Public Notice

US Army Corps of Engineers
Philadelphia District
Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390
ATTN: CENAP-OP-R

Public Notice No. **CENAP-OPR-2021-00286-95**	Date **June 28, 2022**
Application No. **CENAP-OPR-2021-00286-95**	File No.
In Reply Refer to: **REGULATORY BRANCH**	

This District has received an application for a Department of the Army (DA) permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (33 U.S.C. 1344).

The purpose of this notice is to solicit comments and recommendations from the public concerning issuance of a Department of the Army permit for the work described below.

APPLICANT: Township of Brick
Attn: Joanne Bergin
401 Chambers Bridge Road
Brick, New Jersey 08723

WATERWAYS: Lightning Jack's Marina, Turkey Point, Sandbar Point, Safe Harbor Area #1, Safe Harbor Area #2, Marine Max Area #1, Marine Max Area #2, Long Pond Lagoon, Wehrlen Brothers Marina, Island Court Area #1, Island Court Area#2, Metedeconk River Area #1, Metedeconk River Area #2, 5th Street Bridge Area, Midstreams Bridge Area, Behind the Islands Area, Beaver Dam Creek Area #1, Beaver Dam Creek Area #2, North Branch Beaver Dam Creek, Arjo Drive Area, West Kingfisher Area #1, West Kingfisher Area #2, Kingfisher Cove Area #1, Kingfisher Cove Area #2, Eagle Point, Metedeconk River South, Mayflower Lagoon, Driftwood Drive Area, Trader's Cove, Barnegat Bay Area, Mallard Point, Bay Harbor, Cherry Quay, Shore Acres Lagoon, Drum Point, Lake Point Drive (Smith Property), Superior Lagoon, Baywood Area, Havens Cove, Shore Acres, Curtis Point, Swamp Cove, and Long Island Cove.

LOCATION: Township of Brick, Ocean County, New Jersey

ACTIVITY: The applicant, the Township of Brick, has requested Department of the Army (DA) authorization to perform ten (10)-year maintenance dredging of forty-three (43) township waterways, with the proposed "township-wide" maintenance dredging program targeting substantial shoaling that has built up over the last century, including recent sediment deposited by Superstorm Sandy and Winter Storm Jonas.

All of the work would be accomplished via hydraulic cutterhead or mechanical dredge. All resultant dredged material, estimated to be approximately 949,284.0-cubic yards, would be removed from approximately 348.03-acres of

sea bottom and disposed at four (4) locations: the Dredged Hole #25 (DH#25) subaqueous borrow pit restoration site in Barnegat Bay located in the Borough of Lavallette, Ocean County, New Jersey; the upland Tuckahoe Turf Farm - Mobile Dredging and Video Pipe Site located in Estell Manor, Atlantic County, New Jersey; the upland Renegade Real Estate, LLC - Timster Trucking Site located in Little Egg Harbor Township, Ocean County, New Jersey; and the upland Burlington County Resource Recovery Center - Department of Solid Waste Site in Columbus, Burlington County, New Jersey. The composition of the dredged material ranges between approximately 24.0-100.0% sand and 0.0 to 76.0% silt.

For navigational safety, the hydraulic dredge pipeline will be marked in accordance with U.S. Coast Guard regulations and would be sunken, except where submerged aquatic vegetation (SAV) is encountered where it would be floated.

Each maintenance dredging event is anticipated to be approximately twelve (12) weeks in duration, including mobilization/demobilization, dredging, and material placement activities. Two (2) or three (3) maintenance dredging events are anticipated to be conducted over the next ten (10)-years, with the initial dredging event proposed to be undertaken during Fall 2022.

Lightning Jack's Marina
Approximate Coordinates: Latitude: 40.124385, Longitude: -74.099889.
Maintenance dredging of 27,518.0-cubic yards of shoaled sediments from an approximately 4.79-acre footprint to -5.0-feet below the plane of Mean Low Water (MLW), plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Lightning Jacks' Marina was historically dredge-maintained, most recently under DA Permit Number NAP-2018-00799-95.

Turkey Point
Approximate Coordinates: Latitude: 40.114128, Longitude: -74.096609.
Maintenance dredging of 16,121.0-cubic yards of shoaled sediments from an approximately 2.04-acre footprint to -5.0-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Turkey Point was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Sandbar Point
Approximate Coordinates: Latitude: 40.111665, Longitude: -74.095478.
Maintenance dredging of 68,631.0-cubic yards of shoaled sediments from an approximately 7.42-acre footprint to -5.0-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Sandbar Point was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Safe Harbor Area #1
Approximate Coordinates: Latitude: 40.104948 Longitude: -74.095980.
Maintenance dredging of 63,391.0-cubic yards of shoaled sediments from an approximately 11.56-acre footprint to -5.0-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Safe Harbor Area #1 was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Safe Harbor Area #2
Approximate Coordinates: Latitude: 40.103085, Longitude: -74.092579.
Maintenance dredging of 7,709.0-cubic yards of shoaled sediments from an approximately 2.69-acre footprint to -5.0-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Safe Harbor Area #2 was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Marine Max Area #1
Approximate Coordinates: Latitude: 40.101107, Longitude: -74.090669.
Maintenance dredging of 46,387.0-cubic yards of shoaled sediments from an approximately 7.41-acre footprint to -5.0-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Marine Max Area #1 was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Marine Max Area #2
Approximate Coordinates: Latitude: 40.099112, Longitude: -74.087828.
Maintenance dredging of 21,931.0-cubic yards of shoaled sediments from an approximately 8.92-acre footprint to -5.0-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Marine Max Area #2 was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Long Pond Lagoon
Approximate Coordinates: Latitude: 40.061508, Longitude: -74.119685.
Maintenance dredging of 21,045.0-cubic yards of shoaled sediments from an approximately 5.09-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Long Pond Lagoon was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Wehrlen Brothers Marina
Approximate Coordinates: Latitude: 40.059044, Longitude: -74.116895.
Maintenance dredging of 16,732.0-cubic yards of shoaled sediments from an approximately 9.14-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Wehrlen Brothers Marina was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Island Court Area #1
Approximate Coordinates: Latitude: 40.054500, Longitude: -74.102637.
Maintenance dredging of 9,947.0-cubic yards of shoaled sediments from an approximately 4.90-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Island Court Area #2 was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Island Court Area #2
Approximate Coordinates: Latitude: 40.053884, Longitude: -74.108098.
Maintenance dredging of 7,592.0-cubic yards of shoaled sediments from an approximately 4.56-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Island Court Area #2 was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Metedeconk River Area #1
Approximate Coordinates: Latitude: 40.055858, Longitude: -74.094166.
Maintenance dredging of 44,896.0-cubic yards of shoaled sediments from an approximately 19.08-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Metedeconk River Area #1 was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Metedeconk River Area #2
Approximate Coordinates: Latitude: 40.057391, Longitude: -74.073753.
Maintenance dredging of 34,706.0-cubic yards of shoaled sediments from an approximately 11.34-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Metedeconk River Area #2 was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

5th Street Bridge Area
Approximate Coordinates: Latitude: 40.060420, Longitude: -74.069602.
Maintenance dredging of 46,996.0-cubic yards of shoaled sediments from an approximately 17.15-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that the 5th Street Bridge area was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Midstreams Bridge Area
Approximate Coordinates: Latitude: 40.058565, Longitude: -74.092269.
Maintenance dredging of 15,630.0-cubic yards of shoaled sediments from an approximately 2.66-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that the Midstreams Bridge area was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Behind the Islands Area
Approximate Coordinates: Latitude: 40.059755, Longitude: -74.087283.
Maintenance dredging of 25,911.0-cubic yards of shoaled sediments from an approximately 8.06-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that the Behind the Islands area was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Beaver Dam Creek Area #1
Approximate Coordinates: Latitude: 40.058929, Longitude: -74.081614.
Maintenance dredging of 31,310.0-cubic yards of shoaled sediments from an approximately 12.22-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Beaver Dam Creek Area #1 was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Beaver Dam Creek Area #2
Approximate Coordinates: Latitude: 40.058576, Longitude: -74.078470.
Maintenance dredging of 6,782.0-cubic yards of shoaled sediments from an approximately 4.12-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Beaver Dam Creek #2 was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

North Branch Beaver Dam Creek
Approximate Coordinates: Latitude: 40.063947, Longitude: -74.080299.
Maintenance dredging of 34,045.0-cubic yards of shoaled sediments from an approximately 8.10-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that North Branch Beaver Dam Creek was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Arjo Drive Area
Approximate Coordinates: Latitude: 40.067069, Longitude: -74.087051.
Maintenance dredging of 10,320.0-cubic yards of shoaled sediments from an approximately 3.36-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that the Arjo Drive Area was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

West Kingfisher Area #1
Approximate Coordinates: Latitude: 40.053469, Longitude: -74.121785.
Maintenance dredging of 47,731.0-cubic yards of shoaled sediments from an approximately 14.16-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that West Kingfisher Area #1 was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

West Kingfisher Area #2
Approximate Coordinates: Latitude: 40.052084, Longitude: -74.125340.
Maintenance dredging of 3,517.0-cubic yards of shoaled sediments from an approximately 1.15-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that West Kingfisher Area #2 was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Kingfisher Cove Area #1
Approximate Coordinates: Latitude: 40.051318, Longitude: -74.113596.
Maintenance dredging of 38,793.0-cubic yards of shoaled sediments from an approximately 14.87-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Kingfisher Cove #1 was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Kingfisher Cove Area #2
Approximate Coordinates: Latitude: 40.050057, Longitude: -74.109644.
Maintenance dredging of 1,487.0-cubic yards of shoaled sediments from an approximately 2.39-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Kingfisher Cove #2 was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Eagle Point
Approximate Coordinates: Latitude: 40.051560, Longitude: -74.097501.
Maintenance dredging of 23,936.0-cubic yards of shoaled sediments from an approximately 6.15-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Eagle Point was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Metedeconk River South
Approximate Coordinates: Latitude: 40.047786, Longitude: -74.089292.
Maintenance dredging of 31,913.0-cubic yards of shoaled sediments from an approximately 13.71-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Metedeconk River South was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Mayflower Lagoon
Approximate Coordinates: Latitude: 40.050021, Longitude: -74.082299.
Maintenance dredging of 14,011.0-cubic yards of shoaled sediments from an approximately 5.35-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Mayflower Lagoon was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Driftwood Drive Area
Approximate Coordinates: Latitude: 40.051880, Longitude: -74.075935.
Maintenance dredging of 1,920.0-cubic yards of shoaled sediments from an approximately 2.24-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that the Driftwood Drive area was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Trader's Cove
Approximate Coordinates: Latitude: 40.041939, Longitude: -74.058424.
Maintenance dredging of 11,655.0-cubic yards of shoaled sediments from an approximately 10.55-acre footprint to -5.0-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of

available records indicates that Trader's Cove was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Barnegat Bay Area
Approximate Coordinates: Latitude: 40.039062, Longitude: -74.058764.
Maintenance dredging of 25,911.0-cubic yards of shoaled sediments from an approximately 9.74-acre footprint to -5.0-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that the Barnegat Bay Area was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Mallard Point
Approximate Coordinates: Latitude: 40.029588, Longitude: -74.131406.
Maintenance dredging of 38,662.0-cubic yards of shoaled sediments from an approximately 12.38-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Mallard Point was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Bay Harbor
Approximate Coordinates: Latitude: 40.019498, Longitude: -74.130943.
Maintenance dredging of 26,088.0-cubic yards of shoaled sediments from an approximately 9.95-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Bay Harbor was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Cherry Quay
Approximate Coordinates: Latitude: 40.023752, Longitude: -74.118661.
Maintenance dredging of 43,815.0-cubic yards of shoaled sediments from an approximately 12.41-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Cherry Quay was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Shore Acres Lagoon
Approximate Coordinates: Latitude: 40.017318, Longitude: -74.106624.
Maintenance dredging of 27,010.0-cubic yards of shoaled sediments from an approximately 8.87-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Shore Acres Lagoon was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Drum Point
Approximate Coordinates: Latitude: 40.015679, Longitude: -74.101681.
Maintenance dredging of 10,471.0-cubic yards of shoaled sediments from an approximately 2.75-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Drum Point was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Lake Point Drive (Smith Property)
Approximate Coordinates: Latitude: 40.015745, Longitude: -74.093587.
Maintenance dredging of 1,609.0-cubic yards of shoaled sediments from an approximately 1.32-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that the Lake Point Drive (Smith Property) has not been historically dredge-maintained.

Superior Lagoon
Approximate Coordinates: Latitude: 40.013593, Longitude: -74.084991.
Maintenance dredging of 19,452.0-cubic yards of shoaled sediments from an approximately 6.62-acre footprint to -5.0-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Superior Lagoon was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Baywood Area
Approximate Coordinates: Latitude: 40.023235, Longitude: -74.082219.
Maintenance dredging of 2,674.0-cubic yards of shoaled sediments from an approximately 2.27-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that the Baywood Area was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Havens Cove
Approximate Coordinates: Latitude: 40.024714, Longitude: -74.081800.
Maintenance dredging of 6,714.0-cubic yards of shoaled sediments from an approximately 2.61-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Havens Cove was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Shore Acres
Approximate Coordinates: Latitude: 40.018086, Longitude: -74.080358.
Maintenance dredging of 5,467.0-cubic yards of shoaled sediments from an approximately 5.04-acre footprint to -5.5-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Shore Acres was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Curtis Point
Approximate Coordinates: Latitude: 40.026635, Longitude: -74.059426.
Maintenance dredging of 2,097.0-cubic yards of shoaled sediments from an approximately 9.96-acre footprint to -5.0-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Curtis Point was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Swamp Cove
Approximate Coordinates: Latitude: 40.019101, Longitude: -74.062981.
Maintenance dredging of 10,173.0-cubic yards of shoaled sediments from an approximately 22.95-acre footprint to -5.0-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Swamp Cove was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Long Island Cove
Approximate Coordinates: Latitude: 40.010118, Longitude: -74.059817.
Maintenance dredging of 12,579.0-cubic yards of shoaled sediments from an approximately 15.95-acre footprint to -5.0-feet below the plane of MLW, plus 1.0-foot of allowable overdredge, and 3:1 side slopes, is proposed. A review of available records indicates that Long Island Cove was last dredged under NAP-2013-00255-24 (Hurricane Sandy NJDEP Waterway Debris Contract Zone 4).

Dredge Material Placement:

All resultant dredged material, estimated to be approximately 949,284.0-cubic yards of sand and silt, would be disposed at four (4) locations: the Dredged Hole #25 (DH#25) subaqueous borrow pit restoration site in Barnegat Bay located in the Borough of Lavallette, Ocean County, New Jersey; the upland Tuckahoe Turf Farm - Mobile Dredging and Video Pipe Site located in Estell Manor, Atlantic County, New Jersey; the upland Renegade Real Estate, LLC - Timster Trucking Site located in Eagleswood and Little Egg Harbor Township, Ocean County, New Jersey; and the upland Burlington County Resource Recovery Center - Department of Solid Waste Site in Columbus, Burlington County, New Jersey.

DH#25:
Approximate Coordinates: Latitude: 39.970833, Longitude: -74.076944.
Approximately 50,000.0-cubic yards of dredged material from the dredge sites listed above would be mechanically and hydraulically placed into DH#25 in accordance with Department of the Army (DA) Permit Number NAP-2016-00297-95 (Enclosure A). DH#25 is an approximately 19.0-acre man-made subaqueous borrow pit feature formed by historical sand mining activities. DH#25, located in Barnegat Bay off West Point Island in the Borough of Lavallette, Ocean County, New Jersey, is one of several subaqueous pits within the New Jersey coastal bay system that was used as a sediment borrow site for construction of roadways, bridges, and building lots on the barrier island and surrounding area. DH#25 is approximately -20.0-feet below MLW, whereas the

natural bottom surface elevations of the surrounding seabed are relatively flat and approximately -6.0-feet below MLW. DA Permit Number NAP-2016-00297-95, issued on 22 June 2017 to the New Jersey Department of Transportation – Office of Maritime Resources (NJDOT-OMR), authorized the restoration of DH#25 via in-water discharge of dredged material. DH#25 is owned and maintained by NJDOT-OMR. Placement of dredged material into DH#25 by the Township of Brick is contingent upon execution of a use agreement between the Township of Brick and NJDOT-OMR.

Tuckahoe Turf Farm - Mobile Dredging and Video Pipe Site:
Approximate Coordinates: Latitude: 39.680137, Longitude: -74.782414.
After hydraulic or mechanical placement into hopper barges for dewatering, approximately 250,000.0-cubic yards of dredged material would be direct-loaded into sealed trucks and transported to the Tuckahoe Turf Farm - Mobile Dredging and Video Pipe Site located in Estell Manor, Atlantic County, New Jersey, for placement in uplands.

Renegade Real Estate, LLC - Timster Trucking Site:
Approximate Coordinates: Latitude: 39.650198, Longitude: -74.320481.
After hydraulic or mechanical placement into hopper barges for dewatering, approximately 250,000.0-cubic yards of dredged material would be direct-loaded into sealed trucks and transported to the Renegade Real Estate, LLC - Timster Trucking Site located in both Eagleswood (Lot 25 of Block 42) and Little Egg Harbor (Lot 25 of Block 65), in Ocean County, New Jersey, for placement in uplands.

Burlington County Resource Recovery Center - Dept. of Solid Waste Site:
Approximate Coordinates: Latitude: 40.076469, Longitude: -74.769968.
After hydraulic or mechanical placement into hopper barges for dewatering, approximately 400,000.0-cubic yards of dredged material would be direct-loaded into trucks and transported to the Burlington County Resource Recovery Center - Dept. of Solid Waste Site in Columbus, Burlington County, New Jersey for placement in uplands.

PURPOSE: The stated purpose of this project is to maintain safe navigational depths for transiting emergency, commercial, and recreational vessels; and restore a man-made subaqueous borrow pit feature (DH#25) formed by historical sand mining activities.

The decision whether to issue a permit will be based on an evaluation of the activity's probable impact including its cumulative impacts on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the work must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the work will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs and

welfare of the people. A Department of the Army permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

The comment period is open for thirty (30) days from the date of this announcement. Due to COVID-19, comments on the proposed work should be submitted to the District Engineer, U.S. Army Corps of Engineers, Philadelphia District at **PhiladelphiaDistrictRegulatory@usace.army.mil**. If it is necessary to provide a paper copy, comments should be submitted, within thirty (30 days), via traditional hard copy mail to the U.S. Army Corps of Engineers, Philadelphia District, Wanamaker Building, 100 Penn Square East, Philadelphia, Pennsylvania 19107-3390, Attn: CENAP-OPR.

The USACE Cultural Resource Specialist is currently reviewing the proposed permit action for potential impacts to Historic Properties eligible for or listed on the National Register of Historic Places. A determination of effects will be coordinated with the State Historic Preservation Office, the Tribes and other consulting parties.

A preliminary review of this application indicates that the proposed work may affect listed aquatic-based species or their critical habitat. Pursuant to Section 7 of the Endangered Species Act (ESA), the Philadelphia District will evaluate the potential effects from the proposed actions to these species and their habitat and consult with NOAA Fisheries as appropriate. Consultation will be concluded prior to the final decision on this permit application.

Pursuant to Section 7 of the Endangered Species Act (ESA, a preliminary review of this application indicates that the proposed work would not affect land-based species or their critical habitat. Given USACE's no effect determination, as per Section 7 of the ESA, no further consultation with the U.S. Fish & Wildlife Service is required.

The Magnuson-Stevens Fishery Conservation and Management Act requires all federal agencies to consult with the NOAA Fisheries for all actions, or proposed actions, permitted, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH). A preliminary review of this application indicates that EFH is present within the project area. The Philadelphia District will evaluate the potential effects of the proposed actions on EFH and will consult with NOAA Fisheries as appropriate. Consultation will be concluded prior to the final decision on this permit application.

Per Federal Regulations 33 CFR 325.1(d)(7), the applicant has stated that compensatory mitigation is not required because the proposed project is expected to result in an overall net increase in

habitat functions and values through beneficial re-utilization of dredged material to restore a man-made subaqueous borrow pit feature known as Dredged Hole #25.
In accordance with Section 307(c) of the Coastal Zone Management Act of 1972, applicants for Federal Licenses or Permits to conduct an activity affecting land or water uses in a State's coastal zone must provide certification that the activity complies with the State's Coastal Zone Management Program. The applicant has stated that the proposed activity complies with and will be conducted in a manner that is consistent with the approved State Coastal Zone Management (CZM) Program. No permit will be issued until the State has concurred with the applicant's certification or has waived its right to do so. Comments concerning the impact of the proposed and/or existing activity on the State's coastal zone should be sent to this office, with a copy to the State's Office of Coastal Zone Management.

In accordance with Section 401 of the Clean Water Act, a Water Quality Certificate is necessary from the State government in which the work is located. Any comments concerning the work described above which relate to Water Quality considerations should be sent to this office with a copy to the State.

The evaluation of the impact of the work described above on the public interest will include application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act.

Any person may request, in writing, to the District Engineer, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for a public hearing shall state, in writing to **PhiladelphiaDistrictRegulatory@usace.army.mil,** with particularity, the reasons for holding a public hearing.

Additional information concerning this permit application may be obtained by contacting Mr. Robert Youhas of my staff via email at **robert.youhas@usace.army.mil**, or by phone at 215-656-6729.

Digitally signed by Glenn R. Weitknecht
Date: 2022.06.27 13:19:41 -04'00'

FOR: Todd A. Schaible
Chief, Regulatory Branch

BRICK TOWNSHIP, NEW JERSEY
MAINTENANCE DREDGING PROJECT

VICINITY MAP

LOCATION MAP

DRAWING INDEX

SHEET SEQUENCE	SHEET NO.	SHEET TITLE
		T-SERIES: TITLE SERIES
1.	T-1	TITLE SHEET
		G-SERIES: GENERAL SERIES
2.	G-1	GENERAL NOTES AND LEGEND
3.	G-2	SITE KEY PLAN
		D-SERIES: PLAN SHEET SERIES
4.	D-1	MALLARD POINT PLAN SHEET
5.	D-2	BAY HARBOR PLAN SHEET
6.	D-3	CHERRY QUAY PLAN SHEET
7.	D-4	SHORE ACRES PLAN SHEET
8.	D-5	BAYWOOD PLAN SHEET
9.	D-6	SUPERIOR PLAN SHEET
10.	D-7	SWAMP COVE PLAN SHEET
11.	D-8	SWAMP COVE PLAN SHEET
12.	D-9	LONG ISLAND COVE PLAN SHEET
13.	D-10	JERSEY SHORE MARINA AND GREEN COVE PLAN SHEET
14.	D-11	LONG POND PLAN SHEET
15.	D-12	BEAVER DAM CREEK & METEDECONK RIVER PLAN SHEET
16.	D-13	BEAVER DAM CREEK & METEDECONK RIVER PLAN SHEET
17.	D-14	BEAVER DAM CREEK & METEDECONK RIVER PLAN SHEET
18.	D-15	BEAVER DAM CREEK PLAN SHEET
19.	D-16	KINGFISHER COVE PLAN SHEET
20.	D-17	KINGFISHER COVE PLAN SHEET
21.	D-18	METEDECONK RIVER - SOUTHERN SHORELINE PLAN SHEET
22.	D-19	METEDECONK RIVER - SOUTHERN SHORELINE PLAN SHEET
23.	D-20	TRADERS COVE PLAN SHEET
24.	D-21	LIGHTNING JACK'S MARINA AND SAFE HARBOR PLAN SHEET
25.	D-22	SAFE HARBOR PLAN SHEET
26.	D-23	SAFE HARBOR PLAN SHEET
		C-SERIES: CROSS SECTION SHEET SERIES
27.	C-1	MALLARD POINT CROSS SECTIONS
28.	C-2	BAY HARBOR CROSS SECTIONS
29.	C-3	CHERRY QUAY CROSS SECTIONS
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36.	C-10	BEAVER DAM CREEK CROSS SECTIONS
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39.	C-13	METEDECONK RIVER - SOUTHERN SHORELINE CROSS SECTIONS
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41.	C-15	LIGHTENING JACK'S AND SAFE HARBOR CROSS SECTIONS
		S-SERIES: DETAIL SHEET SERIES
42.	S-1	EXISTING OUTFALL DREDGING TYPICAL DETAIL

PLAN INTENDED TO BE VIEWED IN COLOR. ADJACENT BLOCK IS "BLUE"

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — No GE49100 — LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

TITLE SHEET

T-1

SHEET # 1 OF 42

May 24, 2022 12:23pm cyard K:\Projects\10619- ACT\Brick Township\Construction Plans\ACT ENG. RDY\SHN\10619-PL-COVER.dwg T-1

SOURCE: HYDROGRAPHIC SURVEY CONDUCTED BY ACT ENGINEERS BETWEEN MAY 2019 AND DECEMBER 2019. LOCATION MAP AERIAL IMAGERY BY BING MAPS, DATED 2021. VICINITY MAP IMAGERY BY ESRI, DATED 2021. NEW JERSEY INTRACOASTAL WATERWAY LIMITS WERE OBTAINED FROM USACE PHILADELPHIA DISTRICT MARINE DESIGN CENTER WEBSITE 2017. WETLANDS MAPPING FROM NJ GEOWEB DATABASE.

HORIZONTAL DATUM: NEW JERSEY STATE PLANE, NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET

VERTICAL DATUM: MEAN LOW WATER (MLW).

NOTES:

1. DEPTH OF PROPOSED DREDGING IN ALL AREAS IS TO ELEVATION -6' MLW.
2. LIMITS OF PROPOSED DREDGING AREAS INCLUDE 5-FOOT OFFSET FROM BULKHEADS.
3. UNLESS OTHERWISE NOTED, LIMITS OF PROPOSED DREDGING AREAS INCLUDE 25-FOOT OFFSET FROM VEGETATED SHORELINE AND BEACH SHORELINE.
4. DUE TO LACK OF AVAILABLE DATUM CONVERSION INFORMATION WITHIN THE BRICK TOWNSHIP BACK BAY AND MANASQUAN RIVER PROPOSED REMOVAL AREAS, THE NOAA VDATUM CONVERSION TOOL WAS USED TO CONVERT BATHYMETRIC ELEVATIONS BETWEEN NAVD88 AND MLW CONSISTENT WITH NJDOT AND USACE DATUM CONVERSION FOR THIS AREA. THE NOAA VDATUM CONVERSION TOOL VERTICAL UNCERTAINTIES ARE DESCRIBED HERE: https://vdatum.noaa.gov/docs/est_uncertainties.html. THE MAXIMUM UNCERTAINTY WITHIN NEW JERSEY COASTAL EMBAYMENTS IS BETWEEN 9.0 AND 9.2 CM (3.54 IN. AND 3.62 IN.)."

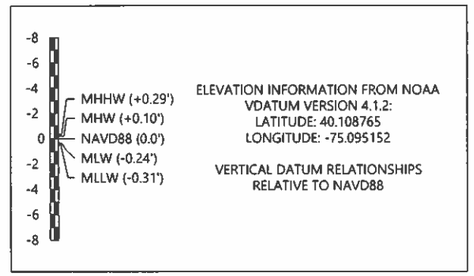
SURVEY NOTES:

1. HORIZONTAL DATUM IS THE NEW JERSEY STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (N.J.S.P.C.S., NAD83).
2. PHYSICAL FEATURES OUTSIDE OF THE SITE HAVE NOT BEEN COMPLETELY SHOWN.
3. THE LOCATIONS AND/OR EXISTENCE OF ANY UNDERGROUND UTILITY SERVICE LINES NOT SHOWN WERE NOT VISIBLE AT THE TIME OF SURVEY AND ARE UNKNOWN.
4. UNDERGROUND ENCROACHMENTS, IF ANY HAVE NOT BEEN SHOWN.
5. NO STATEMENT IS BEING MADE OR IMPLIED HEREON, NOR SHOULD IT BE ASSUMED OR CONSTRUED THAT ANY STATEMENT IS BEING MADE BY THE FACT THAT NO EVIDENCE OF TOXIC WASTE IS PORTRAYED HEREON. THE CLIENT SHOULD PURSUE THESE MATTERS AS ITEMS SEPARATE AND APART FROM THIS SURVEY.
6. UNDERGROUND UTILITIES SHOWN HEREON WERE LOCATED FROM MARK-OUTS PRESENT AT THE TIME OF SURVEY. NO STATEMENT IS BEING MADE OR IMPLIED HEREON NOR SHOULD IT BE ASSUMED OR CONSTRUED THAT ANY STATEMENT BEING MADE AS TO THE ACCURACY AND/OR COMPLETENESS OF SAID MARK-OUTS.
7. DATUMS WERE ESTABLISHED ON SITE USING GPS OBSERVATIONS.
8. THE FIELD SURVEY WAS CONDUCTED BY ACT ENGINEERS, INC.

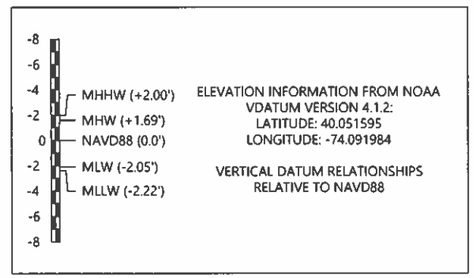
PROPOSED BAYFRONT AREA DREDGING VOLUME TABLE

LOCATION	VOLUME (CY)	PROPOSED DREDGING DEPTH
LIGHTNING JACKS MARINA	27,518	(-5.0)
TURKEY POINT	16,121	(-5.0)
SAND BAR POINT	68,631	(-5.0)
SAFE HARBOR	63,391	(-5.0)
SAFE HARBOR (MARINA)	7,709	(-5.0)
MARINEMAX	46,387	(-5.0)
MARINEMAX (MARINA)	21,931	(-5.0)
LONG POND LAGOON	21,045	(-5.5)
WEHRLEN BROTHERS MARINA	16,732	(-5.5)
ISLAND COURT (BAYFRONT)	9,947	(-5.5)
ISLAND COURT (MARINA)	7,592	(-5.5)
METEDECONK RIVER NW	44,896	(-5.5)
METEDECONK RIVER NE44	34,706	(-5.5)
5TH STREET BRIDGE (BAYFRONT)	46,996	(-5.5)
MIDSTREAMS BRIDGE	15,630	(-5.5)
BEHIND THE ISLANDS	25,911	(-5.5)
BEAVER DAM CREEK	31,310	(-5.5)
BEAVER DAM CREEK (MARINA)	6,782	(-5.5)
NORTH BRANCH B.D.C.	34,045	(-5.5)
ARIO DRIVE (BAYFRONT)	10,320	(-5.5)
WEST KINGFISHER	47,731	(-5.5)
WEST KINGFISHER (MARINA)	3,517	(-5.5)
KINGFISHER COVE	38,793	(-5.5)
KINGFISHER COVE (MARINA)	1,487	(-5.5)
EAGLE POINT (BAYFRONT)	23,936	(-5.5)
METEDECONK RIVER S	31,913	(-5.5)
MAYFLOWER LAGOON (BAYFRONT)	14,011	(-5.5)
DRIFTWOOD DRIVE (BAYFRONT)	1,920	(-5.5)
TRADERS COVE	11,655	(-5.0)
BARNEGAT BAY	9,910	(-5.0)
MALLARD POINT (BAYFRONT)	38,662	(-5.5)
BAY HARBOR (BAYFRONT)	26,088	(-5.5)
CHERRY QUAY (BAYFRONT)	43,815	(-5.5)
SHORE ACRES LAGOON (BAYFRONT)	27,010	(-5.5)
DRUM POINT (BAYFRONT)	10,471	(-5.5)
SMITH PROPERTY	1,609	(-5.5)
SUPERIOR LAGOON (BAYFRONT)	19,452	(-5.0)
BAYWOOD (BAYFRONT)	2,674	(-5.5)
HAVENS COVE	6,714	(-5.5)
SHORE ACRES (BAYFRONT)	5,467	(-5.5)
CURTIS POINT (BAYFRONT)	2,097	(-5.0)
SWAMP COVE (BAYFRONT)	10,173	(-5.0)
LONG ISLAND COVE (BAYFRONT)	12,579	(-5.0)
TOTAL (BAYFRONT)	949,284	

BRICK TOWNSHIP BACK BAY VERTICAL DATUM:



MANASQUAN RIVER VERTICAL DATUM:



LEGEND:

- EXISTING CONTOURS (FEET MLW) (1-FOOT INTERVAL)
- POST-DREDGE SURFACE CONTOUR (FEET MLW) (1-FOOT INTERVAL)
- PROPOSED DREDGING AREAS - CURRENTLY SHALLOWER THAN -6' MLW
- NJDOT STATE MAINTENANCE CHANNEL ALIGNMENT (APPROXIMATE)
- MAPPED WETLANDS (NJ GEOWEB DATABASE)
- EXISTING OUTFALL LOCATION

PLAN INTENDED TO BE VIEWED IN COLOR. ADJACENT BLOCK IS 'BLUE'

ONE INCH AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — MARK K. MORAN — No GE49100 — LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

GENERAL NOTES AND LEGEND

G-1

SHEET # 2 OF 42

May 26, 2022 12:37am cyard K:\Projects\0619-ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-GENERAL-NOTES-AND-LEGEND.dwg G-1

LEGEND:

D-14 SHEET EXTENT AND NUMBER DESIGNATION

NORTH

0 2500 5000

SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR, ADJACENT BLOCK IS BLUE

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

K:\Projects\0619-ACT\Brick Township\Construction Plans\ACT ENG REVISION\0619-PL-SITE-KEY-PLAN.dwg G-2

May 24, 2022 12:19pm ryard

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY JAMES K. JENSEN No GE49100 PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

SITE KEY PLAN

G-2

SHEET # 3 OF 42

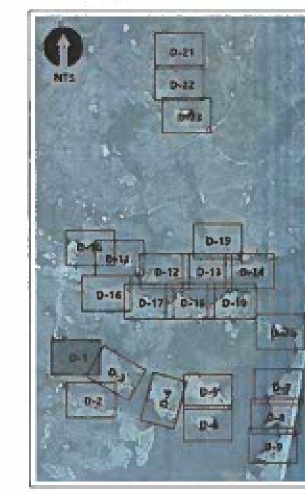
SHORELINE NOTE:

WITHIN SHORELINE AREAS OF NATURAL WATERWAYS WHERE DOCKS ARE LEGALLY PRESENT AND/OR EVIDENT ON THE APPLICABLE NJDEP MAPS, DREDGING IS LIMITED TO A DEPTH OF -4.5' MLW PLUS 1-FOOT OF OVERDREDGE WITHIN VESSEL MOORING AND NAVIGATIONAL AREAS ONLY. THIS DREDGING PERMIT MAY BE ADMINISTRATIVELY MODIFIED TO INCLUDE ADDITIONAL MOORING AREAS IDENTIFIED IN SUBSEQUENT DOCK PERMITS TO MAINTAIN PERMITTED WATER DEPTHS.

LEGEND:

- NJDOT STATE MAINTENANCE CHANNEL ALIGNMENT (APPROXIMATE)
- EXISTING OUTFALL LOCATION
- EXISTING CONTOURS (FEET MLW) (1-FOOT INTERVAL)
- POST-DREDGE SURFACE CONTOUR (FEET MLW) (1-FOOT INTERVAL)
- PROPOSED DREDGING AREA (CURRENTLY SHALLOWER THAN -5.5' MLW)
- MAPPED WETLANDS (NJ GEOWEB DATABASE)
- MARINA
- LAGOON
- NATURAL WATERWAY SHORELINE

KEY PLAN:



NORTH

0 200 400

SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR, ADJACENT BLOCK IS "BLUE"

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

K:\Projects\0619-ACT\Brick Township\Construction Plans\ACT ENG REVISION\0619-PL-MALLARD POINT LAYOUT.dwg D-1

May 26, 2022 12:47am cyard

ANCHOR QEA

ACT ENGINEERS

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

MALLARD POINT PLAN SHEET

D-1

SHEET # 4 OF 42

SHORELINE NOTE:

WITHIN SHORELINE AREAS OF NATURAL WATERWAYS WHERE DOCKS ARE LEGALLY PRESENT AND/OR EVIDENT ON THE APPLICABLE NJDEP MAPS, DREDGING IS LIMITED TO A DEPTH OF -4.5' MLW PLUS 1-FOOT OF OVERDREDGE WITHIN VESSEL MOORING AND NAVIGATIONAL AREAS ONLY. THIS DREDGING PERMIT MAY BE ADMINISTRATIVELY MODIFIED TO INCLUDE ADDITIONAL MOORING AREAS IDENTIFIED IN SUBSEQUENT DOCK PERMITS TO MAINTAIN PERMITTED WATER DEPTHS.

LEGEND:

- NJDOT STATE MAINTENANCE CHANNEL ALIGNMENT (APPROXIMATE)
- EXISTING OUTFALL LOCATION
- EXISTING CONTOURS (FEET MLW) (1-FOOT INTERVAL)
- POST-DREDGE SURFACE CONTOUR (FEET MLW) (1-FOOT INTERVAL)
- PROPOSED DREDGING AREA (CURRENTLY SHALLOWER THAN -5.5' MLW)
- MAPPED WETLANDS (NJ GEOWEB DATABASE)
- MARINA
- LAGOON
- NATURAL WATERWAY SHORELINE

KEY PLAN:

NORTH

0 200 400

SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR. ADJACENT BLOCK IS 'BLUE'

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

K:\Projects\10619- ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-BAY HARBOR LAYOUT.dwg D-2

May 26, 2022 12:59am tjarrett

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — RAY E. NORMAN — No GE49100 — LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

BAY HARBOR PLAN SHEET

D-2

SHEET # 5 OF 42

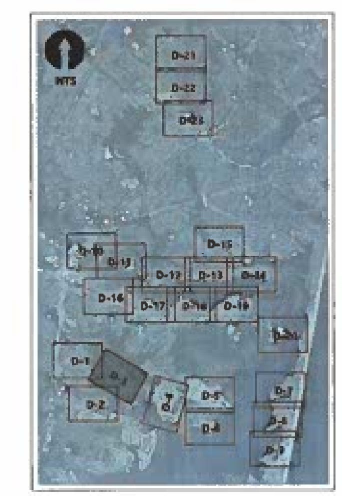
SHORELINE NOTE:

WITHIN SHORELINE AREAS OF NATURAL WATERWAYS WHERE DOCKS ARE LEGALLY PRESENT AND/OR EVIDENT ON THE APPLICABLE NJDEP MAPS, DREDGING IS LIMITED TO A DEPTH OF -4.5' MLW PLUS 1-FOOT OF OVERDREDGE WITHIN VESSEL MOORING AND NAVIGATIONAL AREAS ONLY. THIS DREDGING PERMIT MAY BE ADMINISTRATIVELY MODIFIED TO INCLUDE ADDITIONAL MOORING AREAS IDENTIFIED IN SUBSEQUENT DOCK PERMITS TO MAINTAIN PERMITTED WATER DEPTHS.

LEGEND:

- NJDOT STATE MAINTENANCE CHANNEL ALIGNMENT (APPROXIMATE)
- EXISTING OUTFALL LOCATION
- EXISTING CONTOURS (FEET MLW) (1-FOOT INTERVAL)
- POST-DREDGE SURFACE CONTOUR (FEET MLW) (1-FOOT INTERVAL)
- PROPOSED DREDGING AREA (CURRENTLY SHALLOWER THAN -5.5' MLW)
- MAPPED WETLANDS (NJ GEOWEB DATABASE)
- MARINA
- LAGOON
- NATURAL WATERWAY SHORELINE

KEY PLAN:



NORTH

0 200 400

SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR. ADJACENT BLOCK IS "BLUE"

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

K:\Projects\0619-ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-CHERRY QUAY LAYOUT.dwg D-3

May 25, 2022 8:19pm cyard

ANCHOR QEA

ACT ENGINEERS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

CHERRY QUAY PLAN SHEET

D-3

SHEET # 6 OF 42

SHORELINE NOTE:

WITHIN SHORELINE AREAS OF NATURAL WATERWAYS WHERE DOCKS ARE LEGALLY PRESENT AND/OR EVIDENT ON THE APPLICABLE NJDEP MAPS, DREDGING IS LIMITED TO A DEPTH OF -4.5' MLW PLUS 1-FOOT OF OVERDREDGE WITHIN VESSEL MOORING AND NAVIGATIONAL AREAS ONLY. THIS DREDGING PERMIT MAY BE ADMINISTRATIVELY MODIFIED TO INCLUDE ADDITIONAL MOORING AREAS IDENTIFIED IN SUBSEQUENT DOCK PERMITS TO MAINTAIN PERMITTED WATER DEPTHS.

LEGEND:

- NJDOT STATE MAINTENANCE CHANNEL ALIGNMENT (APPROXIMATE)
- EXISTING OUTFALL LOCATION
- EXISTING CONTOURS (FEET MLW) (1-FOOT INTERVAL)
- POST-DREDGE SURFACE CONTOUR (FEET MLW) (1-FOOT INTERVAL)
- PROPOSED DREDGING AREA (CURRENTLY SHALLOWER THAN -5.5' MLW)
- MAPPED WETLANDS (NJ GEOWEB DATABASE)
- MARINA
- LAGOON
- NATURAL WATERWAY SHORELINE

KEY PLAN:

NORTH

0 200 400

SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR. ADJACENT BLOCK IS 'BLUE'

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — WILLIAM K. NOLAN — No GE49100 — LICENSED PROFESSIONAL ENGINEER

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

SHORE ACRES PLAN SHEET

D-4

SHEET # 7 OF 42

K:\Projects\606-19- ACT\Brick Township\Construction Plans\ACT ENG REVISION\0619-PL-SHORE ACRES LAYOUT.dwg D-4

May 25, 2022 8:47pm cyard

HAVENS COVE PROPOSED BAYFRONT DREDGING TO -5.5 FT MLW = 6,714 CY

BAYWOOD PROPOSED BAYFRONT DREDGING TO -5.5 FT MLW = 2,624 CY

SHORE ACRES PROPOSED BAYFRONT DREDGING TO -5.5 FT MLW = 5,467 CY

MATCH LINE - SEE SHEET D-6

SHORELINE NOTE:

WITHIN SHORELINE AREAS OF NATURAL WATERWAYS WHERE DOCKS ARE LEGALLY PRESENT AND/OR EVIDENT ON THE APPLICABLE NJDEP MAPS, DREDGING IS LIMITED TO A DEPTH OF -4.5' MLW PLUS 1-FOOT OF OVERDREDGE WITHIN VESSEL MOORING AND NAVIGATIONAL AREAS ONLY. THIS DREDGING PERMIT MAY BE ADMINISTRATIVELY MODIFIED TO INCLUDE ADDITIONAL MOORING AREAS IDENTIFIED IN SUBSEQUENT DOCK PERMITS TO MAINTAIN PERMITTED WATER DEPTHS.

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- MARINA
- LAGOON
- NATURAL WATERWAY SHORELINE

KEY PLAN:

NORTH

0 200 400

SCALE IN FEET

NOTES:

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K:\Projects\U0619 - ACT\Brick Township\Construction Plans\ACT ENG. REVISIONS\619-PL-BAYWOOD LAYOUT_recovered.dwg D-5

Mar 25, 2022 8:55pm cyard

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — KAM K. MOHAN — No GE49100 — LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

BAYWOOD PLAN SHEET

D-5

SHEET # 8 OF 42

MATCH LINE - SEE SHEET D-5

LAKE POINT DRIVE
(SMITH PROPERTY)
PROPOSED BAYFRONT
DREDGING TO
-5.5 MLW = 1,609 CY

SUPERIOR PROPOSED BAYFRONT
DREDGING TO -5.0 MLW = 19,452 CY

BARNEGAT BAY

SHORELINE NOTE:

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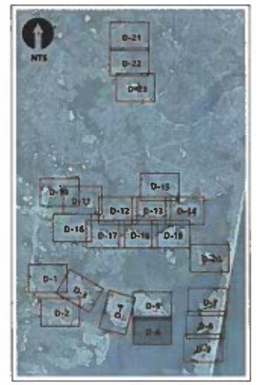
- MARINA
- LAGOON
- NATURAL WATERWAY SHORELINE

KEY PLAN:



NORTH

0 200 400

SCALE IN FEET

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ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY · NEW K. MOHAN · No GE49100 · LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

SUPERIOR PLAN SHEET

D-6

SHEET # 9 OF 42

K:\Projects\0619-ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-P1_SUPERIOR LAYOUT.dwg D-6

May 25, 2022 9:05am cyard

SHORELINE NOTE:

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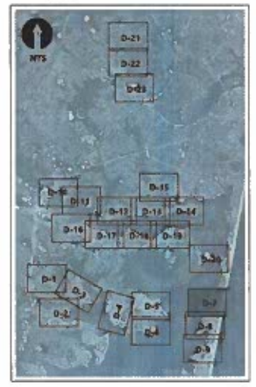
- MARINA
- LAGOON
- NATURAL WATERWAY SHORELINE

KEY PLAN:



NORTH

0 200 400

SCALE IN FEET

NOTES:

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ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY RALPH K. MORAN No GE49100 PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

SWAMP COVE PLAN SHEET

D-7

SHEET # 10 OF 42

May 26, 2022 1:05pm ryard K:\Projects\0619-ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-SWAMP COVE LAYOUT.dwg D-7

SHORELINE NOTE:

WITHIN SHORELINE AREAS OF NATURAL WATERWAYS WHERE DOCKS ARE LEGALLY PRESENT AND/OR EVIDENT ON THE APPLICABLE NJDEP MAPS, DREDGING IS LIMITED TO A DEPTH OF -4.5' MLW PLUS 1-FOOT OF OVERDREDGE WITHIN VESSEL MOORING AND NAVIGATIONAL AREAS ONLY. THIS DREDGING PERMIT MAY BE ADMINISTRATIVELY MODIFIED TO INCLUDE ADDITIONAL MOORING AREAS IDENTIFIED IN SUBSEQUENT DOCK PERMITS TO MAINTAIN PERMITTED WATER DEPTHS.

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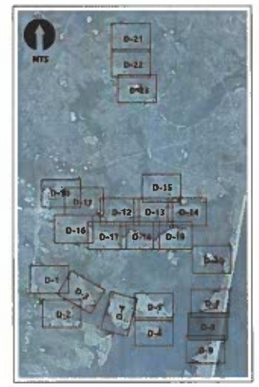
- LAGOON
- NATURAL WATERWAY SHORELINE

KEY PLAN:



NORTH

0 200 400

SCALE IN FEET

NOTES:

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ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — TIMOTHY K. MERRITTS — No GE49100 — LICENSED PROFESSIONAL ENGINEER

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

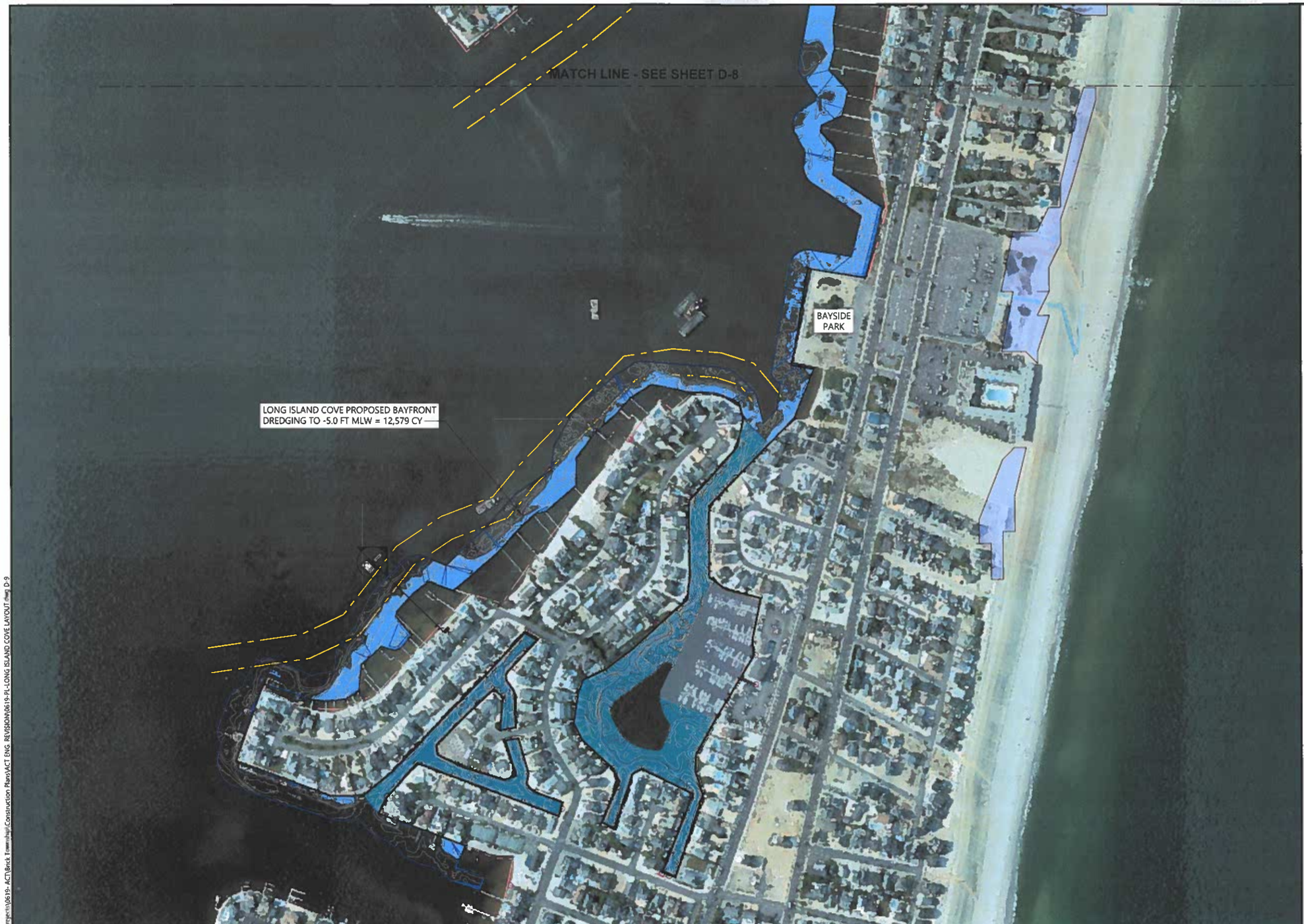
SWAMP COVE PLAN SHEET

D-8

SHEET # 11 OF 42

K:\Projects\0619-ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-SWAMP COVE LAYOUT.dwg D-8

May 25, 2022 9:26pm ryard



SHORELINE NOTE

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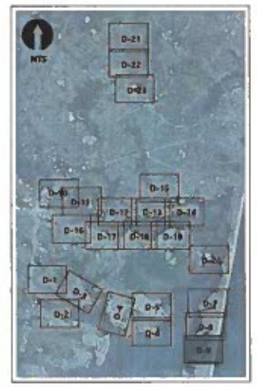
KEY PLAN:



0 200 400
SCALE IN FEET

NOTES:

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ONE INCH AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — SAM K. MORAN — No GE49100 — LICENSED PROFESSIONAL ENGINEER

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARO
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

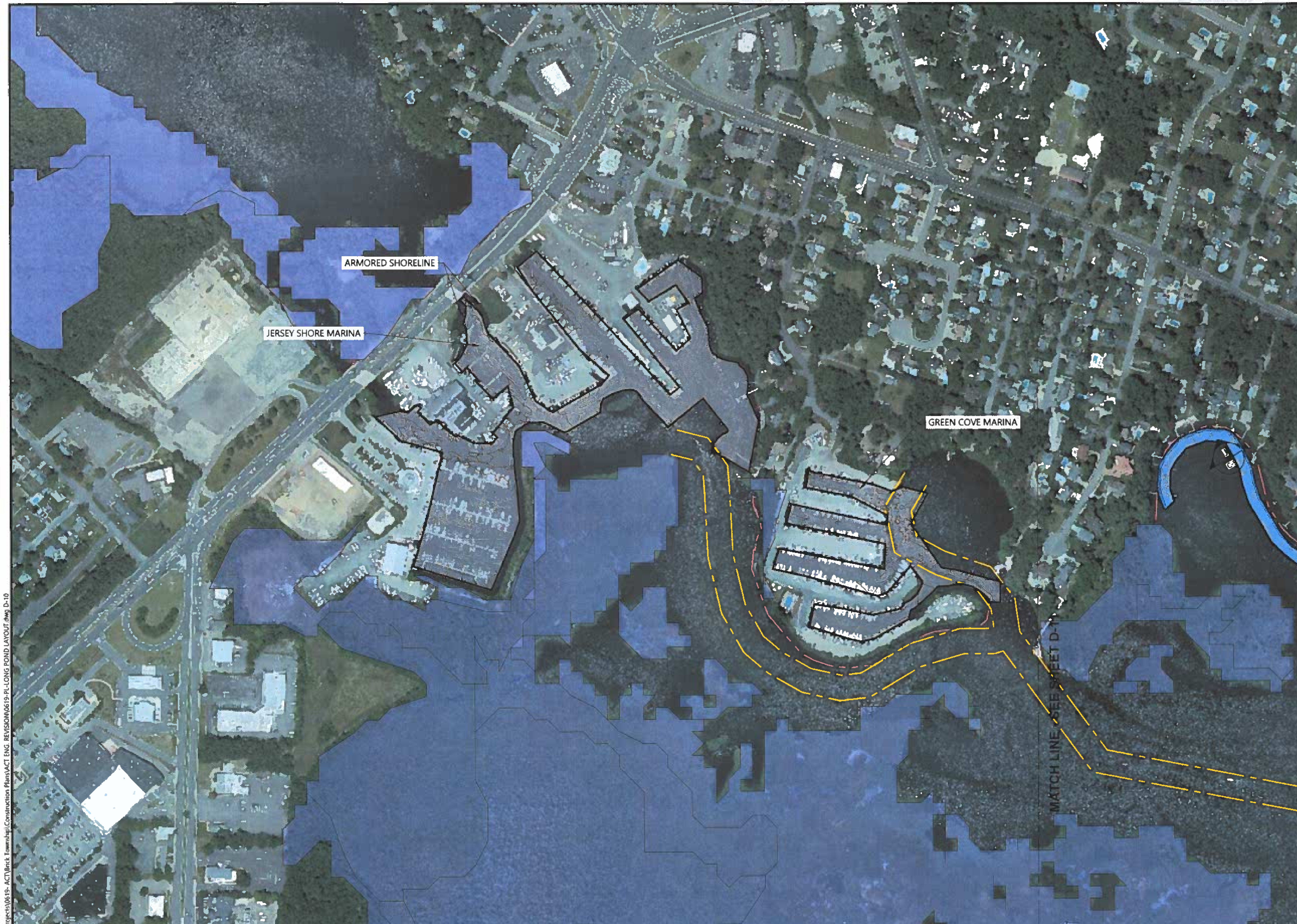
BRICK TOWNSHIP DREDGING

LONG ISLAND COVE PLAN SHEET

D-9

SHEET # 12 OF 42

May 25, 2022 9:40pm cyard K:\Projects\0619- ACT\Brick Township\Construction Plans\ACT ENG REVISION\0619-PL-LONG ISLAND COVE LAYOUT.dwg D-9



SHORELINE NOTE:

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- MARINA
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- NATURAL WATERWAY SHORELINE

KEY PLAN:

NORTH

0 200 400

SCALE IN FEET

NOTES:

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ANCHOR QEA

ACT ENGINEERS

REVISIONS

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2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

JERSEY SHORE MARINA AND GREEN COVE PLAN SHEET

D-10

SHEET # 13 OF 42

SHORELINE NOTE:

WITHIN SHORELINE AREAS OF NATURAL WATERWAYS WHERE DOCKS ARE LEGALLY PRESENT AND/OR EVIDENT ON THE APPLICABLE NJDEP MAPS, DREDGING IS LIMITED TO A DEPTH OF -4.5' MLW PLUS 1-FOOT OF OVERDREDGE WITHIN VESSEL MOORING AND NAVIGATIONAL AREAS ONLY. THIS DREDGING PERMIT MAY BE ADMINISTRATIVELY MODIFIED TO INCLUDE ADDITIONAL MOORING AREAS IDENTIFIED IN SUBSEQUENT DOCK PERMITS TO MAINTAIN PERMITTED WATER DEPTHS.

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KEY PLAN:

NORTH

0 200 400

SCALE IN FEET

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ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — JAMES K. MCHALE — No GE49100 — LICENSED PROFESSIONAL ENGINEER

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
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DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

LONG POND PLAN SHEET

D-11

SHEET # 14 OF 42

K:\Projects\0619- ACT\Brick Township\Construction Plans\ACT ENG REVISIONS\0619-PL-LONG POND LAYOUT.dwg D-11
May 25, 2022 10:03pm cgard

NOTES:

1. PORTIONS OF EXISTING BATHYMETRIC SURFACE WITHIN FRONTAGE CHANNELS ON THIS SHEET HAVE BEEN APPROXIMATED BASED ON FIELD OBSERVATIONS OF SURVEY TEAM DUE TO SHALLOW WATER DEPTHS LIMITING SURVEY VESSEL ACCESS TO THESE AREAS.
2. PROPOSED LIMITS OF DREDGING WITHIN BEAVER CREEK FRONTAGE CHANNELS UTILIZE MODIFIED OFFSET FROM VEGETATED SHORELINE DUE TO NARROW CHANNEL WIDTH.

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KEY PLAN:

NORTH

0 200 400

SCALE IN FEET

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ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — KAM K. MOHAN — No GE49100 — LICENSED PROFESSIONAL ENGINEER

REVISIONS				
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DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

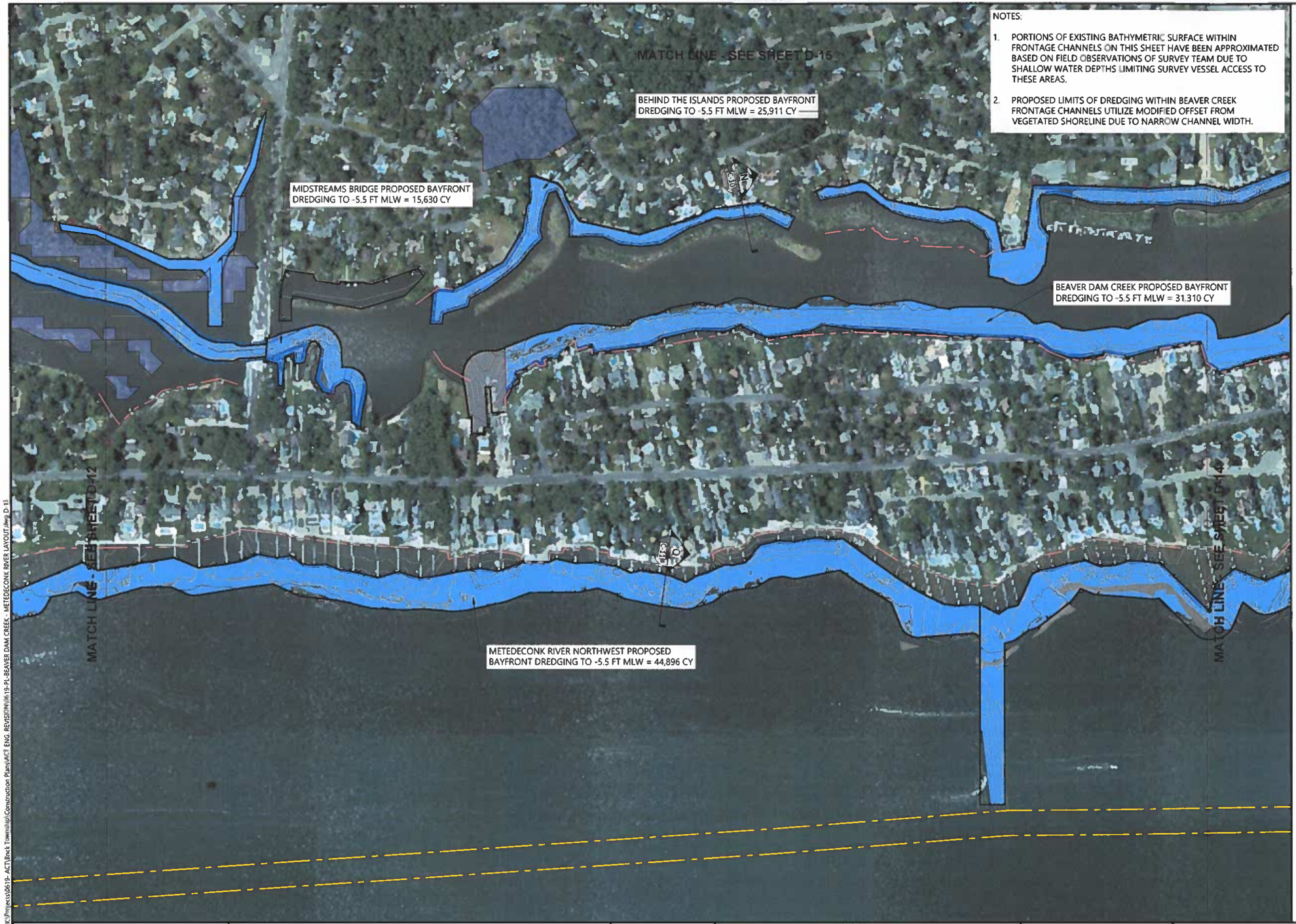
BEAVER DAM CREEK & METEDECONK RIVER PLAN SHEET

D-12

SHEET # 15 OF 42

K:\Projects\06-19- ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-BEAVER DAM CREEK - METEDECONK RIVER LAYOUT.dwg D-12

May 25, 2022 - 10:10pm - cyard



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KEY PLAN:

NORTH

0 200 400

SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR. ADJACENT BLOCK IS 'BLUE'

ONE INCH AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — NOAH E. NEWMAN — No GE49100 — LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

BEAVER DAM CREEK & METEDECONK RIVER PLAN SHEET

D-13

SHEET # 16 OF 42

K:\Projects\0619-ACT\Brick Township\Construction Plans\ACT ENG. REVISION\19-PL-BEAVER DAM CREEK - METEDECONK RIVER LAYOUT.dwg D-13

May 25, 2022 - 10:14pm nyard

SHORELINE NOTE:

WITHIN SHORELINE AREAS OF NATURAL WATERWAYS WHERE DOCKS ARE LEGALLY PRESENT AND/OR EVIDENT ON THE APPLICABLE NJDEP MAPS, DREDGING IS LIMITED TO A DEPTH OF -4.5' MLW PLUS 1-FOOT OF OVERDREDGE WITHIN VESSEL MOORING AND NAVIGATIONAL AREAS ONLY. THIS DREDGING PERMIT MAY BE ADMINISTRATIVELY MODIFIED TO INCLUDE ADDITIONAL MOORING AREAS IDENTIFIED IN SUBSEQUENT DOCK PERMITS TO MAINTAIN PERMITTED WATER DEPTHS.

NOTE:

1. PROPOSED LIMITS OF DREDGING WITHIN BEAVER CREEK FRONTAGE CHANNELS UTILIZE MODIFIED OFFSET FROM VEGETATED SHORELINE DUE TO NARROW CHANNEL WIDTH.

LEGEND:

- NJDOT STATE MAINTENANCE CHANNEL ALIGNMENT (APPROXIMATE)
- EXISTING OUTFALL LOCATION
- EXISTING CONTOURS (FEET MLW) (1-FOOT INTERVAL)
- POST-DREDGE SURFACE CONTOUR (FEET MLW) (1-FOOT INTERVAL)
- PROPOSED DREDGING AREA (CURRENTLY SHALLOWER THAN -5.5' MLW)
- MAPPED WETLANDS (NJ GEOWEB DATABASE)
- MARINA
- LAGOON
- NATURAL WATERWAY SHORELINE

KEY PLAN:

NORTH

0 200 400

SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
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ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — RAAJ K. MEHTA — No. GE49100 — PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

BEAVER DAM CREEK & METEDECONK RIVER PLAN SHEET

D-14

SHEET # 17 OF 42

K:\Projects\10619-ACT\Brick Township\Construction Plans\ACT ENG. REVISIONS\10619-PS-BEAVER DAM CREEK - METEDECONK RIVER LAYOUT.dwg D-14

May 25, 2022 10:21pm cyard

SHORELINE NOTE:

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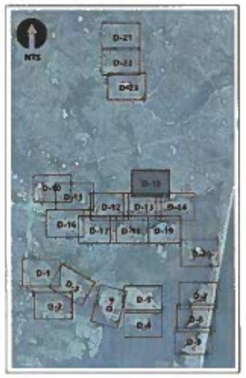
LEGEND:

- NJDOT STATE MAINTENANCE CHANNEL ALIGNMENT (APPROXIMATE)
- EXISTING OUTFALL LOCATION
- EXISTING CONTOURS (FEET MLW) (1-FOOT INTERVAL)
- POST-DREDGE SURFACE CONTOUR (FEET MLW) (1-FOOT INTERVAL)
- PROPOSED DREDGING AREA (CURRENTLY SHALLOWER THAN -5.5' MLW)
- MAPPED WETLANDS (NJ GEOWEB DATABASE)
- MARINA
- LAGOON
- NATURAL WATERWAY SHORELINE

KEY PLAN:



NORTH

0 200 400

SCALE IN FEET

NOTES:

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ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — MARK A. MEMOLI — No. GE41100 — PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

BEAVER DAM CREEK PLAN SHEET

D-15

SHEET # 18 OF 42

K:\Projects\0619- ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL BEAVER DAM CREEK - METEDECONK RIVER LAYOUT.dwg D-15

May 25, 2022 10:24pm cyard

SHORELINE NOTE:

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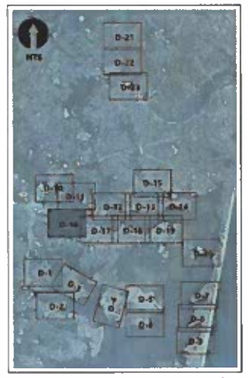
LEGEND:

- NJDOT STATE MAINTENANCE CHANNEL ALIGNMENT (APPROXIMATE)
- EXISTING OUTFALL LOCATION
- 10 / 9 — EXISTING CONTOURS (FEET MLW) (1-FOOT INTERVAL)
- 10 / 9 — POST-DREDGE SURFACE CONTOUR (FEET MLW) (1-FOOT INTERVAL)
- PROPOSED DREDGING AREA (CURRENTLY SHALLOWER THAN -5.5' MLW)
- MAPPED WETLANDS (NJ GEOWEB DATABASE)
- MARINA
- LAGOON
- NATURAL WATERWAY SHORELINE

KEY PLAN:



NORTH

0 200 400

SCALE IN FEET

NOTES:

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K:\Projects\0619-ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-KINGFISHER COVE LAYOUT.dwg D-16

May 25, 2022 10:59pm cyard

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — KARL K. MERRITTS — No. GE49100 — PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

KINGFISHER COVE PLAN SHEET

D-16

SHEET # 19 OF 42

SHORELINE NOTE:

WITHIN SHORELINE AREAS OF NATURAL WATERWAYS WHERE DOCKS ARE LEGALLY PRESENT AND/OR EVIDENT ON THE APPLICABLE NJDEP MAPS, DREDGING IS LIMITED TO A DEPTH OF -4.5' MLW PLUS 1-FOOT OF OVERDREDGE WITHIN VESSEL MOORING AND NAVIGATIONAL AREAS ONLY. THIS DREDGING PERMIT MAY BE ADMINISTRATIVELY MODIFIED TO INCLUDE ADDITIONAL MOORING AREAS IDENTIFIED IN SUBSEQUENT DOCK PERMITS TO MAINTAIN PERMITTED WATER DEPTHS.

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- LAGOON
- NATURAL WATERWAY SHORELINE

KEY PLAN:

NORTH

0 200 400

SCALE IN FEET

NOTES:

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ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY PROFESSIONAL ENGINEER LICENSED

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

KINGFISHER COVE PLAN SHEET

D-17

SHEET # 20 OF 42

SHORELINE NOTE:

WITHIN SHORELINE AREAS OF NATURAL WATERWAYS WHERE DOCKS ARE LEGALLY PRESENT AND/OR EVIDENT ON THE APPLICABLE NJDEP MAPS, DREDGING IS LIMITED TO A DEPTH OF -4.5' MLW PLUS 1-FOOT OF OVERDREDGE WITHIN VESSEL MOORING AND NAVIGATIONAL AREAS ONLY. THIS DREDGING PERMIT MAY BE ADMINISTRATIVELY MODIFIED TO INCLUDE ADDITIONAL MOORING AREAS IDENTIFIED IN SUBSEQUENT DOCK PERMITS TO MAINTAIN PERMITTED WATER DEPTHS.

LEGEND:

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- EXISTING OUTFALL LOCATION
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- LAGOON
- NATURAL WATERWAY SHORELINE

KEY PLAN:

NORTH

0 200 400

SCALE IN FEET

NOTES:

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ANCHOR QEA

ACT ENGINEERS

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
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2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

METEDECONK RIVER - SOUTHERN SHORELINE PLAN SHEET

D-18

SHEET # 21 OF 42

SHORELINE NOTE:

WITHIN SHORELINE AREAS OF NATURAL WATERWAYS WHERE DOCKS ARE LEGALLY PRESENT AND/OR EVIDENT ON THE APPLICABLE NJDEP MAPS, DREDGING IS LIMITED TO A DEPTH OF -4.5' MLW PLUS 1-FOOT OF OVERDREDGE WITHIN VESSEL MOORING AND NAVIGATIONAL AREAS ONLY. THIS DREDGING PERMIT MAY BE ADMINISTRATIVELY MODIFIED TO INCLUDE ADDITIONAL MOORING AREAS IDENTIFIED IN SUBSEQUENT DOCK PERMITS TO MAINTAIN PERMITTED WATER DEPTHS.

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- LAGOON
- NATURAL WATERWAY SHORELINE

KEY PLAN:

NORTH

0 200 400

SCALE IN FEET

NOTES:

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ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY RAM K. MOHAN No. GE49100 LICENSED PROFESSIONAL ENGINEER

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

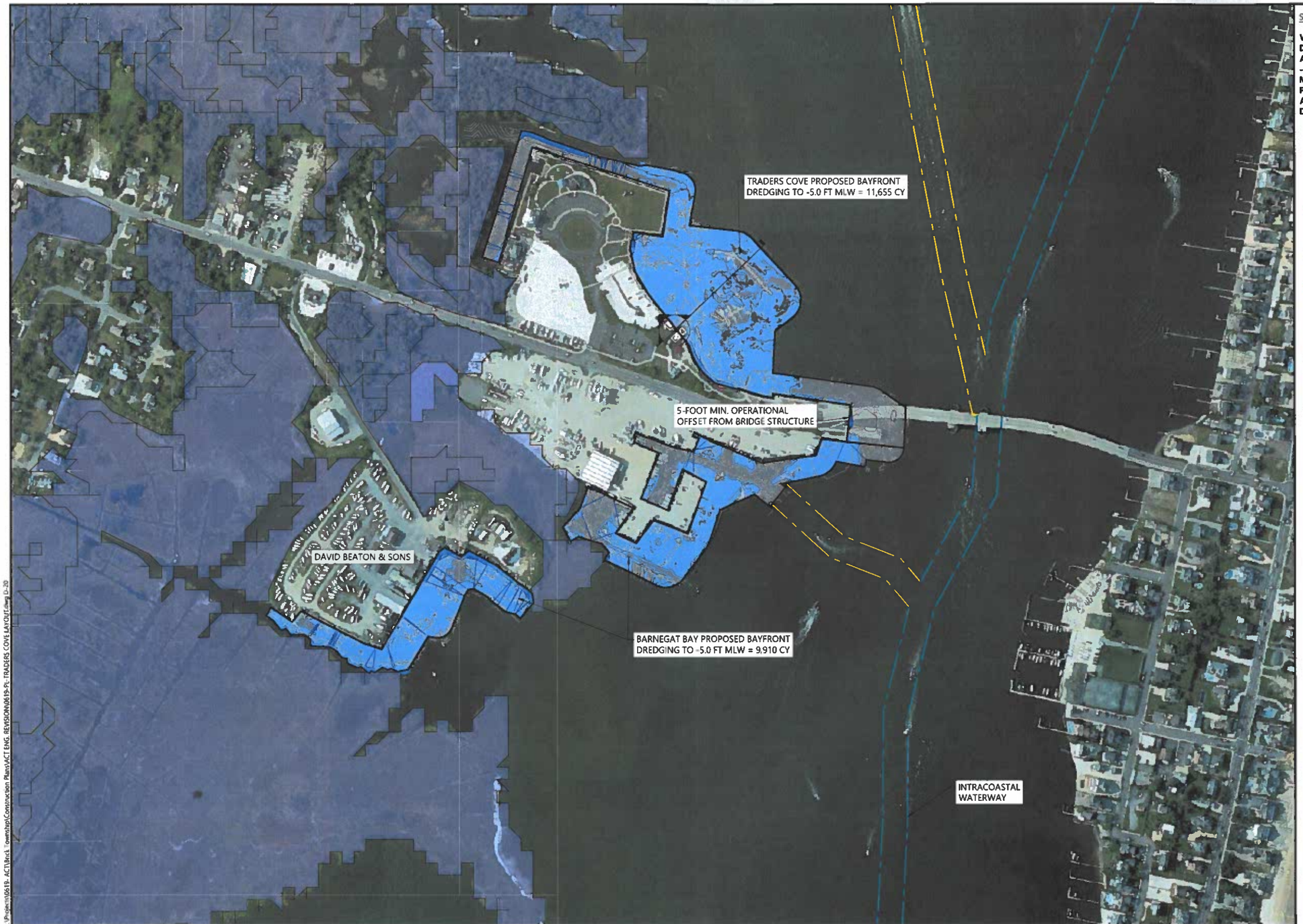
DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

METEDECONK RIVER - SOUTHERN SHORELINE PLAN SHEET

D-19

SHEET # 22 OF 42



SHORELINE NOTE:

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- NATURAL WATERWAY SHORELINE

KEY PLAN:

NORTH

0 200 400

SCALE IN FEET

NOTES:

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ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — TIMOTHY K. MERRITTS — No. GE49100 — PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

TRADERS COVE PLAN SHEET

D-20

SHEET # 23 OF 42

May 25, 2022 | 1:37pm | ryard

K:\Projects\10619- ACT\Brick Township\Construction Plans\ACT ENG. REVISION\10619-PL-TRADERS COVE LAYOUT.dwg D-20

SHORELINE NOTE:

WITHIN SHORELINE AREAS OF NATURAL WATERWAYS WHERE DOCKS ARE LEGALLY PRESENT AND/OR EVIDENT ON THE APPLICABLE NJDEP MAPS, DREDGING IS LIMITED TO A DEPTH OF -4.5' MLW PLUS 1-FOOT OF OVERDREDGE WITHIN VESSEL MOORING AND NAVIGATIONAL AREAS ONLY. THIS DREDGING PERMIT MAY BE ADMINISTRATIVELY MODIFIED TO INCLUDE ADDITIONAL MOORING AREAS IDENTIFIED IN SUBSEQUENT DOCK PERMITS TO MAINTAIN PERMITTED WATER DEPTHS.

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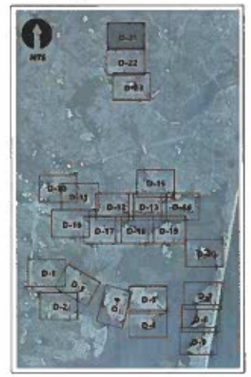
- NATURAL WATERWAY SHORELINE

KEY PLAN:



NORTH

0 200 400

SCALE IN FEET

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ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY — No. GE49100 — PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
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DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

LIGHTNING JACK'S MARINA AND SAFE HARBOR PLAN SHEET

D-21

SHEET # 24 OF 42

K:\Projects\05619-ACT\Brick Township\Construction Plans\ACT ENG REVISION\05619-P1_SAFE HARBOR LAYOUT.dwg D-21

May 26, 2022 10:50:am crystal

SHORELINE NOTE:

WITHIN SHORELINE AREAS OF NATURAL WATERWAYS WHERE DOCKS ARE LEGALLY PRESENT AND/OR EVIDENT ON THE APPLICABLE NJDEP MAPS, DREDGING IS LIMITED TO A DEPTH OF -4.5' MLW PLUS 1-FOOT OF OVERDREDGE WITHIN VESSEL MOORING AND NAVIGATIONAL AREAS ONLY. THIS DREDGING PERMIT MAY BE ADMINISTRATIVELY MODIFIED TO INCLUDE ADDITIONAL MOORING AREAS IDENTIFIED IN SUBSEQUENT DOCK PERMITS TO MAINTAIN PERMITTED WATER DEPTHS.

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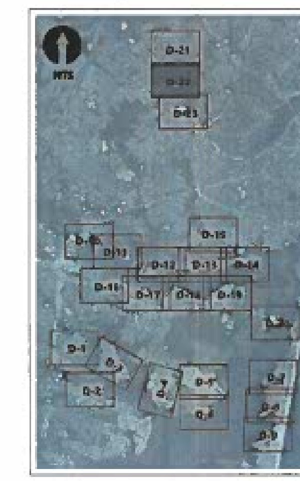
- NATURAL WATERWAY SHORELINE

KEY PLAN:



NORTH

0 200 400

SCALE IN FEET

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May 26, 2022 9:56am cyard K:\Projects\0619- ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-SAFE HARBOR LAYOUT.dwg D-22

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY RAM K. MOHAN No. GE49100 LICENSED PROFESSIONAL ENGINEER

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

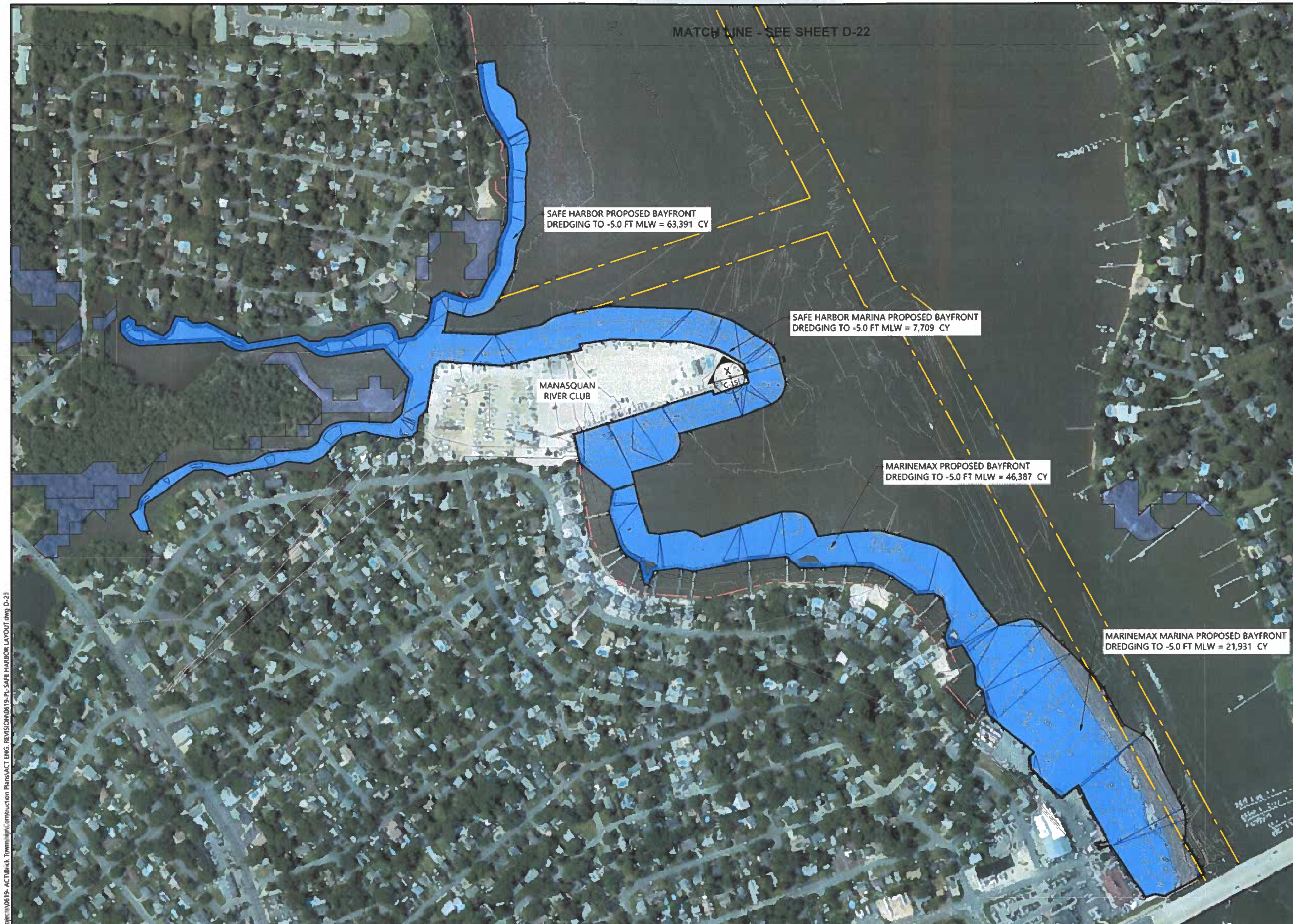
DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

SAFE HARBOR PLAN SHEET

D-22

SHEET # 25 OF 42



SHORELINE NOTE:

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KEY PLAN:

NORTH

0 200 400

SCALE IN FEET

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ONE INCH

AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY · LICENSED PROFESSIONAL ENGINEER · No. GE49100

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

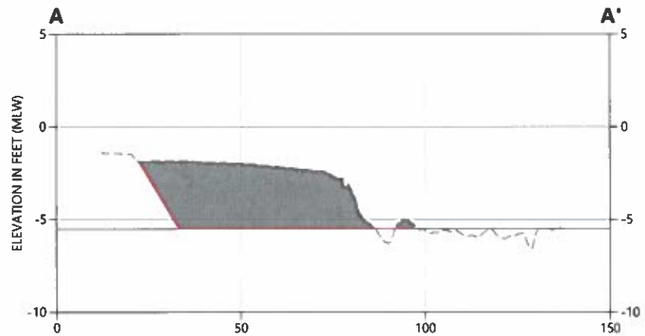
DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

SAFE HARBOR PLAN SHEET

D-23

SHEET # 26 OF 42



A / D-1 SECTION
SCALE: 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.50' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR, ADJACENT BLOCK IS BLUE

ONE INCH
AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY · JANE K. MORLEY · No. GE49100 · LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

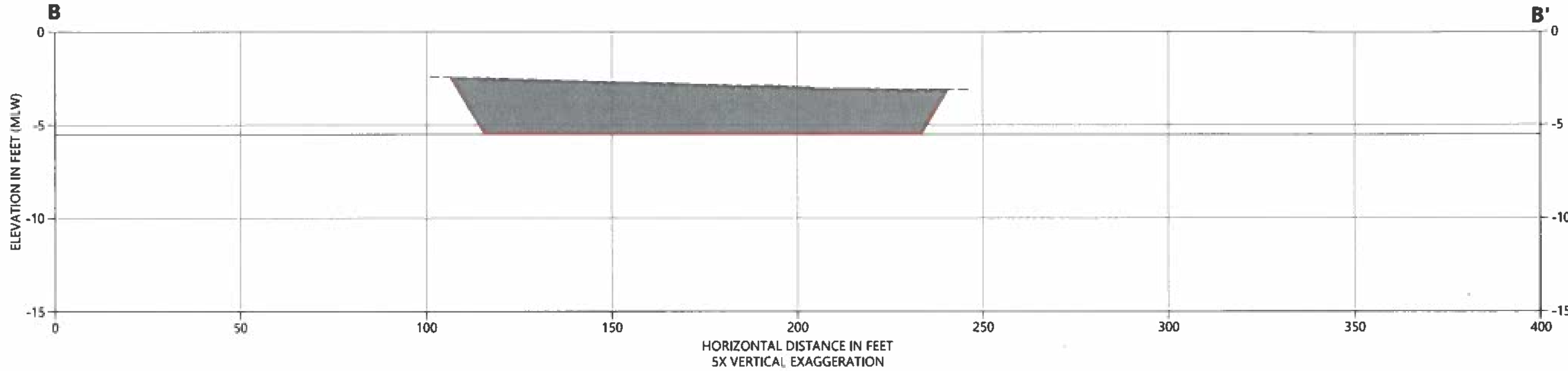
BRICK TOWNSHIP DREDGING

MALLARD POINT CROSS SECTION

C-1

SHEET # 27 OF 42

May 26, 2022 12:40am cyard K:\Projects\0619- ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-MALLARD POINT LAYOUT.dwg C-1



B / D-2 SECTION
SCALE: 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.50' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR, ADJACENT BLOCK IS "BLUE"

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

K:\Projects\0619- ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-BAY HARBOR LAYOUT.dwg C-2
May 26, 2022 1:16pm cyard

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY, No. GE49160, LICENSED PROFESSIONAL ENGINEER

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

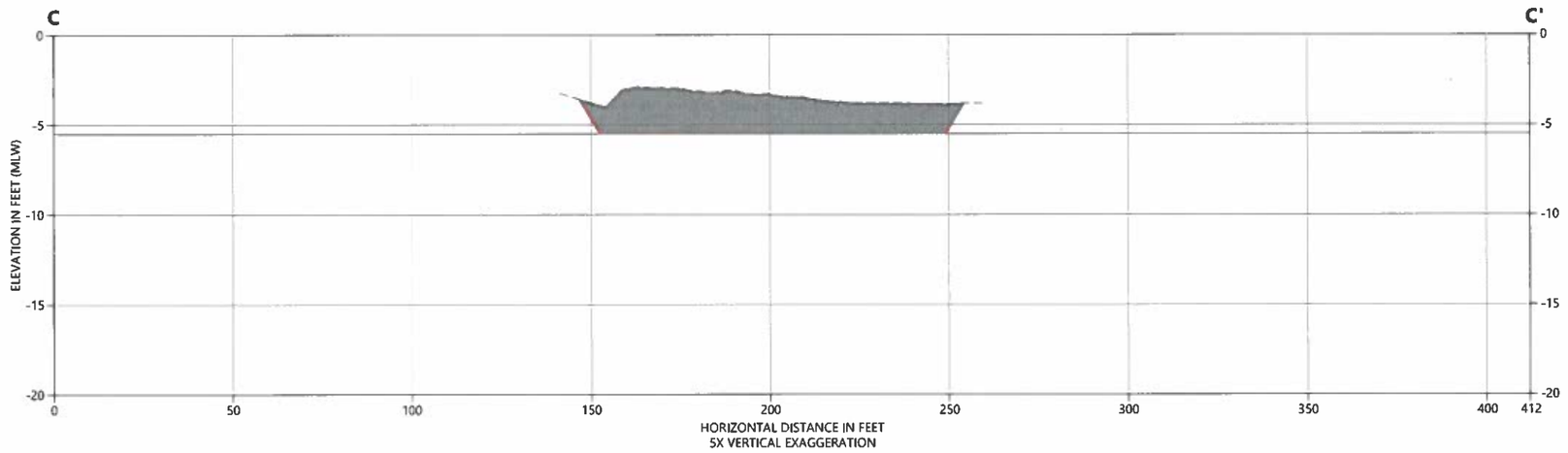
DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

BAY HARBOR CROSS SECTION

C-2

SHEET # 28 OF 42



C / D-3 SECTION
SCALE: 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.50' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR, ADJACENT BLOCK IS "BLUE"

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY · RAVI K. MEHTA · No. GE49100 · LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

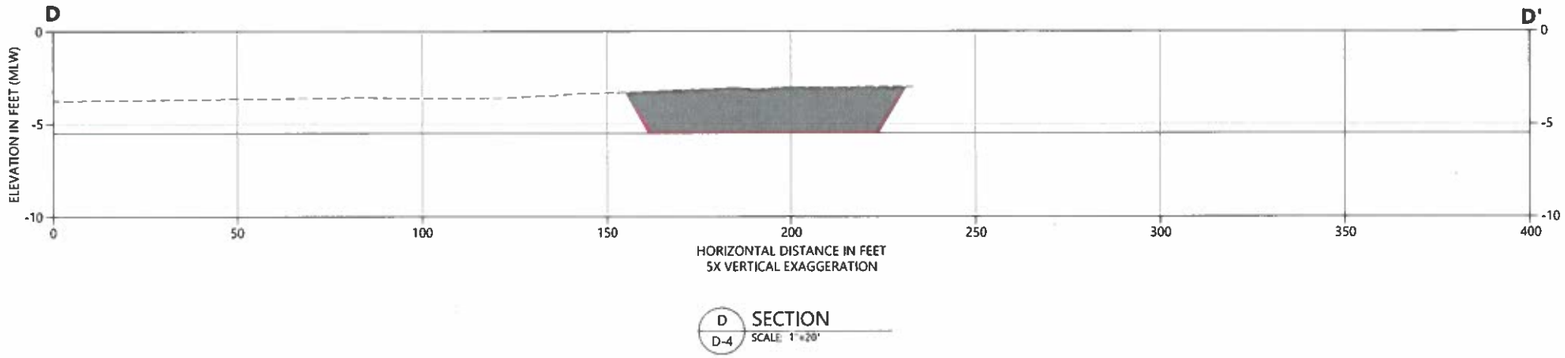
BRICK TOWNSHIP DREDGING

CHERRY QUAY
CROSS SECTION

C-3

SHEET # 29 OF 42

May 26, 2022 2:02pm cyard K:\Projects\0619- ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-CHERRY QUAY LAYOUT.dwg C-3



D / D-4 SECTION
SCALE: 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.50' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR. ADJACENT BLOCK IS BLUE

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY · KARL K. MUELLER · No. GE49(18) · LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

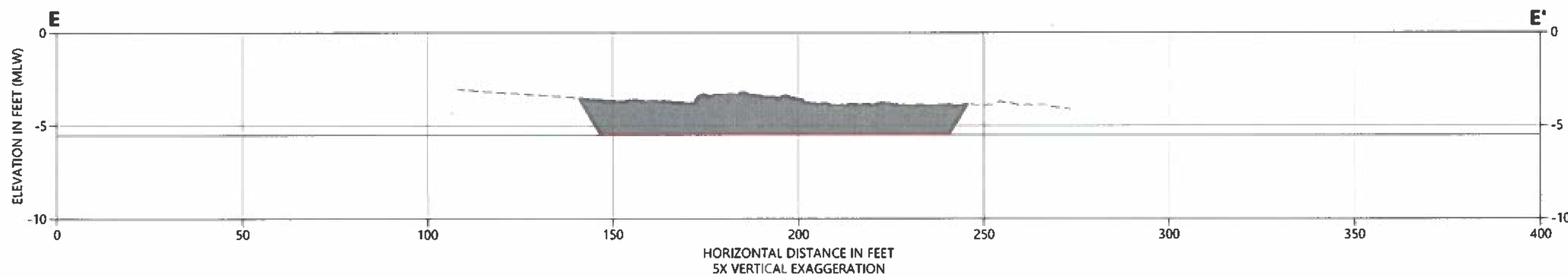
BRICK TOWNSHIP DREDGING

SHORE ACRES CROSS SECTION

C-4

SHEET # 30 OF 42

May 26, 2022 10:12am cyard K:\Projects\0619- ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-SHORE ACRES LAYOUT.dwg C-4



E / D-5 SECTION
SCALE: 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.50' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR, ADJACENT BLOCK IS "BLUE"

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

May 26, 2022 1:27pm cyard K:\Projects\0619- ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-BAYWOOD LAYOUT_recover.dwg C-5

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY · PROFESSIONAL ENGINEER · LICENSED · No. GE49109

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

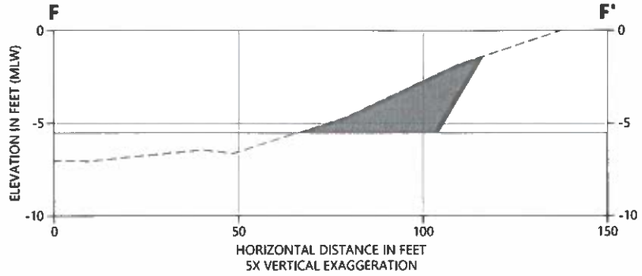
DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

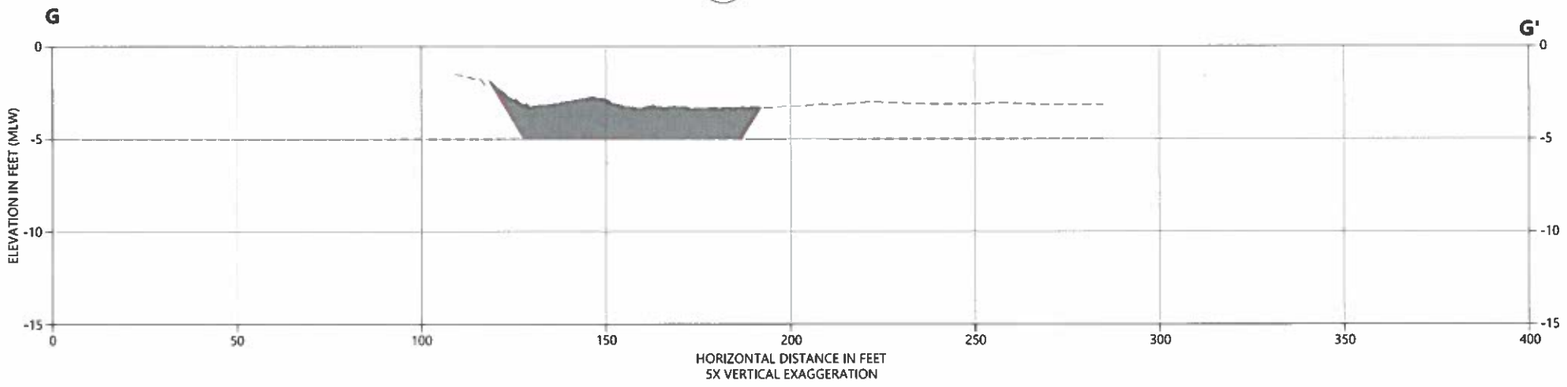
BAYWOOD CROSS SECTION

C-5

SHEET # 31 OF 42



F / D-6 SECTION
SCALE: 1"=20'



G / D-6 SECTION
SCALE: 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.0' MLW
- -5.5' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR. ADJACENT BLOCK IS 'BLUE'

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY · KARL K. KRUEGER · No. GE49100 · LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

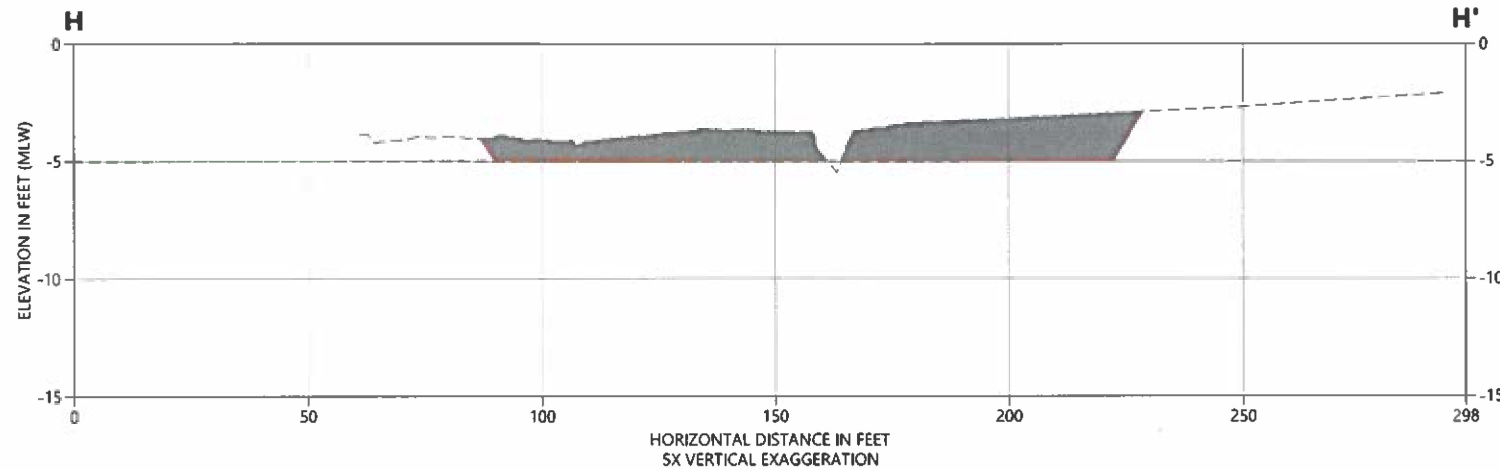
BRICK TOWNSHIP DREDGING

SUPERIOR CROSS SECTION

C-6

SHEET # 32 OF 42

May 26, 2022 10:17pm cyard K:\Projects\0619-ACT\Brick Township\Construction Plans\ACT ENG. REVISIONS\0619-PP-SUPERIOR LAYOUT.dwg C-6



H / D-8 SECTION
SCALE: 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.0' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR, ADJACENT BLOCK IS "BLUE"

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

K:\Projects\0619- ACT\Brick Township\Construction Plans\ACT ENG REVISION\0619-PL-SWAMP COVE LAYOUT.dwg C-7
May 26, 2022 8:37pm cyard

ANCHOR QEA

ACT ENGINEERS

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

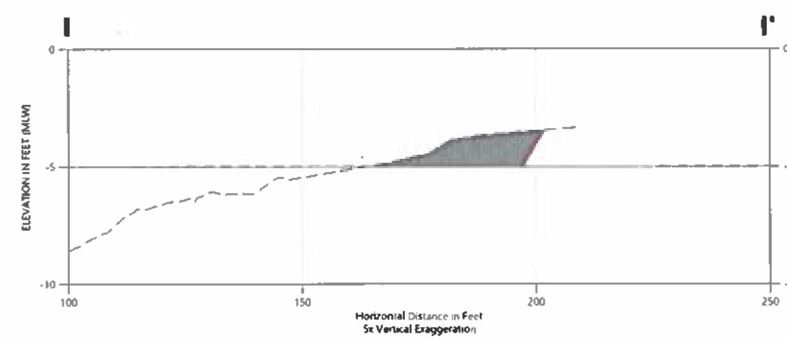
DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

SWAMP COVE CROSS SECTIONS

C-7

SHEET # 33 OF 42



I / D-9 SECTION
SCALE: 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.0' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR, ADJACENT BLOCK IS "BLUE"

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

K:\Projects\0619 - ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-LONG ISLAND COVE LAYOUT.dwg C-8
May 26, 2022 2:09pm cyard

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY
No. GE49166
LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

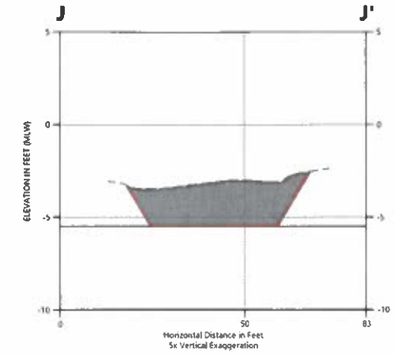
DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

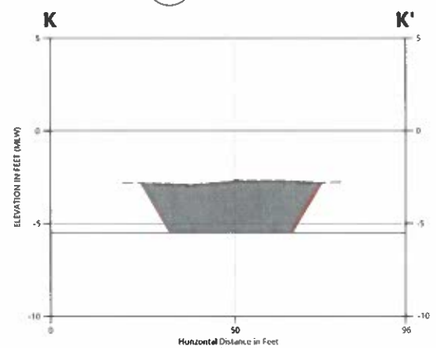
LONG ISLAND COVE CROSS SECTION

C-8

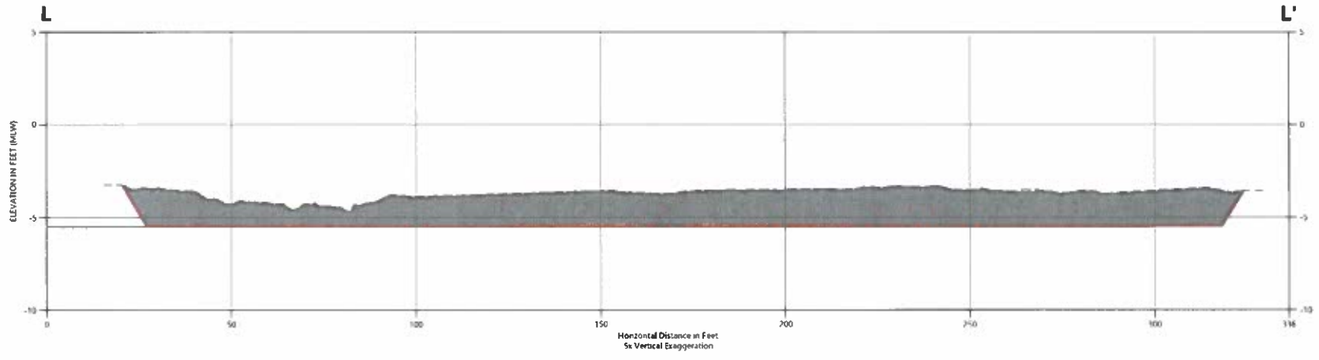
SHEET # 34 OF 42



J D-10 SECTION
SCALE: 1"=20'



K D-10 SECTION
SCALE: 1"=20'



L D-11 SECTION
SCALE: 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.50' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR. ADJACENT BLOCK IS 'BLUE'

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY MATTHEW K. MERRITTS No. GE45140 LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

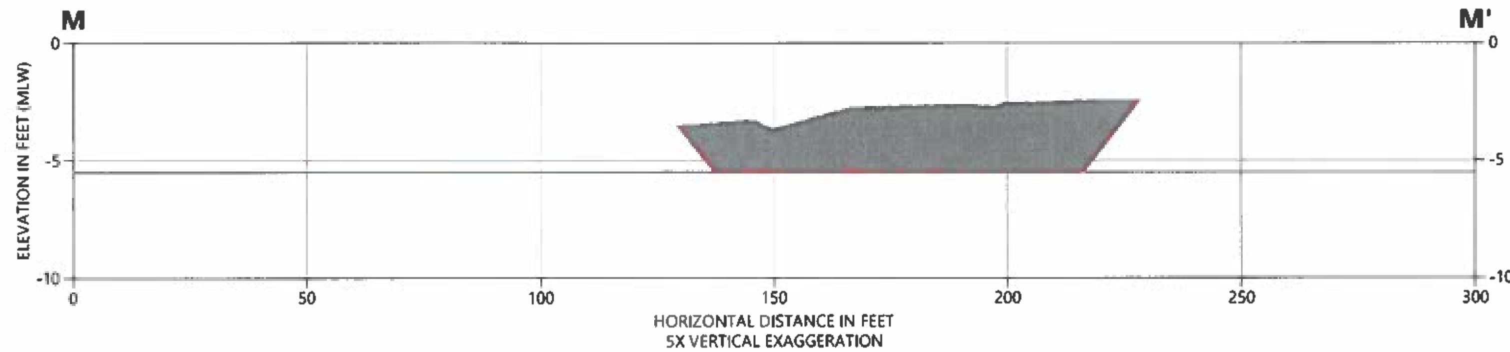
BRICK TOWNSHIP DREDGING

JERSEY SHORE MARINA, GREEN COVE AND LONG POND CROSS SECTIONS

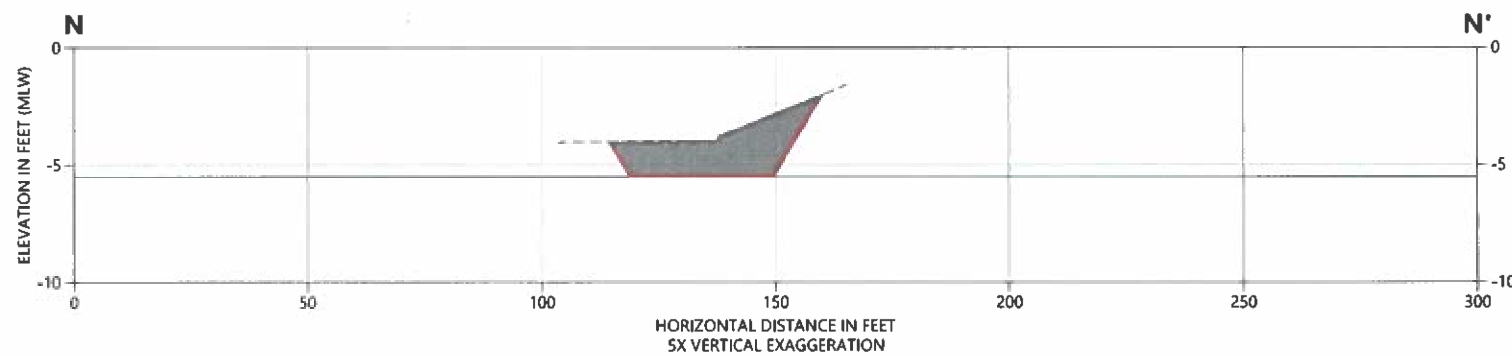
C-9

SHEET # 35 OF 42

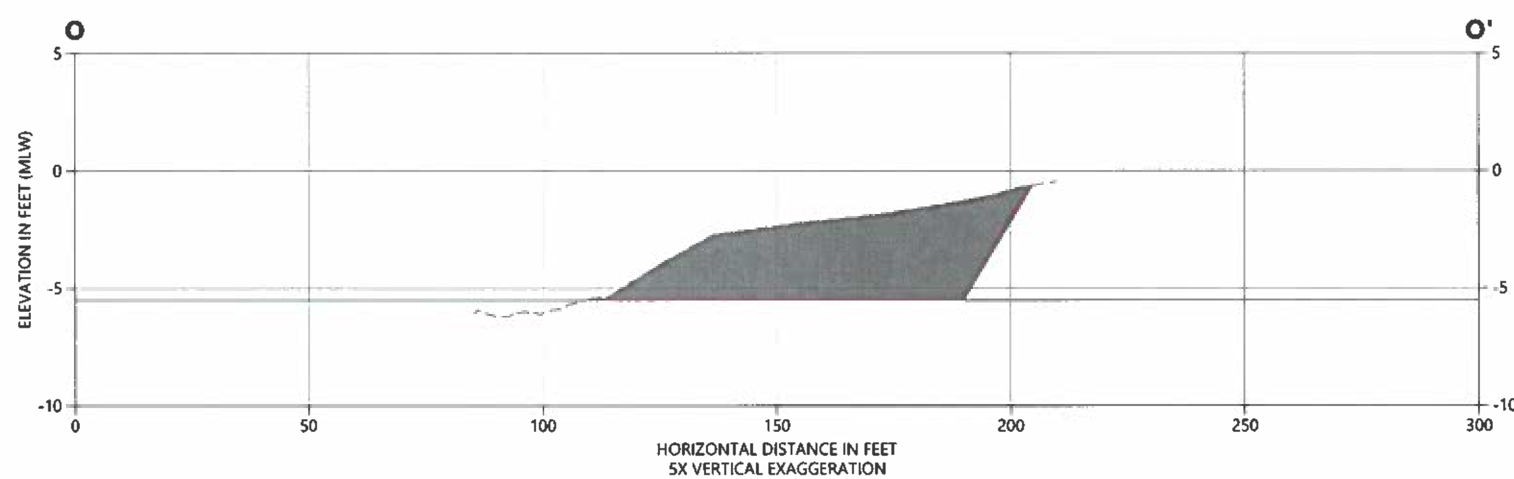
May 26, 2022 2:24pm dyard K:\Projects\06519-ACT\Brick Township\Construction Plans\ACT ENG REVISION\06519-PP-LONG POND LAYOUT.dwg C-9



M / D-12 SECTION
SCALE: 1"=20'



N / D-13 SECTION
SCALE: 1"=20'



O / D-15 SECTION
SCALE: 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.50' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR. ADJACENT BLOCK IS "BLUE"

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

K:\Projects\0619 - ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-BEAVER DAM CREEK - METEDECONK RIVER LAYOUT.dwg C-10
May 26, 2022 1:43pm cyard

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY · PROFESSIONAL ENGINEER · LICENSED · No. GE49100

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

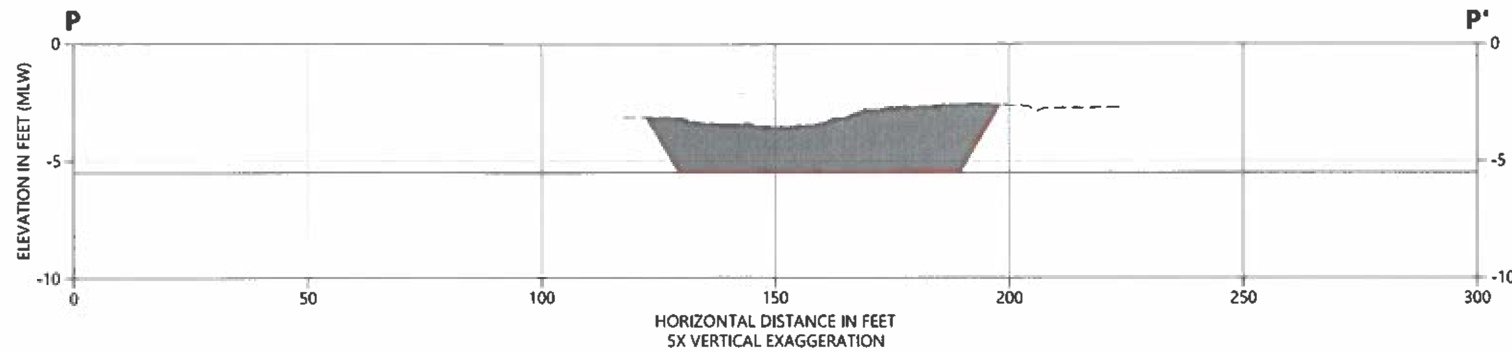
DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

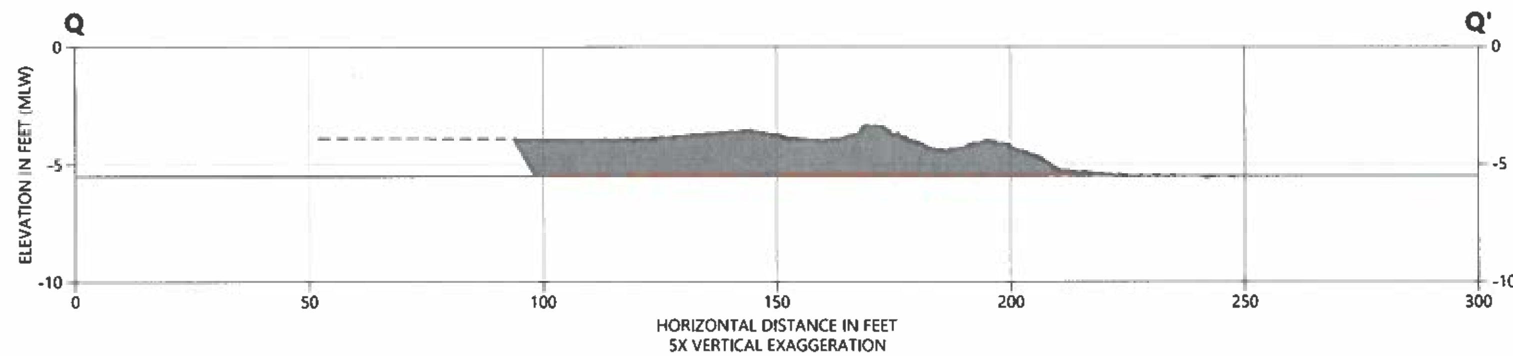
BEAVER DAM CREEK CROSS SECTIONS

C-10

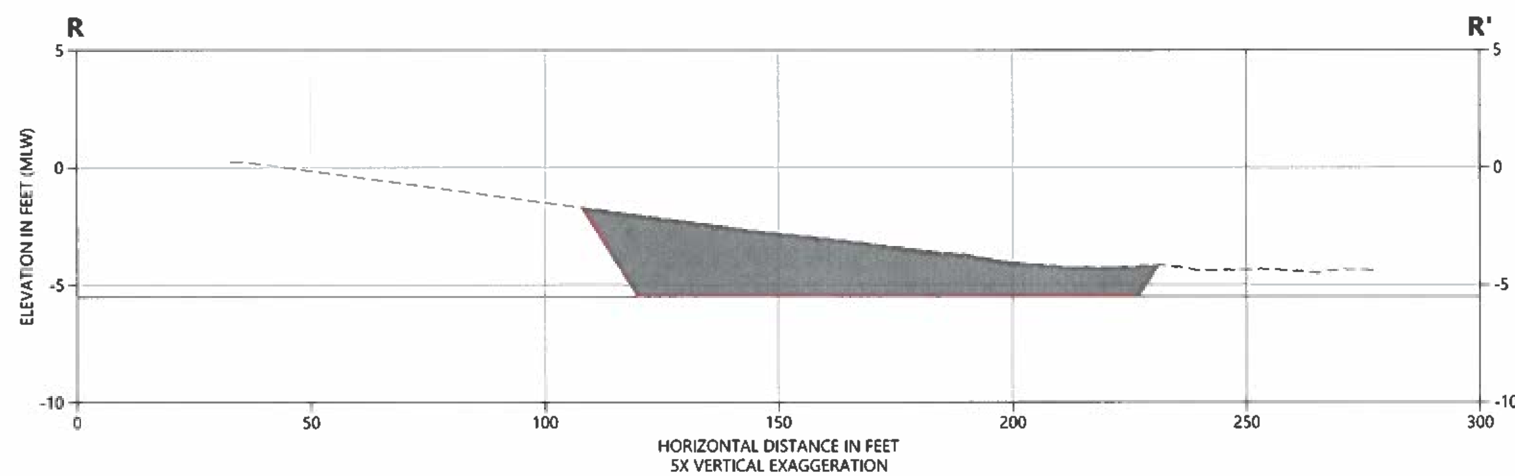
SHEET # 36 OF 42



P / D-11 SECTION
SCALE: 1"=20'



Q / D-13 SECTION
SCALE: 1"=20'



R / D-14 SECTION
SCALE: 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.50' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR, ADJACENT BLOCK IS "BLUE"

ONE INCH — AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

REVISIONS

REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

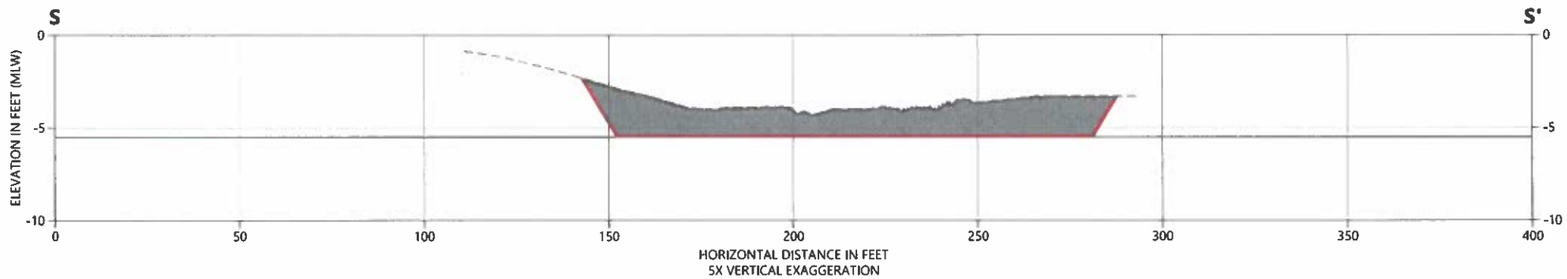
DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

METEDECONK RIVER CROSS SECTIONS

C-11

SHEET # 37 OF 42



S / D-16 SECTION
SCALE: 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.50' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR. ADJACENT BLOCK IS "BLUE"

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY · RAM K. MENON · No GE49100 · PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

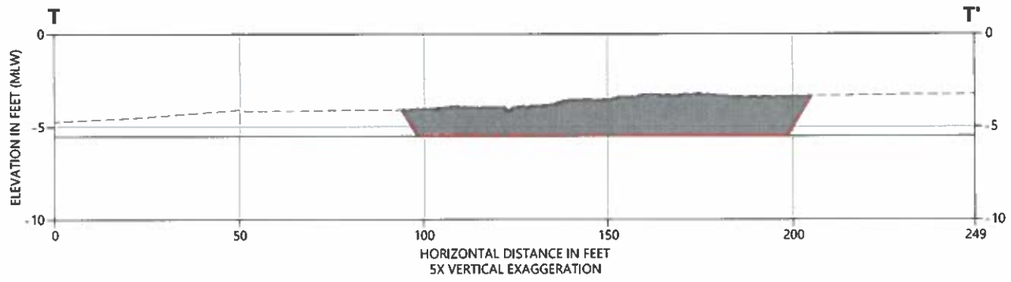
BRICK TOWNSHIP DREDGING

KINGFISHER COVE CROSS SECTION

C-12

SHEET # 38 OF 42

May 26, 2022 2:09pm cyard K:\Projects\0619- ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-KINGFISHER COVE LAYOUT.dwg C-12



T / D-19 SECTION
SCALE: 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.50' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR. ADJACENT BLOCK IS "BLUE"

ONE INCH AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY · KAM F. MIRMAN · No. GE49100 · LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

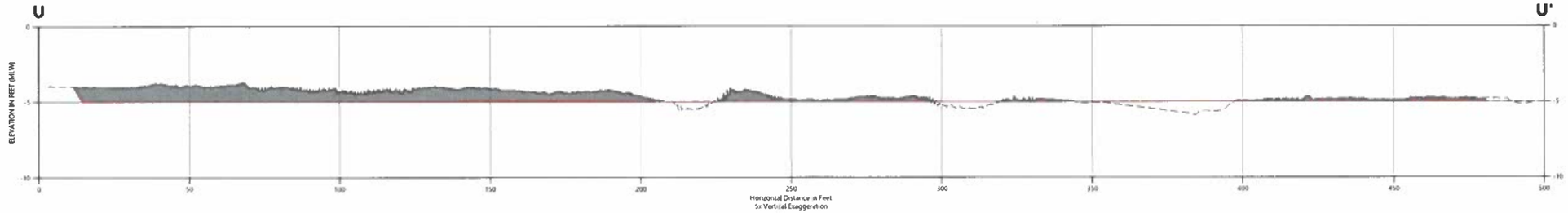
BRICK TOWNSHIP DREDGING

NEJECHO
CROSS SECTION

C-13

SHEET # 39 OF 42

May 26, 2022 2:37pm cyard K:\Projects\0619- ACT\Brick Township\Construction Plans\ACT ENG. REVISION\0619-PL-NEJECHO LAYOUT.dwg C-13



U / D-20 SECTION
SCALE 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.0' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES:

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR, ADJACENT BLOCK IS 'BLUE'

ONE INCH AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY MARK K. MCCALL No GE49100 LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

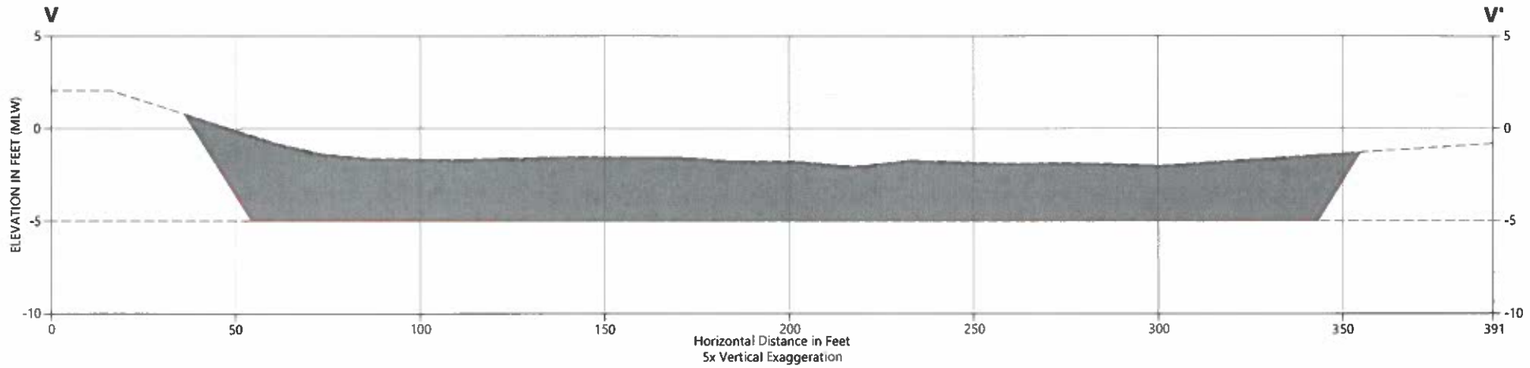
BRICK TOWNSHIP DREDGING

TRADERS COVE CROSS SECTION

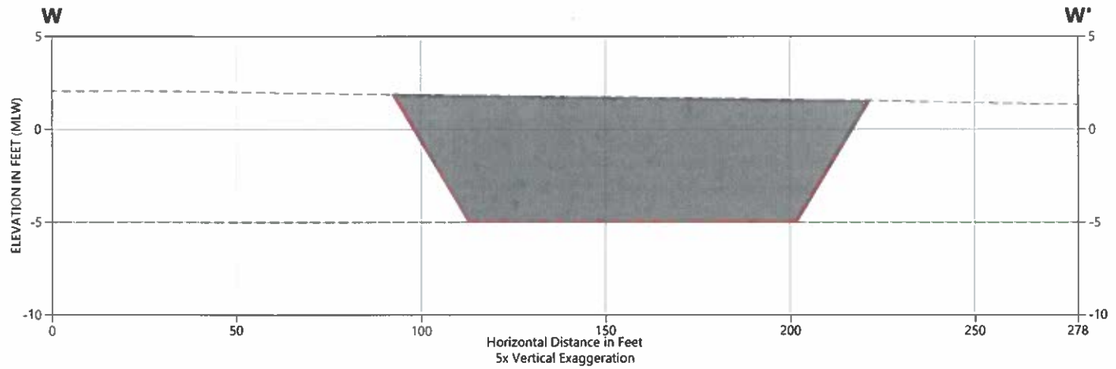
C-14

SHEET # 40 OF 42

May 26, 2022 8:46pm cyard K:\Projects\0619-ACT\Brick Township\Construction Plans\ACT ENG REVISION\0619-PL-TRADERS COVE LAYOUT.dwg C-14



V SECTION
D-21 SCALE: 1"=20'



W SECTION
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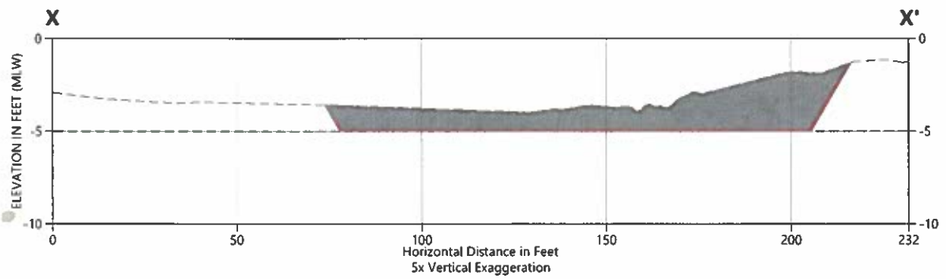


X SECTION
D-23 SCALE: 1"=20'

LEGEND:

- EXISTING BATHYMETRY (ACT ENGINEERS)
- -5.0' MLW
- PROPOSED DREDGING LIMITS
- PROPOSED REMOVAL VOLUME AREA

0 20 40
SCALE IN FEET

NOTES.

1. HORIZONTAL DATUM: NEW JERSEY STATE PLANE NORTH AMERICAN DATUM OF 1983 (NAD83), U.S. SURVEY FEET
2. VERTICAL DATUM: MEAN LOW WATER (MLW)

PLAN INTENDED TO BE VIEWED IN COLOR, ADJACENT BLOCK IS 'BLUE'

ONE INCH
AT FULL SIZE. IF NOT ONE INCH SCALE ACCORDINGLY

ANCHOR QEA

ACT ENGINEERS

STATE OF NEW JERSEY
No. GE49100
LICENSED PROFESSIONAL ENGINEER

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION
1	8/3/21	CY	TM	NATURAL WATERWAY SHORELINE ADDED
2	5/27/22	CY	TM	REVISED DREDGE BOUNDARIES/REMOVAL DEPTHS

DESIGNED BY: T. MERRITTS
DRAWN BY: C. YARD
CHECKED BY: -
APPROVED BY: -
SCALE: AS NOTED
DATE: MAY 2022

BRICK TOWNSHIP DREDGING

LIGHTENING JACK'S MARINA AND SAFE HARBOR CROSS SECTIONS

C-15

SHEET # 41 OF 42

May 26, 2022 2:49pm cyard K:\Projects\0619-ACT\Brick Township\Construction Plans\ACT ENG REVISIONS\0619-PL-SAFE HARBOR LAYOUT.dwg C-15

ENCLOSURE A

DEPARTMENT OF THE ARMY PERMIT

PERMITTEE AND PERMIT NUMBER:

New Jersey Department of Transportation
CENAP-OP-R-2016-0297

ISSUING OFFICE:

Department of the Army
U.S. Army Corps of Engineers, Philadelphia District
Wanamaker Building - 100 Penn Square East
Philadelphia, Pennsylvania 19107-3390

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

PROJECT DESCRIPTION:

The projects consists of hydraulically dredging accumulated sediment from within the Lavallette Beach Channel. This project is being authorized as a Department of the Army project (CENAP-OP-R-2016-0297) - 10 Year Maintenance Dredging Permit. The project consists of maintenance dredging within the Lavallette Beach Channel (#076) located within the Boroughs of Lavallette and Seaside Heights, and Toms River and Berkeley Townships. This maintenance dredging event is limited to dredged material that is located above the proposed depths as indicated on the attached approved plans (E1 - E19).

Maintenance dredging shall consist of approximately sixty four thousand seven hundred and eighty one cubic yards (64781 yds^3) of sediment consisting of various amounts of sand and silt, from approximately twenty seven thousand and forty seven linear feet (~27,047'). The project depth in the Lavallette Beach Channel is six feet below mean low water (-6' MLW), including one foot (1') of allowable overdredge. The channel design width is 100'. Channel side slopes are 3:1.

Material will be hydraulically dredged and transported via secure pipeline to the proposed placement location known as Dredge Hole #25 off West Point Island in Barnegat Bay, Lavallette

Borough, Ocean Township, Ocean County, N.J. The purpose of placing the sediment in this location is to restore Dredge Hole #25 depth to match the surrounding area for SAV to re-vegetate within the dredge hole limits.

PERMIT CONDITIONS:

General Conditions:

1. This 10–Year maintenance Dredging authorization ends on December 31, 2027 provided the dredging location, disposal location and depth remain unchanged. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions: Dredging Lavallette Beach Channel

1. All work performed in association with the above noted project shall be conducted in accordance with the project plans identified as "State of New Jersey, NJDOT Office of Maritime Resources, Maintenance Dredging and Channel Improvements for Lavallette Channel, Channel Arrangement and Geometry Plan," sheet 1 through 19 of 19, scale as shown, dated April 2016. The project plans provide for maintenance dredging within the aforementioned waters. The

stated purpose of the project is to provide for safe navigation by restoring the channel to authorized depth and to restore Dredge Hole #25 back to proper elevation for SAV propagation.

2. Construction activities shall not result in the disturbance or alteration of greater than approximately 27,047 linear feet (comprising approximately 62 acres) of waters.

3. Any deviation in construction methodology or project design from that shown on the above noted drawings must be approved by this office, in writing, prior to performance of the work. All modifications to the above noted project plans shall be approved, in writing, by this office. No work shall be performed prior to written approval of this office.

4. This office shall be notified at least 10 days prior to the commencement of authorized work by completing and signing the attached *Notification/ Certification of Work Commencement Form*. This office shall also be notified within 10 days of the completion of the authorized work by completing and signing the attached *Notification/Certification of Work Completion/Compliance Form*. All notifications required by this condition shall be in writing and shall be transmitted to this office by registered mail. Oral notifications are not acceptable. Similar notification is required each time maintenance work is to be done under the terms of this Corps of Engineers permit.

5. Dredging shall not be performed within the Lavallette Channel between January 1st to May 31st of any given year to protect winter flounder early life stage EFH.

6. The dredge sediment transport pipeline, for each dredging event, shall be submerged to a sufficient depth, except where necessary to avoid submerged aquatic vegetation (SAV) to protect navigation and shall be marked in accordance with the U.S. coast Guard regulations/specifications. Pipeline placement shall avoid wetlands and mudflats.

7. Avoid dredging the section of the Lavallette Beach Channel from Station 0+00-0 to Station 25+0.00 immediately to the north of the Tunney–Mathis Bridges between March 1 and June 30 for anadromous fish access to spawning habitat.

8. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration. (This special condition is applicable to Corps of Engineers permits that provide authorization under Section 10 of the Rivers and Harbors Act of 1899.)

Special Conditions: Dredge Placement – Dredge Hole #25

1. All work performed in association with the above noted project shall be conducted in accordance with the project plans identified as "State of New Jersey, NJDOT Office of Maritime

Resources, Maintenance Dredging and Channel Improvements for Lavallette Channel, Channel Arrangement and Geometry Plan," sheets 18 & 19 of 19, scale as shown, dated April 2016. The project plans provide for maintenance dredging within the aforementioned waters. The stated purpose of the project is to provide for safe navigation by restoring the channel to authorized depth and to restore Dredge Hole #25 back to proper elevation for SAV propagation.

2. All dredge hole restoration activities shall be completed as described in the "Habitat Restoration Plan, Dredge Hole #25, Upper Barnegat Bay, Ocean County, New Jersey" prepared by Matrix New World Engineering, P.C., 26 Columbia Turnpike, Florham Park, New Jersey – July 2016. The USACE and NMFS – Habitat Conservation Department will be notified and supplied with reports after the 3 year monitoring protocol.

3. Any deviation in construction methodology or project design from that shown in the above noted restoration plan must be approved by this office, in writing, prior to performance of the work. All modifications to the above noted project plans shall be approved, in writing, by this office. No work shall be performed prior to written approval of this office.

4. Silt curtains shall be deployed around the perimeter of Dredge Hole #25 during deposition of sediment to protect adjacent SAV habitat. Curtains shall be weighted down at the bottom where appropriate – between SAV habitat and the dredge hole.

5. Sediment used to restore dredged hole #25 shall be placed such that the top layer of material at the end of any given dredging cycle meet the NJDEP 2008 Residential Direct Contact Soil Remediation Standards (RDCSRS). In addition, the top two feet of material shall be of material that is compatible with the surface sediment surrounding the site that is supporting SAV.

6. The time limit for restoring Dredge Hole #25 is the life of this permit, 10 years.

FURTHER INFORMATION:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

☒ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

☒ Section 404 of the Clean Water Act (33 U.S.C. 1344).

☐ Section 103 of the Marine Protection, Research and Sanctuaries Act.

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal projects.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170)

accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

G. [illegible]
(PERMITTEE)

6/1/17
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

June 22, 2017
(DATE)

Edward E. Bonner
Edward E. Bonner
Chief, Regulatory Branch

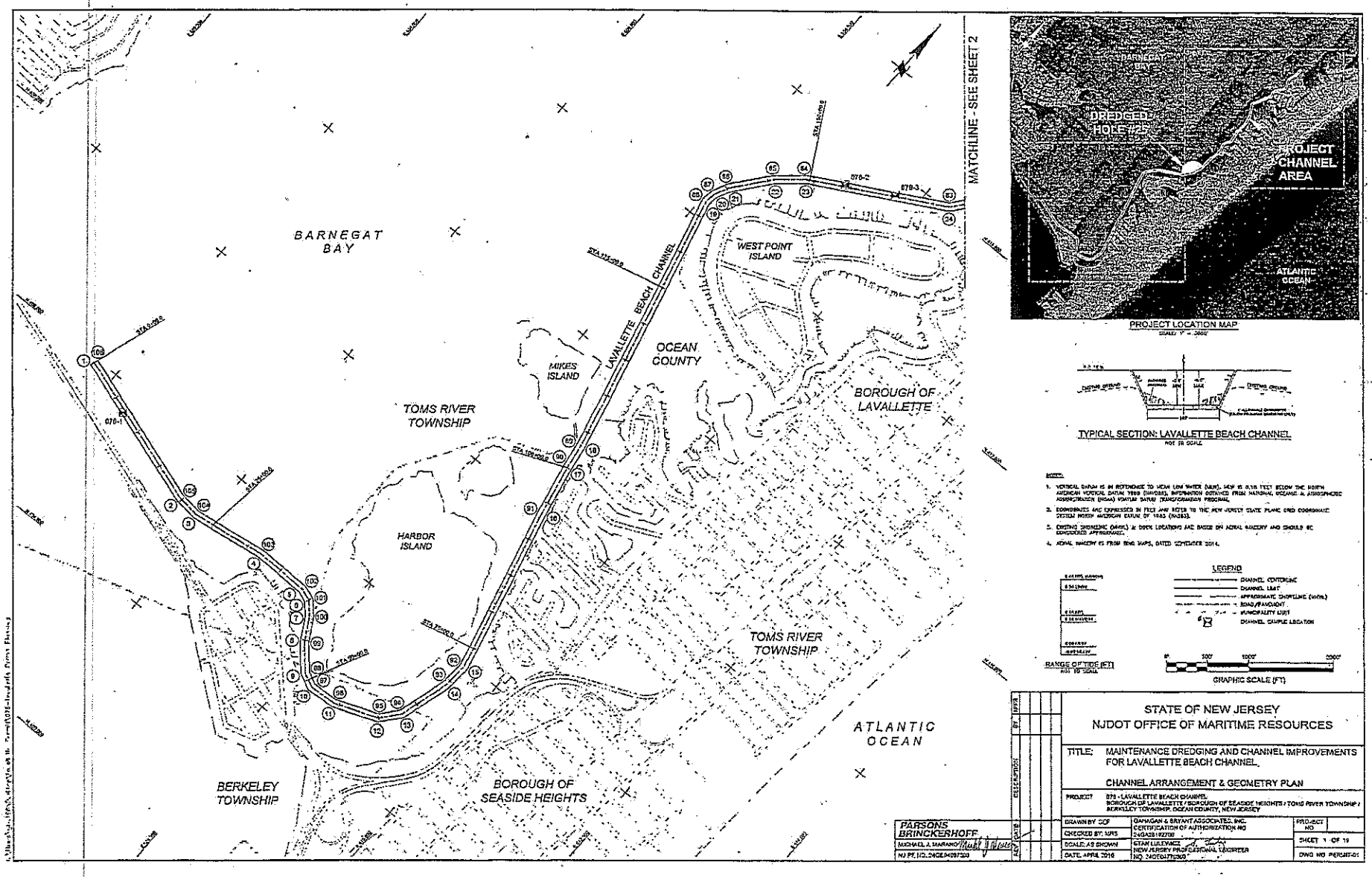
for: Michael Bliss, P.E.
Lieutenant Colonel, US Army
District Commander

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE)

(DATE)

E-1



STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES

TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL

CHANNEL ARRANGEMENT & GEOMETRY PLAN

PROJECT: 079 - LAVALLETTE BEACH CHANNEL
BOROUGH OF LAVALLETTE / BOROUGH OF SEASIDE HEIGHTS / TOMS RIVER TOWNSHIP / BERKELEY TOWNSHIP, OCEAN COUNTY, NEW JERSEY

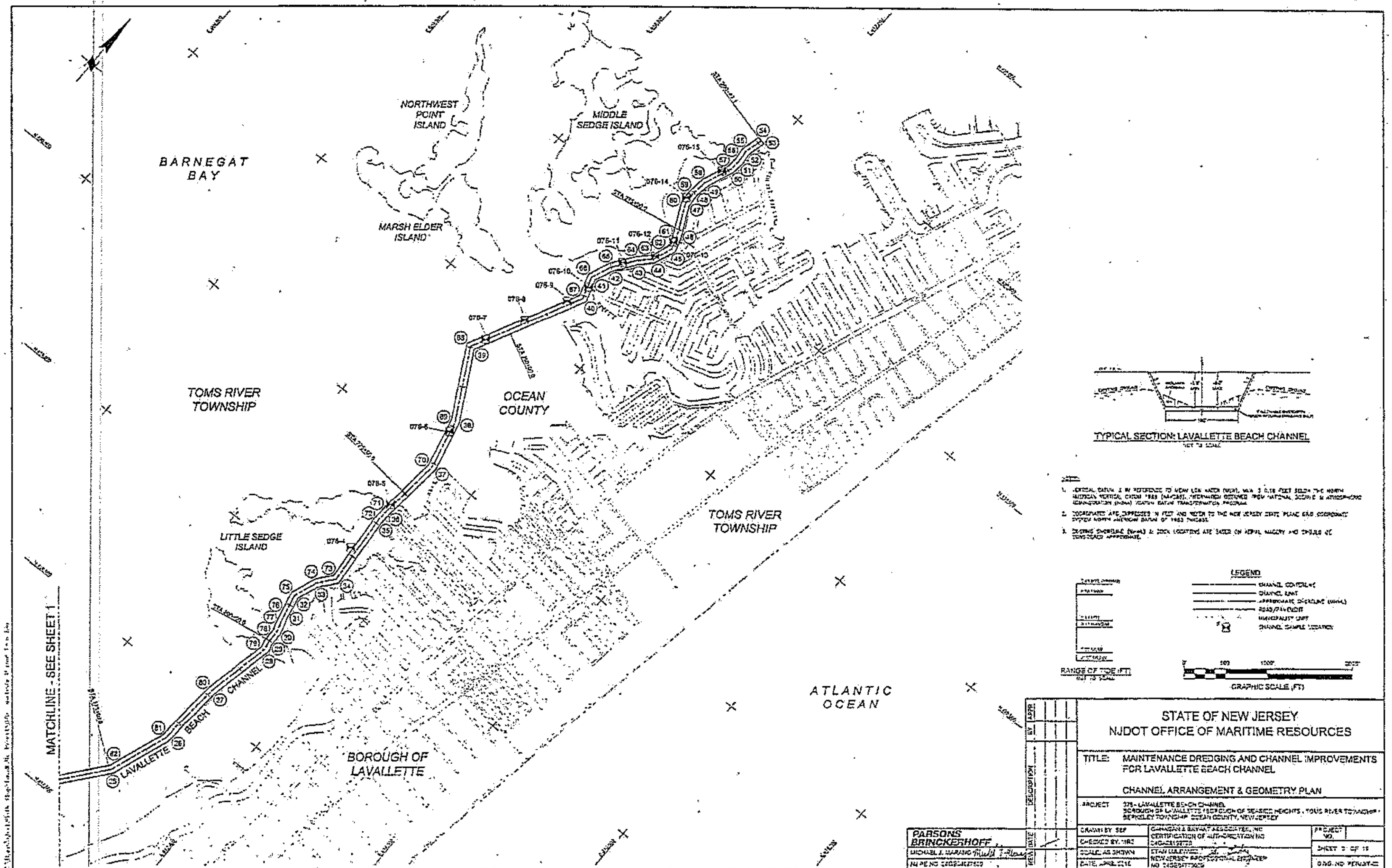
PARSONS BRINCKERHOFF
MICHAEL J. MARANO
NJ PE LIC. 24GE04087300

DRAWN BY: DCF
CHECKED BY: MRS
SCALE: AS SHOWN
DATE: APRIL 2016

GAHAGAN & BRYANT ASSOCIATES, INC.
CERTIFICATION OF AUTHORIZATION NO 24GA28182700
STAN LULEWICZ
NEW JERSEY PROFESSIONAL ENGINEER
NO. 24GE04075300

PROJECT NO
SHEET 1 OF 19
DWG NO PERMIT-01

E-2


MATCHLINE - SEE SHEET 1
BARNEGAT BAY
NORTHWEST POINT ISLAND
MIDDLE SEDGE ISLAND
MARSH ELDER ISLAND
TOMS RIVER TOWNSHIP
OCEAN COUNTY
LITTLE SEDGE ISLAND
LAVALLETTE BEACH CHANNEL
BOROUGH OF LAVALLETTE
TOMS RIVER TOWNSHIP
ATLANTIC OCEAN
TYPICAL SECTION: LAVALLETTE BEACH CHANNEL
LEGEND
RANGE OF TIDE (FT)
GRAPHIC SCALE (FT)
STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES
TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL
CHANNEL ARRANGEMENT & GEOMETRY PLAN
PARSONS BRINCKERHOFF
REV. DATE DESCRIPTION BY APPR

E-3

LAVALLETTE BEACH CHANNEL CHANNEL COORDINATES		
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LAVALLETTE BEACH CHANNEL CHANNEL COORDINATES (CONT.)		
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LAVALLETTE BEACH CHANNEL CENTERLINE COORDINATES		
STATION	NORTHING	EASTING
[illegible]	[illegible]	[illegible]

LAVALLETTE BEACH CHANNEL SAMPLE LOCATION COORDINATES		
SAMPLE	NORTHING	EASTING
[illegible]	[illegible]	[illegible]

NOTES:
1. COORDINATES ARE EXPRESSED IN FEET AND REFER TO THE NEW JERSEY STATE PLANE GRID COORDINATE SYSTEM NORTH AMERICAN DATUM OF 1983 (NAD83).

REV	DATE	DESCRIPTION	BY	APPR

PARSONS BRINCKERHOFF
MICHAEL J MARANO
NJ PE NO. 24GE04087200

STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES

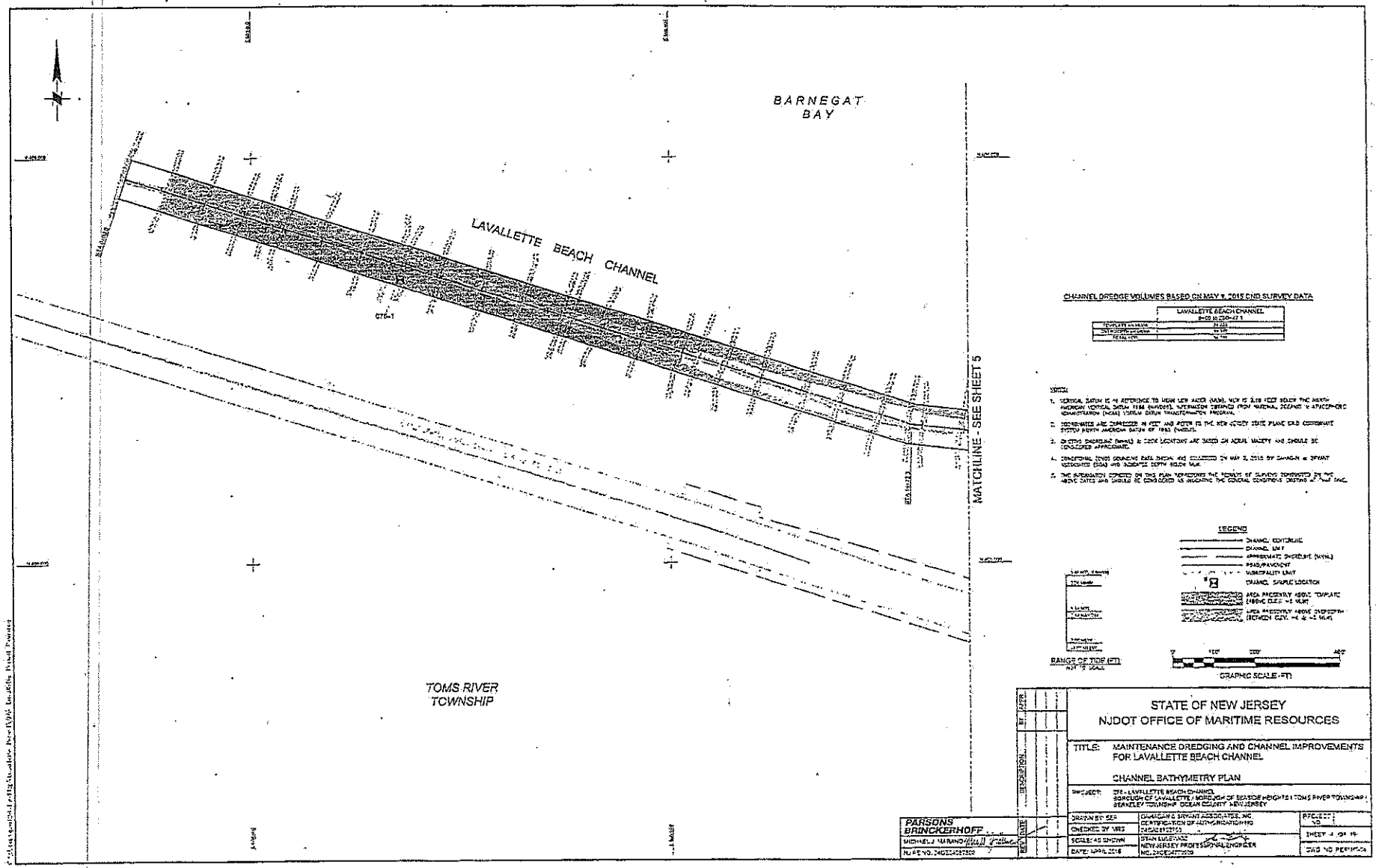
TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL

CHANNEL GEOMETRY & SAMPLING COORDINATE TABLES

PROJECT: 076 - LAVALLETTE BEACH CHANNEL BOROUGH OF LAVALLETTE / BOROUGH OF SEASIDE HEIGHTS / TOMS RIVER TOWNSHIP / BERKELEY TOWNSHIP, OCEAN COUNTY, NEW JERSEY

DRAWN BY: SEF	GAHAGAN & BRYANT ASSOCIATES, INC. CERTIFICATION OF AUTHORIZATION NO. 24GA28192200	PROJECT NO.
CHECKED BY: MRG		SHEET 3 OF 10
SCALE: AS SHOWN	STAN LULEWICZ NEW JERSEY PROFESSIONAL ENGINEER NO. 24GE04770900	
DATE: APRIL 2016		DWG NO. PERMIT-03

E-4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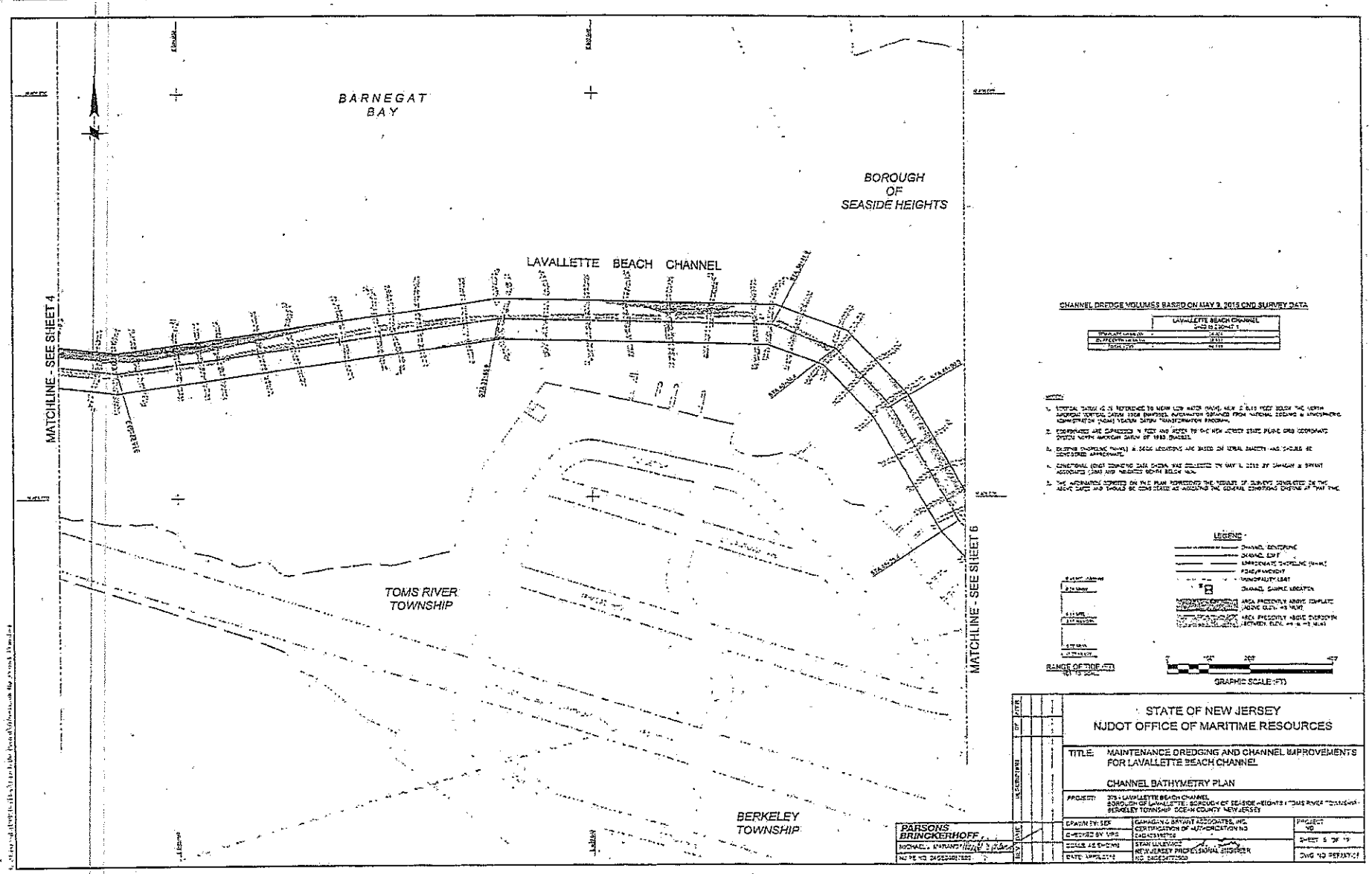
STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES
TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL
CHANNEL BATHYMETRY PLAN
PARSONS BRINCKERHOFF

E-5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BERKELEY TOWNSHIP
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LEGEND
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GRAPHIC SCALE (FT)
STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES
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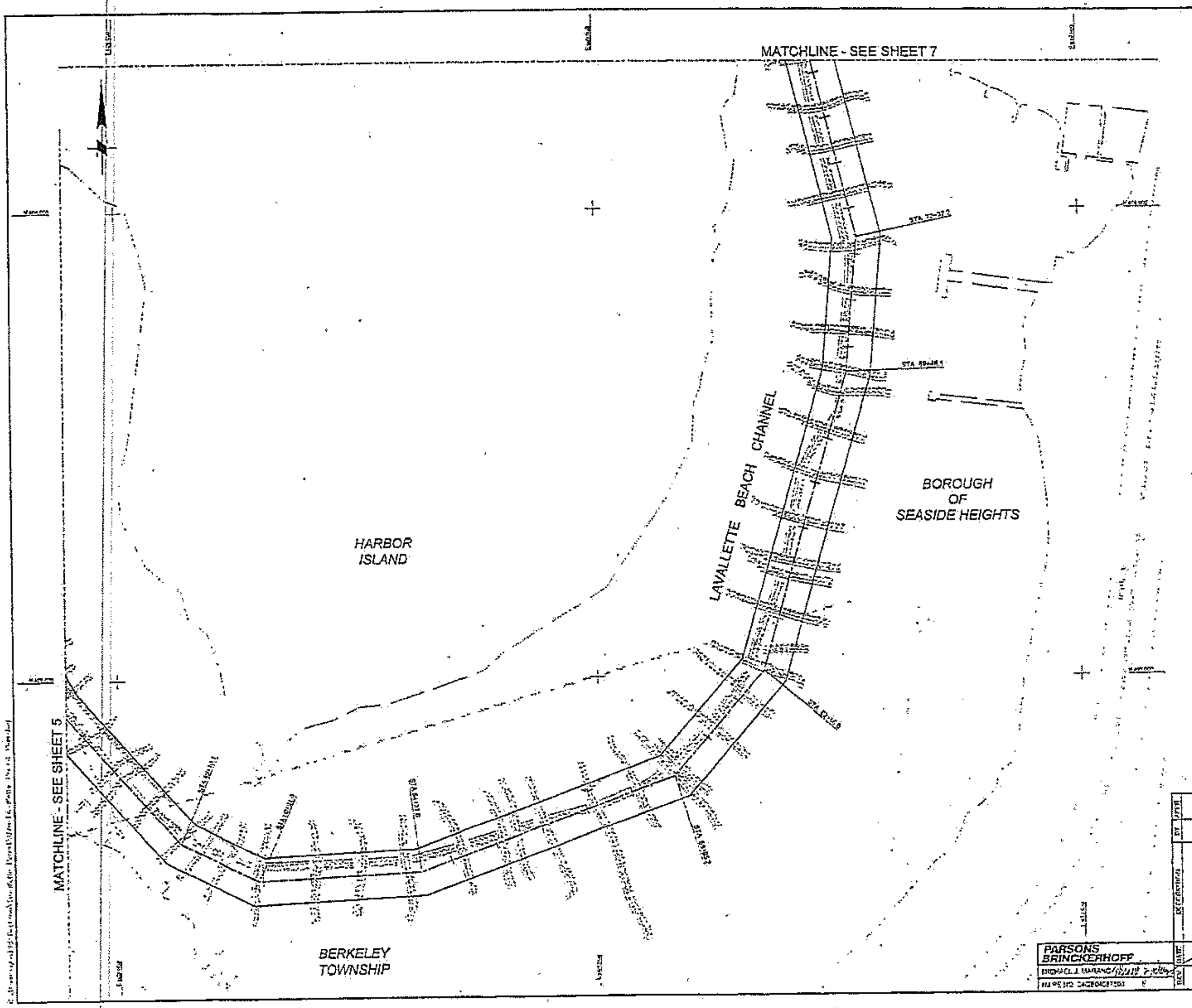
CHANNEL BATHYMETRY PLAN
PARSONS BRINCKERHOFF

E-6



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NOTES:

LEGEND

RANGE OF TIDE (FT)

GRAPHIC SCALE (FT)

PARSONS BRINCKERHOFF

STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES

TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL

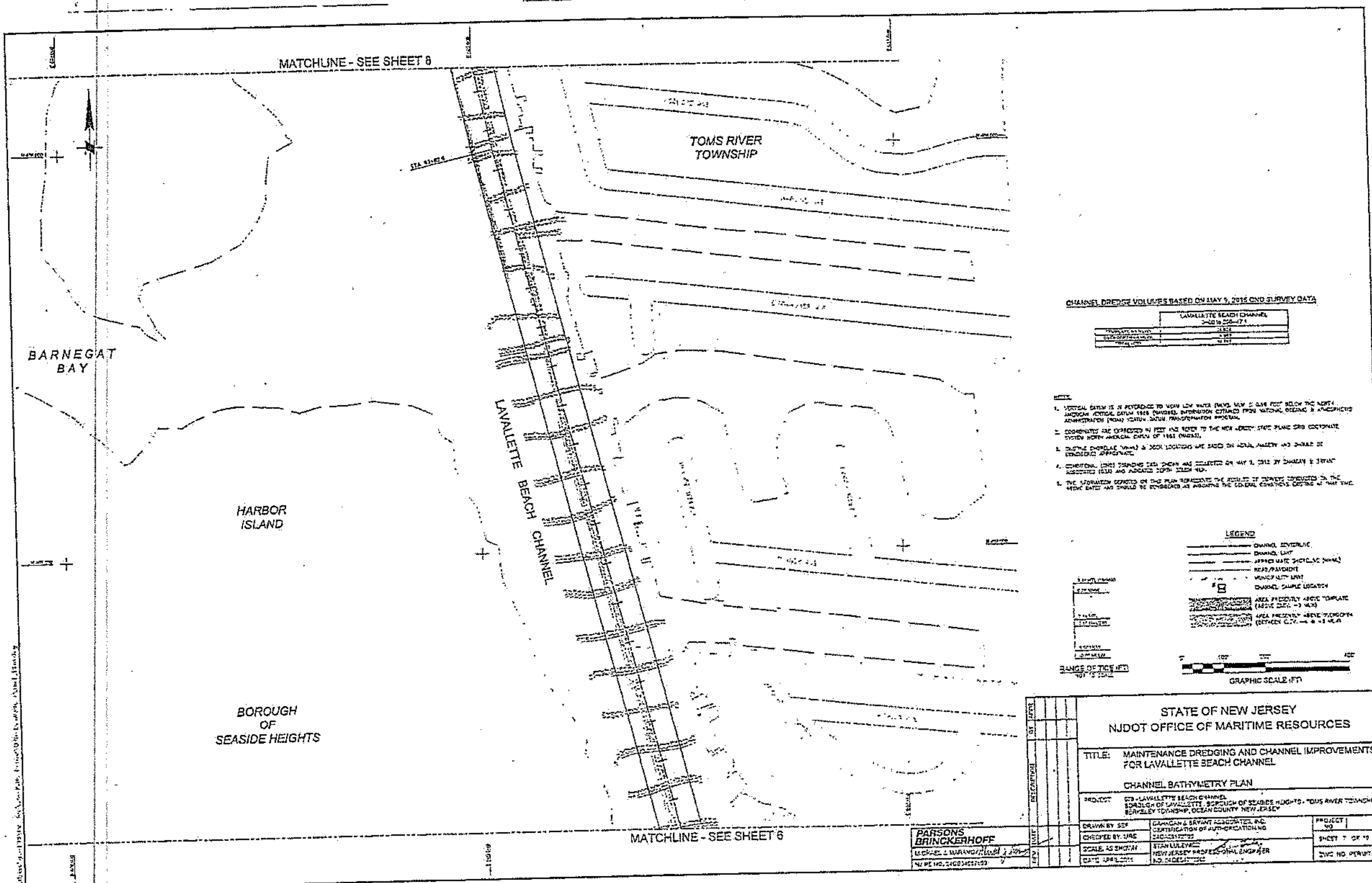
CHANNEL BATHYMETRY PLAN

PROJECT: BOROUGH OF LAVALLETTE / BOROUGH OF SEASIDE HEIGHTS / TOMS RIVER TOWNSHIP / BERKELEY TOWNSHIP, OCEAN COUNTY, NEW JERSEY

NEW JERSEY PROFESSIONAL ENGINEER

SCALE: AS SHOWN

E-7



PARSONS BRINCKERHOFF

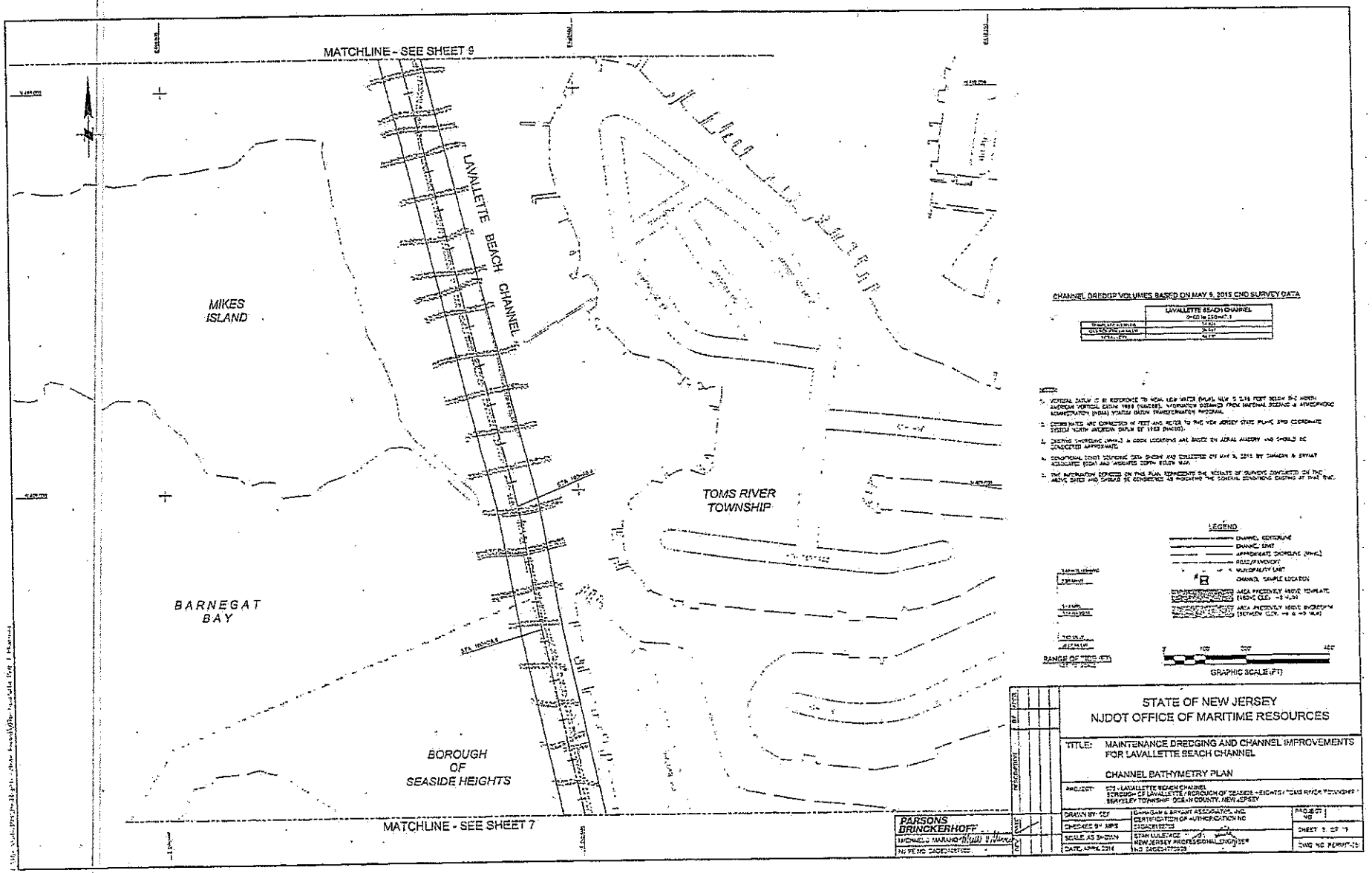
STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES

TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL

CHANNEL BATHYMETRY PLAN

SHEET 7 OF 10

E-8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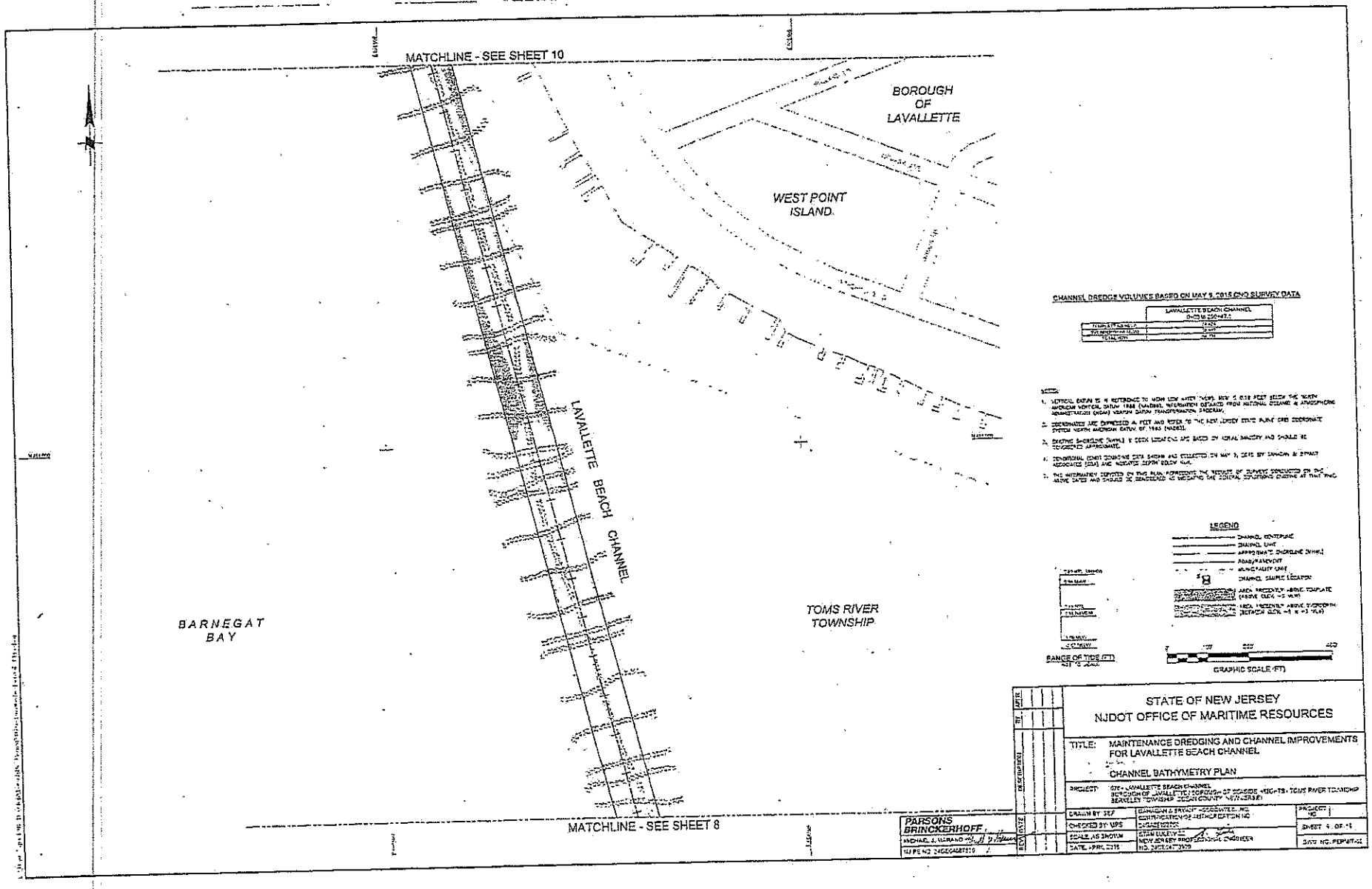
MIKES ISLAND
TOMS RIVER TOWNSHIP
BARNEGAT BAY
BOROUGH OF SEASIDE HEIGHTS
MATCHLINE - SEE SHEET 7
CHANNEL DREDGE VOLUMES BASED ON MAY 9, 2015 CND SURVEY DATA
LAVALLETTE BEACH CHANNEL
LEGEND
GRAPHIC SCALE (FT)
STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES
TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL
CHANNEL BATHYMETRY PLAN
PARSONS BRINCKERHOFF

E-9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LAVALLETTE BEACH CHANNEL
BARNEGAT BAY
TOMS RIVER TOWNSHIP
MATCHLINE - SEE SHEET 8
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LAVALLETTE BEACH CHANNEL
LEGEND
RANGE OF TIDE (FT)
GRAPHIC SCALE (FT)
STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES
TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL
CHANNEL BATHYMETRY PLAN
PARSONS BRINCKERHOFF

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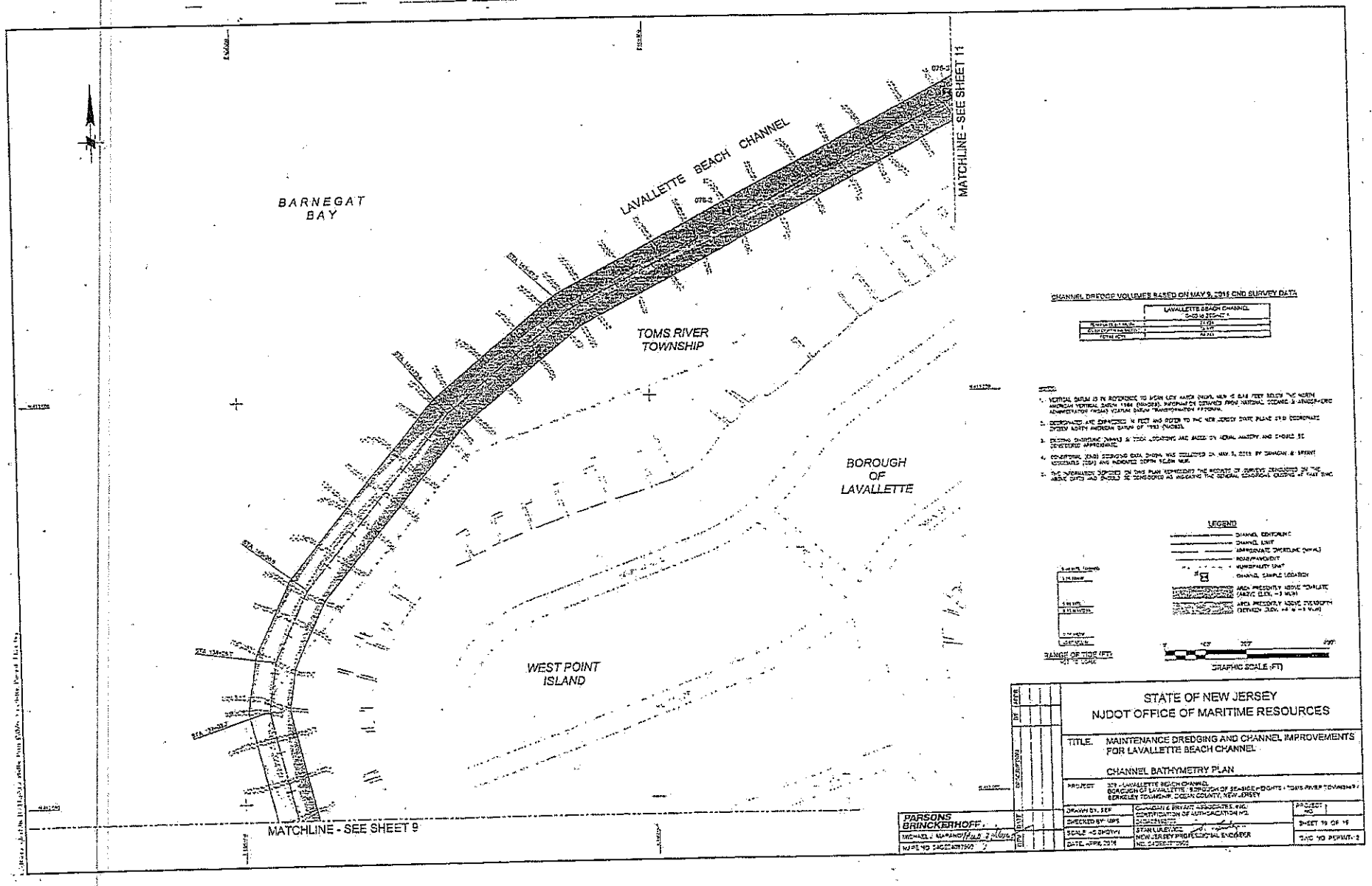
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LAVALLETTE BEACH CHANNEL
TOMS RIVER TOWNSHIP
BOROUGH OF LAVALLETTE
WEST POINT ISLAND
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MATCHLINE - SEE SHEET 9
CHANNEL DREDGE VOLUMES BASED ON MAY 9, 2016 CND SURVEY DATA
LAVALLETTE BEACH CHANNEL
LEGEND
RANGE OF TIDE (FT)
GRAPHIC SCALE (FT)
STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES
TITLE. MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL
CHANNEL BATHYMETRY PLAN
PROJECT 079 - LAVALLETTE BEACH CHANNEL BOROUGH OF LAVALLETTE - BOROUGH OF SEASIDE HEIGHTS - TOMS RIVER TOWNSHIP / BERKELEY TOWNSHIP, OCEAN COUNTY, NEW JERSEY
PARSONS BRINCKERHOFF
DRAWN BY: SEF
CHECKED BY: MPS
SCALE: AS SHOWN
DATE: APRIL 2016
SHEET 10 OF 15

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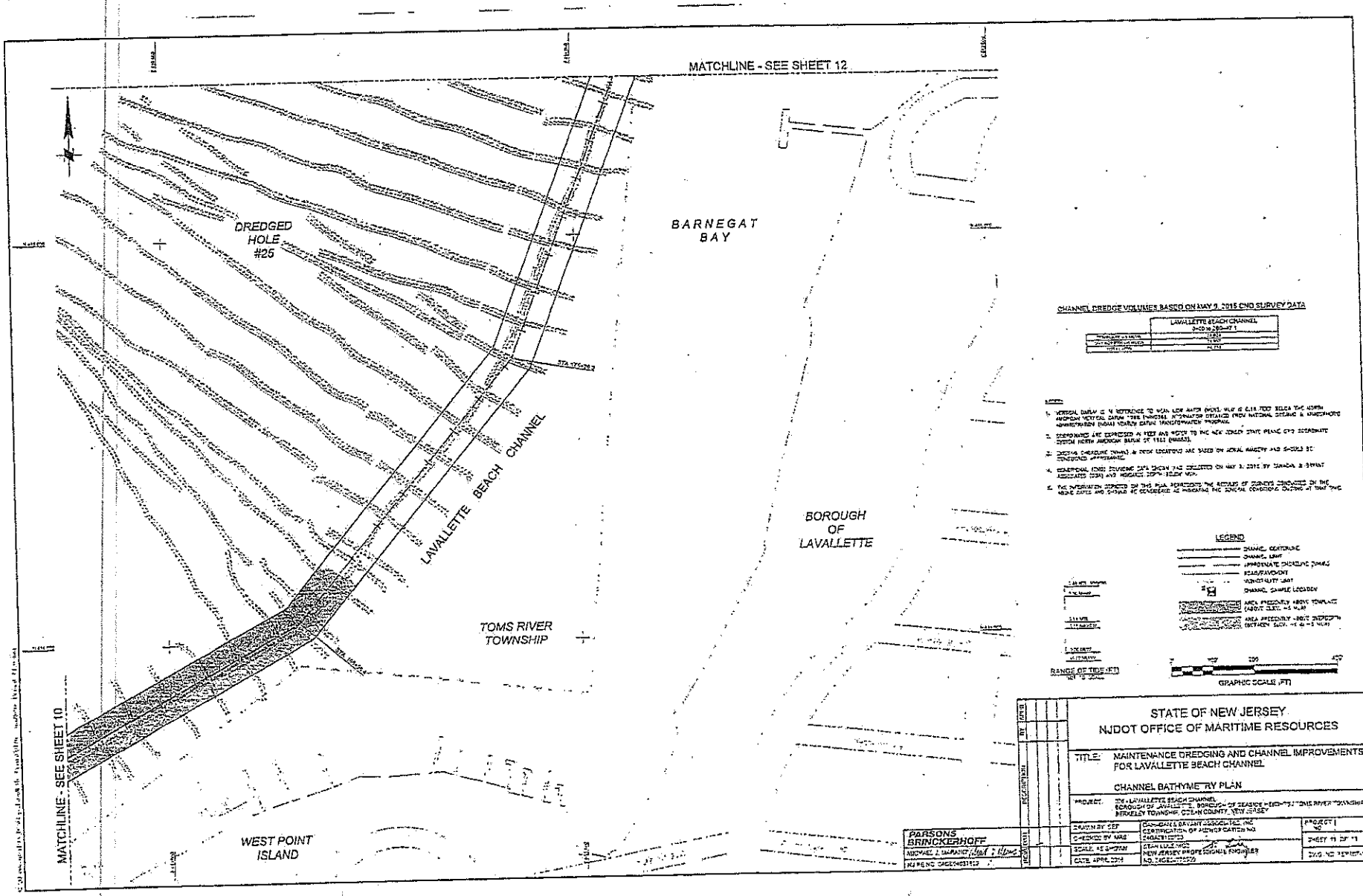
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MATCHLINE - SEE SHEET 10
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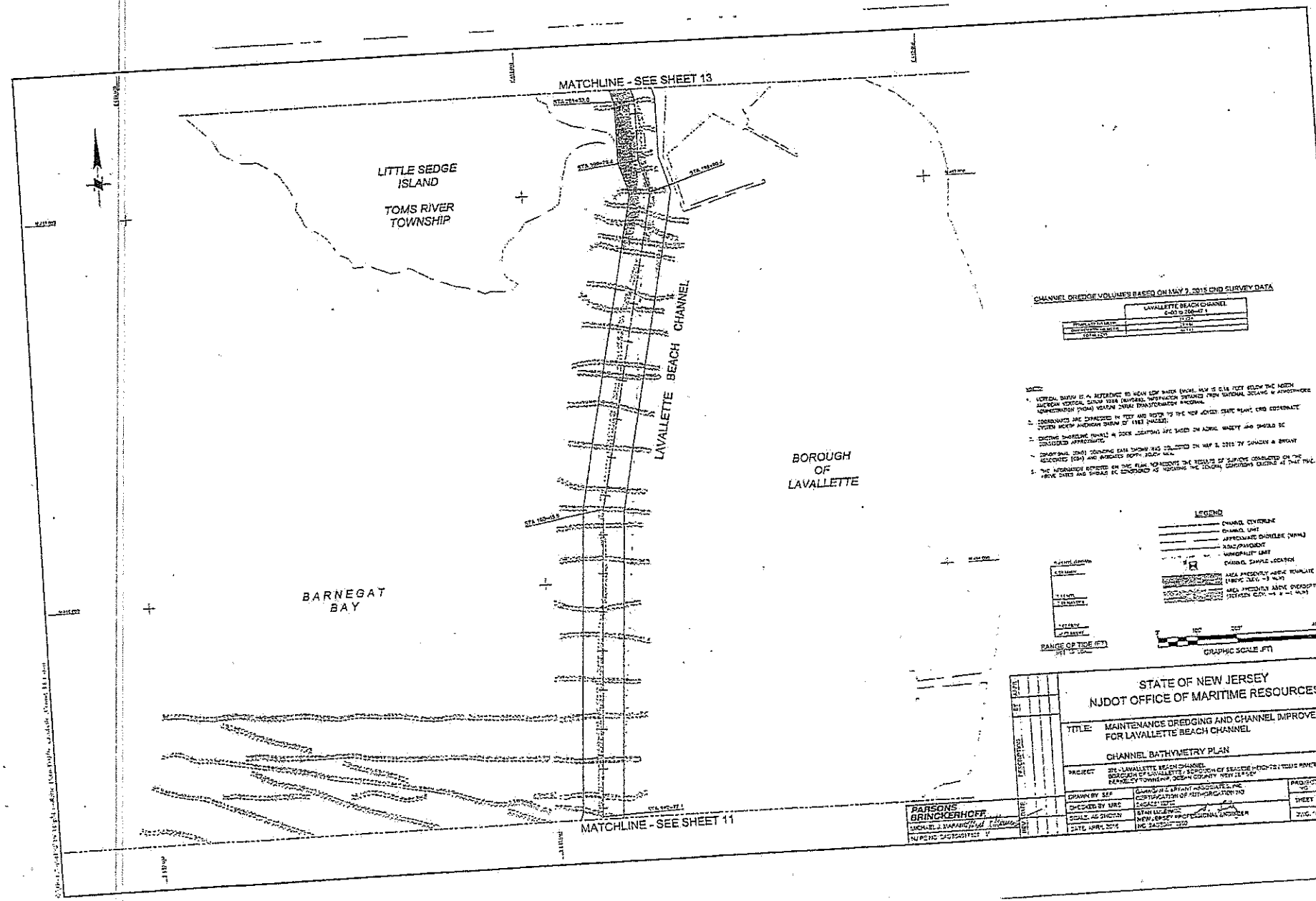
BARNEGAT BAY
LAVALLETTE BEACH CHANNEL
BOROUGH OF LAVALLETTE
TOMS RIVER TOWNSHIP
WEST POINT ISLAND
CHANNEL DREDGE VOLUMES BASED ON MAY 9, 2015 CND SURVEY DATA
LAVALLETTE BEACH CHANNEL
LEGEND
GRAPHIC SCALE (FT)
STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES
TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL
CHANNEL BATHYMETRY PLAN
PARSONS BRINCKERHOFF

E-12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LAVALLETTE BEACH CHANNEL
BOROUGH OF LAVALLETTE
BARNEGAT BAY
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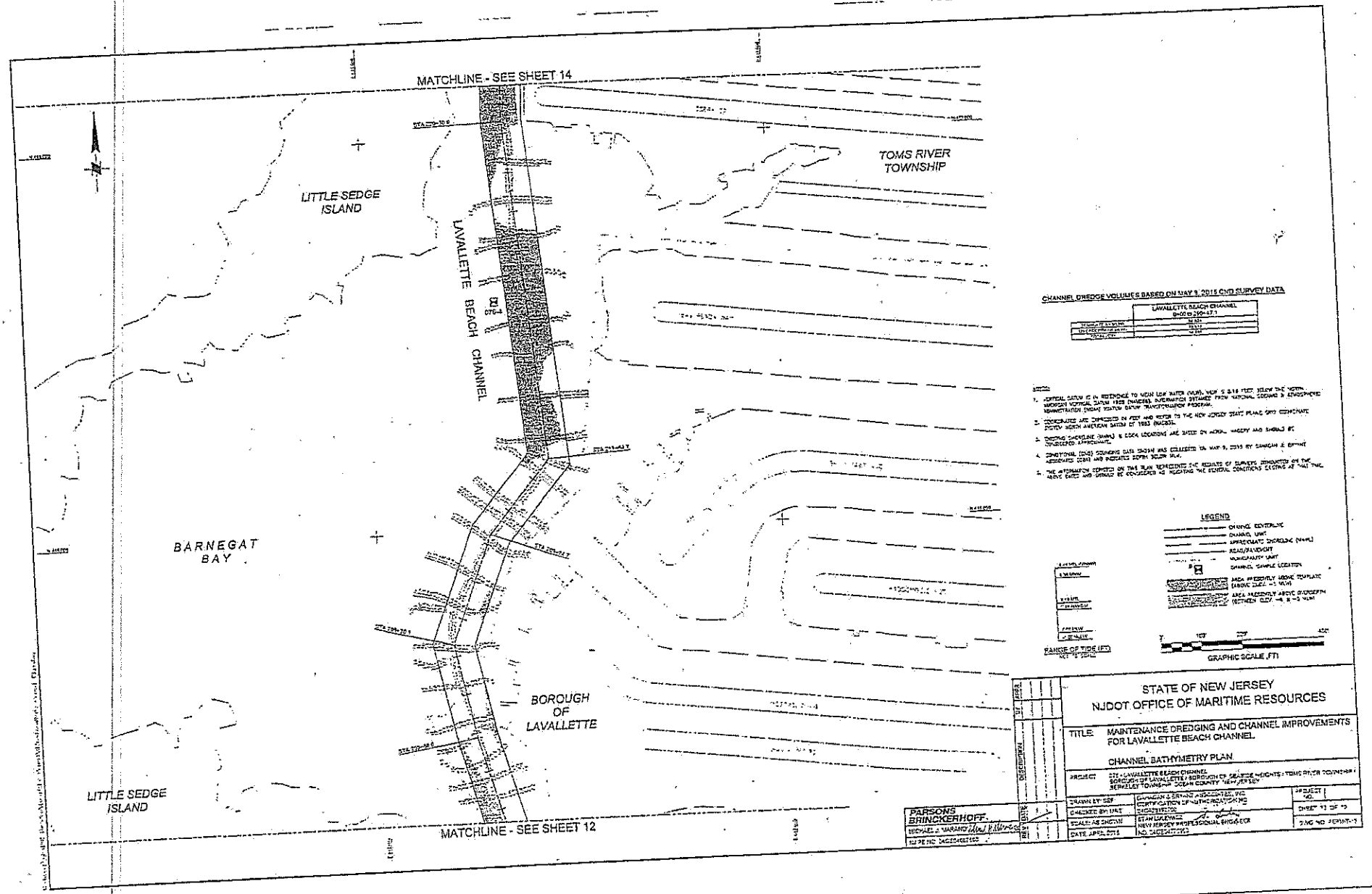
CHANNEL DREDGE VOLUMES BASED ON MAY 2, 2015 CND SURVEY DATA
LAVALLETTE BEACH CHANNEL
LEGEND
RANGE OF TIDE (FT)
GRAPHIC SCALE (FT)
STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES
TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL
CHANNEL BATHYMETRY PLAN
PARSONS BRINCKERHOFF

E-13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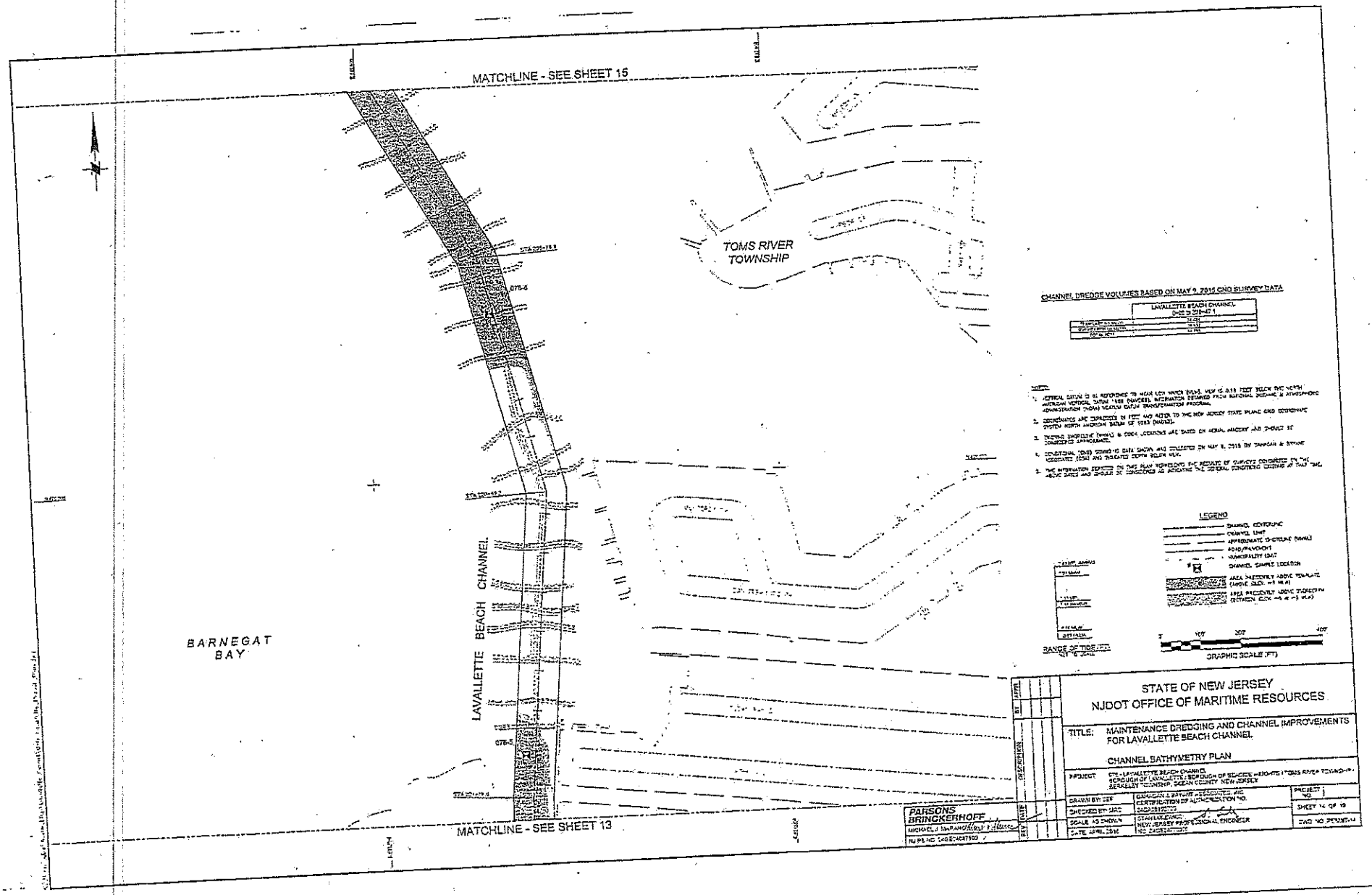
LITTLE SEDGE ISLAND
LAVALLETTE BEACH CHANNEL
BARNEGAT BAY
BOROUGH OF LAVALLETTE
LITTLE SEDGE ISLAND
MATCHLINE - SEE SHEET 12
CHANNEL DREDGE VOLUMES BASED ON MAY 9, 2015 CND SURVEY DATA
LAVALLETTE BEACH CHANNEL
LEGEND
GRAPHIC SCALE ,FT)
PARSONS BRINCKERHOFF
STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES
TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL
CHANNEL BATHYMETRY PLAN

E-14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MATCHLINE - SEE SHEET 13
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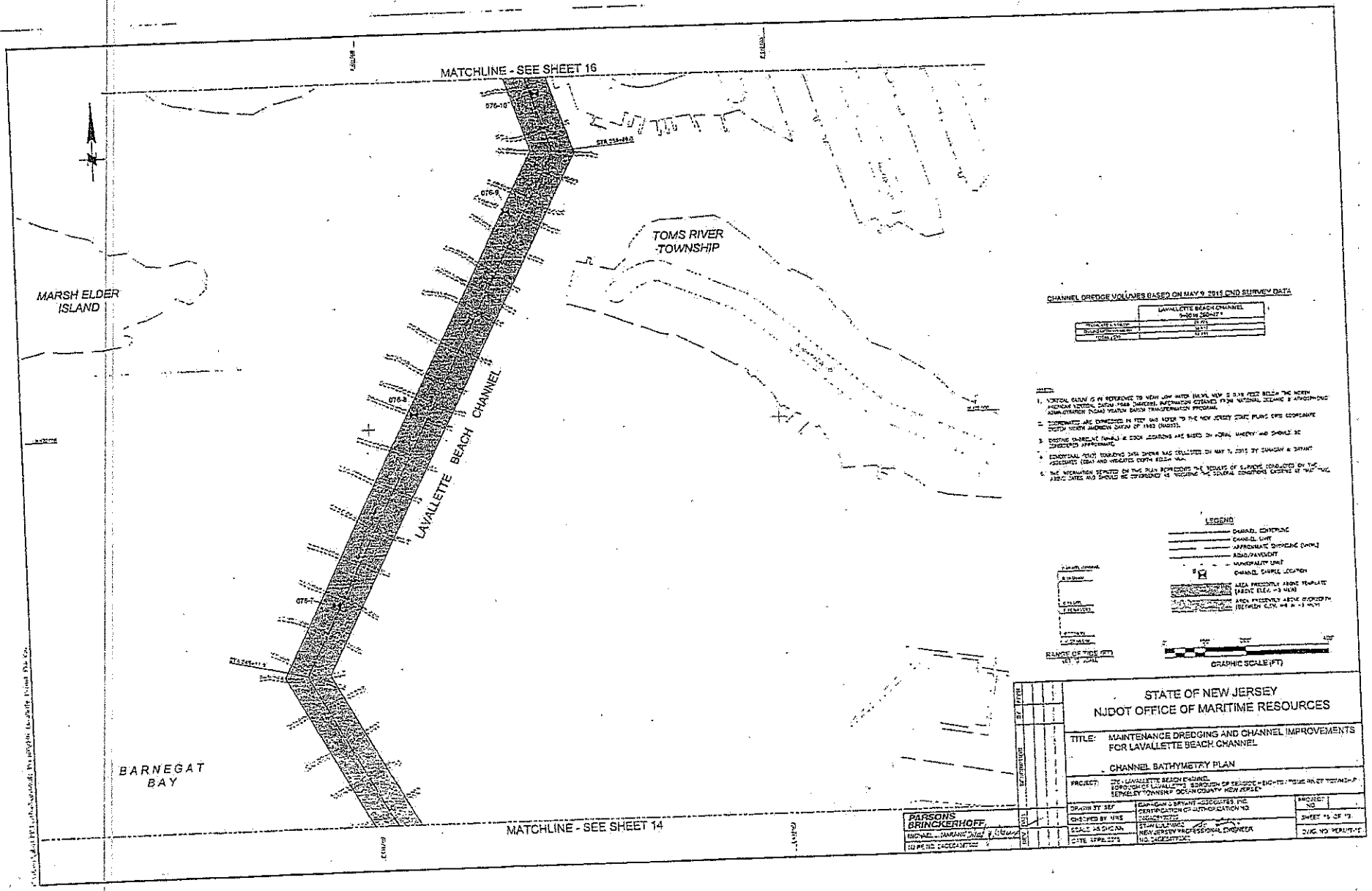
BARNEGAT BAY
LAVALLETTE BEACH CHANNEL
CHANNEL DREDGE VOLUMES BASED ON MAY 9, 2015 CND SURVEY DATA
LAVALLETTE BEACH CHANNEL
LEGEND
GRAPHIC SCALE (FT)
STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES
TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL
CHANNEL BATHYMETRY PLAN
PARSONS BRINCKERHOFF

E-15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MARSH ELDER ISLAND
TOMS RIVER TOWNSHIP
LAVALLETTE BEACH CHANNEL
BARNEGAT BAY
MATCHLINE - SEE SHEET 14
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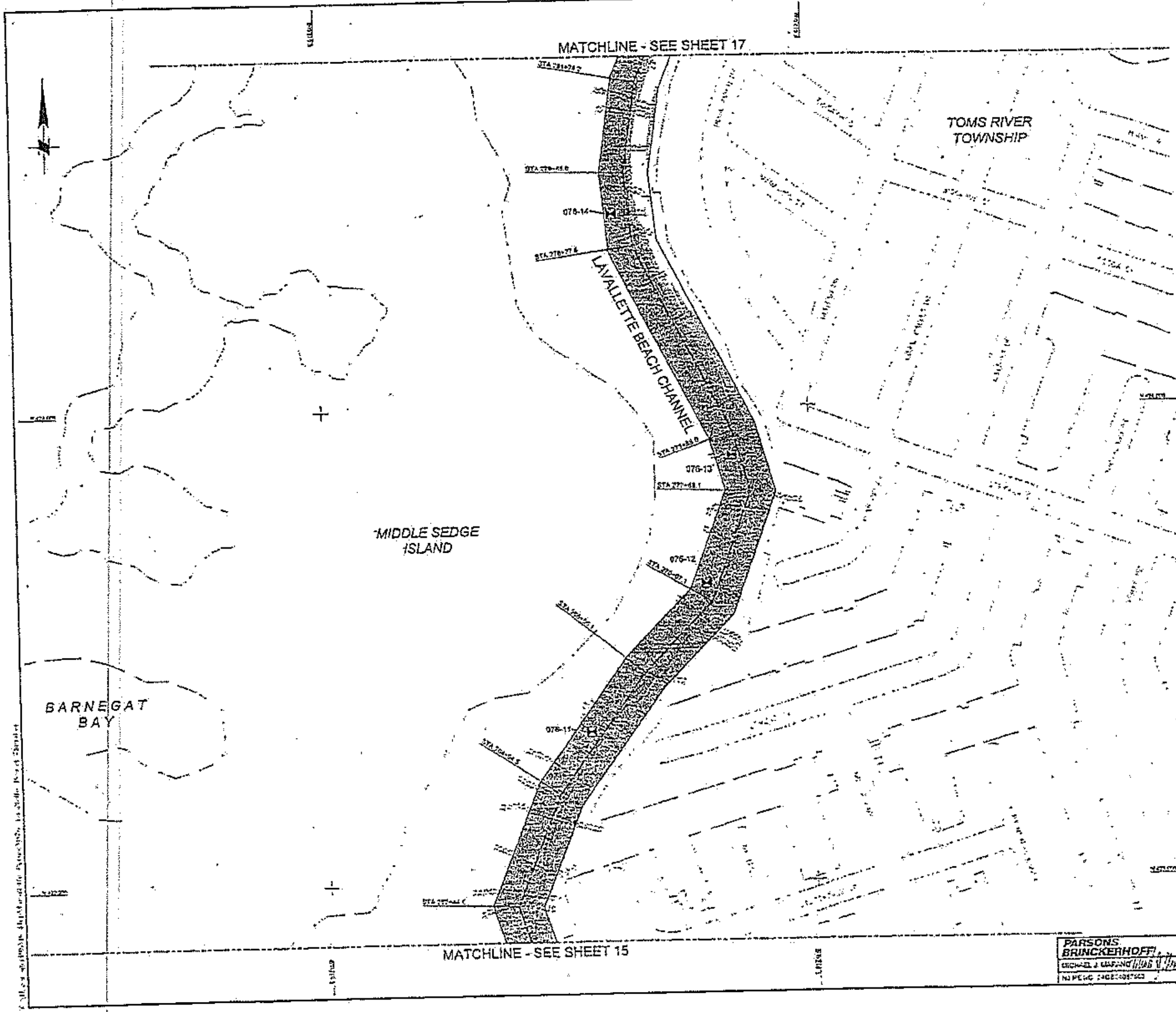
LAVALLETTE BEACH CHANNEL
LEGEND
GRAPHIC SCALE (FT)
RANGE OF TIDE (FT)
STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES
TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL
CHANNEL BATHYMETRY PLAN
PARSONS BRINCKERHOFF
GAHAGAN & BRYANT ASSOCIATES INC.

E-16



CHANNEL DREDGE VOLUMES BASED ON MAY 9, 2015 END SURVEY DATA

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[illegible]	[illegible]
[illegible]	[illegible]
TOTAL (CY)	[illegible]

NOTES:

1. VERTICAL DATUM IS IN REFERENCE TO MEAN LOW WATER (MLW). [illegible] NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88). INFORMATION OBTAINED FROM NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION (NOAA) VDATUM DATUM TRANSFORMATION PROGRAM.
2. COORDINATES ARE EXPRESSED IN FEET AND REFER TO THE NEW JERSEY STATE PLANE GRID COORDINATE SYSTEM NORTH AMERICAN DATUM OF 1983 (NAD83).
3. EXISTING SHORELINE [illegible] LOCATIONS ARE BASED ON AERIAL IMAGERY AND SHOULD BE CONSIDERED APPROXIMATE.
4. [illegible] SOUNDING DATA SHOWN WAS COLLECTED ON MAY 9, 2015 BY GAHAGAN & BRYANT ASSOCIATES (GBA) AND INDICATE DEPTH BELOW MLW.
5. THE INFORMATION DEPICTED ON THIS PLAN REPRESENTS THE RESULTS OF SURVEYS CONDUCTED ON THE ABOVE DATES AND SHOULD BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES

TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL

CHANNEL BATHYMETRY PLAN

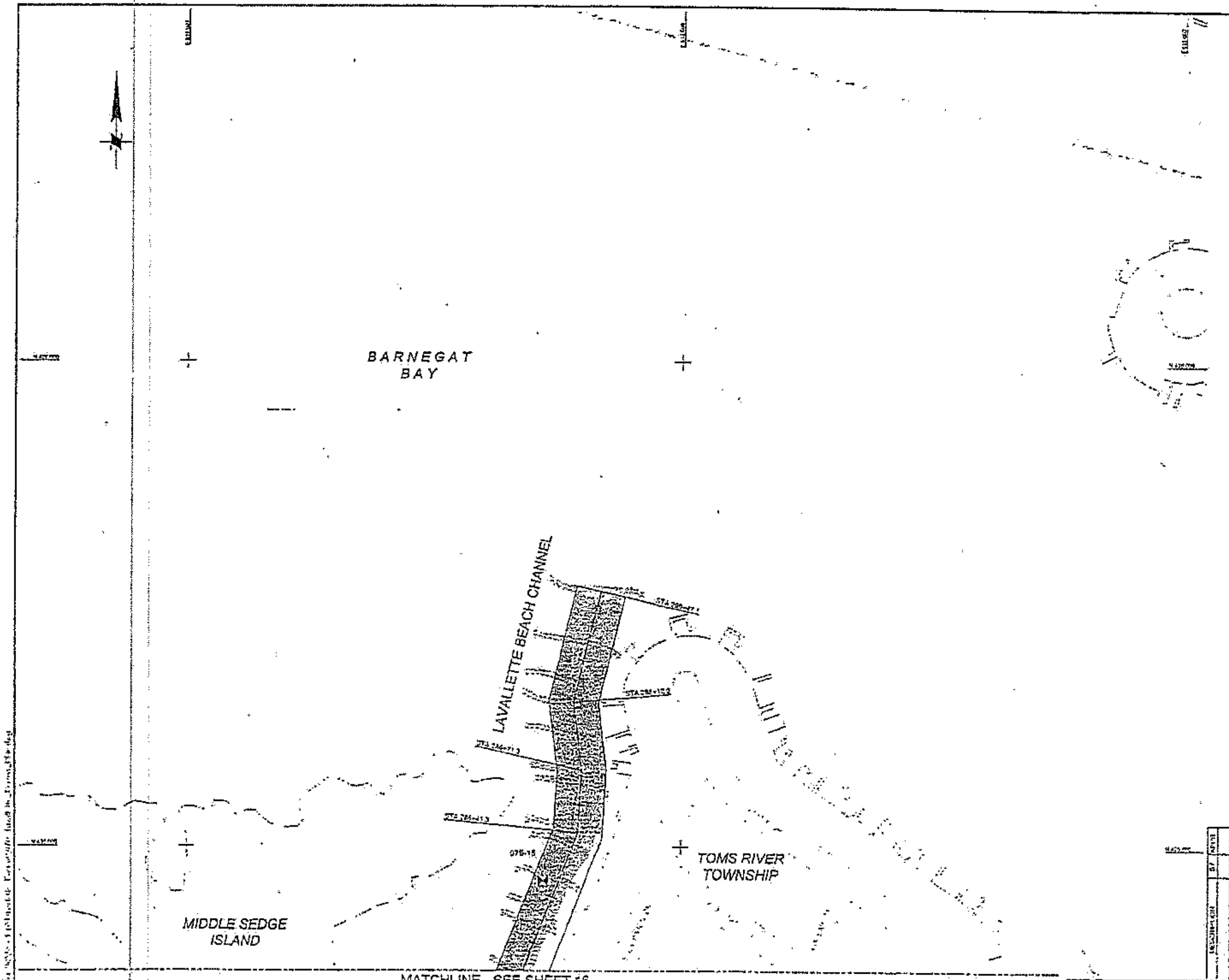
PROJECT: 076 - LAVALLETTE BEACH CHANNEL
BOROUGH OF LAVALLETTE - BOROUGH OF SEASIDE HEIGHTS - TOMS RIVER TOWNSHIP
BERKELEY TOWNSHIP, OCEAN COUNTY, NEW JERSEY

DRAWN BY: [illegible]	GAHAGAN & BRYANT ASSOCIATES, INC. CERTIFICATION OF AUTHORIZATION NO. [illegible]	PROJECT NO.	
CHECKED BY: [illegible]		SHEET 16 OF 17	
SCALE: AS SHOWN	[illegible] NEW JERSEY PROFESSIONAL ENGINEER	DWG. NO. [illegible]	
DATE: APRIL 2016	NO. [illegible]		

REV	DATE	DESCRIPTION	BY	APPR

PARSONS BRINCKERHOFF
MICHAEL J. MARANO
NJ PE NO. [illegible]

E-17



CHANNEL DREDGE VOLUMES BASED ON MAY 9, 2015 CND SURVEY DATA

	LAVALLETTE BEACH CHANNEL 0+00 to 280+47.1
[illegible]	[illegible]
[illegible]	[illegible]
TOTAL CY	[illegible]

NOTES:

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5. THE INFORMATION DEPICTED ON THIS PLAN REPRESENTS THE RESULTS OF SURVEYS CONDUCTED ON THE ABOVE DATES AND SHOULD BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

LEGEND:

- CHANNEL CENTERLINE
- CHANNEL LIMIT
- APPROXIMATE SHORELINE (MHW)
- ROAD/PAVEMENT
- MUNICIPALITY LIMIT
- CHANNEL SAMPLE LOCATION
- AREA PRESENTLY ABOVE TEMPLATE [illegible]
- AREA PRESENTLY ABOVE OVERDEPTH [illegible]

RANGE OF TIDE (FT)
NOT TO SCALE

GRAPHIC SCALE (FT): 0 100 200 400

STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES

TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL

CHANNEL BATHYMETRY PLAN

PROJECT: 276 - LAVALLETTE BEACH CHANNEL
BOROUGH OF LAVALLETTE / BOROUGH OF SEASIDE HEIGHTS / TOMS RIVER TOWNSHIP / BERKELEY TOWNSHIP, OCEAN COUNTY, NEW JERSEY

REV	DATE	DESCRIPTION	BY	APVD

PARSONS BRINCKERHOFF
MICHAEL J. MARANO
NJ PE NO. [illegible]

DRAWN BY: SEF	GAHAGAN & BRYANT ASSOCIATES, INC. CERTIFICATION OF AUTHORIZATION NO. [illegible]	PROJECT # NC
CHECKED BY: MRS		
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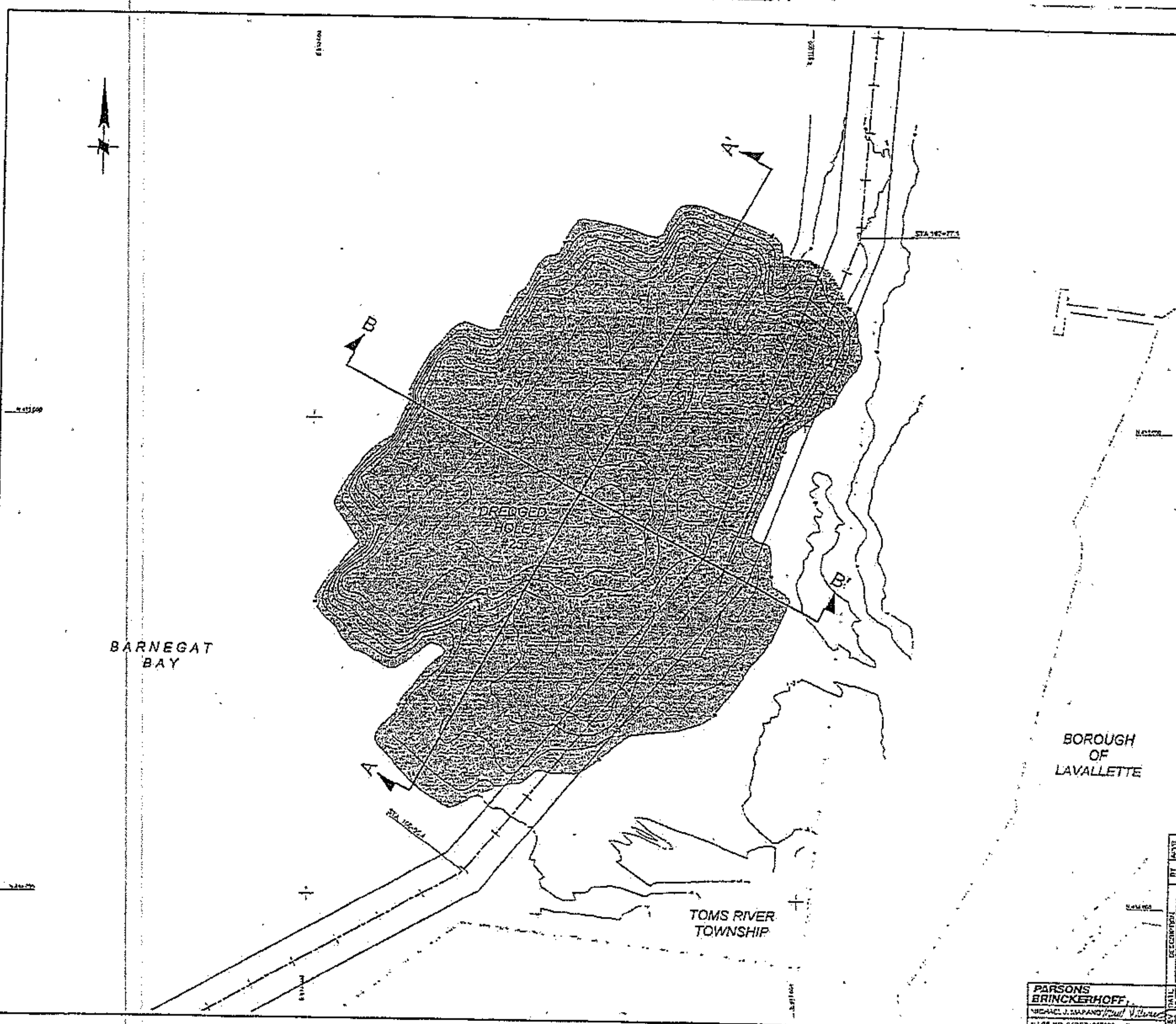
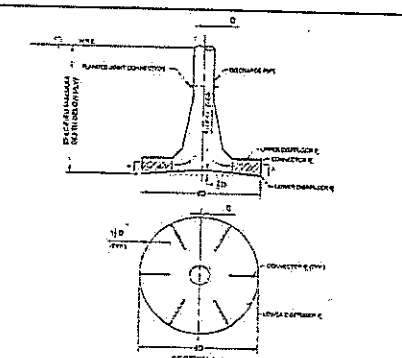
DATE: APRIL 2015		DWG NO. PERMIT-17

E-18





TYPICAL DISCHARGE PIPELINE & DIFFUSER DETAIL

DREDGED HOLE #25 STORAGE VOLUMES	
ELEVATION (MLW)	STORAGE (CY)
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
TOTAL (CY)	217,343

NOTES:

1. VERTICAL DATUM IS IN REFERENCE TO MEAN LOW WATER (MLW). [illegible] AMERICAN VERTICAL DATUM 1988 (NAVD88). INFORMATION OBTAINED FROM NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION (NOAA) VDATUM DATUM TRANSFORMATION PROGRAM.
2. COORDINATES ARE EXPRESSED IN FEET AND REFER TO THE NEW JERSEY STATE PLANE GRID COORDINATE SYSTEM NORTH AMERICAN DATUM OF 1983 (NAD83).
3. EXISTING SHORELINE (MHWL) [illegible]
4. DREDGED HOLE #25 EXISTING CONTOUR DATA SHOWN WAS COLLECTED [illegible]
5. THE INFORMATION DEPICTED ON THIS PLAN REPRESENTS THE RESULTS OF SURVEYS CONDUCTED ON THE ABOVE DATES AND SHOULD BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

LEGEND

CHANNEL CENTERLINE
CHANNEL LIMIT
APPROXIMATE SHORELINE (MHWL)
ROAD/PAVEMENT
EXISTING 1' CONTOUR DREDGED HOLE #25
MUNICIPALITY LIMIT
APPROX. MATERIAL PLACEMENT LIMIT

RANGE OF TIDE (FT)

GRAPHIC SCALE (FT)

REV	DATE	DESCRIPTION	BY	APP'D

STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES

TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL

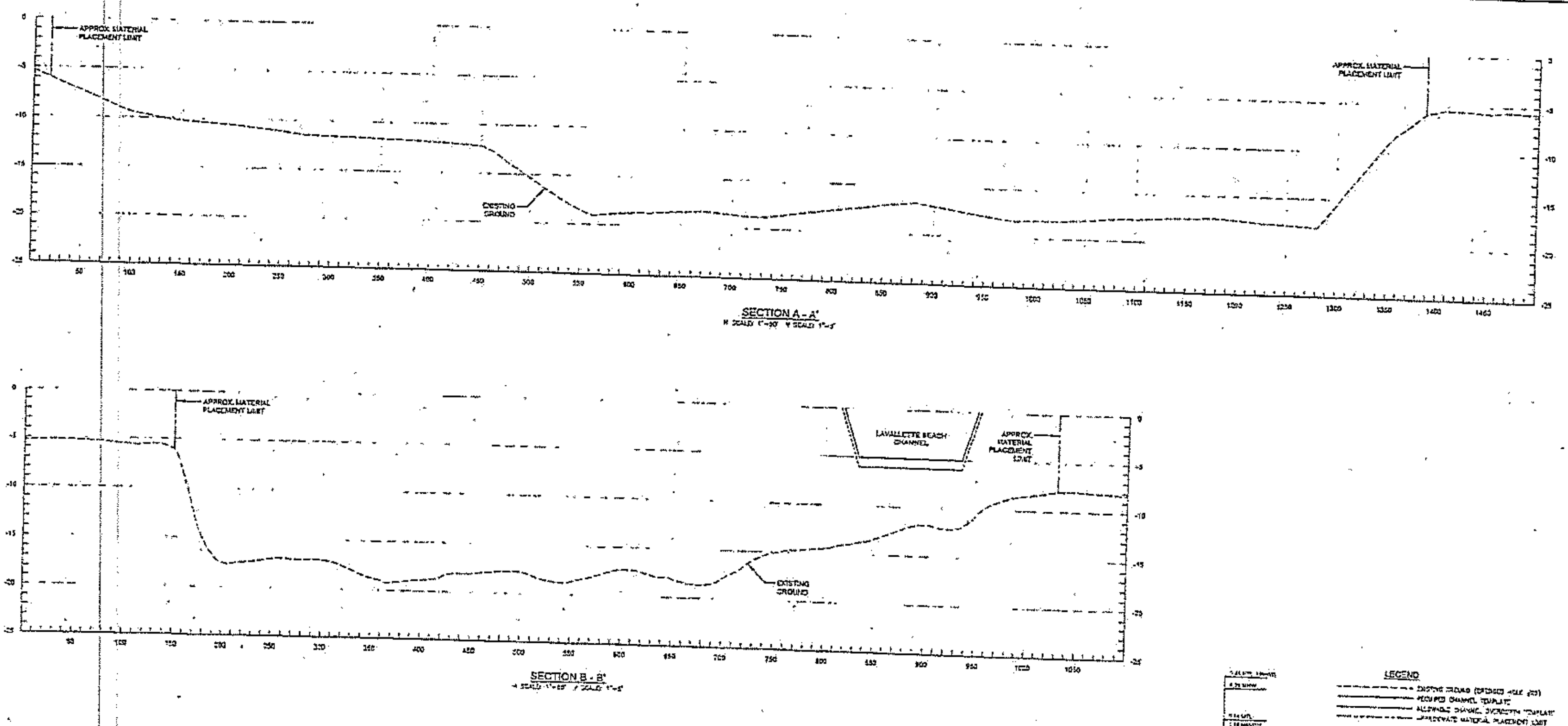
DREDGED HOLE #25 PLACEMENT PLAN

PROJECT: 075 - LAVALLETTE BEACH CHANNEL
BOROUGH OF LAVALLETTE / BOROUGH OF SEASIDE HEIGHTS / TOMS RIVER TOWNSHIP / BERKELEY TOWNSHIP, OCEAN COUNTY, NEW JERSEY

PARSONS BRINCKERHOFF
MICHAEL J. MARANO
NJ PE NO. [illegible]

DRAWN BY: SEF	GAHAGAN & BRYANT ASSOCIATES, INC. CERTIFICATION OF AUTHORIZATION NO. [illegible]	PROJECT NO. [illegible]
CHECKED BY: MPS		
SCALE: AS SHOWN	STAN [illegible] NEW JERSEY PROFESSIONAL ENGINEER NO. [illegible]	SHEET [illegible] OF [illegible]
DATE: APRIL 2015		DWG NO. PERMIT-[illegible]

E-19



STATE OF NEW JERSEY NJDOT OFFICE OF MARITIME RESOURCES		
TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR LAVALLETTE BEACH CHANNEL DREDGED HOLE #25 CROSS SECTIONS		
PROJECT: 379 - LAVALLETTE BEACH CHANNEL		
DRAWN BY: SEF		PROJECT NO.
CHECKED BY: MRS		
SCALE: AS SHOWN		SHEET 13 OF 15
DATE: APRIL 2018	NEW JERSEY PROFESSIONAL ENGINEER	DWG. NO. PERMIT

PARSONS BRINCKERHOFF
MICHAEL J. MARANO

HABITAT RESTORATION PLAN
DREDGED HOLE #25
UPPER BARNEGAT BAY
OCEAN COUNTY, NEW JERSEY

MATRIXNEWORLD

Engineering Progress

Prepared for:
Sean Flanigan
Gahagan & Bryant Associates, Inc.
9008-O Yellow Brick Road
Baltimore, MD 21237-5608

Prepared by:
Matrix New World Engineering, P.C.
26 Columbia Turnpike
Florham Park, NJ 07932

July 2016

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1.0 INTRODUCTION

The New Jersey Department of Transportation (NJDOT), Office of Maritime Resources is currently proposing to restore an ecologically impaired subaqueous borrow pit (a.k.a. dredged hole) identified as *Dredged Hole #25* (DH25). The borrow pit is situated within a portion of Upper Barnegat Bay located in the Township of Toms River, Ocean County, refer to Figures 1 and 2, below. Coordinate positions for the approximate center of DH25 are as follows: Latitude/Longitude 39°58'15" N, 74°04'37" W; State Plane 414633 N 610706 E. DH25 is one of fourty-six dredged holes identified and studied by NJDOT as part of previous investigations that included evaluating and prioritizing opportunities to restore degraded habitat within dredged holes located through New Jersey's coastal bays. DH25 was one of five priority dredged holes recommended for habitat restoration. These priority dredged holes were selected because habitat conditions were highly degraded and source material for restoring the dredged holes was locally available and could provide the dual benefit of restoring habitat and alleviating shoaling of nearby navigation channels. Water quality surveys and benthic grab samples conducted by the project team confirmed that hypoxia (dissolved oxygen content of less than 2mg/l) is occurring in each of the priority dredged holes and that the benthic habitat is azoic (Howard et. al, 2015). The project team recommended the placement of dredged material from local navigation channels to increase the bottom elevation of the dredged holes to shallower depths, which would eliminate stratification of the water column and subsequent stagnation and hypoxia within the features (Howard et. al, 2015).

1.1 Project Need

DH25 is a deep (+/- 20') clearly defined borrow pit bound by steep slopes within an area of Barnegat Bay where the natural bottom surface elevations are relatively flat and approximately 6' deep at mean low water (MLW). Shallow water areas adjacent to DH25 consist of high quality shallow water habitat as evident from the presence of extensive submerged aquatic vegetation (SAV) beds which have been observed and mapped throughout this area (refer to Appendix A). Conversely, in its present state DH25 offers limited ecological value. Water quality samples, conducted by the Richard Stockton College of New Jersey Coastal Research Center (CRC) in 2013 and 2014, documented that dissolved oxygen (DO) content is significantly less than surrounding control sites and decreases rapidly with water depth to near hypoxic conditions at the bottom. Additionally, benthic grab samples, collected by CRC within DH25, also documented that benthic conditions are azoic due to extended periods of hypoxia (Howard et. al, 2015). Therefore, without the implementation of restoration efforts, DH25 will remain in a degraded state offering limited ecological value.

1.2 Project Goal and Objectives

This report has been prepared to provide a site-specific Habitat Restoration Plan for DH25. This plan includes recommended actions that should be implemented to achieve the goal of restoring benthic habitat. This will be accomplished by re-establishing more natural bottom surface elevations, which will prevent stratification of the water column (a major contributor to hypoxic conditions) and promote colonization by benthic organisms and submerged aquatic vegetation (SAV). The objectives of the plan involve utilizing locally available substrate material obtained from local navigation channels to fill DH25 in a manner that replicates upper substrate composition within the shallower water areas located immediately adjacent to the dredged hole.

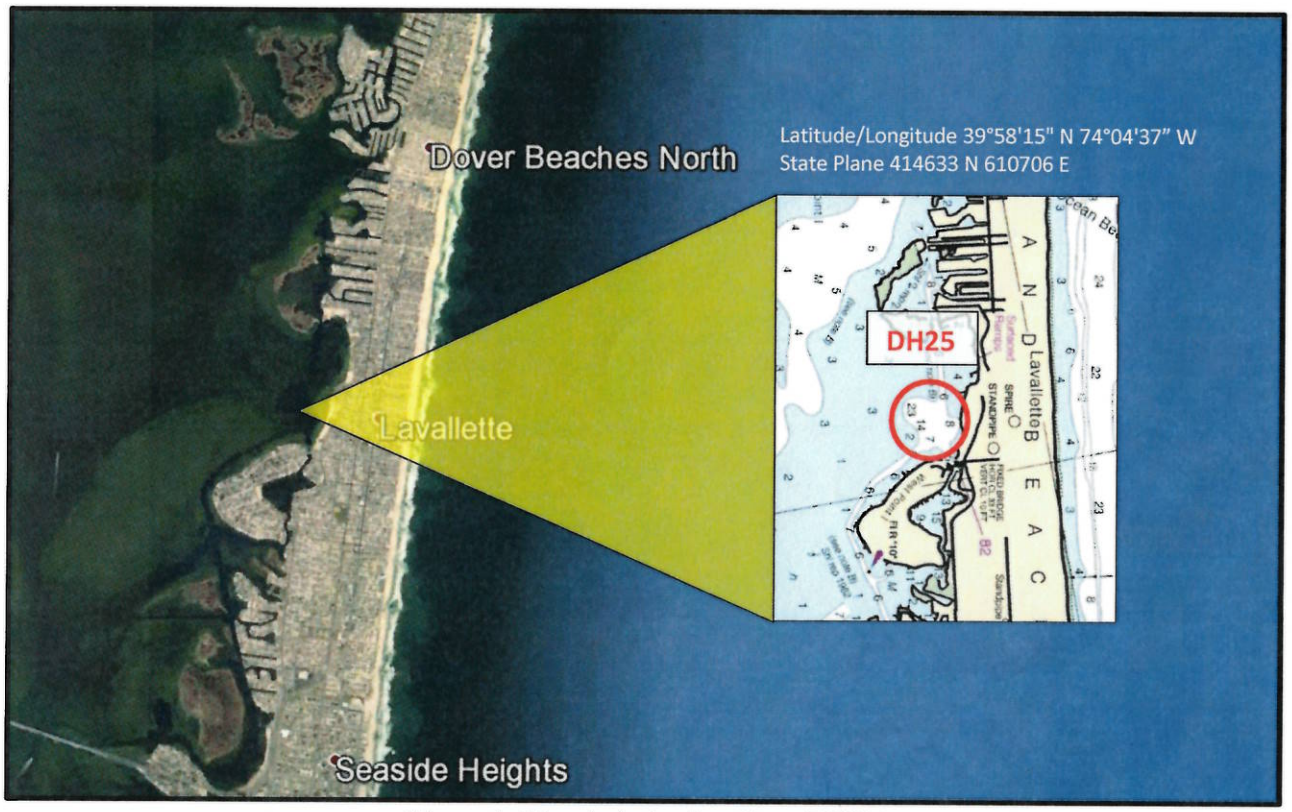


Figure 1. Map depicting location of DH25

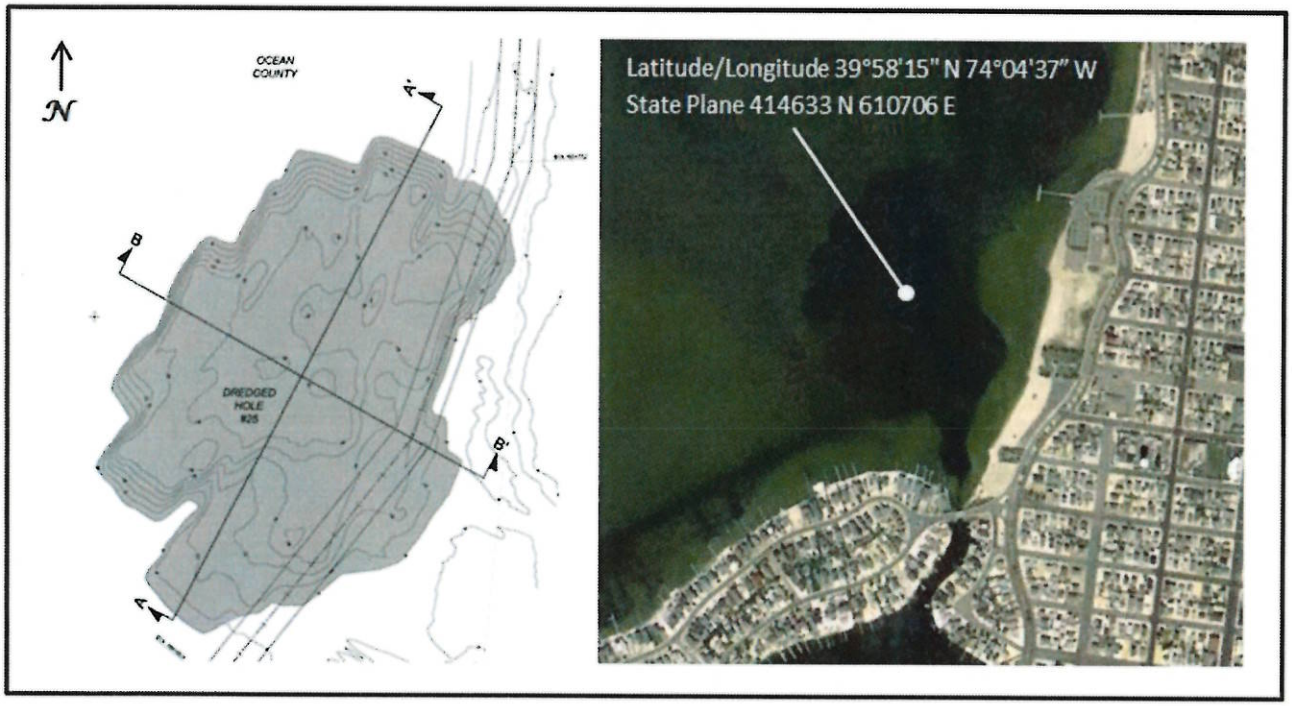


Figure 2. Plan view and aerial view of DH25

2.0 SITE-SPECIFIC SAMPLING PROGRAM

In support of the development of a restoration plan for DH25, Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C. (Matrix) performed a site-specific sampling program for DH25 in April 2016. The objective of the sampling effort was to obtain data regarding the physical and chemical characteristics of sediment within the high quality shallow water habitat areas surrounding DH25. The purpose of collecting the data was to identify the composition of material most appropriate for use in filling the upper limits of the dredged hole as part of the restoration. The intent is to use material that is characteristically similar to the adjacent areas in order to promote recolonization of benthic organisms and SAV beds within the footprint of DH25.

2.1 Sampling Plan Description

The sampling program was conducted in accordance with procedures outlined within a sampling plan proposal, which was submitted in March 2016 to National Marine Fisheries Service (NMFS), Habitat Conservation Division and NJDEP, Office of Dredging and Sediment Technology (ODST). A total of fifteen sediment sampling points were established at DH25. The sample points included four cardinal collection points (north, south, east and west) immediately surrounding the dredged hole and eleven sampling points located within areas of mapped SAV beds within close proximity to the dredged hole. At each sediment sample point, a sediment core was obtained for grain size and total organic carbon (TOC) analysis and data regarding SAV spatial coverage and species presence was recorded. In order to evaluate for potential chemical contaminant concentrations, one composite core, comprised of sediment collected at the four cardinal point locations directly adjacent to the dredged hole, was also analyzed for metals, SVOCs/PAHs, and pesticides. The three surface water samples, collected across the dredged hole, were analyzed for total suspended solids (TSS) in order to establish background TSS levels. A listing of the individual sample points by type and coordinate position for the dredged hole is presented in Table 1, below, and an aerial view depicting the sample point locations is provided as Figure 3, below.

Table 1. Sample Points and Coordinate Positions for DH25

Sample Point Id	Latitude (N)	Longitude (W)
Site Water Sample Points (water)		
SW-1	39.97268	74.0807
SW-2	39.97173	74.0777
SW-3	39.97153	74.07536
Cardinal Direction Sample Points (sediment)		
STN-1	39.9731	74.0775
STS-1	39.96978	74.0786
STE-1	39.97184	74.0749
STW-1	39.97163	74.0792
Field Determined SAV Locations (sediment)		
STF-1	39.96964	74.0802
STF-1A	39.96945	74.0750
STF-2	39.9725451	74.0743
STF-2A	39.9694452	74.0747

Sample Point Id	Latitude (N)	Longitude (W)
Field Determined SAV Locations (sediment) *continued*		
STF-2B	39.9720915	74.0738
STF-3	39.97312	74.0775
STF-4	39.96998	74.0812
STF-5	39.97039	74.0810
STF-6	39.96994	74.0808
STF-7	39.97266	74.0792
STF-8	39.9742549	74.0783

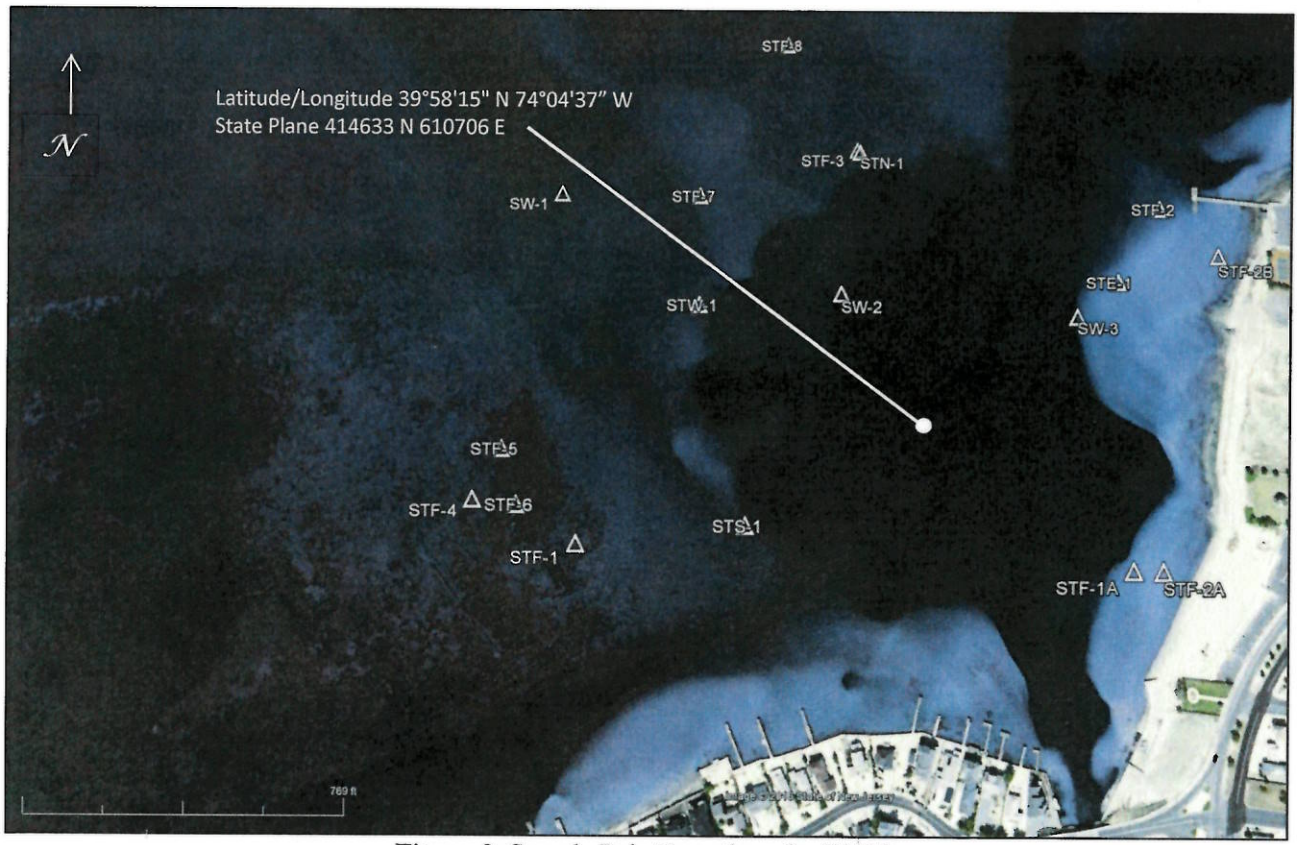


Figure 3. Sample Point Locations for DH25

2.2 Sampling Procedures

Site water samples were obtained by submersing a 950 ml plastic jar approximately 24 - 36-inches below the water surface. Sediment samples were obtained using a 2-inch diameter hand-corer advanced to a depth of 12 -24-inches into the substrate, refer to Figure 4. Efforts were made to ensure that samples were collected at locations with similar depths and microtopography. No sediment samples were collected within any obvious mounds or depressions. Data regarding SAV absence/presence, percent cover and species composition was noted at each sediment sample location. To establish sample points within mapped SAV beds, exploratory visual surveys were conducted by Matrix scientific divers throughout adjacent areas to identify representative locations. Subsequent to the visual survey, fifteen sample points were established within mapped SAV bed limits. At each sample point, data was collected

to assess presence/absence, spatial coverage and species composition. SAV evaluation procedures utilized were similar in nature to sampling methods presented within the SAV Survey Guidelines for New Jersey, 1991. Using a 1m x 1m quadrat divided into sixteen (16) sub-quadrants, a series of three quadrat "throws" were randomly tossed within the sampling point location. Divers would then identify the presence of SAV within each of the sixteen (16) sub-quadrants to establish spatial coverage and note the species type/composition.

Upon completion of field activities, sediment samples were immediately delivered to Alpha Analytical Laboratories, Inc. (Alpha) for analysis. As noted above, all surface water samples were analyzed for TSS and all sediment cores were analyzed for grain size and TOC. One composite sample (consisting of sediment from STN-1, STE-1, STW-1) and one discrete sample (STS-1) were also analyzed for metals, SVOCs/PAHs, and pesticides.

Figure 4. Team of Scientific Divers Collecting Data

2.3 Sampling Results

The following subsections provide a summary of results regarding data obtained for TSS, TOC, grain size, chemical analysis and SAV coverage. It should be noted that all samples were delivered to Alpha Analytical Labs. (Alpha) within the prescribed field holding times, were intact, and properly preserved; Alpha analyzed all samples within the recommended method holding times; and each analysis method met quality control requirements. There were no significant events that would have affected the sampling procedures or the results of the samples presented in this report.

2.3.1 Total Suspended Solids

Three water surface samples were collected above and adjacent to DH25. The samples were obtained along a linear transect that bisected the dredged hole in a west-east orientation. Along the transect, a sample was taken at the eastern and western "edges" and center point of the dredged hole. The purpose for obtaining the water samples was for establishing background TSS levels at the dredged hole locations.

Total suspended solids (TSS) at DH25 ranged from 25,000 µg/L to 27,000 µg/L. A summary table of the analytical results is provided below as Table 2 for reference.

Table 2. Total Suspended Solids Results for DH25

Sample Point Id	TSS (µg/l)
Dredged Hole#25 (April 2016)	
SW-1	26,000
SW-2	27,000
SW-3	25,000

2.3.2 Grain Size and Total Organic Carbon

All sediment sample cores, including composited cores, obtained as part of the sampling program were analyzed for grain size and TOC. Grain size was analyzed in accordance with the Standard Test Method for Particle Size Analysis of Soils (D422-63, re-approved 2002) and TOC was determined based on the guidance from Determination of TOC in sediment (Lloyd Kahn Method, July 1988). As shown in Table 3 below, ten of the seventeen sediment samples consisted of material that is greater than 90 percent sand (particle size 0.074 – 4.76 mm), while the remaining seven samples ranged between 68.6 – 88.6 percent sand. Obtained sediment samples were also analyzed for TOC. Results of the TOC analysis are presented in Table 4, below.

Table 3. Grain Size Distribution Results for DH25

Sample Point Id	Sand (%)	Silt (%)	Clay (%)	Gravel (%)
Cardinal Direction and Composite Sediment Samples				
DH 25 Comp	94.6	4.4	0.4	0.6
STS-1 Discrete	88.6	10.7	0.7	ND
STN-1	97.1	1.3	0.1	1.5
STS-1	84.7	14.4	0.9	ND
STE-1	68.6	29.2	2.2	ND
STW-1	96.5	1.1	ND	2.4
Field Determined Mapped SAV Sediment Samples				
STF-1	82.9	16.2	0.9	ND
STF-1A	98.1	1.8	0.1	ND
STF-2	98.3	1.5	ND	0.2
STF-2A	98.5	1.4	0.1	ND
STF-2B	92.8	1.7	0.1	5.4
STF-3	95.8	3.4	0.1	0.7
STF-4	85.2	13.1	1.7	ND
STF-5	82.8	16.2	1	ND
STF-6	73.7	24.6	1.7	ND
STF-7	97.3	2.3	0.1	0.3
STF-8	97.2	2.7	0.1	ND

ND denotes that the applicable value was not detected in laboratory analysis

Table 4. Total Organic Carbon Results for DH25

Sample Point	Average TOC Concentration (mg/kg)
Cardinal Direction and Composite Sediment Samples	
DH 25 Comp	1060
STS-1 Discrete	4390
STN-1	739.5
STS-1	4895
STE-1	4835
STW-1	627.5
Field Determined Mapped SAV Sediment Samples	
STF-1	2140
STF-1A	1190
STF-2	843
STF-2A	782
STF-2B	978
STF-3	835
STF-4	2895
STF-5	2610
STF-6	4570
STF-7	755.5
STF-8	1008.5

2.3.3 Chemical Analyses

In order to evaluate for potential chemical contaminant concentrations, sediment samples collected at the four cardinal point locations directly adjacent to the dredged hole, were analyzed for metals, SVOCs/PAHs, and pesticides. The samples included one composite sample (consisting of sediment from STN-1, STE-1, STW-1) and one discrete sample (STS-1). Results for the composite sample are presented below against applicable remediation standards for sediments, NJDEP 2008 Residential Direct Contact Soil Remediation Standard (RDCSRS) and NJDEP 2008 Non-Residential Direct Contact Soil Remediation Standard (NRDCSRS), N.J.A.C. 7:26D. The analytical results are presented under Table 5, below, document that the sampled sediments are below NJDEP's RDCSRS and NRDCSRS.

Table 5. Chemical Analysis Results for DH25

ANALYTE	NJ-NRDCSRS (mg/kg)	NJ-RDCSRS (mg/kg)	DH-25-COMP-1 (mg/kg)	STS-1 Discrete (mg/kg)
PAHS BY GC/MS-SIM				
2-Chloronaphthalene	NA	NA	ND	ND
2-Methylnaphthalene	2400	230	ND	0.0022
Acenaphthene	37000	3400	0.00102	0.00221
Acenaphthylene	300000	NA	ND	0.00093
Anthracene	30000	17000	ND	0.00542

ANALYTE	NJ-NRDCSRS (mg/kg)	NJ-RDCSRS (mg/kg)	DH-25-COMP-1 (mg/kg)	STS-1 Discrete (mg/kg)
PAHS BY GC/MS-SIM *continued*				
Benzo(a)pyrene	0.2	0.2	ND	0.00579
Benzo(b)fluoranthene	2	0.6	ND	0.00951
Benzo(g,h,i)perylene	30000	380000	ND	0.00659
Benzo(k)fluoranthene	23	6	ND	0.00692
Chrysene	230	62	ND	0.012
Fluoranthene	24000	2300	ND	0.0242
Fluorene	24000	2300	ND	0.00268
Indeno(1,2,3-cd)pyrene	2	0.6	0.00524	0.0118
Naphthalene	17	6	0.00148	0.0034
Phenanthrene	300000	NA	ND	0.00612
Pyrene	18000	1700	ND	0.0175
SEMIVOLATILE ORGANICS BY GC/MS				
1,2,4,5-Tetrachlorobenzene	NA	NA	ND	ND
2,3,4,6-Tetrachlorophenol	NA	NA	ND	ND
2,4,5-Trichlorophenol	68000	6100	ND	ND
2,4,6-Trichlorophenol	74	19	ND	ND
2,4-Dichlorophenol	2100	180	ND	ND
2,4-Dimethylphenol	14000	1200	ND	ND
2,4-Dinitrophenol	1400	120	ND	ND
2,4-Dinitrotoluene	3	0.7	ND	ND
2,6-Dinitrotoluene	3	0.7	ND	ND
2-Chlorophenol	2200	310	ND	ND
2-Methylphenol	3400	310	ND	ND
2-Nitroaniline	23000	39	ND	ND
2-Nitrophenol	NA	NA	ND	ND
3,3'-Dichlorobenzidine	4	1	ND	ND
3-Nitroaniline	NA	NA	ND	ND
4-Chloro-3-methylphenol	NA	NA	ND	ND
4-Chloroaniline	NA	NA	ND	ND
4-Nitroaniline	NA	NA	ND	ND
4-Nitrophenol	NA	NA	ND	ND
Acetophenone	5	2	0.00531	0.00858
Atrazine	2400	210	ND	ND
Benzaldehyde	68000	6100	ND	ND
Biphenyl	34000	3100	ND	ND
bis(2-Chloroethoxy)methane	NA	NA	ND	ND
bis(2-Chloroethyl)ether	2	0.4	ND	ND
bis(2-chloroisopropyl)ether	67	23	ND	ND
bis(2-Ethylhexyl)phthalate	140	35	ND	ND
Caprolactam	340000	31000	ND	ND
Carbazole	96	24	ND	ND
Di-n-butylphthalate	68000	6100	ND	0.0054
Di-n-octylphthalate	27000	2400	ND	ND
Dibenzofuran	NA	NA	ND	ND

ANALYTE	NJ-NRDCSRS (mg/kg)	NJ-RDCSRS (mg/kg)	DH-25-COMP-1 (mg/kg)	STS-1 Discrete (mg/kg)
SEMIVOLATILE ORGANICS BY GC/MS *continued*				
Hexachlorobenzene	1	0.3	ND	ND
Hexachlorobutadiene	25	6	ND	ND
Hexachlorocyclopentadiene	110	45	ND	ND
Hexachloroethane	140	35	ND	ND
Isophorone	2000	510	ND	ND
n-Nitrosodiphenylamine	390	99	ND	ND
Nitrobenzene	340	31	ND	ND
Pentachlorophenol	10	3	ND	ND
Phenol	210000	18000	ND	ND
Total SVOCs			0.00531	0.01398
Total TIC Compounds	NA	NA	0.6088	3.427
ORGANOCHLORINE PESTICIDES BY GC				
4,4'-DDD	13	3	0.00004	0.00096
4,4'-DDE	9	2	0.00006	0.00199
4,4'-DDT	8	2	ND	0.00024
Aldrin	0.2	0.04	ND	ND
alpha-BHC	0.5	0.1	0.00007	ND
alpha-Chlordane	1	0.2	0.00005	ND
beta-BHC	2	0.4	ND	ND
Chlordane	1	0.2	ND	ND
delta-BHC	NA	NA	ND	ND
Dieldrin	0.2	0.04	ND	ND
Endosulfan I	6800	470	ND	ND
Endosulfan II	6800	470	ND	ND
Endosulfan sulfate	6800	470	ND	ND
Endrin	340	23	ND	ND
Endrin aldehyde	NA	NA	ND	ND
Endrin ketone	NA	NA	ND	ND
gamma-BHC	NA	NA	ND	ND
gamma-Chlordane	1	0.2	0.00004	ND
Heptachlor	0.7	0.1	ND	ND
Heptachlor epoxide (B)	0.3	0.07	ND	ND
Methoxychlor	5700	390	ND	ND
Toxaphene	3	0.6	ND	ND
Aluminum, Total	NA	78000	516	1900
Antimony, Total	450	31	0.04	0.171
Arsenic, Total	19	19	0.691	2.62
Barium, Total	59000	16000	1.98	5.8
Beryllium, Total	140	16	0.052	0.17
Cadmium, Total	78	78	0.02	0.157
Calcium, Total	NA	NA	341	1040
Chromium, Total	NA	NA	2.55	8.36
Cobalt, Total	590	1600	0.455	1.86
Copper, Total	45000	3100	1.03	6.09
Iron, Total	NA	NA	1450	5370
Lead, Total	800	400	1.36	10.9

ANALYTE	NJ-NRDCSRS (mg/kg)	NJ-RDCSRS (mg/kg)	DH-25-COMP-1 (mg/kg)	STS-1 Discrete (mg/kg)
ORGANOCHLORINE PESTICIDES BY GC *continued*				
Magnesium, Total	NA	NA	366	1190
Manganese, Total	5900	11000	10.9	47.3
Mercury, Total	65	23	0.004	0.196
Nickel, Total	23000	1600	0.996	4.18
Potassium, Total	NA	NA	222	682
Selenium, Total	5700	390	0.092	0.356
Silver, Total	5700	390	0.006	0.037
Sodium, Total	NA	NA	1040	3000
Thallium, Total	79	5	0.028	0.053
Vanadium, Total	1100	78	2.32	8.6
Zinc, Total	110000	23000	4.82	28

2.3.4 SAV Percent Coverage Results

Two species of SAV were observed during sampling at DH25, widgeon grass (*Ruppia maritima*) and eelgrass (*Zostera marina*). SAV beds at the time of sampling were observed to be relatively abundant. During the sampling effort, it was noted that the distribution of seagrass beds was higher toward the east (i.e. toward the shoreline) than to the west (i.e. toward open bay). For DH25, a total of fifteen sampling points were established of which seven locations yielded results with SAV presence. SAV sampling results are provided in Table 6, below.

Table 6. SAV Coverage Results for DH25

Sample Point Id	SAV Presence /Absence	Coverage Ruppia (%)	Coverage Zostera (%)	Total Coverage (%)
STN-1	Absent	--	--	--
STS-1	Absent	--	--	--
STE-1	Absent	--	--	--
STW-1	Absent	--	--	--
STF-1	Present	70.8	4.2	75.0
STF-1A	Absent	NA	NA	NA
STF-2	Present	33.3	0.0	33.3
STF-2A	Present	33.3	0.0	33.3
STF-2B	Present	70.8	0.0	70.8
STF-3	Absent	--	--	--
STF-4	Present	50	12.5	62.5
STF-5	Present	43.8	20.8	64.6
STF-6	Present	20.8	0.0	20.8
STF-7	Absent	--	--	--
STF-8	Absent	--	--	--

2.3.5 Discussion of Sampling Plan Results

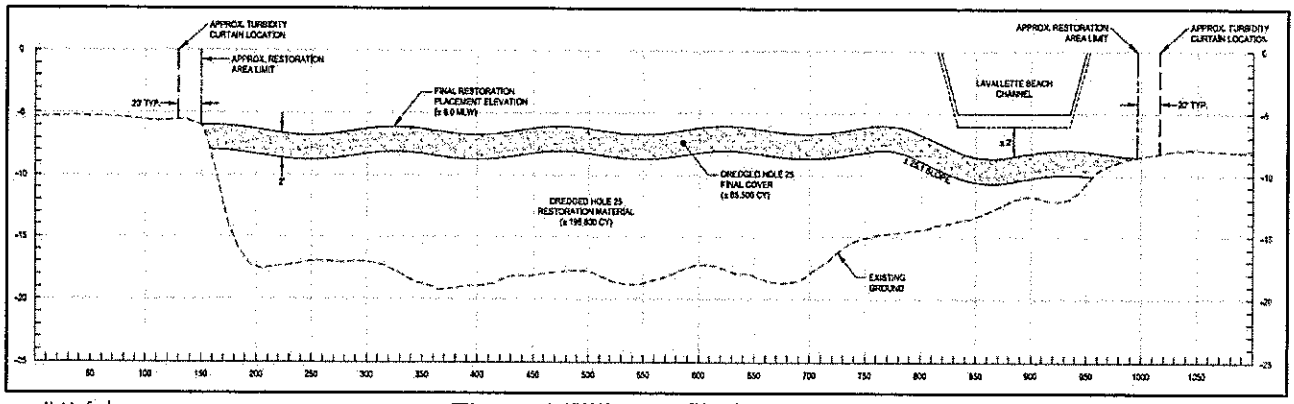
In summary, sediment samples obtained for DH25 consist of clean sandy material. The majority of sediment samples obtained at DH25 consisted of material that was comprised of greater than 85 percent sand sized particles (particle size 0.074 – 4.76 mm). Chemical analyses performed for the composite sample and single discrete sample exhibited results below NJDEP 2008 Residential Direct Contact Soil Remediation Standards (RDCSRS) and NJDEP 2008 Non-Residential Direct Contact Soil Remediation Standards (NRDCSRS), N.J.A.C. 7:26D. During the evaluation of sample points established within previously mapped SAV beds, two species of SAV were observed, widgeon grass (*Ruppia maritima*) and

eelgrass (*Zostera marina*). SAV beds at the time of sampling were observed to be relatively abundant, with larger higher density beds located toward the east (i.e. toward the shoreline) than the beds located to the west (i.e. toward open bay). When reviewing grain size distribution against SAV coverage, there does not appear to be a connection between grain size and either the presence or the percent coverage of SAV.

3.0 HABITAT RESTORATION DESIGN

This section provides specific habitat restoration measures required to restore the ecologically impaired subaqueous borrow pit DH25. DH25 is one of five priority dredged holes recommended for habitat restoration under previous studies (Howard et. al, 2015). DH25 is a +/-20' deep borrow pit within an area of Barnegat Bay where the natural bottom surface elevations are relatively flat and approximately 6' deep at MLW. While shallow water areas adjacent to DH25 consist of high quality shallow water habitat that support SAV beds, conditions within DH25 are highly degraded. Water quality and benthic samples, conducted by the CRC, have documented that benthic conditions are currently azoic due to extended periods of hypoxic conditions (Howard et. al, 2015).

Restoring bottom surface elevations of DH25 will prevent stratification of the water column (a major contributor to hypoxic conditions) and promote colonization by benthic organisms and submerged aquatic vegetation (SAV). Engineering plans, included as Appendix B, prepared to illustrate habitat restoration measures show that approximately 260,000 cubic yards (CY) of material is required to fill and restore DH25. Approximately 195,000 CY of sediment is required to serve as "fill" to bring bottom surface elevations from (+/-) -20 MLW to near natural grades. To replicate natural grades, the target filling elevation is -6 mlw across the majority of DH25. Slightly deeper elevations are required along the eastern edge of the dredged hole to avoid potential siltation within the adjacent navigation channel (refer to Figure 5, below). To replicate upper strata conditions found within the high quality shallow water habitat areas surrounding DH25, a (+/-) 24-inch deep layer of coarse sandy material will be placed as a final cover.



Not to Scale

Figure 5. Filling profile for DH25

3.1 Source of Fill Material

Based upon best available hydrographic survey data it was calculated that approximately 195,000 cubic yards (CY) of material is required to fill DH25 to levels that will re-establish more natural bottom surface elevations. The source material required to fill DH25 will consist of coarse and fine grained sediment obtained from shoaled portions of local navigation channels. All contributing channels are located within approximately five-miles of DH25 and are identified on Figure 6, below. Sediment within the contributory channels has been previously tested (including analysis for grain size composition) and approved for use by NJDEP Office of Dredging and Sediment Technology (ODST). The material will be placed within the dredged hole in order of sediment gradation. Finer material will be deposited within the bottom of the dredged hole while material obtained from channels consisting primarily of coarse sandy material will be placed as final cover. A list of the specific channels, order of placement and total volume of source material being contributed from each channel is presented in Table 7, below, and on Sheet 1 of 2 of the DH25 Habitat Restoration Engineering Design Plans included as Appendix B.

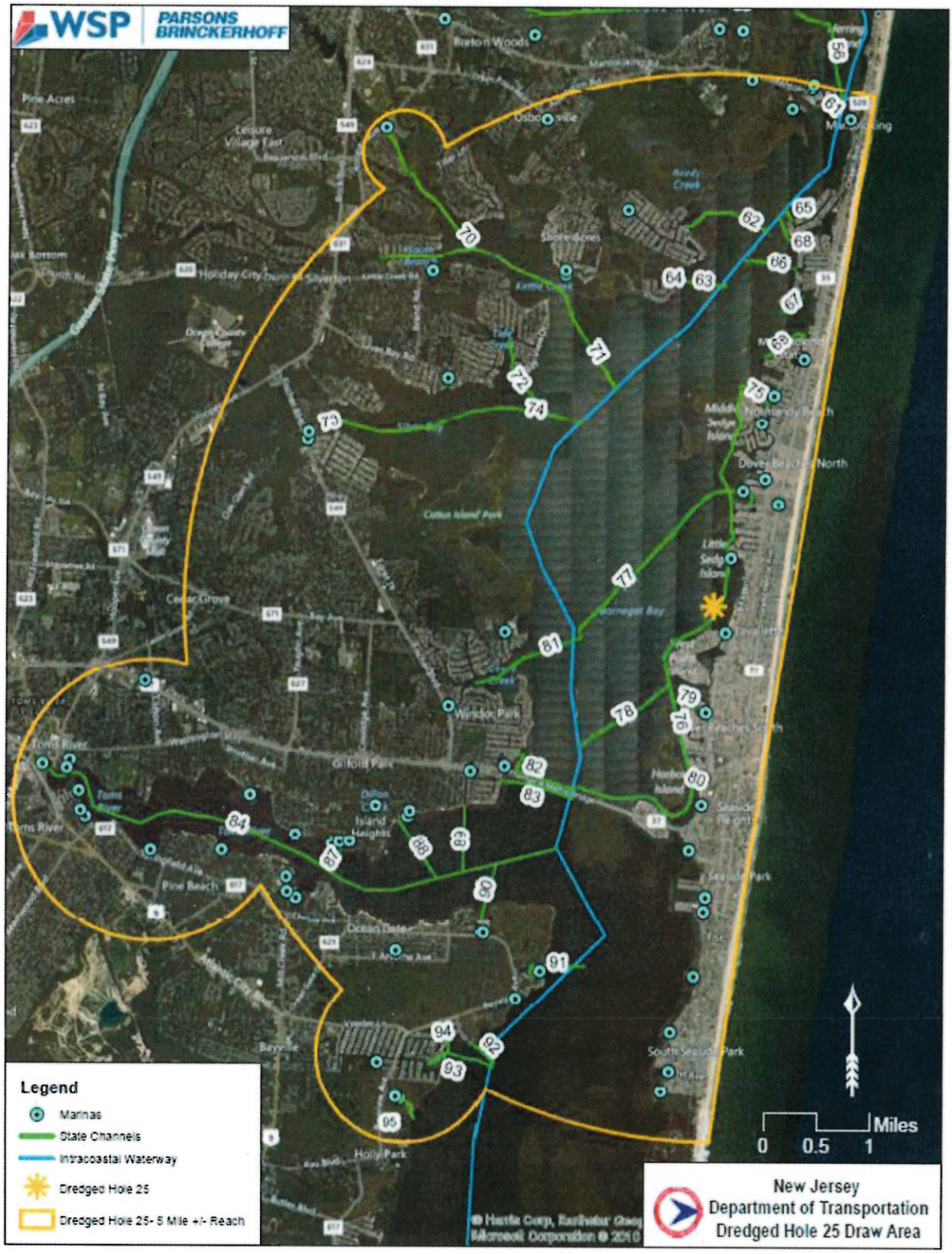


Figure 6. Map depicting location of contributory channels relative to DH25

Table 7. DH25 Available Contributory Channel Material Volume Summary

DH25 Restoration Sequence and Source Material Volumes			
Placement Sequence	**Source Material by Channel**	**Volume (CY)**	**Cumulative Volume (CY)**
1	Good Luck Point Channel (091)	8,200	8,200
2	Kettle Creek Channel (071)	36,800	45,000
3	Kettle Creek – Sailor's Quay Channel (070)	51,500	96,500
4	Sloop Creek Channel (095)	2,900	99,400
5	Lavallette Beach Channel (076)	63,500	162,900
	Total	**162,900**	

3.2 Source of Final Cover Material

Approximately 65,000 CY of sediment is required to provide a (+/-) 24-inch deep layer of final cover material (refer to Figure 7, below). The final cover is to consist of coarse sandy material that replicates upper substrate conditions found within the high quality shallow water habitat areas surrounding DH25. The physical and chemical characteristics of sediment suitable for use as final cover were determined through a site-specific sampling program that evaluated substrate conditions within the adjacent areas (refer to Section 2.0). This sampling program determined that final cover material should consist of clean coarse-grained material that is greater than 90% sand (particle size 0.074 – 4.76 mm). To meet this requirement, final cover material will be obtained from one specific channel where previous grain size analysis documented that the contributory sediment consist primarily of a material that is greater than 90% sand. This channel is the Lavallette Beach Channel (identified as Channel 076) on Figure 6 and in Table 7, above). Use of coarse sandy material that replicates the adjacent substrate conditions is intended to promote recolonization of benthic organisms and SAV beds within the footprint of DH25.

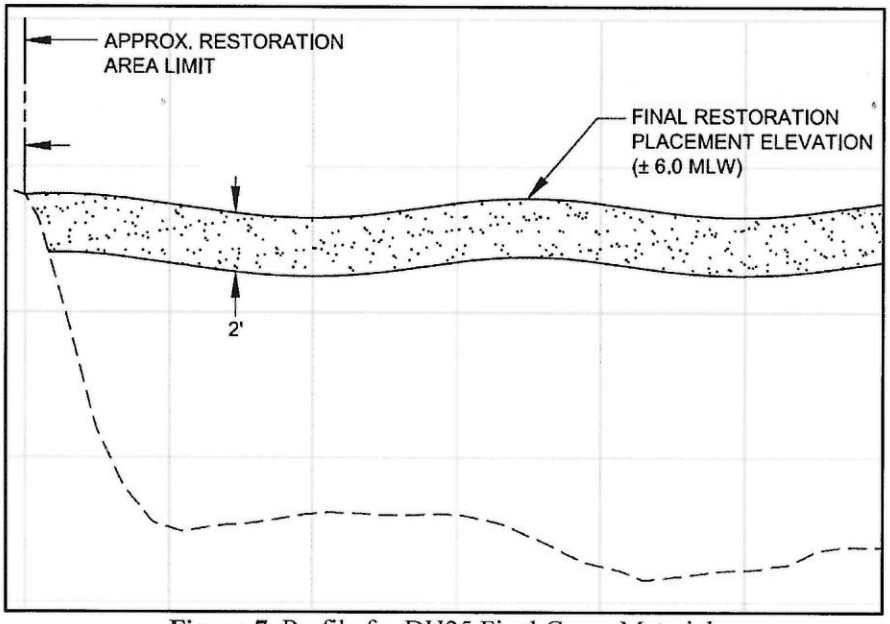


Figure 7. Profile for DH25 Final Cover Material

3.3 Filling Method

The most feasible method of filling for DH25 is to utilize a hydraulic cutterhead dredge and pump shoaled sediment from within the contributory channels through a combination of submerged and floating pipelines to DH25. The pipelines are to be aligned/routed in a manner that avoids bisecting existing and mapped SAV beds to the greatest extent possible. In locations where bisecting SAV beds are unavoidable, floating pipelines are proposed to be used. The pipelines will terminate within the footprint of DH25 and will attach to a diffuser mechanism to deposit the material within the dredged hole. Diffusers use directional and gravitational forces to neatly place sediment in specific locations and avoid large sediment plumes. A typical pipeline and diffuser detail is depicted as Figure 8, below, and included on Sheet 1 of 2 of the DH25 Habitat Restoration Engineering Plans included as Appendix B. The specific diffuser will be determined by the selected contractor performing the filling activities.

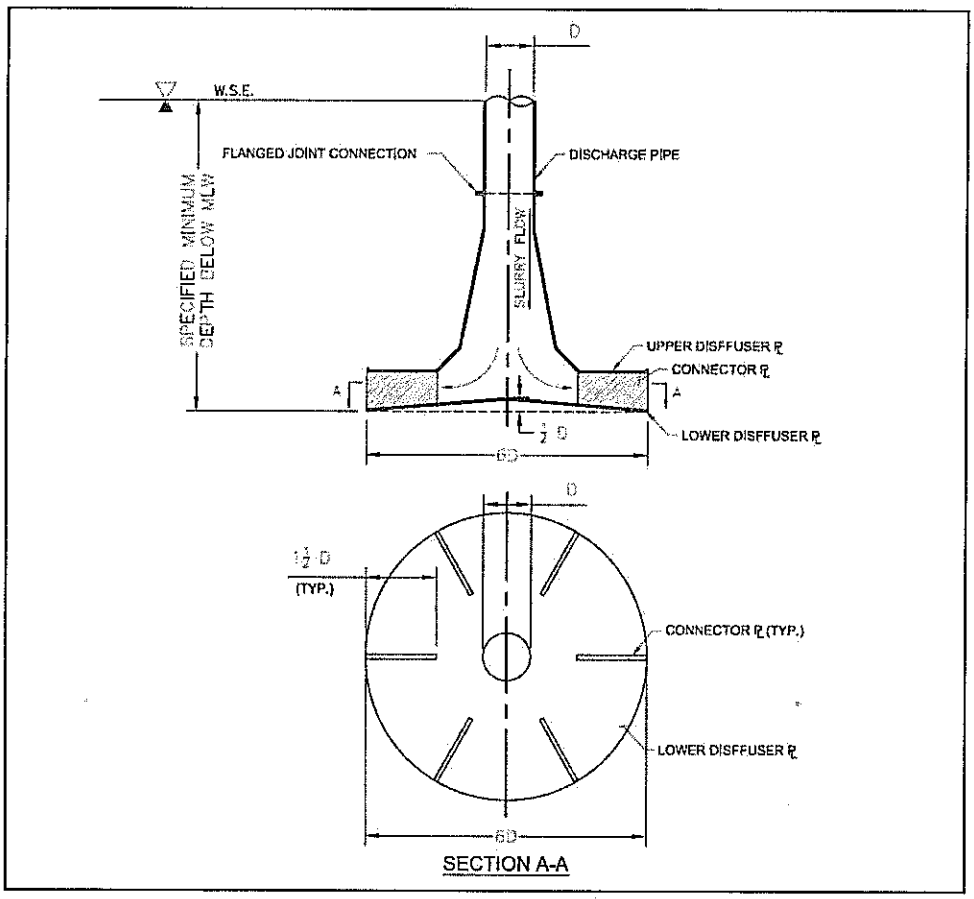


Figure 8. Typical pipeline and diffuser detail

To ensure elevated levels of turbidity do not extend beyond DH25 during deposition activities, the dredged hole will be surrounded by a turbidity barrier. The turbidity barrier will be deployed along the entire outer edge of the dredged hole and will extend from the water surface to the bay floor (approximately 5'). Turbidity barriers are designed to contain fine-grained material within the area of operation and impede the transport of sediment out of the work site and into the surrounding environment. Turbidity barriers typically consist of geo-textile sheets attached to floats that are weighed down to the sea floor and anchored in place. The barrier must be continually monitored to maintain proper deployment configuration and function. A typical turbidity barrier detail is depicted below as Figure 9.

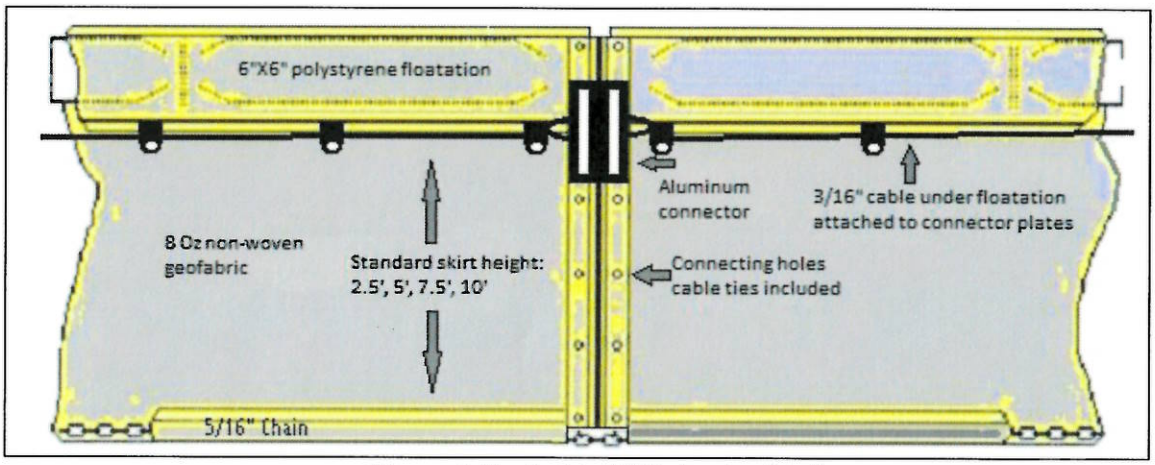


Figure 9. Typical turbidity barrier detail

3.4 Operational Best Management Practices

Best Management Practices (BMPs) are the physical, structural and/or managerial practices that are to be used in combination with one another to prevent any adverse impacts to the surrounding environment. The following BMPs are to be utilized during operation activities in effort to minimize turbidity or significant increases in total suspended solids within the water column of areas adjacent to DH25:

- Maximize concentration of solids in pipeline effluent stream
- Minimize flow rate in the slurry being transported
- Minimize velocity at the slurry discharge point
- Place slurry below the water surface as near as possible to the fill surface without re-suspending previously placed material
- Direct slurry discharge in such a manner that it is diffused horizontally instead of directly downward
- Establish a filling pattern so as to place material in vertical lifts evenly across the widest possible placement area with each lift
- Prepare for implementation of Adaptive Management Practice as needed

3.5 Monitoring During Operations

Turbidity monitoring shall include continual visual observation and recording of TSS levels to ensure that operations are not causing any sediment plumes. If visual observation of a sediment plume is observed then adaptive management procedures detailed below shall be employed immediately. Recording of TSS levels shall be performed twice daily, once on ebb tide and once on flood tide at three locations relative to placement operations: 1) directly down-current of fill operations within 3 feet of the inside of the turbidity barrier containment, 2) directly down-current of fill operations approximately 50 feet outside of the turbidity barrier containment, and 3) directly down-current of fill operations approximately 500 feet outside of the turbidity barrier containment. Additionally, one control location approximately 200 feet up-current of the turbidity barrier containment shall be monitored at each sampling event to establish a control point. All data must be recorded in field logs during the entire execution of the restoration process and be made available for review upon request. If at any point in time recording of TSS levels show an increase in turbidity levels greater than 50% over the reference point turbidity level, then procedures under the adaptive management plan shall be implemented.

Monitoring of turbidity, a measurement of water clarity, is to ensure that suspended sediments, such as particles of clay and silt do not enter the water outside of the area of operations contained within the boundaries of the turbidity barriers. Turbidity shall be monitored using a nephelometer, such as a Yellow Springs Instrument (YSI) 6600 multi-parameter data logger or similar turbidity monitoring device, and recorded in Nephelometric Turbidity Units (NTUs). The results of turbidity monitoring will be cataloged daily as part of the contractor's daily production report along with other information regarding the ongoing fill progress such as minimum and average fill elevations and volume placed.

3.6 Adaptive Management Plan

The project Adaptive Management Plan (ADP) consists of considered courses of action, some or all of which may be employed in any given situation that will reduce or mitigate the effects of observed increases in turbidity occurring due to filling operations on the project.

- Initially, the filling site will be enclosed by a turbidity barrier designed to contain the turbidity generated by the dredging effluent. The initial placement method will be specified to include use of a contractor-designed placement barge or float.
- A marked decrease in slurry velocity as the direction of flow is directed from horizontal to downward, either through upward flow falling back into a collection downpipe or hopper arrangement or having a bell diffuser on the downpipe.
- Redirecting the downward flow of material to 360 degree horizontal at the point of placement with use of a deflector plate.
- Placement of the dredged material slurry below the water surface and at sufficient depth to reduce surface turbidity.
- Ability to place material in various locations utilizing horizontal movement via anchors or spuds and employing GPS based tracking and recording of location and time which can be compared to dredging production records and after placement surveys to determine the rate and final location of placed material.
- Frequent surveys of the placement surface to monitor efficiency of layer control.
- Monitoring of generated turbidity plume

The contractor-designed placement equipment will be reviewed to determine its compliance with the specified characteristics and ability to perform efficiently. Should results not be as anticipated, the following adaptive management practices will be employed (singularly or in combination):

- Reduce the height of the fill layers and increase the horizontal movement activity of the placement barge.
- Lower the downpipe to as near to the filled surface as possible without re-suspending placed material.
- Fill the site in a manner so that the "bowl" is filled from the outer edges inward and the discharge point can be below the surrounding final fill elevation for the maximum amount of time.
- Review contractor flowrate to ensure that the pipeline velocities are not above that needed to properly suspend the material in slurry. If excessive, direct a reduction in flowrate.

3.7 Settlement and Compaction Assessment

During the placement of the fill material, settlement and compaction of the deposited fill material may occur. Therefore, in order to document that the contributory material volumes achieve the final target elevations of -6 mlw, a detailed hydrographic survey shall be performed upon completion of the final placement activities. The hydrographic survey shall encompass the entirety of DH25 and adjacent water areas within 50 feet. Soundings shall be taken to establish cross-section elevations at 50-foot intervals

aligned parallel to the adjacent shoreline. The survey shall be performed using single-beam sounding techniques per the appropriate Corps of Engineers Manual (EM1110-2-1003) and must be supervised by a professional surveyor licensed in the state of New Jersey. Spatial positioning shall be accomplished using Differential Global Positioning System (DGPS) techniques with Real Time Kinematic (RTK) capabilities. Horizontal position data must be referenced to the New Jersey State Plane Coordinate System (NAD83) while vertical position data must be referenced to Mean Low Water (MLW). The collected data shall then be used to generate a bathymetric base map of DH25. The base map shall be prepared as a CADD drawing in the most recent version of AutoCAD. The bathymetric base map shall include, at a minimum, the following information:

- Boundary limits of DH25 and adjacent water areas within 50-feet
- Bathymetric contour lines at one-foot intervals
- Spot elevations to nearest tenth (0.1) of a foot
- A relationship between survey data, the North American Vertical Datum (NAVD88), and the local tide range

Upon completion of the bathymetric base map, results shall be reviewed to confirm that the target fill elevations have been achieved (refer to Sheet 2 of 2 of the DH25 Habitat Restoration Engineering Design Plans included as Appendix B). Should it be determined that settlement/compaction rates are significantly higher than anticipated and that additional fill material from sources other than the approved contributory channels listed within this plan are required, then NJDEP ODST must be contacted to discuss any modifications to the habitat restoration design.

4.0 POST COVER MONITORING PLAN

Restoration monitoring is an essential tool to assess the progress of restoration efforts. The restoration of the subaqueous borrow pit identified as DH25 will restore the grade of the benthic system eliminating water quality impairments associated with reduced dissolved oxygen. This restoration effort will result in improved water quality and provide habitat conducive to colonization of the region by submerged aquatic vegetation (SAV). To assess the restoration progression, the following three-year monitoring program has been developed. Monitoring activities include assessment of water quality, sediment analyses, benthic animal community structure, and surveys assessing SAV presence and coverage in the area. The sampling program will be conducted during the fall (between September 1 and November 1) starting the first year after fill placement and conducted for three consecutive years. Procedures for conducting the monitoring program will be consistent with initial assessment procedures outlined within the sampling plan proposal, which was submitted in March 2016 to NMFS, Habitat Conservation Division and NJDEP ODST.

4.1 Monitoring Sites

In accordance with the pre-restoration sampling program, water quality, sediment sampling points, and SAV surveys will be completed using the same primary coordinates for the outside borrow pit. Four additional stations will be established within the restoration footprint to evaluate the progress and success of the restoration process.

Table 8. Identified Pre-Restoration Sampling points from the field derived stations.

Sample Point Id	Latitude (N)	Longitude (W)
Field Determined SAV Locations		
STF-1	39.9696	74.0802
STF-1A	39.9694	74.0750
STF-2	39.9725	74.0743
STF-2A	39.9694	74.0747
STF-2B	39.9720	74.0738
STF-3	39.9731	74.0775
STF-4	39.9700	74.0812
STF-5	39.9704	74.0810
STF-6	39.9699	74.0808
STF-7	39.9726	74.0792
STF-8	39.9742	74.0783

4.2 Water Quality

The reduced dissolved oxygen (DO) associated with the borrow pit has limited benthic habitat quality and potentially impaired essential fish habitat. During all field-monitoring activities detailed below, *in situ* standard water quality parameters will be collected at each of the identified monitoring points listed. Specifically, dissolved oxygen, oxygen saturation, salinity, and temperature data will be collected using an YSI® Multi-parameter handheld meter. These data will be compared between the restoration area and the control points to assess the water quality and identify any differences that may occur. It is expected that after the restoration efforts that water quality will match the surrounding control points.

4.3 Sediment Grain Size and Total Carbon Assessment

The borrow pit restoration will use material to restore the habitat and match surficial sediment characteristics. Sediment samples will be collected from the restoration region and the monitoring sites to assess grain size and total organic carbon (TOC) in samples. The sampling and analysis protocol will follow the procedures laid out in the site evaluation. Specifically, grain size will be analyzed in accordance with the Standard Test Method for Particle Size Analysis of Soils (D422-63, re-approved 2002) and TOC will be determined based on the guidance from Determination of TOC in sediment (Lloyd Kahn Method, July 1988). Sediment characteristics will then be compared between the placed material in the restoration region with those in the control monitoring sites.

4.4 SAV Monitoring

To evaluate the presence of SAV within the restoration region and the adjacent control regions, random collection of 15 1m x 1m quadrat samples will be conducted at each of the four field determined SAV locations and an additional 15 quadrat samples will be collected from within the restoration region (N=75). The sampling protocol will follow the guidelines outlined in the SAV Survey Guidelines for New Jersey, 1991. Specifically, quadrats are divided into 16 sub-grids. For each sample, the presence/absence (P/A) is recorded for each sub-grid and denoting the species present (i.e., *Zostera marina* and/or *Ruppia maritima*). When SAV is present, three randomly selected sub-grids are evaluated for shoot density by counting, recording the total number of shoots encountered, and for which species they correspond. These data establish the spatial coverage and average shoot density of SAV on the site.

4.5 Benthic Faunal Assessment

The initial phase of the restoration involved the placement of material into the borrow pit to grade into the surrounding benthos. During the monitoring events, 6" diameter cores will be collected from the restored region and the established four field determined locations. A stratified sampling approach will be used to develop comparable data sets to evaluate the colonization and community assessment within the restoration region. Specifically, four benthic cores will be collected within each of the five sites (1 Restoration, 4 External Control). Sample cores will be collected after the SAV Monitoring to determine if SAV is present. If no SAV is documented in any of the individual stations, all four cores will be collected randomly from the sediments. If patchy SAV is present, two benthic cores will be collected from SAV habitat and two from unvegetated sediments. If a sampling station is completely covered with SAV, all four cores will be collected from SAV. Sampling for each core will be as follows: the corer is driven into the sediment to a depth of ~25cm, capped and removed. In the field, samples are sieved at 0.5mm to retain all macrofauna. If SAV is present in a sample, it will be removed, placed in a Ziploc bag with an identification tag and frozen for laboratory analysis (Floral Sample). For the remaining part of the sample, it will be preserved in ethanol with an identification tag (Faunal Sample). In the laboratory, Floral Samples will be evaluated as follows: 1) each individual seagrass shoot will be counted and the longest blade measured for length and width, 2) all above ground biomass will be isolated into a weighing tray as well as the below ground biomass, 3) the presence of any algae or detrital matter will be isolated and placed into separate weighing trays. Trays will be dried to constant weight at 80°C for 96 hours and weighed, then transferred to a muffle furnace at 500°C for 8 hours and then re-weighed. The weight

differential will provide the ash free dry weight for above ground biomass, below ground biomass, algal biomass, and detrital biomass. For the Faunal Samples, after samples are returned to the laboratory they will be stained with Rose Bengal to facilitate sample processing. In the laboratory, samples will be picked and all fauna removed from the sample. Fauna will then be identified to lowest reasonable taxonomic units and enumerated. Benthic community structure will then be compared between the restoration region and comparable external control site samples.

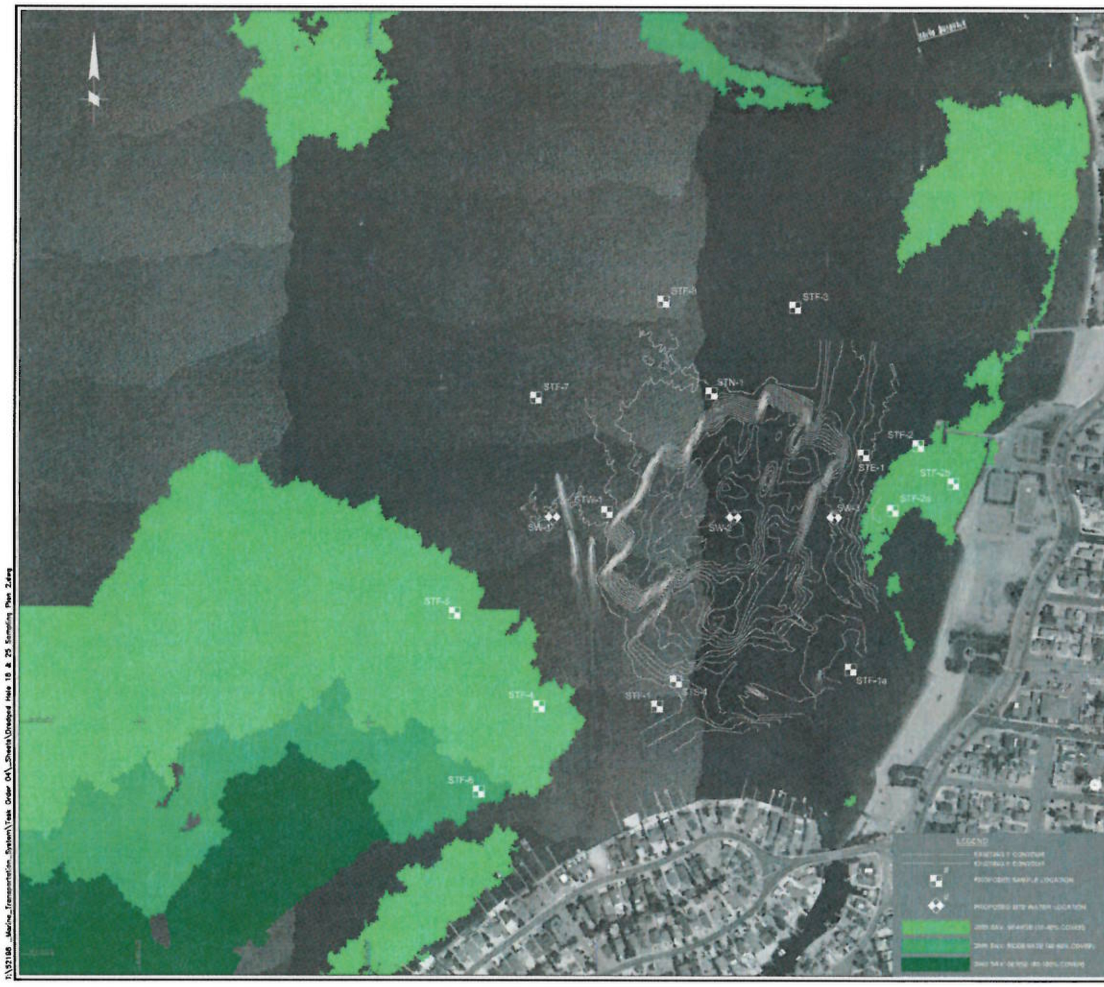
4.6 Monitoring Considerations

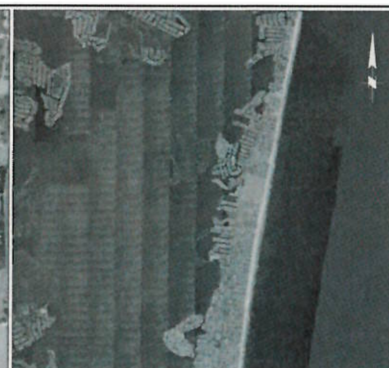
It is expected that during the initial monitoring phase of the project, the restoration region will not contain SAV, nor an established benthic community. As such, the initial evaluations will focus on taxa richness and density in comparison to the control sites. As the restoration progresses, multiple recruitment events of benthic fauna will occur and the expectations are that a normal sedimentary community will become established. We would not expect SAV to colonize into the restoration region until year three when nearby seed production could colonize and begin to become established and this would only occur if the established SAV habitat exhibits robust growth and seed production.

APPENDIX A

SUBMERGED AQUATIC VEGETATION RESOURCE MAPPING

For DH25





PROJECT LOCATION MAP
SCALE: 1"=3000'

NOTES:

1. VERTICAL DATUM IS IN REFERENCE TO MEAN LOW WATER (MLW). MLW IS 0.18 FEET BELOW THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88). INFORMATION OBTAINED FROM NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION (NOAA) VDATUM DATUM TRANSFORMATION PROGRAM.
   ELEV. 0.0 (NAVD88) / 0.18' / MLW
2. COORDINATES ARE EXPRESSED IN FEET AND REFER TO THE NEW JERSEY STATE PLANE GRID COORDINATE SYSTEM NORTH AMERICAN DATUM OF 1983 (NAD83).
4. EXISTING CONTOUR DATA SHOWN FOR DREDGED HOLE #25 WAS COLLECTED ON MAY 22, 2015 BY GAHAGAN & BRYANT ASSOCIATES (GBA) & OCTOBER 22, 2013 BY STOCKTON UNIVERSITY (SU).
5. THE INFORMATION DEPICTED ON THIS PLAN REPRESENTS THE RESULTS OF SURVEYS CONDUCTED ON THE ABOVE DATES AND CAN BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
6. AERIAL IMAGERY IS FROM BING MAPS, DATED SEPTEMBER 2014.
7. SAMPLE POINTS STN-1, STS-1, STE-1 AND STW-1 ARE LOCATED AT APPROXIMATE ELEVATION -3.5.

DREDGED HOLE #25
SAMPLE LOCATION TABLE

SAMPLE	NORTHING	EASTING
STN-1	415,423.6	610,498.6
STS-1	414,177.2	610,347.8
STE-1	415,159.9	611,263.2
STW-1	414,907.[illegible]	[illegible]
STF-1	414,06[illegible]	[illegible]
STF-1a	414,230.[illegible]	[illegible]
STF-2	415,199.4	611,400.8
STF-2a	414,919.9	611,293.3
STF-2b	415,034.9	611,358.7
STF-3	415,792.8	610,861.1
STF-4	414,060.7	609,747.8
STF-5	414,440.7	609,376.9
STF-6	415,704.5	609,433.8
STF-7	415,403.7	609,730.4
STF-8	415,910.9	610,266.1
SW-1	414,885.7	609,895.6
SW-2	414,885.7	610,597.5
SW-3	414,885.7	611,[illegible]

0.49 MTL (MHHW)
0.35 MHW
0.18 MTL
0.18 NAVD88
0.00 MLW
-0.27 MLLW

RANGE OF TIDE (FT)
NOT TO SCALE

0' 200' 400' 600'
GRAPHIC SCALE (FT)

REV.	DATE	DESCRIPTION	BY	APPR.

STATE OF NEW JERSEY
NJDOT OFFICE OF MARITIME RESOURCES

TITLE: MAINTENANCE DREDGING AND CHANNEL IMPROVEMENTS FOR DREDGED HOLE #25

PROPOSED SAV SAMPLING PLAN (2009 DATA)

PROJECT: DREDGED HOLE #25
TOMS RIVER TOWNSHIP / BOROUGH OF LAVALLETTE
OCEAN COUNTY, NEW JERSEY

DRAWN BY: SEF	GAHAGAN & BRYANT ASSOCIATES, INC CERTIFICATION OF AUTHORIZATION NO 24GA28192700	PROJECT NO
CHECKED BY: MRS		SHEET 1 OF 9
SCALE: AS SHOWN	STAN LULEWICZ NEW JERSEY PROFESSIONAL ENGINEER NO. 24GE04770900	
DATE: MARCH 2016		DWG. NO. SAMPLE-01

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