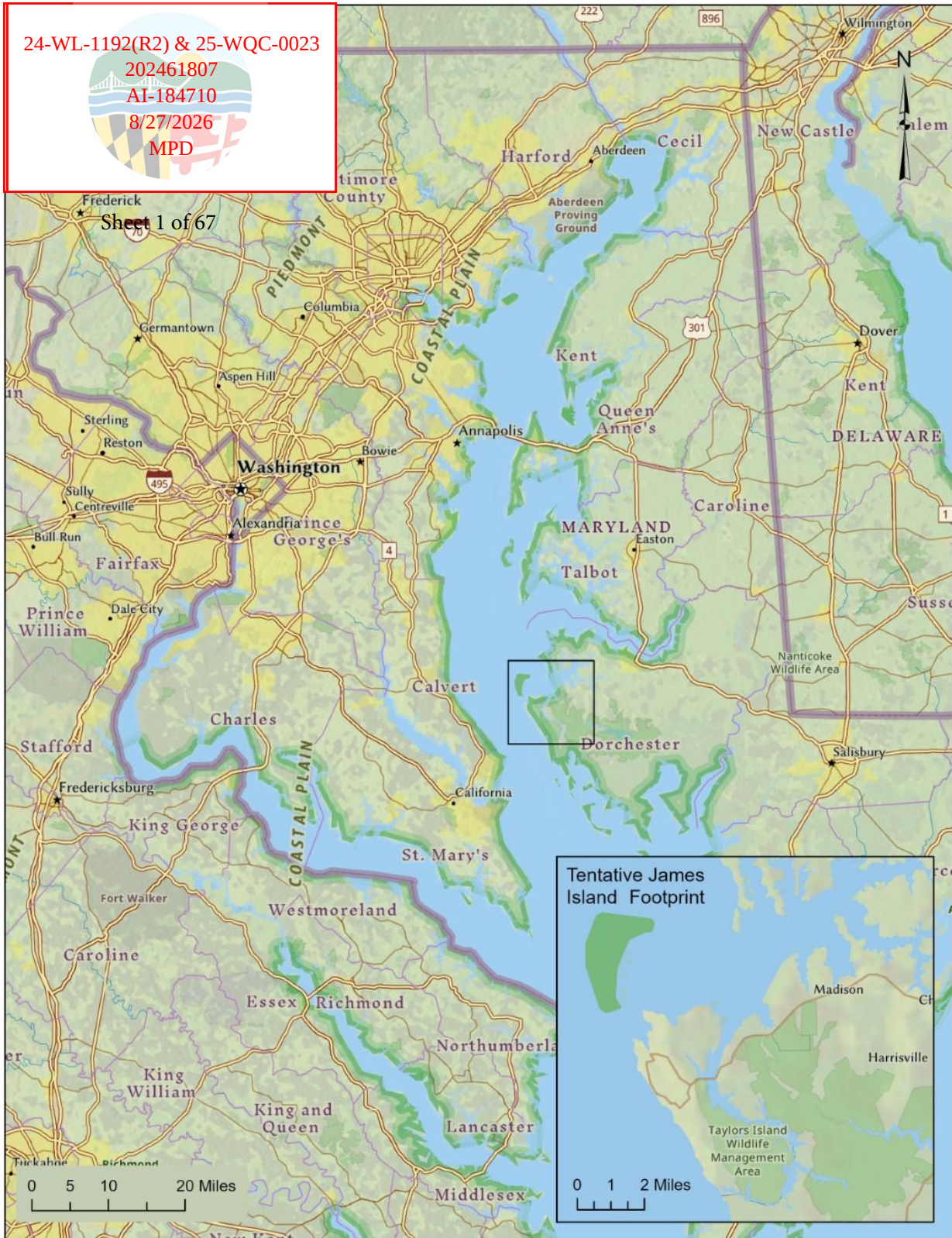




Mid-Chesapeake Bay Island Ecosystem Restoration Project at James Island location map

24-WL-1192(R2) & 25-WQC-0023

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N

Sheet 2 of 67

JAMES ISLAND ECOSYSTEM RESTORATION PROJECT

- SPILLWAY
- TIDAL INLET
- MD OYSTER BARS

HYDROGRAPHIC SURVEY

FEET

- LESS THAN -20
- 15 TO -20
- 10 TO -15
- 8 TO -10
- 6 TO -8
- 5 TO -4
- 4 TO -3
- 3 TO -2
- 2 TO -1
- 1 TO 0
- 0 TO 10
- MORE THAN 10

NOTES:

- 1) The breakwater jetties and submarine cable alignments are preliminary and subject to change as the design develops.
- 2) The number and location of tidal inlets and spillways structures are preliminary and subject to change as the design develops.
- 3) The location of the personnel pier and facilities are subject to change as the design develops.

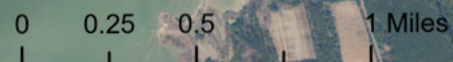
0 0.25 0.5 1 Miles

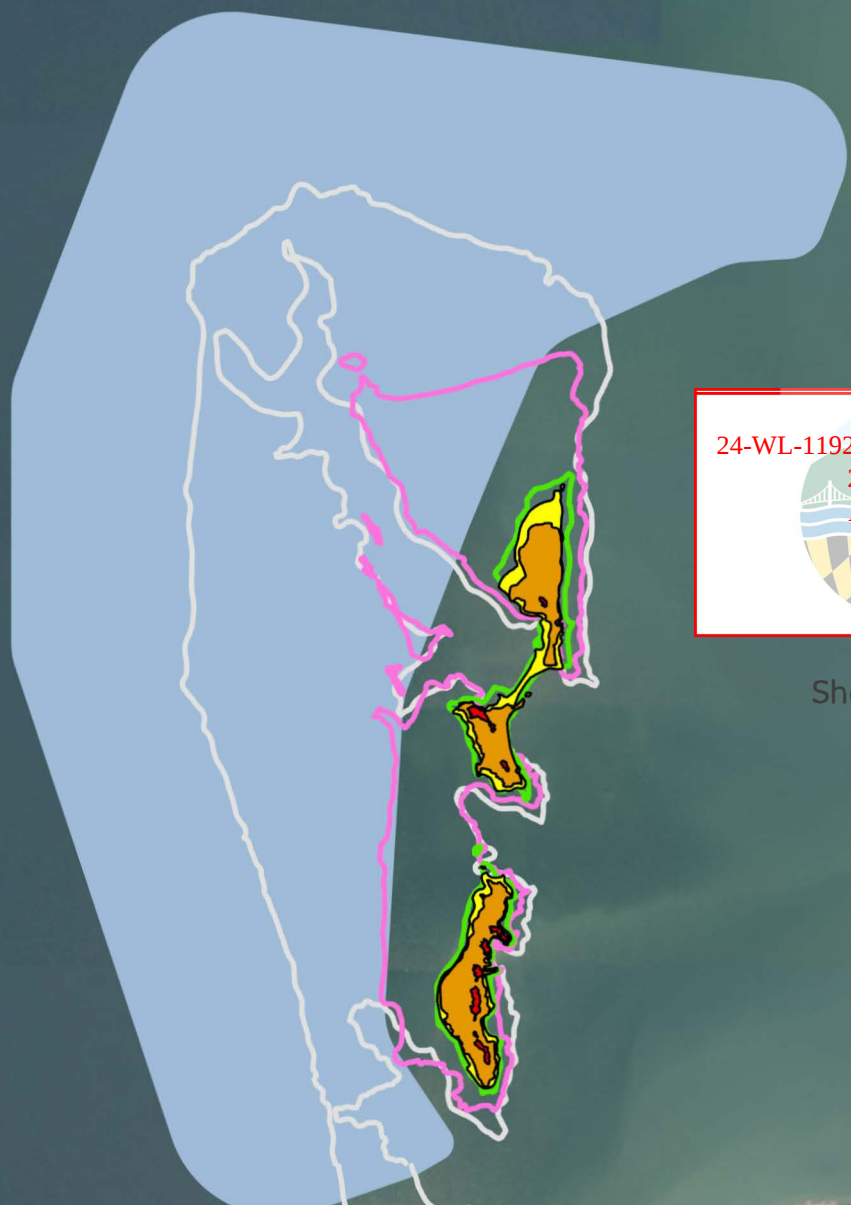


CHANNELWARD DISTANCE MAP

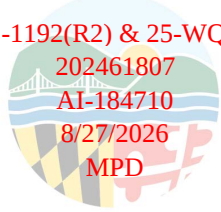


24-WL-1192(R2) & 25-WQC-0023





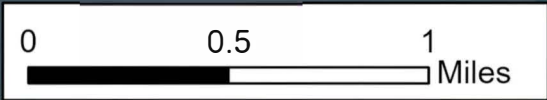
24-WL-1192(R2) & 25-WQC-0023
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Sheet 4 of 67

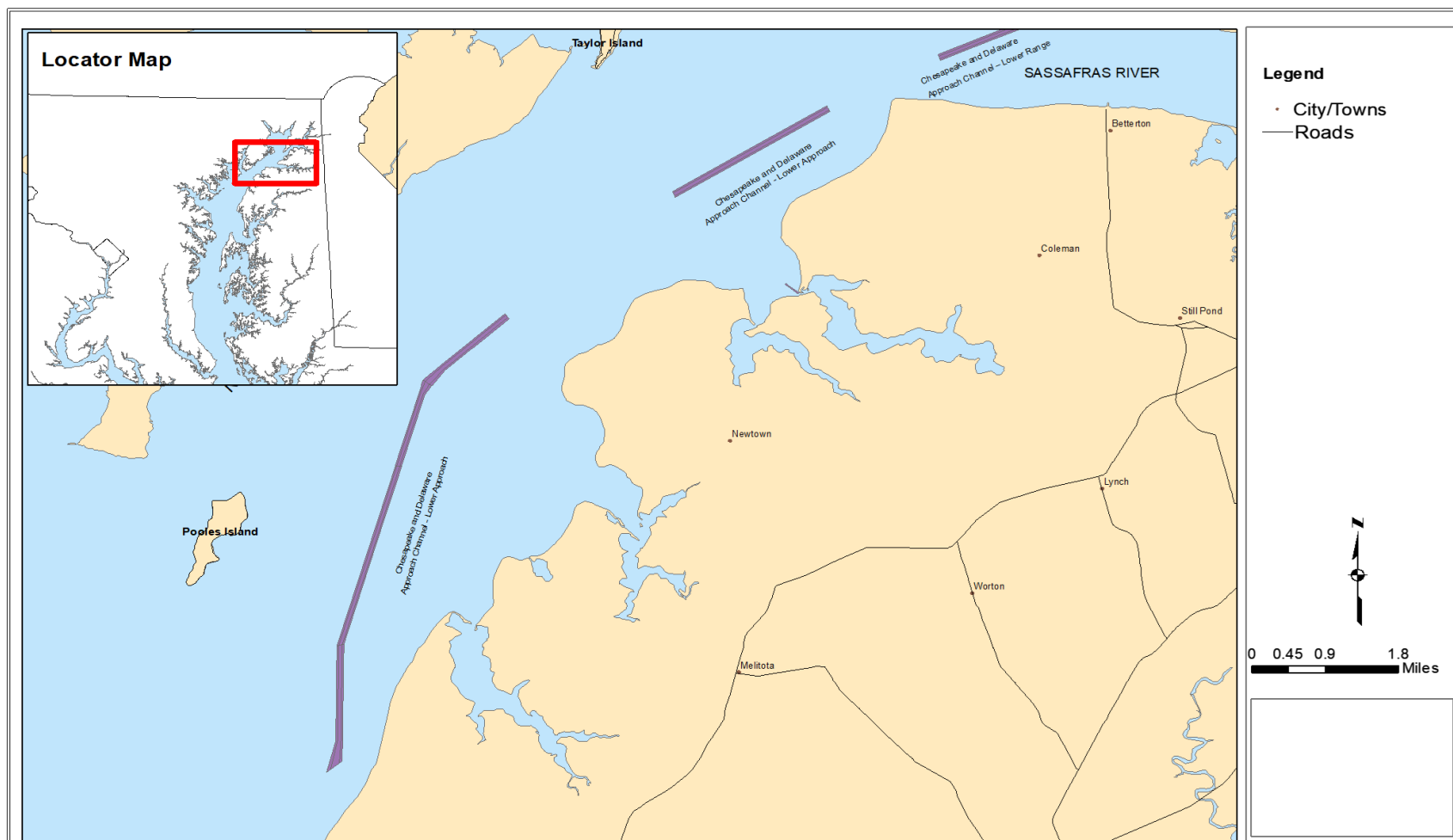
Legend

- 1860-1890 James Island Shoreline
- 1942-1943 James Island Shoreline
- 1993-1995 James Island Shoreline
- 1998 James Island Shoreline
- 2004 James Island Shoreline
- 2020 James Island Shoreline
- James Island Proposed Project Area



Taylor's Island





Potential Dredged Material Sources for James Island - Chesapeake and Delaware (C&D) Canal Approach Channels

Sheet 5 of 67

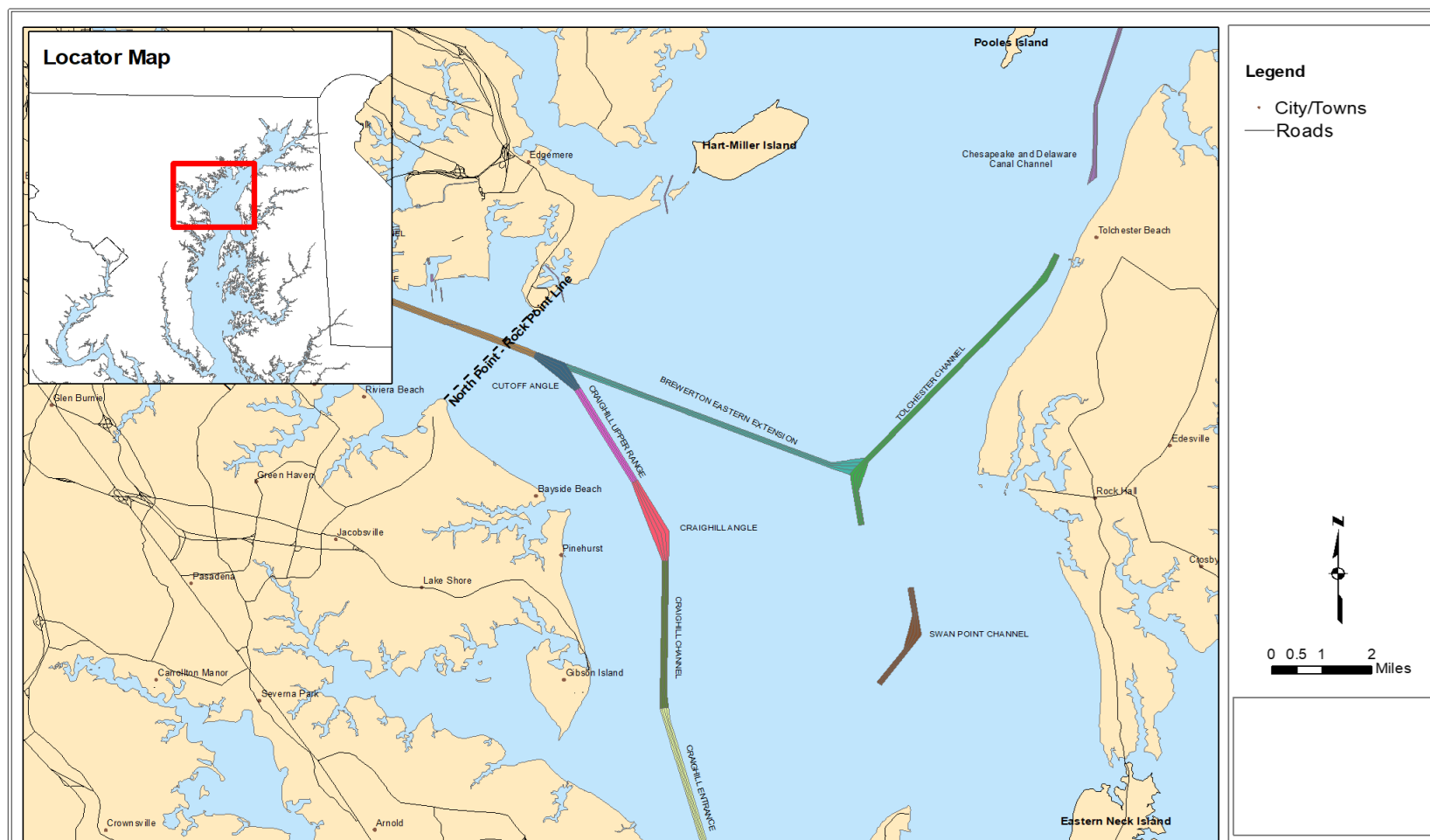
24-WL-1192(R2) & 25-WQC-0023

202461807

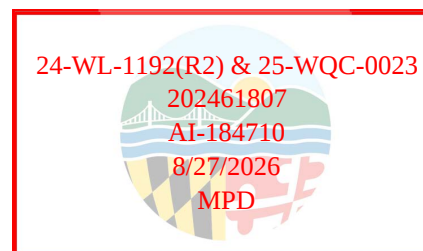
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Potential Dredged Material Sources for James Island – Upper Chesapeake Bay Approach Channels (MD)



24-WL-1192(R2) & 25-WQC-0023

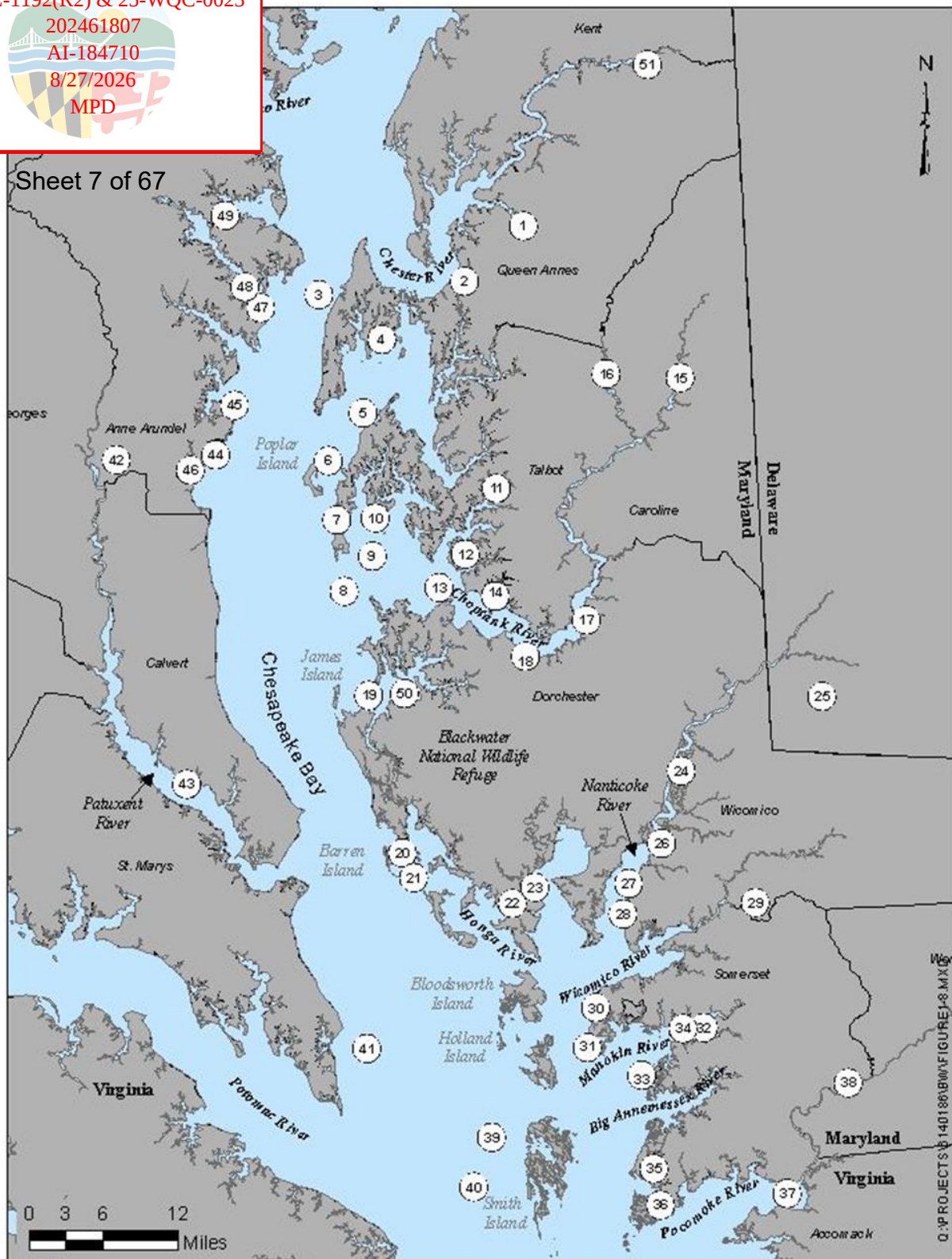
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Potential Dredged Material Sources for James Island – Federal Navigation Channels in the Chesapeake Bay (MD)

Western Side of the Chesapeake Bay	Eastern Side of the Chesapeake Bay
Annapolis Harbor, MD (48)	Black Walnut Harbor, MD (8)
Back Creek, MD (47)	Broad Creek, MD (36)
Cypress Creek, MD (49)	Broad Creek River, DE (25)
Fishing Creek, MD (44)	Cambridge Harbor, MD (18)
Herring Bay and Rockhold Creek, MD (45)	Chester River, MD (51)
Nan Cove, MD (43)	Choptank River, MD (15)
Parish Creek, MD (46)	Claiborne Harbor, MD (5)
Patuxent River, MD (42)	Corsica River, MD (1)
St. Jerome Creek, MD (41)	Crisfield Harbor, MD (35)
	Duck Point Cove (Hearns Creek), MD (22)
	Fishing Bay, MD (23)
	Goose Creek, MD (33)
	Honga River and Tar Bay, MD (20)
	Island Creek, MD (13)
	Knapps Narrows, MD (7)
	La Trappe River, MD (14)
	Little Creek, Kent Island, MD (3)
	Lower Thorofare, MD (31)
	Lowes Wharf, MD (6)
	Madison Bay, MD (50)
	Manokin River, MD (32)
	Muddy Hook and Tyler Coves, MD (21)
	Nanticoke River at Bivalve, MD (27)
	Nanticoke River at Nanticoke, MD (28)
	Nanticoke River, DE & MD (24)
	Neavitt Harbor, MD (10)
	Pocomoke River, MD (37)
	Queenstown Harbor, MD (2)
	Rhodes Point to Tylerton, MD (40)
	Shad Landing State Park, MD (38)
	Slaughter Creek, MD (19)
	St. Michaels, MD (4)
	St. Peters Creek, MD (34)
	Tilghman Island Harbor (Dogwood Harbor), MD (9)
	Town Creek, MD (12)
	Tred Avon River, MD (11)
	Tuckahoe River, MD (16)
	Twitch Cove and Big Thorofare River, MD (39)
	Tyaskin Creek, MD (26)
	Upper Thorofare, MD (3)
	Warwick River, MD (17)
	Wicomico River, MD (29)

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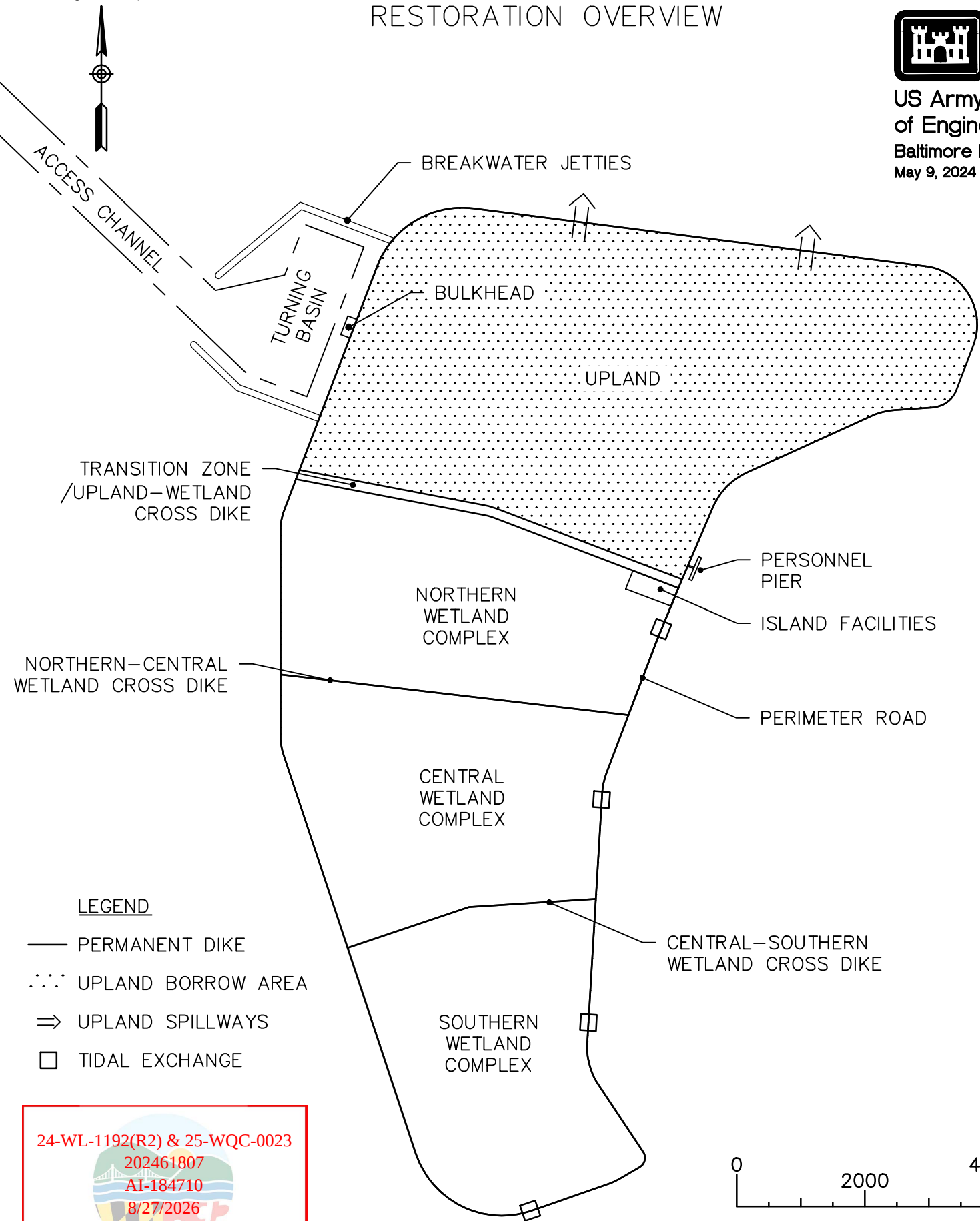
8/27/2026

MPD

RESTORATION OVERVIEW

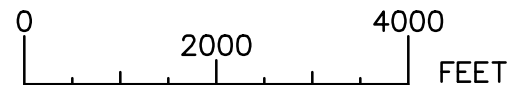


US Army Corps
of Engineers
Baltimore District
May 9, 2024



LEGEND

- PERMANENT DIKE
- ... UPLAND BORROW AREA
- ⇒ UPLAND SPILLWAYS
- TIDAL EXCHANGE



NOTES:

- 1) DETAILS ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS.
- 2) THE LAYOUT AND FEATURES MAY CHANGE OVER TIME AS THE PROJECT USES ADAPTIVE MANAGEMENT.

24-WL-1192(R2) & 25-WQC-0023

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**Mid-Chesapeake Bay Island Ecosystem Restoration Project at James Island
Total Impacts**

Name	Length (ft)	Max Width (ft)	Acreage (+/-)	Square feet (+/-)	Depth (ft)	Dredge (mcy)	Fill (mcy)
Dredging Within Project Footprint							
Reach 2 - Foundation Replacement	2,500	150	9	375,000	-20	0.35	0.35
Reach 3 - Foundation Replacement	2,000	150	7	300,000	-20	0.25	0.25
Borrow area	-	-	663	28,880,280	-35	17	-
Dredging or Disturbance Outside of Project Footprint							
Access Channel and Turning Basin	-	-	209	9,112,752	-28	3.6 to 4.3	-
Utility Cable	14,000	24	8	336,000	8 feet x 2 feet	-	-
100-Foot Dike Buffer	45,233	100	104	4,523,300	-	-	-
Habitat	Notes						
Uplands	-	-	897	39,073,320	-	-	70
Transition Zone	6,200	200	28	1,240,000	Graded into habitat as roads aren't required. Approximately 6 acres of the slope will be road to start.		
Perimeter Side Slopes	20,713	63	30	1,306,576			
Wetland	-	-	1,097	47,785,320	-	-	20-25
Transition Zone	6,200	200	28	1,240,000	Graded into habitat as wetlands mature and roads aren't required. Approximately 7 acres of the slope will be road to start.		
Perimeter Side Slopes	24,520	63	35.5	1,546,722			
EWN Features	-	-	50	2,178,000	-	-	-
Internal Temporary Roadways also included in the 1,994-acre habitat total (897 acres of upland and 1,097 acres of wetlands)							
Central East-West Cross Dike	5,473	25	3	136,825	Graded into habitat as wetlands mature and roads aren't required.		
Southern Cross Dike	3,986	25	2	99,650			
Central North-South Dike	9,192	25	5	229,800			
Tidal Channel Dikes	18,478	25	11	461,950	Converted to habitat when channels are open.		
Structures					Notes		
Perimeter Upland Exterior Dike	20,713	75	36	1,555,753	Average dike width is 140 feet. [~45% of this dike will be switched to habitat (see above)].		
Perimeter Wetland Exterior Dike	24,520	75	42	1,841,697	Average dike width is 140 feet. [~45% of this dike will be switched to habitat (see above)].		
Personnel Pier	240	40	0.22	9,600	Channelward distance from dike to edge is 110 feet.		
Bulkhead	250	72	0.41	18,000	Channelward distance from dike to edge 72 feet.		
Turning Basin Breakwater	6,000	120	17	720,000			
Water Control Structures							
Wetland Weir (6 structures)					Removed as wetland cells are restored.		
Wetland Box Culvert (4 structures)							
Wetland Spillways (12 structures)							
Upland Spillways (2 structures)					Likely to be retired in place.		
TOTAL PERMANENT OR TEMPORARY IMPACTS (acres)			2,460				

AREA CONVERTED TO HABITAT OR STRUCTURE (PERMANENT IMPACT) (Dike, island, pier, bulkhead, reefs, breakwater) 2,139

AREA CONVERTED TO HABITAT (uplands, wetlands, and EWN features) 2,044

AREA CONVERTED TO STRUCTURE (exterior dike, pier, bulkhead, breakwater) 95

AREA OF TEMPORARY IMPACT OR NON-STRUCTURAL HABITAT IMPACTS (Access channel, dike buffer, electrical line placement) 321

Name	Length (in)	Max Width (in)	Number	Acreage (+/-)	Square feet (+/-)	Depth (in)	Dredge (cy)	Notes
Monitoring Needs								
Sediment and Benthic Sampling	9	9	16	0.03	1,296	12	0.33	Annually during discharge.
Environmental and Geotechnical Analysis Borings	-	8	100	0.001	35	1,200	129	Total over the life of the project.

24-WL-1192(R2) & 25-WQC-0023

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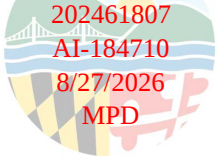
MPD

Mid-Bay James Island Potential Time of Year Restrictions
Updated November 2024

Resource	Activity Limited	TOY Start	TOY End	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Notes
Bald Eagle	Restrictions on activities within 660 feet of nest	15-Dec	30-Jun													This TOYR is not applicable.
Colonial Nesting Birds (herons & egrets)	Major habitat changes such as clear cutting, land clearing, building road construction, human activity within 660 feet of colony	15-Feb	31-Jul													This TOYR is not applicable.
Shellfish Areas (NOB & aquaculture leases)	Hydraulic dredging in or within 500 yards of NOB boundary or aquaculture lease site	1-Jun	30-Sep													Any foundation replacment using this method will need to follow this TOYR. Additionally, dredging of the access channel will be done outside of this TOYR.
	Rock placement activities within 500 yards of NOB boundary	-	-													No TOYR for this activity.
	Mechanical Dredging in or within 500 yards of a NOB boundary or aquaculture lease site	16-Dec	30-Sep													Any foundation replacment using this method will need to follow this TOYR. Installation of the submarine cable will follow this TOYR.
SAV	Rock placement activities in/near/within 100 yards of SAV bed	15-Apr	15-Oct													The VIMS 5-year SAV composite will be used to determine the annual TOYR. A SAV survey may be conducted after May to determine if SAV is present in a specific area if a waiver is required.
	Rock on rock placement in/near/within 100 yards of SAV bed	-	-													No TOYR for this activity.
	Sediment/turbidity producing activities (dredging and material placement) in/near/within 500 yards of SAV bed	15-Apr	15-Oct													The VIMS 5-year SAV composite will be used to determine the annual TOYR. A SAV survey may be conducted after May to determine if SAV is present in a specific area if a waiver is required.

Activity limited

24-WL-1192(R2) & 25-WQC-0023



JAMES POINT

HILLS
POINT
SOUTH
N.O.B 14-5

PEANUT HILL

N.O.B. 15 - 2

LITTLE
CHOPTANK

N.O.B. 15 - 1
CATATORS

GRANGER

N.O.B 14-6

OYSTER CREEK

MARSHALL

TRAVERS

Legend

James Island

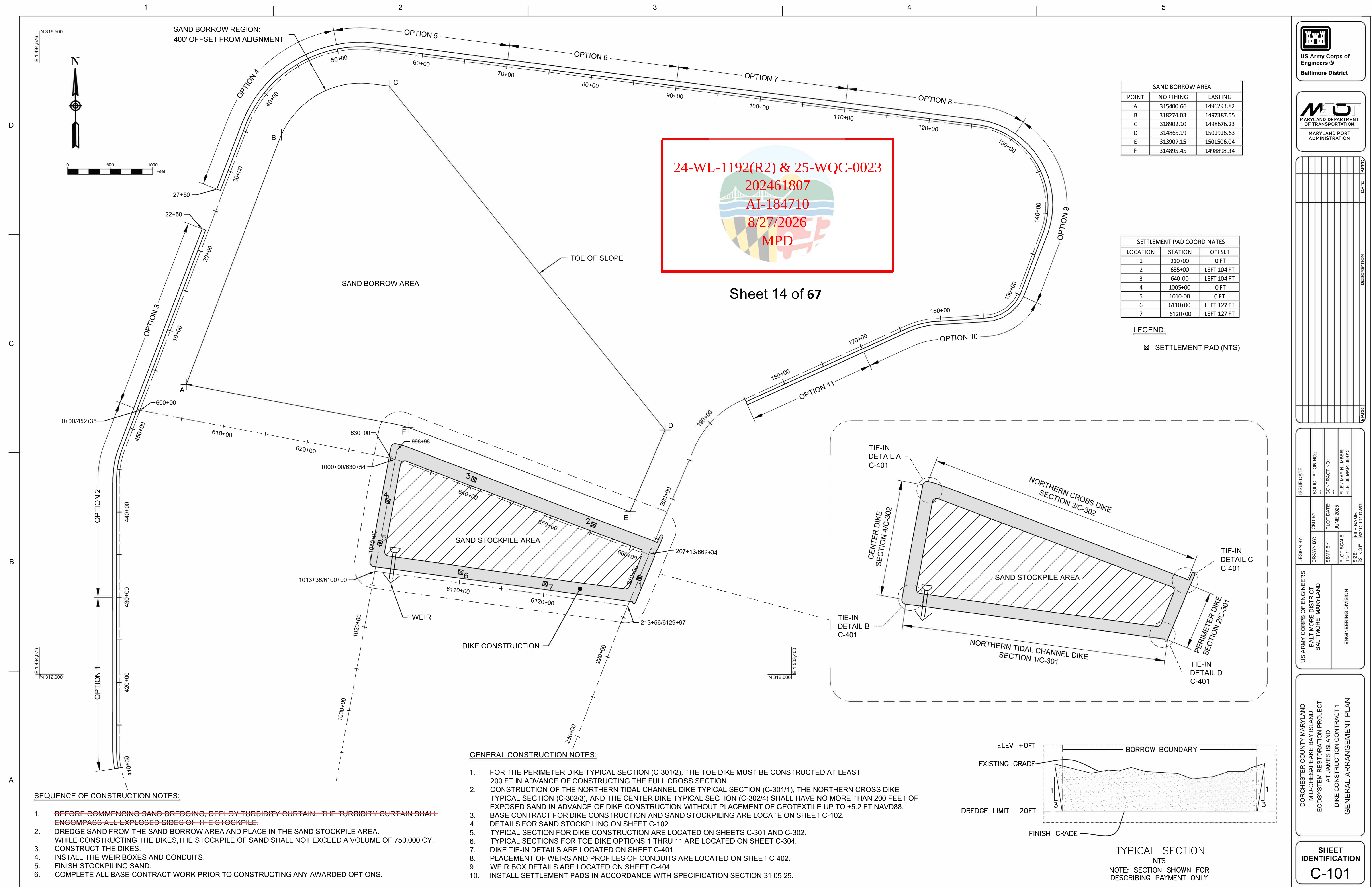
- Upland
- Wetland

Perimeter Infrastructure

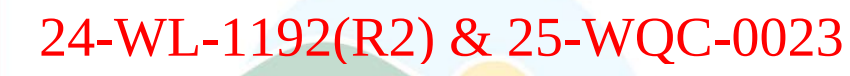
- Breakwater
- Bulkhead
- Personnel Pier
- Utility Cable Pathway
(electrical/
telecommunications)
- Access Channel and
Turning Basin
- Maryland Historic Oyster
Bars
- Yates Oyster Bars
- Legal N.O.B.s
- SAV Composite 2018 to
2022
- Anticipated SAV
Composite 2019 to 2023
- SAV 500 yd Buffer
- SAV 100 yd Buffer
- Oyster Bar 500 yd
Buffer and James Point
restricted area
- Foundation
Replacement

0 1,500 3,000 6,000
Feet





1. SEE C-405 FOR WEIR BOX NOTES.
2. SEE C-406 FOR WEIR BOX DETAILS.

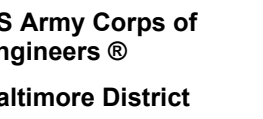
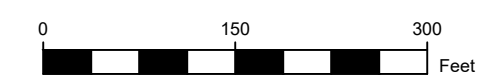


202461807
AI-184710
8/27/2026
MPD

SAND BORROW AREA

SETTLEMENT PAD COORDINATES		
LOCATION	STATION	OFFSET
1	210+00	0 FT
2	655+00	LEFT 104 F
3	640+00	LEFT 104 F
4	1005+00	0 FT
5	1010+00	0 FT
6	6110+00	LEFT 127 F
7	6120+00	LEFT 127 F

☒ SETTLEMENT PAD (NTS)

[illegible]

DRAWN BY:	CKD BY:	SOLICITATION NO.: W912DR28BA001	PLOT DATE: DEC 2025	CONTRACT NO.: ---	FILE / MAP NUMBER: FILE: 38 WAP: 38-014
SBMT BY:	PLOT SCALE: 1"= 1'	FILE NAME: 531C-102 DWG			
SIZE: 22" x 34"					

BALTIMORE DISTRICT
BALTIMORE, MARYLAND

ENGINEERING DIVISION

MID-CHESAPEAKE BAY ISLAND
ECOSYSTEM RESTORATION PROJECT
AT JAMES ISLAND
DIKE CONSTRUCTION CONTRACT 1
SAND STOCKPILING / GRADING PLAN

**SHEET
IDENTIFICATION**
C-102

**SHEET
IDENTIFICATION
C-001**



24-WL-1192(R2) & 25-WQC-0023
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REACH 1 STA.
00+00 to 130+00

UPLAND

REACH 2 STA.
130+00 to 160+00

REACH 6 STA.
410+00 to 452+00

WETLAND

REACH 3 STA.
160+00 to 310+00

REACH 5 STA.
370+00 to 410+00

24-WL-1192(R2) & 25-WQC-0023

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8/27/2026

MPD

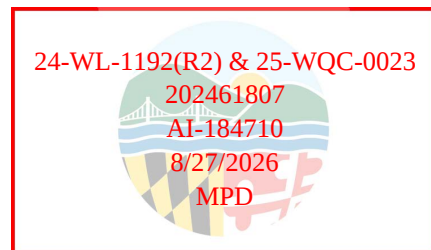
REACH 4 STA.
310+00 to 370+00

Sheet 18 of 67

Stone Sizing for James Island Perimeter Dikes

COLOR	REACH	STATIONS	LENGTH (LF)	CREST ELEV. (MLLW)	CREST ELEV. (NAVD88)	TOE ARMOR (W50 LBS)	SLOPE ARMOR (W50 LBS)	CREST ARMOR (W50 LBS)	LEE SIDE ARMOR (W50 LBS)
	1	00+00 TO 130+00	13,000	11	10.2	3,300	2,300	50	50
	2	130+00 TO 160+00	3,000	11	10.2	2,300	1,600	50	50
	3	160+00 TO 310+00	15,000	11	10.2	750	750	50	50
	4	310+00 TO 370+00	6,000	11	10.2	2,300	1,600	50	50
	5	370+00 TO 410+00	4,000	11	10.2	3,300	2,300	50	50
	6	410+00 TO 452+00	4,200	11	10.2	2,300	1,600	50	50

NOTE: The crest elevations shown are for the interior edge of the crest. The 1/4" per foot slope will rise to the exterior of the crest.



A

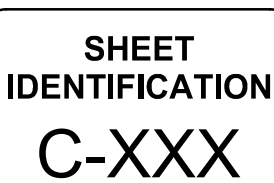


REACH 3 – STA. 400+00 TO STA. 420+00 (2,000 LF)



NOTES:

- 1) NOT TO SCALE
- 2) DETAILS ARE APPROXIMATE AND SUBJECT TO CHANGE AS THE DESIGN DEVELOPS



24-WL-1192(R2) & 25-WQC-0023



N.O.B 14-5

Sheet 21 of 67

UPLAND SPILLWAY #1

LAT: 38.541503°
LONG: -76.345361°

UPLAND SPILLWAY #2

LAT: 38.539671°
LONG: -76.328036°

ACCESS CHANNEL

BREAKWATER

TURNING BASIN

BREAKWATER

JAMES ISLAND ECOSYSTEM RESTORATION PROJECT

TRANSITION ZONE

PERSONNEL
PIER

N.O.B. 15 - 2

NORTHERN TIDAL INLET

LAT: 38.523732°
LONG: -76.338787°

FACILITIES

CENTRAL TIDAL INLET

LAT: 38.516308°
LONG: -76.342285°

SOUTHERN TIDAL INLET #1

LAT: 38.506762°
LONG: -76.343127°

N.O.B. 15 - 1

N.O.B
14-6

SOUTHERN TIDAL #2

LAT: 38.498638°
LONG: -76.346727°

4,000 FEET
.75 MILES

Sheet 19 of 65

● SPILLWAY

■ TIDAL INLET

--- MD OYSTER BARS

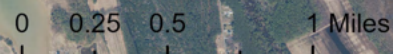
HYDROGRAPHIC SURVEY

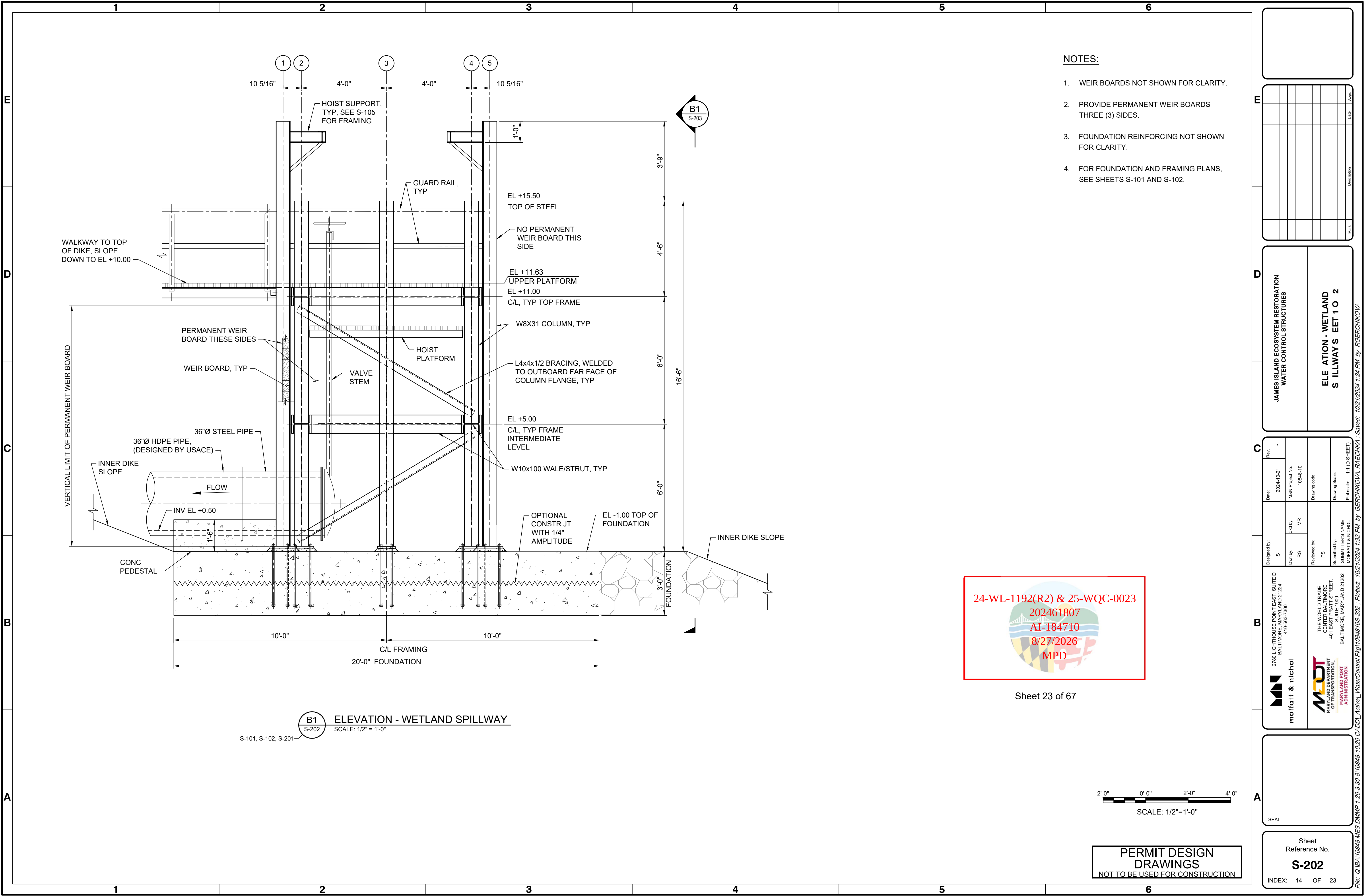
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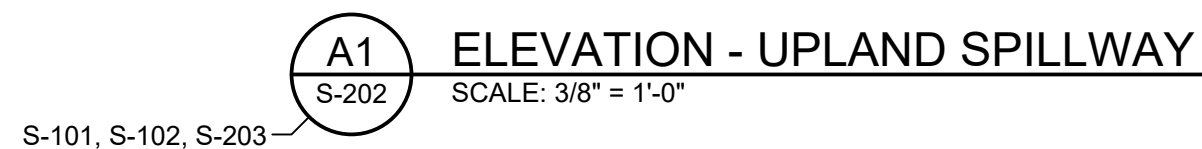
NOTES:

- 1) The breakwater jetties and submarine cable alignments are preliminary and subject to change as the design develops.
- 2) The number and location of tidal inlets and spillways structures are preliminary and subject to change as the design develops.
- 3) The location of the personnel pier and facilities are subject to change as the design develops.









4'-0" 0'-0" 2'-0" 4'-0"

SCALE: 3/8"=1'-0"

[illegible]

**JAMES ISLAND ECOSYSTEM RESTORATION
UPLAND SPILLWAYS**

**ELEVATION - SPILLWAY
SHEET 2 OF 3**

Designed by: IS	Date: 2024-10-21	Rev. -
	M&N Project No. 10846-10	
Drawn by: RG	Ckd by: MPR	Drawing code: PS
Submitted by: SUBMITTERS NAME MOFFATT & NICHOL		
Drawing Scale: Plot scale: 1:1 (D SHEET)		

Moffatt & Nichol
2780 LIGHTHOUSE POINT EAST, SUITE C
BALTIMORE, MARYLAND 21224
410-563-7300

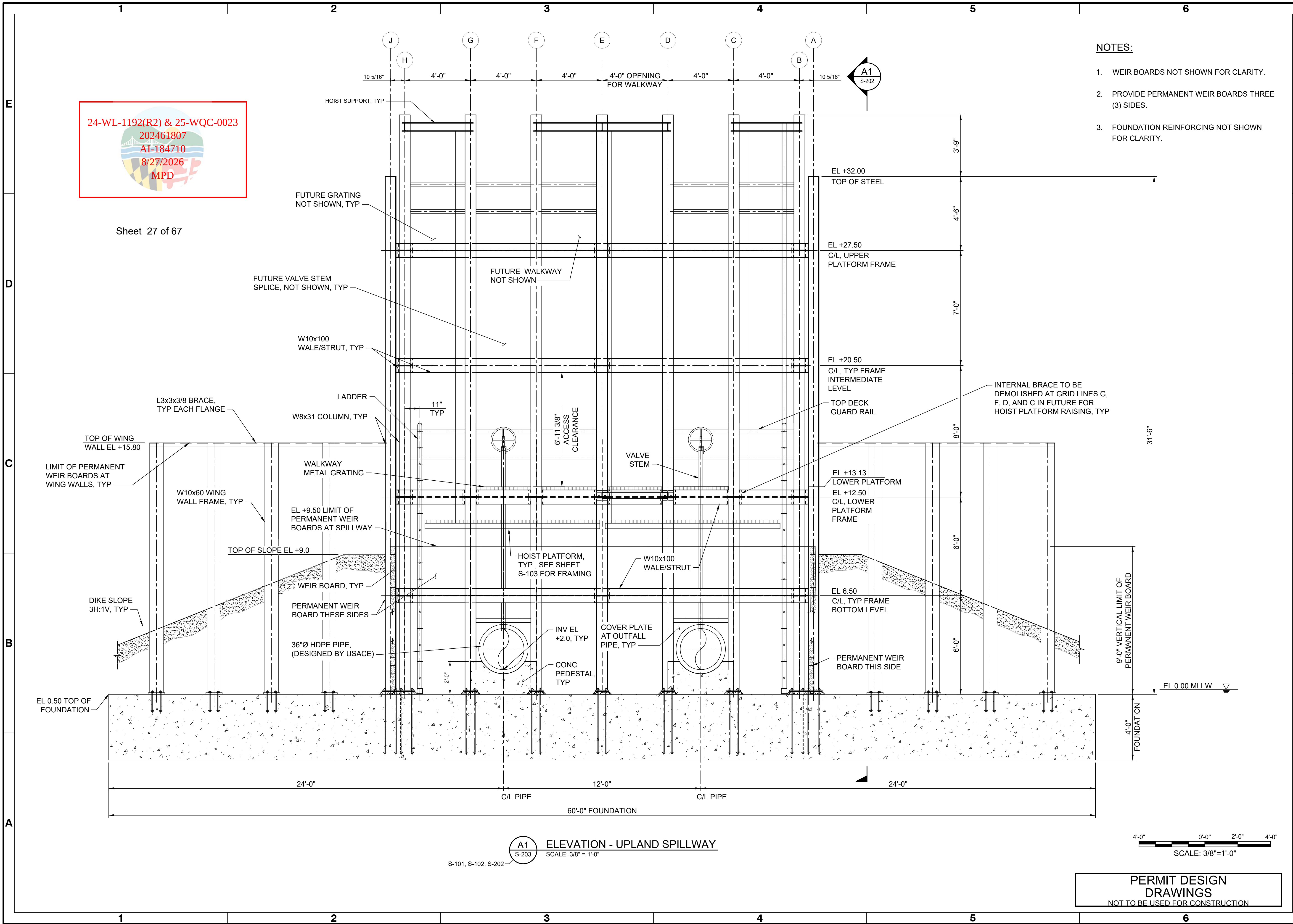
MDT
MARYLAND DEPARTMENT
OF TRANSPORTATION

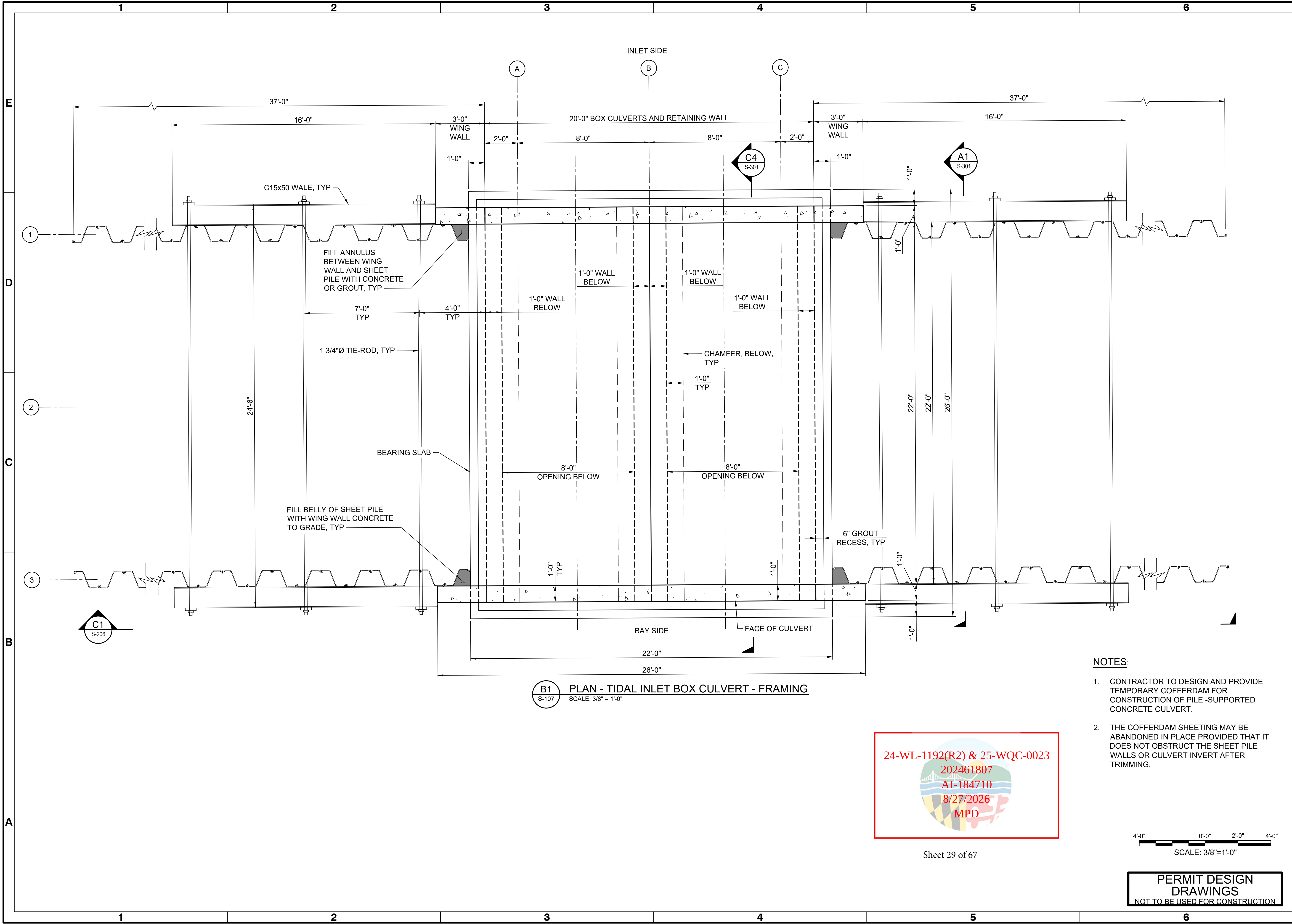
THE WORLD TRADE
CENTER BALTIMORE
401 EAST PRATT STREET,
SUITE 1900
BALTIMORE, MARYLAND 21202

MARYLAND PORT
ADMINISTRATION

SEAL

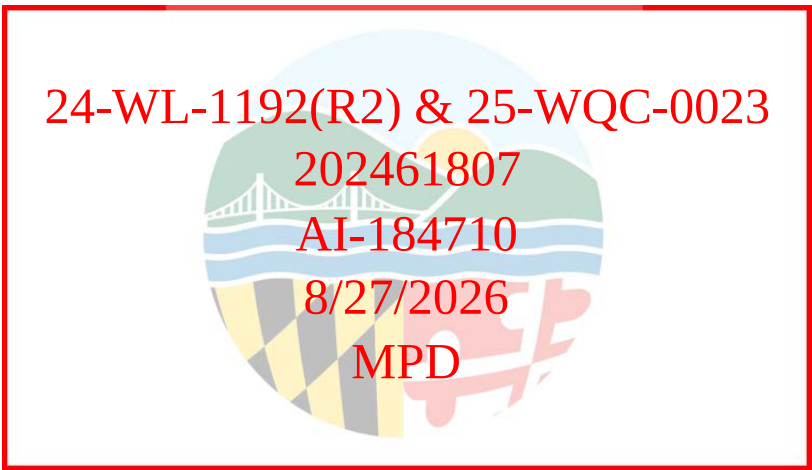
Sheet
Reference No.
S-202
INDEX: 16 OF 23





B1
S-107
PLAN - TIDAL INLET BOX CULVERT - FRAMING
SCALE: 3/8" = 1'-0"

- NOTES:**
- CONTRACTOR TO DESIGN AND PROVIDE TEMPORARY COFFERDAM FOR CONSTRUCTION OF PILE -SUPPORTED CONCRETE CULVERT.
 - THE COFFERDAM SHEETING MAY BE ABANDONED IN PLACE PROVIDED THAT IT DOES NOT OBSTRUCT THE SHEET PILE WALLS OR CULVERT INVERT AFTER TRIMMING.



4'-0" 0'-0" 2'-0" 4'-0"
SCALE: 3/8"=1'-0"

**PERMIT DESIGN
DRAWINGS**
NOT TO BE USED FOR CONSTRUCTION

JAMES ISLAND ECOSYSTEM RESTORATION WATER CONTROL STRUCTURES		LAN - TIDAL INLET BOX CULVERT RAMIN	
2760 LIGHTHOUSE POINT EAST, SUITE D BALTIMORE, MARYLAND 21224 410-565-7200		THE WORLD TRADE CENTER BALTIMORE, MARYLAND 21202 401 EAST STREET, SUITE 1900 BALTIMORE, MARYLAND 21202	
Designed by: IS	Drawn by: RG	Reviewed by: PS	Submitted by: MOFFATT & NICHOL
Date: 2024-10-21	M&N Project No. 10848-10	Drawing code:	Drawing Scale: 1" = 10' (0 SHEET)
File: C:\BAI10848\MES DMMP 1-20-3-30-81\0848-10\20 CADD\ Active\ WaterControl Pkg10848\05-107 - Plotted: 10/21/2024 1:31 PM by GERCHIKOVA, RAECHKA : Saved: 10/21/2024 1:24 PM by ISAMPSON			

Sheet
Reference No.
S-10
INDEX: 12 OF 23

[illegible]

**JAMES ISLAND ECOSYSTEM RESTORATION
WATER CONTROL STRUCTURES**

SECTION - BOX CUL ERT

 moffatt & nichol	7390 LIGHTHOUSE POINT EAST, SUITE D BALTIMORE, MARYLAND 21224 410-563-3300	Designed by:	IS	Date:	2024-10-21	Rev:	-
		Drawn by:	RG	Check by:	MR	M&N Project No.	10848-10
 MDOT MARYLAND DEPARTMENT OF TRANSPORTATION MARYLAND PORT ADMINISTRATION		Reviewed by:		Drawing code:			
		Submitted by:		Drawing Scale:			
		SUBMITTERS NAME		Plot scale: 1:1 (D SHEET)			
		MOFFATT & NICHOL					

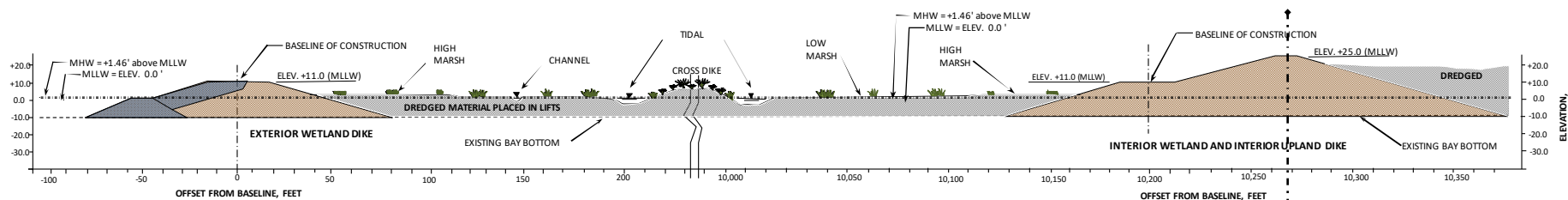
SEAL

Sheet
Reference No.

S-301

INDEX: 19 OF 23

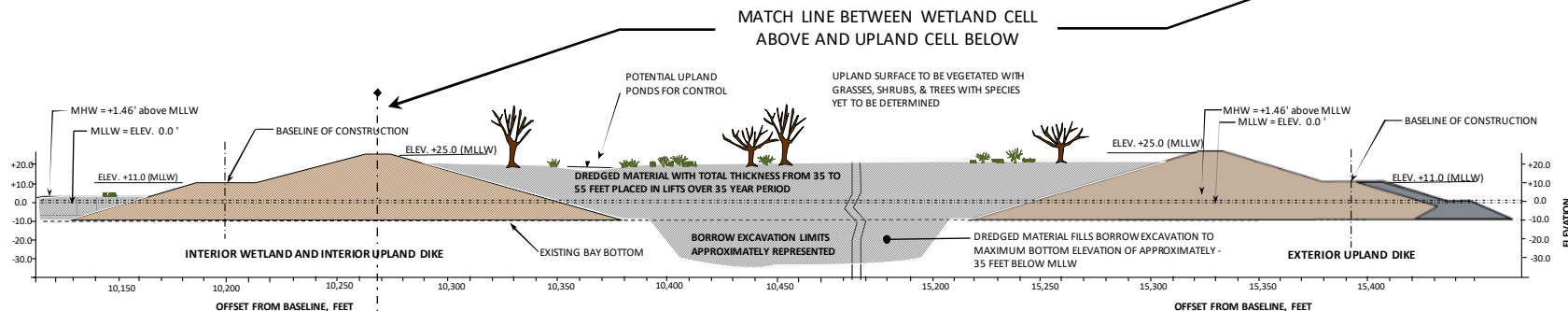
File: Q:\BAI\10848 MES DMMP 1-20-3-30-81\10848-10120 CADDI Active WaterControl Pkg\10848\10S-301 : Plotted: 10/21/2024 1:32 PM by GERCHIKOVA, RAECHKA : Saved: 10/21/2024 1:24 PM by RGERCHIKOVA



TYPICAL SECTION THROUGH WETLAND CELL

SCALE APPROXIMATELY AS SHOWN WITH BREAKS IN LATERAL SCALE WITHIN CELLS

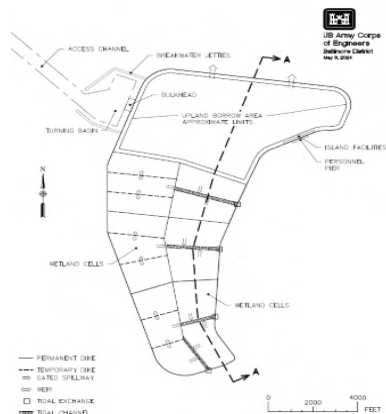
NOTE: LOCATIONS AND SCALES OF VARIOUS WETLAND FEATURES SHOWN ON THIS SECTION ARE FOR ILLUSTRATION ONLY



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



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 55% of the island footprint. Wetland habitat will consist of 50% high marsh and 50% low marsh (includes all open water and habitat islands). To ensure maximum habitat value and marsh resiliency, elevations will vary for each wetland cell and will be selected using lessons learned at Poplar Island, the most updated models and scientific research, and current sea level and projected rates of change.

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 45% of the island footprint. 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

24-WL-1192(R2) & 25-WQC-0023

202461807

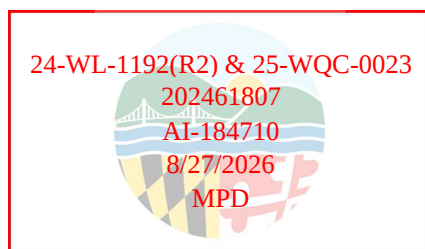
AI-184710

8/27/2026

MPD

James Island Borrow Area Dredged Material Management Plan

Sand is required for construction of the James Island restoration project, specifically for creation of the dikes. Subsurface exploration in the project footprint indicates a sand deposit having a thickness ranging from approximately 15 to 25 feet within the borrow area limits, which is the upland portion of the restoration project (see plan view and cross section below). Lenses of silts and clays are also present throughout the footprint. The existing bottom elevation within the borrow area ranges from -10 ft Mean Lower Low Water (MLLW) near the southern boundary to -15 ft MLLW near the northern boundary. Hydraulic dredging of approximately 17 million cubic yards of sand is anticipated. Borrow material will consist primarily of sand that will be temporarily stockpiled in the Northern Wetland Complex of James Island. Where lenses of silts and clays are encountered, they will be stockpiled within a future wetland cell separate from the sand stockpile. The final bottom elevation after dredging is expected to range from -25 to -35 ft below MLLW (no sand any deeper). Side slopes will be no steeper than 3H:1V and will be at least 400 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 MLLW for the upland cell.



**SHEET
IDENTIFICATION
C-XXX**

James Island Access Channel and Turning Basin Dredged Material Management Plan

The James Island access channel, turning basin, and bulkhead are required in order to receive barge deliveries and pickups and to stage the dredged material scows and unloaders during inflow operations. The existing bay bottom for the proposed turning basin varies in depth from -10 ft to -13 ft Mean Lower Low Water (MLLW). The existing bay bottom for the proposed access channel varies in depth from -13 ft to -26 ft MLLW. The bottom extents of the turning basin are 2,500 ft long by 1,000 ft wide. The bottom extents of the access channel are 8,400 ft long by 600 ft wide (see location figure). Both the turning basin and access channel will be dredged to a final grade of -28 ft MLLW (see cross section). The approximate amount of material to be dredged is 3.6 – 4.3 million cubic yards. The Bay bottom material to be dredged consists of multiple layers of sands, silts, and clays. The material will be hydraulically dredged and stockpiled into the James Island northern wetland complex. Suitable (sandy) material will be stockpiled in one area for recovery and used for dike construction. Unsuitable (silty/clayey) material will be stockpiled separately for use in developing the wetlands. A programmatic agreement was developed in conjunction with Maryland Historical Trust which will include cultural resource monitoring during the dredging process.

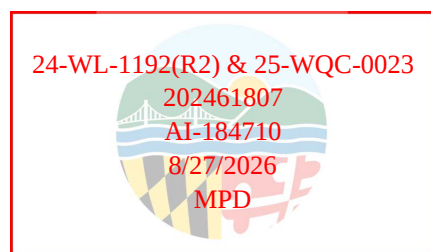
Existing geotechnical borings have identified trace shell fragments in sampling locations throughout the access channel and turning basin at varying depths and thicknesses. Trace shell fragments are defined as small, broken pieces of shell mixed with other substrates. The boring data available does not suggest the presence of dense shell deposits or the presence of whole shells. The data does not support or conclude a shell layer is present in the access channel or the turning basin; however, the US Army Corps of Engineers and Maryland Port Administration are currently investigating methods to segregate shell during the dredging and placement process should shell be found for use in oyster restoration efforts.

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202461807
AI-184710
8/27/2026
MPD





US Army Corps
of Engineers
Baltimore District
March 2026



ACCESS CHANNEL
600FT x 8400 FT
-28FT MLLW

BREAKWATER JETTIES

BULKHEAD

UPLAND BORROW AREA
APPROXIMATE LIMITS
-35FT MLLW

TURNING BASIN
1000FT x 2500FT
-28FT MLLW

PERSONNEL PIER

ISLAND FACILITIES

WETLAND CELLS



— PERMANENT DIKE

- - - TEMPORARY DIKE

=> GATED SPILLWAY

<=> WEIR

□ TIDAL EXCHANGE

▨ TIDAL CHANNEL

JAMES ISLAND ECOSYSTEM RESTORATION PROJECT

N.O.B. 14-5

24-WL-1192(R2) & 25-WQC-0023

202461807

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MPD

Sheet 39 of 67

Sheet 37 of 65

MD OYSTER BARS
HYDROGRAPHIC
SURVEY

FEET

- LESS THAN -20
- 15 TO -20
- 10 TO -15
- 8 TO -10

NOTES:

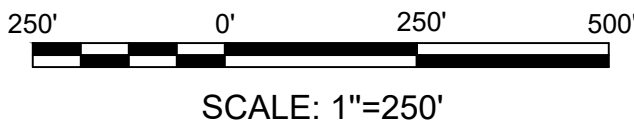
The breakwater jetties are preliminary and
subject to change as the design develops.

0 500 1,000 2,000 Feet



24-WL-1192(R2) & 25-WQC-0023
202461807
AI-184710
8/27/2026
MPD

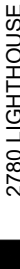
Sheet 40 of 67



PERMIT DESIGN DRAWINGS
NOT TO BE USED FOR CONSTRUCTION

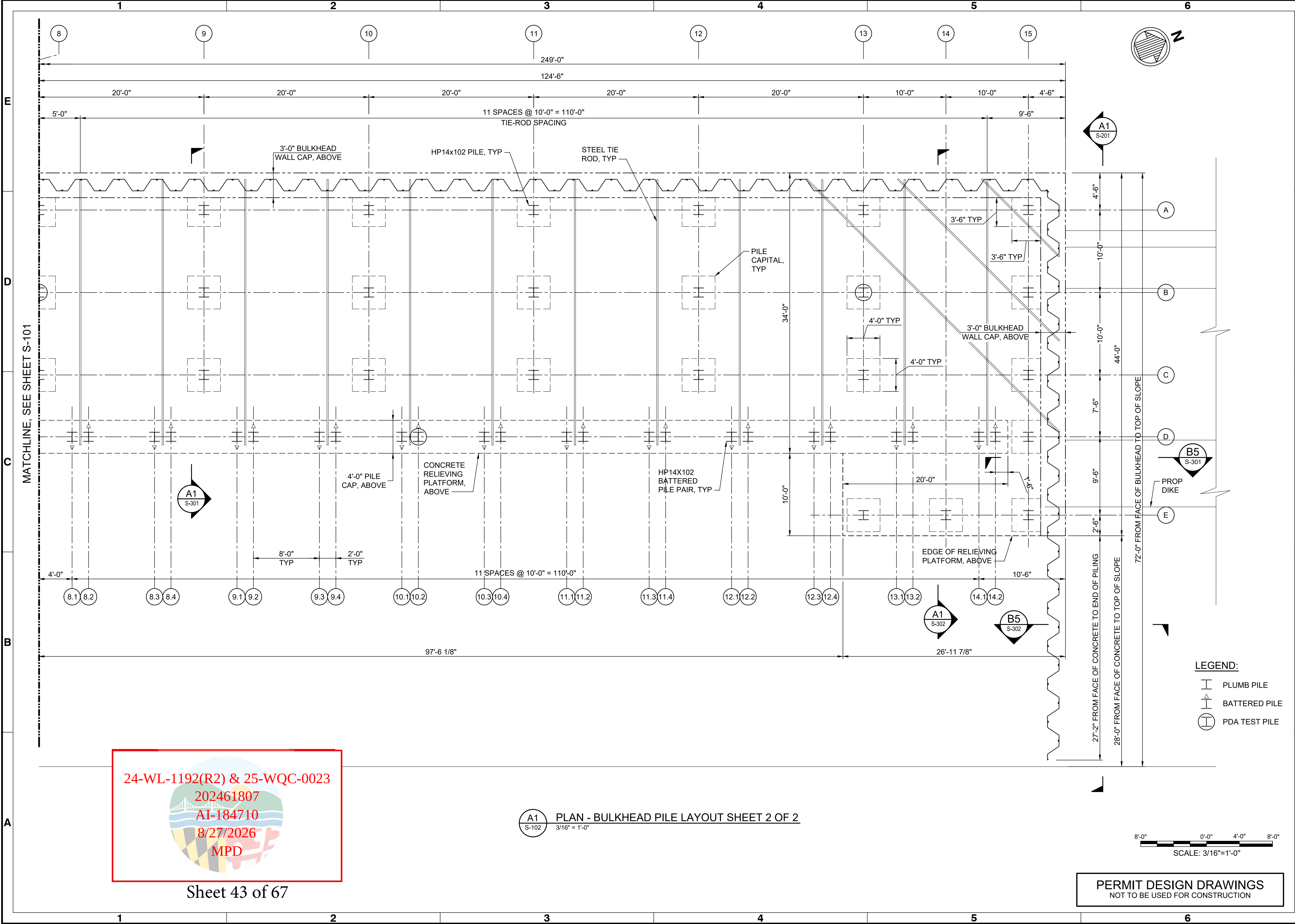
[illegible]

JAMES ISLAND ECOSYSTEM RESTORATION BULKHEAD	PLAN - GENERAL ARRANGEMENT BULKHEAD AND DOLPHINS
--	---

 moffatt & nichol	2780 LIGHTHOUSE POINT EAST, SUITE D BALTIMORE, MARYLAND 21224 410-565-7300	Designed by:		Date:	Rev:
		IS		2024-10-21	
		Dwn by:	Clid by:	M&N Project No.	
		RG	MR	10848-10	
		Reviewed by:		Drawing code:	
 MDOT MARYLAND DEPARTMENT OF TRANSPORTATION MARYLAND PORT ADMINISTRATION	THE WORLD TRADE CENTER BALTIMORE 401 E. BALTIMORE STREET, SUITE 1600 BALTIMORE, MARYLAND 21202	Submitted by:		Drawing Scale:	
		SUBMITTERS NAME			
		MOFFATT & NICHOL		Plot scale: 1:1 (D SHEET)	

Sheet
Reference No.
G-102
INDEX: 4 OF 20

 moffatt & nichol		Designed by: IS		Date: 2024-10-21	Rev. -
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		Reviewed by:		Drawing code:	
		Submitted by:		Drawing Scale:	
		SUBMITTER'S NAME MOFFATT & NICHOL		Plot scale: 1"=10 SHEET	
 MDOT MARYLAND DEPARTMENT OF TRANSPORTATION MARYLAND PORT ADMINISTRATION		THE WORLD TRADE CENTER BALTIMORE 401 E. BALTIMORE STREET, SUITE 1900 BALTIMORE, MARYLAND 21202			
SEAL					
Sheet Reference No. S-101					
INDEX: 8 OF 20					



Rev.		Date	2024-10-21	MAN Project No.	10848-10	Drawing code	Drawing Scale	1:1 (0 SHEET)
A1		IS	RG	MR	PS	Submitted by	MOFFATT & NICHOL	Per scale

JAMES ISLAND ECOSYSTEM RESTORATION BULKHEAD

PLAN - BULKHEAD PILE LAYOUT SHEET 2 OF 2

THE WORLD TRADE CENTER BALTIMORE
401 EAST BALTIMORE STREET, SUITE 1900
BALTIMORE, MARYLAND 21202

MDOT
MARYLAND DEPARTMENT OF TRANSPORTATION
ADMINISTRATION

2760 LIGHTHOUSE POINT EAST, SUITE D
BALTIMORE, MARYLAND 21224
410-565-7200

moffatt & nichol

SEAL

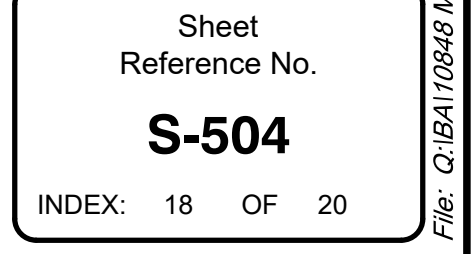
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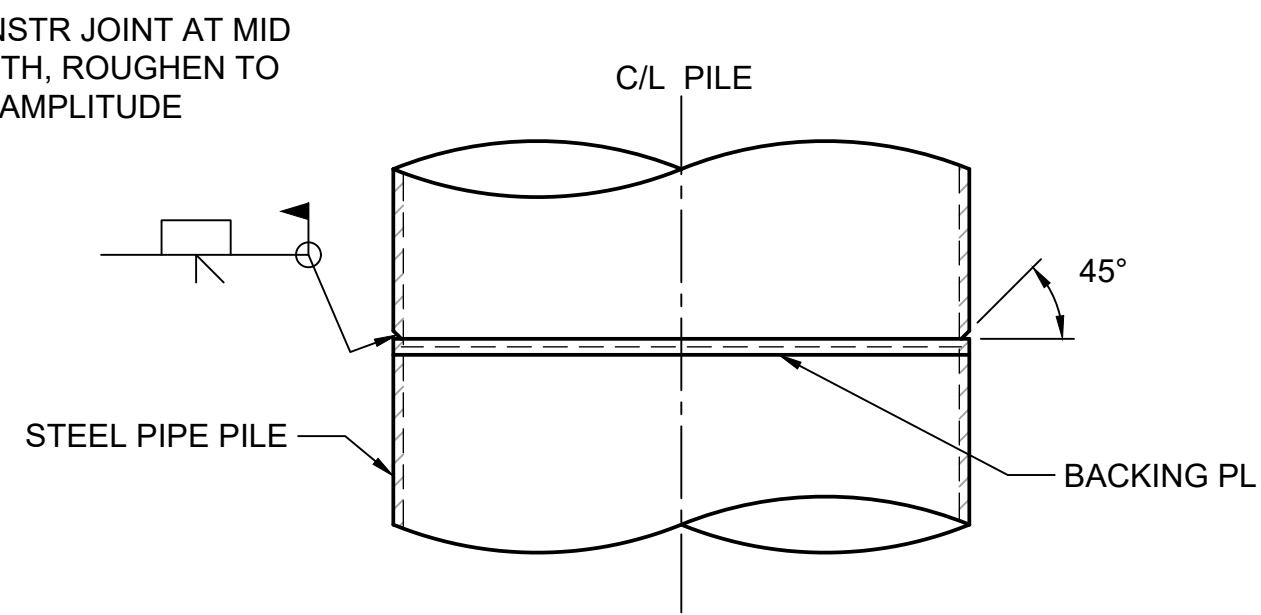
INDEX: 9 OF 20

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[illegible]

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING





B1 SECTION - DOLPHIN PILE REINFORCING
S-505 SCALE: 1" = 1'



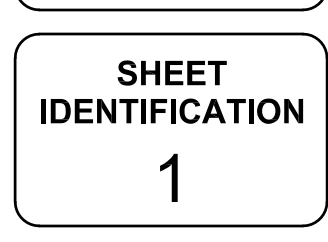
MPD

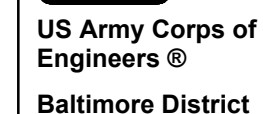
PERMIT DESIGN DRAWINGS
NOT TO BE USED FOR CONSTRUCTION

Sheet 50 of 67

Sheet
Reference No.
S-505
INDEX: 19 OF 20

DRAWING SCALES SHOWN BASED ON 22"x34" DRAWING



[illegible]

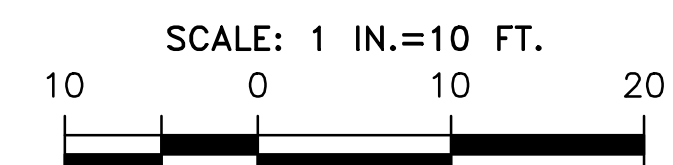
US ARMY CORPS OF ENGINEERS BALTIMORE DISTRICT BALTIMORE, MARYLAND	DESIGN BY:		ISSUE DATE:	
	DRAWN BY:	CKD BY:	SOLICITATION NO.:	
ENGINEERING DIVISION	SBMT BY:	PLOT DATE:	CONTRACT NO.:	
	PLOT SCALE:			
	1" = 10'			
SIZE:		FILE NAME:		BREAKWATER DWG
22" x 34"				

DORCHESTER COUNTY MARYLAND
MID-CHESAPEAKE BAY ECOSYSTEM RESTORATION
PROJECT AT JAMES ISLAND
BREAKWATER JETTIES
ROUNDED END PLAN

**SHEET
IDENTIFICATION**

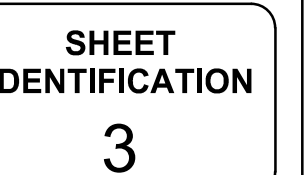
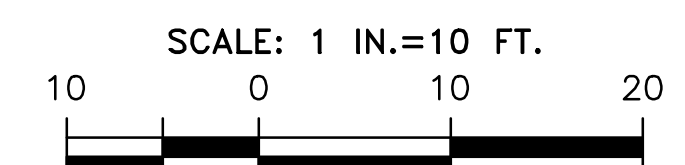
ROUNDED END OF
BREAKWATER JETTY (TYPICAL)

NOTE: BREAKWATER JETTY DETAILS ARE PRELIMINARY PENDING FURTHER DESIGN.





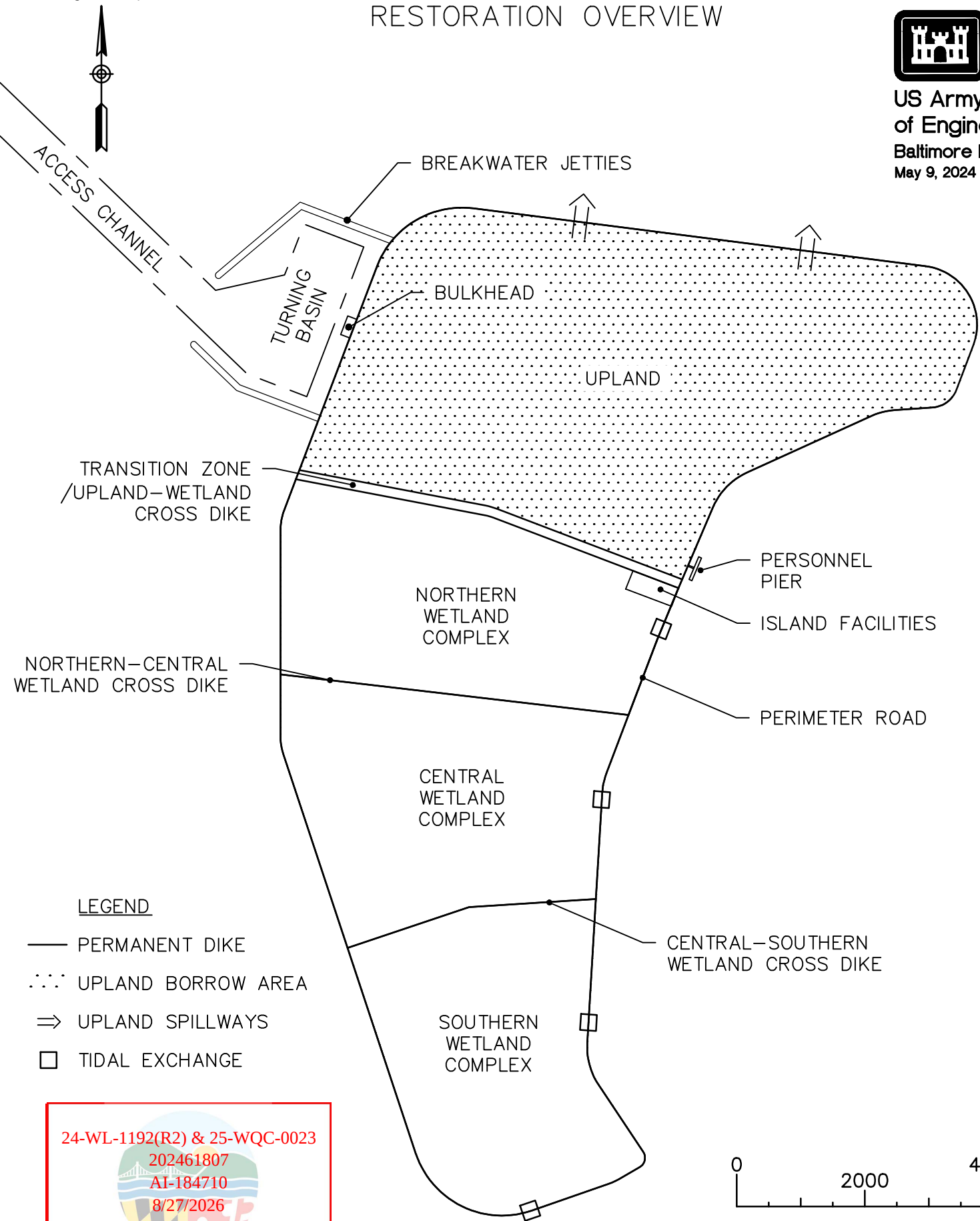
NOTE: BREAKWATER JETTY DETAILS ARE
PRELIMINARY PENDING FURTHER DESIGN.



RESTORATION OVERVIEW



US Army Corps
of Engineers
Baltimore District
May 9, 2024



LEGEND

- PERMANENT DIKE
- ... UPLAND BORROW AREA
- ⇒ UPLAND SPILLWAYS
- TIDAL EXCHANGE

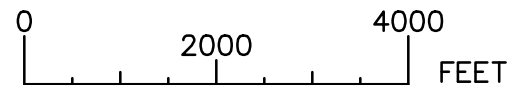
24-WL-1192(R2) & 25-WQC-0023

202461807

AI-184710

8/27/2026

MPD



NOTES:

- 1) DETAILS ARE SUBJECT TO CHANGE AS THE DESIGN DEVELOPS.
- 2) THE LAYOUT AND FEATURES MAY CHANGE OVER TIME AS THE PROJECT USES ADAPTIVE MANAGEMENT.



MPD

A

B1
S-301

SCALE: 3/16" = 1'-0"



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SEAL

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James Island

Upland

Wetland

Perimeter

Infrastructure

Breakwater

Bulkhead

Personnel Pier

Utility Cable Pathway
(electrical/
telecommunications)Access Channel and
Turning BasinMaryland Historic Oyster
Bars

Yates Oyster Bars

Legal N.O.B.s

SAV Composite 2018 to <
2022Anticipated SAV
Composite 2019 to 2023

24-WL-1192(R2) & 25-WQC-0023

202461807

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MPD

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TRAVERS

0 1,000 2,000 4,000
Feet

OYSTER CREEK

MARSHALL

N.O.B. 15-1
CATORS

GRANGER

N.O.B. 14-6

HENPECK

The utility yard
is expected to
be located in
this area.

Engineering with Nature Options Proposed for Further Evaluation

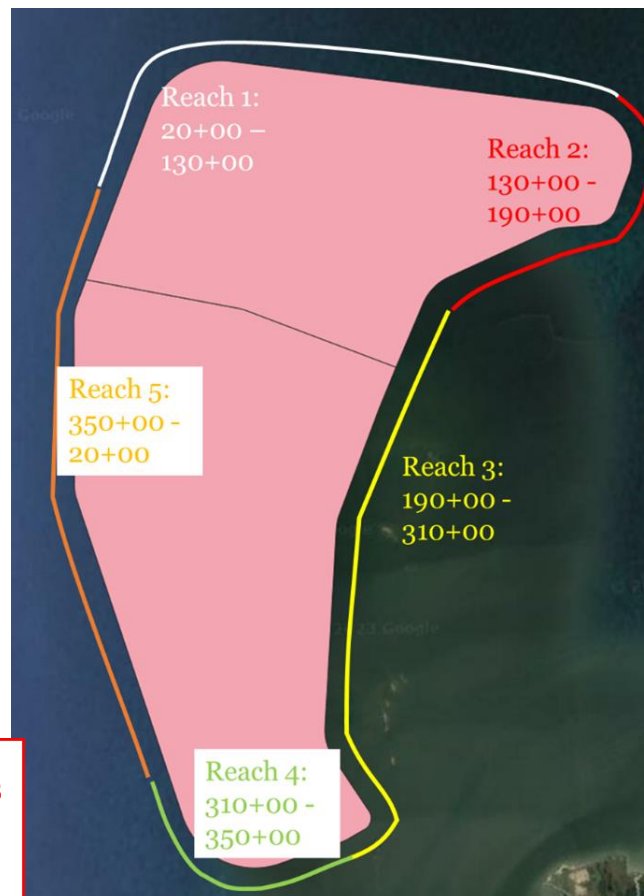
Alternative 1 – Mixed-measures: combination of tombolo and living shoreline/rock sill in the wetlands portion of Reach 3 with living breakwaters/reefs offshore of tidal inlets and perimeter toe dike in selected areas

Alternative 2 – Living shoreline option: living shoreline/rock sill for full extent of the wetlands portion of Reach 3 with living breakwaters/reefs offshore of tidal inlets and perimeter toe dike in selected areas

Alternative 3 – Lower stone dike with adjacent offshore submerged breakwaters in the wetlands portion of Reach 3 with living breakwaters/reefs offshore of tidal inlets and perimeter toe dike in selected areas (funding limited consideration)

Alternative 4 – Funding-limited option: limited extents of living shoreline/rock sill adjacent to tidal inlets in the wetlands portion of Reach 3 with living breakwaters/reefs offshore of tidal inlets and perimeter toe dike in selected areas

Alternative 5 – Reef-only option: only living breakwaters/reefs offshore of tidal inlets and perimeter toe dike in selected areas



24-WL-1192(R2) & 25-WQC-0023

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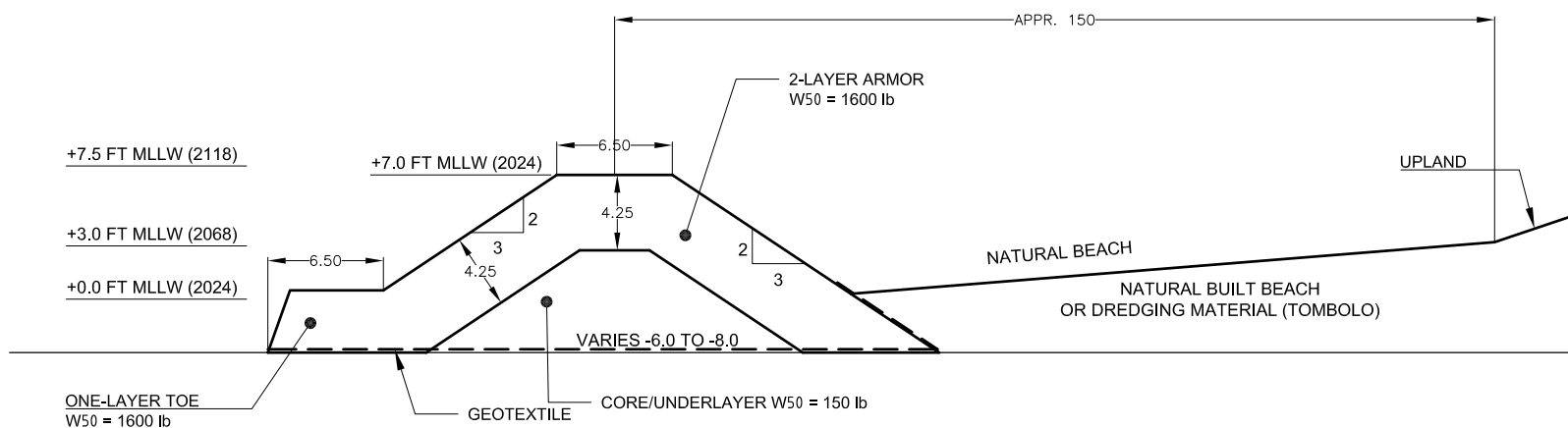
8/27/2026

MPD



US Army Corps
of Engineers
Baltimore District
November 2024

SEGMENTED BREAKWATER/TOMBOLO TYPICAL SECTION (EWN ALTERNATIVE 1)



NOTES:

- 1) DIMENSION UNITS IN FEET.
- 2) THIS FIGURE IS UNDER DEVELOPMENT AND SUBJECT TO CHANGE AS THE DESIGN PROGRESSES.
- 3) NOT TO SCALE.

24-WL-1192(R2) & 25-WQC-0023

202461807

AI-184710

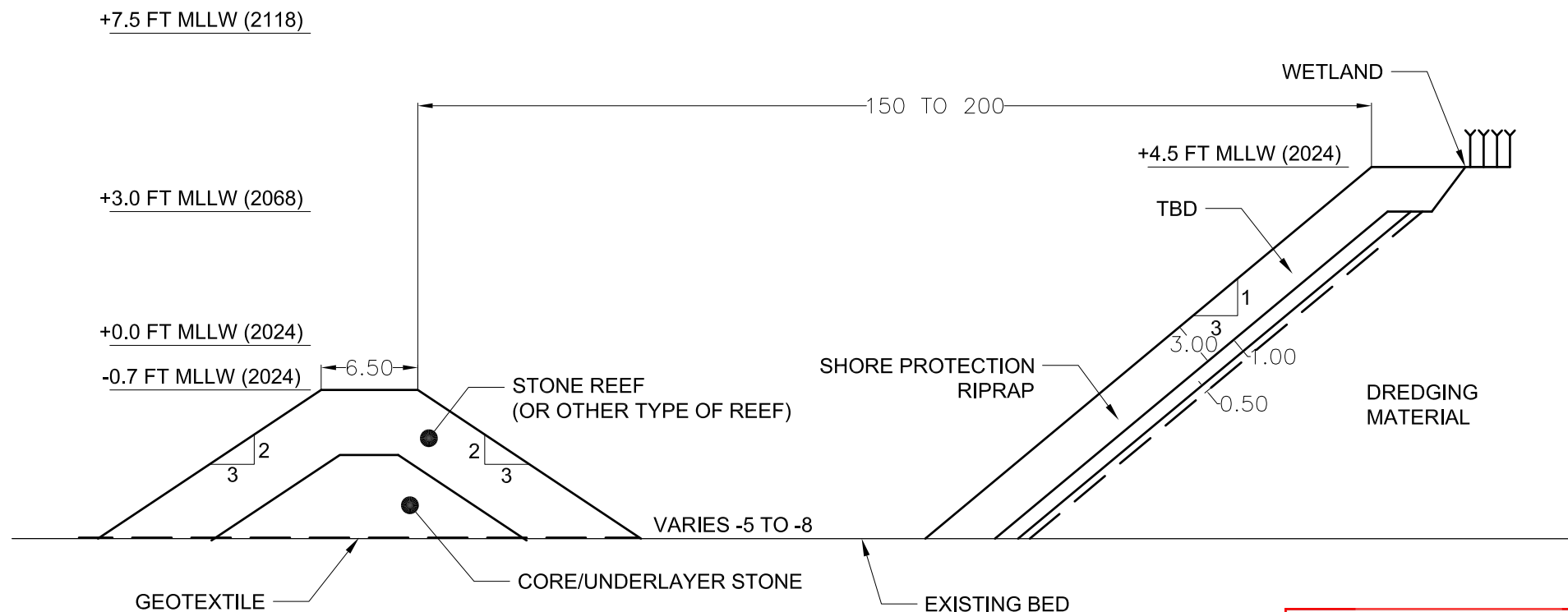
8/27/2026

MPD



US Army Corps
of Engineers
Baltimore District
November 2024

LOWER ROCK SILL WITH SUBMERGED OFFSHORE REEF TYPICAL SECTION (EWN ALTERNATIVE 3)



NOTES:

- 1) DIMENSION UNITS IN FEET.
- 2) THIS FIGURE IS UNDER DEVELOPMENT AND SUBJECT TO CHANGE AS THE DESIGN PROGRESSES.
- 3) NOT TO SCALE.

24-WL-1192(R2) & 25-WQC-0023

202461807

AI-184710

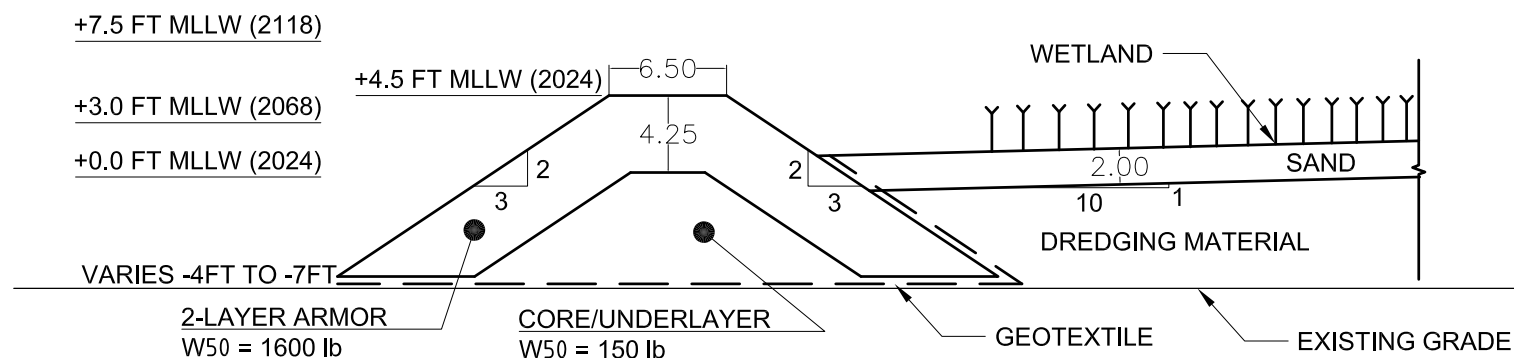
8/27/2026

MPD



US Army Corps
of Engineers
Baltimore District
November 2024

LIVING SHORELINE WITH ROCK SILL TYPICAL SECTION (EWN ALTERNATIVES 1, 2 & 4)



NOTES:

- 1) DIMENSION UNITS IN FEET.
- 2) THIS FIGURE IS UNDER DEVELOPMENT AND SUBJECT TO CHANGE AS THE DESIGN PROGRESSES.
- 3) NOT TO SCALE.

24-WL-1192(R2) & 25-WQC-0023

202461807

AI-184710

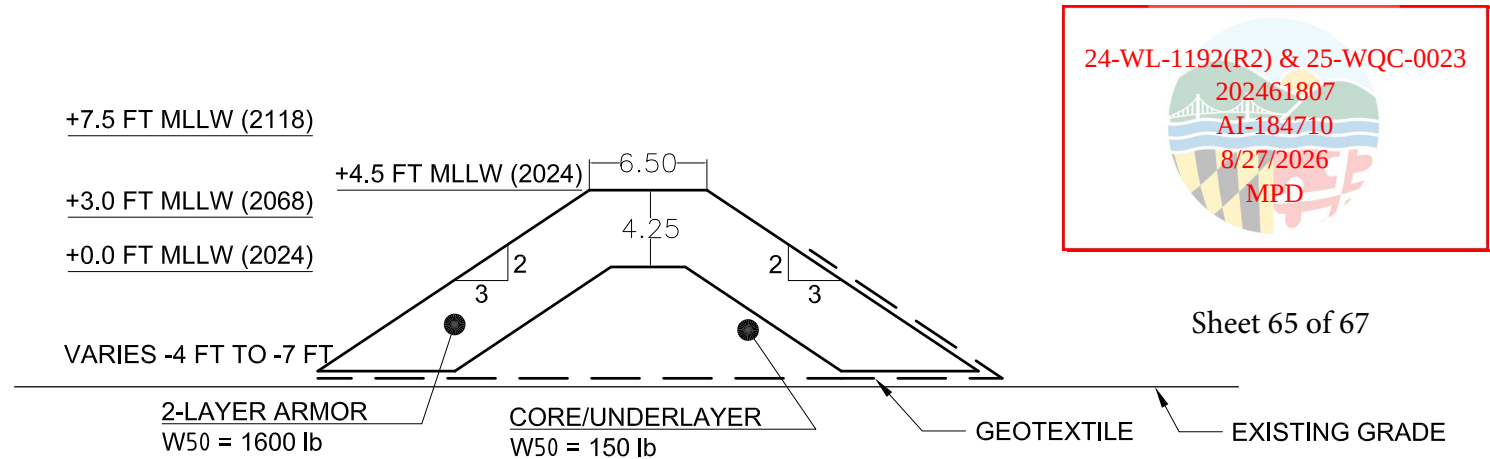
8/27/2026

MPD



US Army Corps
of Engineers
Baltimore District
November 2024

SUBMERGED STONE REEF TYPICAL SECTION (INCLUDED IN ALL EWN ALTERNATIVES)



NOTES:

- 1) DIMENSION UNITS IN FEET.
- 2) THIS FIGURE IS UNDER DEVELOPMENT AND SUBJECT TO CHANGE AS THE DESIGN PROGRESSES.
- 3) NOT TO SCALE.



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202461807
AI-184710
8/27/2026
MPD

Sheet 66 of 67

SCALE: 1"=3,000'

LEGEND

-  JAMES ISLAND ALIGNMENT
-  ACCESS CHANNEL/BULK HEAD
-  UPLAND/WETLAND DIVIDE
-  MONITORING LOCATION
- JI-BC-XX BENTHIC COMMUNITY
- JI-SQ-XX SEDIMENT QUALITY

Sample ID	Northing	Easting
JI-BC-01 & JI-SQ-01	306626.08	1495942.42
JI-BC-02 & JI-SQ-02	303378.53	1499906.89
JI-BC-03 & JI-SQ-03	310065.28	1494034.00
JI-BC-04 & JI-SQ-04	317334.09	1494655.73
JI-BC-05 & JI-SQ-05	318790.69	1496600.14
JI-BC-06 & JI-SQ-06	313576.83	1494403.17
JI-BC-07 & JI-SQ-07	315426.02	1504452.17
JI-BC-08 & JI-SQ-08	313919.59	1503814.61
JI-BC-09 & JI-SQ-09	310890.21	1501730.80
JI-BC-010 & JI-SQ-10	307720.41	1501253.09
JI-BC-REF & JI-SQ-REF	296506.50	1499360.30
JI-BC-11 & JI-SQ-11	314876.00	1506400.00
JI-BC-12 & JI-SQ-12	312882.00	1504780.00
JI-BC-13 & JI-SQ-13	310656.00	1504990.00
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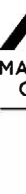
BENTHIC COMMUNITY & SEDIMENT QUALITY SAMPLE LOCATIONS

JAMES ISLAND
DORCHESTER, MARYLAND

ENVIRONMENTAL DREDGING & RESTORATION

259 Najoles Road - Millersville, Maryland 21108 - Office: 410-729-8200 - www.menv.com



 US Army Corps of Engineers® Baltimore District											
 MARYLAND DEPARTMENT OF TRANSPORTATION MARYLAND PORT ADMINISTRATION											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; height: 100px; vertical-align: top;"> DESIGN BY: US ARM CORPS OF E GI EERS BALTIMORE DIS RIC BALTIMORE, MAR LA D AT JAMES ISLAND FUTURE GEOTECHNICAL INVESTIGATION AREA FILE NAME: ENGINEERING DIVISION </td> <td style="width: 50%; vertical-align: top;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">ISSUE DATE: MARCH 2005</td> <td style="width: 50%;">CONTRACT NO.: ---</td> </tr> <tr> <td>DRAWN BY: ---</td> <td>P. OT DATE: ---</td> </tr> <tr> <td>SBMT BY: ---</td> <td>FILE / MAP NUMBER: ---</td> </tr> <tr> <td>P. OT SCA. E: ---</td> <td></td> </tr> </table> </td> </tr> </table>		DESIGN BY: US ARM CORPS OF E GI EERS BALTIMORE DIS RIC BALTIMORE, MAR LA D AT JAMES ISLAND FUTURE GEOTECHNICAL INVESTIGATION AREA FILE NAME: ENGINEERING DIVISION	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">ISSUE DATE: MARCH 2005</td> <td style="width: 50%;">CONTRACT NO.: ---</td> </tr> <tr> <td>DRAWN BY: ---</td> <td>P. OT DATE: ---</td> </tr> <tr> <td>SBMT BY: ---</td> <td>FILE / MAP NUMBER: ---</td> </tr> <tr> <td>P. OT SCA. E: ---</td> <td></td> </tr> </table>	ISSUE DATE: MARCH 2005	CONTRACT NO.: ---	DRAWN BY: ---	P. OT DATE: ---	SBMT BY: ---	FILE / MAP NUMBER: ---	P. OT SCA. E: ---	
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