

## **PROJECT DESCRIPTION**

### **1.0 INTRODUCTION**

The Town of Bourne maintenance and improvement dredging project involves the maintenance and improvement dredging of the Little Bay Channel, maintenance dredging of Barlows Landing Channel, improvement dredging of the Barlows Landing Marina (Dinghy Dock), and maintenance dredging of the Pocasset River with dredge spoil disposal as beach nourishment on local beaches, including on the United States Army Corps of Engineers beach off Mashnee Road leading out to Mashnee Island. Dredge spoil unqualified for beach nourishment would be disposed of at the Bourne Landfill off MacArthur Boulevard. Upon completion, a total of 24,020 cubic yards (cyds) will be used as beach nourishment and 6,860 cyds used as daily cover at the landfill.

### **2.0 HISTORY**

In 1965, the Town of Bourne Selectmen (March 25, 1968) sent a letter to Col. Renier of the United States Army Corps of Engineers requesting a study-investigation for a 10' deep channel, 100' wide around both ends of Bassetts Island with branch channels leading into Barlows Landing, Hen Cove, Red Brook Harbor, and Hospital Cove to establish suitable 8' anchorages at each location. This study was rejected and subsequently conducted under the authority of Section 107 of the 1960 Rivers and Harbors Act and in a letter from the United States Department of the Interior, Department of Fisheries and Wildlife, the channels at Bassett's Island, Little Bay, and into Barlows Landing were reduced in depth to -6, pay -7 Mean Low Water (MLW) with ocean disposal or beach nourishment. This also included 10 and 14.5 acre anchorages at Barlows Landing and Hen Cove, respectively. This recommendation in turn authorized the USACOE to prepare the Small Navigation Project-Red Brook Harbor, Bourne, Massachusetts Detailed Project Report dated June 1968, as revised October 1968 which was approved in the amount of \$115,000.00 or 50% of the estimated project cost. Project plans for this dredging project are appended to this Notice of Intent Application (Red Brook Harbor General Plans and Survey Plans Plates RB1-RB4 Attachment ).

The Commonwealth of Massachusetts has completed a number of other Harbor Improvement Projects in area including dredging 52,000 cubic yards of material from Little Bay Site along with the construction of a boat ramp and town wharf complete with a jetty in the 1930s through 1960 (DPW Contract #2121). Written records for Barlows Landing indicate relocation of the dock and pier system demonstrating historic dredging (See attached Historical Permit: 212 & 213, dated 03/16/1850). As such, the improvement dredge area may be classified as maintenance dredging. These activities would predate all permitting requirements. As such, no plans have been located to delineate dredge area. Barlows Landing records also indicate that the landing with wharf and excavation was first licensed to Sterling Barlow in 1895 at Sandwich Harbor with additional stone work at the site in 1935 (DPW Permit #45139). In 1940, excavation in and around the boat access, ramp, and wharf was authorized to a depth of -3 MLW. Two stone jetties were also authorized which was followed by additional improvement dredging in 1951 to -6 MLW under DPW Contract #1175, Acc #2945. This contract also details concrete retaining walls and two jetties plus a marina next to the wharf. In 1965, Barlows Landing was further improved by the placement of sand fill between the wharf and nearshore groins out to -1 MLW (DPW Contract #2457 Acc #04426). In total, 4,275 cubic yards of sand was dredged from the outside channel and used to build the Barlows Landing Beach (Reference: Anderson & Nichols Plan, 1981). Finally under DEP File #SE7-747 (March, 1990), the Town of Bourne, through an Order of Conditions, authorized the repair and update of the pier, boat ramp, float and rip-rap, and the placement of a dinghy dock with float at Barlows Landing.

Pocasset River – The Pocasset River was originally dredged, based on available records, prior to 1940 under the supervision of the Commonwealth of Massachusetts Department of Public Works Waterways Division, Permit #653. The river was maintenance dredged along with Jims’ Cove in 1966, DPW Contract #2553 to a depth of -6 feet MLW to a width of 50 feet. Both before and after dredge surveys were completed and were used to conduct additional maintenance dredging of the Pocasset River Channel in 1981 (4,275 cubic yards), again to a depth of -6, pay -7, removing 14,200 cubic yards of dredge spoil. Tahanto Beach was shown on the Anderson-Nichols Plan as a disposal site and both jetties (License #653) are shown.

In 1983, the Pocasset River Jetties were repaired and the locations of other existing Town of Bourne seawalls, bulkheads, and boat ramps to the river are shown and licensed based on their existence prior to 1984 (Ref: 310 CMR 9.05 Activities not requiring a license or permit 9.05 (3) (a-c) municipal exemption for structures in use prior to 1984). The interior of the river was developed as a marina initially under DPW License #2190 in 1961 where fill, parking timber bulkheads, seawalls, and docking facilities were authorized. Additional DPW plans show the location of the dewatering basin along Shore Road, 430 feet long and located 60 feet upslope of the edge of salt marsh. (Reference License Plan #4127, dated 03/13/61 – Barnstable Registry of Deeds Plan Book 161/59). This license also authorizes fill in wetlands and rip-rap at the Shore Road Bridge. For additional information on overall site size and volume of dredge spoil to be removed, see Table I below.

**TABLE I - VOLUMES**

<b>Little Bay Channel – Improvement Dredge to -7; Pay -8</b>		
Volume to -7:	1,825 cubic yards	Boring #s: 27, 28, & 29
Volume to -8:	1, 135 cubic yards	
Total Volume:	2,960 cubic yards	
Total Area:	31, 918 square feet	

<b>Little Bay Channel – Maintenance Dredge</b>		
Volume to -6:	8,526 cubic yards	Boring #s: 8 – 26 & 30-32
Volume to -7:	6,583 cubic yards	
Total Volume:	22,300 cubic yards	
Total Area:	218,504 square feet	

<b>Barlows Landing Channel – Maintenance Dredge</b>		
Volume to -6:	800 cubic yards	Boring #s: 1, 2, & 3
Volume to -7:	1,800 cubic yards	
Total Volume:	2,600 cubic yards	
Total Area:	63,500 square feet	

<b>Barlows Landing Dinghy Dock – Improvement Dredge</b>		
Volume to -3:	2,423 cubic yards	Boring #s: 4, 5, 6, & 7
Volume to -4:	1,477 cubic yards	
Total Volume:	3,900 cubic yards	
Total Area:	42,032 square feet	

<b>Pocasset River – Maintenance Dredge to -6; Pay -7</b>		
Volume to -6:	4,695 cubic yards	Boring #s: 33 - 41

Volume to -7:	4,425 cubic yards
Total Volume:	9,120 cubic yards
Total Area:	262,408 square feet

**3.0 JURISDICTIONAL DETERMINATION**

Town of Bourne’s waterfront activities in Red Brook Harbor, if unlicensed, are grandfathered if completed prior to 1968, 1974, and 1984. *Any projects constructed prior to the expiration of the United States Army Corps of Engineers Nationwide permits of 1968 are licensed.*

- A. Nationwide Permits 33 CRR Part 330 Nationwide Permit Program – The following activities were permitted by NWPs issued on July 19, 1977, and, unless the activities are modified, they do not require further permitting:
  - a. Discharges of dredged or fill material into waters of the United States outside the limits of navigable waters of the United States that occurred before the phase-in dates which extended Section 404 jurisdiction to all waters of the United States. The phase-in dates were: after July 25, 1975, discharges into navigable waters of the United States and adjacent wetlands; after September 1, 1976, discharges into navigable waters of the United States and their primary tributaries, including adjacent wetlands, and into natural lakes, greater than 5 acres in surface area; and after July 1, 1977, discharges into all waters of the United States, including wetlands. (Section 404)
  - b. Structures or work completed before December 18, 1968, or in waterbodies over which the DE had not asserted jurisdiction at the time the activity occurred, provided in both instances, there is no interference with navigation. Activities completed shoreward of applicable Federal Harbor lines before May 27, 1970 do not require specific authorization. (Section 10)
- B. Under the Division of Wetlands and Waterways Program, Chapter 91: Activities Subject to Jurisdiction 310 CMR 9.05 (3)(3) Activities Not Requiring License or Permit. Notwithstanding the provisions of 310 CMR 9.05 (1) through (2), no license or permit is required for:
  - a. Maintenance, repair, and minor modifications, as described in 310 CMR 9.22, of fill or structures for which a grant or license is presently valid, or which is exempt from licensing pursuant to 310 CMR 9.05(3)(b) through (h);
  - b. Continuation of any existing, unauthorized use or structure located on private tidelands lawfully filled in accordance with a license or grant, provided that no unauthorized structural alteration or change in use has occurred on such tidelands subsequent to January 1, 1984 or in violation of an express condition of said license or grant;
  - c. Continuation of any existing, unauthorized public service project, provided that no unauthorized structural alteration or change in use has occurred subsequent to January 1, 1984, unless the Department determines, upon notice and opportunity

for public comment, that licensing is essential to prevent significant harm to an overriding water-related public interest;

**C. 310 CMR 9.07 Mooring Activities Subject to Annual Harbormaster Permit:**

- a. **General.** A written application for an annual permit must be submitted to the harbormaster of a city or town or, in a municipality where no harbormaster has been appointed, to the municipal official or any designee thereof, for the placement on a temporary basis of moorings, floats or rafts held by bottom-anchor, and any ramps associated therewith, which are located within the territorial jurisdiction of such municipality. Such application shall be acted upon within a period of fifteen business days from receipt thereof, and any permit may contain such terms, conditions and restrictions as the harbormaster may deem necessary. No license shall be required from the Department if an annual harbormaster permit is issued pursuant this section.
- b. **Mooring Assignment.** The harbormaster shall provide a written procedure for the fair and equitable assignment from a waiting list for use of vacant or new moorings pursuant to this section. Any such assignments shall be consistent with the municipal harbor plan, if any. Methods for mooring assignment which are appropriate include, but are not limited to one or more of the following:
  - i. Date of application:
  - ii. Physical characteristics of vessel. E.g., size and type:
  - iii. Purpose of vessel use, e.g., commercial vs. recreational or public vs. private.

The harbormaster, however, may allow the previous permit holder of a mooring to renew, on an annual bases, that mooring or another mooring within the control of the harbormaster. In any event, such procedure shall not discriminate against any citizen of the Commonwealth on the basis of residency, race, religion, sex, age, disability, or other illegal distinction. A copy of said procedure shall be sent to the Department and kept on file.

- c. **Terms and Conditions of Annual Harbormaster Permit.**
  - i. No such permit may be valid for a period longer than to the end of any given calendar year.
  - ii. No such permit may authorize the placement of moorings, floats, or rafts held by piling or other means not bottom anchored.
  - iii. No such permit shall be construed as authorizing the placement of moorings, floats, or rafts on private tidelands of anyone other than the applicant if objected to by the owner or owners thereof.
  - iv. No such permit may authorize the placement of moorings, floats, or rafts in any navigation channel or turning basin formally designated by the federal or state government or by a municipality pursuant to a municipal harbor plan, unless the designating authority or other agency with jurisdiction over said area has previously approved such placement.
  - v. No such permit may authorize unreasonable interference with the public rights of fishing, fowling, and navigation in tidelands and Great Ponds.

- vi. No such permit may authorize the placement of floats or rafts, exclusive of moorings, if such facility extends beyond any established state harbor line, encompasses an area greater than 2,000 square feet or constitutes a marina.

#### **4.0 SITE DESCRIPTION**

Little Bay is a coastal waterway connected to Buzzards Bay and is accessed by a public boat ramp located off Valley Bars Circle. Little Bay supports recreational shell fishing, recreational boating, and private docks. There are no eelgrass beds or salt marsh flats within the project area (maintenance or improvement dredge area); however there is salt marsh within the cove; this resource will not be altered. The Little Bay dredge material sieved out as clean sand. This sand will be pumped to either Monument Beach or the Mashnee Island Causeway, dewatered and used as beach nourishment at Monument Beach and/or Mashnee Island Causeway Beach to protect the causeway. Both sites already have existing permits for the laying of nourishment sands.

Barlows Landing is a coastal harbor protected by Wings Neck and Bassetts Island and is accessed from the Barlows Landing boat ramp, public bathing beach, dinghy dock, and public parking lot. The harbor consists of a main channel around Bassetts Island and out into Buzzards Bay with several town owned mooring fields. There are no eelgrass beds or salt marsh flats noted in the project area; however there is salt marsh within the Barlows Landing harbor; this resource will not be altered. When dredging Barlows Landing, the areas identified as clean beach nourishment sand will be dredged first and dewatered within the Barlows Landing parking lot and public beach. The material will then be used for beach nourishment on the bathing beach or stockpiled for use as beach nourishment on other permitted Town Beach sites or for use in sanding Town roads during forthcoming winters. The remaining material will then be dredged and pumped into the dewatering basin. Once dewatered it will be trucked off site and disposed of at the Bourne Landfill for use as daily cover.

Pocasset River is a coastal river extending from Buzzards Bay to Shore Road (site) and then up to Mill Pond and Shop Pond. A portion of the river (outside of the project locus) is within the Pocasset River ACEC. The river contains private and public marinas, private docks, public parking lots, town owned bulkheads, jetties, and Tahanto bathing beach. The Pocasset River ACEC supports a Blue Crab breeding ground. There is salt marsh along sections of the river adjacent to the work area; however the project as proposed does not anticipate impacts to this resource. The Pocasset River dredge material will be pumped to the Shore Road dewatering site (historic licensed dewatering and disposal site) adjacent to the Shore Road bridge over the river. This material will be dewatered onsite and trucked to the Bourne Landfill for use as daily cover.

Monument Beach and Mashnee Island Causeway Beach disposal and dewatering sites have existing permits allowing beach nourishment at these sites. The Army Corps of Engineers is responsible for the work on the Mashnee Island Causeway and will be responsible to comply with any permitting requirements. If the Corps does not want the sand or does not have the required permits in hand at the time of dredging, sand will be dewatered at Monument Beach and used as beach nourishment until the beach is at capacity based on existing permits. At that time remaining sand will be either used at other sites with existing beach nourishment permits or used in winter sanding operations. Currently BSC is working with Frank Fedele, Chief of Operations for the

Cape Cod Canal, United States Army Corps of Engineers, pursuant to dredge disposal on Shore Road Beach.

The wetland resource areas and areas of conservation jurisdiction at the sites that are protected under the Wetlands Protection Act and the Town of Bourne’s Wetland Protection Bylaw include:

- Land Under the Ocean
- Land Containing Shellfish
- Salt Marsh
- Coastal Beach
- Land Subject to Coastal Storm Flowage
- Natural Heritage and Endangered Species Mapped Habitat

**5.0 PERMITTING**

This application for a Notice of Intent is submitted in accordance with the Massachusetts Wetlands Protection Act and the Town of Bourne Wetlands Protection By-law. BSC and the Town of Bourne have performed extensive research, bathymetric surveys, topographic surveys, boring (sampling) collections, laboratory analysis, probing, discussions with regulatory authorities, etc. in order to design this proposed project. Listed in Table II below are the required permits for this project:

**Table II – REQUIRED PERMITS**

<b>REGULATORY AUTHORITY</b>	<b>PERMIT</b>	<b>STATUS</b>
Bourne Conservation Commission	Order of Conditions	Notice of Intent application submitted
Massachusetts Natural Heritage & Endangered Species Program MESA Application	Determination of No Adverse Impact	Coordination with Massachusetts Natural Heritage & Endangered Species Program
MA Department of Environmental Protection	Chapter 91 Waterways Permit	Chapter 91 Waterways application to be submitted upon issuance of MEPA Certificate
MA Department of Environmental Protection	Water Quality Certification	Water Quality Certification application to be submitted upon issuance of MEPA Certificate
Massachusetts Environmental Policy Act (MEPA)	EOEA Secretary’s Certificate that no EIR is Required	Included as part of the ENF & NOI process
US Army Corps of Engineers	Individual Permit	US Army Corps of Engineers application to be submitted upon issuance of MEPA Certificate
Massachusetts Coastal Zone Management	Federal Consistency Review	Required to obtain USACOE Permit

## **6.0 WETLAND RESOURCE AREAS**

Dredging and beach nourishment associated with this project will result in the temporary disturbance to wetland resource areas, as defined in the Massachusetts Wetlands Protection Act and its Regulations at 310 CMR 10.00. During preparation of the NOI and in the analysis of alternatives and impacts, the primary focus has been on the following wetland resource areas impacted by the proposed project.

### **Land Under the Ocean (310 CMR 10.25)**

Proposed activities will result in the disturbance to land under the ocean. Best available measures have been incorporated into the maintenance and improvement dredging operations. The proposed dredging and beach nourishment will adhere to all time of year restrictions to avoid impacts to marine productivity. This will protect the spawning periods for species such as Herring, Alewives, Flounder, White Perch, American Eel, and Tautog. Dredging will create the largest disturbance for Land Under the Ocean. However, the disturbance will be minimized by using best available techniques such as the Barnstable County Dredge (the Cod Fish). The Cod Fish is a hydraulic cutterhead dredge, which uses mechanical agitation and suction to dredge material and pump to a receiving beach or dewatering area through a 14-inch discharge pipe. This method of dredging minimizes disturbances to the aquatic environment because once the material is located with the suction device there is no means of escape into the surrounding waters, it is transported quickly to the disposal site in a closed system. During dredging any shellfish displaced that remain after the Town of Bourne's commercial and recreational harvest of shellfish will be removed from the spoils and returned to the waterway under the direction of the Bourne Shellfish Warden.

There are no long-term anticipated impacts to Land Under the Ocean.

### **Coastal Beach (310 CMR 10.29)**

Impacts to Coastal Beach are anticipated to be minor. The only work proposed along the Coastal Beach is the construction of dewatering basin for dredge spoils located at Barlows Landing and Monument Beach and/or the Mashnee Island Causeway with beach nourishment along the bathing beaches. Impacts to the coastal beaches are anticipated to be indirect, and minor. A small bulldozer or rubber tired front end loader will cut dewatering basins into the beach. The dewatering basin will allow suspended sands to precipitate out, which will be reused as beach nourishment or daily cover at the Bourne Landfill. Little to no impact is expected to the coastal beach at the Pocasset River upland dewatering site.

### **Land Containing Shellfish (310 CMR 10.34)**

Land Containing Shellfish has been identified using the Town of Bourne's shellfish maps. Types of shellfish found in this area include Soft Shell Clams (*Mya arenaria*), Quahogs (*Marcenaria mercenaria*), Oysters (*Crassostrea virginica*), and Razor Fish (*Ensis directus*). All of the impacts to shellfish will be associated with dredging. The area in and around the work zone has been opened to shellfishing, as applicable, to reduce the population which could be impacted. Any impacts within the project area will have a limited effect to shellfish do to the schedule of proposed activities; shellfish are deeper in the soil during winter months and work will be complete prior to spat dispersal. During dredging the Bourne Shellfish Warden will be onsite to

monitor the removal and relocation of any shellfish from the dewatering basin or located on the spoil disposal sites. All beach nourishment will be above the MHW line and will not affect the shellfish populations located below MHW.

**Salt Marsh (310 CMR 10.32)**

Barlows Landing and Pocasset River both contain salt marsh. This salt marsh runs along the shoreline with dredging a minimum of 25 feet seaward of salt marsh. This will protect the salt marsh during and after the dredging process is complete. There are small pockets of salt marsh adjacent to Shore Road and near the dewatering area. Because only saltwater is anticipated to be released from the dewatering pits, in the upland and landward of the salt marsh, no impacts are anticipated. The overflow for the dewatering pit will utilize the existing canoe access point over the bank and back into Land Under Ocean to protect the bank and adjacent salt marsh. It is noted that during construction of the Shore Road Bridge and the 1961 dredging of the Pocasset Marina, the fill of Salt Marsh at the Shore Road dewatering site was (is) deemed as filled tidelands under DPW Permit #4427 (March 13, 1961).

**Rare and Endangered Species (310 CMR 10.37)**

Portion of the project sites are designated as Estimated Habitat for Rare Wildlife by the Massachusetts Natural Heritage and Endangered Species Program (NHESP) according to the 2008 *Massachusetts Natural Heritage GIS Viewer*. All of the dredging at Barlows Landing and Little Bay are located within the mapped area along with the beach nourishment site at Barlows Landing and dewatering site at Pocasset River. The Pocasset River and Barlows Landing dewatering site are located outside of the mapped area. BSC will submit a MESA Application to NHESP and a copy of this Notice of Intent for their review and comment.

**7.0 MITIGATION MEASURES**

Mitigation measures are to be implemented in order to minimize disturbances to natural and wetland resources areas as a result of dredging activities. Such measures include the timing restrictions, minimization of activities, silt curtains, and using the best available technologies. This project will also be conditioned by the DEP through a Chapter 91 Permit and Water Quality Certification, US Army Corps of Engineers through an Individual Permit, Coastal Zone Management through a Federal Consistency Review, and the Division of Marine Fisheries.

**8.0 ALTERNATIVES ANALYSIS FOR IMPROVEMENT DREDGING**

The following tables summarize the project alternatives:

**Barlows Landing:** Improvement dredging is proposed for a small area of Barlows Landing. This dredging is being included to provide safe access and use of the existing boat ramp and dinghy dock area.

Alternative #BL1: No dredge: This alternative will maintain the existing depths around the dinghy dock and boat ramp area. This maintains the unsafe access to this critical area being used to launch dinghies to the local mooring field during low tide as well as safe use of the boat ramp at low tide. This Alternative is not preferred as it maintains a potentially unsafe environment for public use, which will be worsened as suspended sediments continue to settle in this area. It also increases the likelihood of prop-dredging when using these areas during low tides. In addition, the existing dinghy dock float system rests on the subsurface during low tides, potential impacting shellfish directly under the floats and boats tied to the structure.

Alternative #BL2: As proposed: This alternative is the preferred option as it takes into account current problem areas as well as future issues expected as this area continues to be used. It provides safer access to these high use areas, protects shellfish beds from prop-dredging and floats resting on the subsurface. It will remove silts close to the surface which decreases suspended sediments during summer months (high use and warm water temperatures) to further increase the health of this ecosystem.

Alternative #BL3: Increase dredge depth: This alternative was considered in order to maintain dredge depths from the outer channel into the boat ramp. It would significantly increase the amount of material removed and was deemed not necessary based on the typical draft depths of boats using this area and being trailered. This would also increase the amount of sediment required to go to the Landfill thus a significant increase in costs to the Town for both dredging and disposal.

**Little Bay:** Improvement dredging is also proposed at Little Bay. This dredging has been included to maintain channel depths around Toby's Island for improved navigation, protection in storms, and maintain the tidal flushing of this bay.

Alternative #LB1: No dredge: This alternative will maintain the existing depths within the channel in one key area that shoals in significantly decreasing the water depth within the channel. This maintains the unsafe access to this critical area being used for access into Little Bay and as a safe harbor during storms. The channel goes from deep water rapidly to approximately -3 feet MLW.

Alternative #LB2: As proposed: This alternative is the preferred option as it takes into account a significant problem area once the remainder of the channel is dredge. By dredging the entire channel and leaving one small section of limited water depth, it creates a significant danger to navigation around the leeward side of Toby's Island. The improvement dredging will carry the deep water all the way into the harbor for safe access during all tides. It also provides improved tidal flushing within the harbor, which significantly improves shellfish beds and cooler water temperatures within the harbor.

Alternative #LB3: Increase dredge depth: This alternative was considered in order to create a deeper dredge depth into the harbor for safe access. This would connect the existing deeper parts of the channel to provide a much deeper access. It would significantly increase the amount of material removed and was deemed not necessary based on the typical draft depths of boats using this area. This is the most difficult section from a disposal (pumping and nourishment) standpoint the increased volume made difficult to find enough disposal options for the material. This would also significantly increase costs to the Town for both dredging and disposal.

**Table III  
HISTORICAL DREDGING / NOURISHMENT PERMITS - RECAP**

<b>Little Bay</b>				
<i>Permit</i>	<i>Activity</i>	<i>Date</i>	<i>Dredge Depth / Volume</i>	<i>Notes</i>
DPW	Maintenance Dredge	06/21/68	To -6, Pay -7 52,000 cyds.	See Below
<i>Additional Notes:</i>		Detailed project report for small navigation – Commonwealth of Massachusetts Executive Office, Boston, MA, October 10, 1968.		

<b>Barlows Landing – Channel Anchorage</b>				
<i>Permit</i>	<i>Activity</i>	<i>Date</i>	<i>Dredge Depth / Volume</i>	<i>Notes</i>
	Wharf	1895		Sterling Barlow – Sandwich Harbor
DPW	Jetties, Concrete Wall, Marina, Dredging	04/1955	-6 MLW	See DPW 1935 Plan 45139 ACC 01532 Stone Groin #1519
DPW	Dredge	1961	-7 Pay 8	Mud fill placed on Bassetts Island Containment Area (*1A)
DPW #2457	Boat Ramp, Wharf, Groin, Stone Revetments	1965	Sand Fill to -.5 MLW	Tibbetts Engineering Acc# 04426 Con 2457
	Red Brook Harbor	06/21/68		Barlows Landing Basin Entrance Channel
SE7-747	Pocasset Harbor Dredging	02/12/81	4,275	Beach Nourishment (Anderson & Nichols)
SE7-747	Barlows Landing	03/1990	Proposed Ramp Repair & Replacement	Location Two Seasonal Dinghy Docks – Block Top Ramp
<i>Additional Notes:</i>				

*1A – Town of Bourne Shore Harbor Committee 1985 Review
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<b>Pocasset River</b>				
<i>Permit</i>	<i>Activity</i>	<i>Date</i>	<i>Dredge Depth</i>	<i>Notes</i>
DPW #3583	Ramp – Pier - Float	10/26/53		North Shore Road
DPW #653	Dredging, Jetties, Beach Nourishment	1966		DPW Contract #4427 Maint. Dredge/ Sand Fill Acct #04426
	Red Brook Harbor	06/21/68		Barlows Landing Basin Entrance Channel
	Maintenance Dredge	1983	14,200 cyds.	Beach Nourishment Tahanto Beach
DPW# 2190 (1961)	Walls, Piles, Docking Facilities	1991		Proposed Harbor Development
DPW# 2553	Pocasset River Entrance Dredge		To -6 MLW	Dredge also included Uncle Jim’s Cove
	Maintenance Dredge	01/14/81	To -6, Pay -7 4,275 cyds	Anderson & Nichols
		1995		Shore & Harbor Priorities #8, 13, 14
SE7-745	Pocasset River Jetties	11/14/90		Reference DPW 1940 Plan – Original Excavation Barlow’s Landing River
SE7-746	Repairs to Retaining Walls and Boat Ramp			Wenaumet Bluffs
SE7-922	Pocasset River Boat Ramp, Retaining Walls, Repair South Jetty	07/29/83		Tideway DPW #3583 10/26/53 Wenaumet Bluffs
DPW# 4427	Beach Dewatering Site	03/13/61		East Shore Road
SE-752	Marina Construction			Pocasset River
SE-745	Excavation	11/14/90		
Plan 1887	Proposed Bridge			Pocasset River 1887, 1898 #2128 (April 13) Plan Book 30 Page 51 Plan Book 5 Page 103

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<i>Additional Notes:</i>	