



MARYLAND DEPARTMENT OF THE ENVIRONMENT

1800 Washington Boulevard • Baltimore MD 21230

410-537-3000 • 1-800-633-6101 • www.mde.maryland.gov

Larry Hogan
Governor

Ben Grumbles
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Boyd Rutherford
Lieutenant Governor

June 15, 2015

PUBLIC NOTICE AND ANNOUNCEMENT OF PUBLIC INFORMATIONAL HEARING WETLANDS LICENSE APPLICATION FOR THE POPLAR ISLAND LATERAL EXPANSION PROJECT

Applicant: Maryland Port Administration

Application Number: 15-WL-0131 / 201560258

Comment Period: June 15, 2015 to July 22, 2015

Public Informational Hearing Details:

Date: Tuesday, July 7, 2015

Time: 10:00 AM

Location: Talbot County Free Library (Main)
100 W. Dover Street
Easton, MD 21601

Date: Wednesday, July 8, 2015

Time: 10:00 AM

Location: Maryland Environmental Service
259 Najoles Road
Millersville, MD 21108

APPLICATION: THE MARYLAND PORT ADMINISTRATION, World Trade Center, 401 East Pratt Street, Suite 1900, Baltimore, Maryland 21202 has applied for a tidal wetlands license to conduct the following regulated activities associated with the construction of the Poplar Island Lateral Expansion Project: (1) Mechanically dredging material onto a barge and hydraulically off loading from a barge a maximum of 5.6 million cubic yards of clean dredge material to an existing undeveloped cell located at Cell 1D on Poplar Island and a newly-constructed wetland cell on the proposed Poplar Island Expansion, to include the following: (a) approximately 220 acres (9.58 million square feet) to create a borrow pit to a depth of 35.48 feet at mean low water, (b) approximately 21 acres (914,760 square feet) to create an access channel to a depth of 25.48 feet at mean low water; (c) approximately 20.1 acres (875,556 square feet) to remediate dike and breakwater foundations to a depth of 21.48 feet at mean low water; (2) periodic maintenance dredging; (3) constructing three stone breakwaters measuring a total of 2,153 feet long by 160 feet wide; (4) constructing 24,647 feet of armored dredge material containment dikes measuring a maximum of 240 feet wide; (5) emplacing 4 tidal spillway and breach features measuring a maximum of 100 feet long and 24 feet wide; (6) emplacing 1 temporary upland spillway feature measuring a maximum of 15 feet long and 60 feet wide; (7) creating approximately 259 acres of upland habitat, 206 acres of tidal wetland habitat, and 110 acres of protected open water embayment; and (8) emplacing a temporary steel sheetpile bulkhead with backfill measuring a total of 400 feet long by 60 feet wide; all for a total of 511 acres (22.26 million square feet) of habitat creation. The purpose of the project is to create a beneficial use dredged material spoil site for approximately 28 million cubic yards of previously authorized clean dredged material sourced from the Baltimore Harbor approach channels, and to provide remote island wetland and upland habitat for wildlife. The project site is located adjacent to the northern end of the Paul S. Sarbanes Ecosystem Restoration Project located at Poplar Island in Talbot County, Maryland. MDE is evaluating the proposed regulated activities under Title 16 of the Environment Article, Annotated Code of Maryland.



PUBLIC INFORMATIONAL HEARINGS: Two public informational hearings will be held to allow all interested parties the opportunity to make statements related to the wetlands impacts under consideration by MDE. The dates, times, and locations of the public informational hearings are as follows: Tuesday, July 7, 2015, at 10:00 AM at the main branch of the Talbot County Free Library, 100 W. Dover Street, Easton, Maryland 21601 and Wednesday, July 8, 2015, at 10:00 AM at Maryland Environmental Service, 259 Najoles Road, Millersville, Maryland 21108.

QUESTIONS, COMMENTS, INTERESTED PERSONS LIST: If you have any questions, or if you would like to be placed on the interested persons list for this project, or comment on the proposed regulated activities, please contact Mary Phipps-Dickerson by telephone at (410) 901-4033, by email at mary.phipps-dickerson@maryland.gov, or by mail at Mary Phipps-Dickerson, Maryland Department of the Environment, Wetlands and Waterways Program, 1800 Washington Boulevard, Suite 430, Baltimore, Maryland 21230-1708. Further notices concerning actions on this application will only be provided by mail to persons on the interested persons list for this project. All comments must be received by **July 22, 2015**.

Further information, including plans generally depicting the proposed impacts, is available at <http://www.mpasafepassage.org/news.html> and at the following public libraries:

Anne Arundel County Public Library
Annapolis Branch
1410 West Street
Annapolis, Maryland 21401

Baltimore County Public Library
North Point Branch
1716 Merritt Boulevard
Dundalk, Maryland 21222

Baltimore City
Enoch Pratt Free Library
Central Library
400 Cathedral Street
Baltimore, Maryland 21201

Calvert County Public Library
850 Costley Way
Prince Frederick, Maryland 20678

Cecil County Public Library
Elkton Central Branch
301 Newark Avenue
Elkton, Maryland 21921

Dorchester County Public Library
Central Library
303 Gay St.
Cambridge, Maryland 21613

Harford County Public Library
Havre de Grace Branch
203 Market Street
Havre de Grace, Maryland 21078

Kent County Public Library
Chestertown Branch
408 High Street
Chestertown, Maryland 21620

Queen Anne's County Public Library
Centreville Branch
121 South Commerce Street
Centreville, Maryland 2161

St. Mary's County Public Library
Leonardtwn Branch
23250 Hollywood Road
Leonardtwn, Maryland 20650

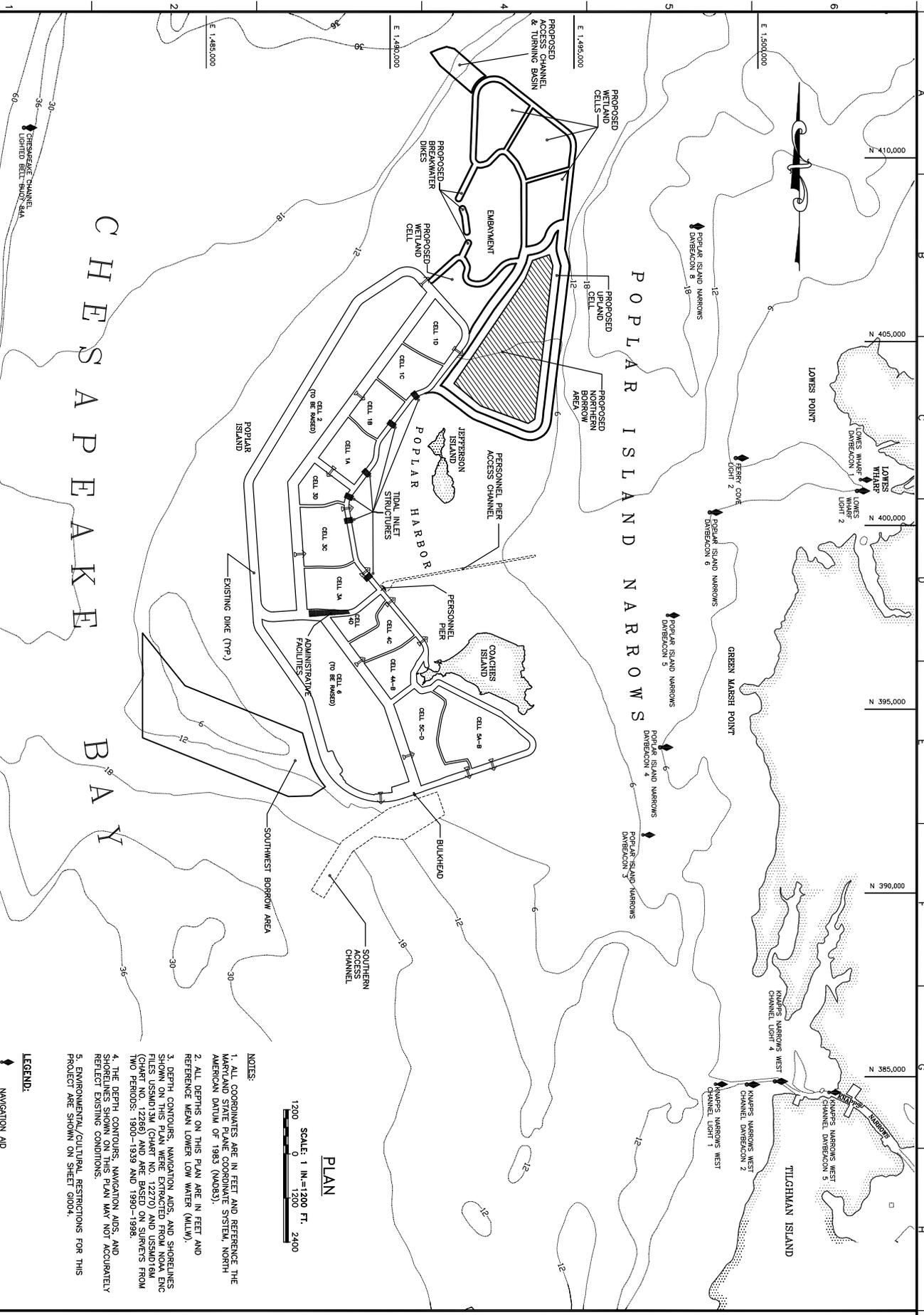
Somerset County Public Library
Princess Anne Branch
11767 Beechwood Street
Princess Anne, Maryland 21853

Talbot County Free Library
Main Library
100 W. Dover St.
Easton, Maryland 21601

Wicomico County Public Library
Downtown Branch
122 S. Division Street
Salisbury, Maryland 21801



Poplar Island Expansion Impact Chart				
Proposed Dredged		Proposed Fill		
Up to 5 MCY from Borrow Area Up to 240,000 CY Access Channel Up to 362,000 CY Foundation Removal		1.0 MCY Wetland Dikes 2.0 MCY for Upland Dikes 0.14 MCY for Breakwaters		
Suitable construction material will be stockpiled for fill and unsuitable material will be placed in the Upland Cell 2 of the existing Poplar Island. Material will also be lost during the stockpiling process. Current estimates are 50% will be placed in Cell 2 (silts and clays) and 50% will be usable construction material (sandy material) from the Borrow Pit and Access Channel. Material dredged from the proposed Foundation Removal is mostly clay and will be placed in Cell 2.				
Feature	Length (Linear Ft- LF)	Width (LF)	Acres	Maximum Height/Depth
Access Channel	±1500	±610	21	
Northwest Borrow Pit	±4415	±2175	220	
Proposed Foundation Removal and Replacement (under planned dike and breakwater areas)				
Reach "A"	1250	150	4.3	Depth - 10
Reach "B"	1250	160	4.6	Depth - 10
Reach "C"	1600	150	5.5	Depth - 10
Reach "D"	1100	225	5.7	Depth - 10
Dike and Breakwater Features				
Breakwaters	2153	± 160		± 15
Embayment Dike Upland to Wetland		± 240		± 30
Embayment Dike Wetland		± 145		± 15
Wetland Cross Dike		± 100		± 10
Total Dike Armored	24,647			
Total Dike Unarmored	6,313			
Spillway & Breach Features				
Box Culverts	24	6		6
There are 8 anticipated Box Culverts - Modeling will determine the final number				
Typical Upland Spillway Structures	±15	±60		±31
Typical Wetland Spillway Structure	±100	±24		±10
Typical Wetland Breach	±100	±24		±10
The Temporary Steel Sheetpile Bulkhead is a Contractor Option that is to be Removed				
Temporary Steel Sheetpile Bulkhead for Stone Delivery	±400	±60		Max Height ±11.5 Max Depth ± - 68.0
Total Project Impact				
Upland and Wetland Dikes Including all interior features - spillways, breakwaters, borrow area, breaches and temporary structures (excluding the Open Water 110 acre Embayment)			Square Feet of Impact	Acres of Impact
			21,344,400	490
			Access Channel 915,000	21
Total Impact			22,259,400	511



- NOTES:**
1. ALL COORDINATES ARE IN FEET AND REFERENCE THE MARYLAND STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD83).
 2. ALL DEPTHS ON THIS PLAN ARE IN FEET AND REFERENCE MEAN LOWER LOW WATER (MLLW).
 3. BERTH CONTOURS, NAVIGATION AIDS, AND SHORELINES SHOWN ON THIS PLAN ARE BASED ON SURVEYS FROM TWO PERIODS: 1900-1939 AND 1990-1998.
 4. THE BERTH CONTOURS, NAVIGATION AIDS, AND SHORELINES SHOWN ON THIS PLAN MAY NOT ACCURATELY REFLECT EXISTING CONDITIONS.
 5. ENVIRONMENTAL/CULTURAL RESTRICTIONS FOR THIS PROJECT ARE SHOWN ON SHEET 5004.

- LEGEND:**
- Navigation Aid
 - Existing Tidal Inlet Structures
 - Existing Spillway Structures

1:200 SCALE: 1 IN. = 1200 FT.
 0 1200 2400

PLAN

Sheet Number: **G1002**

PROJECT LOCATION MAP

U.S. ARMY ENGINEER DISTRICT, BALTIMORE CORPS OF ENGINEERS BALTIMORE, MARYLAND		
PLATE 2	DRAWING NUMBER FILE 17 MAP 14-039	FILE NAME xxxG1002xxx
SCALE: AS SHOWN	DATE:	PLT SCALE: 1 = 1

SYMBOL	REV.	DATE	DESCRIPTION



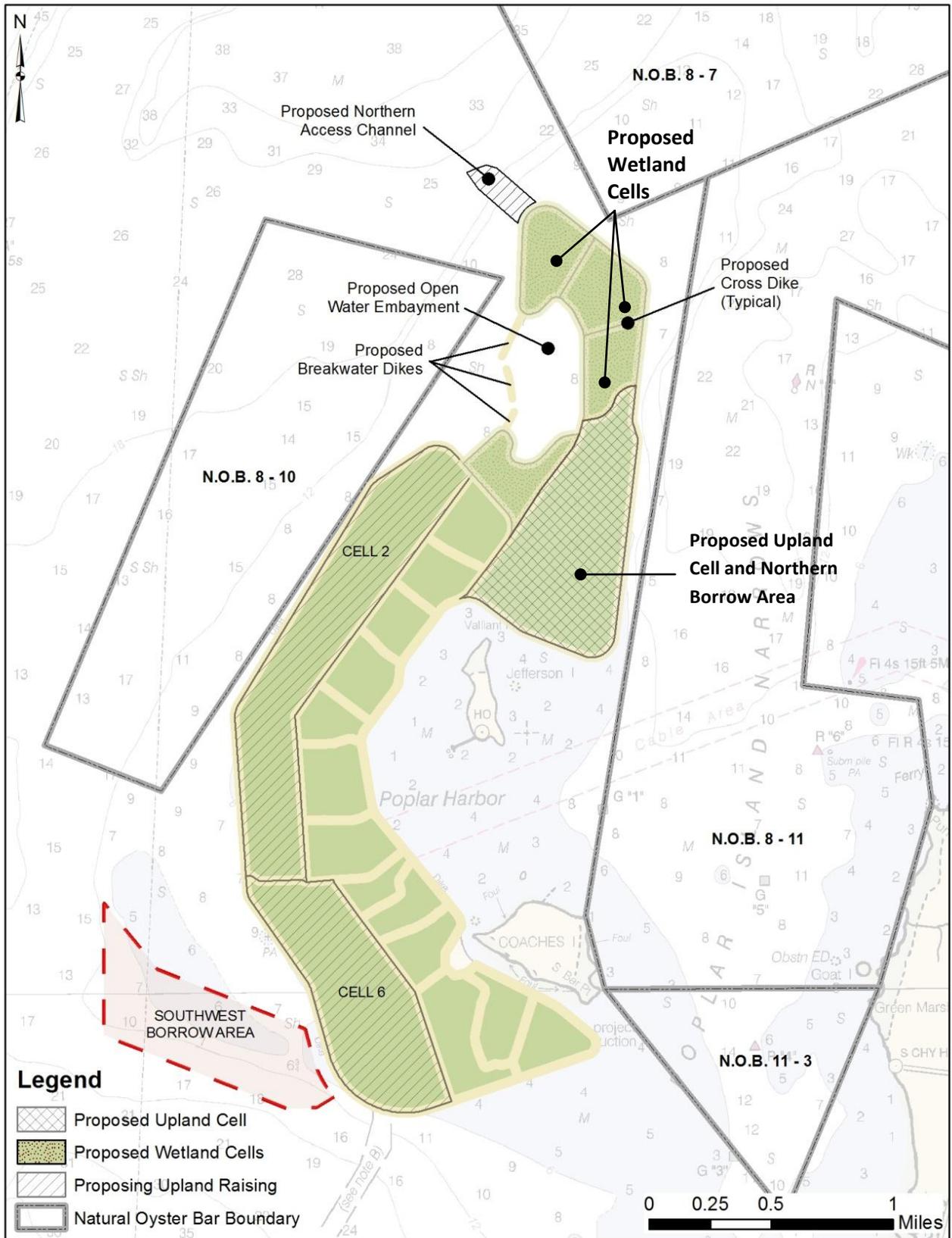
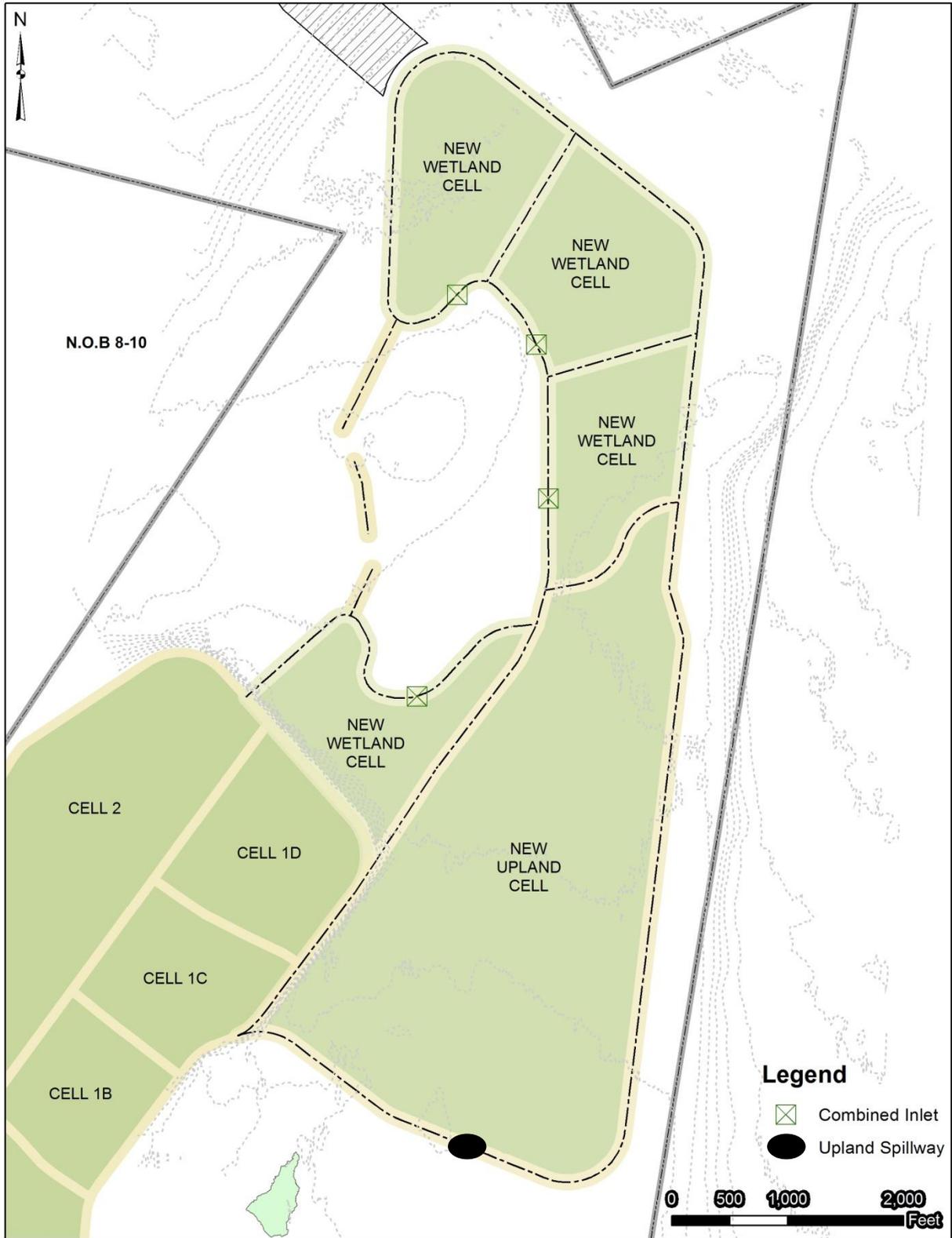
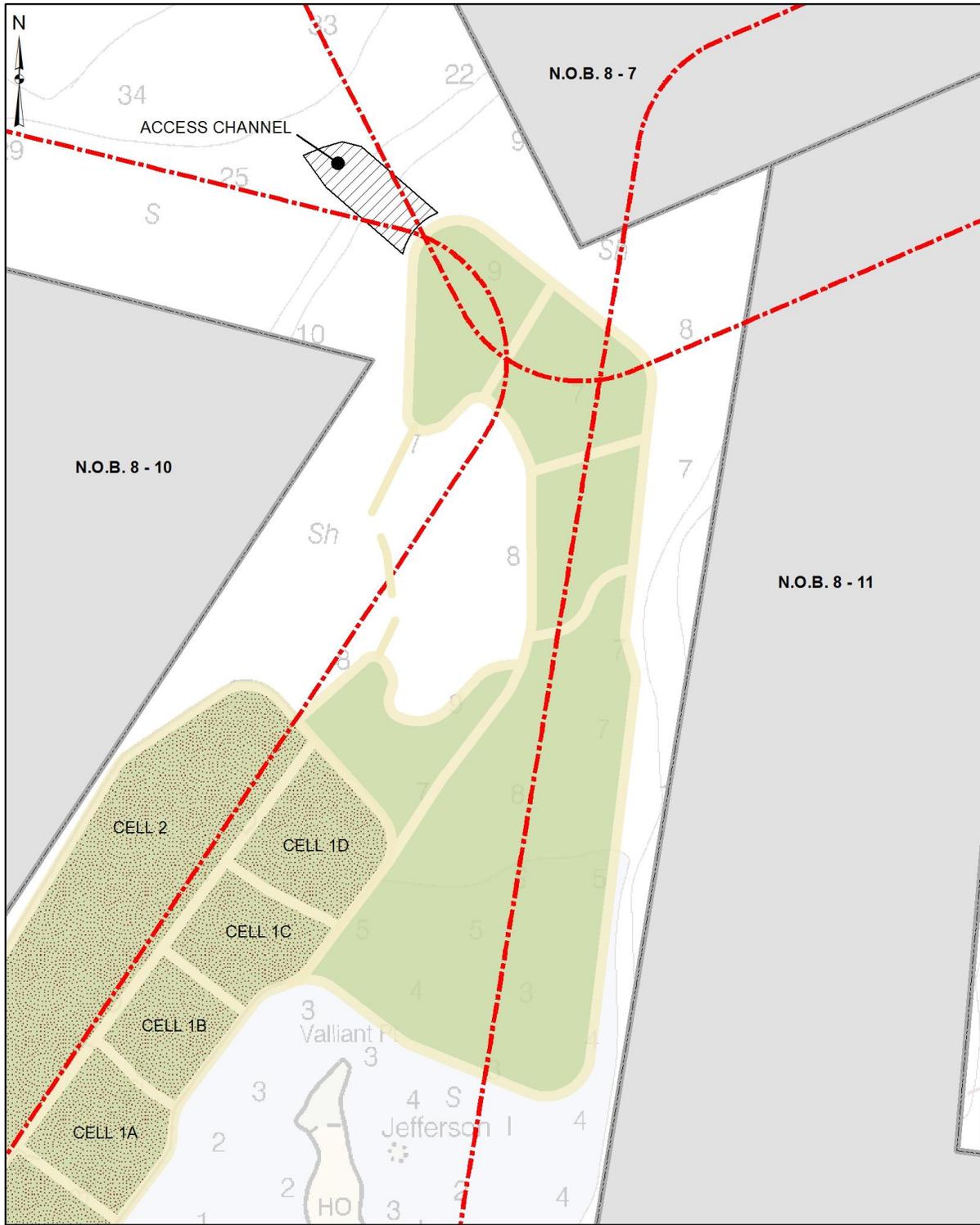
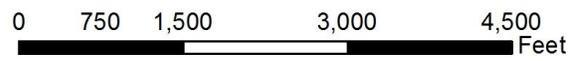


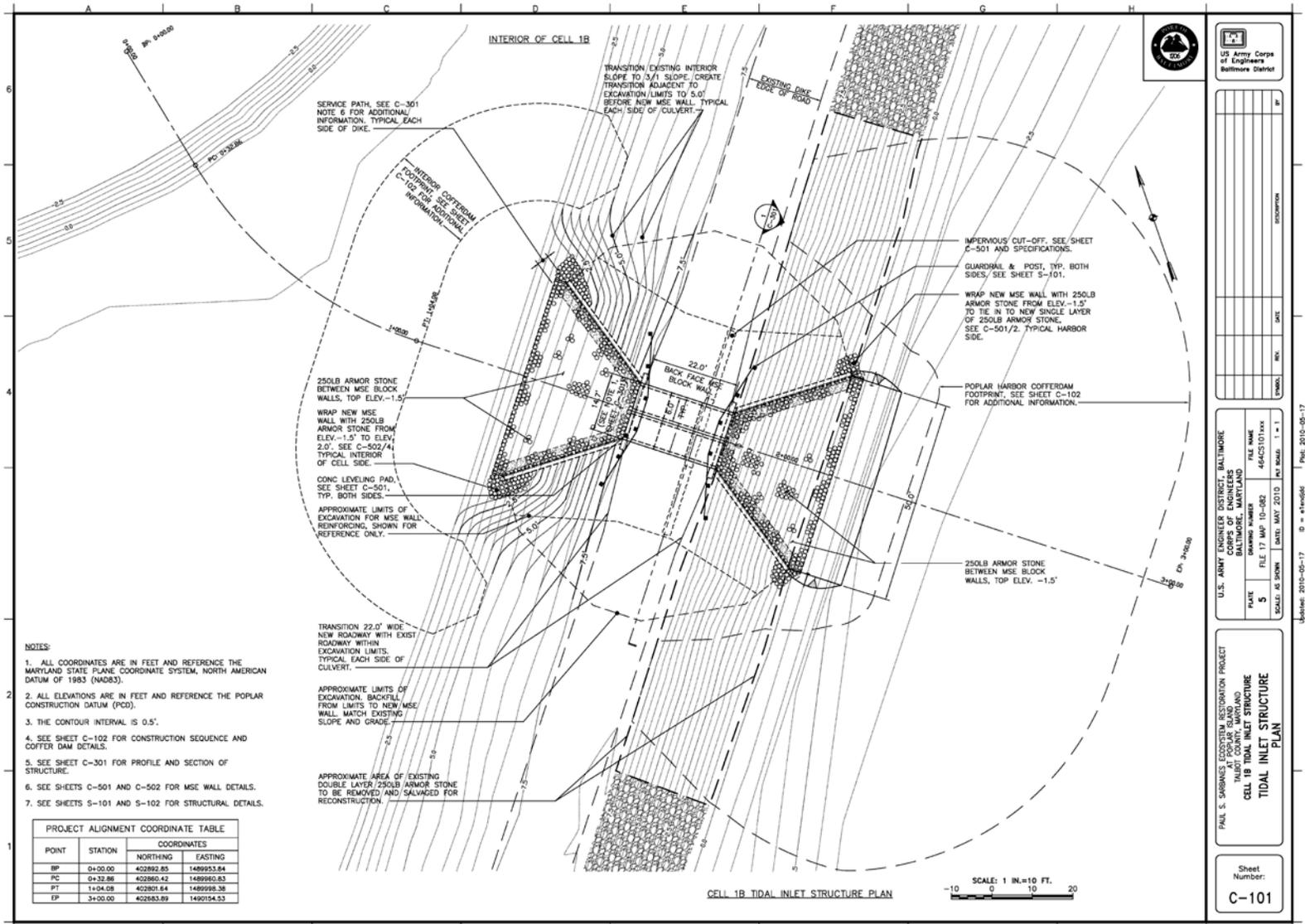
Figure __. General Plan of Existing Poplar Island project with expansion features and existing bathymetry. Lateral Expansion consists of 575 total areas with 259 acres (45%) as uplands and 316 acres (55%) as wetlands. The wetland acreage includes 206 acres (36%) within the four wetland cells and 110 acres (19%) within the open-water embayment feature. The northern borrow area is located entirely within the proposed upland cell and will supply all sand for expansion dike construction.





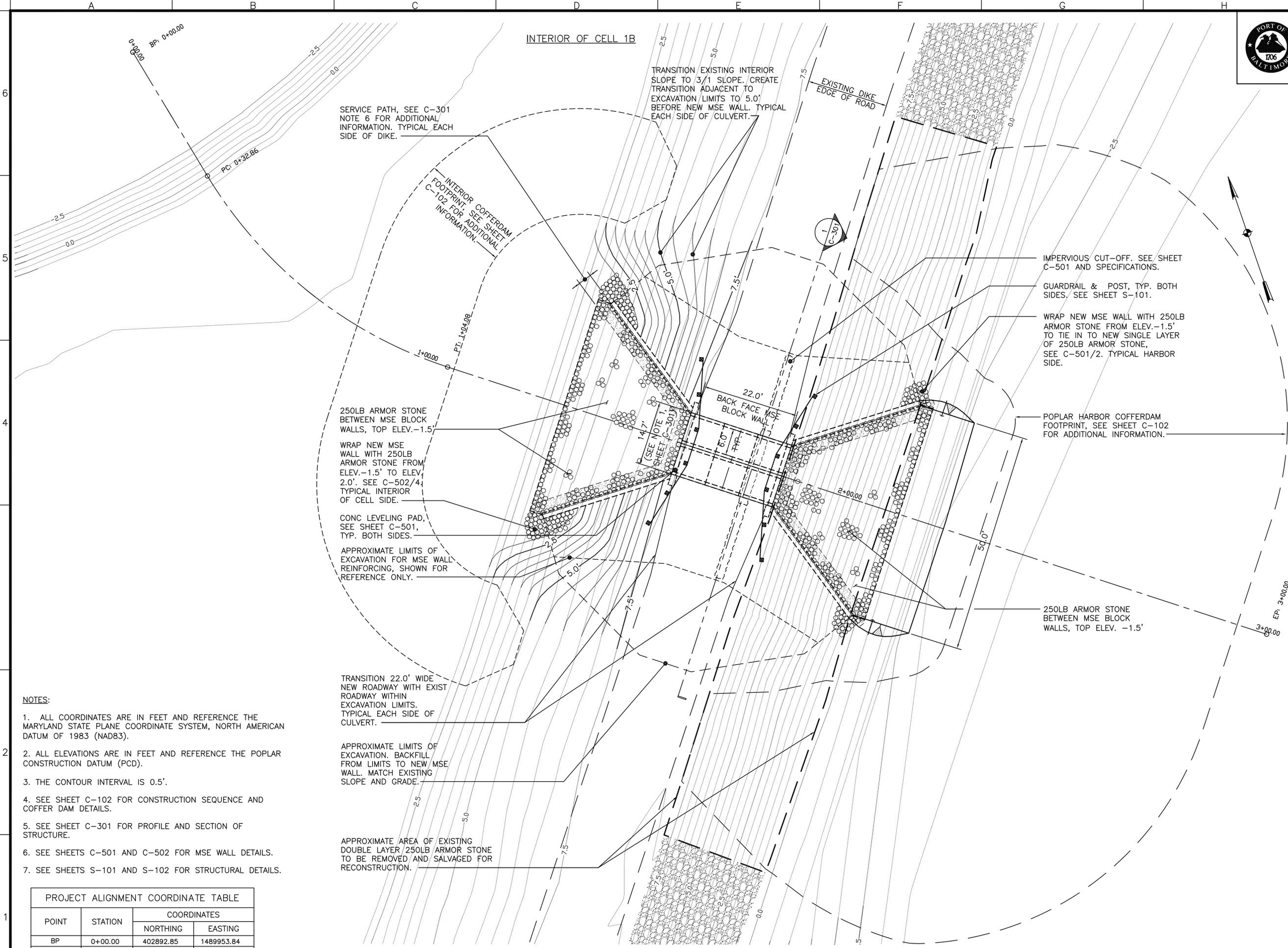
POPLAR ISLAND EXPANSION
Oyster Bar Restrictions - 1,500 foot buffer





Tidal Inlet Structure – Plan: 1 of 2

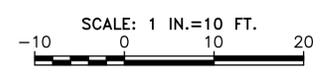
Above is a plan of the tidal inlet structure located at existing Cell 1B consisting of a pair of box culverts (each culvert having a 6'x6' opening) with a total length of 24 ft and an invert elevation at -1.5 ft. PCD. Mechanically stabilized earth wing walls support the dike fill at each corner of the culverts to minimize the fish passage length. The approach apron on both sides is armored with 250-lb armor stone placed on a geotextile filter. Armor stone is also wrapped around the outer corner of each wing wall to prevent erosion of dike backfill.



- NOTES:**
1. ALL COORDINATES ARE IN FEET AND REFERENCE THE MARYLAND STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD83).
 2. ALL ELEVATIONS ARE IN FEET AND REFERENCE THE POPLAR CONSTRUCTION DATUM (PCD).
 3. THE CONTOUR INTERVAL IS 0.5'.
 4. SEE SHEET C-102 FOR CONSTRUCTION SEQUENCE AND COFFER DAM DETAILS.
 5. SEE SHEET C-301 FOR PROFILE AND SECTION OF STRUCTURE.
 6. SEE SHEETS C-501 AND C-502 FOR MSE WALL DETAILS.
 7. SEE SHEETS S-101 AND S-102 FOR STRUCTURAL DETAILS.

PROJECT ALIGNMENT COORDINATE TABLE			
POINT	STATION	COORDINATES	
		NORTHING	EASTING
BP	0+00.00	402892.85	1489953.84
PC	0+32.86	402860.42	1489960.83
PT	1+04.08	402801.64	1489998.38
EP	3+00.00	402683.89	1490154.53

CELL 1B TIDAL INLET STRUCTURE PLAN

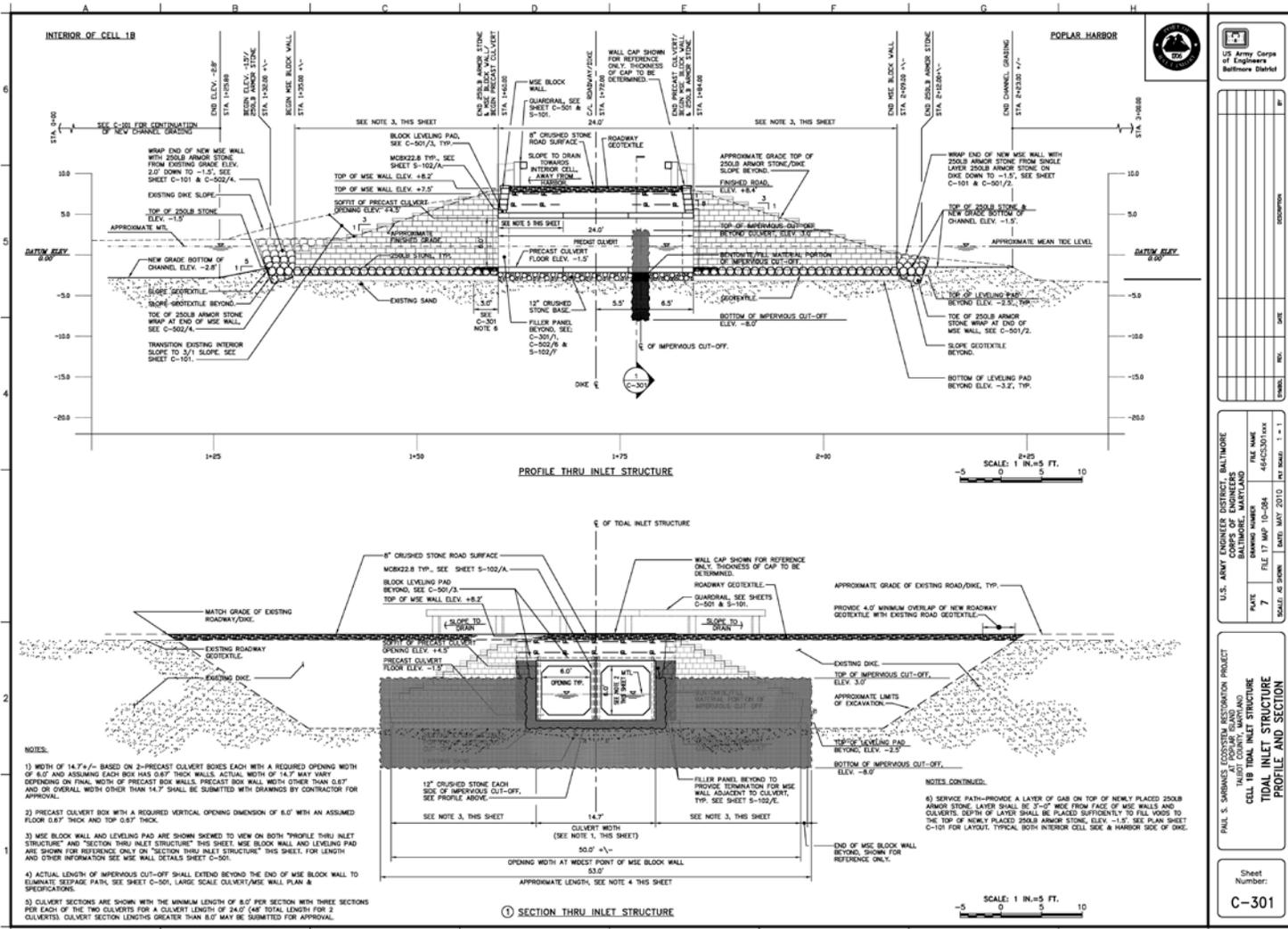


SYMBOL	REV.	DATE	DESCRIPTION	BY

U.S. ARMY ENGINEER DISTRICT, BALTIMORE		CORPS OF ENGINEERS		BALTIMORE, MARYLAND	
PLATE	5	DRAWING NUMBER	FILE NAME	FILE NUMBER	464CS101xxx
SCALE: AS SHOWN	DATE: MAY 2010	PLT SCALE:	1 = 1		

PAUL S. SARBANES ECOSYSTEM RESTORATION PROJECT
 AT POPLAR ISLAND
 TALBOT COUNTY, MARYLAND
CELL 1B TIDAL INLET STRUCTURE
TIDAL INLET STRUCTURE
PLAN

Sheet Number:
C-101

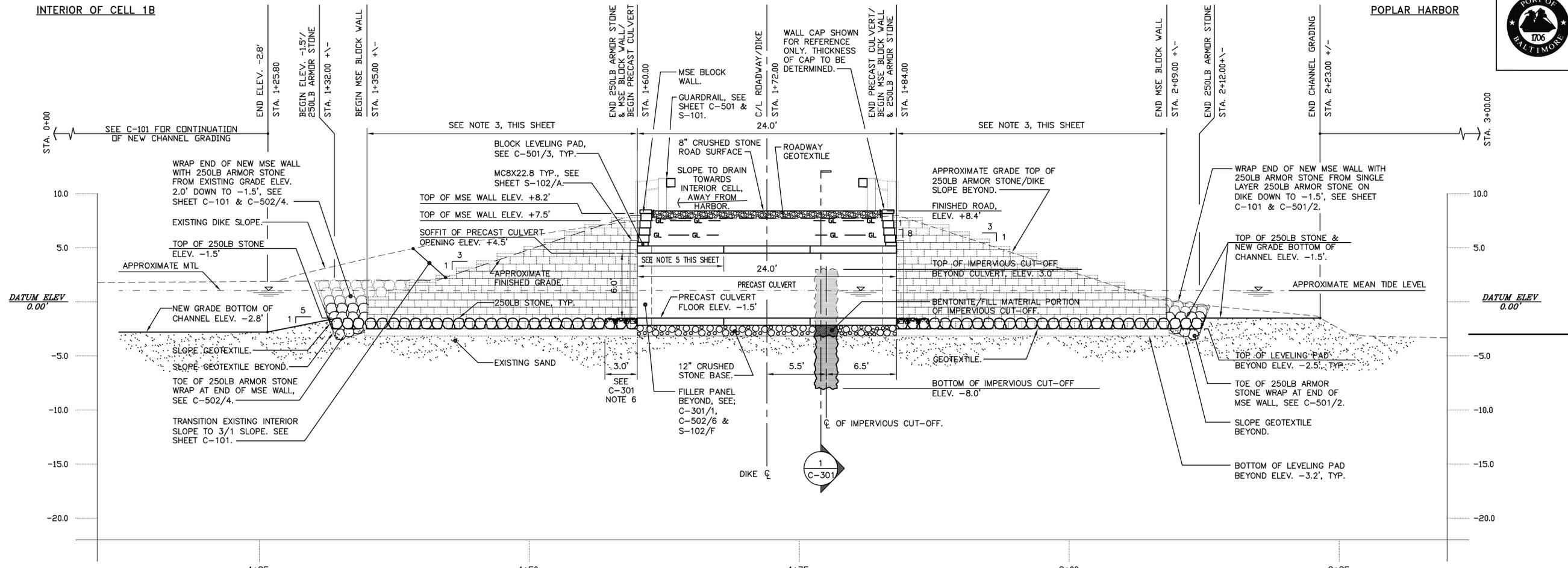


Tidal Inlet Structure – Section and Profile: 2 of 2

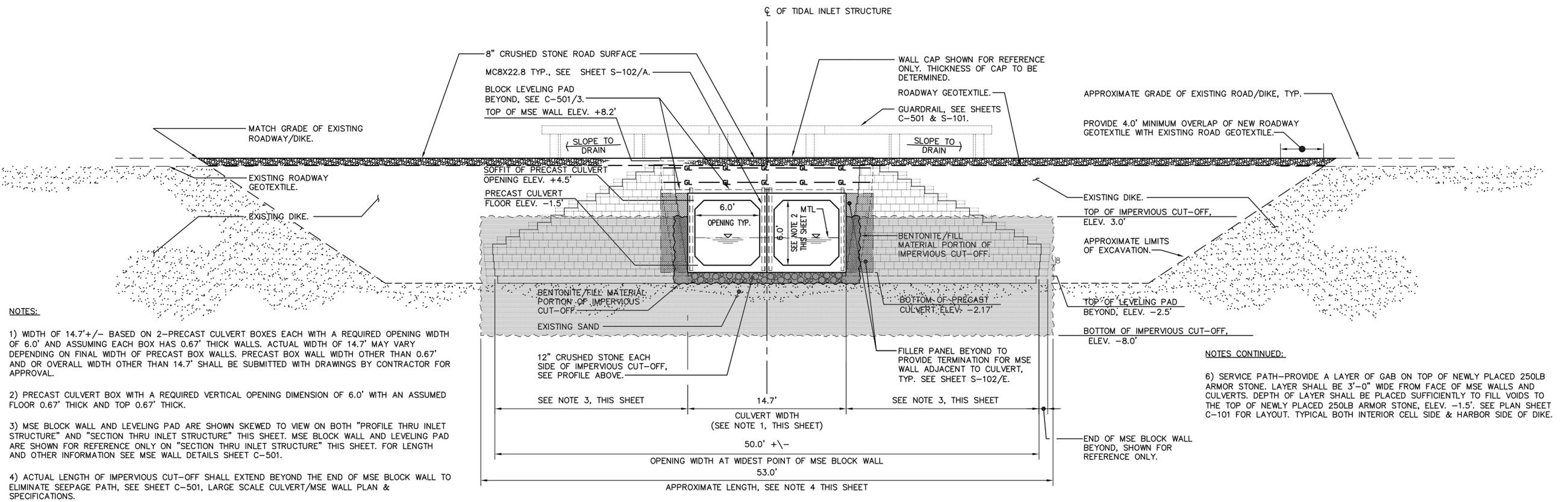
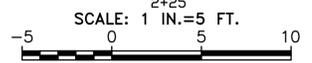
Above is a Section and Profile of the existing Cell 1B tidal inlet structure representative of the twin box culvert tidal inlet structure that will be used in each of the four expansion wetland cells. A temporary stop-log structure and sluice gate will be added on the landward side of each culvert to control discharge during the initial dredged material inflow events. The gates and stop-log feature will be removed after inflow is complete and before the cell grading is finalized so that the structure will revert to the configuration currently seen in completed Poplar Island wetland cells..

INTERIOR OF CELL 1B

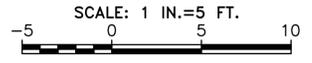
POPLAR HARBOR



PROFILE THRU INLET STRUCTURE



SECTION THRU INLET STRUCTURE



- NOTES:**
- 1) WIDTH OF 14.7' +/- BASED ON 2-PRECAST CULVERT BOXES EACH WITH A REQUIRED OPENING WIDTH OF 6.0' AND ASSUMING EACH BOX HAS 0.67" THICK WALLS. ACTUAL WIDTH OF 14.7' MAY VARY DEPENDING ON FINAL WIDTH OF PRECAST BOX WALLS. PRECAST BOX WALL WIDTH OTHER THAN 0.67" AND OR OVERALL WIDTH OTHER THAN 14.7' SHALL BE SUBMITTED WITH DRAWINGS BY CONTRACTOR FOR APPROVAL.
 - 2) PRECAST CULVERT BOX WITH A REQUIRED VERTICAL OPENING DIMENSION OF 6.0' WITH AN ASSUMED FLOOR 0.67" THICK AND TOP 0.67" THICK.
 - 3) MSE BLOCK WALL AND LEVELING PAD ARE SHOWN SKEWED TO VIEW ON BOTH "PROFILE THRU INLET STRUCTURE" AND "SECTION THRU INLET STRUCTURE" THIS SHEET. MSE BLOCK WALL AND LEVELING PAD ARE SHOWN FOR REFERENCE ONLY ON "SECTION THRU INLET STRUCTURE" THIS SHEET. FOR LENGTH AND OTHER INFORMATION SEE MSE WALL DETAILS SHEET C-501.
 - 4) ACTUAL LENGTH OF IMPERVIOUS CUT-OFF SHALL EXTEND BEYOND THE END OF MSE BLOCK WALL TO ELIMINATE SEEPAGE PATH, SEE SHEET C-501, LARGE SCALE CULVERT/MSE WALL PLAN & SPECIFICATIONS.
 - 5) CULVERT SECTIONS ARE SHOWN WITH THE MINIMUM LENGTH OF 8.0' PER SECTION WITH THREE SECTIONS PER EACH OF THE TWO CULVERTS FOR A CULVERT LENGTH OF 24.0' (48' TOTAL LENGTH FOR 2 CULVERTS). CULVERT SECTION LENGTHS GREATER THAN 8.0' MAY BE SUBMITTED FOR APPROVAL.

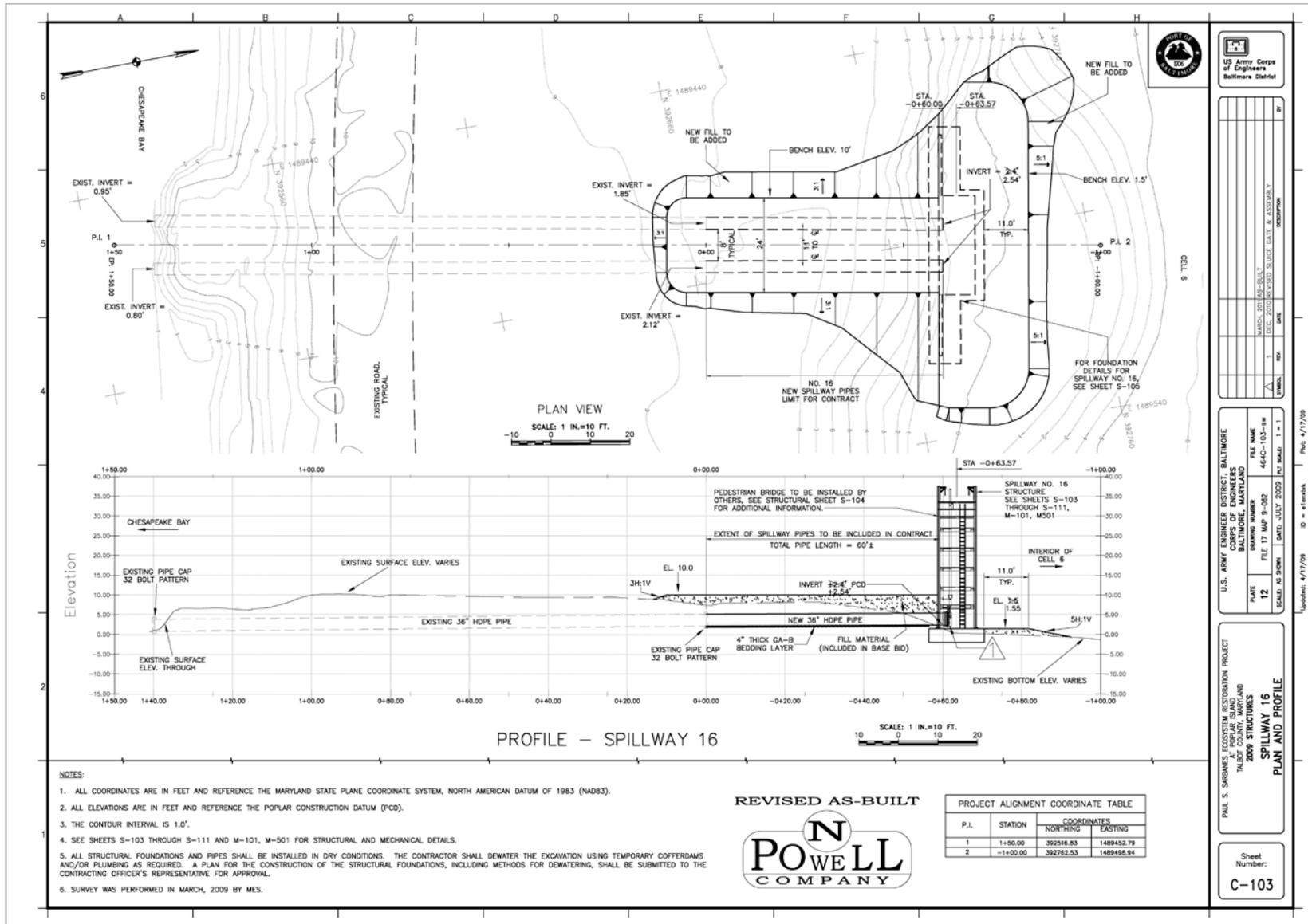
- NOTES CONTINUED:**
- 6) SERVICE PATH-PROVIDE A LAYER OF GAB ON TOP OF NEWLY PLACED 250LB ARMOR STONE. LAYER SHALL BE 3'-0" WIDE FROM FACE OF MSE WALLS AND CULVERTS. DEPTH OF LAYER SHALL BE PLACED SUFFICIENTLY TO FILL VOIDS TO THE TOP OF NEWLY PLACED 250LB ARMOR STONE, ELEV. -1.5'. SEE PLAN SHEET C-101 FOR LAYOUT. TYPICAL BOTH INTERIOR CELL SIDE & HARBOR SIDE OF DIKE.

SYMBOL	REV.	DATE	DESCRIPTION

U.S. ARMY ENGINEER DISTRICT, BALTIMORE		FILE NAME	464CS301xxx
CORPS OF ENGINEERS		DRAWING NUMBER	FILE 17 MAP 10-084
BALTIMORE, MARYLAND		DATE	MAY 2010
PLATE	7	SCALE	AS SHOWN
PAUL S. SARBANES ECOSYSTEM RESTORATION PROJECT		DATE	MAY 2010
AT POPLAR ISLAND		PLT SCALE	1 = 1
TALBOT COUNTY, MARYLAND		PLT SCALE	1 = 1

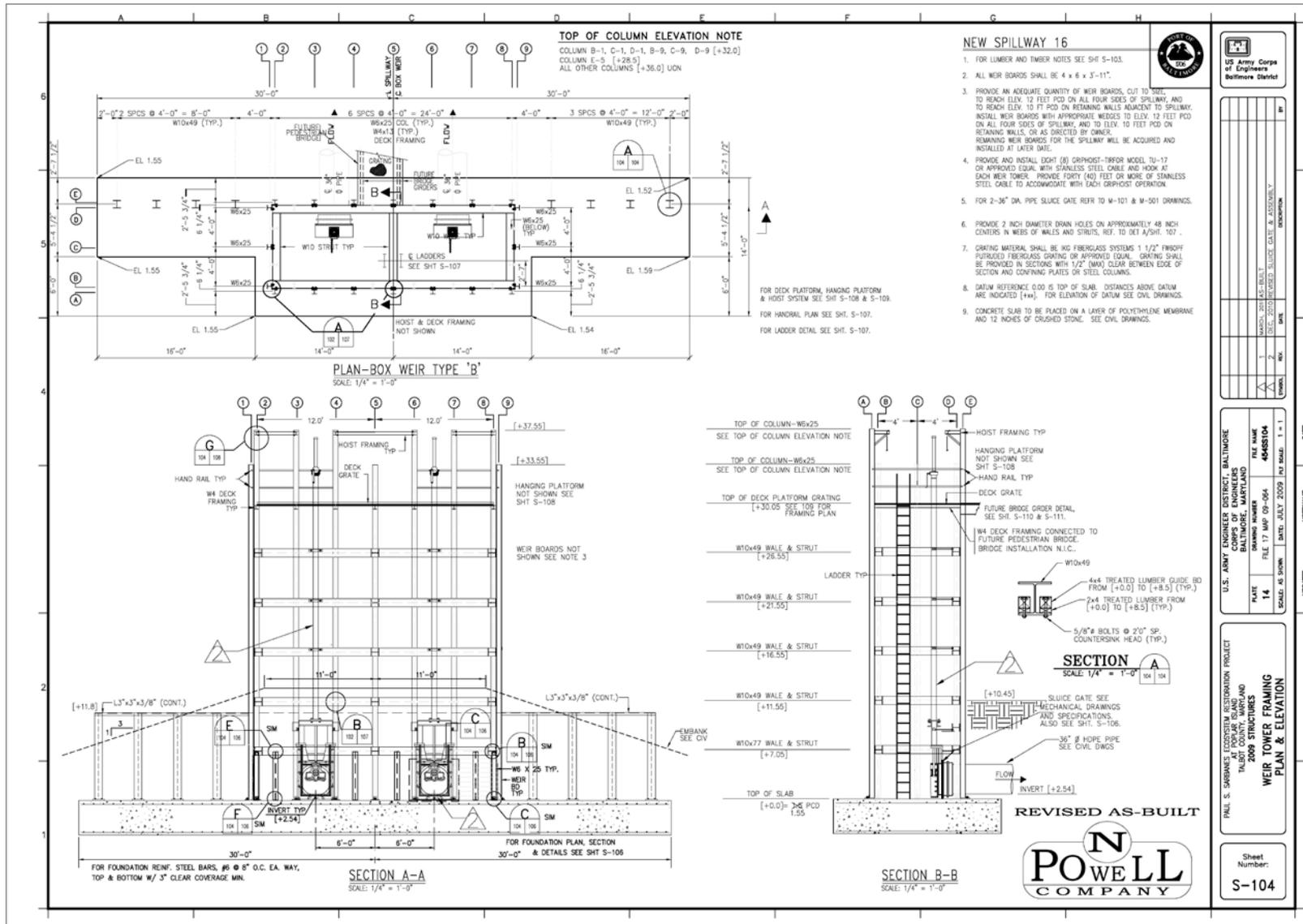
CELL 1B TIDAL INLET STRUCTURE
TIDAL INLET STRUCTURE
PROFILE AND SECTION

Sheet Number:
C-301



Upland Spillway – Plan and Profile 1 of 2

Above is a plan and profile view of the upland spillway No. 16 structure in existing Cell 6. This structure consists of a steel frame stop-log riser structure with wing walls founded on a concrete slab. Spillway discharge pipes consist of 36-inch diameter HDPE conduits with sluice gates operated from the working platform of the spillway riser section. The upland spillway for the proposed expansion is expected to be a duplicate of this design except for a lower overall spillway height.

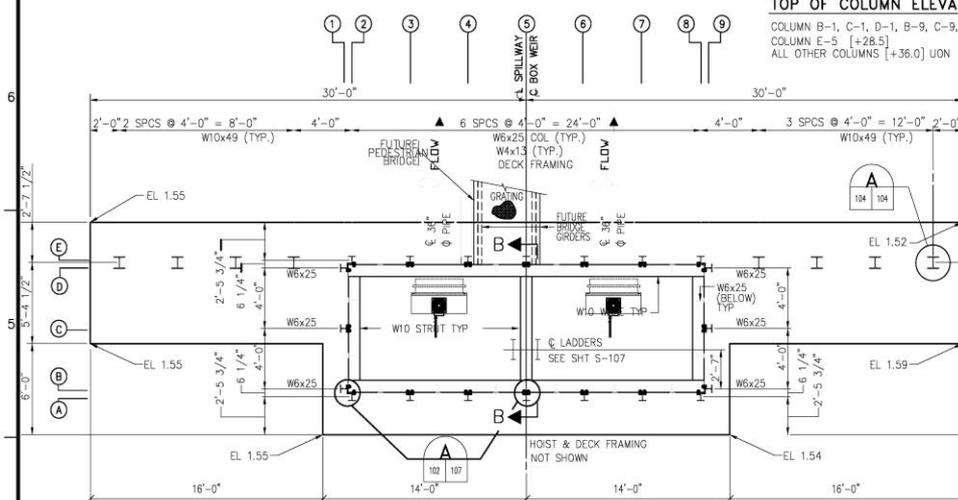


TOP OF COLUMN ELEVATION NOTE

COLUMN B-1, C-1, D-1, B-9, C-9, D-9 [+32.0]
 COLUMN E-5 [+28.5]
 ALL OTHER COLUMNS [+36.0] UON

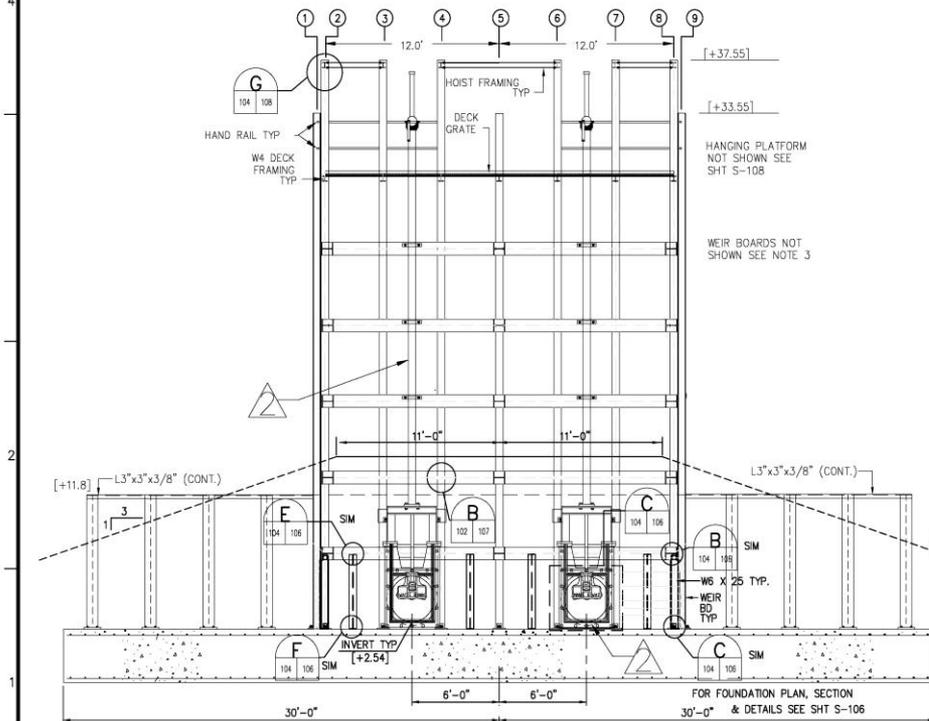
NEW SPILLWAY 16

- FOR LUMBER AND TIMBER NOTES SEE SHT S-103.
- ALL WEIR BOARDS SHALL BE 4 x 6 x 3'-11".
- PROVIDE AN ADEQUATE QUANTITY OF WEIR BOARDS, CUT TO SIZE, TO REACH ELEV. 12 FEET PCD ON ALL FOUR SIDES OF SPILLWAY, AND TO REACH ELEV. 10 FT PCD ON RETAINING WALLS ADJACENT TO SPILLWAY. INSTALL WEIR BOARDS WITH APPROPRIATE WEDGES TO ELEV. 12 FEET PCD ON ALL FOUR SIDES OF SPILLWAY, AND TO ELEV. 10 FEET PCD ON RETAINING WALLS, OR AS DIRECTED BY OWNER. REMAINING WEIR BOARDS FOR THE SPILLWAY WILL BE ACQUIRED AND INSTALLED AT LATER DATE.
- PROVIDE AND INSTALL EIGHT (8) GRIPHOIST-TIRFOR MODEL TU-17 OR APPROVED EQUAL WITH STAINLESS STEEL CABLE AND HOOK AT EACH WEIR TOWER. PROVIDE FORTY (40) FEET OR MORE OF STAINLESS STEEL CABLE TO ACCOMMODATE WITH EACH GRIPHOIST OPERATION.
- FOR 2-36" DIA. PIPE SLUICE GATE REFER TO M-101 & M-501 DRAWINGS.
- PROVIDE 2 INCH DIAMETER DRAIN HOLES ON APPROXIMATELY 48 INCH CENTERS IN WEBS OF WALES AND STRUTS, REF. TO DET A/SHT. 107.
- GRATING MATERIAL SHALL BE ICG FIBERGLASS SYSTEMS 1 1/2" FWGPP PUTRUDED FIBERGLASS GRATING OR APPROVED EQUAL. GRATING SHALL BE PROVIDED IN SECTIONS WITH 1/2" (MAX) CLEAR BETWEEN EDGE OF SECTION AND CONFINING PLATES OR STEEL COLUMNS.
- DATUM REFERENCE 0.00 IS TOP OF SLAB. DISTANCES ABOVE DATUM ARE INDICATED [+xx]. FOR ELEVATION OF DATUM SEE CIVIL DRAWINGS.
- CONCRETE SLAB TO BE PLACED ON A LAYER OF POLYETHYLENE MEMBRANE AND 12 INCHES OF CRUSHED STONE. SEE CIVIL DRAWINGS.

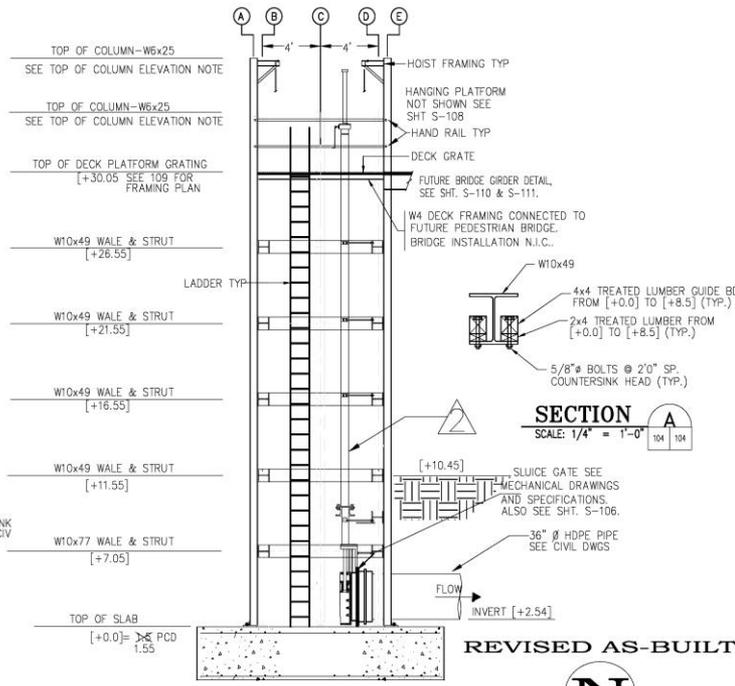


PLAN-BOX WEIR TYPE 'B'
 SCALE: 1/4" = 1'-0"

FOR DECK PLATFORM, HANGING PLATFORM & HOIST SYSTEM SEE SHT S-108 & S-109.
 FOR HANDRAIL PLAN SEE SHT. S-107.
 FOR LADDER DETAIL SEE SHT. S-107.



SECTION A-A
 SCALE: 1/4" = 1'-0"



SECTION A
 SCALE: 1/4" = 1'-0"

SECTION B-B
 SCALE: 1/4" = 1'-0"

REVISED AS-BUILT

POWELL COMPANY



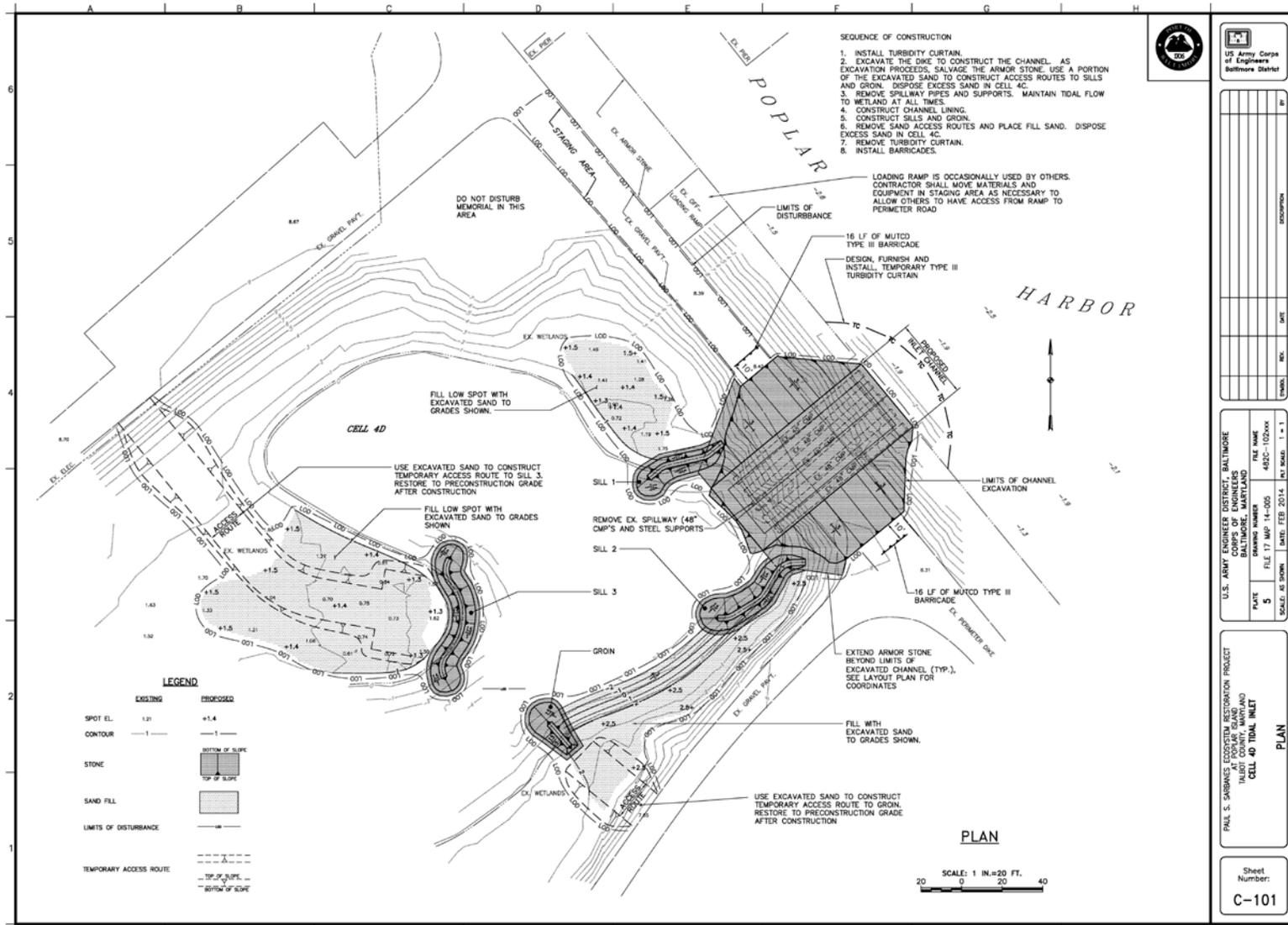
US Army Corps of Engineers
 Baltimore District

SYMBOL	REV.	DATE	DESCRIPTION
1	1	MARCH, 2018	ISSUE-BUILD
2	2	DEC, 2010	REVISED SLUICE GATE & ASSEMBLY

U.S. ARMY ENGINEER DISTRICT, BALTIMORE	FILE NAME	4848S104
CORPS OF ENGINEERS	DRAWING NUMBER	14
BALTIMORE, MARYLAND	DATE	JULY 2009
FILE 17 MAP 09-064	DATE	JULY 2009
SCALE AS SHOWN	DATE	JULY 2009
SCALE: 1/4" = 1'-0"	DATE	JULY 2009
SCALE: 1/4" = 1'-0"	DATE	JULY 2009

PALL S. SARBANES ECOSYSTEM RESTORATION PROJECT
 AT POPULAR ISLAND
 TADPOLE COUNTING STRUCTURE
 2009 STRUCTURES
**WEIR TOWER FRAMING
 PLAN & ELEVATION**

Sheet Number:
S-104



Cell 4D Tidal Outlet – Plan: 1 of 2

Above is a plan of the tidal inlet opening located at existing Cell 4D consisting of a stone armored 40-foot wide trapezoidal opening with an invert elevation at -1.5 ft. PCD. Underlayer size armor (mean size = 250 lb) also armors the ends of the dikes. Rock sill structures inboard of the opening consist of 130-lb armor stone as shown on the sections. Low areas were raised to design elevations with sand from stockpile sources.



SEQUENCE OF CONSTRUCTION

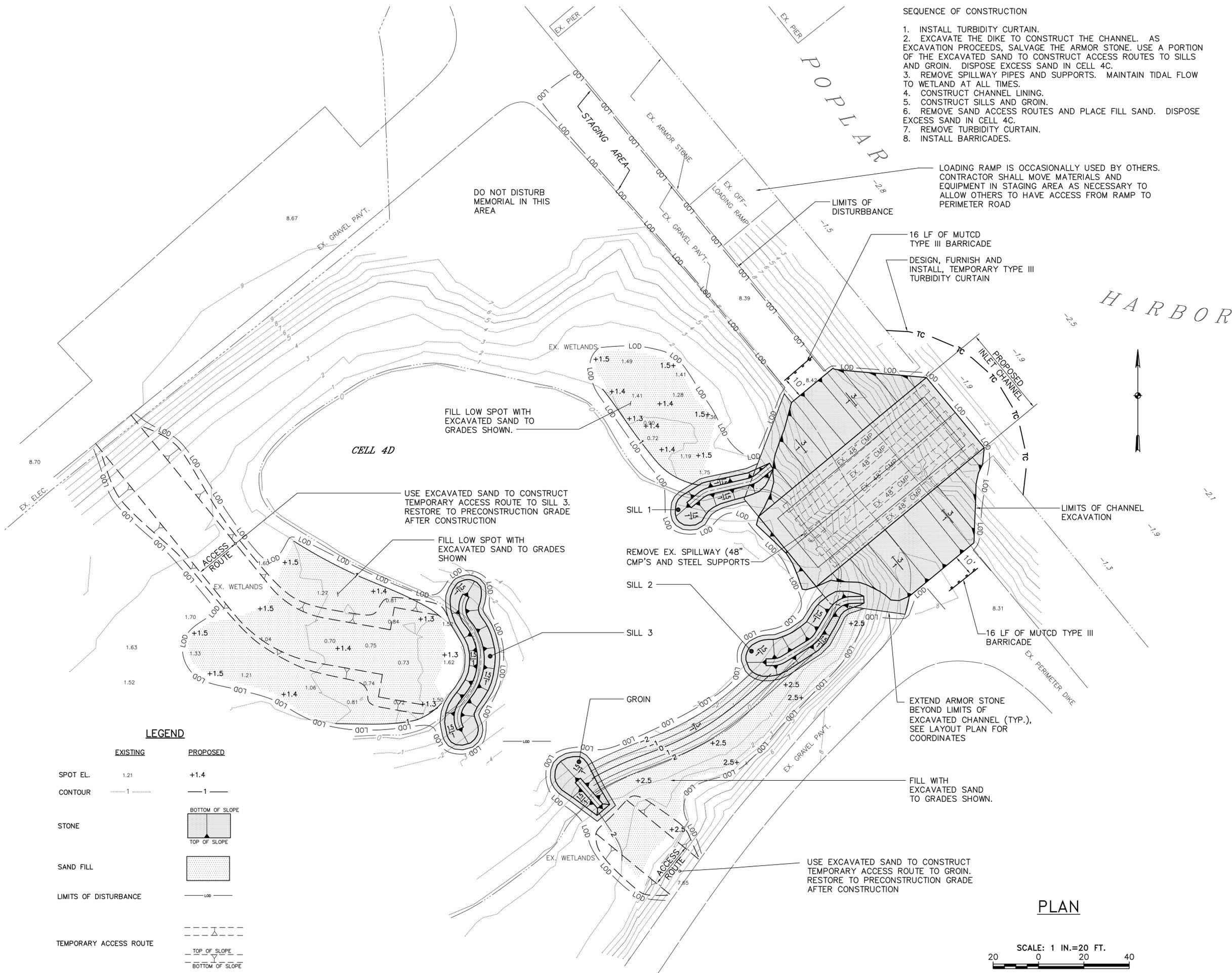
1. INSTALL TURBIDITY CURTAIN.
2. EXCAVATE THE DIKE TO CONSTRUCT THE CHANNEL. AS EXCAVATION PROCEEDS, SALVAGE THE ARMOR STONE. USE A PORTION OF THE EXCAVATED SAND TO CONSTRUCT ACCESS ROUTES TO SILLS AND GROIN. DISPOSE EXCESS SAND IN CELL 4C.
3. REMOVE SPILLWAY PIPES AND SUPPORTS. MAINTAIN TIDAL FLOW TO WETLAND AT ALL TIMES.
4. CONSTRUCT CHANNEL LINING.
5. CONSTRUCT SILLS AND GROIN.
6. REMOVE SAND ACCESS ROUTES AND PLACE FILL SAND. DISPOSE EXCESS SAND IN CELL 4C.
7. REMOVE TURBIDITY CURTAIN.
8. INSTALL BARRICADES.

LOADING RAMP IS OCCASIONALLY USED BY OTHERS. CONTRACTOR SHALL MOVE MATERIALS AND EQUIPMENT IN STAGING AREA AS NECESSARY TO ALLOW OTHERS TO HAVE ACCESS FROM RAMP TO PERIMETER ROAD

16 LF OF MUTCD TYPE III BARRICADE

DESIGN, FURNISH AND INSTALL, TEMPORARY TYPE III TURBIDITY CURTAIN

HARBOR



PLAN

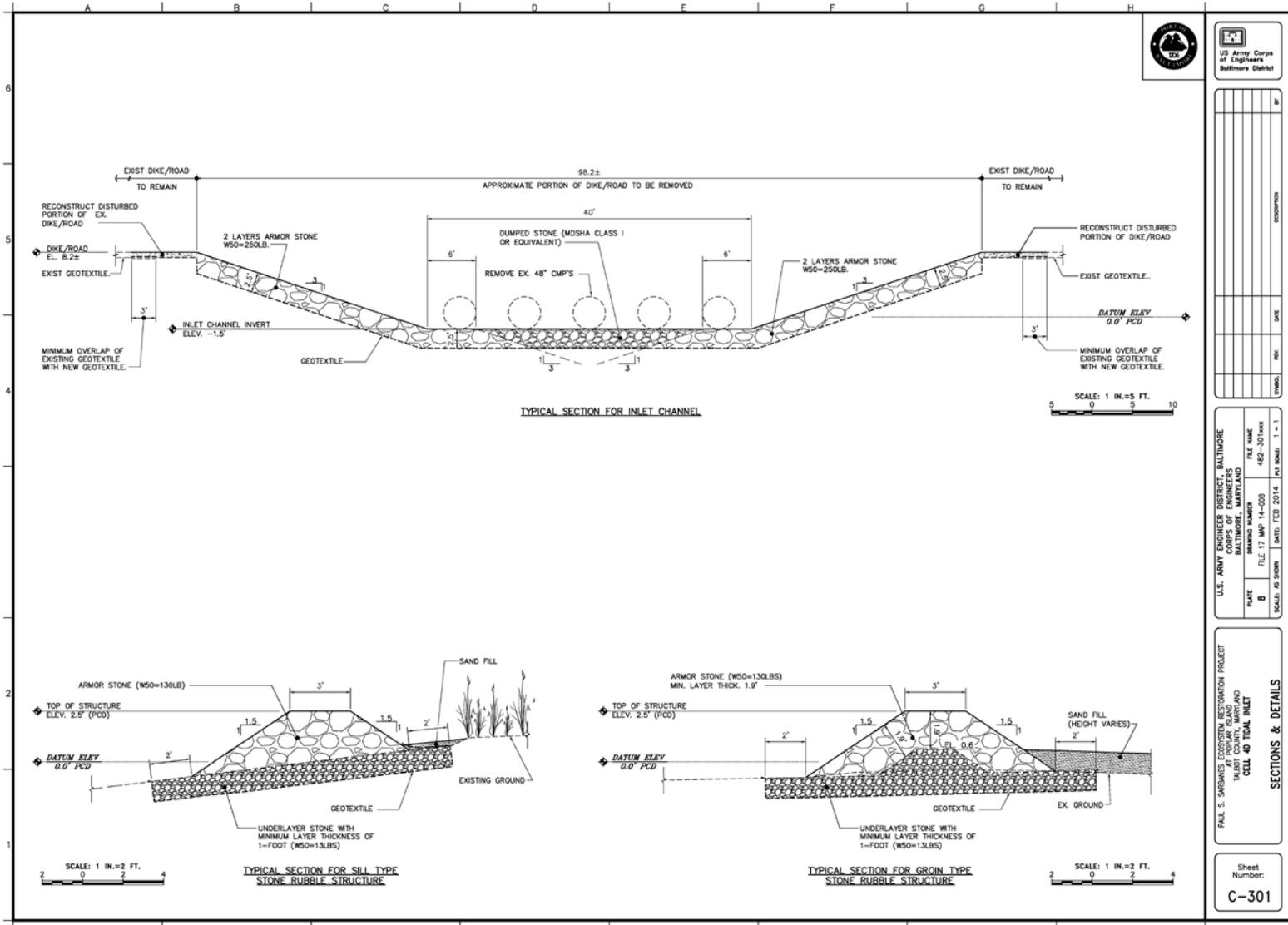
SCALE: 1 IN. = 20 FT.
20 0 20 40

SYMBOL	REV.	DATE	DESCRIPTION

U.S. ARMY ENGINEER DISTRICT, BALTIMORE		FILE NAME	482C-102xxx
CORPS OF ENGINEERS		DRAWING NUMBER	FILE 17 MAP 14-005
BALTIMORE, MARYLAND		DATE	FEB 2014
PLATE	5	DATE	FEB 2014
SCALE: AS SHOWN	DATE: FEB 2014	PLT SCALE:	1 = 1

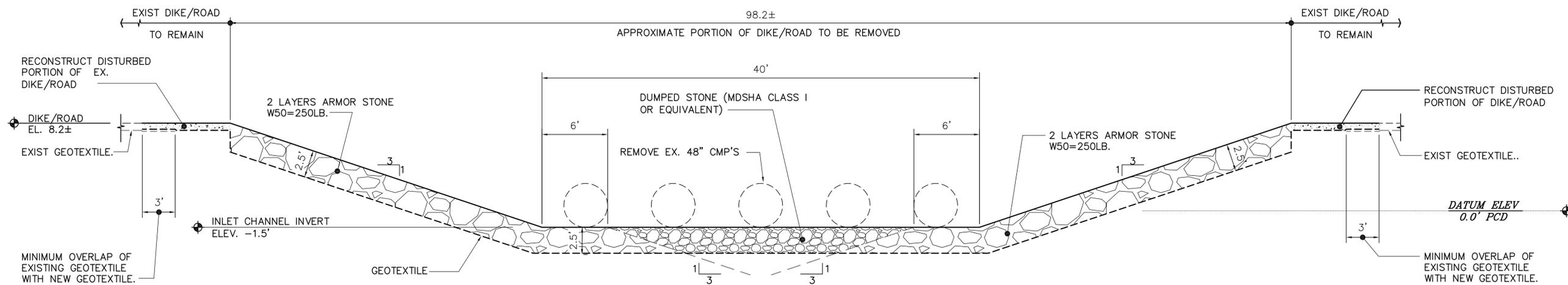
PAUL S. SARBANES ECOSYSTEM RESTORATION PROJECT
AT POPLAR ISLAND
TALBOT COUNTY, MARYLAND
CELL 4D TIDAL INLET

Sheet Number:
C-101



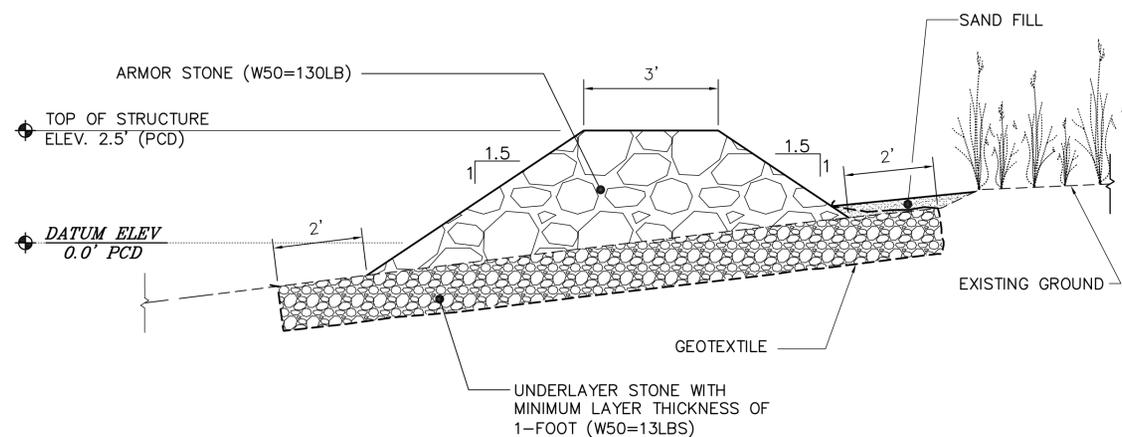
Cell 4D Tidal Outlet – Sections and Details: 2 of 2

Above are sections and details of the existing Cell 4D tidal opening and stone sill structures underlain by geotextile filter material. Underlayer stone used in the stone sill structures consists of gabion size stone. The 4D opening is approximately 40 feet wide at the -1.5 ft invert elevation and is considered typical of future tidal inlet openings including those required for the expansion cells. However, each wetland opening will be evaluated based on the actual cell area and hydraulic features (channels, moats, etc) and the location, orientation, and exposure of each proposed opening to determine the appropriate opening dimensions which are expected to range from approximately 20 to 100 feet.



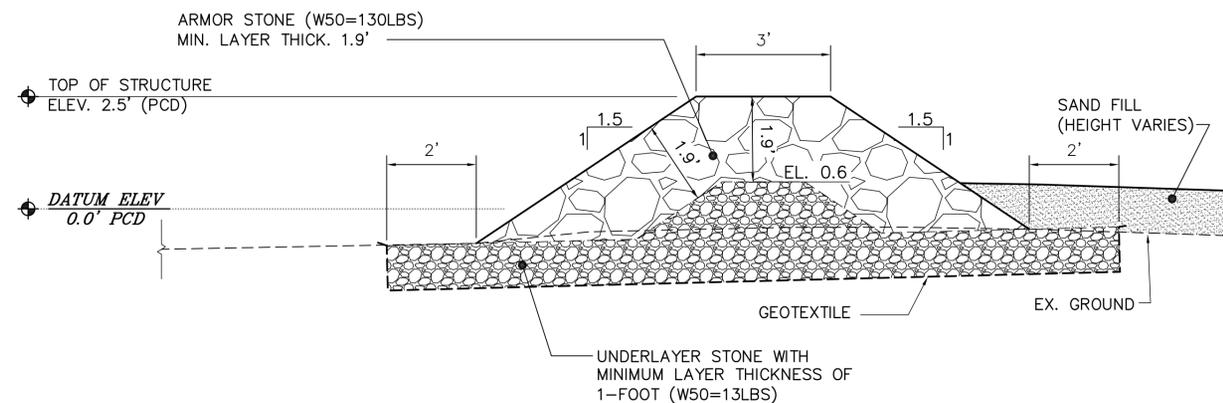
TYPICAL SECTION FOR INLET CHANNEL

SCALE: 1 IN.=5 FT.
5 0 5 10



TYPICAL SECTION FOR SILL TYPE STONE RUBBLE STRUCTURE

SCALE: 1 IN.=2 FT.
2 0 2 4



TYPICAL SECTION FOR GROIN TYPE STONE RUBBLE STRUCTURE

SCALE: 1 IN.=2 FT.
2 0 2 4

SYMBOL	REV.	DATE	DESCRIPTION	BY

U.S. ARMY ENGINEER DISTRICT, BALTIMORE		FILE NAME	1 = 1
CORPS OF ENGINEERS		482-301xxx	
PLATE	DRAWING NUMBER	FILE 17 MAP 14-008	PLT SCALE:
8			
SCALE: AS SHOWN	DATE: FEB 2014		

PAUL S. SARBANES ECOSYSTEM RESTORATION PROJECT
AT POPULAR ISLAND
TALBOT COUNTY, MARYLAND
CELL 4D TIDAL INLET

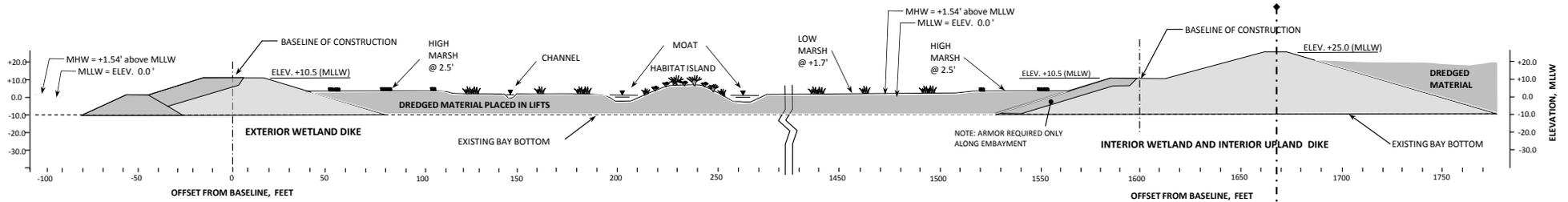
SECTIONS & DETAILS



1.80'	MEAN HIGHER HIGH WATER (MHHW)
1.58'	MEAN HIGH WATER (MHW)
1.03'	MEAN TIDE LEVEL (MTL)
0.48'	MEAN LOW WATER (MLW)
0.26'	MEAN LOWER LOW WATER (MLLW)
0.00'	POPLAR CONSTRUCTION DATUM (PCD)

TIDAL DATUMS AT POPLAR ISLAND HARBOR, MD FOR THE 1983-2001 TIDAL EPOCH*

*TIDAL DATUMS ARE BASED ON A THREE YEAR SERIES (MAR 2007-FEB 2010) USING NATIONAL OCEAN SERVICE TIDE STATION 8575512 AS THE CONTROL TIDE STATION. DATUMS WERE COMPUTED USING THE MODIFIED-RANGE RATIO METHOD BY THE NATIONAL OCEAN SERVICE (NOS).

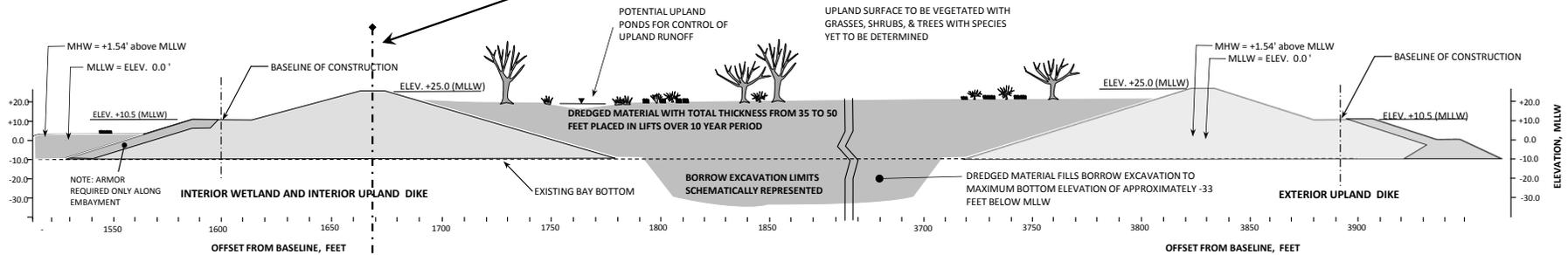


TYPICAL SECTION THROUGH WETLAND CELL

SCALE APPROXIMATELY AS SHOWN WITH BREAKS IN LATERAL SCALE WITHIN CELLS

NOTE: LOCATIONS AND SCALES OF VARIOUS WETLAND FEATURES SHOWN ON THIS SECTION ARE FOR ILLUSTRATION ONLY

MATCH LINE BETWEEN WETLAND CELL ABOVE AND UPLAND CELL BELOW



TYPICAL SECTION THROUGH UPLAND CELL

SCALE APPROXIMATELY AS SHOWN WITH BREAKS IN LATERAL SCALE WITHIN CELLS

NOTE: LOCATION AND SCALE OF BORROW EXCAVATION SHOWN ON THIS SECTION IS APPROXIMATE & FOR ILLUSTRATION ONLY



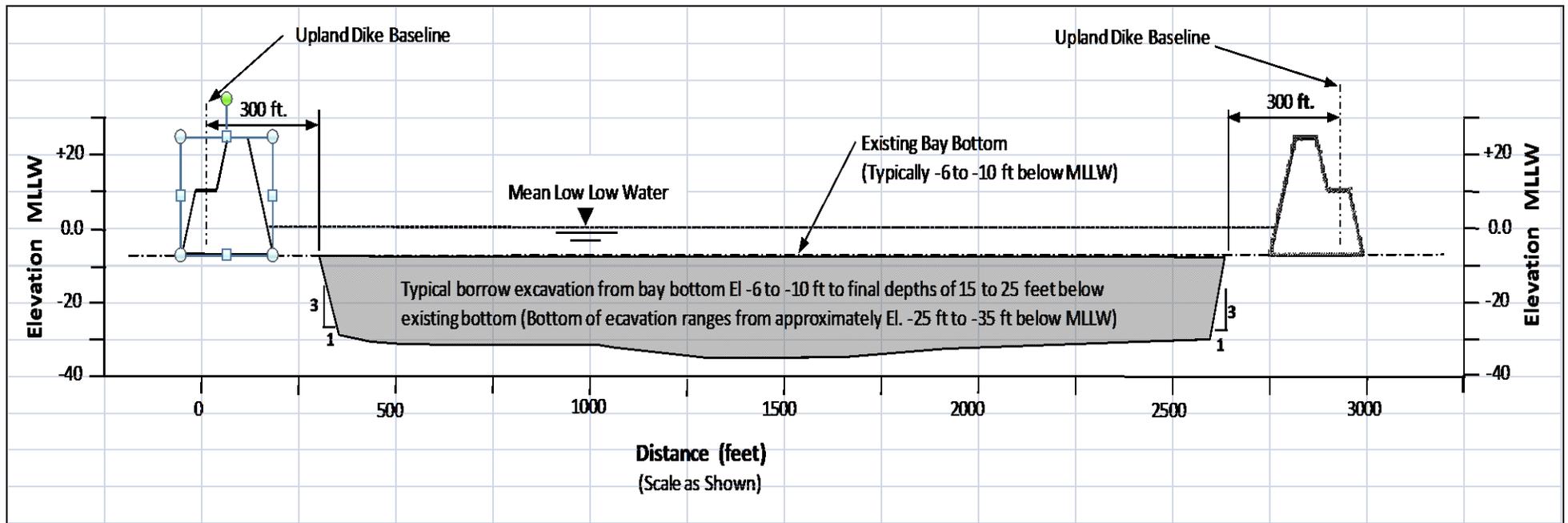
Habitat/Island restoration filled with approximately 28 million cubic yards of previously authorized clean dredged material from maintenance dredging of the Baltimore Harbor approach channels (outside of the North Point - Rock Point line, in the mainstem of the Bay). The above representative wetland and upland cross sections are based on an actual section located approximately as shown on the plan view to the left. Vertical and horizontal scales are realistic for dike sections and immediately adjacent cell surfaces. The horizontal dimensions have been compressed as represented by the break lines shown on the cross section views in the middle of each cell.

WETLAND HABITAT:

Wetland Habitat will comprise 316 acres (55%) of the lateral expansion area including 206 acres of planted wetlands and 110 acres of open water embayment. Wetland habitat will consist of 20% high marsh graded to elevations between approximately +2.5 and +3.0 feet above MLLW, and 80% low marsh (includes all open water and habitat islands) graded to elevations between approximately +1.0 and +2.0 above MLLW. Wetland features may include various combinations of habitat islands, mud flats, channels, moats (surrounding islands), and ponds. Island habitat will be varied to accommodate various bird species. Exact location, size, and configuration of wetland features will be designed based on actual topography of individual wetland cells after completion of dredged material placement, and will be subject to adaptive management based on experience gained as the project progresses.

UPLAND HABITAT:

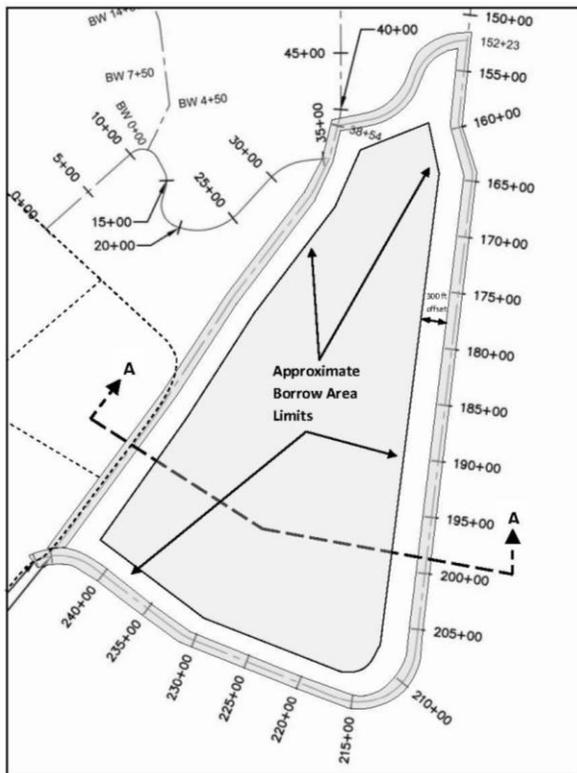
Upland Habitat will comprise 259 acres (45%) of the lateral expansion. Upland habitat will be graded to a nominal final elevation of +20 feet above MLLW with topographic relief as necessary to facilitate collection of surface runoff that is to be transmitted to adjacent wetlands. The upland surface is expected to contain ponds, some, or all, of which will be integral to the runoff control system. Upland vegetation will include grasses, shrubs, and trees with the species yet to be determined. Perimeter containment dikes are expected to be lowered from temporary elevation +25 ft to an elevation consistent with long-term containment of dredged materials and required control of runoff.



TYPICAL SECTION OF PROPOSED BORROW EXCAVATION FOR EXPANSION DIKE FILL SAND

(See plan view at left for approximate location of cross section)

Above is a typical section of proposed upland cell showing schematic limits of proposed borrow excavation. Anticipated depths of excavation are based on subsurface exploration that indicates a sand deposit having a thickness ranging from approximately 15 to 25 feet within the borrow area limits shown on the plan view at the left. The bottom elevation within the borrow area ranges from -6 ft MLLW near the southern boundary to -10 ft MLLW near the northern boundary. The final bottom elevation is expected to range from -25 ft to -35 ft below MLLW. Side slopes will be no steeper than 3H:1V and will be at least 300 feet inboard of the upland dike baseline. The excavation will be backfilled with dredged material over the life of the project to a nominal final surface elevation of +20 ft above MLLW. Borrow material will consist of sand that will be temporarily stockpiled in Cell 1D of the existing Poplar Island and proposed Cell 7 of the Poplar Island Expansion, and ultimately placed in the containment dike embankment section. Material dredged for the foundation remediation will consist primarily of silt and clay which will be pumped directly into existing upland Cell 2. Material from the access channel excavation is expected to consist of approximately 50% sand that will be placed temporarily in the stockpile and permanently in the dike section, and 50% clay and silt that will be pumped directly into existing upland Cell 2.



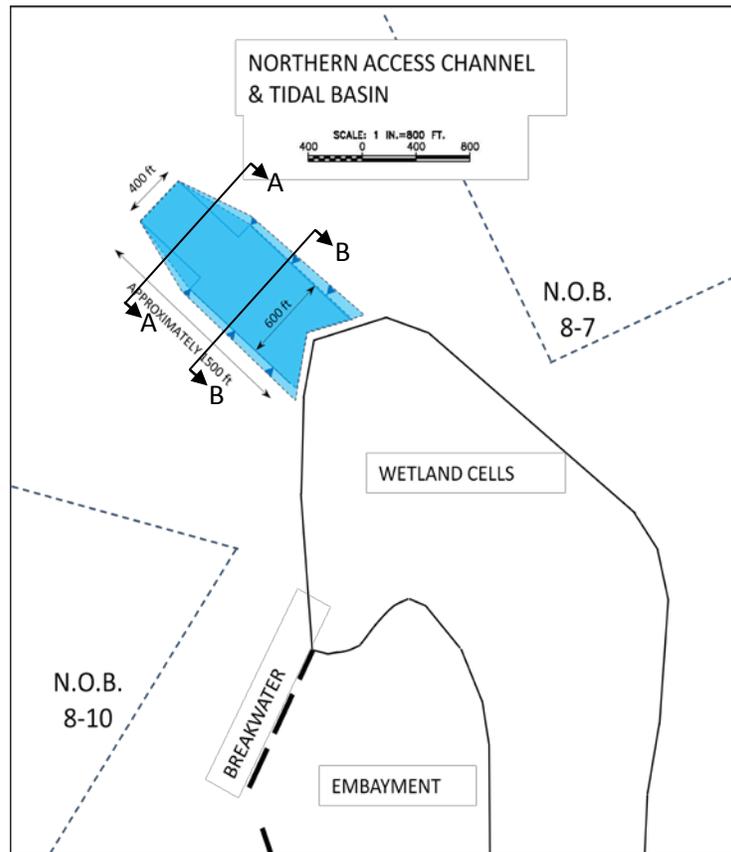


Figure 1. Plan of proposed Access Channel and Turning Basin

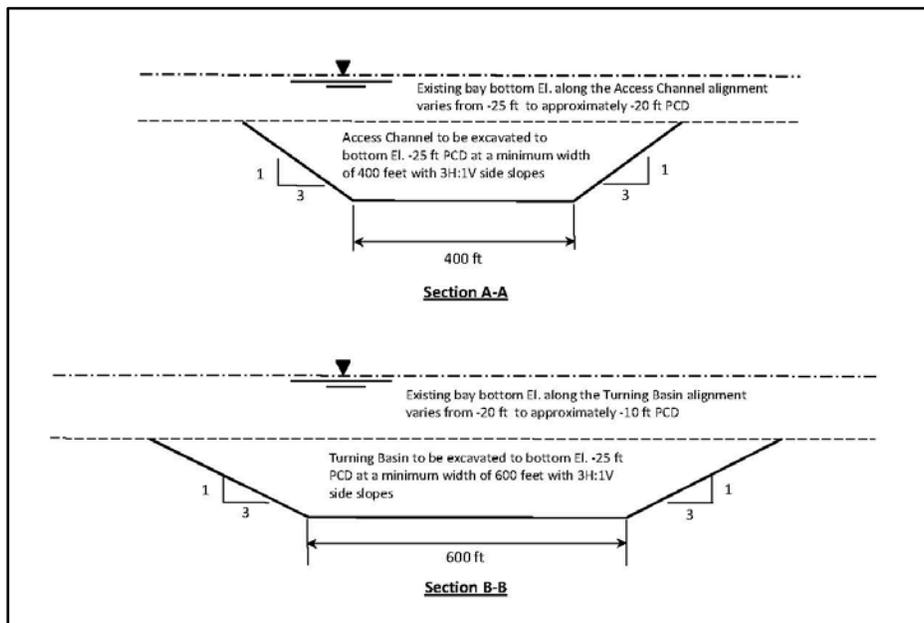
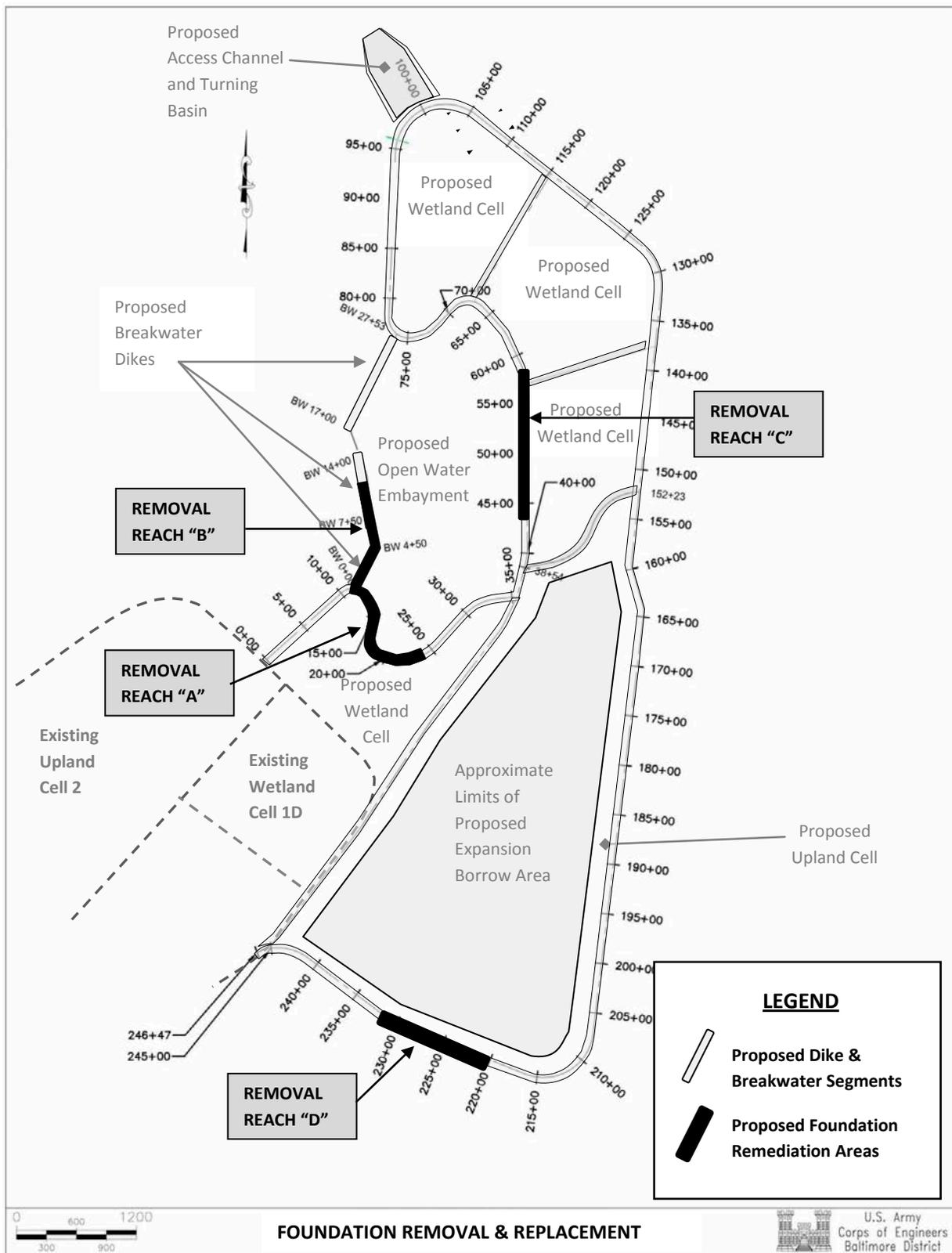


Figure 2. Typical Sections A-A and B-B of the Access Channel and Turning Basin respectively.

The access channel and turning basin will be dredged to a bottom elevation of -25 ft below MLLW. The total area disturbed by the access channel and turning basin dredging is approximately 21 acres. The total dredging volume is estimated to be approximately 240,000 CY with approximately 50% unsuitable silt and clay to be spoiled within existing Upland Cell 2, and 50% sand suitable as dike fill material. Suitable sand is likely to be pumped through a pipeline into the sand stockpile.



PROPOSED FOUNDATION REMOVAL AND REPLACEMENT QUANTITIES

REACH	STATIONING	LENGTH	WIDTH	AREA	DEPTH	VOLUME
"A"	Sta. 0+00BW to 12+50BW	1250 ft	160 ft	4.6 acres	10 ft	74,000 CY
"B"	Sta. 11+50 to 24+00	1250 ft	150 ft	4.3 acres	10 ft	70,000 CY
"C"	Sta. 43+00 to 59+00	1600 ft	150 ft	5.5 acres	10 ft	90,000 CY
"D"	Sta. 220+00 to 231+00	1100 ft	225 ft	5.7 acres	10 ft	92,000 CY

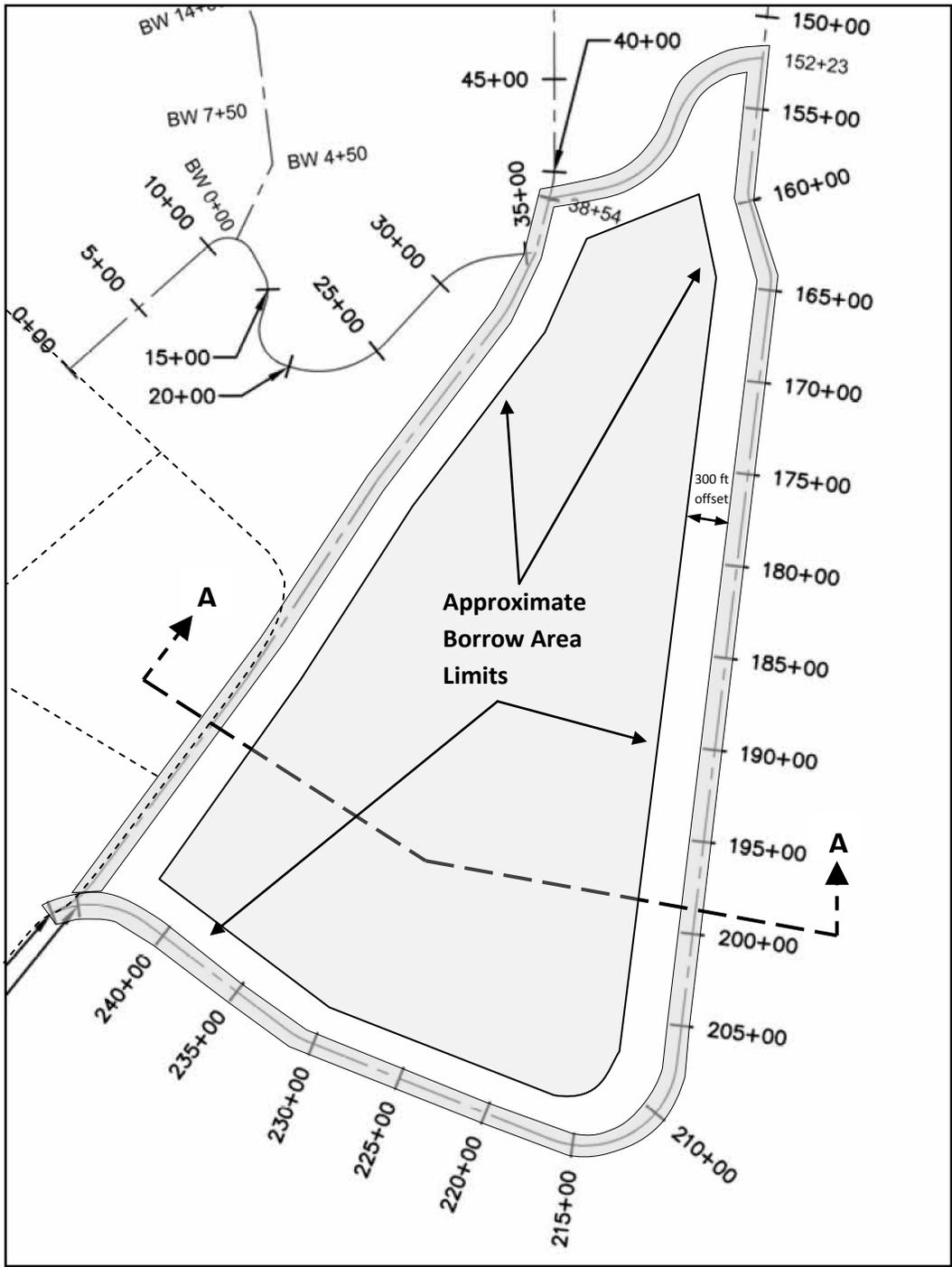


Figure 1. Plan of Poplar Island Expansion Upland Cell with Approximate Borrow Area Limits Shown

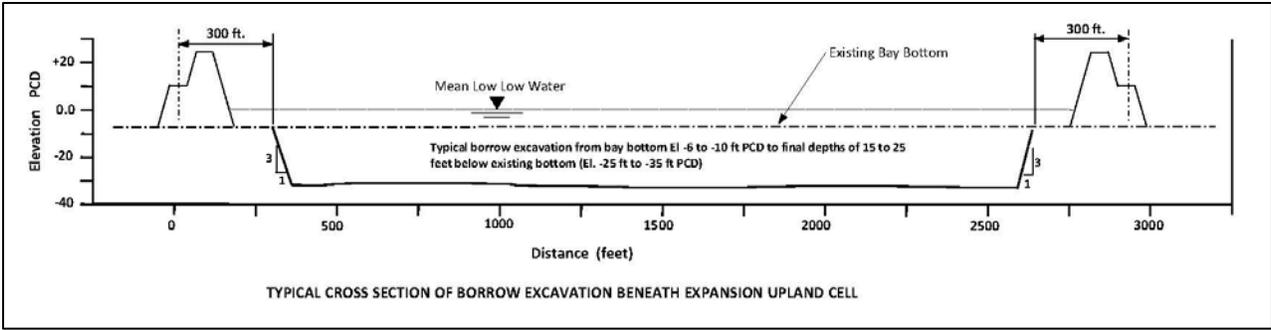
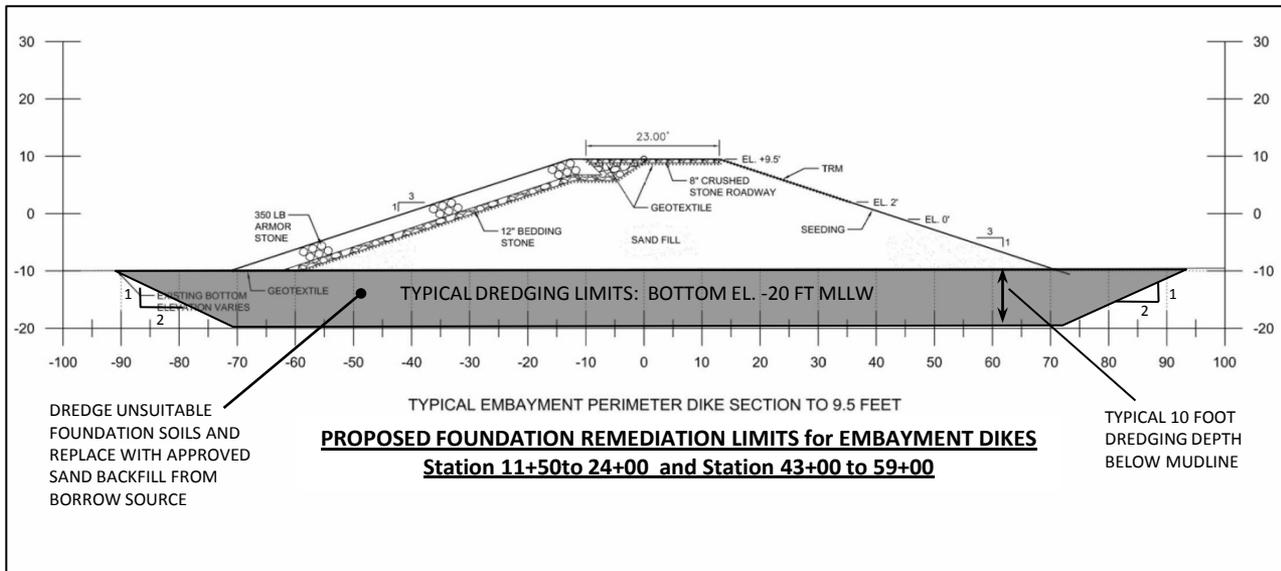
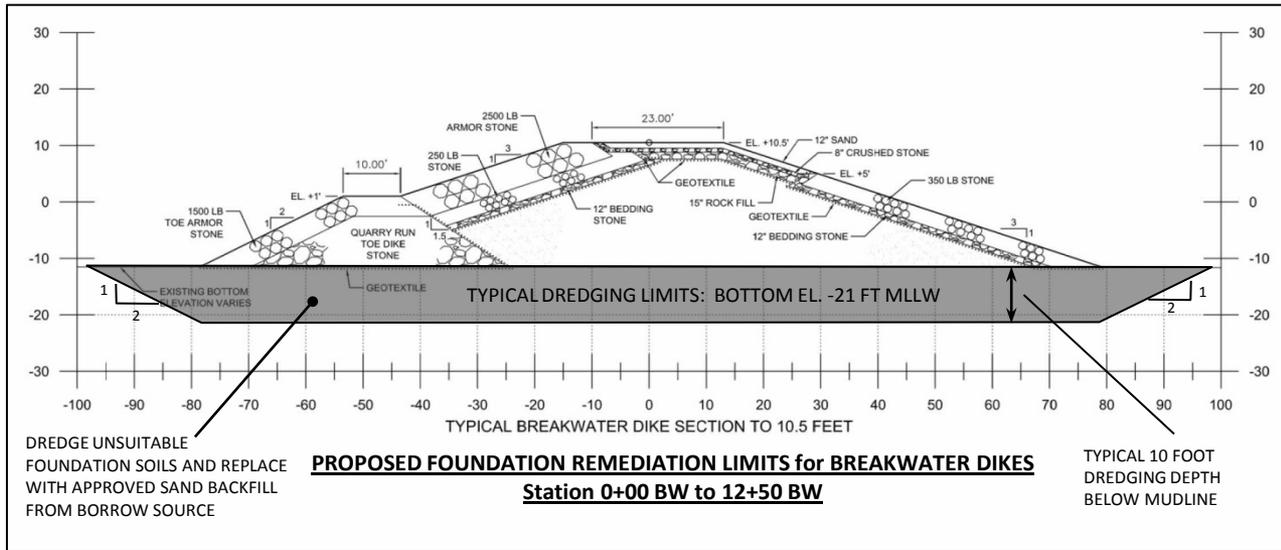


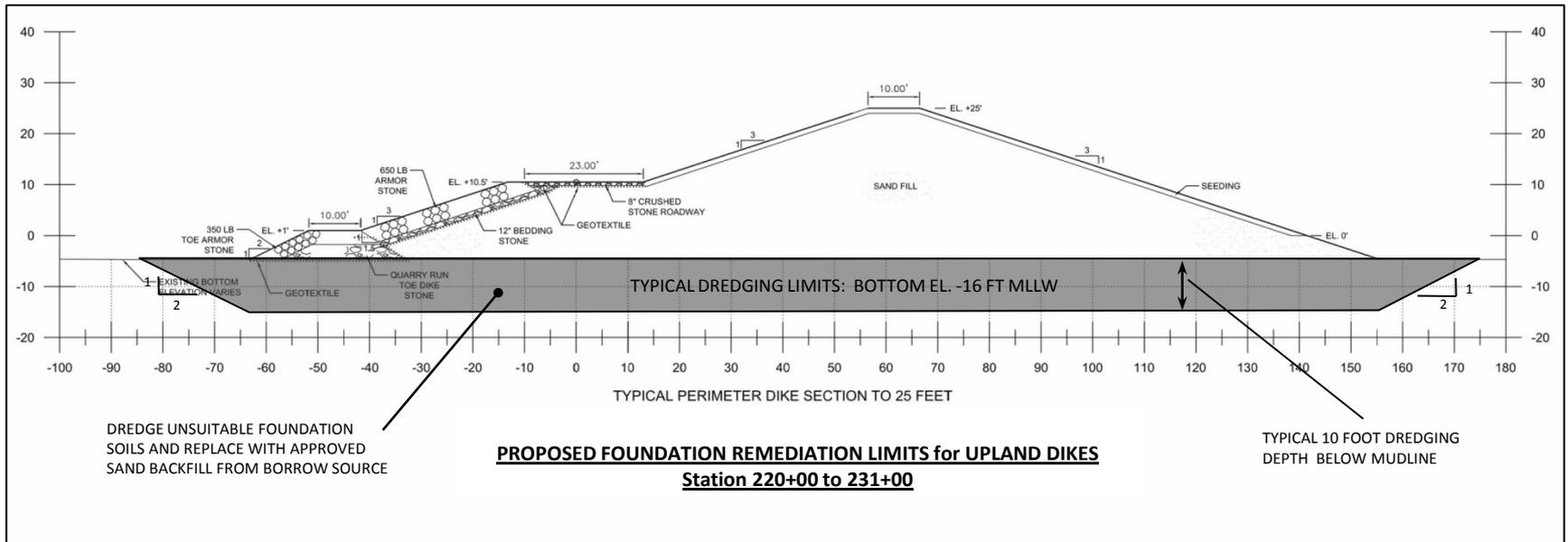
Figure 2. Typical Cross Section of Poplar Island Expansion Borrow Area Excavation (Section A-A on Plan View)

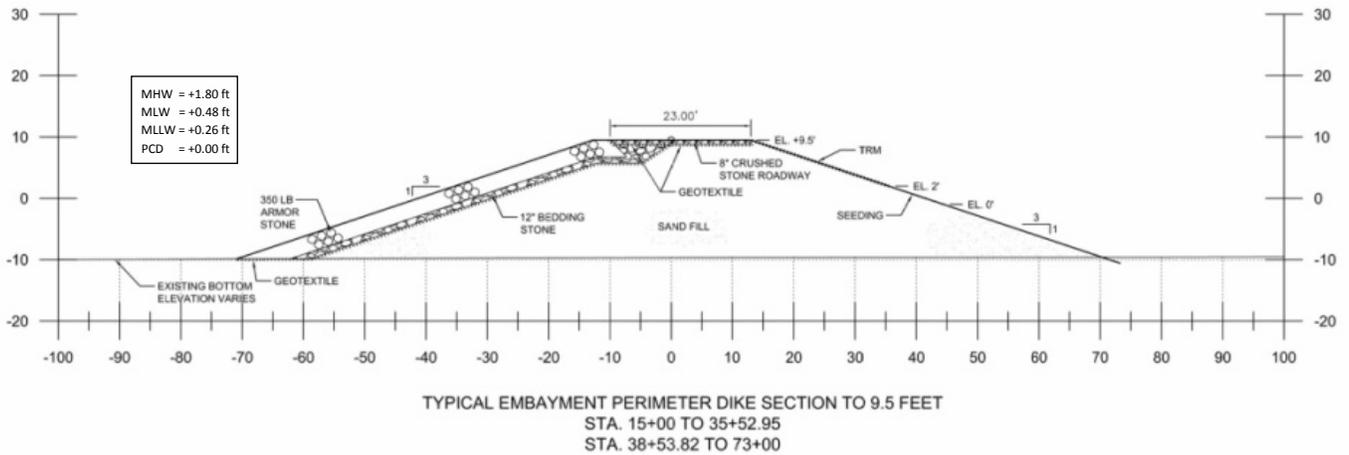
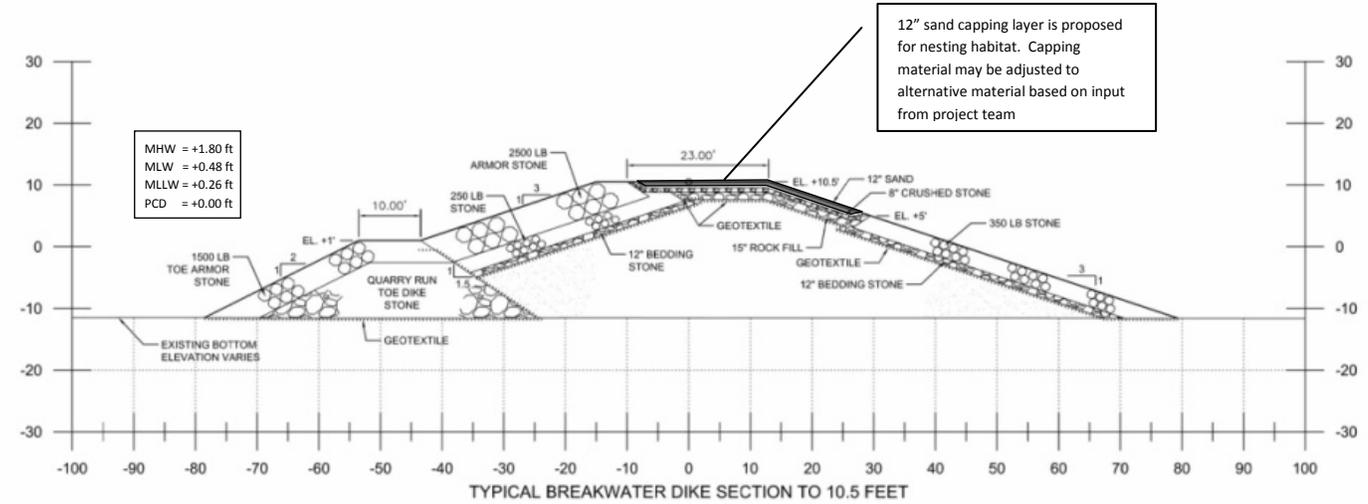
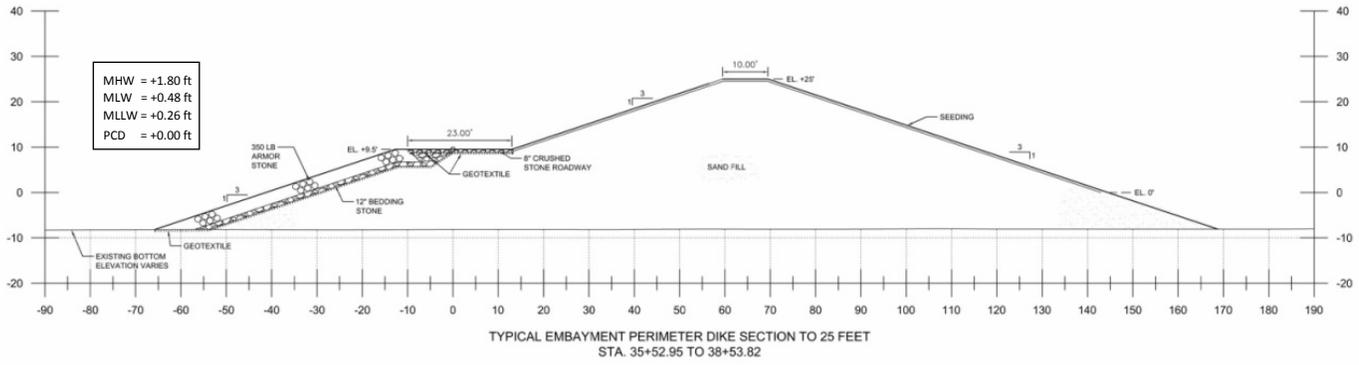
PROPOSED LIMITS OF DREDGING FOR FOUNDATION REMEDIATION

Breakwater and Embayment Dikes



PROPOSED LIMITS OF DREDGING FOR FOUNDATION REMEDIATION Upland Dikes





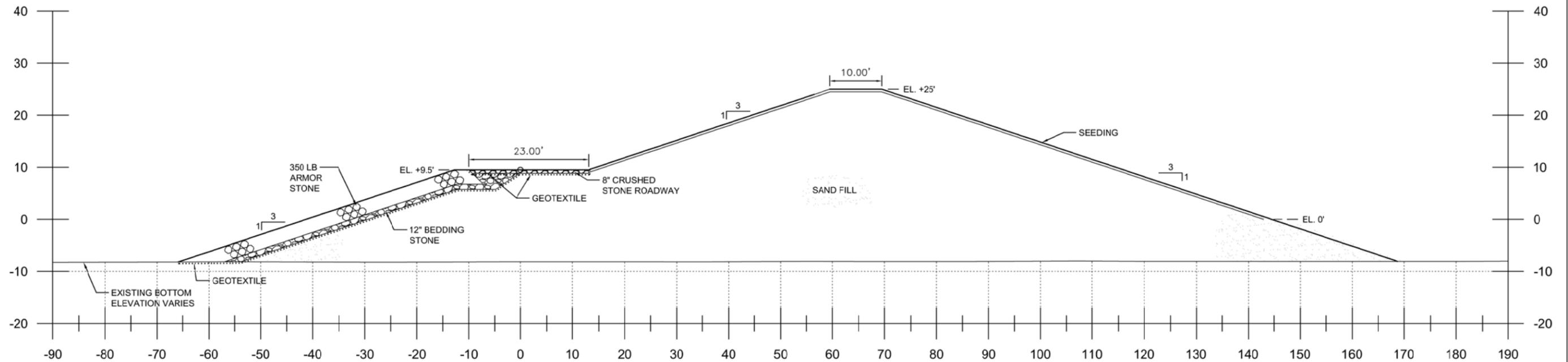
Typical Sections: Upland Dike adjacent to Embayment, Breakwater Dike, & Wetland Dike along Eastern side of Embayment



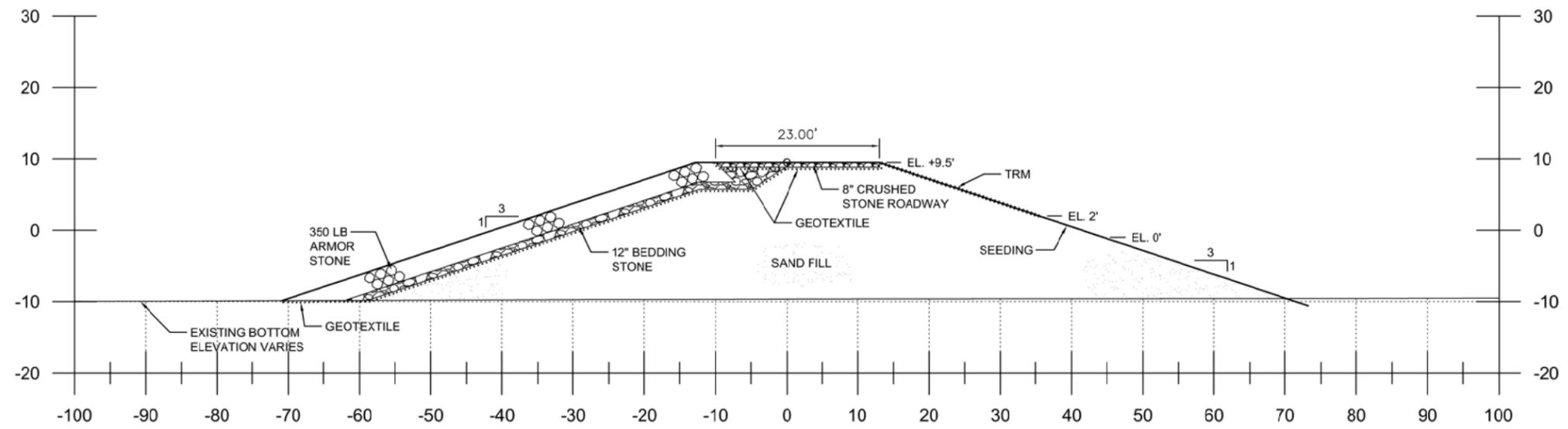
TYPICAL EMBAYMENT PERIMETER DIKE SECTION TO 25 FEET
STA. 35+52.95 TO 38+53.82

POPLAR ISLAND EXPANSION

2



TYPICAL EMBAYMENT PERIMETER DIKE SECTION TO 25 FEET
STA. 35+52.95 TO 38+53.82

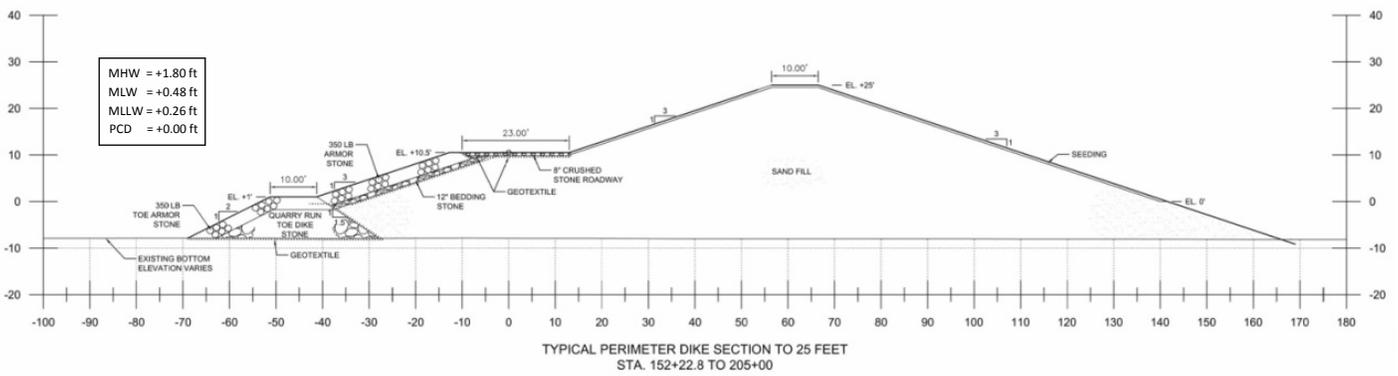
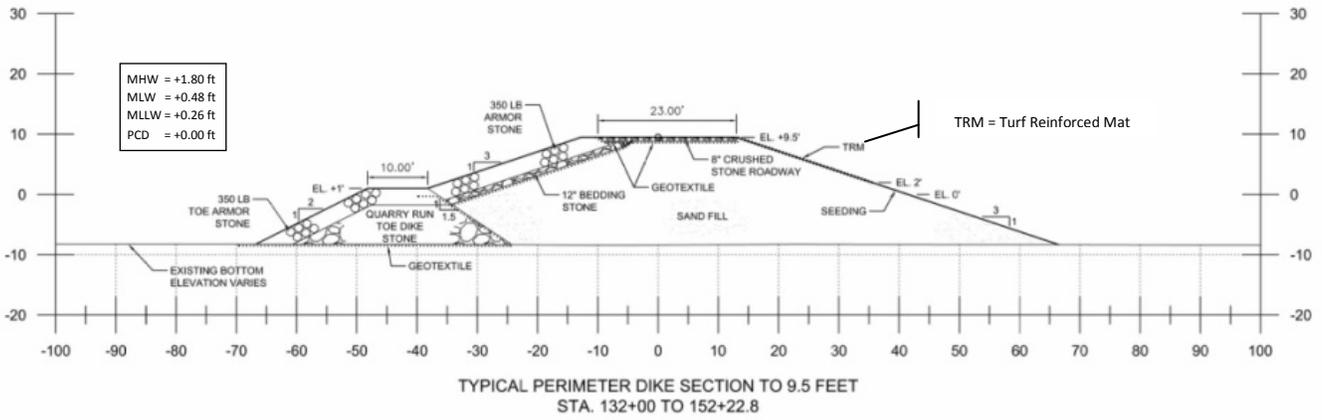
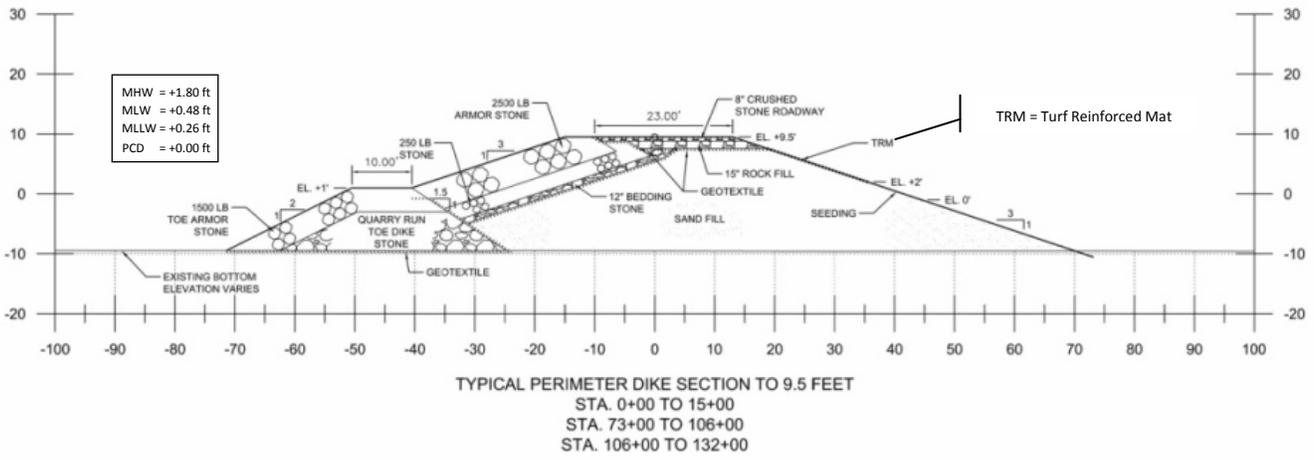


TYPICAL EMBAYMENT PERIMETER DIKE SECTION TO 9.5 FEET
STA. 15+00 TO 35+52.95
STA. 38+53.82 TO 73+00

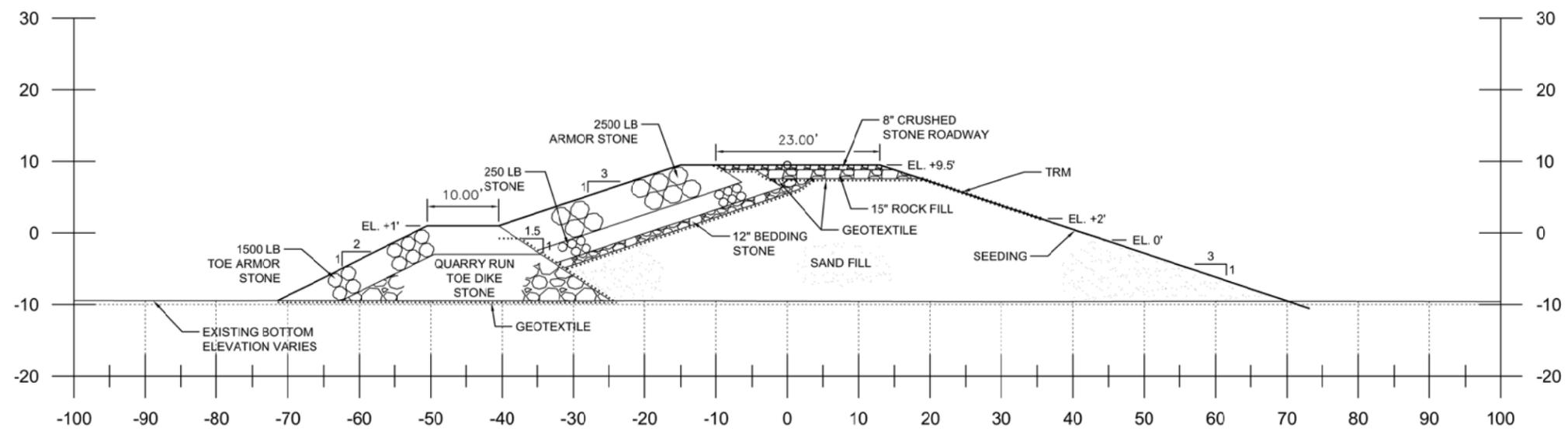
TYPICAL EMBAYMENT PERIMETER DIKE SECTION TO 9.5 FEET
STA. 15+00 TO 35+52.95
STA. 38+53.82 TO 73+00

POPLAR ISLAND EXPANSION

3



Typical Sections: Heavily Armored Western Wetland Dike, Eastern Wetland Dike, & Eastern Upland Dike

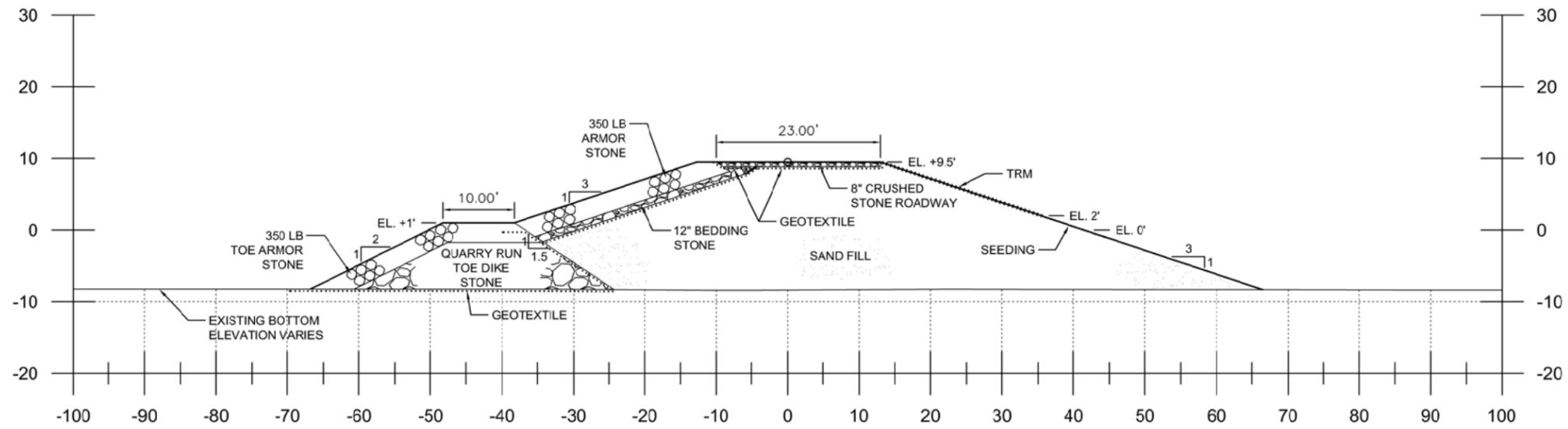


TYPICAL PERIMETER DIKE SECTION TO 9.5 FEET
STA. 0+00 TO 15+00
STA. 73+00 TO 106+00
STA. 106+00 TO 132+00

TYPICAL PERIMETER DIKE SECTION TO 9.5 FEET
STA. 0+00 TO 15+00 / STA. 73+00 TO 106+00
STA. 106+00 TO 132+00

POPLAR ISLAND EXPANSION

4



TYPICAL PERIMETER DIKE SECTION TO 9.5 FEET
STA. 132+00 TO 152+22.8

TYPICAL PERIMETER DIKE SECTION TO 9.5 FEET
STA. 132+00 TO 152+22.

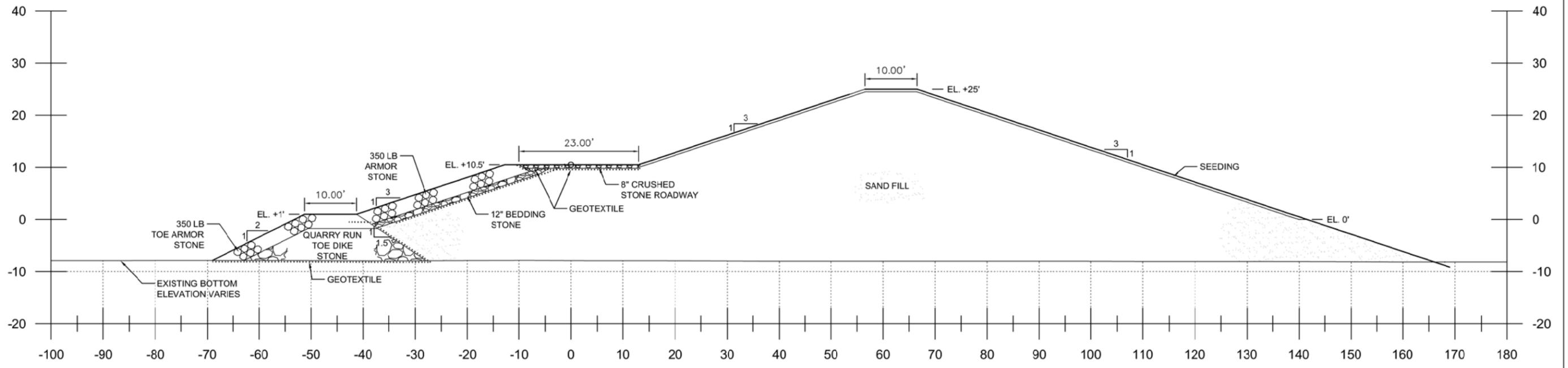
POPLAR ISLAND EXPANSION



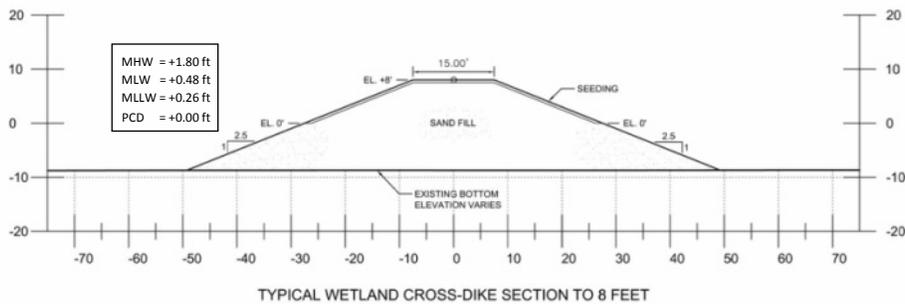
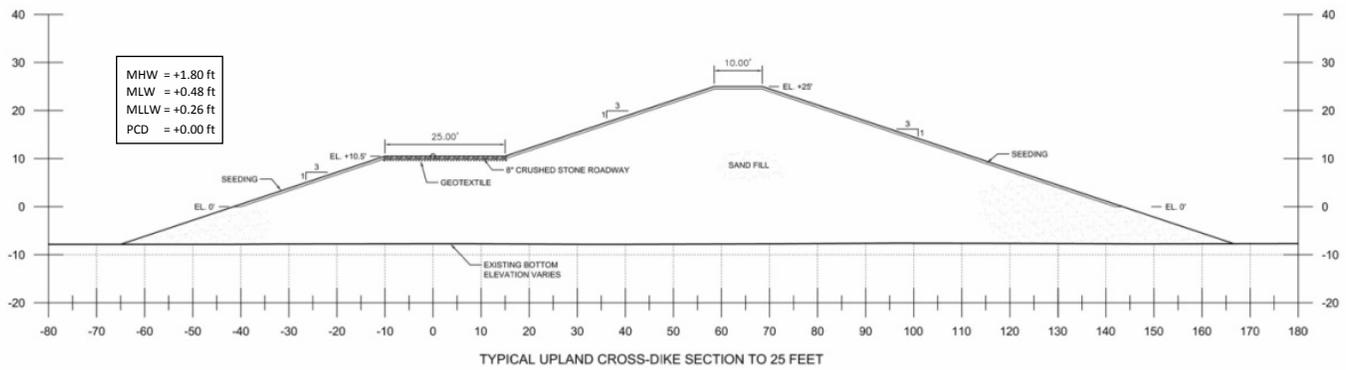
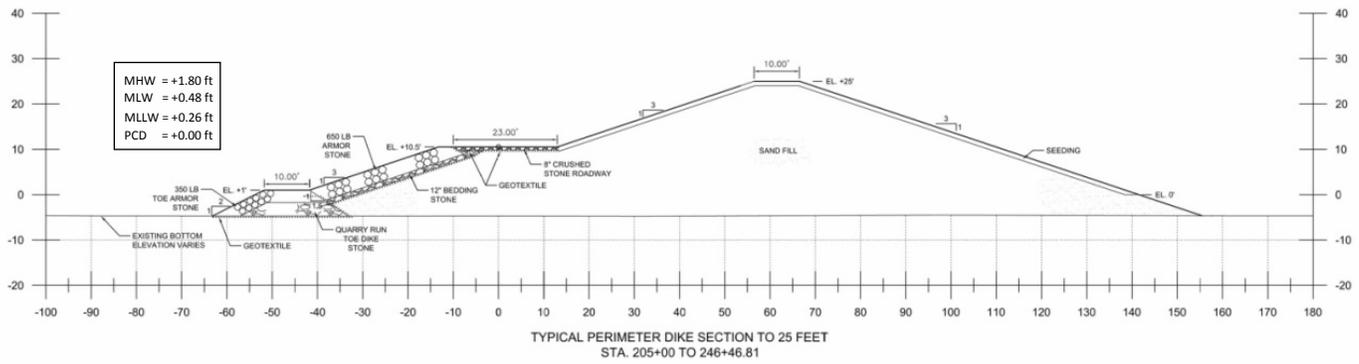
TYPICAL PERIMETER DIKE SECTION TO 25 FEET
STA. 152+22.8 TO 205+00

POPLAR ISLAND EXPANSION

6



TYPICAL PERIMETER DIKE SECTION TO 25 FEET
STA. 152+22.8 TO 205+00

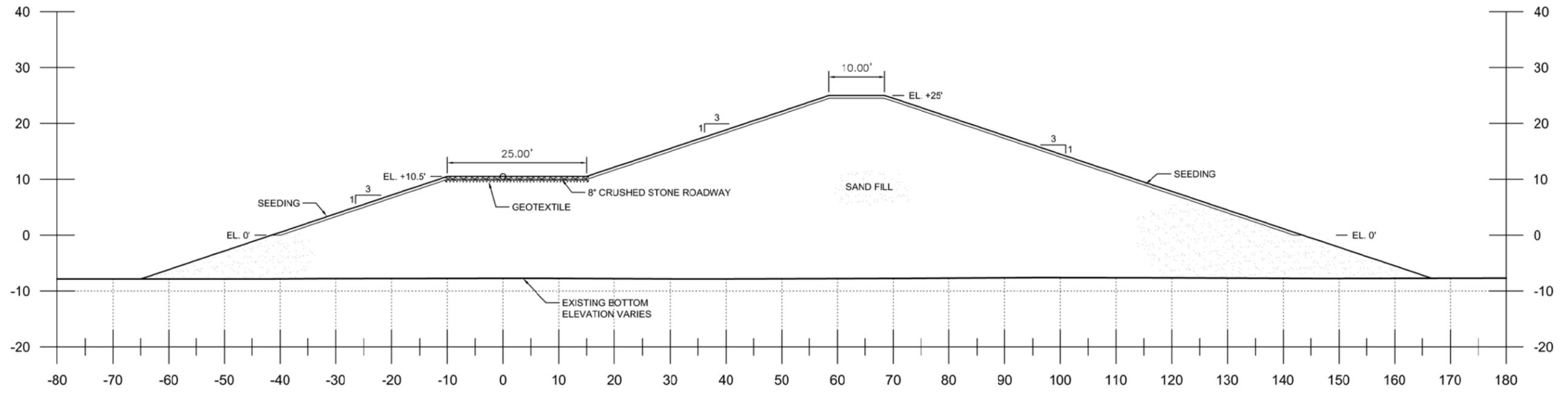


Typical Sections: Southern Upland Dike, Interior Dike separating Upland and Wetland Cells, & Interior Wetland Cross Dike



TYPICAL UPLAND CROSS-DIKE SECTION TO 25 FEET

POPLAR ISLAND EXPANSION

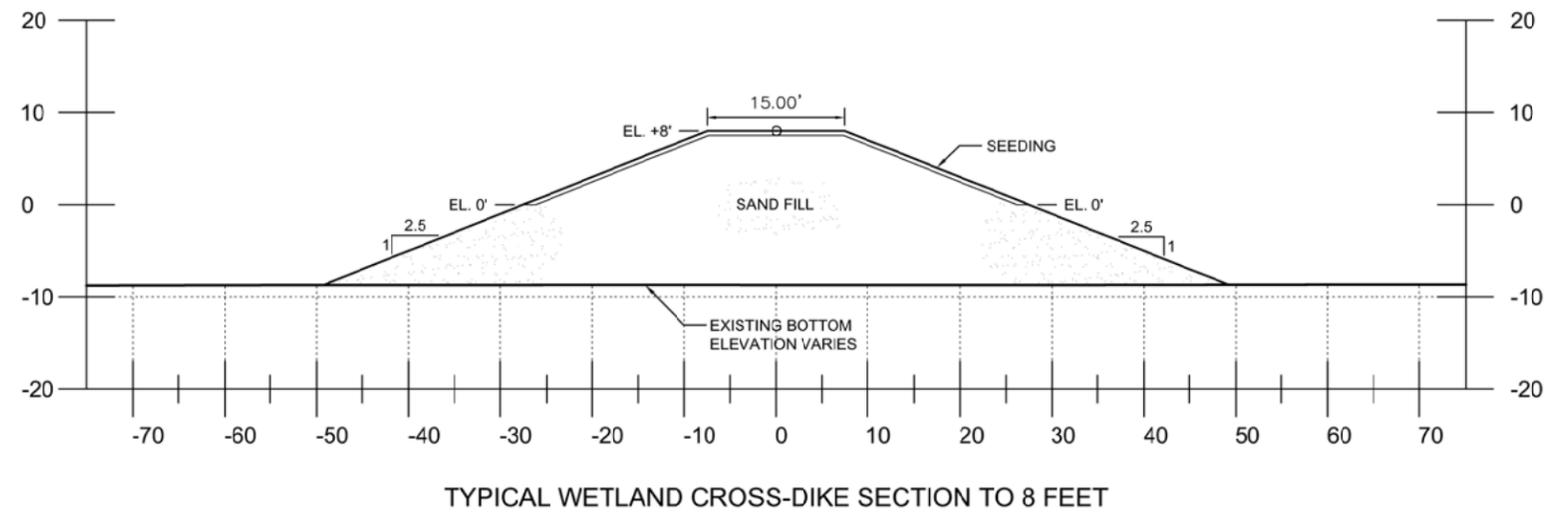


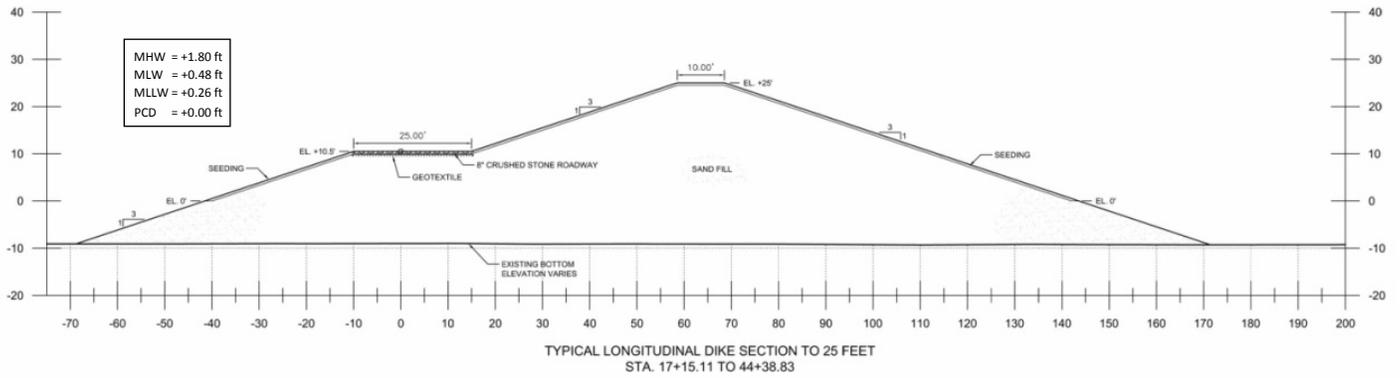
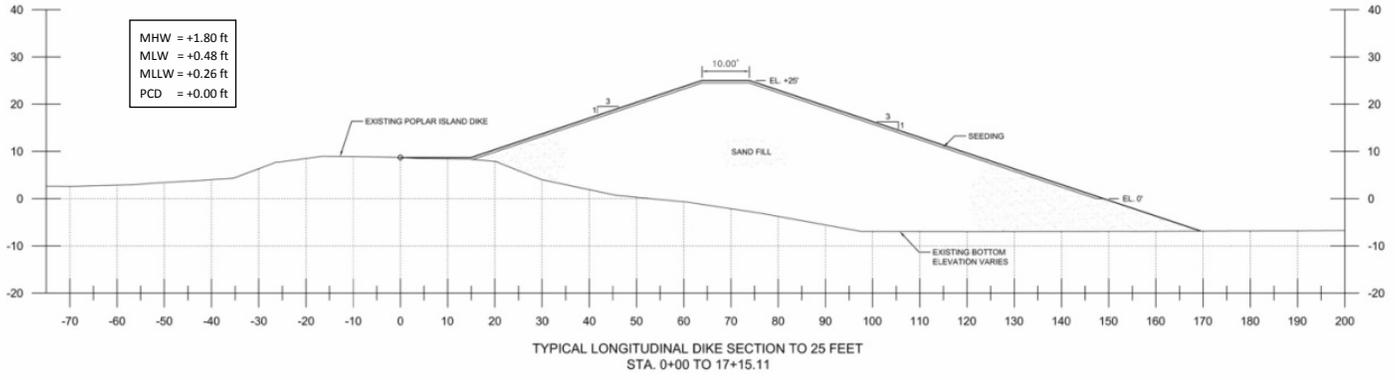
TYPICAL UPLAND CROSS-DIKE SECTION TO 25 FEET



TYPICAL WETLAND CROSS-DIKE SECTION TO 8 FEET

POPLAR ISLAND EXPANSION





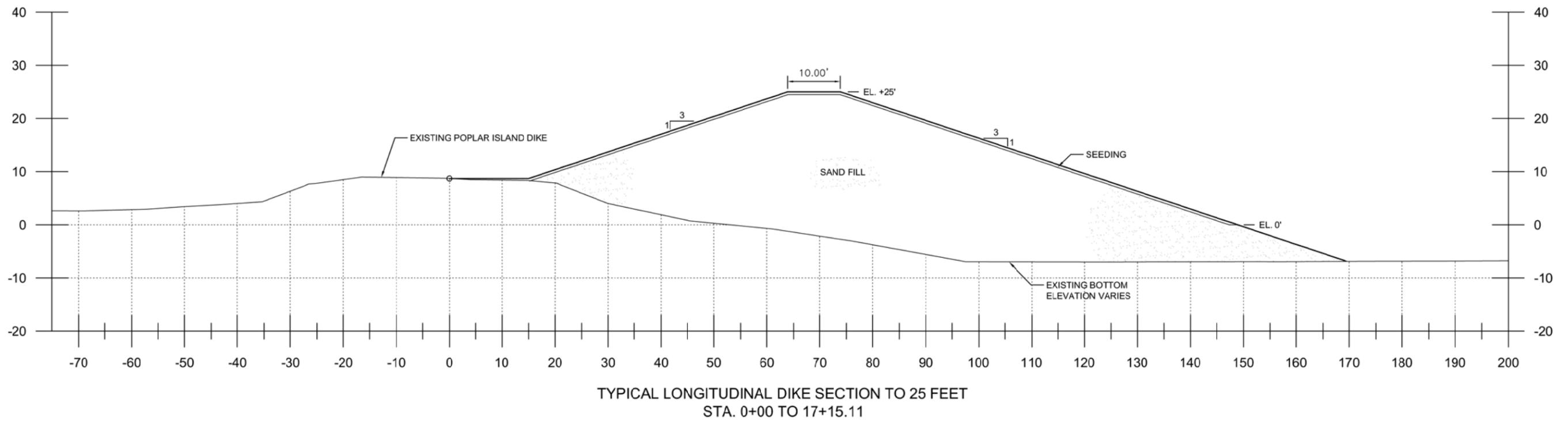
**Typical Sections: Upland Dike adjacent to Existing Cell 1D &
 Interior Upland Dike adjacent to New Wetland Cell**



TYPICAL LONGITUDINAL DIKE SECTION TO 25 FEET
STA. 0+00 TO 17+15.11

POPLAR ISLAND EXPANSION

10

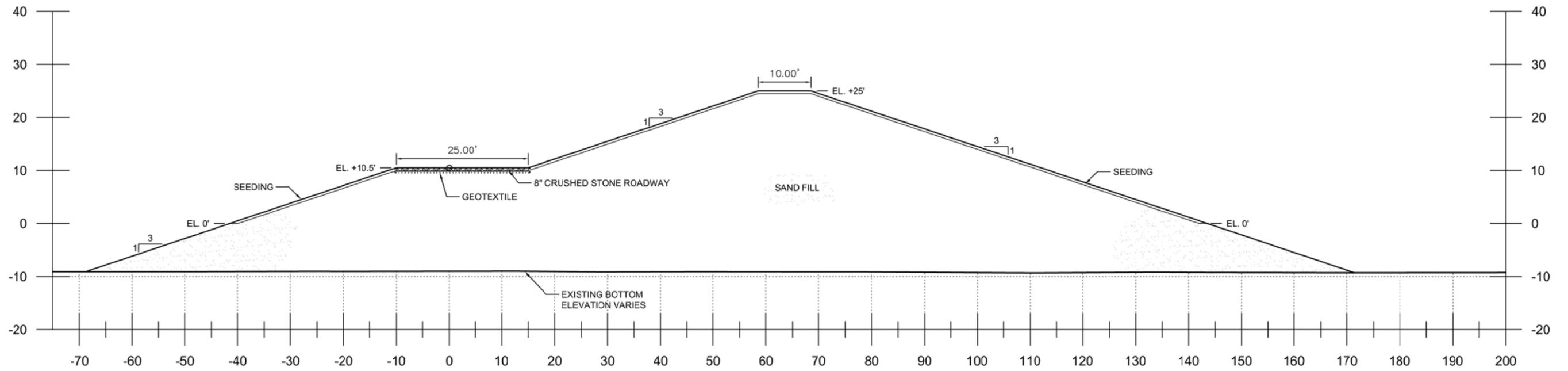




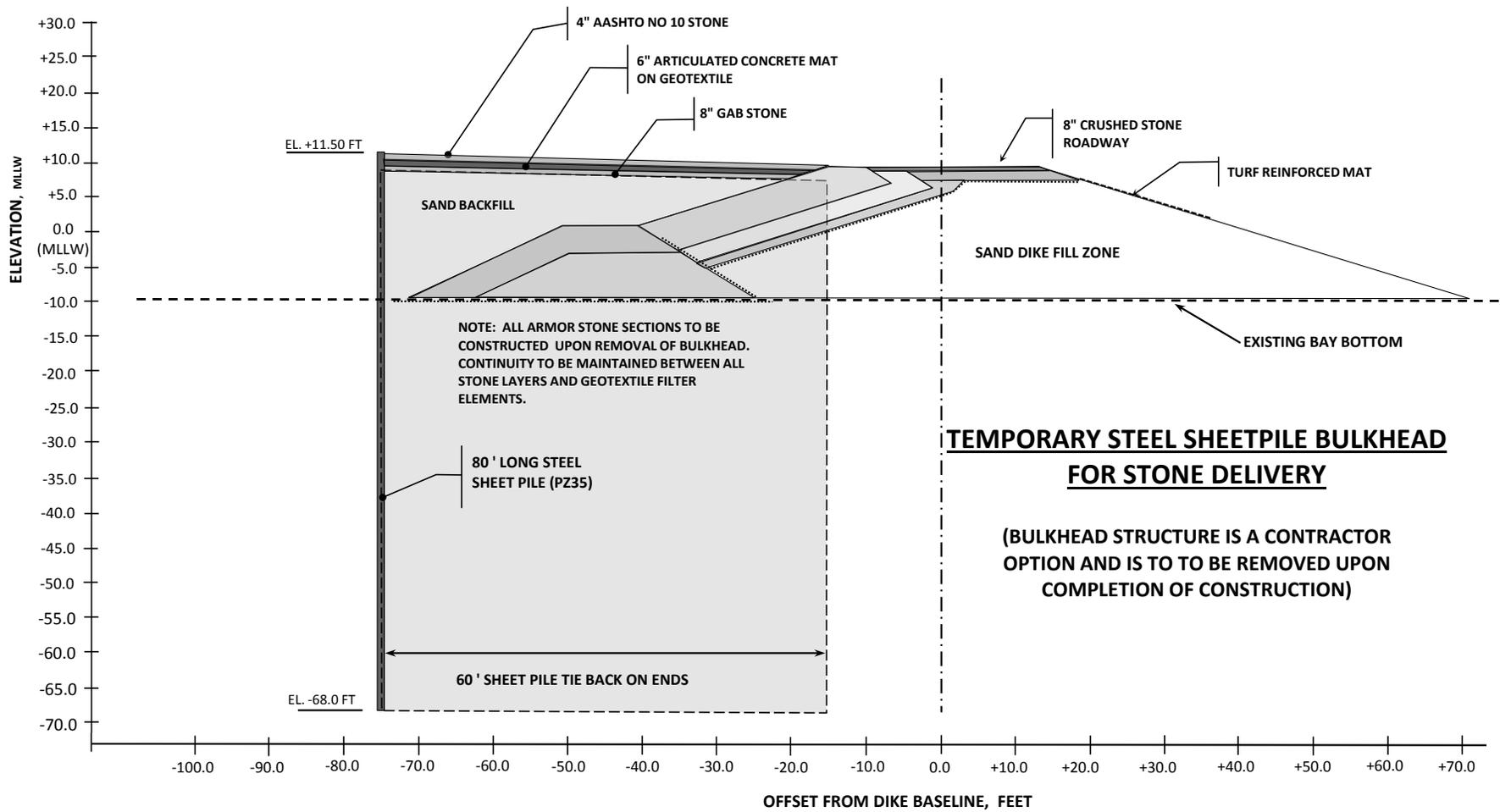
TYPICAL LONGITUDINAL DIKE SECTION TO 25 FEET
STA. 17+15.11 TO 44+38.83

POPLAR ISLAND EXPANSION

11



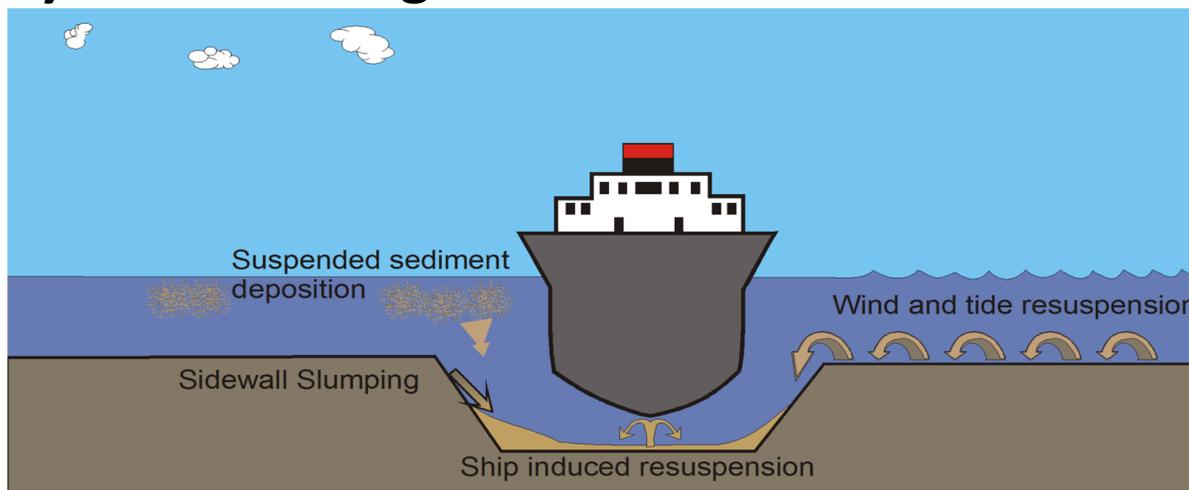
TYPICAL LONGITUDINAL DIKE SECTION TO 25 FEET
STA. 17+15.11 TO 44+38.83





Dredging 101

Why Do We Dredge?



Large cargo ships require passage into the Chesapeake to access the Port of Baltimore. In order for the Port of Baltimore to accept ships in the Harbor, the federal shipping channels are dredged by the U.S. Army Corps of Engineers. Sediment dredged from federal channels is currently being placed in facilities operated by the Maryland Port Administration, such as the Cox Creek Dredged Material Containment Facility (DMCF) or the Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island.

What's in Dredged Material?



Runoff from all over the Chesapeake Bay watershed can carry contaminants that end up in dredged sediment.

Most Chesapeake Bay material is considered “clean”, that is, without levels of contaminants that can harm human health or wildlife. However, sediment dredged from the Baltimore Harbor, an industrial area, may be contaminated with a variety of pollutants.



DMCF Site Operations



Using a clamshell bucket, material is dredged from a navigation channel and placed in to a water tight barge .



Once the barge is filled with dredged material, a tugboat transfers the barge to the appropriate DMCF.



Water is mixed into the barge to create a slurry, which is hydraulically pumped into the facility. The slurry ratio is approximately 80% water 20% solids.



Hydraulic unloading is the quickest way to unload dredged material. Excess water used during this process is discharged from the facility via a spillway.



The dredged material then dries out and consolidates, increasing capacity within the DMCF and creating a more stable surface.