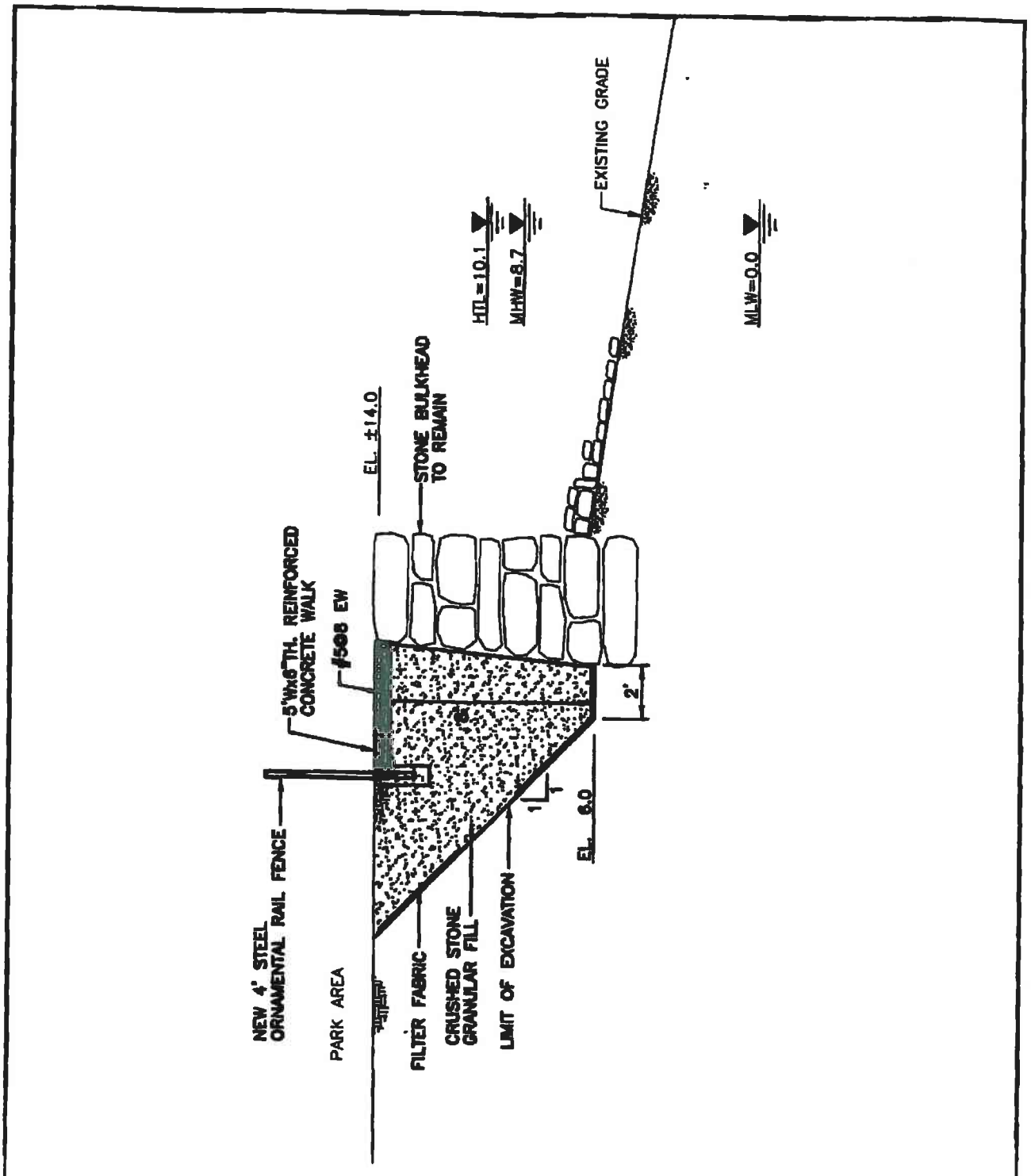
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: JULY 2001 SHEET 3 OF 6

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-058-000-040-100
028-058-000-040-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

PROPOSED BULKHEAD REPAIR STA. 0+00 TO 1+47 SECTION B-B

AT: GLOUCESTER HARBOR
CRIPPLE COVE

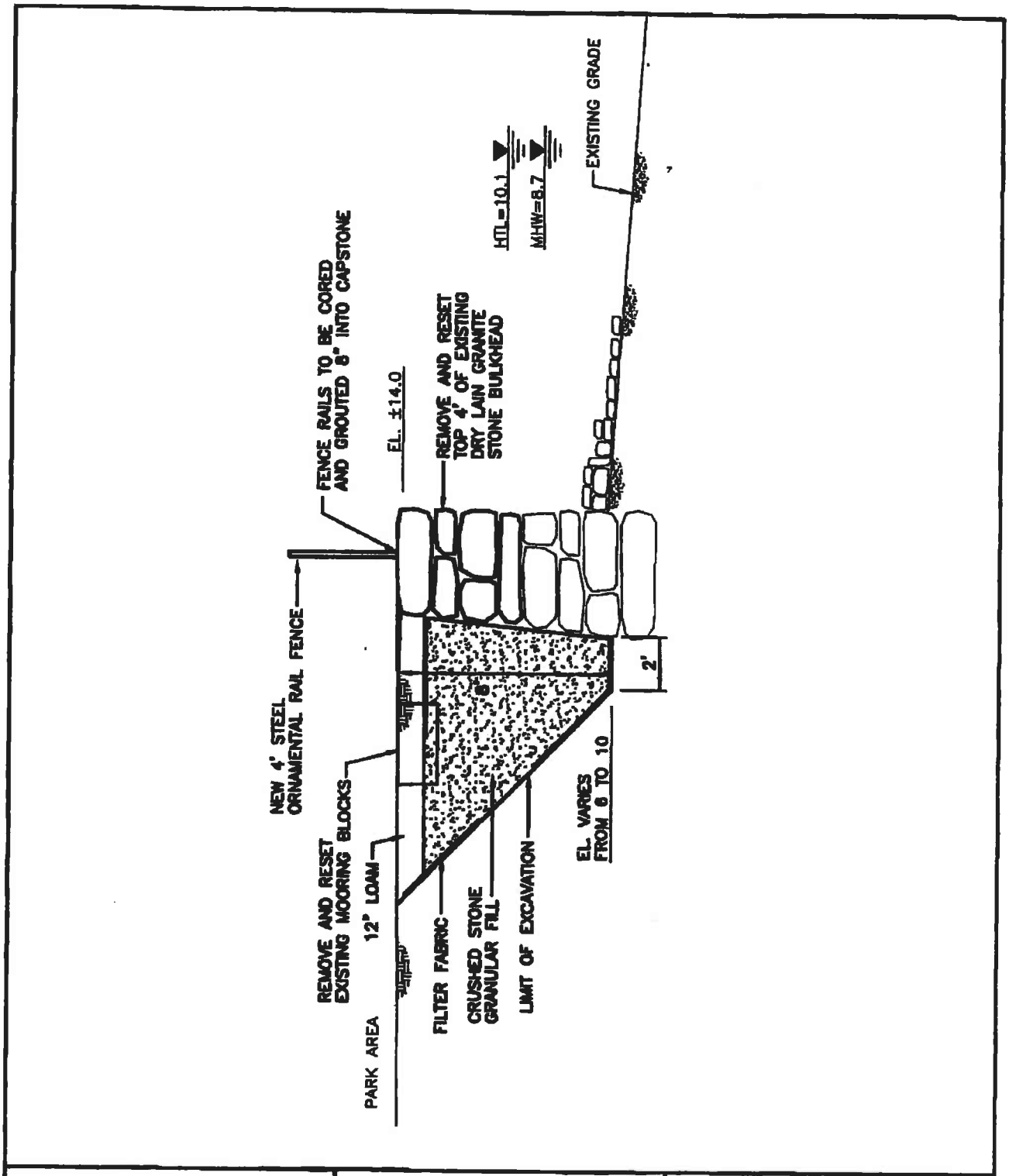
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: JULY 2001 SHEET 4 OF 6

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-058-000-040-100
028-058-000-040-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

PROPOSED BULKHEAD REPAIR STA. 1+47 TO 2+35 SECTION C–C

AT: GLOUCESTER HARBOR
CRIPPLE COVE

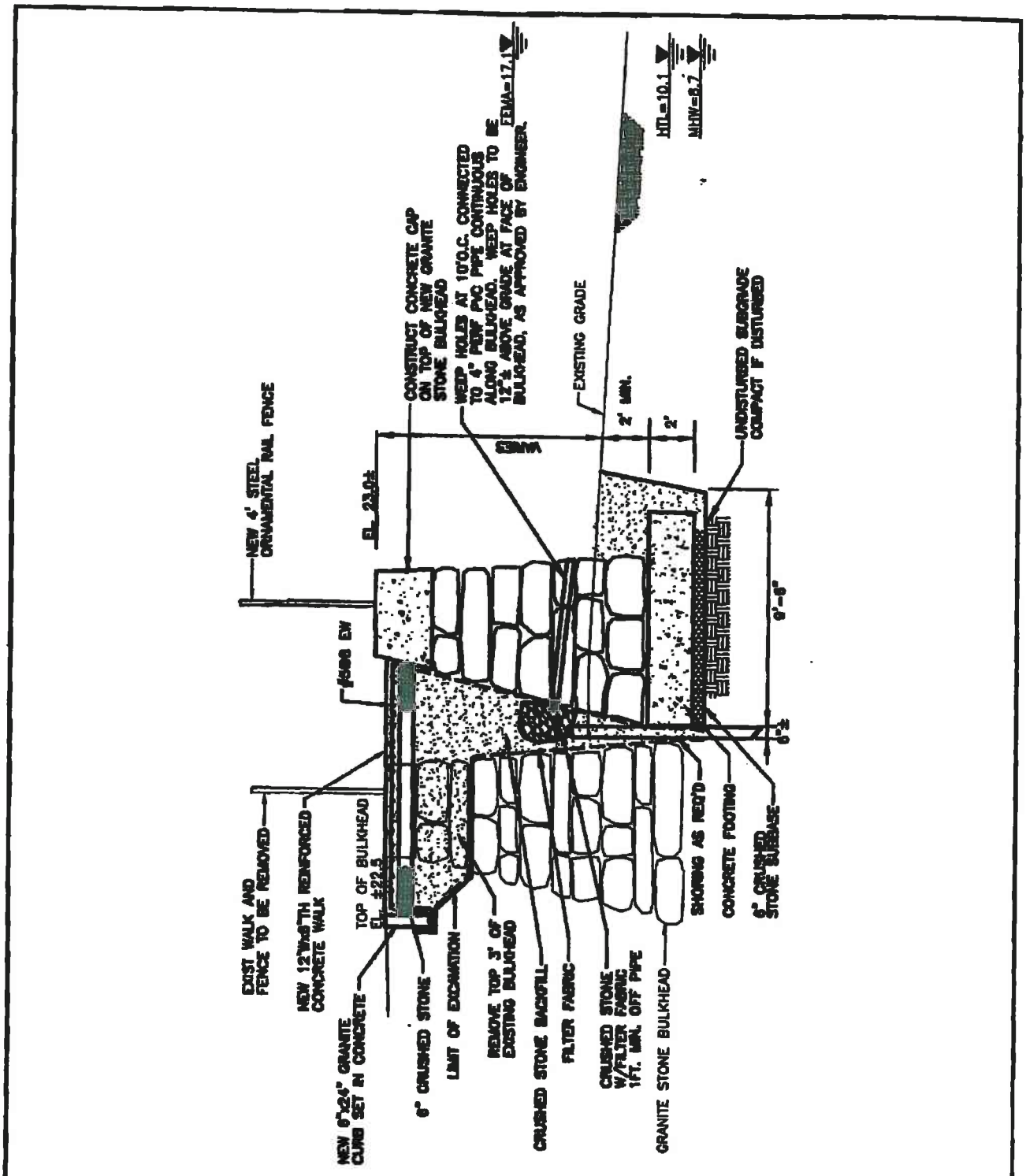
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: JULY 2001 SHEET 5 OF 6

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-058-000-040-100
028-058-000-040-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

6 0 6
SCALE IN FEET

PROPOSED BULKHEAD REPAIR STA. 2+35 TO 2+78 SECTION D–D

AT: GLOUCESTER HARBOR
CRIPPLE COVE

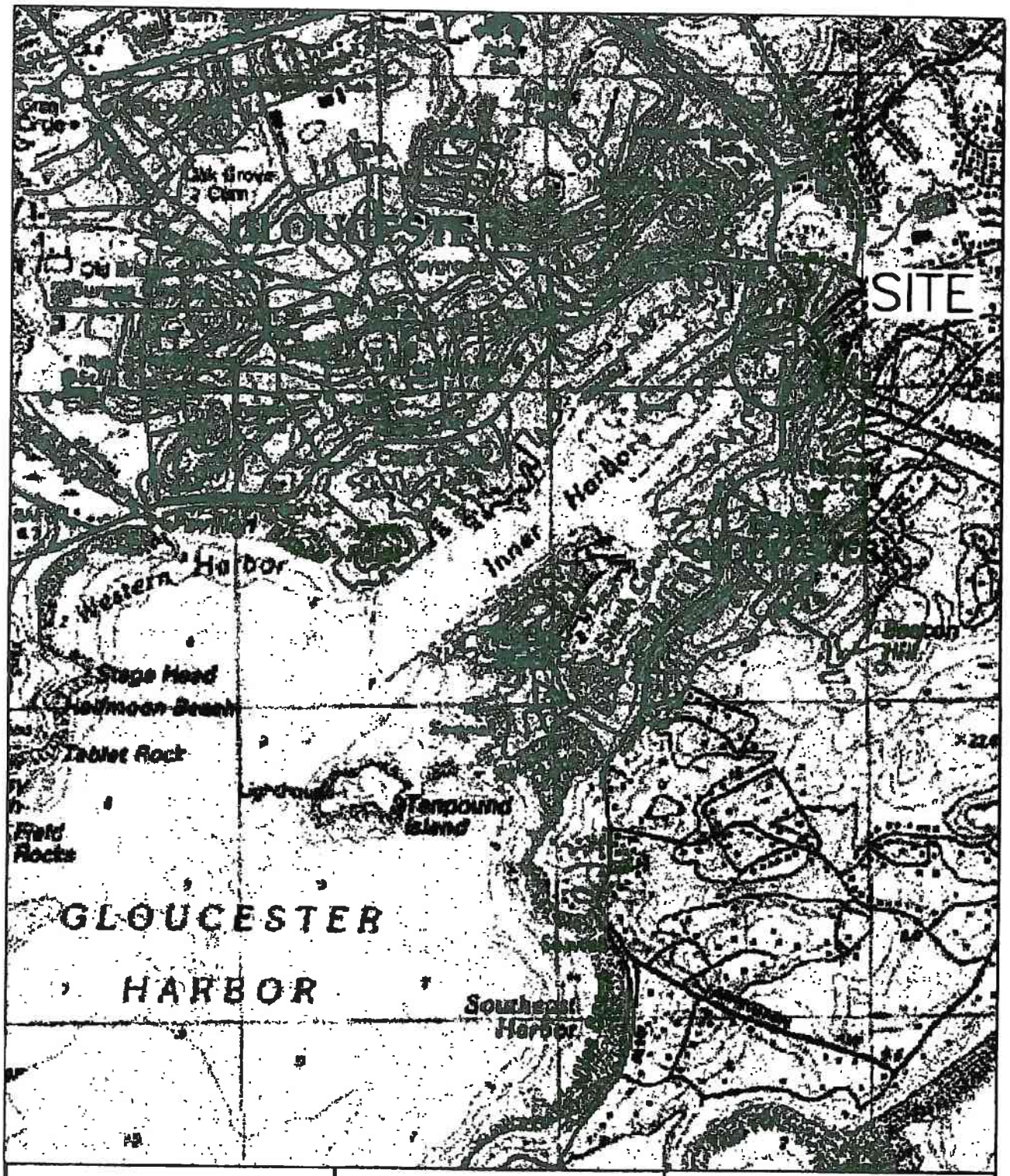
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: JULY 2001 SHEET 6 OF 6

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

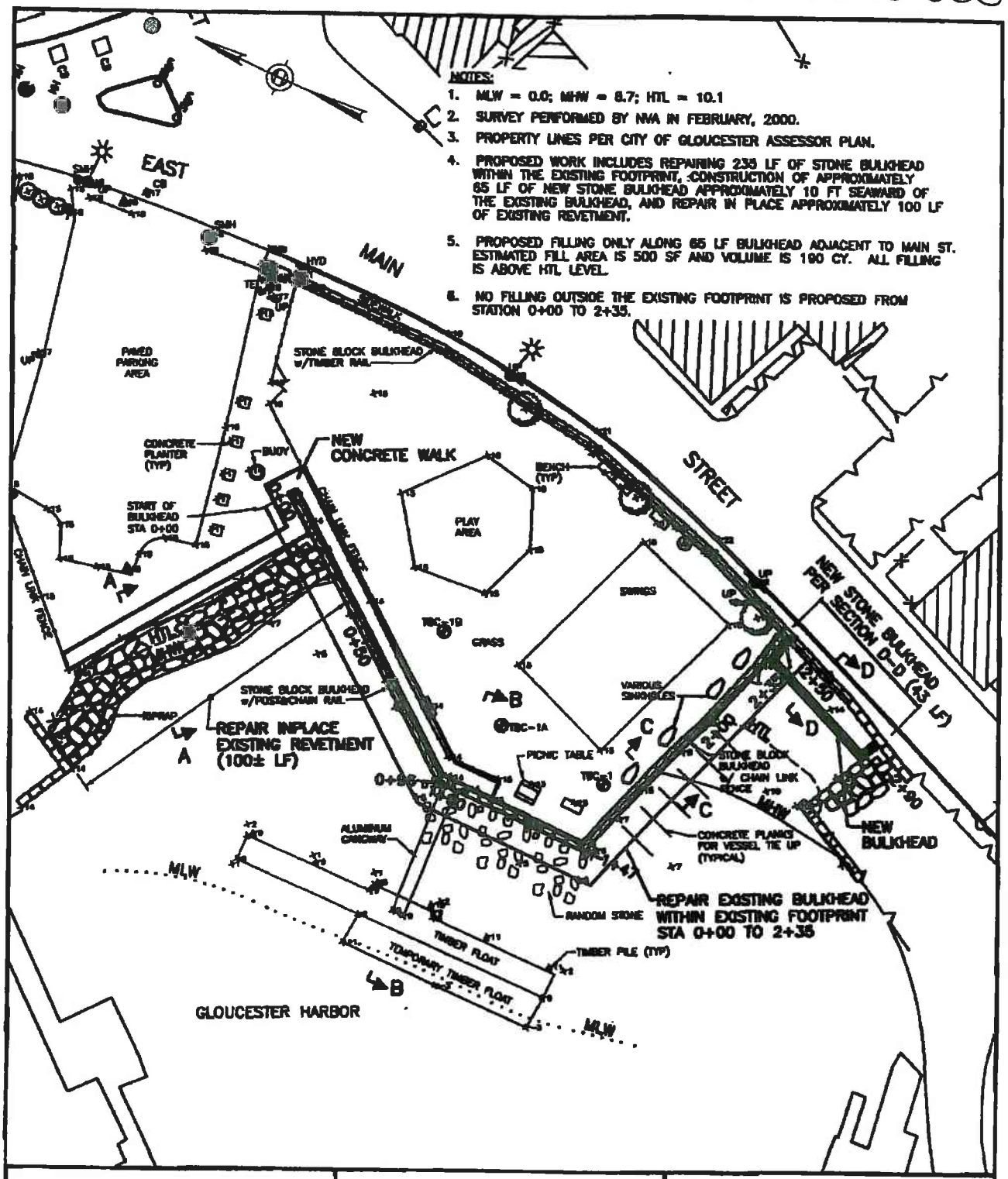
028-058-000-040-100
028-058-000-040-200



DATUM: MLW = 0.0 MHW = 8.7 HTL = 10.1	**LOCUS PLAN**	AT: GLOUCESTER HARBOR CRIPPLE COVE COUNTY: ESSEX APPLICATION BY: CITY OF GLOUCESTER GLOUCESTER, MASSACHUSETTS DATE: JULY 2001 SHEET 1 OF 6

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-058-000-040-100
028-058-000-040-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

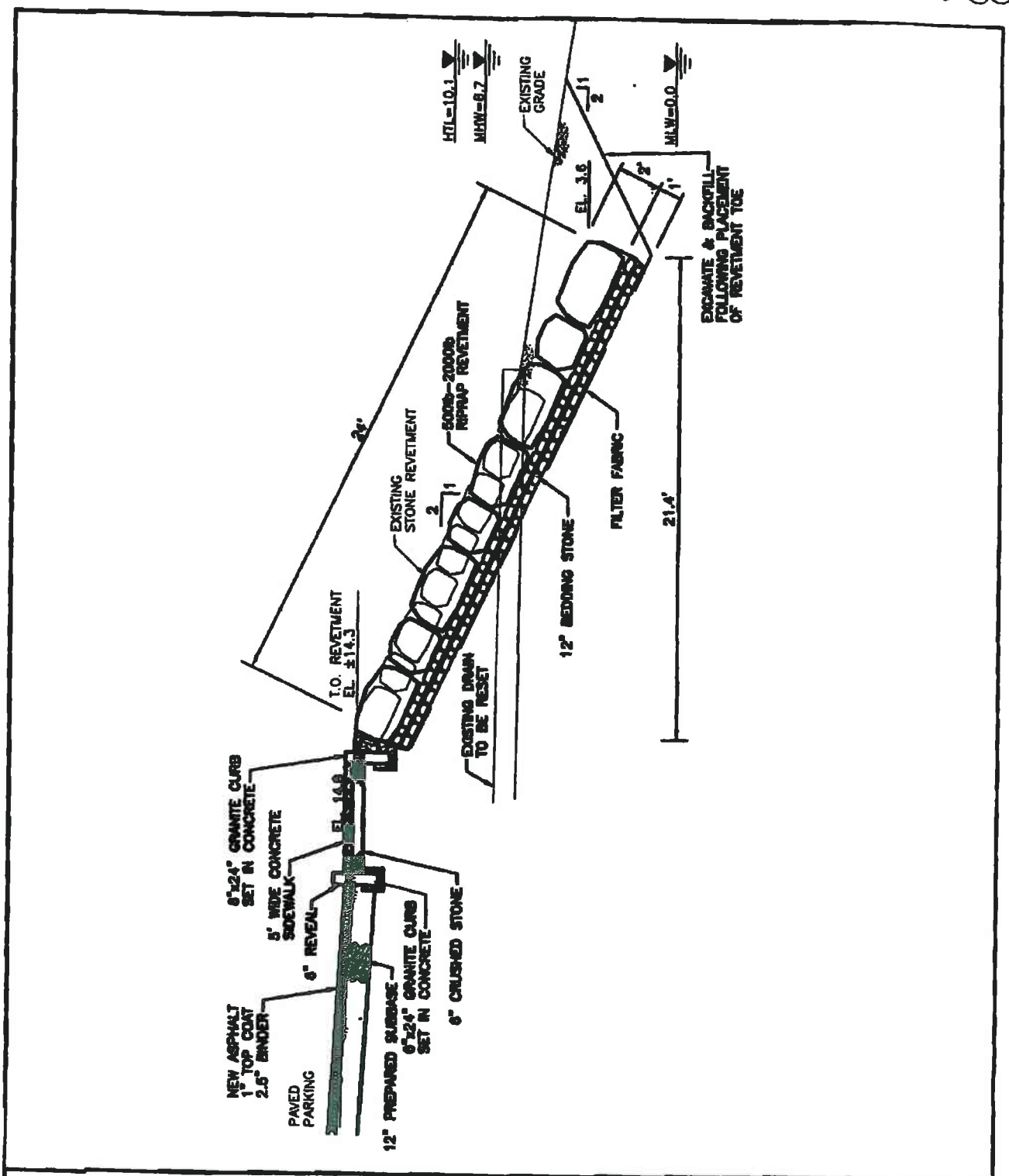
40 0 40
SCALE IN FEET

PROPOSED WORK PLAN

AT: GLOUCESTER HARBOR
CRIPPLE COVE
COUNTY: ESSEX
APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS
DATE: JULY 2001 SHEET 2 OF 6

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-058-000-040-100
028-058-000-040-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

6 0 6
SCALE IN FEET

PROPOSED REVETMENT REPAIR SECTION A–A

AT: GLOUCESTER HARBOR
CRIPPLE COVE

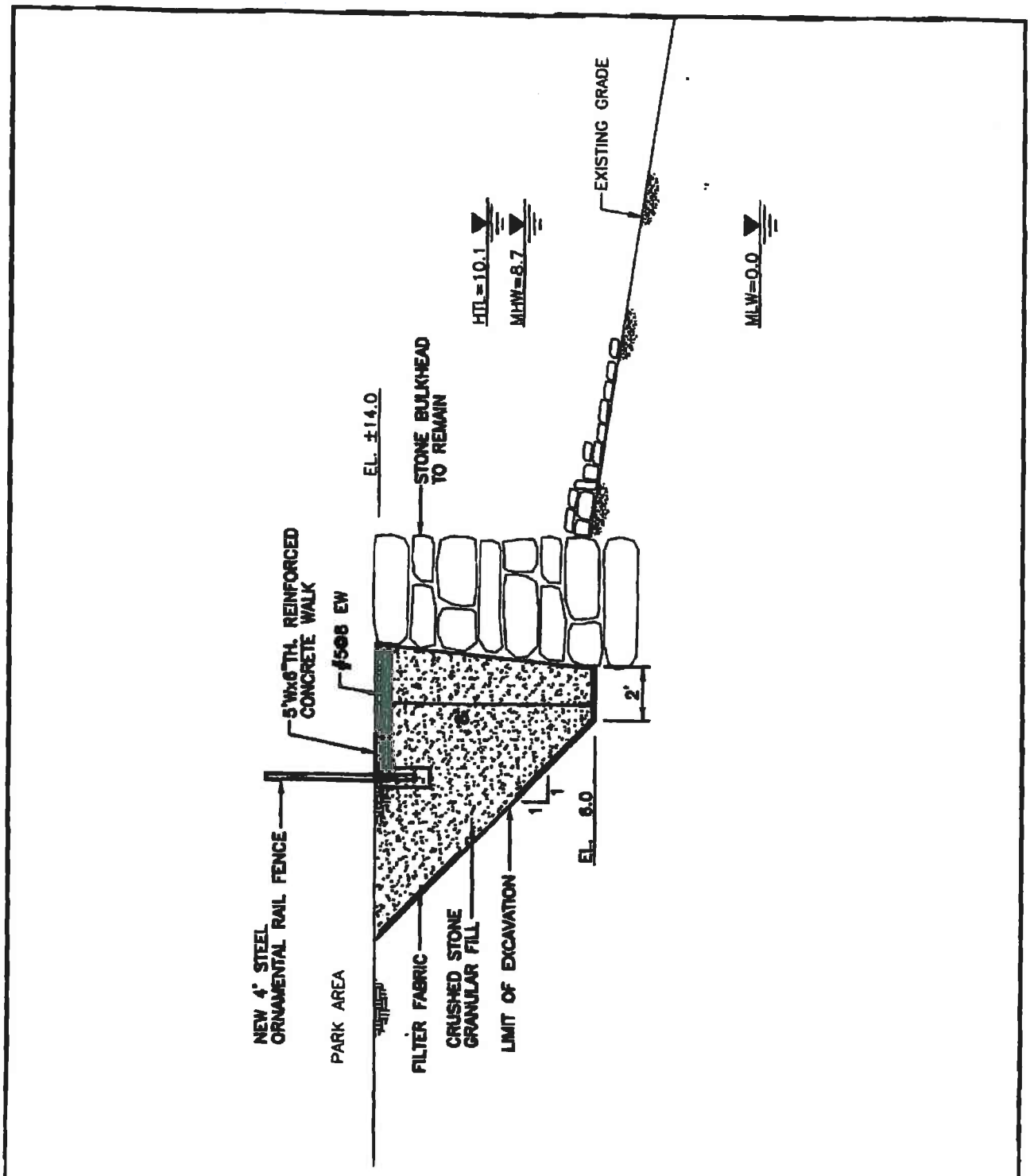
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: JULY 2001 SHEET 3 OF 6

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-058-000-040-100
028-058-000-040-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

PROPOSED BULKHEAD REPAIR STA. 0+00 TO 1+47 SECTION B–B

AT: GLOUCESTER HARBOR
CRIPPLE COVE

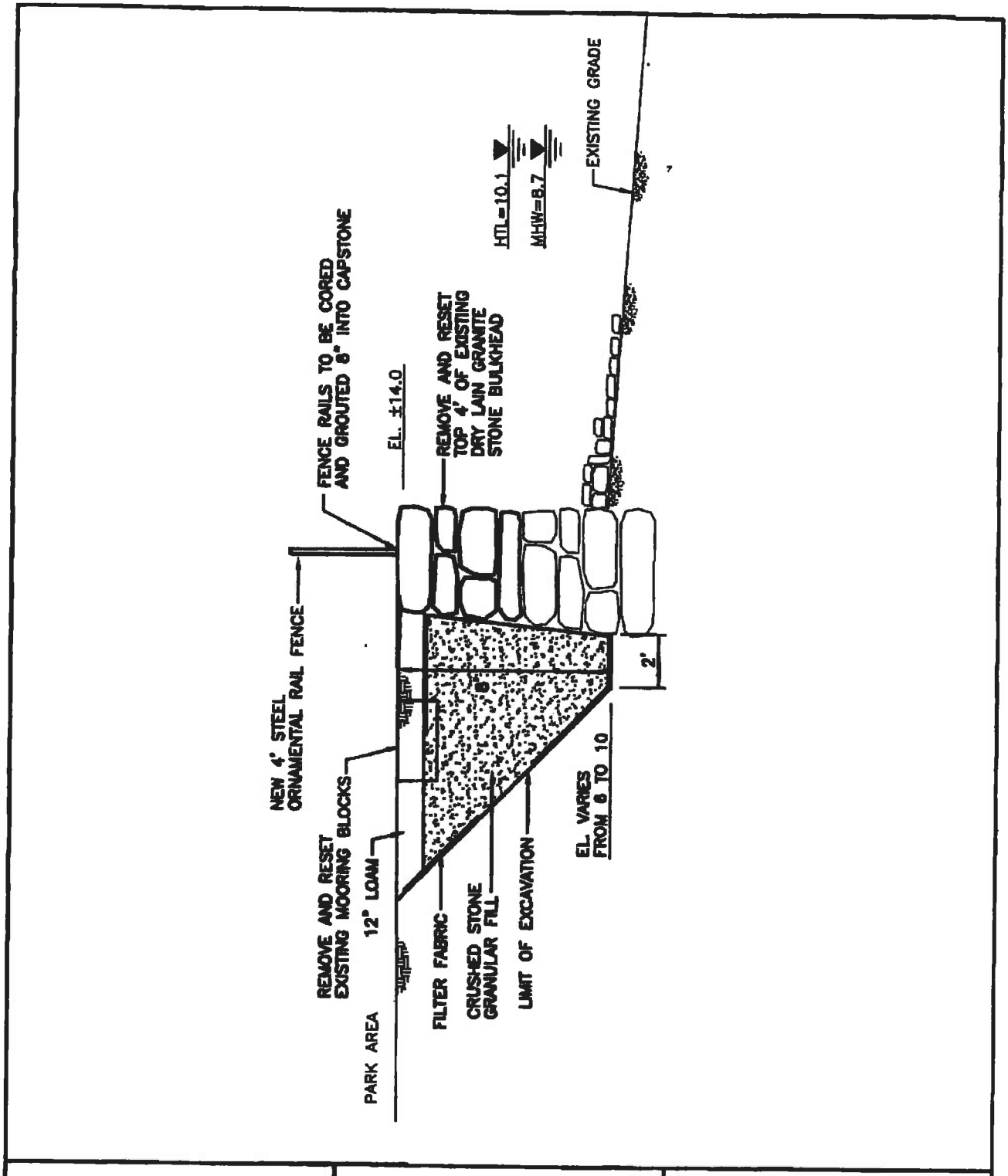
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: JULY 2001 SHEET 4 OF 6

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-058-000-040-100
028-058-000-040-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

5 0 5
SCALE IN FEET

PROPOSED BULKHEAD REPAIR STA. 1+47 TO 2+35 SECTION C–C

AT: GLOUCESTER HARBOR
CRIPPLE COVE

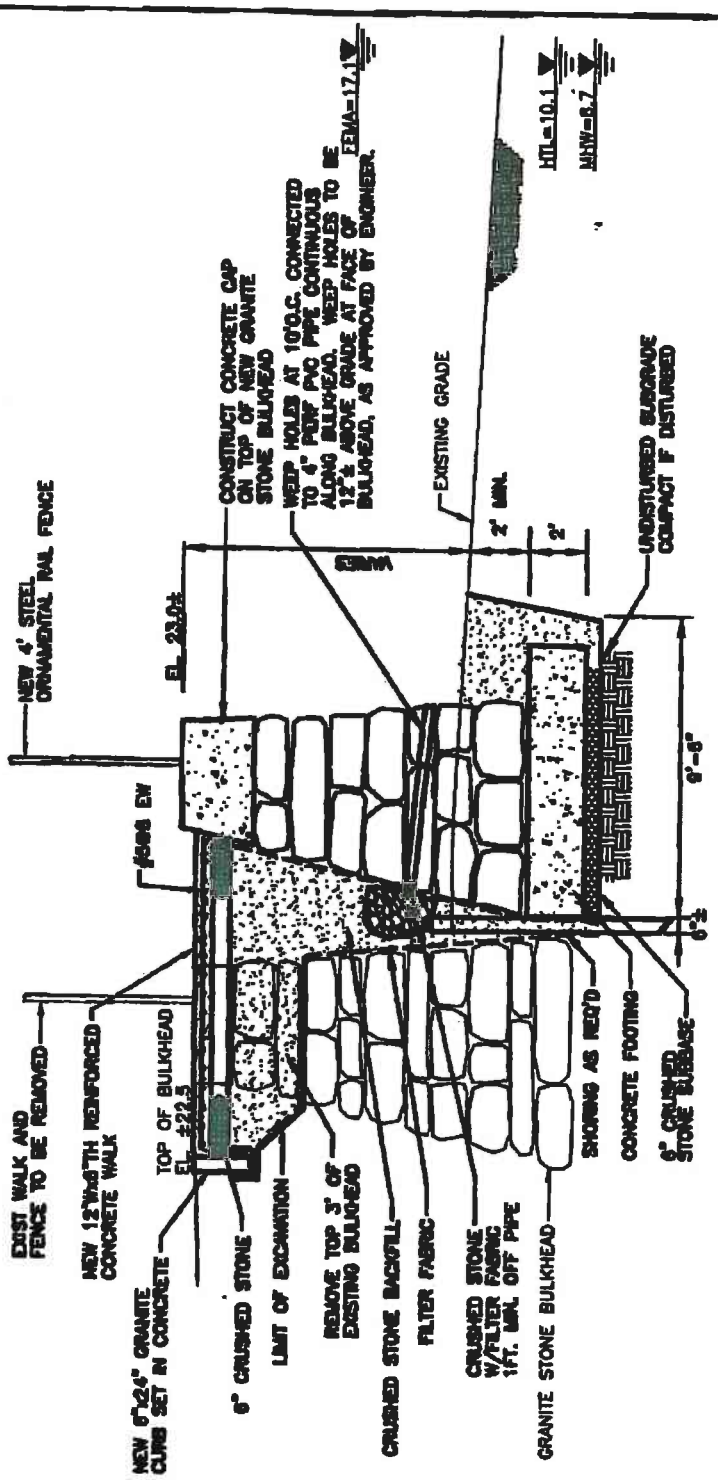
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: JULY 2001 SHEET 5 OF 6

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-058-000-040-100
028-058-000-040-200



DATUM: MLW = 0.0
MHW = 8.7
HTL = 10.1

6 0 6
SCALE IN FEET

PROPOSED BULKHEAD REPAIR STA. 2+35 TO 2+78 SECTION D–D

AT: GLOUCESTER HARBOR
CRIPPLE COVE

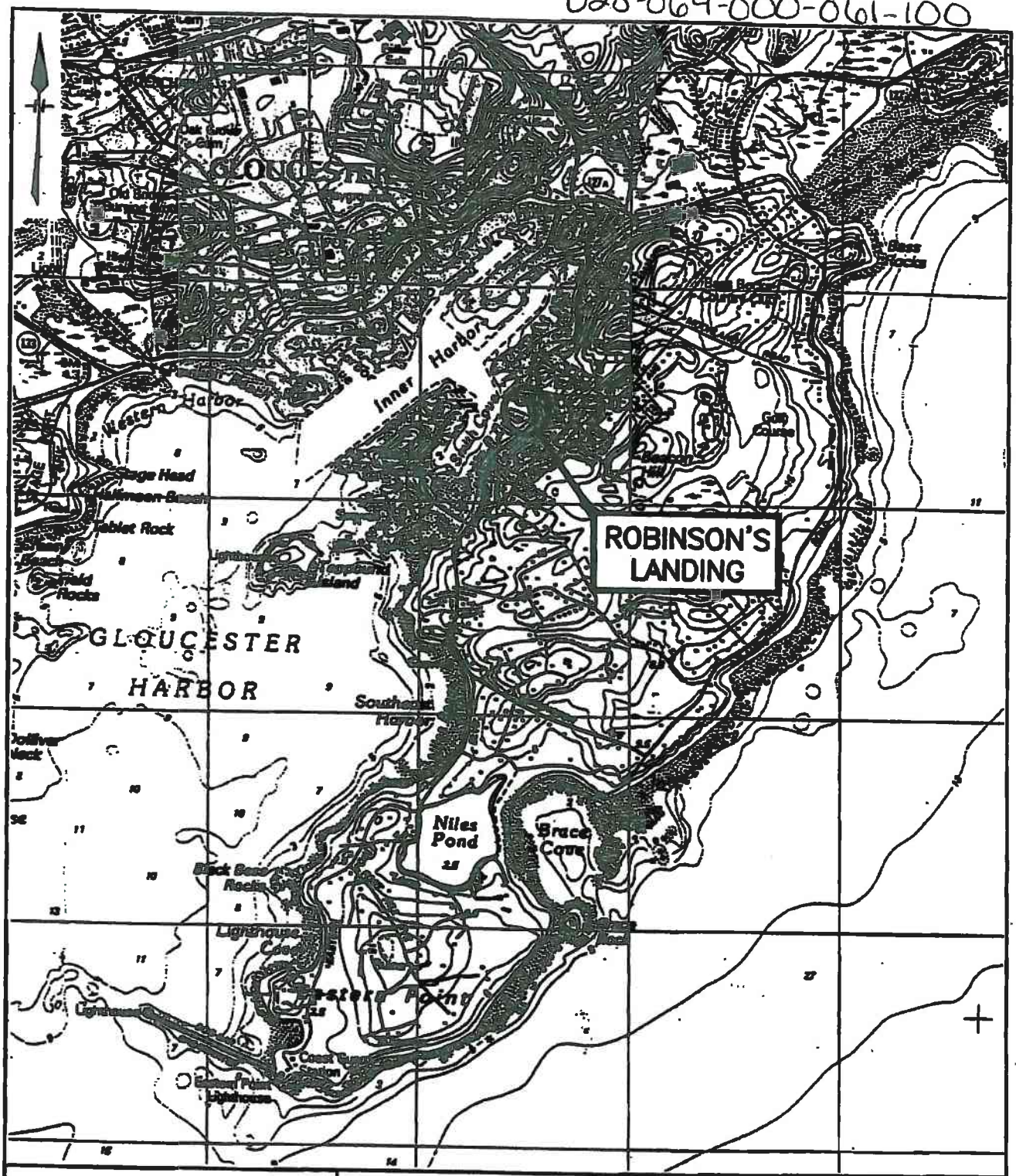
COUNTY: ESSEX

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MASSACHUSETTS

DATE: JULY 2001 SHEET 6 OF 6

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-064-000-061-100



DATUM: MLW=0.0
MHW=8.7
HTL=11.2

0 1000

SCALE IN METERS
1:25,000

LOCUS PLAN

Robinson's Landing

AT: SMITH COVE
GLOUCESTER HARBOR

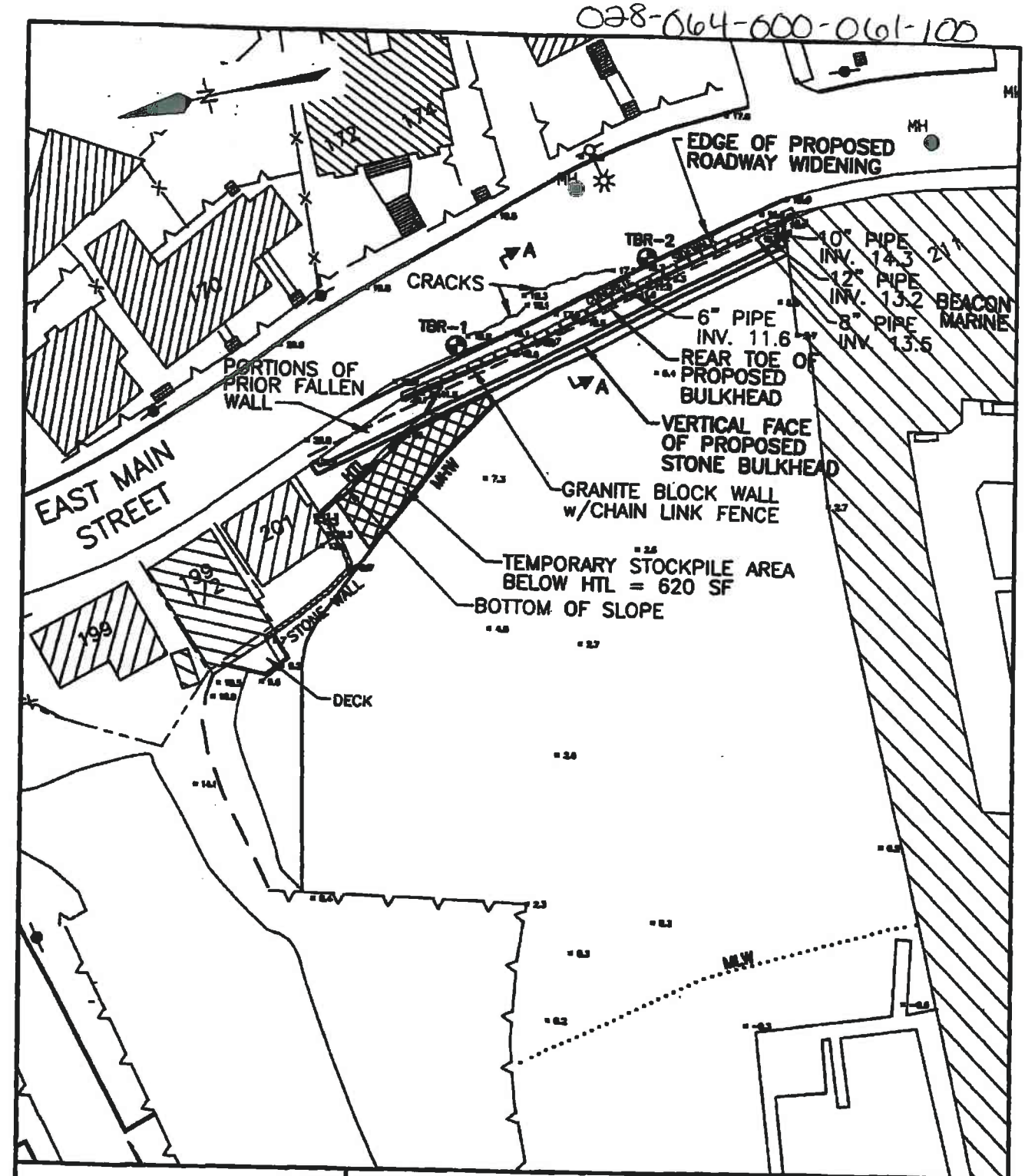
COUNTY: ESSEX, MA

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MA

DATE: APRIL 2000 SHEET 1

NIKKI VINE ASSOCIATES INC NEWBURYPORT MASSACHUSETTS

028-064-000-061-100



DATUM: MLW=0.0
MHW=8.7
HTL=11.2

40 0 40
SCALE IN FEET

SITE PLAN ROBINSON'S LANDING

AT: SMITH COVE
GLOUCESTER HARBOR

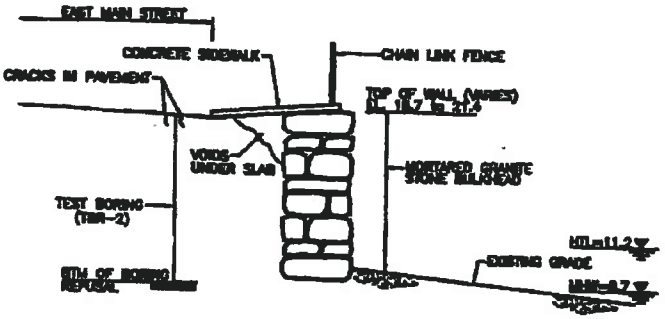
COUNTY: ESSEX, MA

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MA

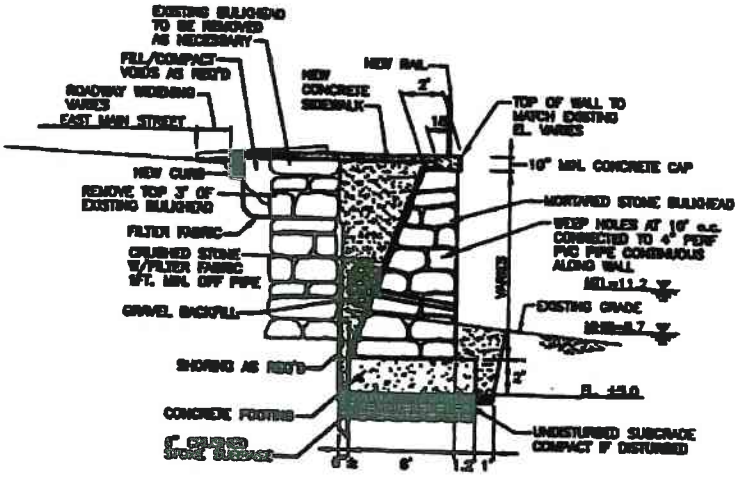
DATE: APRIL 2000 SHEET 2

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

028-064-000-061-100



EXISTING SECTION A–A
SCALE: 1"=10'



PROPOSED SECTION A–A
SCALE: 1"=10'

DATUM: MLW=0.0
MHW=8.7
HTL=11.2

10 0 10
SCALE IN FEET

SECTIONS ROBINSON'S LANDING

AT: SMITH COVE
GLOUCESTER HARBOR

COUNTY: ESSEX, MA

APPLICATION BY:
CITY OF GLOUCESTER
GLOUCESTER, MA

DATE: APRIL 2000 SHEET 3

NUCCI VINE ASSOCIATES, INC. NEWBURYPORT, MASSACHUSETTS

Section III

Rockport

Section III – Community Findings – Town of Rockport

COMMUNITY DESCRIPTION

The Town of Rockport consists of a land area of 7.07 square miles out of a total area of 17.59 square miles and had a population of 7,767 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 14 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 Rockport, there were 22 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 4 in Section III-B of this report. The structures were categorized by their type and by their structural condition based on a preliminary field assessment. The distribution of structures by type and condition can be seen in the following table:

STRUCTURE TYPE AND QUANTITY - Town of Rockport

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Length
Bulkhead / Seawall	13	2	8	3			8188
Revetment	5			1	3	1	2655
Breakwater	4		2	1	1		1995
Groin / Jetty							
Coastal Dune							
Coastal Beach							
	22	2	10	5	4	1	12838

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 Rockport's case there are a total of 20 structures which would require approximately $ 21.9 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 $ 4.4 million would be required to upgrade the Town's coastal protection.

STRUCTURE REPAIR / RECONSTRUCTION COST - Town of Rockport

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Cost
Bulkhead / Seawall	13		$ 1,442,258	$ 12,541,980			$ 13,984,238
Revetment	5			$ 1,727,880	$ 2,734,809	$65,010	$ 4,527,699
Breakwater	4		$ 370,810	$ 1,382,304	$ 1,579,776		$ 3,332,890
Groin / Jetty							$ -
Coastal Dune							$ -
Coastal Beach							$ -
	22	$ -	$ 1,813,068	$ 15,652,164	$ 4,314,585	$ 65,010	$ 21,844,827

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

STRUCTURE OWNERSHIP / REPAIR COST - Town of Rockport

Primary Structure (1)	Total Structures	Structure Condition Rating A	B	C	D	F	Total Cost
Town Owned	22		$ 1,813,068	$ 15,652,164	$ 4,314,585	$ 65,010	$ 21,844,827
Commonwealth of Massachusetts							$ -
Federal Government Owned							$ -
Unknown Ownership							$ -
	22	$ -	$ 1,813,068	$ 15,652,164	$ 4,314,585	$ 65,010	$ 21,844,827

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

SUMMARY

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

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

Section III - Rockport

Part B

Structure Assessment Reports

COASTAL STRUCTURE LOCATION PLAN

TOWN OF ROCKPORT
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

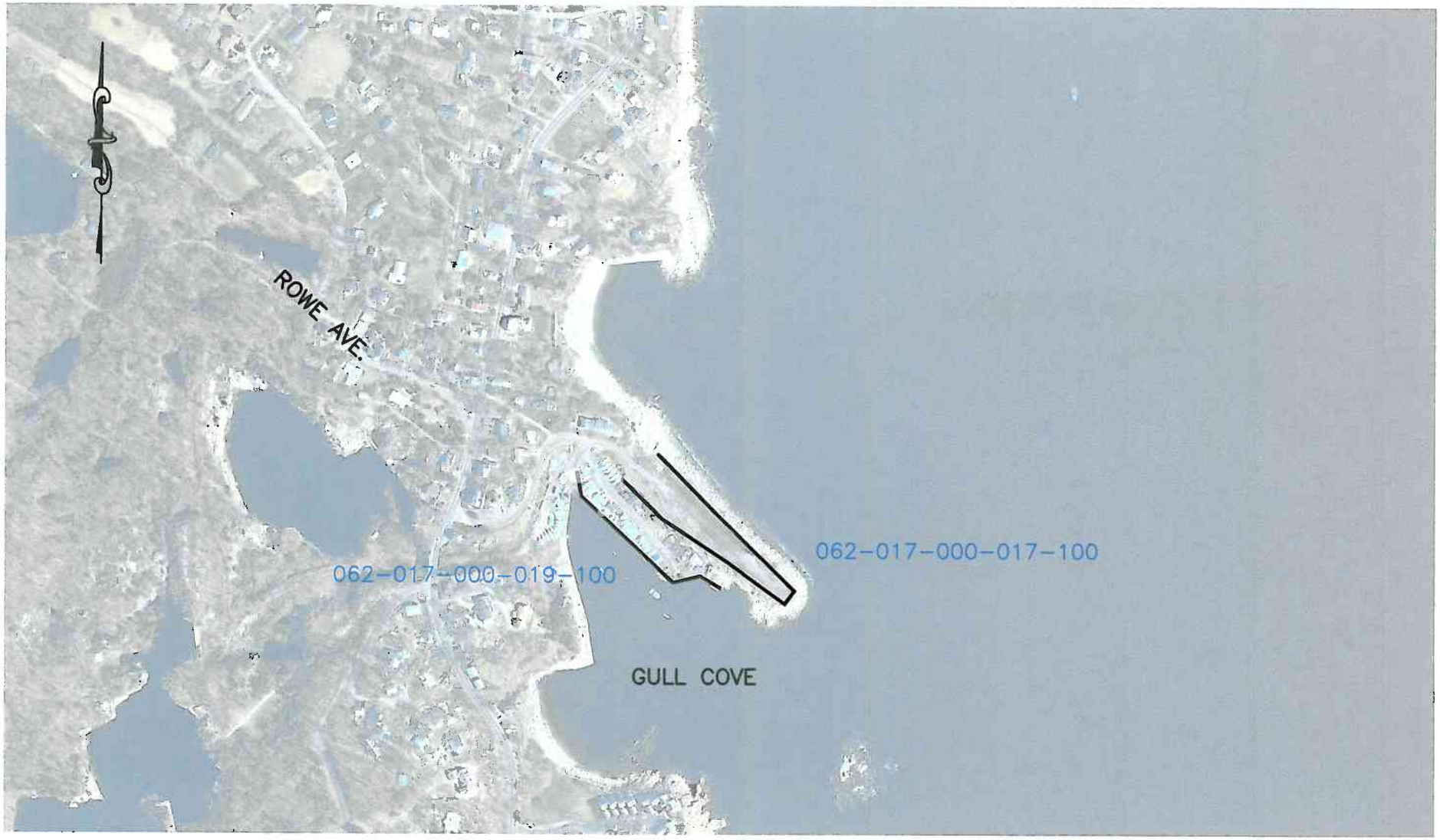
0 150

SCALE: 1" = 150'-0"

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

SHEET 1

File: X:\27652-\27667\North Shore\Rockport\dwg\Rockport.dwg



COASTAL STRUCTURE LOCATION PLAN

TOWN OF ROCKPORT
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

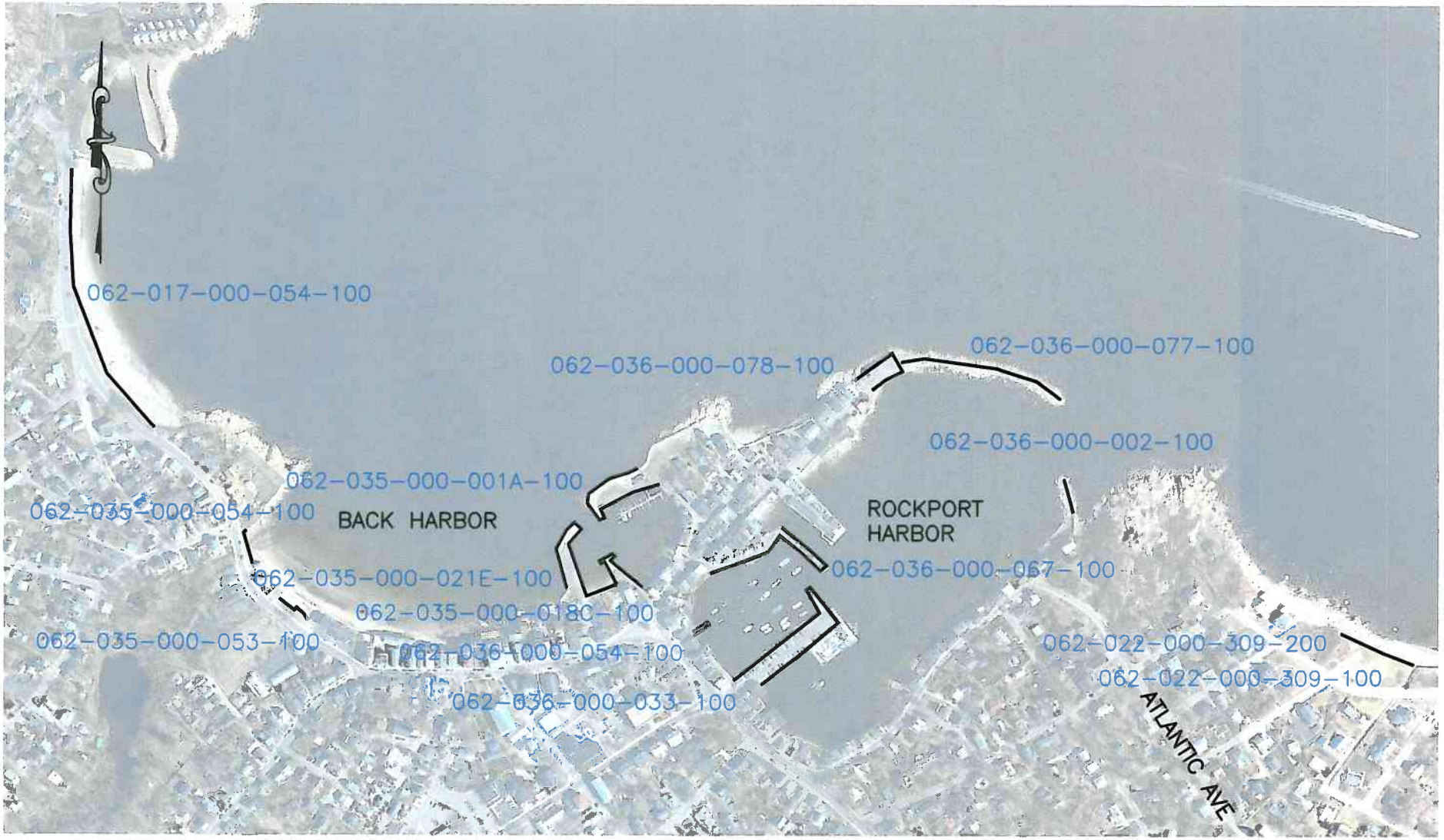
0 150

SCALE: 1" = 150'-0"

Bourne Consulting Engineering

SHEET 2

File: X:\27652-\27667\North Shore\Rockport\dwg\Rockport.dwg



COASTAL STRUCTURE LOCATION PLAN

TOWN OF ROCKPORT
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

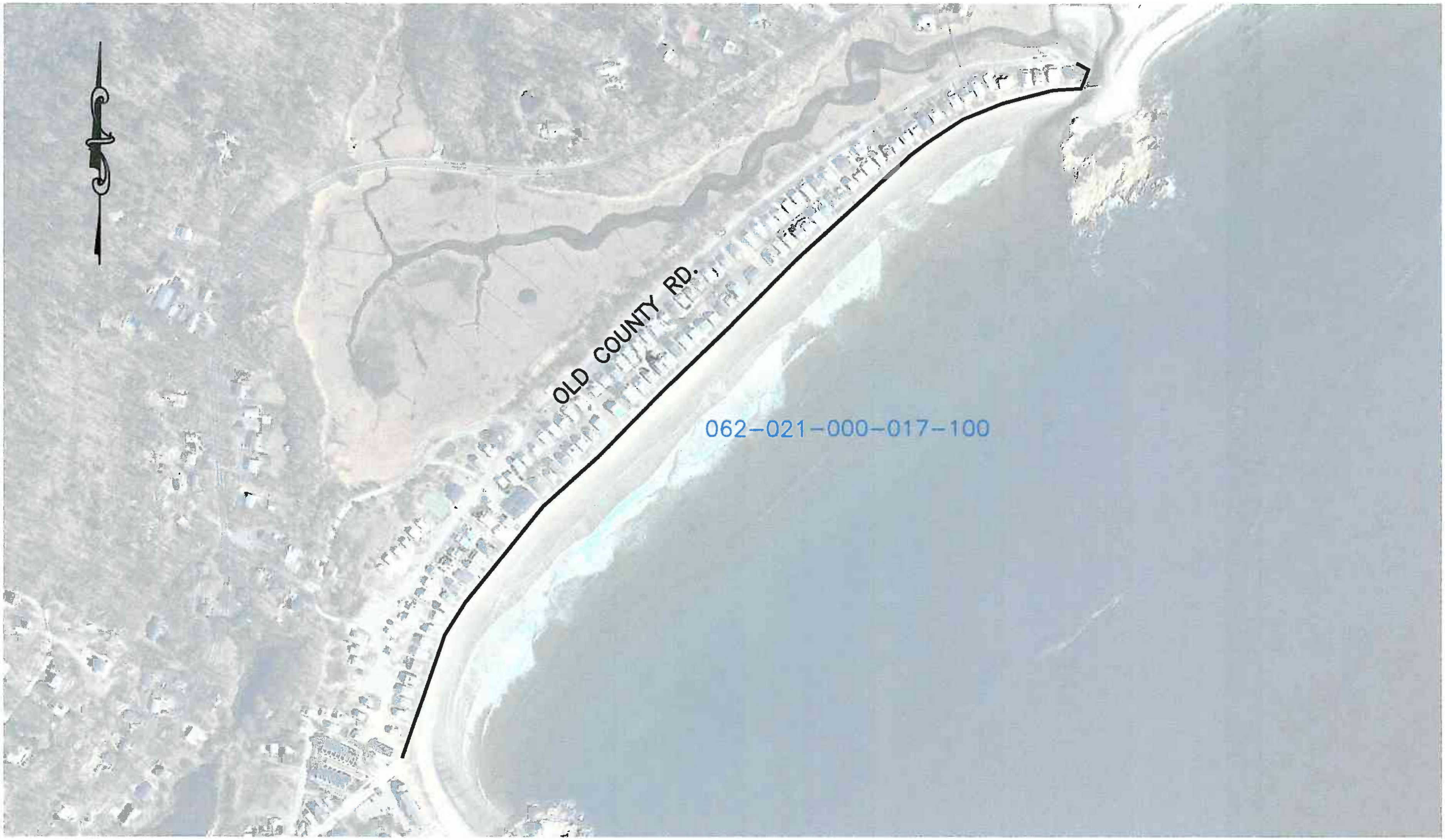
0 150

SCALE: 1" = 150'-0"

BCE Bourne Consulting Engineering
3 Pond Street
Franklin, MA 02038
TEL. (508) 528-3221 FAX. (508) 528-7921

SHEET 3

File: X:\27652-\27667\North Shore\Rockport\dwg\Rockport.dwg



COASTAL STRUCTURE LOCATION PLAN

TOWN OF ROCKPORT
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

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

BCE Bourne Consulting Engineering

SHEET 4

File: X:\27652-\27667\North Shore\Rockport\dwg\Rockport.dwg

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-016-000-026-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Pigeon Cove	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

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

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
200 Feet	6 Feet NAVD 88	V2	25 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The stone block bulkhead is approximately 5 feet by 2 feet by 2 feet. Some settling of stones. The top is used for storage of fishing equipment and parking. No sign of scour throughout.

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

Structure Images:

062-016-000-026-100-PHO1A.jpg

062-016-000-026-100-PHO1B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-016-000-026-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Pigeon Cove	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$314,000.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
1000 Feet	31 Feet NAVD 88	V2	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone mound breakwater with a 1 on 1 slope on both sides. Stone size 5 feet by 3 feet by 2 feet. The crest is 9 feet across. The breakwater protects the cove and houses behind it. The outshore face has been unraveled at one area 5 feet long.

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

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

Structure Images:

062-016-000-026-200-PHO2A.jpg

062-016-000-026-200-PHO2B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-016-000-026-300

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Pigeon Cove	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$203,346.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
130 Feet	7 Feet NAVD 88	V2	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Dumped riprap; approximately 200 pound stones. In between is a boat railway. The stones are unraveled and settled.

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

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

Structure Images:

062-016-000-026-300-PHO3A.jpg

062-016-000-026-300-PHO3B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-016-000-026-400

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Pigeon Cove Breakwater	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$1,579,776.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
320 Feet	7 Feet NAVD 88	V2	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone breakwater has stones that are appoximately 9 feet by 3 feet by 2 feet. The middle section has unraveled and failed about 40 feet. It is built on ledge to help protect the cove behind it and the channel adjacent to it.

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

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

Structure Images:

062-016-000-026-400-PHO4A.jpg

062-016-000-026-400-PHO4B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-017-000-017-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Old Granite Peir	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$1,727,880.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
1400 Feet	35 Feet NAVD 88	V2	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

A stone riprap revetment with two sections approximately 30 feet long have unraveled due to storm damage. The understone is exposed. The top has areas of erosion. There is some movement and settling of the stones throughout. There is a crushed stone parking area on top.

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

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

Structure Images:

062-017-000-017-100-PHO1A.jpg

062-017-000-017-100-PHO1B.jpg

062-017-000-017-100-PHO1C.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-017-000-019-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Old Granite Pier	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$269,280.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
680 Feet	4 Feet NAVD 88	V2	23 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone bulkhead with stones approximately 8 feet by 3 feet by 3 feet. The top is concrete and crushed stones are used for boat storage. Some stones have been stapled together. A few stones are missing at the tidal zone.

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

Structure Images:

062-017-000-019-100-PHO1A.jpg

062-017-000-019-100-PHO1B.jpg

062-017-000-019-100-PHO1C.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-017-000-054-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Back Beach	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$2,320,296.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
940 Feet	15 Feet NAVD 88	V2	16 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The stone riprap is approximately 5 feet by 3 feet by 3 feet. The toe is still in place and buried. Some sections of the stone have settled and caved in. Behind the riprap is a road and houses; in front of the riprap is a beach. The middle of the revetment has been washed out and replaced and filled in with cobble. The ends are still intact.

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

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

Structure Images:

062-017-000-054-100-PHO1A.jpg

062-017-000-054-100-PHO1B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-021-000-017-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Long Beach	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	1958	$10,928,280.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
3400 Feet	16 Feet NAVD 88	V2	17 Feet NGVD

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

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

Structure Summary :

The concrete seawall has a wave return face. It is 3 feet wide at the top Many homes are close behind the wall and a sandy beach in front. Minor cracks and spalling on the wall. There are many visible repairs. There are a few sink holes behind the wall and the walkway is heaving. The riprap is one stone high starting at the wall and continuing out 20 feet. The riprap is on average 6 feet by 3 feet by 3 feet.

Condition Rating	C Fair	*Priority Rating*	IV High Priority
Level of Action	Moderate	*Action*	Consider for Next Project Construction Listing
Description	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.	*Description*	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

062-021-000-017-100-PHO1A.jpg

062-021-000-017-100-PHO1B.jpg

Structure Documents:

MA-DCR	September 1	Proposed Seawall	062-021-000-017-100-DCR1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-022-000-309-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Old Garden Beach	3/13/2009

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$10,454.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
33 Feet	Feet NAVD 88	V2	28 Feet NGVD

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

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

Structure Summary :

Stone blocks that are approximately 4 feet by 2 feet by 2 feet set six courses high. No shifting or rotating visable in stones. Mortar is intact. Minor erosion behind wall, which has been repaired. In front of wall is beach rocks used as riprap. Rocks are scattered and minor scour is visable.

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

Structure Images:

062-022-000-309-100-PHO1A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-022-000-309-200

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Old Garden Beach	3/13/2009

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$65,010.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
50 Feet	Feet NAVD 88	V2	28 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Dumped stone approximately 4 feet in diameter in front of a pumping station. Stones are scattered creating many voids. There is heavey erosion in the coastal bank behind the revetment.

Condition Rating	F Critical	*Priority Rating*	IV High Priority
Level of Action	Immediate	*Action*	Consider for Next Project Construction Listing
Description	Conditions of structure/landform may warrant emergency stabilization as failure may result in potential loss of property and/or life. Landform eroded, loss of integrity. Structure exhibits critical levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure provides little or no protection from a major coastal storm. Actions taken to totally reconstruct structure to regain full capacity. Landform stability is severely compromised, rate of erosion/material loss may be increasing, and landform does not provide adequate protection from a major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.	*Description*	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

062-022-000-309-200-PHO2A.JPG

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-026-000-026A-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Granite Street	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$524,700.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
265 Feet	8 Feet NAVD 88	V2	15 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone bulkhead with parking lot and building behind. Stones are approximately 9 feet by 3 feet by 2 feet. Some movement of stones and sink holes behind walk and at the corners of the wall. No sign of scour. Some stone movement at jetty.

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

Structure Images:

062-026-000-026A-100-PHO1A.jpg

062-026-000-026A-100-PHO1B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-035-000-001A-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	White Wharf	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$1,089,000.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
550 Feet	16 Feet NAVD 88	V2	18 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone bulkhead with stones that are 5 feet by 2 feet by 2 feet. There is no visible scour. Some settling of stones and erosion and cracking at the top. The wall never had or has lost chinking stones. Some stones have been stapled together.The out shore face was built twice as high then steps down. Adjacent to it is a channel for a small cove. The higher section has been mortared. There looks to have been recent repairs.

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

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

Structure Images:

062-035-000-001A-100-PHO1A.jpg

062-035-000-001A-100-PHO1B.jpg

062-035-000-001A-100-PHO1C.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-035-000-018C-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Middle Wharf	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$82,764.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
330 Feet	4 Feet NAVD 88	V2	18 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The stone bulkhead has stones that are approximately 5 feet by 2 feet by 2 feet. There is no visible scour. Some settling of stones and erosion at the top. The wall never had or has lost chinking stones. Some stones have been stapled together. The top has concrete that is cracking.

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

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

Structure Images:

062-035-000-018C-100-PHO1A.jpg

062-035-000-018C-100-PHO1B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-035-000-021E-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Lumber Wharf	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$251,460.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
635 Feet	6 Feet NAVD 88	V2	18 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone bulkhead with stones that are 5 feet by 2 feet by 2 feet. There is no visible scour. Some settling of stones and erosion and cracking at the top. The wall never had or has lost chinking stones. Some stones have been stapled together. The outshore face was built twice as high then steps down. Adjacent to it is a channel for a small cove. The higher section has been mortared.

Condition Rating	B Good	*Priority Rating*	IV High Priority
Level of Action	Minor	*Action*	Consider for Next Project Construction Listing
Description	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.	*Description*	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

062-035-000-021E-100-PHO1A.jpg

062-035-000-021E-100-PHO1B.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-035-000-053-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Beach Street	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$0.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
130 Feet	9 Feet NAVD 88	AO	2 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The stone wall is mortared with stones approximately 7 feet by 2 feet by 2 feet in size. There is a ramp that goes to the beach. The wall is protecting the road behind and there is a sandy beach in front. No scour or erosion is visible.

Condition Rating	A Excellent	*Priority Rating*	IV High Priority
Level of Action	None	*Action*	Consider for Next Project Construction Listing
Description	Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm.	*Description*	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

062-035-000-053-100-PHO1A.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-035-000-054-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Beach Street	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$0.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
120 Feet	10 Feet NAVD 88	AO	2 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone wall with concrete mortar. Stones are 4 feet by 2 feet by 2 feet. Appears to be recently repaired. Behind the wall there is a road and houses; in front, there is a sandy beach. There is a stair access to the beach.

Condition Rating	A Excellent	*Priority Rating*	IV High Priority
Level of Action	None	*Action*	Consider for Next Project Construction Listing
Description	Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm.	*Description*	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

062-035-000-054-100-PHO1A.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-036-000-002-100

Key: community-map-block-parcel-structure

Property Owner: Local

Location: Headlands Breakwater

Date: 6/7/2007

Presumed Structure Owner: Local

Based On Comment:

Owner Name: Rockport

Earliest Structure Record: Unkown

Estimated Reconstruction/Repair Cost: $56,810.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
115 Feet	11 Feet NAVD 88	V2	20 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Small breakwater that protects the mouth of Rockport Harbor. Stones are approximately 5 feet by 5 feet by 5 feet. Some stone movement and voids are visible.

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

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

Structure Images: 062-036-000-002-100-PHO1A.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-036-000-033-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	T-Wharf	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	1998	$376,200.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
950 Feet	12 Feet NAVD 88	V2	16 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The stone bulkhead with a parking lot above it and floats attached to it with average stone size of 4 feet by 2 feet. Some stone movement and unraveling. There is no visible scour. The west side has concrete on top of the wall that is cracking at sections.

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

Structure Images:

062-036-000-033-100-PHO1A.jpg

062-036-000-033-100-PHO1B.jpg

062-036-000-033-100-PHO1C.jpg

Structure Documents:

USACE	November 1	Bradley Wharf and T-	062-036-000-033-100-COE1A
DEP	July 26, 199	Town of Rockport	062-036-000-033-100-LIC1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-036-000-054-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Rockport Harbor	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$211,167.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
135 Feet	18 Feet NAVD 88	V2	16 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Riprap against a cast in place concrete boat ramp. Stone size is approximately 100 to 200 pounds. Section loss and stones are unraveled in a few sections. The boatramp is undermined and cracking halfway up.

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

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

Structure Images:

062-036-000-054-100-PHO1A.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-036-000-067-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Bradley Wharf	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	1998	$267,300.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
675 Feet	10 Feet NAVD 88	V2	16 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone bulkhead with stones that are approximately 6 feet by 3 feet by 2 feet. Some settling and movement of stones. Parking lot and fishing equipment storage above. No scour or undermine visable.

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

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

Structure Images:

062-036-000-067-100-PHO1A.jpg

062-036-000-067-100-PHO1B.jpg

Structure Documents:

USACE	November 1	Bradley Wharf and T-	062-036-000-067-100-COE1A
DEP	July 26, 199	Town of Rockport	062-036-000-067-100-LIC1A

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-036-000-077-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Inner Breakwater	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$1,382,304.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
560 Feet	12 Feet NAVD 88	V2	18 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

The breakwater is located at the mouth of Rockport Harbor. The stones are approximately 5 feet by 5 feet by 3 feet on average. Some movement has occurred among the stones, along with some section loss.

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

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

Structure Images:

062-036-000-077-100-PHO1A.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

CZM Coastal Infrastructure Inventory and Assessment

Structure Assessment Form

Town: Rockport

Structure ID: 062-036-000-078-100

Key: community-map-block-parcel-structure

Property Owner:	Location:	Date:
Local	Bearskin Neck	6/7/2007

Presumed Structure Owner:	Based On Comment:
Local	

Owner Name:	Earliest Structure Record:	Estimated Reconstruction/Repair Cost:
Rockport	Unkown	$134,640.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
340 Feet	20 Feet NAVD 88	V2	18 Feet NGVD

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

Secondary Type:	Secondary Material:	Secondary Height:

Structure Summary :

Stone bulkhead with stones that are approximately 5 feet by 2 feet by 2 feet. No sign of movement or settling. Above is a parking lot and small park. The bulkhead is attached to a breakwater. There is no visible scour. The bulkhead is built on a ledge.

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

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

Structure Images:

062-036-000-078-100-PHO1A.jpg

062-036-000-078-100-PHO1B.jpg

062-036-000-078-100-PHO1C.jpg

062-036-000-078-100-PHO1D.jpg

Structure Documents:

Prepared By: Bourne Consulting Engineering

Section III - Rockport

Part C

Structure Photographs

TOWN: ROCKPORT
SOURCE: BCE - FIELD PHOTOGRAPHS
LOCATION: Bourne Consulting Engineering
DATE OF RESEARCH: AUGUST 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
062-016-000-026-100	062-016-000-026-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-016-000-026-100	062-016-000-026-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-016-000-026-200	062-016-000-026-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-016-000-026-200	062-016-000-026-200-PHO2B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-016-000-026-300	062-016-000-026-300-PHO3A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-016-000-026-300	062-016-000-026-300-PHO3B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-016-000-026-400	062-016-000-026-400-PHO4A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-016-000-026-400	062-016-000-026-400-PHO4B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-017-000-017-100	062-017-000-017-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-017-000-017-100	062-017-000-017-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-017-000-017-100	062-017-000-017-100-PHO1C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-017-000-019-100	062-017-000-019-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-017-000-019-100	062-017-000-019-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-017-000-019-100	062-017-000-019-100-PHO1C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-017-000-054-100	062-017-000-054-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-017-000-054-100	062-017-000-054-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-021-000-017-100	062-021-000-017-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-021-000-017-100	062-021-000-017-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-022-000-309-100	062-022-000-309-100-PHO1A.jpg		Bourne Consulting Engineering		May-09	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-022-000-309-200	062-022-000-309-200-PHO2A.jpg		Bourne Consulting Engineering		May-09	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-026-000-026A-100	062-026-000-026A-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-026-000-026A-100	062-026-000-026A-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey

TOWN: ROCKPORT
SOURCE: BCE - FIELD PHOTOGRAPHS
LOCATION: Bourne Consulting Engineering
DATE OF RESEARCH: AUGUST 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
062-035-000-001A-100	062-035-000-001A-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-035-000-001A-100	062-035-000-001A-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-035-000-001A-100	062-035-000-001A-100-PHO1C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-035-000-018C-100	062-035-000-018C-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-035-000-018C-100	062-035-000-018C-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-035-000-021E-100	062-035-000-021E-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-035-000-021E-100	062-035-000-021E-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-035-000-053-100	062-035-000-053-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-035-000-054-100	062-035-000-054-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-036-000-002-100	062-036-000-002-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-036-000-033-100	062-036-000-033-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-036-000-033-100	062-036-000-033-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-036-000-033-100	062-036-000-033-100-PHO1C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-036-000-054-100	062-036-000-054-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-036-000-067-100	062-036-000-067-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-036-000-067-100	062-036-000-067-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-036-000-077-100	062-036-000-077-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-036-000-078-100	062-036-000-078-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-036-000-078-100	062-036-000-078-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-036-000-078-100	062-036-000-078-100-PHO1C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
062-036-000-078-100	062-036-000-078-100-PHO1D.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey


062-016-000-026-100-PHO1A

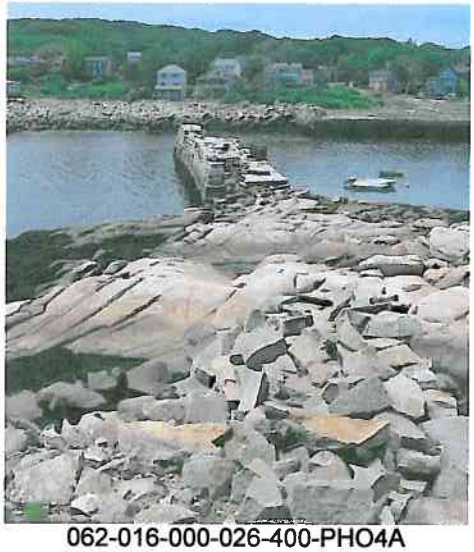

062-016-000-026-100-PHO1B


062-016-000-026-200-PHO2A


062-016-000-026-200-PHO2B

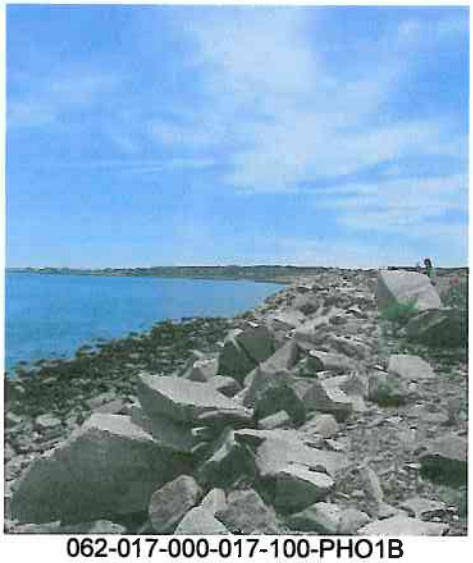

062-016-000-026-300-PHO3A


062-016-000-026-300-PHO3B


062-016-000-026-400-PHO4A


062-016-000-026-400-PHO4B


062-017-000-017-100-PHO1A

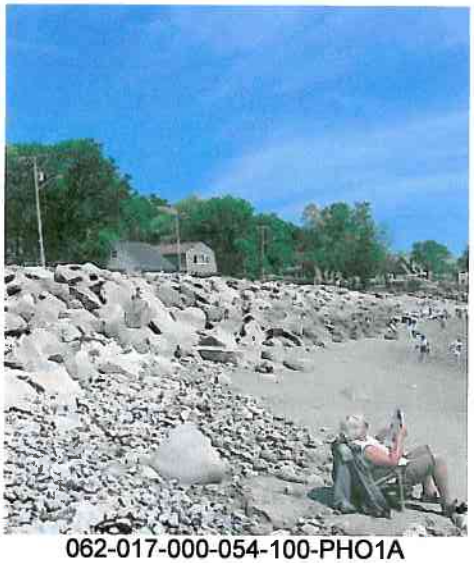

062-017-000-017-100-PHO1B


062-017-000-017-100-PHO1C


062-017-000-019-100-PHO1A

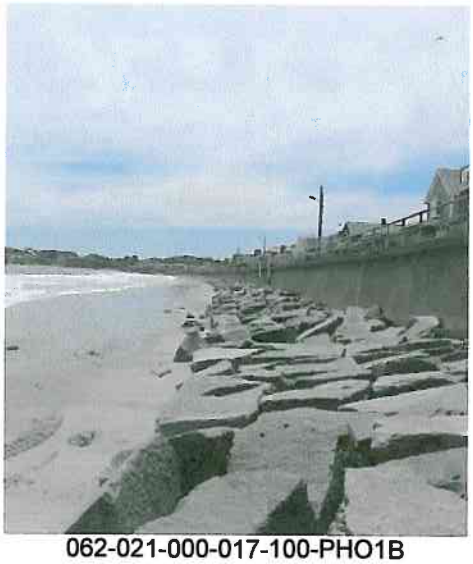

062-017-000-019-100-PHO1B


062-017-000-019-100-PHO1C


062-017-000-054-100-PHO1A

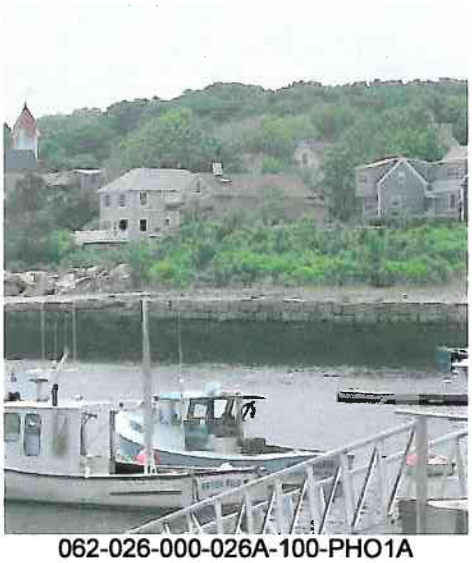

062-017-000-054-100-PHO1B


062-021-000-017-100-PHO1A

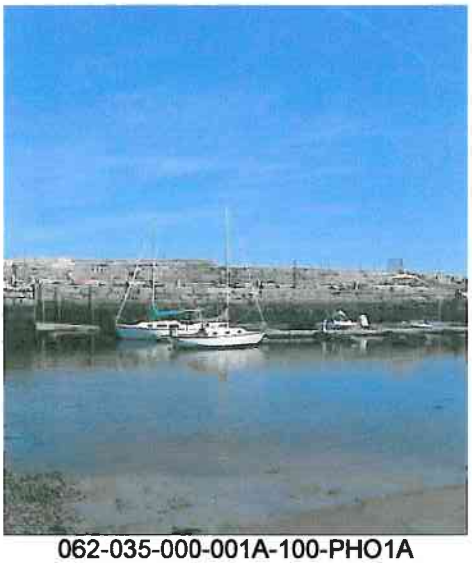

062-021-000-017-100-PHO1B

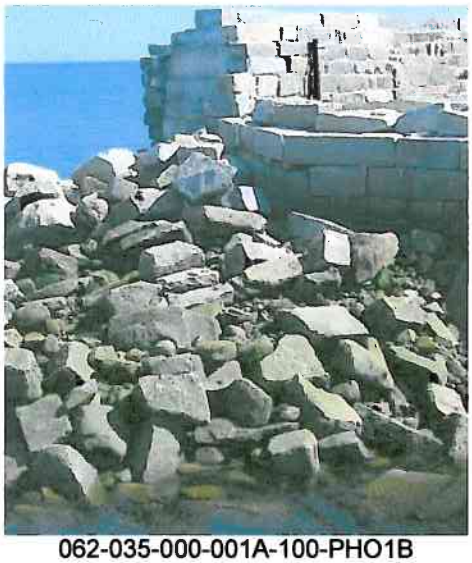

062-022-000-309-100-PHO1A

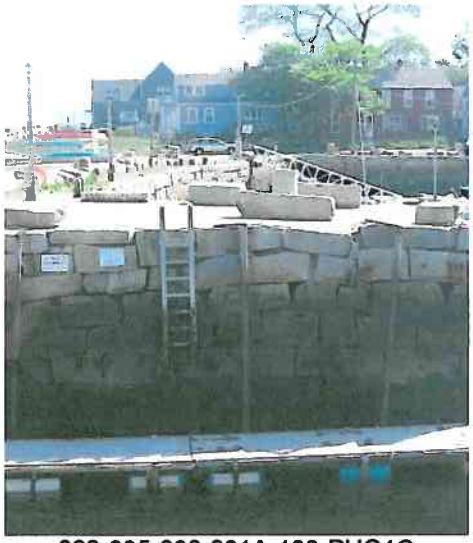

062-022-000-309-200-PHO2A

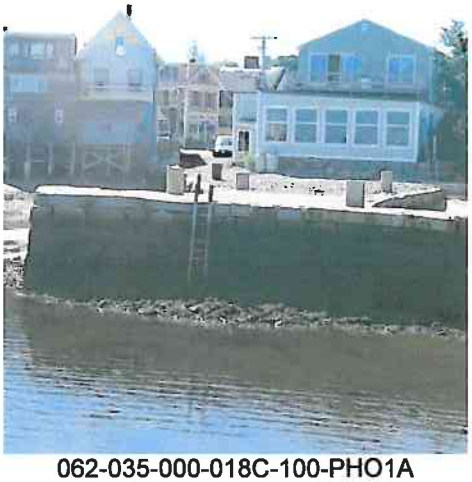

062-026-000-026A-100-PHO1A

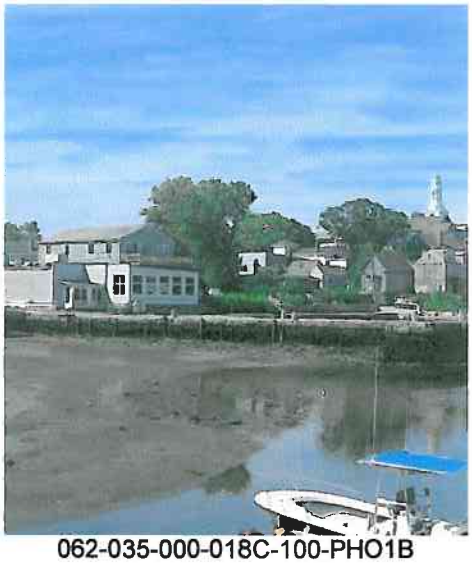

062-026-000-026A-100-PHO1B


062-035-000-001A-100-PHO1A


062-035-000-001A-100-PHO1B


062-035-000-001A-100-PHO1C


062-035-000-018C-100-PHO1A


062-035-000-018C-100-PHO1B

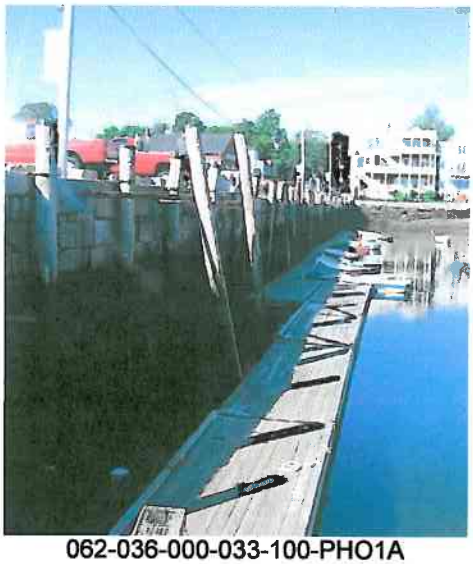

062-035-000-021E-100-PHO1A

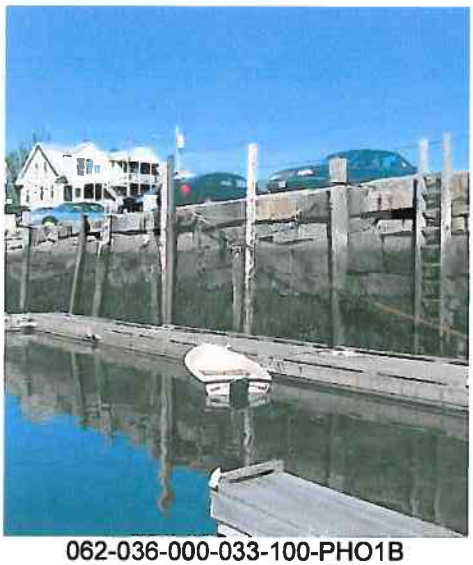

062-035-000-021E-100-PHO1B

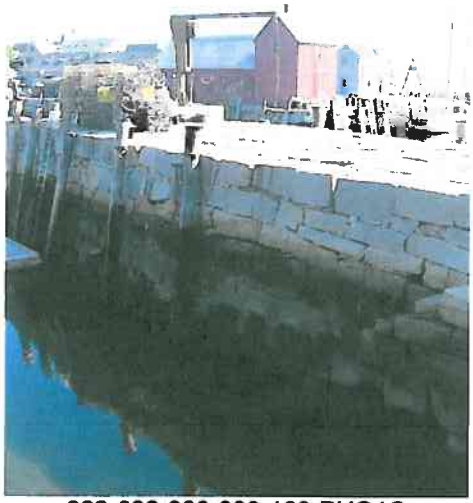

062-035-000-053-100-PHO1A


062-035-000-054-100-PHO1A


062-036-000-002-100-PHO1A

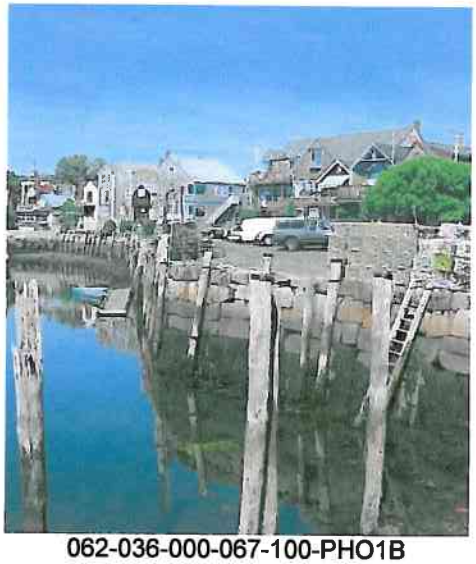

062-036-000-033-100-PHO1A


062-036-000-033-100-PHO1B


062-036-000-033-100-PHO1C


062-036-000-054-100-PHO1A

062-036-000-067-100-PHO1A



062-036-000-067-100-PHO1B

062-036-000-077-100-PHO1A

062-036-000-078-100-PHO1A

062-036-000-078-100-PHO1B

062-036-000-078-100-PHO1C

062-036-000-078-100-PHO1D

Section III - Rockport

Part D

Structure Documents

TOWN DOCUMENT LIST

MA DCR - DOCUMENT LIST

MA DEP – Ch 91 DOCUMENT LIST

- Copies of License Documents

USACE – PERMIT DOCUMENT LIST

- Copies of Permit Documents

TOWN: ROCKPORT
SOURCE: Town of Rockport
LOCATION: TOWN
DATE OF RESEARCH: JULY 2007

No Town Documents for the Town of Rockport

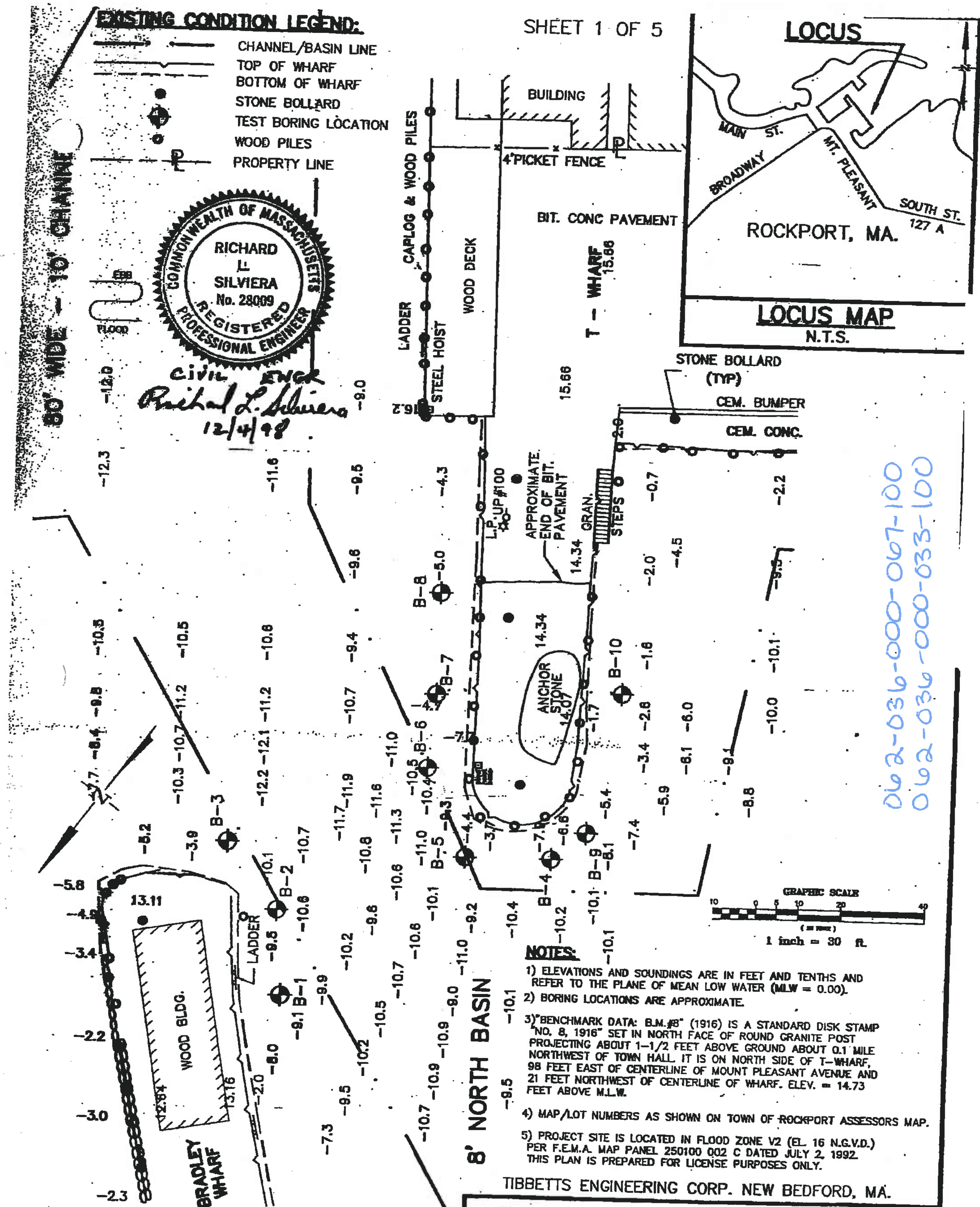
BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description

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

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
062-021-000-017-100	062-021-000-017-100-DCR1A	1959	MA-DCR	Rockport	September 1958	Proposed Seawall and Revetment - Long Beach - Rockport, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	5	Long Beach	Seawall and Revetment

TOWN: ROCKPORT
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
062-036-000-033-100	062-036-000-033-100-LIC1A	7918	DEP	Rockport	July 26, 1999	Town of Rockport D.P.W. To License and Maintain Improvements to Bradley Wharf and T-Wharf In Rockport Harbor	5	Bradley T-Wharf	Bulkhead
062-036-000-067-100	062-036-000-067-100-LIC1A	7918	DEP	Rockport	July 26, 1999	Town of Rockport D.P.W. to License and Maintain Improvements to Bradley Wharf and T-Wharf in Rockport Harbor	5	Bradley T-Wharf	Bulkhead



NOTES:

1) ELEVATIONS AND SOUNDINGS ARE IN FEET AND TENTHS AND REFER TO THE PLANE OF MEAN LOW WATER (MLW = 0.00).
2) BORING LOCATIONS ARE APPROXIMATE.
3) "BENCHMARK DATA: B.M.#8" (1916) IS A STANDARD DISK STAMP "NO. 8, 1916" SET IN NORTH FACE OF ROUND GRANITE POST PROJECTING ABOUT 1-1/2 FEET ABOVE GROUND ABOUT 0.1 MILE NORTHWEST OF TOWN HALL. IT IS ON NORTH SIDE OF T-WHARF, 98 FEET EAST OF CENTERLINE OF MOUNT PLEASANT AVENUE AND 21 FEET NORTHWEST OF CENTERLINE OF WHARF. ELEV. = 14.73 FEET ABOVE M.L.W.
4) MAP/LOT NUMBERS AS SHOWN ON TOWN OF ROCKPORT ASSESSORS MAP.
5) PROJECT SITE IS LOCATED IN FLOOD ZONE V2 (EL. 16 N.G.V.D.) PER F.E.M.A. MAP PANEL 250100 002 C DATED JULY 2, 1992. THIS PLAN IS PREPARED FOR LICENSE PURPOSES ONLY.

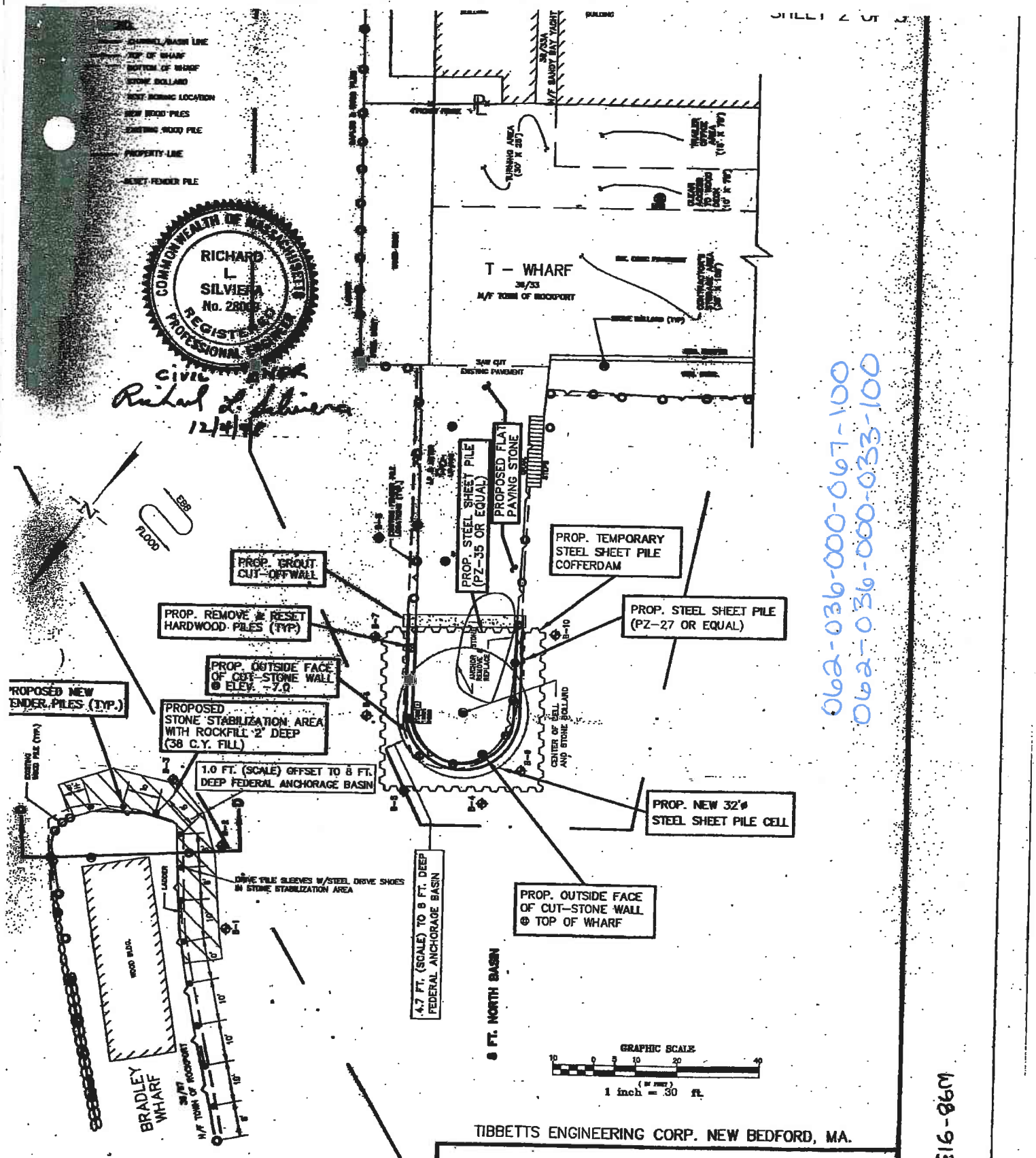
062-036-000-067-100
062-036-000-033-100

TIBBETTS ENGINEERING CORP. NEW BEDFORD, MA.

PLAN ACCOMPANYING PETITION OF
TOWN OF ROCKPORT D.P.W.
TO LICENSE AND MAINTAIN IMPROVEMENTS TO
BRADLEY WHARF AND T-WHARF
IN ROCKPORT HARBOR
ROCKPORT, MA.

LICENSE PLAN NO. 7918
Approved by Department of Environmental Protection of Massachusetts
JUL 26 1999

98-9134
7918

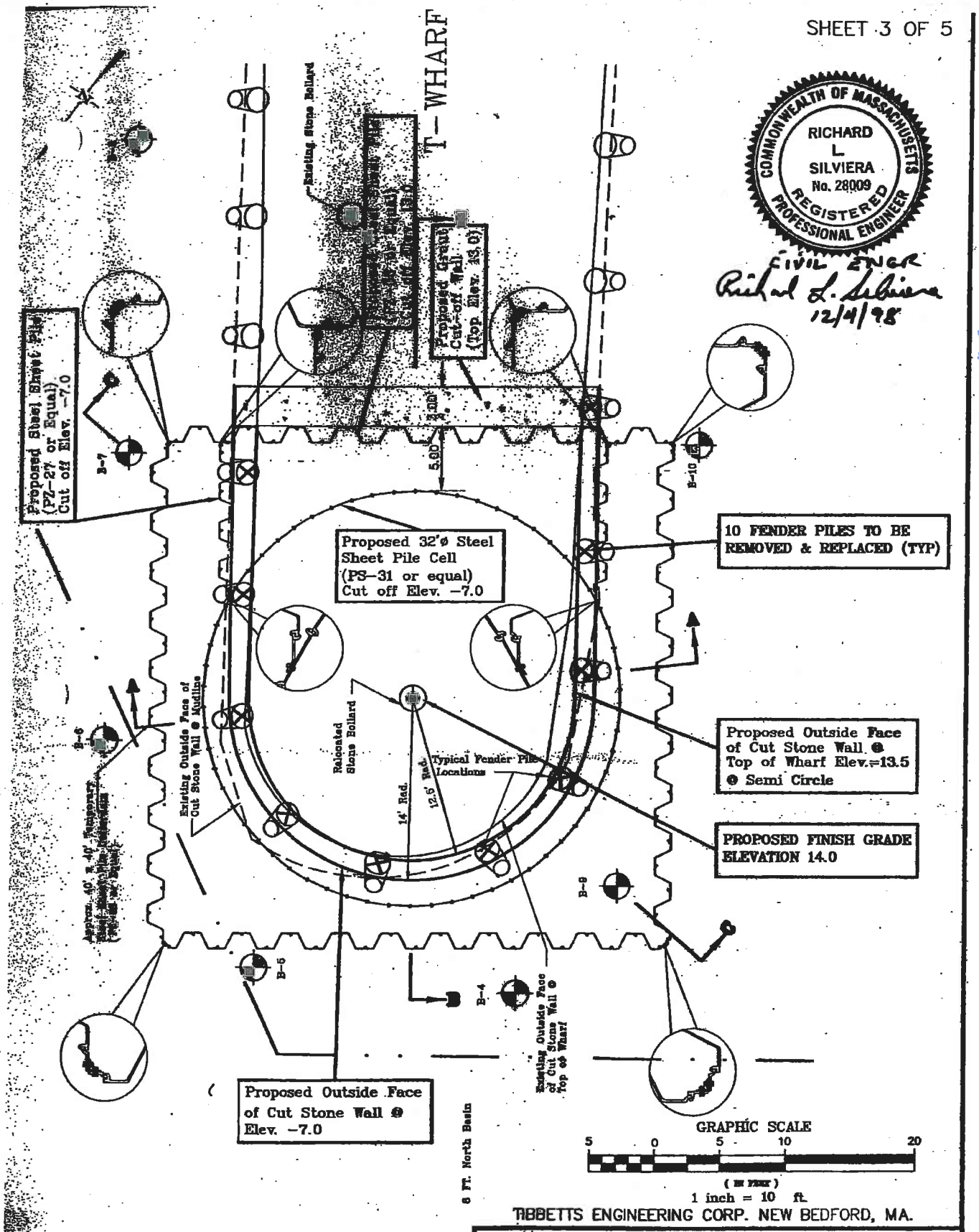


062-036-000-067-100
062-036-000-033-100

W98-9134

A ACCOMPANYING PETITION OF
OWN OF ROCKPORT D.P.W.
O LICENSE AND MAINTAIN IMPROVEMENTS TO
RADLEY WHARF AND T-WHARF
I ROCKPORT HARBOR
OCKPORT, MA.
DATE NOV 10 1998

LICENSE PLAN NO. 7918
Approved by Department of Environmental Protection
Date:
JUL 26 1999



TIBBETTS ENGINEERING CORP. NEW BEDFORD, MA.

COMMONWEALTH OF MASSACHUSETTS
RICHARD L SILVIERA
No. 28009
REGISTERED PROFESSIONAL ENGINEER

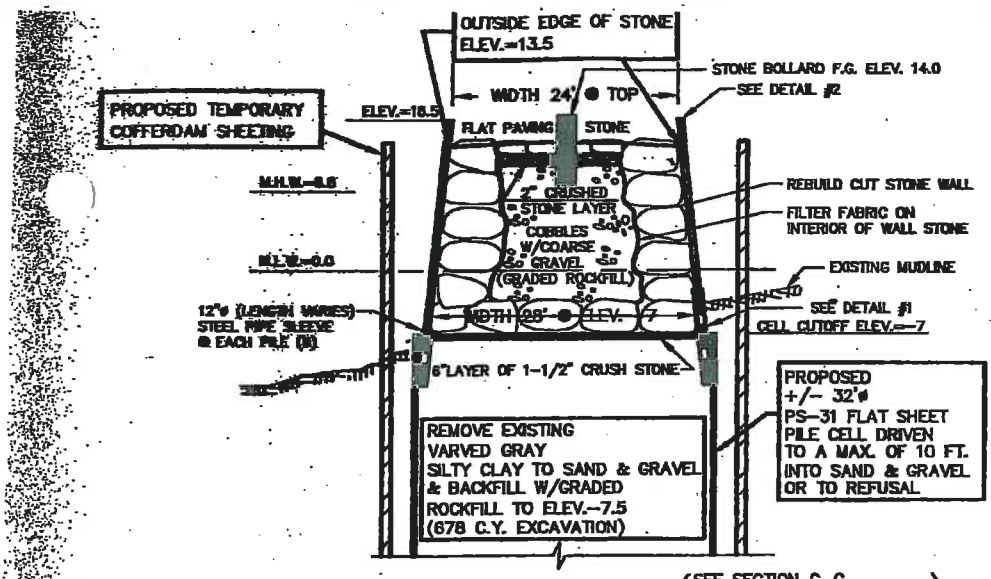
CIVIL ENGR
Richard L. Silviera
12/4/98

068-036-000-067-100
068-036-000-033-100

1098-9134

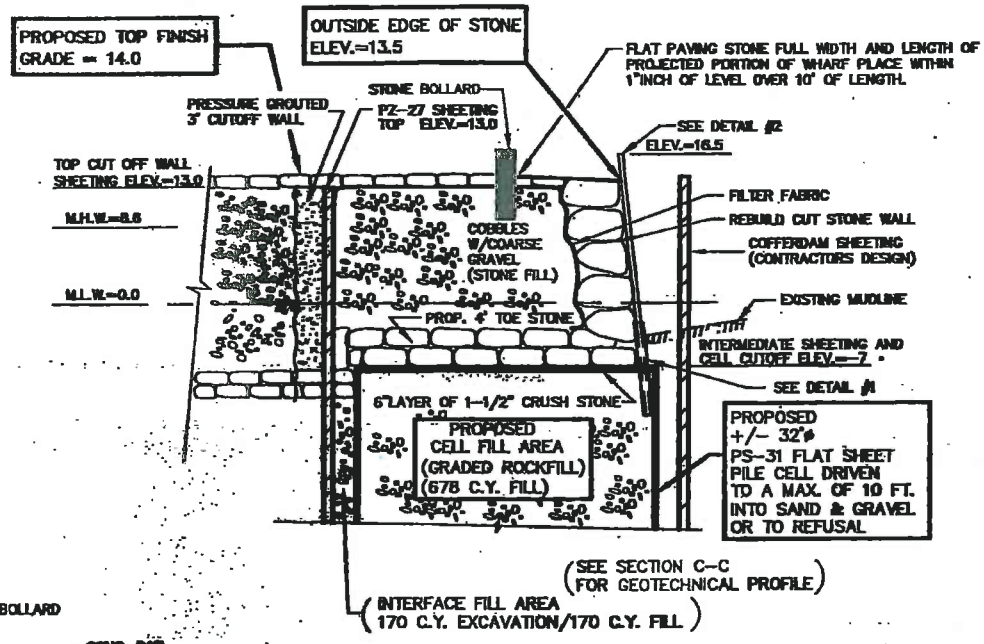
PLAN ACCOMPANYING PETITION OF
TOWN OF ROCKPORT D.P.W.
TO LICENSE AND MAINTAIN IMPROVEMENTS TO
BRADLEY WHARF AND T-WHARF
IN ROCKPORT HARBOR
ROCKPORT, MA

LICENSE PLAN NO. 7918
Approved by Department of Environmental Protection
Date: March 2 1999



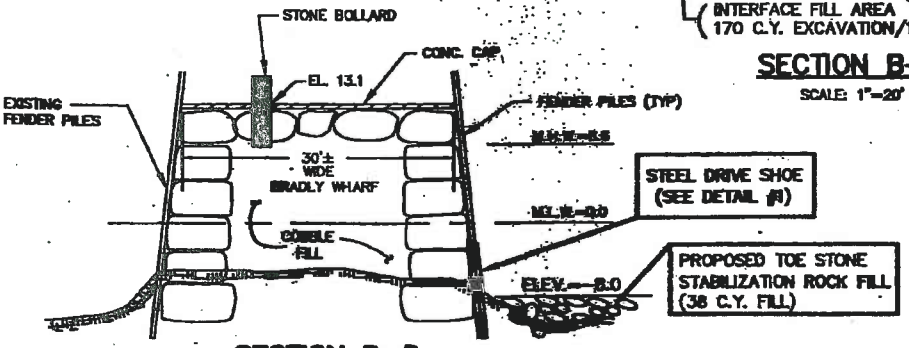
SECTION A-A

SCALE: 1"=20'



SECTION B-B

SCALE: 1"=20'



SECTION D-D

SCALE: 1"=20'

TIBBETTS ENGINEERING CORP. NEW BEDFORD, MA.

COMMONWEALTH OF MASSACHUSETTS
RICHARD L SILVIERA
No. 28009
REGISTERED PROFESSIONAL ENGINEER

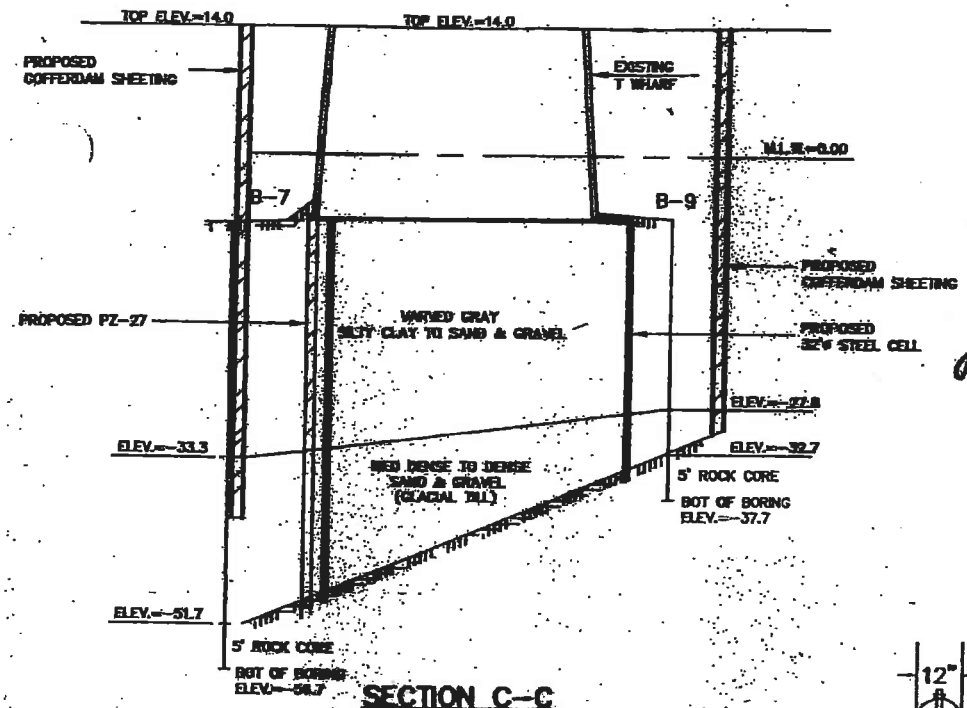
CIVIL ENGR
Richard L. Silviera
12/4/98

062-036-000-067-100
062-036-000-033-100

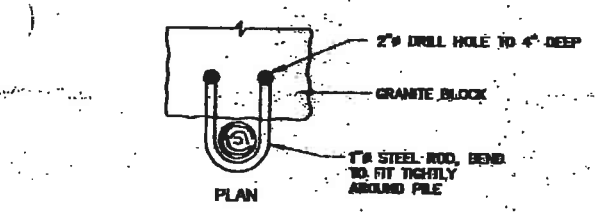
PLAN ACCOMPANYING PETITION OF
TOWN OF ROCKPORT D.P.W.
TO LICENSE AND MAINTAIN IMPROVEMENTS TO
BRADLEY WHARF AND T-WHARF
IN ROCKPORT HARBOR
ROCKPORT, MA

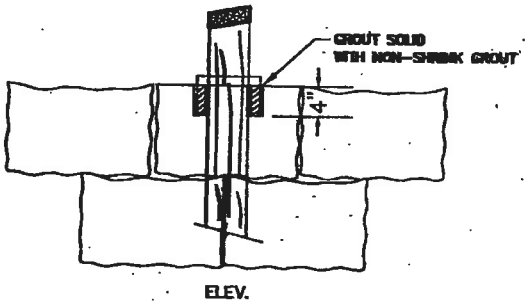
LICENSE PLAN NO. 7918
Approved by Department of Environmental Protection
Date: JUL 26 1999

96-914

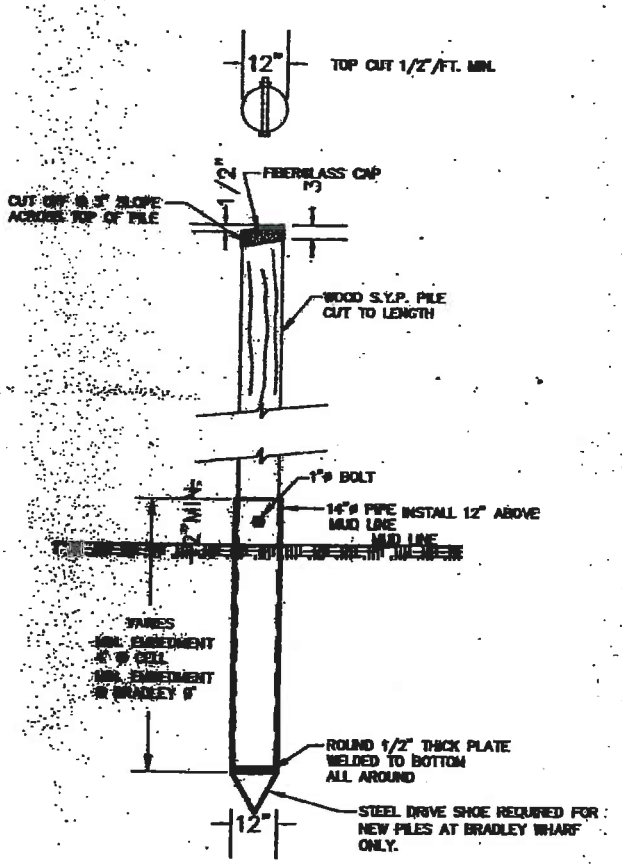


SECTION C-C
GEOTECHNICAL PROFILE
SCALE: 1"=20'





TOP PILE ATTACHMENT DETAIL
DETAIL #2
N.T.S.



DETAIL #1
N.T.S.

TIBBETTS ENGINEERING CORP. NEW BEDFORD, MA.

COMMONWEALTH OF MASSACHUSETTS
RICHARD L. SILVIERA
No. 28009
REGISTERED PROFESSIONAL ENGINEER

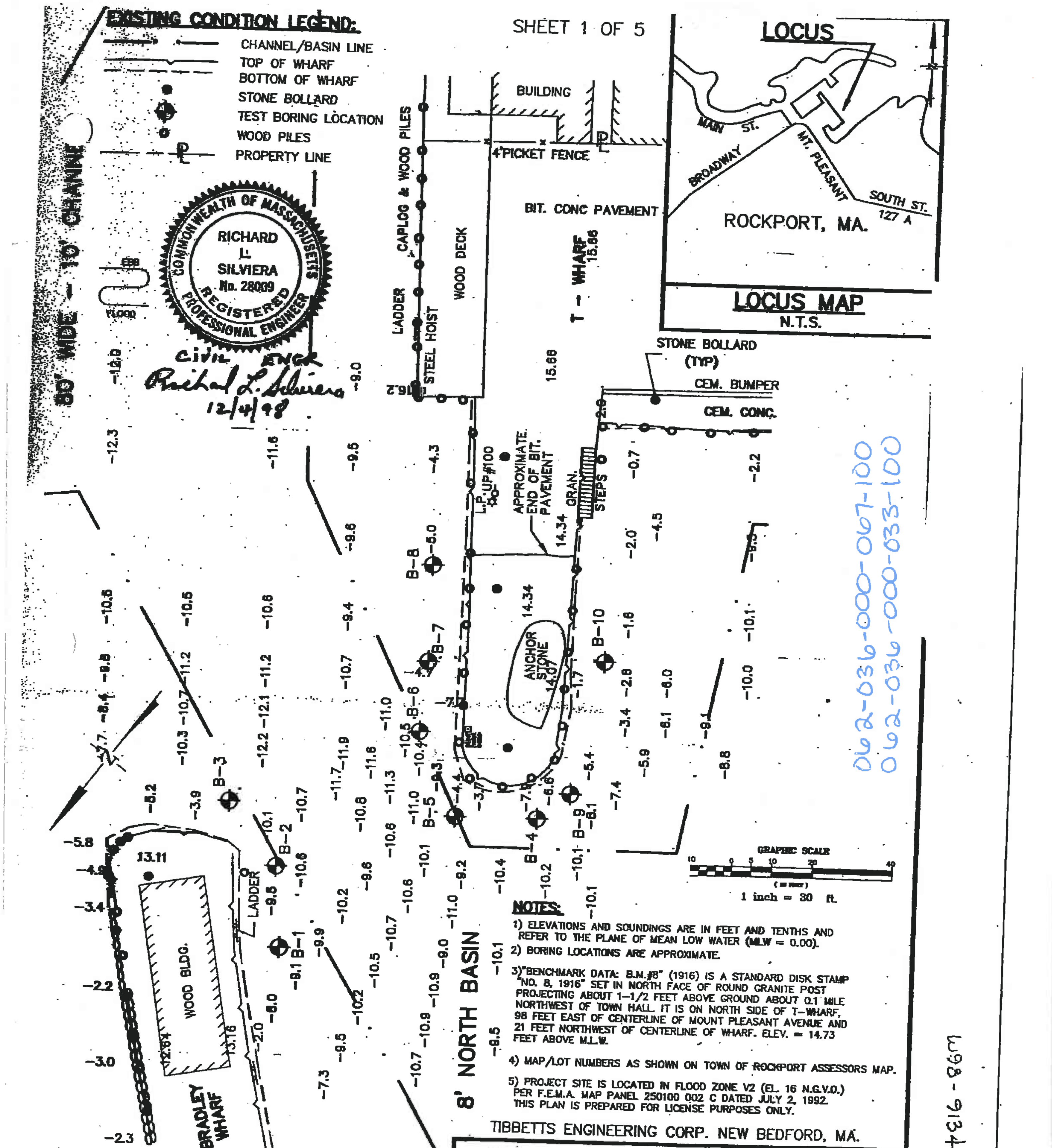
CIVIL ENGR
Richard L. Silviera
12/4/98

062-036-000-067-100
062-036-000-033-100

W98-9134

LA... ACCOMPANYING PETITION OF
'OWN OF ROCKPORT D.P.W.
O LICENSE AND MAINTAIN IMPROVEMENTS TO
RADLEY WHARF AND T-WHARF
ROCKPORT HARBOR
OCKPORT, MA.

LICENSE PLAN NO. 7918
Approved by Department of Environmental Protection
Date: JUL 26 1999



NOTES:

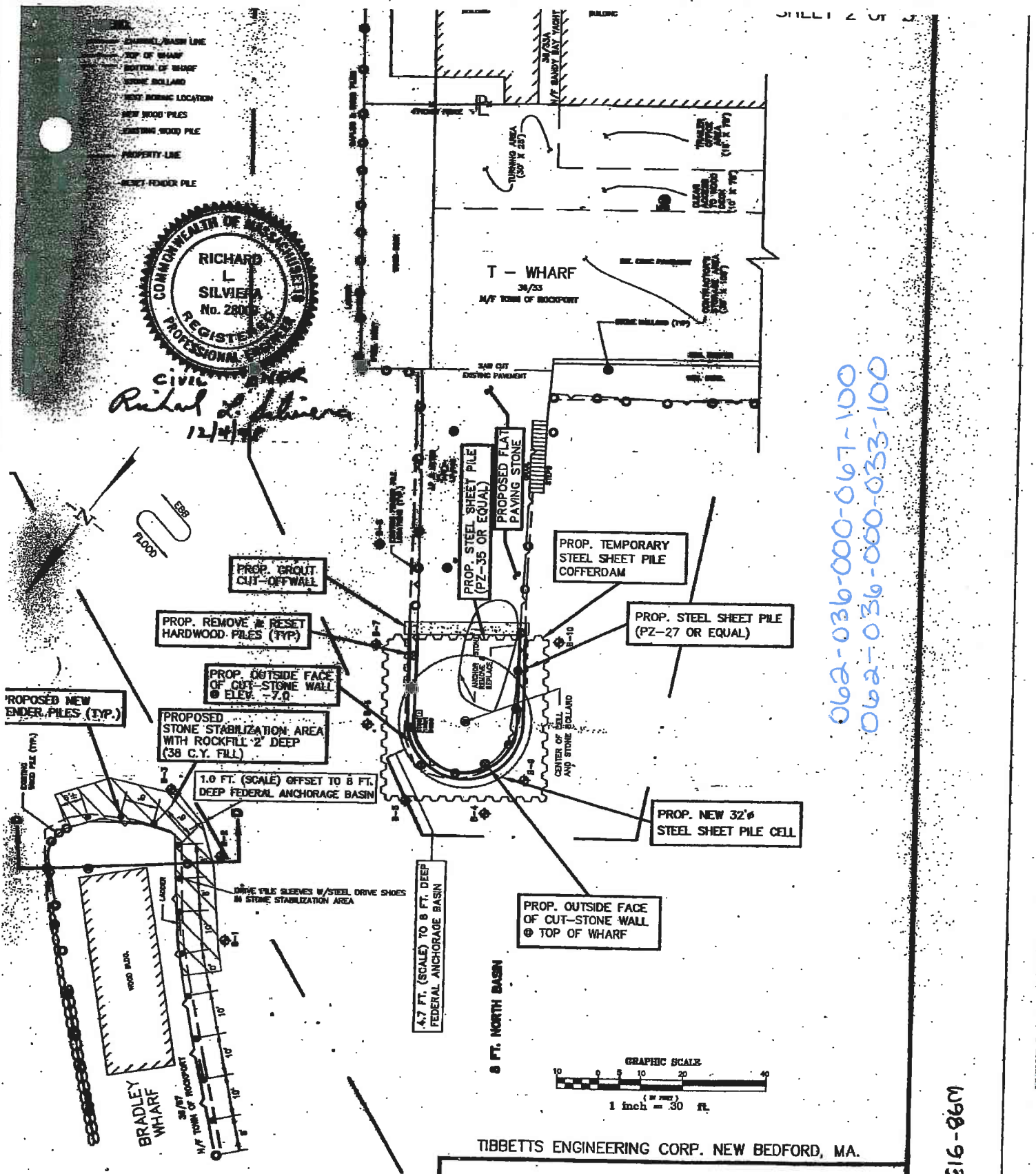
1) ELEVATIONS AND SOUNDINGS ARE IN FEET AND TENTHS AND REFER TO THE PLANE OF MEAN LOW WATER (MLW = 0.00).
2) BORING LOCATIONS ARE APPROXIMATE.
3) BENCHMARK DATA: B.M.#8" (1916) IS A STANDARD DISK STAMP "NO. 8, 1916" SET IN NORTH FACE OF ROUND GRANITE POST PROJECTING ABOUT 1-1/2 FEET ABOVE GROUND ABOUT 0.1 MILE NORTHWEST OF TOWN HALL. IT IS ON NORTH SIDE OF T-WHARF, 98 FEET EAST OF CENTERLINE OF MOUNT PLEASANT AVENUE AND 21 FEET NORTHWEST OF CENTERLINE OF WHARF. ELEV. = 14.73 FEET ABOVE M.L.W.
4) MAP/LOT NUMBERS AS SHOWN ON TOWN OF ROCKPORT ASSESSORS MAP.
5) PROJECT SITE IS LOCATED IN FLOOD ZONE V2 (EL. 16 N.G.V.D.) PER F.E.M.A. MAP PANEL 250100 002 C DATED JULY 2, 1992. THIS PLAN IS PREPARED FOR LICENSE PURPOSES ONLY.

TIBBETTS ENGINEERING CORP. NEW BEDFORD, MA.

PLAN ACCOMPANYING PETITION OF
TOWN OF ROCKPORT D.P.W.
TO LICENSE AND MAINTAIN IMPROVEMENTS TO
BRADLEY WHARF AND T-WHARF
IN ROCKPORT HARBOR
ROCKPORT, MA.

LICENSE PLAN NO. 7918
Approved by Department of Environmental Protection of Massachusetts
JUL 26 1999

7918



RICHARD L SILVIERA No. 28[illegible]
REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS
Civil
Richard L Silviera
12/4/98

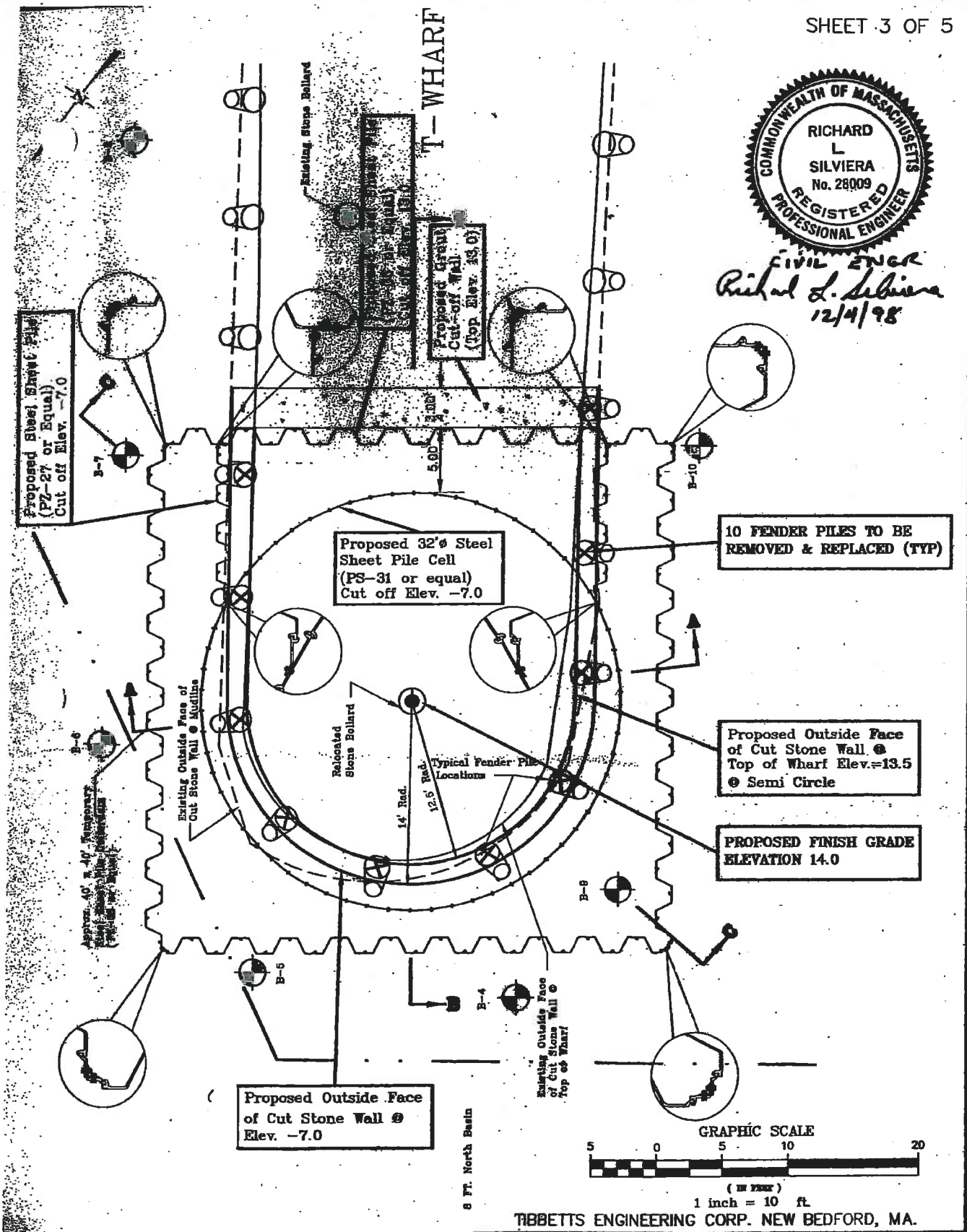
062-036-000-067-100
062-036-000-033-100

TIBBETTS ENGINEERING CORP. NEW BEDFORD, MA.

W98-913

A ACCOMPANYING PETITION OF
OWN OF ROCKPORT D.P.W.
O LICENSE AND MAINTAIN IMPROVEMENTS TO
RADLEY WHARF AND T-WHARF
I ROCKPORT HARBOR
OCKPORT, MA.
DATE NOV 10 1998

LICENSE PLAN NO. 7918
Approved by Department of Environmental Protection
Date
JUL 26 1999



TIBBETTS ENGINEERING CORP. NEW BEDFORD, MA.

COMMONWEALTH OF MASSACHUSETTS
RICHARD L SILVIERA
No. 28009
REGISTERED PROFESSIONAL ENGINEER

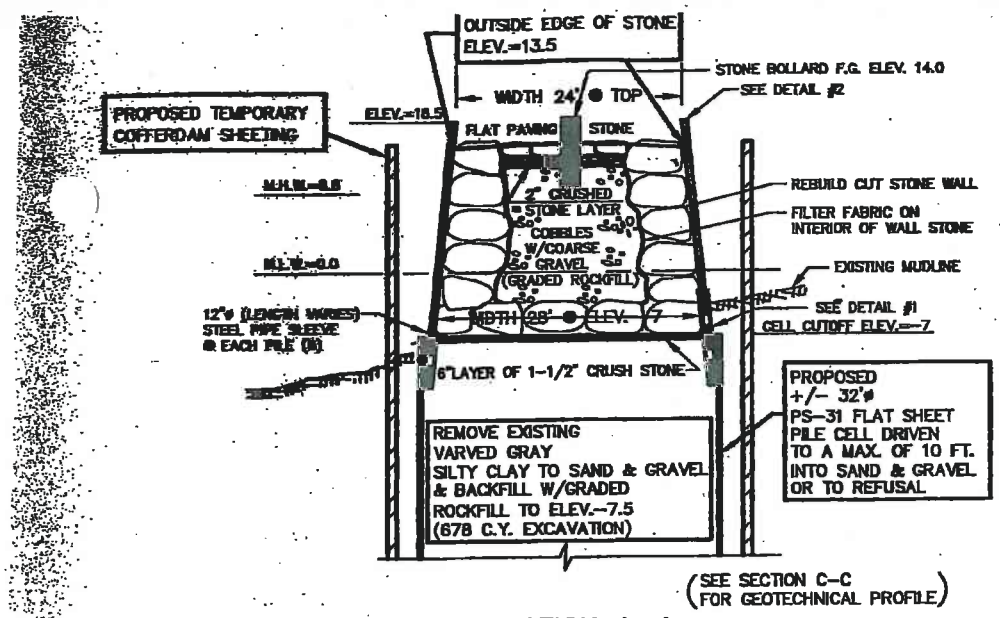
CIVIL ENGR
Richard L. Silviera
12/4/98

062-036-000-067-100
062-036-000-033-100

PLAN ACCOMPANYING PETITION OF
TOWN OF ROCKPORT D.P.W.
TO LICENSE AND MAINTAIN IMPROVEMENTS TO
BRADLEY WHARF AND T-WHARF
IN ROCKPORT HARBOR
ROCKPORT, MA.

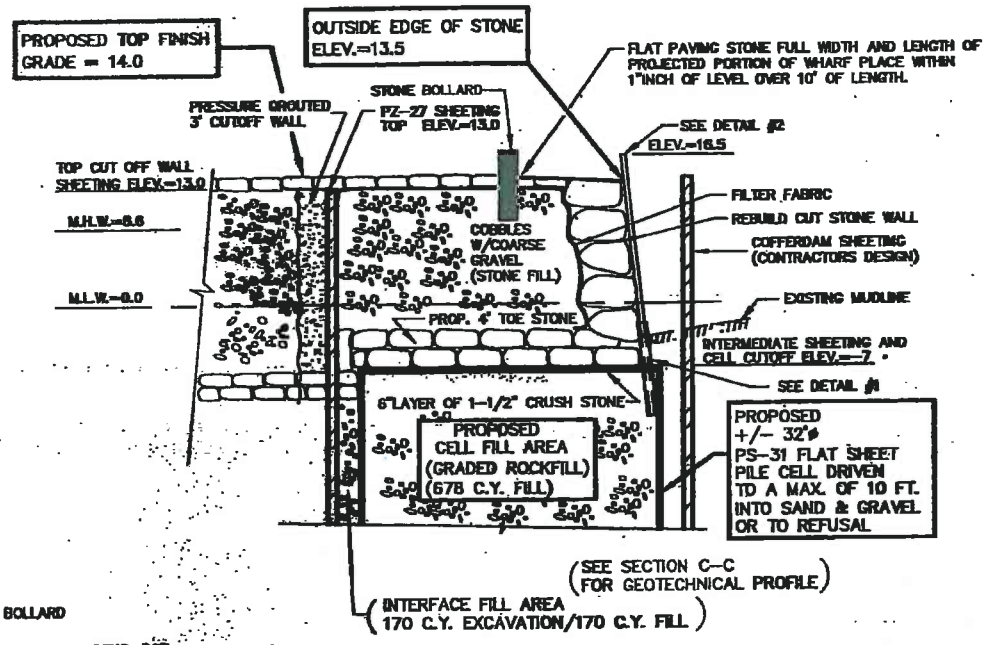
LICENSE PLAN NO. 7918
Approved by Department of Environmental Protection,
Date: March 2, 1999

7918-9134



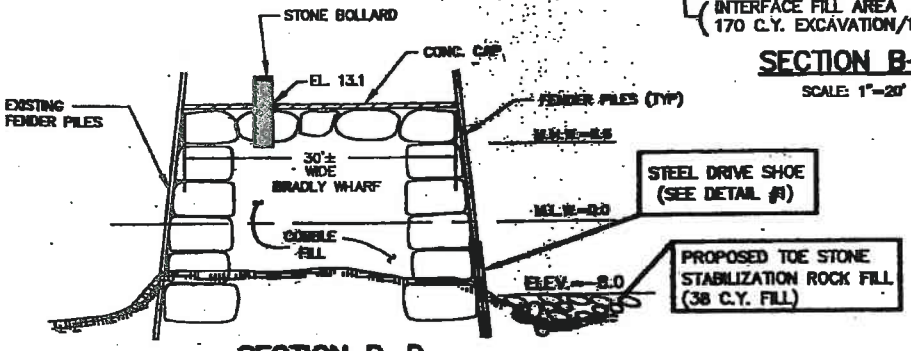
SECTION A-A

SCALE: 1"=20'



SECTION B-B

SCALE: 1"=20'



SECTION D-D

SCALE: 1"=20'

COMMONWEALTH OF MASSACHUSETTS
RICHARD L SILVIERA
No. 28009
REGISTERED PROFESSIONAL ENGINEER

CIVIL ENGR
Richard L. Silviera
12/4/98

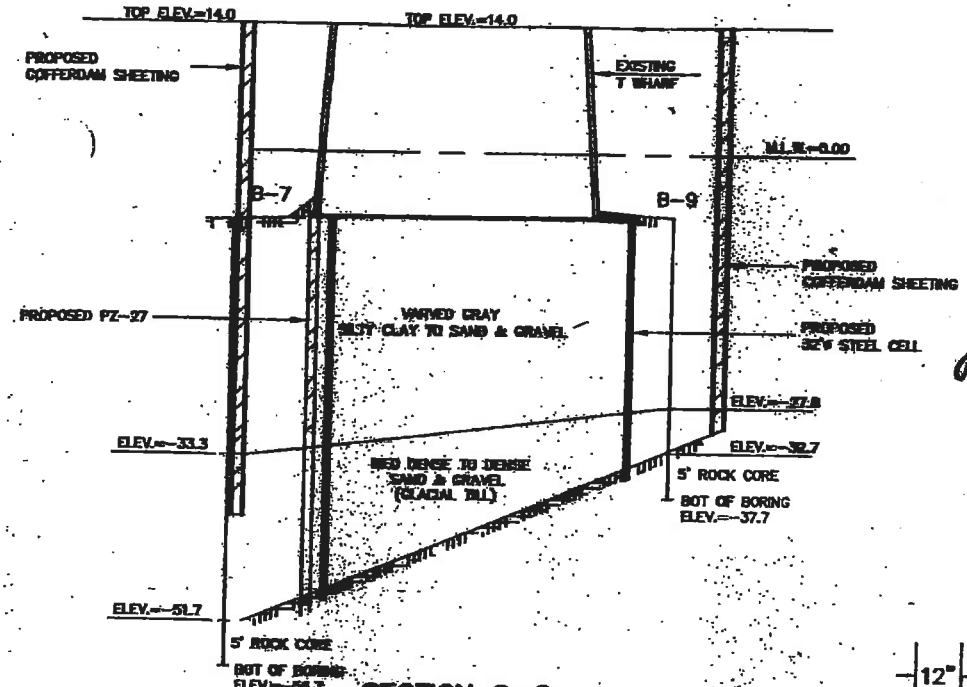
062-036-000-067-100
062-036-000-033-100

TIBBETTS ENGINEERING CORP. NEW BEDFORD, MA.

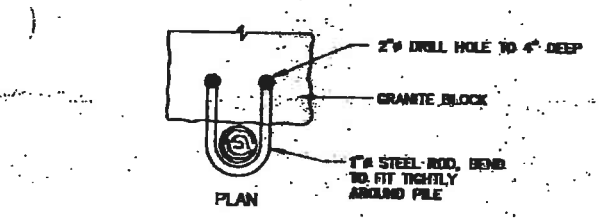
PLAN ACCOMPANYING PETITION OF
TOWN OF ROCKPORT D.P.W.
TO LICENSE AND MAINTAIN IMPROVEMENTS TO
BRADLEY WHARF AND T-WHARF
IN ROCKPORT HARBOR
ROCKPORT MA

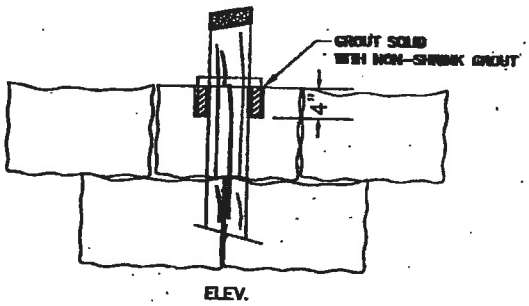
LICENSE PLAN NO. 7918
Approved by Department of Environmental Protection
Date: JUL 26 1999

7616-9611

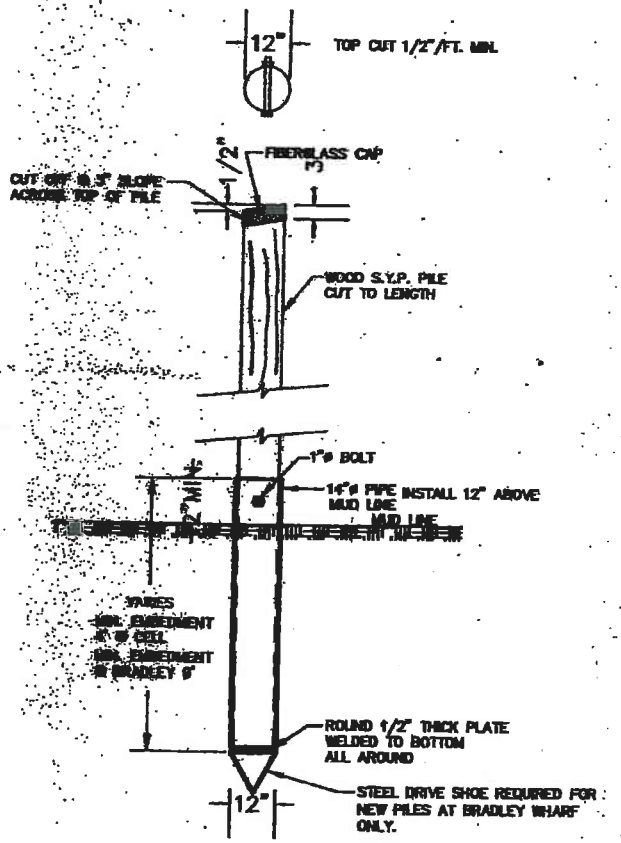


SECTION C-C
GEOTECHNICAL PROFILE
SCALE: 1"=20'





TOP PILE ATTACHMENT DETAIL
DETAIL #2
N.T.S.



DETAIL #1
N.T.S.

COMMONWEALTH OF MASSACHUSETTS
RICHARD L. SILVIERA
No. 28009
REGISTERED PROFESSIONAL ENGINEER

CIVIL ENGR
Richard L. Silviera
12/4/98

062-036-000-067-100
062-036-000-033-100

TIBBETTS ENGINEERING CORP. NEW BEDFORD, MA.

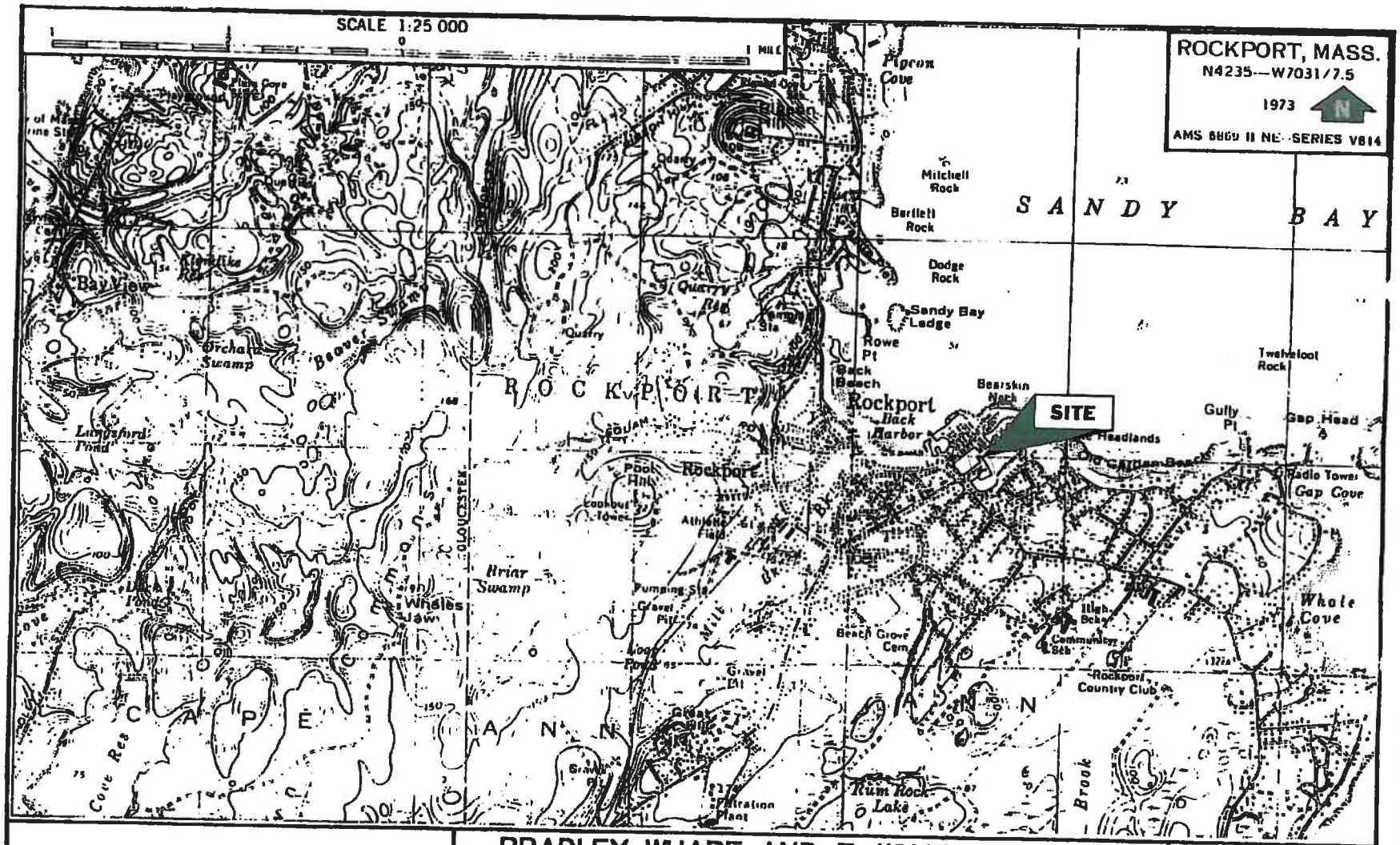
LA... ACCOMPANYING PETITION OF
'OWN OF ROCKPORT D.P.W.
O LICENSE AND MAINTAIN IMPROVEMENTS TO
IRADLEY WHARF AND T-WHARF
N ROCKPORT HARBOR
'OCKPORT, MA.

LICENSE PLAN NO. 7918
Approved by Department of Environmental Protection
Date: JUL 26 1999

W98-9134

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

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
062-036-000-033-100	062-036-000-033-100-COE1A	199803348	USACE	Rockport	November 10, 1998	Bradley Wharf and T-Wharf Repairs	6	Bradley Wharf	Sheet Pile and Riprap Repairs
062-036-000-067-100	062-036-000-067-100-COE1A	199803348	USACE	Rockport	November 10, 1998	Bradley Wharf and T-Wharf Repairs	6	Bradley Wharf	Sheet Pile and Riprap Repairs



tibbetts engineering corp.
716 COUNTY STREET
TAUNTON, MA. 02780
(508) 822-6934

BRADLEY WHARF AND T-WHARF REPAIRS

LOCUS PLAN

DATE: NOV. 10, 1998

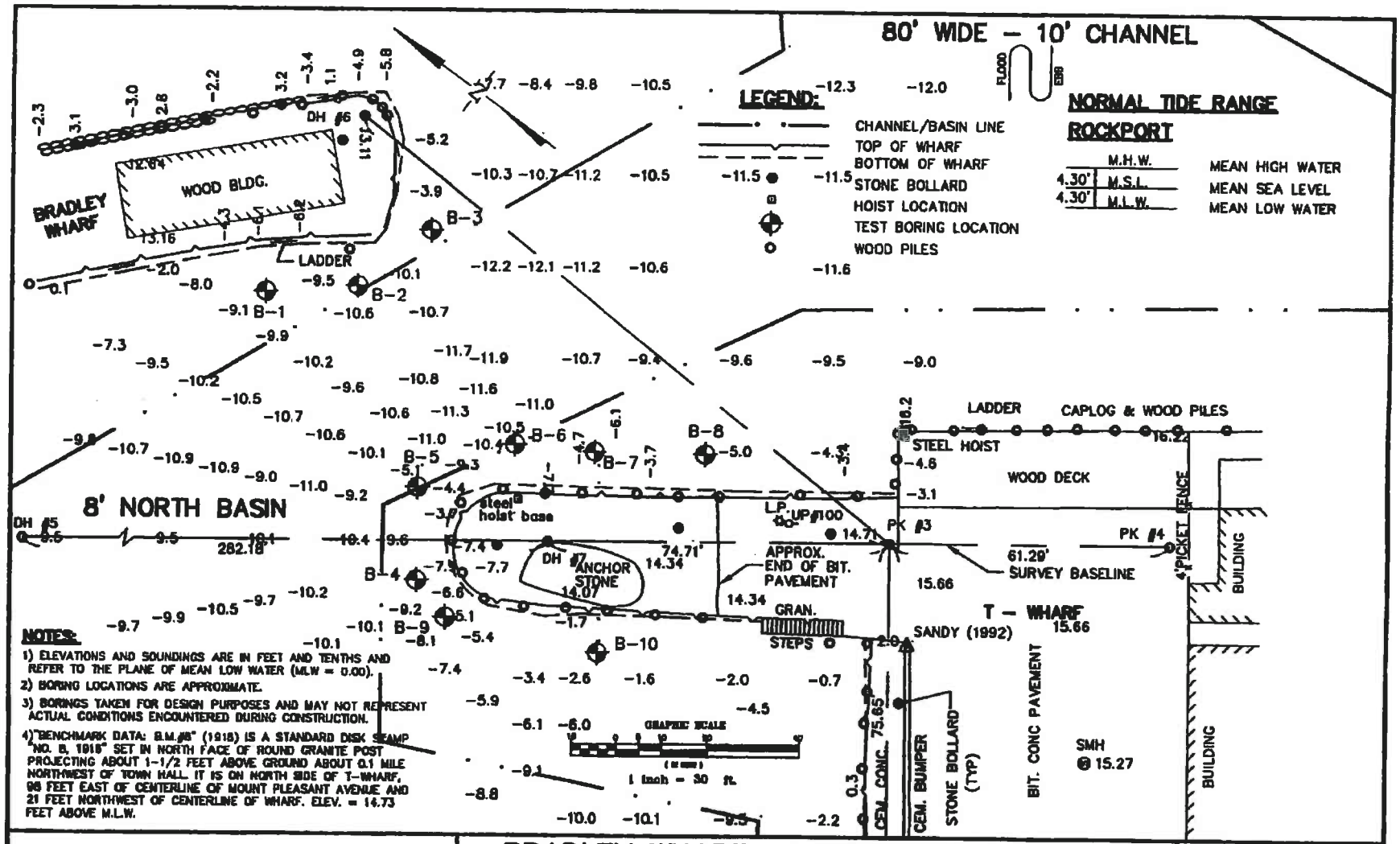
AT: ROCKPORT
IN: ROCKPORT HARBOR
ESSEX COUNTY
STATE OF MASSACHUSETTS

APPLICATION BY:
TOWN OF ROCKPORT D.P.W.

SHEET 1 OF 6

(10117PER.DWG) 10117.060 J.D.

062-036-000-067-100
062-036-000-033-100



tibbetts engineering corp.
716 COUNTY STREET
TAUNTON, MA. 02780
(508) 822-6934

BRADLEY WHARF AND T-WHARF REPAIRS

GENERAL PLAN

DATE: NOV. 10, 1998

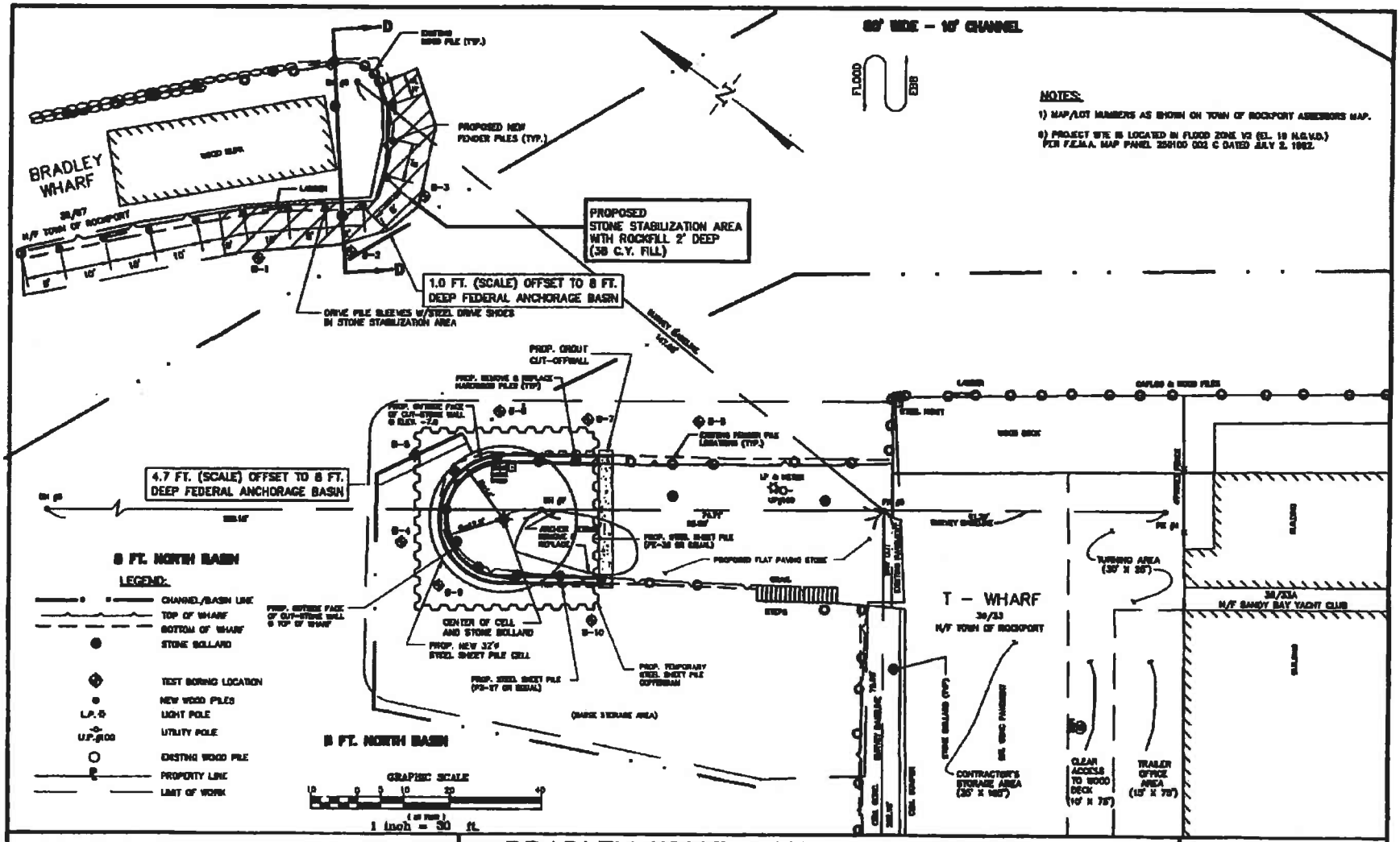
AT: ROCKPORT
IN: ROCKPORT HARBOR
ESSEX COUNTY
STATE OF MASSACHUSETTS

APPLICATION BY:
TOWN OF ROCKPORT D.P.W.

SHEET 2 OF 6

(10117PER.DWG) 10117.080 J.D.

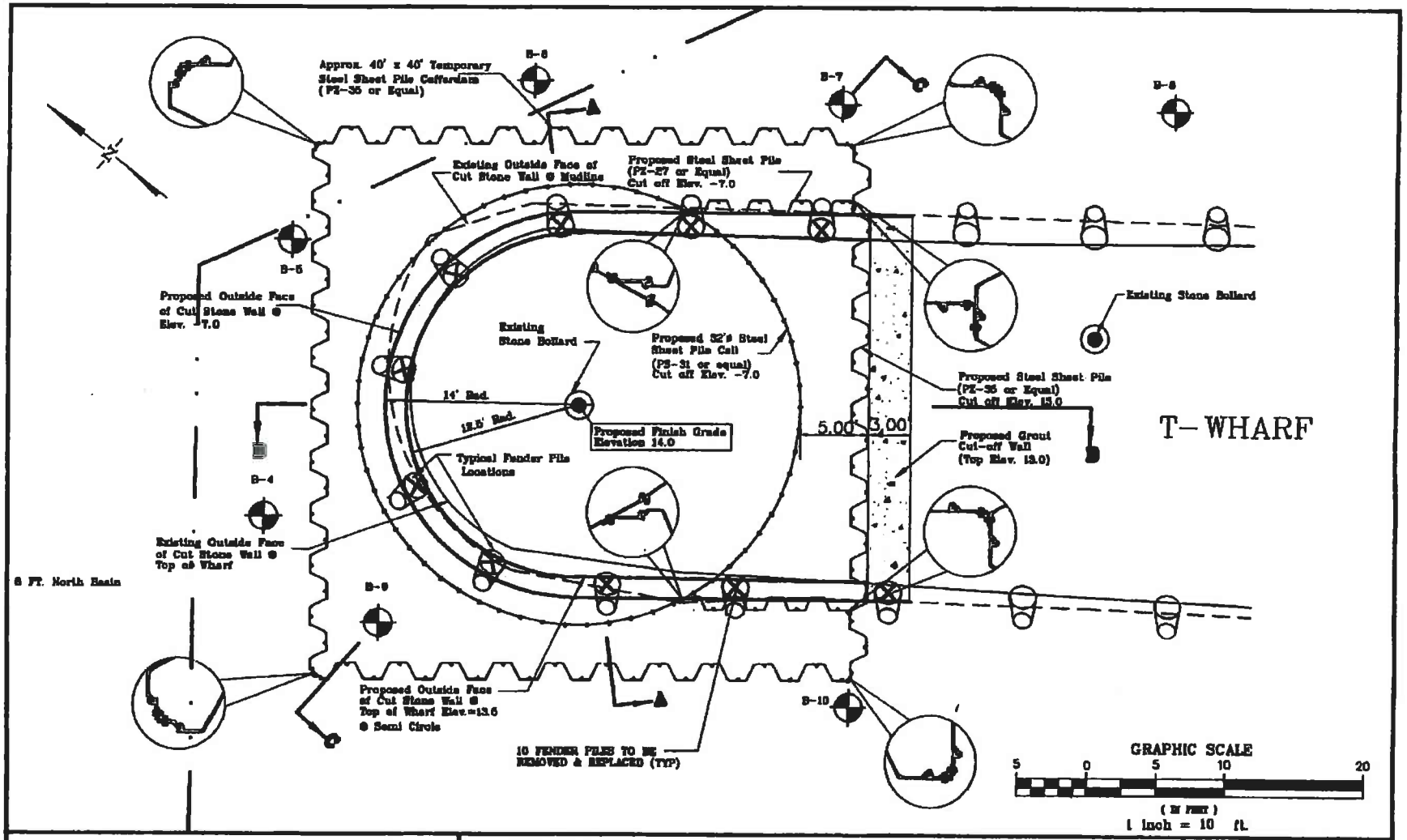
062-036-000-067-100
062-036-000-033-100



tibbetts engineering corp. 716 COUNTY STREET TAUNTON, MA. 02780 (508) 822-6934	BRADLEY WHARF AND T-WHARF REPAIRS SITE PLAN	DATE: NOV. 10, 1998
	AT: ROCKPORT IN: ROCKPORT HARBOR ESSEX COUNTY STATE OF MASSACHUSETTS APPLICATION BY: TOWN OF ROCKPORT D.P.W.	SHEET OF 3 6

(10117PER.DWG) 10117.080 J.D.

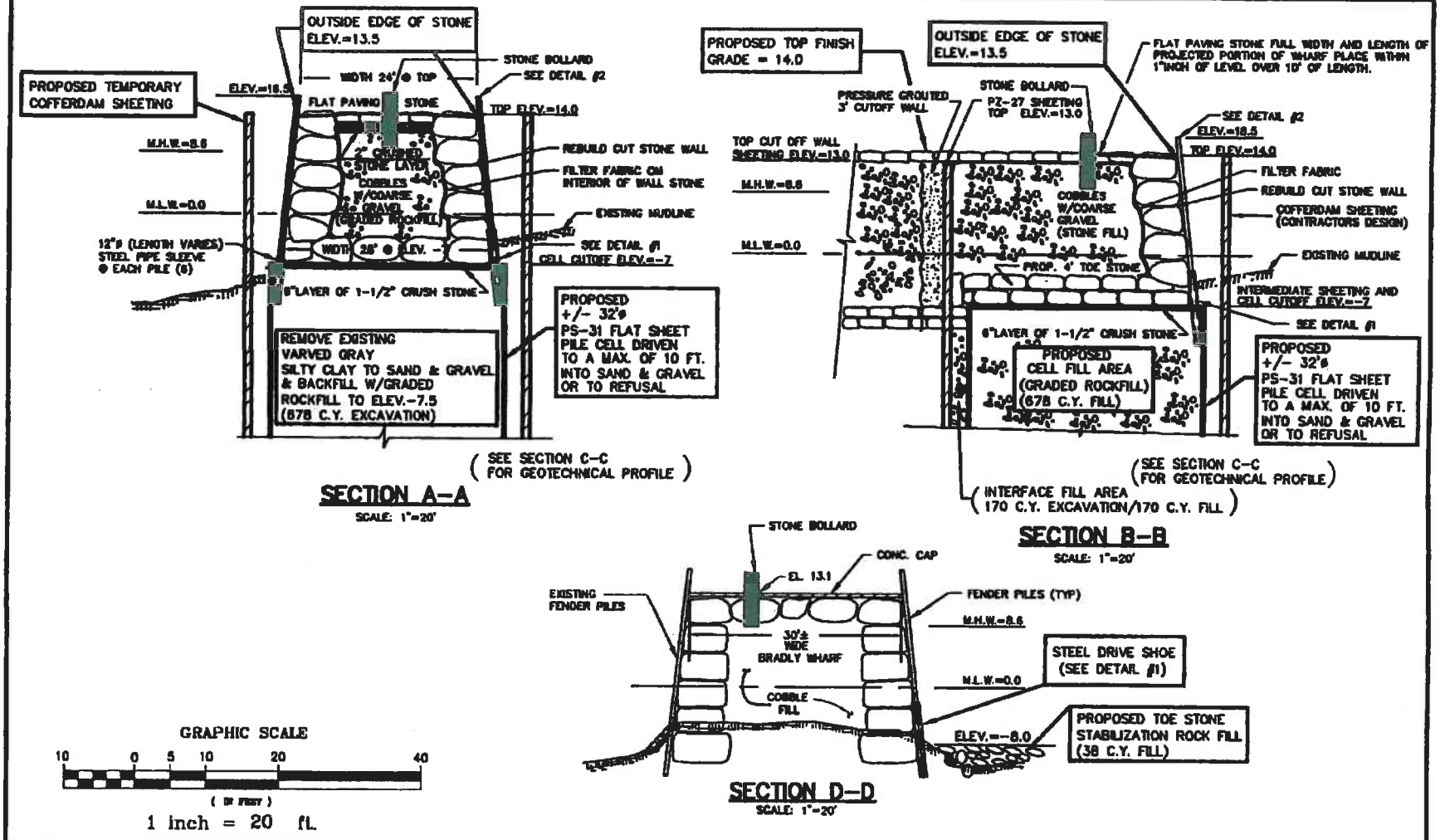
062-036-000-067-100
062-036-000-033-100



tibbetts engineering corp. 716 COUNTY STREET TAUNTON, MA. 02780 (508) 822-6934	BRADLEY WHARF AND T-WHARF REPAIRS SHEET PILE CELL PLAN	DATE: NOV. 10, 1998
AT: ROCKPORT IN: ROCKPORT HARBOR ESSEX COUNTY STATE OF MASSACHUSETTS	APPLICATION BY: TOWN OF ROCKPORT D.P.W.	SHEET OF 4 6

(10117PER.DWG) 10117.080 J.D.

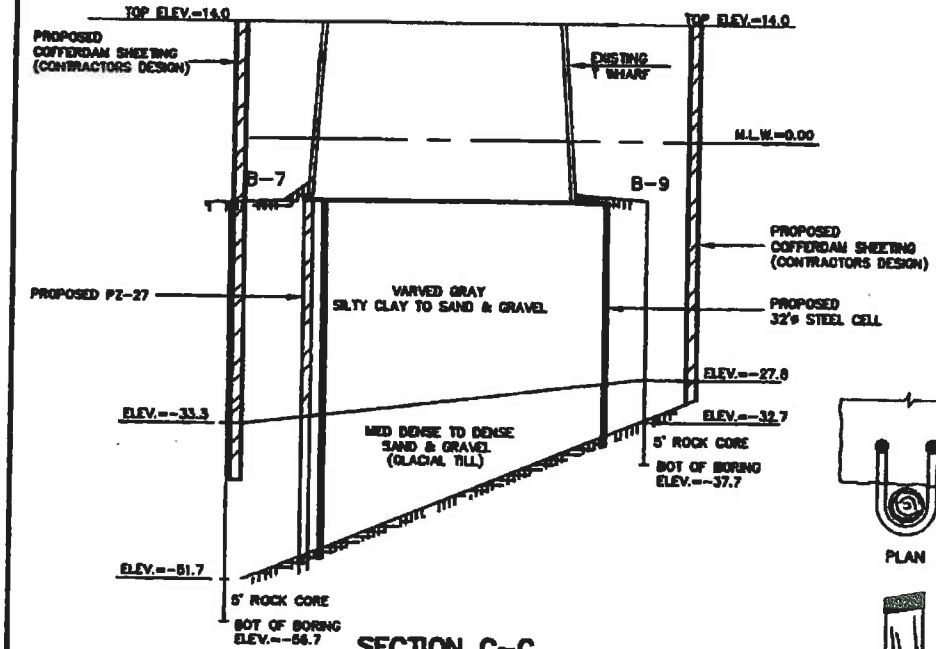
062-036-000-007-100
062-036-000-033-100



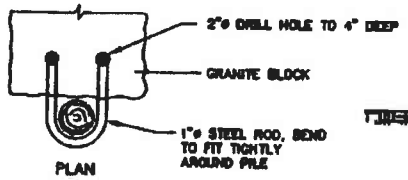
tibbetts engineering corp. 716 COUNTY STREET TAUNTON, MA. 02780 (508) 822-6934	BRADLEY WHARF AND T-WHARF REPAIRS SECTIONS AND DETAILS	DATE: NOV. 10, 1998
	AT: ROCKPORT IN: ROCKPORT HARBOR ESSEX COUNTY STATE OF MASSACHUSETTS APPLICATION BY: TOWN OF ROCKPORT D.P.W.	SHEET OF 5 6

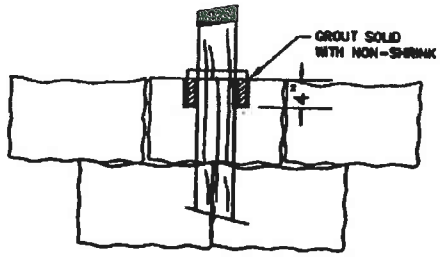
(10117PER.DWG) 10117.080 J.D.

Dept-036-000-067-100
068-036-000-033-100

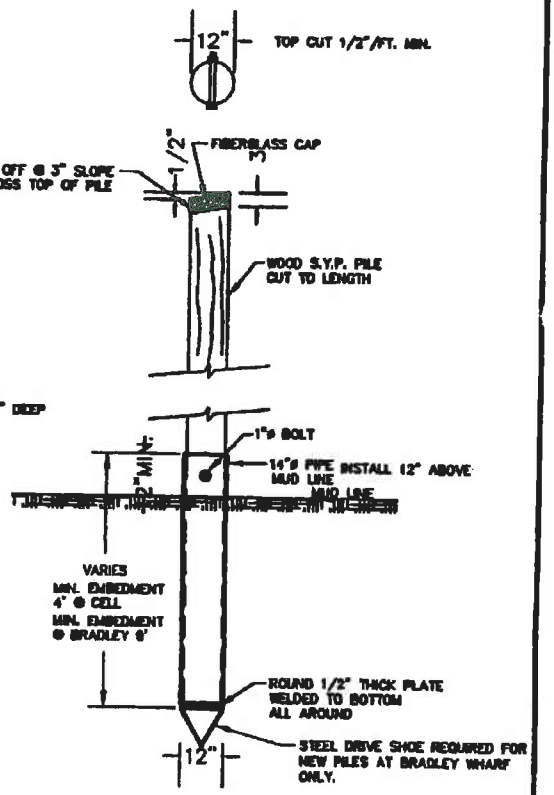


SECTION C-C
GEOTECHNICAL PROFILE
SCALE: 1"=20'





TOP PILE ATTACHMENT DETAIL
DETAIL #2
N.T.S.



DETAIL #1
N.T.S.

tibbetts engineering corp.
716 COUNTY STREET
TAUNTON, MA. 02780
(508) 822-6934

BRADLEY WHARF AND T-WHARF REPAIRS
SECTIONS AND DETAILS

AT: ROCKPORT
IN: ROCKPORT HARBOR
ESSEX COUNTY
STATE OF MASSACHUSETTS

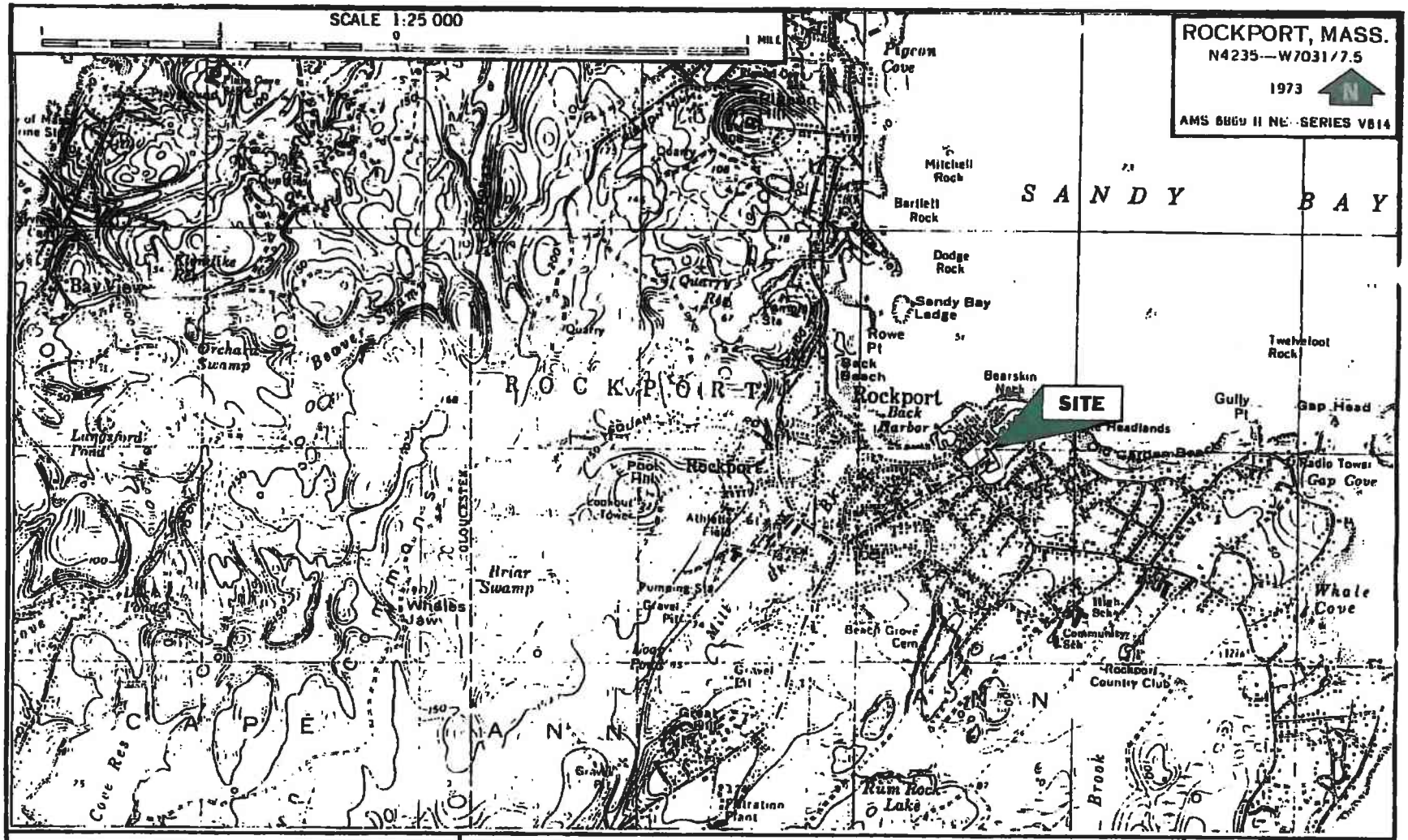
APPLICATION BY:
TOWN OF ROCKPORT D.P.W.

DATE:
NOV. 10, 1998

SHEET 6 OF 6

(10117PER.DWG) 10117.080 J.D.

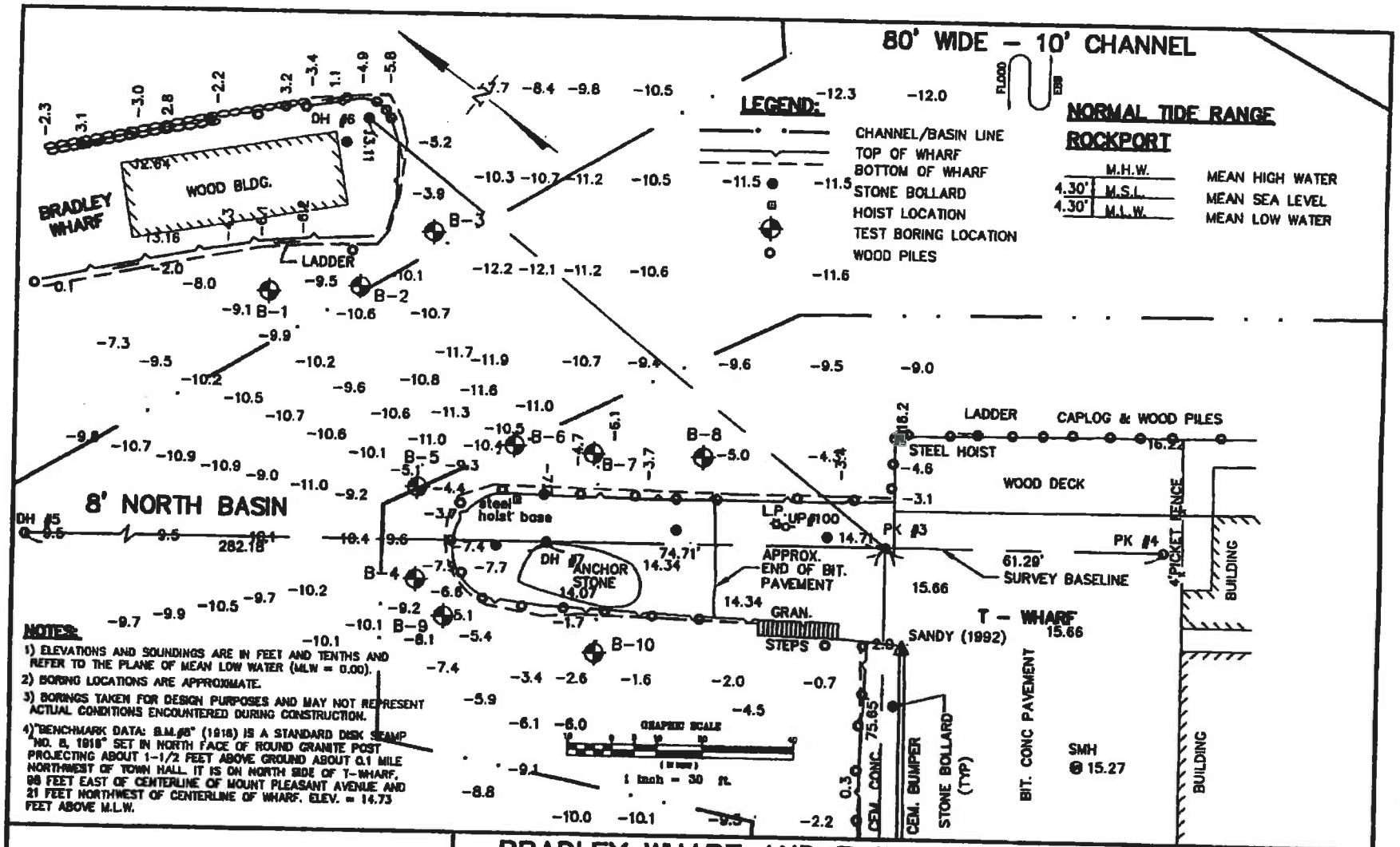
D02-036-000-067-100
D02-036-000-033-100



tibbetts engineering corp. 716 COUNTY STREET TAUNTON, MA. 02780 (508) 822-6934	BRADLEY WHARF AND T-WHARF REPAIRS LOCUS PLAN	DATE: NOV. 10, 1998
AT: ROCKPORT IN: ROCKPORT HARBOR ESSEX COUNTY STATE OF MASSACHUSETTS	APPLICATION BY: TOWN OF ROCKPORT D.P.W.	SHEET OF 1 6

(10117PER.DWG) 10117.080 J.D.

062-036-000-067-100
062-036-000-033-100



tibbetts engineering corp.
716 COUNTY STREET
TAUNTON, MA. 02780
(508) 822-6934

BRADLEY WHARF AND T-WHARF REPAIRS
GENERAL PLAN

AT: ROCKPORT
IN: ROCKPORT HARBOR
ESSEX COUNTY
STATE OF MASSACHUSETTS

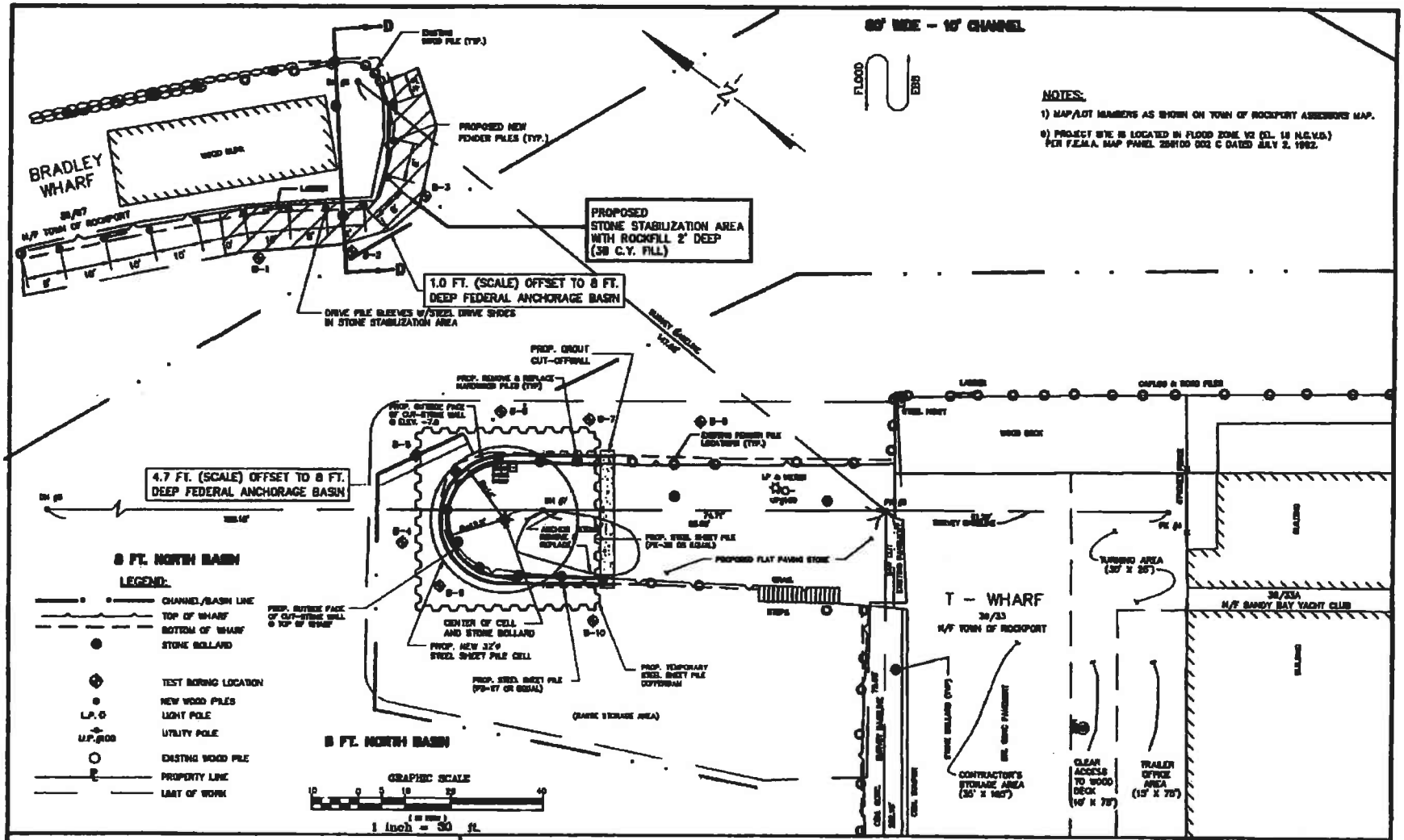
APPLICATION BY:
TOWN OF ROCKPORT D.P.W.

DATE: NOV. 10, 1998

SHEET 2 OF 6

(10117PER.DWG) 10117.080 J.D.

062-036-000-067-100
062-036-000-033-100



tibbetts engineering corp.
716 COUNTY STREET
TAUNTON, MA. 02780
(508) 822-6934

BRADLEY WHARF AND T-WHARF REPAIRS
SITE PLAN

AT: ROCKPORT
IN: ROCKPORT HARBOR
ESSEX COUNTY
STATE OF MASSACHUSETTS

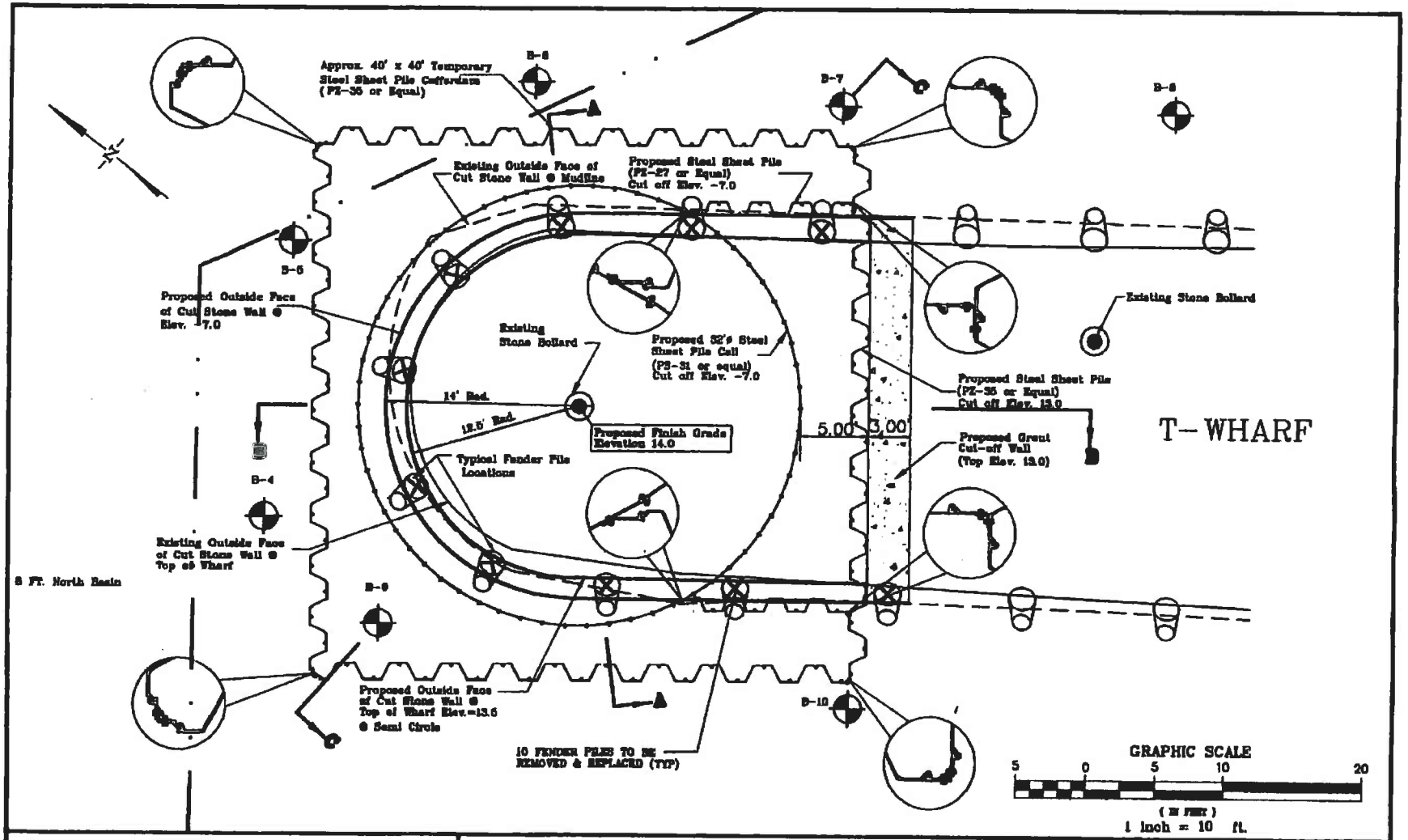
APPLICATION BY:
TOWN OF ROCKPORT D.P.W.

DATE:
NOV. 10, 1998

SHEET 3 OF 6

(10117PER.DWG) 10117.080 J.D.

062-036-000-067-100
062-036-000-033-100



tibbetts engineering corp.
716 COUNTY STREET
TAUNTON, MA. 02780
(508) 822-6934

BRADLEY WHARF AND T-WHARF REPAIRS

SHEET PILE CELL PLAN

DATE: NOV. 10, 1998

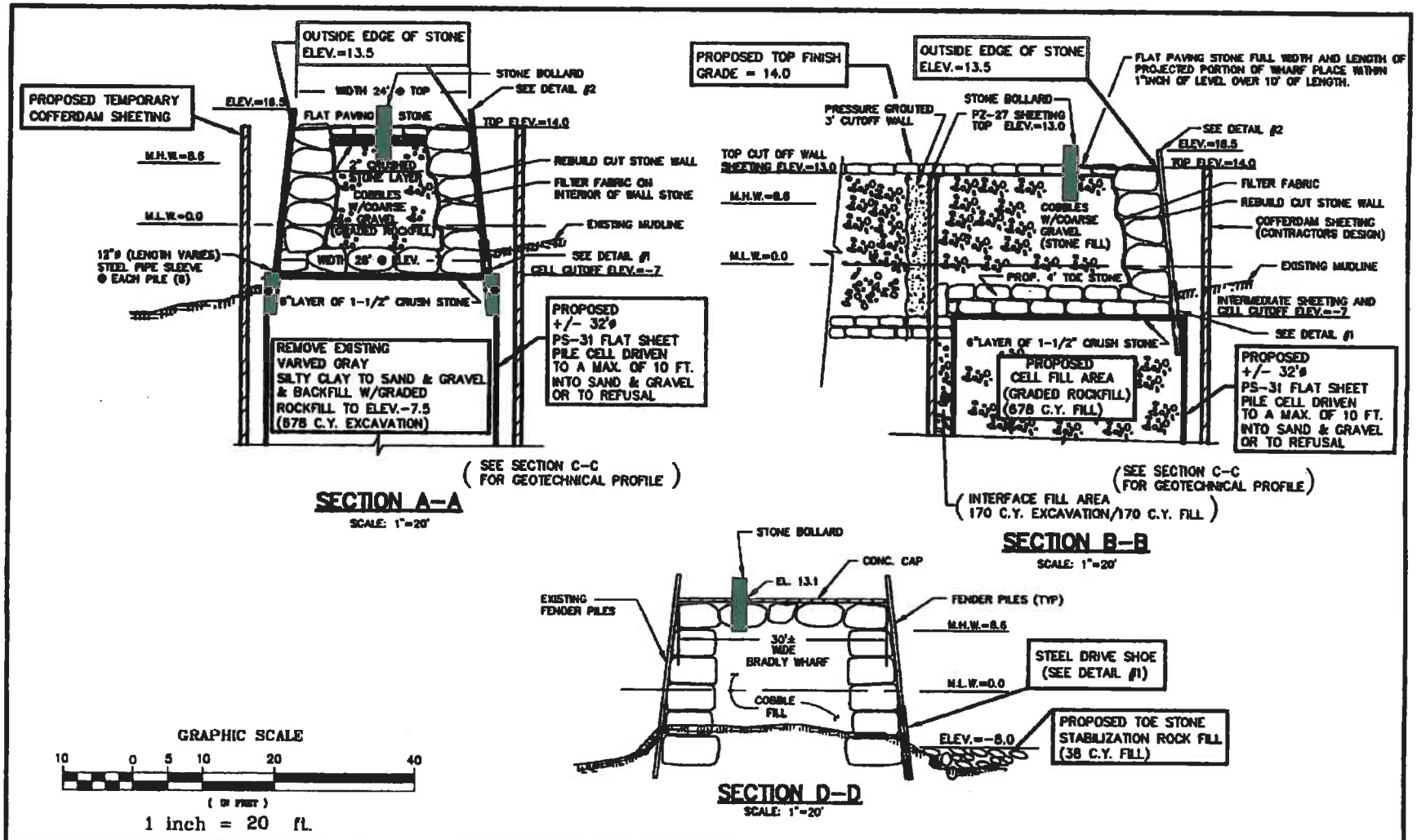
AT: ROCKPORT
IN: ROCKPORT HARBOR
ESSEX COUNTY
STATE OF MASSACHUSETTS

APPLICATION BY:
TOWN OF ROCKPORT D.P.W.

SHEET 4 OF 6

(10117PER.DWG) 10117.080 J.D.

062-036-000-007-100
062-036-000-033-100



tibbetts engineering corp.
716 COUNTY STREET
TAUNTON, MA. 02780
(508) 822-6934

BRADLEY WHARF AND T-WHARF REPAIRS

SECTIONS AND DETAILS

DATE: NOV. 10, 1998

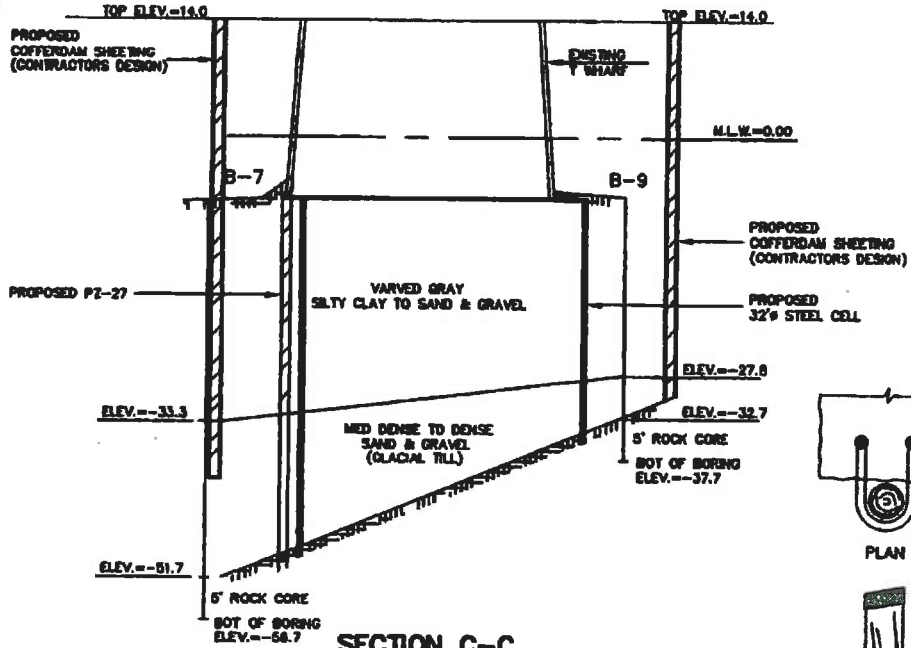
AT: ROCKPORT
IN: ROCKPORT HARBOR
ESSEX COUNTY
STATE OF MASSACHUSETTS

APPLICATION BY:
TOWN OF ROCKPORT D.P.W.

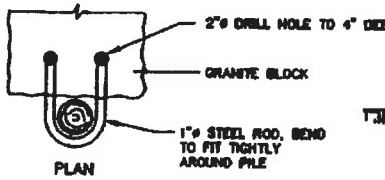
SHEET 5 OF 6

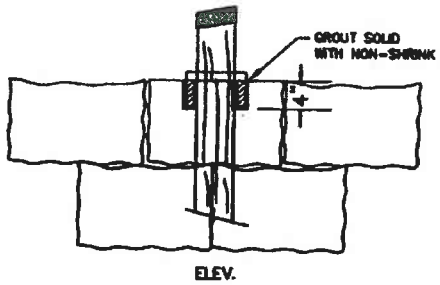
(10117PER.DWG) 10117.080 J.D.

Dep2-036-000-067-100
068-036-000-633-100

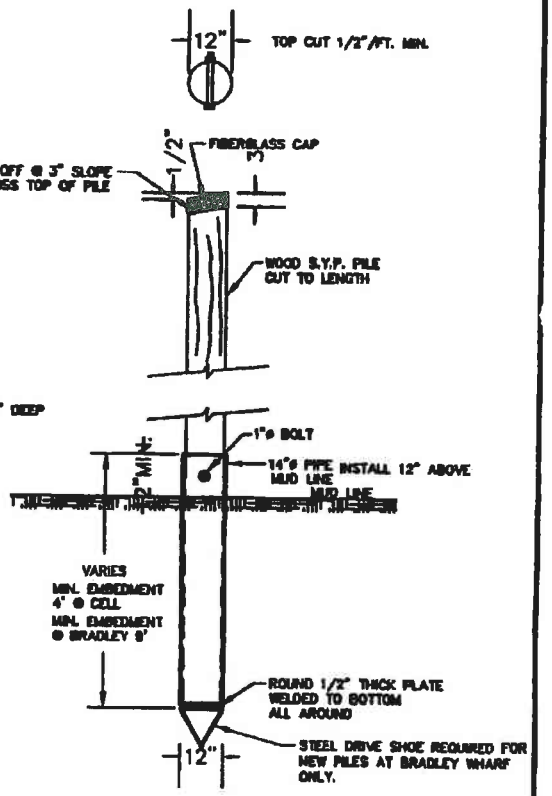


SECTION C-C
GEOTECHNICAL PROFILE
SCALE: 1"=20'





TOP PILE ATTACHMENT DETAIL
DETAIL #2
N.T.S.



DETAIL #1
N.T.S.

tibbetts engineering corp.
716 COUNTY STREET
TAUNTON, MA. 02780
(508) 822-6934

BRADLEY WHARF AND T-WHARF REPAIRS
SECTIONS AND DETAILS

DATE: NOV. 10, 1998

AT: ROCKPORT
IN: ROCKPORT HARBOR
ESSEX COUNTY
STATE OF MASSACHUSETTS

APPLICATION BY:
TOWN OF ROCKPORT D.P.W.

SHEET 6 OF 6

(10117PER.DWG) 10117.080 J.D.

062-0336-000-067-100
062-0336-000-033-100