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**ENVIRONMENTAL APPENDIX**  
**TIER 1 HABITAT MAP FIGURES**

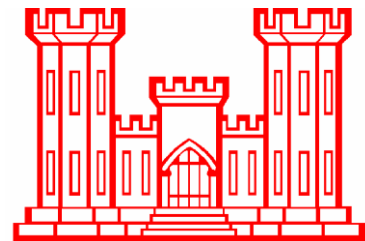
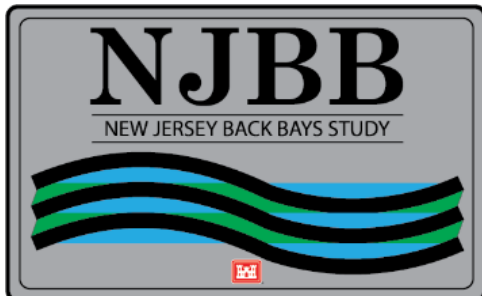
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**NEW JERSEY BACK BAYS**  
**COASTAL STORM RISK MANAGEMENT**  
**FEASIBILITY STUDY**

**PHILADELPHIA, PENNSYLVANIA**

**APPENDIX F.1**

**August 2021**



**U.S. Army Corps of Engineers**  
**Philadelphia District**

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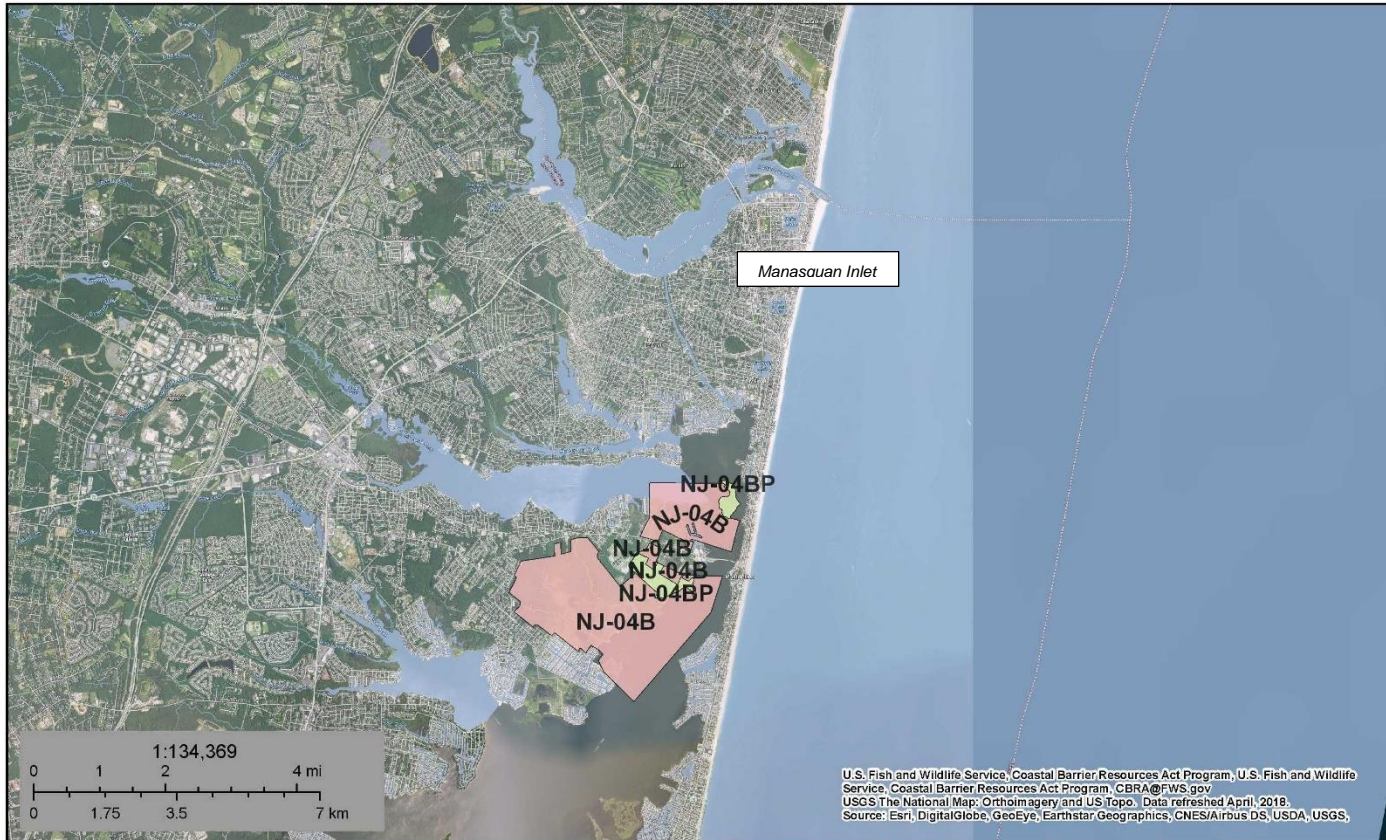
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**1.0 US FISH AND WILDLIFE SERVICE COASTAL BARRIER  
RESOURCES ACT (CBRA) AREAS WITHIN NJBB STUDY AREA**



**EXISTING CBRA**  
**MANTOLOKING AREA**



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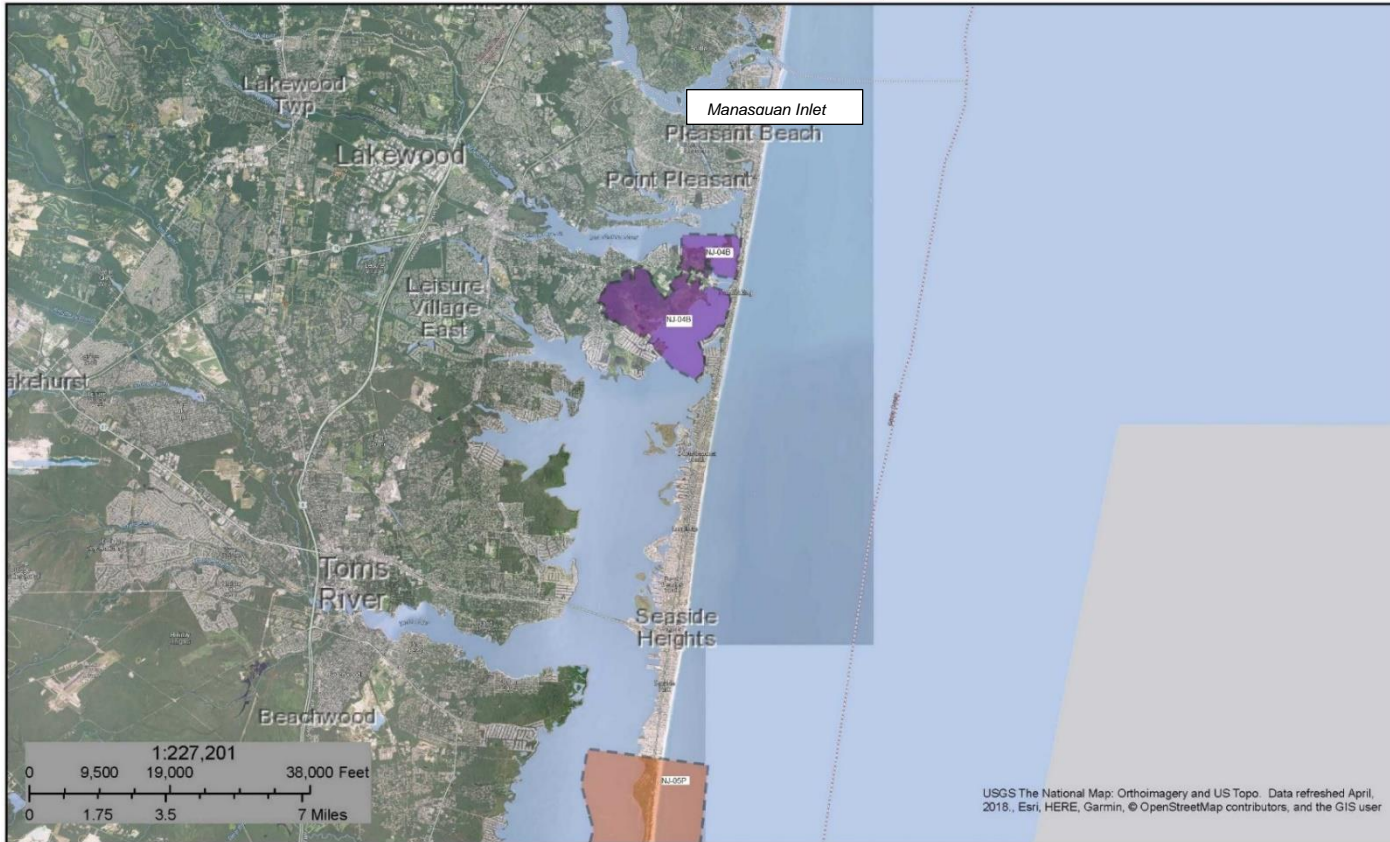
This map is for general reference only. The Coastal Barrier Resources System (CBRS) boundaries depicted on this map are representations of the controlling CBRS boundaries, which are shown on the official maps, accessible at <https://www.fws.gov/cbra/maps/index.html>. All CBRS related data should be used in accordance with the layer metadata found on the CBRS Mapper website.

The CBRS Buffer Zone represents the area immediately adjacent to the CBRS boundary where users are advised to contact the Service for an official determination (<http://www.fws.gov/cbra/Determinations.html>) as to whether the property or project site is located "in" or "out" of the CBRS.

CBRS Units normally extend seaward out to the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS mapper.

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*Figure 1. Existing CBRA Areas- Mantoloking Area*



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**Other Existing Units**

Unit Outside Project Area

**Revised Units**

System Unit

Otherwise Protected Area

USGS The National Map: Orthoimagery and US Topo. Data refreshed April, 2018., Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user

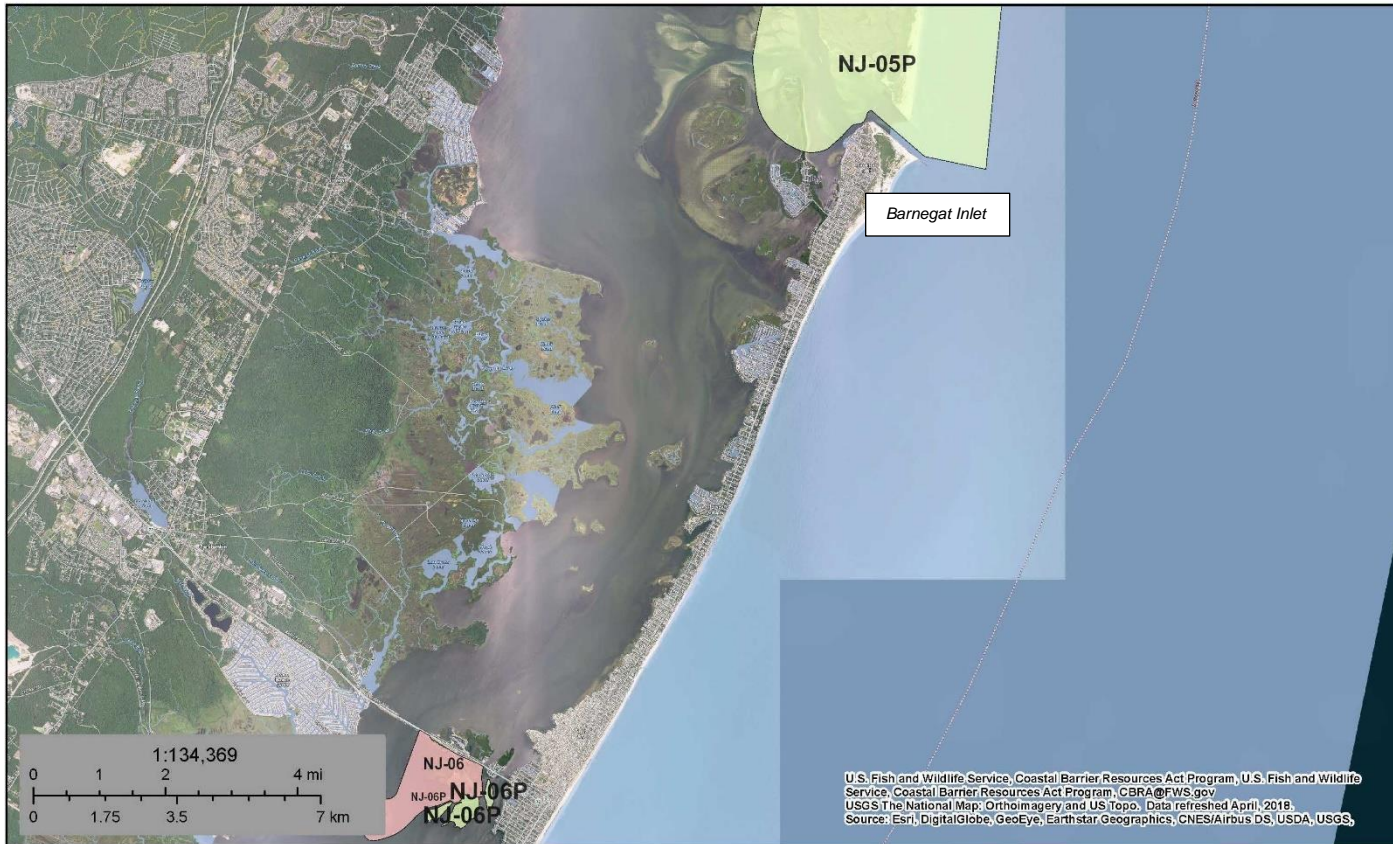
This map is for reference only. The draft revised CBRS boundaries depicted on this map have not been adopted through legislation enacted by Congress. Areas and structures depicted on this map may or may not currently be within the CBRS. To view the current CBRS boundaries for this area, please use the CBRS Mapper: <https://www.fws.gov/cbra/Maps/Mapper.html>.

Coastal Barrier Resources System (CBRS)  
 This page was produced by the CBRS Projects Mapper

*Figure 2. Draft Revised CBRA Areas - Mantoloking Area.*



**EXISTING CBRA**  
**Barnegat Inlet/Cedar Bonnet Island**



February 9, 2019

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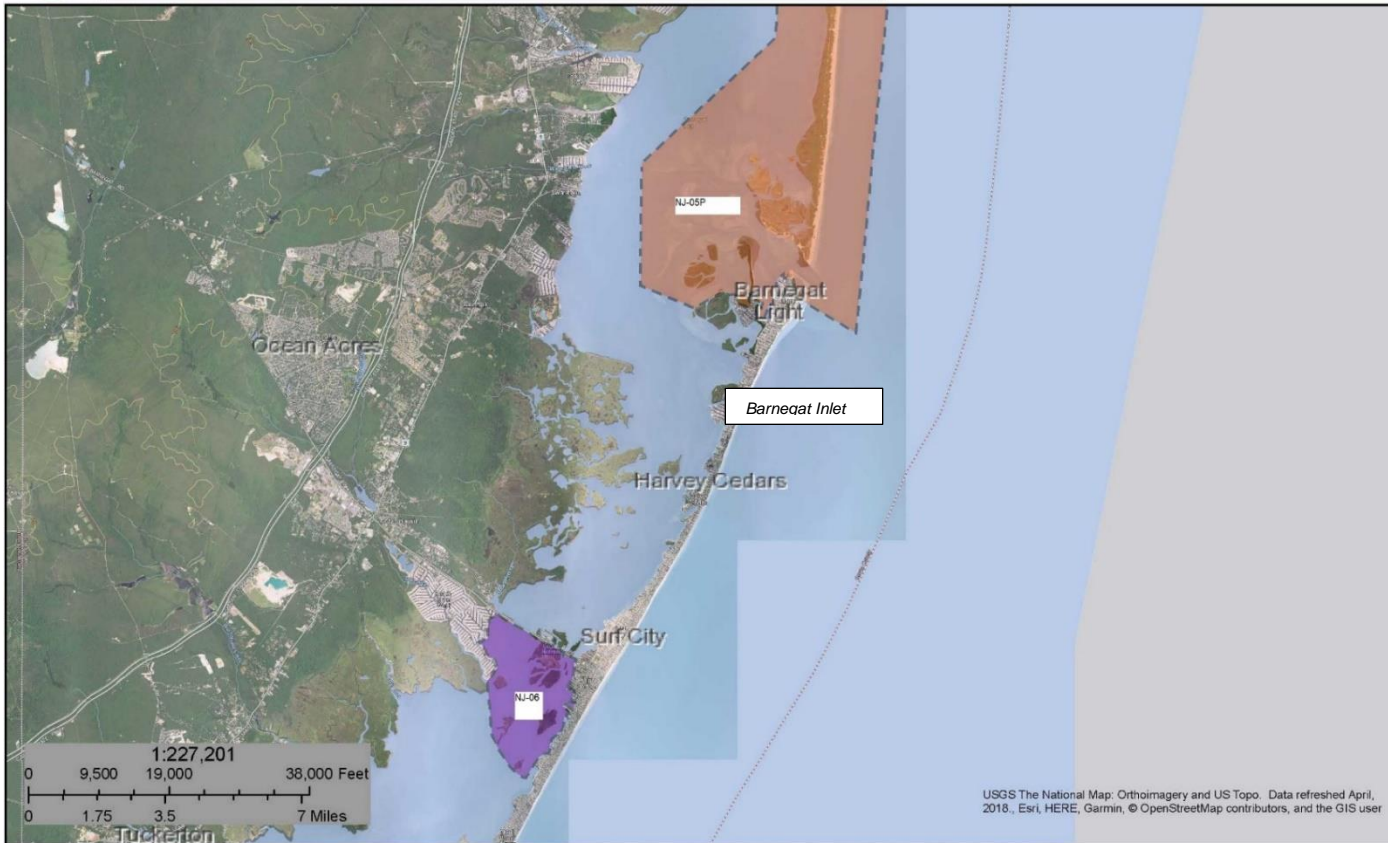
The CBRS Buffer Zone represents the area immediately adjacent to the CBRS boundary where users are advised to contact the Service for an official determination (<http://www.fws.gov/cbra/Determinations.html>) as to whether the property or project site is located "in" or "out" of the CBRS.

CBRS Units normally extend seaward out to the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS mapper.

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*Figure 3. Existing CBRA Areas - Barnegat Inlet and Cedar Bonnet Island Areas*





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**Other Existing Units**

Unit Outside Project Area

**Revised Units**

System Unit

Otherwise Protected Area

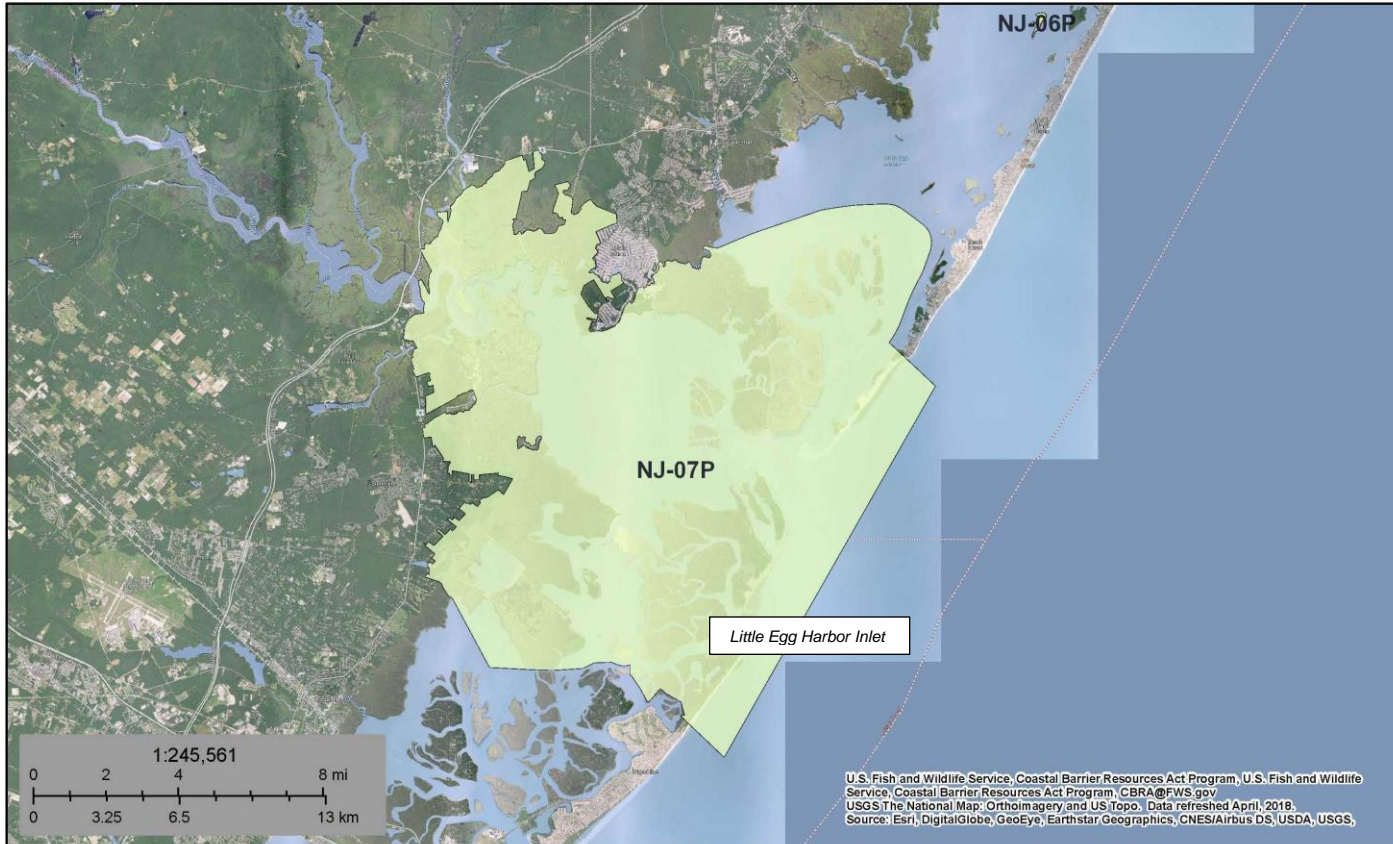
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Coastal Barrier Resources System (CBRS)  
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Figure 4. Draft Revised CBRA Areas - Barneqat Inlet and Cedar Bonnet Island Areas.



EXISTING CBRA  
EB FORSYTHE NWR AREA



February 9, 2019

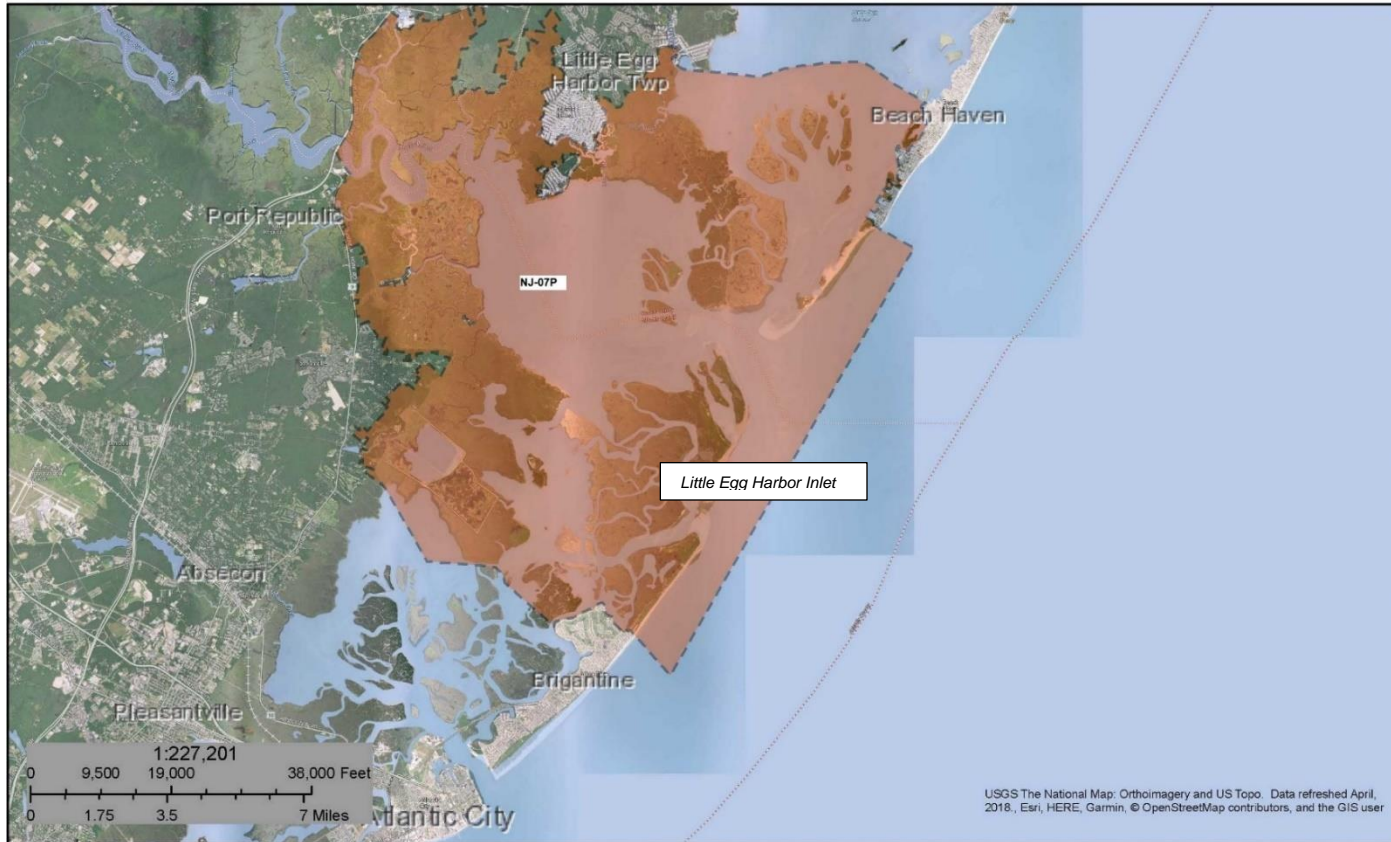
This map is for general reference only. The Coastal Barrier Resources System (CBRS) boundaries depicted on this map are representations of the controlling CBRS boundaries, which are shown on the official maps, accessible at <https://www.fws.gov/cbra/maps/index.html>. All CBRS related data should be used in accordance with the layer metadata found on the CBRS Mapper website.

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Figure 5. Existing CBRA Areas - Edwin B. Forsythe National Wildlife Refuge Area.



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**Other Existing Units**

■ Unit Outside Project Area

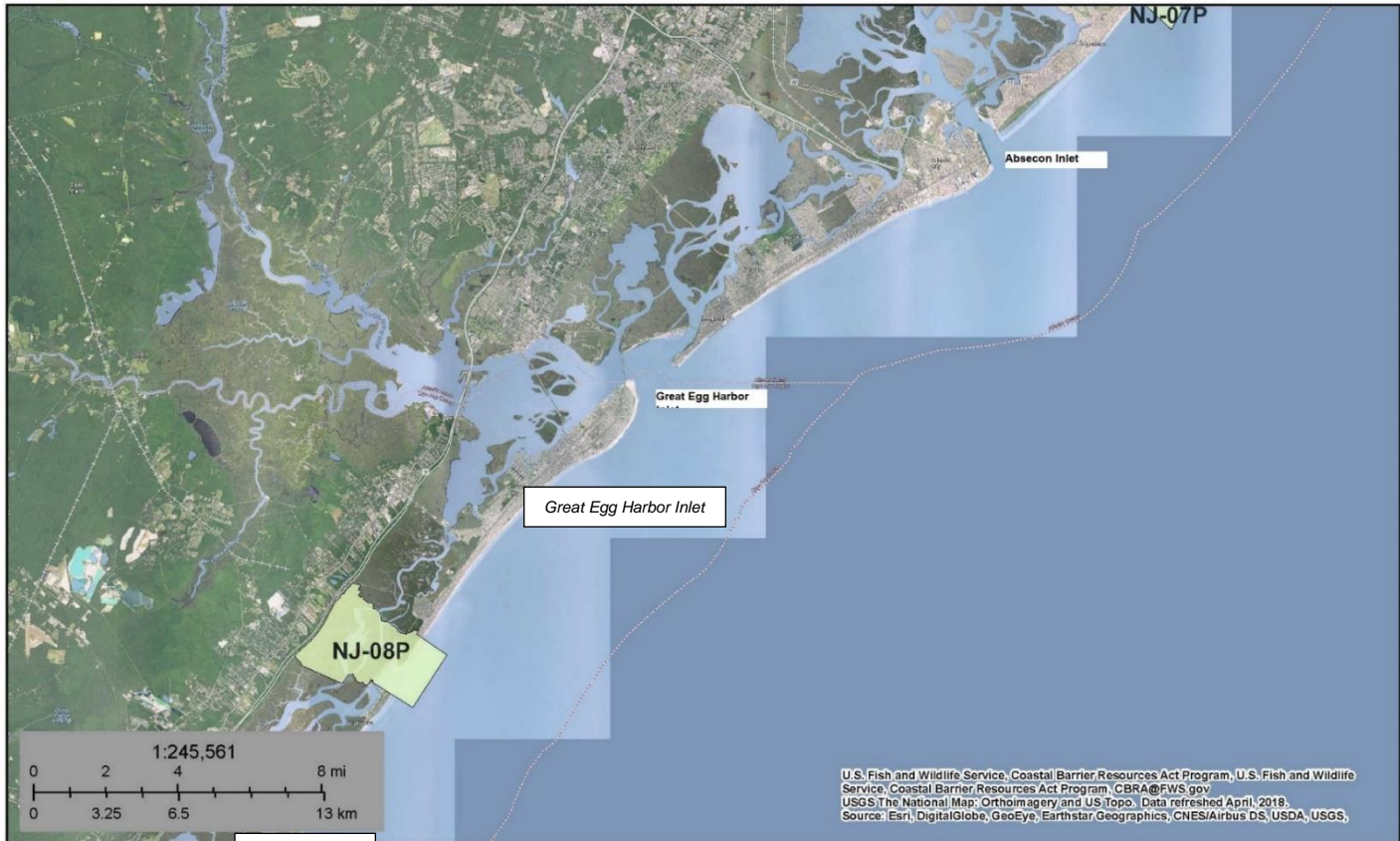
**Revised Units**

■ System Unit  
 Absecon Inlet Protected Area

This map is for reference only. The draft revised CBRS boundaries depicted on this map have not been adopted through legislation enacted by Congress. Areas and structures depicted on this map may or may not currently be within the CBRS. To view the current CBRS boundaries for this area, please use the CBRS Mapper: <https://www.fws.gov/cbra/Maps/Mapper.html>.

Coastal Barrier Resources System (CBRS)  
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Figure 6. Draft Revised CBRA Areas - Edwin B. Forsythe National Wildlife Refuge Area.



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Corson Inlet

This map is for general reference only. The Coastal Barrier Resources System (CBRS) boundaries depicted on this map are representations of the controlling CBRS boundaries, which are shown on the official maps, accessible at <https://www.fws.gov/cbra/maps/index.html>. All CBRS related data should be used in accordance with the layer metadata found on the CBRS Mapper website.

The CBRS Buffer Zone represents the area immediately adjacent to the CBRS boundary where users are advised to contact the Service for an official determination (<http://www.fws.gov/cbra/Determinations.html>) as to whether the property or project site is located "in" or "out" of the CBRS.

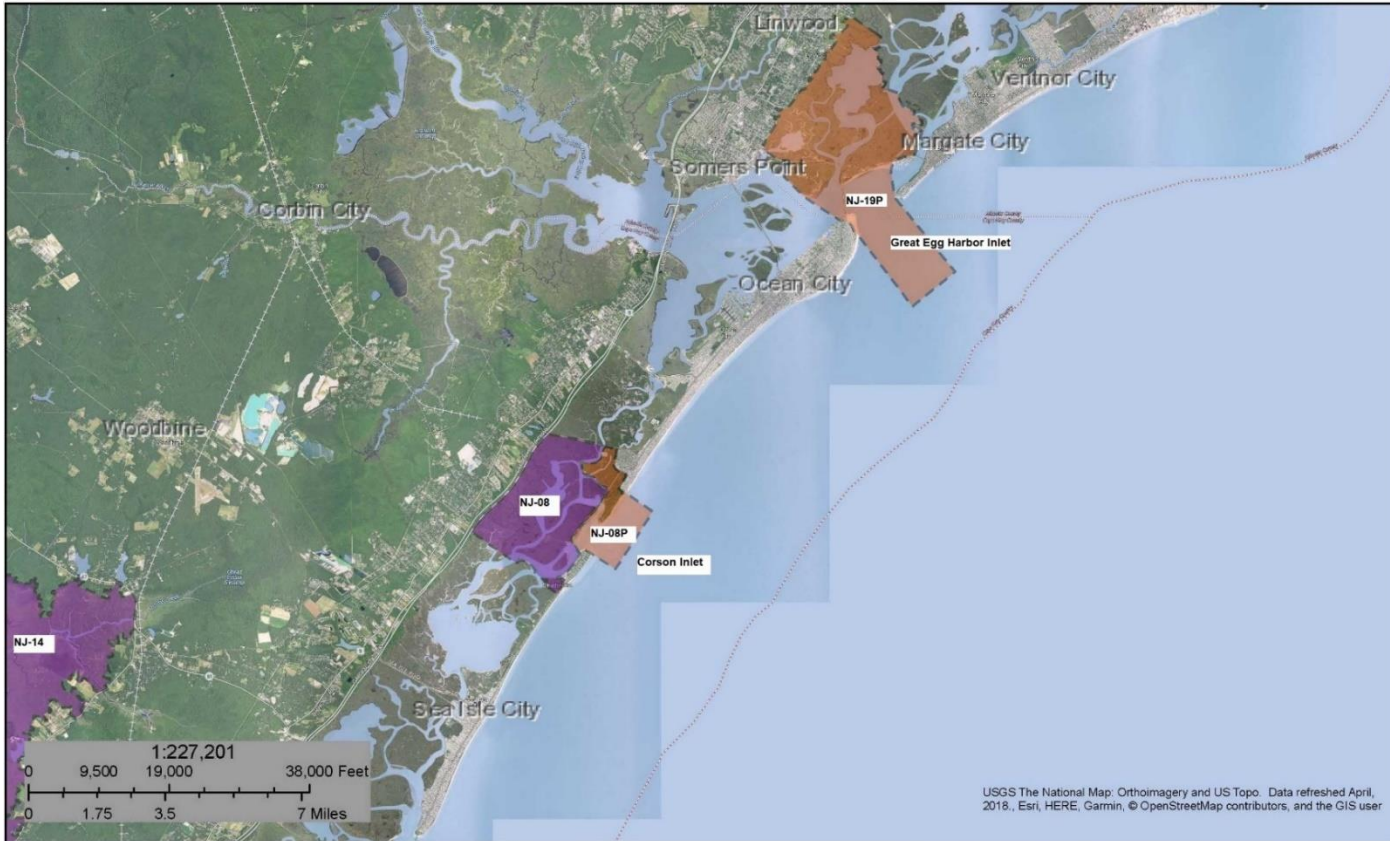
CBRS Units normally extend seaward out to the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS mapper.

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Figure 7. Existing CBRA Areas - Ocean City/Atlantic City Area.



**DRAFT REVISED CBRA  
 OCEAN CITY AREA**



February 9, 2019

**Other Existing Units**

Unit Outside Project Area

**Revised Units**

- System Unit
- Otherwise Protected Area

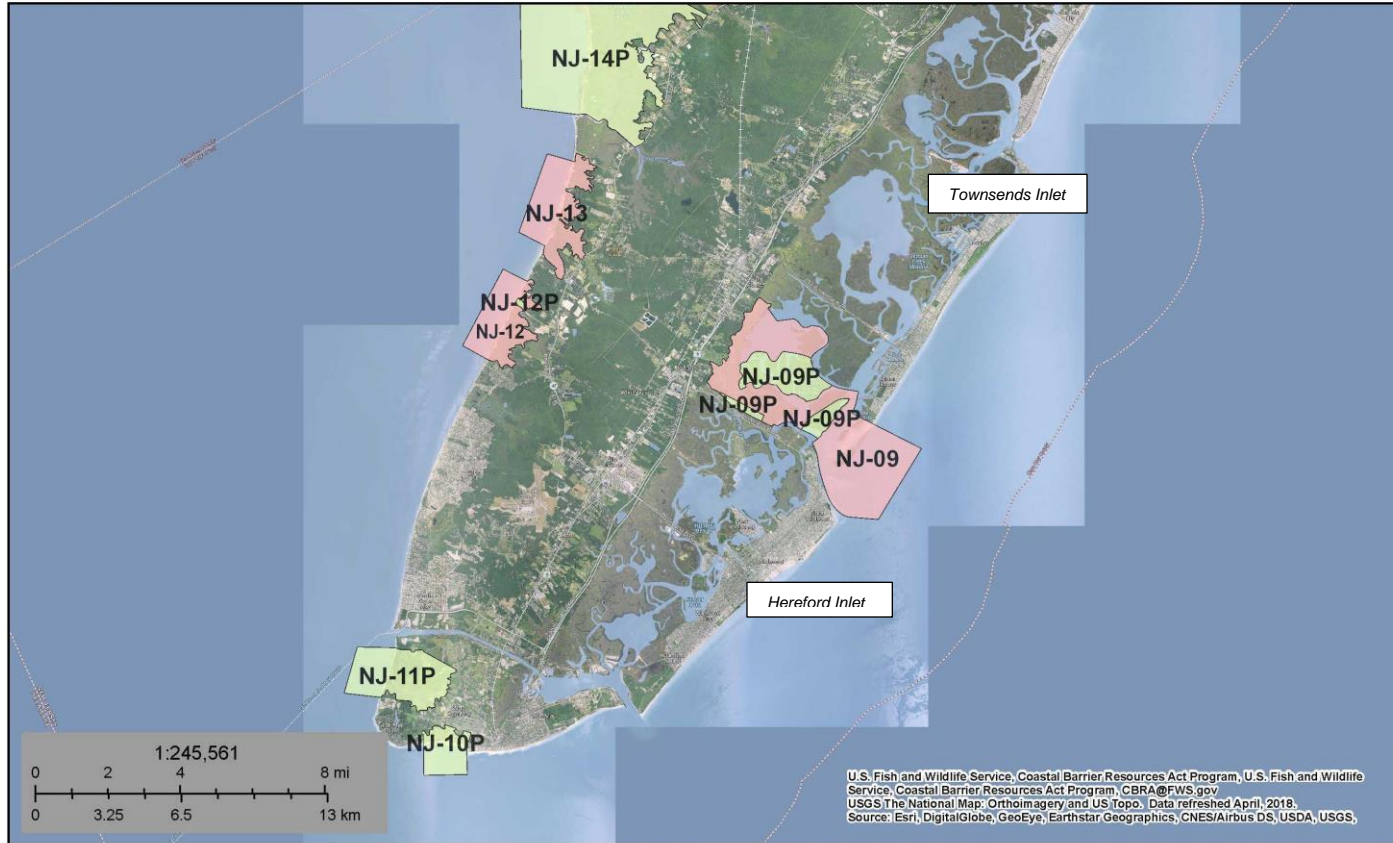
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Coastal Barrier Resources System (CBRS)  
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*Figure 8. Draft Revised CBRA Areas - Ocean City Area*



**EXISTING CBRA**  
**WILDWOOD/CAPE MAY AREA**



February 9, 2019

Cape May Inlet

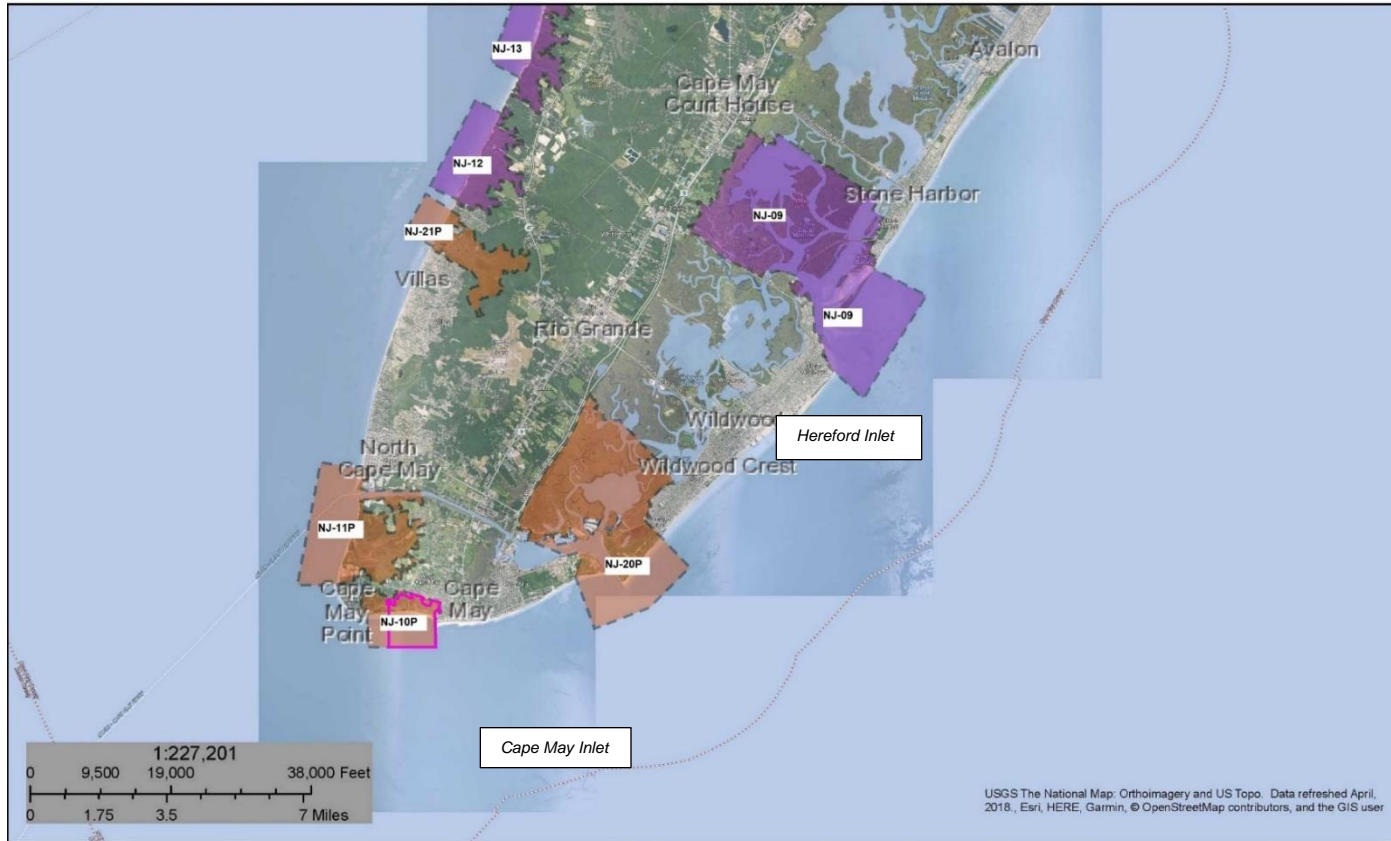
for general reference only. The Coastal Barrier Resources System (CBRS) boundaries depicted on this map are representations of CBRS boundaries, which are shown on the official maps, accessible at <https://www.fws.gov/cbra/maps/index.html>. All CBRS related data should be used in accordance with the layer metadata found on the CBRS Mapper website.

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Figure 9. Existing CBRA Areas - Wildwood/Cape May Area



February 9, 2019

**Other Existing Units**

Unit Outside Project Area

**Revised Units**

System Unit

Otherwise Protected Area

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Coastal Barrier Resources System (CBRS)  
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Figure 10. Draft Revised CBRA Areas - Wildwood/Cape May Area.

## **2.0 NJBB SHELLFISH MAPS**



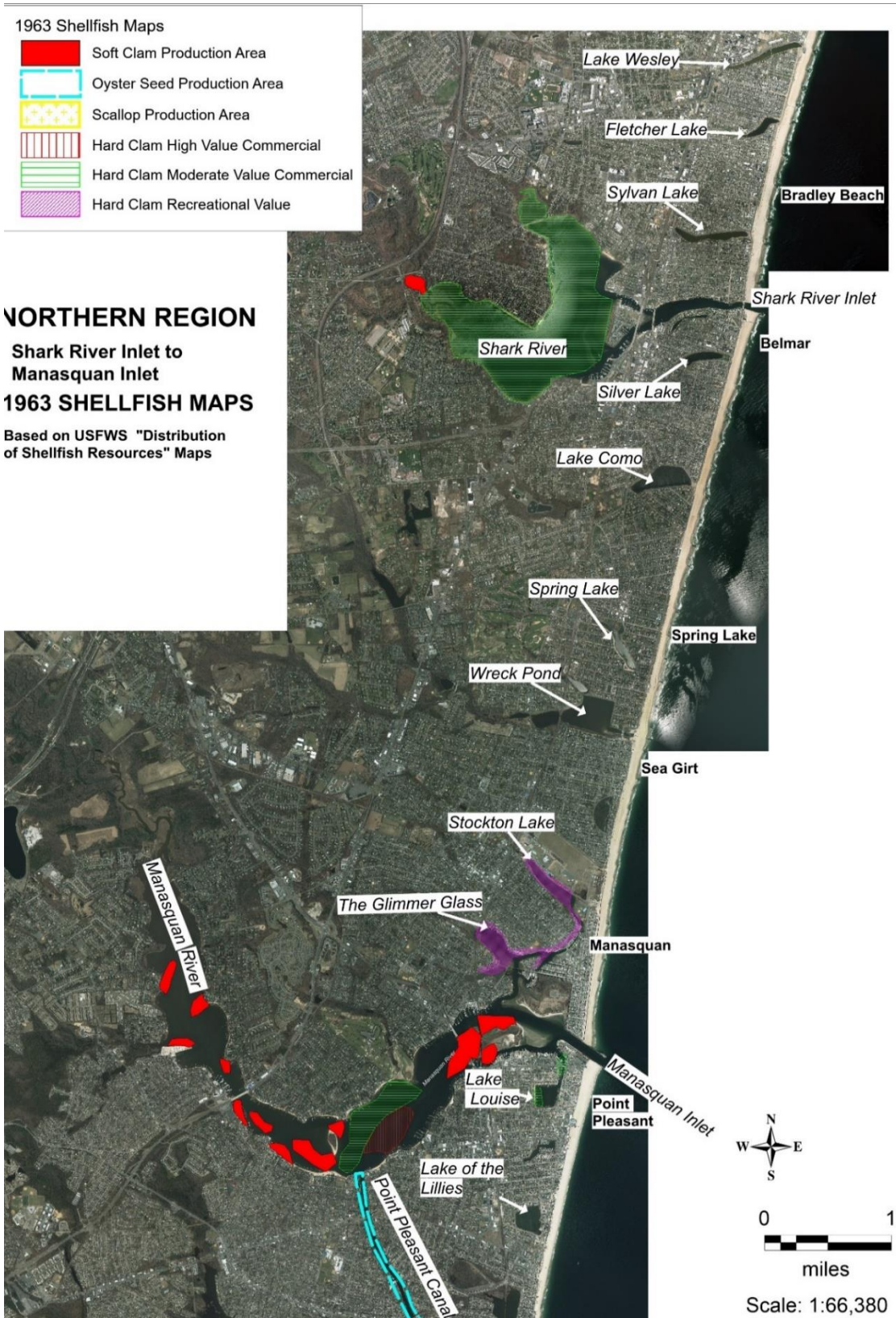


Figure 11. Northern Region - Shark River Inlet to Manasquan Inlet - 1963 Shellfish Maps.

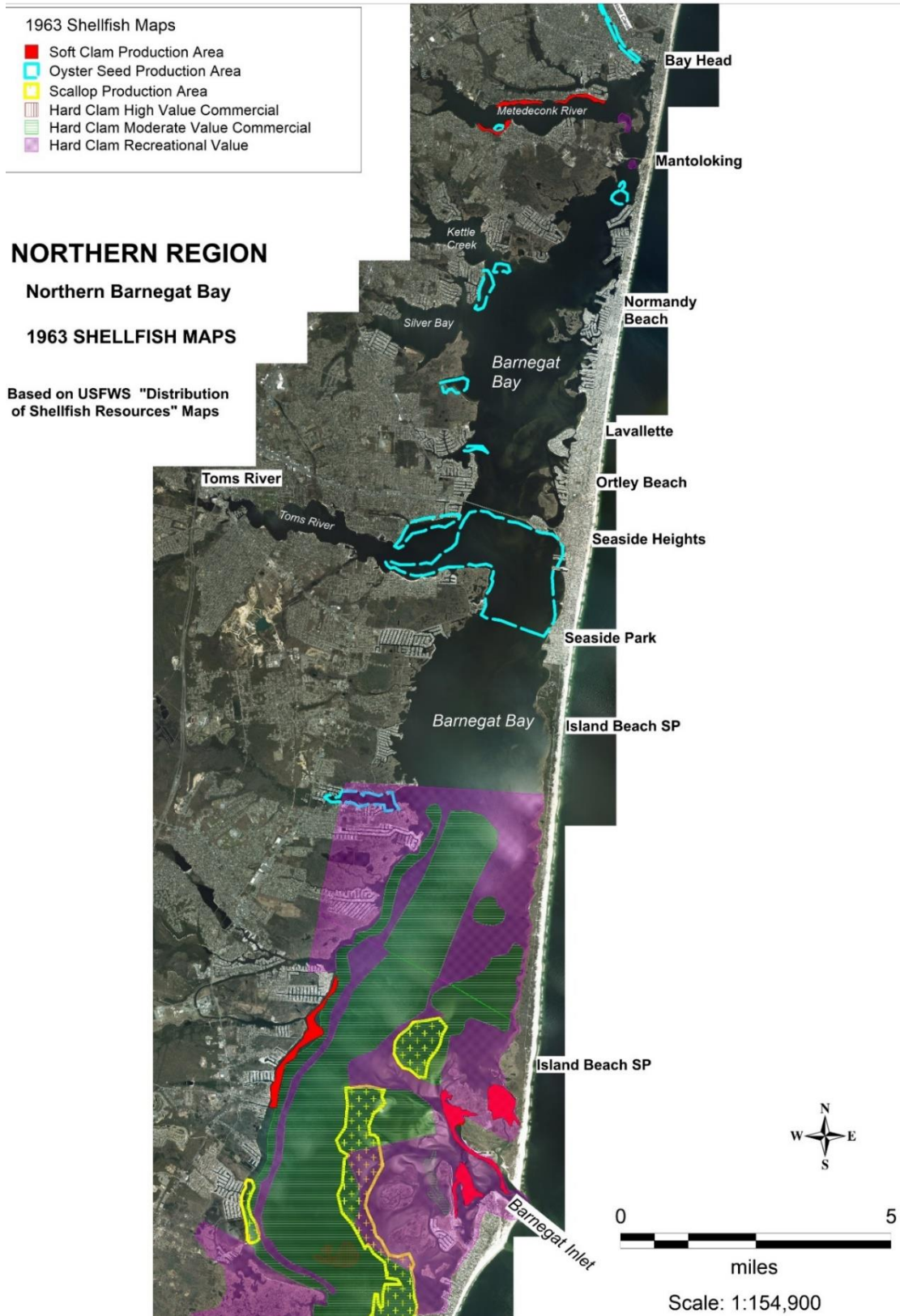


Figure 12. Northern Region – Northern Barnegat Bay – 1963 Shellfish Maps.

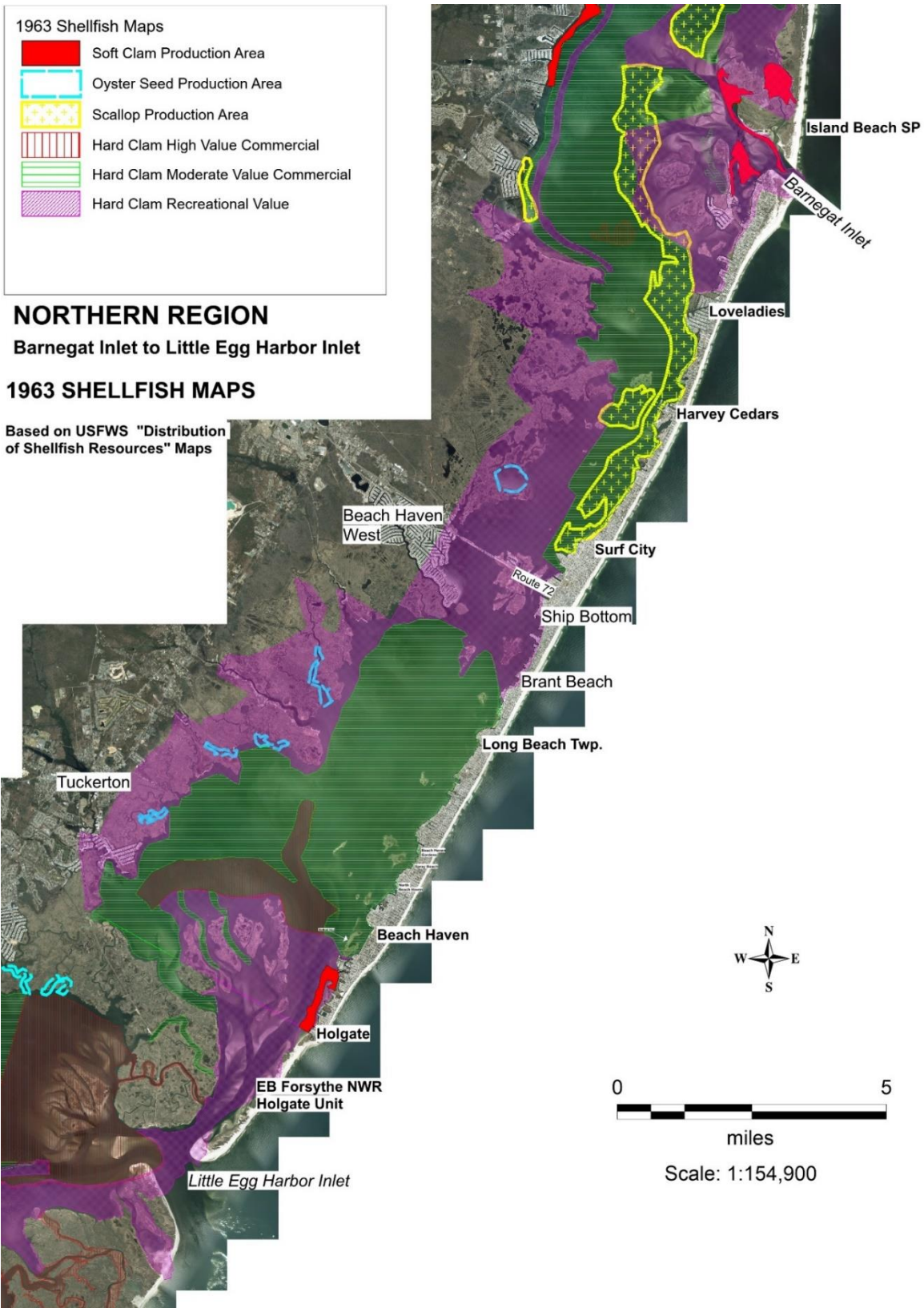


Figure 13. Northern Region - Barnegat Inlet to Little Egg Harbor Inlet – 1963 Shellfish Maps.

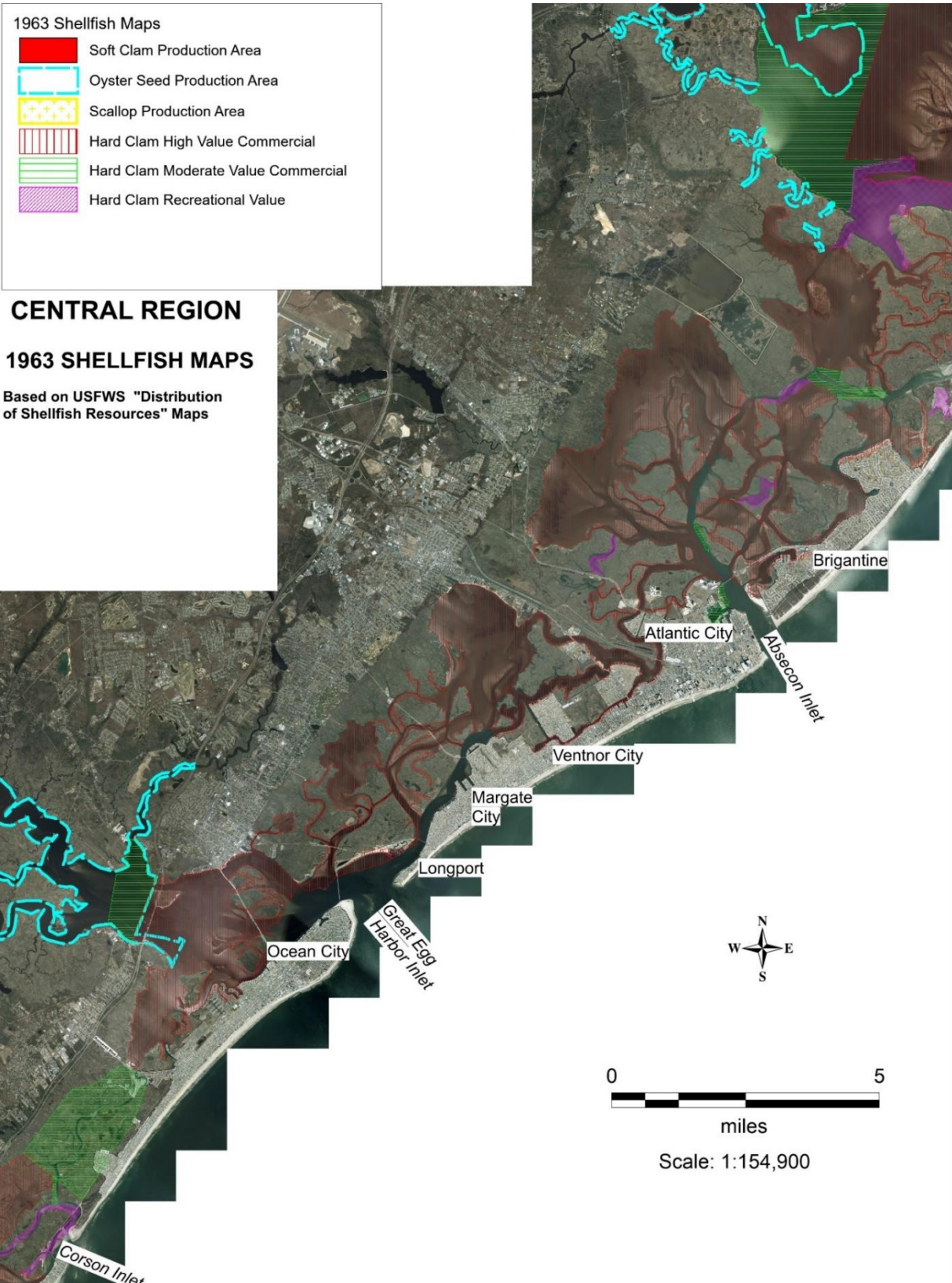


Figure 14. Central Region - Absecon Inlet to Corson Inlet – 1963 Shellfish Maps.

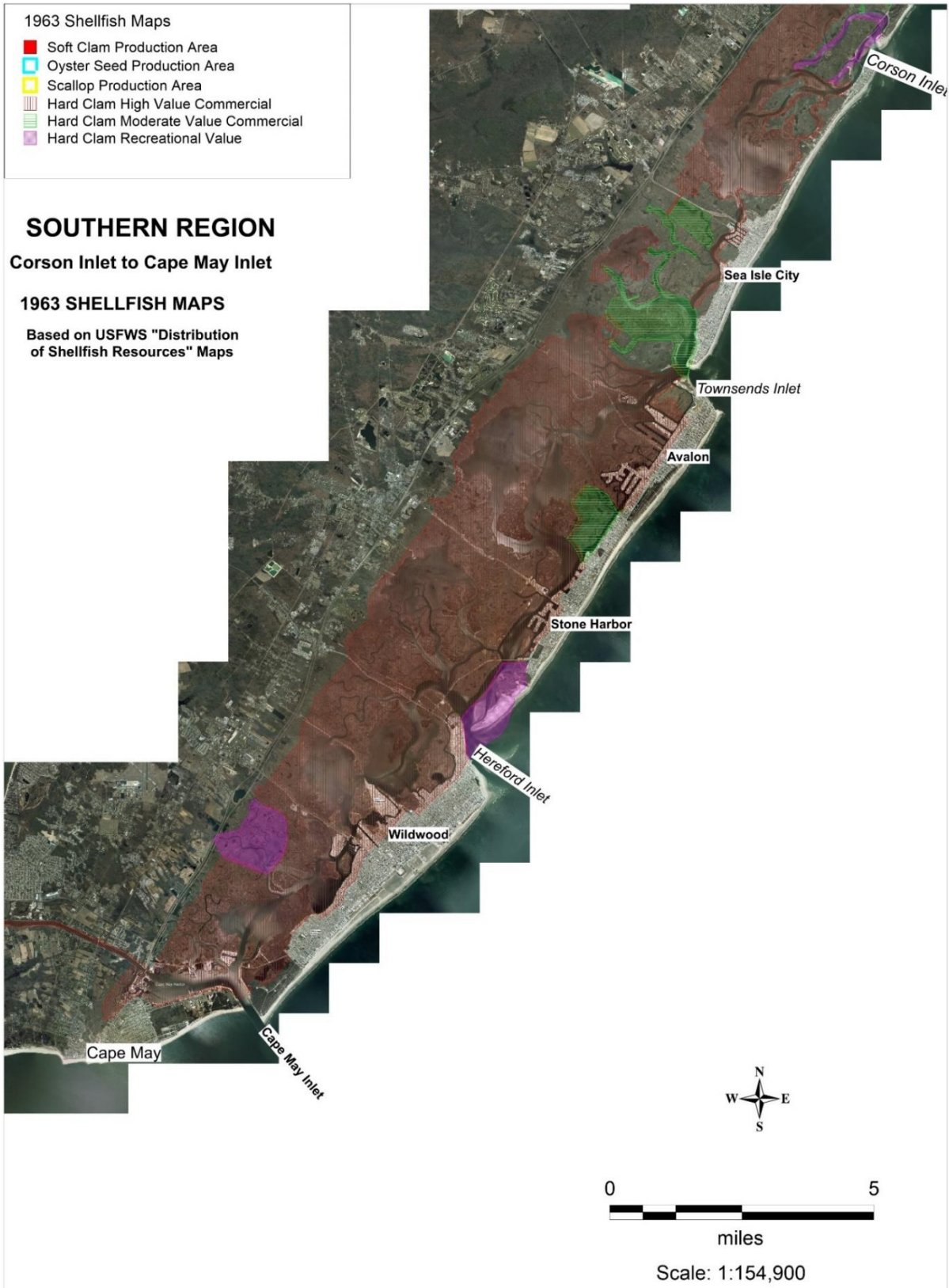


Figure 15. Southern Region – Corson Inlet to Cape May Inlet – 1963 Shellfish Maps.

1980's Shellfish Maps  
(NJDEP, 1984-1988)

- Soft Clam Beds
- Hard Clam High Density
- Hard Clam Moderate Density
- Hard Clam Occurrence
- Blue Mussel Beds

## NORTHERN REGION

Sark River Inlet to Manasquan Inlet

1984-1988 SHELLFISH MAPS

Based on NJDEP Bureau  
of Shellfish Maps

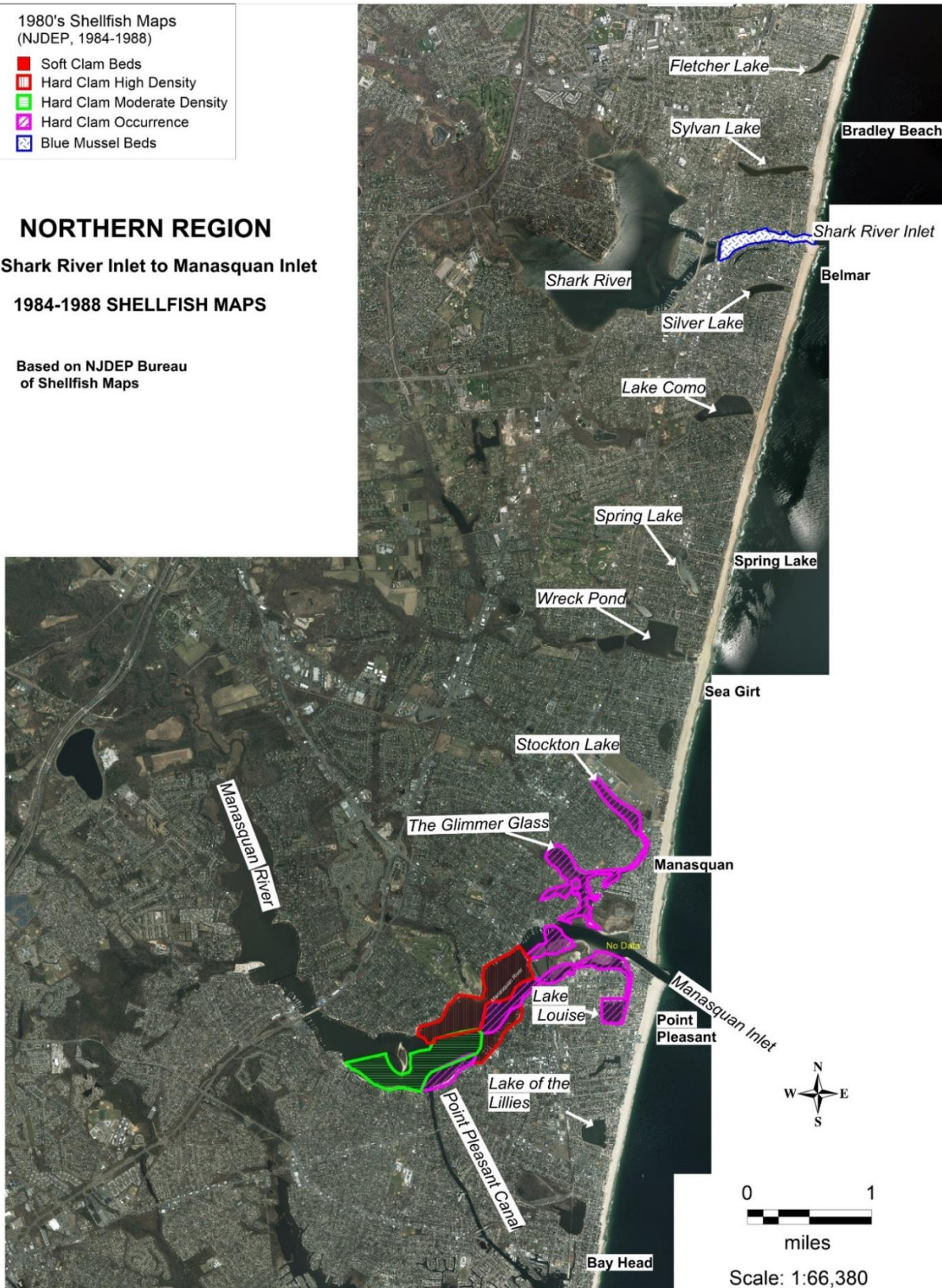


Figure 16. Northern Region - Shark River Inlet to Manasquan Inlet – 1984-1988 Shellfish Maps.

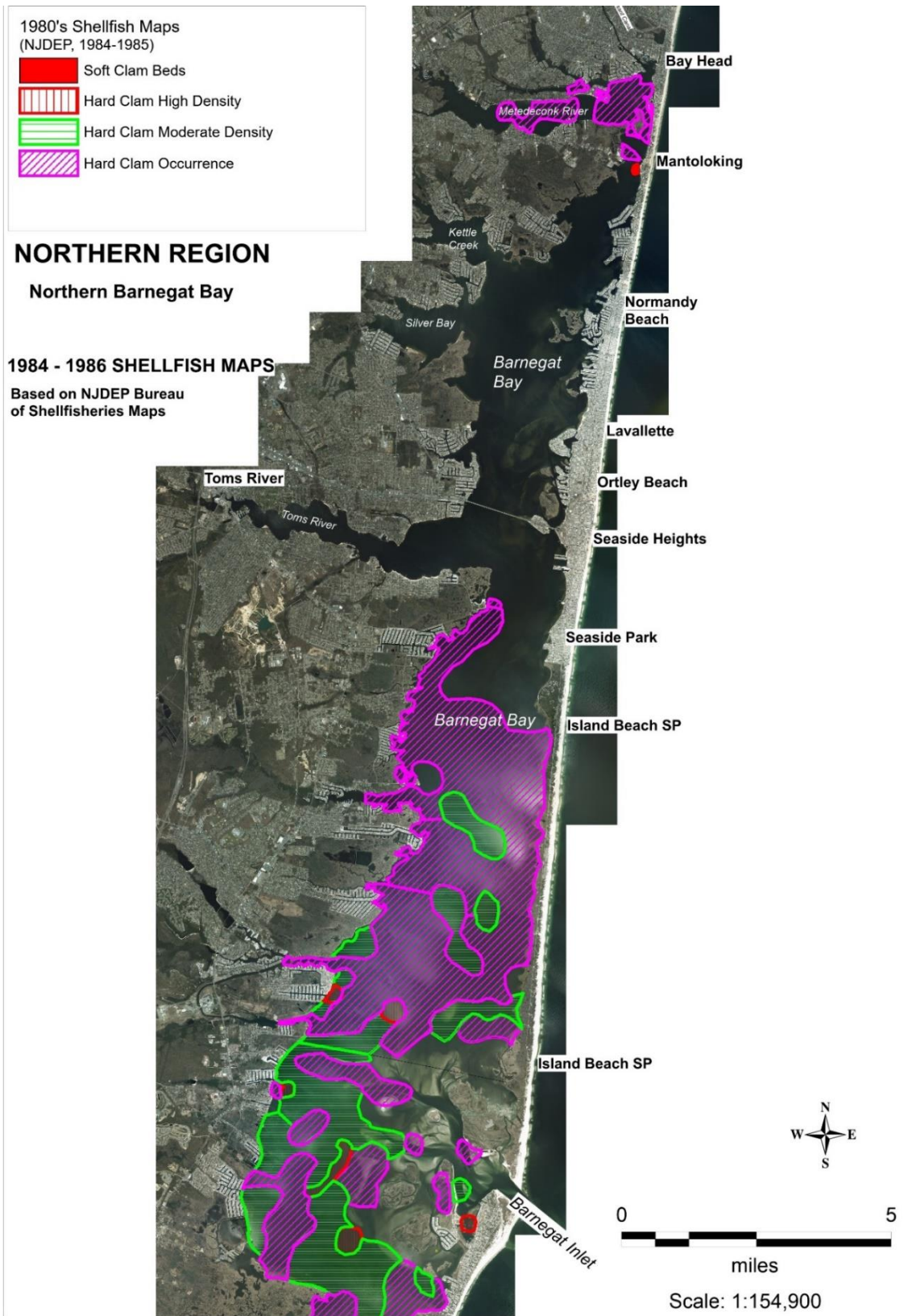


Figure 17. Northern Region – Northern Barnegat Bay – 1984-1988 Shellfish Maps.

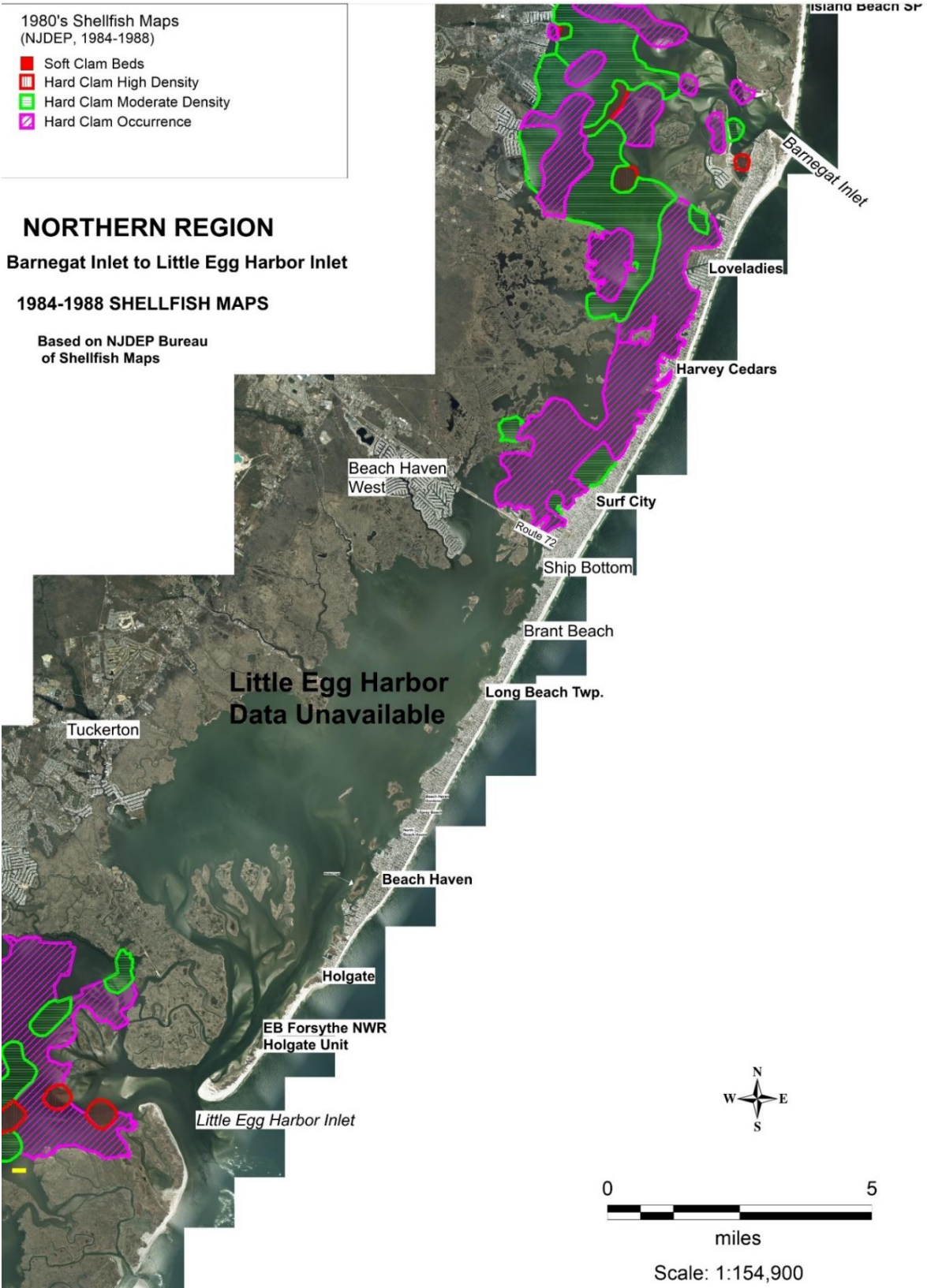


Figure 18. Northern Region - Barnegat Inlet to Little Egg Harbor Inlet – 1984-1988 Shellfish Maps.



2011-2012 Barnegat and Little Egg Harbor

- Aquaculture\_Leases
- Hard Clam High Density
- Hard Clam Low Density
- Hard Clam Moderate Density
- Hard Clam Occurrence

## NORTHERN REGION

### Northern Barnegat Bay

#### 2011-2012 SHELLFISH MAPS

Based on NJDEP Bureau of Shellfish Maps

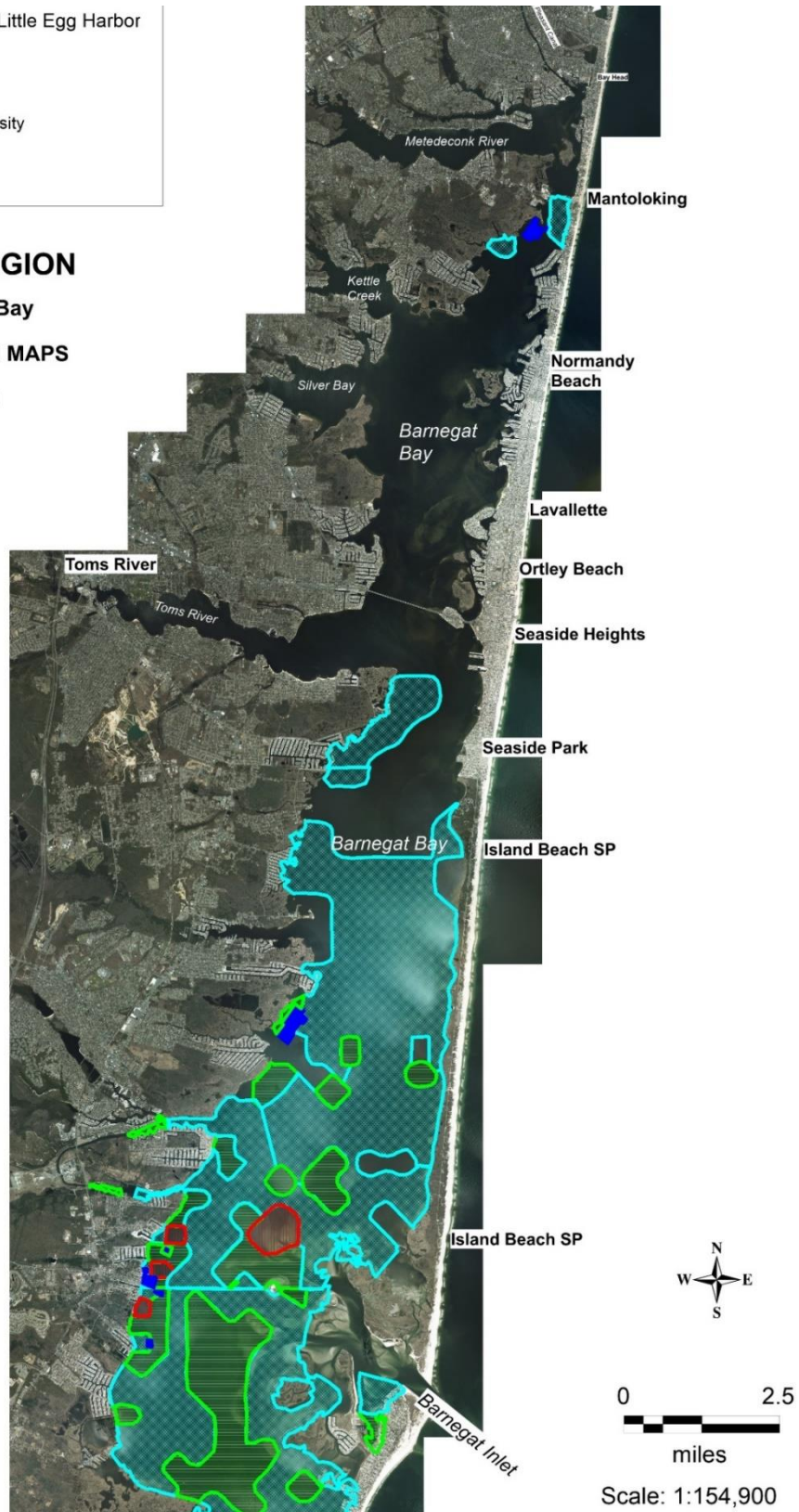


Figure 19. Northern Region – Northern Barnegat Bay – 2011-2012 Shellfish Maps.

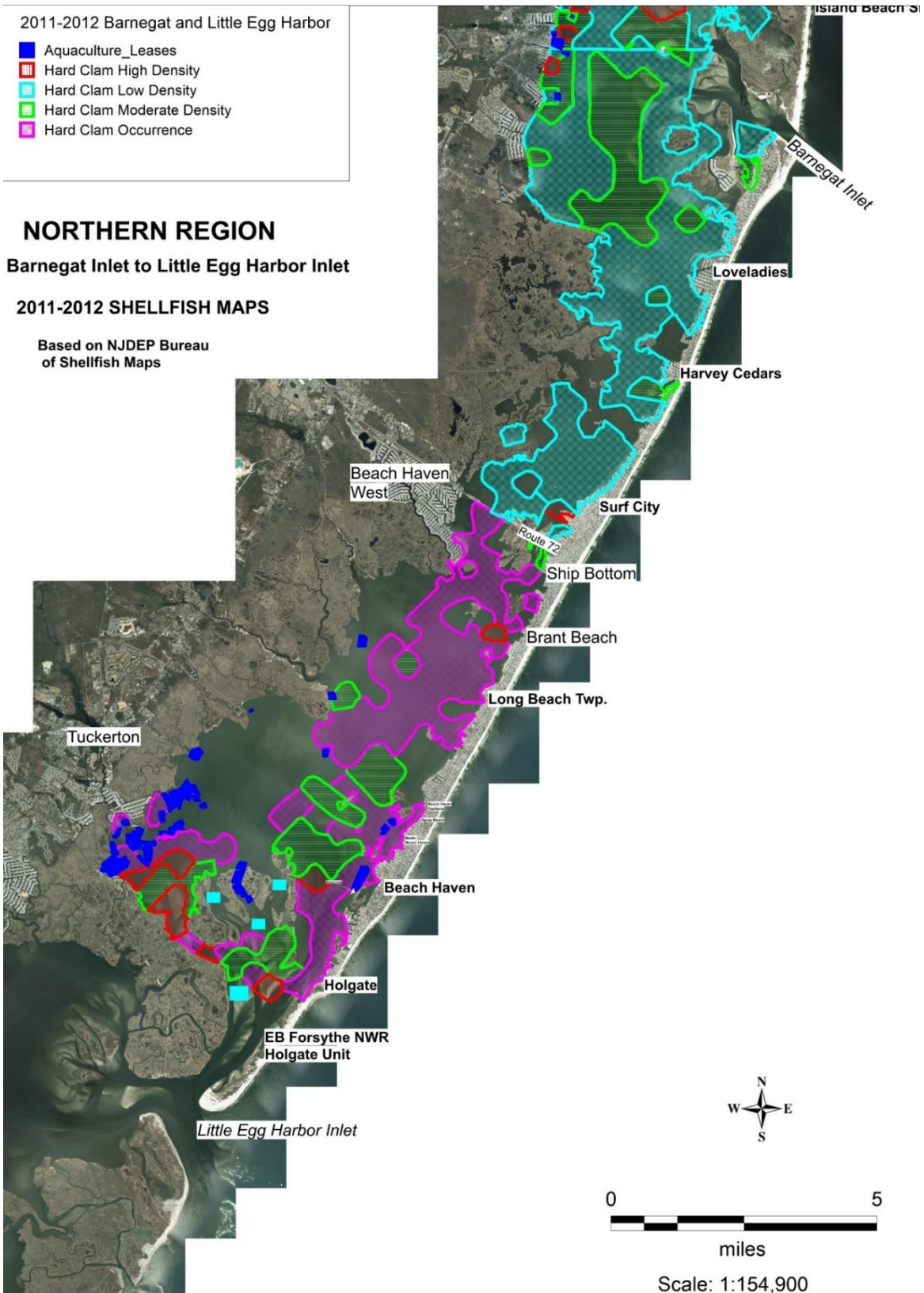


Figure 20. Northern Region – Barnegat Inlet to Little Egg Harbor Inlet – 2011-2012 Shellfish Maps.

### **3.0 NJBB TSP STRUCTURAL CONCEPTUAL PLAN LAYOUTS AND CROSS-SECTIONS**



Figure 21. Manasquan Inlet SSB Plan View Layout

# MANASQUAN INLET - A1

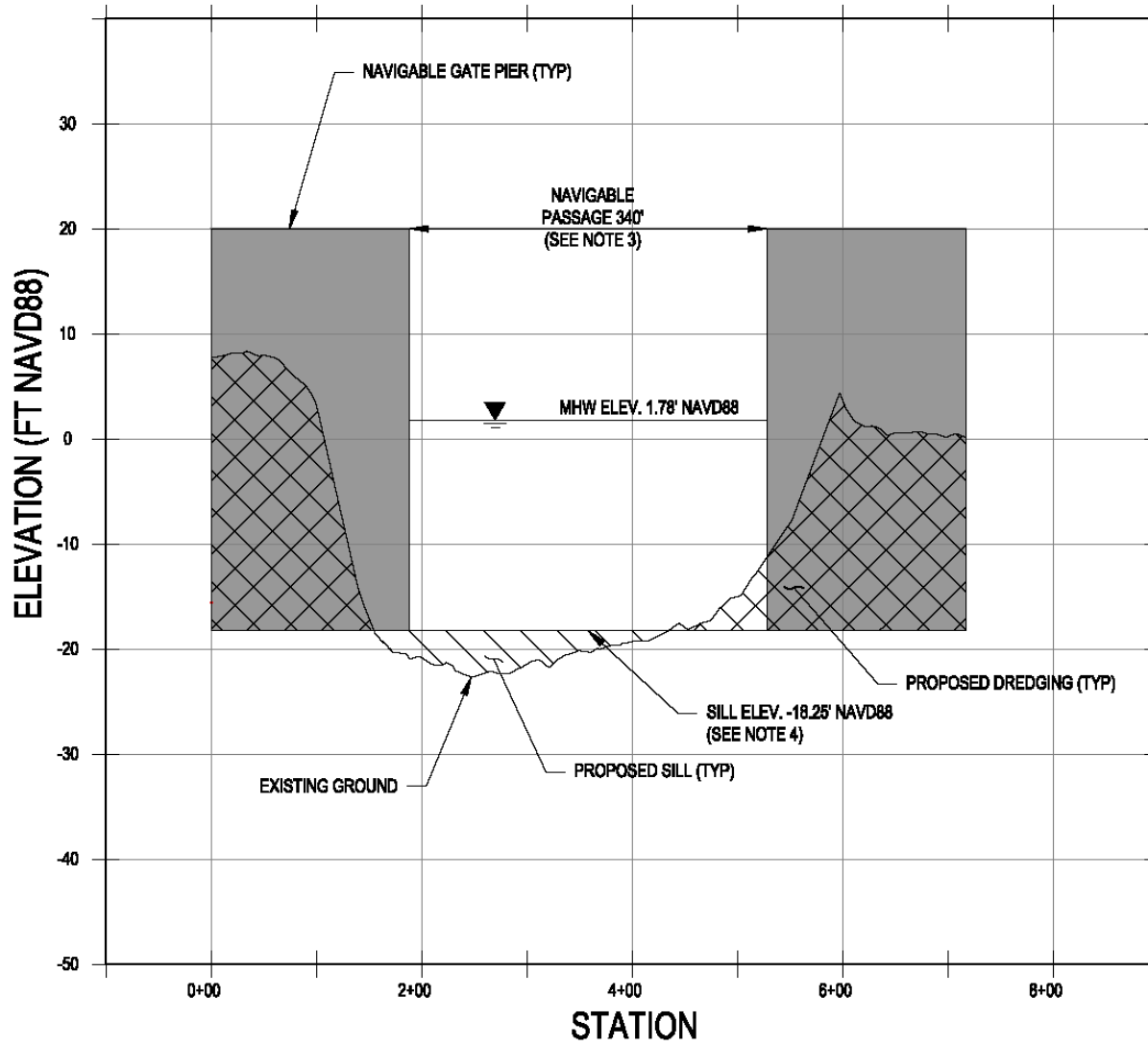


Figure 22. Manasquan Inlet SSB A-1 Cross Section



Figure 23. Barnegat Inlet SSB Plan View Layout

BARNEGAT INLET - A1

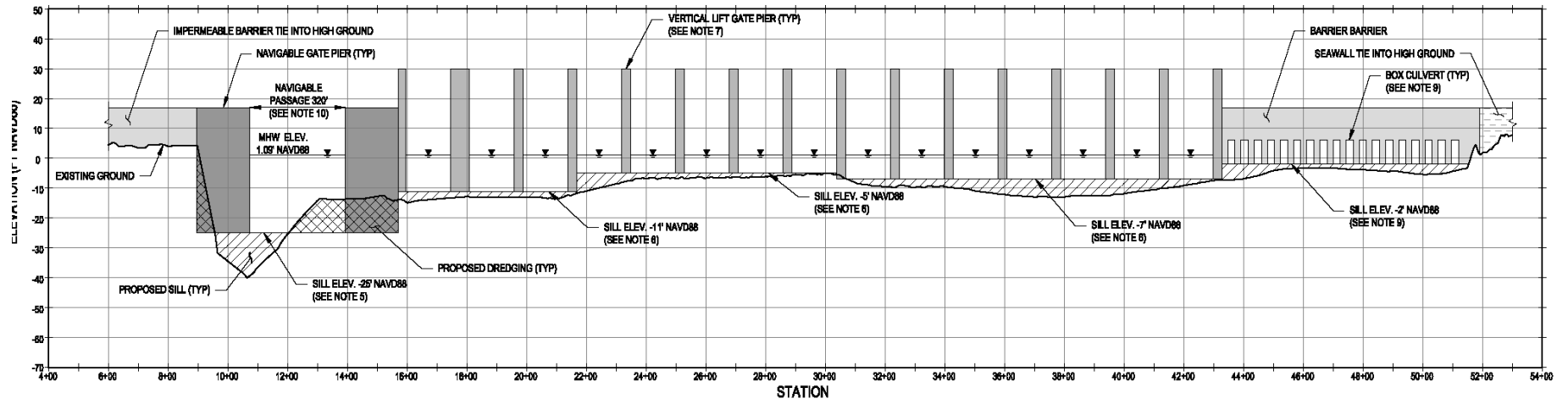


Figure 24. Barnegat Inlet SSB A-1 Alignment Cross Section

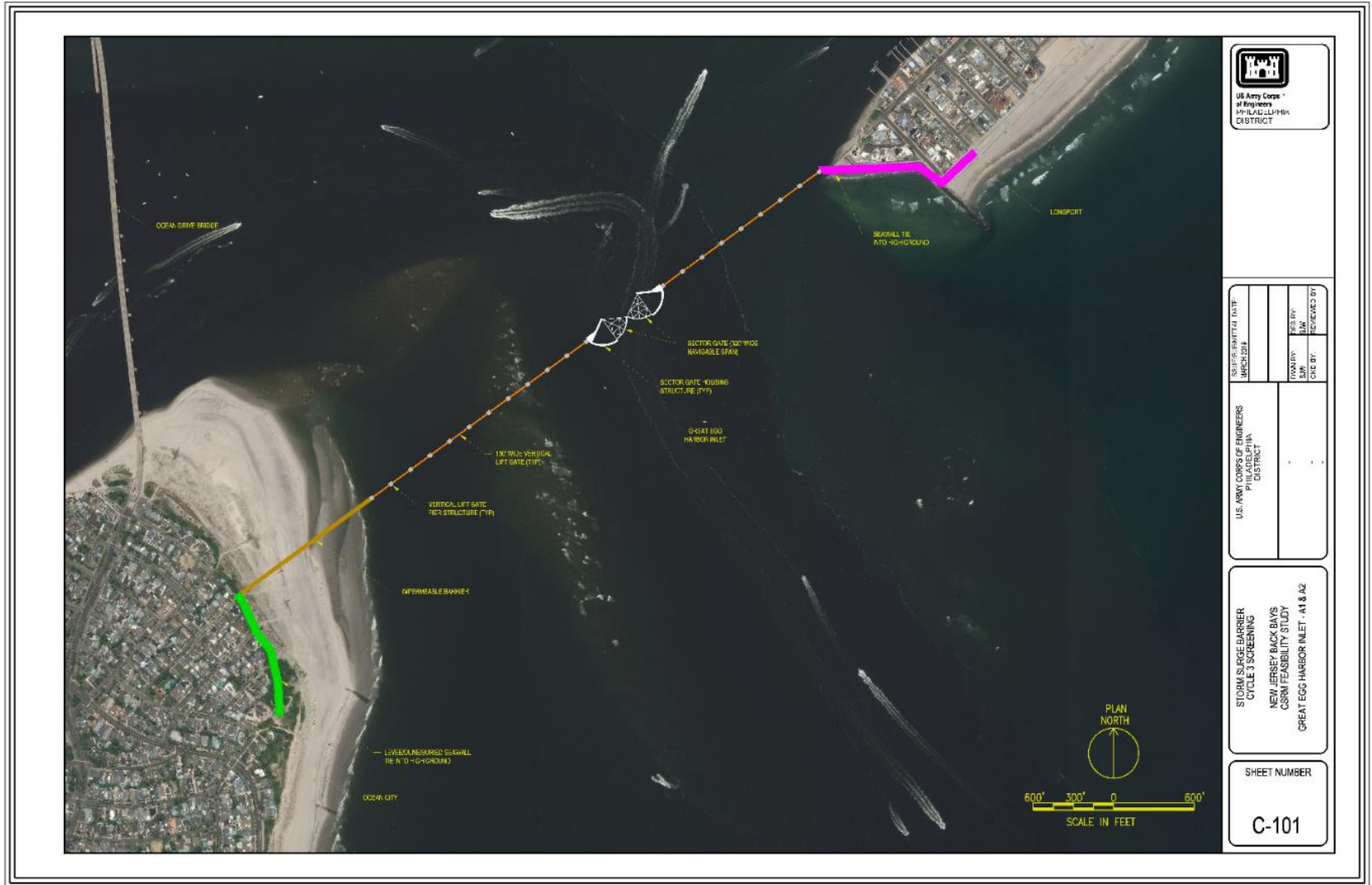


Figure 25. Great Egg Harbor Inlet SSB Plan View Layout



GREAT EGG HARBOR INLET - A1

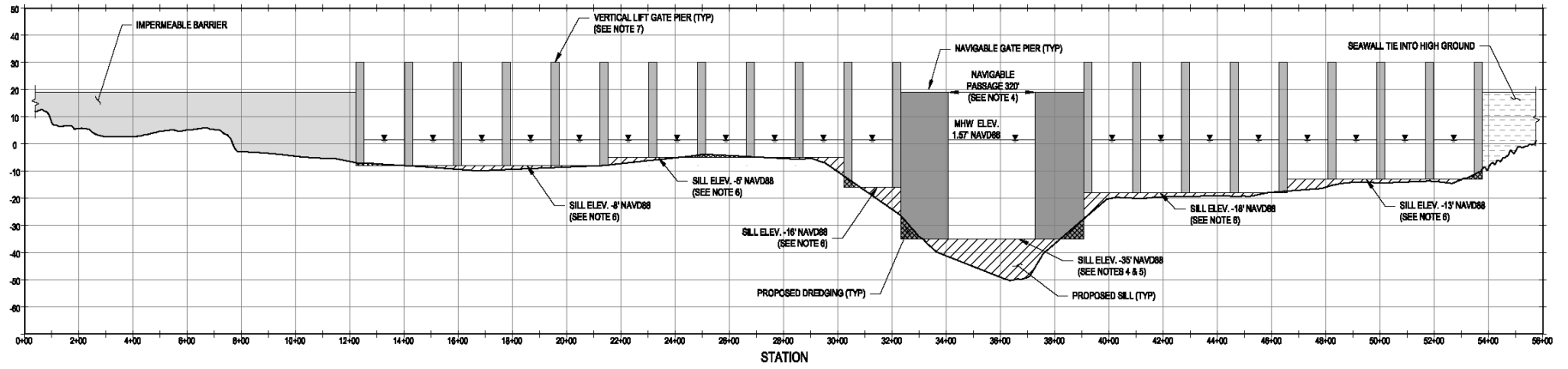


Figure 26. Great Egg Harbor Inlet SSB A-1 Cross Section

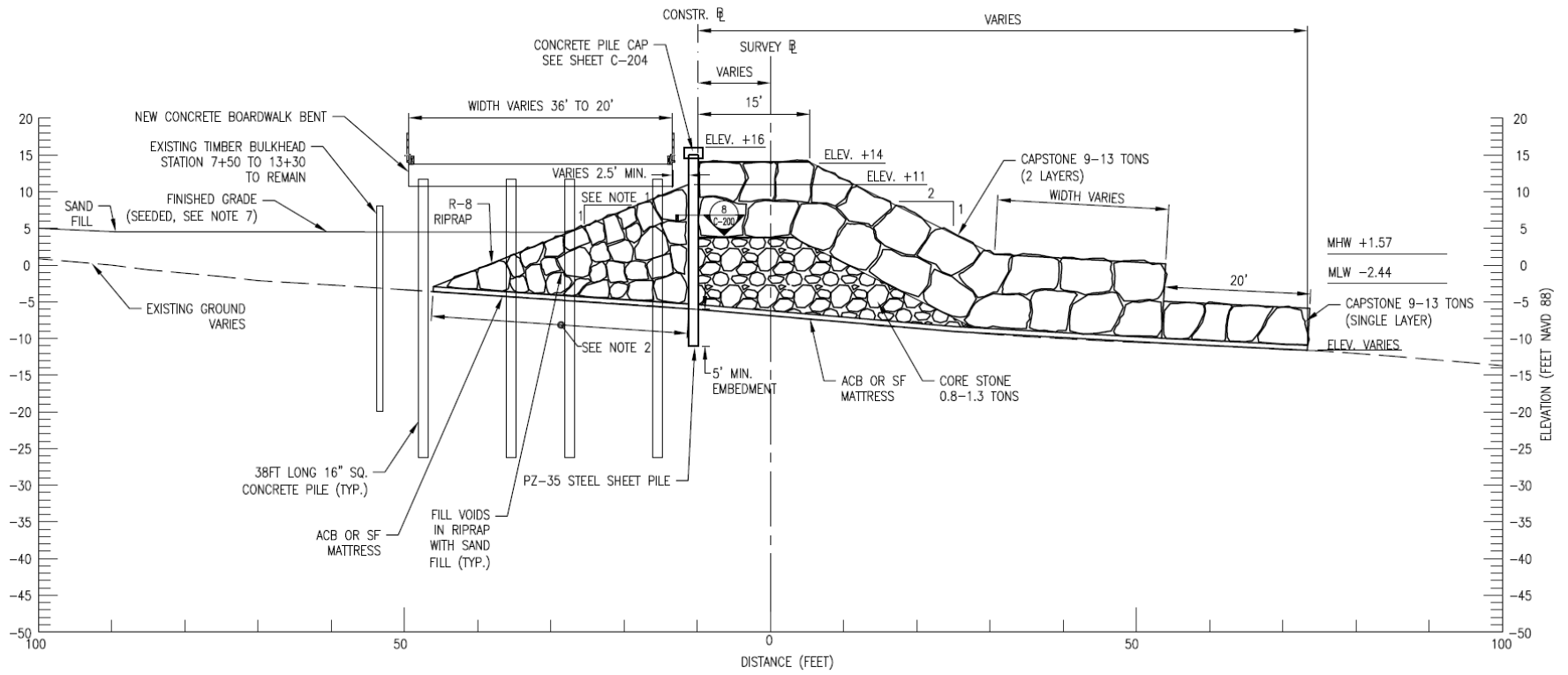


Figure 27. Typical Section of an SSB Seawall



SELF-INSPECTED DATE	
REVISION #	
DESIGNED BY	
CHECKED BY	

U.S. ARMY CORPS OF ENGINEERS PHILADELPHIA DISTRICT	
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STORM SURGE BARRIER  
CYCLE 3 SCREENING  
NEW JERSEY BACK BAYS  
CSRM FEASIBILITY STUDY  
ABSECON BAY CLOSURE - A1

SHEET NUMBER  
**C-115**

Figure 28. Absecon Blvd. Cross-Bay Barrier (Bay Closure) Plan View Layout

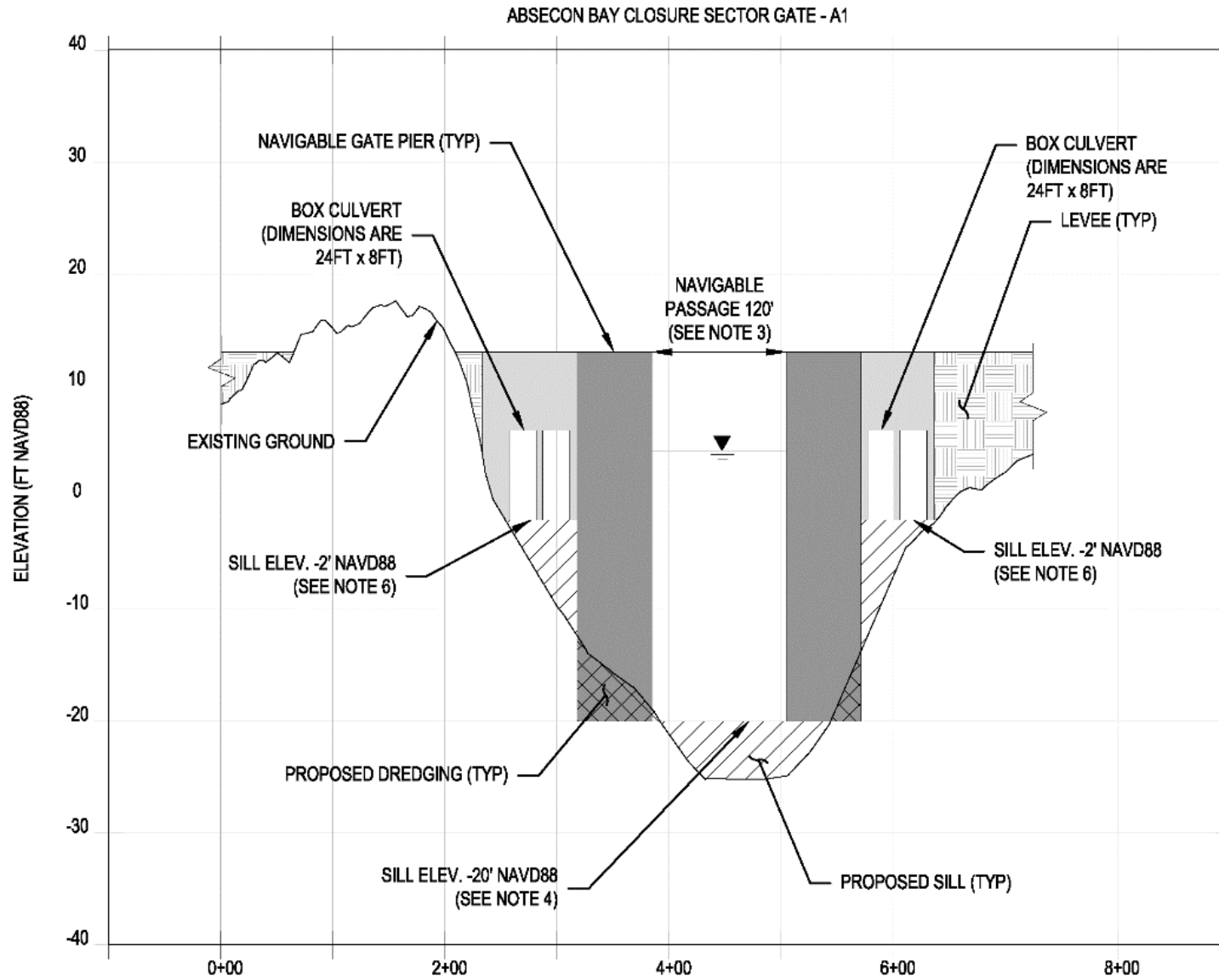


Figure 29. Absecon Blvd. Cross-Bay Barrier (Bay Closure) A-1 Navigable Gate Cross Section



Figure 30. Southern Ocean City Cross-Bay Barrier (Bay Closure) Plan View Layout

SOUTHERN OCEAN CITY BAY CLOSURE SECTOR GATE - A1

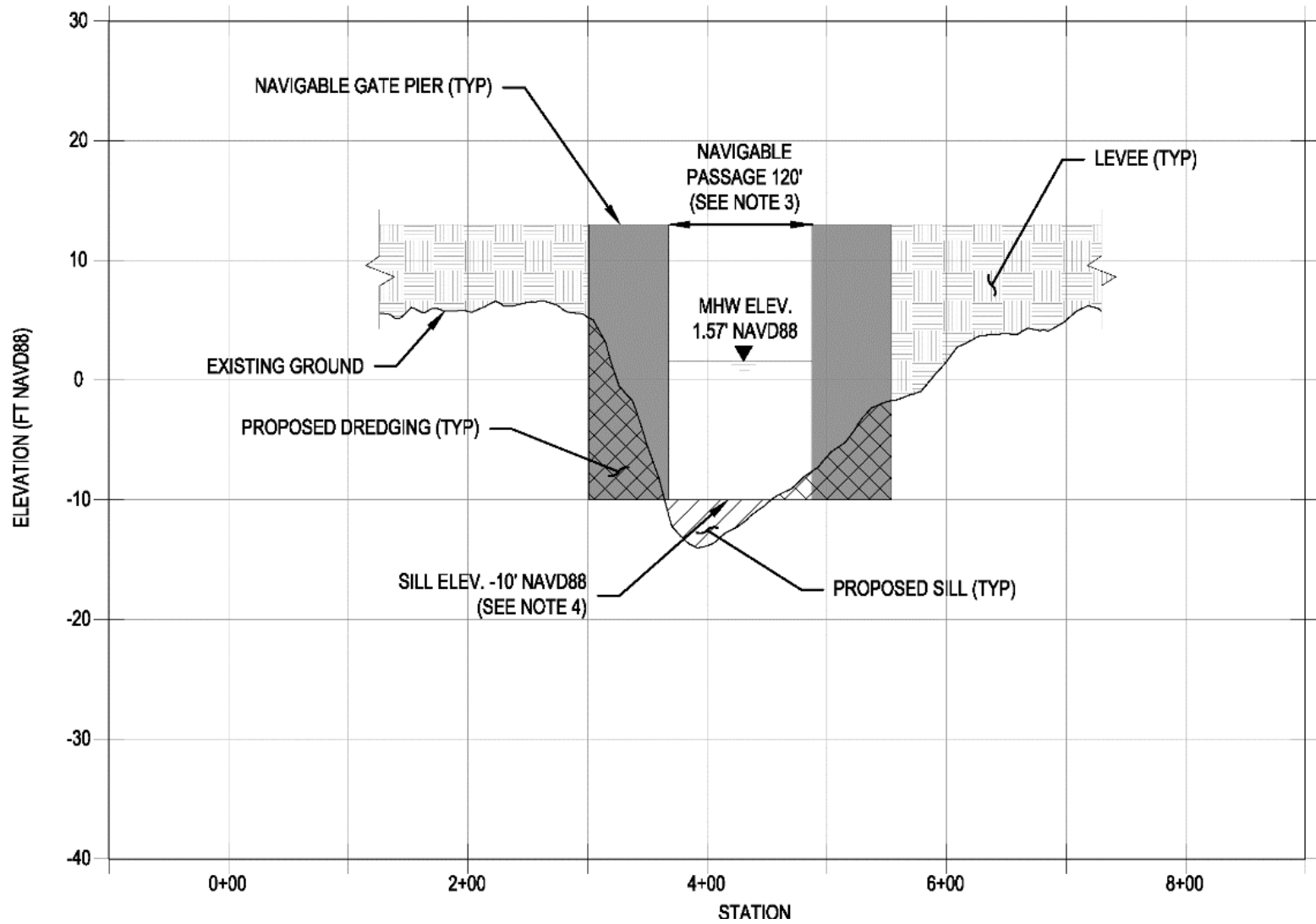


Figure 31. Southern Ocean City Cross-Bay Barrier (Bay Closure) A-1 Navigable Gate Cross Section

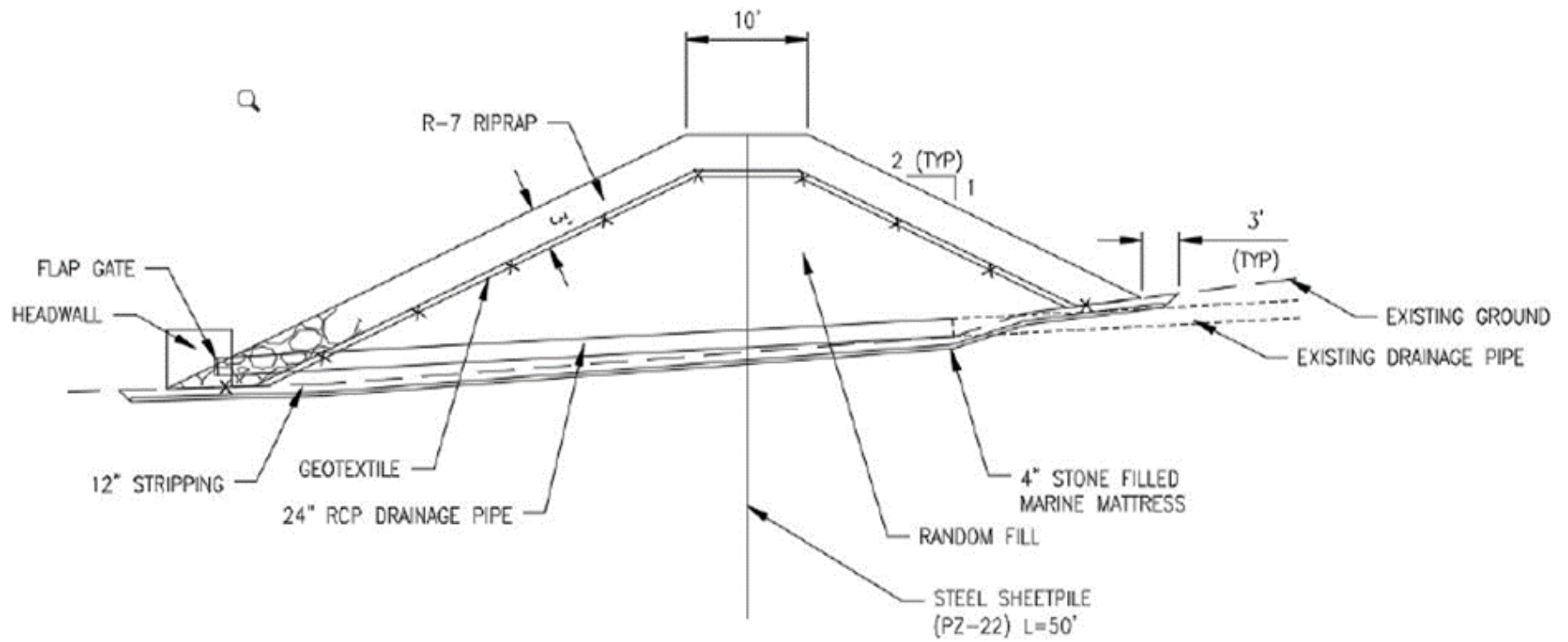


Figure 32. Typical Section of Levee "Type A" Perimeter (Perimeter Plans)

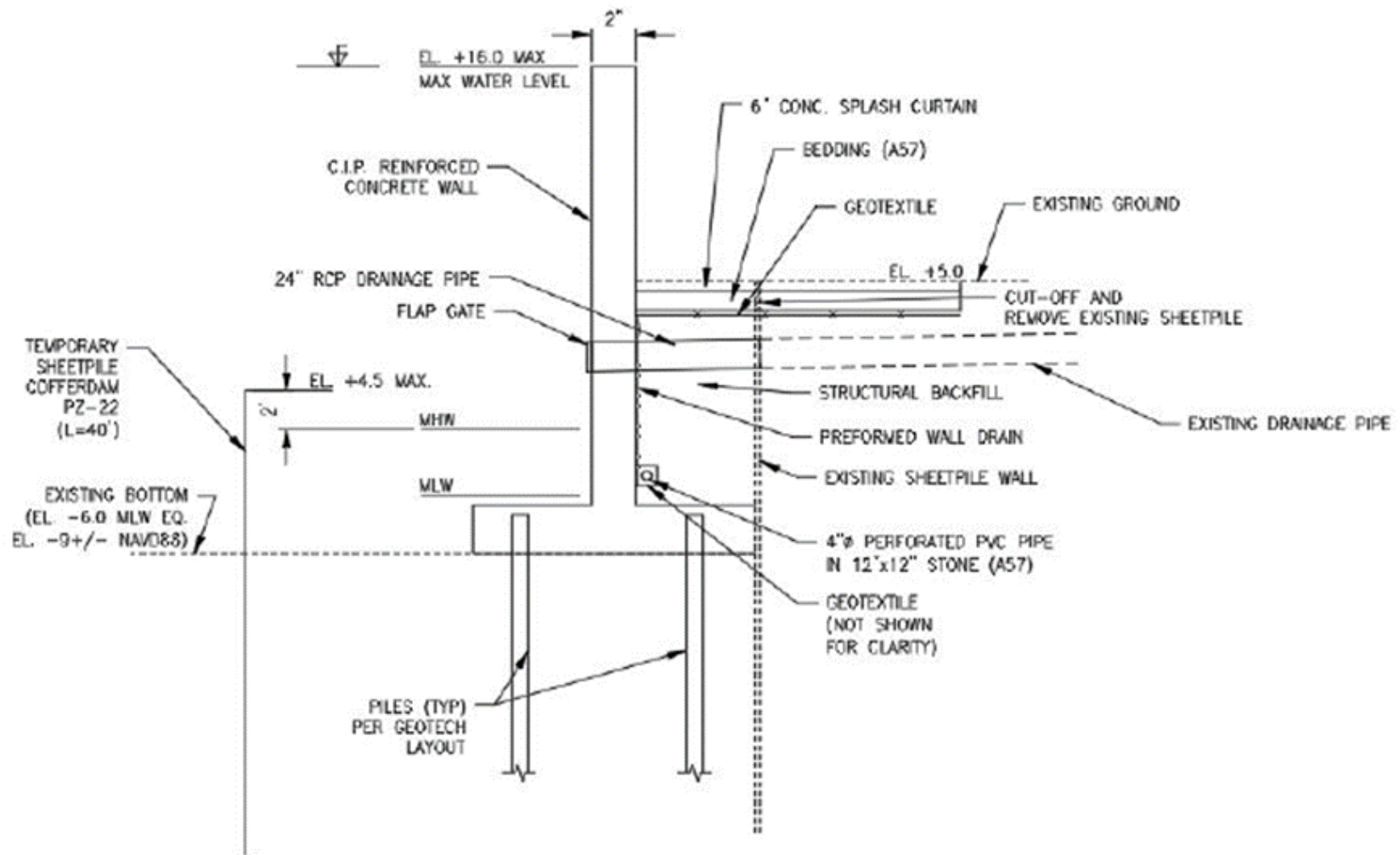


Figure 33. Typical Section Type B Concrete Cantilever Floodwall on Piles (Perimeter Plans)



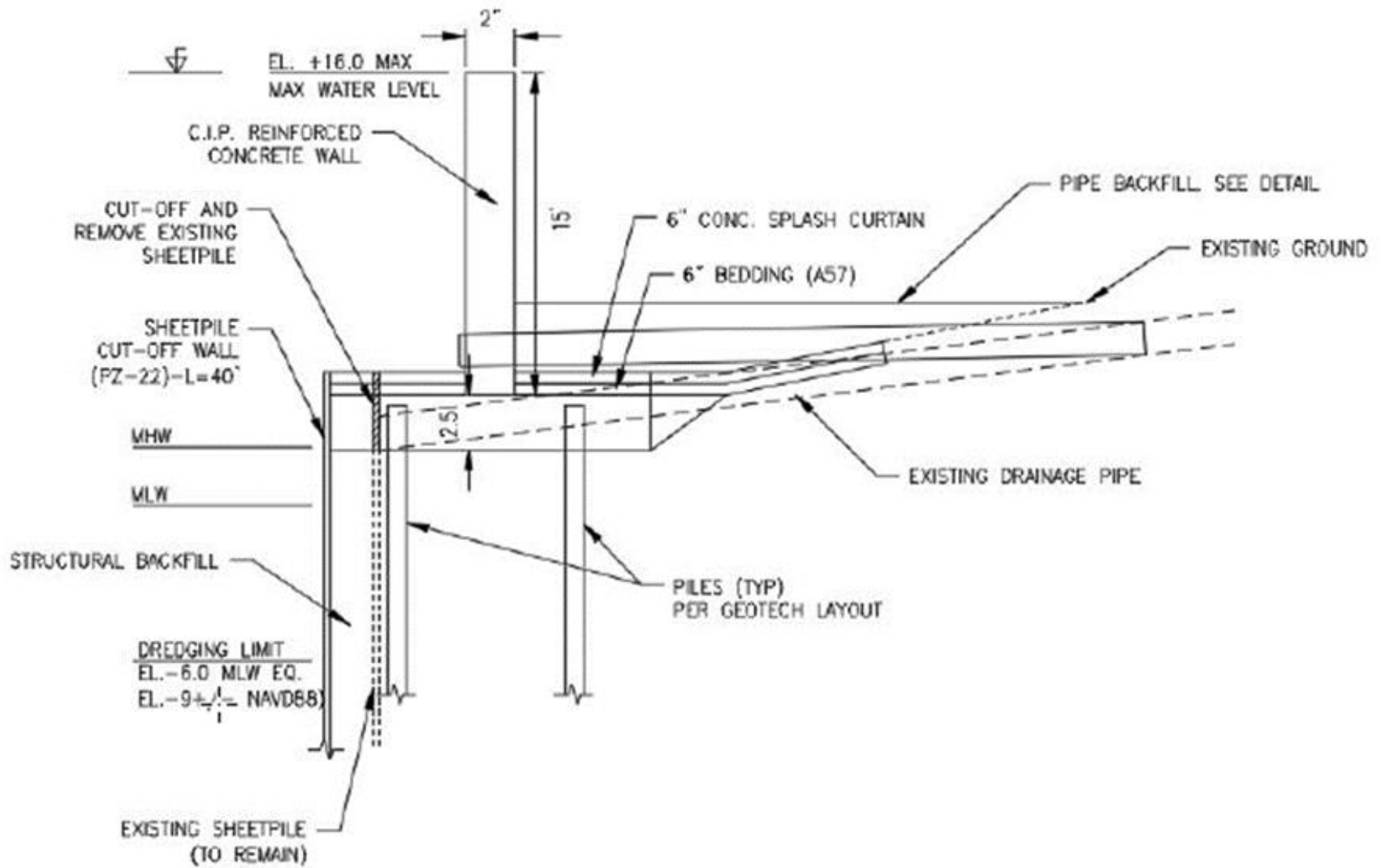


Figure 34. Typical Section Type C Cantilever Concrete Floodwall (Perimeter Plans)

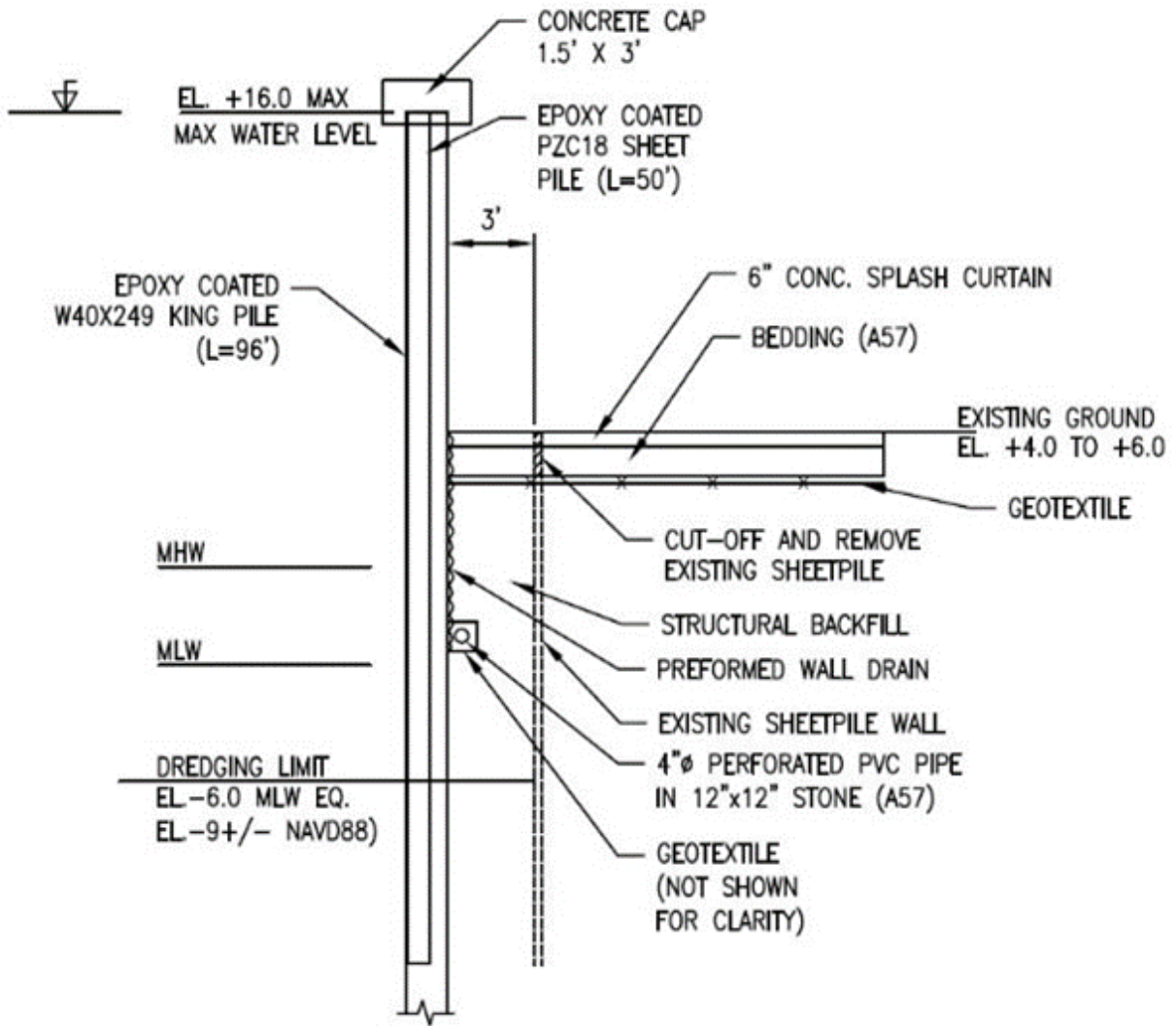


Figure 35. Typical Section Type D King Pile Combined with Sheetpile Floodwall (Perimeter Plans)

## **4.0 HABITAT IMPACT OVERLAYS OF STRUCTURAL COMPONENTS OF THE TENTATIVELY SELECTED PLAN NORTH REGION**



Figure 36. Storm Surge Barrier Overlay with Wetland Habitats at Manasquan Inlet in TSP Alternative 3E(2)

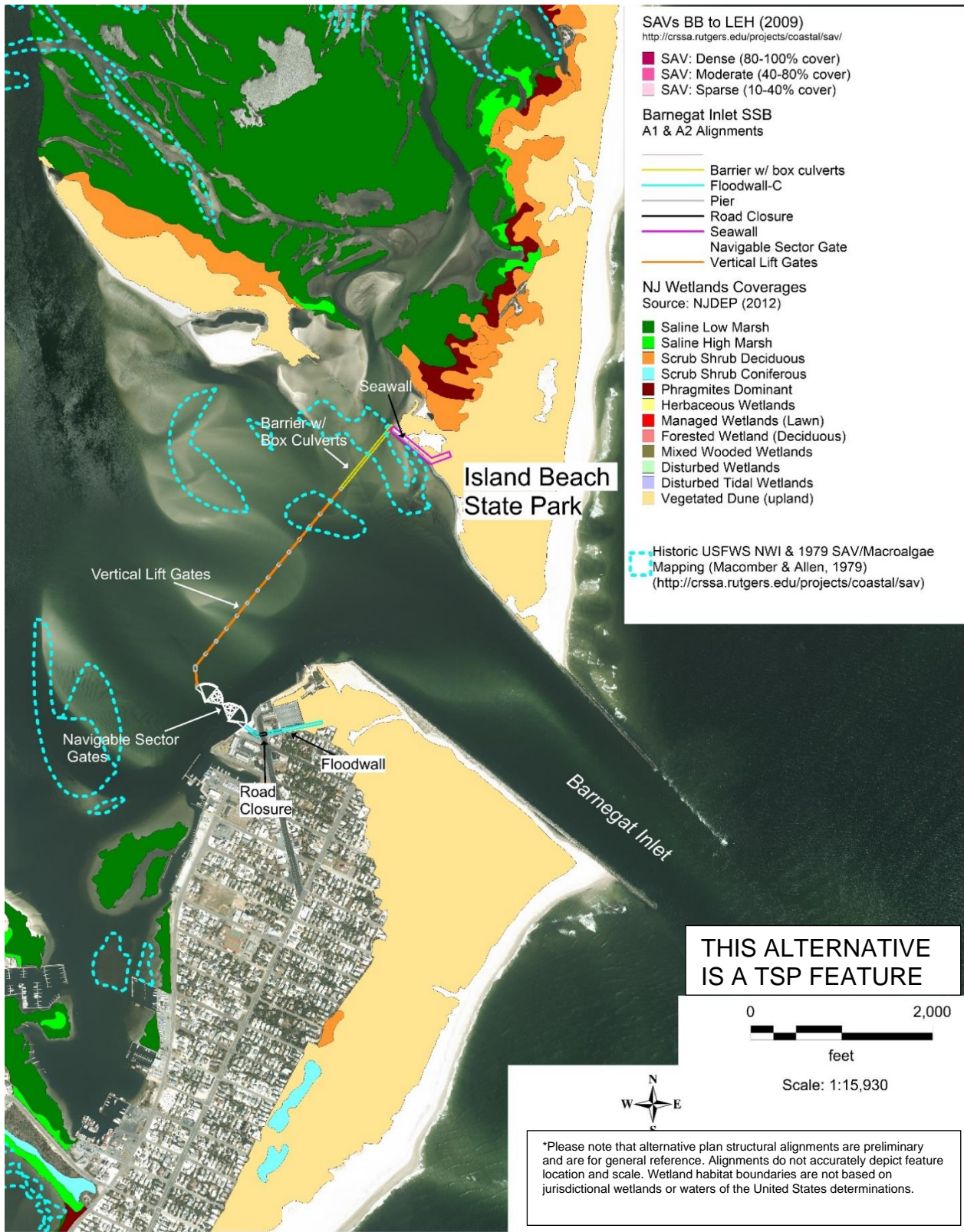


Figure 37. Storm Surge Barrier Overlay with Wetland Habitats at Barnegat Inlet in TSP Alternative 3E(2)

**5.0 HABITAT IMPACT OVERLAYS OF STRUCTURAL COMPONENTS OF THE  
TENTATIVELY SELECTED PLAN AND PERIMETER PLANS UNDER  
CONSIDERATION CENTRAL REGION**

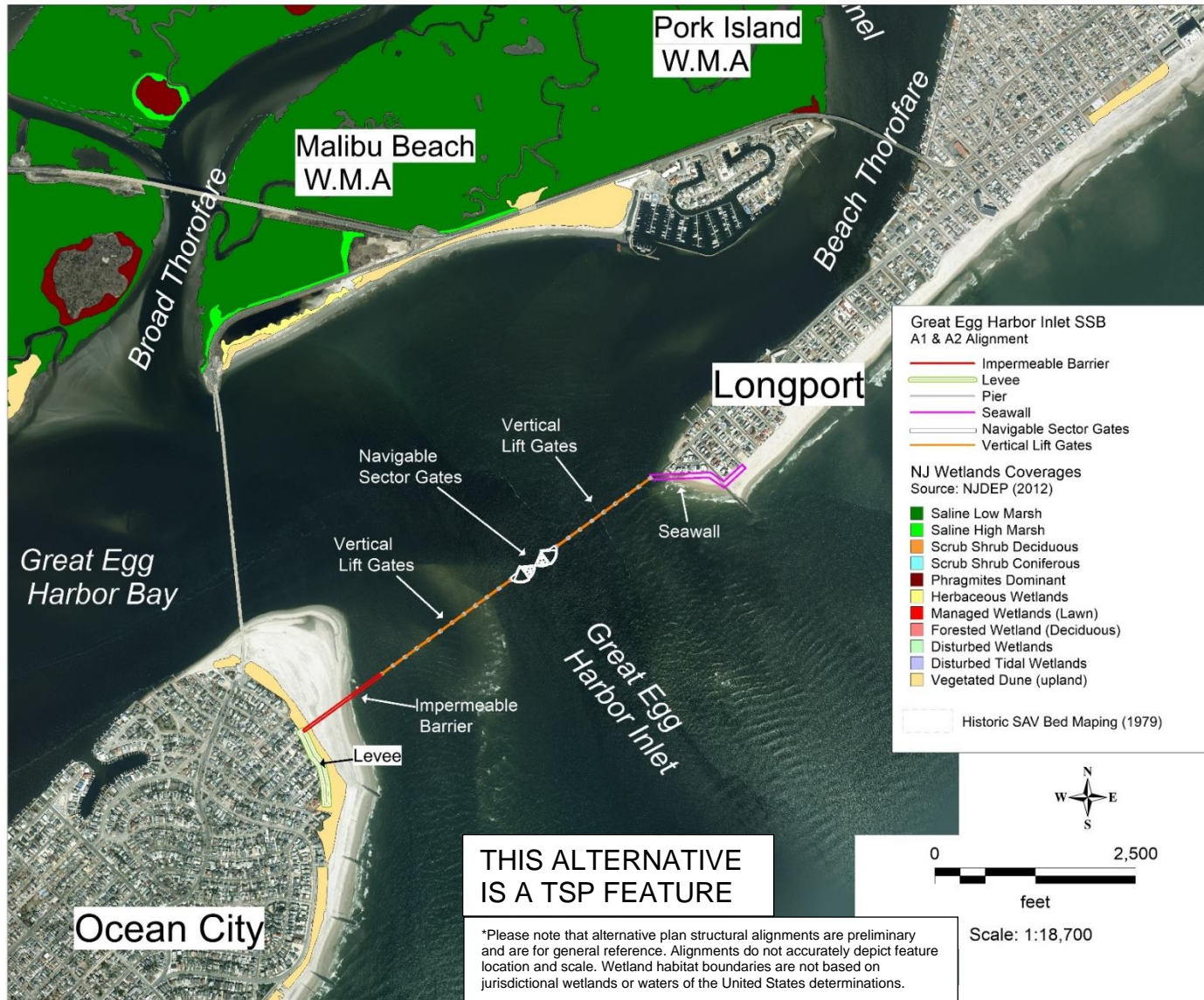


Figure 38. Storm Surge Barrier Overlay with Wetland Habitats at Great Egg Harbor Inlet in TSP Alternative 4G(8)

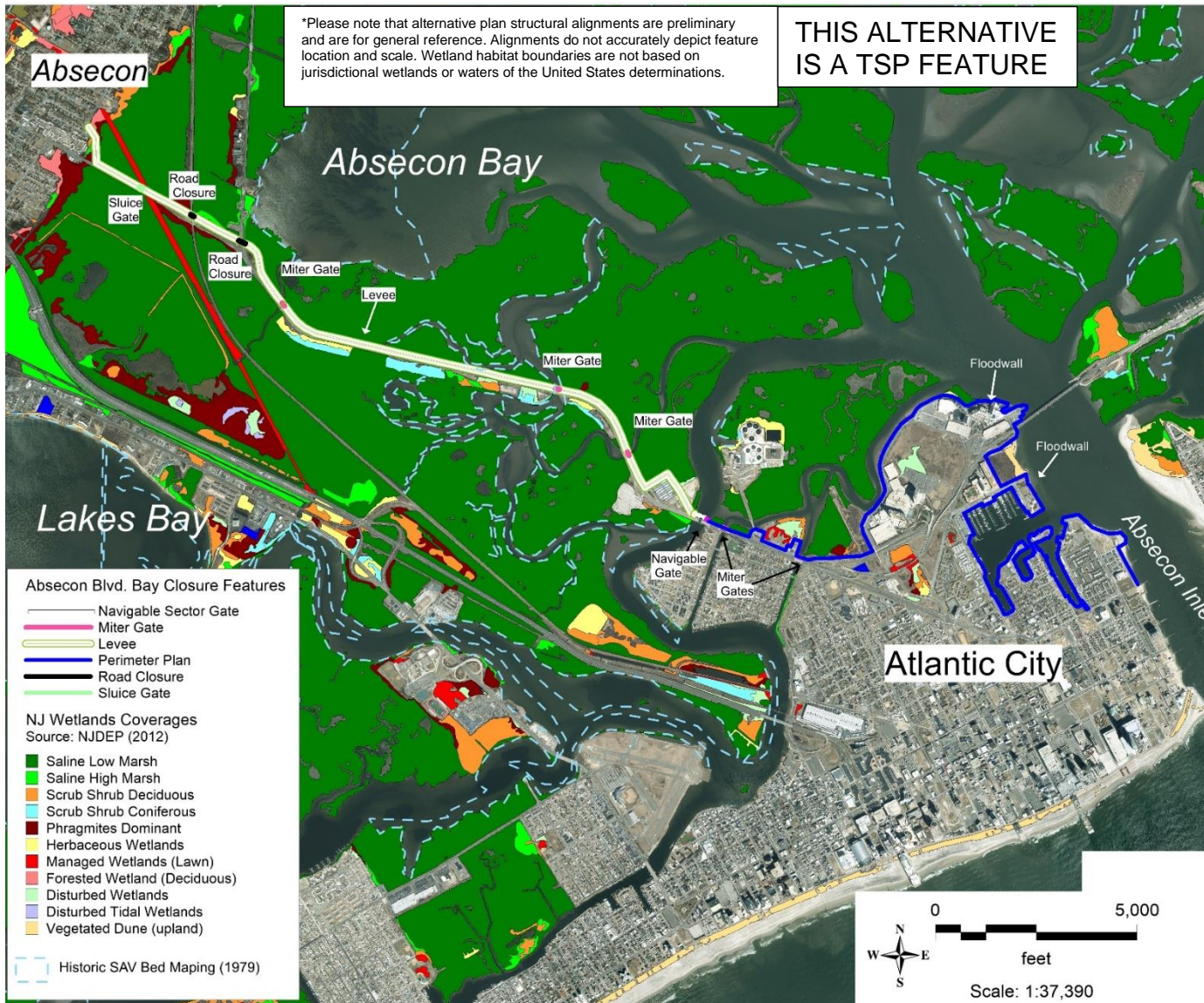


Figure 39. Interior Bay Closure Overlay with Wetland Habitats at Absecon Boulevard in TSP Alternative 4G(8)





Figure 40. Interior Bay Closure Overlay with Wetland Habitats at Southern Ocean City in TSP Alternative 4G(8)

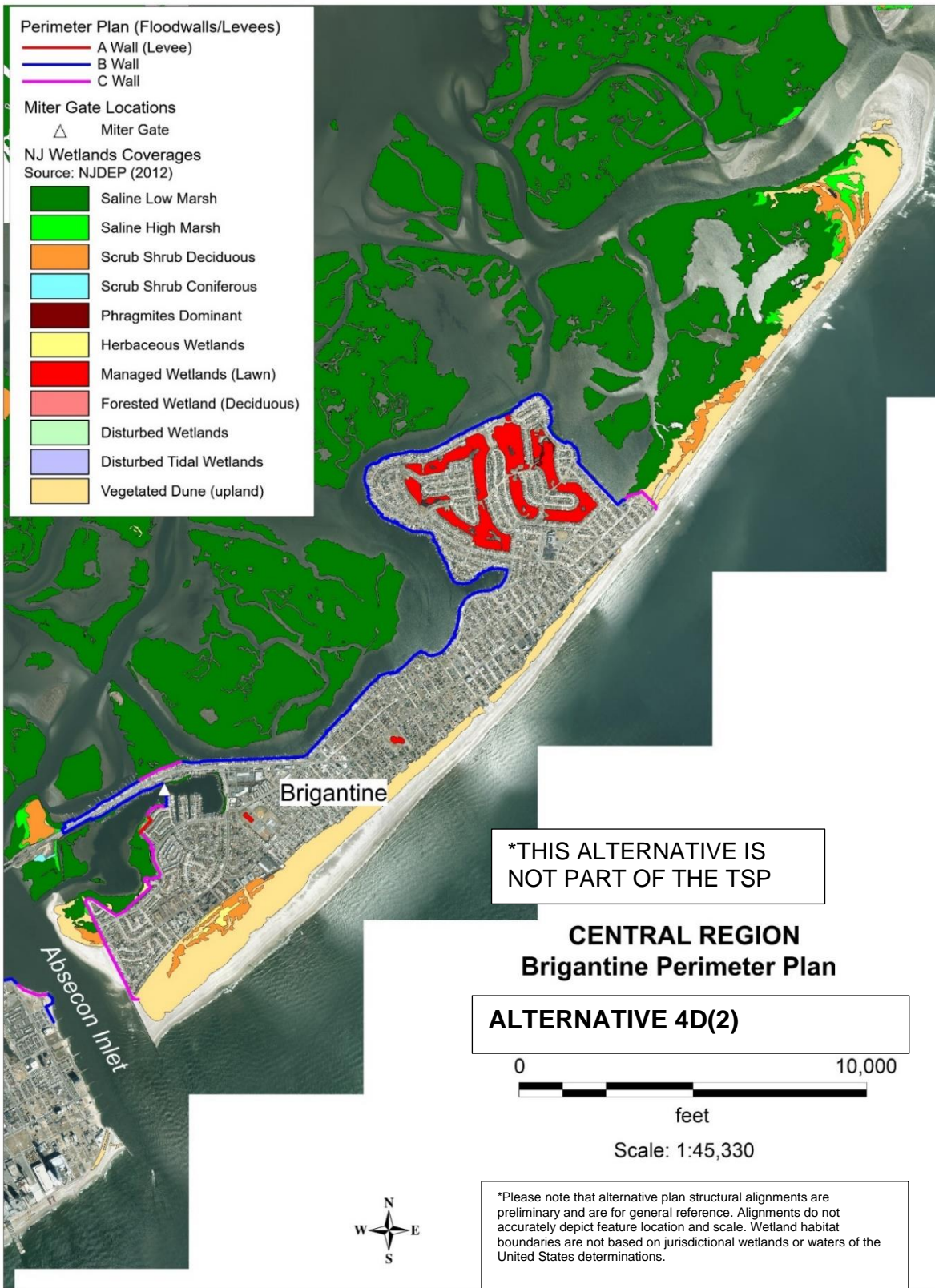


Figure 41. Perimeter Plan Overlay with Wetland Habitats along Brigantine Alignment in Alternative 4D(2).

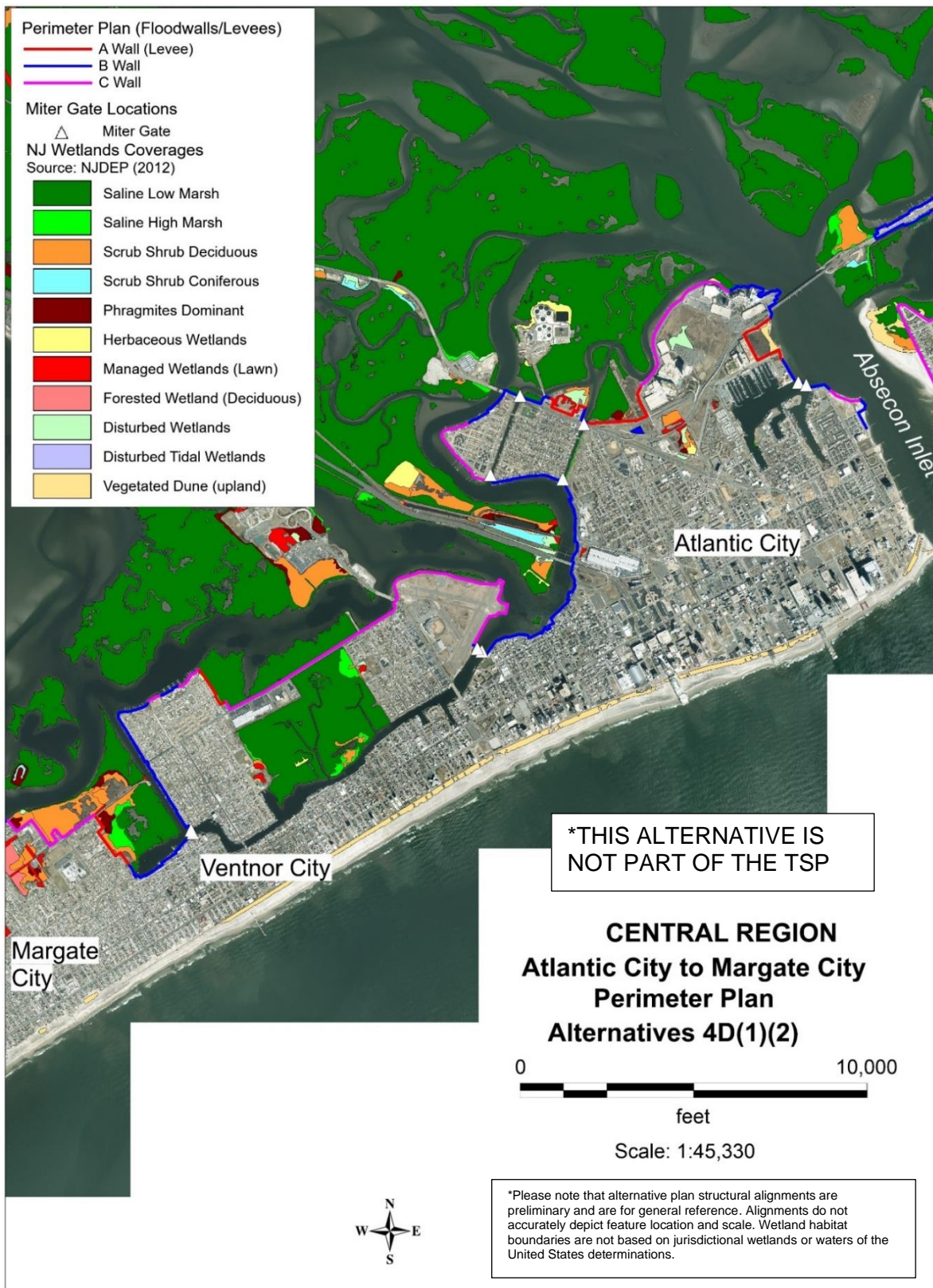


Figure 42. Perimeter Plan Overlay with Wetland Habitats along Atlantic City to Margate City Alignment in Alternatives 4D(1) & (2).

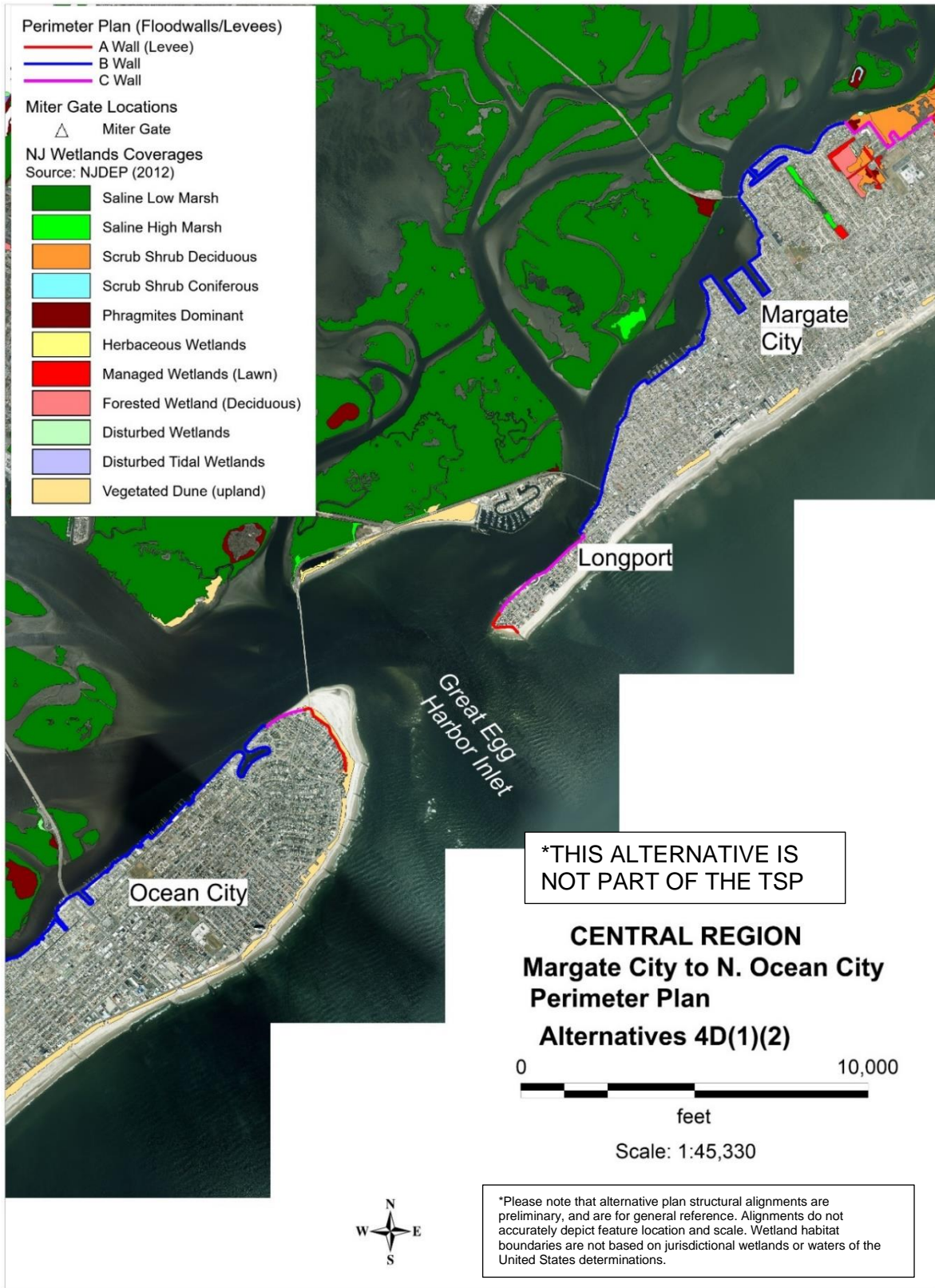


Figure 43. Perimeter Plan Overlay with Wetland Habitats along Margate City to N. Ocean City Alignment in Alternatives 4D(1) & (2).

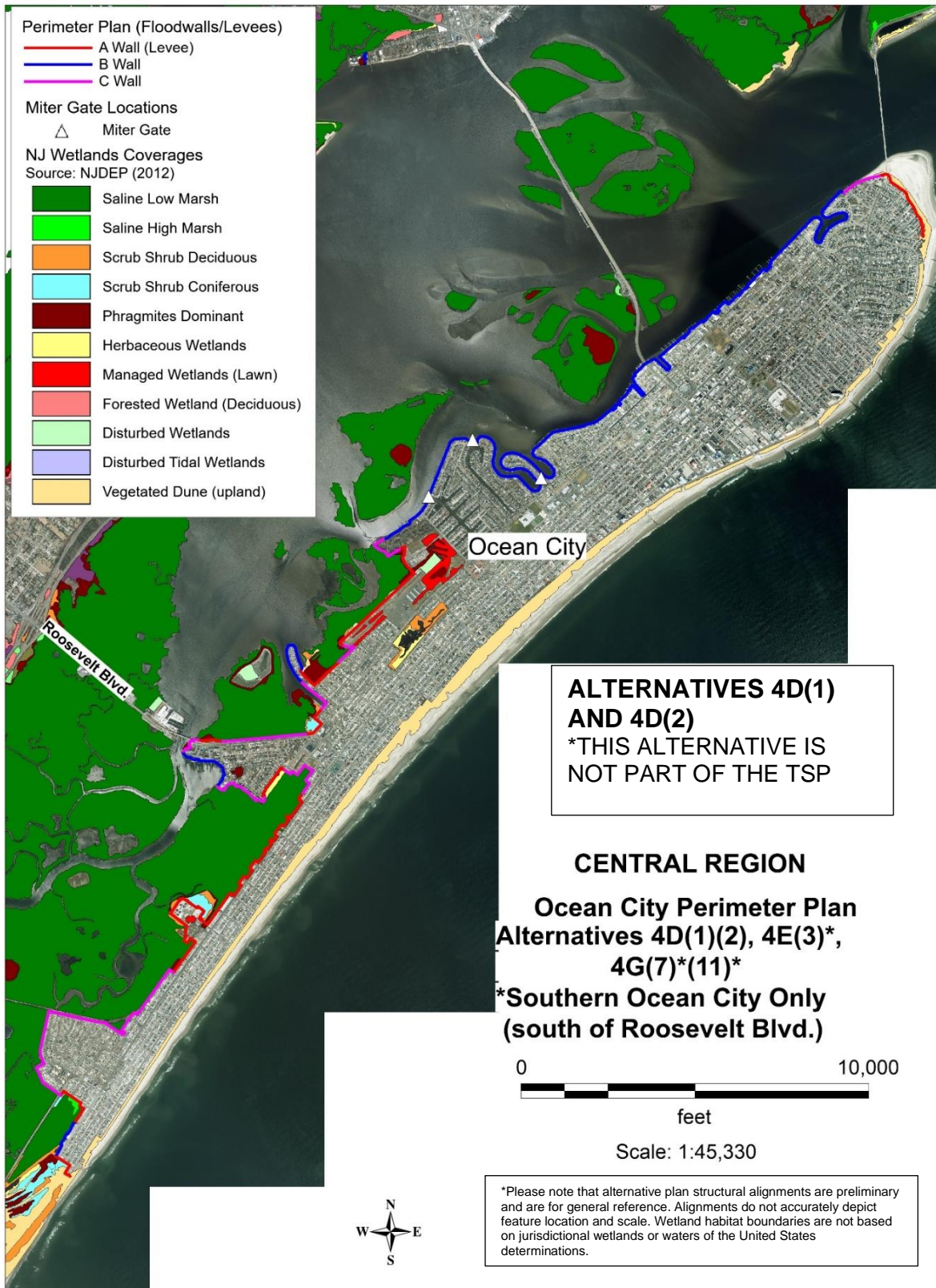


Figure 44. Perimeter Plan Overlay with Wetland Habitats along Ocean City Alignment in Alternatives 4D(1) & 4D(2).

**6.0 HABITAT IMPACT OVERLAYS OF STRUCTURAL COMPONENTS OF THE PERIMETER PLAN ALTERNATIVES (THESE PLANS ARE NOT INCLUDED IN THE TSP) – SOUTHERN REGION**



Figure 45. Perimeter Plan Overlay with Wetland Habitats along Sea Isle City Alignment in Alternative 5D(2).



Figure 46. Perimeter Plan Overlay with Wetland Habitats along Avalon Alignment in Alternatives 5D(2).



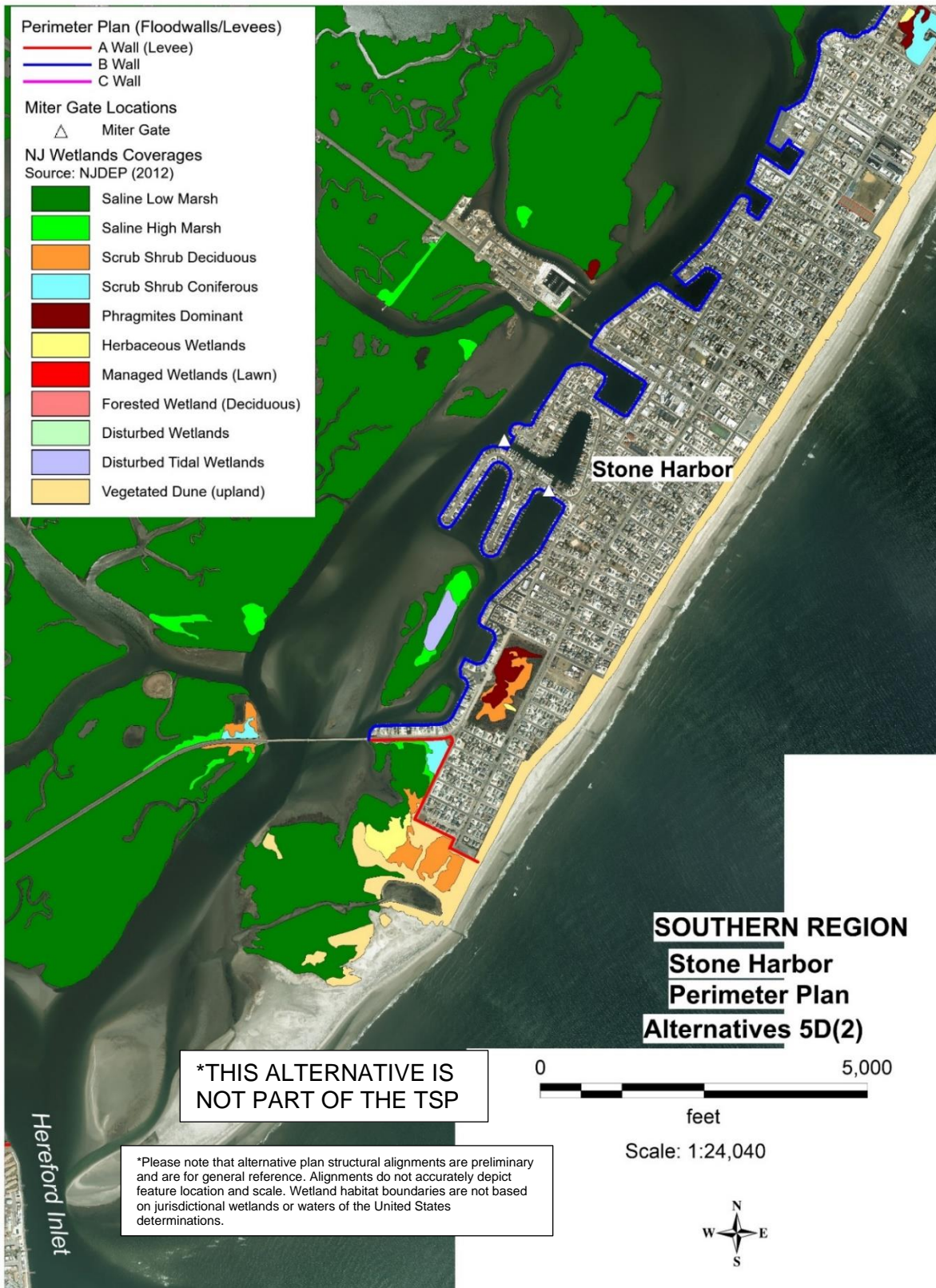


Figure 47. Perimeter Plan Overlay with Wetland Habitats along Stone Harbor Alignment in Alternative 5D(2).

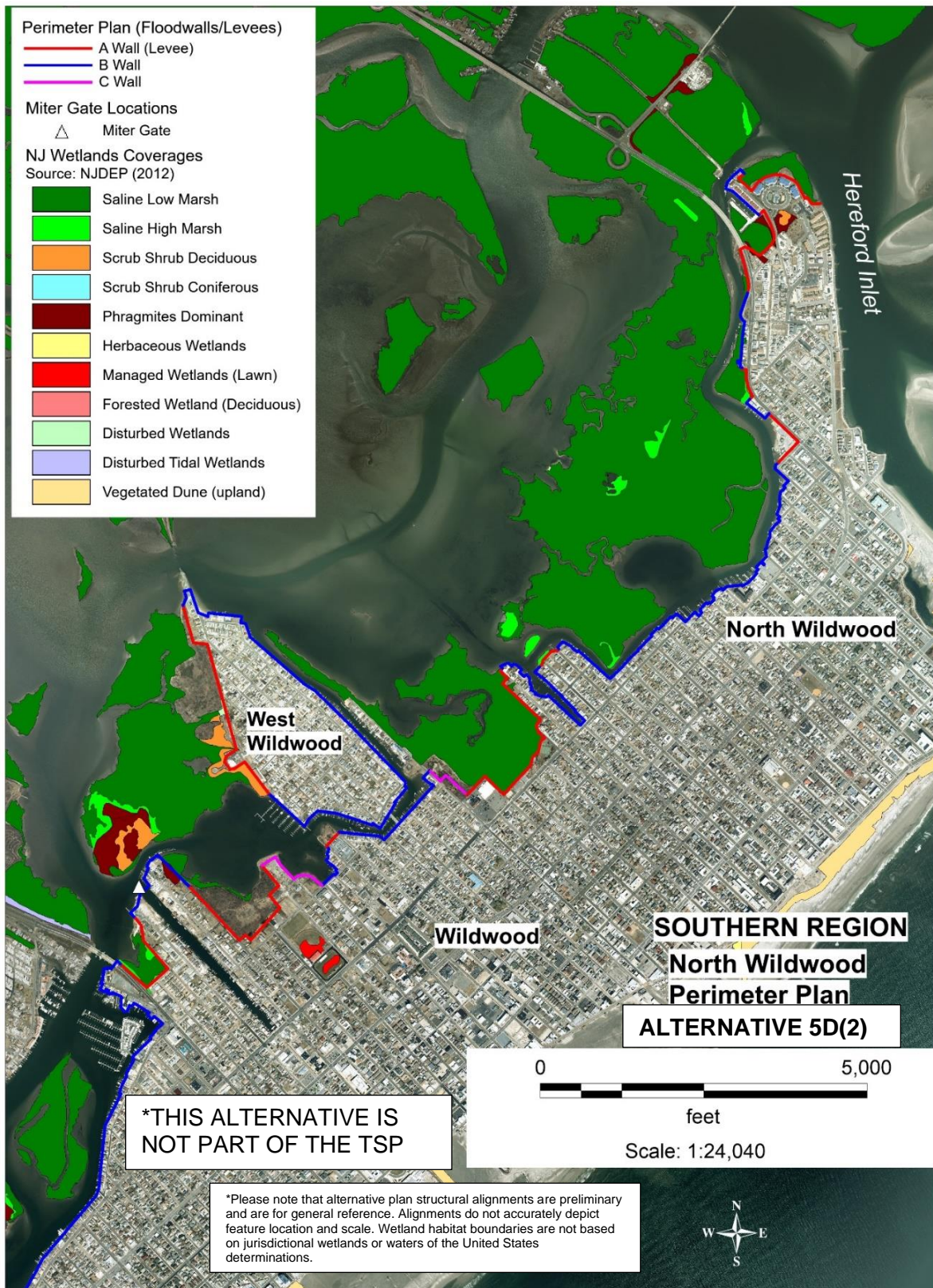


Figure 48. Perimeter Plan Overlay with Wetland Habitats along Wildwood (north) Alignment in Alternative 5D(2).



Figure 49. Perimeter Plan Overlay with Wetland Habitats along Wildwood (south) Alignment in Alternative 5D(2).

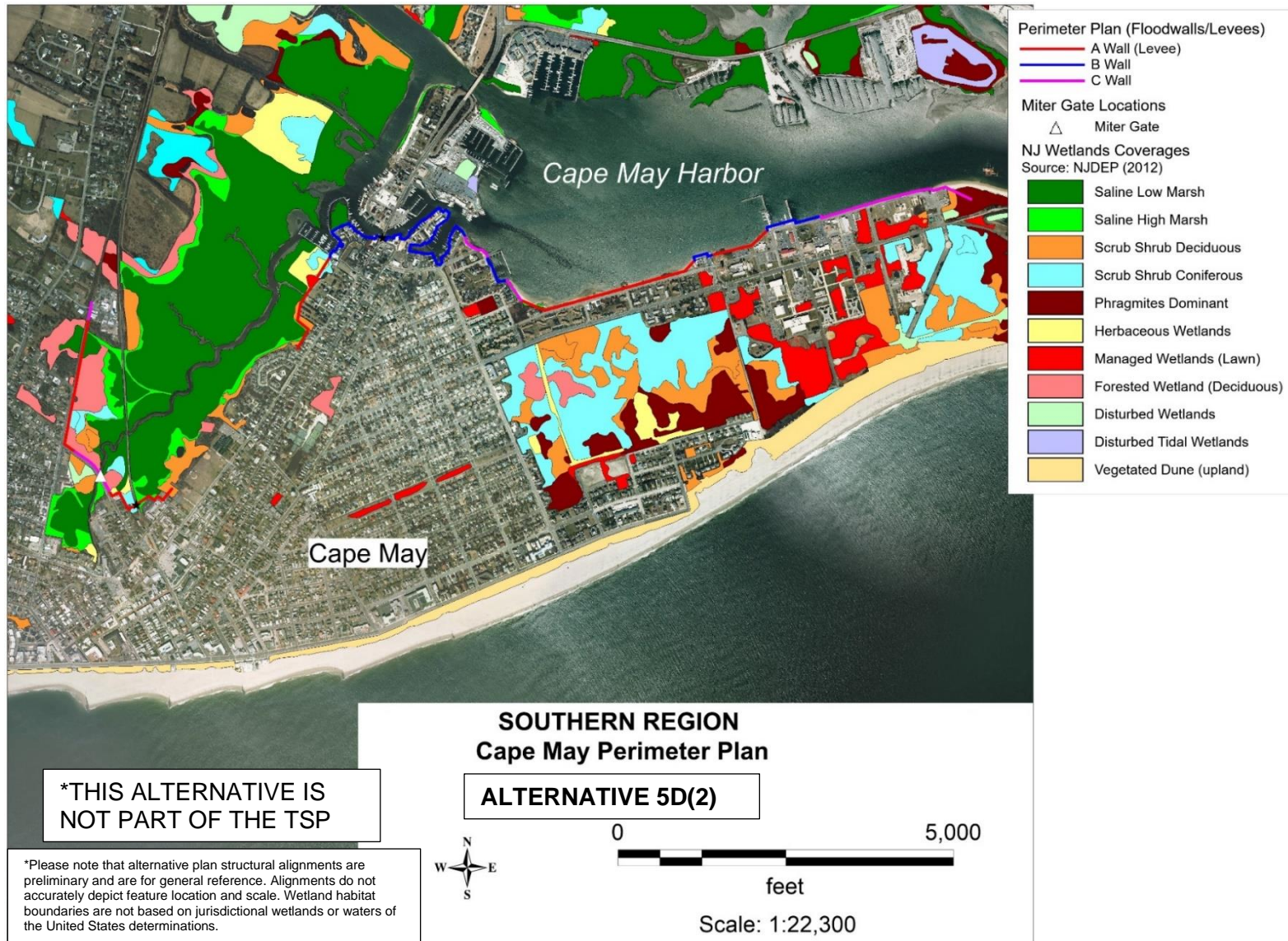


Figure 50. Perimeter Plan Overlay with Wetland Habitats Along Cape May Alignment in Alternative 5D(2).