

A photograph of a wooden pier extending into a harbor. The pier has a metal railing and is supported by wooden pilings. In the background, several boats are visible on the water, and a distant shoreline with buildings and trees is visible under a clear sky. The image is slightly faded to make the text stand out.

SWAMPSCOTT PIER PROJECT

HARBOR & WATERFRONT ADVISORY COMMITTEE

February 3, 2022 update March 3, 2022

Status Updates

- What we heard at the last meeting:
 - Dredging of the harbor is most important to the Fishermen
 - Concerns about splitting up the beach by constructing pier to the west, maintaining connection between Fish House and Pier
- Big Storm Event on 1/17
- Round 1 Geotech Soil Sampling Occurred on 1/18
- Group Meeting with Regulators – 1/11/22 – EPA, MA DEP, MEPA, DMF, CZM
 - Primarily Related to Eelgrass Concerns



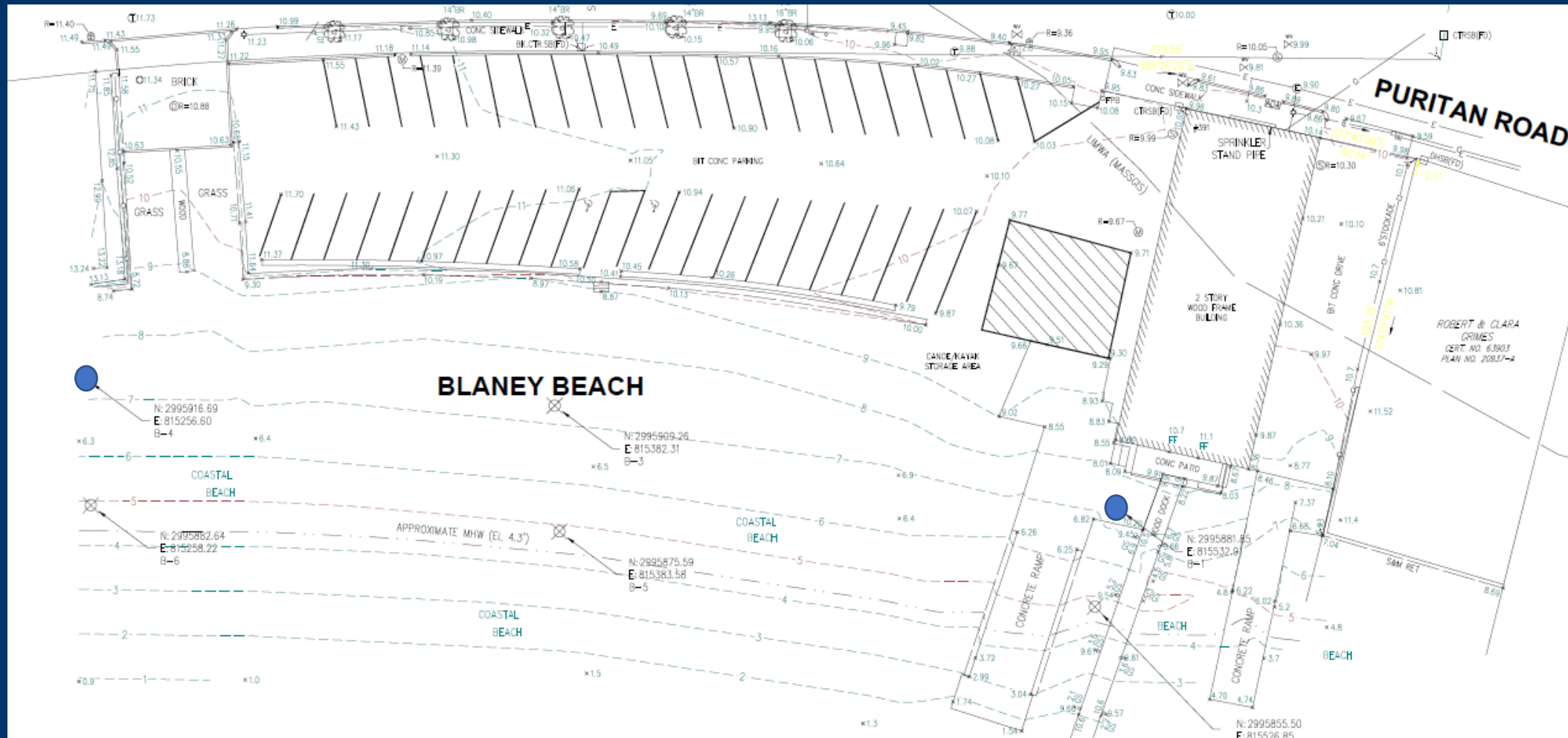
January 17th Storm Event



January 17th Storm Event



Round 1 Geotech Boring Program



Boring Program



2 Boreholes- Similar profiles:

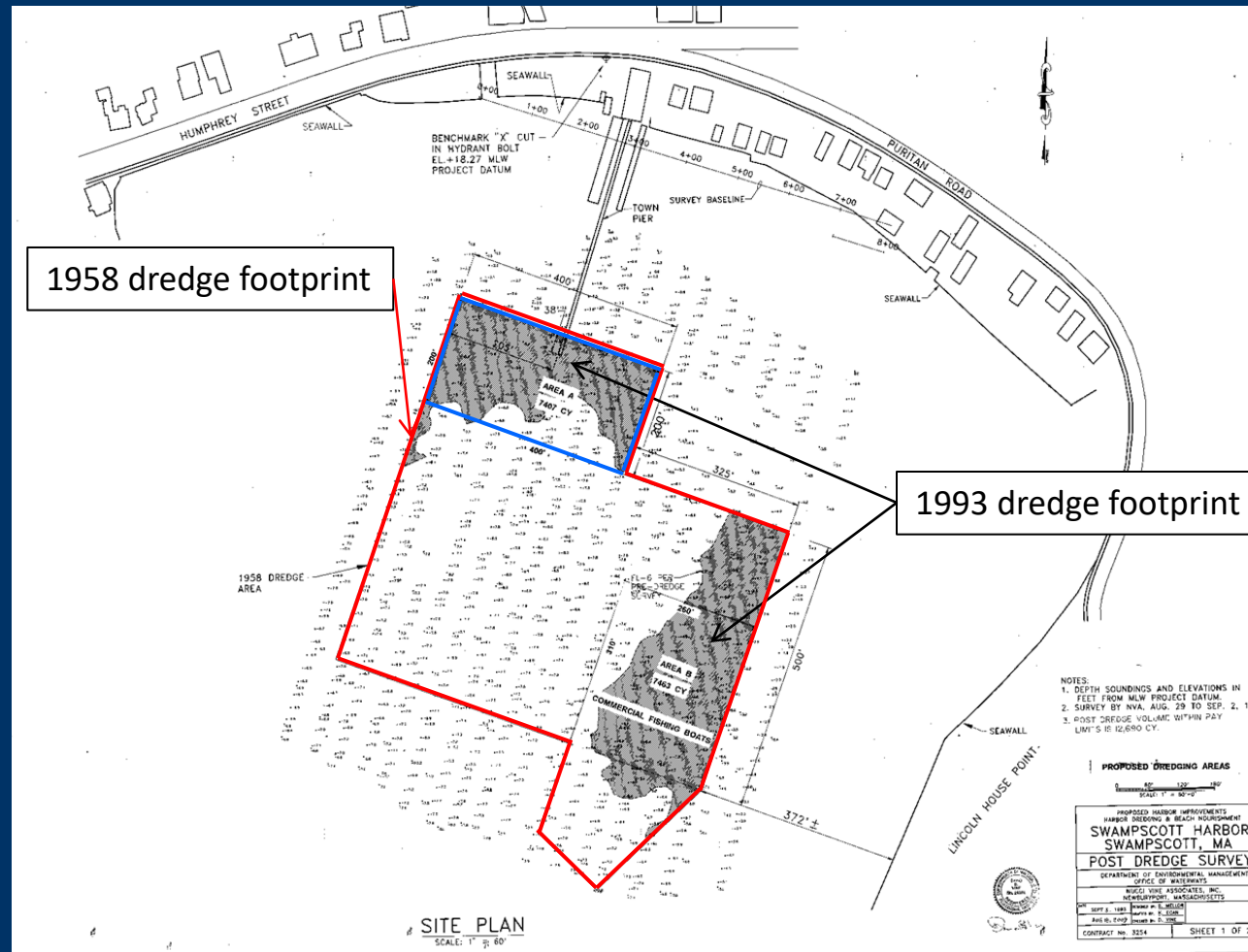
- 10-12 ft – Sand
- 15-17 ft – Med to stiff clay (one layer of soft clay)
- No refusal to 27 ft below grade – Bedrock not Encountered
- Typical Peri-glacial Subsurface Conditions

Boring Program

Boring No.	Sample ID.	Depth (ft)	Representative Soil Strata	% Gravel	% Sand	% Fines	Atterberg Limits LL PL PI
RMA22-1	S-2	2 – 4	Beach Deposit	43.7	53.4	2.9	Non-Plastic
RMA22-1	S-7	25 – 27	Fine Glacial	0.0	1.1	98.9	47 20 27
RMA22-2	S-1	0 – 2	Beach Deposit	23.7	73.8	2.5	Non-Plastic
RMA22-2	S-4	15 – 17	Fine Glacial	0.0	5.7	94.3	45 18 27

Boring No.	Sample ID.	Depth (ft)	Representative Soil Strata	Sulfate (mg/kg)	Chloride (mg/kg)	pH	Electrical Resistivity at 60°F (Ohm-cm) As Received Saturated
RMA22-1	S-2	2 – 4	Beach Deposit	512	3360	6.5	183 178
RMA22-2	S-4	15 – 17	Fine Glacial	34	97	6.8	1300 1300

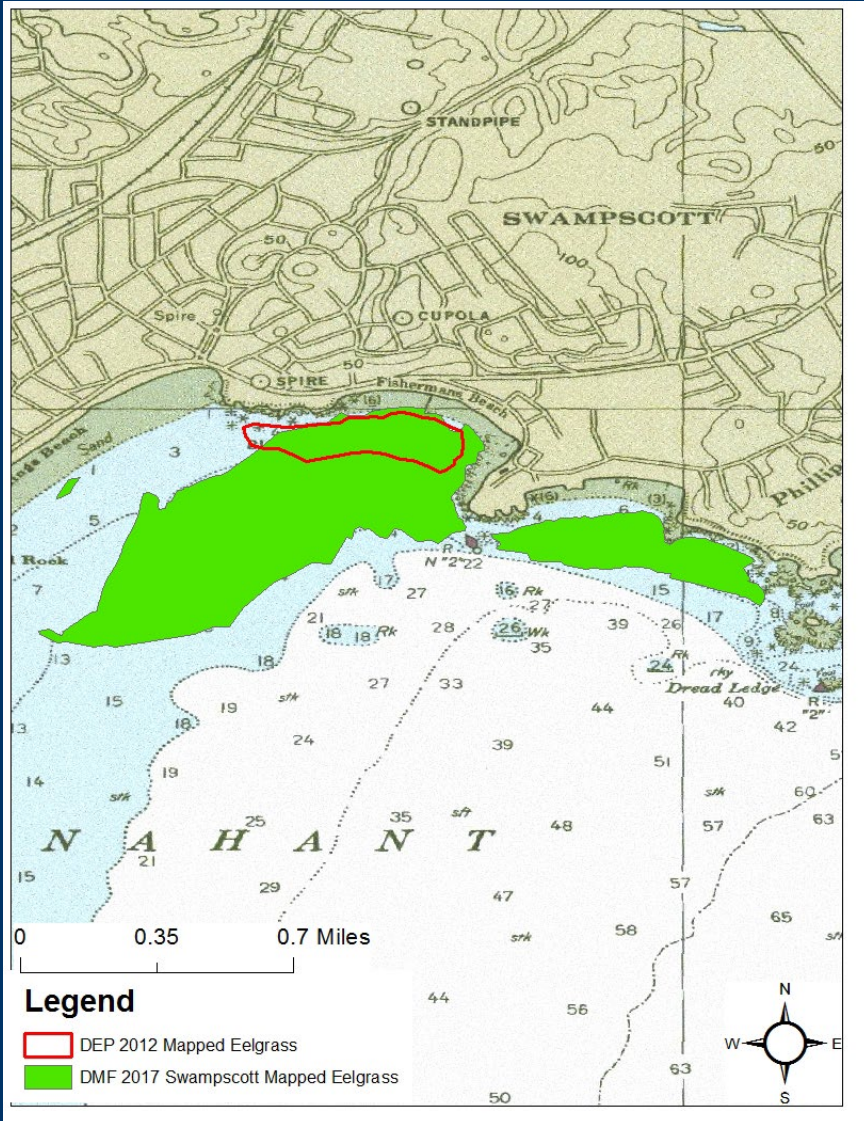
HISTORIC HARBOR DREDGING



Dredging has occurred in the Harbor historically twice:

- 1958 – As outlined in red
- 1993 – As shaded in gray

Eelgrass



Eelgrass

- Eelgrass is protected under state and federal statutes as it:
 - Provides habitat and shelter to juvenile fish and invertebrates
 - Improves water quality by absorbing nutrients
 - Protects shorelines from erosion
- Regulators review projects through the objective of
 - Avoid and Minimize, Mitigation – regulators against (and costly)
- Eelgrass is impacted from dredging, vessel moorings and shading from direct sunlight.
- Raising structure and orienting north-south, minimizes shade
- Need updated surveys- at peak biomass- Summertime
 - Location, Density, and Health of Eelgrass



Eelgrass

Eelgrass Status in Swampscott Harbor, Massachusetts with an Assessment of Eelgrass Mitigation for Mooring Basin Dredging Impacts

April 2013

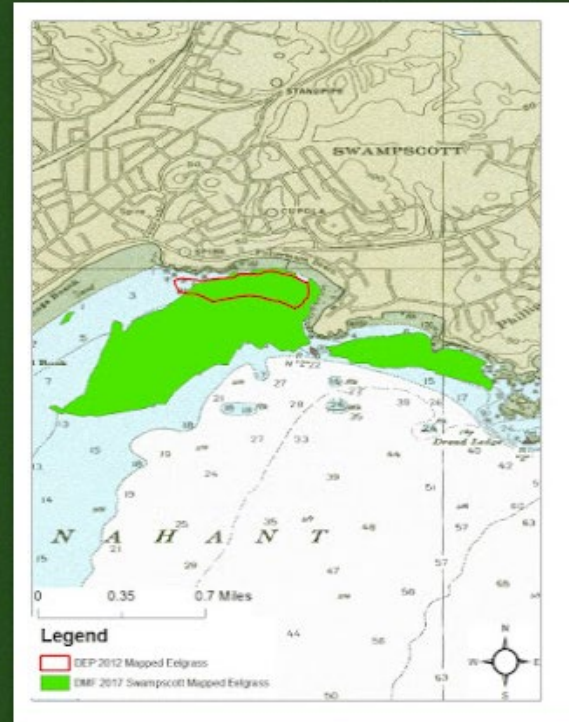


Figure 7. Alternative #4, the Reduced Impact Plan, showing the boat mooring area outlined in red, inside the 1958 Dredge Area. Alternative #4 reduces the impact to eelgrass by dredging smaller areas in the shallowest parts of the mooring area.

Expanded Eelgrass Meadows in Swampscott

On August 23, 2017 the Massachusetts Division of Marine Fisheries (MA DMF) Habitat Team set out for Swampscott Harbor in search of eelgrass. Armed with a Humminbird acoustic sonar transducer, an underwater video camera, and the DEP 2012 aerial photo-interpretation eelgrass maps, we anticipated finding a bed similar to the size and footprint of the Swampscott Harbor mooring field, where DEP previously mapped a 23 acres meadow.

We were happy to find that not only has the Swampscott bed expanded to a total of 153 acres (a 665% expansion from DEP's 2012 mapping), an adjacent bed exists to the east of Swampscott Harbor which had not previously been mapped. This "new" bed is approximately 36 acres in size and is located in the cove east of Lincoln House Point. While it is very close to the Swampscott Harbor bed, we believe that they are actually separate beds and not connected (see map). The eelgrass appears to be dense and healthy, and the sediment sandy. Reproductive shoots, some epiphytes, colonial tunicates, snail grazing, algae and potentially wasting disease could also be seen in the groundtruthing images (photos below). We found a somewhat uncommon algae, which we believe to be a Cord Weed (*Chorda* sp.), growing near and further seaward of the eelgrass meadow. It has a more similar appearance to eelgrass than most algae do (photo 4), however it did not share the same characteristic appearance in the sonar data so we are confident it was not mistakenly mapped during this survey.

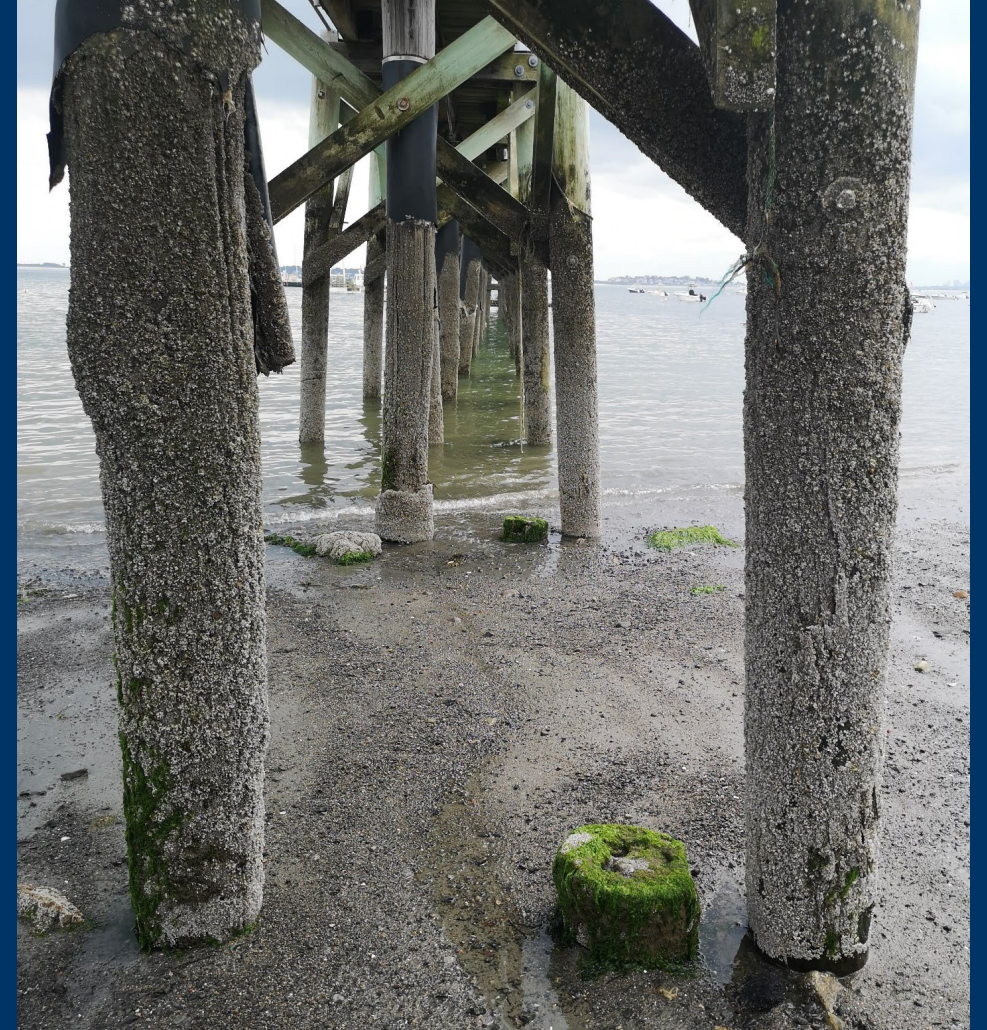


Existing Structure

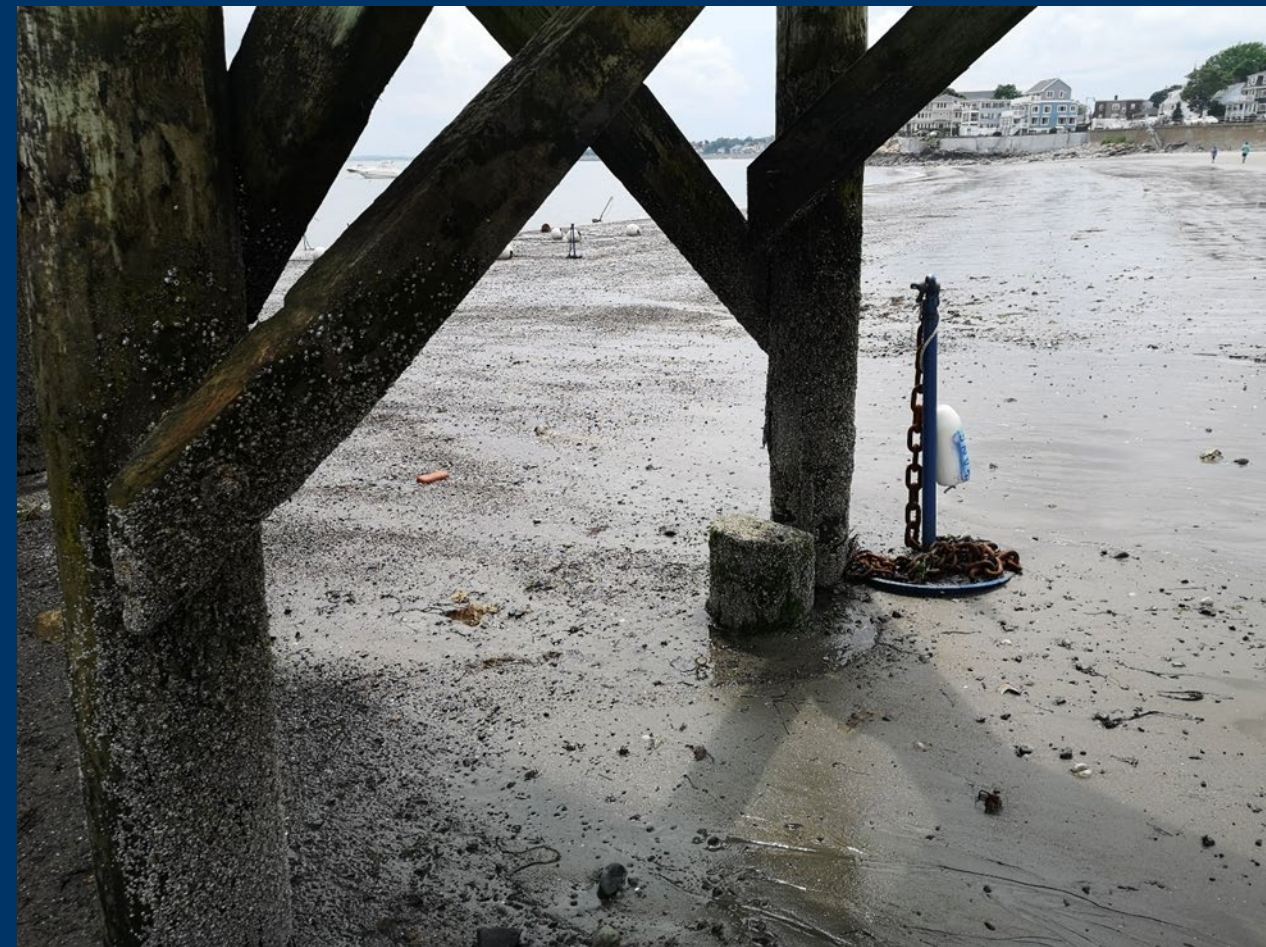
- Timber Structure – Completed in 1961 – 61 years old
 - Original Design Life would have been indicated in original design report- Unavailable
 - Typical Design Life for Timber Pile Supported Marine Structures – 50 yrs
 - Does not mean Structure is unsafe or structurally unsound after 50 yrs
 - Structure needs to be inspected, monitored and maintained
 - Balance of replacement cost versus continual maintenance costs
- Timber is a non-homogenous material, and can weather and age differently within the same structure
 - Need to look at Piles, Caps, Stringers, Braces, Deck, and mudline
 - Review over time, baseline inspection versus subsequent inspections

Existing Structure

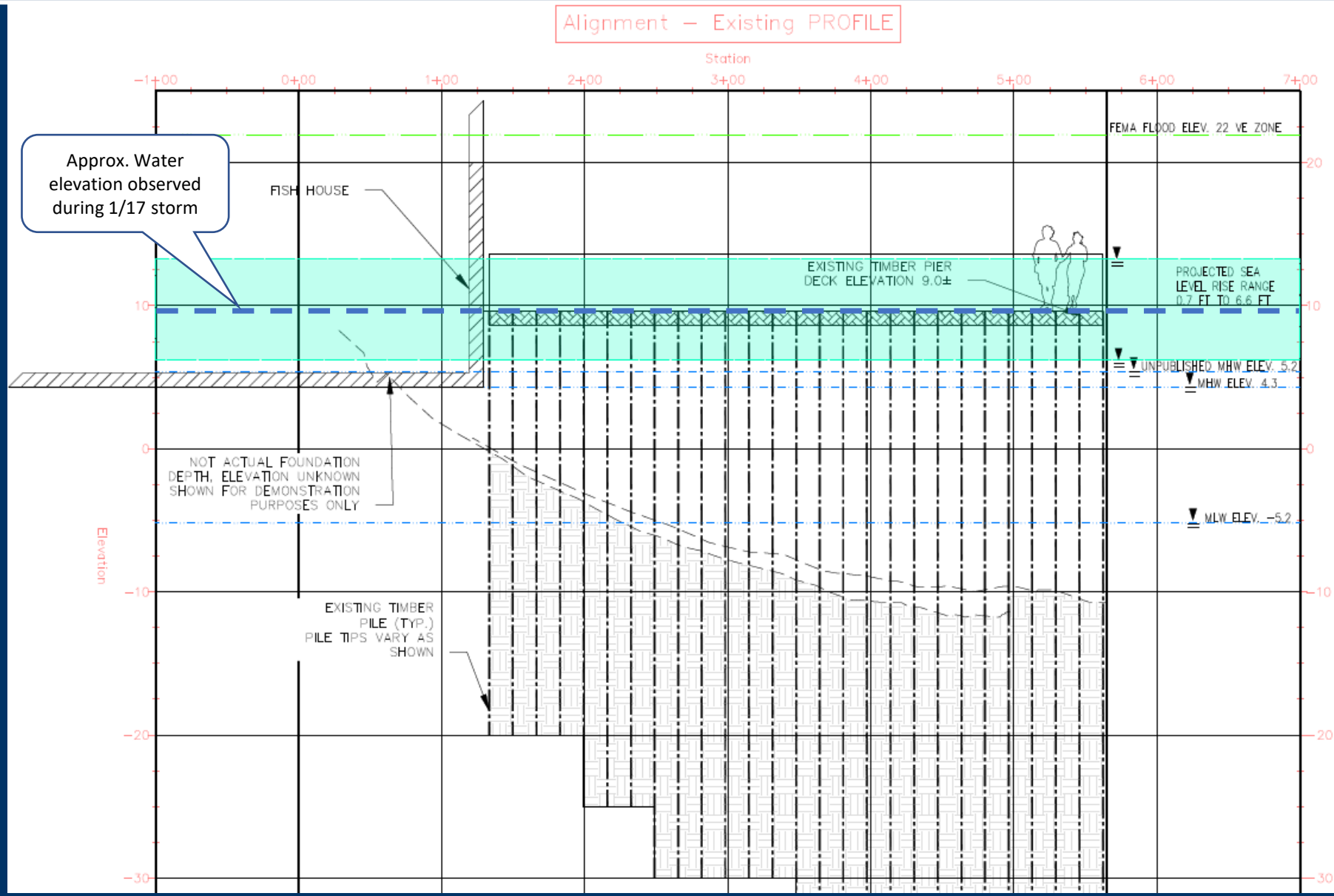
A complete structural assessment (consistent with the ASCE Waterfront Facilities Assessment Manual), has not been completed, However, we have performed above water and intertidal area documentation



Existing Structure



Structure Height



Next Steps

- Eelgrass Documentation Plan
 - With Buy-in from Regulators
 - Regulators will require study be conducted during Peak Biomass-Summer
- Bathymetric Survey
- Revise Scope to accommodate eelgrass survey
- Adjust Timeline

